

## **Oracle® Fusion Middleware**

Mobile Browser Developer's Guide for Oracle Application  
Development Framework

11g Release 1 (11.1.1.7.2)

**E10140-08**

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Documentation for Oracle Application Development Framework (Oracle ADF) developers that describes how to use Oracle JDeveloper to create mobile browser-based applications comprised of Apache MyFaces Trinidad web-client components.

Oracle Fusion Middleware Mobile Browser Developer's Guide for Oracle Application Development Framework 11g Release 1 (11.1.1.7.2)

E10140-08

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# Preface

Welcome to *Mobile Browser Developer's Guide for Oracle Application Development Framework*.

## Audience

This document is intended for developers of browser applications for mobile devices.

## Documentation Accessibility

For information about Oracle's commitment to accessibility, visit the Oracle Accessibility Program website at <http://www.oracle.com/pls/topic/lookup?ctx=acc&id=docacc>.

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## Related Documents

For more information, see the following:

- *Oracle Fusion Middleware Fusion Developer's Guide for Oracle Application Development Framework*
- *Oracle Fusion Middleware Web User Interface Developer's Guide for Oracle Application Development Framework*

## Conventions

The following text conventions are used in this document:

Convention	Meaning
<b>boldface</b>	Boldface type indicates graphical user interface elements associated with an action, or terms defined in text or the glossary.
<i>italic</i>	Italic type indicates book titles, emphasis, or placeholder variables for which you supply particular values.

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<b>Convention</b>	<b>Meaning</b>
<code>monospace</code>	Monospace type indicates commands within a paragraph, URLs, code in examples, text that appears on the screen, or text that you enter.

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# Overview of Oracle ADF Mobile Browser

This chapter provides an overview of Oracle Application Development Framework Mobile (ADF Mobile) browser.

This chapter includes the following sections:

- [Section 1.1, "Introduction to ADF Mobile Browser"](#)
- [Section 1.2, "Supported Mobile Browsers"](#)

## 1.1 Introduction to ADF Mobile Browser

Oracle Application Development Framework Mobile (ADF Mobile) browser enables you to create browser-based, enterprise mobile applications that adapt to the requirements of the mobile browsers used on different types of smartphones and feature phones. Using ADF Mobile's standards-based framework, you can, for example, create web applications that enable users to approve expense reports, or search corporate contact information using a smartphone. Because ADF Mobile browser provides automatic detection and delivery of content based on both the form factor of the mobile phone itself and the capabilities of its mobile browser, you need only build the application once before you deploy it. In other words, because ADF Mobile browser applications are compatible with many mobile browsers, you do not have to focus on the limitations of any particular mobile browser.

The ADF Mobile browser renderer ensures that contents can be consumed correctly by the target browser. It not only handles variations in browser-specific implementations of HTML, JavaScript, CSS (Cascading Style Sheets), DOM (Document Object Model), and the XMLHttpRequest (XHR) API, but variations in system performance as well. If, for example, a browser does not support the XMLHttpRequest interface and is incapable of posting a partial-page request to a server, ADF Mobile browser enables the application to revert automatically to a full-page submit so that the page functions properly.

### 1.1.1 How ADF Mobile Browser Improves Application Performance

The ADF Mobile browser renderer is optimized to improve performance by minimizing the payload of the web page that is sent over the wireless network to the mobile phone. In mobile environments with high-latency and low-bandwidth wireless networks, Partial Page Rendering (PPR) is essential in providing an optimal end user experience. For mobile browsers that support AJAX (Asynchronous JavaScript and XML), ADF Mobile browser supports PPR for certain components, which minimizes the amount of data requested from the server and improves application responsiveness. See also [Section 3.1.2, "Partial Page Rendering."](#)

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**Note:** Although ADF Mobile leverages AJAX features in smartphone browsers, it also degrades gracefully to support plain HTML browsers.

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## 1.1.2 About Java Server Faces and the Application Development Framework

Java Server Faces (JSF) is a standard specified by JSR-127 that enables you to create applications using pre-built components that define functionality and behavior. JSF provides a Model-View-Controller (MVC) mechanism that simplifies the development of web applications. Its renderkit converts components both to, and from, a specific markup language. The kit's renderers generate markup that represents components and how they interpret browser requests.

JSF development focuses on components, not markup. Using JSF, you create a JSP page containing JSF component tags. When a user visits this page (through the FacesServlet), JSF uses the renderkit specified by the user's device to encode the markup to the appropriate output. For example, if the user's device specifies HTML for a desktop browser, then the renderkit's markup encoding results in an HTML page. In addition to rendering appropriate content, JSF supports user interaction.

Application Development Framework (ADF) is built on the standard JSF technology and provides the following:

- A large component set (because JSF provides only basic components).
- Renderers that support these components in HTML browsers, including a rich renderkit for applications using AJAX technologies.
- Converters, validators, and events.

## 1.1.3 Developing Mobile Applications Using ADF Mobile Browser

Because ADF Mobile browser is built upon the component model of Java Server Faces (JSF), you can quickly develop applications for mobile browsers. Its mobile-specific extensions to JSF enable you to develop mobile applications using the same methodologies for developing JSF applications for the desktop (or tablet), as described in *Oracle Fusion Middleware Web User Interface Developer's Guide for Oracle Application Development Framework*.

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**Note:** ADF Mobile browser applications are intended to run on the mobile browsers used by smartphones or feature phones. They are not intended to run on desktop browsers.

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ADF Mobile browser application development is almost identical to ADF web application development, except that you construct the application's JSF pages from Apache MyFaces Trinidad components<sup>1</sup>. ADF Mobile provides a rich component set by supporting more than 60 Apache MyFaces Trinidad components.

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**Note:** You cannot use ADF Faces Rich Client components to develop an ADF Mobile browser application. You must use Apache MyFaces Trinidad components.

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<sup>1</sup> The Apache MyFaces Trinidad component set is the first-generation set of ADF Faces components that were donated to the Apache Software Foundation.

The mobile-optimized style sheets that are automatically included in the ADF Mobile browser project ensure that each of the components render appropriately to the device's browser. You can extend a desktop browser application to run on a smartphone or feature phone by reusing its model and controller layers and assembling a new view layer using the Apache MyFaces Trinidad counterparts to the ADF Faces components. For more information, see [Section 2.2, "Configuring the ADF Mobile Browser Development Environment"](#) and [Section 4.2, "Implementing ADF Mobile Browser Skinning."](#)

## 1.2 Supported Mobile Browsers

ADF Mobile supports different types of touch-screen user interfaces, such as those used on Android- and iOS-powered smartphones. For the latter, ADF Mobile's support of Apple standards provides a native iOS user experience. [Table 1–1](#) lists the mobile browsers and features that ADF Mobile supports.

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**Note:** ADF Mobile browser requires HTML and JavaScript support. See [Chapter 5, "Supporting Basic HTML Mobile Browsers."](#)

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**Table 1–1 Supported Browsers and Supported Mobile Features**

Browser	JavaScript Support	CSS Support	PPR Support
Android Webkit	Yes	Yes	Yes
Apple iPhone Safari	Yes	Yes	Yes
Blackberry versions 4.2 through 4.5	No	Yes	No
BlackBerry version 4.6 and later	Yes	Yes	Yes
Microsoft Windows Mobile 5	Yes	Yes	Yes (with nuances)
Microsoft Windows Mobile 6	Yes	Yes	Yes
Nokia s60 series	Yes	Yes	No
Plain HTML (such as Opera Mini, Opera Mobile and Skyfire)	No	Yes	No



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# Configuring the ADF Mobile Browser Environment

This chapter describes how to configure the development environment for ADF Mobile browser applications and how to build and test mobile browser applications.

This chapter includes the following sections:

- [Section 2.1, "Introduction to the ADF Mobile Browser Development Environment"](#)
- [Section 2.2, "Configuring the ADF Mobile Browser Development Environment"](#)
- [Section 2.3, "Developing an ADF Mobile Browser Application"](#)
- [Section 2.4, "Testing an ADF Mobile Browser Application"](#)

## 2.1 Introduction to the ADF Mobile Browser Development Environment

ADF Mobile browser application development is almost identical to ADF web application development, except that ADF Mobile browser application development uses only mobile JSF pages that consist of Apache MyFaces Trinidad components.

To create an ADF Mobile browser application:

- Configure the environment by creating an application and project.
- Add a web project.
- Add the JSF pages comprised of Apache MyFaces Trinidad components.
- Optimize the page layout with ADF Mobile browser skinning, as described in [Chapter 4, "Skinning."](#)
- Test the application on a simulator or device.

## 2.2 Configuring the ADF Mobile Browser Development Environment

ADF Mobile browser application development differs only from ADF web application development for desktop browsers in the creation of the mobile-optimized view controller project. For more information, see [Section 2.3, "Developing an ADF Mobile Browser Application."](#)

### 2.2.1 How to Configure the Environment by Creating a Mobile Application and Project

To configure the environment, first create an ADF Mobile browser application that includes a project with the ADF Mobile browser technology.

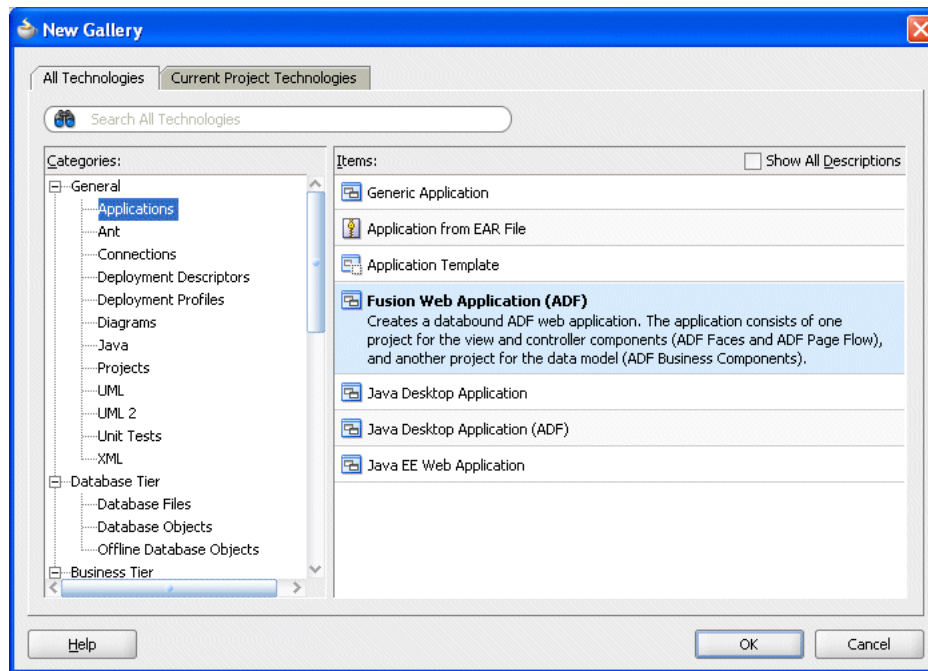
**Before you begin:**

If needed, create an ADF model project. The ADF Mobile browser application can share a model project with an existing ADF application.

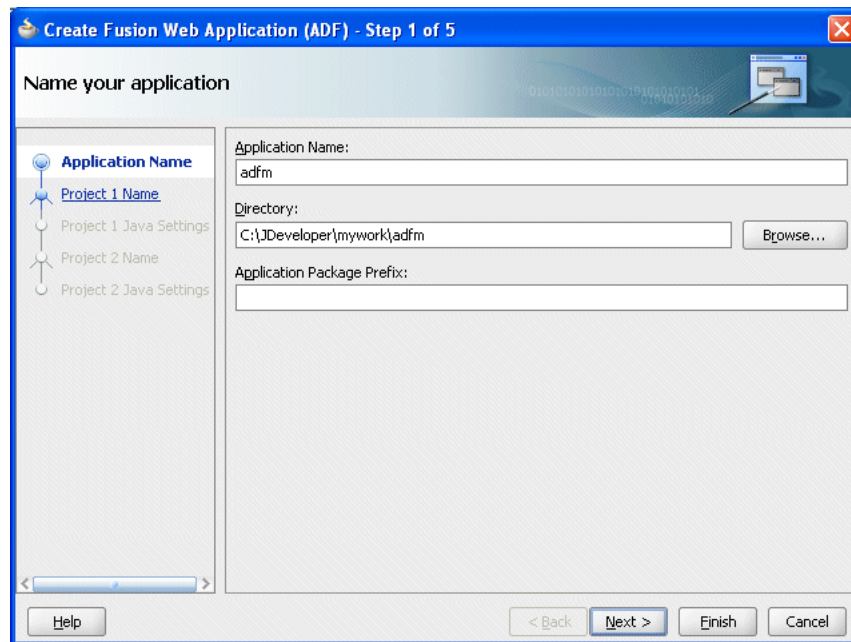
**To create the ADF Mobile Browser Application and the ADF Mobile Browser Project:**

1. Choose File and then New.

**Figure 2–1** *The New Gallery*

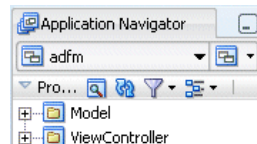


2. In the New Gallery, expand **General**, choose **Applications**, then **Fusion Web Application (ADF)**. Click **OK**.
3. In the Name your application page of the Create Fusion Web Application (ADF) wizard, enter a name and, if needed, a location for the application in the Directory field, as shown in [Figure 2–2](#).

**Figure 2–2 The Name your application Page**

4. Click **Finish**.

Selecting **Fusion Web Application (ADF)** creates the model project used by the mobile view project. [Figure 2–3](#) shows the application's generated model and view controller projects that appear in the Application Navigator when you complete the wizard.

**Figure 2–3 The Fusion Web Application and its Projects in the Application Navigator**


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**Note:** Although you can define the business logic for the model project, do not use the generated view controller project. Instead, create a mobile view controller project as described in the following steps.

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5. Choose **File** and then **New**. The New Gallery appears.
6. In the New Gallery, expand **Categories**, choose **Projects** and then **Generic Project**. Click **OK**.
7. In the Create Generic Project wizard, complete the wizard by first entering a name for the project. For example, enter *mvc* (a short name for mobile view controller), as shown in [Figure 2–4](#).
8. Select the ADF Mobile browser technology for the project by moving **ADF Mobile Browser** from the **Available** list to the **Selected** list.

**Figure 2–4** *Selecting the ADF Mobile Browser Technology for a Project*

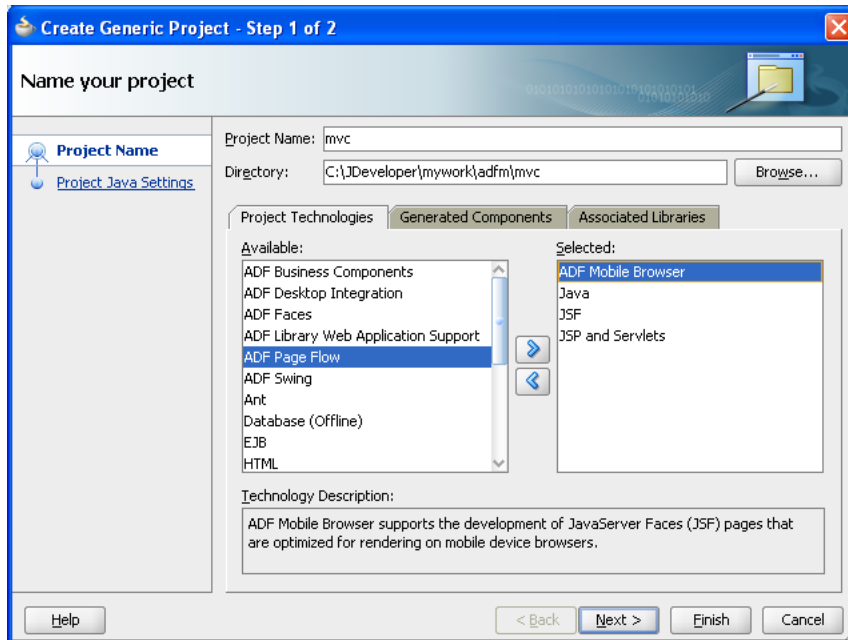
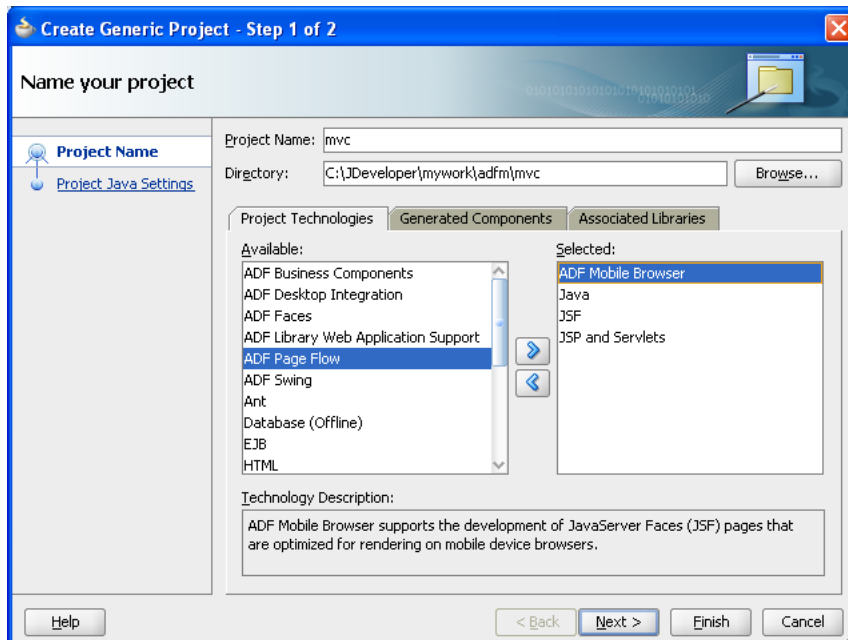


Figure 2–4 shows the ADF Mobile Browser technology in the Available list. After you move the ADF Mobile Browser technology to the Selected list, the following technologies are made available to the project and also appear in the Selected list, as shown in Figure 2–5:

- Java
- JSF (JavaServer Faces)
- JSP and Servlets

**Figure 2–5** *ADF Mobile Browser and Supporting Technologies Selected for a Project*



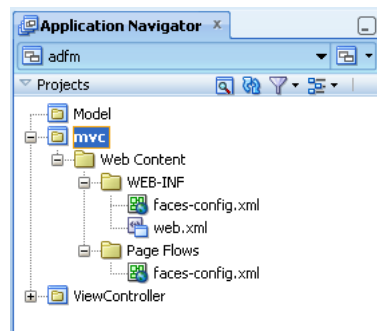


9. Click **Next** to navigate through the Configure Java settings page and then click **Finish**.

## 2.2.2 What Happens When You Create a Mobile Application and Project

As shown in [Figure 2–6](#), the mobile view controller project (*mvc*) appears in the Application Navigator within the Fusion web application (*adfm*).

**Figure 2–6** The Mobile ADF Model View Controller Project in the Application Navigator



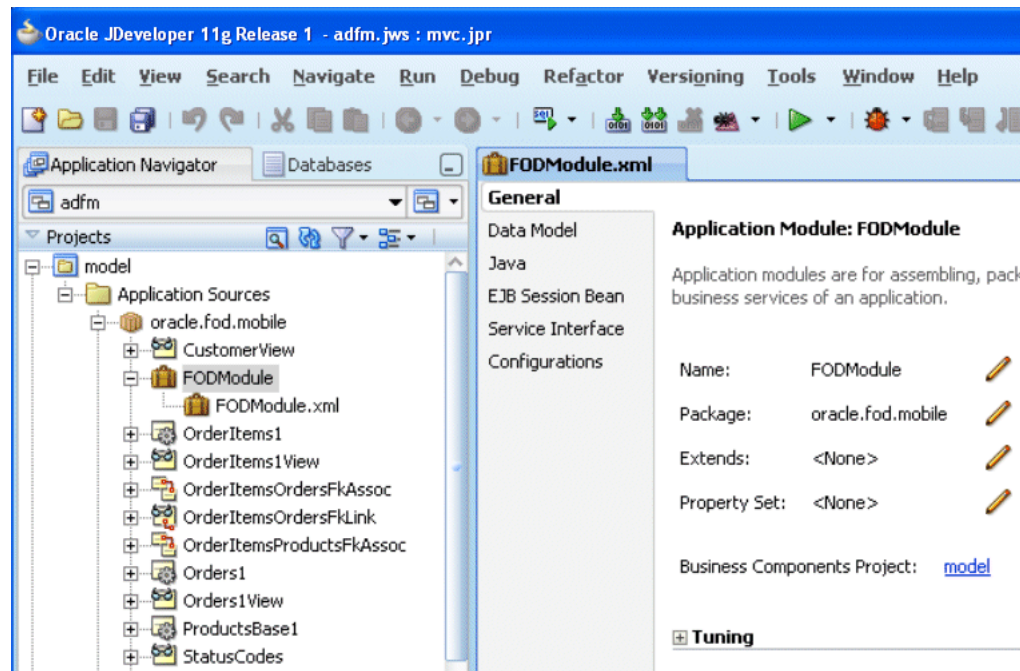
Because you added the mobile browser technology scope, the Apache MyFaces Trinidad library is automatically loaded to the workspace and the Trinidad component palette is loaded when you create mobile JSF pages, shown in [Figure 2–10](#).

## 2.3 Developing an ADF Mobile Browser Application

ADF Mobile browser application development is nearly identical to ADF web application development for desktop browsers; the two only differ in how you create the web project. For mobile browser applications, you develop an application by creating web pages within the web project. Otherwise, you develop a mobile browser application in the same way that you develop an ADF web application for a desktop browser. Typically, you create a web project within the application to implement a user interface and ADF Business Components to implement a business layer.

[Figure 2–7](#) shows a mobile application (*adfm*) that contains *model*, a business components project.

**Figure 2–7 Creating a Business Components Project within an ADF Mobile Browser Application**



### 2.3.1 How to Develop an ADF Mobile Browser Application by Creating a Mobile JSF Page

You develop an ADF Mobile browser application by first creating a JSP page and then by populating it with the Apache My Faces Trinidad components.

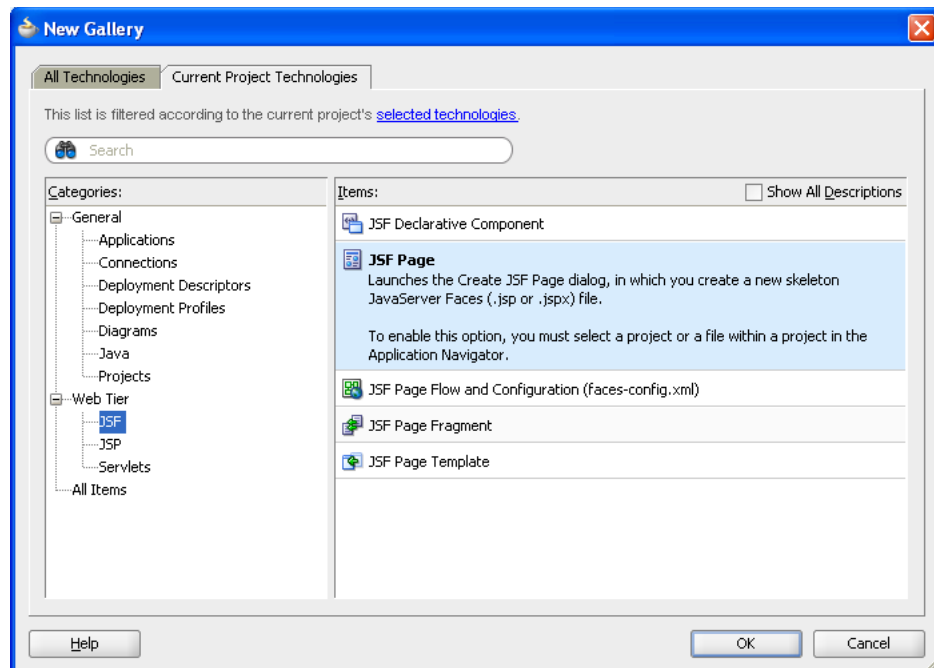
**To create a mobile JSF page:**

1. Choose **File** and then **New**.
2. In the New Gallery, expand **Categories**, choose **Web Tier**, then **JSF**, and then **JSF Page**. Click **OK**.

---

**Note:** **Project Technologies** (the default) must be selected from the Filter By list.

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**Figure 2–8 The New Gallery for JSF Pages**

3. Enter a name for the JSF page, and if needed, enter a directory location for it in the JSF Page dialog, shown in Figure 2–9.

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**Note:** Because you added the Mobile Browser technology scope for the application, the **Render in Mobile Device** option is selected by default, as shown in Figure 2–9.

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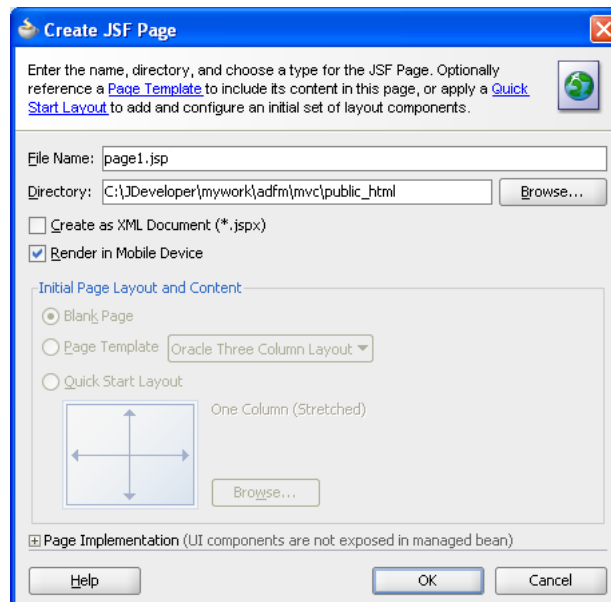
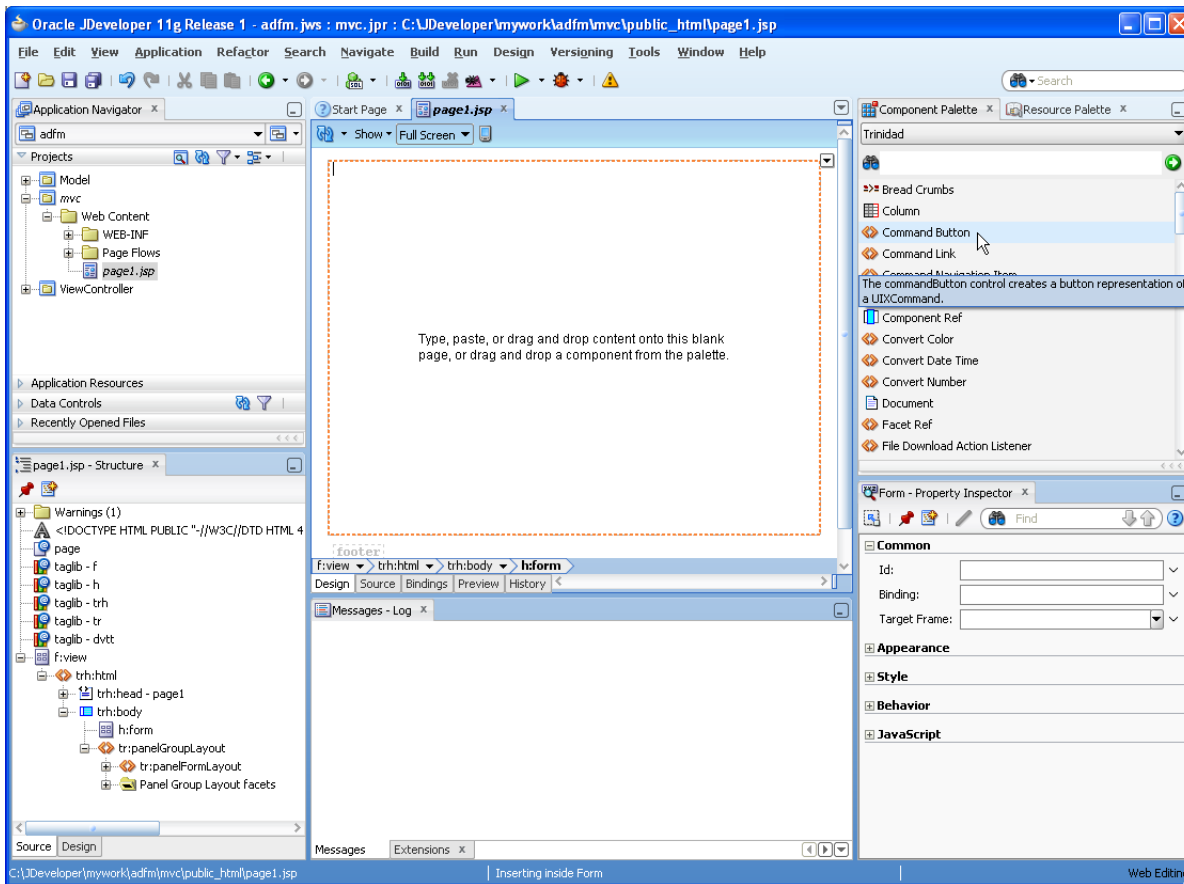
**Figure 2–9 The Create JSF Page Dialog Box**

Figure 2–10 shows the designer for a mobile JSP page called *page1.jsp*.

- From the Components Palette, select the Trinidad components and then create the page using the Apache MyFaces Trinidad components.

**Figure 2–10 Using the Trinidad Component Palette**



## 2.3.2 What Happens When You Create a Mobile JSF Page

Because the **Render in Mobile Device** option is selected by default, the page designer in the visual editor reflects the size of a mobile device, as illustrated in [Figure 2–10](#).

**Tip:** You change the size of the page in the visual editor or by clicking **Tools**, then **Preferences**, then **Mobile**.

In addition, JDeveloper populates the ADF Mobile browser view project with a `trinidad-config.xml` file, which you use to set the default skin for the application. For more information, see [Chapter 4, "Skinning."](#)

## 2.4 Testing an ADF Mobile Browser Application

You can test an ADF Mobile browser application on a mobile device, a mobile device emulator, or a desktop browser. Testing on an actual mobile device or mobile device emulator provides more accurate results than does testing on a desktop browser.

Testing an ADF Mobile browser application with a desktop browser produces only approximate results because it provides a fairly uniform testing environment; in desktop browsers, web pages appear and behave similarly and business logic executes identically. Testing an application on an actual mobile device, however, produces more

accurate results, because the capabilities of mobile browsers may cause controls to behave differently than they do on a desktop browser. In addition, mobile browsers are usually smaller than desktop browsers. They also render pages differently than desktop browsers because web servers optimize the look and feel by generating pages that are specific to the mobile browser.

Testing ADF Mobile browser applications directly on mobile devices has limitations as well, in that you may not have access to all of the devices that you must test. Furthermore, firewalls can complicate testing. Many mobile devices can only access the Internet and therefore cannot reach development environments behind a firewall. In such cases, mobile device emulators provide an alternative testing method. For example, to test applications on BlackBerry or Windows Mobile emulators (shown in [Figure 2-11](#) and [Figure 2-13](#), respectively), first download device emulators from the RIM developer site (<http://us.blackberry.com>) and the Microsoft developer site (<http://www.microsoft.com>). Before you test applications on the emulator, you must first configure the emulator and connect it to the web server. The Oracle Technology Network (<http://www.oracle.com/technetwork/index.html>) provides information on downloading and configuring simulators for ADF Mobile browser.

**Figure 2-11** Testing an ADF Mobile Browser Application on a BlackBerry Emulator

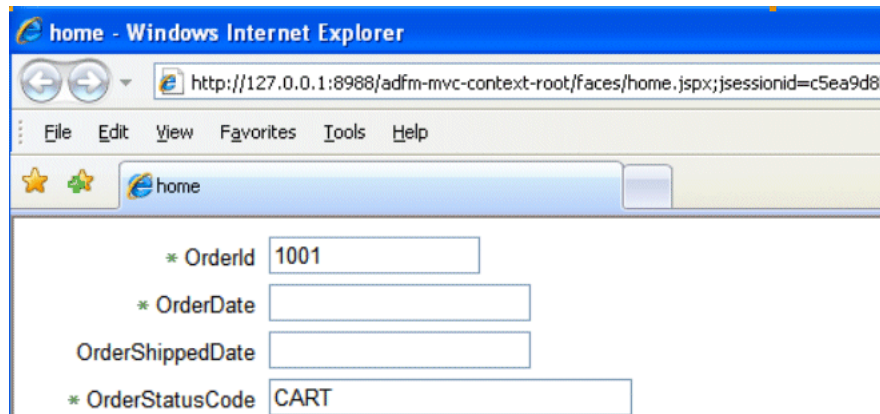


## 2.4.1 How to Test ADF Mobile Browser Applications on Emulators

After you test an application on a desktop browser, you can then test it on an emulator. You can use the URL displayed in the desktop browser, but if it uses the localhost IP address (127.0.0.1), you must change it to the network IP address of your computer.

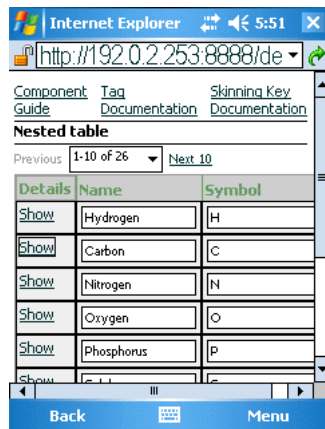
**Tip:** To obtain the network IP address, use the `ipconfig` command interface on Windows systems and the `ifconfig` command on Linux/UNIX systems.

**Figure 2–12** Testing an ADF Mobile Browser Application on a Desktop Browser



For example, to test an application using a Windows Mobile 6 emulator, change the address from the desktop's localhost IP address (127.0.0.1, shown in [Figure 2–12](#)) to that of the computer's network IP address (192.0.2.253, shown in [Figure 2–13](#)).

**Figure 2–13** Testing an ADF Mobile Browser Application on a Windows Mobile Emulator



In addition, you must remove the session specification that follows the page name. The page name is typically appended with either `.jspx` or `.jsp`. In [Figure 2–12](#), the page name, `home`, is appended with `.jspx`.

In general, you debug an application by repeating cycles of code and then by testing the application. When you test an application that has been modified, you must do one, or both, of the following:

- Refresh the page.
- Clear the browser's cache.

**Tip:** Because the URL does not change if you develop the same application, you are not required to enter it again.

## 2.4.2 What You May Need to Know About Browser Settings

Viewing ADF Mobile browser applications properly requires adjustments to the browser settings for Windows Mobile and BlackBerry browsers.

### **Microsoft Windows Mobile 5 and 6, Microsoft Pocket Internet Explorer**

For optimal viewing, select the *Fit to Screen* view (accessed by selecting **Menu, View** and then **Fit to Screen**).

---

---

**Note:** Selecting the *One Column* view option results in layout problems. Do not select this option.

---

---

### **BlackBerry Browser 4.n**

ADF Mobile browser only works if JavaScript support is enabled. To ensure that JavaScript support is enabled:

1. Select **Options** and then **Browser Configuration**.
2. Ensure that the following tables are selected:
  - Support JavaScript
  - Allow JavaScript Popup
  - Support HTML Tables





---

---

## Component Support

This chapter describes the Apache MyFaces Trinidad components that are supported by ADF Mobile browser.

This chapter includes the following sections:

- [Section 3.1, "Introduction to Apache My Faces Trinidad Components"](#)
- [Section 3.2, "Input Components"](#)
- [Section 3.3, "Output Components"](#)
- [Section 3.4, "Layout Components"](#)
- [Section 3.5, "Navigation Components"](#)
- [Section 3.6, "Data Visualization \(Graphs and Gauges\)"](#)
- [Section 3.7, "Tables and Trees"](#)
- [Section 3.8, "Unsupported Components and Attributes"](#)

### 3.1 Introduction to Apache My Faces Trinidad Components

ADF Mobile browser supports more than 60 of Apache MyFaces Trinidad components, enabling you to build applications with a rich component set that renders appropriately to the screens of mobile devices. For more information, refer to the Apache MyFaces Trinidad site (<http://myfaces.apache.org/trinidad/>).

#### 3.1.1 Supported Features

ADF Mobile browser supports the following renderer-specific features:

- [Partial Page Rendering](#)
- [Dialogs](#)

#### 3.1.2 Partial Page Rendering

The high-latency and low-bandwidth of networks in mobile environments decrease application responsiveness for mobile users. Screens refresh slowly, diminishing the mobile user experience. ADF Mobile browser's support of Partial Page Rendering (PPR) compensates for the negative impact that slow connections have on screen updates by minimizing the amount of data requested from the server; using PPR, mobile device screen updates do not require a full refresh. Browsers that do not support AJAX (Asynchronous JavaScript and XML) use full page rendering instead of PPR. For example, a page submission on basic HTML browsers (which do not support JavaScript) results in the refresh of a full page.

---

---

**Note:** Browsers for BlackBerry 4.5 (and earlier versions) do not support PPR. Specifying the `autosubmit` attribute on certain form components results in the submission of the page after the user exits the field. A full, not partial, refresh of the page then follows.

---

---

### 3.1.3 Dialogs

ADF Mobile browser supports dialogs, pages used by applications to obtain user input. Because mobile browsers cannot open a new window that contains a dialog (a pop-up window), they present dialogs as new pages within the main browser window after they automatically preserve the state of the current page.

### 3.1.4 Rendering Specific to the BlackBerry Browser 4.5 and Earlier Versions

On browsers for BlackBerry 4.5 and earlier versions, the bullets in a list sublevel (such as those in a `tr:panelList` component) appear large and are not indented. The BlackBerry browser's table handling may affect complex layouts; the BlackBerry browser does not allow horizontal scrolling. Instead, it wraps a table row onto multiple display lines which may disturb the layout. For more information, see [Chapter 6, "Design Guidelines for BlackBerry 4.2 to 4.5."](#)

## 3.2 Input Components

ADF Mobile browser supports input text fields and lists, core components that support user input.

### 3.2.1 Creating Input Text Fields

You can create input fields using the following components:

- `tr:inputColor`

---

---

**Note:** Mobile browsers do not support an inline `chooseColor` or a `color` dialog for the `tr:inputColor` component.

---

---

- `tr:inputDate`
- `tr:inputHidden`
- `tr:inputText`

---

---

**Note:** Basic HTML browsers do not support the `autosubmit` attribute of the `tr:inputText` component.

---

---

---

---

**Note:** Trinidad optimizes the `tr:inputText` component for narrow-screen devices (that is, devices with a screen width measuring less than 240 pixels). For more information see [Chapter 7, "Narrow Screen Support and User Agent Details Support."](#)

---

---

### 3.2.2 Creating Lists

You can create lists using the following components:

- `tr:panelChoice`
- `tr:panelList`
- `tr:selectBooleanCheckBox`
- `tr:selectBooleanRadio`
- `tr:selectItem`

---

---

**Note:** Mobile browsers do not support the `disabled` attribute for the `tr:selectItem` component.

---

---

- `tr:selectManyCheckBox`
- `tr:selectManyListBox`
- `tr:selectOneChoice`
- `tr:selectOneListBox`
- `tr:selectOneRadio`
- `tr:resetButton`

---

---

**Note:** Basic HTML browsers do not support the `autosubmit` attribute for the `tr:resetButton` component.

---

---

## 3.3 Output Components

ADF Mobile browser uses the Apache MyFacesTrinidad core components that support output on mobile device applications. These components include those for displaying text and images and also components for displaying, or hiding, text.

### 3.3.1 Displaying Text

The following components enable you to display text:

- `tr:iterator`
- `tr:message`
- `tr:messages`

---

---

**Note:** Component-specific messages do not display on a mobile browser in the same manner as they do in a desktop browser. Instead, they display in the region where the message component (`tr:message` or `tr:messages`) is placed on the web page.

---

---

- `tr:outputDocument`
- `tr:outputForwarded`
- `tr:outputLabel`
- `tr:outputText`

### 3.3.2 Displaying Images

The following components enable you to display images:

- `tr:icon`
- `tr:image`
- `tr:panelTip`

### 3.3.3 Showing (or Hiding) Components

The following components enable showing or hiding items:

- `tr:panelAccordion`

---

---

**Note:** Mobile browsers only support a full-page update; they do not support the `partialTriggers` attribute of the `tr:panelAccordion` component.

---

---

- `tr:panelTabbed`

---

---

**Note:** To conserve space on mobile devices, the renderer intentionally prevents the display of tab bars on both the top and bottom of the `tr:panelTabbed` component. Valid values for the attribute `positions` are `top` and `bottom`. If both is specified, then the renderer displays the tabs on top.

---

---

- `tr:showDetail`

---

---

**Note:** For the `tr:showDetail` component, the disclosure arrow does not display; the `[+]` and `[-]` symbols display instead.

---

---

- `tr:showDetailHeader`

---

---

**Note:** For the `tr:showDetailHeader` component, the disclosure arrow does not appear on mobile browsers.

---

---

- `tr:showDetailItem`

---

---

**Note:** For the `tr:showDetailItem` component, the disclosure arrow does not appear on mobile browsers its `flex` attribute is not supported.

---

---

## 3.4 Layout Components

The layout components supported by ADF Mobile browser include those for managing the page itself (such as `tr:document` and `tr:form`) as well as components for laying out the sections of a page, such as `tr:group`, `tr:panelFormLayout`, and `tr:panelGroupLayout`.

### 3.4.1 Managing the Page

The following components enable you to manage the page:

- `tr:document`
- `tr:form`

---

---

**Note:** Mobile browsers do not support the `defaultCommand` attribute of the `tr:form` component.

---

---

- `tr:page`

---

---

**Note:** Mobile browsers do not support the `tr:page` facet of the `tr:page` component.

---

---

### 3.4.2 Laying Out Sections of the Page

The following ADF Faces core tags support page layout for mobile device applications:

- `tr:group`
- `tr:panelBorderLayout`

---

---

**Note:** Only the `top` and `bottom` facets are supported for the `tr:panelBorderLayout` component. Mobile browsers do not support the following facets:

- `left`
- `right`
- `start`
- `end`
- `innerLeft`
- `innerRight`
- `innerStart`
- `innerEnd`

The `tr:panelBorderLayout` component does not render if you use any of these unsupported facets.

---

---

- `tr:panelBox`
- `tr:panelFormLayout`
- `tr:panelGroupLayout`
- `tr:panelHeader`
- `tr:panelHorizontalLayout`

---

---

**Note:** Mobile devices do not support the `halign=end` attribute definition for the `tr:panelHorizontalLayout` component.

---

---

- `tr:panelLabelAndMessage`

---

---

**Note:** Trinidad optimizes the `tr:panelLabelAndMessage` component for narrow-screen devices (that is, devices with a screen width measuring less than 240 pixels). For more information see [Section 7.1, "Determining Narrow Screen Support."](#)

---

---

- `tr:panelPage`
- `tr:panelPageHeader`

---

---

**Note:** Mobile devices only support the following facets of the `tr:panelPageHeader` component:

- `branding`
  - `brandingApp`
  - `navigation1`
  - `navigation2`
- 
- 

- `tr:panelRadio`

---

---

**Note:** Trinidad optimizes the `tr:panelRadio` component for narrow-screen devices (that is, devices with a screen width measuring less than 240 pixels). For more information see [Section 7.1, "Determining Narrow Screen Support."](#)

---

---

- `tr:panelCaptionGroup`

### 3.4.3 Inserting Spaces

The following components control the space allocation on pages:

- `tr:separator`
- `tr:spacer`
- `tr:subform`

## 3.5 Navigation Components

ADF Mobile browser supports such components as buttons, links, and breadcrumbs that enable users to navigate to other pages of the application, or to external locations.

### 3.5.1 Creating Buttons

ADF Mobile browser supports the following button types:

- `tr:commandButton`

---



---

**Note:** Because the `text` attribute cannot display if the `icon` attribute has been set, you can define buttons on mobile devices as text or as an image, but not both. If you set the `disabled` attribute to `true`, then a `tr:commandButton` component with an `icon` attribute renders as a static image with no links.

---



---

- `tr:goButton`

See [Chapter 8, "Extending ADF Mobile Browser Applications"](#) for information on how to use the `tr:goButton` component to integrate e-mail, telephony, and Google maps into an application.

## 3.5.2 Creating Links

ADF Mobile browser supports the following components for creating hyperlinks:

- `tr:commandLink`

---



---

**Note:** Because the `tr:commandLink` component renders as an input element in basic mobile HTML browsers, its child components cannot render. For more information on input elements in basic mobile HTML browsers, see [Section 5.2, "Developing Applications for Basic HTML Mobile Browsers."](#)

---



---

- `tr:goLink`

See [Chapter 8, "Extending ADF Mobile Browser Applications"](#) for information on how to use the `tr:goLink` component to integrate e-mail, telephony, and Google maps into an application.

## 3.5.3 Navigation Components

ADF Mobile browser supports the following navigation components:

- `tr:breadcrumbs`

---



---

**Note:** Trinidad optimizes the `tr:breadcrumbs` component for narrow-screen devices (that is, devices with a screen width measuring less than 240 pixels). For more information see [Chapter 7.1, "Determining Narrow Screen Support."](#)

---



---

- `tr:commandNavigationItem`

---



---

**Note:** `tr:commandNavigationItem` does not render when you set the `disabled` attribute to `true` for the following:

- `tr:selectOneListBox`
  - `tr:selectOneChoice`
  - `tr:processChoiceBar`
  - `tr:navigationPane` with `hint, "choice"`
  - `tr:selectRangeChoiceBar`
- 
-

- `tr:navigationPane`

---

---

**Note:** `tr:navigationPane` `hint = "choice"` with a destination value is not supported for basic HTML browsers.

---

---

---

---

**Note:** Trinidad optimizes the `tr:navigationPane` component for narrow-screen devices (that is, devices with a screen width measuring less than 240 pixels). For more information see [Chapter 7.1, "Determining Narrow Screen Support."](#)

---

---

- `tr:train`

---

---

**Note:** The `tr:train` component appears as *x of y* instead of listing each item. This is a display-only component in ADF Mobile browser; users cannot navigate through the application by clicking the *x of y* component. To enable navigation, you must add a separate link or button.

---

---

- `tr:processChoiceBar`

---

---

**Note:** Trinidad optimizes the `tr:processChoiceBar` component for narrow-screen devices (that is, devices with a screen width measuring less than 240 pixels). For more information see [Section 7.1, "Determining Narrow Screen Support."](#)

---

---

- `tr:selectRangeChoiceBar`

---

---

**Note:** Trinidad optimizes the `tr:selectRangeChoiceBar` component for narrow-screen devices (that is, devices with screen width measuring less than 240 pixels). For more information see [Chapter 7.1, "Determining Narrow Screen Support."](#)

---

---

## 3.6 Data Visualization (Graphs and Gauges)

ADF Mobile browser supports data visualization tools (DVTs), described in the "Creating Databound ADF Data Visualization Components" section in *Oracle Fusion Middleware Fusion Developer's Guide for Oracle Application Development Framework*.

ADF Mobile browser supports the following types of graphs:

- area
- bar
- bar (horizontal)
- bubble
- combination (horizontal bar and line)
- funnel
- line



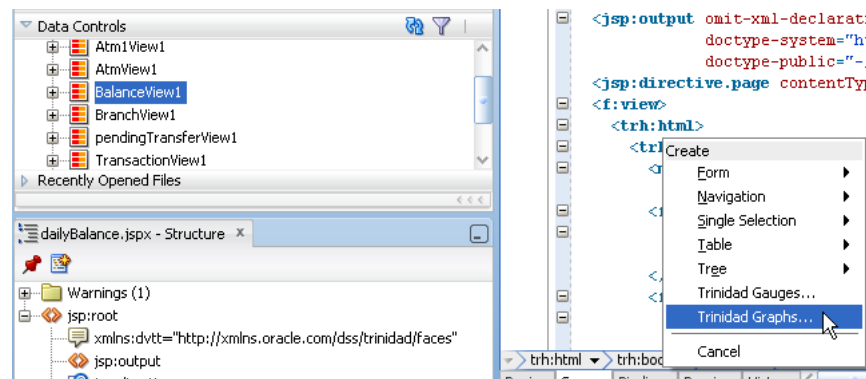
- pareto
- pie
- radar
- scattar/polar
- stock

ADF Mobile browser supports the following types of gauges:

- dial
- status meter
- status meter (vertical)
- LED

To add these components to an application, first move a data control into the source editor using a drag-and-drop operation and then select **Trinidad Gauges** or **Trinidad Graphs** from the context menu. For example, [Figure 3–1](#) illustrates the context menu when you drag a collection into a component in the source editor.

**Figure 3–1** *Creating DVT Components*



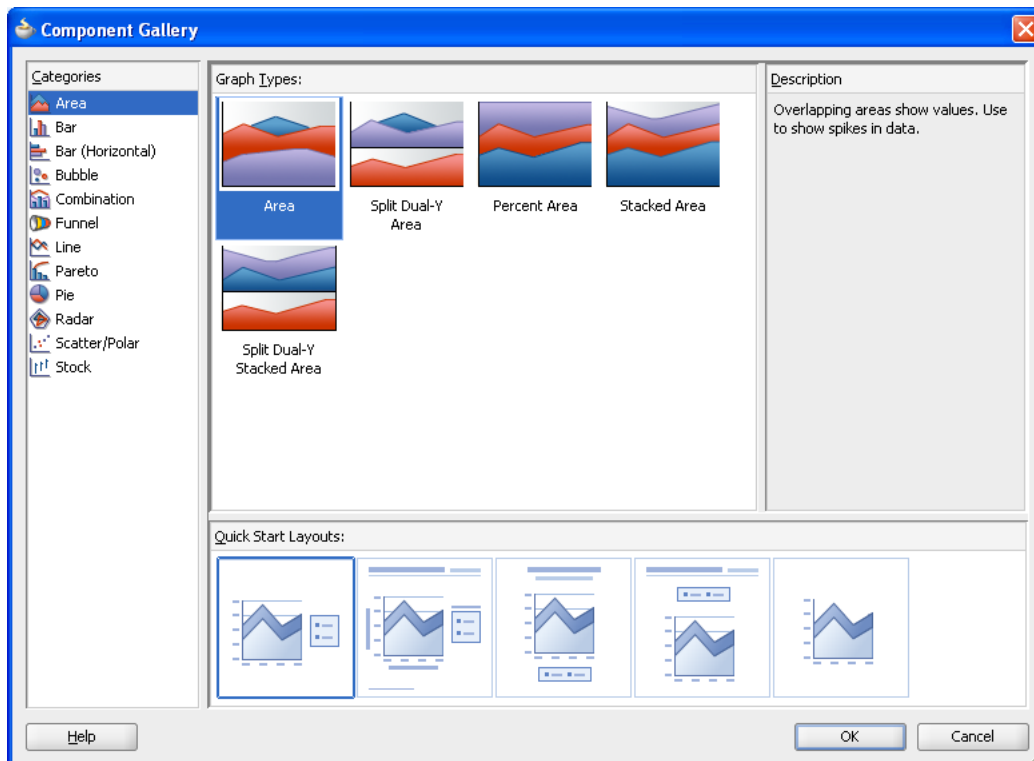
After you select either the **Trinidad Graphs** or **Trinidad Gauges** options, the DVT wizard appears and opens to the Component Gallery page, shown in [Figure 3–2](#). You select the DVT type from this page.

---

**Note:** For Oracle Fusion Middleware 11g release 1, ADF Mobile browser supports only static graphs and gauges, both of which are rendered as PNG images. Any mobile device that supports this image format can display graphs and gauges.

---

Figure 3–2 The Component Gallery for Trinidad Graphs



## 3.7 Tables and Trees

ADF Mobile browser applications can display structured data in the rows and columns of a table or hierarchically as trees.

### 3.7.1 Creating Tables

ADF Mobile browser supports tables comprised of the following components:

- `tr:table`

---

**Note:** ADF Mobile browser does not support the `allDetailsEnabled` attribute for the `tr:table` component; this attribute is always set to `false`.

---

- `tr:column`

---

**Note:** When you nest `tr:column` tags to create column groups, the header facets do not render for the column groups.

---

Creating a single-column table optimizes how tables display on mobile devices.

### 3.7.2 Creating Trees

ADF Mobile browser supports the `tr:tree` component.

---

---

**Note:** `tr:tree` may not render on basic HTML browsers.

---

---

## 3.8 Unsupported Components and Attributes

Release 11g of ADF Mobile browser does not support some components or attributes.

### 3.8.1 Unsupported Components

Release 11g of ADF Mobile browser does not support the following components:

- `tr:chart`
- `tr:chooseColor`
- `tr:chooseDate`
- `tr:inputFile`
- `tr:inputListOFVariables`
- `tr:inputNumberSpinbox`
- `tr:legend`
- `tr:media`
- `tr:navigationTree`
- `tr:panelButtonBar`
- `tr:panelPopup`
- `tr:panelSideBar`
- `tr:poll`
- `tr:progressIndicator`
- `tr:selectManyShuttle`
- `tr:selectOrderShuttle`
- `tr:singleStepButtonBar`
- `tr:statusIndicator`
- `tr:switcher`
- `tr:treeTable`

### 3.8.2 Unsupported Attributes

Release 11g of ADF Mobile browser does not support the following component attributes on any component.

- `accessKey`
- `shortDesc (tooltip)`



This chapter describes skinning for ADF Mobile browser applications.

This chapter includes the following sections:

- [Section 4.1, "Introduction to ADF Mobile Browser Skinning"](#)
- [Section 4.2, "Implementing ADF Mobile Browser Skinning"](#)
- [Section 4.3, "Example iPhone Components"](#)

## 4.1 Introduction to ADF Mobile Browser Skinning

Skinning enables a page to display consistently on a variety of devices through the automatic delivery of device-dependent style sheets. These style sheets enable the optimal display of pages that share the same page definitions on various mobile browsers. Within these style sheets, which enable you to set the look and feel of an application, you not only tailor a component to a specific browser by setting its size, location, and appearance, but you also specify the types of browsers on which components can be displayed (or hidden). For more information, see [Section 4.2, "Implementing ADF Mobile Browser Skinning."](#) For examples of how to use skinning, see [Section 4.3, "Example iPhone Components,"](#) which includes an example of an iPhone skin. You can apply a similar style sheet to other mobile browsers, such as BlackBerry, Windows Mobile 6, and Nokia S60. Sample implementations are available from Oracle Technology Network (<http://www.oracle.com/technetwork/index.html>).

---

---

**Note:** Browsers must support the Cascading Style Sheet (CSS) syntax. Also, styling features that are specific to certain browsers may require methods other than style sheet customization.

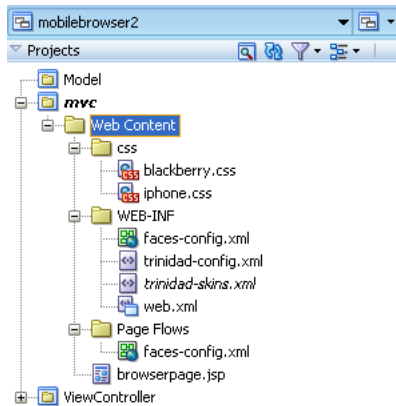
---

---

## 4.2 Implementing ADF Mobile Browser Skinning

To create a skin, refer to *Apache Trinidad Skinning* in the *Development Guidelines for Apache MyFaces Trinidad* (<http://myfaces.apache.org/trinidad/devguide/skinning.html>) which includes descriptions on how to:

1. Create a skin. This includes creating the `trinidad-skins.xml` file within the **WEB-INF** node of the ADF Mobile browser view project, as shown in [Figure 4-1](#).
2. Create style sheets (the `.css` files).
3. Set the skin family in the `trinidad-config.xml` file (located in the **WEB-INF** node).

**Figure 4–1 The Skinning Artifacts in the ADF Mobile View Project**

## 4.2.1 How to Implement Skinning in an ADF Mobile Browser Application

For ADF Mobile browser, you implement skinning by performing the following tasks:

- Within the `trinidad-config.xml` file, define the `<skin-family>` tag with the EL (Expression Language) expression, `#{requestContext.agent.skinFamilyType}`, that returns the skin family type of the browser. See [Section 7.2.1.1, "Determining the Skin Type."](#)
- Specify the renderkit and style sheet in the `trinidad-skins.xml` file.
- Include the CSS files within the ADF Mobile browser view project. This location is typically a subdirectory of the ADF Mobile browser view project's `public_html` directory, such as `JDeveloper\mywork\Application\ADF Mobile Application view project\public_html\css`.

### 4.2.1.1 How to Define the `<skin-family>` in the `trinidad-config.xml` File

[Example 4–1](#) illustrates adding the `<skin-family>` tag within the `<trinidad-config>` element. This element includes an EL expression that evaluates to the string that returns the skin family type of the browser.

#### **Example 4–1 Defining the Skin Family**

```
<?xml version="1.0" encoding="windows-1252"?>
<trinidad-config xmlns="http://myfaces.apache.org/trinidad/config">
  <skin-family>#{requestContext.agent.skinFamilyType}</skin-family>
  ...
</trinidad-config>
```

### 4.2.1.2 How to Define `<skin-family>` in the `trinidad-config.xml` file to Enable Switching Between Skins

After you create the skin, you can switch between the default skin and another skin (such as an iPhone skin, as illustrated in [Example 4–2](#)), using the `<skin-family>` element in the `trinidad-config.xml` file. As shown in [Figure 4–1](#), this file, which results from the creation of the JSP page, is located within the **WEB-INF** node. Use this file to set the default skins for an application. To switch between the default skin and an alternate skin, use Expression Language (EL).

**To enable switching between skins:**

1. Open the `Trinidad-config.xml` file.
2. Define the EL expression in the `<skin-family>` element as illustrated in [Example 4-2](#), which shows switching between the default (minimal) and the iPhone skins (`iPhoneWebkit`).

**Example 4-2 Setting an Alternative Skin**

```
<trinidad-config xmlns="http://myfaces.apache.org/trinidad/config">
  <skin-family>
    #{requestContext.agent.skinFamilyType == 'iPhonewebkit' ?
                                           'iPhonewebkit':'minimal'}
  </skin-family>
</trinidad-config>
```

3. Save the file. See also [Section 7.2.1.1, "Determining the Skin Type."](#)

**4.2.2 How to Specify the Renderkit and Style Sheet Name in the trinidad-skins.xml File**

Define the `<skin>` tags that specify the render-kit ID and style-sheet-name (which are `org.apache.myfaces.trinidad.desktop` and `iPhone/iPhone.css`, respectively, in [Example 4-3](#)) for browser types identified in the `<family>` element. The value defined for this element is the string resulting from the EL expression in the `<skin-family>` tag in `trinidad-config.xml` (illustrated in [Example 4-1](#)). See also [Section 7.2.1.1, "Determining the Skin Type."](#)

**Example 4-3 Defining the Skins**

```
<?xml version="1.0" encoding="ISO-8859-1"?>
<skins xmlns="http://myfaces.apache.org/trinidad/skin">
<skin>
  <id>iphone</id>
  <family>iPhonewebkit</family>
  <render-kit-id>org.apache.myfaces.trinidad.desktop</render-kit-id>
  <style-sheet-name> iPhone/iPhone.css </style-sheet-name>
</skin>
<skin>
  <id>symbian</id>
  <family>nokiawebkit</family>
  <render-kit-id>org.apache.myfaces.trinidad.desktop</render-kit-id>
  <style-sheet-name> symbian/symbian.css </style-sheet-name>
</skin>
<skin>
  <id>windowsMobile</id>
  <family>windowsmobile</family>
  <render-kit-id>org.apache.myfaces.trinidad.pda</render-kit-id>
  <style-sheet-name> windowsMobile/windowsMobile.css </style-sheet-name>
</skin>
<skin>
```

**4.2.3 What Happens at Runtime**

The EL expressions defined within `<skin-family>` returns the skin family type of the browser.

## 4.3 Example iPhone Components

CSS 3.0 features enable an ADF Mobile browser application to have the same look and feel as a native iPhone application. By creating a new skin in Trinidad for iPhone, you can include iPhone-specific components. Examples of these components include:

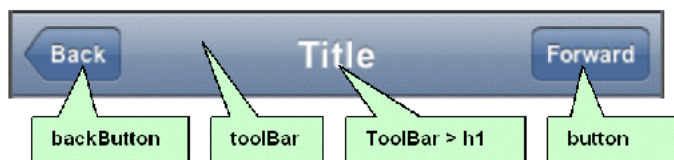
- header
- navigation panel
- field set

These components illustrate how to apply the style classes using the `styleClass` attribute.

### 4.3.1 How to Create Headers in iPhone Applications

The `backButton`, `toolbar`, `toolbar > h1`, and `button` style classes used with the `<tr:panelHeader>` and `<tr:commandLink>` components set the appearance of the Header, as illustrated in [Figure 4-2](#).

**Figure 4-2** The Header Component



[Table 4-1](#) lists the tags used to build headers, the style classes defined for them, and the layout effects of these classes.

**Table 4-1** Header Component Classes

Tag	Style Class	Layout Effects
<code>&lt;tr:panelHeader&gt;</code>	<code>toolbar, toolbar &gt; h1</code>	Sets the height, width, border, and background of the header.
<code>&lt;tr:commandLink&gt;</code>	<code>backButton</code>	Sets the width, height, color, and position of the back button in the header.
<code>&lt;tr:commandLink&gt;</code>	<code>button</code>	Sets the width, height, color, and position of the button in the header.

#### toolbar

[Example 4-4](#) illustrates the `toolbar` style class selector, which sets the height, width, border, and background for the header.

**Example 4-4** The toolbar Style Class Selector

```
.toolbar {
  box-sizing: border-box !important;
  -webkit-box-sizing: border-box !important;
  -moz-box-sizing: border-box !important;
  border-bottom: 1px solid #2d3642 !important;
  border-top: 1px solid #000000 !important;
  padding: 10px !important;
  height: 45px !important;
  background: url(/images/toolbar.png) #6d84a2 repeat-x !important;
  display: block !important;
}
```



```
}

```

### **toolbar > h1**

[Example 4-5](#) illustrates the `toolbar > h1` style class selector, which sets the height, width, font size, and style of the toolbar title.

#### **Example 4-5 The toolbar > h1 Style Class Selector**

```
.toolbar > h1 {
    position: absolute !important;
    overflow: hidden !important;
    left: 50% !important;
    margin: 1px 0 0 -75px !important;
    height: 45px !important;
    font-size: 20px !important;
    width: 150px !important;
    font-weight: bold !important;
    text-shadow: rgba(0, 0, 0, 0.4) 0px -1px 0 !important;
    text-align: center !important;
    text-overflow: ellipsis !important;
    white-space: nowrap !important;
    color: #FFFFFF !important;
    border-bottom: none !important;
}

```

### **button**

[Example 4-6](#) illustrates the `button` style class selector, which sets the width, height, color, and position of a button in the header.

#### **Example 4-6 The button Style Class Selector**

```
.button {
    position: absolute !important;
    overflow: hidden !important;
    top: 8px !important;
    right: 6px !important;
    margin: 0 !important;
    border-width: 0 5px !important;
    padding: 0 3px !important;
    width: auto !important;
    height: 30px !important;
    line-height: 30px !important;
    font-family: inherit !important;
    font-size: 12px !important;
    font-weight: bold !important;
    color: #FFFFFF !important;
    text-shadow: rgba(0, 0, 0, 0.6) 0px -1px 0 !important;
    text-overflow: ellipsis !important;
    text-decoration: none !important;
    white-space: nowrap !important;
    background: none !important;
    -webkit-border-image: url(/images/toolButton.png) 0 5 0 5 !important;
}

```

**backButton**

[Example 4-7](#) illustrates the `backbutton` style class selector, which sets the width, height, color, and position of the back button in the header.

**Example 4-7 The backButton Style Class Selector**

```
.backButton {
    position: absolute !important;
    overflow: hidden !important;
    top: 8px !important;
    left: 6px !important;
    margin: 0 !important;
    height: 30px !important;
    max-width: 45px !important;
    line-height: 30px !important;
    font-family: inherit !important;
    font-size: 12px !important;
    font-weight: bold !important;
    color: #FFFFFF !important !important;
    text-shadow: rgba(0, 0, 0, 0.6) 0px -1px 0 !important;
    text-overflow: ellipsis !important;
    text-decoration: none !important;
    white-space: nowrap !important;
    background: none !important;
    -webkit-border-image: url(/images/toolButton.png) 0 5 0 5 !important;
    padding: 0 !important;
    border-width: 0 8px 0 14px !important;
    -webkit-border-image: url(/images/backButton.png) 0 8 0 14 !important;
}
```

**4.3.1.1 Using the styleClass Attribute to Create Header Components**

[Example 4-8](#) illustrates how to define the `styleClass` attribute to create the header components.

**Example 4-8 Defining the Header Component**

```
<tr:panelHeader id = "panelHeader" styleClass="toolbar" text="Title">
    <tr:commandLink styleClass="button" text="Forward"/>
    <tr:commandLink styleClass="backButton" text="Back"/>
</tr:panelHeader>
```

**4.3.2 How to Create Navigation Panels in iPhone Applications**

There are two style classes that define the navigation panel:

- For static lists, use the `Panel List` style class. This style class displays a simple list of navigation items. It sets the width, position, and height of this list.
- For dynamic lists, use the `Table List` style class.

**4.3.2.1 Using the Panel List Style Class to Create a Static List of Navigation Panels**

You define the `Panel List` style class within a `<tr:panelList>` component, using `<tr:commandLink>` tags for each navigation item as illustrated in [Example 4-9](#).

**Example 4-9 Defining a Static List of Navigation Items**

```
<tr:panelList styleClass="panelList">
```

```



```

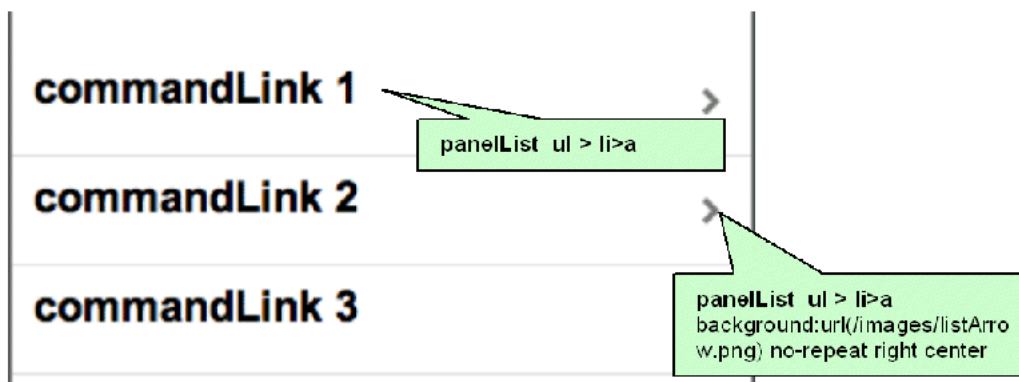
Many CSS features are applied by default on this component when using expressions similar to the ones listed in [Table 4–2](#).

**Table 4–2 CSS Expressions**

CSS Expression	Layout Effect
<code>panelList ul</code>	Sets the width, position, and height of the list.
<code>panelList ul &gt; li</code>	Sets the position and border at the bottom for each item in the list.
<code>panelList ul &gt; li &gt; a</code>	Sets the margin, font size, height, and background for each navigation item defined within the <code>&lt;tr:commandLink&gt;</code> elements.

Figure 4–3 illustrates the expressions described in [Table 4–2](#).

**Figure 4–3 A Static List of Navigation Items**



#### **panelList ul**

[Example 4–10](#) illustrates the `panelList ul` style class selector, which sets the width, position, and height of the list.

**Example 4–10 The panelList ul Style Class Selector**

```

.panelList ul {
    position: absolute !important;
    margin: 0 !important;
    padding: 0 !important;
    left: 0 !important;
    top : 45px !important;
    width: 100% !important;
    min-height: 372px !important;
}

```

#### **panelList ul > li**

[Example 4–11](#) illustrates the `panelList ul > li` style class selector, which sets the position and border at the bottom for each item in the list.

**Example 4–11 The `panelList ul > li` Style Class Selector**

```
.panelList ul > li {
    position:relative !important;
    margin:0 !important;
    border-bottom:1px solid #E0E0E0 !important;
    padding:8px 0 8px 10px !important;
    list-style:none !important
}
```

**`panelList ul > li > a`**

[Example 4–12](#) illustrates the `panelList ul > li > a` style class selector, which sets the margin, font size, height, and background for each navigation item.

**Example 4–12 The `panelList ul > li > a` Style Class Selector**

```
.panelList ul > li > a {
    display:block !important;
    margin:-8px 0 -8px -10px !important;
    padding:8px 32px 8px 10px !important;
    text-decoration:none !important;
    color:inherit !important;
    background:url(/images/listArrow.png) no-repeat right center !important;
    min-height:34px !important;
    font-size:20px;
    font-weight:bold;
}
```

**4.3.2.2 Using the Table List Style Component to Create a Dynamic List of Navigation Items**

The `Table List` component enables you to build dynamic tables, such as a table that includes a list of dynamic links, as illustrated by [Example 4–13](#). Because the `Table List` component is, in fact, a table, it includes built-in navigation. Unlike `Panel List`, the `Table List` includes style classes for including images and detailed descriptions below the navigation items, as shown in [Figure 4–4](#).

**Example 4–13 Building a List of Dynamic Links**

```
<tr:table value="#{bindings.EmployeesView15.collectionModel}"
    var="row"
    rows="7"
    width="100%"
    styleClass = "iphoneTable"
    emptyText="#{bindings.EmployeesView15.viewable ? 'No rows yet.' :}"
    id="mainTable"
    horizontalGridVisible="false">
  <tr:column >
    <tr:panelGroupLayout layout="vertical" styleClass="listing">
      <tr:outputText value="#{row.bindings.PhoneNumber.inputValue}"
        styleClass="listingDetails"/>
      <tr:commandLink text="#{row.bindings.LastName.inputValue} ,
        #{row.bindings.FirstName.inputValue}"
        styleClass="listingLink"
        partialSubmit="true"
        actionListener = "#{agentUtil.gotoPage2}"
        id="myLink1"
        disabled="#{!bindings.Execute.enabled}"
        onclick='iPhone.slideFragments("page2", "page1")'>
```

```

        </tr:commandLink>
        <tr:image styleClass="listingImage"
            source="/images/326425649.png" />
    </tr:panelGroupLayout>
</tr:column>
</tr:table>

```

### To create a table of dynamic links:

1. Create a Trinidad read-only table from a data control.
2. Set the `styleClass` attribute for the table as `iphoneTable`.

The expressions listed in [Table 4–3](#) apply the iPhone-related CSS properties when you set the `styleClass` as `iphoneTable`.

**Table 4–3** CSS Expression

Expression	Layout Effects
<code>.iphoneTable .af_table_content</code>	Sets the background color for the table content. It overrides the table's default outer-border style to none.
<code>.iphoneTable .af_table_control-bar-top</code>	Sets the background color for the table controller (pagination).
<code>.iphoneTable .af_column_cell-text</code>	Sets the background color of the column.

3. Set the width of the table to 100.
4. Set the `horizontalGridVisible` attribute to `false`.

---

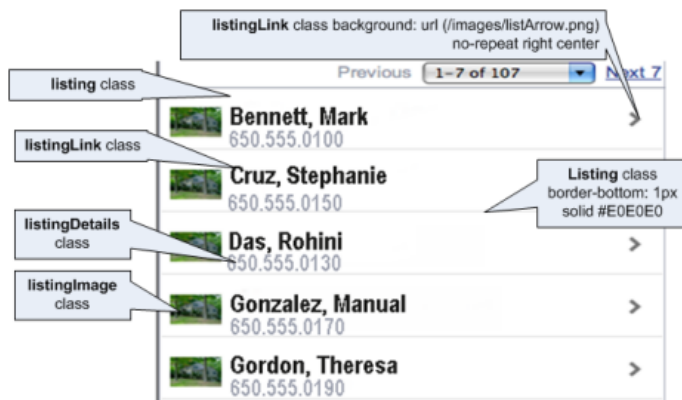
**Note:** There must be only one column within the `<tr:table>` tag. Within this column, all tags must be wrapped by a `<tr:panelGroupLayout>` component with a `styleClass` set as `listing`.

---

[Table 4–4](#) lists the style classes for the subelements of the `<column>` tag.

**Table 4–4** Table Listing Style Classes

Element	Style Class	Layout Effects
<code>&lt;tr:panelGroupLayout&gt;</code> with its <code>layout</code> attribute set as <code>vertical</code> .	<code>listing</code>	Sets the position and the border for each row.
<code>&lt;tr:panelList&gt;</code>	<code>listingImage</code>	Sets the width, position, and height of the image.
<code>&lt;tr:commandLink&gt;</code> : (navigation items)	<code>listingLink</code>	Sets the position, height, font size, text alignment, background image, and color of the navigation item.
<code>&lt;tr:outputText&gt;</code> : (description of the navigation)	<code>listingDetails</code>	Sets the position, height, font size, text alignment, background image, and color of the navigation description.

**Figure 4–4 A Listing of Dynamic Links**

## listing

[Example 4–14](#) illustrates the `listing` style class selector, which sets the position and the border for each row.

### **Example 4–14 The listing Style Class Selector**

```
.listing {
    position: relative !important;
    margin: 0 !important;
    border-bottom: 1px solid #E0E0E0 !important;
    padding: 8px 0 8px 10px !important;
    font-size: 20px !important;
    font-weight: bold !important;
    list-style: none !important;
}
```

## listingLink

[Example 4–15](#) illustrates the `listingLink` style class selector, which sets the width, position, and height of the image.

### **Example 4–15 The listingLink Style Class Selector**

```
.listingLink {
    display: block !important;
    margin: -8px 0 -8px -10px !important;
    padding: 8px 32px 8px 10px !important;
    text-decoration: none !important;
    color: inherit !important;
    background: url(/images/listArrow.png) no-repeat right center !important ;
    padding-left: 54px !important;
    padding-right: 40px !important;
    min-height: 34px !important;
    font-size: 20px !important;
    font-weight: bold !important;
}
```

**listingDetails**

[Example 4-16](#) illustrates the `listingDetails` style class selector, which sets the position, height, font size, text alignment, background image, and color of the navigation item.

**Example 4-16 The listingDetails Style Class Selector**

```
.listingDetails {
    display: block !important;
    position: absolute !important;
    margin: 0 !important;
    left: 54px !important;
    top: 27px !important;
    text-align: left !important;
    font-size: 12px !important;
    font-weight: normal !important;
    color: #666666 !important;
    text-decoration: none !important;
    height: 13px !important;
    padding: 3px 0 0 0 !important;
}
```

**listingImage**

[Example 4-17](#) illustrates the `listingImage` style class selector, which sets the position, height, font size, text alignment, background image, and color of the navigation description.

**Example 4-17 The listingImage Style Class Selector**

```
.listingImage {
    display: block !important;
    position: absolute !important;
    margin: 0 !important;
    left: 6px !important;
    top: 7px !important;
    width: 35px !important;
    height: 27px !important;
    padding: 7px 0 10px 0 !important;
}
```

### 4.3.3 How to Create Detail Items in iPhone Applications

On the destination page, this component displays the detail of an item selected through panel navigation. As illustrated in [Figure 4-5](#), these details include salary, phone numbers, and a hire date for a selected employee.

**Figure 4–5 Field Set**

First Name John	>
Last Name Smith	>
Email Smith@example.com	
Salary \$100,000	
Phone (650)555-1040	
Hired Mar-11-2000	
Phone (650)555-1040	
Hired Mar-11-2000	
Hired Mar-11-2000	

This destination page (comprised of field set components) contains one or more rows, where each row contains a label or a message (which can be either simple text or another navigation item). As illustrated in [Example 4–18](#), you use the `<div>` tags to create these rows. The `<div>` tags are subelements of a `<tr:panelCaptionGroup>` component.

**Example 4–18 Creating a Field Set**

```

<div class="panelBase">
  <tr:panelCaptionGroup>
    <div class="row">
      <tr:outputText styleClass="labeltext"
        value="#{agentUtil.name}"
        truncateAt="0" />
      <tr:outputText styleClass="messageText"
        value="#{sessionScope.FirstName}" />
    </div>
    <div class="row">
      <tr:outputText styleClass="labeltext" value="Last Name" />
      <tr:commandLink text="#{sessionScope.LastName}"
        styleClass="messageLink"
        partialSubmit="true"
        id="myLink2"
        actionListener="#{agentUtil.gotoPage3}"
        onclick='iPhone.slideFragments("page3",page2);' />
    </div>
  </tr:panelCaptionGroup>
  <tr:panelCaptionGroup>
    <div class="row">
      <tr:outputText styleClass="labeltext" value="Email" />
      <tr:outputText styleClass="messageText"
        value="#{bindings.LastName}@oracle.com" />
    </div>
    <div class="row">
      <tr:outputText styleClass="labeltext" value="Salary" />
      <tr:outputText styleClass="messageText" }"
        value="#{sessionScope.Salary}" />
    </div>
    <div class="row">
      <tr:outputText styleClass="labeltext"
        value="Phone"
        truncateAt="5" />
      <tr:outputText styleClass="messageText"

```



```

                                value="#{sessionScope.PhoneId}"/>
</div>
<div class="row">
  <tr:outputText styleClass="labeltext"
                value="Hired"
                truncateAt="7"/>
  <tr:outputText styleClass="messageText"
                value="#{sessionScope.HireDate}"/>
</div>
<div class="row">
  <tr:outputText styleClass="labeltext"
                value="Phone"
                truncateAt="5"/>
  <tr:outputText styleClass="messageText"
                value="#{sessionScope.PhoneId}"/>
</div>
<div class="row">
  <tr:outputText styleClass="labeltext"
                value="Hired"
                truncateAt="7"/>
  <tr:outputText styleClass="messageText"
                value="#{sessionScope.HireDate}"/>
</div>
<div class="row">
  <tr:outputText styleClass="labeltext"
                value="Hired"
                truncateAt="7"/>
  <tr:outputText styleClass="messageText"
                value="#{sessionScope.HireDate}"/>
</div>
</tr:panelCaptionGroup>
</div>

```

### To create field set components:

1. Insert as many `<div>` tags as needed within a `<tr:panelCaptionGroup>` component, as illustrated in [Example 4-18](#).
2. To create rows, define each `<div>` tag with the `row` class attribute. For example:

```
<div class="row">
```

The `row` attribute sets the position, height, and border for each row.

3. Within each `<div>` tag, create a label element as follows:
  - a. Create a `<tr:outputText>` tag.
  - b. Set the position, width, font, and color of the label element by defining the `StyleClass` as `labeltext`.

For example:

```
<tr:outputText styleClass="labeltext"
                value="Phone"
                truncateAt="5"/>
```

4. Create a message element using either the `<tr:outputText>` tag or the `<tr:commandLink>` component as follows:
  - The `<tr:outputText>` component with `styleClass` set as `messageText`. For example:

```
<tr:outputText styleClass="messageText"
               value="#{sessionScope.PhoneId}"/>
```

The `messageText` style class sets the position, width, font, and color for the label element.

- [Example 4–19](#) illustrates the `<tr:commandLink>` component with `styleClass` set as `messageLink`.

**Example 4–19 Setting the styleClass Attribute as messageLink**

```
<tr:commandLink text="#{sessionScope.LastName}"
                styleClass="messageLink"
                partialSubmit="true"
                id="myLink2"
                actionListener="#{agentUtil.gotoPage3}"
                onclick='iPhone.slideFragments("page3", "page2");'/>
```

The `messageLink` element sets the position, width, font, height, and color for the message element.

5. For a panel base background, wrap the `<div>` tags with the `panelBase` class attribute (illustrated in [Example 4–18](#)).

---

---

**Note:** The `panelBase fieldset` class sets rounded edges. The `fieldset` element is added by the renderer for the `<tr:panelCaptionGroup>` component.

---

---

### 4.3.3.1 Field Set Style Classes

This section lists the style classes for field set components and their layout properties.

#### labeltext

[Example 4–19](#) illustrates the `labeltext` style class selector, which sets the position, width, font, and color of the label element.

**Example 4–20 The labeltext Style Class Selector**

```
.labeltext {
    position: absolute !important;
    margin: 0 0 14px !important;
    line-height: 42px !important;
    font-weight: bold !important;
    color: #7388a5 !important;
    text-align: right !important;
    width: 90px !important;
    white-space: nowrap !important;
}
```

#### messageText

[Example 4–21](#) illustrates the `messageText` style class selector, which sets the position, width, font, and color for the message element.

**Example 4–21 The messageText Style Class Selector**

```
.messageText {
    display: block !important;
```

```

margin: 0 !important;
border: none !important;
padding: 12px 10px 0 110px !important;
text-align: left !important;
font-weight: bold !important;
text-decoration: inherit !important;
height: 42px !important;
color: inherit !important;
box-sizing: border-box !important;
-webkit-box-sizing: border-box !important;
}

```

### messageLink

[Example 4-22](#) illustrates the `messageLink` style class selector, which sets the position, width, font, and color for of the message link element.

#### **Example 4-22 The messageLink Style Class Selector**

```

.messageLink {
  display: block !important;
  text-align: left !important;
  text-decoration: none !important;
  color: inherit !important;
  background: url(/images/listArrow.png) no-repeat right center !important ;
  padding-top: 12px !important;
  padding-left: 111px !important;
  padding-right: 40px !important;
  min-height: 34px !important;
  font-size: 16px !important;
  font-weight: bold !important;
}

```

### panelBase

[Example 4-23](#) illustrates the `panelBase` style class selector, which sets the background of the panel base.

#### **Example 4-23 The panelBase Style Class Selector**

```

.panelBase {
  box-sizing: border-box !important;
  -webkit-box-sizing: border-box !important;
  padding: 10px !important;
  background: #c8c8c8 url(/images/pinstripes.png) !important;
}

```

### panelBase fieldset

[Example 4-24](#) illustrates the `panelBase fieldset` style class selector, which sets rounded edges. The `<fieldset>` element is rendered by the renderer for the `<tr:panelCaptionGroup>` component.

#### **Example 4-24 The panelBase fieldset Style Class Selector**

```

.panelBase fieldset {
  position: relative;
  margin: 0 0 20px 0;
  padding: 0;
}

```

```
background: #FFFFFF;
-webkit-border-radius: 10px;
border: 1px solid #999999;
text-align: right;
font-size: 16px;
}
```

### **row**

[Example 4–25](#) illustrates the `row` style class selector, which sets the position, height, and border for each row.

#### **Example 4–25 The row Style Class Selector**

```
.row {
  position: relative !important;
  min-height: 42px !important;
  border-top: 1px solid #999999 !important;
  -webkit-border-radius: 0 !important;
  text-align: right !important;
}
```

### **row:first-child**

[Example 4–26](#) illustrates the `row:first-child` style class selector.

#### **Example 4–26 The row:first-child Style Class Selector**

```
.row:first-child {
  border-top: none !important;
}
```

## **4.3.4 What You May Need to Know About CSS Classes in iPhone Applications**

Although you apply most of the CSS classes to specific components using the `styleClass` attribute (as illustrated in [Example 4–8](#)) manually, some CSS features are applied by default when you use the iPhone skin.

---

---

## Supporting Basic HTML Mobile Browsers

This chapter describes ADF Mobile browser's support for basic HTML mobile browsers.

This chapter includes the following sections:

- [Section 5.1, "Introduction to Basic HTML Mobile Browser Support"](#)
- [Section 5.2, "Developing Applications for Basic HTML Mobile Browsers"](#)
- [Section 5.3, "Styling Basic HTML Mobile Browsers"](#)

### 5.1 Introduction to Basic HTML Mobile Browser Support

ADF Mobile browser supports basic HTML mobile browsers that have no JavaScript support. This lack of JavaScript support makes these browsers less robust than their counterparts used on the BlackBerry smartphone or the Apple iPhone. Aside from the browsers listed in [Section 1.2, "Supported Mobile Browsers,"](#) ADF Mobile browser considers most common browsers as basic HTML mobile browsers. ADF Mobile browser may not recognize certain mobile browsers, however.

#### 5.1.1 Requirements for Basic HTML Mobile Browser Support

The minimum requirement for ADF Mobile browser's support is XHTML Basic or the XHTML Mobile Profile that includes WAP2.*n* browsers.

---

---

**Note:** ADF Mobile browser does not support the WAP1.*n* browsers that cannot support either XHTML Basic or the XHTML Mobile Profile.

---

---

### 5.2 Developing Applications for Basic HTML Mobile Browsers

Because ADF Mobile browser serves pages to mobile browsers that are appropriate to a browser's capabilities or limitations, you do not have to create user interfaces that are specific to basic HTML mobile browsers. However, the absence of JavaScript support by these browsers limits the functionality of certain HTML elements.

- Basic HTML mobile browsers do not support the `autosubmit` attribute. Add a submit button to a form only if the form submission responds to a component's `autosubmit` feature. For composite components with built-in `autosubmit` features, ADF Mobile browser adds a submit button to enable users to submit the form.
- Basic HTML mobile browsers do not support form-submitting links. All submitting elements are rendered as buttons. Basic HTML mobile browsers do not

support the child components of such input elements. As a consequence, the child components of the `tr:commandLink` component cannot render in a basic HTML mobile browser. For more information on `tr:commandLink`, see [Section 3.5.2, "Creating Links."](#)

### 5.3 Styling Basic HTML Mobile Browsers

ADF Mobile browser provides CSS support for basic HTML mobile browsers. Although most of these browsers support CSS, ADF Mobile browser applications can even run on the browsers that do not support CSS. In these cases, however, the user interface may be difficult to use. As a precaution, you should test the ADF Mobile browser application on as many browsers as possible.

---

---

## Design Guidelines for BlackBerry 4.2 to 4.5

This chapter describes how to accommodate the behavior of BlackBerry browsers 4.2 to 4.5.

This chapter includes the following sections:

- [Section 6.1, "Introduction to BlackBerry Browser Display Behavior"](#)
- [Section 6.2, "Formatting Tables to Prevent Wrapping"](#)
- [Section 6.3, "Formatting Label and Message Panels"](#)
- [Section 6.4, "Formatting Column Width"](#)
- [Section 6.5, "What You May Need to Know About Display Variations on BlackBerry Smartphones"](#)

### 6.1 Introduction to BlackBerry Browser Display Behavior

The BlackBerry browser behaves differently than other browsers in that it does not display pages using horizontal scrolling. Instead, it fits a page to the width of the screen.

### 6.2 Formatting Tables to Prevent Wrapping

Browsers wrap long words between fields. When formatting tables, avoid placing such words on lines that contain multiple fields.

---

---

**Note:** Within this chapter, a word refers to a series of characters. In this context, a word does not include white space.

---

---

Because the default mode of the BlackBerry browser limits the browser width to that of the physical screen, any field that cannot fit within a line is displayed on the next line. If the intent of an application is to display multiple elements on one line, then you must ensure that the total width of the fields are within the width of the browser. Like other browsers, the BlackBerry browser wraps multiple lines when needed. The column width cannot be reduced beyond the size of the longest word in the field.

#### 6.2.1 How to Prevent Fields from Wrapping in Tables

To prevent fields from wrapping, ensure that the total of the size attribute values in a table's row satisfies the following formula when all of the fields in a row are input fields.

$3 * \text{Number of columns} + \text{the Sum of the size attributes in all columns} \leq X$ , when  $X=48$

In general, field sizes in table columns should satisfy the following formula:

$3 * \text{Number of Columns} +$   
 $\text{Sum of size attributes in all input field columns} +$   
 $\text{Sum of number of characters in longest words in all output field columns} \leq X$ , when  $X=48$

If the field still wraps, decrease the value of X until the field fits the row.

### 6.3 Formatting Label and Message Panels

To preserve the intended programming flexibility, ADF Mobile supports nowrap attributes in Trinidad components. You may encounter problems if you add nowrap to a component definition if you program an application to support paging.

### 6.4 Formatting Column Width

When formatting columns, set the percentage of the width for both the LabelWidth and the FieldWidth attributes in the tr:panelFormLayout component at 100%.

### 6.5 What You May Need to Know About Display Variations on BlackBerry Smartphones

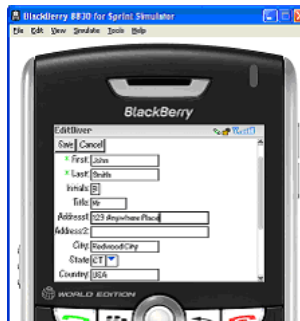
The same application may display differently on different devices. The following circumstances can contribute to such discrepancies:

- [Changes to the Minimum Font Size](#)
- [Form Factor Variations](#)

#### 6.5.1 Changes to the Minimum Font Size

Changing the minimum font size through user preferences affects the formatting ability of the ADF Mobile browser renderer. For example, input fields and their corresponding labels align properly when the font is set to its default size of 6 pt., as shown in [Figure 6-1](#).

**Figure 6-1 Application Display Using the Default Font Size of 6 pt.**

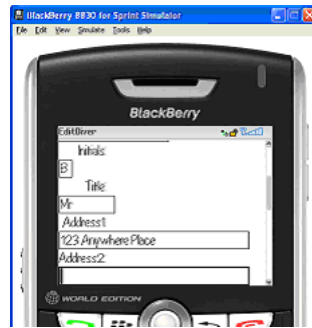


However, increasing the font size to 10 pt. disrupts the display by shifting the input fields beneath their corresponding labels. As a result, the page is difficult to read.

[Figure 6-2](#) shows a page that is too large for the display screen.



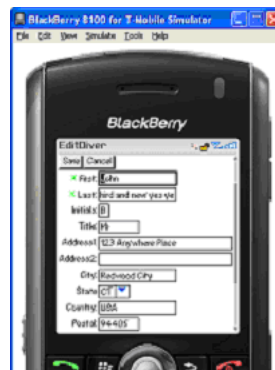
**Figure 6–2 Increasing the Font Size**



## 6.5.2 Form Factor Variations

Differing screen sizes can affect display. Even if the font size is at the default size of 6 pt. (illustrated in Figure 6–1), the same application appears differently on other devices. In Figure 6–3, the input fields barely fit the device's screen, even though they are easily accommodated on other devices running the same application, as shown in Figure 6–1.

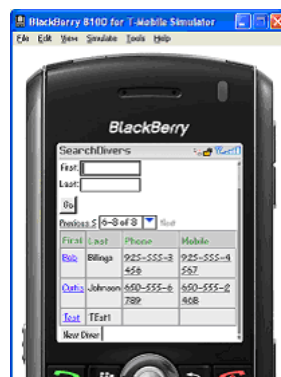
**Figure 6–3 Difficulty Displaying Input Fields and Labels with Font Size at 6 pt.**



In addition, input fields may display properly on the screen of one device, but may appear crowded on the screen of another type of device.

Figure 6–4 shows an application whose table cells are not wide enough to accommodate the text, causing it to wrap.

**Figure 6–4 Wrapping Text**





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---

# Narrow Screen Support and User Agent Details Support

This chapter describes how the Trinidad infrastructure determines narrow screen support and how it uses EL (Expression Language) expressions to expose user agent details.

This chapter includes the following sections:

- [Section 7.1, "Determining Narrow Screen Support"](#)
- [Section 7.2, "Determining User Agent Capabilities Using EL Expressions"](#)

## 7.1 Determining Narrow Screen Support

Mobile devices have a wide range of screen widths. As a result, the UI components of a web application may render properly on a device with a screen width measuring 240 pixels, but not align correctly when the application runs on a device that has a screen width of only 100 pixels. In such a situation, Trinidad optimizes application rendering for narrow-screen devices. Trinidad considers any device with a screen width of less than 240 pixels as a narrow screen and optimizes the rendering for the following components accordingly:

- `tr:breadcrumbs`
- `tr:inputText`
- `tr:navigationPane`
- `tr:panelFormLayout`
- `tr:panelLabelAndMessage`
- `tr:panelRadio`
- `tr:processChoiceBar`
- `tr:selectRangeChoiceBar`

### 7.1.1 How Trinidad Determines Narrow-Screen Optimization

Because Trinidad only considers a device with a screen width that measures less than 240 pixels as a narrow screen, it does not consider iPhones (Safari browsers) or BlackBerry smartphones (BlackBerry browsers), which usually have screens that are greater than 240 pixels, as such. For a Windows Mobile browser, Trinidad determines the screen width from the `UA-pixels` definition in the request header and only applies narrow screen optimization if the screen width is less than 240 pixels. For all

other user agents, however, Trinidad optimizes its rendering for a narrow screen device.

## 7.2 Determining User Agent Capabilities Using EL Expressions

Trinidad exposes a requesting user agent's details using the EL expression, `{requestContext.agent}`, which returns an `agent` object that describes the requesting user agent. By adding the detail name or capability name properties to this expression, you enable Trinidad to return details that include the user agent's name, version, platform, the version of the platform, the model (which is applicable only to BlackBerry), and the browser's support for JavaScript and PPR (Partial Page Rendering). For information on exposing user agent details, see [Section 7.2.1, "How To Determine User Agent Details."](#) For information on determining browser capabilities, see [Section 7.2.2, "How to Determine Browser Capabilities."](#)

### 7.2.1 How To Determine User Agent Details

When Trinidad receives a request, it parses user agent strings for a variety of user agent details (listed in [Table 7-1](#)) that include the type, the name and version of the agent, and the agent's platform name and platform version. Trinidad uses the EL expression `{requestContext.agent.<detail-name>}` to expose these details. For example, to enable you to retrieve the category appropriate to the user agent type (that is, `desktop` for a desktop browser, or `PDA` for mobile browsers), Trinidad uses the `type` detail in the EL expression as follows:

```
{requestContext.agent.type}
```

---



---

**Note:** Trinidad may return a null value for such details as `PlatformName` and `PlatformVersion` if it cannot parse them from the user agent string.

---



---

**Table 7-1 Browser Details Exposed through EL Expressions**

Detail Name	Description
<code>type</code>	Identifies a user agent type. For desktop and mobile browsers, the values are <i>desktop</i> and <i>PDA</i> , respectively. Because Safari provides all desktop browser features when it runs in a mobile device, the agent object exposes this detail as a desktop type.
<code>agentName</code>	The name of the agent
<code>agentVersion</code>	The version of the agent
<code>platformName</code>	The platform on which the agent runs
<code>platformVersion</code>	The version of the platform on which the agent runs
<code>hardwareMakeModel</code>	The model of the mobile device
<code>skinFamilyType</code>	Trinidad categorizes the mobile browsers into different skin types based on their CSS capabilities. For more information, see <a href="#">Section 7.2.1.1, "Determining the Skin Type."</a>

#### 7.2.1.1 Determining the Skin Type

Trinidad categorizes incoming user agents into different skin family types based on CSS support. It exposes the skin family type using the `{requestContext.agent.skinFamilyType}` EL expression. For example, Trinidad uses this EL expression to derive the value of `windowswebkit` for a Safari

user agent running in a Windows platform. For Safari browsers running on Symbian devices, this expression returns the Nokia Webkit (`nokiawebkit`). [Table 7-2](#) lists the skin family types returned by `{requestContext.agent.skinFamilyType}` according to user agent, platform, and platform version.

**Table 7-2 Skin Family Types Returned by the `SkinFamilyType` Attribute**

User Agent	Platform	Skin Family Type
	Windows mobile	<code>windowsmobile</code>
Safari	iPhone/iPod	<code>iphonewebkit</code>
Safari	Linux	<code>linuxwebkit</code>
Safari	Macintosh	<code>macwebkit</code>
Safari	Symbian	<code>nokiawebkit</code>
Safari	Windows	<code>windowswebkit</code>
Safari	Unknown platforms	<code>defaultwebkit</code>
Blackberry		<code>blackberryminimal</code>
Blackberry (versions 4.5 and later)		<code>blackberry</code>
All other mobile browsers		<code>genericpda</code>

## 7.2.2 How to Determine Browser Capabilities

Trinidad sends its response to a user agent's request based on the capabilities that it assigns to a user agent. These capabilities include a user agent's support for JavaScript and PPR (partial-page rendering). Some of these capabilities (listed in [Table 7-3](#)) are exposed through the EL expression `{requestContext.agent.capabilities}`.

Use the EL expression

`{requestContext.agent.capabilities.<capability-name>}` to determine the specific capability assigned to a user agent by Trinidad. For example, to determine whether Trinidad assigns JavaScript capability to a user agent, use the following EL expression:

```
{requestContext.agent.capabilities.scriptingSpeed != 'none'}
```

**Table 7-3 Browser Capabilities Exposed through EL Expressions**

Capability Name	Detail
<code>narrowScreen</code>	Indicates whether Trinidad optimizes its rendering for a narrow-screen device. It returns <code>true</code> (a Boolean type) if Trinidad optimizes its rendering for a narrow-screen device.
<code>scriptingSpeed</code>	Indicates JavaScript support for a user agent. Returns <code>"none"</code> (a String type) if the user agent does not support JavaScript.
<code>partialRendering</code>	Indicates PPR support for a user agent. Returns <code>true</code> (a Boolean type) if the browser supports PPR.



---

# Extending ADF Mobile Browser Applications

This chapter describes how to add e-mail, telephony, and Google Maps to ADF Mobile browser applications.

This chapter includes the following sections:

- [Section 8.1, "Introduction to Extending Applications for E-Mail, Telephony, and Google Maps"](#)
- [Section 8.2, "Integrating an E-Mail Client"](#)
- [Section 8.3, "Integrating Telephony"](#)
- [Section 8.4, "Integrating Google Maps"](#)
- [Section 8.5, "What You May Need to Know About Page Display Dimensions"](#)

## 8.1 Introduction to Extending Applications for E-Mail, Telephony, and Google Maps

In addition to using style sheets described in [Chapter 4, "Skinning"](#), you can further tailor an ADF Mobile browser application to include support for e-mail, telephony, and Google Maps by defining the `tr:goButton` and `tr:goLink` components with EL (Expression Language) expressions.

## 8.2 Integrating an E-Mail Client

To invoke an e-mail application from a web application:

1. Use either the `tr:goButton` or the `tr:goLink` component.
2. Prepend the `mailto:` protocol in an HTML link.
3. Set the `destination` property to the HTML link (represented as the EL expression, `#{sessionScope.empDetails.Email}` in [Example 8-1](#)).

### *Example 8-1 Integrating the iPhone E-Mail Client using the mailto: Protocol*

```
<tr:goLink styleClass="messageText"
  text="#{sessionScope.empDetails.Email}"
  destination="mailto:#{sessionScope.empDetails.Email}"/>
```

### 8.2.1 Adding Mail Properties

The `mailto:` protocol enables you to add the mail properties that are listed in [Table 8-1](#).

**Table 8–1 Mail Properties**

Property	Syntax
Multiple Recipients	A comma (,) separates each e-mail address
Message Subject	subject =<subject text>
cc Recipients	cc=<name@address.com>
bcc Recipients	bcc=<name@address.com>
Message Text	body=<Message Text>

To specify these properties, append the e-mail address with question mark (?) as illustrated by `#{sessionScope.empDetails.Email}?subject=hello` in [Example 8–2](#) and then add the properties, separating each with an ampersand (&).

**Example 8–2 Adding E-Mail Properties**

```
<tr:goLink styleClass="messageText"
  text="#{sessionScope.empDetails.Email}"
  destination="mailto:#{sessionScope.empDetails.Email}?subject=hello
                                     &cc=myboss@example.com
                                     &bcc=me@example.com
                                     &body=good morning!"/>
```

## 8.3 Integrating Telephony

To invoke a call dialog box for a phone number:

1. Use either the `tr:goButton` or the `tr:goLink` component.
2. Prepend the phone number with the `tel:` protocol.

---

**Note:** The phone number must support the portion of the RFC 2806 protocol (<http://www.ietf.org/rfc/rfc2806.txt>) which enables you to add pauses or dial extensions after an end user dials the primary phone number. Because Apple does not specify which portions of RFC 2086 that it supports, you must test each portion.

---

3. Set the `destination` property to the telephone number (represented as the EL expression, `#{sessionScope.empDetails.PhoneNumber}` in [Example 8–3](#)).

**Example 8–3 Enabling the Call Dialog Box**

```
<tr:goLink styleClass="messageText"
  text="#{sessionScope.empDetails.PhoneNumber}"
  destination="tel:#{sessionScope.empDetails.PhoneNumber}"/>
```

## 8.4 Integrating Google Maps

To create a link that displays a map that shows the data available in the application, specify the `destination` property of the `tr:goLink` component as follows:

1. Use either the `tr:goButton` or the `tr:goLink` component.



2. Define `destination=` as the URL of Google Maps. (`destination=http://maps.google.com/maps`, as illustrated in [Example 8-4](#).)
3. To search for a location, append the Google Maps URL with `?q=`.
4. Define `q=` using the address string of the target location. This value can be a full street address, a city, landmark, or any item that Google Maps can search and locate. If multiple items are found, Google Maps drops multiple pins automatically.

---

**Note:** The address described in the `text` string must be well formatted, including commas between locations. For the `destination` string, replace spaces with plus sign (+) characters.

---

[Example 8-4](#) illustrates how to define the `tr:goLink` component to invoke a Google Maps application and then drop a pin on 200 Oracle Parkway.

#### **Example 8-4 Specifying Locations in Google Maps**

```
<tr:goLink styleClass="messageAddrText"
  text="200 Oracle Parkway, Redwood City, CA, USA"
  destination="http://maps.google.com/maps?q=200
              +Oracle
              +Parkway,
              +Redwood
              +City,
              +CA,
              +USA" />
```

[Example 8-5](#) illustrates specifying a location using an address represented by EL expressions.

#### **Example 8-5 Specifying Locations in Google Maps Using EL Expressions**

```
<tr:goLink styleClass="messageAddrText"
  text="{sessionScope.empDetails.StreetAddress},
        {sessionScope.empDetails.City},
        {sessionScope.empDetails.StateProvince},
        {sessionScope.empDetails.CountryName}"
  destination=" http://maps.google.com/maps?q={sessionScope.empDetails.StreetAddress},
              +#{sessionScope.empDetails.City},
              +#{sessionScope.empDetails.StateProvince},
              +#{sessionScope.empDetails.CountryName}" />
```

You must join each EL expression in the address string with a plus sign (+), as illustrated in [Example 8-4](#). Do not include spaces between the EL expressions.

### **8.4.1 Programming Driving Directions**

To enable ADF Mobile applications to leverage the driving instructions provided by Google Maps, modify the string following the question mark (?) in the Google Maps URL with the starting and destination addresses (`saddr=<starting address>&daddr=<destination address>`). Using this format, the directions from Oracle headquarters at 200 Oracle Parkway in Redwood City, California, to 1 Telegraph Hill in San Francisco, California, are as follows:

```
http://maps.google.com/maps?
  saddr=200+Oracle+Parkway,+Redwood+City,+CA,+USA
```

```

&daddr=1
+Telegraph
+Hill,
+San
+Francisco,
+CA,
+USA

```

---

**Note:** Apple and Google have not yet published other APIs.

---

## 8.4.2 Supporting Google Maps on iPhone

iPhone Safari supports both Google Maps and YouTube applications in that it automatically intercepts certain URL calls and invokes a native application rather than opening the URL for the target website. For example, when a user clicks an HTML link to Google Maps (<http://maps.google.com>), Safari invokes a native Google Maps application rather than navigating to the Google Maps website. Because the native Google maps application accepts some URL parameters supported by [maps.google.com](http://maps.google.com), end users can specify a location and drop a pin.

## 8.5 What You May Need to Know About Page Display Dimensions

To retain the correct zoom ratio, add a `viewport` meta tag in the header of a page. The `viewport` is a device-specific meta tag used to ensure that a page displays at the correct scale. [Example 8-6](#) illustrates setting the viewports for both iPhones and BlackBerry smartphones. For more information on the viewport, see *iOS Human Interface Guidelines*, available from the iOS Developer Library (<http://developer.apple.com/library/ios/navigation/>).

### Example 8-6 Setting Viewports

```

<trh:head title="Online Banking Demo">
  <meta http-equiv="Content-Type"
        content="text/html; charset=windows-1252"/>
  <f:verbatim rendered="#{requestContext.agent.skinFamilyType eq 'blackberry'}">
  <meta name="viewport"
        content="width=device-width;
                height=device-height;
                initial-scale=1.0;
                maximum-scale=1.0;
                user-scalable=0;"/>

  </f:verbatim>
  <f:verbatim rendered="#{requestContext.agent.skinFamilyType eq 'iPhonewebkit'}">
  <meta name="viewport"
        content="width=device-width;
                initial-scale=1.0;
                maximum-scale=1.0;
                user-scalable=0;"/>
  </f:verbatim>
</trh:head>

```

---

---

**Note:** Versions 4.6 and later of BlackBerry support the `HandheldFriendly` meta tag, which is similar to the `viewport` meta tag. Include the following line in the header to enable the page to scale appropriately:

```
<meta name="HandheldFriendly" content="True">
```

---

---

### 8.5.1 Setting the Viewports for iPhone

While some mobile browser applications may display correctly on desktop Safari browsers, they may not scale correctly for the smaller screen of the iPhone and may appear too large. As a result, the iPhone shrinks pages until they are too small to read. The following line from [Example 8-6](#) illustrates how to set the iPhone viewport specifications in the `<head>` element to ensure that applications display properly on iPhones.

```
<f:verbatim rendered="#{requestContext.agent.skinFamilyType eq 'iPhonewebkit'}">
  <meta name="viewport"
        content="width=device-width;
        initial-scale=1.0;
        maximum-scale=1.0;
        user-scalable=0;" />
</f:verbatim>
```

