SYBASE®

An **SAP** Company

Sybase Unwired WorkSpace - Mobile
Workflow Package Development

Sybase Unwired Platform 2.0

Contents

Develop a Mobile Workflow Package

Sybase® Mobile Workflow Forms Editor lets you create or modify Mobile Workflow packages on different device platforms without custom device development.

Mobile Workflows support the occasionally connected user and addresses the replication and synchronization issues those users present for the back-end system.

A Mobile Workflow application requires an integration module on the server side, which is implemented by a static set of logic that processes Mobile Workflow-specific metadata to map keys to and from mobile business object attributes, personalization keys, and parameters. This integration module processes the notifications identified by matching rules configured for the server-initiated starting point and also processes the responses sent to the server from the device.

The Mobile Workflow Forms Editor allows you to create the forms that can be assigned to the devices that have the Sybase Mobile Workflow container installed and that are registered with Unwired Server through Sybase Control Center.

When you use the Mobile Workflow Forms Editor, the data source for the application is supplied by mobile business objects that are designated as message-based synchronization mobile business objects when deployed to the server. The Mobile Workflow Forms Editor allows you to develop mobile workflow screens that can call on the create, update, and delete operations, as well as object queries of a mobile business object.

You can generate a Mobile Workflow form that works on these platforms:

- Apple iOS
- BlackBerry
- Windows Mobile

See the *Sybase Unwired Platform Installation Guide* for supported version levels.

When designing the user interface for Mobile Workflow forms for mobile devices, keep it simple. The Mobile Workflow form should deliver clear, concise content with minimal navigation menus. The Mobile Workflow should be compatible with a wide variety of devices, and support both horizontal and vertical screen layouts. Consider the limitations of mobile devices when designing a Mobile Workflow form.

The Mobile Workflow Forms Editor

The Mobile Workflow Forms Editor allows you to create the forms that can be assigned to the devices that have the Sybase Mobile Workflow application installed and that are registered in Sybase Control Center.

The Mobile Workflow Forms Editor contains these pages:

Introduction

Create a new mobile workflow or double-click an existing one, to open the Introduction page of the Mobile Workflow Forms Editor. This page is the starting point for designing your mobile workflow form. You can access help from this page.

Flow Design

The Flow Design page displays an empty canvas if you did not choose any of starting points in the New Mobile Workflow Forms Editor. If you selected a starting point when creating the new mobile workflow form, the selected starting point appears.

Use this page to specify how starting points and screens link together. The Palette view on the right shows available starting points, screens, and connections. You can drag and drop items from the Palette to the canvas. Screens and starting points that you drag to the Flow Design canvas appear as icons. Double-click a screen to open the Screen Design page.

Right-click anywhere in the Flow Design page to open a context menu.

Screen Design

Use this page to design the screen of your mobile workflow form. The Palette view shows the menu items and controls you can use to design a new screen. Drag controls to design the user interface.

Setting Mobile Workflow Forms Editor Preferences

Use the Preferences dialog to set the appearance and device preferences for the Mobile Workflow Forms Editor.

1. Select **Window > Preferences**.
2. In the Preferences dialog, select **Sybase, Inc. > Mobile Development > Mobile Workflow Forms Editor**.
3. Select **Flow Design Page** to set the preferences for the Flow Design page.
4. Select **Screen Design Page** to set the preferences for the Screen Design page.
5. Click **Apply**.

6. Click **OK**.

See also
- *Creating a New Mobile Workflow Form* on page 5
- *Starting Points* on page 8
- *Flow Design Page Properties* on page 20
- *Flow Design Palette Options* on page 24
- *Screen Design Page Properties* on page 28
- *Screen Design Palette Options* on page 30
- *Mobile Workflow Forms Editor Context Menus* on page 34

Mobile Workflow Forms Editor Preferences

Use the Preferences dialog to set the preferences for the Flow Design and Screen Design pages.

The Mobile Workflow Forms Editor supports two different types of look-and-feel. Select either:

- Optimize for performance – provides a more basic look-and-feel, which allows better performance. This means that raw HTML controls are used to the extent possible (for example, there is no signature or slider control in HTML), with little to no CSS stylization and JavaScript enhancements to customize the look-and-feel.
- Optimize for appearance – provides a more sophisticated, or native, look-and-feel but may affect performance.

Note: This option is not available on Windows Mobile platforms.

Preference settings determine the default behavior and style for the Flow Design and Screen Design pages and their objects. You can change the style and behavior of objects individually in the Properties view for a selected object. You can set these preferences for the Flow Design and Screen Design pages:

Preference	Description
Appearance	Set the color and font preferences for the designer.

Preference	Description
Connections	When a new connection is created, it follows the default style defined in the preferences settings. You can change the style of the connection line individually in the Flow Design Properties view. Select the default line style for new connections: • Oblique (default) – the connection lines are not aligned with the horizontal or vertical axis and you can create break points anywhere on the connection line. If you drag the connection line, a new breakpoint is created at the drag point and two lines are created. • Rectilinear – the connection line always remains either horizontal or vertical.
Printing	Set the general printing preferences.
Rulers and Grid	Set the preferences for the ruler and grids: • Ruler options: • Show rulers for new diagram • Ruler units • Grid options: • Show grid for new diagrams • Snap to grid for new diagrams – select if you want objects in the diagram to stick to grid lines when they are being moved. • Snap to shapes for new diagrams • Grid spacing (in inches)

Creating a New Mobile Workflow Form

Access the Sybase Mobile Workflow Forms Editor.

Prerequisites
You must have an existing project in which to create the mobile workflow form.

Task

1. In the Mobile Development perspective, select **File > New > Mobile Workflow Forms Editor**.
2. Follow the instructions in the New Mobile Workflow Forms Editor wizard:

Field	Description
Enter or select the parent folder	Select the mobile application project in which to create the mobile workflow form.
File name	Enter a name for the mobile workflow form. The extension for mobile workflow forms is .xbw.
Advanced	Link the mobile workflow form to an existing file in the file system.
Link to file in the file system	Click **Browse** to locate the file to which to link the mobile workflow form. Linked resources are files or folders that are stored in the file system outside of the project's location. If you link a resource to an editor, when you select the editor, the resource is selected in the Work-Space Navigator. Conversely, when you select the resource in the WorkSpace Navigator, the editor is selected.

3. Click **Next**.
4. In the Starting Points page, select the ways the mobile workflow application will start:
   - **Can be started on demand from the client** – creates a Client-initiated starting point. This allows the user to start the mobile workflow on the device and submit data to the server.
   - **Responds to server-driven notifications** – creates a Server-initiated starting point. When a notification that matches the defined matching rules arrives in the Notification Mailbox, it is then sent as a notification to the devices that match those matching rules. When you select this option, you will set up the server-initiated starting point in the next screens of the wizard. Follow the procedure for *Creating a Server-initiated Starting Point*.
   - **Has setup options that need to be set when the client application is first activated** – creates an Activate starting point so that the first time the workflow is launched, the screen pointed to by the Activation screen is shown.
   - **Credentials (authentication) may be requested dynamically from the client application** – creates a Credential Request starting point with pre-defined username and password keys.

5. (Optional) If you selected the **Responds to server-driven e-mail notifications** option in the previous step, follow the procedure in *Creating a Server-initiated Starting Point.*

6. Click **Finish**.

7. In the Mobile Workflow Forms Editor, click **Flow Design** to start designing the mobile workflow form.

See also
- *Setting Mobile Workflow Forms Editor Preferences* on page 3
- *Starting Points* on page 8
- *Flow Design Page Properties* on page 20
- *Flow Design Palette Options* on page 24
- *Screen Design Page Properties* on page 28
- *Screen Design Palette Options* on page 30
- *Mobile Workflow Forms Editor Context Menus* on page 34

Creating Screens Automatically by Dragging and Dropping a Data Source

Drag and drop a data source, for example a mobile business object (MBO) or operation onto the Flow Design page to create screens, controls, keys, menus, and navigations automatically.

Note: Mobile business objects used as the data source must be contained in a deployed mobile application package that is identified as "messaging."

When you use an MBO operation, a screen is created with a menu item that invokes that operation. Controls bound to keys that are bound to that operation's parameters are also created.

When you use an MBO as the data source, screens and keys for the operations are created, along with a details screen for the MBO itself, and also screens for any related MBOs and their operations.

1. From the Flow Design page palette, select a starting point and click on the Flow Design page.

2. From WorkSpace Navigator, expand the project that contains the data source you want to use.

3. Select the data source, for example, a mobile business object, and drag and drop it onto the Flow Design page.

   If the mobile business object you are using as the data source has relationships with other mobile business objects defined, all of the screens and connections between screens for the initial mobile business object and its relationships are automatically created. You can change the order of the screens and create your own connections manually.

> **Note:** Structured mobile business objects and complex parameters are not supported in mobile workflow forms.

Starting Points

Starting points specify which screen on the Mobile Workflow a user sees when they perform a certain action.

Starting points include:

- Client-initiated – this starting point is activated when the user opens the mobile workflow on the device.
- Activate – this is the starting point that is activated when the user first opens the mobile workflow application. It does not activate on the second and subsequent times the mobile workflow application is started. Multiple workflow applications can share the same Activate starting point. Different workflows can specify an activation key, and workflows with the same activation key share their activation status. For example, if Workflow A and Workflow B both specify an activation key of AB (via the key attribute on the RequiresActivation tag), when Workflow A gets activated, it also activates Workflow B such that when Workflow B is invoked for the very first time, its activation screen will not be displayed.

  > **Note:** A mobile workflow application with an Activate starting point is considered to be successfully activated only if it is closed with a Submit Workflow menu item.

- Credential request – this starting point is activated when the mobile workflow application requires a user name and password and the program does not have one in its cache, or the values in the cache are no longer valid.
- Server-initiated – this starting point is activated when a notification message is sent to the device that matches the matching rules specified in the mobile workflow application.

Each starting point has a list of keys with which it is associated. View the keys associated with the starting point in the Properties view for the starting point.

See also

Adding a Starting Point Manually

Every screen must be part of a flow that connects to a starting point.

Note: If you manually create a server-initiated starting point that invokes an object query, the list key will not have any children. To create the children for the list key, you can use the New Mobile Workflow Forms creation wizard to create the server-initiated starting point, or you can drag and drop the mobile business object onto the Flow Design page. Either of these two methods will create the associated children key for a server-initiated starting point that invokes an object query. Otherwise, you will have to manually set up the list key's children.

1. From the palette on the Flow Design page, select a starting point, then click on the Flow Design canvas.
2. Add a screen to the starting point by either:
   - Dragging and dropping a data source, for example, a mobile business object or mobile business object operation, onto the Flow Design canvas, or
   - Selecting an empty screen from the Flow Design palette, then clicking on the Flow Design page.
3. Add a connection between the starting point and the screen.
4. Select **File > Save**.

   You can also automatically create starting points based on selections you make in the New Mobile Workflow Form wizard when you create a new Mobile Workflow form.

Creating a Server-initiated Starting Point

Create a server-initiated starting point.

Note: Each Mobile Workflow Form package can have only one server-initiated starting point.

1. In the Mobile Development perspective, select **File > New > Mobile Workflow Forms Editor**.
2. Follow the instructions in the New Mobile Workflow Forms Editor wizard:

Field	Description
Enter or select the parent folder	Select the mobile application project in which to create the mobile workflow form.
File name	Enter a name for the mobile workflow form. The extension for mobile workflow forms is .xbw.
Advanced	Link the mobile workflow form to an existing file in the file system.

Field	Description
Link to file in the file system	Click **Browse** to locate the file to which to link the mobile workflow form. Linked resources are files or folders that are stored in the file system outside of the project's location. If you link a resource to an editor, when you select the editor, the resource is selected in the Work-Space Navigator. Conversely, when you select the resource in the WorkSpace Navigator, the editor is selected.

3. Click **Next**.
4. In the Starting Points page, select **Responds to server-driven notifications**.
5. In the E-mail Processing wizard, click **Search** to locate the mobile business object with which to associate the server-initiated starting point.
6. In the Search for Mobile Business Object wizard, click **Search**.
7. Select the mobile business object from the list, and click **OK**.
8. (Optional) Select an **Object query** and click **Next**.

Note: Object queries that return result sets are not supported.

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9. Enter the contents for a sample notification message, and click **Next**.
10. Select the text that will serve as the matching rule by right-clicking and selecting **Select as Matching Rule**; then click **Next**.
11. From **Extraction Rules**, select a parameter, and specify from where the parameter receives data in the Extraction Rule Properties.

Note: The supported syntax for the regular expression is that used by the C# Match() methods(s) of the class System.Text.RegularExpressions.Regex.

Property	Description
Field	Select the field from the notification message from which the parameter receives data, for example, Subject. Selecting Subject indicates that the parameter receives data from the subject line of the notification message.
Start tag	Enter or select the text for the start tag regular expression, for example, `"Approval Re-quest\("`.
End tag	Enter or select the text for the end tag regular expression, for example, `"\)was sent"`.

Property	Description
Format	Supports locale-specific parameter extraction. For example, you can indicate that a given date parameter will be in the form of YYYY-MM-DD in the e-mail, and another date parameter will be in the form of YYYY-DD-MM. This applies to the DateTime type.
Sample notification field contents	The value of the field from the sample notification previously specified on the Specify Sample Notification page of the Notification Processing wizard.
Value extracted from sample notification field contents	The value the start tag and end tag matching rules would arrive at given the sample field value.

12. Click **Finish**.

Server-initiated Starting Point Properties
View and configure the server-initiated starting point properties.

General
Select the **Server-initiated** starting point in the Flow Design page to view and configure its properties.

Property	Description
Mobile business object	The mobile business object with which the server-initiated starting point is associated.
Object query	When you define an object query in the mobile business object associated with the Mobile Workflow form, the object query returns the specified instances of the mobile business object. For example, if a travel request to Hawaii is submitted, the object query returns an instance of that mobile business object so the approver can review the travel request details then modify the status and comment fields for that mobile business object.

Object queries that return multiple instances are supported, as well as object queries that return only one instance. |

Property	Description
Generate old value keys	By default, this is selected, which means when data is sent, there are two copies sent—one with the key names you select at design time, and one with the same names prefixed with "_old." The keys you selected at design time may get updated by the application, but the old values will not unless this option is selected. Those "_old" value keys may be critical when executing an update or parent update operation at a later time. If you unselect this option, old value keys are not generated.
Jumpstart	Launch the Notification Processing wizard, where you can compose a sample notification message from which to specify parameter value extraction rules and matching rules.
Extraction rules	Shows the notification extraction rules for the server-initiated starting point. Select a rule and click **Edit** to change the transformation rule.

Keys
Click **Keys** in the left pane of the Properties view to see the keys that are associated with the server-initiated starting point.

Property	Description
Key name	The name of the associated key.
Type	The type of the associated key, for example, string.

Property	Description

Data binding	Shows the data source to which the key is bound:
	
	• Mobile business object attribute
	• Mobile business object relationship
	• MBO object query results
	  If you select an object query that returns multiple MBO instances, you can bind the result set to a Listview control using a key that is of the list type.
	• User-defined
	• Extraction rule
	  If you create a server-initiated starting point that invokes an object query with a parameter, this value is extracted from the email message automatically.
	
	Click **New** to create a new key.
	
	Select any key and click **Edit** to edit the information for an existing key.
	
	Select a key and click **Remove** to remove an existing key.

Parameter Mapping
Use the Parameter Mapping section to bind the parameters (if any) of an operation or object query to keys or, context data, such as DeviceName, BackEndPassword, BackEndUser, and so on.

Personalization Key Mappings
If you have a mobile business object with load parameters mapped to session personalization keys, you can specify values for those personalization keys when you invoke an operation or object query from the Mobile Workflow package. This can, for example, be useful for loading only specific data into the consolidated database from large data sources.

Notification Extraction Rules
Notification extractions rules are used to extract parameter values to keys, so you can then map the parameters to objects, such as keys.

This means that you can extract values from the notification without needing to use them right away as parameter values. You can instead bind them to controls and display them to the user, or use them later on in the workflow to submit a create/read/update/delete (CRUD) operation or object query.

Notification extraction rules include a regular expression that determines from where in the notification message the parameter value starts, and another regular expression that determines from where in the notification message the parameter value ends. Define the notification extraction rules when you create a server initiated starting point.

Editing Notification Extraction Rules
Edit notification extraction rules in the server-initiated starting point General properties.

1. On the Flow Design page, select the Server-initiated starting point.
2. In the General Properties view, select the notification extraction rule to edit and click **Edit**.
3. In the Edit Notification Extraction Rule dialog:

Property	Description
Field type	Select the field in the notification from which the parameter value is extracted, for example, Subject, which indicates the parameter value is extracted from the subject line of the notification message.
Tag before parameter	Enter the tag to indicate what to extract from the beginning of the field's contents, for example, `"Approval Request\("`.
Tag after parameter	Enter the tag that indicates what to extract from the end of the field's contents, for example, `"\)was sent"`.
Format	Format uses the C# ParseExact syntax, and applies to DateTime only. It supports locale-specific parameter extraction. For example, you can indicate that a given date parameter will be in the form of YYYY-MM-DD in the e-mail, and another date parameter will be in the form of YYYY-DD-MM. This applies to the DateTime type.
Key	The key that the value from the notification is extracted to.

Note: The supported syntax for the regular expression is that used by the C# Match() methods(s) of the class System.Text.RegularExpressions.Regex.

4. Click **OK**.

Editing the Server-initiated Starting Point

Edit the Server-initiated starting point.

1. In the Flow Design page, right-click the **Server-initiated starting point** to edit and select **Edit Server-initiated starting point**.
2. Make your changes in the Notification Processing wizard and click **Finish**.
3. From the main menu, select **File > Save**.

Adding Matching Rules

Matching rules determine how notification messages are redirected at runtime.

To see the Matching Rules section of the Properties view, verify there are no objects selected on the Flow Design page.

1. In the Properties view, click **Matching Rules**.
2. Click **Add**.
3. In the matching rules dialog, specify the type and regular expression for the matching rule, and click **OK**.

Credentials

You can use either dynamic or static credentials in a mobile workflow form.

See the *Developer Guide for Mobile Workflow Packages* and *System Administration* for more detailed information about implementing security and certificates.

The user name and password values are required when the mobile workflow application invokes a mobile business object operation. These authentication values can be provided statically (at design time), or dynamically (by the user at runtime).

Dynamic credentials mean that the user sets the user name and password on a screen that is pointed to by the credential request starting point. The text fields must have the corresponding Credential Cache User Name and Password checkbox checked to indicate the value is to be used to provide the user name and password on the client. When the user logs in, the credentials are authenticated using the stored credentials.

Note: If an e-mail triggered workflow form has dynamic cached credentials, the cached credentials are not cached between invocations of the workflow form through an email trigger.

Static credentials mean that everyone who has access to the resource uses the same user name and password. By default, static credentials are used. The static credential user name and password for the mobile workflow application can be extracted from the selected Sybase Unwired Platform profile user name and password when the mobile workflow application is generated, or they can be hard-coded using the Properties view. After deployment, you can change static credentials in the Sybase Control Center.

The application can also have a credential screen (Credential Request) that appears if the mobile workflow application detects that the cached credentials are empty or incorrect.

Setting Up Static Authentication

With static authentication, everyone who has access to the resource uses the same user name and password.

Set up static credentials in the Authentication section of the Properties tab. To see the Properties page, verify there are no objects selected on the Flow Design page.

1. In the Properties view, click **Authentication**.
2. Select **Use static credentials**.
3. Select from these options:
   - Use SUP Server connection profile authentication – selected by default. When the code is generated for the mobile workflow application, the user name and password associated with the SUP connection profile are used.
   - Use hard-coded credentials – sets the user name and password. When you select this option, the User name and Password fields are activated.
   - Use certificate-based credentials – when you select this option, you can use a certificate to generate authentication credentials.
4. (Optional) If you selected the **Use hard-coded credentials** option in the previous step, enter the User name and Password that are to be used for authentication.
5. Select **File > Save**.

Setting Up Static Authentication Using a Certificate

Set up static authentication credentials generated from a certificate.

1. In the Properties view, click **Authentication**.
2. Select **Use static credentials** and Use certificate-based credentials.
3. Click **Generate from Certificate** to select a certificate file from which to generate authentication.
4. In the Certificate Picker, click **Browse** to locate the certificate to use.
5. Enter a password and select an alias, then click **OK**.

   The information from the certificate is shown in the Properties view.
   - Issuer – the issuer of the certificate
   - Subject – the value of the subject field in the metadata of the certificate as defined in the X.509 standard
   - Valid from – the date the certificate is valid from
   - Valid to – the date the certificate is valid to
6. Select **File > Save**.

Setting Up Dynamic Authentication

Use dynamic authentication when you want the user to set the name and password on the client.

You can create the Credential Request starting point with a Credential screen automatically when you initially create a new mobile workflow, or you can create the Credential Request starting point and associated screen manually. This procedure shows how to create the Credential Request starting point automatically when you create a new mobile workflow.

1. In the Mobile Development perspective, select **File > New > Mobile Workflow Forms Editor**.
2. Follow the instructions in the New Mobile Workflow Forms Editor wizard:

Field	Description
Enter or select the parent folder	Select the mobile application project in which to create the mobile workflow form.
File name	Enter a name for the mobile workflow form. The extension for mobile workflow forms is .xbw.
Advanced	Link the mobile workflow form to an existing file in the file system.
Link to file in the file system	Click **Browse** to locate the file to which to link the mobile workflow form. Linked resources are files or folders that are stored in the file system outside of the project's location. If you link a resource to an editor, when you select the editor, the resource is selected in the Work-Space Navigator. Conversely, when you select the resource in the WorkSpace Navigator, the editor is selected.

3. In the Starting Points page, select **Credentials (authentication) may be requested dynamically from the client application**.
4. Continue with the New Mobile Workflow wizard as appropriate to create the type of mobile workflow application you want to create. Click **Finish**.
5. When the Mobile Workflow Forms Editor opens, click **Flow Design**.

   The Credential Request starting point and its associated Credential Request screen appear on the Flow Design page.

   Select the Credential Request starting point. You see the two pre-defined keys (cc_username and cc_password) in the Properties view.
6. Double-click the **Credential Request** screen to go to the Screen Design page.

Two editbox controls, which are bound to the pre-defined cc_username and cc_password keys appear on the screen.

7. Select the **Username** editbox, then click **Advanced** on the left side of the Properties view.

   The Username editbox has the **Credential cache username** checkbox selected. Select the Password editbox and note that is has the **Credential cache password checkbox** checked.

   If you create a Credential Request starting point and screen manually, you must add the editbox controls, create the keys for the username and password, and check the corresponding Credential cache username or password box.

8. (Optional) To use certificate-based authentication instead of the user name and password:

   a) Add a **MenuItem** to the Menu box.
   b) Select the MenuItem to see the Properties.
   c) In the Properties view, from Type, choose **Select Certificate**.

      When the user selects the menu item on the device, a dialog is opened that allows the user to select a certificate to use for credentials.

9. Select **File > Save**.

   The first time the mobile workflow is started following deployment, the credential screen is shown. The username and password values are then cached in the credential cache.

   Note: If an e-mail triggered workflow form has dynamic cached credentials, the cached credentials are not cached between invocations of the workflow form through an email trigger.

Creating Keys

Create new keys to bind to controls.

1. On the Screen Design page, select the control to which you want to bind the new key.
2. In General Properties, in the Input Data Binding section, click **New key**.
3. In the Key dialog, enter:

Property	Description
Name	Enter a name for the key.
Type	Select the key type.
Sent by server	Select this checkbox to input data binding for the key.
Input Data Binding	
MBO attribute	Select to bind the key to a mobile business object (MBO) attribute: • Name • Convert to UTC

Property	Description
MBO relationship	Bind the key to an MBO relationship.
MBO object query results	Bind the key to MBO object query results.
Hard coded value	When the message is sent by the server to the client, rather than getting the value of the key from a source like an MBO attribute, it uses the fixed value you input.
User defined	Bind the key to user-defined data.
Extraction rule	This is determined by the extraction rules you set up.

4. Click **OK**.

Keys

Keys are unique identifiers within the scope of a workflow application, used when setting or retrieving a value.

Keys can be bound to the mobile business object (MBO), whether it is to an MBO attribute, an MBO parameter, an MBO operation parameter, a subscription parameter, an object query, or an MBO relationship (list type keys only).

Keys can be of the following types:

- string
- int
- double
- decimal
- bool
- DateTime
- list – can be bound to relationships, or nothing. Keys of other types cannot be bound to relationships. List type keys can also be bound to MBO object query results, which returns multiple objects. List type keys have one or more child keys to which they are bound.

Binding Controls to Keys

Use the Properties view to bind keys to controls.

1. On the Screen Design page, select the control to which you want to bind the key.
2. In General Properties, in the Input Data Binding section, select the key with which to bind the control from the drop-down list.
3. (Optional) In Default Value, enter a default value for the key.
4. Select **File > Save**.

Flow Design Page Properties

These are the Flow Design page properties shown in the Properties view when no objects in the Flow Design page are selected.

General

Property	Description
Module name	The name of the module.
Module version	The version of the module.
Module description	Enter a description for the module.
Module display name	Enter the name that appears on the workflow application when it is viewed on the client.
Delete message after processing	If this option is selected, server-initiated workflow messages are removed from the device Inbox after they have been processed. A message is considered to have been processed if the corresponding workflow application is closed as a result of an asynchronous submit menu item being activated.
Mark message as processed after processing	If this option is selected, server-initiated workflow messages are marked as processed in the device Inbox (indicated by a green check mark over the original icon) after they have been processed. A message is considered to have been processed if the corresponding workflow application is closed as a result of an asynchronous submit menu item being activated.
Client icon	Select the icon that appears on the client.
Credentials cache key	Specify a key to use for the credential starting point. If you do not enter anything, each workflow will have a different credentials key. If there is more than one workflow with the same credentials key, then all of those workflows can share the same credentials so that authentication for each workflow does not have to be separately defined.

Property	Description
Requires activation key	Specify a key to use for activation. If you do not enter anything, each workflow will have a different activation key, which means that each workflow will have to be activated separately. If you specify an activation key, then when you activate one workflow, all the other workflows sharing the specified activation key are automatically activated.

Rulers and grid

Property	Description
Display	- Show ruler - Show grid - Grid in front
Measurement	- Ruler units - Grid spacing
Grid line	- Color - Style
Snap to grid	Automatically align objects to the grid lines on the canvas.
Snap to shapes	Position objects to grid lines that go through the vertical and horizontal edges of other objects.

Localization

Property	Description
New	Launch the New Locale wizard and create a new locale file for the mobile workflow application.
Update	Update the currently loaded locale file.
Load	Load a locale properties file to the Mobile Workflow Designer.
Validate	Select a locale properties file and click to validate.

Property	Description
Edit	Select the locale properties file, then click to edit the locale properties file.
Remove	Select the locale properties file to remove, then click to remove.

Matching rules
Any existing matching rules appear in the matching rules Properties view. Matching rules determine how notifications are redirected at runtime.

Property	Description
New	Create a new matching rule.
Delete	Select a matching rule and click to delete.
Edit	Select a matching rule and click to edit.

Authentication

Property	Description
Use static credentials	Select when the authentication field is the same for all users accessing the resource.
Use SUP server connection profile authentication	Use properties from the connection profile to supply credential data for authentication. This is similar to hard-coded credentials but the credentials are taken from the specified server connection profile instead of being specified in the Mobile Workflow Forms Editor.
Use hard-coded credentials	Specify a user name/password combination for authentication.
User name	This field is editable only if you selected the hard-coded credentials option. Enter the user name to use for authentication.
Password	This field is editable only if you selected the hard-coded credentials option. Enter the password to use for authentication.

Property	Description
Use certificate-based credentials	Click **Generate from Certificate** to select a certificate file from which to generate authentication. Once you choose the certificate to use, these fields are filled in automatically. • Issuer – the issuer of the certificate • Subject – the value of the subject field in the metadata of the certificate as defined in the X.509 standard • Valid from – the date the certificate is valid from • Valid to – the date the certificate is valid to
Unwired Server domain	Optionally specify the Sybase Unwired Platform domain to use. If specified, a context variable is created in the application for which the initial value is set to this domain. At runtime, when determining authentication, *@<domain>* is added to the user name, thus allowing the user access to that domain.

See also

Flow Design Palette Options

Use the items in the Mobile Workflow Forms Editor Flow Design palette to configure the screens and connections for the mobile workflow application.

Connections

Connection	Description
Go to	Specifies which screen the user goes to upon completing an action on the current screen, such as clicking OK or Next.
Operation success	Specifies which screen the user automatically goes to upon successful completion of an operation.
Operation error	Specifies the screen that the user goes to automatically when an error occurs while attempting to complete an operation.
Listview details	Specifies which screen to open when a row in a listview is clicked. Once on the details screen, you can add, update, or delete rows from the listview.
Listview add	Specifies a screen that can be directly navigated to in order to add a new row to the listview.

Screen

Select the screen ▥ and click the Flow Design page to create a new empty screen.

Starting points

Starting point	Description
Activate	The Activate starting point indicates a screen that is displayed to the user the only the first time they open the application. It is not displayed the second and subsequent times the application is opened. For example, you might want to use an Activate starting pint to show usage instructions for the application to the user the first time they open the application.

Starting point	Description
Credential request	Provide the credentials for authentication. During execution, authentication credentials are evaluated in this order: 1. User-defined user name and password keys 2. Credential cache 3. Specified generic credential pair
Server-initiated	Use this starting point to define the matching rules for the workflow form and to specify how to extract values from notifications and map them to mobile business object read and search parameters.
Client-initiated	The mobile business object referencing starting point.

See also

Adding Connections to Screens

The Start icon appears on the Flow Design page, and its connection is attached to the first screen you add to the Flow Design. You can change the target to any screen in the Flow Design.

1. From the Flow Design Palette, select the connection you want to use:

Note: Some connections cannot be explicitly created; they can only be implicitly created when creating or editing menu item properties.

Connection	Description
Go to	Specifies which screen the user goes to upon completing an action on the current screen, such as clicking OK or Next.

Connection	Description
Operation success	Specifies which screen the user goes to upon successful completion of an operation.
Operation error	Specifies the screen that the user goes to automatically when an operation fails to execute.
Listview details	Specifies which screen to open when a row in a listview is clicked. Once on the details screen you can add, update, or delete rows from the listview.
Listview add	Specifies a screen that can be directly navigated to in order to add a new row to the listview.

2. In the Flow Design canvas, click the source screen and drag to connect it to the target screen.
The connection line appears between the two screens.

Connections
Use connections to connect screens with actions in the Flow Design.

Connection actions describe the navigation direction the screen should go after the user performs an action, cancels an action, or uses a control. Alert actions use actions defined in the Flow Design.

Note: You can use only one connection of each type from a given source screen, except for the GoTo and Operation Success connection types. You can have as many Operation Success connections on a source screen as you have synchronous operations on the source screen. You can have as many GoTo connection types as you want to on a source screen.

Connection Properties
Use the Properties view for connections to configure the connection properties.

Select the connection on the Flow Design page to view its properties.

Property	Description

Routing	When a new connection is created, it uses the default style defined in the preferences settings. You can change the style of the connection line individually in the Properties view.
	
	• Styles:
	  • Oblique – connection lines are not aligned with the horizontal or vertical axis, and you can create breakpoints anywhere on the connection line. If you drag the connection line, a new breakpoint is created at the drag point and two lines are created.
	  • Rectilinear – the connection line always remains either horizontal or vertical.
	  • Tree – arranges the connection lines on the Flow Design in a tree structure.
	• Avoid obstructions – connection lines go around objects.
	• Closest distance – connection lines pass through objects to shorten the distance of the connection line.

Lines and arrows	
Smoothness	• None • Less • Normal • More

Jump links	• Status:
	  • None
	  • Below
	  • All
	  • Above
	• Type:
	  • Semicircle
	  • Chamfered
	  • Square
	• Reverse jump links

Screen Design Page Properties

These are the Screen Design page properties shown in the Properties view when no objects in the Screen Design page are selected.

General

These are the general properties for the screen.

Property	Description
Name	The name of the screen.
Key	The key associated with the screen.
Background color	Click **Color picker** to choose a background color for the screen.
	You can also enter the value manually. The possible values are black, blue, brown, gray, green, orange, pink, purple, red, white, yellow, any string with the format #rrggbb, where rr, gg and bb are the hexadecimal values, in the range 0 to ff(255), for the red, green and blue.
OK action	Select the action that will be performed when the user clicks OK on the screen.

Rulers and grid

The ruler and grid properties are applied to the Screen Design page, or canvas.

Property	Description
Display	• Show ruler • Show grid • Grid in front
Measurement	• Ruler units • Grid spacing
Grid line	• Color • Style
Snap to grid	Automatically align objects to the grid lines on the canvas.

Property	Description
Snap to shapes	Position objects to grid lines that go through the vertical and horizontal edges of other objects.

Keys
Keys associated with the controls on the screen are shown.

Property	Description
Key name	The name of the associated key.
Type	The type of the associated key, for example, string.

Data binding	Shows the data source to which the key is bound:
	
	• Mobile business object attribute
	• Mobile business object relationship
	• MBO object query results
	   If you select an object query that returns multiple MBO instances, you can bind the result set to a Listview control using a key that is of the list type.
	• User-defined
	• Extraction rule
	   If you create a server-initiated starting point that invokes an object query with a parameter, this value is extracted from the email message automatically.
	
	Click **New** to create a new key.
	
	Select any key and click **Edit** to edit the information for an existing key.
	
	Select a key and click **Remove** to remove an existing key.

See also
- *Setting Mobile Workflow Forms Editor Preferences* on page 3
- *Creating a New Mobile Workflow Form* on page 5
- *Starting Points* on page 8
- *Flow Design Page Properties* on page 20
- *Flow Design Palette Options* on page 24
- *Screen Design Palette Options* on page 30
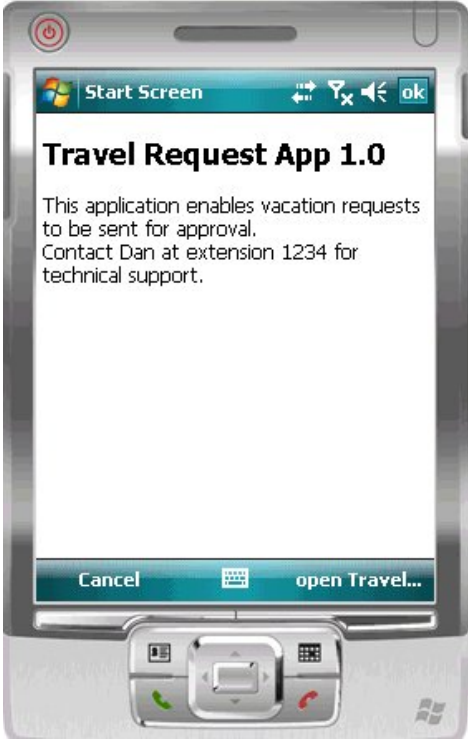
Screen Design Palette Options

Use the items on the palette to design the screen for the mobile workflow application.

Option	Description
Menu item	Use to provide additional options for the top-level menu on the screen.
Checkbox	Displays a true/false (or yes/no) option on the screen.
Editbox	Select the logical type for the edit box, then enter text and assign values to strings, dates, decimals, integers, and so on.
Choice	Display a collection of items on the screen as a drop-down list from which the user can choose.
Slider	Represent numeric values within a range.
Signature	Add a signature box to the screen. The value is a list of points that, combined, make up the signature that gets or is drawn to the control, for example, -1x-1,5x7,5x8,-1x-1, where -1x-1 is interpreted as an interruption of a line drawn to the screen.

Option	Description
HtmlView	Allows text with HTML markup to display on the screen. For example, this code: ``` <H2>Travel Request App 1.0</H2> This application enables vaca- tion requests to be sent for approval. Contact Dan at extension 1234 for technical support. ``` displays like this on the device: **Note:** The HtmlView control fills the entire screen of a workflow form, so no other controls can be placed on a screen that hosts an HtmlView control.

Option	Description
ListView	Displays lines that can be clicked on to show further details of the selected line. This facilitates the navigation for a one-to-many mobile business object relationship. For example, the listview could contain the items of a sales order. When a line in the sales order is clicked on, a details screen for that sales order appears.
	Note: The ListView control fills the entire screen of a workflow form, so no other controls can be placed on a screen that hosts a ListView control.
AttachmentViewer	Allows the user to download and view attachments on the device. A file viewer must be available on the device for the associated file type, for example, .pdf, doc., xls, and so on.

See also
- *Setting Mobile Workflow Forms Editor Preferences* on page 3
- *Creating a New Mobile Workflow Form* on page 5
- *Starting Points* on page 8
- *Flow Design Page Properties* on page 20
- *Flow Design Palette Options* on page 24
- *Screen Design Page Properties* on page 28
- *Mobile Workflow Forms Editor Context Menus* on page 34

Adding Controls to the Screen

Use the Screen Design palette to add controls to the mobile workflow screen.

1. In the Mobile Workflow Forms Editor, select **Screen Design > Palette > Controls**, then select the control you want to add to the screen and click on the screen.
2. Click the control to select it, then use the Properties page to configure it.

Mobile Workflow Controls
Controls are objects that users can interact with to view, enter, or manipulate data.

Supported controls are determined by the selected device. The set of supported controls depends on the target device platform.

Control	Supported Platform
Checkbox	• Apple iOS • BlackBerry • Windows Mobile Professional
Editbox	• Apple iOS • BlackBerry • Windows Mobile Professional
Choice	• Apple iOS • BlackBerry • Windows Mobile Professional
Slider	• Apple iOS • BlackBerry **Note:** When the **Optimize for performance** option is set in preferences, the Slider control is supported only on BlackBerry.
Signature	• Apple iOS • BlackBerry 6.0
HtmlView	• Apple iOS • BlackBerry • Windows Mobile Professional
Listview	• Apple iOS • BlackBerry • Windows Mobile Professional
AttachmentViewer	• Apple iOS • BlackBerry • Windows Mobile Professional

Mobile Business Object Relationships

When you are using two mobile business objects with a one to many or one to one composite relationship defined, use the listview control on the mobile workflow application to show the list of related objects.

The listview control allows you to navigate the one to many or one to one relationship between the two mobile business objects. The one to one cascade relationships use regular controls or keys that bind to the related mobile business object's attributes.

When you create the relationship between the two mobile business objects, you must select the One to many or One to one and Composite options.

Note: Structured mobile business objects and complex parameters are not supported in mobile workflow forms.

Mobile Workflow Forms Editor Context Menus

Right-click in any of the pages (except the Introduction page) of the Mobile Workflow Forms Editor to display a context menu and perform these actions.

Option	Description
Edit	Edit the selected object.
Delete	Delete the selected object.
Mobile Business Object References	Shows current mobile business object references and allows you to create new mobile business object references and edit or delete existing mobile business object references.
	Note: This menu item appears only on the Flow Design page.
Generate Mobile Workflow Package	Generate the mobile workflow form code.
Send a notification	Send an e-mail from the Mobile Workflow Forms Editor to a device user. This can be used to quickly test e-mail triggered applications. The test e-mail bypasses the Notification Mailbox.
	Note: The Cc and Bcc fields are used only for matching rules. An e-mail is not sent to the users entered in these fields.

Option	Description
Select	Select: • All – selects all objects on the page. • All shapes – selects all shapes on the page. • All connections – selects all connections on the page.
Arrange all	Arranges the shapes on the page.
View	View: • Grid • Rulers • Page breaks • Recalculate page breaks • Snap to grid
Zoom	Select from the zoom options.
Show properties view	Shows the Properties view for the selected object.

See also
- *Setting Mobile Workflow Forms Editor Preferences* on page 3
- *Creating a New Mobile Workflow Form* on page 5
- *Starting Points* on page 8
- *Flow Design Page Properties* on page 20
- *Flow Design Palette Options* on page 24
- *Screen Design Page Properties* on page 28
- *Screen Design Palette Options* on page 30

Configuring Control Properties

Use the Properties page of any control to configure control properties.

1. On the Screen Design page, select the control for which to configure the properties. The configurable properties for the selected control appear in the Properties view.
2. Configure the properties for the control and select **File > Save**.

Checkbox Properties

Select the checkbox on the Screen Design page to view and configure its properties.

General control properties
These are general properties for most controls.

Property	Description
Label	This property applies to all controls except HtmlView and Listview. • Label – enter the text that describes the control on the user interface. • Label position – the position of the label in relation to the control it describes.
Input data binding	• Key – the unique identifier within the scope of the widget, used when setting or retrieving a value. Click **New key** to create a new key for the control. • Default value – default value for the control.
Read only	This property applies to all controls except HtmlView and Listview. Select to make the control read-only. **Note:** The read-only property is not supported on the Windows Mobile platform for the Checkbox, Slider, and Choice controls.

Advanced
These are the advanced validation properties for the checkbox control.

Property	Description
Required	Specifies that submission is possible only when the checkbox is selected. A submission must have a value.
Validation message	Specifies the error message that appears to the user in case the input validation criteria do not match.

Editbox Properties

Select Editbox on the Screen Design page to view and configure its properties.

General control properties
These are general properties for most controls.

Property	Description
Label	This property applies to all controls except HtmlView and Listview. • Label – enter the text that describes the control on the user interface. • Label position – the position of the label in relation to the control it describes.
Input data binding	• Key – the unique identifier within the scope of the widget, used when setting or retrieving a value. Click **New key** to create a new key for the control. • Default value – default value for the control.
Read only	This property applies to all controls except HtmlView and Listview. Select to make the control read-only. **Note:** The read-only property is not supported on the Windows Mobile platform for the Checkbox, Slider, and Choice controls.

Editbox general properties
These are the general properties that apply to the editbox control.

Property	Description
Password	If selected (set to true), text entered in the editbox is replaced with asterisks. The default is false.
Logical type	Select the logical type for the editbox: • TEXT • NUMERIC • DATE – uses absolute values or values relative to the current day using simple calculations in days, for example, "2008-05-24" "today" "today+1" "today-1." All values are expected to be in UTC. • DATETIME – uses absolute values or values relative to the current time or day using simple calculations in seconds, for example, "2008-05-24" or "2008-05-24T14:30:15" "today" "today+86400" or "today-86400." In "today+nnn," the nnn means seconds and "today" is interpreted as the current date time 12:00PM. • TIME – uses only absolute values, for example, "14:30" or "14:30:15." Valid values are 00:00:00 to 23.59:59. **Note:** The properties that you can configure depend on the logical type set for the editbox control. Some properties apply only to the numeric type, some apply only to the text type, and so on.

Advanced

These are the advanced properties that apply to the editbox.

Property	Description
Content size	• Maximum length – specify the maximum number of characters allowed for the control. • Number of lines – specify the number of lines for the control. • Number of decimals – specify the number of decimals (the number of digits after the decimal point—valid range is 0 – 28) for a number. Valid only in conjunction with numeric attributes. The default is zero.
Validation	• Minimum value – specify the minimal value for numeric input. Valid only in conjunction with numeric attributes. • Maximum value – specify the maximum value for numeric input. Valid only in conjunction with numeric attributes. • Required – specify if user input is required. A value is required for submission. • Validation regular expression – if the user enters text in the control, the input has to comply to the provided regular expression. • Validation message – enter the error message the user sees in case the input validation criteria do not match.
Time precision	Specifies the precision of the time portion displayed to the user and calculations. **Note:** This property is used only if the editbox logical type is datetime or time.
Credential cache username	If the widget supports cached credentials, select to specify that the editbox be treated as a user name.
Credential cache password	If the widget supports cached credentials, select to specify that the editbox be treated as a password.

Choice Properties

Select the choice control on the Screen Design page to view and configure its properties.

General control properties
These are general properties for most controls.

Property	Description
Label	This property applies to all controls except HtmlView and Listview. • Label – enter the text that describes the control on the user interface. • Label position – the position of the label in relation to the control it describes.
Input data binding	• Key – the unique identifier within the scope of the widget, used when setting or retrieving a value. Click **New key** to create a new key for the control. • Default value – default value for the control.
Read only	This property applies to all controls except HtmlView and Listview. Select to make the control read-only. **Note:** The read-only property is not supported on the Windows Mobile platform for the Checkbox, Slider, and Choice controls.

Choice general properties
These are the general properties that apply to the choice control.

Property	Description
Logical type	Select the logical type for the edit box from the drop-down list. Logical types include: • TEXT • NUMERIC **Note:** The properties that you can configure depend on the logical type set for the control. Some properties only apply to the numeric type and some only apply to the text type.
Options	• Static – the choice contents are static. Click **Add** to assign a display name and value pair to the choice item. • Dynamic – the choice contents are dynamic.

Advanced

These are the advanced properties that apply to the choice control.

Property	Description
Content size	Number of decimals – specify the number of decimals (the number of digits after the decimal point—valid range is 0 to 28) for a number. Only valid in conjunction with the numeric attributes. The default is zero. **Note:** This property is used only if the logical type for the choice control is set to numeric.
Validation required	• Required – specify if user input is required. A submission without a value is not possible. • Validation message – enter the error message displayed to the user in case the input validation criteria do not match.

Adding Choice Items to the Choice Control

Add choice items to the choice control.

1. In the General Properties view for the choice control, click **Add**.
2. In the Choice Option Item dialog, enter the Display Name and Value for the choice item, and click **OK**.

Property	Description
Display Name	Enter the name for the choice item as it will appear on the user interface.
Value	Enter the value for the choice item.

Editing Choice Items

Edit choice items for the choice control.

1. In the General Properties view for the choice control, select the choice control item to edit and click **Edit**.
2. In the Choice Option Item dialog, make the changes and click **OK**.

Property	Description
Display Name	Enter the name for the choice item as it will appear on the user interface.
Value	Enter the value for the choice item.

Deleting Choice Items

Delete choice items from the choice control.

1. In the General Properties view for the choice control, select the choice control item to delete.
2. Click **Delete**.

Creating Dynamic Contents for the Choice Control

Specify contents of the choice control dynamically.

1. In the Screen Design page, select the Choice item from **Palette > Controls** and drag it onto the screen.
2. In the General Properties view for the choice control, from the Options section, select **Dynamic**.
3. In **Value key**, enter the value for the key.
4. In **Display name key**, enter the value that the user will see on the device interface.

Note: The display name key and the value name key can be different or the same. The two keys must be children of a key that is a list type.

Slider Properties

Select the slider control on the Screen Design page to view and configure its properties.

General control properties
These are general properties for most controls.

Property	Description
Label	This property applies to all controls except HtmlView and Listview. • Label – enter the text that describes the control on the user interface. • Label position – the position of the label in relation to the control it describes.
Input data binding	• Key – the unique identifier within the scope of the widget, used when setting or retrieving a value. Click **New key** to create a new key for the control. • Default value – default value for the control.
Read only	This property applies to all controls except HtmlView and Listview. Select to make the control read-only. **Note:** The read-only property is not supported on the Windows Mobile platform for the Checkbox, Slider, and Choice controls.

Slider control general properties
These are the general properties that apply to the slider control.

Table 1. Value constraints

Property	Description
Minimum value	Specify the minimum value.
Maximum value	Specify the maximum value.

Advanced

These are the advanced properties that apply to the slider control.

Property	Description
Validation message	Specifies the error message displayed to the user in case the input validation criteria do not match.

Signature Properties

Select the signature control on the Screen Design page to view and configure its properties.

Note: The signature control is not supported on Apple devices.

General control properties

These are general properties for most controls.

Property	Description
Label	This property applies to all controls except HtmlView and Listview. • Label – enter the text that describes the control on the user interface. • Label position – the position of the label in relation to the control it describes.
Input data binding	• Key – the unique identifier within the scope of the widget, used when setting or retrieving a value. Click **New key** to create a new key for the control. • Default value – default value for the control.
Read only	This property applies to all controls except HtmlView and Listview. Select to make the control read-only. **Note:** The read-only property is not supported on the Windows Mobile platform for the Checkbox, Slider, and Choice controls.

Advanced

These are the advanced properties that apply to the signature control.

Property	Description
Validation Required	• Required – specify if user input is required. A submission without a value is not possible. • Validation message – enter the error message displayed to the user in case the input validation criteria do not match.

HtmlView Properties

Select the HtmlView control on the Screen Design page to view and configure its properties.

The HtmlView control fills the entire screen of a workflow form, so no other controls can be placed on a screen that hosts an HtmlView control.

Table 2. HtmlView control properties

Property	Description
Input data binding	• Key – the unique identifier within the scope of the workflow form, used when setting or retrieving a value. Click **New key** to create a new key for the control. • Default value – default value for the control.

Listview Properties

Select Listview on the Screen Design page to view and configure its properties.

General Listview properties

Property	Description
Input data binding	Select the key with which to bind the Listview control from the drop-down, or click **New key** to create a new key.

Property	Description
Alternate row color	Click **Color Picker** to select the color for the alternate rows in the list.
	You can also manually enter the value. The possible values are black, blue, brown, gray, green, orange, pink, purple, red, white, yellow, any string with the format #rrggbb, where rr, gg and bb are the hexadecimal values, in the range 0 to ff(255), for the red, green and blue.
	Note: The alternate row color attribute is supported on Windows Mobile devices only.
On empty list	The text that appears on the screen when the Listview is empty.
Listview details screen	Select the screen that will be opened when the user clicks a row.

Cells

Property	Description
Cell lines	The lines that appear in each row of the control. Click **Add** to add a new line. Select an existing line and click **Delete** to remove a line from the row.
Fields for	Click **Add** to create a new field.
	Click **Edit** to edit an existing field.
	Click **Delete** to delete an existing field.

Adding a Listview Field to a Line

Use the Properties view to add fields to Listview lines.

1. Select the **Listview** control to see the Properties view.
2. In Properties, in the left pane, click **Cell**.
3. In **Cell lines**, select the line for which to add the field.
4. In **Fields for** click **Add**.
5. In the Listview Field dialog:

Option	Description
Key	Select the key with which to associate the field.
Field width	Enter the field width. This value is a percentage, so the values entered should be between 1 – 100 and add up to 100.
Font options	Select the appearance of the font: • Plain • Bold • Italic
Field header title	Enter a field header title for the cell line.

6. Click **OK**.

Editing a ListView Field

Edit ListView control fields in the Properties view.

1. Select the ListView control to see the Properties view.
2. In Properties, in the left pane, click **Lines**.
3. In Fields for ListView Line, select the line for which to edit the field and click **Edit**.
4. In the ListView Field dialog, make your changes and click **OK**.

AttachmentViewer Properties

Select AttachmentViewer on the Screen Design page to view and configure its properties

General

Property	Description
Label	• Label – enter the text that describes the control on the user interface. • Label position – the position of the label in relation to the control it describes.

Property	Description
Input data binding	Select the key with which to bind the Attach-mentViewer control, or click **New key** to create a new key. • Key – the unique identifier within the scope of the workflow form, used when setting or retrieving a value. Click **New key** to create a new key for the control. • Default value – default value for the control.
Read-only	Select to make the control read-only.

Content	• Use object query –select to invoke a specified object query.
	    • Mobile business object – select the mobile business object that contains the object query to invoke
	    • Object query – specify the object query to invoke
	    • Attribute –specify the binary attribute value that corresponds to the attachment contents
	 • MIME type key – mime type for attachments that are supported, for example, *.doc, *.xls and so on
	 • File name – name of the file
	 • File size – size of the file
	
	 Note: Attachments requested on demand are limited to 5MB after Base64 encoding.

Parameter Mapping
Use the Parameter Mapping section to bind the parameters (if any) of an operation or object query to keys or, context data, such as DeviceName, BackEndPassword, BackEndUser, and so on.

Personalization Key Mappings
If you have a mobile business object with load parameters mapped to session personalization keys, you can specify values for those personalization keys when you invoke an operation or

object query from the Mobile Workflow package. This can, for example, be useful for loading only specific data into the consolidated database from large data sources.

Supported Attachment Types

This shows which device platforms support which attachment file type.

Device platform	File types
iPhone	*.jpg, *.jpeg, *.png, *.tif, *.tiff, *.gif, *.doc, *.docx, *.xls, *.xlsx, *.ppt, *.pptx, *.pdf, *.htm, *.html, *.txt
BlackBerry	*.gif, *.jpg, *.png, *.bmp, *.txt, *.html Installing an attachment viewer like Documents To Go Premium Edition allows you to view add-tional file types, such as *.pdf, *.doc, *.xls, *.xlsx, *.ppt, and *.pptx.
Windows Mobile	*.doc, *.xls, *.xlsx, *.ppt, *.pptx, *.gif, *.jpg, *.png, *.bmp, *.txt, *.html. *.mp3 PDF support requires the user to install a PDF viewer on the device.

Adding a Menu Item

Add a menu item to the menu.

If you manually create a menu item that invokes an object query, it will automatically create an output key, which is a list and which has keys that are bound to the attributes of that mobile business object.

1. On the Screen Design page, from Palette, select **Menuitem**, then click the Menu box.
2. Select the menu item to configure the properties in the Properties view.

Menu Items

Menu items function as actions and are associated with mobile business object operations.

Each action in the Mobile Workflow application results in a native menu item being generated when you generate the files for the Mobile Workflow package. Native menu support is provided on BlackBerry and Windows Mobile platforms. On the iOS platform, menus are provided from HTML controls designed to emulate the iPhone navigation bar and toolbar.

- Save screen – closes the current screen, validates the current input and, if validation succeeds, saves it.
- Cancel screen – discards any changes on the current screen and closes it. No validation occurs.
- Close workflow – discards any changes on any open screens and closes all open screens. No validation occurs.
- Open screen – opens a different screen.
- Add – opens a different screen, where you can add a new row to a listview.
- Online request – creates a synchronous call to the server, validates the data input on all open screens, saves it, sends it to the server and waits for a response from the server before continuing.
- Submit workflow – creates an asynchronous call to the server, validates the data input on all open screens, closes the application, and sends the data to the server. Enter the confirmation message to submit to the server.
- Select certificate – opens a dialog where the user can choose a certificate to use for the credentials.
- Add/Update/Delete Key Collection – adds, updates, or deletes a key from a key collection from a list key bound to a Listview control. These operations are not invoked immediately, but are instead invoked when a Submit operation is made on the parent MBO to which this MBO is related. It can be added only to screens that are navigated to as the result of a Listview details navigation, for example, by clicking a row in a Listview.

Menu Item Properties

Select the menu item on the Screen Design page to view and configure its properties using the Properties page.

General

Property	Description
Name	Enter a valid name for the menu item.
	Note: To avoid wrapping of menu item names on Apple iOS devices, keep the name length to 10 or fewer characters.
Key	Select the key with which to bind the menu item.
Default	Select to display the menu item prominently on the screen.

Property	Description
Type	• Save screen – closes the current screen, validates the current input and, if validation succeeds, saves it. • Cancel screen – discards any changes on the current screen and closes it. No validation occurs. • Close workflow – discards any changes on any open screens and closes all open screens. No validation occurs. • Open screen – opens a different screen. • Add – opens a different screen, where you can add a new row to a listview. • Online request – creates a synchronous call to the server, validates the data input on all open screens, saves it, sends it to the server and waits for a response from the server before continuing. • Submit workflow – creates an asynchronous call to the server, validates the data input on all open screens, closes the application, and sends the data to the server. Enter the confirmation message to submit to the server. • Select certificate – opens a dialog where the user can choose a certificate to use for the credentials. • Add/Update/Delete Key Collection – adds, updates, or deletes a key from a key collection from a list key bound to a Listview control. These operations are not invoked immediately, but are instead invoked when a Submit operation is made on the parent MBO to which this MBO is related. It can be added only to screens that are navigated to as the result of a Listview details navigation, for example, by clicking a row in a Listview.
Details	You can configure menu item actions in the Details section. The properties available depend on the action type. See the topics for configuring the different menu item types for information about configuring these properties.

Parameter Mapping
Use the Parameter Mapping section to bind the parameters (if any) of an operation or object query to keys or, context data, such as DeviceName, BackEndPassword, BackEndUser, and so on.

Personalization Key Mappings
If you have a mobile business object with load parameters mapped to session personalization keys, you can specify values for those personalization keys when you invoke an operation or object query from the Mobile Workflow package. This can, for example, be useful for loading only specific data into the consolidated database from large data sources.

Output Keys
Lists the keys of which values will be filled by the server and returned to the client. Output keys are used only with an Online Request menu item type.

Creating a Save, Open, Close, or Cancel Menu Item

Create a menu item that performs a save, open, close, or cancel action on the device application screens.

Note: The first screen in each mobile workflow form should have a Close or Cancel menu action assigned to it so that the user can exit from the mobile workflow form on the device. On a Windows Mobile device, the user can exit by clicking the OK button, but not all devices have that function.

1. On the Screen Design page, from Palette, click **Menuitem**, then click the Menu box.
2. Select the menu item to configure the properties in the Properties view.
3. In the Properties view:

Property	Description
Name	Enter a valid name for the menu item.
	Note: To avoid wrapping of menu item names on Apple iOS devices, keep the name length to 10 or fewer characters.
Key	Select the key with which to bind the menu item.
Default	Select to display the menu item prominently on the screen.

Property	Description
Type	Select the type of action the menu item will perform when selected: • Save – allows the user to close the current open screen and save the input made to the collection of response values to be sent to the server. • Close – allows the user to leave the client-side component no matter which screen the client-side component currently shows. • Cancel – allows the user to close the current open screen without performing any data validation. The cancel action type immediately navigates the user back to the underlying screen. • Open – indicates the screen to be opened with a GoTo connection. The Open type menu item must be associated with a screen on the Flow Design.
Screen	This field appears in the Details section only if the menu item type is Open. Select the screen that will open from the GoTo connection.

4. Select **File > Save**.

Creating a Submit Workflow Menu Item

A Submit Workflow menu item, allows the user to update, delete, or create data even when not connected to the network. When the user connects, data is automatically sent and received.

The submit menu item of the first screen in a mobile workflow form must be associated with a mobile business object (MBO) operation or an object query.

If the user has multiple screens open at the time of the submit execution, and one of the underlying screens fails validation, the user is prompted with the configured warning message and the submit process stops.

1. From the palette on the Screen Design page, click **Menuitem**, then click the Menu box.

2. From the Properties view, select the menu item for which to configure the properties.

3. In the Properties view, configure the properties for the submit menu item:

Property	Description
Name	Enter a valid name for the menu item.
	Note: To avoid wrapping of menu item names on Apple iOS devices, keep the name length to 10 or fewer characters.
Key	Select the key with which to bind the submit menu item.
Default	Select to display the menu item prominently on the screen.
Type	Select **Submit Workflow**.

4. If the menu item is an operation associated with a mobile business object, you can configure these properties in Details:

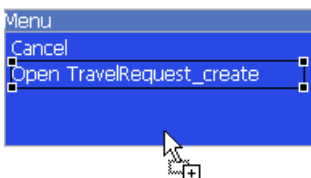| Property	Description
Mobile business object	The MBO with which the menu item is associated. Click **Search** to locate the MBO.
Invoke parent update	No changes are made to the parent MBO, but the appropriate operations (create, update, delete) are performed on its descendants.
Invoke operation	Invoke the selected MBO operation with which the menu item is associated.
	Select the operation from the list, which is populated when you select the MBO.
Invoke object query	Invoke the object query from the menu item.
Generate old value keys	By default, this is selected, which means when data is sent, there are two copies sent—one with the key names you select at design time, and one with the same names prefixed with "_old." The keys you selected at design time may get updated by the application, but the old values will not unless this option is selected. Those "_old" value keys may be critical when executing an update or parent update operation at a later time. If you unselect this option, old value keys are not generated.
Submit confirmation message	(Optional) Enter text to show in a message box on the screen when the submit operation finishes successfully.

Property	Description
Resubmit confirmation message	(Optional) Enter text to show in a message box on the screen when the submit was not successful and thus must be resubmitted.

5. Select **File > Save**.

Creating an Online Request Menu Item

Create an online request menu item for synchronous calls to Unwired Server, which means the device client waits for a response from the server.

1. From the palette on the Screen Design page, click **Menuitem**, then click the Menu box.

2. In the Properties view, select the menu item for which to configure the properties.

3. In the Properties view, configure the properties for the online request menu item:

Property	Description
Name	Enter a valid name for the menu item.
	Note: To avoid wrapping of menu item names on Apple iOS devices, keep the name length to 10 or fewer characters.
Key	Select the key with which to bind the online request menu item.
Default	Select to display the menu item prominently on the screen.
Type	Select **Online Request**.

4. If the menu item is an operation associated with a mobile business object (MBO), you can configure these properties in the Details section:

Property	Description
Mobile business object	The MBO with which the menu item is associated. Click **Search** to locate the MBO.

Property	Description
Invoke parent update	No changes are made to the parent MBO, but the appropriate operations (create, update, delete) are performed on its descendants.
Invoke operation	Invoke the selected MBO operation with which the menu item is associated. Select the operation from the list, which is populated when you select the MBO.
Invoke object query	Invoke the object query from the menu item.
Generate old value keys	By default, this is selected, which means old value keys are generated. If you need the old value keys for update or parent update operations, you should leave this selected. If you unselect it, old value keys will not be generated.
Submit error message	Enter the message the user sees if there is an error during the submit operation. When an operation is invoked, the user can receive any error messages that may occur on the client application. The error messages are a single key of the List type, with a single key of the String type as its child. Each child instance corresponds to an error message.
Timeout	Enter the allowed amount of time, in seconds, to wait for the server to respond before timing out and giving an error message.
On device cache timeout	Represents the time, in seconds, that query results are cached on the device. If the same query is made with the same parameter values within the specified timeout, the results are pulled from the device cache and no call to the server is made.
Success screen	The screen to go to upon successful communication with the server.
Error screen	The screen to go to if there is an error when submitting the data to the server. Click **Generate Error Screen** to automatically generate error screens.

5. (Optional) Click **Parameter Mappings** to define the keys to map to parameters.

You see the parameters defined for the MBO and used to generate the object query. In addition to Key, you can map parameters to BackEndPassword, BackEndUser, DeviceId,

DeviceName, DeviceType, UserName, MessageId, ModuleName, ModuleVersion, and QueueId.

6. (Optional) Click **Personalization Key Mappings** to select a personalization key and the key to which it maps.

   You can also fill the personalization key values from values extracted from the notification, depending on from where you are invoking the object query.

7. (Optional) Click **Output Keys** to view the keys that will be created and populated based on the selected action.

8. Select **File > Save**.

Creating a Key Collection Menu Item

Create and configure a Key Collection menu item.

1. In the Screen Design page, from the palette, click **Menuitem**, then click the Menu box.
2. Click the menu item to select it and configure the properties in the Properties view.
3. In the Properties view:

Property	Description
Name	Enter a valid name for the menu item.
	Note: To avoid wrapping of menu item names on Apple iOS devices, keep the name length to 10 or fewer characters.
Key	Select the key with which to bind the key collection menu item.
Default	Select to display the menu item prominently on the screen.
Type	Select one of these types: • Add Key Collection • Update Key Collection • Delete Key Collection

4. If the menu item is an operation associated with a mobile business object, configure these properties in Details.

Property	Description
Mobile business object	The mobile business object with which the menu item is associated. Click **Search** to locate the mobile business object with which to associate the menu item.

Property	Description
Invoke parent update	No changes are made to the parent MBO, but the appropriate operations (create, update, delete) are performed on its descendants.
Invoke operation	The mobile business object operation with which the menu item is associated. Select the operation from the list, which is populated when you select the mobile business object.
Invoke object query	Invoke the object query from the menu item.
Generate old value keys	By default, this is selected, so that old value keys are generated. If you need the old value keys for update or parent update operations, leave this selected. If you unselect it, old value keys are not generated, which results in a much smaller message, which improves performance.
ListView	Select the Listview from the drop-down list.

5. Select **File > Save**.

Configuring Parameter Mappings

Configure mapping between parameters and keys or context data.

Parameter mappings for the selected operation or object query are shown in the Properties view.

1. In the Properties view for the menu item, select the **Parameters Mapping** tab.

2. Click **Add** to map a key or context data, such as BackEndUser, BackEndPassword, DeviceName, UserName, MessageID, and so on to a parameter.

3. Select a key, and click **Edit** to edit mapping between a parameter and a key or context data.

4. Select a key and click **Delete** to delete existing mapping between a key or context data and a parameter.

Localization and Internationalization

You can localize different objects in the Mobile Workflow Forms Editor, such as the names of screen controls, screens, and mobile business objects.

You can localize the mobile workflow by creating locale properties files. You can then load, update, and generate localized mobile workflow applications.

All the localizable strings in the Mobile Workflow Forms Editor XML model work as resource keys in the localization properties file. All the localization properties files are in the same directory as the Mobile Workflow packages (.xbw files).

Resource keys are divided into these categories, which include all the elements of the Mobile Workflow Forms Editor XML model:

*   Menus
*   Controls
*   Screens

Localization consists of two levels of localization—the Mobile Workflow Forms Editor XML model localization and the Mobile Workflow client localization.

Note: Localization is not currently supported for the iPhone or iPad simulators.

All locale properties files are saved in the same directory as the Mobile Workflow package.

Localization Limitations

Some restrictions for the locale properties files apply:

*   Mobile workflow applications that have names that begin with numbers or special characters cannot be localized; you will receive an error when you generate the code. Make sure that any mobile workflow you want to localize does not have a file name that begins with a number or special character.
*   When you specify a country for the language, the basic language locale must also be available. For example, if you create a locale and specify English as the language and the United States as the country, then a locale for English (the basic language) must also be available.
*   If you create a locale that specifies language, country, and variant, the locale for the basic language and the locale for the basic language and the country must be available. For example, if you create a locale and specify English as the language, United States as the country, and WIN as the variant, then English (United States) and English locales must also be available.

- The language code must be a 2-letter code, and the country code can be either a 2-letter or 3-letter code.
- If you specify a variant, the country code must be a 2-letter code.

See also
- *Localizing a Mobile Workflow Package* on page 62
- *Mobile Workflow Package Internationalization* on page 71
- *Internationalization on the Device* on page 73

Localizing a Mobile Workflow Package

Use the Mobile Workflow Forms Editor to complete these tasks to localize Mobile Workflow packages (.xbw files).

1. *Changing the Encoding Type*

   Change the encoding type in Preferences.
2. *Creating and Validating a New Locale Properties File*

   Goal: Create a locale properties file as the default locale.
3. *Editing the Locale Properties File*

   Goal: Edit the locale properties file.
4. *Deploying the Mobile Application Project*

   Goal: Deploy the mobile business objects to Unwired Server.
5. *Configuring the Device for Localization*

   Goal: Configure the device.
6. *Removing a Locale*

   Remove locale properties files.
7. *Updating the Current Locale*

   Update the currently loaded locale properties file with the resource keys from the current Mobile Workflow Designer.

See also
- *Localization Limitations* on page 61
- *Mobile Workflow Package Internationalization* on page 71
- *Internationalization on the Device* on page 73

Changing the Encoding Type

Change the encoding type in Preferences.

If you manually localize the locale properties file using an external editor, you must make sure the file is encoded in ASCII, so that the content can be correctly read and converted to

Unicode. The localization file is encoded in standard ISO-8859-1. All non-ASCII character values are converted to escaped Unicode hexadecimal values before they are written to the properties files. Before translating the localization file, select the correct file encoding option, for example UTF-8.

1. In Sybase Unwired Platform, select **Window > Preferences**.
2. Expand **General > Content Types**.
3. In the right pane, select, **Text > Java Properties File**.
4. In the **File Associations** list, select `*.properties(locked)`.
5. In the Default encoding field, change ISO-8859-1 to **UTF-8**, and click **Update**.
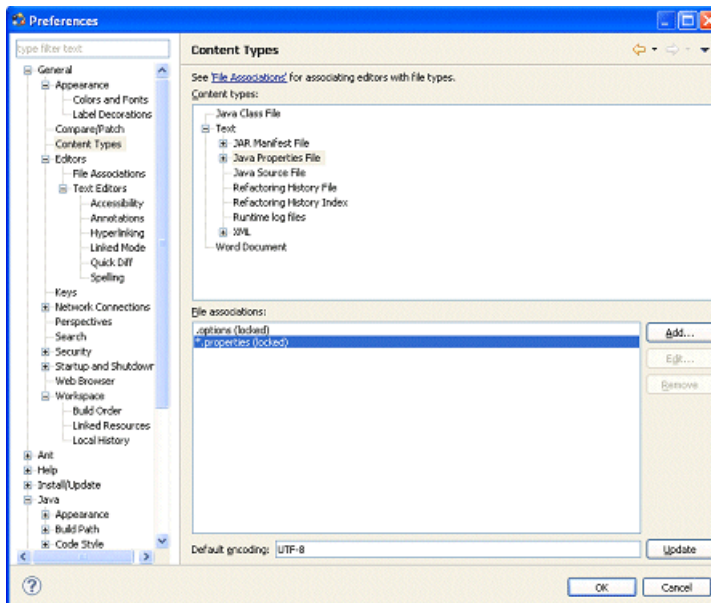
See also
- *Creating and Validating a New Locale Properties File* on page 63

Creating and Validating a New Locale Properties File

Goal: Create a locale properties file as the default locale.

Prerequisites
You must have an existing Mobile Workflow package before you create the locale properties file.

Task
When you create a new locale, keep in mind:

- When you specify a country for the language, the basic language locale must also be available. For example, if you create a locale and specify English as the language, then there must also be a locale for English (the basic language).
- If you create a locale that specifies language, country, and variant, the locale for the basic language and the locale for the basic language and the country must be available. For example, if you create a locale and specify English as the language, United States as the country, and WIN as the variant, then English (United States) and English locales must also be available.

1. In WorkSpace Navigator, double-click the `<mobile_workflow>.xbw` file to open the Mobile Workflow Forms Editor.
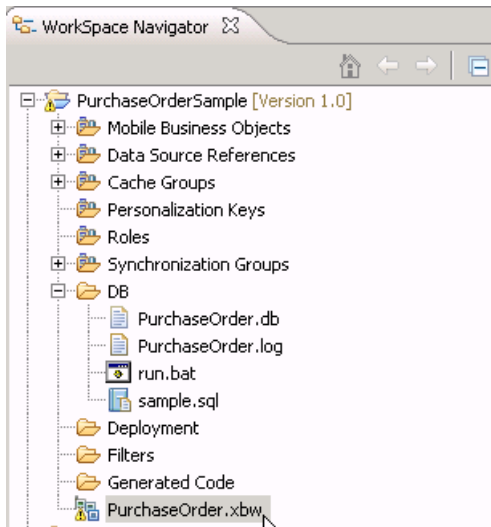
2. Click the **Flow Design** tab.
3. Right-click in a blank area on the Flow Design page, and select **Show Properties View**.
4. In the Properties view, on the left, click the **Localization** tab.
5. In the right pane, click **New**.
6. Select or enter the information for the new locale, select **Automatically create default locale**, and click **Finish**.

Option	Description
Language	Select the language.
Country	Select the country.

Option	Description
Variant	Enter the variant, which is the vendor or browser-specific code. For example, enter "WIN" for Windows, "MAC" for Macintosh and "POSIX" for POSIX. If there are two variants, separate them with an underscore, and put the most important one first. For example, a Traditional Spanish collation might construct a locale with parameters for language, country, and variant as: "es", "ES", "Traditional_WIN".
Overwrite existing file	Overwrite an existing localization file.
Automatically create default locale	Automatically create the default locale properties file. For example, if you specify the language as "English" and the country as the "United States" for a device application called `test`, then both `test_en_uS.properties` and `test.properties` files are created.

For example:
- Language – select **French**.
- Country – select **France**.
- Variant – enter a value to make this locale file unique from others, for example, `WM` for Windows Mobile.
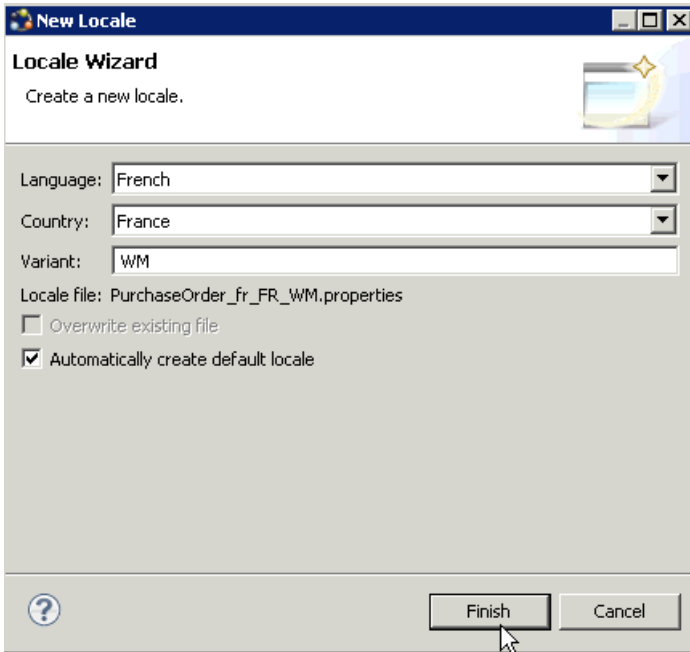
This locale file is now the default locale file, and will be used when the regional setting of the device does not match that of any supplied locale file.

7. In the Properties view, in the Localization page, select the file to validate and click **Validate**.
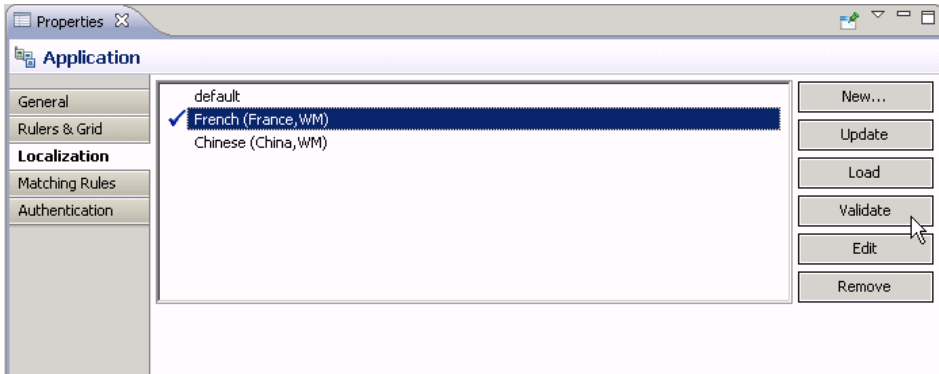
The properties file is scanned and if there are any errors, a dialog appears. Click **Yes** to correct the errors automatically; click **No** to see the errors in the Problems view.

See also

- *Changing the Encoding Type* on page 62
- *Editing the Locale Properties File* on page 67

Editing the Locale Properties File

Goal: Edit the locale properties file.

1. In WorkSpace Navigator, under the Generated Code folder, right-click the locale properties file you created, and select **Open With > Properties File Editor**.
2. You can make and save changes to the file in the Properties File editor, for example, you can replace all the values of the resource keys with Chinese characters.
3. Select **File > Save**.

    The next time you open the locale properties file, notice that all of the ASCII characters have been changed.
4. In the Localization pane, select the localization file you edited, and click **Load**.

    The elements of the application in the editor are translated into the language you specified if the localization file passes the loading validation.

See also

Deploying the Mobile Application Project

Goal: Deploy the mobile business objects to Unwired Server.

Prerequisites

Unwired Server must be running.

Task

Use this procedure to deploy any mobile application project you are using.

1. In WorkSpace Navigator, right-click the **<mobile_application_project>** folder, and select **Deploy Project**.
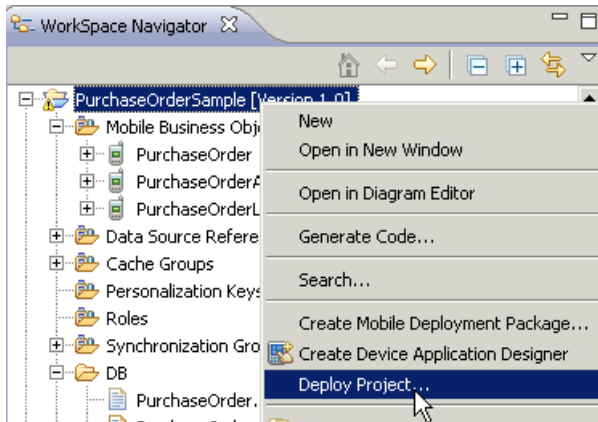
2. In the Deploy Mobile Application Project wizard, make your selections and click **Next**.

3. In the Contents page, select all the mobile business objects (MBOs) and click **Finish**.

4. In the Deployment status window, click **OK**.

5. When the deployment completes, click **File > Close**.

6. Generate the files for the Mobile Workflow package.

See also

- *Editing the Locale Properties File* on page 67
- *Configuring the Device for Localization* on page 68

Configuring the Device for Localization

Goal: Configure the device.

1. For Windows Mobile:

a) Go to **Settings > System > Regional Settings**.

b) Click **Region**.

c) Change the region to the desired locale, for example, French (France) or Chinese (China).

Note: The locales that appear in the Regional Settings depend on what you have installed on your device.

2. For iPhone devices:

a) Go to **Settings > General > International > Language**.

b) Change the Language setting to the desired language, for example, Francais, and click **OK**.

Note: Localization is not supported on the iPhone simulator.

See also
- *Deploying the Mobile Application Project* on page 67
- *Removing a Locale* on page 70

Removing a Locale

Remove locale properties files.

1. In the Screen Design page Properties view, click **Localization**.
2. Select the locale to remove and click **Remove**.
3. Click **Yes** to confirm the deletion.

See also
- *Configuring the Device for Localization* on page 68

Updating the Current Locale

Update the currently loaded locale properties file with the resource keys from the current Mobile Workflow Designer.

If the locale properties file does not already exist, it is created. If the current locale is not defined in the mobile workflow application file, the updated locale is used as the default, and the file name is *{device_application}*.properties. Otherwise, the locale defined in the mobile workflow application file is updated.

1. In the Screen Design page Properties view, click **Localization**.
2. Click **Update**.

See also

Mobile Workflow Package Internationalization

The internationalization feature depends on the internationalization setting on the operating system where Sybase Unwired Platform Mobile Workflow is running.

In the Mobile Workflow Forms Editor, you can use international data in:
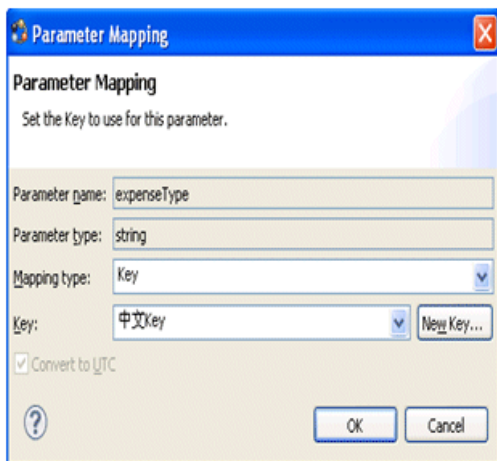
• Matching rules for notifications.
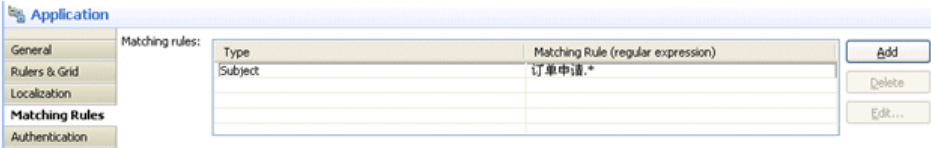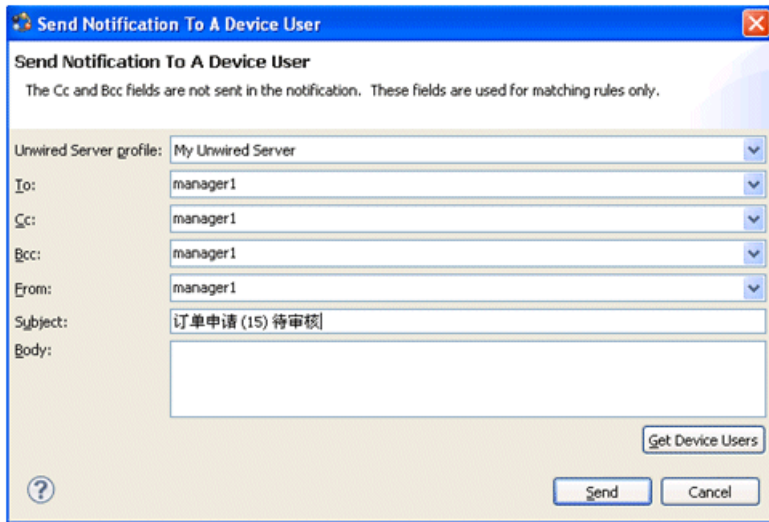
- Key names – you can create keys with names in other languages and map them to mobile business object parameters.
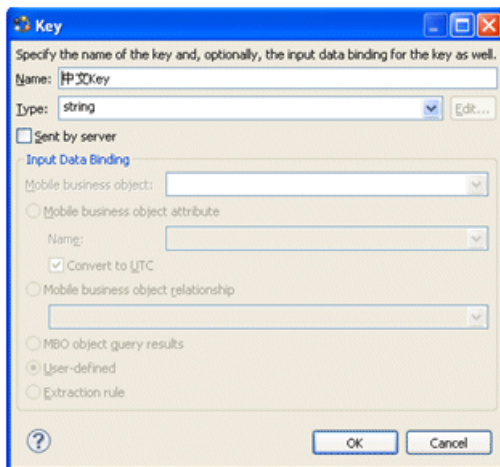
- Generated Code folder – you can include languages other than English in the code generation path based on the name of the selected language.

See also
- *Localization Limitations* on page 61
- *Localizing a Mobile Workflow Package* on page 62
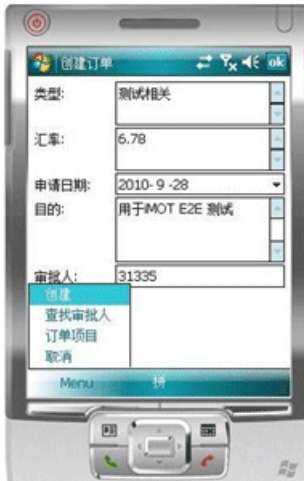- *Internationalization on the Device* on page 73

Internationalization on the Device

On the device, e-mail messages and data can include languages other than English.

The internationalization feature depends on the internationalization setting on the device where the Mobile Workflow client running.

E-mail messages can be sent and received using Chinese, for example, which can then be used to extract the parameter. You can also create and update records in using international data, such as Chinese. For example:

See also
- *Localization Limitations* on page 61
- *Localizing a Mobile Workflow Package* on page 62
- *Mobile Workflow Package Internationalization* on page 71

Sending a Test Notification

Send a test notification from the Mobile Workflow Forms Editor to a device user to test server-initiated Mobile Workflow forms.

1. Right-click in the Flow Design or Screen Design page of the Mobile Workflow Forms Editor and select **Send a notification**.
2. Fill out the notification form and click **Send**.

   Note: The Cc and Bcc fields are used only for matching rules. A notification is not sent to the users entered in these fields.

   The notification bypasses the Notification Mailbox.
3. (Optional) Click **Get Device Users** to bring up a list of registered device users to whom you can send the notification.

Sending a Test Notification

Generating the Files For a Mobile Workflow Package

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

1. Right-click in either the Flow Design or Screen Design page of the Mobile Workflow Forms Editor and select **Generate Mobile Workflow Package**, or click the code generation icon ![icon] on the toolbar.

2. In the Mobile Workflow Package Generation wizard, enter or select:

Option	Description
Favorite configurations	(Optional) Select a configuration.
Package Generation and Deployment	
Generate	Select to generate the mobile workflow package and its files. When this option is unchecked, the Mobile Workflow package files are not re-generated, so that user modified files will not be changed.
Generate into the project	Place the generated mobile workflow package and its files in the current project.
Generate to an external folder	Place the generated .zip file containing the application and its generated files into a location outside of the current project. Click **Browse** to select the alternate location.
Unwired Server Profile	Select the Unwired Server profile with which to associate the mobile workflow application and extract the username and password credentials if you are using static authentication.
Deploy to an Unwired Server	Select to deploy the mobile workflow application to an Unwired Server.

Option	Description
Deploy Mode	- New – generates and deploys the mobile workflow package and its files for the first time. - Update – updates any pre-existing Mobile Workflow package in-place, preserving associated assignments. - Replace – removes any pre-existing Mobile Workflow package and notifications before deploying.
Assign workflow to user(s)	The mobile workflow must be assigned to a device user before the mobile workflow is visible on the user's device. It can be assigned to multiple users. Separate multiple users with a comma. Device users must be registered in Sybase Control Center. Click **Get Users** to select device users from the list. **Note:** You must have registered device users in Sybase Control Center.
Validate controls as soon as the user tries to change focus away from them	If unselected, validation occurs only when the screen is saved. If selected, validation occurs as soon as the control loses focus. If validation fails, a help element appears and shows the error message.

3. Click **Finish**.

A .zip file containing the application and its generated files is created and placed in the specified location.

Generated Mobile Workflow Files

When you generate the Mobile Workflow package files, some files are generated every time and others are generated only under certain conditions.

These files are generated every time you generate the Mobile Workflow package:

- `manifest.xml`
- `<workflow_name>.zip`

These files are regenerated only if the **Generate** option is selected in the Mobile Workflow package generation wizard:

- `<workflow_name>.html`
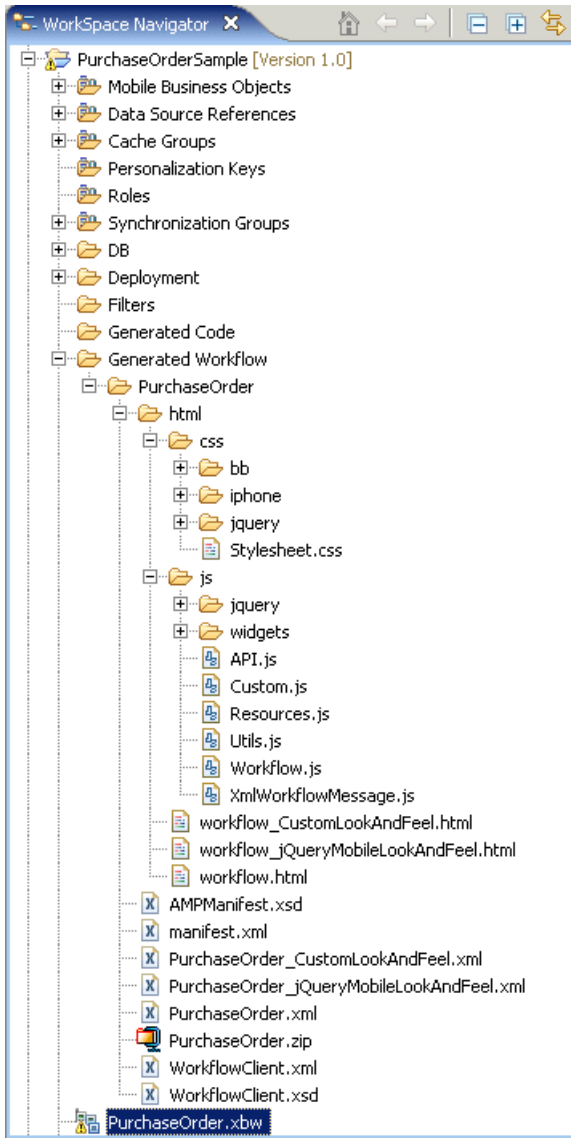
- `<workflow_name>_CustomLookAndFeel.html`
- `<workflow_name>_jQueryMobileLookAndFeel.html`
- `WorkflowClient.xml`
- `<workflow_name>.xml`
- `Resources.js`
- `Workflow.js`

These files are regenerated only if the **Generate** option is selected and the files do not exist:

- `API.js`
- `Custom.js`
- `Utils.js`
- `WorkflowMessage.js`
- all `*.css` files

When you choose to generate the Mobile Workflow package into the current project, the `zip` file containing the Mobile Workflow application and its files is placed in the `Generated Workflow` folder in the project, for example, `C:\Documents and Settings \<username>\workspace\<Project_Name>\Generated Workflow`. They are shown in the WorkSpace Navigator. This shows the generated file structure for a project named PurchaseOrder.

The `Generated Workflow\<project_name>` folder contains:

- `html` – this folder includes:
  - `workflow.html` – contains all the screens in the Mobile Workflow application, each in its own <div> section.
  - `workflow_CustomLookAndFeel` – contains all the screens in the Mobile Workflow application. This file is used for BlackBerry 5.0 platforms.

- `workflow_jQueryMobileLookAndFeel` – contains all the screens in the Mobile Workflow application. This file is used for BlackBerry 6.0 and iOS platforms.
- `js\Custom.js` – edit this file to customize the Mobile Workflow application. Since you can modify this file, it is generated only once, or when not already present in the generated files. This ensures that it is not overwritten if you subsequently re-generate the Mobile Workflow package. Examples of ways you can customize the Mobile Workflow application include the ability to:
    - Manipulate HTML elements.
    - Write code that gets called before or after generated behavior is invoked for menu items.
    - Implement custom validation logic.
- `<project_name>.zip` – contains the mobile workflow application and its files, including the images, user interface, and controls

Deploying the Mobile Workflow Package to Devices

After generating the Mobile Workflow package and its files and deploying it to Unwired Server, you must deploy the Mobile Workflow application to the device or simulator.

See the *Developer Guide for Mobile Workflow Packages* for information about how to configure devices or simulators for the Mobile Workflow Package.

See *Sybase Control Center for Unwired Platform* documentation for information about managing devices, Workflow assignments, and users.

Activating the Workflow

The menu items on a Workflow screen can be either a Submit Workflow (asynchronous) or Online Request (synchronous) menu item type.

To complete the mobile workflow activation process, the last screen in the mobile workflow application must have a Submit Workflow menu item. This is necessary for the device and server-side to activate the mobile workflow for the device.

Mobile workflows are considered to have been processed and/or activated only if they are closed with a Submit Workflow menu item, and which may, or may not, have a corresponding mobile business object (MBO) operation tied to it.

Customizing a Mobile Workflow Package

Use JavaScript code to customize the Mobile Workflow application.

1. Use the Mobile Workflow Package Generation wizard to generate the Mobile Workflow package and its files.

   When the Mobile Workflow package is generated, the Custom.js file is generated if not already present in the project. The Custom.js file is located in Generated Workflows\<workflow_project_name>\html\js.

2. Right-click the Custom.js file and select the editor with which to open the file.

3. Add your JavaScript code.

   See the *Developer Reference for Mobile Workflow Packages* for information about the types of customizations that are supported and the available API methods.

4. Save and close the Custom.js file.

   Since the Custom.js file is generated only if it is not already present in the Mobile Workflow project, this file will not be re-generated if you subsequently re-generate the Mobile Workflow package, so any modifications you make are preserved.

5. Deploy the Mobile Workflow package to Unwired Server.

Troubleshoot

Use troubleshooting tips to isolate and resolve common issues.

See *Troubleshooting Sybase Unwired Platform* for information about troubleshooting issues with the Eclipse - based user interface or other Sybase Unwired Platform components.

API Documentation

You can use Sybase Unwired Platform APIs to develop and customize mobile applications, data handling, error handling, and system functionality programmatically.

*   **Client Object API** – generated business object classes that represent the mobile business object model built and designed in the Unwired WorkSpace development environment. Use the API to synchronize and retrieve data and invoke mobile business object operations. See the developer references, and the Javadocs included in the installation directory:
    *   *Developer Guide for BlackBerry*
    *   *Developer Guide for iOS*
    *   *Developer Guide for Windows and Windows Mobile*
    *   *Developer Guide for Mobile Workflow Packages*
*   **Unwired Server API** – custom Java classes used to implement advanced data handling features in Unwired Server. See *Developer Guide for Unwired Server* and the Javadocs included in the installation directory.
*   **Administration API** – custom Java classes used to integrate Sybase Unwired Platform system management tools with your enterprise system. See *Developer Guide for Unwired Server Management APIs* and the Javadocs included in the installation directory.

Check the Sybase Product Documentation Web site regularly for updates: *http:// infocenter.sybase.com/help/index.jsp?topic=/com.sybase.infocenter.pubs.docset- SUP-2.0.0/doc/html/title.html*.

Glossary: Sybase Unwired Platform

Defines terms for all Sybase Unwired Platform components.

administration perspective – Or administration console. The Unwired Platform administrative perspective is the Flash-based Web application for managing Unwired Server. *See* Sybase Control Center.

administrators – Unwired Platform users to which an administration role has been assigned. A user with the "SUP Administrator" role is called a "platform administrator" and a user with the "SUP Domain Administrator" role is called a "domain administrator". These administration roles must also be assigned SCC administration roles to avoid having to authenticate to Sybase Control Center in addition to Unwired Server:

- A domain administrator only requires the "sccUserRole" role.
- A platform administrator requires both the "sccAdminRole" and "sccUserRole" roles.

Adobe Flash Player – Adobe Flash Player is required to run Sybase Control Center. Because of this player, you are required to run Sybase Control Center in a 32-bit browser. Adobe does not support 64-bit browsers.

Advantage Database Server® **–** A relational database management system that provides the messaging database for Sybase Unwired Platform. *See* messaging database.

Afaria – An enterprise-grade, highly scalable device management solution with advanced capabilities to ensure that mobile data and devices are up-to-date, reliable, and secure. Afaria is a seperately licensed product that can extend the Unwired Platform in a mobile enterprise. Afaria includes a server (Afaria Server), a database (Afaria Database), an administration tool (Afaria Administrator), and other runtime components, depending on the license you purchase.

APNS – Apple Push Notification Service.

artifacts – Artifacts can be client-side or automatically generated files; for example: `.xml`, `.cs`, `.java`, `.cab` files.

BAPI – Business Application Programming Interface. A BAPI is a set of interfaces to object-oriented programming methods that enable a programmer to integrate third-party software into the proprietary R/3 product from SAP. For specific business tasks such as uploading transactional data, BAPIs are implemented and stored in the R/3 system as remote function call (RFC) modules.

BLOB – Binary Large Object. A BLOB is a collection of binary data stored as a single entity in a database management system. A BLOB may be text, images, audio, or video.

cache – The virtual tables in the consolidated database that store synchronization data.*See* CDB.

cache group – Defined in Unwired WorkSpace, MBOs are grouped and the same cache refresh policy is applied to their virtual tables (cache) in the CDB.

cache partitions – Partitioning the cache divides it into segments that can be refreshed individually, which gives better system performance than refreshing the entire cache. Define cache partitions in Unwired WorkSpace by defining a partition key, which is a load parameter used by the operation to load data into the cache from the enterprise information system (EIS).

CDB – Consolidated database. The CDB stores runtime metadata (for Unwired Platform components) and cache data (for MBOs). *See also* data tier.

CLI – Command line interface. CLI is the standard term for a command line tool or utility.

client application – *See* mobile application.

client object API – The client object API is described in the *Developer Guide for BlackBerry*, *Developer Guide for iOS*, and *Developer Guide for Windows Mobile*.

cluster – Also known as a server farm. Typically clusters are setup as either runtime server clusters or database clusters (also known as a data tier). Clustering is a method of setting up redundant Unwired Platform components on your network in order to design a highly scalable and available system architecture.

cluster database – A data tier component that holds information pertaining to all Unwired Platform server nodes. Other databases in the Unwired Platform data tier includes the consolidated, messaging, and monitoring databases.

connection – Includes the configuration details and credentials required to connect to a database, Web service, or other EIS.

connection pool – A connection pool is a cache of Enterprise Information System (EIS) connections maintained by Unwired Server, so that the connections can be reused when Unwired Server receives future requests for data.

connection profile – In Unwired WorkSpace, a connection profile includes the configuration details and credentials required to connect to an EIS.

context variable – In Unwired WorkSpace, these variables are automatically created when a developer adds reference(s) to an MBO in a mobile application. One table context variable is created for each MBO attribute. These variables allow mobile application developers to specify form fields or operation parameters to use the dynamic value of a selected record of an MBO during runtime.

data change notification (DCN) – Data change notification (DCN) allows an Enterprise Information System (EIS) to synchronize its data with the consolidated database through a push event.

data refresh – A data refresh synchronizes data between the consolidated database and a back-end EIS so that data in the cache is updated. *See also* scheduled data refresh.

data source – In Unwired WorkSpace, a data source is the persistent-storage location for the data that a mobile business object can access.

data tier – The data tier includes Unwired Server data such as cache, cluster information, and monitoring. The data tier includes the consolidated database (CDB), cluster, monitoring, and messaging databases.

deploy – (Unwired Server) Uploading a deployment archive or deployment unit to an Unwired Server instance. Unwired Server can then make these units accessible to users via a client application that is installed on a mobile device.

There is a one-to-one mapping between an Unwired WorkSpace project and a server package. Therefore, all MBOs that you deploy from one project to the same server are deployed to the same server package.

deployment archive – In Unwired WorkSpace, a deployment archive is created when a developer creates a package profile and executes the **build** operation. Building creates an archive that contains both a deployment unit and a corresponding descriptor file. A deployment archive can be delivered to an administrator for deployment to a production version of Unwired Server.

deployment descriptor – A deployment descriptor is an XML file that describes how a deployment unit should be deployed to Unwired Server. A deployment descriptor contains role-mapping and domain-connection information. You can deliver a deployment descriptor and a deployment unit—jointly called a deployment archive—to an administrator for deployment to a production version of Unwired Server.

deployment mode – You can set the mode in which a mobile application project or mobile deployment package is deployed to the target Unwired Server.

deployment profile – A deployment profile is a named instance of predefined server connections and role mappings that allows developers to automate deployment of multiple packages from Sybase Unwired WorkSpace to Unwired Server. Role mappings and connection mappings are transferred from the deployment profile to the deployment unit and the deployment descriptor.

deployment unit – The Unwired WorkSpace build process generates a deployment unit. It enables a mobile application to be effectively installed and used in either a preproduction or production environment. Once generated, a deployment unit allows anyone to deploy all required objects, logical roles, personalization keys, and server connection information together, without requiring access to the whole development project. You can deliver a deployment unit and a deployment descriptor—jointly called a deployment archive—to an administrator for deployment to a production version of Unwired Server.

development package – A collection of MBOs that you create in Unwired WorkSpace. You can deploy the contents of a development package on an instance of Unwired Server.

device application – *See also* mobile application. A device application is a software application that runs on a mobile device.

device notification – Replication-based synchronization (RBS) clients receive device notifications when a data change is detected for any of the MBOs in the synchronization group to which they are subscribed. Both the change detection interval of the synchronization group and the notification threshold of the subscription determine how often RBS clients receive device notifications. Administrators can use subscription templates to specify the notification threshold for a particular synchronization group.

device user – The user identity tied to a device.

DML – Data manipulation language. DML is a group of computer languages used to retrieve, insert, delete, and update data in a database.

DMZ – Demilitarized zone; also known as a perimeter network. The DMZ adds a layer of security to the local area network (LAN), where computers run behind a firewall. Hosts running in the DMZ cannot send requests directly to hosts running in the LAN.

domain administrator – A user to which the platform administrator assigns domain administration privileges for one or more domain partitions. The domain administrator has a restricted view in Sybase Control Center, and only features and domains they can manage are visible.

domains – Domains provide a logical partitioning of a hosting organization's environment, so that the organization achieves increased flexibility and granularity of control in multitenant environments. By default, the Unwired Platform installer creates a single domain named "default". However the platform administrator can also add more domains as required.

EIS – Enterprise Information System. EIS is a back-end system, such as a database.

Enterprise Explorer – In Unwired WorkSpace, Enterprise Explorer allows you to define data source and view their metadata (schema objects in case of database, BAPIs for SAP, and so on).

export – The Unwired Platform administrator can export the mobile objects, then import them to another server on the network. That server should meet the requriement needed by the exported MBO.

hostability – *See* multitenancy.

IDE – Integrated Development Environment.

JDE – BlackBerry Java Development Environment.

key performance indicator (KPI) – Used by Unwired Platform monitoring. KPIs are monitoring metrics that are made up for an object, using counters, activities, and time which jointly for the parameters that show the health of the system. KPIs can use current data or historical data.

keystore – The location in which encryption keys, digital certificates, and other credentials in either encrypted or unencrypted keystore file types are stored for Unwired Server runtime components. *See also* truststore.

LDAP – Lightweight Directory Access Protocol.

local business object – Defined in Unwired WorkSpace, local business objects are not bound to EIS data sources, so cannot be synchronized. Instead, they are objects that are used as local data store on device.

logical role – Logical roles are defined in mobile business objects, and mapped to physical roles when the deployment unit that contain the mobile business objects are deployed to Unwired Server.

matching rules – A rule that triggers a mobile workflow application. Matching rules are used by the mobile workflow email listener to identify e-mails that match the rules specified by the administrator. When emails match the rule, Unwired Server sends the e-mail as a mobile workflow to the device that matches the rule. A matching rule is configured by the administrator in Sybase Control Center.

MBO – Mobile business object. The fundamental unit of data exchange in Sybase Unwired Platform. An MBO roughly corresponds to a data set from a back-end data source. The data can come from a database query, a Web service operation, or SAP. An MBO contains both concrete implementation-level details and abstract interface-level details. At the implementation-level, an MBO contains read-only result fields that contain metadata about the data in the implementation, and parameters that are passed to the back-end data source. At the interface-level, an MBO contains attributes that map to result fields, which correspond to client properties. An MBO may have operations, which can also contain parameters that map to arguments, and which determines how the client passes information to the enterprise information system (EIS).

You can define relationships between MBOs, and link attributes and parameters in one MBO to attributes and parameters in another MBO.

MBO attribute – An MBO attribute is a field that can hold data. You can map an MBO attribute to a result field in a back-end data source; for example, a result field in a database table.

MBO binding – An MBO binding links MBO attributes and operations to a physical data source through a connection profile.

MBO operation – An MBO operation can be invoked from a client application to perform a task; for example, create, delete, or update data in the EIS.

MBO relationship – MBO relationships are analogous to links created by foreign keys in a relational database. For example, the account MBO has a field called *owner_ID* that maps to the *ID* field in the owner MBO.

Define MBO relationships to facilitate:
- Data synchronization
- EIS data-refresh policy

messaging based synchronization (MBS) – A synchronization method where data is delivered asynchronously using a secure, reliable messaging protocol. MBS provides fine-

grained synchronization (synchronization is provided at the data level—each process communicates only with the process it depends on), and it is therefore assumed that the device is always connected and available. *See also* replication based synchronization.

messaging database – The messaging database allows in-flight messages to be stored until they can be delivered. This database is used in a messaging based synchronization environment. The messaging database is part of the Unwired Platform data tier, along with the consolidated, cluster, and monitoring databases.

mobile application – A Sybase Unwired Platform mobile application is an end-to-end application, which includes the MBO definition (back-end data connection, attributes, operations, and relationships), the generated server-side code, and the client-side application code.

Mobile Application Diagram – The Mobile Application Diagram is the graphical interface to create and edit MBOs. By dragging and dropping a data source onto the Mobile Application Diagram, you can create a mobile business object and generate its attribute mappings automatically.

Mobile Application Project – A collection of MBOs and client-side, design-time artifacts that make up a mobile application.

mobile workflow packages – Mobile workflow packages use the message-based synchronization model. The mobile workflow packages are deployed to Unwired Server, and can be deployed to mobile devices, via the Unwired Platform administrative perspective in Sybase Control Center.

monitoring – Monitoring is an Unwired Platform feature available in Sybase Control Center that allows administrators to identify key areas of weakness or periods of high activity in the particular area they are monitoring. It can be used for system diagnostic or for troubleshooting. Monitored operations include replication-based synchronization, messaging-based synchronization, messaging queue, data change notification, device notification, package, user, and cache activity.

monitoring database – A database that exclusively stores data related to replication and messaging synchronization, queues status, users, data change notifications, and device notifications activities. By default, the monitoring database runs in the same data tier as the consolidated database, messaging database and cluster database.

monitoring profiles – Monitoring profiles specify a monitoring schedule for a particular group of packages. These profiles let administrators collect granular data on which to base domain maintenance and configuration decisions.

multitenancy – The ability to host multiple tenants in one Unwired Cluster. Also known as hostability. *See also* domains.

node – A host or server computer upon which one or more runtime components have been installed.

object query – Defined in Unwired WorkSpace for an MBO and used to filter data that is downloaded to the device.

openDS – The default LDAP server that is installed in Developer Edition and is suitable for authentication and authorization in a development environment.

operation – *See* MBO operation.

package – A package is a named container for one or more MBOs. On Unwired Server a package contains MBOs that have been deployed to this instance of the server.

palette – In Unwired WorkSpace, the palette is the graphical interface view from which you can add MBOs, local business objects, structures, relationships, attributes, and operations to the Mobile Application Diagram.

parameter – A parameter is a value that is passed to an operation/method. The operation uses the value to determine the output. When you create an MBO, you can map MBO parameters to data-source arguments. For example, if a data source looks up population based on a state abbreviation, the MBO gets the state from the user, then passes it (as a parameter) to the data source to retrieve the information. Parameters can be:

- Synchronization parameters – synchronize a device application based on the value of the parameter.
- Load parameters – perform a data refresh based on the value of the parameter.
- Operation parameters – MBO operations contain parameters that map to data source arguments. Operation parameters determine how the client passes information to the enterprise information system (EIS).

personalization key – A personalization key allows a mobile device user to specify attribute values that are used as parameters for selecting data from a data source. Personalization keys are also used as operation parameters. Personalization keys are set at the package level. There are three type of personalization keys: Session, client, server.

They are most useful when they are used in multiple places within a mobile application, or in multiple mobile applications on the same server. Personalization keys may include attributes such as name, address, zip code, currency, location, customer list, and so forth.

physical role – A security provider group or role that is used to control access to Unwired Server resources.

Problems view – In Eclipse, the Problems view displays errors or warnings for the Mobile Application Project.

provisioning – The process of setting up a mobile device with required runtimes and device applications. Depending on the synchronization model used and depending on whether or not the device is also an Afaria client, the files and data required to provision the device varies.

pull synchronization – Pull synchronization is initiated by a remote client to synchronize the local database with the CDB. On Windows Mobile, pull synchronization is supported only in RBS applications.

push synchronization – Push is the server-initiated process of downloading data from Unwired Server to a remote client, at defined intervals, or based upon the occurrence of an event.

queue – In-flight messages for a messaging application are saved in a queue. A queue is a list of pending activities. The server then sends messages to specific destinations in the order that they appear in the queue. The depth of the queue indicates how many messages are waiting to be delivered.

relationship – *See* MBO relationship.

relay server – *See also* Sybase Hosted Relay Service.

replication based synchronization (RBS) – A synchronization method where data is delivered synchronously using an upload/download pattern. For push-enabled clients, RBS uses a "poke-pull" synchronization model, where a notification is pushed to the device (poke), and the device fetches the content (pull), and is assumed that the device is not always connected to the network and can operate in a disconnected mode and still be productive. For clients that are not push-enabled, the default synchronization model is pull.*See also* messaging based synchronization.

REST web services – Representational State Transfer (REST) is a style of software architecture for distributed hypermedia systems such as the World Wide Web.

RFC – Remote Function Call. You can use the RFC interface to write applications that communicate with SAP R/3 applications and databases. An RFC is a standalone function. Developers use SAP tools to write the Advanced Business Application Programming (ABAP) code that implements the logic of a function, and then mark it as "remotely callable," which turns an ABAP function into an RFC.

role – Roles control access to Sybase Unwired Platform resources. *See also* logical role and physical role.

role mapping – Maps a physical (server role) to a logical (Unwired Platform role). Role mappings can be defined by developers, when they deploy an MBO package to a development Unwired Server, or by platform or domain administrators when they assign a security configuration to a domain or deploy a package to a production Unwired Server (and thereby override the domain-wide settings in the security configuration).

RSOE – Relay Server Outbound Enabler. An RSOE is an application that manages communication between Unwired Serverand a relay server.

runtime server – An instance of Unwired Server that is running. Typically, a reference to the runtime server implies a connection to it.

SAP – SAP is one of the EIS types that Unwired Platform supports.

SCC – Sybase Control Center. A Web-based interface that allows you to administer your installed Sybase products.

scheduled data refresh – Data is updated in the consolidated database from a back-end EIS, based on a scheduled data refresh. Typically, data is retrieved from an EIS (for example, SAP) when a device user synchronizes. However, if an administrator wants the data to be preloaded for a mobile business object, a data refresh can be scheduled so that data is saved locally in a cache. By preloading data with a scheduled refresh, the data is available in the information server when a user synchronizes data from a device. Scheduled data refresh requires that an administrator define a cache group as "scheduled" (as opposed to "on-demand").

security configuration – Part of the application user and administration user security. A security configuration determines the scope of user identity, authentication and authorization checks, and can be assigned to one or more domains by the platform administrator in Sybase Control Center. A security configuration contains:

• A set of configured security providers (for example LDAP) to which authentication, authorization, attribution is delegated.
• Role mappings (which can be specified at the domain or package level)

security provider – A security provider and it's repository holds information about the users, security roles, security policies, and credentials used by some to provide security services to Unwired Platform. A security provider is part of a security configuration.

security profile – Part of the Unwired Server runtime component security. A security profile includes encryption metadata to capture certificate alias and the type of authentication used by server components. By using a security profile, the administrator creates a secured port over which components communicate.

server connection – The connection between Unwired WorkSpace and a back-end EIS is called a server connection.

server farm – *See also* cluster. Is the relay server designation for a cluster.

server-initiated synchronization – *See* push synchronization.

SOAP – Simple Object Access Protocol. SOAP is an XML-based protocol that enables applications to exchange information over HTTP. SOAP is used when Unwired Server communicates with a Web service.

solution – In Visual Studio, a solution is the high-level local workspace that contains the projects users create.

Solution Explorer – In Visual Studio, the Solution Explorer pane displays the active projects in a tree view.

SSO – Single sign-on. SSO is a credential-based authentication mechanism.

statistics – In Unwired Platform, the information collected by the monitoring database to determine if your system is running as efficiently as possible. Statistics can be current or historical. Current or historical data can be used to determine system availability or performance. Performance statistics are known as key performance indicators (KPI).

Start Page – In Visual Studio, the Start Page is the first page that displays when you launch the application.

structured data – Structured data can be displayed in a table with columns and labels.

structure object – Defined in Unwired WorkSpace, structures hold complex datatypes, for example, a table input to a SAP operation.

subscription – A subscription defines how data is transferred between a user's mobile device and Unwired Server. Subscriptions are used to notify a device user of data changes, then these updates are pushed to the user's mobile device.

Sybase Control Center – Sybase Control Center is the Flash-based Web application that includes a management framework for multiple Sybase server products, including Unwired Platform. Using the Unwired Platform administration perspective in Sybase Control Center, you can register clusters to manage Unwired Server, manage domains security configurations, users, devices, connections and monitor the environment. You can also deploy MBO packages and manage deployed MBO packages in order to design the synchronization behavior for those packages. Only use the features and documentation for Unwired Platform. Default features and documentation in Sybase Control Center do not always apply to the Unwired Platform use case.

Sybase Hosted Relay Service – The Sybase Hosted Relay Service is a Web-hosted relay server that enables you to test your Unwired Platform development system.

Sybase Messaging Service – The synchronization service that facilitates communication with device client applications.

Sybase Unified Agent – Provides runtime services to manage, monitor, and control distributed Sybase resources. The agent must be running for Sybase Control Center to run.

Sybase Unwired Platform – Sybase Unwired Platform is a development and administrative platform that enables you to mobilize your enterprise. With Unwired Platform, you can develop mobile business objects in the Unwired WorkSpace development environment, connect to structured and unstructured data sources, develop mobile applications, deploy mobile business objects and applications to Unwired Server, which manages messaging and data services between your data sources and your mobile devices.

Sybase Unwired WorkSpace – Sybase Unwired Platform includes Unwired WorkSpace, which is a development tool for creating mobile business objects and mobile applications.

synchronization group – Defined in Unwired WorkSpace, a synchronization group is a collection of MBOs that are synchronized at the same time.

synchronization parameter – A synchronization parameter is an MBO attribute used to filter and synchronize data between a mobile device and Unwired Server.

synchronization phase – For replication based synchronization packages, the phase can be an upload event (from device to the consolidated database) or download event (from the consolidated database to the device).

synchronize – *See also* data refresh. Synchronization is the process by which data consistency and population is achieved between remote disconnected clients and Unwired Server.

truststore – The location in which certificate authority (CA) signing certificates are stored. *See also* keystore.

undeploy – Running **undeploy** removes a domain package from an Unwired Server.

Unwired Server – The application server included with the Sybase Unwired Platform product that manages mobile applications, back-end EIS synchronization, communication, security, transactions, and scheduling.

user – Sybase Control Center displays the mobile-device users who are registered with the server.

Visual SQL – A graphical user interface tool that you can use to build SQL queries.

Visual Studio – Microsoft Visual Studio is an integrated development environment product that you can use to develop device applications from generated Unwired WorkSpace code.

Welcome page – In Eclipse, the first set of pages that display when you launch the application.

workspace – In Eclipse, a workspace is the directory on your local machine where Eclipse stores the projects that you create.

WorkSpace Navigator – In Eclipse, the tree view that displays your mobile application projects.

WSDL file – Web Service Definition Language file. The file that describes the Web service interface that allows clients to communicate with the Web service. When you create a Web service connection for a mobile business object, you enter the location of a WSDL file in the URL.

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