



**Tutorial: BlackBerry Application
Development**

Sybase Unwired Platform 2.1

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Contents

Sybase Unwired Platform Tutorials	1
Task Flow	3
Getting Started	5
Installing Sybase Unwired Platform	5
Starting Sybase Unwired WorkSpace	5
Learning the Basics	6
Developing a BlackBerry Application	9
Installing the BlackBerry Java Plug-in for Eclipse	9
Generating Java Object API Code	9
Creating the BlackBerry Project	11
Configuring BlackBerry Application Properties	13
Copy Unwired Platform Files to Sample Project	13
Creating the User Interface	13
Creating a Launch Configuration for the Project	18
Testing the Device Application on the BlackBerry Simulator	19
Learn More about Sybase Unwired Platform	25
Index	27

Contents

Sybase Unwired Platform Tutorials

The Sybase® Unwired Platform tutorials demonstrate how to develop, deploy, and test mobile business objects, device applications, and mobile workflow packages. You can also use the tutorials to demonstrate system functionality and train users.

- Learn mobile business object (MBO) basics, and create a mobile device application:
 - *Tutorial: Mobile Business Object Development*
- Create native mobile device applications:
 - *Tutorial: BlackBerry Application Development*
 - *Tutorial: iOS Application Development*
 - *Tutorial: Windows Mobile Application Development*
- Create a mobile workflow package:
 - *Tutorial: Mobile Workflow Package Development*

The tutorials demonstrate a cross section of basic functionality, which includes creating MBOs, and using various Sybase Unwired WorkSpace development tools, independent development environments, and device types. Tutorial projects are available if you want the finished tutorial without going through the steps.

Task Flow

Use this tutorial to develop a BlackBerry device application using replication-based synchronization and custom coding. Test the application on a simulator.

Table 1. Eclipse tutorials

Task	Goals	Steps required to complete the task
Getting Started	<ul style="list-style-type: none"> • Install all required Unwired WorkSpace components and external resources. • Start Unwired Server and other platform services, if not already started. • Open the Mobile Development perspective, and become familiar with the views of the perspective, and the Mobile Application Diagram. 	<ul style="list-style-type: none"> • <i>Installing Sybase Unwired Platform</i> on page 5 • <i>Starting Sybase Unwired WorkSpace</i> on page 5 • (Optional) <i>Learning the Basics</i> on page 6 <hr/> <p>Note: These steps are prerequisites for the rest of this tutorial. You need to perform them only once.</p> <hr/>
Developing Database Mobile Business Objects	<ul style="list-style-type: none"> • Create a mobile application project and a connection to the database. • Create a mobile business object and deploy it to Unwired Server. 	<p>Complete the <i>Tutorial: Mobile Business Object Development</i>.</p> <hr/> <p>Note: This tutorial is a prerequisite for the remaining steps. You need to perform it only once.</p> <hr/>

Task Flow

Task	Goals	Steps required to complete the task
Developing a BlackBerry Application	Generate Java code for the BlackBerry platform, create the user interface for the application, and run it on the simulator.	<ul style="list-style-type: none">• <i>Installing the BlackBerry Java Plugin for Eclipse</i> on page 9• <i>Generating Java Object API Code</i> on page 9• <i>Creating the BlackBerry Project</i> on page 11• <i>Creating the User Interface</i> on page 13• <i>Creating a Launch Configuration for the Project</i> on page 18• <i>Testing the Device Application on the BlackBerry Simulator</i> on page 19

Getting Started

Install and learn about Sybase Unwired Platform and its associated components.

Complete the following tasks for all tutorials, but you need to perform them only once.

Installing Sybase Unwired Platform

Install Sybase Unwired Platform.

Before starting this tutorial, be sure you have all the requisite Unwired Platform components installed. For complete installation instructions, see:

- *Release Bulletin for Sybase Mobile SDK*
- *Installation Guide for Sybase Mobile SDK*
- *Release Bulletin for Runtime*
- *Installation Guide for Runtime*
- Install Sybase Mobile SDK, which includes:
 - Development support for Native Object API applications, HTML5/JS Hybrid (Mobile Workflow) applications, and OData SDK applications.
 - Sybase Unwired WorkSpace, the Eclipse-based development environment for MBOs and Mobile Workflows.
- Install Unwired Platform Runtime:
 - Data Tier (included with single-server installation)
 - Unwired Server

Starting Sybase Unwired WorkSpace

Start Unwired WorkSpace.

Select **Start > Programs > Sybase > Unwired Platform > Unwired WorkSpace**.

The Sybase Unwired WorkSpace opens in the Mobile Development perspective. The Welcome page displays links to product information, and to the product.

Next

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

Learning the Basics

Learn about Sybase Unwired WorkSpace and how to access help (optional).

Prerequisites

Start Unwired WorkSpace.

Task

1. In the Welcome page, click any of the links to explore the Unwired WorkSpace environment.
2. To enter the Sybase Unwired WorkSpace development environment, click **Start Development** or close the Welcome tab.

The default Mobile Development perspective provides ready access to most of the tools you need to create, update, and manage mobile business objects (MBOs). This table describes the main windows and views of the Mobile Development perspective. Note that not all the views are open initially; some views become available only after you begin developing your MBOs:

View or Window	Description
WorkSpace Navigator	A view of mobile application projects. Each project folder includes resources and data source references to which the MBOs are bound, personalization keys, and so on. Use this view to review and modify MBO-related properties.
Enterprise Explorer	A view of enterprise back-end resources, such as database servers, SAP® servers, and Sybase Unwired Server.

View or Window	Description
Mobile Application Diagram	<p>A graphical editor for designing mobile business objects. A Mobile Application Diagram is associated with each project.</p> <p>Use the Mobile Application Diagram to create MBOs (including attributes and operations), then define relationships with other MBOs. You can:</p> <ul style="list-style-type: none"> • Create MBOs in the Mobile Application Diagram using Palette icons and menu selections. Either bind to a data source now or defer binding. For example, using a top-down approach, you might model your MBOs before creating the data sources to which they bind. • Drag items from Enterprise Explorer and drop them onto the Mobile Application Diagram to create the MBO – quickly creates the operations and attributes automatically based on the data source of the items.
Palette	A view from which you can drag controls onto an open Mobile Application Diagram and define their attributes, operations, and relationships to your application.
Properties	A view that shows the properties of the object currently selected in the Mobile Application Diagram, and lets you edit them. You cannot create an MBO from the Properties view, but generally, most development and configuration is performed here.
Outline	An outline of the file that is currently open in an editor, listing structural elements. The contents are editor-specific.
Error Log	The error log captures Eclipse warnings and errors, including stack traces.
Problem	A view that displays problems, errors, or warnings.

3. To access the online help, click **Help > Help Contents** in the main menu bar.
4. Expand any of the documents that appear in the left pane.
Some documents are for Sybase Unwired Platform, while others are for the Eclipse development environment.

Developing a BlackBerry Application

Generate code for the BlackBerry platform, develop a BlackBerry device application with code, and test its functionality.

Prerequisites

Complete these tasks:

- Install Sybase Unwired Platform Mobile SDK and Runtime as indicated in *Getting Started* on page 5.
- Complete *Tutorial: Mobile Business Object Development*, which provides the foundation tasks for this tutorial:

Task

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

Installing the BlackBerry Java Plug-in for Eclipse

The BlackBerry Java Plug-in for Eclipse enables you to finish developing the BlackBerry application using BlackBerry smartphone-specific development, debugging, and simulation tools.

1. Download the BlackBerry Java Plug-in for Eclipse (full installer) from <http://us.blackberry.com/developers/javaappdev/>.
2. Run the downloaded installer and follow the instructions to install the BlackBerry Java Plug-in for Eclipse. Accept the default installation folder: do not specify the Unwired WorkSpace Eclipse directory.

Generating Java Object API Code

Generate object API code for the SUP101 mobile application project.

Prerequisites

You must be connected to both My Sample Database and My Unwired Server. Code generation fails if the server-side (run-time) enterprise information system (EIS) data sources referenced by the MBOs in the project are not running and available to connect to when you generate object API code.

Task

1. In Unwired WorkSpace, open the SUP101 mobile application project.
In WorkSpace Navigator, right-click the SUP101 folder and select **Open in Diagram Editor**.

Note: If you do not see the SUP101 project in Workspace Navigator, you must first complete the *Tutorial: Developing Mobile Business Objects*, which is a prerequisite for this tutorial.

2. If you are performing other tutorials, optionally add a new folder to the project in which to generate code for each device platform.
For example, in WorkSpace Navigator, expand SUP101 and add a RIM folder under Generated Code.
3. Right-click the SUP101 Mobile Application Diagram and select **Generate Code**.
4. Click **Next** to continue without a configuration.
5. Make sure the Customer MBO is selected, then click **Next**.
6. Specify the following configuration options:

Option	Description
Language	Select Java .
Platform	Select Java ME for BlackBerry .
Unwired Server	Select My Unwired Server .
Server domain	Select default.
Page size	Select 1024.
Package	Optionally enter a unique name for the Java package.
Destination	/SUP101/Generated Code, or another folder that you created for this device platform in Step 3.
Generate JavaDoc	Unselect for this tutorial.

7. Click **Finish**.
You can ignore the error icons that appear in WorkSpace Navigator under Generated Code/src/SUP101, and the error, `net cannot be resolved`, in the Problems view.

The error occurs because the package java file called by SUP101DB.jar is not yet in the project build path. The errors will be resolved later, when you build the application in the BlackBerry Java Plug-in for Eclipse.

8. Click **OK** in the Success dialog.

Creating the BlackBerry Project

Create a new BlackBerry project in the BlackBerry Java Plug-in for Eclipse, where you add functionality and finish developing the application.

Prerequisites

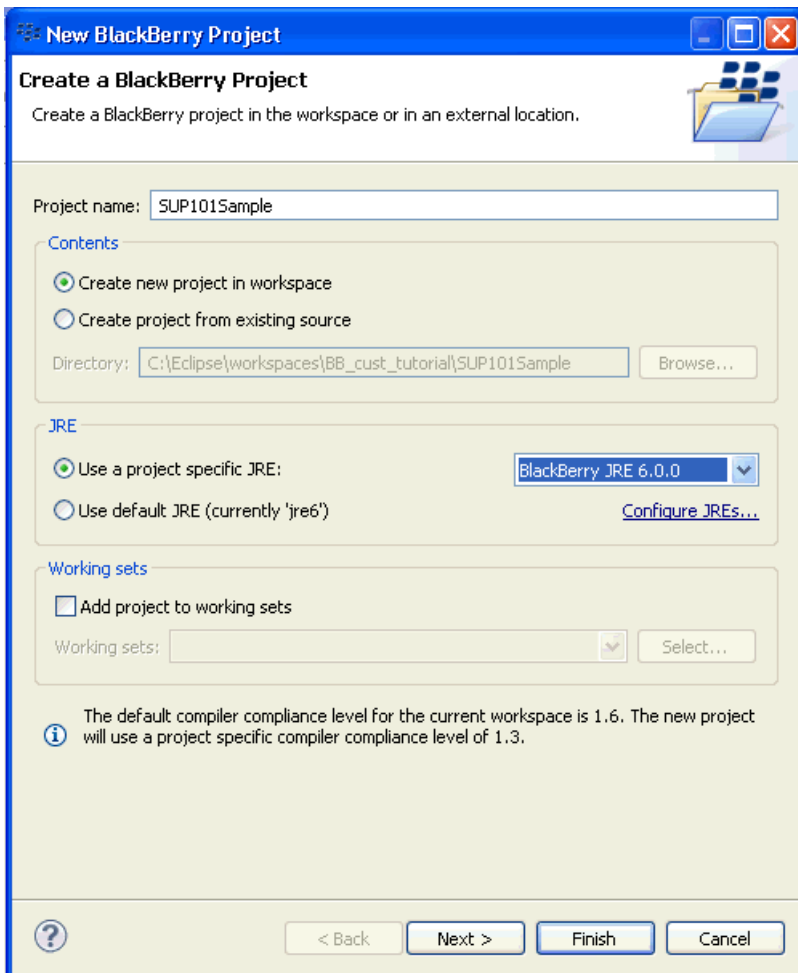
Install the BlackBerry Java Plug-in for Eclipse.

Task

1. Start the BlackBerry Java Plug-in for Eclipse.

Note: When the Eclipse Workspace Launcher prompts you to select a workspace, do not choose one that you are using with Unwired WorkSpace. If necessary, select or create a new workspace.

2. Click **File > New > BlackBerry Project**.
3. In the New BlackBerry Project wizard, use these values and click **Next**.
 - Name – enter SUP101Sample
 - Use a project specific JRE – select **BlackBerry JRE 6.0.0**



4. In the Java Settings page, modify the build path to point to the correct location for `sup_client_rim.jar` and `UltraLiteJ.jar`.
 - a) Click the **Libraries** tab.
 - b) Click **Add External Jars**.
 - c) Browse to `<UnwiredPlatform_InstallDir>\UnwiredPlatform\ClientAPI\RBS\BB`.
 - d) Select all the JAR files (for example, by pressing **Ctrl + A**), then click **Open**.
 - e) Click **Finish**.

Configuring BlackBerry Application Properties

Indicate the general BlackBerry properties used in this application.

1. In the BlackBerry Java Plug-in for Eclipse, open the SUP101Sample diagram editor.
2. In the Title, enter SUP101Sample.
3. (Optional) Enter a **Version**, **Vendor**, or **Description**.
4. Click **File > Save** to save the SUP101Sample descriptor file.

Copy Unwired Platform Files to Sample Project

Copy Unwired Platform BlackBerry runtime files and generated object API code to the SUP101Sample project.

1. In Windows Explorer, browse to `<UnwiredPlatform_InstallDir>\UnwiredPlatform\ClientAPI\RBS\BB`.
2. Copy the `CommonClient.cod`, `sup_client_rim.cod`, and `UltraLiteJ.cod` files.
3. Paste the copied COD files into the BlackBerry Java Plug-in simulator directory, located in `<BlackBerry_Eclipse_InstallDir>\plugins\net.rim.ejde.componentpackversion\components\simulator`.
4. In the workspace folder that you are using for Sybase Unwired WorkSpace, copy the `src` folder containing the files that you generated for the SUP101 mobile application project.
For example, `C:\Documents and Settings\user1\SUP-wksp\SUP101\Generated Code\RIM\src`.
5. Paste the copied folder into the SUP101Sample project folder in your BlackBerry Application Development workspace.
For example, `C:\Documents and Settings\user1\BB-wksp\SUP101Sample`.
In the BlackBerry Java Plug-in for Eclipse Package Explorer, the SUP101 and SUP101.intrnl folders are listed under the `src` folder.

If the copied folders are not listed, click **Refresh** or press **F5**

Creating the User Interface

Create the user interface for the SUP101Sample application.

Prerequisites

Obtain the text files that contain the code snippets you need to build the user interface from the SUP_BB_Custom_Dev_Tutorial_code.zip file. The code snippets are used to

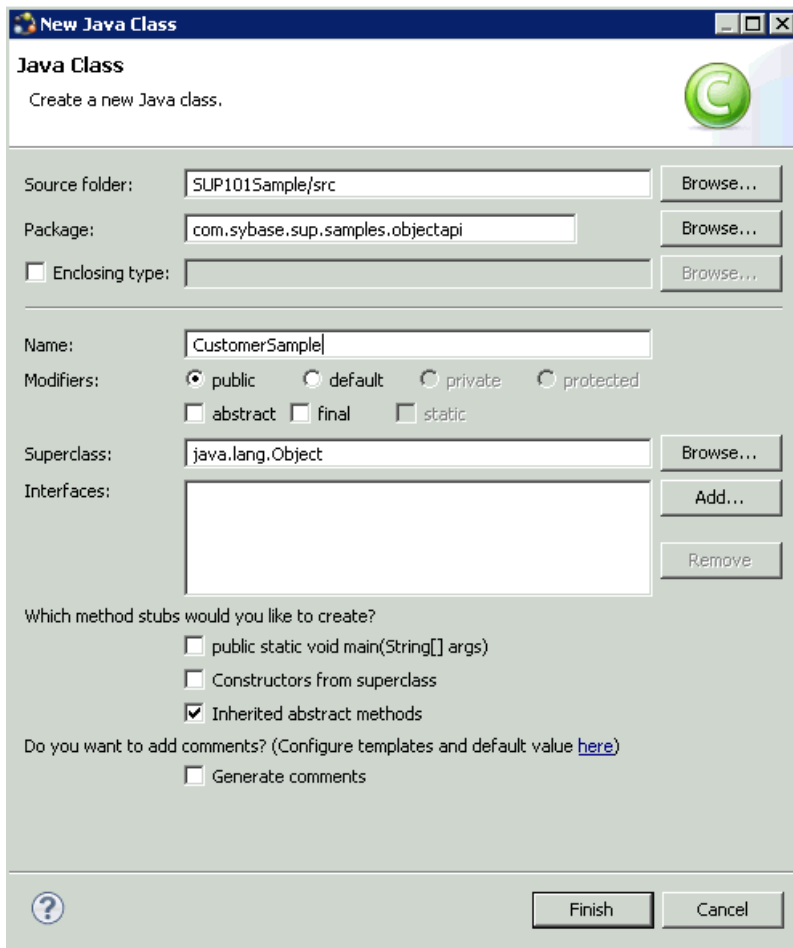
Developing a BlackBerry Application

create these classes: `CustomerSample`, `CustomerList`, and `CustomerSampleScreen`.

- If you are viewing this guide online from the Sybase Product Documentation web site, click *SUP_BB_Custom_Dev_Tutorial_code.zip* to access the zip archive containing the text files.
- If you are viewing this guide as a PDF, go to the Sybase Product Documentation Web site at <http://sybooks.sybase.com/nav/summary.do?prod=1289&lang=en&submit=%A0Go%AO&prodName=Sybase+Unwired+Platform&archive=0>. Click the link for the Sybase Unwired Platform version that you want. Then, navigate to this topic in the tutorial, and click the link for the zip file to access the text files.

Task

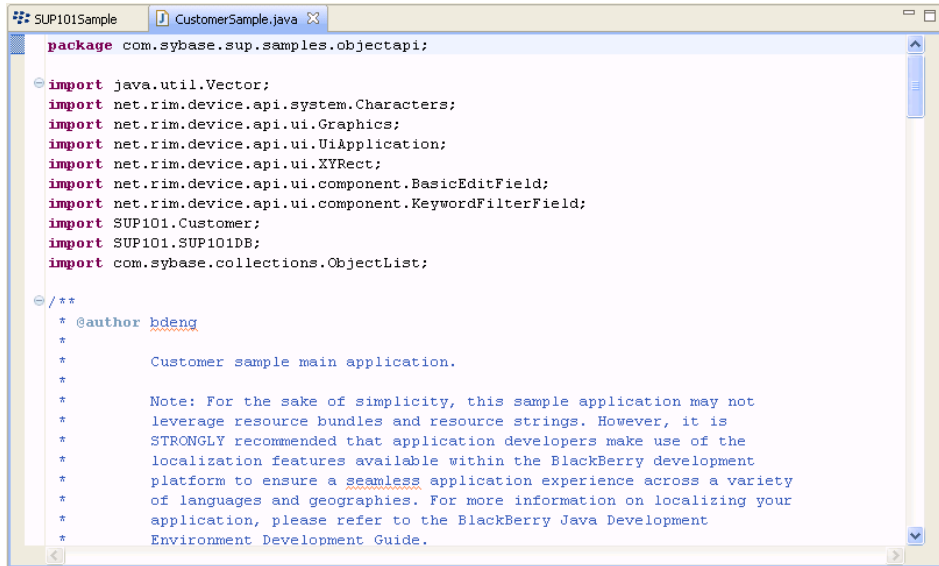
1. In Package Explorer, right-click **SUP101Sample**, and select **New > Package**.
2. For the **Name**, enter `com.sybase.sup.samples.objectapi` and click **Finish**.
3. Right-click the `com.sybase.sup.samples.objectapi` package and select **New > Class**.
4. For the **Name**, enter `CustomerSample`, and click **Finish**.



5. In the `CustomerSample.java` file, copy and paste the code from the provided `CustomerSample.java` text file.

Overwrite any existing contents. The provided code creates the main Customer application.

Developing a BlackBerry Application



```
package com.sybase.sup.samples.objectapi;

import java.util.Vector;
import net.rim.device.api.system.Characters;
import net.rim.device.api.ui.Graphics;
import net.rim.device.api.ui.UiApplication;
import net.rim.device.api.ui.XYRect;
import net.rim.device.api.ui.component.BasicEditField;
import net.rim.device.api.ui.component.KeywordFilterField;
import SUP101.Customer;
import SUP101.SUP101DB;
import com.sybase.collections.ObjectList;

/**
 * @author bdeng
 *
 * Customer sample main application.
 *
 * Note: For the sake of simplicity, this sample application may not
 * leverage resource bundles and resource strings. However, it is
 * STRONGLY recommended that application developers make use of the
 * localization features available within the BlackBerry development
 * platform to ensure a seamless application experience across a variety
 * of languages and geographies. For more information on localizing your
 * application, please refer to the BlackBerry Java Development
 * Environment Development Guide.
```

6. Save the `CustomerSample.java` file.
The package contains errors until you create the two other classes. Ignore these errors and continue.
7. Right-click the `com.sybase.sup.samples.objectapi` package, and select **New > Class**.
8. For **Name**, enter `CustomerList`, and click **Finish**.
9. In the `CustomerList.java` file, copy and paste the code from the provided `CustomerList.java` text file.
Overwrite any existing contents.

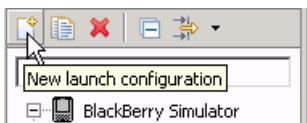
14. Save the `CustomerSampleScreen.java` file.

Notice that the compilation errors in other java files are resolved.

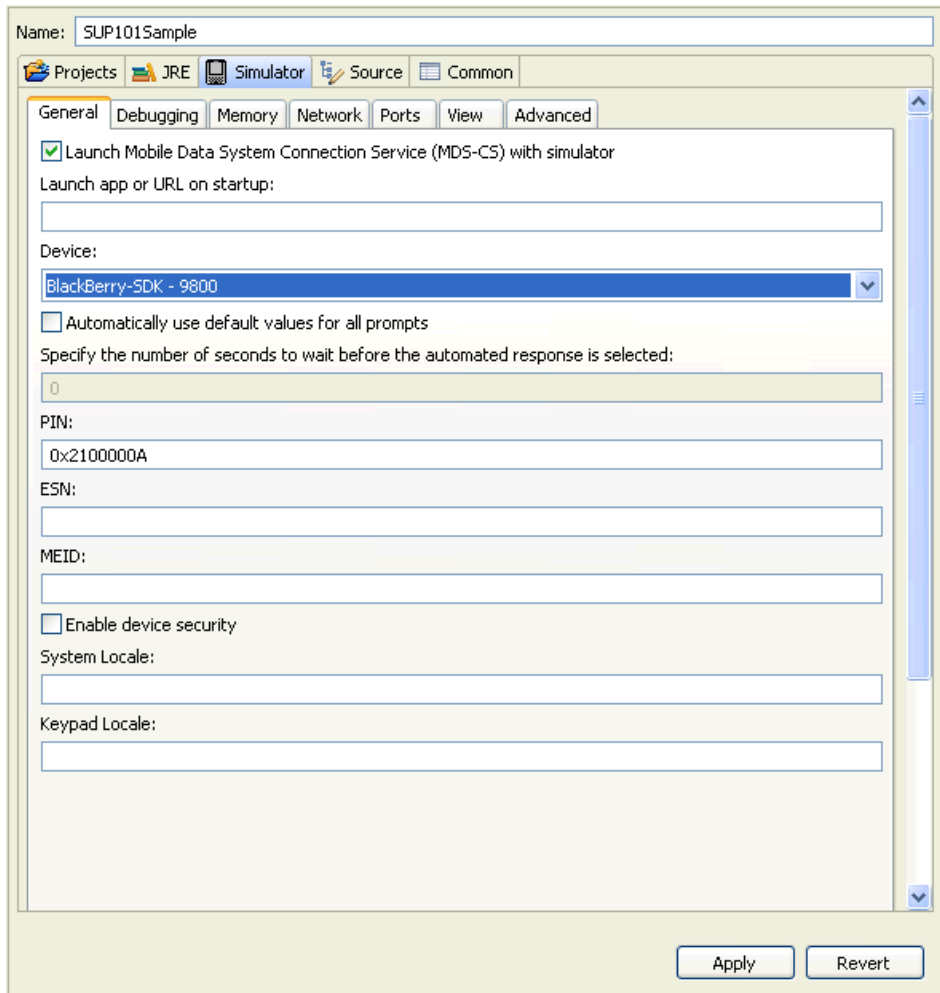
Creating a Launch Configuration for the Project

Create and configure a new launch configuration for the `SUP101Sample` project.

1. In Package Explorer, right-click the **SUP101Sample** project, and select **Run-as > Run Configurations**.
2. Select **BlackBerry Simulator** in the left pane, click the new launch configuration icon, and select the **SUP101Sample** project in the right pane.



3. In **Name**, enter `SUP101Sample`.
4. In the **JRE** tab, select the JRE to use, in this case, **BlackBerry JRE 6.0.0**.
5. In the **Simulator** tab, select **Launch Mobile Data System Connection Service (MDS-CS) with simulator**, then select **BlackBerry-SDK - 9800** as the device.

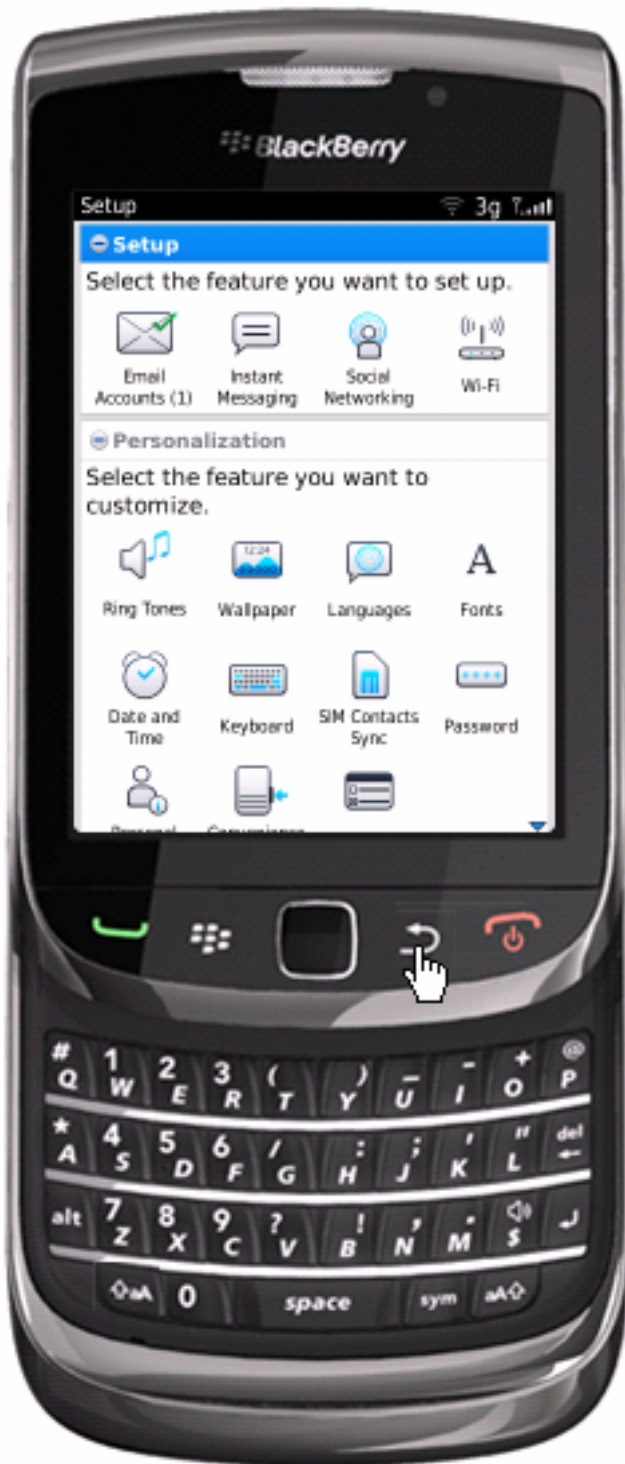


6. Click **Apply**, then **Close**.

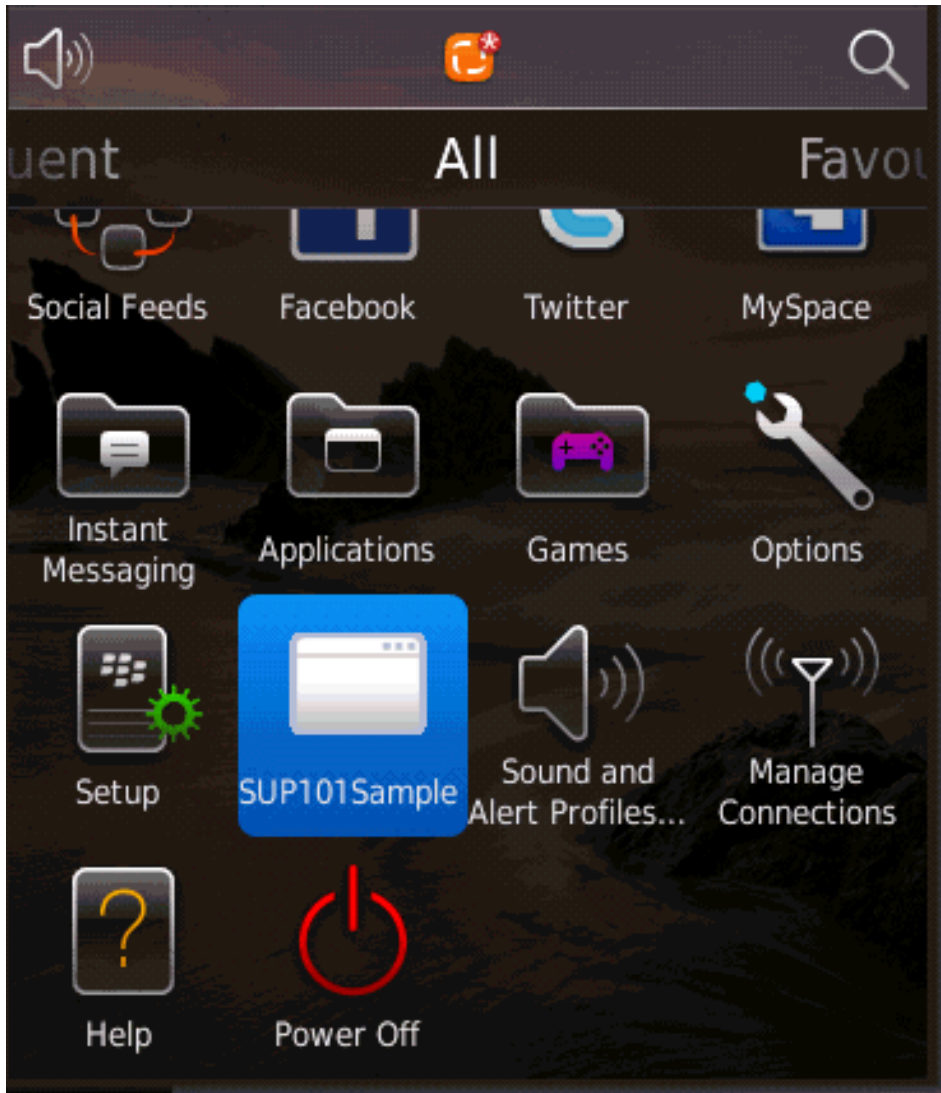
Testing the Device Application on the BlackBerry Simulator

Run and test the SUP101Sample application on the BlackBerry simulator.

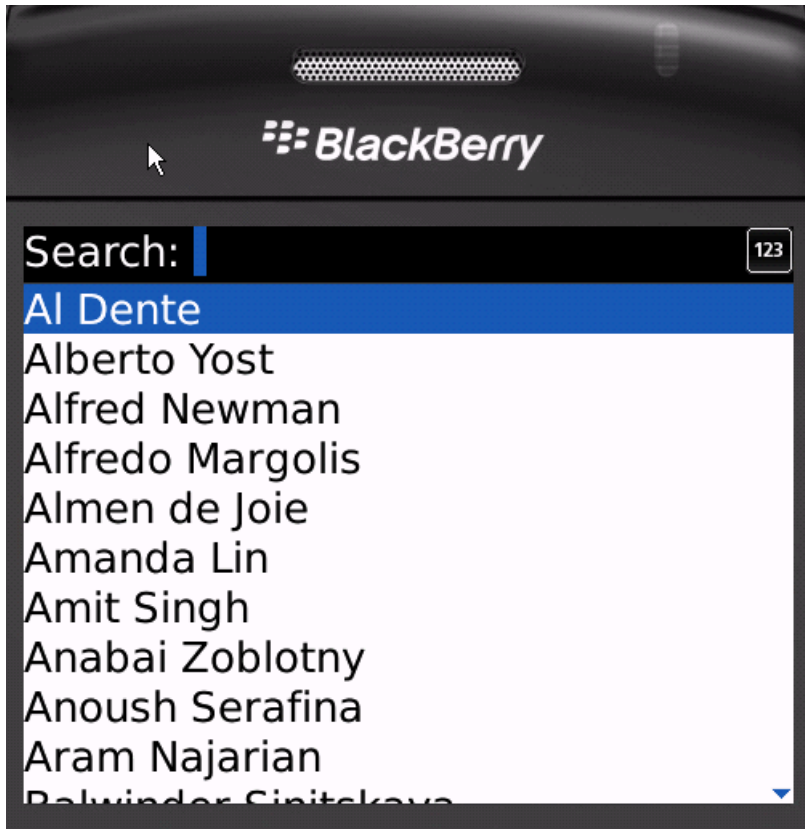
1. In Package Explorer, right-click the **SUP101Sample** project and select **Run As > BlackBerry Simulator**.
If this is the first time running the simulator, cancel the setup screen.



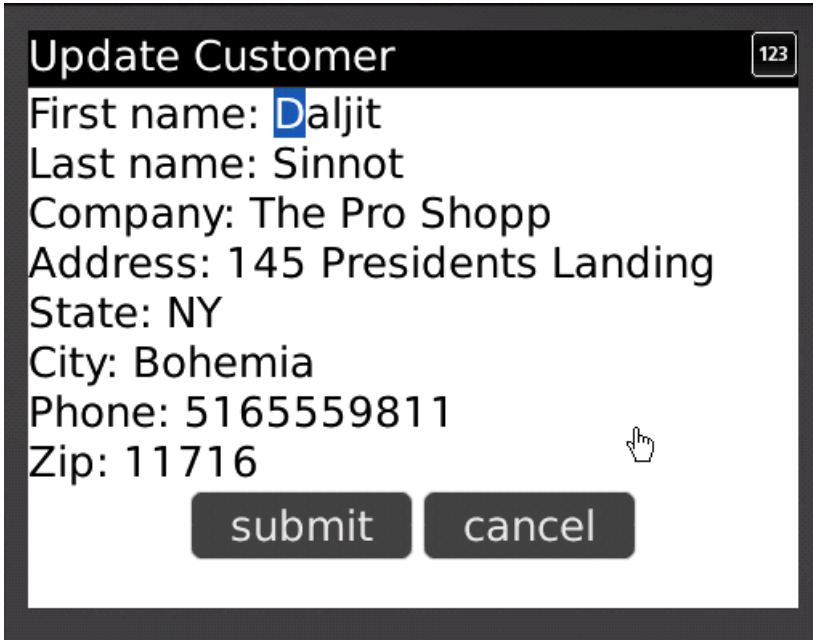
2. On the main window, click **All** to access the applications screen, then scroll until you see the SUP101Sample application.



3. Click to launch the SUP101Sample application.
4. Click the BlackBerry menu button, then select **Synchronize**. The customer list appears.



5. Focus on the customer list and enter `dal` in the **Search** bar.
The customer list is filtered and only customers with a first or last name beginning with 'dal' are shown, in this case, Daljit Sinnot.
6. Select the customer, **Daljit Sinnot**, and click the trackball.
The detail screen for Daljit Sinnot appears.



Update Customer 123

First name: Daljit
Last name: Sinnot
Company: The Pro Shopp
Address: 145 Presidents Landing
State: NY
City: Bohemia
Phone: 5165559811
Zip: 11716

submit cancel

7. In the customer detail screen, change the first name of the customer to abc and click **Submit**.

The **Submit** button on the Customer Detail screen is mapped to the **update** operation of the customer mobile business object. When the application is synchronized, any pending operations are uploaded to Unwired Server.

8. To upload the new record to the back-end database `sampledb`, click the Menu key, and select **Synchronize**.

Learn More about Sybase Unwired Platform

Once you have finished, try some of the other samples or tutorials, or refer to other development documents in the Sybase Unwired Platform documentation set.

Check the Sybase Product Documentation Web site regularly for updates: access <http://sybooks.sybase.com/nav/summary.do?prod=1289>, then navigate to the most current version.

Tutorials

Try out some of the other getting started tutorials available on Product Documentation to get a broad view of the development tools available to you.

Tutorial Projects

Tutorial projects are available for download, if you want the finished tutorial without going through the steps. Download tutorial projects from: <http://www.sdn.sap.com/irj/sdn/mobile?rid=/webcontent/uuid/40ea4956-b95c-2e10-11b3-e68c73b2280e>.

Samples

Sample applications are fully developed, working applications that demonstrate the features and capabilities of Sybase Unwired Platform.

Check the SAP® Development Network (SDN) Web site regularly for new and updated samples: <https://cw.sdn.sap.com/cw/groups/sup-apps>.

Online Help

See the online help that is installed with the product, or the Product Documentation Web site.

Developer Guides

Learn about using the API to create device applications:

- *Developer Guide: BlackBerry Native Applications*
- *Developer Guide: iOS Native Applications*
- *Developer Guide: Windows and Windows Mobile Native Applications*
- *Developer Guide: Mobile Workflow Packages*

Customize and automate:

- *Developer Guide for Unwired Server Management API* – customize and automate system administration features.
- *Developer Guide: Unwired Server* – customize and automate server-side implementations for device applications, and administration, such as data handling.

Javadoc and HeaderDoc are also available in the installation directory.

Learn More about Sybase Unwired Platform

Index

.cod files

- adding to the simulator directory 13
- CommonClient.cod 13
- sup-client-rim.cod 13
- UltraLiteJ.cod 13

A

- application properties 13
- articles 25

B

- basics, learning 6
- BlackBerry 1
- BlackBerry application description 13
- BlackBerry Java Plug-in for Eclipse
 - installing 9
- BlackBerry project, creating 11
- BlackBerry Simulator 19
- build path 11

C

- code generation 9
- CustomerList 13
- CustomerSample 13
- CustomerSampleScreen 13

D

- descriptor file 11

E

- Eclipse Studio Edition
 - Sybase Unwired WorkSpace 5
- Enterprise Explorer, defined 6

G

- getting started
 - Sybase Unwired Platform 5

- Sybase Unwired WorkSpace 6
 - tutorial projects 1
 - tutorials 1

- goals 3

H

- help, online 6

I

- installing
 - Sybase Unwired Platform 5
- iOS 1

J

- JAR files
 - adding 11
 - sup-client-rim.jar 11
 - UltraLiteJ.jar 11
- Java class, creating 13
- Java Object API code, generating 9
- Java perspective 13

L

- launch configuration 18

M

- Mobile Application Diagram, defined 6

O

- online help, accessing 6

P

- Palette, defined 6
- project build path 11
- Properties view, defined 6

Index

S

- samples 25
- starting
 - Sybase Unwired WorkSpace 5
- sup-client-rim.cod 13
- sup-client-rim.jar 11
- SUP101Sample application
 - running 19
 - testing 19
 - updating data 19
 - viewing data 19
- Sybase Unwired Platform
 - getting started 5
 - installing 5
 - learning more about 25
- Sybase Unwired WorkSpace
 - getting started 6
 - starting 5

T

- task flow 3
- testing 19
- tutorial projects 25
- tutorials 25

U

- UltraLiteJ.cod 13
- UltraLiteJ.jar 11
- user interface
 - creating 13

W

- Windows Mobile 1
- WorkSpace Navigator, defined 6