

# xMatters *(alarmpoint)* for HP

## Network Node Manager i

This manual provides information about xMatters. Every effort has been made to make it as complete and accurate as possible; however, the information it contains is subject to change without notice and does not represent a commitment on the part of xMatters. No part of this document may be reproduced by any means without the prior written consent of xMatters.

AlarmPoint Systems, Inc. is now xMatters, inc. This change extends to how we name our products: the AlarmPoint Integration Agent is now the xMatters integration agent; AlarmPoint Enterprise is now xMatters enterprise; and so on. You can learn more about why we changed our name at [www.xmatters.com](http://www.xmatters.com). During the ongoing transition to the new naming conventions, legacy corporate and product names will still appear in some parts of our products, such as directory paths, logs, and messages. This document reflects the new names whenever possible, while respecting the need for clarity when referring to older products, legacy issues, existing knowledge base articles, etc.

**Monday, September 12, 2011**

**Copyright © 1994-2011. All rights reserved.**

xMatters™, xMatters®, xMatters® Java Client, xMatters mobile access, xMatters integration agent, xMatters lite, xMatters workgroup, xMatters enterprise, xMatters service provider, xMatters on demand, and xMatters® Notification Server are trademarks of xMatters, inc.

All other products and brand names are trademarks of their respective companies.

### **Contacting xMatters**

You can visit the xMatters Web site at: <http://www.xmatters.com>

From this site, you can obtain information about the company, products, support, and other helpful tips. You can also visit the Customer Support Site from the main web page. In this protected area, you will find current product releases, patches, release notes, a product knowledge base, trouble ticket submission areas and other tools provided by xMatters, inc.

xMatters, inc.  
Corporate Headquarters  
4457 Willow Road, Suite 220  
Pleasanton, CA 94588

### **Sales and Technical Support:**

**Telephone:** 925-226-0300

**Facsimile:** 925-226-0310

[support@xmatters.com](mailto:support@xmatters.com)

[sales@xmatters.com](mailto:sales@xmatters.com)

**Customer Support Site:** <http://community.xmatters.com>

This integration was designed and tested on an unmodified version of HP Network Node Manager i, and this document describes how to configure xMatters to integrate with the default installation. If you have customized or altered your instance of HP NNMi, this integration may need to be modified for your deployment. Please note that these integration changes are not part of the services offered by xMatters Technical Support, but can be performed through xMatters's Professional Services department. For more information, contact your xMatters Sales representative.

**Proprietary and Confidential © 2011 xMatters, inc**

---

# Table of Contents

<b>Chapter 1: Introduction.....</b>	<b>1</b>
<b>1.0 Summary.....</b>	<b>1</b>
1.0.1 Benefits.....	1
1.0.2 xMatters mobile access.....	2
1.0.3 Information Workflow.....	2
1.1.1 Integration Architecture.....	2
<b>1.2 System Requirements.....</b>	<b>4</b>
1.2.1 Operating Systems.....	4
<b>1.3 Conventions and Terminology.....</b>	<b>4</b>
1.3.1 Conventions.....	4
1.3.2 Terminology.....	5
<b>Chapter 2: Installation and Configuration.....</b>	<b>6</b>
<b>2.1 Installing the integration.....</b>	<b>6</b>
2.1.1 Integration components.....	6
2.1.2 Installing the integration service.....	6
2.1.3 Installing the integration libraries.....	7
2.1.4 Installing the mobile access component files.....	8
2.1.5 Installing the subscription files.....	8
2.1.6 Installing voice files.....	8
<b>2.2 Configuring xMatters.....</b>	<b>8</b>
2.2.1 Importing the script package.....	9
2.2.2 Configuring the Event Domain.....	10
2.2.3 Defining Custom Fields.....	16
2.2.4 Configuring Users.....	17
2.2.5 Updating event recipients.....	17
2.2.6 Updating the event injection filter.....	18
2.2.7 Configuring the web services connection.....	21
2.2.8 Initializing the web services library.....	22
<b>2.3 Configuring the Subscription Panel.....</b>	<b>22</b>
2.3.1 Configuring the Subscription JSP.....	26
<b>2.4 Configuring HP NNMi.....</b>	<b>30</b>
2.4.1 Creating a web services client.....	30
2.4.2 Identifying your HP NNMi port.....	31
<b>Chapter 3: Integration Validation.....</b>	<b>32</b>

<b>3.1 Enabling WS-Eventing Subscription Manager Logging.....</b>	<b>32</b>
3.1.1 Verifying the connection.....	32
<b>3.2 Triggering a notification.....</b>	<b>33</b>
3.2.1 Increase the Polling Frequency.....	33
3.2.2 Disconnect a Computer from the LAN.....	33
<b>3.3 Responding to a notification.....</b>	<b>34</b>
<b>3.4 Viewing response results.....</b>	<b>36</b>
<b>3.5 Testing the Subscription Panel.....</b>	<b>37</b>
<b>3.6 Querying for an event.....</b>	<b>37</b>
<b>Chapter 4: Optimizing and Extending the Integration.....</b>	<b>41</b>
<b>4.1 Adding new parameters.....</b>	<b>41</b>
4.1.1 Adding new parameters to notification content.....	41
<b>4.2 Response choices.....</b>	<b>42</b>
4.2.1 Adding annotation messages.....	42
4.2.2 Changing and adding response choices.....	42
4.3.1 Responses for FYI notifications.....	43
<b>4.4 Annotations.....</b>	<b>43</b>
<b>4.5 Altering the duration of events.....</b>	<b>44</b>
<b>4.6 FYI Notifications.....</b>	<b>44</b>
4.6.1 Generating FYI notifications for Subscriptions.....	44
<b>4.7 Optimizing the mobile access component.....</b>	<b>44</b>
4.7.1 Add a Custom Query to the Home Page.....	44
4.7.2 Creating a URL Alias.....	44
<b>4.8 Constructing BES and email notifications.....</b>	<b>45</b>
<b>4.9 Troubleshooting.....</b>	<b>46</b>
4.9.1 Voice files.....	46
4.9.2 Known Issues.....	46
<b>4.10 Uninstalling.....</b>	<b>46</b>
<b>Chapter 5: Configuration Variable Reference.....</b>	<b>47</b>
<b>5.1 Global configuration variables.....</b>	<b>47</b>
<b>5.2 Local Configuration Variable.....</b>	<b>47</b>
5.2.1 FYI and Subscription Notification Variables.....	47
<b>5.3 xMatters mobile access configuration variables.....</b>	<b>48</b>

---

# Chapter 1: Introduction

Welcome to xMatters (alarmpoint) for HP Network Node Manager i. This document describes how to install and configure the xMatters (alarmpoint) for HP Network Node Manager i software integration. The intended audience for this document is experienced consultants, system administrators and other technical readers.

## 1.0 Summary

xMatters is an interactive alerting application, designed to capture and enrich important events, to route those events to the right person on any communication device, and to give that person the ability to solve, escalate, or enlist others to resolve the events remotely.

xMatters allows you to take critical business information and contact the right people via voice phone, SMS, two-way pagers, instant message, and email.

Through integration modules, xMatters can become the voice and interface of an automation engine or intelligent application (the Management System, such as HP Network Node Manager i). When HP NNMi detects something that requires attention, xMatters places phone calls, sends pages, messages, or emails to the appropriate personnel, vendors or customers.

xMatters is also persistent, escalating through multiple devices and personnel until someone accepts responsibility or resolves the problem. Once contacted, xMatters gives the notified person instant two-way communication with HP Network Node Manager i. Responses are executed immediately on HP NNMi, enabling remote resolution of the event.

This integration supports incident notifications (from HP NNMi to xMatters) through the use of web service calls via the xMatters integration agent. It also supports inbound actions (from xMatters to HP NNMi) to acknowledge, ignore, annotate and change incident priority remotely.

You will need to modify this configuration to suit your particular business requirements and adjust it to suit your expected loads. For example, the default integration features automatic status annotations to the original event; in a high-volume production system, this can significantly affect performance. Consider your expected volume of injected events and your server capacity when designing your own integration with xMatters.

### 1.0.1 Benefits

With the xMatters integration, the appropriate technician can be notified directly via voice, email, pager, BlackBerry, or other device. Information about the failure will be presented to the event resolver and decisions can be made in real-time.

Once a response is selected on the recipient's remote device, xMatters will update the HP NNMi incident in real-time. The benefit is that this process is immediate – significantly faster than the time required for staff to notice the failures or malfunctions, determine who is on call, and manually notify the right person. In addition, the ability to take simple actions on the incident from any device gives the event resolver a quick way to deal with many issues and communicate to other team members the current state of the event.

During the process, every notification, response, and action is logged in xMatters. In addition, xMatters automatically annotates the original incident with status information.

The xMatters product features a self-service web user interface to allow accurate assignment of responsible personnel for each job. xMatters also includes an optional enhanced Subscription panel that allows both managed and self-subscription to HP NNMi events. This Subscription panel queries the HP NNMi Server directly in real time to retrieve lists of important settings and criteria, removing the need to create and maintain these lists.

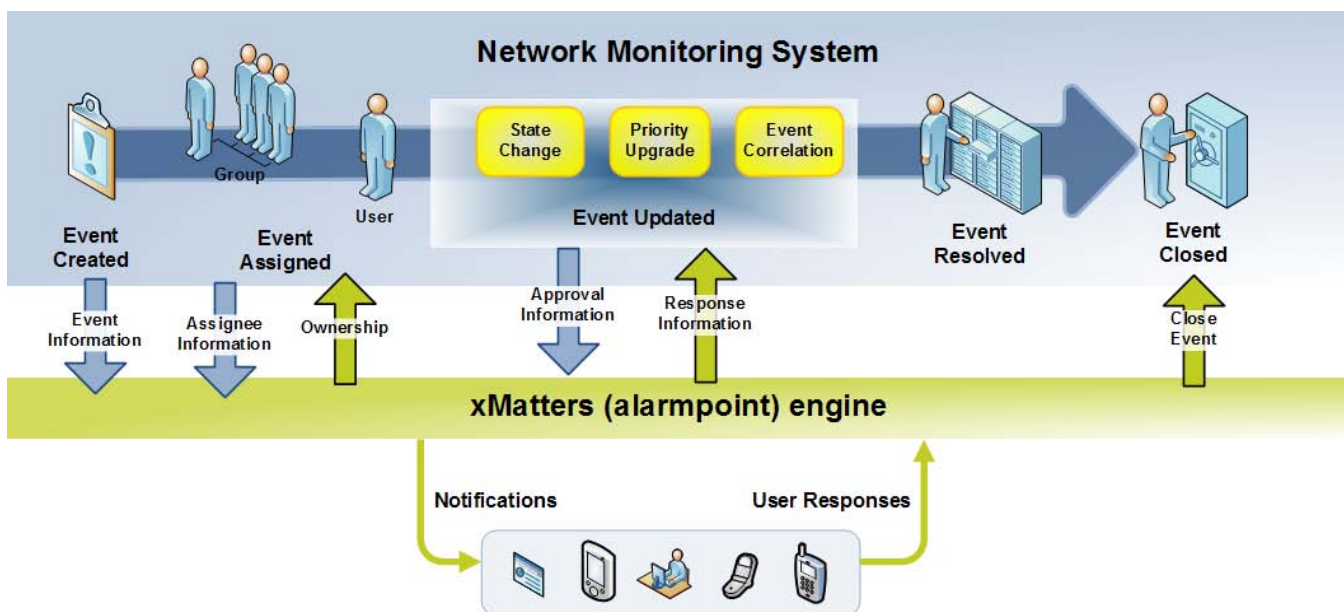
## 1.0.2 xMatters mobile access

This version of xMatters also includes the xMatters mobile access application. With the mobile access component, the appropriate technician can create, view, and update HP NNMi messages directly via a mobile device's web browser. Information about HP NNMi events can be displayed on the mobile device and updated in real-time.

The benefit is that this process is immediate and may be done remotely – providing users with an efficient method of handling HP NNMi events from any mobile device. In addition, the HP NNMi integration can be updated to notify xMatters Users on their mobile device with a link to the mobile view of the incident, allowing the user to update the incident remotely.

## 1.0.3 Information Workflow

The following diagram provides an example of a standard workflow in a network monitoring system, and how information from the management system can be passed into xMatters (alarmpoint) engine:

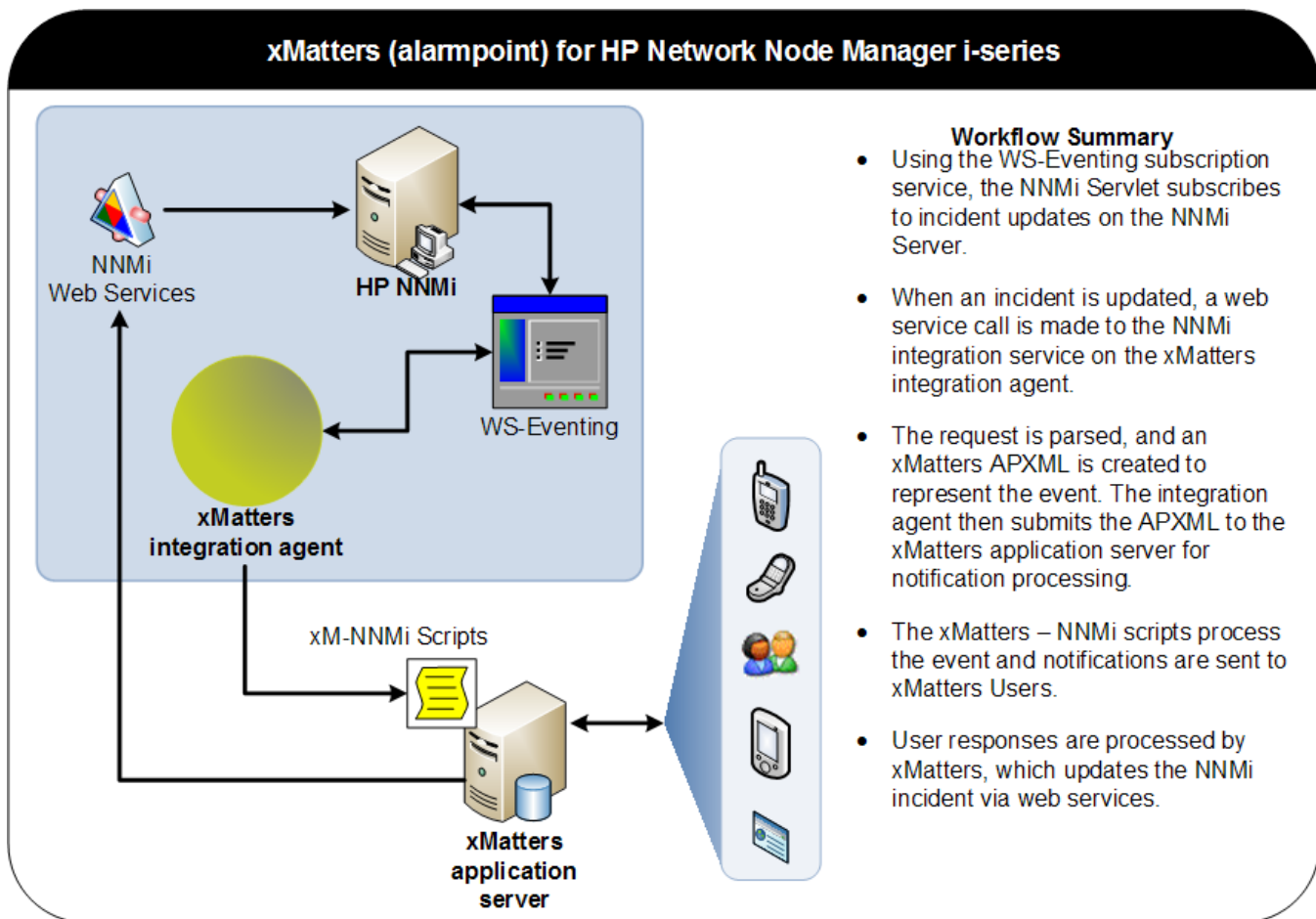


## 1.1.1 Integration Architecture

The software components in this integration include:

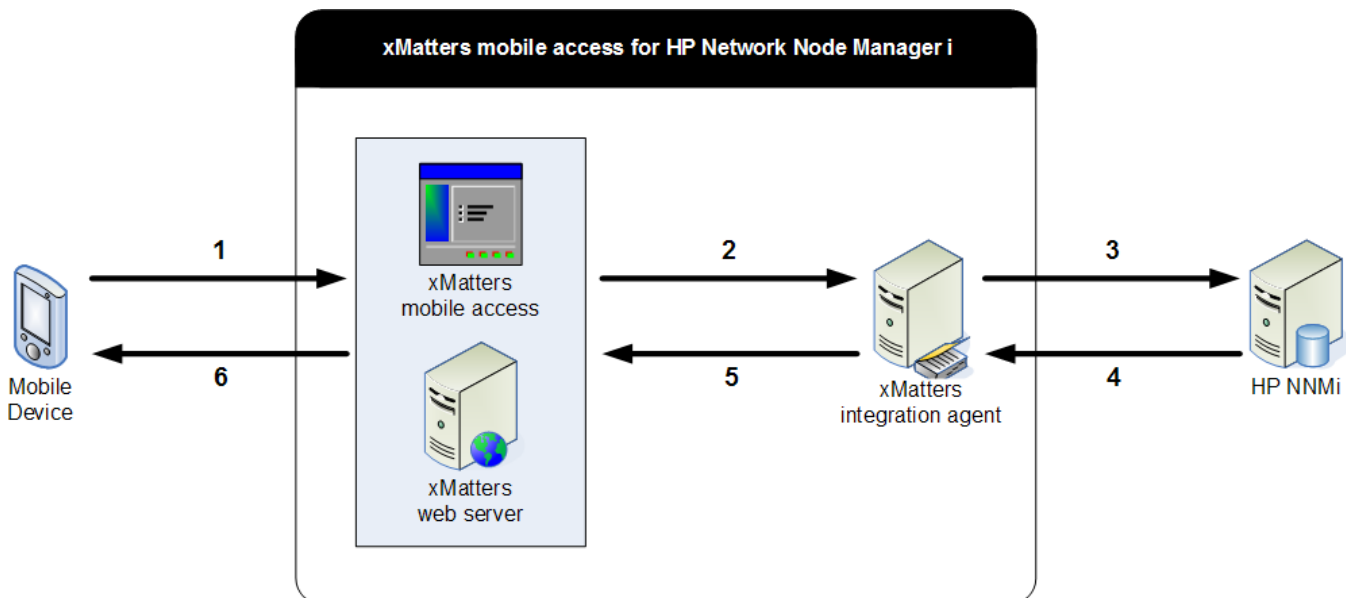
- xMatters (alarmpoint) engine and the mobile access component
- HP Network Node Manager i
- xMatters integration agent

The following diagram illustrates the software processes used by this integration:



### xMatters mobile access integration architecture

The following diagram illustrates the software processes used by the mobile access component of the integration:



The following steps occur for each action initiated by a mobile user (the steps correspond to the numbers in the above diagram):

1. A User sends a request from a mobile Device to xMatters mobile access.
2. The mobile access component processes the request and relays instructions to the xMatters integration agent.
3. The integration agent communicates with HP NNMi via the HP NNMi web services API.
4. The response is sent back to the integration agent via web services.
5. The integration agent processes the response and sends it to the mobile access component.
6. Rendered results are sent back to the mobile Device.

## 1.2 System Requirements

The following products must be installed and operating correctly prior to integration:

- xMatters (alarmpoint) engine 4.1 (patch 003 or later) with a valid xMatters mobile access license.
- xMatters integration agent 4.1 (patch 001 or later)
- xMatters Developer IDE
- HP Network Node Manager i 9.10

### 1.2.1 Operating Systems

The following operating systems are supported by this integration:

- Microsoft Windows 2003 (validated)
- Microsoft Windows 2008 (validated)
- Sun Solaris 9
- HP-UX B.11.23
- AIX 5.3
- Linux Redhat AS/ES 5.2

## 1.3 Conventions and Terminology

This section describes how styles are used in the document, and provides a list of definitions.

### 1.3.1 Conventions

Some instructions appear in the following format: **MENU > OPTION**; for example, **File > Open** means click the **File** menu, and then click the **Open** menu option.

Words in **bold** typically reference text that appears on the screen. Words in `monospace` font represent the following:

- text that must be typed into the computer
- directory and file names
- code samples

### Directory paths

Except where explicitly stated, the directory paths in this document are listed in Windows format. Unix users must substitute the given paths with the Unix equivalents.

The xMatters installation folder is referred to throughout the documentation as `<xMHOME>`.

- On Windows systems, the default is `C:\Program Files\AlarmPointSystems\AlarmPoint\`
- On Unix systems, the default is `/opt/alarmpointsystems/alarmpoint/`



The xMatters integration agent installation folder is referred to throughout the documentation as <IAHOME>.

- On Windows systems, the default is C:\Program Files\AlarmPointSystems\IntegrationAgent\
- On Unix systems, the default is /opt/alarmpointsystems/integrationagent

### 1.3.2 Terminology

The following terms are used through the xMatters documentation.

Documentation terminology

Term	Meaning
<b>Event</b>	<p>An <i>event</i> refers to any situation or item of interest detected by the management system, and which requires attention. Event is also used to refer to the incident or situation as it progresses through the xMatters system, from injection to notification to resolution. Each event must generate at least one alert or notification.</p> <p>Event can also be a generic term used to refer to an incident, change request, message, or other specific item within the management system. Whenever possible, these situations are referred to using the management system's preferred terminology, but can also collectively be called events.</p>
<b>Management system</b>	A management system is any sort of monitoring or managing software that watches for events, and with which xMatters can combine; i.e., a synonym for HP NNMi.
<b>Device</b>	The medium through which a recipient is contacted by xMatters; i.e., email, pager, phone, BlackBerry, etc.
<b>User</b>	In xMatters, people who can receive notifications are called "Users". Each person in the xMatters system is defined by a set of User details, including ID number, user name, login password, and so on.
<b>Group</b>	Groups are used to collect and organize Users and Devices into notification schedules. For a complete explanation of Groups in xMatters, see the <i>xMatters (alarmpoint) engine user guide</i> .

## Chapter 2: Installation and Configuration

This chapter provides information about installing the xMatters (alarmpoint) for HP Network Node Manager i integration. This chapter also contains complete instructions on how to configure xMatters, HP NNMi, and the integration components.

### 2.1 Installing the integration

The instructions in this chapter do not include information on how to install xMatters (alarmpoint) engine, the xMatters integration agent, or HP Network Node Manager i. These components must be installed according to their related documentation, and operating properly before you can proceed with the integration.

---

**Note:** For more information about installing xMatters (alarmpoint) engine and other xMatters products, refer to the xMatters web site at <http://www.xmatters.com>.

---

#### 2.1.1 Integration components

The following table describes some of the notable components in the integration archive file:

Integration components	
Component Name	Description
hpnmmi.js	Script containing logic on who to notify in xMatters, and the content of the notifications.
nnmi-config.js	Contains configuration settings for the WS Eventing subscription service.
alarmpoint-nnmi.jar	Contains the Web Services Library, which is used in the Action Scripts to inject responses back to HP NNMi, and used by the Subscription Panel to retrieve the available Source Node Names
NNMiSubscriptionForm.jsp	Custom Subscription JSP that allows users to subscribe to Events associated with specific criteria (CATEGORY, SEVERITY, etc.).
xM-HP-NNMi.aps	Contains the xMatters Action Scripts required for the integration.

#### 2.1.2 Installing the integration service

To enable the HP NNMi integration service, you must copy the folder containing the integration agentfiles into the xMatters integration services folder and modify the hpnmmi.js and IAConfig.xml files. If you have more than one integration agent providing the "hpnmmi" service, repeat the following steps for each one.

##### To install the integration service:

1. Copy the xM-HP-NNMi\components\alarmpoint-integration-agent\hpnmmi folder from the extracted integration archive to the <IAHOME>\integrationservices folder:
2. Open the IAConfig.xml file found in <IAHOME>\conf and add the following line to the "service-configs" section:  

```
<path>hpnmmi/hpnmmi.xml</path>
```
3. Open the <IAHOME>\integrationservices\hpnmmi\nnmi-config.js file and modify the following variables:

Setting	Default Value	Description
<b>NNMI_HOST</b>	localhost	To configure this setting, replace "localhost" with the IP address of your local server on which the WS-Eventing subscription service is installed.
<b>NNMI_PORT</b>	80	To configure this setting, replace "80" with the port number of your local server on which the WS-Eventing subscription service is installed. (For instructions on how to determine the port required, see "Identifying your HP NNMi port" on page 31.)
<b>NNMI_USER</b>	webservices	Specifies the username of the web services client account to use when connecting to the HP NNMi web services.  For more information, see "Creating a web services client" on page 30.
<b>NNMI_PASSWORD</b>	nnm	Specifies the password for the web services account.
<b>FILTER</b>	nature='ROOTCAUSE' and lifecycleState='com.hp.nms.incident.lifecycle.Registered' and severity='CRITICAL' and ( name='AddressNotResponding' or name='ConnectionDown' or name='InterfaceDown' or name='NodeDown' )	Specifies the filter to use when determining whether an event should be forwarded to xMatters.  For instructions on how to update this setting, refer to "Updating the event injection filter" on page 18.
<b>SERVICE_URL</b>	http://localhost:8081/http/hpnnmi_hpnnmi	Specifies the call back to the integration agent when subscribing to the WS-Eventing service.  Requires the following format: http://{service-gateway-host}:{service-gateway-port}/http/{domain}_{name}

4. Restart the integration agent.

- On Windows, the integration agent runs as a Windows Service; on Unix, it runs as a Unix daemon.

### 2.1.3 Installing the integration libraries

To enable web service calls between the xMatters and HP NNMi servers, you must copy the JAR file into the xMatters Node, and the xMatters web server library folder.

**To install the integration libraries:**

1. Copy the `xM-HP-NNMi\components\alarmpoint\WEB-INF\lib\alarmpoint-nnmi.jar` file from the extracted integration archive into the `<xMHOME>\node\lib\node-lib\` folder.

---

**Note:** *If you have installed more than one web server; install the JAR files into the web server library (node-lib) folder on each one.*

---

## 2.1.4 Installing the mobile access component files

To enable the mobile access component, you must copy the folder containing the JSP files into the xMatters mobile access folder. If you have more than one web server, copy the JSP files into the indicated folder on each web server.

### To install the mobile access component files:

1. Copy the `xM-HP-NNMi\components\alarmpoint\mobilegateway\` folder from the extracted integration archive to the `<xMHOME>\webserver\webapps\mobilegateway` folder on the xMatters server.
  - Note that this change will overwrite several files and directories on the xMatters server; if you have made any changes to these files, ensure that you create backups before overwriting your existing files.

## 2.1.5 Installing the subscription files

To use the optional subscription panel, you must copy the folder containing the JSP files, tag libraries, and new JAR files into the xMatters installation folder. If you have more than one web server, repeat the following steps for each one.

### To install the JSP files:

1. Copy the `xM-HP-NNMi\components\alarmpoint\WEB-INF\` folder from the extracted integration archive into the `<xMHOME>\webserver\webapps\cocoon\.` folder on the xMatters web server.
  - Note that this change will overwrite several files and directories on the xMatters server; if you have made any changes to these files, ensure that you create backups before overwriting your existing files.
2. Open the `<xMHOME>\webserver\webapps\cocoon\WEB-INF\web.xml` file, and add the following lines before the `</web-app>` tag

```
<taglib>
  <taglib-uri>http://alarmpoint.com/alarmpoint/4.0#integrationservices</taglib-uri>
  <taglib-location>/WEB-INF/classes/resources/tld/apia.tld</taglib-location>
</taglib>
```

3. Restart the web server.

## 2.1.6 Installing voice files

These files must be installed into any xMatters deployment running a voice Device Engine. For more information, refer to the *xMatters (alarmpoint) engine installation and administration guide*.

### To install the voice files:

1. Copy all of the files in the `xM-HP-NNMi\components\alarmpoint\vox\english` folder from the extracted integration archive to the following node installs folder:

```
<xMHOME>\node\phone-engine\Datastore\domains\common\recordings\english\phrases
```

---

**Note:** *This integration provides a complete set of English voice files.*

---

## 2.2 Configuring xMatters

The following sections explain how to configure the xMatters components and settings to combine with HP NNMi.

## 2.2.1 Importing the script package

This integration includes a set of customized Action Scripts specific to HP NNMi that must be imported into the xMatters scripts. The default callout scripts in a standard xMatters deployment are not configured to use web services to annotate the originating incident, and must be updated to inject messages back to the HP NNMi integration action scripts.

---

**Note:** *This step requires the xMatters Developer IDE. For installation instructions and more information about scripting in xMatters, refer to the xMatters Online Developer's Guide.*

---

### To import the xMatters Script Package:

1. Launch the xMatters Developer IDE, and then configure the database connection.
2. Click **Workspace > Import**.
3. Select the `xM-HP-NNMi\components\alarmpoint\scripts\xM-HP-NNMi.aps` file extracted from the integration zip file, and then click **OK**.
4. When the script has finished importing, click **OK**.
5. Click **Database > Check Out**.
6. In the Check Out dialog box, click **Check Out**.
7. In the Workspace pane, expand the **Default Company > callout (CALLOUT) > PRODUCTION > CONTACT** folders, and then double-click the **callout** script.
8. At the top of the callout script, insert the following line:

```
import com.invoqsystems.apex.component.broker.process.scriptObjects.ScriptObjectLinkedHashMap
```

9. In the callout script, locate the following line:
10. Immediately after the `getInitiatingEvent` line, add the following:

```
GOSUB configureAdditionalESMTokens
```

11. Scroll to the bottom of the window, and add the following code to the end of the script:

```
# Add any additional tokens required for the callout annotate here
configureAdditionalESMTokens:
    @esmTokens = new ScriptObjectLinkedHashMap()
    @script::log("Agent Client ID: " & $initiatingEvent.agent_client_id)
    IF ($initiatingEvent.agent_client_id == "hpnmmi|hpnmmi")
        @esmTokens::put( "nnmid", $initiatingEvent.nnmid )
    ENDIF
RETURN
```

12. Locate each `::send()` call in the callout script (there should be eight instances), and add the following code immediately BEFORE each one:

```
$<varName>.additionalTokens = @esmTokens::getSerializedEntrySet()
```

---

**Note:** *Replace <var\_name> with the name of the ExternalServiceRequest object included in the send call. For an example, see below.*

---

13. Right-click the **CONTACT:callout** script and select **Save**.
14. Open the **INTERACTION:authenticate** script, and repeat step 12.
  - Note that there are two instances of the `::send()` call in the authenticate script.
15. Right-click the **INTERACTION:authenticate** script and select **Save**.
16. Click **File > Save All**.
17. Right-click the Default Company folder, and then select **Validate**.

18. Right-click the Default Company folder, and then select **Check In**.
19. In the Create Script Package dialog box, click **Create**., and then click **Close**.

### Example:

The following is an example of an enhanced segment of code:

#### Before:

```
if ($sessionTimeout)
    $reportedFailure = @session::reportFailure($notId, "SESSION_TIMEOUT")
    @sessionTimeoutMessage = @initiatingEvent::createExternalServiceMessage()
    $sessionTimeoutMessage.message = "Callout to " & $targetName & " ended due to exceeding the max
session timeout (SESSION_TIMEOUT)."
    @sessionTimeoutMessage::send()
endif
```

#### After:

```
if ($sessionTimeout)
    $reportedFailure = @session::reportFailure($notId, "SESSION_TIMEOUT")
    @sessionTimeoutMessage = @initiatingEvent::createExternalServiceMessage()
    $sessionTimeoutMessage.message = "Callout to " & $targetName & " ended due to exceeding the max
session timeout (SESSION_TIMEOUT)."
    $sessionTimeoutMessage.additionalTokens = @esmTokens::getSerializedEntrySet()
    @sessionTimeoutMessage::send()
endif
```

## 2.2.2 Configuring the Event Domain

By default this integration is set up to use an Event Domain of “hpnmmi”; it is strongly recommended that you use this default Event Domain.

The xMatters (alarmpoint) engine web server must be running to perform this portion of the integration.

#### To define an Event Domain:

1. Sign on to xMatters as a Company Administrator, and click the **Developer** tab.
2. In the Developer menu on the left side of the screen, click **Event Domains**.
3. On the Event Domains page, click **Add New**.
4. Enter the following information into the form:
  - **Name:** hpnmmi
  - **Description:** HP NNMi Integration
  - **Script Package:** HP Network Node Manager
5. Click **Save**.

## Defining an Integration Service

The mobile access component for this integration uses a default integration service of “hpnmmi”; it is strongly recommended that you use this default integration service. For the installation to be successful, the integration service name must match the name specified in the hpnmmi.js file and the IAConfig.xml file installed on the integration agent.

#### To define an Integration Service:

1. In xMatters, on the Event Domains page, click the **hpnmmi** Event Domain.
2. On the Event Domain Details page, in the Integration Services area, click **Add New**.

3. Enter the following information into the form:
  - **Name:** hpnnmi
  - **Description:** HP NNMi Integration Service
  - **Path:** hpnnmi/menu.jsp
4. Click **Save**.

## Defining Event Domain Constants

Company Administrators and Developers can create Event Domain Constants that will be available in scripting for all event objects associated with an Event Domain. This integration uses Event Domain Constants to define custom values for the integration script package.

The integration script package uses the names of the constants defined in the table below to look up the values; it is strongly recommended that you use the names specified, or speak to an xMatters client assistance representative before changing these values.

---

**Note:** *The values for the alarmpointurl and bespushurl constants should be modified to specify the address of the xMatters web server (to enable the HTML response options) and the BES device server.*

---

### To add an Event Domain Constant:

1. In xMatters, click the **Developer** tab, and then, in the menu on the left side of the screen, click **Event Domain Constants**.
2. In the **Event Domain** drop-down list, select **hpnnmi**.
3. On the Event Domain Constants page, click **Add New**.
4. Define a **Constant Name**, **Value**, and **Description** for the new constant, according to the table below.
5. Click **Save**.
6. Repeat the above steps for each of the constants you want to add.
  - Note that if the constants are not defined in the web user interface, the scripts will use the values listed in the Default Values column of the following table.

---

**Note:** *Shaded rows indicate **mandatory** settings that are specific to your deployment. You must change the default settings to match your instance.*

---

## Event Domain Constants

Constant Name	Default Value	Description
<b>xmattersurl</b>	http://localhost:8888	<p>Used to specify the address of the xMatters web server. The links provided in notification content use the alarmpointurl constant value to locate the xMatters web server which would process the response. For these links to work, this address must be reachable from the Device where the User will receive the notification; normally, this is the IP address or fully-qualified host name of the xMatters web server.</p> <p>Populates the <code>\$main.alarmpoint_url</code> variable.</p>
<b>bespushurl</b>	http://localhost:8888/static	<p>Used to specify the address of the BES device server. Populates the <code>\$main.bes_pushurl</code> parameter.</p>
<b>forcefyi</b>	disable	<p>Force notifications to be informational only (FYI), rather than requiring responses; this overrides the fyi behaviour specified on the injected event. Possible values:</p> <ul style="list-style-type: none"> <li>• <b>disable</b>: Nothing is forced.</li> <li>• <b>on</b>: Notifications are forced to be FYI.</li> <li>• <b>off</b>: Notifications are forced not to be FYI.</li> </ul> <p>Populates the <code>force_fyi</code> parameter.</p>



Constant Name	Default Value	Description
<b>failsafegroup</b>	HP NNMi Fail Safe	<p>The fail-safe recipient to notify, typically a group.</p> <p>The fail-safe group identifies the recipient that will be notified if an event is injected to xMatters (alarmpoint) engine and no subscriptions exist that match the event. Set this constant if you want to change the failsafe group from HP NNMi Fail Safe to another group defined in xMatters.</p>
<b>failsafe</b>	enabled	<p>Controls fail-safe functionality, notifying the fail-safe recipient via EMAIL under certain circumstances; possible values are:</p> <ul style="list-style-type: none"> <li>• <b>enabled:</b> Notify if no subscriptions match or no notifiable recipients.</li> <li>• <b>for-subscriptions:</b> Notify if subscription functionality is enabled AND no subscriptions match.</li> <li>• <b>for-recipients:</b> Notify if no notifiable recipients.</li> <li>• <b>disabled:</b> Disable fail-safe functionality.</li> </ul> <p>Populates the <code>\$fail_safe</code> parameter.</p>
<b>override_timeframes</b>	false	<p>Override Recipients Device Timeframes.</p> <p>Populates the <code>\$override_timeframes</code> parameter.</p>
<b>use_emergency_devices</b>	false	<p>Force the use of emergency Devices.</p> <p>Populates the <code>\$use_emergency_devices</code> parameter.</p>

Constant Name	Default Value	Description
<b>trackdelivery</b>	true	<p>Track when each device is delivered to. Setting this to false may give a performance advantage, but you lose any information about whether a delivery was successful or not.</p> <p>Populates the <code>\$track_delivery</code> parameter.</p>
<b>annotate</b>	true	<p>Enables submission of annotations back to the management system.</p> <p>Populates the <code>\$main.annotate</code> parameter.</p>
<b>subscriptionannotate</b>	true	<p>Enables submission of Subscription annotations back to the management system.</p> <p>Populates the <code>\$main.subscription_annotate</code> parameter.</p>
<b>tracksubscriptiondelivery</b>	true	<p>Track when each device is delivered to for Subscriptions.</p> <p>Populates the <code>\$track_subscriptionDelivery</code> parameter.</p>
<b>timeout</b>	259200	<p>Amount of time (in seconds) the event is allowed to run before timing out. 259200 seconds = 72 hours.</p> <p>Populates the <code>\$main.timeout</code> parameter.</p>
<b>maxinvalidresponses</b>	3	<p>Specifies the maximum number of invalid responses allowed before notification is no longer requeued.</p> <p>Populates the <code>\$main.maxInvalidResponses</code> parameter.</p>

Constant Name	Default Value	Description
<b>enablehtmlmail</b>	true	Enables HTML email functionality.  Populates the <code>\$main.enable_HTML_Email</code> parameter.
<b>uselogo</b>	true	Set this if you want the logo displayed within HTML email notifications.  Populates the <code>\$main.use_logo</code> parameter.
<b>useurlalias</b>	false	Indicates how Response Choices are presented to xMatters to ensure that the user is authenticated in the correct company so the notification can be updated.; set to <i>true</i> for xMatters on demand integrations.
<b>debug</b>	false	Indicates whether to use the debug level for logging messages.  Populates the <code>\$main.debug</code> variable.
<b>enablesubscriptions</b>	true	Indicates whether to enable processing of Subscriptions on incoming events.
<b>subscriptionfyi</b>	false	Indicates whether Subscriptions should be forced to be informational only (FYI).
<b>numericpagenumber</b>	555-1212	The callback number to be used as the subject for outgoing notifications to numeric pagers.
<b>NNMiowner</b>	xMatters	Specifies the default Windows Domain User to be used for ownership of HP NNMi alerts
<b>NNMiownercustomfield</b>	HP NNMi Login	Specifies the name of the custom field that will contain the HP NNMi owner; overrides NNMi owner field.

Constant Name	Default Value	Description
<b>NNMipasswordcustomfield</b>	HP NNMi Password	Specifies the name of the Custom Field that will contain the HP NNMi user password.
<b>NNMiwebserviceusername</b>	webservices	Specifies the user name to use for the HP NNMi web services client user.
<b>NNMiwebservicepassword</b>	nnm	Specifies the password to use for the HP NNMi web service.
<b>NNMiincidenturl</b>	http://localhost:80/IncidentBeanService/IncidentBean	Specifies the url for the HP NNMi web service.
<b>usemobileaccess</b>	true	Indicates whether to use the mobile access component.
<b>mobileaccessintegrationservicename</b>	hpnmmi	Integration service name available in xMatters mobile access.

### 2.2.3 Defining Custom Fields

This integration uses custom fields defined in xMatters to obtain authentication credentials for submitting notification responses and annotations to HP NNMi. These custom fields enable the response option list to be displayed on notifications.

The mobile access component uses custom fields defined in xMatters to obtain authentication credential for logging into HP NNMi. These custom fields are optional for the mobile access component as a login page will be displayed if the custom fields are not provided.

By default, the custom fields are “HP NNMi Login” and “HP NNMi Password”; it is strongly recommended that you use these default field names.

#### To define the custom fields:

1. In xMatters, click the **Admin** tab, and then, in the Administration menu on the left side of the screen, click **Custom Fields**.
2. Click **Add New**, and then enter the following information into the form:
  - **Field Name:** HP NNMi Login
  - **Type:** Text
3. Click **Save**.
4. Click **Add New**, and then enter the following information into the form:
  - **Field Name:** HP NNMi Password
  - **Type:** Password
5. Click **Save**.

---

**Note:** For more information about custom fields, see the *xMatters (alarmpoint) engine installation and administration guide*.

---

## 2.2.4 Configuring Users

Each xMatters User that will be notified and respond to notifications must be configured to allow xMatters to communicate with HP NNMi as that User. Note that each User must also be configured in HP NNMi.

### To configure a User for mobile access to HP NNMi:

1. In xMatters, click the **Users** tab.
2. Use the Find Users page to locate the User you want to configure and view their details.
3. On the Details for User page, select the **Has Mobile Access** check box.
  - If you defined the custom fields, enter their HP NNMi login credentials in the HP NNMi Login and HP NNMi Password custom fields.
4. In the Common Tasks pane, click **User Devices**.
5. Verify that an appropriate Device exists and that it is enabled.
6. Click **Save**.

---

**Note:** *If you have no Users in the system, you can use the default demonstration User, "bsmith". If this User does not exist, create a User with the User ID "bsmith", and add a virtual text phone Device. Ensure that the User also has access to the mobile access component. For more information and instructions on how to perform these tasks, refer to the xMatters (alarmpoint) engine user guide.*

---

## 2.2.5 Updating event recipients

To select a target for an incident you must update the integration agent service javascript file, `hpnmmi.js`, used to create the xMatters event information. By default, the recipients are set to "operations". The contents of the file resemble the following:

```
/**
 * This is the injection point to xMatters from NNMi Subscription
 *
 * This method will parse the NNMi callback request and generate an APXML Message to be
 * sent to xMatters via the ServiceAPI.
 *
 * Modify the apxml object to add tokens injected to xMatters.
 * NNMi incident information can be retrieved from the E4X XML object 'content'
 *
 * For example use the following command to retrieve the uuid:
 *   content.uuid.text();
 */
function apia_http( httpRequestProperties )
{
    ...
    // determine recipient via name of incident
    if ("AddressNotResponding".equals(incidentName))
    {
        data.appendChild(<recipients>Operations</recipients>);
    }
    else if ("ConnectionDown".equals(incidentName))
    {
        data.appendChild(<recipients>Operations</recipients>);
    }
    else if ("InterfaceDown".equals(incidentName))
    {
        data.appendChild(<recipients>Operations</recipients>);
    }
    else if ("NodeDown".equals(incidentName))
    {
        data.appendChild(<recipients>Operations</recipients>);
    }
    else
    {

```

```

    data.appendChild(<recipients>Operations</recipients>);
  }
  ...
}

```

The following steps illustrate how to add the “NonSNMPNodeUnresponsive” event type and specify its recipient as “nnmi\_group1”, and how to specify a default recipient of “bsmith” for any undefined event types:

1. Open the <IAHOME>\integrationservices\hpnmmi\hpnmmi.js file.
2. Locate the section that begins with the following comment:

```
// determine recipient via name of incident
```

3. Add the following code:

```

else if ("NonSNMPNodeUnresponsive")
{
  data.appendChild(<recipients>nnmi_group1</recipients>);
}

```

4. Save and close the hpnmmi.js file, and restart the integration agent.

The added code looks at the name of the incident, and if it matches, sets nnmi\_group1 as the recipients token in the APXML submitted to xMatters. The resulting section should resemble the following:

```

// determine recipient via name of incident
if ("AddressNotResponding".equals(incidentName))
{
  data.appendChild(<recipients>Operations</recipients>);
}
else if ("ConnectionDown".equals(incidentName))
{
  data.appendChild(<recipients>Operations</recipients>);
}
else if ("InterfaceDown".equals(incidentName))
{
  data.appendChild(<recipients>Operations</recipients>);
}
else if ("NodeDown".equals(incidentName))
{
  data.appendChild(<recipients>Operations</recipients>);
}
else if ("NonSNMPNodeUnresponsive")
{
  data.appendChild(<recipients>nnmi_group1</recipients>);
}
else
{
  data.appendChild(<recipients>Operations</recipients>);
}

```

## 2.2.6 Updating the event injection filter

By default, this integration is configured to receive all events in HP NNMi where:

- the nature of the event is ROOTCAUSE;
- the lifecycleState is com.hp.nms.incident.lifecycle.Registered;
- the severity is CRITICAL;
- and, the Event Type is one of AddressNotResponding, ConnectionDown, InterfaceDown, NonSNMPNodeUnresponsive, or NodeDown.

This is specified in the default filter in the <IAHOME>\integrationservices\hpnmmi\nnmi-config.js file as follows:

```

// Filtering for subscription.
// Only matching Incidents will trigger the subscription call back

```

```
var FILTER = "/sys:onNotification/arg0[nature='ROOTCAUSE' and
lifecycleState='com.hp.nms.incident.lifecycle.Registered' and severity='CRITICAL' and (
name='AddressNotResponding' or name='ConnectionDown' or name='InterfaceDown' or name='NodeDown'
or name='NonSNMPNodeUnresponsive')]";
```

The following NNMi incident parameters can be used in this filter expression:

Data Type	Filter Name	NNMi Web Field	Possible Values
Int	id		
String	uuid		
String	sourceUuid		
String	sourceName	Source Object	
String	sourceNodeUuid		
String	sourceNodeName	Node Name	
String	name	Name	
String	severity	Severity	NORMAL WARNING MINOR MAJOR CRITICAL
String	priority	Priority	com.hp.nms.incident.priority.Low com.hp.nms.incident.priority.Medium com.hp.nms.incident.priority.High com.hp.nms.incident.priority.Top com.hp.nms.incident.priority.None
String	lifecycleState	Lifecycle State	com.hp.nms.incident.lifecycle.Registered com.hp.nms.incident.lifecycle.InProgress com.hp.nms.incident.lifecycle.Completed com.hp.nms.incident.lifecycle.Closed
String	category	Category	com.hp.nms.incident.category.Fault com.hp.nms.incident.category.Status com.hp.nms.incident.category.Config com.hp.nms.incident.category.Accounting com.hp.nms.incident.category.Performance com.hp.nms.incident.category.Security com.hp.nms.incident.category.Alert

Data Type	Filter Name	NNMi Web Field	Possible Values
String	family	Family	com.hp.nms.incident.family.Address com.hp.nms.incident.family.Interface com.hp.nms.incident.family.Node com.hp.nms.incident.family.ospf com.hp.nms.incident.family.HSRP com.hp.nms.incident.family.AggregatePort com.hp.nms.incident.family.Board com.hp.nms.incident.family.Connection com.hp.nms.incident.family.Correlation
String	origin	Origin	MANAGEMENTSOFTWARE MANUALLYCREATED REMOTELYGENERATED SNMPTRAP SYSLOG OTHER
String	nature	Correlation Nature	ROOTCAUSE SECONDARYROOTCAUSE SYMPTOM SERVICEIMPACT STREAMCORRELATION NONE
Int	duplicateCount	Duplicate Count	
String	formattedMessage	Message	
Boolean	rcaActive	RCA Active	
Date	originOccurrenceTime	Origin Occurrence Time	
Date	firstOccurrenceTime	First Occurrence Time	
Date	lastOccurrenceTime	Last Occurrence Time	
Date	created	Created	
Date	updateTime		
String	previousLifecycleState		
String	previousRcaActive		

**Note:** For more details, refer to the HP Network Node Manager i Software Developer's Toolkit.



For example, to change the filter so only incidents with a priority of “Top” or “High” should be injected into xMatters, you would change the filter to resemble the following:

```
var FILTER = "/sys:onNotification/arg0[priority='com.hp.name.incident.priority.High' or
priority='com.hp.nms.incident.priority.Top']";
```

#### To customize the injection filter:

1. Open the <IAHOME>\integrationservices\hpnmi\nnmi-config.js file.
2. Locate the **FILTER** variable, and update it to match your requirements.
3. Save and close the file, and then restart the xMatters web server.

## 2.2.7 Configuring the web services connection

This integration uses the following default settings to connect to HP NNMi via web services:

#### NNMi Web Services NodeBean

Defined in the xMatters initial PROCESS script (and the Event Domain Constants described in "Configuring the Event Domain" on page 10) as:

```
http://localhost:80/IncidentBeanService/IncidentBean
```

Defined in the xMatters Subscription Panel as:

```
http://localhost:80/NodeBeanService/NodeBean
```

The following settings are defined in the nnmi-config.js file, as described in "Installing the integration service" on page 6.

#### NNMi Web Services WS-Eventing (Subscription Manager):

```
http://localhost:80/nms-sdk-notify/
```

#### NNMi Web Services Client User:

```
webservices
```

#### NNMi Web Services Client Password:

```
nnm
```

## Configuring xMatters for a different HP NNMi port

If your HP NNMi deployment is running on a port other than 80 (or if you require a different URL or User/Password combination), you must change the settings in the custom Subscription panel and in the initial PROCESS script.

Note that you must also update the "NNMI\_URL" parameter in the nnmi-config.js file to reference the correct port, as described in "Installing the integration service" on page 6.

#### To change the NNMi web services connection configuration in the initial PROCESS script:

1. Launch the xMatters Developer IDE.
2. Check out the **HP Network Node Manager (Business)** script package.
3. In the initial PROCESS script, locate the following line:  

```
$main.nnmi_incident_url = "http://localhost:80/IncidentBeanService/IncidentBean"
```
4. Edit the HP NNMi server name and port settings to the correct values and save your changes.
5. Check in the script package and close the xMatters Developer IDE.

---

**Note:** For instructions on how to configure the Subscription panel's Web Services connection, see "Configuring the Subscription JSP" on page 26.

---

## 2.2.8 Initializing the web services library

This integration uses web services to post responses to HP NNMi and to populate the Subscriptions Source Node Name list. The xMatters web server automatically picks up the installed library if it is installed to the correct folder (for instructions, see "Installing the integration libraries" on page 7).

To enable Web Services for the xMatters node, you must modify the node configuration script so responses may be posted to the HP NNMi server.

### To configure the node to initialize the web service library on Windows:

1. Open the <xMHOME>\common\node-start.conf file.
2. Find the following classpath configuration section:  
  
# Class path info  
-classpath
3. Add the following to the end of the classpath within the quotations:  
  
;C:\Program Files (x86)\AlarmPointSystems\AlarmPoint\node\lib\node-lib\alarmpoint-nnmi.jar
4. Restart the xMatters Node Service.

### To configure the node to initialize the web service library on Unix:

1. Open the <xMHOME>/node.sh script.
2. Find the declaration of the CLASSPATH variable.
3. Add the following to the end of the classpath, within the quotations:  
  
:/opt/alarmpointsystems/alarmpoint/node/lib/node-lib/alarmpoint-nnmi.jar
4. Restart the xMatters Node Daemon.

Your notification responses will now be posted to the HP NNMi server using web services.

For xMatters responses to update the incident using web services, the nnmi\_incident\_url (located in the initial PROCESS Action script) must be a valid URL for the NNMi server's IncidentBean; for more information, see "Global Configuration Variables" on page 40.

## 2.3 Configuring the Subscription Panel

This integration is packaged with an optional Subscription panel which requires that you configure it to allow Users to subscribe to specific criteria on injected Events. Configuring the Subscription panel requires the following steps:

- Define the Event Domain predicates
- Define a Subscription Domain
- Create a Subscription
- Create a fail-safe Group

Before you can configure the custom Subscription Panel, the NNMiSubscriptionForm.jsp file must be installed as described in "Installing the Subscription File" on page 6.

---

**Note:** The Subscription Panel file, NNMiSubscriptionForm.jsp, must be copied to the correct directory during the integration installation, as described in "Installing the subscription files" on page 8.

---

## Defining Event Domain predicates

For the default Subscription panel provided with the integration, the following Event Domain predicates must be defined (case sensitive):

- SEVERITY
- CATEGORY
- NAME
- SOURCENODENAME
- SOURCEOBJECTNAME
- PRIORITY
- FAMILY
- NATURE

You can also use the following steps to add other predicates that you consider important and which you plan to add to the integration as explained in "Adding new parameters" on page 41.

### To define the Event Domain predicates:

1. In xMatters, click the **Developer** tab.
2. On the Event Domains page, click hpnnmi.
3. On the Event Domain Details page, click **Add New**.
4. Add the following predicates to the Event Domain:

Event Domain predicates

Predicate	Type	Important	Values	Description
<b>SEVERITY</b>	List		Manually entered	<p>Severity is a list predicate containing some or all of the following values (case sensitive):</p> <ul style="list-style-type: none"> <li>• Critical</li> <li>• Major</li> <li>• Minor</li> <li>• Normal</li> <li>• Warning.</li> </ul> <p>The items listed for Severity should be specifically chosen to match the severity of the events forwarded from HP NNMi. Exclude any severities that will not be submitted for notification.</p> <p>This predicate corresponds to the \$severity variable in HP NNMi.</p>

Predicate	Type	Important	Values	Description
<b>CATEGORY</b>	List		Manually entered	<p>Category describes the type of incident; allowed values are:</p> <ul style="list-style-type: none"> <li>com.hp.nms.incident.category.Accounting</li> <li>com.hp.nms.incident.category.Alert</li> <li>com.hp.nms.incident.category.Config</li> <li>com.hp.nms.incident.category.Fault</li> <li>com.hp.nms.incident.category.Performance</li> <li>com.hp.nms.incident.category.Security</li> <li>com.hp.nms.incident.category.Status</li> </ul> <p>HP NNMi will generate only the values listed above. Exclude from your list any categories that will not be submitted for notification.</p> <p>This predicate corresponds to the \$category variable in HP NNMi.</p>
<b>NAME</b>	List	Yes	Manually entered	<p>Name is the incident type of the event. You can have any number of incident names listed here, but they should be only those types you have configured to inject messages into xMatters.</p> <p>Some example incident types are:</p> <ul style="list-style-type: none"> <li>AddressNotResponding</li> <li>InterfaceDisabled</li> <li>InterfaceDown</li> <li>NodeDown</li> <li>NonSNMPNodeUnresponsive</li> <li>WANEthernetRouterUnresponsive</li> </ul> <p>This predicate corresponds to the \$name variable in HP NNMi.</p>
<b>SOURCENODENAME</b>	List	Yes	Automatically generated	<p>Source Node Name is the name of the Node that is the source of the incident. Leave the values of this list blank as it will be populated through a web services call to HP NNMi.</p> <p>This predicate corresponds to the \$sourceNodeName variable in HP NNMi.</p> <p>This predicate may be populated with pre-defined values as well, for more information see "Configuration Variable Reference" on page 47.</p>
<b>SOURCEOBJECTNAME</b>	Text		Manually entered	<p>Source Object Name is the name of the Object that generated the incident. The Object can be determined through a combination of the Object Name and Family.</p> <p>As this is a text field, you can use any number of filters on the results.</p>

Predicate	Type	Important	Values	Description
<b>PRIORITY</b>	List	Yes	Manually entered	<p>Priority is how important fixing the incident is to Users. This is in contrast to Severity, the level of which is automatically determined by HP NNMi. Note that xMatters allows the priority to be altered by notification recipients.</p> <p>Valid values for Priority are:</p> <ul style="list-style-type: none"> <li>com.hp.nms.incident.priority.High</li> <li>com.hp.nms.incident.priority.Low</li> <li>com.hp.nms.incident.priority.Medium</li> <li>com.hp.nms.incident.priority.None</li> <li>com.hp.nms.incident.priority.Top</li> </ul> <p>This predicate corresponds to the \$priority variable in HP NNMi.</p>
<b>FAMILY</b>	List		Manually entered	<p>Family is the type of object that generated the incident.</p> <p>Valid values for Family are:</p> <ul style="list-style-type: none"> <li>com.hp.nms.incident.family.Address</li> <li>com.hp.nms.incident.family.AggregatePort</li> <li>com.hp.nms.incident.family.Board</li> <li>com.hp.nms.incident.family.Connection</li> <li>com.hp.nms.incident.family.Correlation</li> <li>com.hp.nms.incident.family.HSRP</li> <li>com.hp.nms.incident.family.Interface</li> <li>com.hp.nms.incident.family.Node</li> <li>com.hp.nms.incident.family.ospf</li> </ul> <p>This predicate corresponds to the \$family variable in HP NNMi.</p>
<b>NATURE</b>	List		Manually entered	<p>Nature is a list predicate that describes how HP NNMi views the incident.</p> <p>Valid values for Nature are:</p> <ul style="list-style-type: none"> <li>ROOTCAUSE</li> <li>SECONDARYROOTCAUSE</li> <li>SYMPTOM</li> <li>USERROOTCAUSE</li> </ul> <p>This predicate corresponds to the \$nature variable in HP NNMi.</p>

## Defining a Subscription Domain

The Subscription Domain is the reference point of the optional Subscription panel and allows you to control who can create Subscriptions, how recipients can respond to Subscription notifications, and which Event Domain predicates can be used to create a Subscription. You must create a Subscription Domain before you can create Subscriptions with the new panel.

**To create a Subscription Domain:**

1. On the Developer tab, in the Developer menu, click **Add Subscription Domain**.
2. In the **Event Domain** drop-down list, select hpnnmi, and then click **Continue**.
3. On the Subscription Domain Details page, in the **Name** field, type hpnnmi.
  - By default, Subscriptions are non-FYI (i.e., they support response options). To disable two-way Subscription notifications, select the One-Way check box.
4. In the **Custom Page URL** field, enter the following path:  
jsp\subscription\NNMiSubscriptionForm.jsp
5. Click **Continue**.
6. On the Select Appropriate Response Choices page, specify the available responses for this Subscription, and then click **Continue**.
  - By default, the scripts support the following response choices: “Acknowledge”, “Set Priority <level>” (where <level> equals “Top”, “High”, “Medium”, or “Low”), “Close”, “Ignore”, and “Annotate”. To enable two-way communications for Subscriptions, define all response choices on the Select Appropriate Response Choices page. If you require only one-way, informational notifications, do not specify any response choices.

---

**Note:** *By default, Subscriptions are FYI (informational-only notifications). To enable two-way subscription notifications, set the forcefyi Event Domain Constant to "disable". For more information, see "Defining Event Domain Constants" on page 11.*

---

7. On the Select Appropriate Predicates page, add all of the predicates to the **Applied Predicates** list, and then click **Continue**.
8. On the Select Roles page, specify the Roles you want to be able to create Subscriptions on the Domain, and then click **Save**.

---

**Note:** *For more information about working with Event and Subscription Domains, see the xMatters (alarmpoint) engine installation and administration guide.*

---

### 2.3.1 Configuring the Subscription JSP

You can use one of the following methods to populate the predicate list values on the Subscription Panel:

- Manually specify the predicate list values in the web user interface (also referred to as "demonstration mode").
- Using web services, query HP NNMi for possible values, and automatically populate the predicate lists with the results of the web service call.

---

**Note:** *Changing Subscriptions by adding or removing Event Domain predicates may cause existing Subscriptions to fail. For more information about working with Event and Subscription Domains, see the xMatters (alarmpoint) engine installation and administration guide.*

---

#### Specifying predicate lists manually

To configure the Subscription panel in a demonstration mode, using predefined predicate list values, you must modify the Subscription JSP.

**To manually populate the predicate lists:**

1. Open the <xMHOME>\webserver\webapps\cocoon\alarmpoint\jsp\subscription\NNMiSubscriptionForm.jsp file on the xMatters web server.
2. Set the Boolean variable QUERY\_SOURCENODE\_PREDICATE\_VALUES to *false*.
3. Save and close the NNMiSubscriptionForm.jsp file.

4. In xMatters, click the **Developer** tab.
5. On the Event Domains page, click **hpnmmi**.
6. On the Event Domain Details page, click **SOURCENODENAME** in the Predicates list.
7. Add to the predicate list values, and then click **Save**.

The SOURCENODENAME list on the Subscription will now be populated with the predefined list values instead of the web service call results.

## Populating predicate lists automatically

If you want to populate the predicate values lists from HP NNMi through web service calls rather than the predefined predicate list values, you must configure the connection properties within the JSP file.

### To configure the Subscription JSP to connect through web services:

1. Open the <xMHOME>\webserver\webapps\cocoon\alarmpoint\jsp\subscription\NNMiSubscriptionForm.jsp file on the xMatters web server install.
2. Within the Subscription JSP, locate the following section:

```
final String NNM_NODE_SERVICE_WS_URL = "http://localhost:80/NodeBeanService";
final String NNM_WS_USER = "webservices";
final String NNM_WS_PASSWORD = "nnm";
```

3. Replace the value within quotes for each parameter as described in the following table:

Subscription JSP parameters

Parameter	Value
NNM_NODE_SERVICE_WS_URL	The URL for the HP NNMi web services NodeBean.
NNM_WS_USER	User name of the HP NNMi web services client.
NNM_WS_PASSWORD	Password for the HP NNMi web services client.

4. Save and close the JSP.

---

**Note:** *The NNM\_WS\_USER and NNM\_WS\_PASSWORD must match the User configured in "Installing the integration service" on page 6.*

---

## Creating a Subscription

You can now use the custom Subscription Panel to subscribe to HP NNMi events that match specific criteria. For example, you could configure a subscription that would send an informational notification to a specific User each time an event entered the system that was of critical severity. These notifications, and their responses, do not affect the normal progression of an event through the system.

### To create a Subscription:

1. On the Alerts tab, in the Alerts menu, click **My Subscribed Alerts**.
2. Select the hpnmmi Subscription Domain, and click the **Add New** link.
3. On the Subscription Details page, specify a name for the Subscription, and set the Subscription criteria using the tabs.
4. When you are satisfied with the criteria, click **Save** to create the Subscription.
  - The Details tab (Ctrl-click to select more than one value):

Event Details

Preferences

Category: -- ANY --  
Accounting  
Alert  
Config  
Fault

Family: -- ANY --  
Address  
AggregatePort  
Board  
Connection

Incident Name: -- ANY --  
AddressNotResponding  
ConnectionDown  
InterfaceDown  
NodeDown

Nature: -- ANY --  
ROOTCAUSE  
SECONDARYROOTCAUSE  
SYMPTOM  
USERROOTCAUSE

Priority: -- ANY --  
High  
Low  
Medium  
None

Severity: -- ANY --  
Critical  
Major  
Minor  
Normal

Source Node Name: -- ANY --  
192.168.168.1  
192.168.168.40  
LAGAVULIN  
LJ\_PRINTER\_VICT

Source Object Name: CONTAINS  Empty Field = Any Value

Save

- The Preferences tab (defines the Timeframe and Overrides applied to events for Subscription notifications):



Event Details

Preferences

---

### Timeframe

---

**Start Time:** 03:00 24 hours 0 minutes \*

On the following days: ☒ Sun ☒ Mon ☒ Tue ☒ Wed ☒ Thu ☒ Fri ☒ Sat

Time Zone: US/Eastern ▼

### Overrides

---

Device Types: ☒ All Devices ☐ Email ☐ Instant Message ☐ Text Devices ☐ Voice Devices

Override User Device ☐

Timeframes: ☐

Ignore Device Delays: ☐

Override Device Severities ☐

and Use All: ☐

Notification Delay: 0 min

---

Save

- You can review the Subscription details at any time on the Summary tab:

Summary

Event Details

Preferences

### Matching Any Event Where

- CATEGORY MATCHES (com.hp.nms.incident.category.Fault)
- AND
- FAMILY MATCHES (com.hp.nms.incident.family.Address)
- AND
- NAME MATCHES (AddressNotResponding)
- AND
- NATURE MATCHES (ROOTCAUSE)
- AND
- PRIORITY MATCHES (com.hp.nms.incident.priority.None)
- AND
- SEVERITY MATCHES (Critical)
- AND
- SOURCENODENAME MATCHES (192.168.168.40)
- AND
- SOURCEOBJECTNAME CONTAINS (192.168.168.40)

**Available:** Sun Mon Tue Wed Thu Fri Sat 03:00 - 03:00

**Using:** All Devices

Save

## Creating a fail-safe Group

If an event is submitted to xMatters when the fail-safe functionality is enabled, and there is no subscription that matches the event, xMatters sends the notification to the fail-safe recipient. The fail-safe recipient is typically a Group, but can be configured as a User.

**To create a fail-safe Group:**

1. In xMatters, click the Groups tab.
2. Create a new Group named HP NNMi Fail Safe, with at least one User as a Team member to receive notifications.

For more information about creating Groups and Teams, see the xMatters (alarmpoint) engine user guide.

---

**Note:** *If you want to use an existing Group or a different Group name, modify the value for the failsafegroup Event Domain Constant. You can also eliminate notifying any fail-safe group by setting the failsafe constant to disabled. For more information, see "Defining Event Domain Constants" on page 11.*

---

## 2.4 Configuring HP NNMi

Configuring HP NNMi to combine with xMatters requires the creation of a web services client.

### 2.4.1 Creating a web services client

Configuring a web services client allows notification responses to update the HP NNMi incidents appropriately.

**To create a web services client:**

1. Launch the HP NNMi Web Console, and log in as an Administrator.
2. Under the Configuration Workspace, click **User Accounts**.
3. On the User Accounts tab, click **New**.
4. On the Account Mapping page, in the **Account** drop-down list, select **New**:

5. On the User Account page, specify the **Name** and **Password** for the Web Services Client User:

---

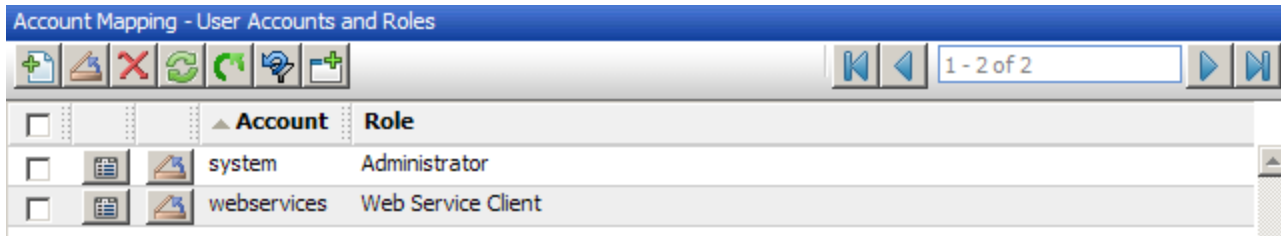
**Note:** *By default, the user name and password configured within the xMattersAction Scripts are "webservices" and "nnm", respectively. If you want to use a different name or password, you must update the configuration variables in the initial PROCESS Action Script. For more information, see "Configuring the web services connection" on page 21.*

---

6. Click **Save and Close**.
  - The "webservices" user is now specified in the Account field on the Role page.
7. In the **Role** drop-down list, select **Web Service Client**.

8. Click **Save and Close**.

- The Web Service Client will now allow xMatters responses to update **NNMi** incidents using Web Service Calls. The webservices user is listed on the User Accounts and Roles page:



9. Under the Configuration Workspace, click **User Account Mappings**.

10. Click **New**, and then associate the web services client account with the NNMi Web Service Clients group.

11. Click **Save and Close**.

## 2.4.2 Identifying your HP NNMi port

You can determine whether the default port setting of 80 is correct for your HP NNMi installation by checking the port information contained in the HP NNMi port configuration file, located in the following folder:

`<NNM_DATA_DIR>\conf\nnm\props\nms-local.properties`

---

**Note:** *The default <NNM\_DATA\_DIR> folder (for Windows installations) is C:\Documents and Settings\All Users\Application Data\HP\HP BTO Software.*

---

## Chapter 3: Integration Validation

After configuring xMatters and HP NNMi, you can validate that communication is properly configured. It is recommended that you start the components in the following order:

- HP Network Node Manager i
- xMatters (alarmpoint) engine
- xMatters integration agent

Consult the respective user manuals for details on starting these applications.

The following sections will test the combination of xMatters and HP NNMi for notification delivery and response, Subscription Panel functionality, and synchronization configuration. This section also includes an explanation and demonstration of how to query HP NNMi via the mobile access component using a BlackBerry.

### 3.1 Enabling WS-Eventing Subscription Manager Logging

This section describes how to verify that the xMatters integration agent service can communicate with HP NNMi.

If the connection cannot be established, verify that the connection parameters in

`<IAHOME>\integrationservices\ hpnnmi\nnmi-config.js` are correct and restart the integration agent.

#### To enable logging:

1. Open the `<IAHOME>\conf\log4j.xml` log configuration file.
2. Uncomment (enable) the section "All Integration Services"; it should now resemble the following:

```
<!-- All Integration Services -->
<logger name="com.alarmpoint.integrationagent.services">
  <level value="DEBUG"/>
</logger>
```

This turns on DEBUG logging for all integration services.

#### 3.1.1 Verifying the connection

Once you have enabled the debug logging, you can check the log files to verify that the connection has been properly established.

#### To verify the xMatters – HP NNMi connection:

1. Open the integration agent log file at `<IAHOME>\log\AlarmPoint.txt`.
2. Locate the following sections:
  - If the Integration Service javascript has successfully started and connected to HP NNMi, the log file should contain a result that resembles the following:

```
2011-03-04 15:19:43,551 [Thread-8] DEBUG - Agent Client: [hpnnmi.js] Subscription with
NNMi (http://192.168.170.168:8004
/nms-sdk-notify) has been made with message id (8bbd4e28-f8d0-46b3-896a-bf8d06e6d3a0) .
Subscription ID: urn:jbwse:266b08
71-d966-4d0f-aa18-7b9217aa6da2 Expiry: Fri Mar 04 15:21:43 PST 2011 Renew in: 89449(ms)
```

- If the Subscription Manager has failed to connect to HP NNMi, the log file should contain an error message that resembles the following:

```
2011-03-04 17:21:46,557 [Thread-12] ERROR - Agent Client: Cannot make web service call.
Please check configuration information in nnmi-config.js
```

## 3.2 Triggering a notification

The following example shows resolution of a network outage on a monitored LAN.

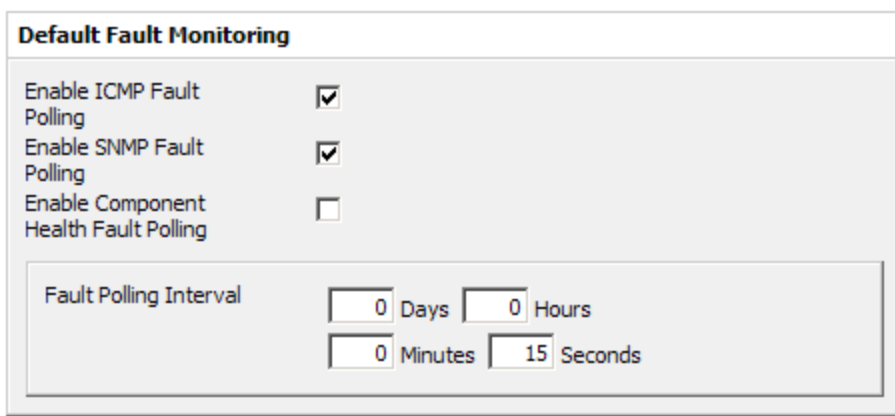
### 3.2.1 Increase the Polling Frequency

The following section describes how the fault polling interval can be decreased to speed up the demonstration.

#### To adjust the fault polling interval:

If it is not already running, launch HP Network Node Manager i.

1. Log in to the HP NNMi Web Console as an Administrator.
2. Select the **Configuration Workspace**.
3. Open **Monitoring Configuration**.
4. On the Default Settings tab, in the **Default Fault Monitoring** dialog box, set the **Fault Polling Interval** to 15 seconds:
  - A Fault Polling Interval of 15 seconds may be too short an interval on larger deployments, and can consume significant resources on the HP NNMi system. You may need to increase the interval when moving to a production deployment.

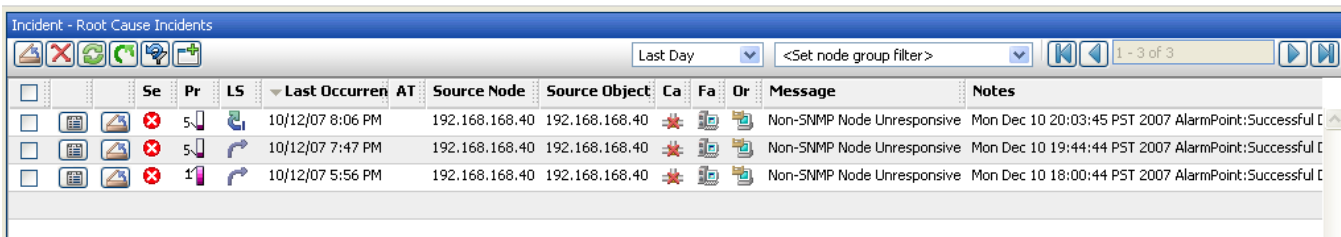


5. Click **Save and Close**.

### 3.2.2 Disconnect a Computer from the LAN

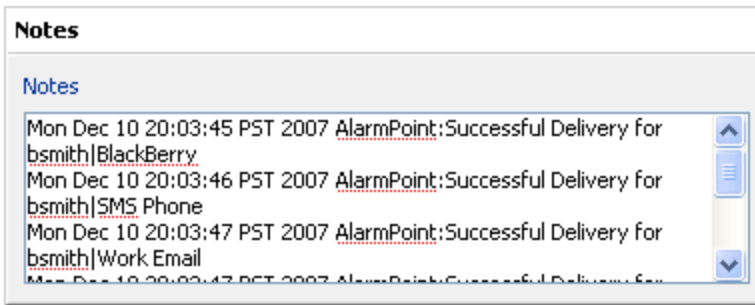
If HP NNMi is monitoring a LAN, one of the easiest ways to trigger a notification is to interrupt the communication between HP NNMi and one of the computers on the LAN. The following steps describe how to do this and what to expect.

1. Physically disconnect a computer from the local area network (using a computer other than the xMatters or HP NNMi servers).
2. When the computer goes offline, an incident will be triggered within HP NNMi and can be viewed in the Incidents workspace under Root Cause Incidents (or another category depending on the trigger).
  - The Notes entry for the open incident indicates that this event has successfully notified an xMatters User:



Se	Pr	LS	Last Occuren	AT	Source Node	Source Object	Ca	Fa	Or	Message	Notes
	5		10/12/07 8:06 PM		192.168.168.40	192.168.168.40				Non-SNMP Node Unresponsive	Mon Dec 10 20:03:45 PST 2007 AlarmPoint:Successful C
	5		10/12/07 7:47 PM		192.168.168.40	192.168.168.40				Non-SNMP Node Unresponsive	Mon Dec 10 19:44:44 PST 2007 AlarmPoint:Successful C
	1		10/12/07 5:56 PM		192.168.168.40	192.168.168.40				Non-SNMP Node Unresponsive	Mon Dec 10 18:00:44 PST 2007 AlarmPoint:Successful C

3. To display the full Notes for an incident, click the **Open Incident** button to open the incident, and view the Notes area:



4. The target's specified contact type will receive a message corresponding to the notification, as shown in the following section.

### 3.3 Responding to a notification

This section describes how to respond to a notification from xMatters. In the following example, the notification is received on a BlackBerry Device, but the process is similar for all Devices.

#### To respond to a notification:

1. When a notification arrives for the User, the Device indicates the number of calls received:



2. Opening the notification displays its details:

**(x) matters**  
The relevance engine company.

**HP Network Node Manager i-series 9 - Automated Notification**

<b>Time of Event:</b>	Friday, 25 Mar 2011 16:47:31 GMT-0400
<b>Severity:</b>	CRITICAL
<b>Category:</b>	Fault
<b>Name:</b>	AddressNotResponding
<b>Source Node:</b>	VIC-DGUNA
<b>Source Object:</b>	192.168.168.20
<b>Priority:</b>	None
<b>Family:</b>	Address
<b>Correlation Nature:</b>	SECONDARYROOTCAUSE
<b>Incident ID/UUID:</b>	6777817d-3267-4cf1-add1-3063ce03ae8f

*Provided you can connect to the AlarmPoint Web Server, you can respond by selecting one of the following links:*

3. Scrolling down will display the remainder of the details, and the list of possible replies:

<b>Name:</b>	AddressNotResponding
<b>Source Node:</b>	VIC-DGUNA
<b>Source Object:</b>	192.168.168.20
<b>Priority:</b>	None
<b>Family:</b>	Address
<b>Correlation Nature:</b>	SECONDARYROOTCAUSE
<b>Incident ID/UUID:</b>	6777817d-3267-4cf1-add1-3063ce03ae8f

*Provided you can connect to the AlarmPoint Web Server, you can respond by selecting one of the following links:*

1. [Acknowledge](#)
2. [Set Priority Top](#)
3. [Set Priority High](#)
4. [Set Priority Medium](#)
5. [Set Priority Low](#)
6. [Close](#)
7. [Ignore](#)
8. [View Incident](#)

4. To respond to the notification, the User clicks a response choice, and xMatters updates the event in HP NNMi.


























For more information about response choices, and changing the options available to Users, see "Response choices" on page 42.

### 3.4 Viewing response results

In the Root Cause Incidents table, the In Progress arrow indicates that the incident has been acknowledged, and a message will be logged within the Notes field indicating who took responsibility.

**To view the notification results:**

- 1. Open the HP NNMi Web Console.
- 2. In the Incident Workspace, under Root Cause Incidents, locate the incident used for testing notifications.
  - The Life Cycle State has changed to In Progress, indicating that the incident was acknowledged from xMatters:

Incident - Root Cause Incidents												
<div><div></div><div>Last Day</div><div>&lt;Set node group filter&gt;</div><div>1 - 3 of 3</div></div>												
		Se	Pr	LS	Last Occurren	AT	Source Node	Source Object	Ca	Fa	Dr	Notes
<input type="checkbox"/>			5		10/12/07 8:06 PM		192.168.168.40	192.168.168.40				Non-SNMP Node Unresponsive Mon Dec 10 20:03:45 PST 2007 AlarmPoint:Successful C
<input type="checkbox"/>			5		10/12/07 7:47 PM		192.168.168.40	192.168.168.40				Non-SNMP Node Unresponsive Mon Dec 10 19:44:44 PST 2007 AlarmPoint:Successful C
<input type="checkbox"/>			1		10/12/07 5:56 PM		192.168.168.40	192.168.168.40				Non-SNMP Node Unresponsive Mon Dec 10 18:00:44 PST 2007 AlarmPoint:Successful C

- 3. To display the acknowledged incident’s details, click the **Open** button.
  - The Notes field indicates that the incident was acknowledged by bsmith:



The screenshot displays the 'Incident' registration window. At the top, there are buttons for 'Save and Close', 'Delete Incident', and a refresh icon. The 'Basics' tab is active, showing fields for 'Message' (Non-SNMP Node Unresponsive), 'Severity' (Critical), 'Priority' (None), and 'Lifecycle State' (In Progress). Below these are fields for 'Source Node' and 'Source Object', both set to '192.168.168.40', and an 'Assigned To' field. A 'Notes' section on the left lists several messages from 'bsmith' regarding AlarmPoint delivery status. The 'Details' tab is also visible, showing fields for 'Name' (NonSNMPNodeUnresponsive), 'Category' (Fault), 'Family' (Node), 'Origin' (Management Software), and 'Correlation Nature' (Root Cause). It also includes 'Duplicate Count' (0), 'RCA Active' (checked), and 'Correlation Notes'. At the bottom, it shows 'First Occurrence Time', 'Last Occurrence Time', and 'Origin Occurrence Time' all set to 'December 10, 2007 8:06:59 o'clock PM PST'.

### 3.5 Testing the Subscription Panel

To test Subscriptions, ensure that you have created a Subscription (for more information, see "Creating a Subscription" on page 27), and then trigger a notification that matches the criteria in our Subscription. You will receive an FYI Notification (informational only) which will not have any response choices available.

### 3.6 Querying for an event

This section describes how to validate that the mobile access component, integration agent and HP NNMi are properly configured.

**Note:** The xMatters mobile access page has a default URL of `http://<xMattersIP>:8888/mg`, where <xMattersIP> is the IP address of the xMatters web server where the mobile access component is configured.

To query for an incident:

1. Using a browser-enabled smart phone (such as a BlackBerry), open a browser and navigate to the mobile access component IP address:

The screenshot shows the 'xMatters mobile access' login page. It has a black header with the text 'xMatters mobile access' in yellow. Below the header, there are two input fields: 'Username:' and 'Password:'. At the bottom, there is a black button labeled 'Login' in white text.

2. Log in to view the list of available integration services.
  - If more than one integration service is available, select the hpnmmi service.
3. If prompted, enter the HP NNMi login credentials, and then click the **Query Incidents** menu item:

4. Enter your search criteria in the fields provided:

5. Click **Submit** to list all matching incidents:

Query Incidents [53]		
S/P/LS/F	Node	Message
	BENCHMARK4	Address Not Responding
	192.168.168.32	Node or Connection Down
	VIC-JEREMY-PC	Non-SNMP Node Unresponsiv
	192.168.168.32	Non-SNMP Node Unresponsiv

6. Click the link for an incident to view its details:

### Address Not Responding

Details

Go

Name:

AddressNotResponding

Category:

Fault

Family:

Address

Origin:

MANAGEMENTSOFTWARE

Correlation Nature:

SECONDARYROOTCAUSE

Duplicate Count:

0

RCA Active:

☒

[Reload List](#) - [HP NNMi Menu](#) - [Services](#) - [Logout](#)

7. To view the available options for the incident, click the drop-down list at the top of the screen:

✓ Basics

Details

Times

Source Node

Source Object

Notes

Update Notes

Corr Children

[Reload List](#) - [HP NNMi Menu](#) - [Services](#) - [Logout](#)

8. To update the issue, select **Basics** from the drop-down list:

**Address Not Responding**

Basics

Go

Message: Address Not Responding

Severity: CRITICAL

Priority: None

Lifecycle State: Registered

Assigned To:

Save

[Reload List](#) - [HP NNMI Menu](#) - [Services](#) - [Logout](#)

9. On the Basics screen for the incident, click the Lifecycle State drop-down list, and then select a new status:

**Address Not Responding**

Basics

✓ Registered

In Progress

Completed

Closed

Assigned To:

Save

[Reload List](#) - [HP NNMI Menu](#) - [Services](#) - [Logout](#)

10. Log in to HP NNMI and view the details for the **incident** to confirm that it has been updated.

## Chapter 4: Optimizing and Extending the Integration

This section describes some of the available methods you can use to optimize or extend the xMatters (alarmpoint) for HP Network Node Manager i integration.

### 4.1 Adding new parameters

Additional data elements (or tokens) can be forwarded to xMatters by adding them in HP NNMi. The following steps explain how to add a new event token to the event injected to xMatters.

---

**Note:** For more information about which parameters may be available, refer to the HP NNMi documentation.

---

#### To add an event parameter:

1. Open the <IAHOME>\integrationservices\hpnmi\hpnmi.js file.
2. To add a new child node to the generated APXML data, locate the function `apia_http` (`HttpRequestProperties`).
3. Locate the following comments:
 

```
// add custom tokens
// data.appendChild(<custom_parameter>{content.incidentResent.text()}</custom_parameter>);
// data.appendChild(<custom2>static custom token value</custom2>);
```
4. Add an `appendChild` command.
 

```
data.appendChild(<custom_parameter>{content.incident_parameter.text()}</custom_
parameter>);
```

The new parameter can now be used within the xMatters Action Scripts. The following section illustrates a possible use for the variable.

#### 4.1.1 Adding new parameters to notification content

Once you have injected the new data elements, you can add the token as a parameter to the notification content for Devices. The following steps explain how to add the custom parameter to email notifications; adding content for other Device types is similar and requires the presentation script to be modified for the specific Devices.

#### To add a new token to email notification content:

1. Open the xMatters Developer IDE and check out the HP Network Node Manager (BUSINESS) Script Package.
2. In the Presentation Action Script, add the following line to the email content creation section:

```
$content.message = $content.message & "TokenName: " & $event.tokenvalue & "\n"
```

3. You can also add a check in the Initial script to confirm that the custom parameter was injected properly and exists within the Action Scripts:

```
IF ( ! EXISTS( $event.custom_parameter ) )
  $event.custom_parameter = $undefined_default
  IF ( $main.debug )
    @script::log( $main.log_prepend & "Optional token ' custom_parameter '
      not found, defaulting to '" & $event.custom_parameter & "'" )
  ENDEF
ENDEF
```

Your custom parameter should now appear in the notification content for email Devices.

## 4.2 Response choices

This integration allows recipients to respond to notifications with several default choices, some of which are injected back to the HP NNMi server, updating the original incident. Users notified on email Devices also have the ability to respond with an extra annotation message which will be logged in the original incident, as described in "Adding annotation messages", below.

The following is a list of the default response choices available with the integration and their associated actions on the xMatters event and the HP NNMi incident.

Response	Description
<b>Acknowledge</b>	User takes ownership of the incident, preventing further notifications to other Users. (The exception is subscription FYI notifications, which are reporting on the service outage. These are not stopped until the problem has actually been solved.)
<b>Ignore</b>	Stops notifying the current User.
<b>Raise Priority</b>	Increases the priority of the incident in NNMi by one level. <b>(Voice only)</b>
<b>Lower Priority</b>	Decreases the priority of the incident in NNMi by one level. <b>(Voice only)</b>
<b>Set Priority Top</b>	Sets the priority of the incident to Top. <b>(Email, BES, and browser only)</b>
<b>Set Priority High</b>	Sets the priority of the incident to High. <b>(Email, BES, and browser only)</b>
<b>Set Priority Medium</b>	Sets the priority of the incident to Medium. <b>(Email, BES, and browser only)</b>
<b>Set Priority Low</b>	Sets the priority of the incident to Low. <b>(Email, BES, and browser only)</b>
<b>Annotate</b>	Allows the User to append a message to the Notes field of the NNMi incident. <b>(Non-HTML Email only)</b>

### 4.2.1 Adding annotation messages

Two-way email Device notifications (not FYI) can add extra annotations that will be added to the HP NNMi incident as a message on the Journal Updates tab. To add an extra annotation, respond to an email notification with the following format in the subject line:

```
RESPONSE <Choice> <Message>
```

<Choice> can be any of the response choices listed in the table above, and <Message> can be any content you want to add as the annotation.

### 4.2.2 Changing and adding response choices

The response choices and behavior can be changed in the response script in the Action Script set (to change Subscription responses, update the subscriptionResponse script). Actions available through web service calls include acknowledging an incident, annotating it, and changing its priority. Any other response functionality for the integration must be configured within the response HANDLER script with HP NNMi provided web service calls.

As an example, the following code illustrates adding a response choice of "Be there in 10 minutes" to the integration:

#### Presentation Script

```
$content.choices::add( "be there in ten minutes" ) )
```

## Response Script

```
# Handle responses
$reply = $response.reply
$reply::toLowerCase()
$ten_minutes= $reply::startsWith( "be there in ten minutes" )
...
IF ( $ten_minutes )
    # Perform any changes to the AlarmPoint event and notifications here
    @event::delinkAll() # Consider the incident handled
    $main.continue = true
    ...
# Acknowledge Event on Management System
GOSUB acknowledgeIncident
...
# Acknowledges the original NNM incident using a web service call, changing the lifecycle state
acknowledgeIncident:
    @nnmiRequest = new NetworkNodeManagerScriptObject( $main.nnmi_incident_url,
        $main.nnmi_username, $main.nnmi_password )
    IF (! EXISTS($event.nnm_id))
        $event.nnm_id = @nnmiRequest::getNNMIncidentId($event.incident_id)
    ENDIF
    $request_successful = @nnmiRequest::acknowledgeIncident($event.nnm_id)
    IF ($request_successful != true )
        $err_msg = "Failed to acknowledge NNMi incident: " & $event.incident_id
        IF ( $main.debug )
            @script::log( $main.log_prepend & $err_msg )
        ENDIF
        @event::report( $err_msg )
    ENDIF
RETURN
```

The above is intended only as a brief overview of the required components. For more information about responses and scripting, refer to the xMatters Action Scripts and the xMatters Online Developer's Guide.

### 4.3.1 Responses for FYI notifications

FYI notifications do not have any response choices available, except for FYI notifications sent to voice Devices. Voice FYI notifications offer the following response choices so that Users can navigate between multiple notifications. (This navigation is not required on other Devices.)

Voice Device responses for FYI notifications

Response	Description
<b>Delete</b>	Removes the notification from the User's list. This option is most likely to be selected.
<b>Save</b>	Saves the notification and stops attempting to deliver it to the User's other Devices. Users may select this option to delay listening to the notification when it is delivered, and access the details by calling in, or via the xMatters web user interface, at a later time.
<b>Repeat</b>	Replays the notification content.

## 4.4 Annotations

This integration extensively annotates the originating HP NNMi incident, but this may not be desirable in all environments. To prevent the annotation of an incident, change the "annotate" Event Domain Constant to *false*. For more information, see "Defining Event Domain Constants" on page 11.

## 4.5 Altering the duration of events

You can modify the amount of time xMatters will send out notifications for a particular event before it times out by changing the "timeout" Event Domain Constant. This constant stores the number of seconds the notifications will be allowed to continue before timing out.

For example, if you wanted to change the event duration to two hours, you could change the value for the timeout constant to **7200**.

---

**Note:** *For more information about working with Event Domain Constants, see "Defining Event Domain Constants" on page 11.*

---

## 4.6 FYI Notifications

You can make all notifications informational only (i.e., the user is not offered any response choices) by setting the "forcefyi" Event Domain Constant to "on". This makes all normal and Subscription notifications one-way (FYI). For more information, see "Defining Event Domain Constants" on page 11.

---

**Note:** *All FYI events are set to priority LOW; this allows users to prevent the alerts from being sent to specific Devices by configuring their Devices to be used for only Medium and High priority alerts.*

---

### 4.6.1 Generating FYI notifications for Subscriptions

When using subscriptions to inform Users about service outages, you may want to remove responses from notifications generated for subscriptions.

To accomplish this, select the **One Way** check box on the Subscription Domain details page for the associated Subscription Domain.

## 4.7 Optimizing the mobile access component

This section describes some of the ways you can optimize or extend the xMatters mobile access portion of the xMatters (alarmpoint) for HP Network Node Manager i integration.

### 4.7.1 Add a Custom Query to the Home Page

To add a custom query and link to the home page, add the following to the `<xMHOME>\webservices\webapps\mobilegateway\jsp\hpnmi\configuration.jsp` file installed on the mobile access component:

```
MAIN_MENU_OPTIONS.put("Query Label", "Query");
```

For more information about constructing queries for HP NNMi, consult the HP NNMi documentation.

### 4.7.2 Creating a URL Alias

The `urlAlias.jsp` page in the mobile access component is used to drive directly from an xMatters notification to the Create Incident or Update Incident screens. It supports the following parameters:

urlAlias.jsp parameters

Name	Description
<b>newIncident</b>	If this parameter is set, a new incident will be created and you will be taken to the Create Incident screen. If it is not set, you will be taken to the Update Incident screen for the specified incident.



Name	Description
<b>IncidentID</b>	The incident number of the incident to update. If the newIncident parameter is not set, this field must be set to a valid incident number.
<b>Field Name</b>	The name of an API Caption of a field for the incident. For each parameter set, it will update the field on the incident with that value.

For more information about the urlAlias method in the xMatters Action Script, refer to the *xMatters Online Developer's Guide*.

## 4.8 Constructing BES and email notifications

You can configure xMatters to create BES and HTML email notifications.

This feature requires the xMatters Developer IDE. For installation instructions, refer to the xMatters Online Developer's Guide.

To enable BES and HTML email, the HP Network Node Manager (Business) script package set must be checked into the Developer IDE Database. If the script package has not been checked in already, see the instructions in "Importing the script package" on page 9.

---

**Note:** *Some email clients, such as Microsoft Outlook 2007, may not display HTML elements correctly. It is recommended that you test the HTML compatibility of your email client before implementing the HTML email feature.*

---

### To enable BES and/or HTML email:

1. In xMatters, click the Developer tab, and then, in the menu on the left side of the screen, click **Event Domain Constants**.
2. In the Event Domain drop-down list, select **.hpnmmi**.
3. On the Event Domain Constants page, do the following:
  - Set the **enablehtmlmail** constant to `true`.
  - Set the **uselogo** constant to `true` (if you want your HTML email to show a logo).
  - Set the **alarmpointurl** constant to the base URL of your xMatters web server. (default is localhost).
  - If you are using BES, set the **bespushurl** constant to the URL of the BES server.

---

**Note:** *If the Event Domain Constants are not present, you can add them using the names specified above. For more information, see "Defining Event Domain Constants" on page 11.*

---

4. Optionally, you can also use the Developer IDE to make any of the following changes to the Global Configuration Variables section of the initial PROCESS script in the HP Network Node Manager (Business) Production script package::
  - Change `$main.HTML_form_url` to point to a JSP page that you want to process any responses from the HTML email. (the default setting should work out-of-the-box).
  - Change `$main.logo` to a URL that holds the image you want to display at the top of HTML emails (by default, it points to the xMatters logo).
  - Set `$main.logo_alt_text` to the text you wish to display when the logo cannot be fetched. This can be displayed if the email client is configured not to show images, or it could be displayed because the email client cannot access the xMatters web server directly and thus cannot respond by using the links in the HTML.
  - If you are using BES and have access to a BES server, you can set the URL to the BES server in the `$main.bes_pushurl` variable.
5. Save and validate the script, and check in the script package.

For more information about these and other configuration variables, see “Configuration Variable Reference” on page 55.

## 4.9 Troubleshooting

This section identifies and explains some issues with the integration that may be encountered during installation, configuration, or validation.

### 4.9.1 Voice files

Note that on multiple-Company deployments, the voice files must be installed to `<xMHOME>\node\phone-engine\Datastore\<company_id>\common\recordings\english\phrases`, where `<company_id>` is the database identifier of the Company where the servicenowim Event Domain has been created.

If the voice files have already been copied to the above location, but are still not playing in notifications, you can copy the voice files to the global location at `<xMHOME>\node\phone-engine\Datastore\global\common\recordings\english\phrases`. Note that this is the location for the out-of-box voice files; adding the integration specific files to this location may cause them to be played for notifications not related to HP NNMi.

### 4.9.2 Known Issues

xMatters plans to address these issues in subsequent releases:

- Acknowledging an incident from within HP Network Node Manager i does not prevent further notification deliveries by xMatters.
- If the xMatters web server is installed on a different machine than the HP NNMi server, both machines' clocks must be set to within 30 seconds of each other; otherwise, the WS-Eventing subscription manager may not work correctly. Using a common Network Time Protocol (NTP) Server on the xMatters and HP NNMi systems is recommended.
- At time of release the "Acknowledge" response will not assign the responding User as the Owner of the event. This means that notifications may continue to other Users and the incident may not be updated as "In Progress" in HP NNMi. This is due to an issue with a web services call in HP NNMi, and will be addressed via an HP NNMi hotfix; for more information, consult the xMatters community site at <http://community.xMatters.com>.
- The following error may appear in the xMatters log, due to the limitations of the Notes field in HP NNMi; this is scheduled to be addressed in a hotfix available from HP:

```
REPORT: Recipient: Bob Smith - Home Email - Message: Failed to change priority NNMi incident:
1e47d39a-ca69-4c69-9e40-2009f1db16e3. Exception received from NNMI: javaException:
com.alarmpoint.integrationagent.soap.exception.SOAPRequestException:
com.alarmpoint.integrationagent.soap.exception.SOAPRequestException:
javax.transaction.RollbackException:
[com.arjuna.ats.internal.jta.transaction.arjunacore.commitwhenaborted]
[com.arjuna.ats.internal.jta.transaction.arjunacore.commitwhenaborted] Can't commit because the
transaction is in aborted state
```

For more information about the available hotfixes for HP NNMi, contact your HP NNMi representative.

## 4.10 Uninstalling

For instructions on removing an xMatters deployment, refer to the *xMatters (alarmpoint) engine installation and administration guide*.

## Chapter 5: Configuration Variable Reference

This section outlines and describes the configuration variables available in the initial PROCESS Action Script.

Note that many of the configuration variables are configurable using the Event Domain Constants, as described in "Defining Event Domain Constants" on page 11; those variables are not listed here.

### 5.1 Global configuration variables

These variables are available throughout the script package, and are parameters of the “main” object. The value assigned to each variable is its default value within the script.

Global variables

Variable	Description
<code>\$main.use_logFile = false</code>	Specify whether to use an alternate log file for debugging messages. This variable is ignored unless <code>\$main.debug</code> is also set to true.
<code>\$main.logFile = "../logs/"</code>	Defines the file used to log debugging information (only if <code>\$main.use_logfile</code> is set to true).
<code>\$main.HTML_form_url = \$AlarmPoint_URL &amp; "/jsp/ProcessNotificationResponse.jsp"</code>	Specifies the URL of the xMatters web server's Process Notification Response JSP form, used by HTML email and BES to inject responses through the system.
<code>\$main.logo = \$AlarmPoint_URL &amp; "/static/images/logos/alarmpoint/UNKNOWN.png"</code>	Specifies the path to the graphic displayed on HTML (email and BES) notifications.
<code>\$main.logo_alt_text = "[If the logo does not appear you may be blocking images or you may be outside a firewall. If the latter, the links will not work for responding and you should respond by replying to this email as described below.]"</code>	The alternate text to display if the HTML email logo is unavailable.  <b>Note:</b> If the logo does not display, it is unlikely that the <code>HTML_form_url</code> is valid and responses will not be injected from HTML Devices (email and BES).
<code>\$main.numeric_pager_number = "555-1212"</code>	The phone number to display for calling in to retrieve event information. This variable has a non-existent number as a default value; a real call-in number must be supplied, or a message indicating that an xMatters event has occurred.

### 5.2 Local Configuration Variable

These variables are available only in this script, and control how the script runs. For more information about the initial PROCESS script, consult the *xMatters Online Developer's Guide*.

#### 5.2.1 FYI and Subscription Notification Variables

The following variables configure the behavior of informational-only, or FYI, notifications. The value assigned to each variable is the default value within the script.

**Note:** For more information on the behavior associated with informational-only notifications, see "FYI Notifications" on page 44.

FYI and Subscription variables

Variable	Description
\$use_email_for_fyi = true	Configure Device filters for informational-only (FYI) notifications.
\$use_phone_for_fyi = false	Setting these flags to false prevents that Device type from being notified with informational (FYI) messages.
\$use_im_for_fyi = true	
\$use_text_phone_for_fyi = true	
\$use_text_pager_for_fyi = true	
\$use_numeric_pager_for_fyi = true	
\$use_bes_for_fyi = true	
\$use_generic_for_fyi = true	

## 5.3 xMatters mobile access configuration variables

The <xMHOME>\webserver\webapps\mobilegateway\jsp\hpnmmi\configuration.jsp file installed for the mobile access component contains the following configuration variables:

xMatters mobile access variables

Variable	Type	Description	Default Value
MAIN_MENU_COUNTS	Boolean	Enables the queries on the home page to be run	true
MAIN_MENU_OPTIONS	map	Defines what queries should be displayed on the homepage	High Priority Incidents Open Incidents Assigned To Me Hot Incidents Unassigned Incidents
PAGINATE_RESULTS	boolean	Enables pagination the incidents lists	true
RESULTS_PER_PAGE	int	Defines how many results should be displayed on each page of the incidents lists	10
USER_NAME_FIELD	string	Defines the name of the custom field in xMatters containing the HP NNMi login user name	"HP NNMi Login"
PASSWORD_FIELD	string	Defines the name of the custom field in xMatters containing the HP NNMi login user password	"HP NNMi Password"
VERIFY_CREDS	boolean	Enables the validation of entered HP NNMi login credentials when loading the mobile access component homepage	true
LISTS_EXPIRED	long	Defines how long to cache list values retrieved from HP NNMi through web service calls	3600000



1 - 866 - xMattrrs

12647 Alcosta Blvd.  
Suite 425  
San Ramon, CA 94583

Unit 6, Woking 8, Forsyth Rd.  
Woking, GU21 5SB, UK  
+44 (0) 1483 722 001