

xMatters *(IT)* engine

FOR HP SERVICE MANAGER CHANGE MANAGEMENT



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Thursday, November 13, 2014

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This integration was designed and tested on an unmodified version of HP Service Manager Change Management, and this document describes how to configure xMatters to integrate with the default installation. If you have customized or altered your instance of HP Service Manager, 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 for HP Service Manager Change Management. This document describes how to install and configure the xMatters for HP Service Manager Change Management 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 HP Service Manager Change Management). When HP Service Manager 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 Service Manager Change Management. Responses are executed immediately on HP Service Manager, enabling remote resolution of the event.

This integration supports change request notifications (from HP Service Manager to xMatters). It also supports inbound actions (from xMatters to HP Service Manager).

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.

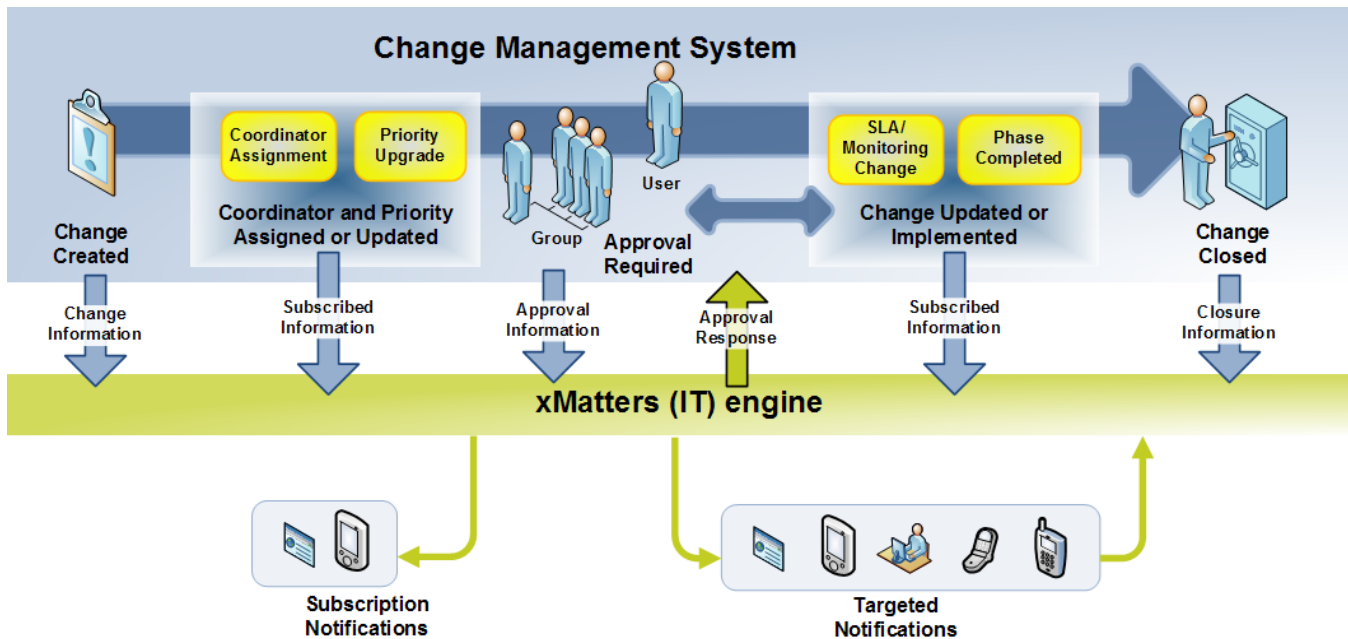
Once a response is selected on the recipient's remote device, xMatters will update the HP Service Manager change request in real-time. The benefit is that this process is immediate – significantly faster than the time required for staff to notice the failures or malfunctions, determine who is on call, 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 change request 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 Service Manager events. This Subscription panel queries the HP Service Manager 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 Information Workflow

The following diagram illustrates a standard workflow in a change request management system, and how information from the management system is passed into the xMatters:

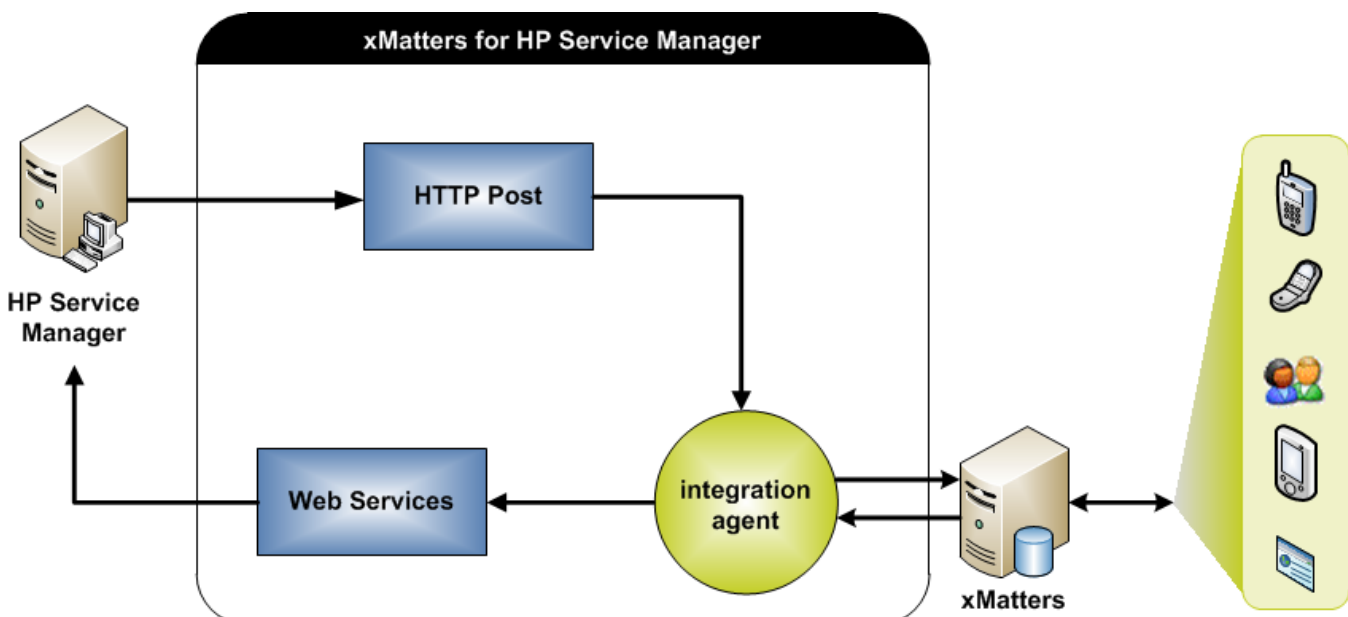


1.1.3 Integration architecture

The software components in this integration include:

- xMatters
- HP Service Manager Change Management
- xMatters integration agent

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



Whenever HP Service Manager detects a problem, it triggers the following steps (for a description of what will cause an event to be injected into xMatters, see "Event injection triggers", below):

1. HP Service Manager sends the event details to the xMatters integration agent via HTTP POST.
2. The integration agent forwards the event details to xMatters via web services.
3. The response returns to the integration agent.
4. The integration agent sends the response to HP Service Manager via web services.

User and Group synchronization process

As illustrated in the diagram, event injection for this integration is handled via the xMatters integration agent. User and group synchronization, however, is handled via direct web service calls between xMatters and HP Service Manager. For the user and group synchronization process to work, the Web Services User must be properly configured, as described in "Adding the Web Service User" on page 16.

Event injection triggers

The following is a summary of the circumstances under which HP Service Manager will inject an event into xMatters for notification. Note that this is the default, out-of-box behavior, and may be configured differently for some deployments.

- An event will be injected into xMatters whenever a new change request is created with a Priority of "Critical" or "High".
- An event will be injected into xMatters whenever an existing change request with a Priority of "Critical" or "High" is modified by upgrading the Priority, changing the Phase, or modifying the Assignee.

These events are untargeted events, used for subscriptions only.

An event will also be injected into xMatters when the Phase is changed to one that requires approval. At this point, the event will be targeted to the approvers that are defined in the approval associated to the Change Phase in the Approvals section of HP Service Manager; this is configurable within the HP Service Manager Client, and is specific to each customer's implementation.

Note: *The only time a targeted event is injected into xMatters is for approvals; all other events are untargeted.*

1.2 System Requirements

The following component versions are supported by this integration.

Integration Component	Version
xMatters	5.1 (patch 003 or later)
xMatters integration agent	5.1 (patch 003 or later)
HP Service Manager Change Management	9.3.4

For more information about the supported operating systems for xMatters, refer to the *xMatters installation and administration guide* and *xMatters integration agent guide*

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\xMatters`
- On Unix systems, the default is `/opt/xmatters`

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

- On Windows systems, the default is `C:\Program Files\xmatters\integrationagent`
- On Unix systems, the default is `/opt/xmatters/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 HP Service Manager.
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 user guide</i> .

Chapter 2: Installation and Configuration

This chapter provides information about installing the xMatters for HP Service Manager Change Management integration. This chapter also contains complete instructions on how to configure xMatters, HP Service Manager, and the integration components.

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

Note that in most cases, the xMatters integration agent must be installed on the same server as HP Service Manager.

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

2.1 Installing integration components

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

Integration components	
Component Name	Description
xMattersSyncConfig.xml	Contains all the groups, teams, users, devices and coverage value mappings used when synchronizing HP Service Manager operators and assignments with xMatters users and groups.
xMattersSyncList.xml	Contains a list of all of the HP Service Manager operators and assignments to either include or exclude from synchronization with xMatters.
xMattersForms.sc xMattersScriptLibrary.sc xMattersTriggers.sc xMattersUnload.sc xMattersWebService.sc	HP Service Manager unload files used to import all the custom xMatters records and tables.
XM-HP-SM-CM-3-0.xml	Exported event domain file containing the event domain settings, predicates, and constants required by the integration.
hpsmcm-3-0.js	Contains the Javascript code to support the calls from HP Service Manager to the integration agent when injecting events into xMatters.
hpsmcm.xml configuration.js	Contains the configuration information for the integration agent.

2.1.1 Installing the integration service

To install the integration service, you must perform the following steps:

- Copy the folder containing the integration components into the integration agent; this process is similar to patching the application, where instead of copying files and folders one by one, you copy the contents of a single folder directly into the integration agent folder (<IAHOME>). The folder structure is identical to the existing integration agent installation, so copying the folder's contents automatically installs the required files to their appropriate locations. Copying these files will not overwrite any existing integrations.
- Modify the integration agent's `IAConfig.xml` file to include the paths for the new integration services.
- Modify the variables in the `configuration.js` files associated with the integration services.

If you have more than one integration agent providing the HP Service Manager service, repeat the following steps for each one.

Note: *If you have already installed an existing integration, ensure that you back up the `deduplicator-filter.xml` file (if one exists) in the `<IAHOME>\conf` folder before you install this integration.*

To install the integration service:

1. Copy all of the contents of the `\components\integration-agent` folder from the extracted integration archive to the `<IAHOME>` folder.
2. If you backed up an existing deduplicator file as indicated in the note above, merge the contents of your backup with the newly installed `<IAHOME>\conf\deduplicator-filter.xml` file: open both files in a text editor, and then copy the `<filter>` node from the backup file into the new deduplicator file after the last `</filter>` node. Save and close the file.
3. Open the `IAConfig.xml` file found in `<IAHOME>\conf` and add the following line to the “service-configs” section:
`<path>hpsmcm-3-0/hpsmcm-3-0.js</path>`
4. Open the `configuration.js` file (now located in `<IAHOME>\integrationservices\hpsmcm-3-0\` folder, and set the values for the following variables:

Variable	Description
HPSM_URL	The URL of the HP Service Manager web service.
HPSM_USER_NAME	The user name of the HP Service Manager web service user used to access the web services.
HPSM_PASSWORD_FILE	Location of the file containing the web service user's password; for instructions on how to set the password for this user, see "Installing the integration service", below.
DEDUPPLICATOR_FILTER	The name of the filter used to suppress duplicate notifications for this integration. For more information, see "Filtering and suppression" on page 34.
DELETE_EXISTING_EVENTS	Sends a "delete" prior to creating the new event, which will clear any existing events for the incident ID.
ANNOTATE_DELIVERY	Update HP Service Manager events with xMatters notification delivery status.

5. Restart the integration agent.
 - On Windows, the integration agent runs as a Windows Service; on Linux, it runs as a 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 installation and administration guide*.

This integration provides two sets of English voice files; one for the notification integration, and one for the data load portion.

To install the voice files:

1. Determine the value of the file identifier associated with your company.
 - To find your company's file identifier, log into the xMatters web user interface as the Super Administrator, and view the target Company's Details page (**Admin** tab > **Companies** > **Company name**).

2. Copy the contents of the `\components\xmatters\vox\` folder from the extracted integration archive to the following node installs folder:

```
<SMHOME>\node\phone-engine\Datastore\<FILE_IDENTIFIER>\
```

For example, if you were installing the integration for the default company on an out-of-the-box deployment, the installation path for the voice file would be as follows:

```
<SMHOME>\node\phone-engine\Datastore\1\hpsmcm-3-0\recordings\english\phrases
```

Note that if this is the first custom event domain you have created, the `<FILE_IDENTIFIER>` directory will not have been created yet. You can create it manually or log into xMatters and use the web user interface to add a new voice recording. If the phone device engine is running, xMatters will create the directory structure and place the new voice recording in it.

2.1.3 Installing the web services library

To enable web service calls between xMatters and HP Service Manager, you must copy the JAR file from the `lib` folder in the extracted integration archive into the web server library folder.

Source file:

```
\components\xmatters\lib\com.alarmpoint.servicemanager.cm.jar
```

Web server destination directory:

```
<SMHOME>\webserver\webapps\cocoon\WEB-INF\lib
```

Note: *If you have installed more than one web server, copy the JAR file into the destination directories on each one.*

2.1.4 Installing the synchronization configuration files

The `xMattersSyncConfig.xml` and `xMattersSyncList.xml` files contain the configuration information for synchronizing users, groups, devices and coverages from HP Service Manager into xMatters.

Note that the synchronization process and all its files are identical for both the HP Service Manager Change Management and the HP Service Manager Incident Management integrations; if you have already installed the HP Service Manager Incident Management integration (version 3.0), you can skip this step.

To install the synchronization configuration files:

Copy the files in the `\components\servicemanager\config\` folder from the extracted integration archive to `<SMHOME>`.

Note: *If these files are installed to a different location, you must modify the `AlarmPointConfig` script library within HP Service Manager.*

2.2 Configuring HP Service Manager

Configuring HP Service Manager to combine with xMatters requires the following steps:

- Import the xMatters tables and records.
- Modify the HP Service Manager triggers.
- Modify the `AlarmPointConfig` script.
- Add the SOAP API and xMatters capabilities to HP Service Manager User for xMatters web service calls.
- Update the `IM.template.update` and `IM.update.incident` forms to allow web service calls to update change requests.
- Expose the `problem.type` and `product.type` tables for web service calls.
- Remove the invalid data from HP Service Manager categories.

- Add the syncContact call to the createUser 2 Wizard.
- Enable Resolve for Web Services.

2.2.1 Importing xMatters tables, records, and web services

The xMatters tables, records, and web services are used to inject change requests to xMatters for notification, and required by the HP Service Manager database for the integration.

The .sc files described in this section are shared between both HP Service Manager integrations; if you have already installed the HP Service Manager Incident Management integration (version 3.0), you should skip this step.

To import the tables, records, and web services:

1. Log in to the HP Service Manager Client Console.
2. Open the Administration perspective.
3. In the System Navigator, open the **Tailoring** folder, and then double-click the **Database Manager** object.
4. In the drop-down menu in the upper-right corner of the main object window, select **Import/Load**.
5. Click the folder icon beside the **File Name** field.
6. Select the first .sc file in the \components\servicemanager\imports\ directory, in the extracted integration archive.
7. Click **Open**.
8. Click **Load FG**.

Repeat the above steps for each of the remaining .sc files in the imports directory.

Service Manager Unload scripts

This integration includes a set of HP Service Manager unload scripts intended to help with the maintenance of the integration. The unload scripts are:

- AlarmPoint Forms: This script unloads all the capability words, dbdict definitions, displayoptions, displayscreens, formats, globallists, menus and scripts associated with the integration.
- AlarmPoint Integration: This unload script is a combination of the Forms, ScriptLibrary, Triggers, Unload and Web Services unload scripts.
- AlarmPoint Purge: This unload script is similar to Integration, but instead of an unload this script performs a purge
- AlarmPoint ScriptLibrary: This unload script unloads the xMatters Java Scripts found in Script Library
- AlarmPoint Triggers: This unload script unloads the xMatters triggers associated with the integration.
- AlarmPoint Unload: This unload script unloads the unload scripts.
- AlarmPoint Web Services: This unload script unloads the External Access Definitions needed as part of the integration. Note that this does not unload a comprehensive list of the External Access Definitions that are required; it is an unload of the definitions which are unique to the integration and created to support the integration. Definitions such as IncidentManagement, which are updated to support the integration, must be managed manually.

2.2.2 Modifying the HP Service Manager triggers

Importing the xMattersTriggers.sc file loads all of the triggers for both of the xMatters for HP Service Manager integrations. If you want only the HP Service Manager Change Management integration (i.e., you are not installing the HP Service Manager Incident Management integration), you should delete the triggers specific to the other integration.

To delete the triggers:

1. In the HP Service Manager Database Manager's **Form** field, type `triggers`, and then press **Enter**.
2. In the **Trigger Name** field, type `alarmpoint` and then press **Enter**.
3. Locate and delete the following triggers:
 - `alarmpoint.after.add.probsummary`
 - `alarmpoint.after.update.probsummary`

2.2.3 Modifying the AlarmPointConfig script

The AlarmPointConfig script contains configuration information for web services, data synchronization, and other parameters as described in the table below. This section describes how to modify the configuration script to allow HP Service Manager to inject change requests to xMatters through web services.

Note: *The configuration files described in this section are shared between both HP Service Manager integrations; if you have already installed the HP Service Manager Incident Management integration (version 3.0), you can skip this step.*

To modify the AlarmPointConfig script:

1. In HP Service Manager System Navigator, open the **Tailoring** folder, and then double-click the **Script Library** object.
2. In the **Name** field type `AlarmPointConfig`, click **Search**.
3. Modify the variables in the following table to suit the configuration of your integration.
4. Click **Save**, **Compile**, and then **Execute**.
 - If HP Service Manager returns any errors after you click **Compile**, ensure that you have updated the file correctly.

AlarmPointConfig script variables

Variable Name	Value
web_service_url	The URL of the xMatters web service; for example: <code>"http://localhost:8888/api/services/AlarmPointWebService";</code>
web_service_user	The user name of the xMatters Web Service User (as configured in "Adding the Web Service User" on page 16). Best practices suggest that the user name be related to the purpose; e.g., "hpsm-xmwsu".
web_service_password	The password of the xMatters Web Service User.
xmatters_servicemanager_cm_domain	The name of the xMatters Event Domain for Change Manager notifications.
default_xmatters_admin_group	The target name of the recipient (group or user) in xMatters where synchronization error notifications are sent. This group is created in "Creating a fail-safe Group" on page 19. Note: If a group has a synchronization error and that group has a supervisor, the group supervisor will be notified instead of this recipient.
send_sync_error_notifications	If <i>true</i> , sends notifications to the default administration group created in "Creating an Admin Group" on page 20 (or the group supervisor) when a record fails to synchronize with xMatters.

Variable Name	Value
xmatters_servicemanager_sync_domain	<p>The xMatters event domain for Service Manager. The value initializes the variable using an existing variable value, and should not include quotes.</p> <p>Note: If you are installing ONLY the HP Service Manager Change Management integration, change the variable name to: xmatters_servicemanager_cm_domain</p>
sm_home	<p>The location of the HP Service Manager installation; for example:</p> <p>"C:\\Program Files (x86)\\HP\\Service Manager 9.30\\Server\\"</p>
config_file	<p>The location of the xMattersSyncConfig.xml; for example:</p> <p>sm_home + "xMattersSyncConfig.xml"</p>
synclist_file	<p>The location of the xMattersSyncList.xml; for example:</p> <p>sm_home + "xMattersSyncList.xml"</p>
ia_url	<p>The URL of the integration agent HTTP listener; for example,</p> <p>http://localhost:2010/agent</p> <p>Note: If the integration agent is installed on the same computer as HP Service Manager, you do not need to modify this parameter.</p>
xmatters_company	<p>Name of the company within xMatters; the default value is "Default Company".</p>
sync_voice	<p>If true, voice devices will be synchronized; the default is true.</p>
detailedSyncLogging	<p>If true, displays filtering information when performing a synchronization; default is true.</p>
detailEventLogging	<p>If true, displays the APXML being sent to xMatters; default is false.</p>
sync_cm3groups	<p>If true, synchronize HP Service Manager Change groups when performing a synchronization; default is <i>true</i>.</p>
sync_assignmentGroups	<p>If true, synchronize HP Service Manager Assignment groups; default is <i>true</i>.</p>
assignmentGroupSuffix	<p>Specifies the string to add to the end of HP Service Manager Assignment group names when synchronizing.</p> <p>Note: This suffix prevents possible name collisions between Assignment and Change groups, which can have the same name in HP Service Manager, but must have unique names in xMatters.</p>
changeGroupSuffix	<p>Specifies the string to add to the end of HP Service Manager Change group names when synchronizing. (See note above for more information)</p>

2.2.4 Adding capabilities to users

The integration requires all users who are going to respond to notifications through xMatters to have both the "SOAP API" and "AlarmPoint" capabilities in addition to the appropriate xMatters configuration as described in "Configuring Users" on page 16. These users can update and annotate HP Service Manager change requests from xMatters through web service calls.

To add the required capabilities to a user:

1. In the HP Service Manager System Navigator pane, expand the **System Administration > Ongoing Maintenance** folders, and then double-click the **Operators** item.
2. In the **Login Name** field, type the login name of the user to whom you want to give response capabilities, and then click **Search**.
 - The default configuration of the xMatters Action Scripts uses the default HP Service Manager user “falcon” to make web service calls; if you want to use a different user, you must update the Action Scripts accordingly. For more information, see “Configuration Variable Reference” on page 54.
3. Select the **Startup** tab.
4. Under **Execute Capabilities**, if not already listed, add **SOAP API** and **AlarmPoint**.
5. Click **Save**.

xMatters may now use web service calls to connect to this HP Service Manager user.

2.2.5 Add the syncContact call to the createUser 2 Wizard

The AlarmPointUser.syncContact call must be added to the createUser 2 Wizard to enable synchronization of users upon their creation.

Note that while HP Service Manager’s User Quick Add Utility has space for both first and last names, the xMatters synchronization parses the first word (up to the first space) within the Full Name field as the first name, and adds any remaining words to the last name. For example, if a user was added in HP Service Manager with a first name of “One Two” and a last name of “Three Four”, xMatters would parse the entry as first name “One” and last name “Two Three Four”.

Note: *If you have already installed the HP Service Manager Incident Management integration, you do not need to perform this step.*

To add the syncContact call:

1. In the HP Service Manager System Navigator pane, in the **Tailoring** folder, double-click **Wizards**.
2. In the **Wizard Name** field, type `createUser 2` (case sensitive), and then click **Search**.
3. Click the **Actions** tab, and then click the **Javascript** tab.
4. Add the following line to the end of the Javascript:


```
system.library.AlarmPointUser.syncContact (vars.$contactname);
```
5. Click **Save**.

Now when a user is created in HP Service Manager using the createUser 2 Wizard, they will be automatically synchronized with xMatters.

Note that in HP Service Manager, Login IDs are case sensitive; for example, “FALCON” and “falcon” represent two separate users. In xMatters, User IDs (the equivalent to Login IDs in HP Service Manager) are case insensitive: xMatters would not recognize “FALCON” and “falcon” as belonging to different Users.

2.2.6 Adding the syncContact call to the Process record

For the contact.do.save call to properly synchronize user information with xMatters, the AlarmPointUser.syncUser call must also be added to the Process record.

Note: *If you have already installed the HP Service Manager Incident Management integration, you do not need to perform this step.*

To add the syncContact call:

1. In the HP Service Manager System Navigator pane, click **Tailoring > Database Manager**.
2. In the **Table** field, type `Process`, and then click the **Search** button.
3. On the Process Definition form, in the **Process Name** field, type `contacts.do.save`, and then click the **Search** button.
4. Click the **Final JavaScript** tab.
5. Add the following line to the JavaScript:

```
system.library.AlarmPointUser.syncUser(record, oldrecord);
```
6. Click **Save**.

2.3 Configuring xMatters

Configuring xMatters to combine with HP Service Manager Change Management requires the following steps:

- Import the event domain, and configure the integration service and event domain constants for each
- Configure the default user
- Add or configure a Web Services user
- Create a subscription (optional)

2.3.1 Importing Event Domain

The integration package includes an XML file that was created using the xMatters "Export Integration" feature; this greatly simplifies the xMatters configuration process by enabling you to create the integration event domain, configure the predicates and event domain constants, and import the integration script package in a single step.

To import the Event Domain packages:

1. Log in to xMatters as a Company Administrator, and click the **Developer** tab.
2. On the Event Domains page, click **Import New**.
3. On the Import Integration page, click **Browse**, and then locate the `\components\xmatters\event-domain\XM-HP-SM-CM-3-0.xml` file extracted from the integration archive.
4. Click **Open**, and then click **Upload**.

xMatters imports the integration configuration settings and displays the new "hpsmcm-3-0" event domain. xMatters also creates the predicates for the event domains, and assigns common values as defaults.

Defining the integration service

For the installation to be successful, the integration service names must match the names specified in the `hpsmcm.xml` file installed on the integration agent.

To define an Integration Service:

1. In xMatters, on the Event domains page, click the **hpsmcm-3-0** 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:** hpsmcm-3-0
 - **Description:** HP Service Manager Integration Service
 - **Path:** *Not required.*
4. Click **Save**.

Specifying connection parameters

Once you have imported the event domain packages and configured the integration services, you must specify an xMatters address that is reachable from within a notification so that responses can be processed, and other values for the event domain constants.

Note: *A known issue in xMatters version 5.0 requires that all Event Domain Constants be defined in UPPERCASE.*

To specify the connection constants:

1. On the Event Domains page, in the Domains menu, click **Event Domain Constants**.
2. In the **Event Domain** drop-down list, select **hpsmcm-3-0**, and then click **Continue**.
 - xMatters displays the pre-configured event domain constants for the integration.
3. In the event domain constants list, specify the correct values for the following constants (click the name of a constant to edit its value and description).

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
XMATTERSURL	http://localhost:8888	Used to specify the address of the xMatters web server. The links provided in notification content use this 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.
BESPUSHURL	http://localhost:8888/static	Used to specify the address of the BES device server.
ENFORCECUSTOMFIELDS	true	If true, allow replies only if user's custom fields set. Note: Not all operations succeed if user's custom fields not set.
HPSMLOGINCUSTOMFIELD	HP SM Login	Specifies the name of the custom field that stores the user name for each user accessing HP Service Manager.
HSPMPASSWORDCUSTOMFIELD	HP SM Password	Specifies the name of the custom field that stores the user password for each user accessing HP Service Manager.

Constant Name	Default Value	Description
USEDEFAULTCREDENTIALS	false	Determines whether to use: <ul style="list-style-type: none"> the user's custom credentials (the contents of the HP SM Login and HP SM Password custom fields); or, the default HP Service Manager credentials provided in the integration agent configuration when interacting with HP Service Manager (for example, for annotating responses).
FORCEFYI	disable	Force notifications to be information only (FYI), rather than requiring responses. <p>Note: This overrides the FYI behavior specified on the injected event.</p> <ul style="list-style-type: none"> disable: nothing is forced on: notifications are forced to be FYI off: notifications are forced <i>not</i> to be FYI
FAILSAFEGROUP	HPSMCM FailSafe	The failsafe recipient to notify, typically a group.
FAILSAFE	enabled	Controls failsafe functionality, notifying the failsafe recipient via EMAIL under certain circumstances: <ul style="list-style-type: none"> enabled: notify if no subscriptions match or no notifiable recipients for-subscriptions: notify if subscription functionality is enabled <i>and</i> no subscriptions match for-recipients: notify if no notifiable recipients disabled: disable failsafe functionality
OVERRIDEFRAMESTIMEFRAMES	false	Override recipients device time frames.
USEEMERGENCYDEVICES	false	Force the use of emergency devices.

Constant Name	Default Value	Description
TRACKDELIVERY	true	Track when each device is delivered to. Note: Setting this to false may give a performance advantage, but you lose any information about whether a delivery was successful or not.
ANNOTATE	true	Enables submission of annotations back to the management system.
SUBSCRIPTIONANNOTATE	false	Enables submission of subscription annotations back to the management system.
TRACKSUBSCRIPTIONDELIVERY	false	Track when each device is delivered to for subscriptions.
TIMEOUT	259200	Amount of time (in seconds) the event is allowed to run before timing out.
MAXINVALIDRESPONSES	3	Specifies the maximum invalid responses allowed before notification is no longer re-queued.
ENABLEHTMLMAIL	true	Enables HTML email functionality.
USELOGO	true	Set this if you want the logo displayed within HTML email notifications.
NUMERICPAGENUMBER	555-1212	The numeric pager content is set to a non-existent phone number. Note: For event call-in, this number should be changed to a real call-in number, or a message indicating an xMatters event notification has occurred.
DEBUG	false	Indicates whether to log informational messages for debugging purposes. Note: You may want to disable this behavior to improve performance.

2.3.2 Defining Custom Fields

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

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

Note: *If you have already installed the HP Service Manager Incident Management integration, you do not need to perform this step.*

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 SM Login
 - **Type:** Text
3. Click **Save**.
4. Click **Add New**, and then enter the following information into the form:
 - **Field Name:** HP SM Password
 - **Type:** Password
5. Click **Save**.

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

2.3.3 Configuring Users

Each xMatters User that will be notified and respond to notifications must be configured to allow xMatters to communicate with HP Service Manager as that User. Note that each User must also be configured in HP Service Manager, as described in "Adding capabilities to users" on page 10.

Note: *If you have already installed the HP Service Manager Incident Management integration, you do not need to perform this step.*

To configure a User:

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. In the Common Tasks pane, click **User Devices**.
4. Verify that an appropriate device exists and that it is enabled.
5. 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. For more information and instructions on how to perform these tasks, refer to the xMatters user guide.*

2.3.4 Adding the Web Service User

This integration requires a Web Service User for the HP Service Manager events to be injected to xMatters using web services, and for the user and group synchronization process to communicate via web service calls.

The xMatters Web Service User must have the same User ID and Password that you configured within the AlarmPointConfig script; for more information, see "Modifying the AlarmPointConfig script" on page 9.

Note: *If you have already installed the HP Service Manager Incident Management integration, you do not need to perform this step.*

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:** hpsm-apwsu
 - **Description:** HP Service Manager - xMatters Web Service User
 - **Password:** type the User's password (default is password)
 - **Verify Password:** retype the password to verify it.
3. Add the following web services to the Allowed Web Services list:
 - Add Coverage
 - Add Device
 - Add Group
 - Add Team
 - Add User
 - Delete Coverage
 - Delete Device
 - Delete Group
 - Delete Incident
 - Delete Team
 - Delete User
 - Find Devices
 - Find Groups
 - Find Persons
 - Find Who Is On Duty
 - List Group Members
 - Query Group
 - Query User
 - Update Coverage
 - Update Device
 - Update Group
 - Update Team
 - Update User
4. Click **Save**.

Note: *The User ID and Password for the Web Service User must match the web_service_user and web_service_password defined in "Modifying the AlarmPointConfig script" on page 9.*

2.3.5 Subscribing to Alerts

You can use the subscriptions feature in xMatters to subscribe to HP Service Manager change requests 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 "Immediate" urgency, or whenever an event's status was changed to "Resolved". These notifications, and their responses, do not affect the normal progression of an event through the system.

To allow users to subscribe to specific criteria on injected events, you must configure the subscription using the following steps:

- Define a subscription domain
- Create a subscription
- Create a fail-safe group

Defining a subscription domain

The subscription domain 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.

To create a subscription Domain:

1. On the Developer tab, in the Developer menu, click **Subscription Domains**.
2. On the Subscription Domains page, click **Add New**.
3. In the **Event Domain** drop-down list, select **hpsmcm-3-0**, and then click **Continue**.
4. On the Subscription Domain Details page, in the **Name** field, type HP Service Manager CM.
5. Select the **One-Way** check box.
 - Set the **Custom Page URL** to `jsp\subscription\hpsmcm-3-0\SMCMSSubscriptionForm.jsp`.
 - For this integration, responses are dynamically created for each notification; this makes defining precise response choices very difficult. It is recommended that you create only One-Way Subscriptions for this integration.
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**.

For more information about working with event and subscription domains, see the *xMatters installation and administration guide*.

Configuring the Subscription JSP

You can use either 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.
- Using web services, query HP Service Manager 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 installation and administration guide.*

Specifying predicate lists manually

To configure the Subscription panel in a demo 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\hpsmcm-3-0\SMCMConfig.jsp` file in a text editor.
2. Set the Boolean variable `QUERY_PREDICATE_VALUES` to *false*.
3. Save and close the JSP file.
4. In xMatters, click the **Developer** tab.

- On the Event Domains page, click **hpsmcm-3-0**.
- On the Event Domain Details page, in the Predicates list, click the name of the predicate for which you want to define the values.
- Add to the predicate list values, and then click **Save**.
- Repeat steps 6 and 7 for each predicate to which you want to assign values.

The predicate lists 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 Service Manager 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:

- Open the <xMHOME>\webserver\webapps\cocoona\alarmpoint\jsp\subscription\hpsmcm-3-0\SMCMConfig.jsp file in a text editor.
- Within the Subscription JSP, locate the following section:

```
final String SERVICE_MANAGER_URL = "http://localhost:13080/sc62server/ws";
final String SERVICE_MANAGER_USER = "falcon";
final String SERVICE_MANAGER_PASSWORD = "";
```

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

Subscription JSP parameters

Parameter	Value
SERVICE_MANAGER_URL	The URL for the HP Service Manager web services.
SERVICE_MANAGER_USER	User name of the HP Service Manager Web Services User.
SERVICE_MANAGER_PASSWORD	Password for the HP Service Manager Web Services User.

- Set QUERY_PREDICATE_VALUES to true.
- Save and close the JSP.

Creating a subscription

You can use the subscriptions feature in xMatters to subscribe to HP Service Manager 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 "Immediate" urgency, or whenever an event's status was changed to "Resolved". These notifications, and their responses, do not affect the normal progression of an event through the system.

To create a subscription:

- On the Alerts tab, in the Alerts menu, click **My Subscribed Alerts**. Select the **HP Service Manager CM** subscription domain, and click the **Add New** link.
- On the Subscription Details page, specify a name for the subscription, and set the subscription criteria using the tabs.
- When you are satisfied with the criteria, click **Save** to create the subscription.

Creating a fail-safe Group

If an event is submitted to xMatters when the fail-safe functionality is enabled, and there is no device or user 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 HPSMCM FailSafe, with at least one user as a team member to receive notifications.

For more information about creating groups and teams, see the xMatters user guide.

2.3.6 Creating an Admin Group

If a synchronization error occurs and the `send_sync_error_notification` configuration variable is set to true in the AlarmPointConfig script, then a notification is sent out to the recipient defined in the `default_xmatters_admin_group` variable in the AlarmPointConfig script. The default value is set to "companyadmin".

- If you do not want notifications to be sent out due to synchronization errors, set the `send_sync_error_notification` variable in the AlarmPointConfig script to *false*.

To configure the HP Service Manager Admin Group, click the Groups tab in xMatters, and create a new group named SM Admin, with at least one user as a team member to receive notifications. Update the `default_xmatters_admin_group` variable in the AlarmPointConfig script with the name of the new Group.

Note that if you have already installed the HP Service Manager Incident Management integration, you do not need to do this step.

Note: *For more information about creating groups and teams, see the xMatters user guide.*

2.4 Configuring Synchronizations

The xMatters for HP Service Manager Change Management integration supports one-way synchronization of groups (both assignment and change groups in HP Service Manager), teams, users, devices and coverages from HP Service Manager into xMatters. To enable synchronization and customize it to your business behavior, two configuration files are provided: `xMattersSyncConfig.xml` and `xMattersSyncList.xml`.

Modify these files according to your desired business behavior; the following sections provide an overview of these files and their configuration options.

Note: *If you have already installed the HP Service Manager Incident Management integration, you do not need to perform this step.*

Synchronization Troubleshooting

When performing a synchronization, open the HP Service Manager messages panel. This allows you to see successful completion of synchronizations such as modifying groups, group memberships, users, and user devices. Alternatively, you can use the Sync Report under the Menu Navigation xMatters entry to determine if any errors occurred after synchronization.

2.4.1 Synchronization configuration file

The `xMattersSyncConfig.xml` file defines the synchronized values for groups, teams, users, devices and coverages. The file included with the integration has default values to use for each object type, but can be customized to use different values for a specific instance of an object.

Note that in HP Service Manager, Login IDs are case sensitive; for example, "FALCON" and "falcon" represent two separate users. In xMatters, User IDs (the equivalent to Login IDs in HP Service Manager) are case insensitive: xMatters would not recognize "FALCON" and "falcon" as belonging to different users.

Note: *If have already installed the HP Service Manager Incident Management integration, you do not need to perform this step.*

Default values

Each default element must specify a value for all possible fields (refer to the following section for a complete list of possible fields). Each default element must also specify the seedOnly and deletable attributes.

If the seedOnly attribute is *true*, then that object will only be added to xMatters when it is initially synchronized and will no longer be updated. If the seedOnly attribute is *false*, any modifications to the object done in xMatters will be overwritten when that object is updated in HP Service Manager.

If the deletable attribute is *true*, then that object will be removed from xMatters when it is deleted from HP Service Manager; otherwise, it will remain in xMatters indefinitely and must be deleted manually.

The following elements must exist in the xMattersSyncConfig.xml file:

- default-user
- default-email
- default-work-phone
- default-home-phone
- default-sms-phone
- default-assignment-group
- default-change-group
- default-team
- default-coverage

By default, all objects are deletable and set to seedOnly = false.

There are three different ways that you can specify a default value to synchronize with xMatters:

1. Set a default value for a field:
 - **default:** the value for this field

For example, the role for the following will be standard user unless it is overridden:

```
<role default="standard user"/>
```

2. Use a regular expression to extract a value from a field:
 - **default:** the default value for this field if the regular expression does not match
 - **field:** the column in this table to apply the regular expression
 - **regex:** the regular expression used to extract a value
 - **index:** when you use Groups, this is the index of the Group you want to use (where the first Group is 1)

For example, the area-code for the following will be the first submatch when the `\D*(\d{0,3})\D*([0-9]{1}[0-9.,-]+)\D*` regular expression is applied to the contact_phone field

```
<area-code field="contact_phone" regex="\D*(\d{0,3})\D*([0-9]{1}[0-9.,-]+)\D*" index="1"/>
```

3. Map a field's value to a desired value:
 - **default:** the default value to use if there is no match
 - **map** Element: the field attribute specifies the column in the table to match; the value attribute specifies the value of the field to match on; and, the text of this field is the value to be saved

For example, the language for the following will be English, unless the value of the language column in the record is either de or fr:

```

<language default="English">
  <map field="language" value="de">German</map>
  <map field="language" value="fr">French</map>
</language>

```

Object-specific values

All object-specific elements will override any default value element and can override the seedOnly and deletable attributes.

default-user Fields

Field	Description	Possible Values
active	Whether this user is active	true, false
first-name	User's first name	Any string
last-name	User's last name	Any string
has-mobile-access	Mobile access flag	true, false
site	User's site	Valid xMatters Site name
language	User's language	Valid xMatters language
timezone	User's time zone	Valid xMatters time zone
role	User's xMatters role	A comma-delimited list of valid xMatters roles.
supervisor	User's xMatters supervisor	Valid xMatters User target name. If the supervisor in HP Service Manager is not a valid User in xMatters, the synchronization for the User/Group will fail.
has-phone-login	Phone login flag	true, false
phone-login	User's phone login	Unique string containing only digits
phone-password	User's phone password	String containing only digits
ldap-domain	User's web login LDAP domain	Valid xMatters LDAP domain
web-login	User's web login	Unique web login
web-password	User's web login password	Any string
web-login-type	Defines whether the web login is a native xMatters login or an LDAP authentication	NATIVE, LDAP
externally-owned	Indicates whether the user is externally-owned	true, false
custom-field-name	The name of the Custom Field in xMatters that will contain the value of SM userId to be used by xMatters notification responses.	Any string. Default is "HP SM Login"
custom-field-value	The value to use in the Custom Field defined in the custom-field-name field.	Any string

default-email Fields

Field	Description	Possible Values
name	Device name (must match a device name configured in xMatters)	Valid xMatters email device name
active	Whether this device is active (i.e., available to receive notifications).	true, false
default	Whether this device should be used as the user's default device	true, false
delay	Device's delay setting	Integer value (time in minutes)
externally-owned	Indicates whether the device is externally-owned	true, false
priority-threshold	Device's priority threshold	LOW, MEDIUM, HIGH
user-service-provider-id	ID of the User Service Provider (is ignored if the user-service-provider-name is present)	Long
user-service-provider-name	Name of the User Service Provider (takes priority over provider ID)	Valid xMatters User Service Provider name
address	Device's email address	Valid email address

default-work-phone, default-home-phone, and default-mobile-phone Fields

Field	Description	Possible Values
name	Device name (must match a device name configured in xMatters)	Valid xMatters email device name
active	Whether this device is active	true, false
default	Whether this device should be used as the user's default device	true, false
delay	Device's delay setting	Integer (time in minutes)
externally-owned	Indicates whether the device is externally-owned	true, false
priority-threshold	Device's priority threshold	LOW, MEDIUM, HIGH
user-service-provider-id	ID of the User Service Provider (is ignored if the user-service-provider-name is present)	Long
user-service-provider-name	Name of the User Service Provider (takes priority over provider ID)	Valid xMatters User Service Provider name
area-code	Device's area code	String containing only digits
country-code-override	Device's county code	Valid two letter country code
extension	Device's extension	String containing only digits
number	Device's phone number	String matching [0-9]{1}[0-9,-]+

default-sms-phone Fields

Field	Description	Possible Values
name	Device name (must match a device name configured in xMatters)	Valid xMatters email Device name
active	Whether this device is active	true, false
default	Whether this device should be used as the user's default device	true, false
delay	Device's delay setting	Integer (time in minutes)
externally-owned	Indicates whether the device is externally-owned	true, false
priority-threshold	Device's priority threshold	LOW, MEDIUM, HIGH
user-service-provider-id	ID of the User Service Provider (is ignored if the user-service-provider-name is present)	Long
user-service-provider-name	Name of the User Service Provider (takes priority over provider ID)	Valid xMatters User Service Provider name
number	Device's phone number	String containing only digits

default-assignment-group and default-change-group Fields

Field	Description	Possible Values
description	Group's description	Any string
timezone	Group's time zone	Valid xMatters time zone
site	Group's Site	Valid xMatters Site
active	Whether this group is active	true, false
allow-duplicates	Allow duplicates flag	true, false
externally-owned	Externally owned flag	true, false
observed-by-all	Observed by all flag	true, false
observer	Target name of a user to be the group's observer	Valid xMatters user target name
supervisor	Target name of a user to be the group's supervisor	Valid xMatters user target name
use-default-device	Use default device flag	true, false

default-team Fields

Field	Description	Possible Values
name	Team name	Any string not containing ' '
description	Description for the team	Any string

Field	Description	Possible Values
externally-owned	Externally owned flag	true, false
reuse	Reuse team flag	true, false
rotation-interval	Rotation interval (only used if type is ROTATION)	Integer value (time in minutes)
rotation-start	Rotation start date (only used if type is ROTATION)	Date in the format 'dd/mm/yyyy h:mm:ss AM/PM'
rotation-unit	Rotation units (only used if type is ROTATION)	DAYS, MONTHS, WEEKS
type	Team type	BASIC, EVENT_ROUND_ROBIN, ROTATION
member-type	Team member type (should leave as PERSON for the integration)	PERSON, GROUP, TEAM, DEVICE
member-delay	Delay between team members	Integer value
member-in-rotation	Are group members in the rotation	true, false

default-coverage Fields

Field	Description	Possible Values
name	Coverage name 24/7	Any string not containing " "
start-time	Start time for this shift	Time in the format "hh:mm"
duration-hours	Duration of the shift in hours	Integer value 0 <= N <= 24
duration-minutes	Duration of the shift in minutes (added to duration in hours)	Integer value 0 <= N <= 60
exclude-holidays	Exclude holidays flag	true, false
sunday	Coverage on Sunday	true, false
monday	Coverage on Monday	true, false
tuesday	Coverage on Tuesday	true, false
wednesday	Coverage on Wednesday	true, false
thursday	Coverage on Thursday	true, false
friday	Coverage on Friday	true, false
saturday	Coverage on Saturday	true, false
recurrence-end-date	End date for the coverage	Time in the format dd/mm/yyyy h:mm:ss AM/PM
recurrence-frequency	Frequency of the recurrence	DAILY, WEEKLY, MONTHLY

Field	Description	Possible Values
recurrence-interval	Interval of the recurrence	Integer value
recurrence-no-end-date	No end date flag	true, false
recurrence-occurrences	Number of recurrences for this coverage	Integer value
recurrence-start-date	Start date of the recurrence	Time in the format dd/mm/yyyy h:mm:ss AM/PM

2.4.2 Synchronization list file

The `xMattersSyncList.xml` file is used to define which operators and assignments should be synchronized with xMatters. The XML file contains a list of user elements with a name attribute matching an operator ID and a list of group elements containing a name attribute matching an assignment name.

The user and group elements have an action attribute which tells the integration whether you want to include only the user and group in the list for synchronization and exclude all other users and groups, or whether you want to exclude the user and group in the list for synchronization and include everyone else. The following is an example of what the file would look like if you want to synchronize only the TELECOMS assignment and want to synchronize all the operators except for FALCON:

```
<synclist>
  <users action="exclude">
    <user name="FALCON"/>
  </users>
  <groups action="include">
    <group name="TELECOMS"/>
  </groups>
</synclist>
```

2.5 Configuring the Sync Report form

This integration includes the custom HP Service Manager Sync Report form.

The Sync Report can begin full system synchronization and view the last status of objects synchronized with xMatters. The behavior of the page is as follows:

- Click **Show Errors** to display all synchronization records that are currently in an error state.
- Click **Show All** to display all synchronization records.
- Select **Sync Now** to initiate an attempt to synchronize the entire system.
- Click **Filter** to display all synchronization records that match the specified filter criteria. These filter fields use the StartsWith operator.

2.5.1 Adding buttons and menus to the Sync Report form

The `alarmpoint.syncreport` scripts provided with the integration can be used with the `script.execute` RAD application.

To add menu items:

1. In Service Manager, open **Menu Navigation > Tailoring > Tailoring Tools > Menus**.
2. In the **Menu Name** field, type the name of the appropriate menu for your deployment (e.g., HOME), and then click **Search**.
3. Add the following values to the table:

Option Number	Description	Application	Parameter	Value	Condition
Next available number	xMatters	menu.manager	name	AlarmPoint MAIN	index("AlarmPoint", \$lo.ucapex)>0

Note: *Ensure that you record the Option Number assigned to each button and menu, as you will need to reference these numbers when adding the custom form buttons in the next section.*

4. Click **Save**, and then click **Save** again.
 - If you receive an error message after clicking Save the first time, you can safely ignore it.
5. Refresh the System Navigator.

You should now see a new xMatters navigation group in the System Navigator with separate entries for each custom form.

Note: *The buttons and menu items are visible only to users with the "AlarmPoint" capability. For information about how to add the capability, refer to "Adding capabilities to users" on page 10.*

Chapter 3: Integration Validation

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

- HP Service Manager Change Management
- xMatters
- 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 Service Manager for notification delivery and response, subscription functionality, and synchronization configuration.

3.1 Validating User and Group Synchronization

The following validates that communication from HP Service Manager to xMatters for user and group synchronization is properly configured.

Note that the user and group synchronization process is handled via direct web service calls between xMatters and HP Service Manager; synchronization relies upon the correct configuration of the web services user, as described in "Adding the Web Service User" on page 16

To test the User and Group Synchronization:

1. Edit the `<SMHOME>\xMattersSyncList.xml` file as follows:

```
<synclist>
  <users action="include">
  </users>
  <groups action="include">
  </groups>
</synclist>
```

2. Restart your HP Service Manager client.
3. Add a new Operator to HP Service Manager:
 - In HP Service Manager, open **Menu Navigation > System Administration > Ongoing Maintenance > User Quick Add Utility**.
 - Specify the required information.
 - Click **Next**, **Finish**, and then **OK**.
4. In HP Service Manager, open **Menu Navigation > System Administration > Ongoing Maintenance > Groups > Incident Management Assignment Groups**.
5. Type the name of the assignment group you want to use for testing purposes (eg. TESTSYNC).
6. Select the **Operators** tab, add the operator you just created, click **Add**, and then click **OK**.
7. Edit the `xMattersSyncList.xml` file to look like the following (replace `operatorname` and `assignmentname` with the operator and assignment group you just created):

```
<synclist>
  <users action="include">
    <user name="operatorname"/>
  </users>
  <groups action="include">
    <group name="assignmentname"/>
  </groups>
</synclist>
```


8. Restart the Service Manager client.
9. Open the custom Sync Report form (see "Adding buttons and menus to the Sync Report form" on page 26 for instructions how to add a menu item for this).
10. In the drop-down list in the upper right, select **Sync Now**.
 - This should synchronize the operator and assignment that you just added to HP Service Manager into xMatters as a User and Group.
11. Log in to xMatters to check that the user and group was properly synchronized.

Note: *The xMatters User target name is the HP Service Manager contact's operator ID and the xMatters Group name is the HP Service Manager assignments name.*

3.2 Triggering a notification

In this example, an event will be injected to xMatters for notification to the group configured in the user and group Synchronization example.

1. In Service Manager, open **Menu Navigation > Change Management > Changes > Open New Change**.
2. Specify the following values in the required fields:
 - **Impact:** either 1- Enterprise or 2 - Site/Dept.
 - **Urgency:** either 1 - Critical, or 2 - High.
3. Enter values for all other required fields:
4. Click **Submit**.

This should inject the change request parameters into xMatters, triggering a new subscription notification -- if you have created a subscription. For more information, see "Creating a subscription" on page 19. Changing the phase of the change request to one that requires approval should inject a targeted notification for the approvers that are defined in the approval associated to the Change Phase in the Approvals Section of the HP Service Manager.

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 in an HTML email format, but the process is similar for all devices.

To respond to a notification:

1. When a notification arrives, open it to view its details:
2. To respond to a notification, click a response choice, and xMatters sends the response:

For more information about response choices, and changing the options available to users, see "Response choices" on page 32.

3.4 Viewing response results

When an action is taken on an xMatters notification, that action is reflected in the original change request. When xMatters makes changes to a ticket, it also updates the Historic Activities field on the change request.

To view the notification results:

1. In Service Manager, open **Menu Navigation > Change Management > Changes > Search Changes**.
2. In the **Change ID** field, type the ID of the change request you want to view, and then click **Search**.
3. Scroll down to the **Activities** section to view the updates:

Update

Historic Activities

Filter By Activity Type:

▼

Filter

Date/Time	Type	Operator	Description
04/23/10 13:08:45	AlarmPoint	falcon	Successful Delivery for Change Coordinator (Change.Coordinator Work BES).
04/23/10 13:08:58	AlarmPoint	falcon	Successful Delivery for Change Coordinator (Change.Coordinator Work Email).
04/23/10 14:22:58	AlarmPoint	Change.Coordinator	Approved by Change Coordinator (Change.Coordinator Work BES)
04/23/10 14:23:09	AlarmPoint	falcon	Successful Delivery for Change Approver (Change.Approver Work Email).
04/23/10 14:23:10	AlarmPoint	falcon	Successful Delivery for Change Approver (Change.Approver Work BES).
04/23/10 13:08:25	Phase Change	falcon	"Prepare for Change Approval" to "Change Approval"
04/23/10 13:07:52	Phase Change	falcon	"Prepare for Change Approval" to "Change Approval"
04/23/10 13:07:45	Phase Change	falcon	"Change Assessment & Planning" to "Prepare for Change Approval"
04/23/10 13:07:35	Phase Change	falcon	"Change Review" to "Change Assessment & Planning"
04/23/10 13:07:27	Phase Change	falcon	"Change Logging" to "Change Review"
04/23/10 13:06:54	Open	falcon	Test Notification Responses

For each user device notified during this process, the Journal Updates log will be annotated with a message indicating “Successful Delivery for bsmith|Work Email” where “bsmith|Work Email” is the recipient (<User>|<Device>).

3.5 Testing subscriptions

To test subscriptions, ensure that you have created a Subscription (for more information, see "Creating a subscription" on page 19). 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 for HP Service Manager Change Management integration.

4.1 Adding new parameters

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

To add an event token:

1. In HP Service Manager, click **Menu Navigation > Tailoring > Script Library**.
2. In the **Name** field type `AlarmPointCMEvent`, and then click **Search**.
3. Find the **addEvent** function.
4. Locate the `util.addAPXMLData` section.
5. Within the section, insert a new line using the following syntax:

```
util.addAPXMLData(apxml, "token_name", "string", record.action, true);
```

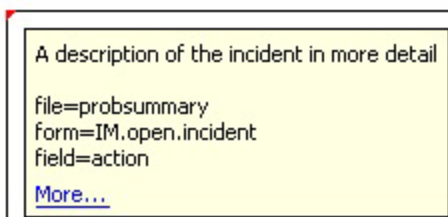
Where:

- **token_name**: a descriptive name for the new event token.
- **string**: the data type.
- **record.action**: "record" is the incident record, and "action" is the field name in HP Service Manager.

6. Click **Save**.

To help illustrate how this appears in HP Service Manager, the following image was provided by an xMatters consulting partner:

Description:



To view a description of the field information for your parameter, click **Window > Preferences > Expand HP Openview ServiceManager > Appearance**, and then select the **Show context-sensitive help debug information** check box. Place your cursor in the field, and then press **Ctrl-H**.

4.1.1 Adding new tokens 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 Service Manager Change Management (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.token_name & "\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.token_name ) )
    $event.token_name = $undefined_default
    IF ( $main.debug )
        @script::log( $main.log_prepend & "Optional token ' token_name '
            not found, defaulting to '" & $event.token_name & "'" )
    ENDIF
ENDIF
```

Your custom parameter should now appear in your 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 Service Manager server, updating the original change request. Users notified on email devices also have the ability to respond with an extra annotation message which will be logged in the original HP Service Manager change request.

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

Default response choices

Response	xMatters Action	HP Service Manager Update	Availability
Approve	Signifies that the User approves the change request, and delinks all Users from the change request.	The approval record for the change request is updated with the Approve response. The response and any additional notes added to the response are recorded in the change request's Activities tab.	All non-FYI devices
Deny	Signifies that the User denies the change request, and delinks all Users from the change request.	The approval record for the change request is updated with the Deny response. The response and any additional notes added to the response are recorded in the change request's Activities tab.	All non-FYI devices
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 change request's Journal Updates.	This functionality is available for Email Devices only.

4.2.1 Adding annotation messages

Two-way email Device notifications (not FYI) can add extra annotations that will be added to the change request 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 Responses for sync errors

Sync Error notifications are based on the hpsmcm-3-0 event domain. These create an event within xMatters and the available responses do not have any effect on the HP Service Manager system.

4.3 Delivery Annotations

This integration extensively annotates the originating HP Service Manager change request for each device to which a notification is delivered, but this may not be desirable in all environments. To prevent the delivery annotation of a change request, change the "ANNOTATEDDELIVERY" event domain constant to *false*.

4.4 FYI Notifications

You can make all notifications informational only (i.e., the user is not offered any response choices) by modifying the event domain constants. Setting the **FORCEFYI** event domain constant to "on" makes all normal and subscription notifications one-way (FYI).

4.5 Adding custom trigger rules

To add a custom trigger rule that will trigger a notification to be injected into xMatters:

1. Click **Menu Navigation > Tailoring > Script Library**.
2. Type `AlarmPointCMEvent` in the **Name** field.
3. Click **Search**.
4. Modify the following methods to suit your requirements:
 - **getTriggerRule()** - This method is used to determine whether a notification should be injected into xMatters.
 - **getDeviceFilter()** - This method is used to return a device filter string that will limit the devices to which that notification will be sent.

For example, the default behavior is to inject a notification into xMatters upon change creation. To modify this to only inject a notification on creation when the urgency is either critical or high, change the following lines:

```
else{
    triggerRule = "Creation";
}
```

To:

```
else{
    if(record.severity <= 2)
        triggerRule = "Creation";
}
```

4.6 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**.

4.7 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.

The `deduplicator-filter.xml` file is installed in the `<IAHOME>\conf` folder and is configured to suppress duplicate events for 30 minutes (up to a maximum of 100 events in that period).

This filter can be modified to extend the time period over which an event is considered to be a duplicate, the number of events in that period and the tokens that are used to determine what makes the event unique.

For example, to add `NEW_VALUE_NAME` to the tokens, open the `deduplicator-filter.xml` file in a text editor and add the following line to the `<predicates>` collection:

```
<predicate>NEW_VALUE_NAME</predicate>
```

Save the file and restart the integration agent for the changes to take effect.

Note: *To see a complete list of predicates available in the integration, review the Event Data in the Event Summary Report in the xMatters web user interface.*

4.8 HP Service Manager logging

All of the integration actions and errors are printed out to the messages panel and logged to the standard HP Service Manager log file specified in the `sm.ini` configuration file. These messages are defined in the `AlarmPointUtil` script library and are in the following format:

```
var RECIPIENT_UPDATE_FAIL = "Failed updating xMatters %% %% - %%";
```

Messages are displayed using the following function:

```
logMessage(messageId, <args>)
```

where `messageId` matches the variable used to define the message and `<args>` is replaced by as many arguments as you want. These extra arguments are used in order to replace all occurrences of `%%` in the defined message.

For example, to log the message 'Failed updating xMatters Team TELECOMS-24x7 - UNKNOWN_GROUP', you would use the following:

```
logMessage("RECIPIENT_UPDATE_FAIL", "Team", "TELECOMS-24x7", "UNKNOWN_GROUP");
```

This would print in the Service Manager log file as:

```
3204( 2656) 12/04/2007 11:15:26 JS I Failed updating xMatters Team TELECOMS-24x7 - UNKNOWN_
GROUP
```

4.9 Uninstalling

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

This integration does not include an uninstall utility; you must remove the installed components manually. For a list of the components, see "Installing integration components" on page 5

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.

Global variables

Variable	Description
\$main.use_logFile = true	Specify whether to use an alternate log file for debugging messages. This variable is ignored unless event domain constant is also set to true.
\$main.logFile = "../logs/HP_SM_CM_Script.log"	Defines the file used to log debugging information (only if \$main.use_logfile is set to true).
\$main.HTML_form_url = \$main.xmatters_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_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>



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