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Tutorial: Mobile Workflow Package Development

Sybase Unwired Platform 2.1 ESD #2

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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.

Tip: If you want to see the final outcome of a tutorial without performing the steps, the associated example project is available on SAP® SDN: *http://www.sdn.sap.com/irj/sdn/mobile?rid=/webcontent/uuid/40ea4956-b95c-2e10-11b3-e68c73b2280e*.

- Learn mobile business object (MBO) basics, and use this tutorial as a foundation for the Object API application development tutorials:
  - *Tutorial: Mobile Business Object Development*
- Create native Object API mobile device applications:
  - *Tutorial: Android Object API Application Development*
  - *Tutorial: BlackBerry Object API Application Development*
  - *Tutorial: iOS Object API Application Development*
  - *Tutorial: Windows Mobile Object API Application Development*
- Create a mobile business object, then develop a mobile workflow package that uses it:
  - *Tutorial: Mobile Workflow Package Development*

Task Flow

Use this tutorial to develop, deploy, and run a Mobile Workflow package on an emulator or a simulator.

Task	Goals	Steps
Getting started	Install Sybase Unwired Platform, create a connection profile, start the server and Unwired WorkSpace, and create a Mobile Workflow Application project.	• Installing Sybase Unwired Platform • Starting Unwired Platform Services • Starting Sybase Unwired WorkSpace • Connecting to Sybase Control Center • (Optional) Learning Unwired WorkSpace Basics These steps are prerequisites for the rest of this tutorial. You need to perform them only once.
Developing a database mobile business object	Create and deploy a database mobile object.	• Creating the TravelRequest Table • Creating the TravelRequest Mobile Business Object • Deploying the Workflow101 Mobile Application Project
Developing the Mobile Workflow package	Create a mobile workflow form, generate the files, register the device in Sybase Control Center, assign the Mobile Workflow package to a user, and view the mobile workflow form on the emulator or simulator.	• Creating a Mobile Workflow Form • Installing the Mobile Workflow Package • Running the Mobile Workflow Package • Verifying the Data on the Backend Database

Getting Started with Unwired Platform

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.

1. *Installing Sybase Unwired Platform*

   Install Sybase Mobile SDK and Sybase Unwired Platform Runtime.
2. *Starting Sybase Unwired Platform Services*

   Start Unwired Server, Sybase Control Center, the sample database, the cache database (CDB), and other essential services.
3. *Starting Sybase Unwired WorkSpace*

   Start the development environment, where you can perform tasks that include creating mobile business objects (MBOs), managing database and server connections, developing Mobile Workflow applications, and generating Object API code.
4. *Connecting to Sybase Control Center*

   Open the Sybase Control Center administration console to manage Unwired Server and its components.
5. *Learning Unwired WorkSpace Basics*

   Sybase Unwired WorkSpace features are well integrated in the Eclipse IDE. If you are not familiar with Eclipse, you can quickly learn the basic layout of Unwired WorkSpace and the location of online help.

Installing Sybase Unwired Platform

Install Sybase Mobile SDK and Sybase Unwired Platform Runtime.

Before starting this tutorial, be sure you have all the requisite Unwired Platform components installed. For complete installation instructions, see the Sybase Unwired Platform documentation at *http://sybooks.sybase.com/nav/summary.do?prod=1289*.

- *Release Bulletin for Sybase Mobile SDK*
- *Installation Guide for Sybase Mobile SDK*
- *Release Bulletin for Runtime*
- *Installation Guide for Runtime*

1. Install these Unwired Platform Runtime components:
   - Data Tier (included with single-server installation)
   - Unwired Server
2. Install 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.

Starting Sybase Unwired Platform Services

Start Unwired Server, Sybase Control Center, the sample database, the cache database (CDB), and other essential services.

How you start Unwired Platform services depend on the options you selected during installation. In some cases, you may need to manually start Unwired Platform services.
Select **Start > Programs > Sybase > Unwired Platform > Start Unwired Platform Services**.
The Unwired Server services enable you to access the Unwired Platform runtime components and resources.

Starting Sybase Unwired WorkSpace

Start the development environment, where you can perform tasks that include creating mobile business objects (MBOs), managing database and server connections, developing Mobile Workflow applications, and generating Object API code.
Select **Start > Programs > Sybase > Unwired Platform > Unwired WorkSpace**.
The Sybase Unwired WorkSpace opens in the Mobile Development perspective. The Welcome page displays links to the product and information.

Next

To read more about Unwired WorkSpace concepts and tasks, select **Help > Help Contents**.

Connecting to Sybase Control Center

Open the Sybase Control Center administration console to manage Unwired Server and its components.

From Sybase Control Center, you can:

- View servers and their status
- Start and stop a server
- View server logs
- Deploy a mobile application package
- Register application connections
- Set role mappings

For information on configuring, managing, and monitoring Unwired Server, click **Help** > **Online Documentation**.

1. Select **Start** > **Programs** > **Sybase** > **Sybase Control Center**.

   Note: If the Sybase Control Center service does not open, make sure that the service is started. See the *Installation Guide for Runtime*.

2. In Sybase Control Center, log in by entering the credentials set during installation.

   Sybase Control Center gives you access to the Unwired Platform administration features that you are authorized to use.

Learning Unwired WorkSpace Basics

Sybase Unwired WorkSpace features are well integrated in the Eclipse IDE. If you are not familiar with Eclipse, you can quickly learn the basic layout of Unwired WorkSpace and the location of online help.

- To access the online help, select **Help** > **Help Contents**. Some documents are for Sybase Unwired Platform, while others are for the Eclipse development environment.
- The Welcome page provides links to useful information to get you up and running.
  - Reopen the Welcome page by selecting **Help** > **Welcome**.
  - To close the Welcome page, click **X**.
  - To learn about tasks you must perform, select the **Development Process** icon.
- In Unwired WorkSpace, look at the area (window or view) that you will use to access, create, define, and update mobile business objects (MBOs).

Window	Description
WorkSpace Navigator view	Use this view to create Mobile Application projects, and review and modify MBO-related properties. This view displays mobile application project folders, each of which contains all project-related resources in subfolders, including MBOs, datasource references to which the MBOs are bound, personalization keys, and so on.
Enterprise Explorer view	A view that provides functionality to connect to various enterprise information systems (EIS), such as database servers, SAP® back ends, and Unwired Server.

Window	Description
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 MBOs (including attributes and operations), then define relationships with other MBOs. You can: • Create MBOs in the Mobile Application Diagram using Palette icons and menu selections – either bind or defer binding to a data source, when creating an MBO. For example, you may want to model your MBOs before creating the data sources to which they bind. This MBO development method is sometimes referred to as the top-down approach. • Drag items from Enterprise Explorer and drop them (drag and drop) onto the Mobile Application Diagram to create the MBO – quickly creates the operations and attributes automatically based on the datasource artifact being dropped on the Mobile Application Diagram. Each new mobile application project generates an associated mobile application diagram.
Palette	The Palette is accessed from the Mobile Application Diagram and provides controls, such as the ability to create MBOs, add attributes and operations, and define relationships, by dragging-and-dropping the corresponding icon onto the Mobile Application Diagram or existing MBO.
Properties view	Select an object in the Mobile Application Diagram to display and edit its properties in the Properties view. While you cannot create an MBO from the Properties view, most development and configuration is performed here.
Outline view	Displays an outline of the active file and lists structural elements. The contents are editor-specific.
Problems view	Displays problems, errors, or warnings that you may encounter. This is a valuable source for collecting troubleshooting information.

Window	Description
Error Log view	Displays error log information. This is a valuable source for collecting troubleshooting information.

Developing a Database Mobile Business Object

Create a database mobile business object and deploy it to Unwired Server.

Develop the database mobile business object by:

1. *Creating the Mobile Workflow 101 Mobile Application Project*

   A mobile application project is the container for the mobile business objects that form the business logic of mobile applications.
2. *Creating the TravelRequest Database Table*

   Create the database table to be used by the Travel Request mobile business object.
3. *Creating the TravelRequest Mobile Business Object*

   Use the TravelRequest database table to create a mobile business object.
4. *Deploying the WorkFlow101 Mobile Application Project*

   Deploy the project that contains the TravelRequest mobile business object to the server.

Creating the Mobile Workflow 101 Mobile Application Project

A mobile application project is the container for the mobile business objects that form the business logic of mobile applications.

Create a mobile application project before creating its mobile business objects.

1. In the Unwired WorkSpace menu, click **File > New > Mobile Application Project**.
2. Enter `MobileWorkflow101` as the name.
3. Click **Finish**.

Creating the TravelRequest Database Table

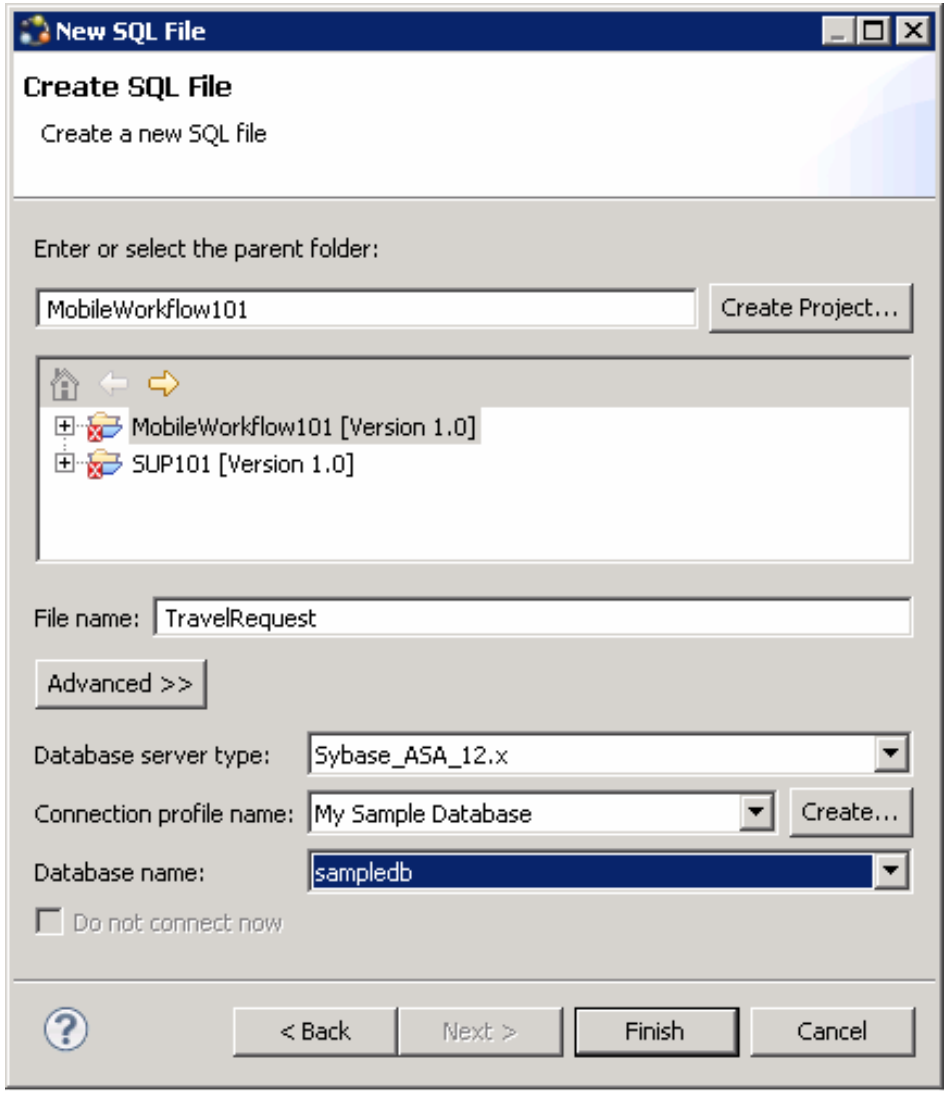
Create the database table to be used by the Travel Request mobile business object.

In this task, create a SQL file that you can use to create the database table for the mobile business object.

1. From the main menu, select **File > New > Other.**
2. Select **SQL Development > SQL File**, and click **Next**.

3. Enter or select the values shown, then click **Finish**:

Field	Value
Parent folder	Select the **MobileWorkflow101** project.
File name	Enter `TravelRequest`.
Database server type	Select **Sybase_ASA_12.x**.
Connection profile name	Select **My Sample Database**.
Database name	Select **sampledb**.



4. In the `TravelRequest.sql` editor, copy and paste this code:

```
CREATE TABLE TravelRequest (
    trvl_Id                     integer NOT NULL DEFAULT
autoincrement
   ,trvl_Date                   date NULL
   ,trvl_Loc                    varchar(20) NULL
   ,est_Cost                    float NULL
   ,purpose                     varchar(200) NULL
   ,trvl_Status                 varchar(20) NULL
   ,st_Cmmnt                    varchar(200) NULL
   ,PRIMARY KEY CLUSTERED (trvl_Id)
```

```
);
```

5. Save `TravelRequest.sql` and close the editor.
   Unwired Workspace adds `TravelRequest.sql` to the MobileWorkFlow101 project.
6. In the WorkSpace Navigator, expand MobileWorkflow101. Right-click `TravelRequest.sql` and select **Execute SQL Files**.

   Unwired Workspace creates a table called TravelRequest in the `sampledb` database.
7. In the Enterprise Explorer, expand **sampledb**, expand the **Tables** folder, and verify that the new TravelRequest table is added.

   If the table is not visible, right-click the **Tables** folder and select **Refresh**.

Creating the TravelRequest Mobile Business Object

Use the TravelRequest database table to create a mobile business object.

Prerequisites

Complete *Creating the TravelRequest Database Table* on page 11.

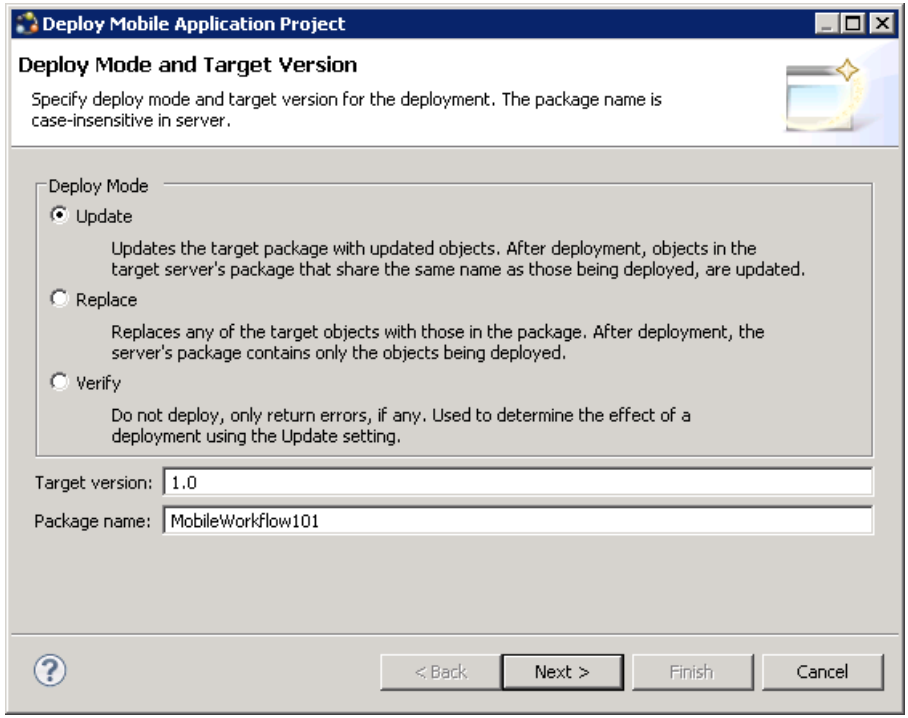
Task

1. In the Enterprise Explorer, expand the **sampledb** database, then expand the **Tables** folder.
2. Drag the TravelRequest table from the Enterprise Explorer onto the MobileWorkflow101 Mobile Application Diagram.
3. In the Quick Create wizard, accept the default settings and click **OK**.
   An MBO is created in the Mobile Application Diagram.
4. Save the diagram.

Deploying the WorkFlow101 Mobile Application Project

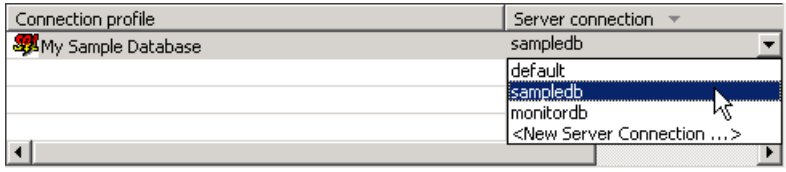
Deploy the project that contains the TravelRequest mobile business object to the server.

1. Right-click in the MobileWorkflow101 Mobile Application Diagram, and select **Deploy Project**.
2. In the first page of the Deploy Mobile Application Project wizard, accept the default options and click **Next**.



3. In the Contents page, select the **TravelRequest** mobile business object, and click **Next**.
4. In the Package User-defined Classes page, click **Next**.

   Note: The Package User-defined Classes window appears by default in the advanced developer profile.
5. In the Target Server page, select **My Unwired Server** in the list of available servers. If the **Next** button is not enabled, click **Connect** to connect to the server. Then, click **Next**.
6. In the Deploy Application to Server page, click **Next**.
7. In the Server Connection Mapping page, click **My Sample Database** under Connection profile. Then, choose **sampledb** under Server connection.



8. Click **Finish**.
9. When the Executing Deployment window closes, click **OK** to dismiss the Deployment Status window.

10. In Enterprise Explorer, open `Unwired Servers\My Unwired Server \Domains\default\Packages\mobileworkflow101:1.0`. Verify that the Mobile Business Objects folder contains the TravelRequest MBO that you deployed.

Developing the Mobile Workflow Package

Develop and deploy a mobile workflow package.

1. *Registering Application Connections in Sybase Control Center*

   Register a connection for each device or emulator that you want to use.
2. *Creating a Mobile Workflow Form*

   Create a mobile workflow form using the TravelRequest mobile business object.
3. *Generating Code for a Mobile Workflow Package*

   Generate a Mobile Workflow package and deploy it to Unwired Server to make it available to device clients.
4. *Running the Mobile Workflow Application on the Windows Mobile Emulator*

   Install and configure the Windows Mobile synchronization software and emulator, and use it to run the Mobile Workflow application.
5. *Running the MobileWorkflow Application on the Android Emulator*

   Install and configure the Android Simulator software and use it to run the Mobile Workflow application.
6. *Running the MobileWorkflow Application on the iPhone Simulator*

   Build a sample Mobile Workflow container in the XCode IDE, and run the travelrequest Mobile Workflow application on an iPhone simulator.
7. *Running the MobileWorkflow Application on the BlackBerry Simulator*

   Install and configure the BlackBerry simulator, and use it to run the Mobile Workflow application.
8. *Verifying the Data on the Backend Database*

   After submitting a travel request in an emulator, verify that the information is updated in the database.

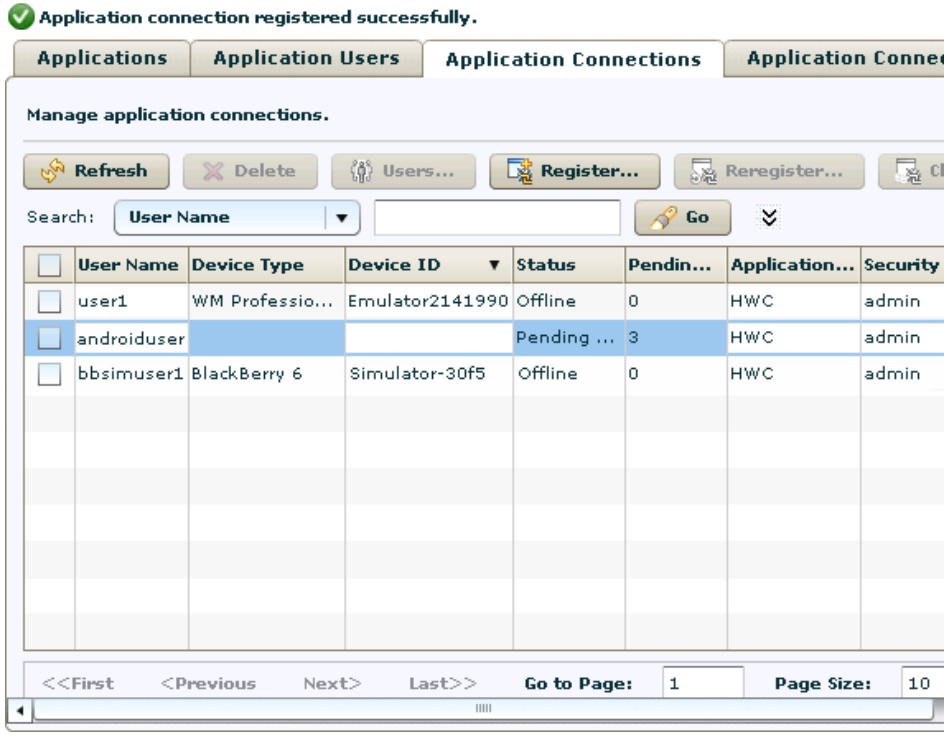
Registering Application Connections in Sybase Control Center

Register a connection for each device or emulator that you want to use.

1. Log in to Sybase Control Center using the supAdmin user name and the current password.
2. In Sybase Control Center, select **View > Select > Unwired Server Cluster Management View**.

3. Click **Applications** in the left pane. In the right pane, open the Application Connections tab.
4. Register an application connection for each device that you will test in the tutorial:
   a) Click **Register**.
   b) In the Register Application Connection window, specify the following options:
      - User name – enter the name of the user that will activate and register the Mobile Workflow application. For this tutorial, where we test several different emulators, enter a unique user name for each device.
      - Template – accept the default template name.
      - Server name – the machine and domain of the host server where the mobile application project is deployed.
      - Port – accept the default value for the port used for messaging connections between the device and Unwired Server. If you use Relay Server, this is the Relay Server port.
      - Farm ID – enter `0`.
      - Application ID – select **HWC**.
      - Security configuration – accept the default value.
      - Domain – accept the default blank field.
      - Activation code length – accept the default value.
      - Activation expiration (hours) – optionally, change the default value (for example, to enable the connection for longer than 72 hours).
      - Specify Activation Code – enter a value (using the specified length) that is sent to the user in an activation e-mail. If you do not specify an activation code, one is generated automatically. The user must enter the activation code when logging in to the application. The value can contain letters A - Z (uppercase or lowercase), numbers 0 - 9, or a combination of both.
   c) Click **OK**.

   The connection is added to the Application Connections table. The following example shows three registered connections, each for a different device. The connection in the second line has no Device Type or Device ID yet because the device is not currently connected: these fields are automatically loaded when the specified user accesses the connection.



Creating a Mobile Workflow Form

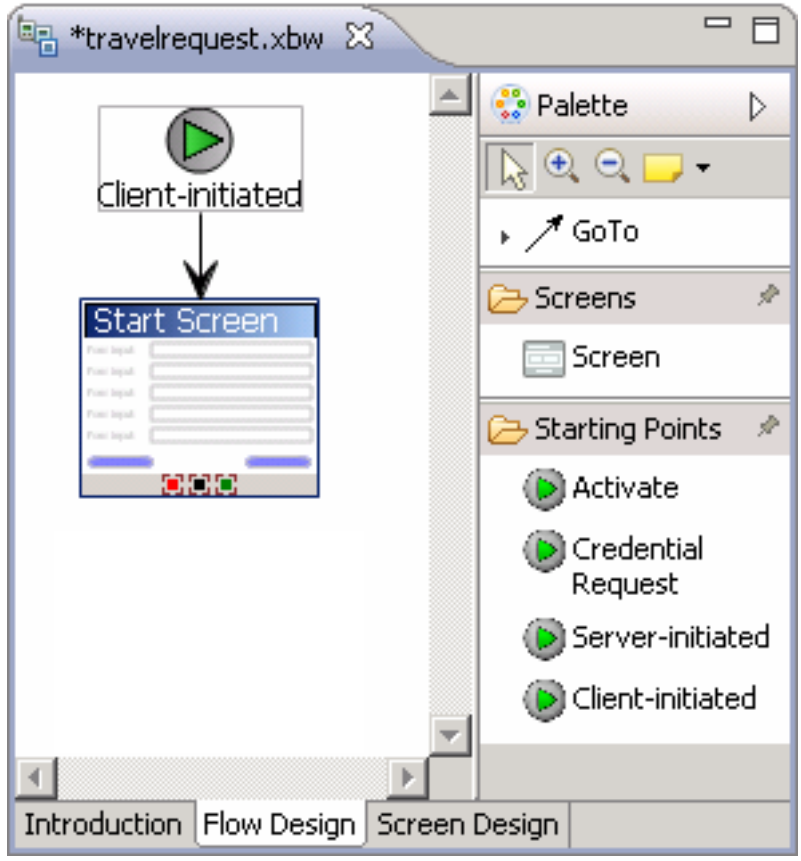
Create a mobile workflow form using the TravelRequest mobile business object.

Prerequisites

Complete *Deploying the WorkFlow101 Mobile Application Project* on page 14.

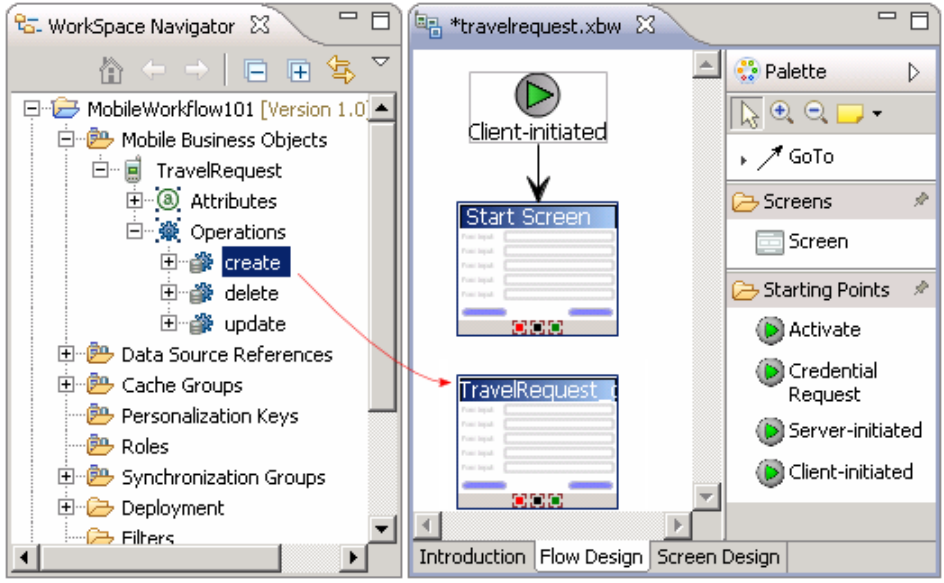
Task

1. In the Sybase Unwired WorkSpace menu, click **File** > **New** > **Mobile Workflow Forms Editor**.
2. Select the MobileWorkflow101 folder and enter `travelrequest.xbw` as the file name.
3. Click **Next**.
4. In the Starting Points page, select **Can be started, on demand, from the client**, and click **Finish**.
5. In the Mobile Workflow Forms editor, click the **Flow Design** tab.
   The new flow diagram contains a Client-initiated screen, connected to a Start Screen.



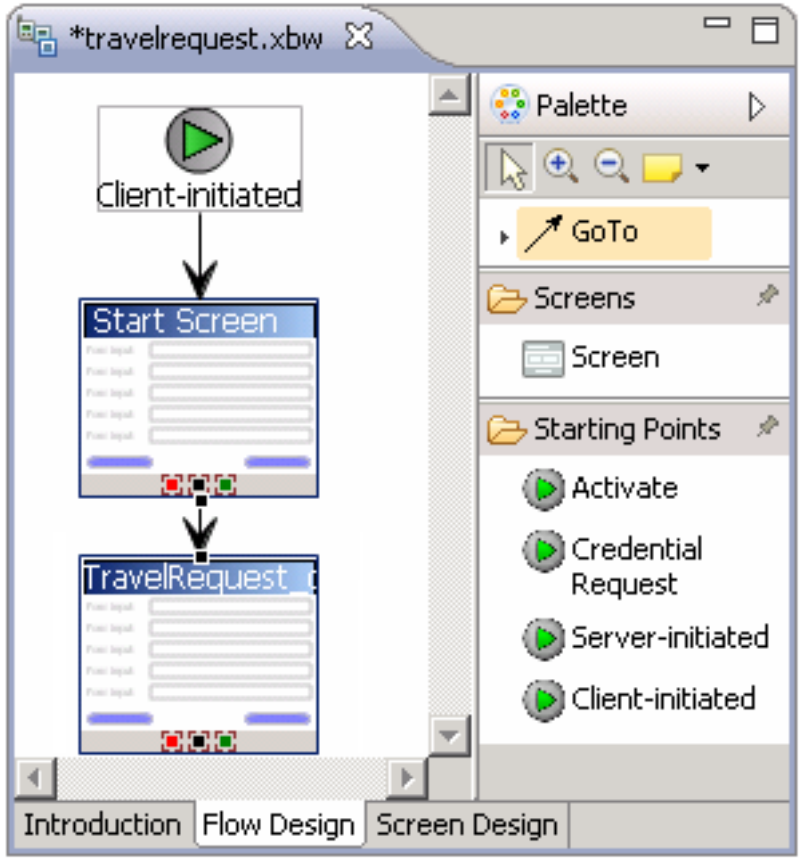
6. In Workspace Navigator, expand **MobileWorkflow101 > Mobile Business Objects > TravelRequest > Operations**.
7. Drag the **create** operation onto the flow diagram.

   The TravelRequest_create screen is added.

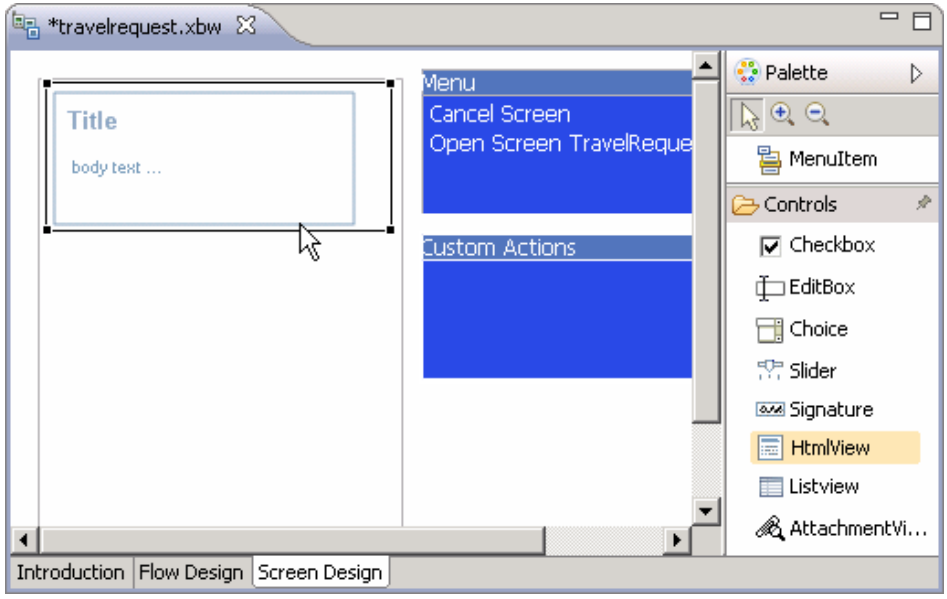


8. Add a **GoTo** connection from the Start Screen to the TravelRequest_create screen:
   a) In the Palette, click **GoTo**.
   b) Click the **Start** Screen, and while holding the mouse down, drag the connection to the **TravelRequest_create** screen.

   A line with an arrow connects the two screens.

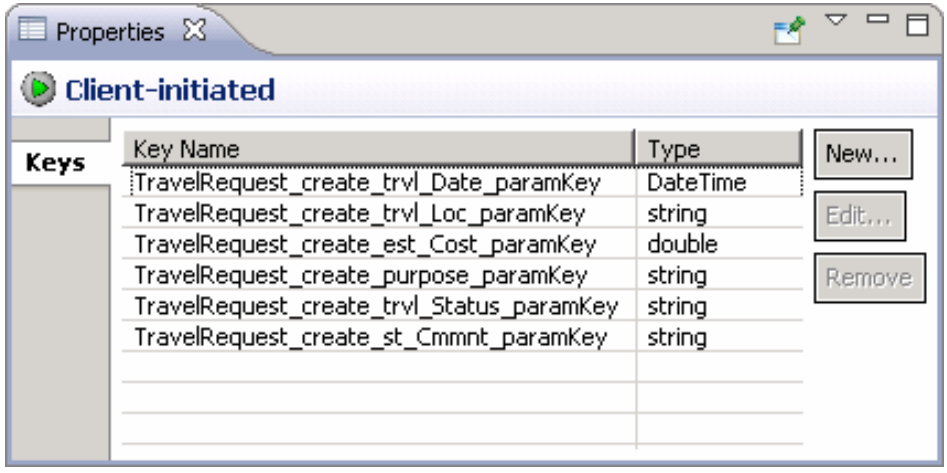


9. Double-click the **Start** screen to open its Screen Design page.
10. In the Palette, select the **HtmlView** control and click the Start screen. The HtmlView control is added to the Start screen design.



11. Click **Flow Design**.
12. In the Flow Design, select the Client-initiated starting point.

    The Properties view shows all of the keys that were automatically created for each parameter in the **create** method of the TravelRequest mobile business object. If the Properties view does not open, right-click the Client-initiated screen and select **Show Properties View**.



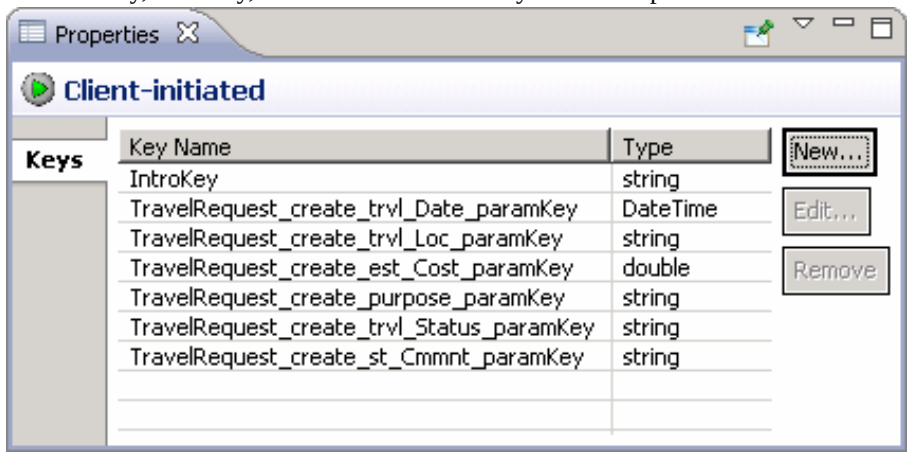
13. Create a new key:
    a) In the Client-initiated Properties view, click **New**.
    b) Enter these values:

- Name – `IntroKey`
- Type – `string`

Note: In the tutorial this key doesn't do anything, and the name and type are not important; we are simply demonstrating how to add a new key.

c) Click **OK**.

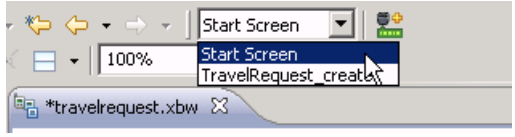
The new key, IntroKey, is added to the list of keys in the Properties view.



14. Define the default value for the new key:

a) In the Mobile Workflow Forms editor, click the **Screen Design** tab.

b) If the Start Screen is not selected, select **Start Screen** in the screen selection control above the Screen Design.

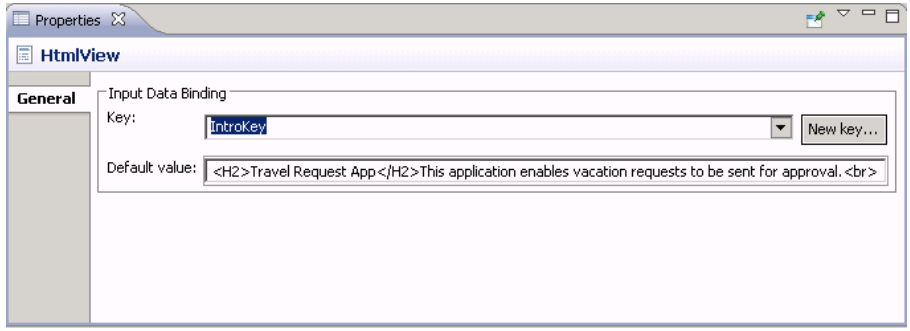


c) In the Start Screen, select the **HtmlView** control to display its properties.

d) In Properties view, click the Key control and select **IntroKey**.

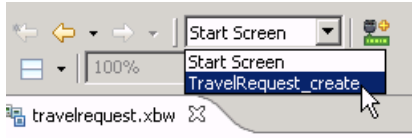
e) In Default value, enter the message code:

```
<H2>Travel Request App</H2>This application enables vacation
requests to be sent for approval<br>.
```



15. View the current parameter settings of the TravelRequest screen:

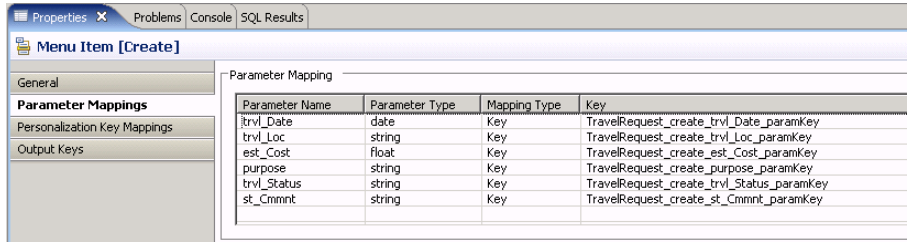
a) In the screen selection control above the Screen Design page, change the screen to **TravelRequest_create**.



b) In the menu, select the **Create** operation to display its properties.

c) In Properties, click **Parameter Mappings**.

The parameter mapping table shows the mobile business object parameters for the operation and their keys.



16. Save the travelrequest workflow form.

Generating Code for a Mobile Workflow Package

Generate a Mobile Workflow package and deploy it to Unwired Server to make it available to device clients.

Prerequisites

Complete these tasks:

- *Registering the Device in Sybase Control Center* on page 17 for each device that you want to enable to connect to the package.

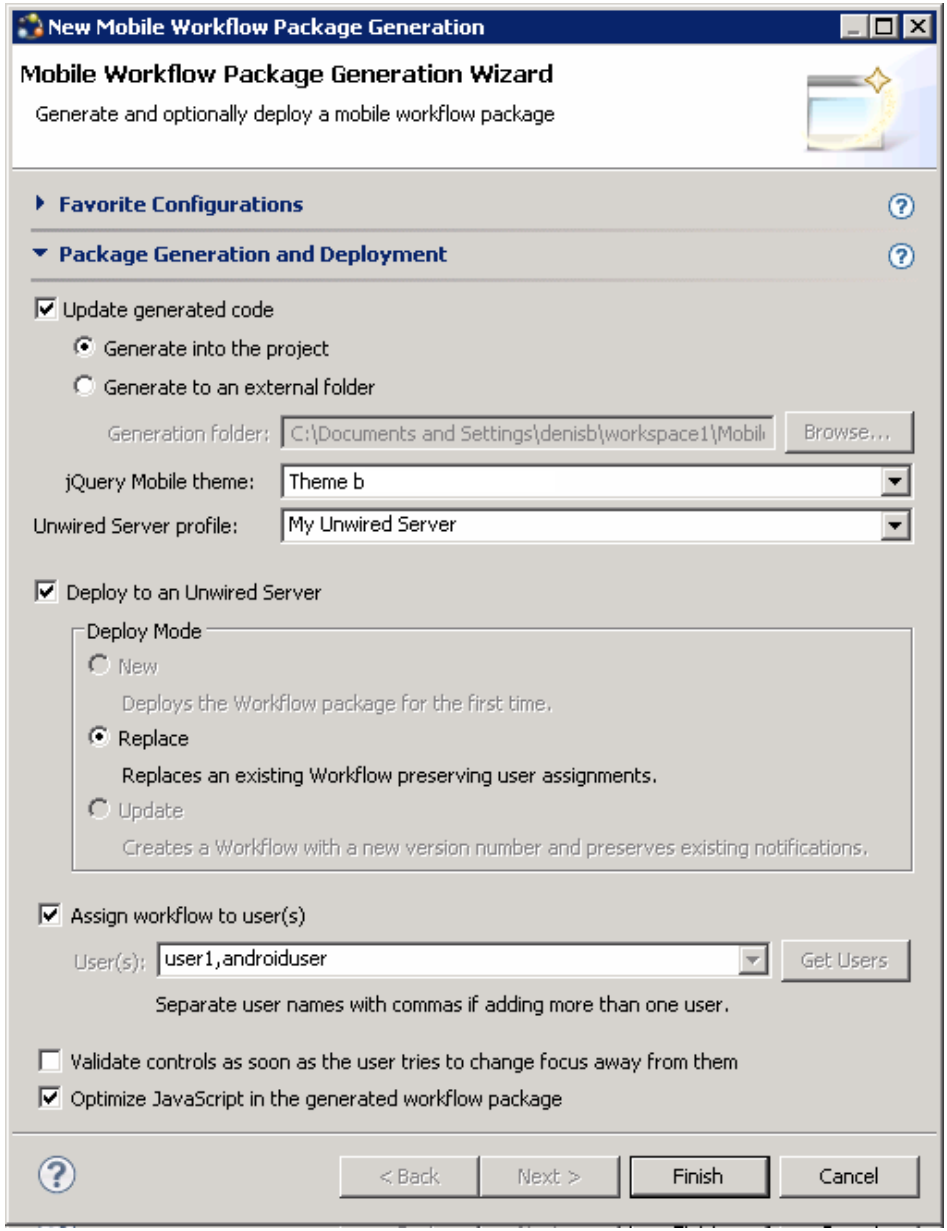
- Complete *Developing a Database Mobile Business Object* on page 11.
- Complete *Creating a Mobile Workflow Form* on page 19.
- For Windows Mobile devices, start the synchronization software if it is not already running:
  - On Windows XP, start Microsoft ActiveSync.
  - Windows Vista, Windows 7, or Windows 2008, start Windows Mobile Device Center.

Task

Use the Mobile Workflow Package Generation wizard to generate files for the mobile workflow package, optionally deploy the generated package files to the server, and assign the package to one or more devices.

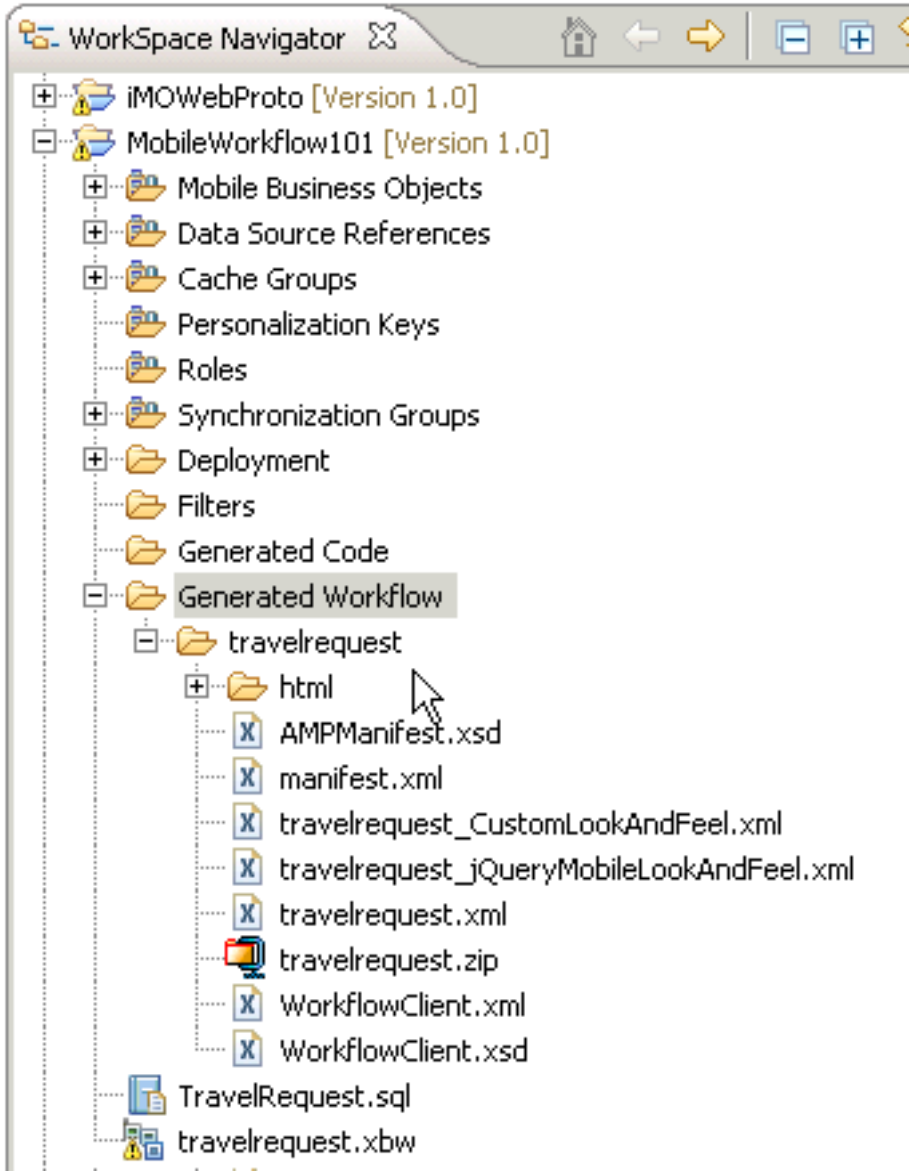
1. Open Sybase Unwired Workspace.
2. In the WorkSpace Navigator, expand `MobileWorkflow101` and double-click **travelrequest.xbw**.
   The package file opens in the Mobile Workflow Forms Editor.
3. In the Sybase Unwired Workspace toolbar, click the  Mobile Workflow package wizard button.
4. In the New Mobile Workflow Package Generation wizard, select these options:

Option	Description
Update generated code	Select **Generate into the project**.
Unwired Server Profile	Select **My Unwired Server** as the profile to associate with the mobile workflow package.
Deploy to an Unwired Server	Select this option.
Assign workflow to users	Select this option and click **Get Users** to choose one or more registered users for whom you want to deploy the package. Multiple users are separated by commas.



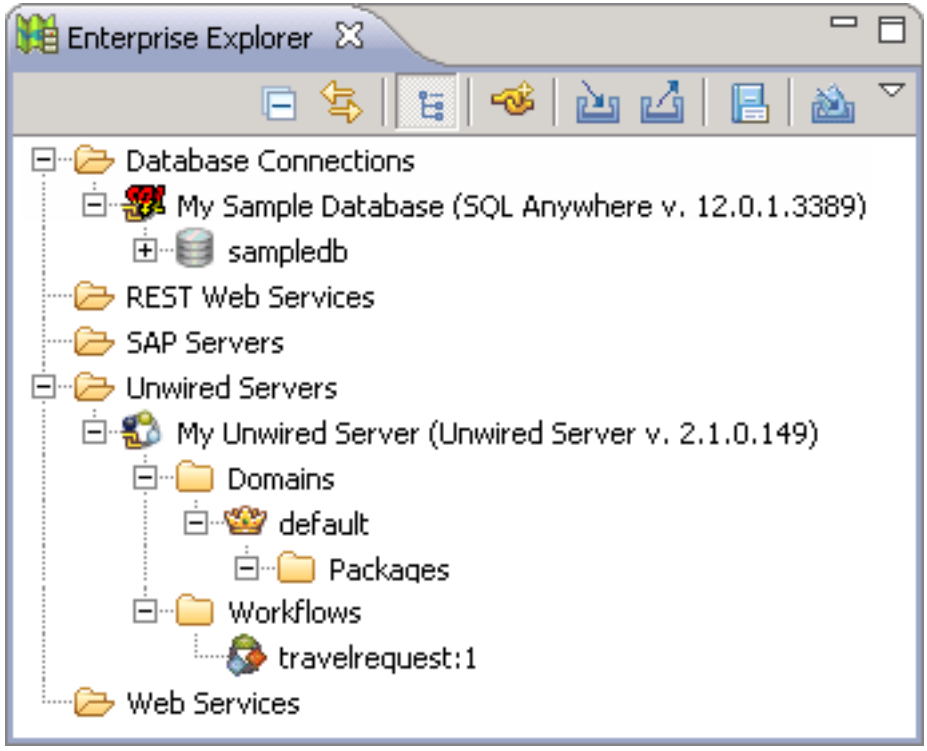
5. Click **Finish**.

   The WorkSpace assigns the TravelRequest application to the user and generates the files for the mobile workflow package in a zip archive on the server. You can see the files in your project in the Workspace Navigator:



If the package is not displayed initially, double-click the server to refresh the display.

The mobile workflow package is added to the Enterprise Explorer under the `Unwired Servers/Workflows` folder.



6. Save your emulator settings.
   For example, click **File > Save State and Exit**.

Running the Mobile Workflow Application on the Windows Mobile Emulator

Install and configure the Windows Mobile synchronization software and emulator, and use it to run the Mobile Workflow application.

1. *Installing Microsoft Synchronization Software*

   Install and configure Microsoft synchronization software so you can deploy and run a mobile application on a Windows Mobile emulator.
2. *Configuring the Windows Mobile Emulator*

   Follow these steps to configure the Windows Mobile emulator for the Mobile Workflow package deployment.
3. *Running the Mobile Workflow Form on the Windows Mobile Emulator*

   Run the travelrequest mobile workflow form on the Windows Mobile emulator.

See also

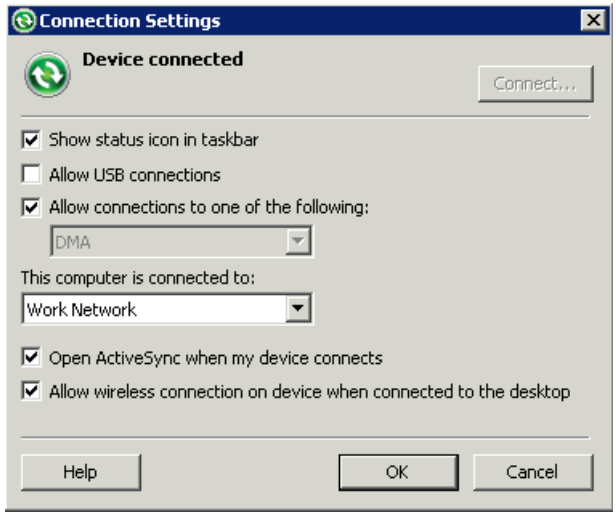
- *Running the Mobile Workflow Application on the Android Emulator* on page 43

Installing Microsoft Synchronization Software

Install and configure Microsoft synchronization software so you can deploy and run a mobile application on a Windows Mobile emulator.

Note: These instructions describe installing Microsoft ActiveSync for Windows XP. If you are using Windows Vista, Windows 7, or Windows 2008, install Virtual PC 2007 SP1 and Windows Mobile Device Center to manage synchronization settings. Download the Windows Mobile Device Center from *http://www.microsoft.com/windowsmobile/en-us/downloads/microsoft/device-center-download.mspx* and follow Microsoft instructions for installing and using that software instead of this procedure.

1. Download Microsoft ActiveSync:
   a) In a Web browser, open the Windows Phone page at *http://www.microsoft.com/windowsmobile/en-us/help/synchronize/device-synch.mspx*.
   b) Follow the instructions to select and download the sync software for the system's operating system. Windows XP requires ActiveSync version 4.5.
   c) In the Windows Phone downloads page, click the **ActiveSync** button.
   d) In the ActiveSync page, download the ActiveSync install file and save it to your local system.
2. Run the downloaded install file.
   For example, double-click `setup.msi` in Windows Explorer.
3. When the installation is complete, restart the system.
4. Start ActiveSync if it does not start automatically.
   For example, click **Start > Programs > ActiveSync**.
5. In ActiveSync, click **File > Connection Settings**.
6. Select **Allow connections to one of the following**, then select **DMA**.
7. For the option, **This computer is connected to**, select **Work Network**.



8. Click **OK**.

Configuring the Windows Mobile Emulator

Follow these steps to configure the Windows Mobile emulator for the Mobile Workflow package deployment.

Prerequisites

- Complete *Installing Microsoft Synchronization Software* on page 30.
- Install Windows Mobile Professional emulator images on which to test and run the sample application. Emulator images are available individually, and some are installed with Visual Studio and Windows Mobile SDK. For example, the emulator used for this tutorial is included in the Windows Mobile 6.5.3 Developer Tool Kit, available for download in the Microsoft Download Center (http://www.microsoft.com/download)
- Install the Microsoft Device Emulator, if it is not already installed (for example, as part of Visual Studio or the Windows Mobile SDK). Go to the Microsoft Download Center at http://www.microsoft.com/download, search for “Device Emulator”, and follow the links to download and install the Standalone Release of the Microsoft Device Emulator.
- Download the Microsoft .NET Compact Framework Redistributable (for example, `NETCFSetupv35.msi`) from `http://www.microsoft.com/download/` to your system. See *Supported Hardware and Software* for the most current version information for mobile device platforms and third-party development environments.

Task

This tutorial uses examples based on one of the supported emulators. The screens and steps for configuring other supported emulators might be different. See *Supported Hardware and Software* for the most current version information for mobile device platforms and third-party development environments.

1. *Installing the Hybrid Web Container on the Windows Mobile Emulator*
   Install Sybase Messaging Runtime software on your emulator.
2. *Configuring Connection Settings on Windows Mobile*
   Configure the connection settings on the Windows Mobile emulator.

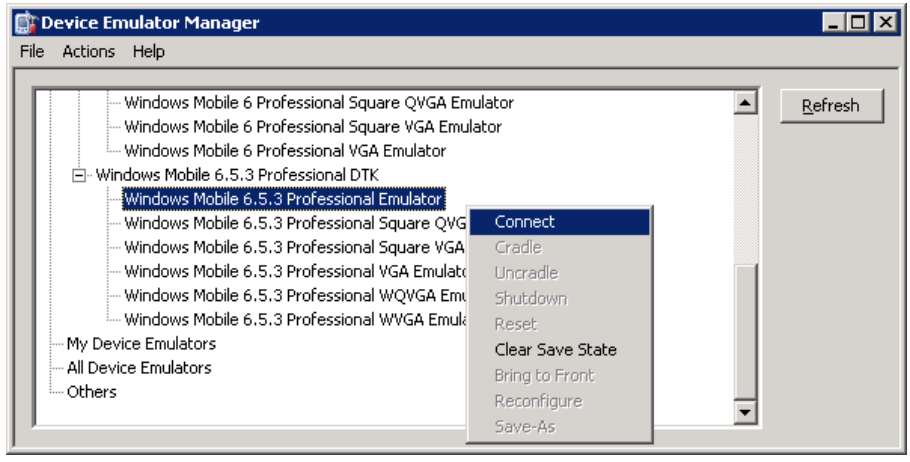
See also

- *Running the Mobile Workflow Form on the Windows Mobile Emulator* on page 38

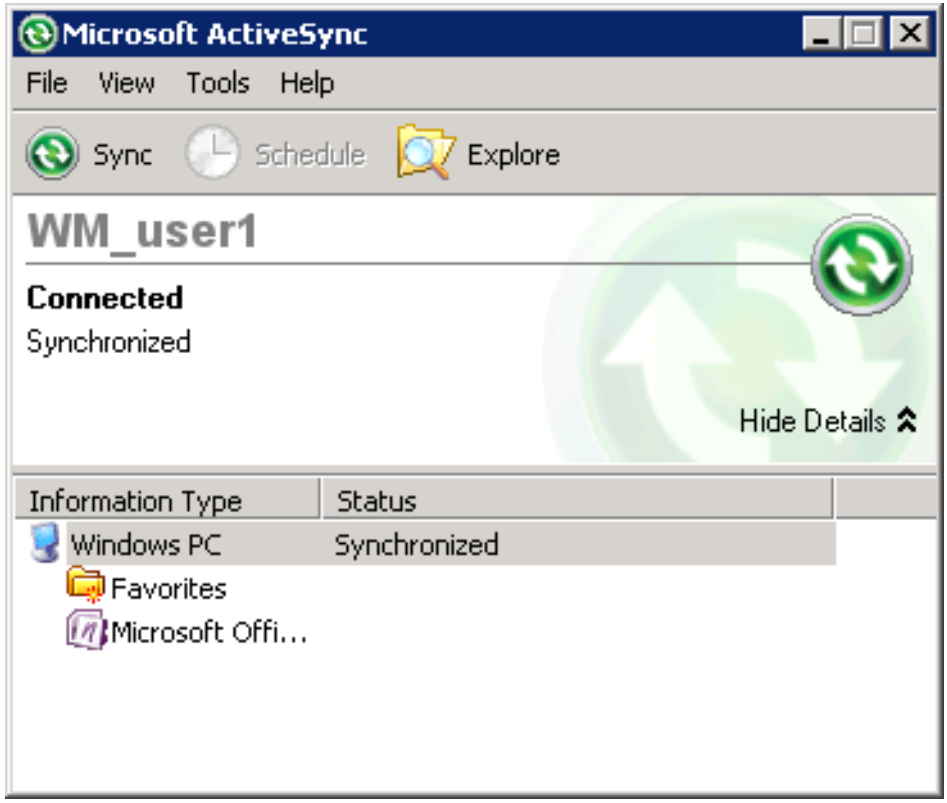
Installing the Hybrid Web Container on the Windows Mobile Emulator

Install Sybase Messaging Runtime software on your emulator.

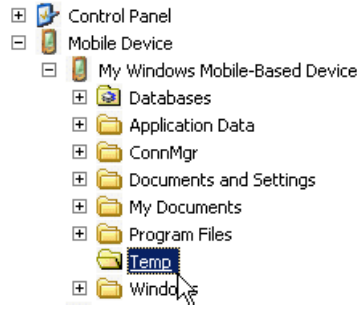
1. Start the synchronization software.
   For example, on Windows XP, start Microsoft ActiveSync. On Windows Vista, Windows 7, or Windows 2008, start the Windows Mobile Device Center.
2. Start the Device Emulator Manager and select an emulator to run.
   For example:
   1. Double-click `C:\Program Files\Microsoft Device Emulator \1.0\dvcemumanager.exe`.
   2. In the Device Emulator Manager, right-click the device you want to run and choose **Connect** to open the emulator. For example.



   3. In the Device Emulator Manager, right-click the device again and click **Cradle**.
3. The synchronization software runs and connects to your device. If the Setup Wizard opens, accept the default options for each step and click **Finish**.



4. Run the downloaded Microsoft .NET Compact Framework Redistributable file to install the .NET Compact Framework on your running emulator. Follow the setup wizard instructions, and click **Finish** to close the wizard when you are done.
5. Go to `UnwiredPlatform_InstallDir\UnwiredPlatform\MobileSDK\HybridWeb\WM` and copy the `SybaseMobileWorkflow.cab` file to a folder on mobile device folder on your system.
   For example:



6. On the device emulator, open File Explorer and browse to the folder to which you copied the CAB file. Click the file once to install the Sybase mobile workflow client on your emulator.

Configuring Connection Settings on Windows Mobile

Configure the connection settings on the Windows Mobile emulator.

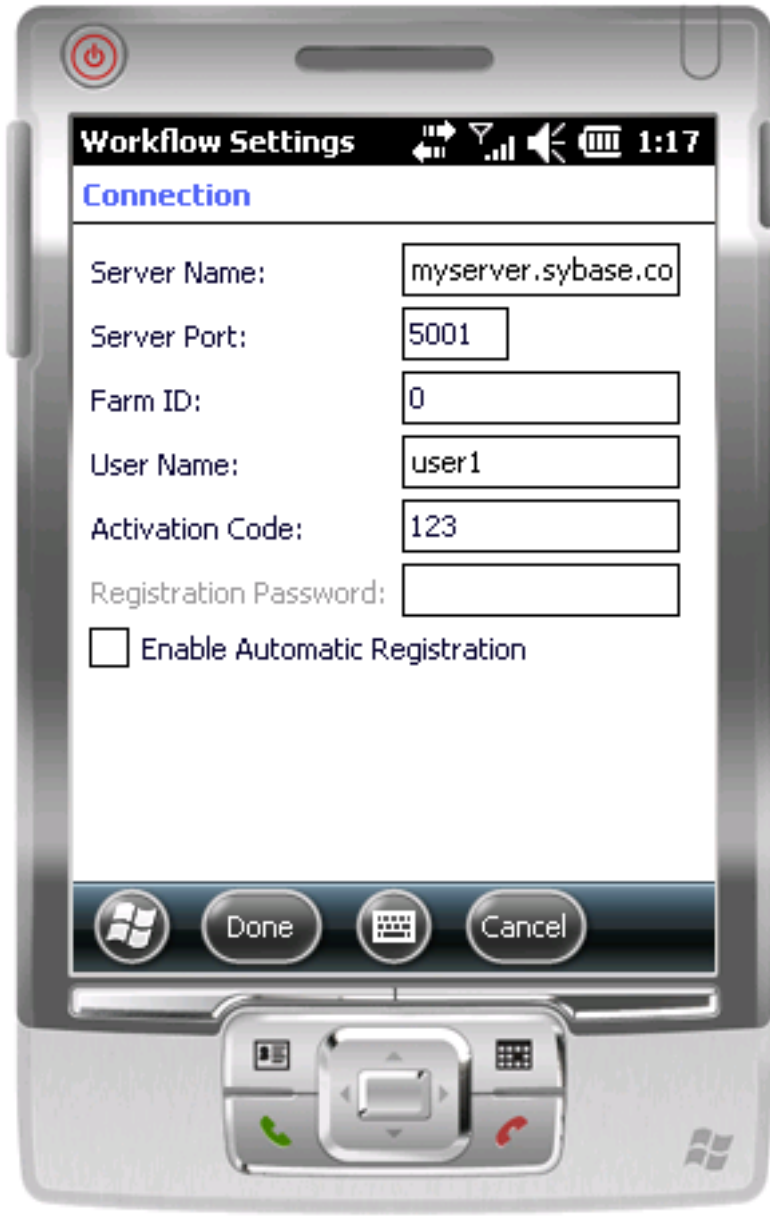
Prerequisites

Complete *Installing the Hybrid Web Container on the Windows Mobile Emulator* on page 32.

Task

1. On the emulator, open Workflow Settings.
   For example, open the Start screen and click **Workflow Settings**.

2. In Workflow Settings screen, click **Connection**.
3. In the Connection screen, enter the connection settings.
   For example:



- Server Name – the machine and domain of the host server where the mobile application project is deployed, or the input server IP address.
- Server Port – accept the default Unwired Server port number, 5001.
- Farm ID or Company ID – accept the default value, 0.
- **User Name**: the user name registered for the device in Sybase Control Center

- Activation Code – an optional activation code for the user to enter.

4. Click **Done**.

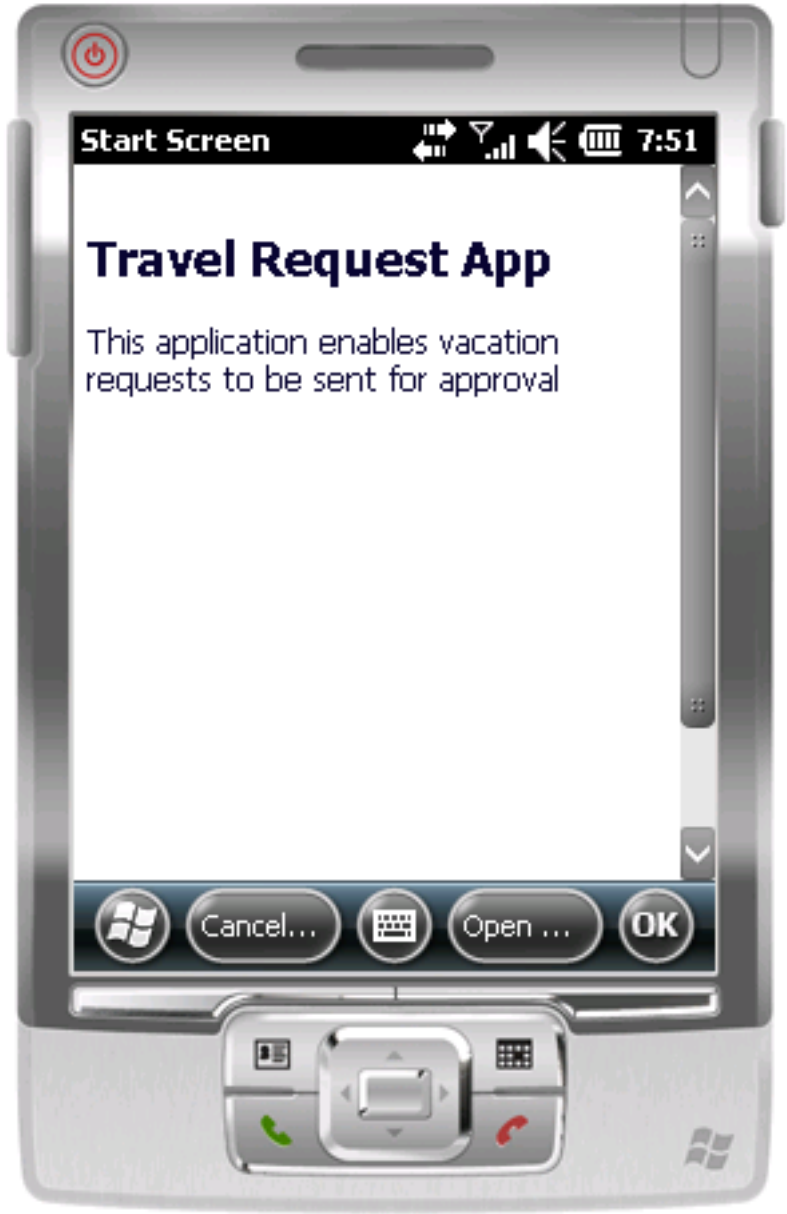
Running the Mobile Workflow Form on the Windows Mobile Emulator

Run the travelrequest mobile workflow form on the Windows Mobile emulator.

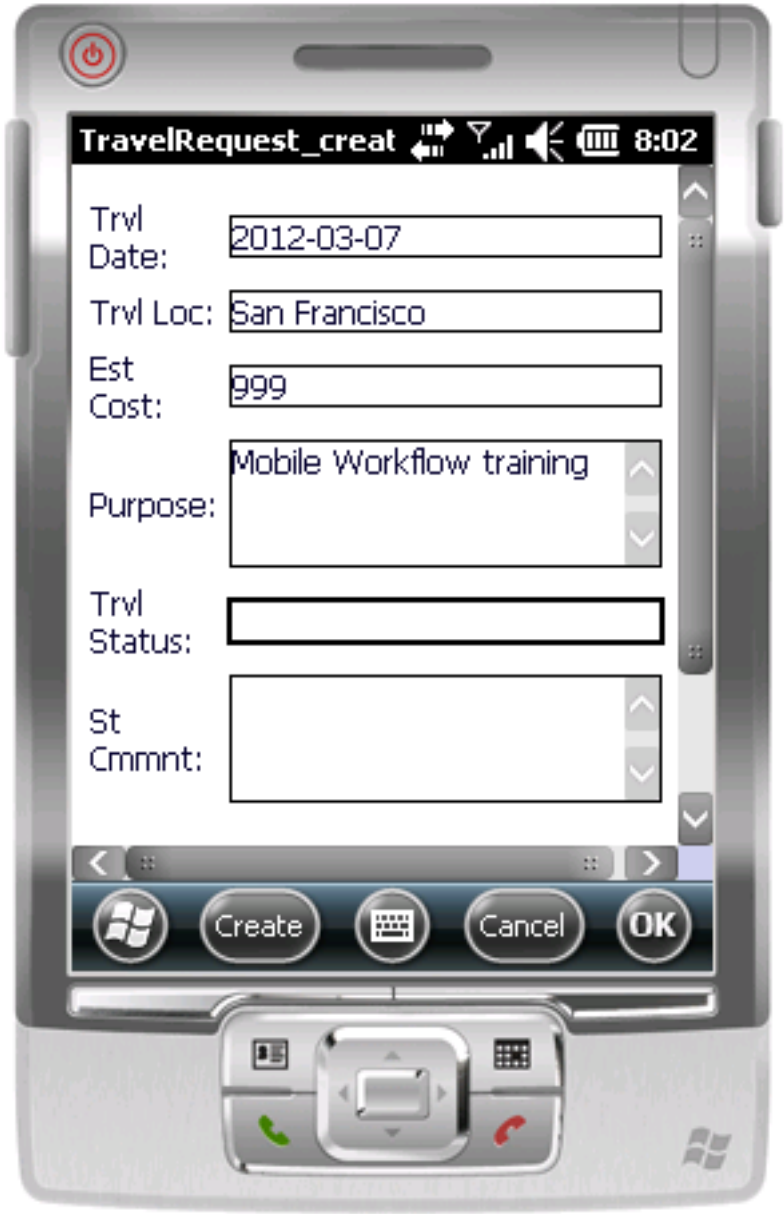
1. In the emulator, open Sybase Mobile Workflows.
   For example, open the Start screen and click the Sybase Mobile Workflows icon.

2. In Sybase Workflow, click the travelrequest workflow:

3. In the travelrequest Start Screen, click **Open**.



4. In the application, enter your travel request information.



5. Click **Create**.
   The emulator closes the mobile workflow form and updates the TravelRequest database table on the back end.

See also

- *Configuring the Windows Mobile Emulator* on page 31

Running the MobileWorkflow Application on the Android Emulator

Install and configure the Android Simulator software and use it to run the Mobile Workflow application.

1. *Configuring the Android Emulator*

   Configure an Android emulator for testing a Sybase Mobile Workflow package.
2. *Configuring Connection Settings on the Android Emulator*

   Configure the connection settings on the Android emulator.
3. *Running the Mobile Workflow Form on the Android Simulator*

   Run the travelrequest mobile workflow form on the Android simulator.

See also

- *Running the Mobile Workflow Application on the Windows Mobile Emulator* on page 29
- *Running the MobileWorkflow Application on the iPhone Simulator* on page 53

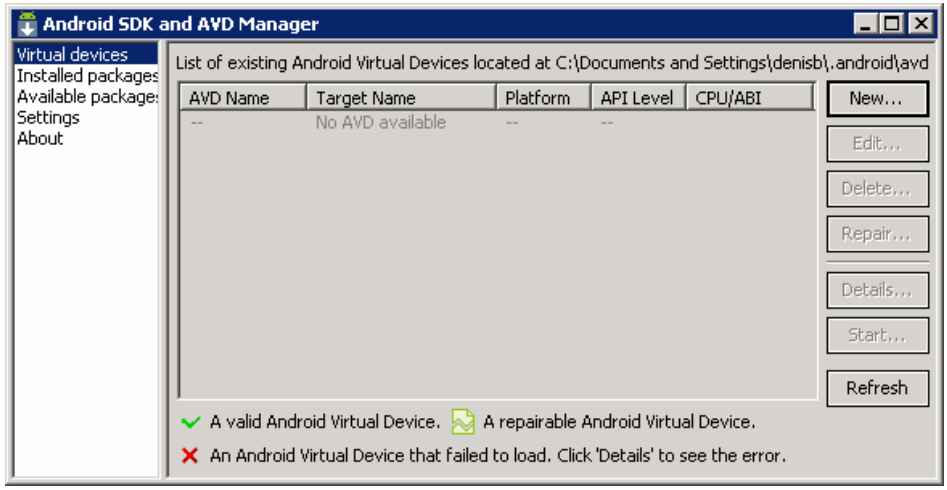
Configuring the Android Emulator

Configure an Android emulator for testing a Sybase Mobile Workflow package.

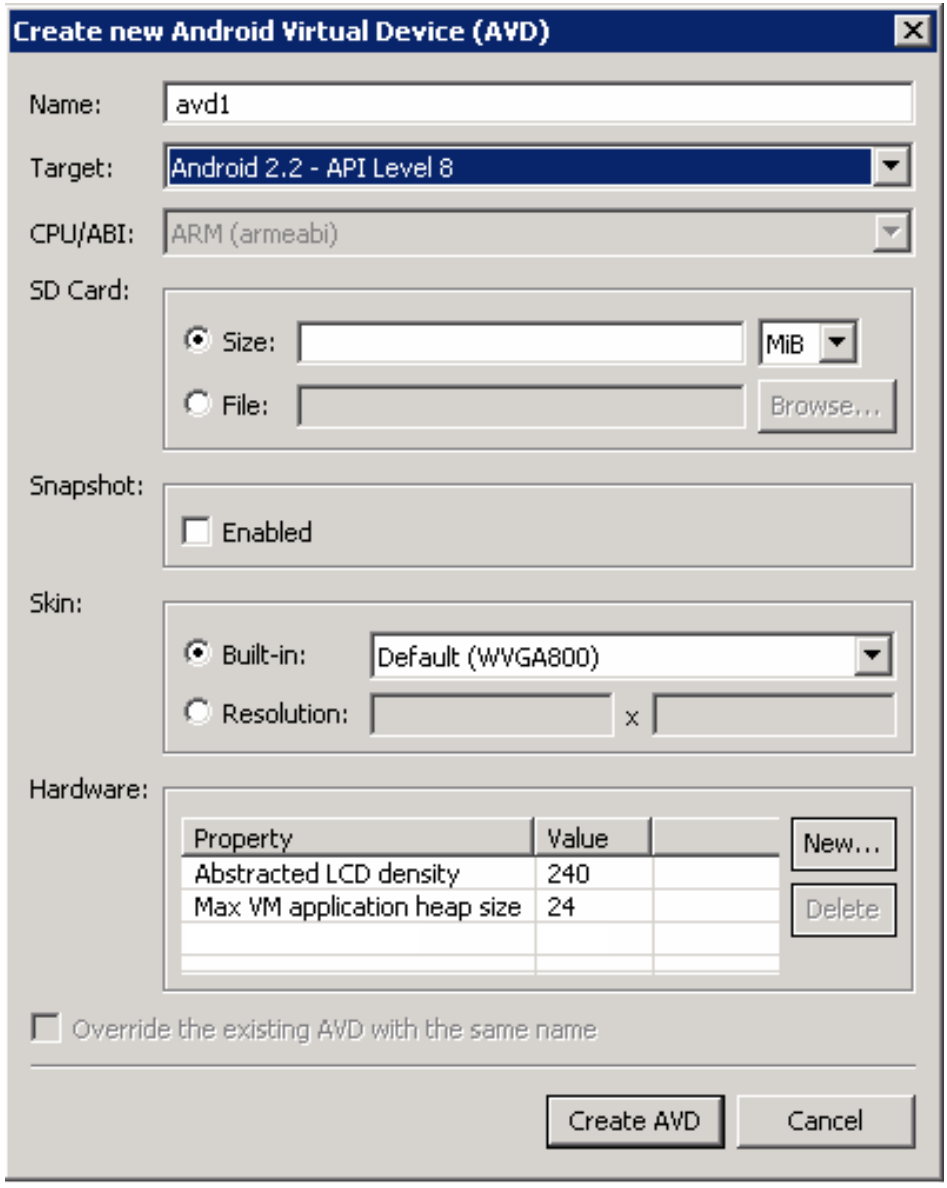
Note: The steps or interface may be different depending on which Android SDK version you are using.

1. Install the Android SDK.

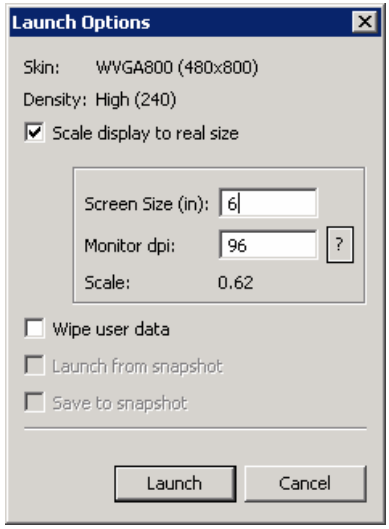
   Go to *http://developer.android.com/sdk/* to download and install the Android SDK. Follow the instructions on the Android page, with these exceptions:
   - See *Supported Hardware and Software* for the most current version information for mobile device platforms and third-party development environments.
   - When specifying the install location, consider choosing a path that does not contain spaces, such as `C:\Android\android-sdk`. Some versions of the Android SDK do not work correctly when installed in the default *`drive`*`:\ Program Files` location.
   - If the Android installer stops with a message that the required Java JDK is not found on your system (even when the JDK is installed), try clicking **Back** and then **Next**, one or more times, until the installer detects the JDK.
2. Click **Start Programs** > **Android SDK Tooks** > **AVD Manager**.



3. Add a device:
   a) In the Android AVD Manager, click **New**.
   b) In the Create new Android Virtual Device window, enter a name.
   c) For the target, select a supported Android version.
   d) Set any other available options you want, then click **Create AVD**.



4. Select the new virtual device and click **Start**.
5. In Launch Options, optionally modify the default display scaling, then click **Launch**.



6. When the Android screen finishes loading, install the Sybase container files to the emulator:
   a) Open a command prompt.
   b) In the command prompt, run the *Android_InstallDir*`\android-sdk\platform-tools\adb.exe` commmand to install the `SybaseDataProvider.apk` package file.

      The `apk` files are located in *UnwiredPlatform_InstallDir*`\MobileSDK\HybridWeb\Android`

      For example:

      ```
      C:\Android\android-sdk\platform-tools\adb install ^
      C:\Sybase\UnwiredPlatform\MobileSDK\HybridWeb\Android
      \SybaseDataProvider.apk
      ```

   c) Run the same command to install `Workflow.apk`.

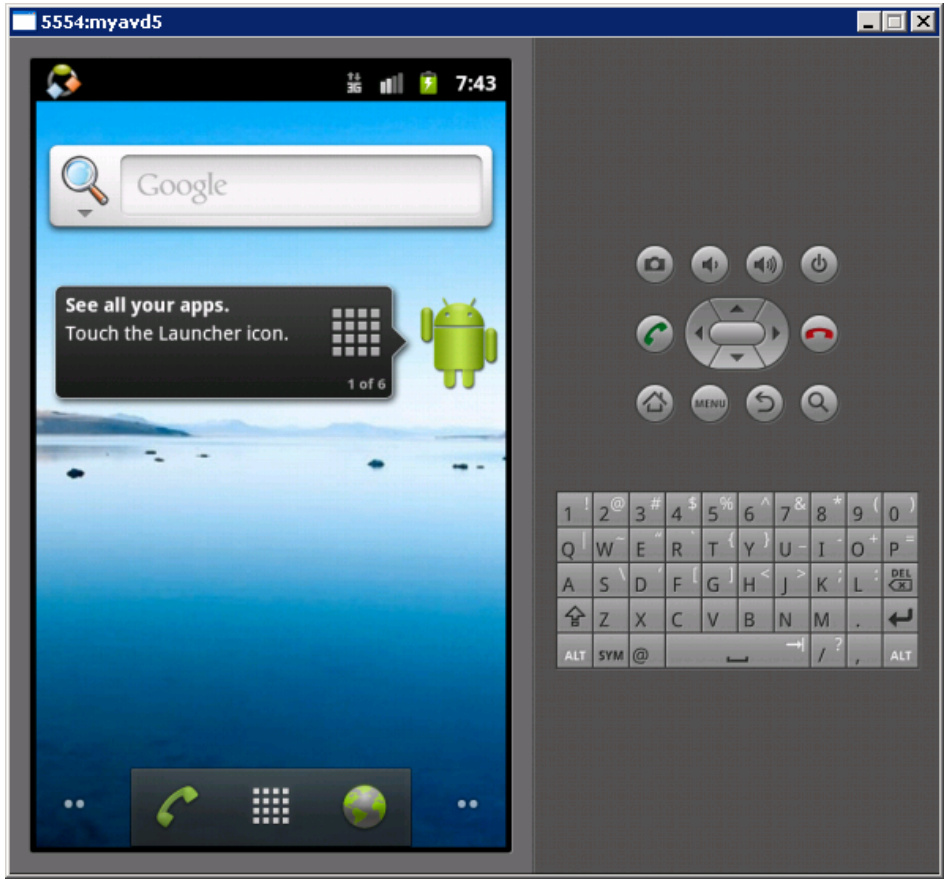
      For example:

      ```
      C:\Android\android-sdk\platform-tools\adb install ^
      C:\Sybase\UnwiredPlatform\MobileSDK\HybridWeb\Android
      \Workflow.apk
      ```

Configuring Connection Settings on the Android Emulator

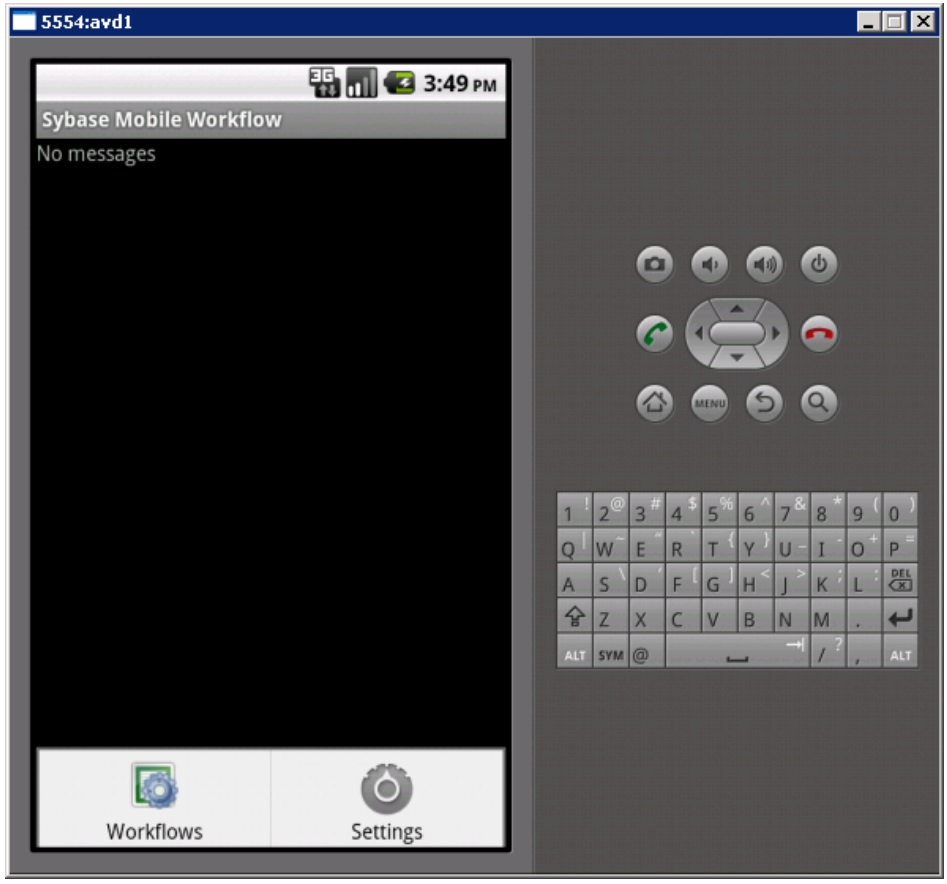
Configure the connection settings on the Android emulator.

1. On the emulator home page, click **Menu**.
2. Click the launcher icon.

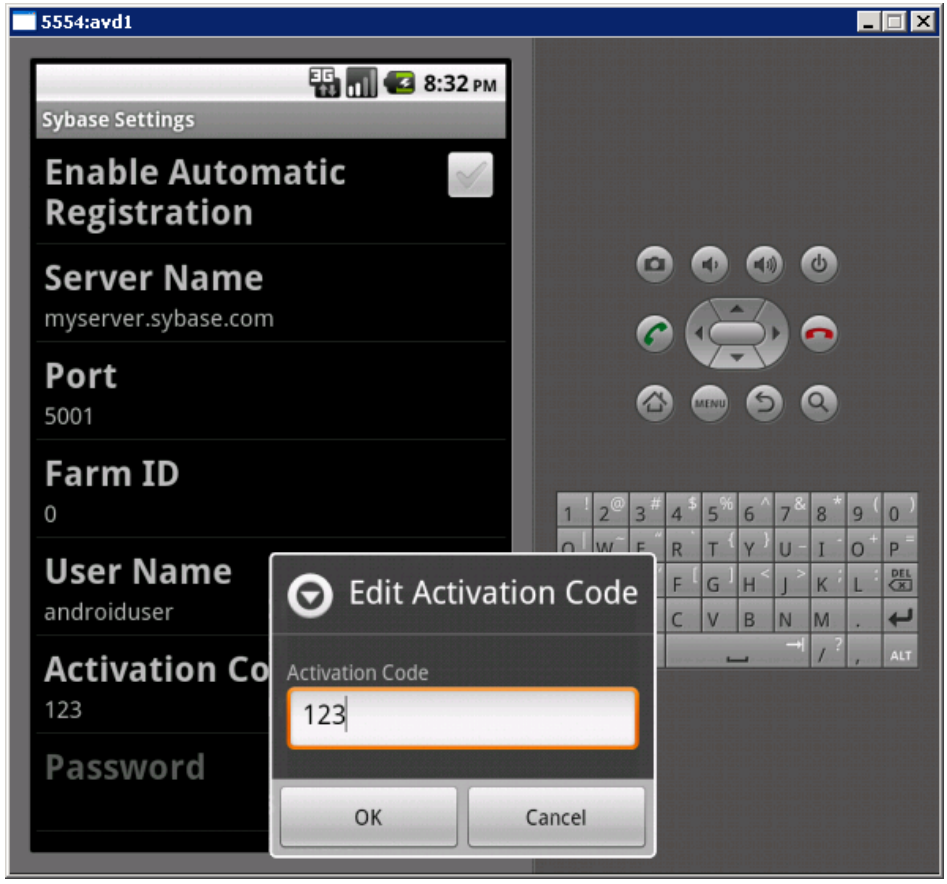


3. In the launcher, find and click the  **Sybase Mobile Workflow** icon. For example:

4. In the Sybase Mobile Workflow screen, enter the Unwired Server password and click **OK**.
5. Click **Menu**. In the menu, click **Settings**.



6. In Sybase Settings, enter the connection settings for your application.

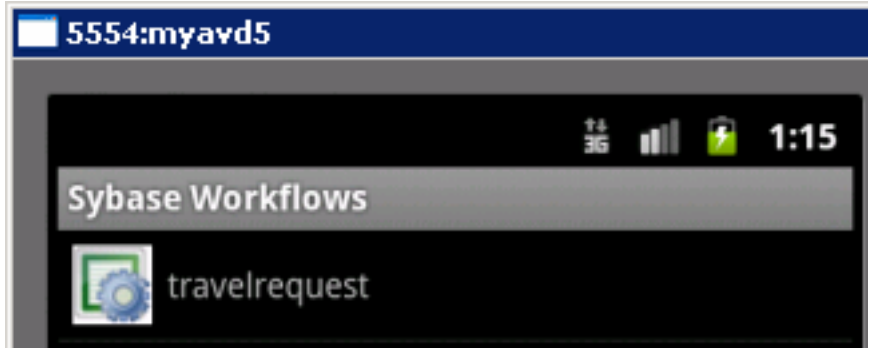


7. Click **Menu**. In the menu, click **Save** to save your settings. Then click **Restart Engine**.

Running the Mobile Workflow Form on the Android Simulator

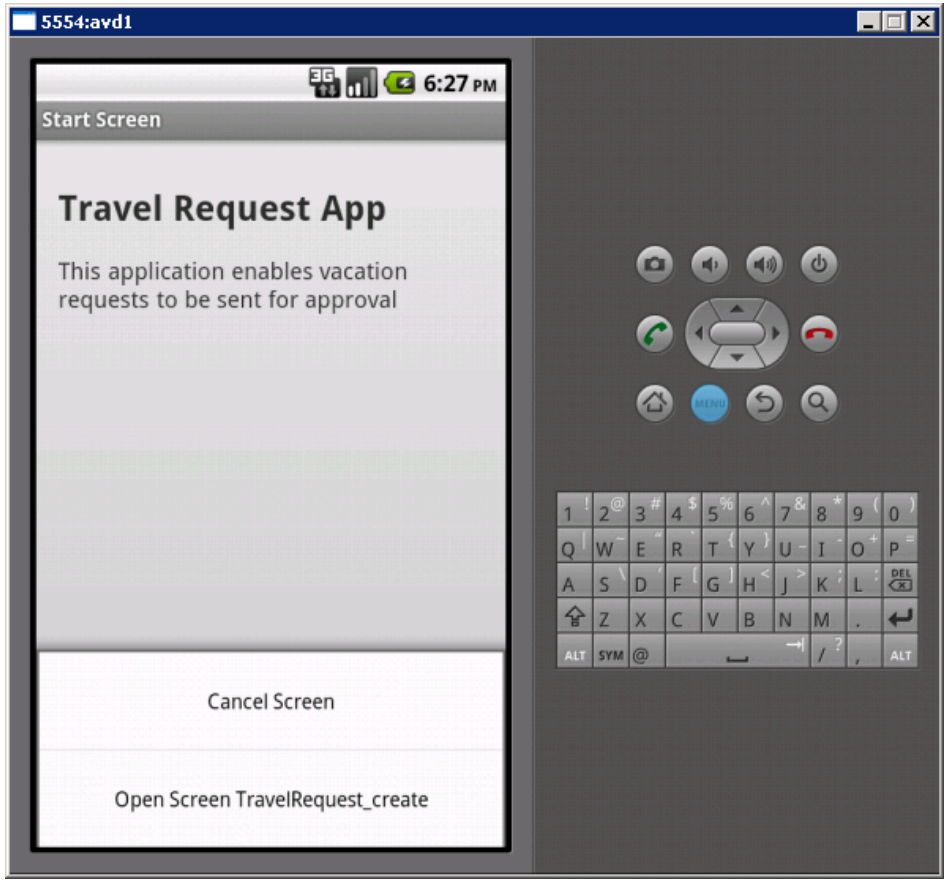
Run the travelrequest mobile workflow form on the Android simulator.

1. Start your emulator instance if it is not already running:
   a) Click **Start > Programs > Android SDK Tools > SDK Manager**.
   b) Select the new virtual device and click **Start**.
   c) In Launch Options, optionally modify the default display scaling, then click **Launch**.
2. In the emulator, click **Menu**.
3. In the launcher, click the **Sybase Mobile Workflow** icon.
4. In the Sybase Mobile Workflow, enter the Unwired Server password and click **OK**.
5. Click **Menu**. In the menu, click **Workflows**.
   Sybase Workflows lists the **travelrequest** workflow:



6. Click **travelrequest** to open the workflow start screen.

7. Click **Menu** again, and choose **Open TravelRequest_create**.



8. Enter your travel request information in the workflow form.
9. Click **Menu** and choose **Create**.

The mobile workflow form closes and the `TravelRequest` database table on the server is updated.

Running the MobileWorkflow Application on the iPhone Simulator

Build a sample Mobile Workflow container in the XCode IDE, and run the travelrequest Mobile Workflow application on an iPhone simulator.

1. *Building the Mobile Workflow Container Using the Provided iOS Source Code*

   The mobile workflow container referenced is a sample container. You can use the provided source code in Xcode to build your own customized user interface and configure other resources.
2. *Configuring iPhone Connection Settings*

Configure settings for the Mobile Workflow application.

3. *Running the Mobile Workflow Form on the iPhone Simulator*

   Run the travelrequest mobile workflow form on the iPhone simulator.

See also

- *Running the MobileWorkflow Application on the Android Emulator* on page 43
- *Running the MobileWorkflow Application on the BlackBerry Simulator* on page 57

Building the Mobile Workflow Container Using the Provided iOS Source Code

The mobile workflow container referenced is a sample container. You can use the provided source code in Xcode to build your own customized user interface and configure other resources.

Prerequisites

- Register the device in Sybase Control Center.
- Have access to a Mac with a supported version of Xcode and the iOS SDK.

See *Supported Hardware and Software* for the most current version information for mobile device platforms and third-party development environments.

Task

1. On your Mac, connect to the Microsoft Windows machine where Sybase Unwired Platform is installed:
   a) In the Apple menu, click **Go** > **Connect to Server**.
   b) Enter the name or IP address of the machine.
      For example, `smb://<machine DNS name>` or `smb://IP Address`.
2. Copy the `MobileWorkflow<version>.tar` archive from `UnwiredPlatform_InstallDir\UnwiredPlatform\MobileSDK\HybridWeb\iOS\` to a location on your Mac.

   In the archive file name, <*version*> is the current Unwired Platform version number. For example, `MobileWorkflow-2.1.2.tar`.
3. Unpack `MobileWorkflow<version>.tar`.
   The extraction creates a `Workflow` directory.
4. In the `Workflow` directory, double-click **WorkFlow.xcodeproj** to open it in the Xcode IDE.
5. If necessary, select **Project** > **Edit Active Target** > **ProjectName** > **General** to add these from the SDK to the project:
   - `Security.framework`

- `AddressBook.framework`
- `QuartzCore.framework`
- `CoreFoundation.framework`
- `libicucore.A.dylib`
- `libz.1.2.5.dylib`
- `libstdc++.dylib`

6. In Xcode, select **Build** > **Build** to build the project.

Configuring iPhone Connection Settings

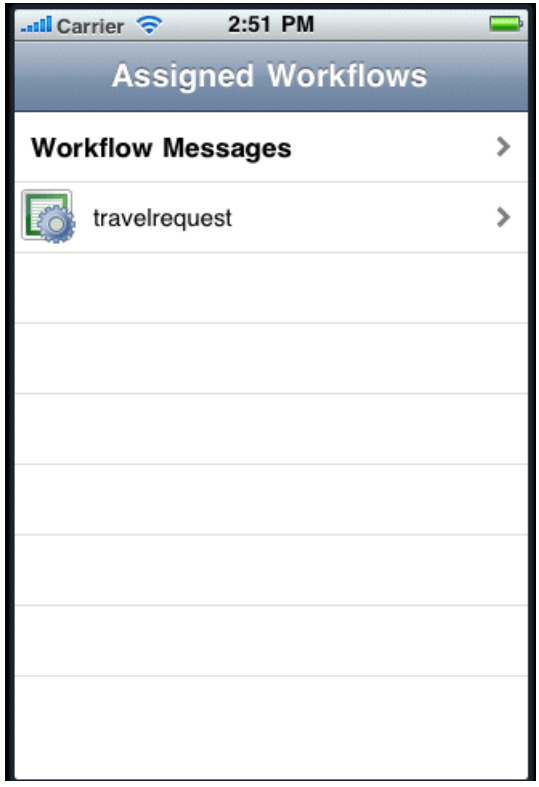
Configure settings for the Mobile Workflow application.

1. When the iPhone simulator runs, the TravelRequest workflow application opens. Close the Assigned Workflows screen.
2. In the iPhone simulator Settings window, click **WorkFlows**.
3. Enter these settings for the SUP Mobile Workflow application:
   - Server Name – the machine that hosts the server where the mobile application project is deployed.
   - Server Port – Unwired Server port number. The default is 5001.
   - Company ID – the company ID you entered when you registered the device in Sybase Control Center, in this case, 0 (zero).
   - User Name – the user you registered in Sybase Control Center.
   - Activation Code – the optional user activation code.

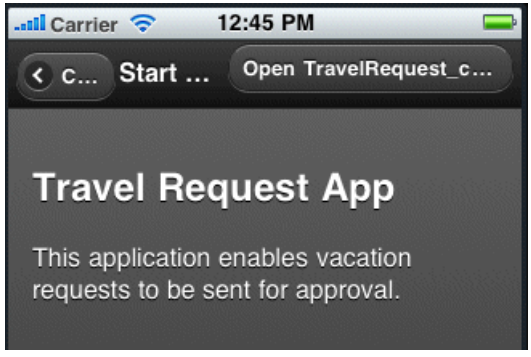
Running the Mobile Workflow Form on the iPhone Simulator

Run the travelrequest mobile workflow form on the iPhone simulator.

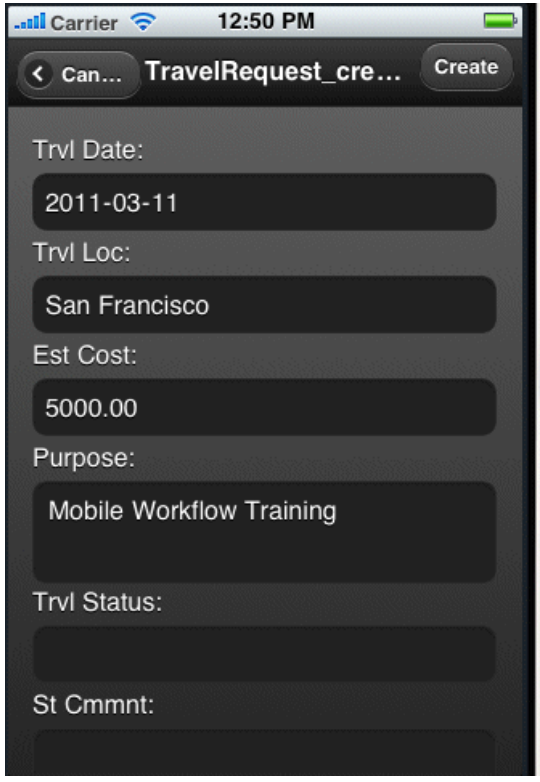
1. Click **Workflows**.
2. In Workflows, click **travelrequest**.



3. In the introduction page, click **Open TravelRequest**.



4. Fill out the information for the travel request, and click **Create**.



The simulator closes the mobile workflow form. The TravelRequest database table is updated on the backend.

Running the MobileWorkflow Application on the BlackBerry Simulator

Install and configure the BlackBerry simulator, and use it to run the Mobile Workflow application.

1. *Configuring the BlackBerry Simulator*

   Follow these steps to configure a BlackBerry simulator for the Mobile Workflow package deployment.
2. *Running the Mobile Workflow Form on the BlackBerry Simulator*

   Run the travelrequest mobile workflow form on the BlackBerry simulator.

See also

- *Running the MobileWorkflow Application on the iPhone Simulator* on page 53
- *Verifying the Data on the Backend Database* on page 65

Configuring the BlackBerry Simulator

Follow these steps to configure a BlackBerry simulator for the Mobile Workflow package deployment.

This tutorial was developed using one of the supported BlackBerry simulators. If you use a different version, the interface might differ in some details. See *Supported Hardware and Software* for the most current version information for mobile device platforms and third-party development environments.

1. *Downloading the BlackBerry JDE*

   To generate and distribute BlackBerry device applications, download BlackBerry JDE and its prerequisites from the BlackBerry Web site.
2. *Configuring the Mobile Workflow in the BlackBerry Simulator*

   Start the BlackBerry simulator and configure it to connect to the Workflow application.

See also

- *Running the Mobile Workflow Form on the BlackBerry Simulator* on page 63

Downloading the BlackBerry JDE

To generate and distribute BlackBerry device applications, download BlackBerry JDE and its prerequisites from the BlackBerry Web site.

Prerequisites

You must have a BlackBerry developer account to download the BlackBerry JDE. You may be required to register if you do not already have an account. Before you download the JDE, ensure the 32-bit JDK has already been installed, even for 64-bit operating systems; otherwise, MDS will not start.

Task

Go to the BlackBerry Web site at *http://us.blackberry.com/developers/javaappdev/javadevenv.jsp* to download and install the BlackBerry JDE.
The MDS-CS simulator is installed with the BlackBerry JDE.

Configuring the Mobile Workflow in the BlackBerry Simulator

Start the BlackBerry simulator and configure it to connect to the Workflow application.

1. Start the Mobile Data System Connection Service (MDS-CS): click **Start > Programs > Research In Motion > BlackBerry JDE *version* > MDS-CS**.
   MCS-CS runs in a Command window and waits for a BlackBerry device to send data.
2. Start the BlackBerry simulator.
   For example, click **Start > Programs > Research In Motion > BlackBerry JDE *version* > Device Simulator**.

3. Click through any introductory screens:
   - In the end-user license agreement, scroll to the end and click **OK** to accept it.
   - In the Setup screen, click **Escape** and then **Exit**.

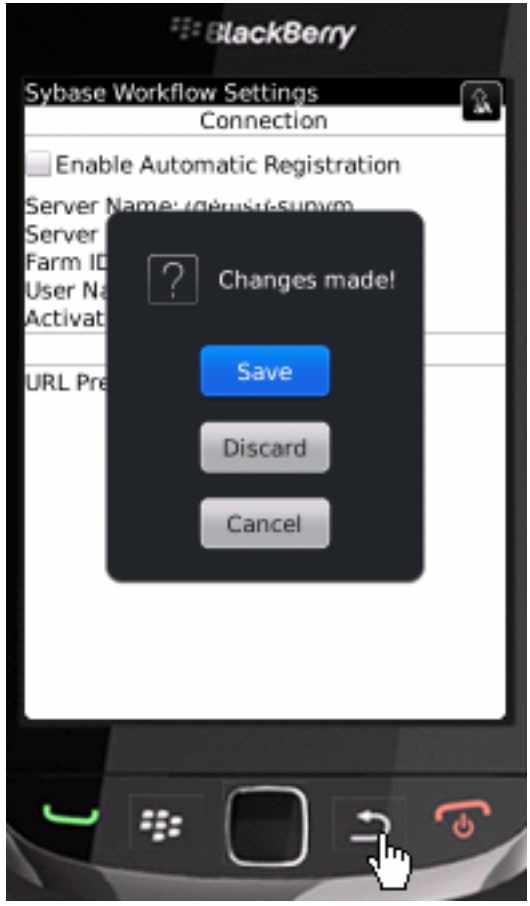

BlackBerry
Simulated Network
3g
Fri 28 Oct
12:37
All
Messages
Text Messages
Contacts
Browser
space
sym

4. In your Windows file system, copy the Sybase Workflow client files to your BlackBerry simulator.
   For example, copy `C:\Sybase\UnwiredPlatform\MobileSDK\HybridWeb\BB\*.*` to `C:\Program Files\Research In Motion\BlackBerry JDE 6.0.0\simulator`.
5. Restart the simulator.
6. In the BlackBerry simulator, configure connection settings for the Mobile Workflow application:
   a) In the main window, click **All** to access the applications screen, then scroll until you see the Workflow application.

   b) Double-click the Workflow application to open its settings.
   c) Enter these connection settings:

- **Server Name**: the server name registered for the device in Sybase Control Center
- **Server Port**: 5001
- **Farm ID**: 0
- **User Name**: the user name registered for the device in Sybase Control Center
- **Activation Code**: the activation code if registered for the device in Sybase Control Center

d) Click the similator **Menu** control. In the menu, click **Save**. Press the simulator **Return** control, and save the configuration when prompted.



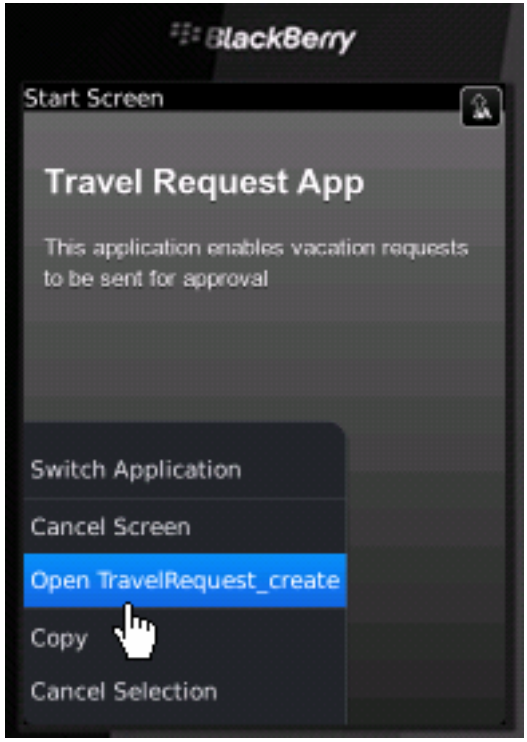
7. Click the similator **Menu** control. In the menu, click **Save**. Press the simulator **Return** control, and save the configuration when prompted.

Running the Mobile Workflow Form on the BlackBerry Simulator

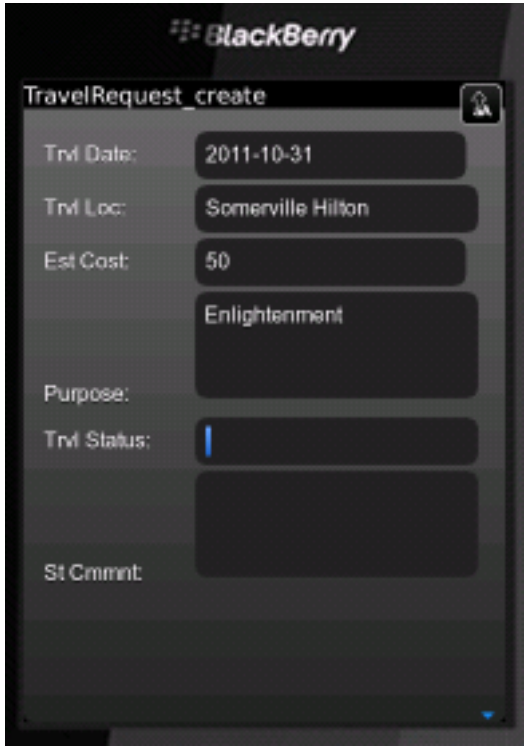
Run the travelrequest mobile workflow form on the BlackBerry simulator.

Note: This tutorial was developed using a supported version of the BlackBerry simulator. If you use a different version, the interface might differ in some details.

1. Start your BlackBerry simulator instance if it is not already running:
2. In the emulator, click **All**.
3. Open the  Sybase Mobile Workflow.
4. Start **travelrequest** and create a new record.



5. Enter your travel request information in the workflow form, and click **Submit**.



The mobile workflow form closes and the `TravelRequest` database table on the server is updated.

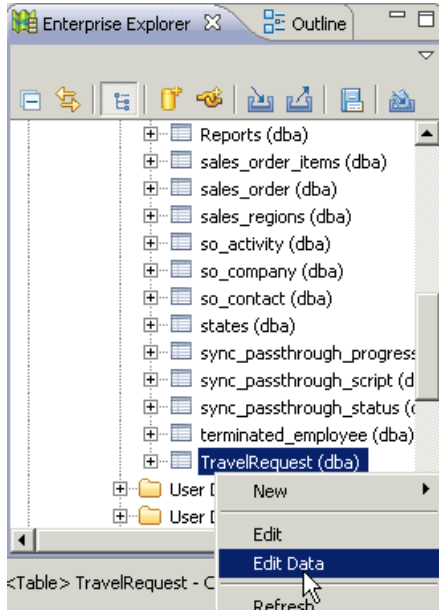
See also

- *Configuring the BlackBerry Simulator* on page 58

Verifying the Data on the Backend Database

After submitting a travel request in an emulator, verify that the information is updated in the database.

1. In Unwired WorkSpace, expand the sample database in Enterprise Explorer.
2. In the Tables folder, right-click the TravelRequest table and select **Edit Data**.



3. In the Table Data Filter dialog, accept the default settings and click **OK**.
   The TravelRequest table opens, displaying the new row.

See also

- *Running the MobileWorkflow Application on the BlackBerry Simulator* on page 57

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: *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.

Example Projects

Example projects are available for download, if you want the finished tutorial without going through the steps. Download example 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 best practices for architecting and building device applications:

- *Mobile Data Models: Using Data Orchestration Engine* – provides information about using Sybase Unwired Platform features to create DOE-based applications.
- *Mobile Data Models: Using Mobile Business Objects* – provides information about how to develop mobile business objects (MBOs) to fully maximize their potential.

Learn about using the API to create device applications:

- *Developer Guide: Android Object API Applications*
- *Developer Guide: BlackBerry Object API Applications*
- *Developer Guide: iOS Object API Applications*
- *Developer Guide: Windows and Windows Mobile Object API Applications*
- *Developer Guide: Mobile Workflow Packages*

Customize and automate:

- *Developer Guide: Unwired Server Management API* – customize and automate system administration features.

Javadoc and HeaderDoc are also available in the installation directory.

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