



EMC® Watch4net®

Version 6.3u2

VMWare Listener Administration Guide

P/N: pending

Rev : 40032

EMC²

Copyright ©2010 - 2014 EMC Corporation. All rights reserved. Published in the USA.

Published April, 2014

EMC believes the information in this publication is accurate as of its publication date. The information is subject to change without notice.

The information in this publication is provided as is. EMC Corporation makes no representations or warranties of any kind with respect to the information in this publication, and specifically disclaims implied warranties of merchantability or fitness for a particular purpose. Use, copying, and distribution of any EMC software described in this publication requires an applicable software license.

EMC², EMC, and the EMC logo are registered trademarks or trademarks of EMC Corporation in the United States and other countries. All other trademarks used herein are the property of their respective owners.

For the most up-to-date regulatory document for your product line, go to EMC Online Support (<https://support.emc.com>).

Contents

Preface	iii
Purpose	iii
Intended Audience	iii
Prerequisites	iii
Document Organization	iv
Where to get help	v
1 Overview	1
1 Product Overview	1
2 Configuration Overview	2
2 Event Processing Manager Configuration	3
3 VMWare Listener Configuration	5
1 Event and Task Time Fields	7
4 APG Portal Configuration	11
1 server.xml	11
2 APG.xml	12
5 Appendix A: XML Schema	13

Preface

Purpose

The *VMWare Listener* is a *Processing Element* designed to periodically retrieve events and/or task logs from a vSphere infrastructure.

Intended Audience

This guide is intended for advanced *APG* Administrators that have a good knowledge of the *APG Event Processing* framework.

Prerequisites

The *VMWare Listener* can only be used within a working instance of the *Event Processing Manager*, version 5.1 or above. Additionnaly, you must be using vSphere version 4 or above.

Document Organization

1. Overview	Provides a quick overview of this product, as well as configuration overview steps.
2. Event Processing Manager Configuration	How to configure the <i>Event Processing Manager</i> to include a <i>VMWare Listener</i> .
3. VMWare Listener Configuration	How to configure the <i>VMWare Listener</i> itself.
4. APG Portal Configuration	How to configure the <i>APG Portal</i> to work with the output from a <i>VMWare Listener</i> .
Appendix A: XML Schema	The XML Schema that the <i>VMWare Listener</i> configuration file is based on, for reference.

Where to get help

EMC support, product, and licensing information can be obtained as follows:

PRODUCT INFORMATION - For documentation, release notes, software updates, or information about EMC products, go to EMC Online Support at:

<https://support.emc.com>

TECHNICAL SUPPORT - Go to EMC Online Support and click Service Center. You will see several options for contacting EMC Technical Support. Note that to open a service request, you must have a valid support agreement. Contact your EMC sales representative for details about obtaining a valid support agreement or with questions about your account.

1

Overview

The following section provides an overview of the product and its configuration.

1 Product Overview

The *VMWare Listener* retrieves VMware vSphere events and tasks and transforms them into events that *APG* can process like events coming from any other source. The *VMWare Listener* interfaces with the web service of a vSphere server to retrieve events and tasks accessible from there. Tasks are treated in *APG* as events. Since events and tasks coming from vSphere have a different set of values, they are stored in different tables and use different *Database Writers*.

The queued, start and completion time for tasks, and the opened time for events, as well as all other values from vSphere events and tasks, are maintained in the *VMWare Listener* output. For more information on the relevant time fields and how they are handled, see [Event and Task Time Fields](#) on page 7.

The vSphere events and tasks can appear in the Frontend Table reports, and be plotted on graphs. Events from vSphere are momentary, so they will be plotted with discrete points, while tasks have duration, so their start and end times can be plotted.

When you have installed the event-processing components and imported your ReportPack into the

Watch4net Portal, go in edit mode and under the report branch "All >> ReportPack for VMware >> Events & Tasks" validate that you have "Always show the node".

Note: In the Frontend, you can distinguish vSphere events from tasks in a filter by using the eType property.

2 Configuration Overview

Follow the workflow steps below to configure the *VMWare Listener* and its complement modules:

1. Configure vSphere to enable event and task output.
2. Configure the **processing.xml** file for the Event Manager to recognize one or more *VMWare Listeners*. See [Event Processing Manager Configuration](#) on page 3.
3. Configure one or more *VMWare Listener* configuration files depending on your number of *VMWare Listener* instances. See [VMWare Listener Configuration](#) on page 5. To reference the XML Schema, which might help in the configuration, see [Appendix A: XML Schema](#) on page 13.

Note: Remember that a single *VMWare Listener* can listen to many vSphere servers, including primary and failover sources, so you might only need one instance.

4. Configure Tomcat's **server.xml** file. See [server.xml](#) on page 11.
5. Configure Tomcat's **apg.xml** file. See [APG.xml](#) on page 12.
6. Configure other elements in the event flow that will receive the event output from the *VMWare Listener*. Usually events flow directly from the *VMWare Listener* to a *Database Writer*. See module documentation.
7. Restart the Event Processing Manager.
8. Restart Tomcat.

2

Event Processing Manager Configuration

To use a *VMWare Listener* instance you must modify the *Event Processing Manager's processing.xml* file to include a line for each *VMWare Listener* you want to configure.

The path to the file is:

```
<APG>/Event-Processing/Event-Processing-Manager/<instance name>/conf/  
processing.xml
```

Please follow the example below to configure the *Event Processing Manager*:

```
<!-- datastore writers -->  
<processing-element name="DW-EVENTS" config="APG-Datastore-Writer/Default/conf/ds-vmware-events  
.xml" />  
<processing-element name="DW-TASKS" config="APG-Datastore-Writer/Default/conf/ds-vmware-tasks.  
xml" />  
  
<!-- MySQL writers -->
```

```
<processing-element name="DW-EVENTS" config="Generic-Live-Writer/Default/conf/
mysql-vmware-events.xml" />
<processing-element name="DW-TASKS" config="Generic-Live-Writer/Default/conf/mysql-vmware-tasks
.xml" />

<!-- the VMWare Event Listener -->
<processing-element name="vSphere" config="VMWare-Listener/Default/conf/vmware-listener.xml"
data-events="DW-EVENTS[data]" data-tasks="DW-TASKS[data]" />
```

The *VMWare Listener* usually forwards events to one or more *database writers*, but can forward both events and tasks to other processing elements in the event flow. Since it exclusively fetches events or tasks on a vSphere, it accepts no input streams from other processing elements in the event flow. The following output streams are supported:

- `data-events`: this is the event output, where the *VMWare Listener* sends the events.
- `data-tasks`: this is the task output, where the *VMWare Listener* sends the collected tasks.

3

VMWare Listener Configuration

The following example is the default *VMWare Listener* configuration. This configuration is based on the XML schema which can be found in Appendix A.

```
<?xml version="1.0" encoding="UTF-8"?>
<configuration xmlns="http://www.watch4net.com/Events/VMWareListener" xmlns:xsi="http://www.w3.
org/2001/XMLSchema-instance" xsi:schemaLocation="http://www.watch4net.com/Events/VMWareListener
.../src/conf/com/watch4net/events/processing/listeners/vmware/vmware-listener.xsd">
  <period>30s</period>
  <source id="VSPHERE-EVENTS" xsi:type="EventSource" severity="error_warning_info">
    <primary>
      <url>https://vcenter_url/sdk</url>
      <username>username</username>
      <password>password</password>
    </primary>
    <failover>
      <url>https://failover_vcenter_url/sdk</url>
      <username>username</username>
      <password>password</password>
    </failover>
  </source>
</configuration>
```

```

</source>
<source id="VSPHERE-TASKS" xsi:type="TaskSource">
  <primary>
    <url>https://vcenter_url/sdk</url>
    <username>username</username>
    <password>password</password>
  </primary>
  <failover>
    <url>https://failover_vcenter_url/sdk</url>
    <username>username</username>
    <password>password</password>
  </failover>
</source>
</configuration>

```

- **period** Period at which the *VMWare Listener* will check for new events/tasks on the vSphere server. The connection state will also be checked at the same interval. If a connection failure is detected, the listener will try to connect to failover sources (at the same interval), if any.
- **source id=id xsi:type=EventSource|TaskSource [severity=severity] [type=type]** A source represents a vSphere server instance to monitor via its web service. Each source can be composed of a primary source and multiple failover sources, if needed. This is useful for specifying backup vSphere servers in case the primary server is down.

The *xsi:type* attribute is used to determine if the source will listen for events or tasks. The *severity* and *type* attributes are optional and are valid only when using an *EventSource*. They must both be formatted as a whitespace-separated list.

Severity contains the list of event severities (error, warning, info, or user) to collect, while *type* contains the list of event types to collect. The default behavior is to collect everything.

Note:

To see the list of available event types, go to <http://www.vmware.com/support/developer/vc-sdk/visdk41pubs/ApiReference/vim.event.Event.html>. In the Data Object - Event page that appears, look at the event types listed for "Extended by".

– **primary/failover** Determines if the source is the primary source or just a failover source.

* **url** The url of the vSphere server's web service (i.e.: https://127.0.0.1/sdk).

- * **username** The username of a user with rights to the vSphere server's web service the *VMWare Listener* will use for access.
- * **password** The password corresponding to the user entered in username (leave blank for none).

Multiple Sources The *VMWare Listener* can be configured to listen to many sources simultaneously. This is done by adding more *source* tags in the configuration file. Each source must have its primary source and can have one or more failover sources (see example below).

```
...
<source id="Source-1">
  <primary>
    ...
  </primary>
  <failover>
    ...
  </failover>
</source>
<source id="Source-2">
  <primary>
    ...
  </primary>
  <failover>
    ...
  </failover>
  <failover>
    ...
  </failover>
</source>
...
```

1 Event and Task Time Fields

Time values from the vSphere are translated into an equivalent in *APG* by the *VMWare Listener*. In the case of tasks these time values can also be mapped differently, selecting which values are actually used in the *VMWare Listener* output.

Event Time The vSphere event property “CreatedTime” is transformed into the field name “OpenedAt”, with its corresponding value, in *APG* by the *VMWare Listener*. The field is exactly equivalent to the property in VMware and is used as the timestamp of the event. There is no notion of durable events in vSphere, all events are momentary and use the one value “CreatedTime” to define them temporally.

Task Time Task times are defined by three different properties in vSphere, and each has an equivalent in *APG* as applied by the *VMWare Listener* to incoming tasks.

vSphere	APG
QueuedTime	OpenedAt
StartTime	StartTime
CompleteTime	ClosedAt

By default *APG* will use the OpenedAt time for the timestamp (equivalent to the QueuedTime from vSphere). You can change this behaviour in *APG* by accessing the **FLOW-VMWARE-TASKS.xml** file located at: <APG>/Event-Processing/VMWare-Listener/Default/misc/property-mapping, and moving the timestamp="true" attribute from the OpenedAt to the StartTime property, like in the example code below:

```
...
<property
  name="com.watch4net.apg.v2.modules.database.GenericFlow.properties.FormattedTimestamp">
  <name class="string">OpenedAt</name>
  <table class="string">${table}</table>
  <display-name class="string">OpenedAt</display-name>
</property>
<property
  name="com.watch4net.apg.v2.modules.database.GenericFlow.properties.FormattedTimestamp"
  timestamp="true">
  <name class="string">StartTime</name>
  <table class="string">${table}</table>
```

```
<display-name class="string">StartTime</display-name>
</property>
...
```

Only tasks that have been completed are retrieved by the *VMWare Listener* ensuring they each have all of the time values indicated above.

4

APG Portal Configuration

Here is an example of the lines that must be added in the APG Portal configuration files in order to be able to read events from the vSphere events and tasks.

1 server.xml

The **server.xml** file is located at <APG>/Web-Servers/Tomcat/<instance name>/conf

Generally the settings below are the defaults and should not be changed. You will typically have to change a part the url from localhost to the location of the server hosting the database.

```
...  
  
<!-- Defines the connections to the VMWare Listener Event database for APG Datastore. -->  
<Resource name="jdbc/FLOW-VMWARE" auth="Container" type="javax.sql.DataSource" maxActive="30"  
    maxIdle="5" validationQuery="SELECT_1" testOnBorrow="false" testWhileIdle="true"  
    timeBetweenEvictionRunsMillis="10000" validationQueryTimeout="5"  
    minEvictableIdleTimeMillis="60000" maxWait="10000" username="apg" password="watch4net"  
    driverClassName="com.mysql.jdbc.Driver" removeAbandoned="true" removeAbandonedTimeout="60"
```

```

        logAbandoned="true" url="jdbc:mysql://localhost:53307/events?autoReconnect=true&
        tinyInttisBit=false" />

<!-- Defines the connections to the VMWare Listener Event database for MySQL. -->
<Resource name="jdbc/FLOW-VMWARE" auth="Container" type="javax.sql.DataSource" maxActive="30"
    maxIdle="5" validationQuery="SELECT 1" testOnBorrow="false" testWhileIdle="true"
    timeBetweenEvictionRunsMillis="10000" validationQueryTimeout="5"
    minEvictableIdleTimeMillis="60000" maxWait="10000" username="apg" password="watch4net"
    driverClassName="com.mysql.jdbc.Driver" removeAbandoned="true" removeAbandonedTimeout="60"
    logAbandoned="true" url="jdbc:mysql://localhost:53306/events?autoReconnect=true&
    tinyInttisBit=false" />

...

```

2 APG.xml

The **APG.xml** file is located by default at <APG>/Web-Servers/Tomcat/<instance name>/conf/Catalina/localhost. Typically you should enter this code exactly as indicated below.

```

...
<!-- Give access to VMware events database. -->
<ResourceLink
    name="jdbc/FLOW-VMWARE-EVENTS:{_mapping=FLOW-VMWARE-EVENTS.xml,_table=vmware_events_}"
    global="jdbc/FLOW-VMWARE" type="javax.sql.DataSource" />

<ResourceLink
    name="jdbc/FLOW-VMWARE-TASKS:{_mapping=FLOW-VMWARE-TASKS.xml,_table=vmware_tasks_}"
    global="jdbc/FLOW-VMWARE" type="javax.sql.DataSource" />

...

```

5

Appendix A: XML Schema

```
<?xml version="1.0" encoding="UTF-8"?>
<xs:schema targetNamespace="http://www.watch4net.com/Events/VMWareListener"
  elementFormDefault="qualified" xmlns:xs="http://www.w3.org/2001/XMLSchema"
  xmlns="http://www.watch4net.com/Events/VMWareListener">

  <xs:complexType name="Configuration">
    <xs:sequence>
      <xs:element name="period" type="duration"/>
      <xs:element name="source" type="Source" minOccurs="1" maxOccurs="unbounded" />
    </xs:sequence>
  </xs:complexType>

  <xs:complexType name="Source">
    <xs:sequence>
      <xs:element name="primary" type="SourceDefinition" minOccurs="1" maxOccurs="1" />
      <xs:element name="failover" type="SourceDefinition" minOccurs="0" maxOccurs="
unbounded" />
    </xs:sequence>
    <xs:attribute name="id" type="xs:string" use="required" />
  </xs:complexType>
</xs:schema>
```

```
</xs:complexType>

<xs:complexType name="EventSource">
  <xs:complexContent>
    <xs:extension base="Source">
      <xs:attribute name="severity" use="optional"/>
      <xs:attribute name="type" use="optional"/>
    </xs:extension>
  </xs:complexContent>
</xs:complexType>

<xs:complexType name="TaskSource">
  <xs:complexContent>
    <xs:extension base="Source">
    </xs:extension>
  </xs:complexContent>
</xs:complexType>

<xs:complexType name="SourceDefinition">
  <xs:sequence>
    <xs:element name="url" type="URL" />
    <xs:element name="username" type="xs:string" />
    <xs:element name="password" type="xs:string" />
  </xs:sequence>
</xs:complexType>

<xs:simpleType name="duration">
  <xs:restriction base="xs:string">
    <xs:pattern value="((([0-9]+(d|h|m|s|ms))+)|([0-9]+))" />
  </xs:restriction>
</xs:simpleType>

<xs:element name="configuration" type="Configuration" />

<xs:complexType name="URL">
  <xs:simpleContent>
    <xs:extension base="xs:string">
      <xs:attribute name="local-address" type="xs:string"/></xs:attribute>
    </xs:extension>
  </xs:simpleContent>
</xs:complexType>
```

```
</xs:schema>
```