

How to Configure the xMII Server and xMII Pages for Mobile Devices

Applies to:

SAP xMII 11.5.x

Summary

The purpose of this document is to provide the necessary steps to configure the xMII server and provide some examples of pages that are supported on mobile devices. Since mobile devices are not robust enough to handle applets there are some techniques that can be implemented to view real-time data on a mobile device.

Author(s): Salvatore Castro

Company: SAP Labs, LLC

Created on: 23 October 2006

Author Bio



Salvatore Castro of SAP Labs has a Bachelors Degree in Computer Engineering and is currently working on completing his Masters Degree in Computer Science both through the Rochester Institute of Technology. He is a member of the Engineering and Field Enablement Services group of xMII under Mo Ghanem.

Table of Contents

Overview	3
xMII Server Configuration	4
Customizing a Login Screen.....	5
Mobile Device Page Development Techniques.....	6
Appendix.....	8
BlackBerry Browser Configuration	8
BlackBerry Device OS Version	8
Mobile Homepage Stylesheet	8
Related Content.....	10
Copyright.....	11

Overview

The need for real-time information about the current state of manufacturing in your company is a very important tool for successfully managing the way in which your business is run. However there can be times where it is difficult to be in front of a computer and pro-actively manage your business at the same time. xMII has the ability to allow people from management to line operators real-time access to targeted manufacturing and enterprise data via mobile network devices (i.e.: BlackBerry and Pocket PCs). There are a couple of steps that need to be taken in order to configure this properly and some page development techniques that can be used to target mobile devices for compatibility and performance. This guide will address web page development and xMII configuration settings as they apply to mobile devices. Located in the Appendix is some targeted information that pertains to specific devices and their configuration.

xMII Server Configuration

The xMII server by default will attempt to sniff out whether or not the HTTP request was issued from a standard or mobile browser and return content based off of this distinction. When the request is issued there are values set in the HTML META Tags and these values describe the requesting device, specifically the "User-Agent" tag will indicate the devices identifier. There are currently multiple free web sites that implement browser sniffing utilities that can be used to identify the value of the "User-Agent" tag that your mobile device is using to identify itself. To identify which value your device is using simply browse to one of these pages (ie: <http://apptools.com/phptools/browser/>) and identify a keyword from the string that separates it from other http capable devices. In the example below a screenshot from a BlackBerry device browsing this page shows the HTTP_USER_AGENT string to be:

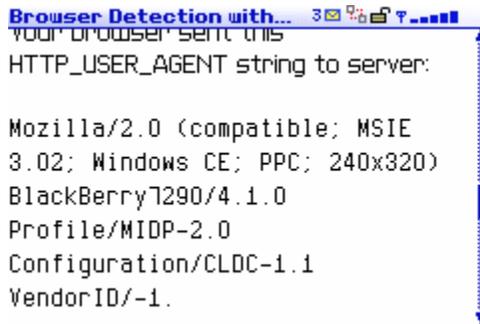
A screenshot of a BlackBerry browser interface. The title bar reads "Browser Detection with...". Below the title bar, the text "YOUR BROWSER SENT THIS" is visible. The main content area displays the text "HTTP_USER_AGENT string to server:" followed by a multi-line string: "Mozilla/2.0 (compatible; MSIE 3.02; Windows CE; PPC; 240x320) BlackBerry7290/4.1.0 Profile/MIDP-2.0 Configuration/CLDC-1.1 VendorID/-1." A blue vertical arrow on the right side of the screenshot points downwards, indicating the location of the user-agent string.

Image 1: Screen shots from a BlackBerry to illustrate how the HTTP_USER_AGENT can be sniffed

From this string the keyword "BlackBerry" can be extracted as the identifier for the requesting device. This value can then be added to the xMII "Client.ini" file (Located in the <DriveLetter>\Lighthammer\Illuminator\Properties directory). A sample entry is the following which will sniff out a BlackBerry device:

```
[Blackberry]
Token=SIMPLEHTML
Mime-Type=text/html
User-Agent=BlackBerry
```

Once the client.ini file is changed then the xMII Servlet Exec process needs to be restarted. The next time that the device sends the HTTP request to the xMII server it will serve up the mobile stylesheet based off of what is defined in the Navigation Editor for the logged in username and role.

Customizing a Login Screen

At this time is it a good idea to identify the currently defined roles which will support mobile use and which pages will be targeted towards mobile devices. This can all be configured in the xMII Navigation Editor and xMII delivers a sample stylesheet with the product called "DynamicSimpleHTMLHomePage.xml" (Located in the <DriveLetter>\Inetpub\wwwroot\Illuminator\Themes directory). For information on how to add certain stylesheets and navigation pages in the Navigation Editor please refer to the xMII help documentation and navigate to: "Portal Services -> Navigation".

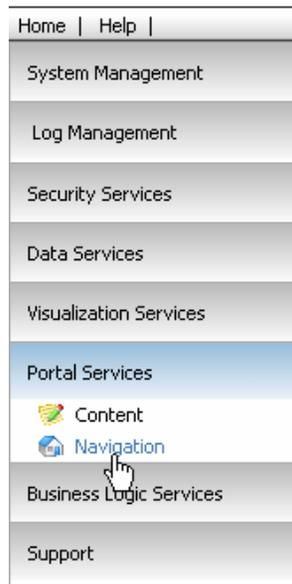


Image 2: Screen shot of the xMII Menu location for the Navigation Editor

Then browse for the desired stylesheet under "Mobile Theme" which will then leverage the role based content navigation of xMII to display to the end-user what they will see. By default the stylesheet is very plain and will simply display the Name of the logged in user and the links that were created for their username/role. With some very simple modifications to this stylesheet additional features can easily be added that will further personalize and enhance the navigation appearance. Some enhancement ideas are to add the company logo to the top of the page or to highlight header nodes (setting a background color) to stand out from sub nodes to create categories to logically group the desired links. Below are some images that illustrate the aforementioned suggestions and the actual stylesheet used in this scenario is located in the appendix of this document:



Image 3: Screen shots from a BlackBerry to Illustrate login screen customization

The operation of the stylesheet will go through each mobile item entry in the Navigation editor that does not have a link associated with it. Any entry without a target defined is then regarded as a title and can therefore be used to logically break up the various links. The rest of the items are then set as hyperlinks to the various targets defined in the navigation editor.

Mobile Device Page Development Techniques

When developing web pages to target mobile devices there are a couple of things that needs to be kept in mind:

1. Mobile devices typically do not support Applets or Frames
2. The network connection is relatively slow, as a result webpage content should be targeted for a specific purpose to eliminate clutter
3. Webpage content should be developed to be viewed Vertically and not Horizontally

The xMII product is very flexible for integration and also in presenting information; while a standard xMII application leverages applets for user interaction they are not required for generating charts and grids. A mobile application can leverage xMII rendered charts using both the Chart and SPCCart servlets which can be called on demand via a URL call. In addition to this SVG objects can be rendered as images the represent calculated or actual values from various data sources and displayed as images on the mobile device.

Since mobile networks are typically not as fast a broadband connections it is important to remember to keep the rendered images small by predefining the scaled image size in the "Animation Renderer" action block. In addition to properly scaling the rendered image the Image type should be set to image/png which will also create a smaller size image than image/jpeg. Other considerations can also be kept in mind such as developing the mobile targeted pages or rolled up values to limit the page content and increase load time while having the same desired impact with live data.

When viewing web pages on a mobile device the ability to scroll vertical is inherent with the device however many devices will restrict to vertical scrolling and wrap whatever does not fit on the horizontal. This can cause pages to become distorted and create usability issues. As shown in the example below the user can enter a measured value for a material and then store this value to the QM module.



QM Record Results		
Inspection Lot:	<input type="text" value="30000004203"/>	
Material Num:	<input type="text" value="R-3007"/>	
Value:	<input type="text" value="4.57"/>	Amp
Comment:	<input type="text" value="Stored by mobile device"/>	
<input type="button" value="Store Value"/>		
Data in Lot 30000004203		
Sample Value	Comment	
1.1	4.57	Stored by mobile device.

Image 4: Example mobile application page

Things to take note of on the design of this page are that the data entry and data display are laid out vertically to maximize the amount of content available to the user on one page. The display at the bottom uses an XSL transform applied to a servlet call. The servlet looks like this:

```
<SERVLET NAME="Illuminator">
<PARAM name="QueryTemplate" value="<xMII Query Template Name>">
<PARAM NAME="Content-Type" VALUE="text/xml">
<PARAM NAME="StyleSheet" value="<Your Stylesheet to handle the XML from the query>">
<PARAM name="Param.1" value="Parameter (can be dynamically specified)">
</SERVLET>
```

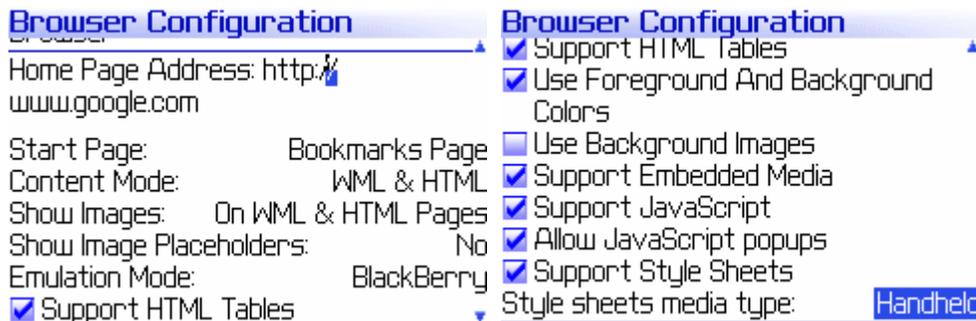
Based off of this servlet and Inspection Lot value can be passed in as the parameter for the query and the return XML can be manipulated into a HTML table by the stylesheet.

In order to store a value to the QM module via xMII without the use of applets it is possible to post the entered values to an irpt page that contains a servlet call which will execute the command query. The POST operation will pass all of the form IDs and Values in the URL and will be automatically replaced on the irpt with the corresponding dynamic values. For example if a form field ID is InspLotNum then on the irpt page any value of {InspLotNum} will be replaced with the Value POSTed in the session.

Appendix

BlackBerry Browser Configuration

The configuration settings for the BlackBerry are simply recommendations and are not required for operation.



BlackBerry Device OS Version

Verify that the Blackberry Device OS is: 4.1.0.309 or newer.

Mobile Homepage Stylesheet

Here's the stylesheet used in the previous BlackBerry Screenshots:

```
<?xml version="1.0" encoding="utf-8"?>
<xsl:stylesheet version="1.0" xmlns:xsl="http://www.w3.org/1999/XSL/Transform"
xmlns:java="http://xml.apache.org/xslt/java" exclude-result-prefixes="java">
  <xsl:output method="html" media-type="text/html" encoding="windows-1252"/>
  <xsl:variable name="LoginName">
    <xsl:value-of select="/Profile/@IllumLoginName"/>
  </xsl:variable>
  <xsl:variable name="FullName">
    <xsl:value-of select="/Profile/@FullName"/>
  </xsl:variable>
  <xsl:template match="/">
    <html>
      <head>
        <META name="mobilecomputingplatform" content="true"/>
        <META http-equiv="Expires" content="0"/>
        <META http-equiv="Cache-Control" content="no-cache"/>
        <META http-equiv="Pragma" content="no-cache"/>
        <title>
          <xsl:text>Mobile Manufacturing</xsl:text>
          <xsl:if test="$FullName != "">
            <xsl:text> - </xsl:text>
            <xsl:value-of select="$FullName"/>
          </xsl:if>
        </title>
      </head>
      <body align="center">
        <IMG >
          <xsl:attribute name="SRC"><xMIIserverPath>/Image.png</xsl:attribute>
        </IMG>
        <h2>
          <xsl:text>Welcome </xsl:text>
          <xsl:value-of select="$FullName"/>
          <xsl:text>,</xsl:text>
        </h2>
      </body>
    </html>
  </xsl:template>
</xsl:stylesheet>
```

```

</h2>
<xsl:if test="count(//MobileItem) > 0">
  <table style="table-layout:fixed" width="100%">
    <xsl:for-each select="//MobileItem">
      <xsl:if test="@target!="">
        <tr>
          <td>
            <a>
              <xsl:attribute name="href"><xsl:value-of select="@target"/></xsl:attribute>
              <xsl:value-of select="@label"/>
            </a>
          </td>
        </tr>
      </xsl:if>
      <xsl:if test="@target="">
        <tr>
          <td bgcolor="#003366" align="center"><xsl:value-of select="@label"/></td>
        </tr>
      </xsl:if>
    </xsl:for-each>
  </table>
</xsl:if>
</body>
</html>
</xsl:template>
</xsl:stylesheet>

```

Related Content

[Reference 1](#): xMII Best Practices Guide

Goto: <http://sdn.sap.com>

Click On: xAPPs

Search For: xMII Best Practices

[Reference 2](#): xMII Online Help Documentation

Goto: <http://help.sap.com>

Click On: SAP xAPPs (At the top of the page)

Click On: SAP xAPP for Manufacturing Integration and Intelligence (At the left of the page)

[Reference 3](#): xMII How to Guides

Goto: <http://sdn.sap.com>

Click On: xAPPs

Search For: xMII How to

Copyright

© Copyright 2006 SAP AG. All rights reserved.

No part of this publication may be reproduced or transmitted in any form or for any purpose without the express permission of SAP AG. The information contained herein may be changed without prior notice.

Some software products marketed by SAP AG and its distributors contain proprietary software components of other software vendors.

Microsoft, Windows, Outlook, and PowerPoint are registered trademarks of Microsoft Corporation.

IBM, DB2, DB2 Universal Database, OS/2, Parallel Sysplex, MVS/ESA, AIX, S/390, AS/400, OS/390, OS/400, iSeries, pSeries, xSeries, zSeries, z/OS, AFP, Intelligent Miner, WebSphere, Netfinity, Tivoli, Informix, i5/OS, POWER, POWER5, OpenPower and PowerPC are trademarks or registered trademarks of IBM Corporation.

Adobe, the Adobe logo, Acrobat, PostScript, and Reader are either trademarks or registered trademarks of Adobe Systems Incorporated in the United States and/or other countries.

Oracle is a registered trademark of Oracle Corporation.

UNIX, X/Open, OSF/1, and Motif are registered trademarks of the Open Group.

Citrix, ICA, Program Neighborhood, MetaFrame, WinFrame, VideoFrame, and MultiWin are trademarks or registered trademarks of Citrix Systems, Inc.

HTML, XML, XHTML and W3C are trademarks or registered trademarks of W3C®, World Wide Web Consortium, Massachusetts Institute of Technology.

Java is a registered trademark of Sun Microsystems, Inc.

JavaScript is a registered trademark of Sun Microsystems, Inc., used under license for technology invented and implemented by Netscape.

MaxDB is a trademark of MySQL AB, Sweden.

SAP, R/3, mySAP, mySAP.com, xApps, xApp, SAP NetWeaver, and other SAP products and services mentioned herein as well as their respective logos are trademarks or registered trademarks of SAP AG in Germany and in several other countries all over the world. All other product and service names mentioned are the trademarks of their respective companies. Data contained in this document serves informational purposes only. National product specifications may vary.

These materials are subject to change without notice. These materials are provided by SAP AG and its affiliated companies ("SAP Group") for informational purposes only, without representation or warranty of any kind, and SAP Group shall not be liable for errors or omissions with respect to the materials. The only warranties for SAP Group products and services are those that are set forth in the express warranty statements accompanying such products and services, if any. Nothing herein should be construed as constituting an additional warranty.

These materials are provided "as is" without a warranty of any kind, either express or implied, including but not limited to, the implied warranties of merchantability, fitness for a particular purpose, or non-infringement.

SAP shall not be liable for damages of any kind including without limitation direct, special, indirect, or consequential damages that may result from the use of these materials.

SAP does not warrant the accuracy or completeness of the information, text, graphics, links or other items contained within these materials. SAP has no control over the information that you may access through the use of hot links contained in these materials and does not endorse your use of third party web pages nor provide any warranty whatsoever relating to third party web pages.

Any software coding and/or code lines/strings ("Code") included in this documentation are only examples and are not intended to be used in a productive system environment. The Code is only intended better explain and visualize the syntax and phrasing rules of certain coding. SAP does not warrant the correctness and completeness of the Code given herein, and SAP shall not be liable for errors or damages caused by the usage of the Code, except if such damages were caused by SAP intentionally or grossly negligent.