

xMatters *(alarmpoint)* for IBM

Tivoli Change and Configuration Management Database



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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. 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.

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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.

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This integration was designed and tested on an unmodified version of IBM Tivoli Change and Configuration Management Database, and this document describes how to configure xMatters to integrate with the default installation. If you have customized or altered your instance of Tivoli, 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.

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Chapter 1: Introduction

Welcome to xMatters (alarmpoint) for IBM Tivoli Change and Configuration Management Database. This document describes how to install and configure the xMatters (alarmpoint) for IBM Tivoli Change and Configuration Management Database software integration. The intended audience for this document is experienced consultants, system administrators and other technical readers.

1.1 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 IBM Tivoli Change and Configuration Management Database). When Tivoli 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 IBM Tivoli Change and Configuration Management Database. Responses are executed immediately on Tivoli, enabling remote resolution of the event.

This integration supports workflow assignment notifications (from Tivoli to xMatters) through the Maximo Enterprise Adapter. It also supports inbound actions (from xMatters to Tivoli) to accept, reject, or re-assign the originating workflow assignment.

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.

1.1.1 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 workflow assignment 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 event 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 workflow assignment with status information.

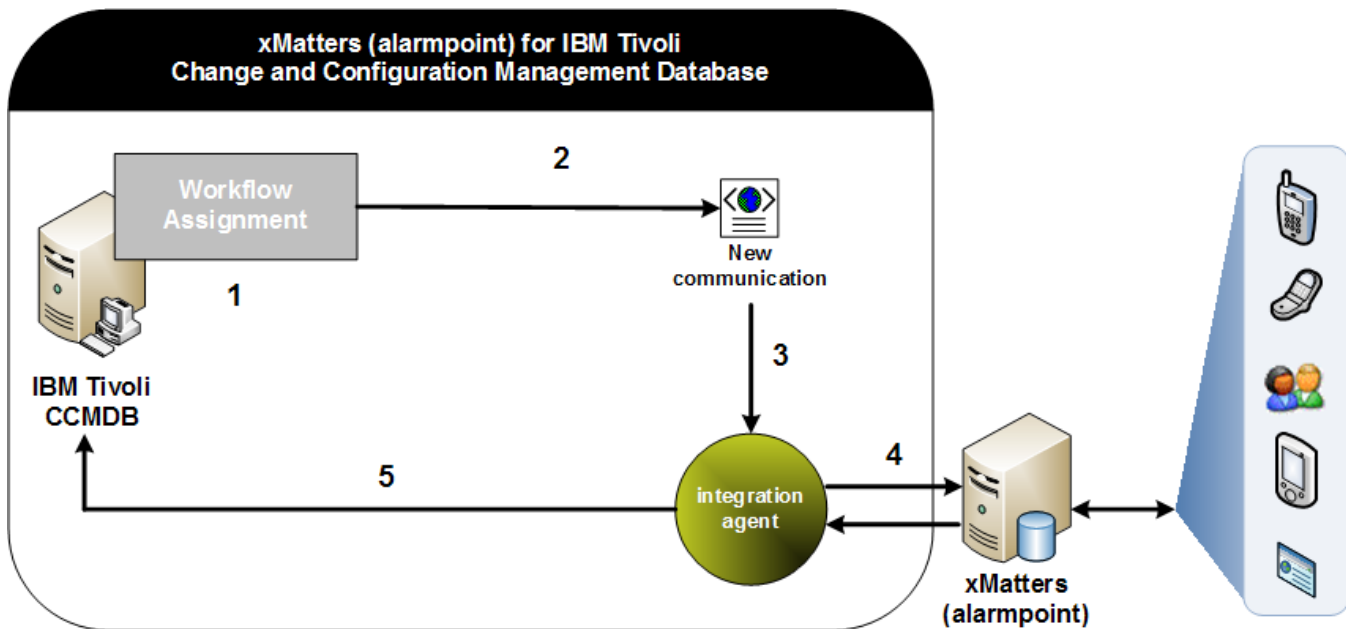
The xMatters product features a self-service web user interface to allow accurate assignment of responsible personnel for each job. xMatters also includes an optional enhanced Subscription panel that allows both managed and self-subscription to workflow assignments. This Subscription panel queries the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

1.1.2 Integration Architecture

The software components in this integration include:

- xMatters (alarmpoint) engine
- IBM Tivoli Change and Configuration Management Database
- Maximo Enterprise Adapter
- xMatters integration agent

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



When a Tivoli workflow assignment is created, it triggers the following steps (the step numbers correspond to the architecture diagram above):

1. When the workflow assignment is created, a new record is written to the WFASSIGNMENT table in Tivoli.
2. If the workflow assignment has an associated communication template, a new communication is created.
3. If the communication template has been flagged to communicate using xMatters and the workflow assignment has been flagged to send a communication, a new event will be injected into the integration agent.
4. The integration agent determines what type of event has been received (a general communication or workflow assignment). The integration agent will enrich the workflow assignment with the related change information and inject a new event into the xMatters (alarmpoint) engine for notification..
5. The integration agent uses MEA web service calls to update the workflow assignment within Tivoli.

Assignments and events job control

Depending on the configuration of the workflow task and its associated communication template, an assignment task may be injected into xMatters every time one is created within a workflow. This means that it is possible that multiple events may be created in xMatters for a single change record, depending on the number of notifications that Tivoli determines should be sent out.

To handle this possibility, the unique "event ID" used in xMatters is associated with the ID of the assignment, rather than with the ID of the change to which the assignment relates. The following sections describe how this design affects the termination of events and changes to the originating workflow assignment.

When a User accepts or rejects an assignment, xMatters "delinks" all Users from the event. This is because the assignment is targeted; even if the target of the notification is an xMatters Group, the first person to accept or reject the assignment is responding on behalf of the targeted Group, and the assignment is no longer active in Tivoli.

The following sections clarify how responses from xMatters affect the workflow assignment status in Tivoli. Note that the following are based on the functionality of the Tivoli workflow; these are not rules defined by the integration and are not customizable within the xMatters (alarmpoint) for IBM Tivoli Change and Configuration Management Database integration.

When an assignment is accepted, the record status for the assignment is set to "COMPLETE". If the assignment is of the type "When any assignment is accepted", the process sets all remaining assignments for the workflow task to "INACTIVE". If the assignment task is of the type "When ALL assignments are accepted", the process updates only the current assignment to COMPLETE; all other assignments for the task are left as "ACTIVE".

When an assignment is rejected, the assignment record status is set to "COMPLETE", and all other assignment records for the workflow are set to "INACTIVE". The workflow is STOPPED.

When an assignment is reassigned, the record status is set to "FORWARDED". The assignment record is still valid, as are all other assignments for the workflow task.

The act of setting a workflow assignment to "COMPLETE" or "INACTIVE" terminates the corresponding event in xMatters.

Note also that when defining roles that are being used in workflow assignments or Communication Templates, if the Communication Template has been defined to use xMatters for notifications, the role must be of Type Person or Person Group.

1.2 System Requirements

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

- xMatters (alarmpoint) engine 4.1 (patch 006 or later)
- xMatters integration agent 4.1 (patch 003 or later)
- xMatters Developer IDE
- IBM Tivoli Change and Configuration Management Database version 7.1 or 7.2

1.2.1 Operating Systems

The following operating systems are supported by this integration:

- Microsoft Windows 2003 (validated)
- Microsoft Windows 2008 (validated)
- Sun Solaris 10
- HP-UX B.11.23
- AIX 5.3 (validated)
- Linux Redhat AS/ES 5.3

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 xMattersintegration 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
Event	<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>
Management system	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 Tivoli.
Device	The medium through which a recipient is contacted by xMatters; i.e., email, pager, phone, BlackBerry, etc.
User	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.
Group	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 IBM Tivoli Change and Configuration Management Database integration. This chapter also contains complete instructions on how to configure xMatters, Tivoli, and the integration components.

2.1 Installing integration components

The following table describes some of the notable integration components:

Integration components	
Component Name	Description
tivoli-ccmdb.js	Integration script containing Response Action Scripting to handle response updates through web service calls.
tivoli\conf*	The configuration files used to modify the behavior of event injection and Data Synchronization.
tivoli\jsp*	The custom pages used within the Tivoli interface.
xM-IBM-Tivoli-CCMDB.aps	xMatters scripts required for the integration.
tivoli-phone-regex.xml	This file allows users to define multiple regular expressions to parse phone numbers for injection into xMatters. The file contains comments explaining how to extend the XML to add additional expressions.

2.1.1 Installing the integration service files

To enable the Tivoli integration service, you must copy the folder containing the integration agent files into the xMatters integration services folder and modify the `tivoli-ccmdb.js` and `IAConfig.xml` files. If you have more than one integration agent providing the Tivoli service, repeat the following steps for each one.

To install the integration service:

1. Copy the `xM-IBM-Tivoli-CCMDB\components\alarmpoint-integration-agent\tivoli-ccmdb` folder from the extracted integration archive to the `<IAHOME>\integrationservices` folder.
2. Open the `<IAHOME>\conf\IAConfig.xml` file and add the following line to the “service-configs” section:

```
<path>tivoli-ccmdb/tivoli-ccmdb.xml</path>
```
3. Open the `tivoli-ccmdb.js` file (now located in `<IAHOME>\integrationservices\tivoli-ccmdb\`) and modify the following variables to match your Tivoli installation.

Property	Description
TIVOLI_URL	The URL at which the integration agent can contact the Tivoli web services
TIVOLI_USER	The Tivoli user to use for web service calls
TIVOLI_PASSWORD	The Tivoli user’s password

4. Restart the integration agent.

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

2.1.2 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-IBM-Tivoli-CCMDB\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.*

2.1.3 Installing the WebSphere files

The integration includes configuration files for WebSphere, which must be copied to the correct location on the WebSphere server, and edited to include the correct connection information.

To copy the configuration files:

1. Copy the `xM-IBM-Tivoli-CCMDB\components\tivoli` folder from the extracted integration archive to the `C:\xmatters` (Windows) or `/opt/alarmpointsystems` (Unix) folder in the root directory of the server on which WebSphere is running.

Note: *If the `\alarmpoint` or `/opt/alarmpointsystems` directory does not exist, you will have to create it.*

Updating tivoli.properties

The `tivoli.properties` file contains the URLs and passwords used to contact the xMatters web services, the integration agent, and the Tivoli web services. Other configuration options included in the `tivoli.properties` file are described in "Optimizing and Extending the Integration" on page 37.

To update the properties file:

1. On the WebSphere server, open the `\xmatters\tivoli\conf\tivoli.properties` file.
2. Update the following properties to match your configuration:

Property	Description
<code>ap_integration_agent_url</code>	The URL at which the Tivoli server can contact the integration agent.
<code>ap_integration_configuration_path</code>	The path to the configuration XSL files (default value is <code>C:/xmatters/tivoli/conf/</code> , which is the Windows default). This must be modified for Unix or non-default Windows installations.
<code>ap_url</code>	The URL used to communicate with the xMatters web server
<code>ap_webservice_url</code>	The URL at which the Tivoli server can contact the xMatters web services. Note: This field should not be modified from its default value.
<code>ap_webservice_user</code>	The xMatters Web Service User to use for web service calls; default is "apwsu".
<code>ap_webservice_password</code>	The xMatters Web Service User's password; default is "password".
<code>ap_webservice_company</code>	The xMatters Company to use for web service calls.

Property	Description
tivoli_webservice_url	The URL at which the Initial User Sync can contact the Tivoli web services.
tivoli_webservice_user	The Tivoli user to use for web service calls.
tivoli_webservice_password	The Tivoli user's password.

3. Save and close the file.

Updating time zone mappings

The Person.xml file installed with the WebSphere files contains the mapping rules for converting the published Person data into the web service XML processed by xMatters. As Tivoli has over 120 time zones defined, you must to define a mapping of the time zones that are relevant to the installation in the Person.xml file.

To add the mappings, open \xmatters\tivoli\conf\Person.xml in a text editor and modify the `<xsl:template match="mx:TIMEZONE">` section.

The file includes a sample match, along with default values that will be used if a time zone is encountered for which no explicit translation has been defined.

To add translations into the file, copy the node:

```
<xsl:when test="text() = 'America/Caracas'">
  <ap:timeZone>Canada/Atlantic</ap:timeZone>
</xsl:when>
```

The `<xsl:when>` test value identifies the Tivoli value that will be matched. The `<ap:timeZone>` should contain the xMatters time zone to which it should be mapped.

Note: *If this file is not updated, the user time zones may not be correctly translated when synchronizing users between Tivoli and xMatters.*

Supported time zones		
Asia/Hong_Kong	Canada/Yukon	Europe/Vienna
Asia/Seoul	Europe/Amsterdam	Europe/Warsaw
Asia/Shanghai	Europe/Athens	Europe/Zurich
Asia/Singapore	Europe/Berlin	GMT
Asia/Taipei	Europe/Brussels	US/Alaska
Asia/Tokyo	Europe/Budapest	US/Aleutian
Australia/Melbourne	Europe/Copenhagen	US/Arizona
Australia/Perth	Europe/Dublin	US/Central
Australia/Sydney	Europe/Helsinki	US/East-Indiana
Canada/Atlantic	Europe/Lisbon	US/Eastern
Canada/Central	Europe/London	US/Hawaii
Canada/East-Saskatchewan	Europe/Moscow	US/Indiana-Starke
Canada/Eastern	Europe/Oslo	US/Michigan

Canada/Mountain	Europe/Paris	US/Mountain
Canada/Newfoundland	Europe/Prague	US/Pacific
Canada/Pacific	Europe/Stockholm	US/Samoa
Canada/Saskatchewan		

2.1.4 Updating and re-deploying the Maximo EAR file

Before you can configure the integration components, you must add the custom libraries and associated configuration files to the Maximo EAR file and update the `buildmaximoear.xml` file to reference the new files. After you install and update the Maximo EAR file, you must set the configuration parameters, and then update the Maximo server.

Note: *The following instructions assume the default Maximo installation directories; your deployment may vary.*

To add the integration components for deployment with the Maximo EAR File:

1. Copy the `com.xmatters.ibm.tivoli.jar` and `dom4j-1.6.jar` files from the `xmatters\tivoli\lib` directory to `ibm\SMP\maximo\applications\maximo\lib`.
2. Copy the contents of the `xmatters\tivoli\jsp\ccmdb` directory to `ibm\SMP\maximo\applications\maximo\maximouiweb\webmodule\webclient\alarmpoint\ccmdb`.
 - If the `alarmpoint` subfolder does not exist, you will need to create it.

To update the Maximo EAR deployment:

1. Open the `ibm\SMP\maximo\deployment\buildmaximoear.xml` file.
2. Locate the line that defines the `maximo.businessobjectsclasspath` property.
3. Update the value attribute to contain the following:
`/lib/dom4j-1.6.jar /lib/com.xmatters.ibm.tivoli.jar`
4. Save and close the file.

Updating the Maximo server

To update the Maximo server, you must rebuild and deploy the EAR file.

To rebuild and deploy the Maximo EAR:

1. Navigate to the `ibm\SMP\maximo\deployment` directory.
2. Run the `buildmaximoear.cmd` (on Windows) or the `buildmaximoear.sh` (on Unix) command.
3. Login to the WebSphere Integrated Solutions Console as an administrator (the default “wasadmin”).
4. On the left navigation bar, click **Servers > Application Servers**, and then stop the MXServer Application Server.
5. On the left navigation bar, click **Applications > Enterprise Applications**.
6. Select **MAXIMO Application**, and then click **Update**.
7. Select **Replace the entire application**.
 - If the EAR file is located on a remote Maximo server, select **Remote file system**; if the EAR file is located on the local machine, select **Local file system**.
8. Click **Browse**, and then select the new EAR file located at `ibm\SMP\maximo\deployment\default\maximo.ear`.
9. Click **Next**, and once processing is complete, click **Next** again.
10. Select **Clusters and Servers**, and then click **Apply**.
11. Select all of the available modules.

12. Click **Next**, and then click **Finish** to deploy the new `maximo.ear` file.
13. Click **Save** and restart the MXServer Application Server.

2.2 Configuring Tivoli

To prepare IBM Tivoli Change and Configuration Management Database to combine with xMatters, configure the following components :

- Web Application URL
- Object Structures
- Publish Channels
- Web Services
- End Points
- External Systems
- Database
- Logging (optional)
- Launch In Context
- Applications
- Security Groups
- Messages

2.2.1 Configuring the Web Application URL

This section configures the URL of the web application

1. Log into the Service Request Manager Console and, using the **Go To** menu, select **System Configuration > Platform Configuration > System Properties**.
2. Enable the **Global Properties** filter (click the triangular icon near the Filter text), type `mxe.int.webappurl`, and then press **Enter**.
3. Expand the `mxe.int.webappurl` row and change the **Global Value** to the location of the Tivoli server's MEA web URL.
 - Ensure that the port value specified is correct.
4. Click **Save**, and then restart the MXServer Application server.

2.2.2 Configuring the Object Structures

This section describes the Object Structures you must define within Tivoli.

To create the Integration Objects:

1. Log into the Maximo Console, and using the **Go To** menu, select **Integration > Object Structures**.
2. Click **New Object Structure**.
3. Enter the Object Structure's information into the fields as described in the tables below.
 - To add a Source Object, click **New Row**, and enter the required information as described in the tables.
4. Click **Save**.

Repeat the above steps for each Object Structure identified below.

Object Structure: XMASSIGNMENT

- **Long Description:** XMatters: Object Structure for WFASSIGNMENT and COMPLETEWF
- **Consumed By:** INTEGRATION

- **Inbound Processing Class:** com.xmatters.ibm.tivoli.workflow.XMattersWorkflowInboundProcessor
- **Support Flat Structure:** true

Object	Parent	Path	Relationship	Order	User Defined
WFASSIGNMENT		WFASSIGNMENT		1	true
COMPLETEWF	WFASSIGNMENT	WFASSIGNMENT/ COMPLETEWF	COMPLETEWF	1	true
REASSIGNWF	WFASSIGNMENT	WFASSIGNMENT/ REASSIGNWF	REASSIGNWF	2	true

Object Structure: XMCHANGE

- **Long Description:** XMatters: Object Structure for WOCHANGE
- **Consumed By:** INTEGRATION

Object	Parent	Path	Relationship	Order	User Defined
WOCHANGE		WOCHANGE		1	true
WORKLOG	WOCHANGE	WOCHANGE/WORKLOG	MODIFYWORKLOG	1	true
CI	WOCHANGE	WOCHANGE/CI	CI	2	true

Object Structure: XMTASK

- **Long Description:** xMatters: Object Structure for WFTASK
- **Consumed By:** INTEGRATION

Object	Parent	Path	Relationship	Order	User Defined
WFTASK		WFTASK		1	true

Object Structure: XMCI

- **Long Description:** xMatters: Object Structure for Configuration Items
- **Consumed By:** INTEGRATION

Object	Parent	Path	Relationship	Order	User Defined
CI		CI		1	true

Note: If you have already installed the IBM Tivoli Service Request Manager integration, these objects may already exist in Tivoli. You do not need to redefine them, and can skip the remaining Object Structures; they are for the Data Synchronization feature, which is a shared component.

Object Structure: XMPERSON

- **Long Description:** xMatters: Object Structure for PERSON
- **Consumed By:** INTEGRATION

Object	Parent	Path	Relationship	Order	User Defined
PERSON		PERSON		1	true
PHONE	PERSON	PERSON/PHONE	PHONE	1	true
EMAIL	PERSON	PERSON/EMAIL	EMAIL	2	true
SMS	PERSON	PERSON/SMS	SMS	3	true

Object Structure: XMUSER

- **Long Description:** xMatters: Object Structure for User
- **Consumed By:** INTEGRATION

Object	Parent	Path	Relationship	Order	User Defined
MAXUSER		MAXUSER		1	true
EMAIL	MAXUSER	MAXUSER/EMAIL	EMAIL	1	true
PHONE	MAXUSER	MAXUSER/PHONE	PHONE	2	true

Object Structure: XMPERSONGROUP

- **Long Description:** xMatters: Object Structure for PERSONGROUP
- **Consumed By:** INTEGRATION

Object	Parent	Path	Relationship	Order	User Defined
PERSONGROUP		PERSONGROUP		1	true
PERSONGROUPTEAM	PERSONGROUP	PERSONGROUP/ PERSONGROUPTEAM	ALLPERSON GROUPTEAM	1	true

Object Structure: XMPERSONGROUPTEAM

- **Long Description:** xMatters: Object Structure for PERSONGROUPTEAM
- **Consumed By:** INTEGRATION

Object	Parent	Path	Relationship	Order	User Defined
PERSONGROUPTEAM		PERSONGROUPTEAM		1	true

2.2.3 Configuring the Publish Channels

This section describes the Publish Channels you must configure within Tivoli.

To create the Publish Channels:

1. In the Maximo Console, using the **Go To** menu, select **Integration > Publish Channels**.
2. Click **New Publish Channel**.
3. Enter the Publish Channel's information into the fields as described below.
4. Select **Action > Enable Listener**, and then click **OK** on the system message.
5. Click **Save**.

Repeat the above steps for each Publish Channel identified below, and then restart the Tivoli server.

Publish Channel: XMCHANGE

- **Adapter:** MAXIMO
- **Operation:** Publish
- **Object Structure:** XMCHANGE
- **User Exit Class:** com.xmatters.ibm.tivoli.ccmbd.XMattersWOChangeExit
- **Event Filter Class:** com.xmatters.ibm.tivoli.ccmbd.XMattersWOChangeEventFilter

Note: *If you have already installed the IBM Tivoli Service Request Manager integration, you can skip the remaining Publish Channels; they are for the Data Synchronization feature, which is a shared component.*

Publish Channel: XMPERSON

- **Adapter:** MAXIMO
- **Operation:** Publish
- **Object Structure:** XMPERSON
- **User Exit Class:** com.xmatters.ibm.tivoli.datasync.AlarmPointPersonExit

Publish Channel: XMUSER

- **Adapter:** MAXIMO
- **Operation:** Publish
- **Object Structure:** XMUSER
- **User Exit Class:** com.xmatters.ibm.tivoli.datasync.AlarmPointPersonExit

Publish Channel: XMPERSONGROUP

- **Adapter:** MAXIMO
- **Operation:** Publish
- **Object Structure:** XMPERSONGROUP
- **User Exit Class:** com.xmatters.ibm.tivoli.datasync.AlarmPointPersonGroupExit

Publish Channel: XMPERSONGROUPTEAM

- **Adapter:** MAXIMO
- **Operation:** Publish
- **Object Structure:** XMPERSONGROUPTEAM
- **User Exit Class:** com.xmatters.ibm.tivoli.datasync.AlarmPointPersonGroupTeamExit

2.2.4 Configuring the Web Services

The following steps describe how to configure the web services required for the integration.

To create the Web Services:

1. In the Maximo Console, using the **Go To** menu, select **Integration > Web Services Library**.
2. Click **Select Action > Create Web Service > Create WS from Object Structure**.
3. In the dialog box, select **XMPERSON**, **XMPERSONGROUP**, **XMPERSONGROUPTEAM**, **XMASSIGNMENT**, **XMCHANGE**, **XMTASK** and **XMCI**.
4. Click **Create**.
5. Select the **Select Records** check box at the bottom of the list.

6. Select all of the new web services you added.
7. Click **Select Action > Deploy Web Service**.

2.2.5 Configuring the End Point

The following steps describe how to configure the End Point required for the integration.

Note: *If you have already installed the IBM Tivoli Service Request Manager integration, you can skip this section.*

To create the End Point:

1. In the Maximo Console, using the **Go To** menu, select **Integration > End Points**.
2. Click **Select Action > Add/Modify Handlers**.
3. Click **New Row**, and then type the following values into the form:
 - **Handler:** XMHANDLER
 - **Consumed By:** INTEGRATION
 - **Handler Class Name:** com.xmatters.ibm.tivoli.AlarmPointNullHandler
4. Click **OK**.
5. Click **New End Point**, and then type the following values into the form:
 - **End Point:** XMENDPOINT
 - **Description:** xMatters Integration End Point
 - **Handler:** XMHANDLER
6. Click **Save**.

2.2.6 Configuring the External System

The following steps describe how to configure the External System required for the integration.

To create the external system:

1. In the Maximo Console, using the **Go To** menu, select **Integration > External Systems**.
2. Click **New External System**, and then type the following values into the form:
 - **System:** xMatters
 - **Description:** xMatters: External System for Integration
 - **End Point:** XMENDPOINT
 - **Outbound Sequential Queue:** jms/maximo/int/queues/sqout
3. Select the **Enabled** check box.
4. Select the **Publish Channels** tab, and then click **Select Channel**.
5. In the dialog box, select **XMCHANGE**, **XMPERSON**, **XMUSER**, **XMPERSONGROUP**, and **XMPERSONGROUPTEAM**.
6. Click **OK**, and then enable all of the Publish Channels.
7. Click **Save**.

2.2.7 Configuring the database

Configuring the database requires two sets of changes: configuring for data synchronization, and configuring for workflow. Once you have finished the configuration, apply the changes to the database.

To configure the database for data synchronization:

Note: *If you have already installed the IBM Tivoli Service Request Manager integration, you can skip these steps.*

1. In the Maximo Console, using the **Go To** menu, select **System Configuration > Platform Configuration > Database Configuration**.
2. Select the **PERSON Object** (in the List tab, type `PERSON` into the **Object** field, press **Enter**, and then select the **PERSON** link).
3. Click the **Attributes** tab, and then click **New Row**.
4. Add a new attribute to the table:
 - **Attribute:** `XMATTERS_DEVICETRIGGER`
 - **Description:** A trigger field for the xMatters integration
 - **Type:** `ALN`
 - **Length:** `50`
5. Leave all other values as the default values and click **Save**.
6. Repeat the above steps for the **MAXUSER Object**.
7. Update the **EMAIL**, **PHONE** and **SMS Objects** to use the custom MBOs as follows:
8. For each of the Devices, select the Device object, and then click the **Object** tab and modify the **Class** attribute:
 - **EMAIL Object Class:** `com.xmatters.ibm.tivoli.datasync.AlarmPointEmailSet`
 - **PHONE Object Class:** `com.xmatters.ibm.tivoli.datasync.AlarmPointPhoneSet`
 - **SMS Object Class:** `com.xmatters.ibm.tivoli.datasync.AlarmPointSMSSet`
9. Click **Save** after modifying each object.

To configure the database for workflow:

1. In the Database Configuration area, select the **COMMTEMPLATE Object** (in the List tab, type `COMMTEMPLATE` into the **Object** field, press **Enter**, and then select the **COMMTEMPLATE** link).
2. Click the **Attributes** tab, and then click **New Row**.
3. Add a new attribute to the table:
 - **Attribute:** `XMATTERSFLAG`
 - **Description:** Boolean flag to indicate whether to use xMatters as the Communication Template Processor
 - **Type:** `YORN`
 - **Length:** `1`
 - **Scale:** `0`
 - **Required:** `true`
 - **Title:** Use xMatters
 - **Default Value:** `1`
 - **Alias:** `XMATTERSFLAG`

Note: *Setting the Default Value to 1 enables xMatters as the communication protocol for all communication templates. If you want to configure each template separately, set the Default Value to 0; if you want to use xMatters as the communication protocol for a template, you will have to manually edit the template and set the xMatters flag.*

4. Click the **Object** tab, and change the **Class** attribute to the following:
`com.xmatters.ibm.tivoli.commtmpl.XMattersCommTemplateSet`
5. Click **Save**.
6. Select the **WFASSIGNMENT Object** (in the List tab, type `WFASSIGNMENT` into the **Object** field, press **Enter**, and then select the **WFASSIGNMENT** link).
7. Click the **Object** tab, and change the **Class** attribute to the following:
`com.xmatters.ibm.tivoli.workflow.XMattersWFAssignmentSet`

8. Click **Save**.
9. Select the **COMPLETEWF** Object (in the List tab, type **COMPLETEWF** into the **Object** field, press **Enter**, and then select the **COMPLETEWF** link).
10. Click the **Attributes** tab, and then change the length of the **Memo** field to 100.
11. Click **Save**.
 - Note that this change will automatically apply to the REASSIGNWF Object, and any other Objects that inherit this field.

To apply the changes:

1. Return to the **List** tab and click **Select Action > Manage Admin Mode**.
2. Turn the Admin Mode ON.
 - Note that this function may take a few moments. Click **Refresh Status** periodically until the following confirmation is returned: BMXAA4002E - Admin Mode is ON for this server.
3. Click **Select Action > Apply Configuration Changes**.
4. Select the **Do you have a current backup?** check box to confirm a backup is available.
5. Click **Start Configuring the Database**.
 - Click **Refresh Status** periodically until the following confirmation is returned: BMXAA0577E - Database configuration is complete. You may view the log file to see the detailed status.
6. Click **Select Action > Manage Admin Mode**.
7. Click **Turn Admin Mode OFF**.
 - It is important to complete this step, as leaving Admin Mode ON will prevent Tivoli from publishing events to xMatters.
8. Click **Refresh Status** periodically until the following confirmation is returned: BMXAA4003E - Admin Mode is OFF for this server.

2.2.8 Configuring Logging

The integration supports the log4j logging framework and can be configured using the standard Maximo logging configuration page. Note that the following steps are optional, and not required for the integration to function.

To configure logging:

1. In the Maximo Console, using the **Go To** menu, select **System Configuration > Platform Configuration > Logging**.
2. Click **Select Action > Manage Appenders**.
3. In the dialog box, click **New Row** and then type the following values into the form:
 - **Appender**: XMAppender
 - **Description**: xMatters: RollingFileAppender for Integration
 - **Appender Implementation Class**: psdi.util.logging.MXFileAppender
 - **File Name**: xmatters.log
4. Click **OK**.
5. In the Root Loggers table, click **New Row**, and then type the following values into the form:
 - **Logger**: com.xmatters
 - **Log Level**: ERROR
 - **Key**: log4j.logger.com.xmatters
 - **Appenders**: XMAppender
6. Click **Save**, and then click **Select Action > Apply Settings**.

Note: For more detailed information in the log file, change the log level to **INFO** or **DEBUG**.

2.2.9 Configuring Launch In Context

The integration contains several custom JSP pages that can be launched via the Maximo Launch In Context feature.

To create the Launch In Context entries:

1. In the Maximo Console, using the **Go To** menu, select **System Configuration > Platform Configuration > Launch In Context**.
2. Click **New Launch Entry**, and then enter the Launch Entry's information into the fields as described below.
3. Click **Save**.

Repeat the above steps for each Launch Entry identified below.

Launch Entry Name: XMVIEWNOTIFICATIONS

- **Description:** xMatters View Notifications
- **Console URL:** /maximo/webclient/alarmpoint/ccmdb/ViewNotifications.jsp?operator={USER}
- **Target Browser Window:** alarmpoint

Launch Entry Name: XMSIGNON

Note that you do not need to configure this launch entry if you have already installed the IBM Tivoli Service Request Manager integration.

- **Description:** xMatters Application Signon Screen
- **Console URL:** http://localhost:8888/xmatters (replace "localhost" with the appropriate URL for your installation)
- **Target Browser Window:** alarmpoint

Launch Entry Name: XMQUICKMESSAGE

- **Description:** xMatters Quick Message Screen
- **Console URL:**
/maximo/webclient/alarmpoint/ccmdb/QuickMessage.jsp?incidentId={WONUM}&operator={USER}
- **Target Browser Window:** alarmpoint

Launch Entry Name: XMWHOISONDUTY

Note that you do not need to configure this launch entry if you have already installed the IBM Tivoli Service Request Manager integration.

- **Description:** xMatters Who Is On Duty Screen
- **Console URL:**
/maximo/webclient/alarmpoint/ccmdb/WhoIsOnDuty.jsp?group={PERSONGROUP}&operator={USER}
- **Target Browser Window:** alarmpoint

2.2.10 Configuring Applications

To use the Launch In Context entries defined above, you must add launch entries to the Change and PersonGroup applications.

To update the Application:

1. In the Maximo Console, using the **Go To** menu, select **System Configuration > Platform Configuration > Application Designer**.
2. In the Application filter, type **CHANGE** and press **Enter**.
3. Select the **CHANGE** Application, and then click **Select Action > Add/Modify Signature Options**.

4. In the dialog box, at the bottom of the form, expand the **Advanced Signature Options** section, and then click **New Row**.
5. Select the **Associate to launch entry to enable launch in context** check box, and then type the following values into the form:
 - **Option:** XMQM
 - **Description:** xMatters Quick Message
 - **Launch Entry Name:** XMQUICKMESSAGE
6. Click **New Row** again, select the **Associate to launch entry to enable launch in context** check box, and then type the following values into the form (note that you do not need to configure this entry if you have already installed the IBM Tivoli Service Request Manager integration.):
 - **Option:** XMAPPL
 - **Description:** xMatters Application
 - **Launch Entry Name:** XMSIGNON
7. Click **New Row** again, select the **Associate to launch entry to enable launch in context** check box, and then type the following values into the form:
 - **Option:** XMVN
 - **Description:** xMatters View Notifications
 - **Launch Entry Name:** XMVIEWNOTIFICATIONS
8. Click **OK**, and then click **Select Action > Add/Modify Select Action Menu**.
9. Click **New Row**, and then type the following values into the form:
 - **Element Type:** OPTION
 - **Key Value:** XMQM
 - **Header Description:** Quick Message
 - **Position:** 1
 - **SubPosition:** 1
 - **Tabs:** MAIN
10. Click **New Row** again, and then type the following values into the form (note that you do not need to configure this entry if you have already installed the IBM Tivoli Service Request Manager integration.):
 - **Element Type:** OPTION
 - **Key Value:** XMAPPL
 - **Header Description:** xMatters Application
 - **Position:** 2
 - **SubPosition:** 1
 - **Tabs:** MAIN
11. Click **New Row** again, and then type the following values into the form:
 - **Element Type:** OPTION
 - **Key Value:** XMVN
 - **Header Description:** View Notifications
 - **Position:** 3
 - **SubPosition:** 1
 - **Tabs:** MAIN
12. Click **OK**, and then click **Save**.

Updating the PersonGroup Application

Note that you do not need to update the PersonGroup Application again if you have already installed the IBM Tivoli Service Request Manager integration.

To update the Person Group Application:

1. In the Maximo Console, using the **Go To** menu, select **System Configuration > Platform Configuration > Application Designer**.
2. In the Application filter, type `PERSONGR` and press **Enter**.
3. Select the **PERSONGR** Application, and then click **Select Action > Add/Modify Signature Options**.
4. In the dialog box, expand the **Advanced Signature Options** section, and then click **New Row**.
5. Select the **Associate to launch entry to enable launch in context** check box, and then type the following values into the form:
 - **Option:** XMONDUTY
 - **Description:** xMatters: Who Is On Duty
 - **Launch Entry Name:** XMWHOISONDUTY
6. Click **OK**, and then click **Select Action > Add/Modify Select Action Menu**.
7. Click **New Row**, and then type the following values into the form:
 - **Element Type:** OPTION
 - **Key Value:** XMONDUTY
 - **Header Description:** Who Is On Duty
 - **Position:** 1
 - **SubPosition:** 1
 - **Tabs:** MAIN
8. Click **OK**, and then click **Save**.

Updating the Communication Template

Note that when defining roles that are being used in Workflow Assignments or Communication Templates, if the Communication Template has been defined to use xMatters for notifications, the role must be of Type Person or Person Group.

To update the Communication Template Application:

1. In the Maximo Console, using the **Go To** menu, select **System Configuration > Platform Configuration > Application Designer**.
2. In the Application filter, type `COMMTMPLT`, and then press **Enter**.
3. Select the **COMMTMPLT** Application, and then click the **Workspace** tab.
4. In the workspace, click the **Communication Template** tab.
5. In the toolbar, click **Control Palette**.
6. Click and drag a check box onto the form below the Comm Log Entry.
7. Right-click the new check box, and then select **Properties**.
8. In the **Attribute** field, set the value to **XMATTERSFLAG**, and then close the dialog box.
9. Save the changes to the form.
 - Note that the caption is automatically set to the TITLE value specified in the attribute when it was added to the database. When the form is loaded, the check box will be labelled as **Use xMatters?**

2.2.11 Configuring Security Groups

Once you have added the action menu entries for the Applications, you must add permissions for the new entries to the appropriate Security Groups. The following steps illustrate the process by explaining how to allow all users to access the custom pages.

To add permissions to a Security Group:

1. In the Maximo Console, using the **Go To** menu, select **Security > Security Groups**.
2. In the Group filter, type **EVERYONE** and press **Enter**.
3. Select the **EVERYONE** Group, and then click the **Applications** tab.
4. Expand the filter for the **Applications** table, type **Changes** in the filter's **Description** field, and then press **Enter**.
5. In the bottom table, select the **Grant Access** check box for the following items:
 - **xMatters Application**
 - **xMatters Quick Message**
 - **xMatters View Notifications**
6. Click **Save**.
7. In the Applications description filter, type **Person Groups**, and then press **Enter**.
8. In the bottom table, select the **Grant Access** check box for **xMatters Who Is On Duty** (note that you can skip this step if you have already installed the IBM Tivoli Service Request Manager integration.)
9. Click **Save**.
10. Log in as another user to confirm that the changes have taken effect.

Note: *If you do not want all Users to have access to the custom pages, give permissions only to the appropriate Security Groups.*

2.2.12 Configuring Messages

In order for error messages to correctly be displayed to the user two custom messages must be added to the Maximo server.

Note: *If you have already installed the IBM Tivoli Service Request Manager integration, you can skip this section.*

To add the Messages:

1. In the Maximo Console, using the **Go To** menu, select **System Configuration > Platform Configuration > Application Designer**.
2. Click the **Workspace** tab, and then click **Select Action > Messages**.
3. Click **New Row**, and then enter the following information:
 - **Message Group:** alarmpoint
 - **Message Key:** messagebox
 - **Display Method:** MSGBOX
 - **Message ID:** Click the Search tool and select Customer Customization.
 - **Display ID:** Clear the check box.
 - **Value:** {0}\nContinue?
 - **Buttons:** Select the **Yes** and **No** checkboxes, and clear the **OK** check box.
4. Close the Message Group details section.
5. Click **New Row** again, and then enter the following information:
 - **Message Group:** alarmpoint
 - **Message Key:** statusmessage

- **Display Method:** STATUS
- **Message ID:** Click the **Search** tool and select **Customer Customization**.
- **Display ID:** Clear the check box.
- **Value:** {0}

6. Click **OK**, and then click **Save**.

2.3 Configuring IBM WebSphere

To configure WebSphere, add the configuration files to the MXServer Application Server classpath.

Note: *Even if you have already installed the IBM Tivoli Service Request Manager integration, you **MUST** add a new classpath as described in the steps below, unless the entry you are adding already exists. Do not skip this section.*

This section assumes you have already copied the WebSphere configuration files provided with the integration to the correct folder on the WebSphere server, and configured the connection information, as described in "Installing the WebSphere files" on page 6.

To add the configuration files to the classpath:

1. Log into the WebSphere Integrated Solutions Console, and click **Servers > Application Servers**.
2. Click the **MXServer Name** link.
3. In the right hand menu, select **Server Infrastructure > Java and Process Management > Process Definition**.
4. In the right hand menu, select **Additional Properties > Java Virtual Machine**.
5. In the **Classpath** text box, create a new line with C:\xmatters\tivoli\conf (or your Unix equivalent).

Note: *This value must match the value specified in the `ap_integration_configuration_path` attribute in the `tivoli.properties` file, as described in "Updating tivoli.properties" on page 6.*

6. Click **OK**, and then click **Save directly to the master configuration**.
7. Restart the MXServer Application Server.

2.4 Configuring xMatters

Configuring xMatters to combine with Tivoli requires the following steps:

- Import the script package
- Configure the Event Domain
- Add a Web Service User
- Configure a supervisor
- Configure the Subscription Panel
- Configure Synchronization

2.4.1 Importing the script package

This step requires the xMatters Developer IDE. For installation instructions, 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-IBM-Tivoli-CCMDB\components\alarmpoint\scripts\xM-IBM-Tivoli-CCMDB.aps file extracted from the integration zip file, click **Open.**, 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, add 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 `@initiatingEvent` line, add the following:

```
GOSUB configureAdditionalESMTokens
```

11. 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 == "tivoli-ccmdb|tivoli-ccmdb")
        @esmTokens::put( "incident_id" , $initiatingEvent.incident_id )
        @esmTokens::put( "siteid" , $initiatingEvent.ch_site )
        @esmTokens::put( "ownerid" , $initiatingEvent.as_ownerid )
    ENDIF
RETURN
```

12. Locate each `send()` call in the 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. Right-click the CONTACT:callout script, and then select **Validate.**
17. Right-click the Default Company folder, and then select **Check In.**
18. Right-click the **IBM Tivoli CCMDB (BUSINESS)** folder, and then select **Validate.**
19. Right-click the folder again, and then select **Check In.**
20. In the Create Script Package dialog box, click **Create.**
21. In the Check In dialog box, 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

```

2.4.2 Configuring the Event Domain

By default this integration is set up to use an Event Domain of “tivoli-ccmdb”; it is strongly recommended that you use this default Event Domain. For the integration to be successful, the Event Domain name must match the Client ID of the integration agent.

The xMatters 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:** tivoli-ccmdb
 - **Description:** Tivoli CCMDB Integration
 - **Script Package:** IBM Tivoli CCMDB
5. Click **Save**.

Defining an Integration Service

For the installation to be successful, the integration service name must match the service specified in the `tivoli-ccmdb.xml` file installed on the integration agent.

To define an Integration Service:

1. In xMatters, on the Event Domains page, click the **tivoli-ccmdb** 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:** tivoli-ccmdb
 - **Description:** Tivoli CCMDB Integration Service
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.

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 **tivoli-ccmdb**.
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.

Constant Name	Default Value	Description
xmattersurl	http://localhost:8888	Used to specify the address of the xMatters web server. The links provided in notification content use the <code>alarmpointurl</code> 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. Populates the <code>\$main.alarmpoint_url</code> variable.
bespushurl	http://localhost:8888/static	Used to specify the address of the BES device server. Populates the <code>\$main.bes_pushurl</code> parameter.
forcefyi	disable	Force notifications to be informational only (FYI), rather than requiring responses; this overrides the <code>fyi</code> behaviour specified on the injected event. Possible values: <ul style="list-style-type: none"> • disable: Nothing is forced. • on: Notifications are forced to be FYI. • off: Notifications are forced not to be FYI. Populates the <code>force_fyi</code> parameter.
failsafegroup	Tivoli CCMDB FailSafe	The fail-safe recipient to notify, typically a group. 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 Tivoli CCMDB FailSafe to another group defined in xMatters.

Constant Name	Default Value	Description
failsafe	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"> • enabled: Notify if no subscriptions match or no notifiable recipients. • for-subscriptions: Notify if subscription functionality is enabled AND no subscriptions match. • for-recipients: Notify if no notifiable recipients. • disabled: Disable fail-safe functionality. <p>Populates the <code>\$fail_safe</code> parameter.</p>
overridetimeframes	false	<p>Override Recipients Device Timeframes.</p> <p>Populates the <code>\$override_timeframes</code> parameter.</p>
useemergencydevices	false	<p>Force the use of emergency Devices.</p> <p>Populates the <code>\$use_emergency_devices</code> parameter.</p>
trackdelivery	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>
annotatedelivery	true	<p>Enables delivery information annotations back to the management system. Set this to false to prevent messages about Device delivery from being submitted to the management system.</p> <p>Populates the <code>\$main.annotate_delivery</code> parameter.</p>
annotate	true	<p>Enables submission of annotations back to the management system.</p> <p>Populates the <code>\$main.annotate</code> parameter.</p>
subscriptionannotate	true	<p>Enables submission of Subscription annotations back to the management system.</p> <p>Populates the <code>\$main.subscription_annotate</code> parameter.</p>
tracksubscriptiondelivery	true	<p>Track when each device is delivered to for Subscriptions.</p> <p>Populates the <code>\$track_subscriptionDelivery</code> parameter.</p>
timeout	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>
maxinvalidresponses	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>
enablehtmlmail	true	<p>Enables HTML email functionality.</p> <p>Populates the <code>\$main.enable_HTML_Email</code> parameter.</p>

Constant Name	Default Value	Description
uselogo	true	Set this if you want the logo displayed within HTML email notifications. Populates the <code>\$main.use_logo</code> parameter.
debug	false	Indicates whether to use the debug level for logging messages. Populates the <code>\$main.debug</code> variable.

2.4.3 Adding the Web Service User

This integration requires a Web Service User for the Tivoli data synchronization process., and to modify the default integration agent web services user to have access to the Query Incident web service call.

Note: *If you have already installed the IBM Tivoli Service Request Manager integration, you can skip this section.*

To set up a Web Service User:

1. In xMatters, click the **Users** tab, and then click **Add Web Service User**.
2. Enter the following information into the form:
 - **User ID:** APWSU
 - **Description:** xMatters Web Service User
 - **Password:** type the User's password (default is `password`)
 - **Verify Password:** retype the password to verify it.
3. Set this User to have access to all of the available web services.
4. Click **Save**.
5. Click Find Web Services Users, and then click **All**.
6. In the returned search results, click **IA_User**.
7. On the Details for IA_User page, confirm that the list of **Allowed Web Services** includes the Query Incident web service; if it is not listed in the Allowed Web Services list, select it in the **Denied Web Services** list, and then click **Add**.
8. Click **Save**.

Note: *To ensure that you do not compromise your security, do not use the default password on production systems.*

2.4.4 Configuring a Supervisor

The Data Synchronization component requires a supervisor for new Users, Teams, and Groups. This supervisor must be an active User assigned to the Person Supervisor and Group Supervisor Roles. If you have already installed the IBM Tivoli Service Request Manager integration, you can skip this section.

Note: *If you are using xMatters lite, you are limited to a single Administrator, and must change the Data Synchronization configuration files to refer to the default Company Administrator.*

To configure a separate Tivoli administrator:

1. In the web user interface, click the **Users** tab.
2. In the Users menu on the left side of the screen, click **Add User**.
3. On the Add a User page, enter the following information into the form (this will ensure that the User details match the default settings in the Data Synchronization configuration files):

- **User ID:** tivoliadmin
 - **First Name:** Tivoli
 - **Last Name:** Admin
4. In the **Available Roles** list, select **Standard User**, **Person Supervisor**, and **Group Supervisor**, and then click **Add**. (Press Ctrl to select more than one Role in the list.)
 5. Click **Save**.
 6. On the Change Web Login page, type a password for the Tivoli admin in the **New Password** field, and then re-type it in the **Verify New Password** field.
 7. Click **Save** to create the User.

For more information about these tasks, refer to the *xMatters (alarmpoint) engine user guide*.

2.4.5 Configuring a Subscription

With Subscriptions, xMatters can automatically notify Users whenever an event matches a pre-defined set of criteria. For example, when a certain type of error occurs on a specific asset or service, xMatters can notify a particular Group.

The following sections describe how to manage Subscriptions in xMatters, including instructions on how to configure a Subscription panel and assign Subscriptions to Users. Note that this feature is strictly optional; the ability to directly target Users, Devices, and Groups through integration or web messaging is sufficient for most deployments.

To allow Users to subscribe to specific criteria on injected events, you must configure a Subscription panel, which requires the following steps:

- Define the Event Domain predicates
- Define a Subscription Domain
- Create a Subscription
- Create a Fail-Safe Group

Defining Event Domain predicates

The default integration configuration uses the following Event Domain predicates to which you can subscribe:

- CHANGECATEGORY
- CHANGETYPE
- IMPACT
- RISK
- URGENCY
- PRIORITY
- FAILUREPROBABILITY
- AFFECTED_CI_NAME

Note: *You can also use the following steps to add other predicates that you consider important and which you plan to add to the integration.*

To define the Event Domain predicates:

1. In xMatters, click the **Developer** tab.
2. On the Event Domains page, click tivoli-ccmdb.
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	Description
CHANGECATEGORY	List	Yes	<p>A list of change categories available within the Tivoli System.; default values to add are:</p> <ul style="list-style-type: none"> • Major • Minor • Significant
CHANGETYPE	List		<p>A list of change types available within the Tivoli System.; default values to add are:</p> <ul style="list-style-type: none"> • Emergency • Normal • Standard
IMPACT	List	Yes	<p>A list of possible impacts; default values to add are:</p> <ul style="list-style-type: none"> • Critical • High • Medium • Low • Planning
RISK	List	Yes	<p>A list of possible risk levels assigned to workflow assignments; default values to add are:</p> <ul style="list-style-type: none"> • Critical • High • Medium • Low • None
URGENCY	List		<p>The urgency of the workflow assignment; default values to add are:</p> <ul style="list-style-type: none"> • Critical • High • Medium • Low • Planning
PRIORITY	List		<p>A list of possible priorities assigned to the workflow assignment; default values to add are:</p> <ul style="list-style-type: none"> • Immediate • High • Medium • Low • Planning

Predicate	Type	Important	Description
FAILUREPROBABILITY	List		A list of possible failure probabilities assigned to the workflow assignment; default values to add are: <ul style="list-style-type: none"> • High • Medium • Low
AFFECTED_CI_NAME	Text		The name of the affected Configuration Item to which the workflow assignment is related.

Note: *When specifying a list-type predicate, populate the list with any values you want to subscribe against. For best results, match the predicate value lists with the incident parameter value lists. If preferred, the predicate type can be changed to Text. This allows Users to specify matching criteria based on text constraints (e.g. CONTAINS, ENDS WITH, STARTS WITH and MATCHES), rather than a value list selection.*

5. Click **Save**.

Defining a Subscription Domain

The Subscription Domain is the reference point of the 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 tivoli-ccmdb, and then click **Continue**.
3. On the Subscription Domain Details page, in the **Name** field, type Tivoli_CCMDB.
4. Select the **One-Way** check box.
5. In the **Type of Management** drop-down list, select **Both**.
6. Click **Continue**.
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.*

Creating a Subscription

You can now subscribe to Tivoli 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 Tivoli_CCMDB 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.
4. When you are satisfied with the criteria, click **Save** to create the Subscription.

2.5 Filtering and suppression

The xMatters integration agent's Portable Filtering and Suppression Module is a built-in module that maintains a rolling record of previously injected events, and allows for the suppression of duplicates (also referred to as "deduplication"). This helps avoid disruption of traffic due to inadvertent loads that can result when, for example, improperly configured management systems inject duplicated events.

To install the module:

1. Copy the `xM-IBM-Tivoli-CCMDB\components\alarmpoint-integration-agent\deduplicator-filter.xml` file from the extracted integration archive into the `<IAHOME>\conf` folder.

Unix-specific changes

If you are installing this integration on a Unix deployment, you must add the following parameter to the `<IAHOME>\conf\wrapper.conf` file; this will add a system property to the JVM:

```
wrapper.java.additional.<n>=-Ddeduplicator.file=conf/deduplicator-filter.xml
```

Change the `<n>` number to be the actual consecutive number, depending on the number of additional parameters above the new parameter.

2.5.1 Configuration

To configure the module, add your required filters to the `deduplicator-filter.xml` file (located at `<IAHOME>/conf/`). You can add any number of filters, each of which must consist of the following filter attributes; the "Default Value" column identifies the out-of-the-box settings for the integration:

Deduplication filter attributes

Attribute	Description	Default Value
predicates	A list of incoming event tokens (or "predicates") that are considered relevant for the purpose of correlation.	incident_id failureprobability owner ownergroup impact urgency priority risk status urgency
suppression_period	The length of time (in seconds) to suppress duplicate.	1800
window_size	The maximum number of unique events to record.	100

The default filter for this integration is as follows:

```
<filter name="tivoliccmdb">
  <predicates>
    <predicate>incident_id</predicate>
    <predicate>failureprobability</predicate>
    <predicate>owner</predicate>
    <predicate>ownergroup</predicate>
```

```

    <predicate>impact</predicate>
    <predicate>urgency</predicate>
    <predicate>priority</predicate>
    <predicate>risk</predicate>
    <predicate>status</predicate>
    <predicate>urgency</predicate>
  </predicates>
  <suppression_period>1800</suppression_period>
  <window_size>100</window_size>
</filter>

```

This default filter will suppress any notification within a 30-minute timeframe that has identical values for incident_id, failureprobability, owner, ownergroup, impact, urgency, priority, risk, status, and urgency as an existing notification. All duplicate events are logged in the log file with a warning message: ****Deduplicator Suppressed Notification****.

This module is implemented to prevent minor changes to the change record being injected into xMatters, which can result in multiple event notifications for subscribing Users.

2.6 Configuring Synchronization

This section describes the default behavior of the user and group synchronization included with this integration. Please read through this section and update the default configuration to match your requirements.

Note: *If you have already installed the IBM Tivoli Service Request Manager integration, you can skip this section.*

2.6.1 Default Behavior

The following definitions are used for the terminology in the table below:

- **Include/Exclude:** Identifies whether the object is included or excluded when being synchronized with AlarmPoint.
- **Seed only:** If true, the object will be created in xMatters but will not be updated; otherwise, all updates will be synchronized with xMatters.
- **Deletable:** If false, when the object is deleted in Tivoli, it will not be deleted from xMatters; otherwise, when the object is deleted from Tivoli, it will also be deleted from xMatters.

The default behavior for each synchronized object is as follows:

Object	Include/Exclude	Seed only	Deletable
User	Include	false	true
Email Device	Include	false	true
Voice Device	Include	false	true
SMS Device	Include	false	true
Group	Include	false	true
Team	Include	false	
Coverage	Include	false	

Note: *The behavior for Users and Groups is controlled by PersonSyncRules.xsl and GroupSyncRules.xsl, respectively.*

2.6.2 Configuration

All configuration for User and Group synchronization is contained in the XSL stylesheets that were copied to the C:\xmatters\tivoli\conf directory on the WebSphere server (as described in "Installing the WebSphere files" on page 6). These stylesheets allow you to define the synchronization behavior for all synchronized objects as well as defining the values for each field of the xMatters object.

The XML document transformed using this stylesheet is defined by the Object Structure within Tivoli; the resulting document must be in the format accepted by the xMatters web services. If the resulting document contains no content or a single element with a value, that object will be excluded and either a generic message or the value of the single element will be logged.

This section provides an example of how to update the `Person.xsl` file so that Users with the job title of “supervisor” will be assigned to the Person Supervisor role.

To update the `Person.xsl` file:

1. Open the C:\xmatters\tivoli\conf\Person.xsl file on the WebSphere server, and locate the following section of code:

```
<ap:roles>
  <ap:role>
    <ap:name>Standard User</ap:name>
  </ap:role>
</ap:roles>
```

2. Update the section to resemble the following:

```
<ap:roles>
  <ap:role>
    <ap:name>Standard User</ap:name>
  </ap:role>
  <xsl:if test="mx:TITLE = 'supervisor'">
    <ap:role>
      <ap:name>Person Supervisor</ap:name>
    </ap:role>
  </xsl:if>
</ap:roles>
```

3. Save and close the file.

Note: *These effects will only take action on all subsequent user updates. For the changes to take effect on all Users immediately, you must run the initial synchronization tool to synchronize all changes to xMatters.*

2.6.3 Configuring User Service Providers

By default, Devices created or updated via Data Synchronization are set to use the xdxMatters Virtual Device providers. To change the User Service Providers for Devices in Data Synchronization, edit the XSL files for the Devices you are adding (i.e., `PhoneDevice.xsl`, `EmailDevice.xsl`, and `SMSDevice.xsl`), and add the following section:

```
<ap:userServiceProvider>
  <ap:name>SMTP Email</ap:name>
</ap:userServiceProvider>
```

Replace "SMTP Email" with the name of the User Service Provider you want the Device to use.

For more information, XML and XSL references are available on the w3schools web site at <http://www.w3schools.com/>.

Chapter 3: Integration Validation

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

- IBM Tivoli Change and Configuration Management Database
- xMatters Application and Notification Server Nodes
- xMatters integration agent

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

The following sections will test the combination of xMatters and Tivoli for notification delivery and response, Subscription Panel functionality, and synchronization configuration.

3.1 Testing Initial Synchronization

The initial synchronization tool is designed to force a push of all user and group information from the Tivoli server to the xMatters server. This is useful if you want to initially create all Tivoli users and groups in xMatters. Note that if you have already installed the IBM Tivoli Service Request Manager integration, you can skip this section as the synchronization feature is shared between both Tivoli integrations.

You can also use the initial synchronization to update all Tivoli users and groups in xMatters to either propagate configuration changes or re-attempt previous failed synchronizations.

Note: *The initial synchronization program requires a Java JRE, version 1.5 or greater.*

To run the initial synchronization program:

1. On the WebSphere server, navigate to the \xmatters\tivoli directory.
2. Open the runInitialSync.bat file and update the path to the Java executable.
3. Save and close the file.
4. Run runInitialSync.bat.

Note: *If you want to run the initial synchronization from a location other than the WebSphere server, ensure that you use the same configuration files as those on the WebSphere server.*

3.2 Triggering a notification

When a change record is routed to the next stage in the workflow, a notification will be sent into xMatters provided the following configuration is in place:

- There is a workflow assignment task in the workflow process.
- There is at least one assignment in the task that uses a valid communication template and the **Send E-mail** option is selected.
- The selected role contains users/groups that exist in xMatters and do NOT point to email addresses within Tivoli.
- The selected communication template for the assignment has the **Use xMatters** option selected.

When Tivoli sends a notification, if the communication template is set to use xMatters, the notification is sent to the integration agent.

If the notification is a workflow assignment notification (as opposed to a general communication), the data will be enriched with the related change information before being passed into xMatters where the recipient and subscribed Users are determined and notified.

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 an Email 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:



IBM Tivoli CCMDB - Automated Notification

Time of Event:	Tuesday, 24 Mar 2011 09:44:56 GMT-0400
Target:	MAXADMIN Home Email
Assignment Message:	You have a MAXIMO workflow assignment in the CHANGE application, on record Site VIC, Change 1144 . Assignment due date is: 3/24/11 2:44 PM . Click on the link below to go directly to the record. http://vic-vm-CCMDB.invoqsystems.com/maximo/ui/maximo.jsp?event=loadapp&value=CHANGE&uniqueid=144
Assignment Description:	Determine whether this xMatters Change 1144 is within our policy
Assignment Due date:	3/24/11 2:44 PM
Change ID:	1144
Change Category:	Major
Change Status:	ACC_CAT
Owner:	RLEUNG
Change Type:	Normal
Change Description:	Upgrade MS Exchange Server
Reason for Change:	Current version is no longer supported
Effect of not Implementing:	Unsupported email server
Risk:	Critical
Failure Probability:	Medium
Impact:	Critical
Urgency:	Low
Priority:	High

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

Site:	VIC
Configuration Item:	88088
Configuration Item Name:	BLADE SERVER
Configuration Item Description:	16 core servers with 64GB of RAM

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

I have reviewed this Change and accept that it is within our Change policy. I have set the Change Type and Change Owner if they were not automatically set.


1. [Accept](#)
2. [Reject](#)

If you are unable to connect to the xMatters server you will need to respond with the following method:

To respond, reply and replace the subject line with the word RESPONSE, followed by your response choice: Accept, Reject, Reassign, Annotate

NOTE: Include the original message in your reply, and do NOT delete this note, as it identifies this message (240821).

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

 Notification response successful.

3.4 Viewing response results

When an action is taken on a notification, the assignment memo field is updated with the response and responder details. Delivery information is written to the WorkLog on the change record.

- Updated workflow assignment (note the status change to ASSESS):

Changes Bulletins: (0) [Go To](#) [Reports](#) [Start Center](#) [Profile](#) [Sign Out](#) [Help](#)

Find: Select Action

Progress Map

ACC_CAT → ASSESS → SCHED → AUTH → IMPL → INPRG → COMP → REVIEW → CLOSE

Change: Owner: Owner Group: Status: Attache

Change Details

Summary:

Change Type:

Reason for Change:

Effect Of Not Implementing:

Verification Plan:

Remediation Plan:

Risk:

Failure Probability:

Impact:

Urgency:

Priority:

Change Category:

Classification:

Class Description:

Specifications

Attribute	Description	Data Type	Alphanumeric Value	Numeric Value	Unit of Measure	Table Value
...No rows to display...						

Primary Targets

- Updated the workflow assignmentmemo field with details of the response:

Details

Process: Person:



















Transaction Type: Transaction Date:

Description: Memo:

Action String: Reassigned? ☐

- Updated the change record's Work Log with Device delivery information:


Changes Bulletins: (0) [Go To](#) [Reports](#) [Start Center](#) [Profile](#) [Sign Out](#) [Help](#)

Find: Select Action #                  


List Change Assessments Impacts Authorization Schedule Workplan Map Related Records Actuals Log


Progress Map









ACC_CAT → ASSESS → SCHED → AUTH → IMPL → INPRG → COMP → REVIEW → CLOSE

Change:  Status: Site:

Work Log Communication Log

Work Logs [Download](#) [?](#) 

Filter 1 - 8 of 8 

Record	Class	Created By	Date	Type	Summary	Viewable
1144 >>	CHANGE	MXINTADM	3/24/11 9:54 AM	CLIENTNOTE 	[xMatters] - Successful Delivery for Raymond Leung	<input checked="" type="checkbox"/>
1144 >>	CHANGE	MXINTADM	3/24/11 9:47 AM	CLIENTNOTE 	Callout to MAXADMIN unsuccessful (MACHINE_DET	<input type="checkbox"/>
1144 >>	CHANGE	MXINTADM	3/24/11 9:47 AM	CLIENTNOTE 	Callout to MAXADMIN unsuccessful (MACHINE_DET	<input type="checkbox"/>
1144 >>	CHANGE	MXINTADM	3/24/11 9:46 AM	CLIENTNOTE 	[xMatters] - Successful Delivery for Max Admin (MA	<input type="checkbox"/>
1144 >>	CHANGE	MXINTADM	3/24/11 9:46 AM	CLIENTNOTE 	[xMatters] - Successful Delivery for Raymond Leung	<input type="checkbox"/>
1144 >>	CHANGE	MXINTADM	3/24/11 9:46 AM	CLIENTNOTE 	[xMatters] - Successful Delivery for Raymond Leung	<input type="checkbox"/>
1144 >>	CHANGE	MXINTADM	3/24/11 9:46 AM	CLIENTNOTE 	[xMatters] - Successful Delivery for Max Admin (MA	<input type="checkbox"/>
1144 >>	CHANGE	MXINTADM	3/24/11 9:46 AM	CLIENTNOTE 	[xMatters] - Successful Delivery for PM CFGADM (P	<input type="checkbox"/>

[New Row](#)

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 28). Trigger a notification that matches the criteria that you have configured your Subscription to match. You will receive an FYI Notification (informational only) which will not have any response choices available.

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 IBM Tivoli Change and Configuration Management Database integration.

4.1 Response choices

The integration allows recipients to respond to notifications with several default choices, some of which are injected back to the Tivoli server, updating the original workflow assignment. Users notified on email Devices also have the ability to respond with an extra annotation message which will be logged in the original workflow assignment.

Note: *It is possible to define multiple instructions in a workflow task. For this integration, the inbound process will ONLY provide ACCEPT, REJECT or REASSIGN options. This means that the integration is expecting no more than TWO instructions, one positive and, optionally, one negative). More than two instructions will not be supported by the integration.*

The following is a list of the default response choices available with the integration and their associated actions on the xMatters event and the Tivoli workflow assignment.

Default response choices

Response	xMatters Action	Tivoli Update	Availability
Accept	Delinks all Users from the event, not allowing them to submit responses.	Mark the workflow assignment as complete for the current user and updates the memo field on the workflow task.. This may cause the workflow task to complete depending on whether the workflow is configured as "When ANY assignment is accepted" OR "When ALL assignments are accepted" within Tivoli.	All non-FYI devices
Reject	Delinks all Users from the event, not allowing them to submit responses.	Updates the workflow assignment to complete and rejects the change order. Updates the memo field on the workflow task. This response will ONLY be available if the current task is defined with a negative response option. This is configurable within Tivoli.	All non-FYI devices
Reassign	Delinks the responder from the event.	Updates the workflow assignment to FORWARDED and creates a new workflow assignment for the user to whom the task was reassigned. Updates the memo field and marks the current assignment as reassigned.	This functionality is available for Email Devices only.
Annotate	Halts delivery of notifications to any other Devices the responding User may have configured.	Any additional notes added to the response are recorded on the workflow assignment's Work Log.	This functionality is available for Email Devices only.

4.1.1 Adding annotation messages

Two-way email Device notifications (not FYI) can add extra annotations that will be added to the workflow assignment as a message on the workflow assignment's Work Log. 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.

4.1.2 Reassigning workflow assignments

Two-way email Device notifications (not FYI) can reassign a workflow task to another user. To reassign the task, respond to an email notification with the following format in the subject line:

```
RESPONSE REASSIGN <User>
```

<User> must be a valid user in the Tivoli system.

4.2 Delivery Annotations

This integration extensively annotates the originating workflow assignment, but this may not be desirable in all environments. To prevent workflow assignment delivery annotations, change the "annotate" Event Domain Constant to *false*. For more information, see "Defining Event Domain Constants" on page 22.

4.3 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, which stores the number of seconds the notifications will be allowed to continue before timing out.

The default value is 259200, which is the number of seconds in a 72-hour period. You can change the delay to a two-hour timeout by changing the value of the constant to 7200.

For more information, see "Defining Event Domain Constants" on page 22.

4.4 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 22.

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.*

4.5 Constructing BES and email notifications

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

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 **.tivoli-ccmdb**.
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 22.*

4.6 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.

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.

Note that many of the configuration variables are configurable using the Event Domain Constants described in "Defining Event Domain Constants" on page 22. Those variables are not listed here.

Global variables

Variable	Description
\$main.use_logFile = false	Specify whether to use an alternate log file for debugging messages. This variable is ignored unless \$main.debug is also set to true.
\$main.logFile = "../logs/"	Defines the file used to log debugging information (only if \$main.use_logfile is set to true).
\$main.HTML_form_url = \$AlarmPoint_URL & "/jsp/ProcessNotificationResponse.jsp"	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.
\$main.logo = \$AlarmPoint_URL & "/static/images/logos/alarmpoint/UNKNOWN.png"	Specifies the path to the graphic displayed on HTML (email and BES) notifications.
\$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.]”	<p>The alternate text to display if the HTML email logo is unavailable.</p> <p>Note: If the logo does not display, it is unlikely that the HTML_form_url is valid and responses will not be injected from HTML Devices (email and BES).</p>
\$main.numeric_pager_number = “555-1212”	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 variables

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 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 38.

FYI variables

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



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