



**Tutorial: Mobile Workflow Package  
Development**

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**Sybase Unwired Platform 2.1**

**ESD #3**

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# 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.

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**Tip:** If you want to see the final outcome of a tutorial without performing the steps, the associated example project is available on SAP® Community Network: <http://scn.sap.com/docs/DOC-8803>.

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- 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*



# 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 create mobile business objects (MBOs), manage EIS data sources and Unwired Server connections, develop Mobile Workflow applications, and generate 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 unfamiliar with Eclipse, you can quickly learn the basic layout of Unwired WorkSpace and the location of online help.

## Installing Sybase Unwired Platform

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Install Sybase Mobile SDK and Sybase Unwired Platform Runtime.

Before starting this tutorial, install all the requisite Unwired Platform components. See the Sybase Unwired Platform documentation at <http://sybooks.sybase.com/sybooks/sybooks.xhtml>:

- *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:

## Getting Started with Unwired Platform

- Development support for native Object API applications, HTML5/JS Hybrid (Mobile Workflow) applications, and native OData SDK applications.
- Sybase Unwired WorkSpace, the Eclipse-based development environment for MBOs and mobile workflows.

## Starting Sybase Unwired Platform Services

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

The way in which you start Unwired Platform services depends on the options you selected during installation. 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

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Start the development environment, where you can create mobile business objects (MBOs), manage EIS data sources and Unwired Server connections, develop Mobile Workflow applications, and generate 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

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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**.

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**Note:** If the Sybase Control Center does not launch, make sure that the Sybase Control Center service is started in the Windows Services dialog.

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2. 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

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Sybase Unwired WorkSpace features are well integrated in the Eclipse IDE. If you are unfamiliar 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 started.
  - 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	<p>The Mobile Application Diagram is a graphical editor where you create and define mobile business objects.</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"> <li>• Create MBOs in the Mobile Application Diagram using Palette icons and menu selections – either bind or defer binding to a datasource, when creating an MBO. For example, you may want to model your MBOs before creating the datasources to which they bind. This MBO development method is sometimes referred to as the top-down approach.</li> <li>• Drag and drop items from Enterprise Explorer to 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.</li> </ul> <p>Each new mobile application project generates an associated mobile application diagram.</p>
Palette	<p>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.</p>
Properties view	<p>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.</p>
Outline view	<p>Displays an outline of the active file and lists structural elements. The contents are editor-specific.</p>

<b>Window</b>	<b>Description</b>
Problems view	Displays validation errors or warnings that you may encounter in addition to errors in the Diagram editor and Properties view. Follow warning and error messages to adjust MBO properties and configurations to avoid problems, and use as a valuable source for collecting troubleshooting information when reporting issues to Customer Service and Support.
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

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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

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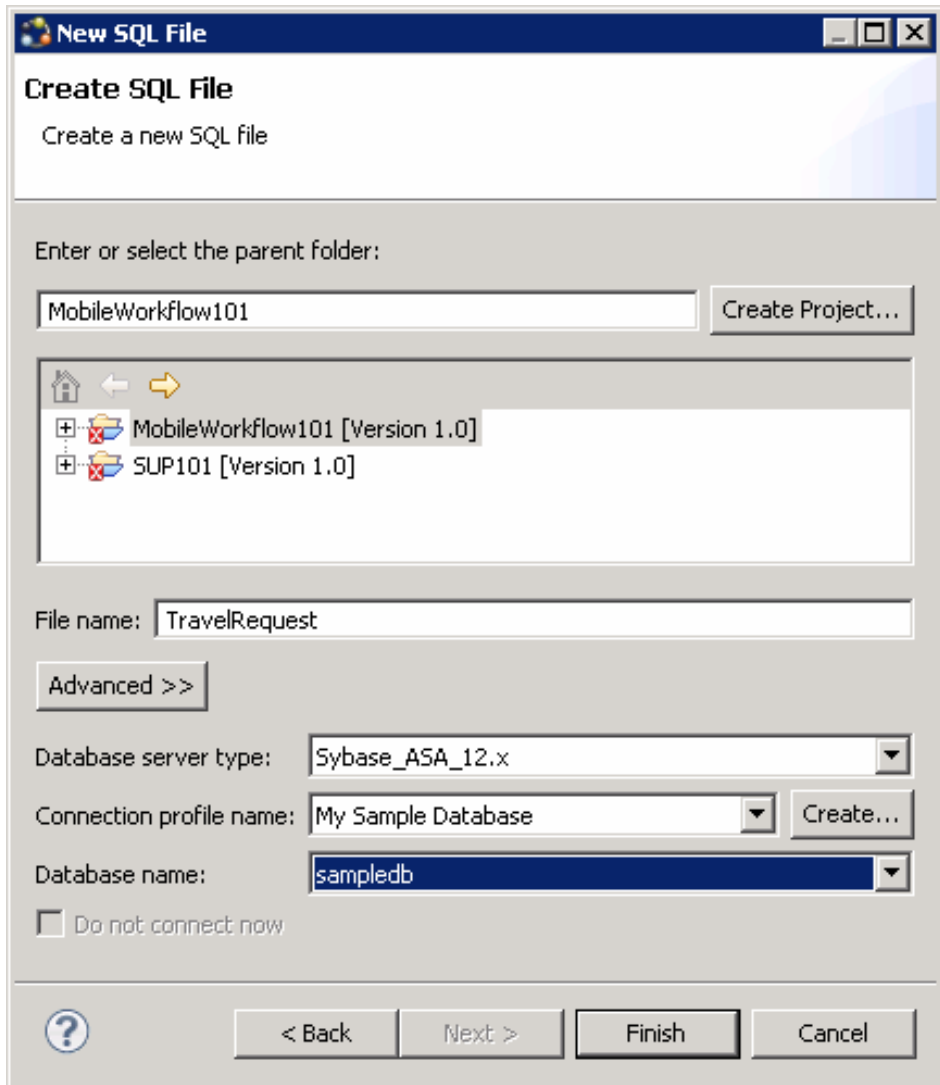
Create the database table to be used by the Travel Request mobile business object.

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**:

<b>Field</b>	<b>Value</b>
Parent folder	Select the <b>MobileWorkflow101</b> project.
File name	Enter <b>TravelRequest</b> .
Database server type	Select <b>Sybase_ASA_12.x</b> .
Connection profile name	Select <b>My Sample Database</b> .
Database name	Select <b>sampledb</b> .



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

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

### Prerequisites

Complete *Creating the TravelRequest Database Table* on page 9.

### 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.

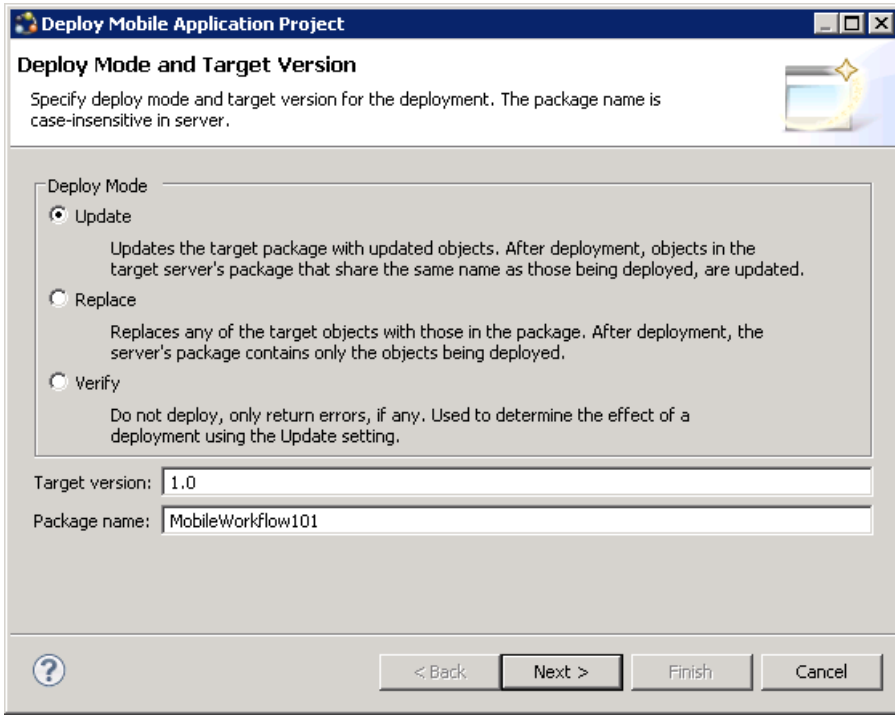
## Deploying the WorkFlow101 Mobile Application Project

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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**.





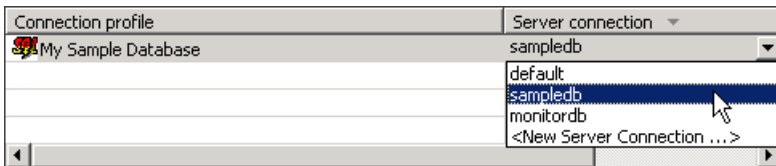
3. In the Contents page, select the **TravelRequest** mobile business object, and click **Next**.
4. In the Package User-defined Classes page, click **Next**.

---

**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.

## Developing a Database Mobile Business Object

- 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, customize it, 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 Mobile Workflow Application on the Android Emulator*  
Install and configure the Android Simulator software and use it to run the Mobile Workflow application.
6. *Running the Mobile Workflow 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 Mobile Workflow 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.  
Example: `localhost.mycompany.com`.
    - 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.

✔ Application connection registered successfully.

Applications Application Users Application Connections Application Connections

Manage application connections.

Refresh Delete Users... Register... Reregister...

Search: User Name Go

<input type="checkbox"/>	User Name	Device Type	Device ID	Status	Pendin...	Application...	Security
<input type="checkbox"/>	user1	WM Professio...	Emulator2141990	Offline	0	HWC	admin
<input type="checkbox"/>	androiduser			Pending ...	3	HWC	admin
<input type="checkbox"/>	bbsimuser1	BlackBerry 6 or a	Simulator-30f5	Offline	0	HWC	admin

<<First <Previous Next> Last>> Go to Page: 1 Page Size: 10

## Creating a Mobile Workflow Form

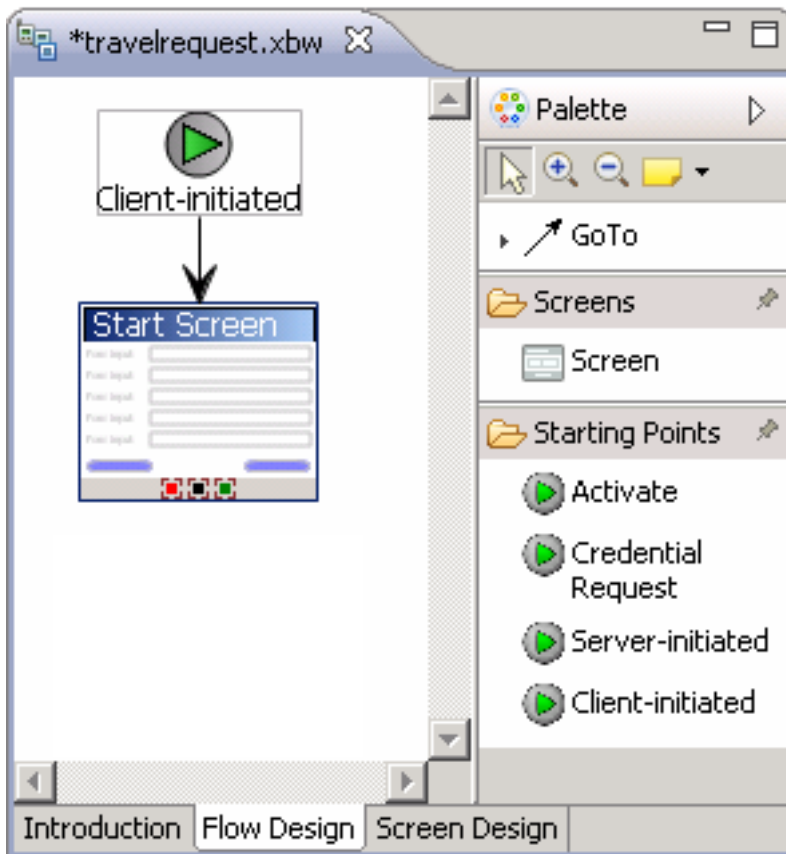
Create a mobile workflow form using the TravelRequest mobile business object.

### Prerequisites

Complete *Deploying the WorkFlow101 Mobile Application Project* on page 12.

### Task

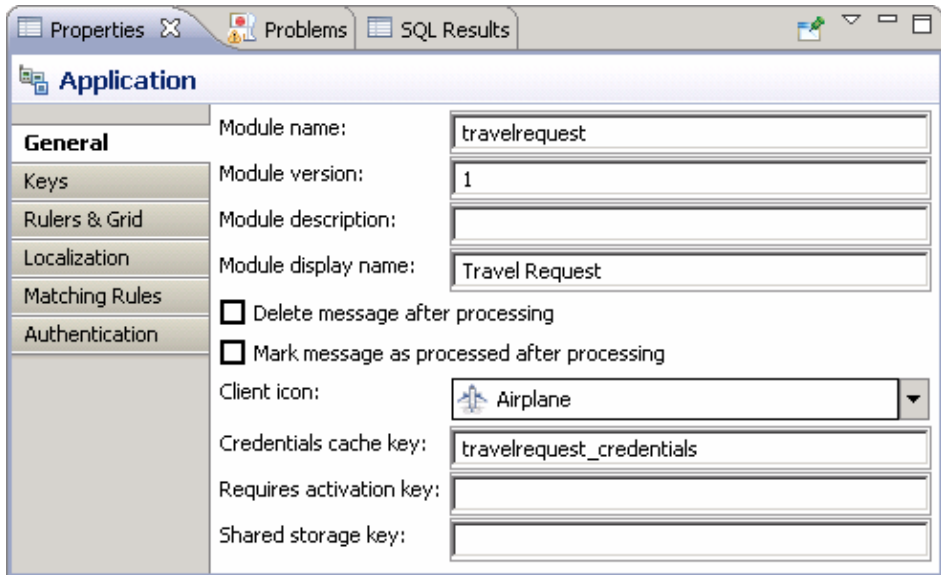
1. In the Sybase Unwired WorkSpace menu, click **File > New > Mobile Workflow Forms Editor**.
2. Select the MobileWorkflow101 folder and enter `travelrequest.xbw` as the file name.
3. Click **Next**.
4. In the Starting Points page, select **Can be started, on demand, from the client**, and click **Finish**.
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.



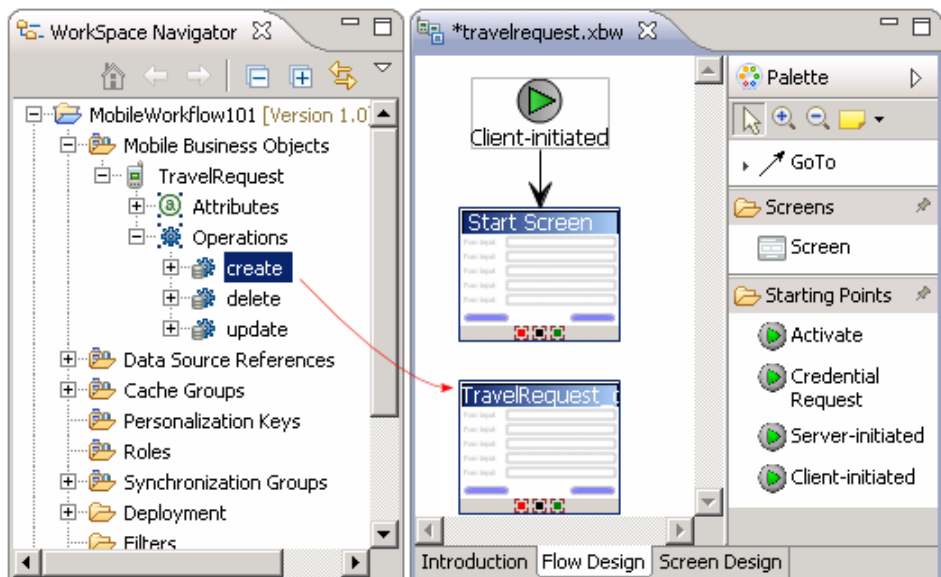
6. Customize the workflow's display name and icon.

When deployed, your workflow is identified on the mobile device by a name and a client icon. For this tutorial, change the default display name and icon:

- a) If Properties for the application is not already open, right-click any blank part of the travelrequest Flow Design and choose **Show Properties View**.
- b) In the Properties view General page, change Module display name from travelrequest to Travel Request.
- c) In Client icon, click the control and choose Airplane.



7. In Workspace Navigator, expand **MobileWorkflow101 > Mobile Business Objects > TravelRequest > Operations**.
8. Drag the **create** operation onto the flow diagram to add the TravelRequestcreate screen.



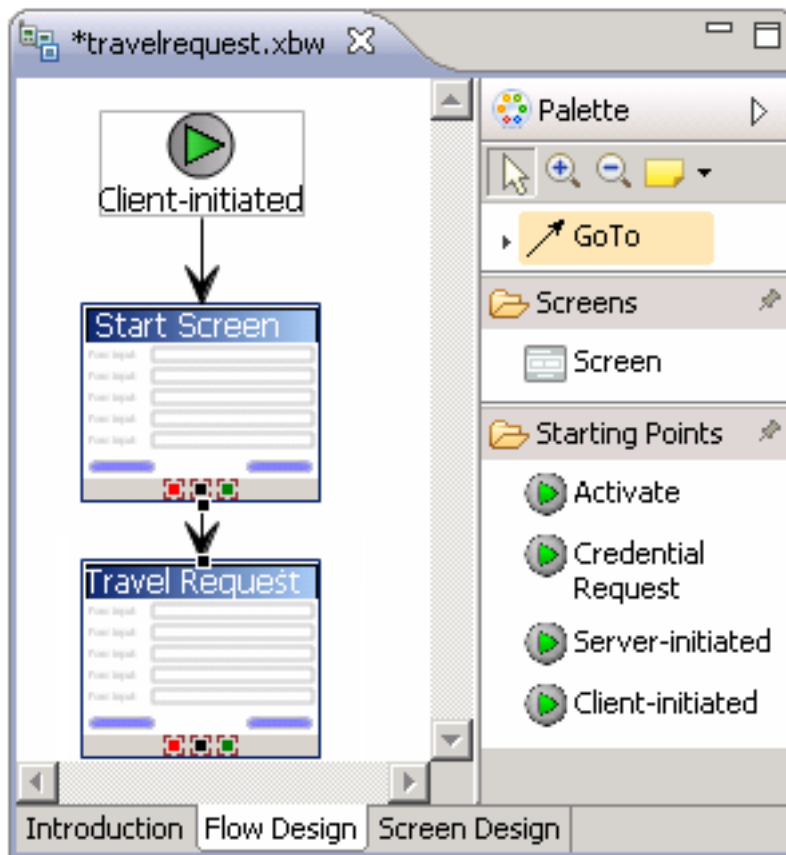
9. Customize the TravelRequest screen title.
  - a) In the Flow Design, click the TravelRequest screen to display its properties.
  - b) In the Properties view General page, change the name from TravelRequestcreate to Travel Request.

Changing the name also changes the key, from TravelRequestcreate to Travel\_Request.

10. Add a **GoTo** connection from the Start Screen to the Travel Request screen:

- a) In the Palette, click **GoTo**.
- b) Click the **Start Screen**, and while holding the mouse down, drag the connection to the **Travel Request** screen.

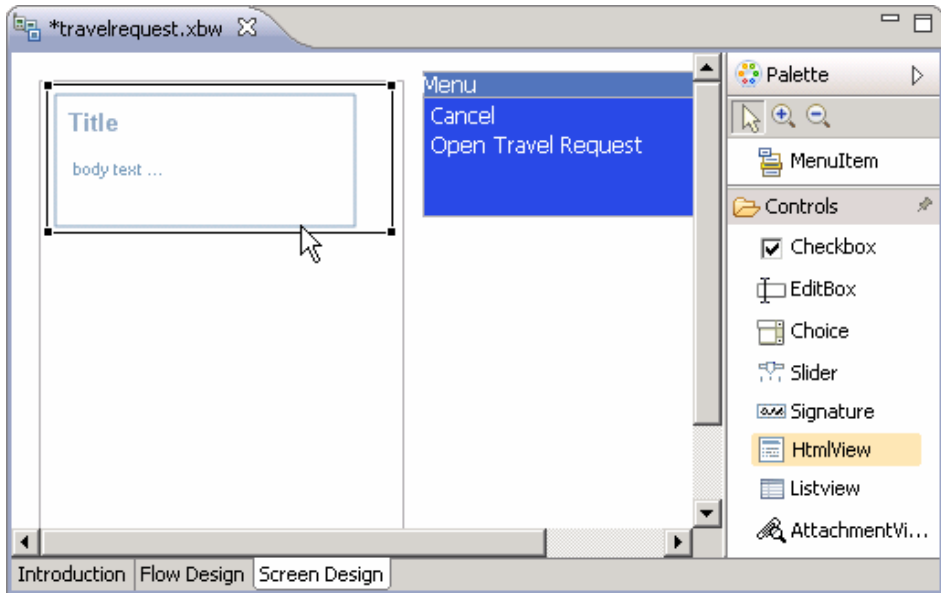
A line with an arrow connects the two screens.



11. Double-click the **Start** screen to open its Screen Design page.

12. In the Palette, select the **HtmlView** control and click in the Start screen.  
The HtmlView control is added to the Start screen design.

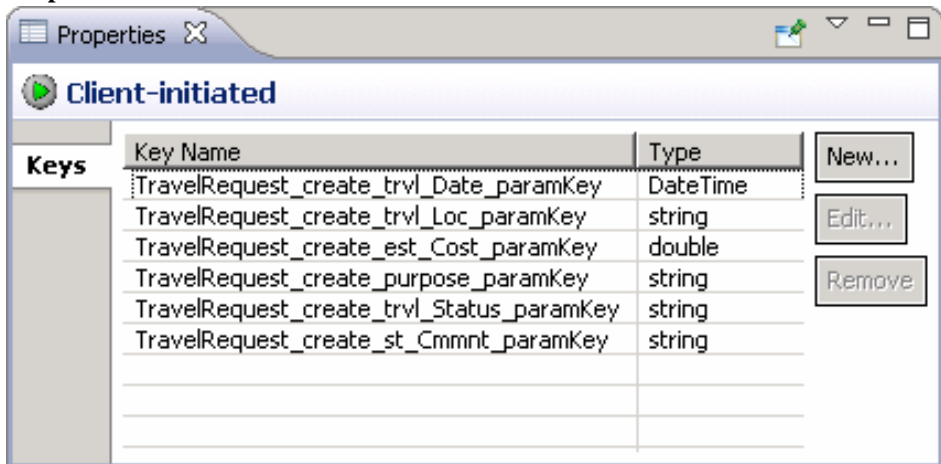




13. Click the **Flow Design** tab.

14. 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**.



15. Create a new key:

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

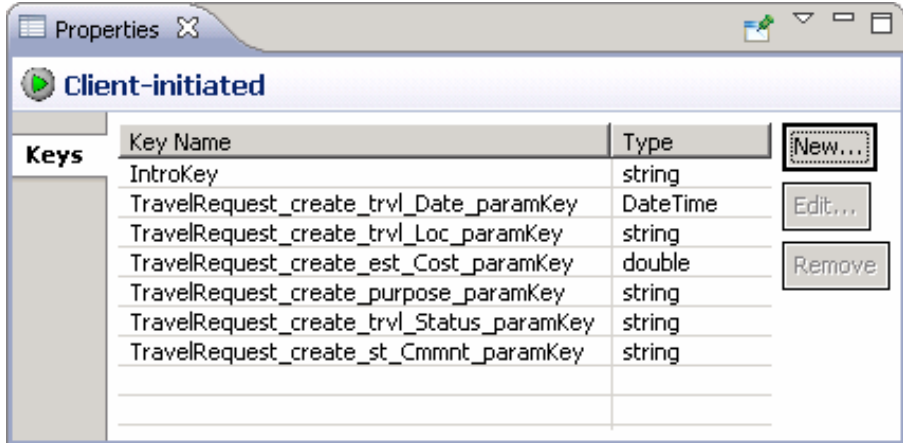
## Developing the Mobile Workflow Package

- 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.

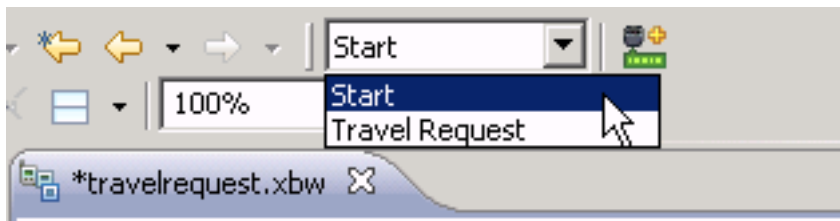
c) Click **OK**.

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



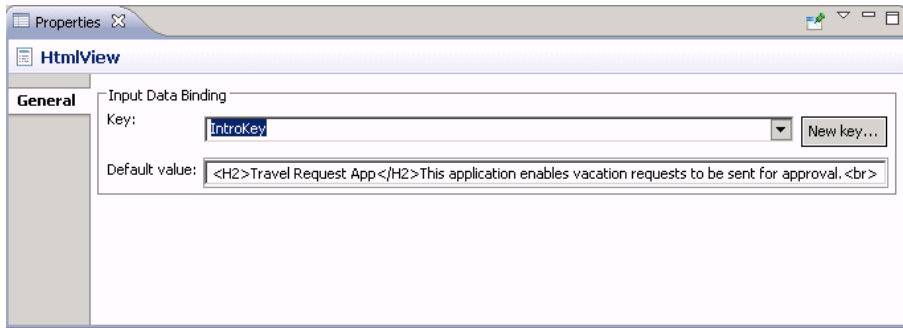
16. Define the default value for the new key:

- In the Mobile Workflow Forms editor, click the **Screen Design** tab.
- If the Start Screen is not selected, select **Start** in the screen selection control above the Screen Design.



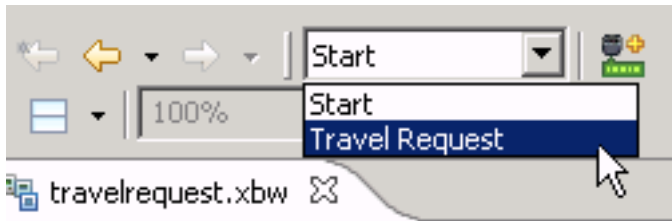
- In the Start Screen, select the **HtmlView** control to display its properties.
- In HTMLView Properties, click the Key control and select **IntroKey**.
- In Default value, enter the message code:

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



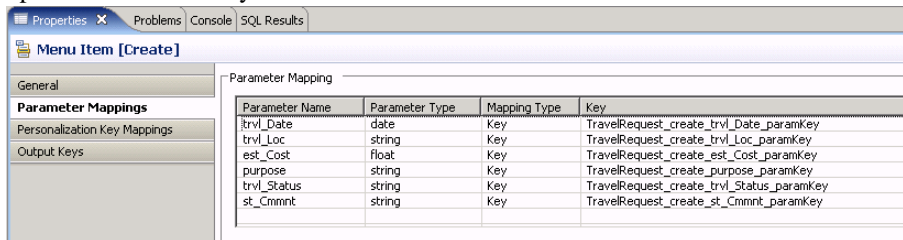
17. View the current parameter settings of the TravelRequest screen:

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



- 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.



18. Save the travelrequest workflow form.

## Generating Code for a Mobile Workflow Package

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

### Prerequisites


Complete these tasks:

## Developing the Mobile Workflow Package

- *Registering the Device in Sybase Control Center* on page 15 for each device that you want to enable to connect to the package.
- Complete *Developing a Database Mobile Business Object* on page 9.
- Complete *Creating a Mobile Workflow Form* on page 17.
- 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.

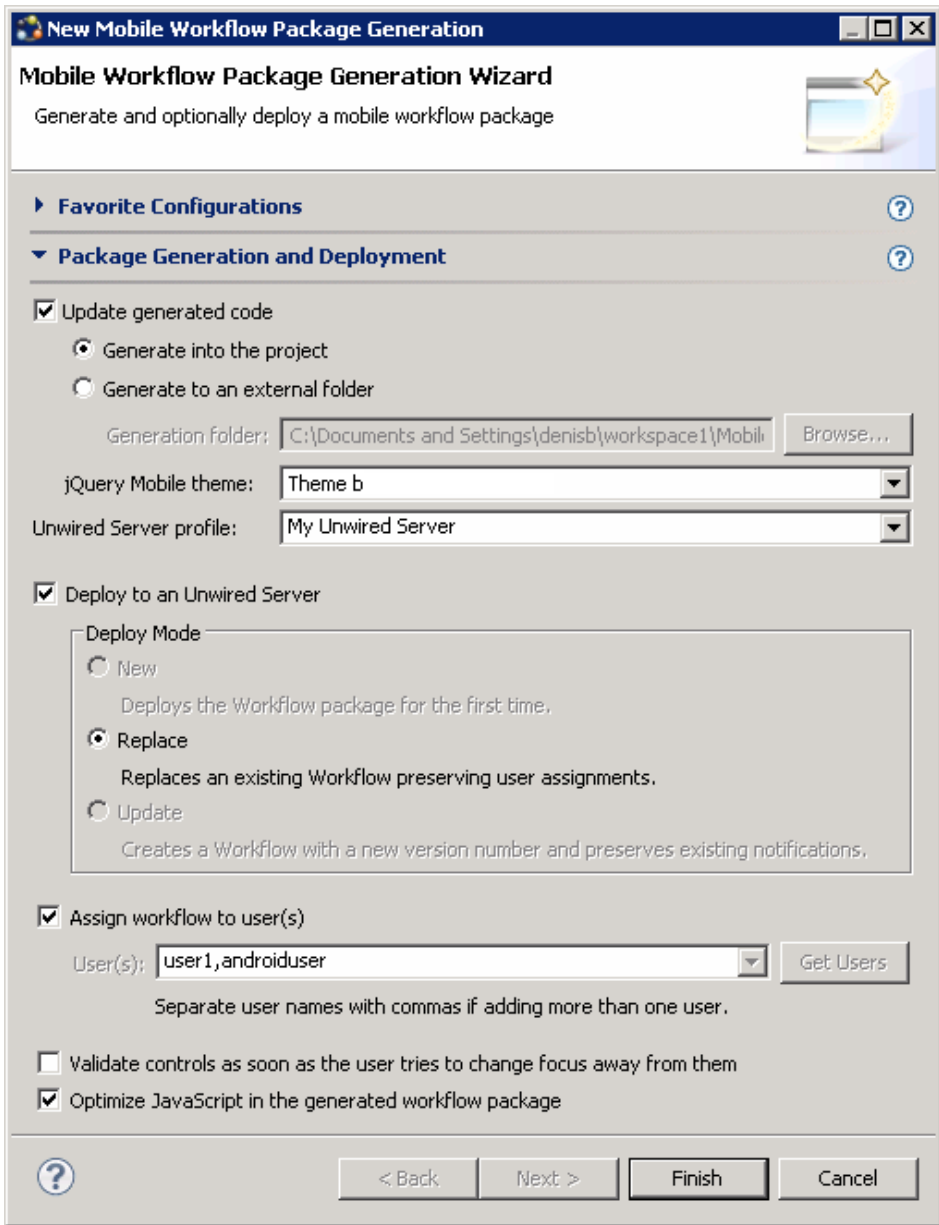
### Task

Use the Mobile Workflow Package Generation wizard to generate files for the mobile workflow package, deploy the generated package files to the server, and assign the package to one or more devices. Then, perform a simple customization by adding a header image to the generated package.

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:

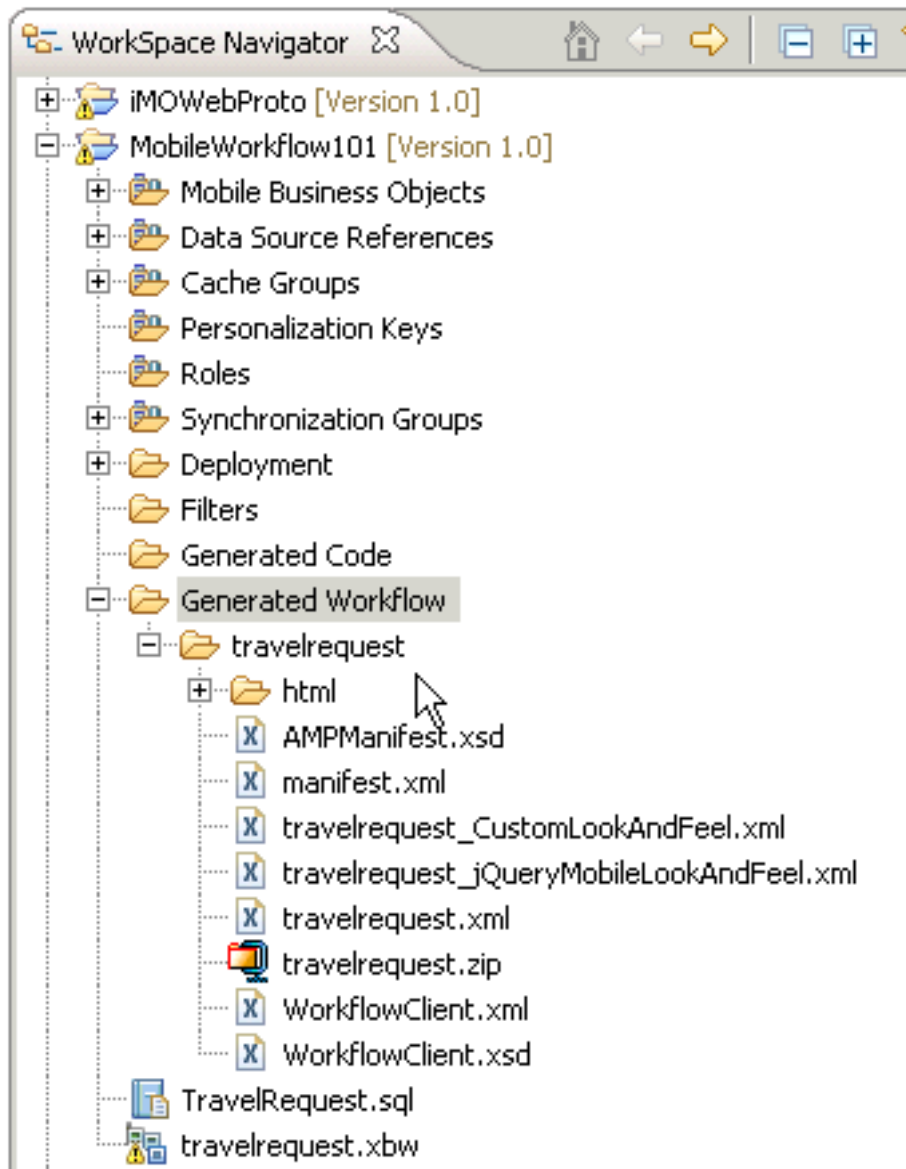
Option	Description
Update generated code	Select <b>Generate into the project</b> .
Unwired Server Profile	Select <b>My Unwired Server</b> as the profile to associate with the mobile workflow package.
Deploy to an Unwired Server	Select this option.
Assign workflow to users	Select this option and click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

Option	Description
<p>Optimize JavaScript in the generated workflow package</p>	<p>The public JavaScript files (API.js, Callbacks.js, Camera.js, and so on) contain the client API functions that you can access for use with your Mobile Workflow package customization. By default, the wizard generates a single JavaScript file (such as SUP0.js, SUP1.js, or SUP2.js), that concatenates these files. Unselect this option if you prefer to use the JavaScript files separately.</p> <hr/> <p><b>Note:</b> If you are deploying to a BlackBerry or later device, selecting this option can make the workflow open more quickly.</p>

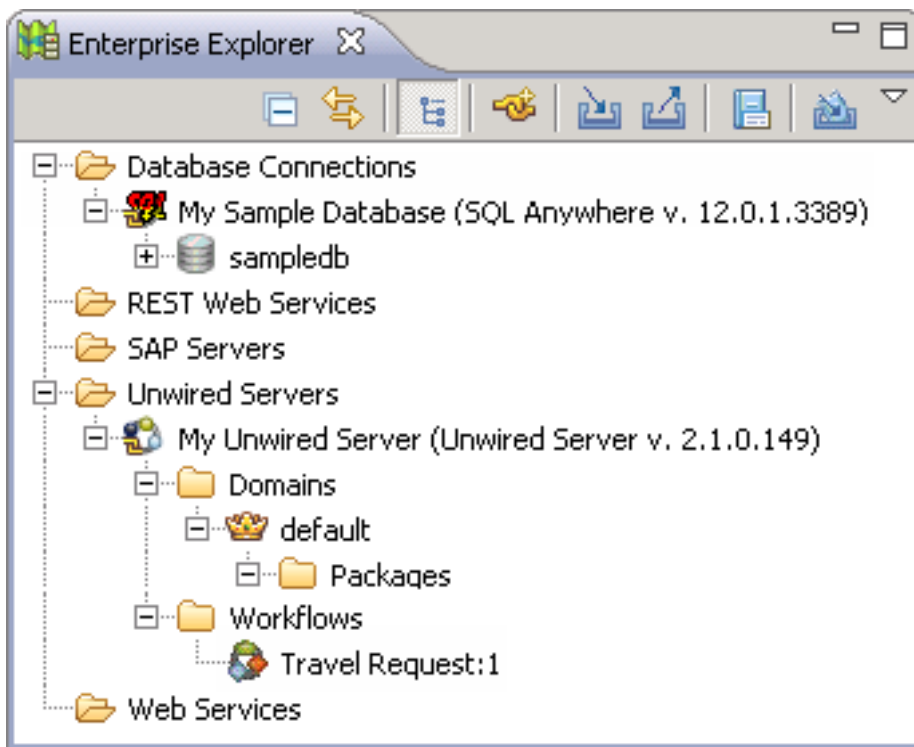


5. Click **Finish**.

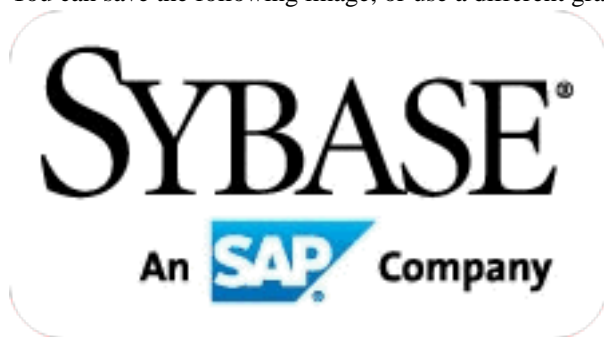
The Workspace assigns the TravelRequest application to the user and generates the files for the mobile workflow package in a zip archive on the server. You can see the files in your project in the Workspace Navigator:



If the package is not displayed initially, double-click the server to refresh the display. The mobile workflow package is added to Enterprise Explorer under the Unwired Servers/Workflows folder.



6. Add a header image to your application.
  - a) Copy the image that you want to use in your header to Generated Workflow \travelrequest\html in your project folder.  
You can save the following image, or use a different graphic of your own:



- b) In Workspace Navigator, open the file, Generated Workflow \travelrequest\html\js\Custom.js for editing.
  - c) In Custom.js, modify the customAfterWorkflowLoad() method to include this JavaScript:

```
function customAfterWorkflowLoad() {  
    var screenKey = getCurrentScreen();
```



```

var form = document.forms[screenKey + "Form"];
if (form) {
    var topOfFormElem = document.getElementById("topOf" +
screenKey + "Form");
    topOfFormElem.innerHTML = '';
}
}

```

---

**Note:** For the src value, use the name of the image file that you saved in Step a.

---

d) Save your changes to Custom.js.

7. Run the package generation wizard again, repeating Steps 3 through 5.

## 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. *Installing the Hybrid Web Container on the Windows Mobile Emulator*

Install Sybase Messaging Runtime software on your emulator.

### 4. *Configuring Connection Settings on Windows Mobile*

Configure the connection settings on the Windows Mobile emulator.

### 5. *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

---

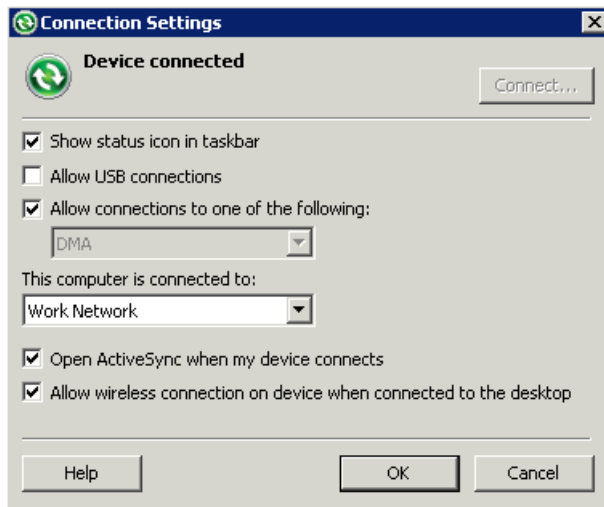
Install and configure Microsoft synchronization software so you can deploy and run a mobile application on a Windows Mobile emulator.

**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.aspx> 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.aspx>.
  - 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 > Microsoft 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 29.
- 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.

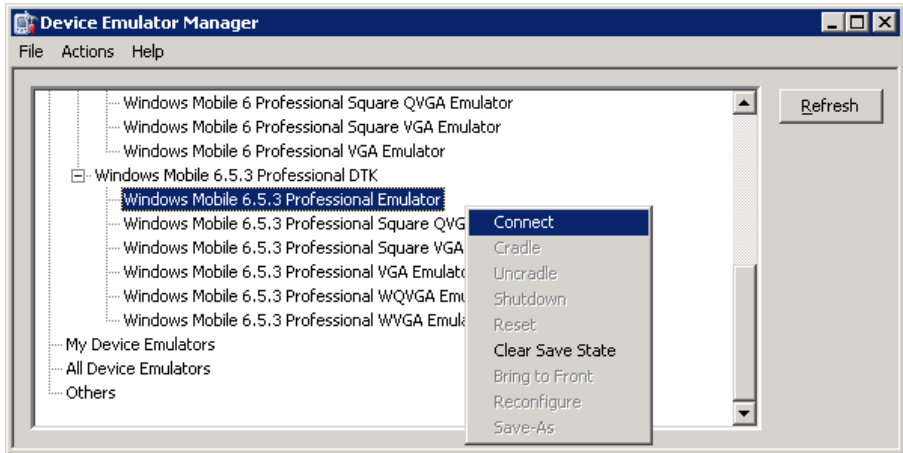
### Task

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.

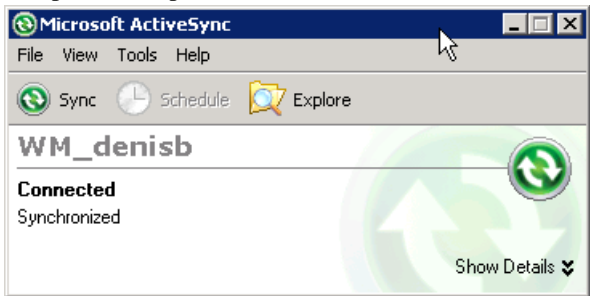
## Installing the Hybrid Web Container on the Windows Mobile Emulator

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 Synchronization Setup Wizard opens, follow the instructions and click **Finish**.



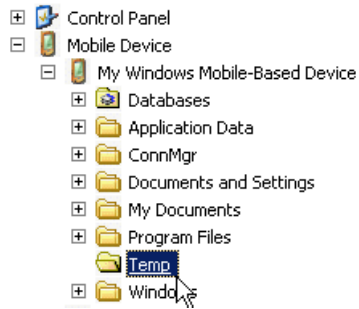
4. Run the downloaded Microsoft .NET Compact Framework Redistributable file to install the .NET Compact Framework on your running emulator. Follow the setup wizard instructions, and click **Finish** to close the wizard when you are done.

---

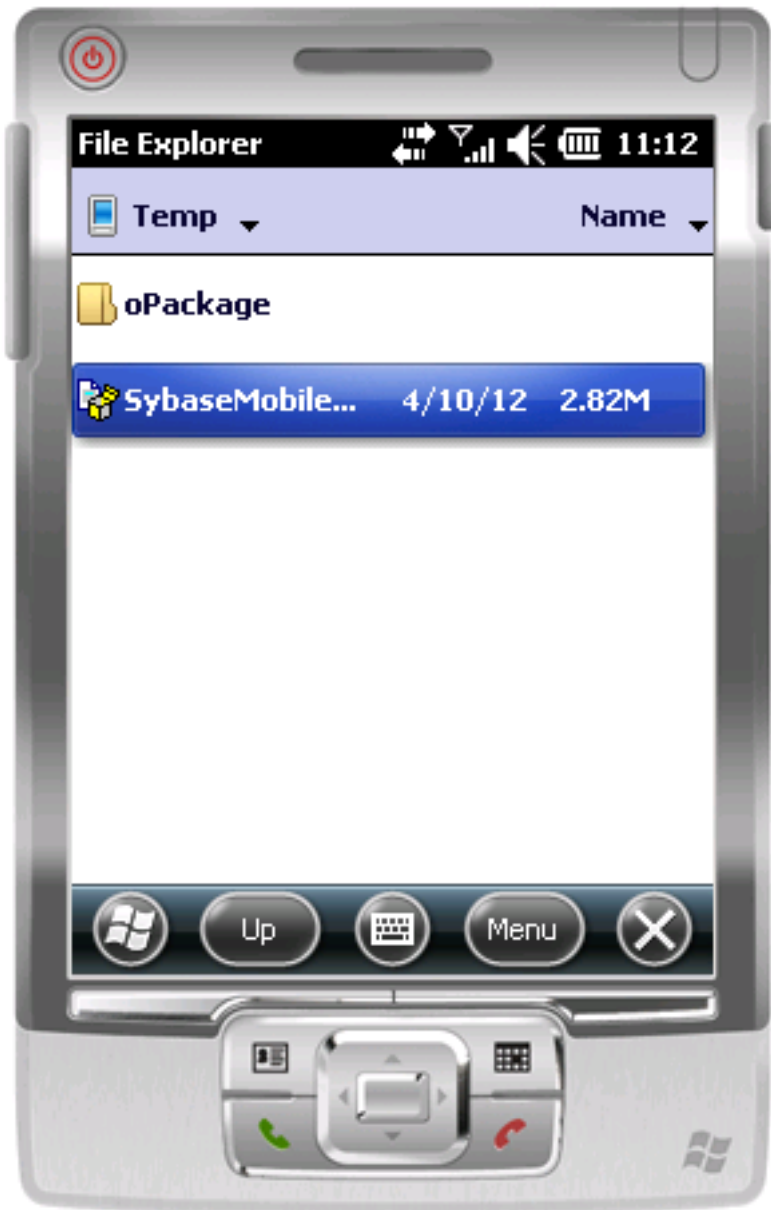
**Note:** Be sure to run the installer while your emulator is running; otherwise the .NET Compact Framework Redistributable is not installed correctly.

---

5. Go to `UnwiredPlatform_InstallDir\UnwiredPlatform\MobileSDK213\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 31.

### **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

## Developing the Mobile Workflow Package

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

### 4. Click **Done**.

---

**Tip:** To view the device log at any time, return to the Workflow Settings screen, click **Menu**, and choose **Show log**.

---

## **Running the Mobile Workflow Form on the Windows Mobile Emulator**

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

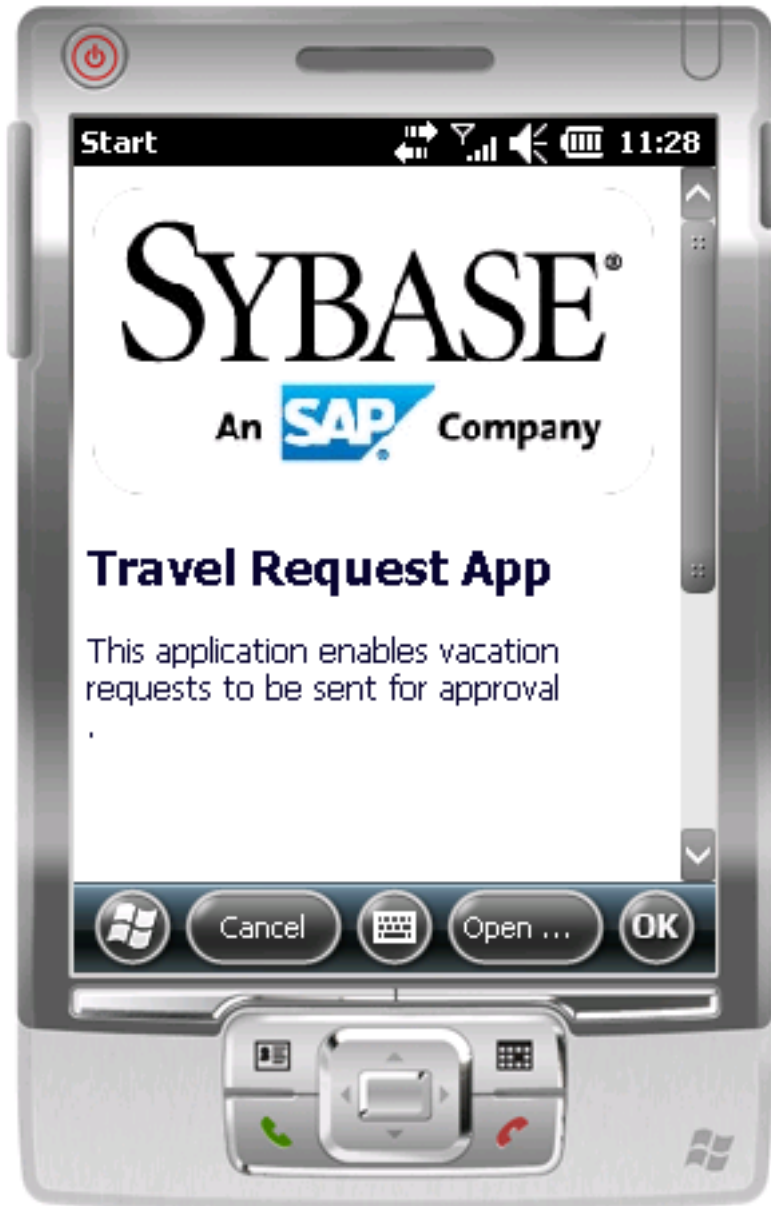
1. In the emulator, open the Start screen and click Sybase Mobile Workflow.



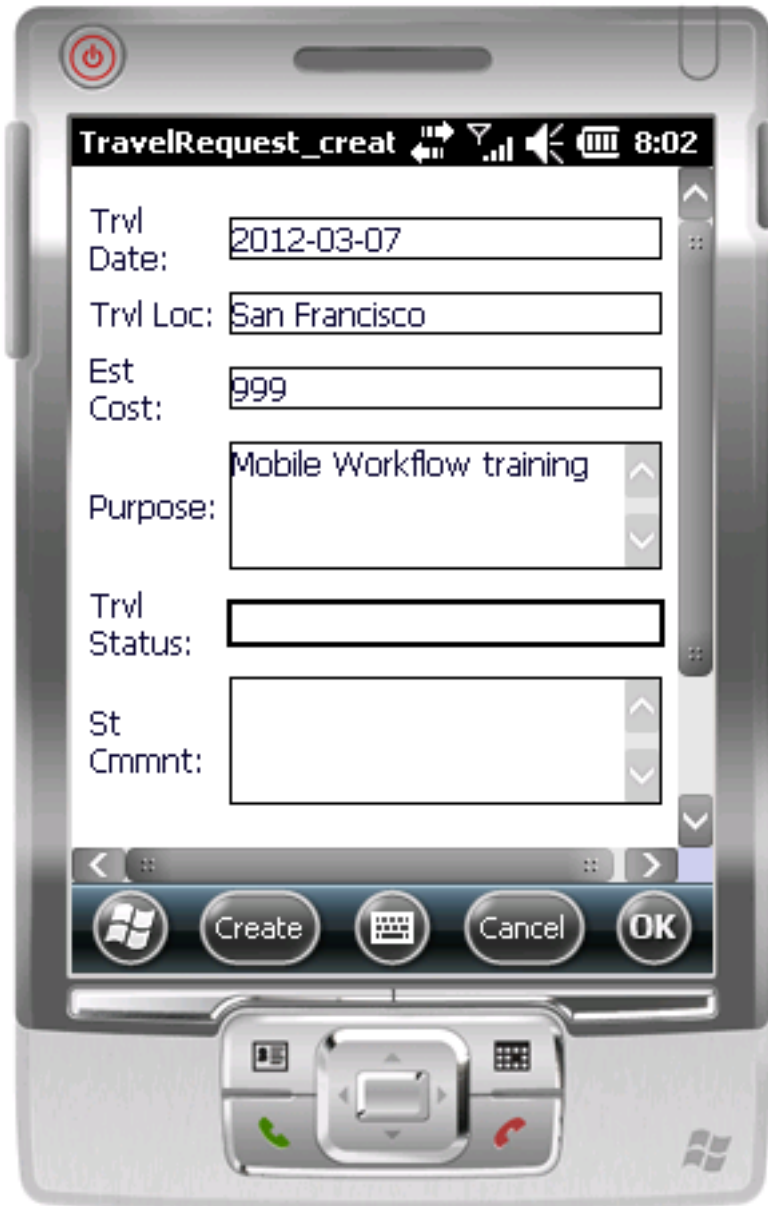
2. In Sybase Workflow, click the Travel Request:



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.

## 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 Travel Request mobile workflow form on the Android simulator.

### See also

- *Running the Mobile Workflow Application on the Windows Mobile Emulator* on page 29
- *Running the Mobile Workflow 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. Click **Install** and accept the default values. 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. Install the SDK Platform-tools:

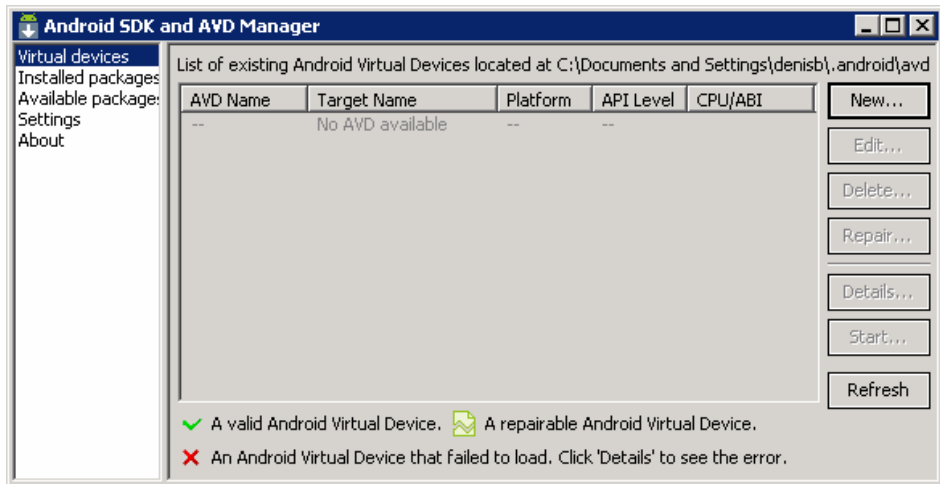
- a) Run the Android SDK Manager

b) Select these options:

- In Tools, **Android SDK Platform-tools**.
- The version of Android whose emulators you want to use, and that Unwired Platform supports.

c) Click the **Install** button.

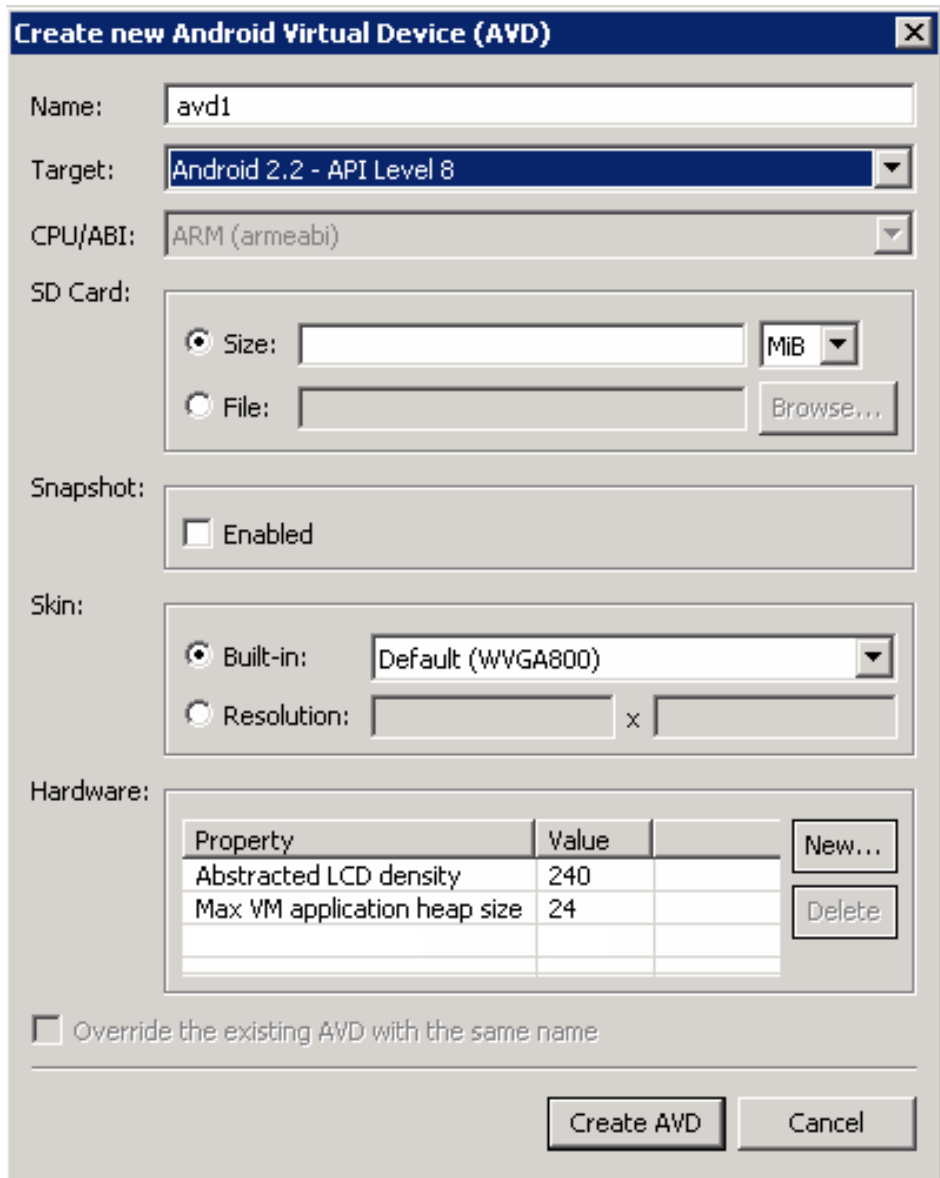
3. Click **Start Programs > Android SDK Tools > AVD Manager**.



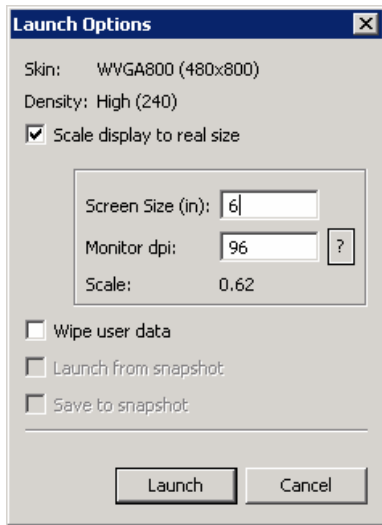
4. Add a device:

- 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**.





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



7. When the Android screen finishes loading, open a command prompt and run the `Android_InstallDir\android-sdk\platform-tools\adb.exe` command to install `HybridWebContainer.apk` to the emulator:

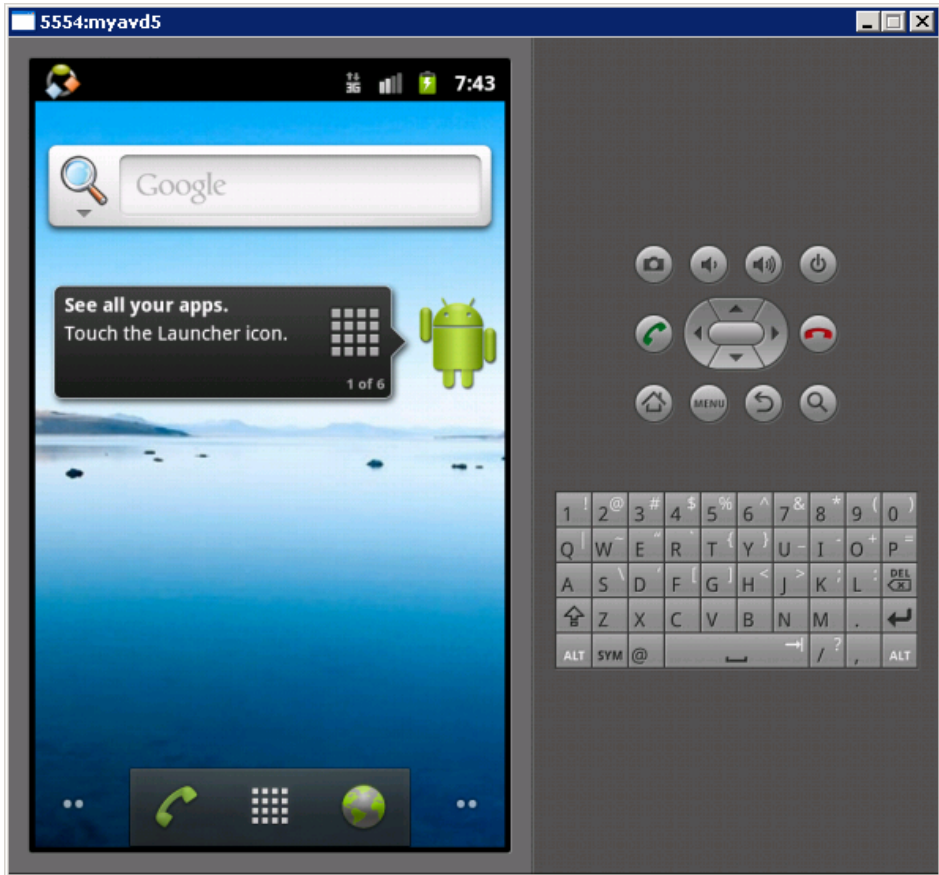
For example:

```
C:\Android\android-sdk\platform-tools\adb install ^
C:\Sybase\UnwiredPlatform\MobileSDK213\HybridWeb\Android
\HybridWebContainer.apk
```

### Configuring Connection Settings on the Android Emulator

Configure the connection settings on the Android emulator.

1. On the emulator home page, click the launcher icon.

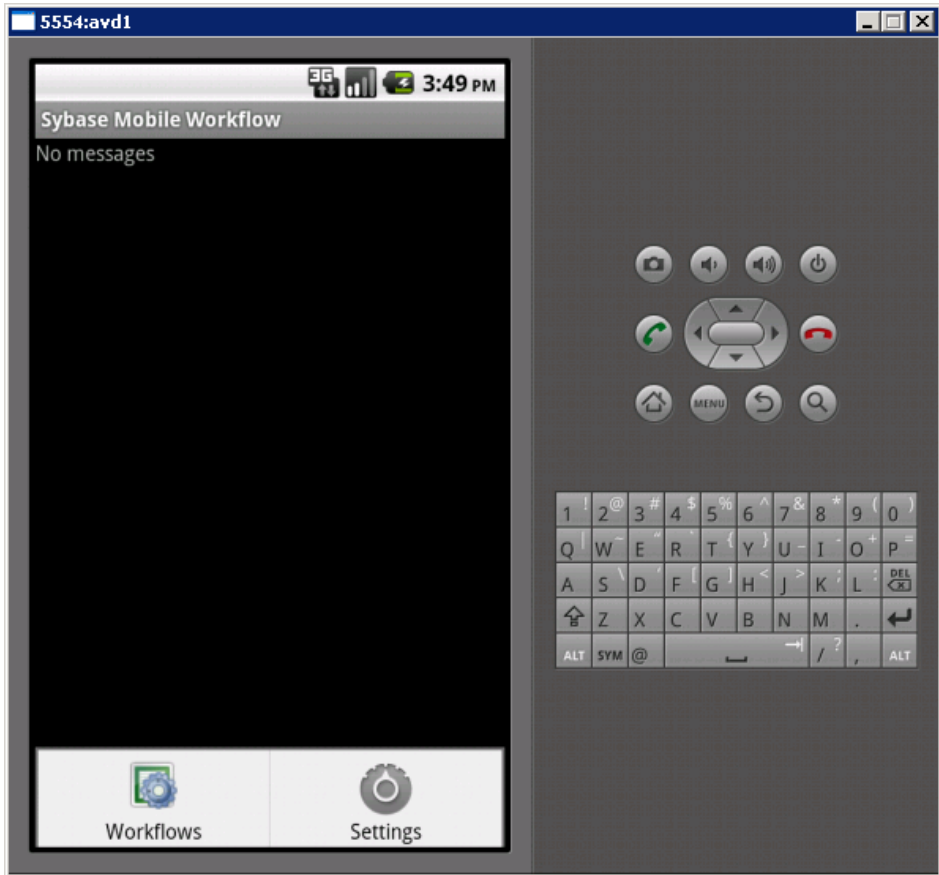


2.

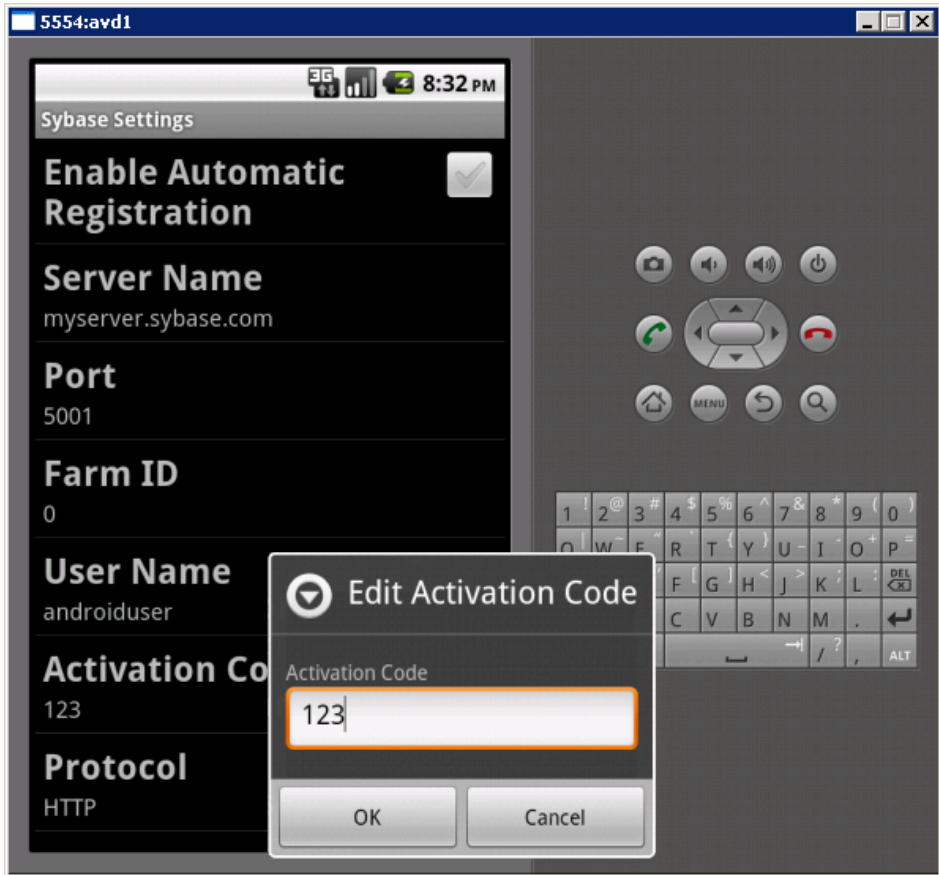
In the launcher, find and click the  **Sybase Mobile Workflow** icon.  
For example:



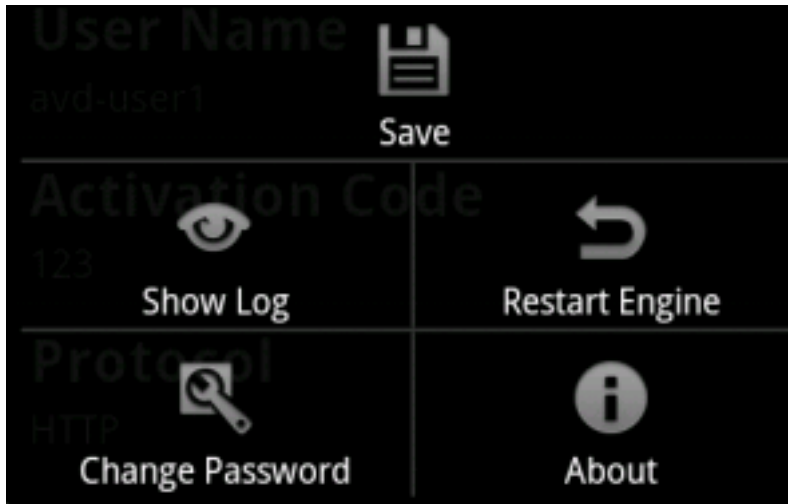
3. The Sybase Mobile Workflow screen prompts you to enter a new password. Enter a password and click **OK**.
4. Click **Menu**. In the menu, click **Settings**.



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



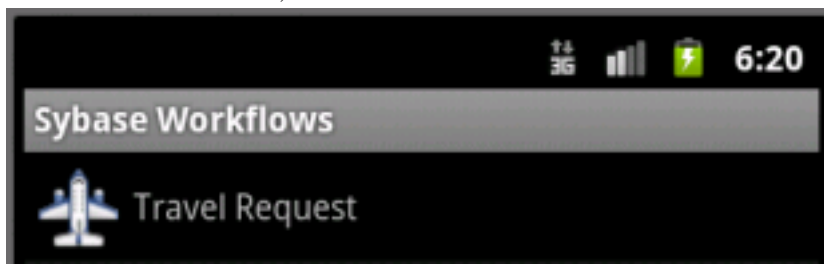
6. Click **Menu**. In the menu, click **Save** to save your settings. Then click **Restart Engine**.



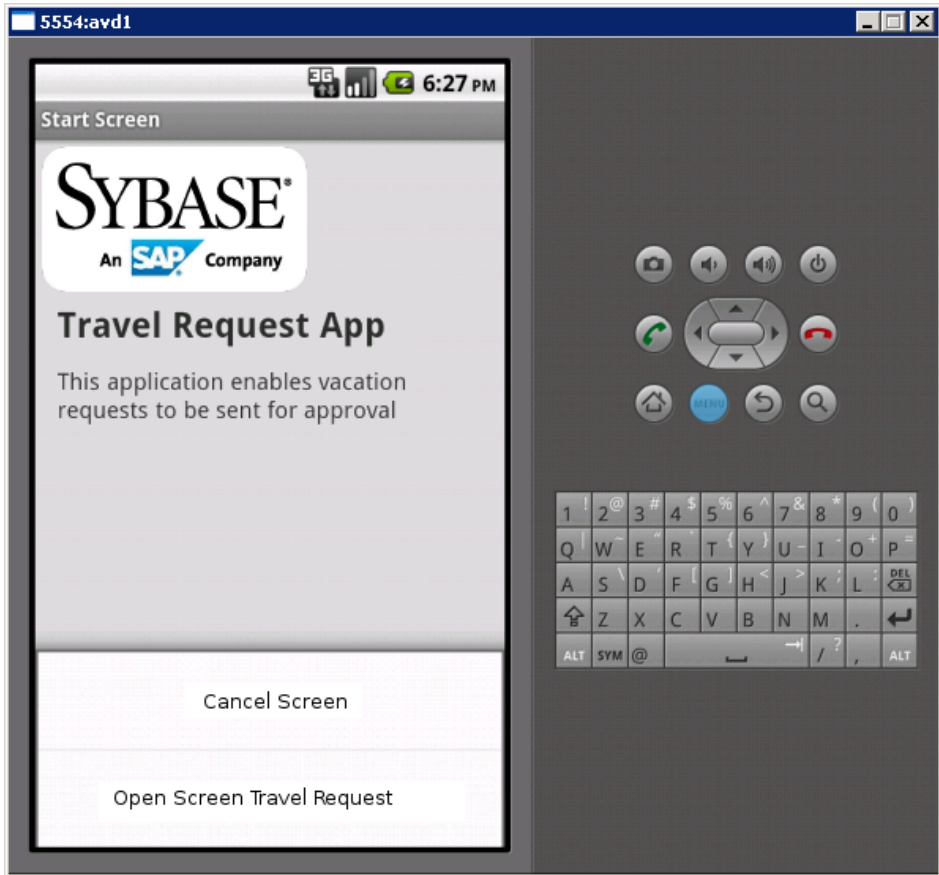
## Running the Mobile Workflow Form on the Android Simulator

Run the Travel Request 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. On the emulator home page, click the launcher icon.
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**.

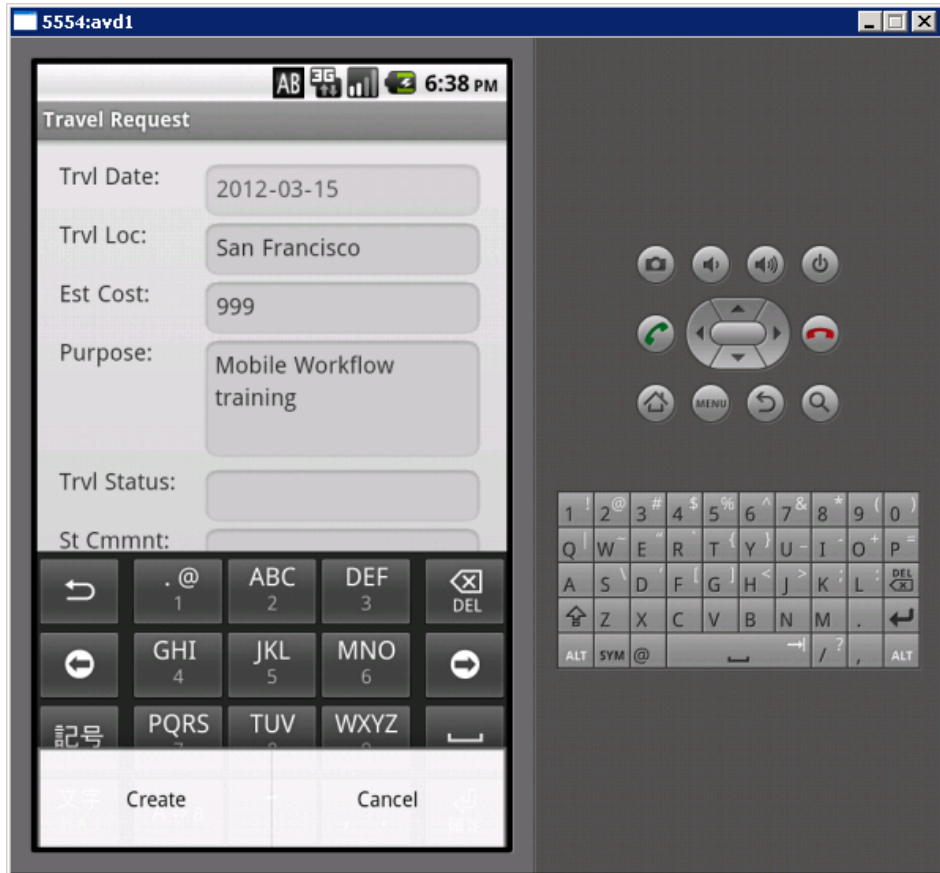


6. Click **Travel Request** to open the workflow start screen.
7. Click **Menu** again, and choose **Open Travel Request**.



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 Travel Request mobile workflow form on the iPhone simulator.

#### See also

- *Running the Mobile Workflow Application on the Android Emulator* on page 43
- *Running the Mobile Workflow Application on the BlackBerry Simulator* on page 59

## **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.gz` archive from `UnwiredPlatform_InstallDir\UnwiredPlatform\MobileSDK213\HybridWeb\iOS\` to a location on your Mac.

In the archive file name, *version* is the current Unwired Platform version number. For example, `MobileWorkflow-2.1.3.tar.gz`.

3. Unpack `MobileWorkflowversion.tar.gz`.

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, click **Project > Edit Active Target > ProjectName > General** and add these files from the SDK to the project:

- `Security.framework`

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

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

## Configuring iPhone Connection Settings

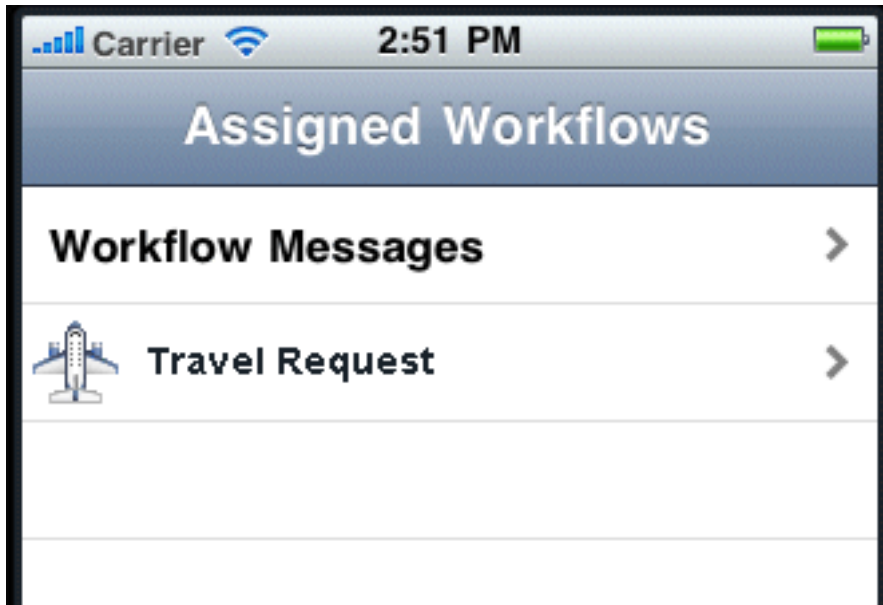
Configure settings for the Mobile Workflow application.

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 registered for this device in Sybase Control Center.
  - Activation Code – the user activation code specified in Sybase Control Center.

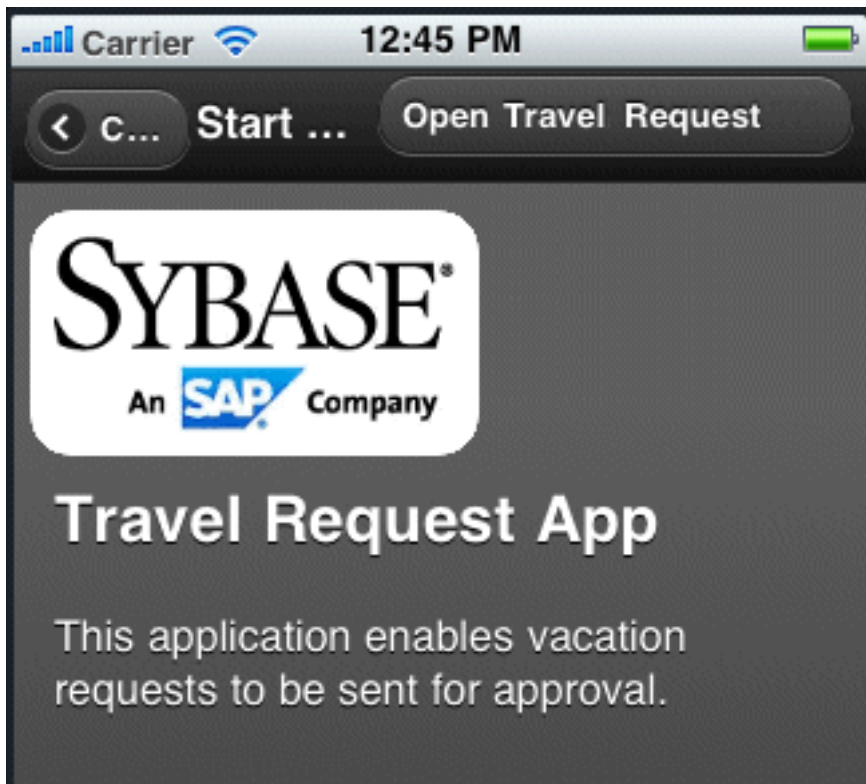
## Running the Mobile Workflow Form on the iPhone Simulator

Run the Travel Request mobile workflow form on the iPhone simulator.

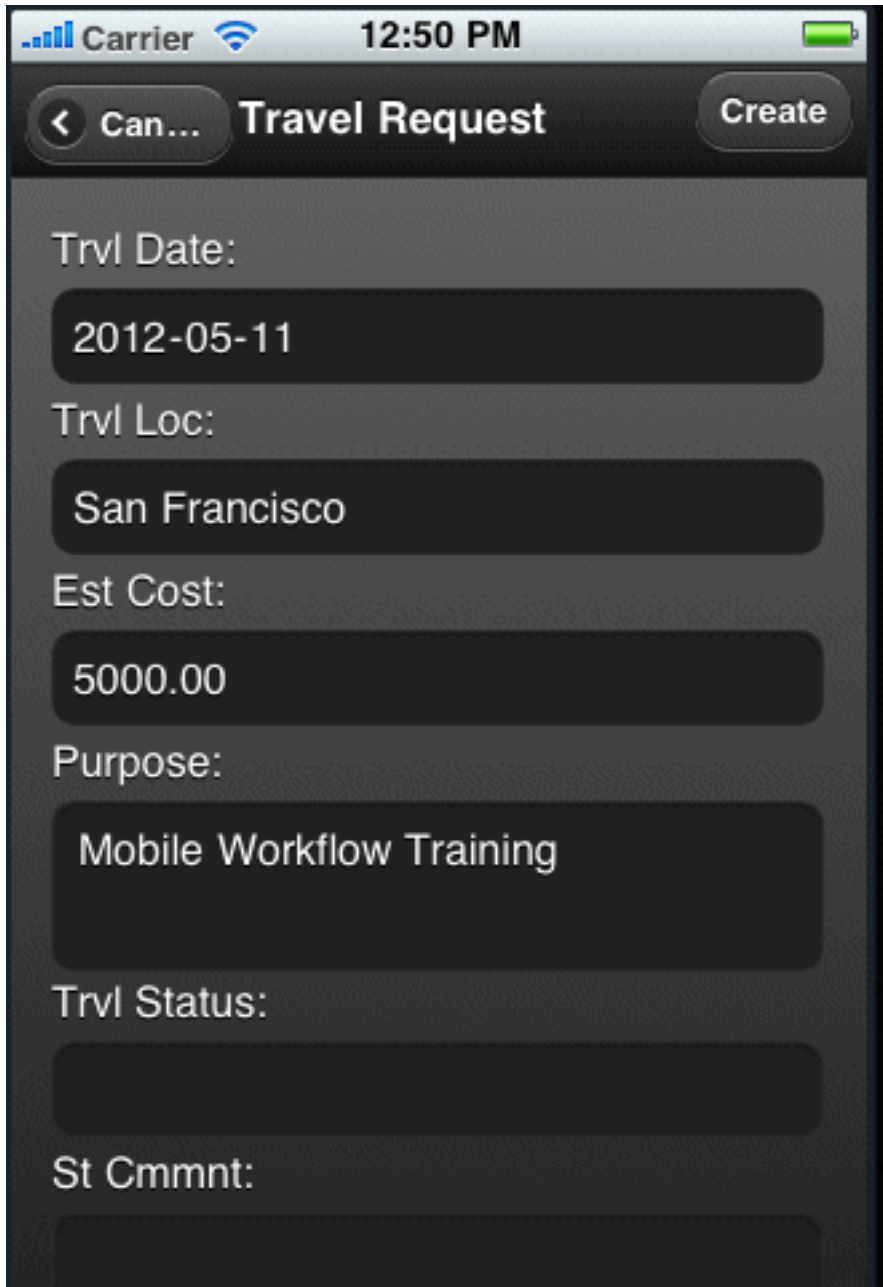
1. Click **Workflows**.
2. In Workflows, click **Travel Request**.



3. In the introduction page, click **Open Travel Request**.



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. *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.

### 3. *Running the Mobile Workflow Form on the BlackBerry Simulator*

Run the travelrequest mobile workflow form on the BlackBerry simulator.

### See also

- *Running the Mobile Workflow Application on the iPhone Simulator* on page 53
- *Verifying the Data on the Backend Database* on page 66

## 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. Under your BlackBerry device installation folder, run `clean.bat` to remove any existing workflows from the device.

For example, in Windows Explorer, open `C:\Program Files\Research In Motion\BlackBerry JDE version\simulator` and click `clean.bat`.

## Developing the Mobile Workflow Package

A Command Prompt opens, and closes when `clean.bat` finishes.

2. Start the Mobile Data System Connection Service (MDS-CS): click **Start > Programs > Research In Motion > BlackBerry JDE *version* > MDS-CS**.

MDS-CS runs in a Command window and waits for a BlackBerry device to send data.

3. Start the BlackBerry simulator.

For example, click **Start > Programs > Research In Motion > BlackBerry JDE *version* > Device Simulator**.

4. Click through any introductory screens:

- If the end-user license agreement opens, scroll to the end and click **OK** to accept it.
- In the Setup screen, click **Escape** and then **Exit**.

The main window displays:





## Developing the Mobile Workflow Package

5. In your Windows file system, copy the Sybase Workflow client files to your BlackBerry simulator.

For example, copy C:\Sybase\UnwiredPlatform\MobileSDK213\HybridWeb\BB\\*. \* to C:\Program Files\Research In Motion\BlackBerry JDE version\simulator.

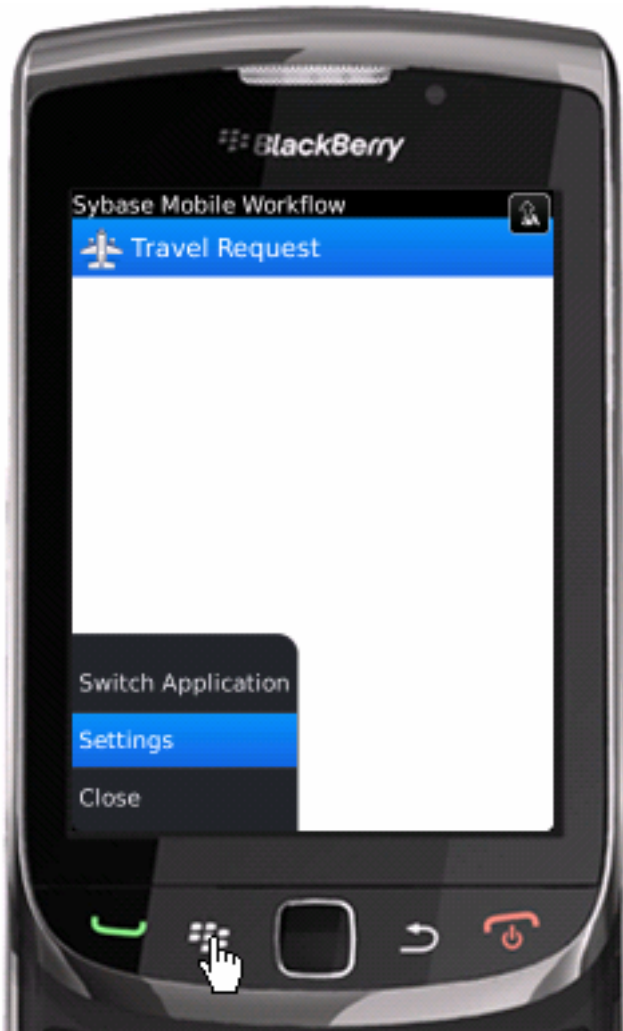
6. Restart the simulator.

7. In the BlackBerry simulator, configure connection settings for the Mobile Workflow application:

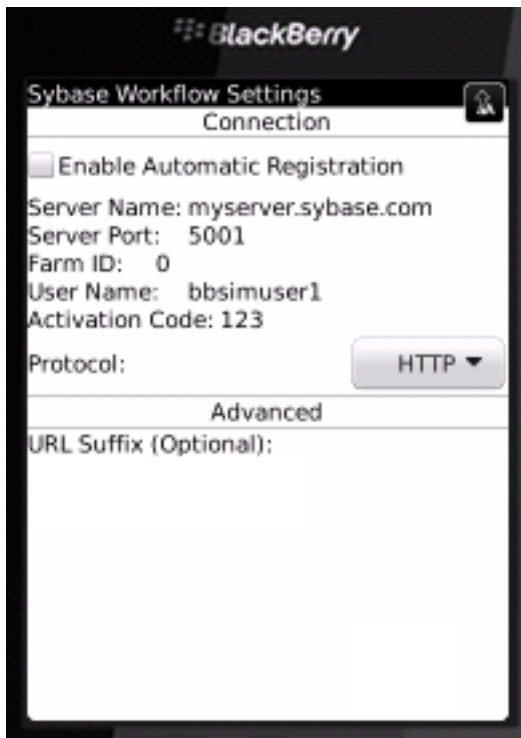
- a) In the main window, click **All** to access the applications screen, then scroll until you see the Workflow application.



- b) Click the Workflow icon to show the Travel Request application.
- c) Click the simulator **Menu** button and choose **Settings**.



- d) In the Connection screen, enter the connection settings.  
For example:




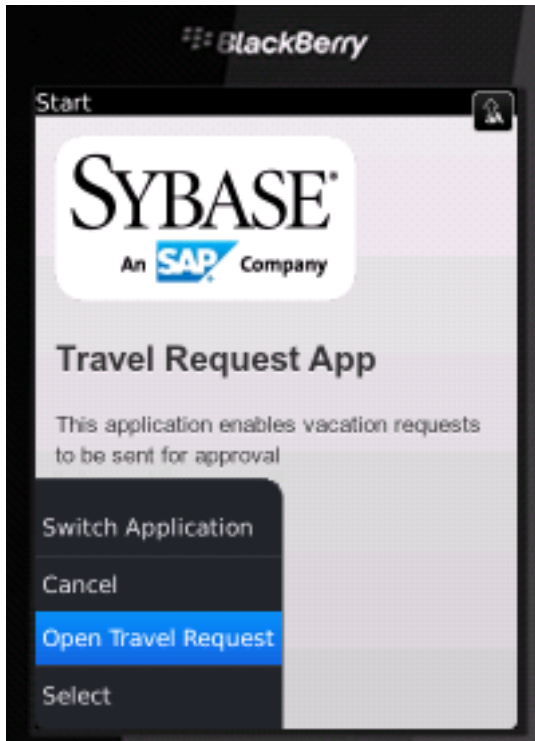
e) Click the simulator **Menu** button and choose **Save**. Click OK if prompted to confirm.

## Running the Mobile Workflow Form on the BlackBerry Simulator

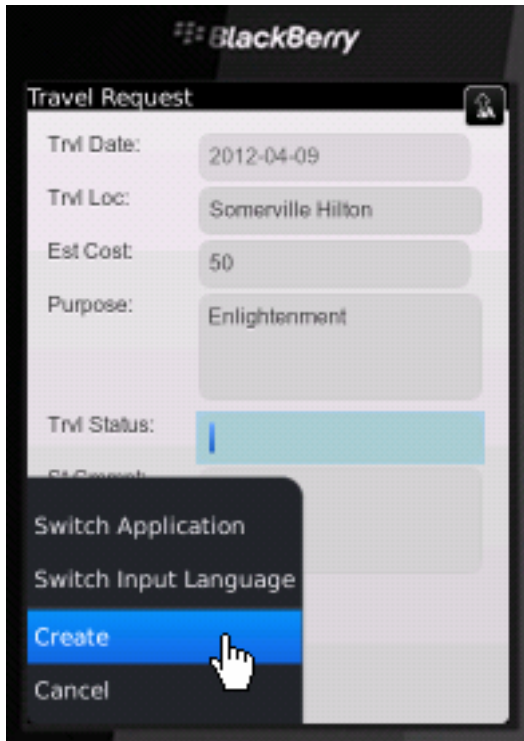
Run the travelrequest mobile workflow form on the BlackBerry simulator.

**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. Click **Travel Request** to open the Start page. Then, click the **Menu** button and choose **Open Travel Request**.



5. Enter your travel request information in the workflow form. Then, click the **Menu** button and choose **Create**.



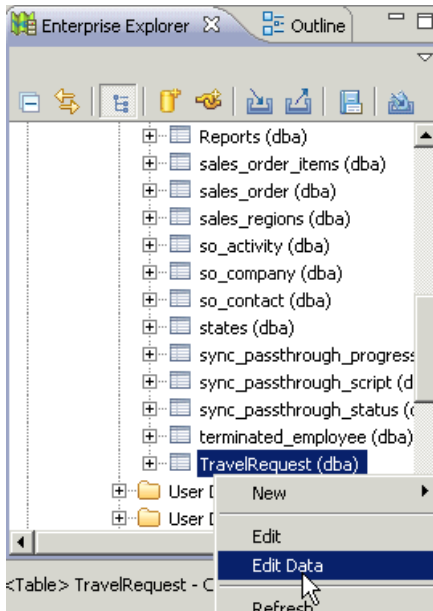
The mobile workflow form closes and the `TravelRequest` database table on the server is updated.

## 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 Mobile Workflow Application on the BlackBerry Simulator* on page 59





# 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/sybooks/sybooks.xhtml>, then navigate to the most current version.

## *Tutorials*

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

## *Example Projects*

An example project is the end results of a finished tutorial without going through the steps. Download example projects from the SAP® Community Network (SCN) at <http://scn.sap.com/docs/DOC-8803>.

## *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 available from 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 developing mobile business objects (MBOs) to fully maximize their potential.

Use the appropriate 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:

## Learn More About Sybase Unwired Platform

- *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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