Aware IM

Version 5.3

Aware IM for Mobile Devices

CONTENTS

Introduction

This document describes how to develop applications for mobile devices using ***Aware IM***. It assumes that the reader is familiar with how to develop regular ***Aware IM*** web applications.

Mobile devices are different from regular web applications driven by standard browsers in that the real estate available for the applications is strictly limited (unless you are using devices such as iPad) and there is no support for the mouse – the user operates an application using his fingers instead.

As a result some of the aspects of standard web applications are not applicable to mobile devices and some features that ***Aware IM*** offers for standard web applications do not work on mobile devices. On the other hand mobile devices support certain features that are not available in standard applications, such as gestures (swipe, pinch).

In version 5.0 ***Aware IM*** supports the following mobile devices

- Apple iOS family of mobile devices – iPhone, iPad and iPod Touch
- Google Android family of mobile devices
- Blackberry 6 devices

General Approach

Most of the time your mobile web application is just a mobile version of the regular web application, so we recommend that you develop your regular web application first without worrying too much about its mobile incarnation. Once your regular ***Aware IM*** application is ready you should carefully think through which features of the application would be available on mobile devices.

Once you know which features of your regular application you are going to expose to mobile devices you should make changes to your ***Aware IM*** configuration elements to support mobile capabilities. Some of your configuration elements, such as business objects, business rules, notifications and access levels do not need to be changed as you would only need to change those elements that are presented to the user (such as visual perspectives, forms, queries and some processes that involve interaction with the user). It is rather unlikely that these configuration elements will work as is on mobile devices (although some might), so you will most likely need to provide a mobile version of such a configuration element.

In the following sections we will describe how to create or change configuration elements, so that they are compatible with mobile devices.

Login

To login to a mobile application the user has to specify different URL's compared to the regular web applications. The following table describes different login options (see also the Login section in the User Guide describing how to login to regular applications):

	Type	Action	Business space	Login name	Password	Testing mode
1.	Guest entry	`logonGuest.aw?mobile=true`	Param	N/A	N/A	No
2.	Full login, interactive	`logonAdminM.html`	UI	UI	UI	UI
3.	Full login, parameterised	`logonOp.aw?mobile=true`	Param	Param	param	param
4.	Simple login, default business space	`logonM.html`	Default	UI	UI	No
5.	Simple login with the "forgotten password" link, default business space	`logon2M.html`	Default	UI	UI (with "forgot your password ?" link)	No
6.	Simple login, custom business space	`logonOp.aw?mobile=true`	Param	UI	UI	No

The following table lists the URL parameters that can be optionally added to the `logonGuest.aw` and `logonOp.aw` URL's. For example:

```
logonOp.aw?domain=CRM&userName=admin&password=password&testingMode=false
```

	URL parameter name	Value	Comments
1.	`mobile`	`"true"`	Instructs the system to use a mobile version of the application. You must provide this parameter.
2.	`domain`	`Name of the business space`	Instructs the system to login into the specified business space.
3.	`userName`	`Login name of the user`	Instructs the system to use the specified name rather than take it from the user interface.
4.	`password`	`Password of the user`	Instructs the system to take the specified value rather than take it from the user interface.
5.	`testingMode`	`"true" or "false"`	If the value is "true" the login will be into the test database.
6.	`logonPage`	`Name of the logon page to use`	This can be used to in logonOp.aw to indicate a page to be displayed.

7.	perspective	Name of the visual perspective	Instructs the system to display a particular visual perspective, rather than the default one, upon user login. It can be used to bring the user to a specific section of the system, rather than the default page.
8.	firstCommand	The command to execute after the startup	See the description of this parameter in the User Guide

Using Visual Perspectives

Startup Perspective

User experience with an ***Aware IM*** application starts with a visual perspective. ***Aware IM*** displays some visual perspective when the user logs into the application. Which visual perspective will be displayed depends on the access level of the user who logs in. The configurator normally indicates that a particular visual perspective will be used when the user with a certain access level(s) logs in. This is done in the Access Levels dialog displayed when the user clicks on the Details button next to the "Will be used when user logs in" checkbox.

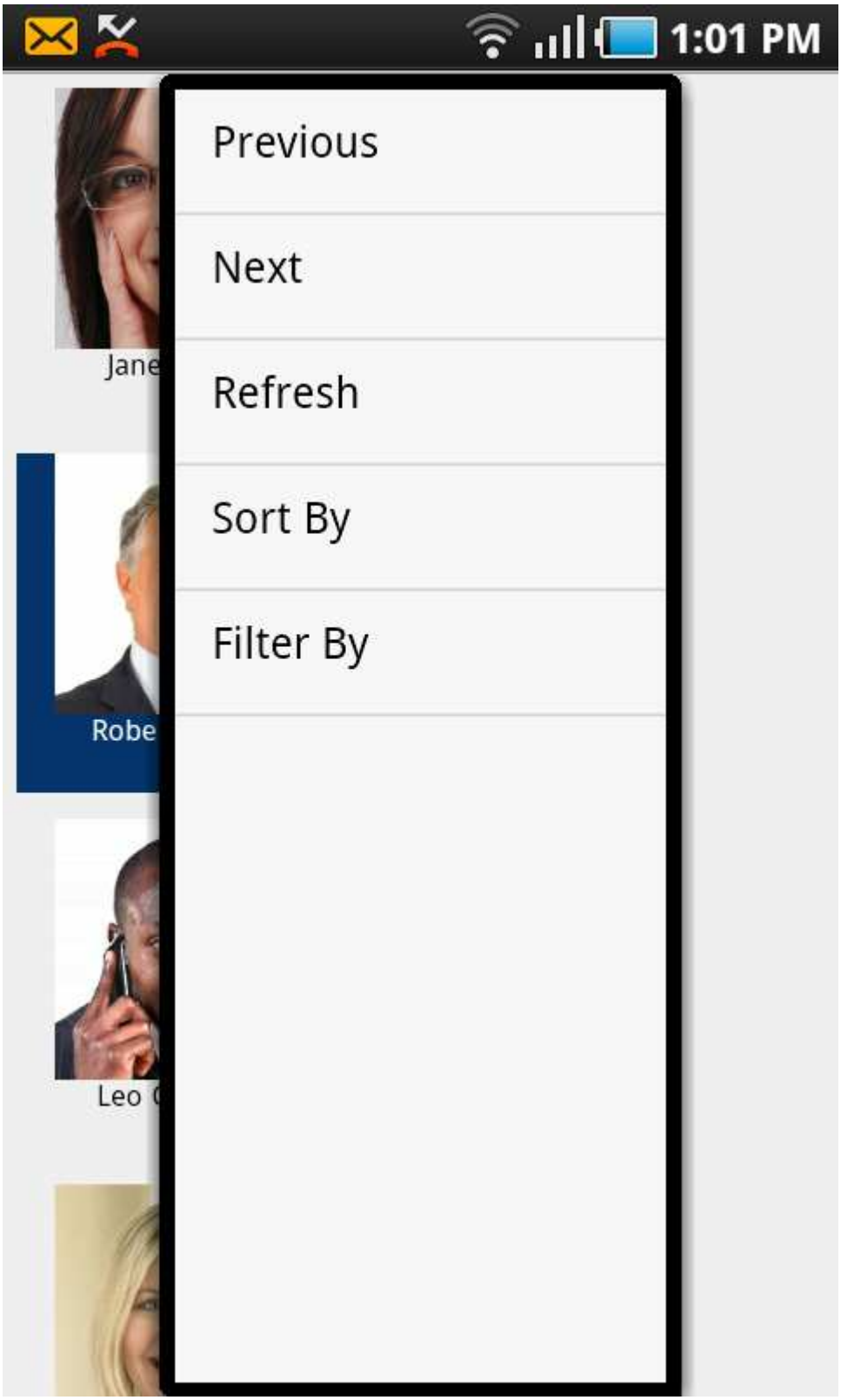
This dialog now has a new checkbox "Use visual perspective for mobile version of the application". If you tick this checkbox ***Aware IM*** will use the visual perspective when the user with the specified access level(s) logs into the mobile version of the application. Therefore, for any access level it should be possible to define a visual perspective for the regular web application and a separate visual perspective for the mobile application (it is also possible to have the same perspective for both).

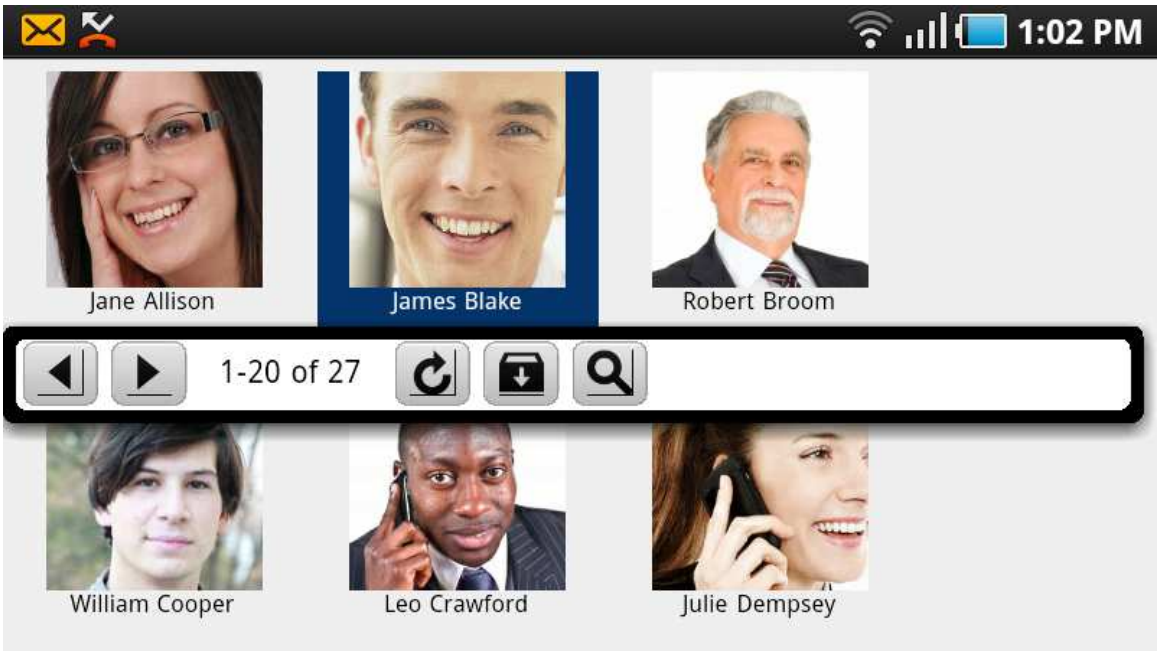
This perspective essentially starts a mobile web application. All subsequent user operations are derived from this visual perspective because they are either derived from the application menu or from the operations available in the content panel(s) displayed by the perspective.

Application Menu

On mobile phones there is usually not enough real estate to permanently display the application menu. Therefore, on these devices ***Aware IM*** displays the application menu when the user taps somewhere on the screen provided that the area that the user taps on is not used by some screen element that reacts to the tap event in its own way (such as a button, for example). At any time the user can tap and hold for a few seconds, in which case the application menu will be displayed regardless of other screen elements.

The application menu is displayed as a vertical list in the portrait orientation and as a horizontal toolbar in the landscape orientation (see the pictures below).





For many mobile applications it may be beneficial not to define an application-wide menu at all.

Note that to save the real estate the menu above is shared between the application-wide menu defined in a visual perspective and context operations specific to the currently displayed query or form. For example, if the current screen shows a query the menu will show not only the application-wide menu (if one is defined), but also operations to traverse the query list, sort, filter etc (see the menu above)

For mobile phones it doesn't matter whether the menu is defined in the left frame of the visual perspective or in the top bar – it will always be displayed in the menu that comes up when the user taps on the screen. On iPad devices, though, where there is more real estate, the menu defined in the left frame will be permanently displayed on the screen on the left-hand side. The menu defined in the top bar is displayed as a button in the top bar. The user has to tap this button to display the menu as a pop-up window.

Not all menu item types are supported for mobile applications. The following list includes menu item types that are supported:

- Folder
- Create Object
- Run Query
- Start Process
- Change Perspective
- System Settings
- Change Login Details
- Home Page
- Register User

- URL
- Login
- Logout

Icons for menu items are not supported and the output setting for the menu item is Default only.

Frames, Tabs and Content Panels

Other than Left and Top Bar frames used to define the application menu, only the Main frame is supported for mobile applications – all other frames will be ignored if defined. Tabs, on the other hand, should be fully supported (except icons).

Most layouts for content panels are not supported for mobile applications. The only layouts that are supported are Vertical and Accordion. Only one content panel can be defined for the Vertical layout. The Accordion layout can support multiple content panels that will be displayed as a *carousel*. The user can switch between panels of the carousel by swiping the panels back and forth.

Content panels can display HTML, results of a query and other commands supported by mobile applications (see the Application Menu section). You can also specify background colour and margins for the content panels.

Checking Mobile Compatibility

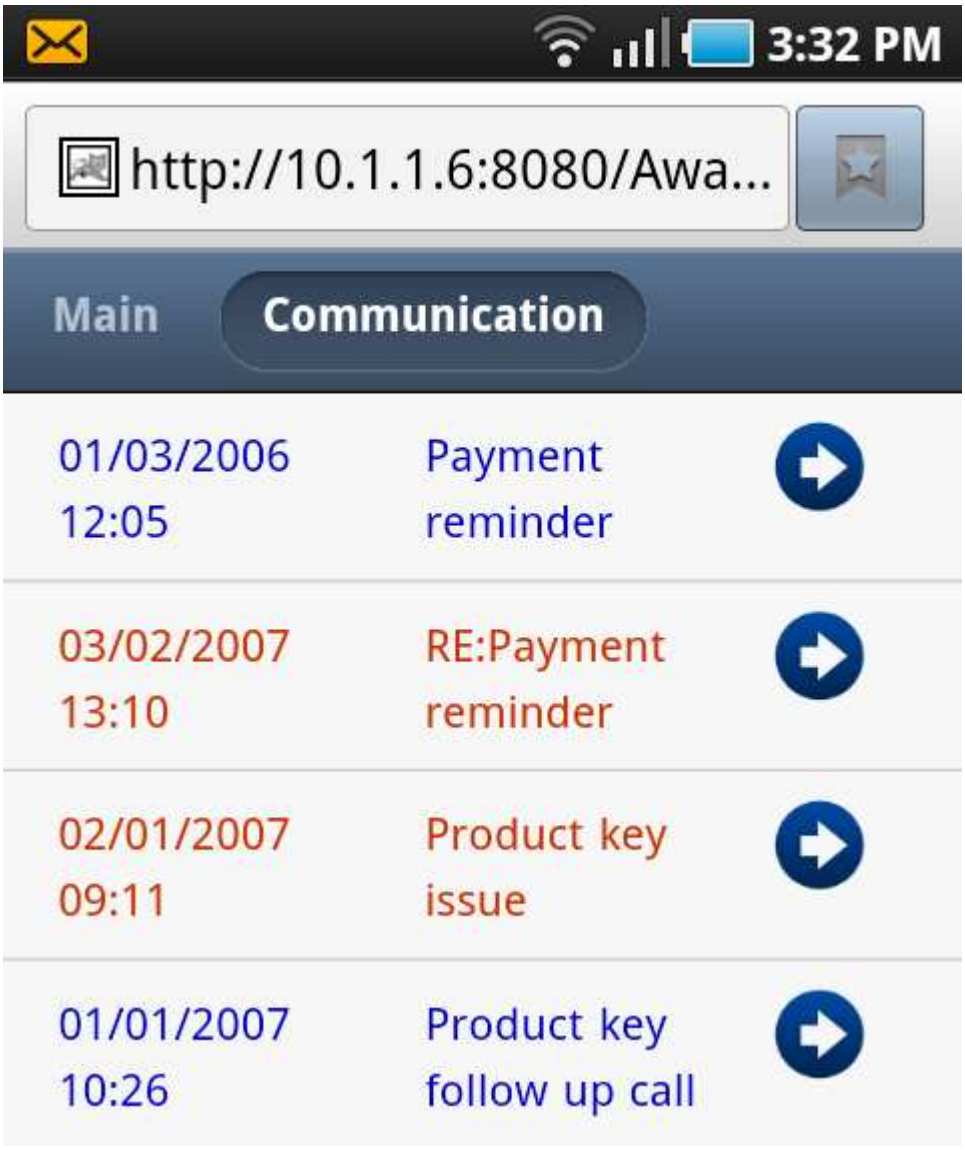
You can check whether a particular visual perspective is compatible with mobile applications by clicking on the “Mobile Compatibility” button on the editor of visual perspectives. If the visual perspective includes properties not supported by mobile applications a warning will be displayed.

Using Queries

Using queries to display data results should be one of the main vehicles of a mobile application. ***Aware IM*** only supports standard and custom presentation of query results – charts, scheduler and calendars are not supported.

Standard Presentation

Query results for standard presentation are displayed as a list of rows and columns without column headings (like in regular applications) – see the picture below.



If the list has multiple pages the user can traverse the pages by swiping them backwards and forwards. The application menu (available when the user taps or taps and holds on mobile phones and in the bottom bar on an iPad) also includes buttons to traverse the list. The menu will also include a button that displays a list of attributes to sort the results by dynamically. If the configurator defined filter attribute(s) for the query the filter button will also be included in the menu.

Most operations with the query can also be used – all operation types except Create Document are supported. If the query has operations on the items each row will include the *disclosure icon* – see the icon on the previous picture.

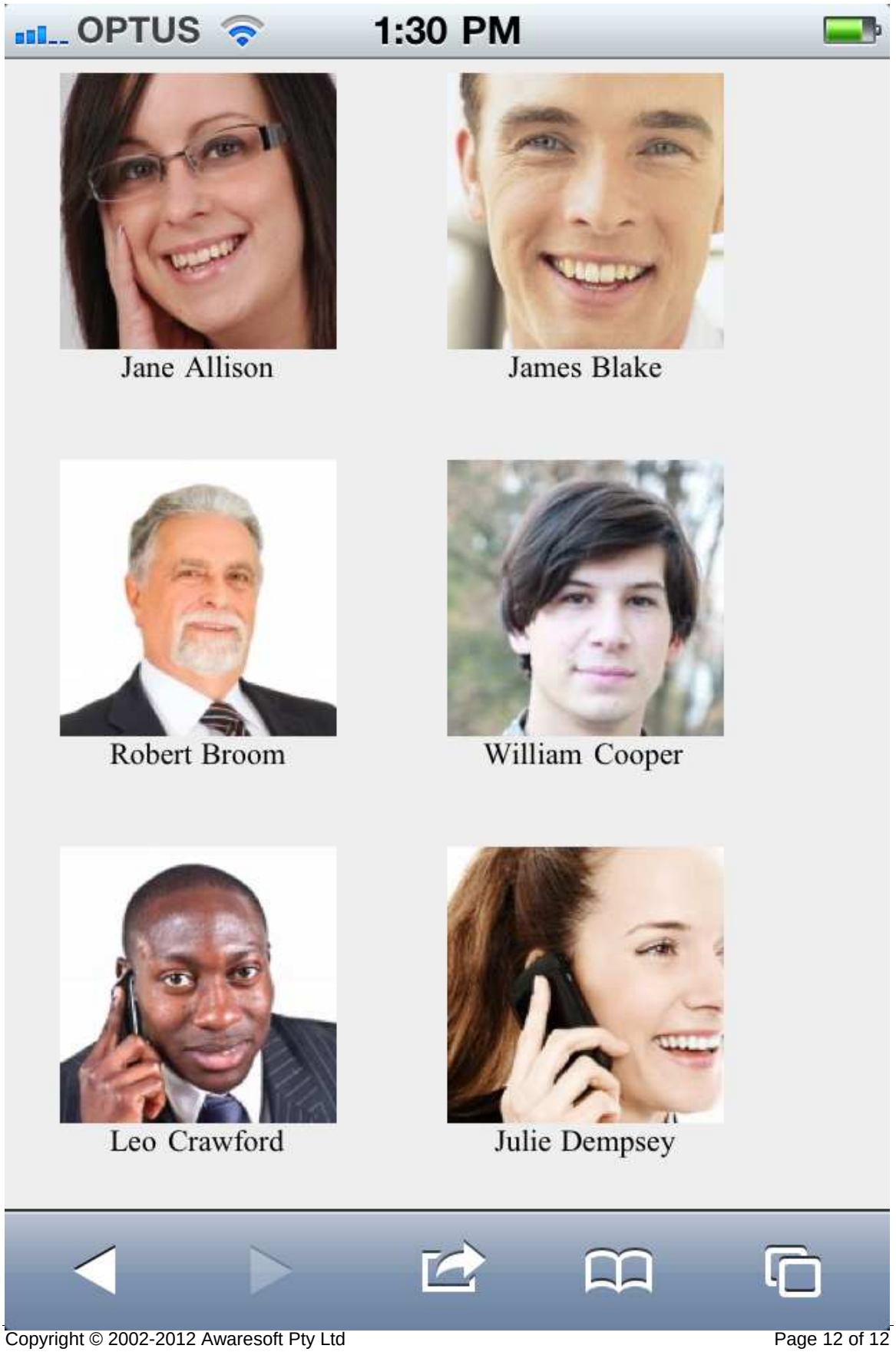
When the user taps on this icon a pop-up list with operations will be displayed so that the user can tap on the desired operation. If only one operation is defined tapping on the disclosure icon or anywhere on the row will invoke this operation. If the query has

operations located above or below the list, they will be displayed on the corresponding toolbar on an iPad and in the application menu on mobile phones.

Summary, grouping, inline editing, export and row numbering are not supported for mobile applications.

Custom Presentation

This form of query presentation can be very useful for mobile applications – especially, the data template that allows display query results as thumbnails – see the picture below:



Like with the standard presentation you can define operations, sorting, filtering and auto-refresh options. If you define an operation “when item is double clicked” it will be invoked when the user taps on the item.

Checking Mobile Compatibility

You can check whether a particular query is compatible with mobile applications by clicking on the “Mobile Compatibility” button on the editor of queries. If the query includes properties not supported by mobile applications a warning will be displayed.

Using Forms

Forms of Business Objects

Forms of business objects are supported in mobile applications, but there are quite a few restrictions. The list of restrictions is shown below:

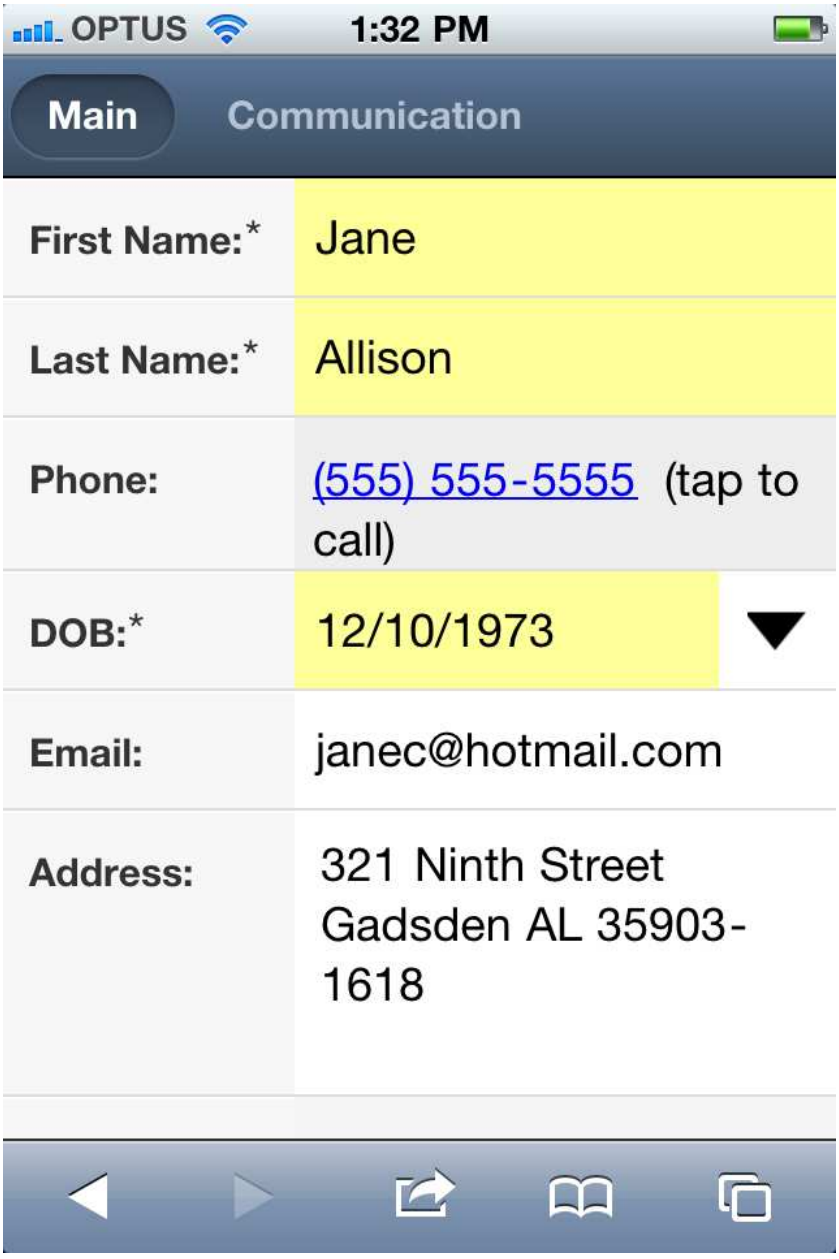
1. Forms with multi-column form sections are not supported – use form section layouts with a single column
2. There can only be one reference attribute represented as a table on a form section (and there has to be no other attributes on this section). There are no limitations on the number of references represented as drop-downs. Other types of reference presentation (list-box, checkbox list, calendar etc) are not supported.
3. Multiple attributes per cell in the form section layout are not supported
4. Attributes of the Document type can only store video and audio documents (see the “Displaying Video and Audio” section.
5. Groups of checkboxes are not supported
6. Descriptions of attributes that are displayed as pop-up windows or underneath the attribute in regular applications are not supported in mobile applications.
7. User defined choices are not supported
8. Presentation styles are not supported
9. Icons on tabs are not supported

Below is a quick reference of features that ARE supported in mobile applications:

1. Vertical single column layout of attributes on a form section
2. Tabs and wizard forms
3. Text attributes
4. Number attributes
5. Date and timestamp attributes with selection of dates using date picker
6. Attributes with choices represented as a drop-down – both editable and not editable
7. Picture attributes
8. Reference attributes represented as tables – one reference attribute per section (and there has to be no other attributes on this section)

9. Reference attributes represented as drop downs
10. Document attributes (with restrictions – see “Displaying Video and Audio”)
11. Shortcut attributes
12. Yes/No attributes
13. HTML cells
14. Google Map cells (see Displaying Google Maps)

An example of a form is shown below:



Displaying Google Maps

Displaying Google Maps in mobile applications is different from displaying them in regular applications. In regular applications you can put cells of the Google Map type anywhere on the form section, so a Google Map can be displayed along with other attributes on a form.

In order to support Google Maps in mobile applications you need to create a special form section. This form section must have only one cell in it and this cell should be of the Google Map type. No other cells can be present on the form section. Therefore, the Google Map will be shown "full-screen". Quite often in mobile applications you need to display just the map and nothing else. To do this you still need to create a form with one form section and one Google Map cell type – ***Aware IM*** will not display any form caption or form buttons in this case, it will just display the map.

Displaying Pictures

Pictures can be embedded into forms with other attributes just like it is done for regular applications. However, quite often in mobile applications you need to display the picture and nothing else. This can be done using a custom presentation for queries, but a quicker way to do this is to define a special form with one form section and one attribute of the Picture type. You can turn on the "hide label" flag for this cell and ***Aware IM*** will display the picture full-screen.

Pictures are always read-only in mobile applications - – you need to populate pictures in a regular application.

Displaying Video and Audio

In mobile applications it is often necessary to play a video or audio. The way to do it in ***Aware IM*** is to define a special form with one section and one attribute of the Document type. This attribute should only store documents representing video or audio files (all other types of files will be ignored). When you display such a form, Aware IM will automatically play the stored video or audio full screen.

Video and audio are always read-only in mobile applications – you need to populate the data for these attributes in a regular application.

Checking Mobile Compatibility

You can check whether a particular form is compatible with mobile applications by selecting the form and clicking on the "Mobile Compatibility" button on the editor of business objects. If the form includes properties not supported by mobile applications a warning will be displayed.

Using Processes

Processes are supported in mobile applications; however, there are some restrictions on the usage of certain actions in rules of a process. The list of restrictions is presented below:

1. The DISPLAY DOCUMENT action is not supported
2. The DISPLAY LAYOUT action is not supported
3. The DISPLAY URL action can only display a URL in the current window
4. The option to display anything in a new tab is not supported

Sample Applications

This section explains configuration of Aware IM sample applications for mobile devices. There are 3 mobile sample applications available:

- Ordering
- CRM
- Library

All three applications were configured on the basis of the corresponding regular application.

Ordering Application

This application allows customers to do the following using mobile devices:

- Place their orders
- Change their account details
- See and search a list of manufacturers and their products

To launch an application point the browser of your mobile device to the standard Aware IM mobile login page http://localhost:8080/AwareIM/logonAdminM.html and then select the following credentials:

Business Space: Ordering
User Name: jane
Password: jane

This will log you in as a customer of the Ordering system and will allow you to perform operations listed above. You can also point your mobile phone to this URL http://localhost:8080/AwareIM/samplesMobile.html and then select Ordering from the list.

The following has been done in the Configuration Tool to support this application as part of the standard Ordering sample application:

1. A new form called “Mobile View” has been added to the Product object. This form shows the picture and description of the selected product.
2. New query “Product – all mobile” has been added. This query uses custom presentation of the Product business object and displays it as thumbnails. Note that the query has two operations - to show the “Mobile View” form above and to start the existing “Add to Order” process. Note also that the query allows filtering and sorting products by various attributes.
3. New form “Customer new order mobile” has been added to the PurchaseOrder object. This form shows the order on mobile devices
4. A new process “ViewCurrentCustomerOrderMobile” has been added. This is based on the “ViewCurrentCustomerOrder” process, but it shows the new form created in the previous step, rather than the standard form
5. A new form “Customer editing mobile” has been added to the Customer object. This form shows the details of the customer on mobile devices
6. The new process “ViewLoggedInCustomerMobile” has been added. This process shows the above form of the logged in customer
7. A new query “All manufacturers – mobile” has been added. This query shows thumbnails of manufacturers
8. A new query “Product for manufacturer – mobile” has been added. This query is called from the “All manufacturers – mobile” query to show products of the selected manufacturer
9. Finally, to put it all together two visual perspectives have been added. The first one called “CustomerMobile” is the perspective shown when a customer logs in mobile mode. It is marked as “will be used when a user logs in” and “use for mobile version of the application”. This visual perspective uses tabs where the above processes and queries are called. Because there is not enough space horizontally to fit all tabs on a mobile device the second visual perspective has been configured called “CustomerMobile2” that is called when the user clicks on the “More” tab in the first perspective.

CRM Application

This application allows staff members to use a mobile phone to access their database of customers to do the following:

- Find a customer
- Change their details
- Call the customer
- See their address on the Google Map (useful when they are visiting the customer)
- Register communication with the customer

To launch an application point the browser of your mobile device to the standard Aware IM mobile login page http://localhost:8080/AwareIM/logonAdminM.html and then select the following credentials:

Business Space: CRM
User Name: john
Password: john

This will log you in as a staff member of the CRM system and will allow you to perform operations listed above. You can also point your mobile phone to this URL http://localhost:8080/AwareIM/samplesMobile.html and then select CRM from the list.

The following has been done in the Configuration Tool to support this application as part of the standard CRM sample application:

1. A new form called “Editing Mobile” has been added to the Customer object. This form shows the details of the customer on mobile devices.
2. A new form called “Google Map Mobile” has been added to the Customer object. This form shows the address of the customer as a Google Map
3. A new form called “Entry Mobile” has been added to the ContactNote object. This form allows creating a new contact note on mobile devices
4. A new process called “CreateContactNoteMobile” has been added. The process shows the above form
5. New query “Customer – all mobile” has been added. This query uses custom presentation of the Customer business object and displays photographs of the customer as thumbnails. Note that the query has operations that show the above forms.
6. Finally, to put it all together the “Staff Member Mobile” visual perspective have been added. This perspective is shown when a staff member logs in the mobile mode. It is marked as “will be used when a user logs in” and “use for mobile version of the application”. The perspective starts the above query.

Library Application

This application allows library members to do the following using mobile devices:

- See their current loans and reservations
- Cancel a reservation
- Search library for items, check the details of the items and play video/audio samples if necessary[1]
- Make a reservation for an item
- Change their account details

To launch an application point the browser of your mobile device to the standard Aware IM mobile login page http://localhost:8080/AwareIM/logonAdminM.html and then select the following credentials:

Business Space: Library
User Name: john
Password: john

[1] Currently there is one audio sample and one video sample. The audio sample is in the item “Queen Greatest Hits” and the video sample is in the item called “Space video”

This will log you in as a member of the Library system and will allow you to perform operations listed above. You can also point your mobile phone to this URL http://localhost:8080/AwareIM/samplesMobile.html and then select Library from the list.

The following has been done in the Configuration Tool to support this application as part of the standard Library sample application:

1. A new query called “Loan of Logged in member mobile” has been added. This query shows loans of the currently logged in member
2. A new query “Reservation for logged in member mobile” has been added. The query shows reservations of the current member and it has an operation that uses the existing “CancelReservation” process to cancel the reservation.
3. A new form called “View Member Mobile” has been added to the Item object. This form shows the item for the currently logged in member.
4. A new form called “Audio Video Mobile” has been added to show video or audio of the item.
5. A new process “ShowVideoAudio” has been added. The process shows the above form.
6. New query “Item - mobile” has been added. This query uses custom presentation of the Item business object and displays it as thumbnails. Note that the query has several operations that start the above processes and show forms. Note also that the query allows filtering and sorting items by various attributes.
7. New form “Member mobile” has been added to the Member object. This form shows the member details on mobile devices
8. A new process “ViewMemberMobile” has been added. This process shows the above form
9. Finally, to put it all together two visual perspectives have been added. The first one called “Member mobile” is the perspective shown when a member logs in the mobile mode. It is marked as “will be used when a user logs in” and “use for mobile version of the application”. This visual perspective uses tabs where the above processes and queries are called. Because there is not enough space horizontally to fit all tabs on a mobile device the second visual perspective has been configured called “Member mobile2” that is called when the user clicks on the “More” tab in the first perspective.

