HP Operations Manager Web Services

for the HP-UX and Solaris operating systems

Software Version: 8.30

Integration Guide

Document Release Date: June 2009

Software Release Date: June 2009

Legal Notices

Warranty

The only warranties for HP products and services are set forth in the express warranty statements accompanying such products and services. Nothing herein should be construed as constituting an additional warranty. HP shall not be liable for technical or editorial errors or omissions contained herein.

The information contained herein is subject to change without notice.

Restricted Rights Legend

Confidential computer software. Valid license from HP required for possession, use or copying. Consistent with FAR 12.211 and 12.212, Commercial Computer Software, Computer Software Documentation, and Technical Data for Commercial Items are licensed to the U.S. Government under vendor's standard commercial license.

For information about third-party license agreements, see the license-agreements directory on the product installation media.

Copyright Notices

Trademark Notices

Java™ is a US trademark of Sun Microsystems, Inc.

Microsoft® and Windows® are U.S. registered trademarks of Microsoft Corporation.

UNIX® is a registered trademark of The Open Group.

Support

You can visit the HP Software Support web site at:

http://www.hp.com/go/hpsoftwaresupport

HP Software Support Online provides an efficient way to access interactive technical support tools. As a valued support customer, you can benefit by using the support site to:

- Search for knowledge documents of interest
- Submit and track support cases and enhancement requests
- Download software patches
- Manage support contracts
- Look up HP support contacts
- Review information about available services
- Enter into discussions with other software customers
- Research and register for software training
- Most of the support areas require that you register as an HP Passport user and sign in. Many also require a support contract.

To find more information about access levels, go to:

http://h20230.www2.hp.com/new_access_levels.jsp

For more information about HP Passport, go to:

http://h20229.www2.hp.com/passport-registration.html

Table of Contents

Introduction to the HPOM Web Services

HP Operations Manager (HPOM) Web Services enable you to develop remote clients that access HPOM management servers using industry-standard terminology and technical standards, instead of product-specific interfaces.

HPOM provides the following web services:

- Incident Web Service

  Enables clients to access HPOM messages.

- Tool Web Service

  Enables clients to execute tools from an HPOM management server.

HPOM Incident Web Service

In HPOM, a message is a structured, readable notification that HPOM generates after detecting, filtering, and correlating one or more events. These events relate to changes in application, system, network, or service status. HPOM messages are conceptually similar to incidents, as defined by the IT Infrastructure Library (ITIL) version 3 framework for service management. An ITIL-compliant incident is an event that could interrupt a service or degrade the quality of a service.

The HPOM Incident Web Service exposes HPOM messages as ITIL-compliant incidents. The service enables remote clients that you develop to get incidents from HPOM, and update and create incidents in HPOM. Clients can also trigger incident state changes in HPOM, for example, to close an incident.

HPOM Tool Web Service

HPOM provides an action system that enables users to start applications, scripts, and commands on managed nodes. The HPOM Tool Web Service enables remote clients that you develop to launch tools on managed nodes using the HPOM action system. To launch a tool, the client creates a new tool execution using the service. After a tool is executed on a managed node, the agent sends back a result code and any output. Clients can subscribe to receive details of updated tool executions.

Features and Benefits

The web services provide the following features and benefits:

- Consistent interfaces on both HP Operations Manager for UNIX and HP Operations Manager for Windows management servers. Clients can integrate seamlessly with HPOM management servers on both platforms.
- Compliance with the Distributed Management Task Force (DMTF) Web Services for Management (WS-Management) standard. This compliance enables you to develop clients for the web service using tools that support WS-Management, for example Wiseman.
- Support for client development using other web service development tools (for example Apache Axis and Windows Communication Framework (WCF)).

- Standard operations that WS-Management specifies (for example Get, Create), and in addition custom operations for incidents (for example Close, Reopen).

Prerequisite Knowledge

Developing a client to access the HPOM Web Services requires knowledge of the standards and tools that you will use. Discussion of these standards and tools is outside the scope of this document.

You may want to consult the following external resources:

- Web services definition language: www.w3.org
- ITIL: www.itil-officialsite.com
- WS-Management: www.dmtf.org (document number DSP0226)
- Wiseman: wiseman.dev.java.net
- Apache Axis: ws.apache.org
- WCF: msdn.microsoft.com

Incident to Message Mappings

The HPOM Incident Web Service exposes HPOM messages as ITIL-compliant incidents. HPOM messages are conceptually similar to incidents, but do not have identical attributes. To enable operations on incidents for HPOM, the service maps HPOM message attributes into incident subelements, and incident subelements into HPOM messages attributes.

For some standard incident subelements, there are conceptually equivalent HPOM message attributes, and so the service maps them directly. The service also includes an extension to the standard incident definition, which makes it possible to map additional HPOM message attributes to incidents elements. Although an incident can contain other extensions, the service ignores them.

For other incident subelements, there are no conceptually equivalent HPOM message attributes. In some cases, the service maps these incident attributes to a custom message attribute (CMA). Each custom message attribute is a name-value pair. In HPOM, each message can have any number of custom message attributes attached to it.

"Mapping of Incident Subelements to HPOM Message Attributes" (on page 7) shows the mapping of Incident subelements to HPOM message attributes.

Mapping of Incident Subelements to HPOM Message Attributes

Incident Subelement	HPOM Message Attribute	Description
IncidentID	Message No.	Unique identifier for this incident. HPOM generates this ID.
Description	CMA with the name “Description”	Detailed description of the incident.
Title	Message Text	Brief description of the event that this incident relates to.
LifeCycleState	Not mapped to an HPOM message attribute. The service uses the following rules to set the LifeCycleState in incidents that the service returns: • If the message is acknowledged, LifeCycleState contains “closed”.	

Incident Subelement	HPOM Message Attribute	Description
	• If the message is owned, LifeCycleState contains “work in progress”. • If the message is not acknowledged or owned, LifeCycleState contains “open”.	
Severity	Severity	Severity of the event that the incident relates to.
Solution	CMA with the name “Solution”	Description of steps taken in response to the incident.
Category	Message Group	String used for organizing incidents. Incidents that have some logical connection have the same category.
SubCategory	CMA with the name “Subcategory”	String used for more detailed organization of incidents that have the same category.
ProductType	CMA with the name “Product Type”	String that may be used for integration with a service management product. The service management product defines the string’s value and purpose.
ProblemType	CMA with the name “Problem Type”	String that may be used for integration with a service management product. The service management product defines the string’s value and purpose.
CollaborationMode	CMA with the name “Collaboration Mode”	String that may be used for integration with a service management product. The service management product defines the string’s value and purpose.
EmittingCI.ID	Service Name	ID of the service that the incident relates to. The severity of an incident can affect the status of a service that it relates to.
EmittingNode.DnsName	Node	Name of the node generating the incident.
AssignedOperator.Name	Owner	Name of the HPOM user that is currently responsible for the incident. If the incident has an owner, HPOM prevents other users from starting some tasks on that incident.
AffectedCI	*Not mapped to HPOM messages*	
RequesterReference	*Not mapped to HPOM messages*	
Type	Message Type	String used for organizing incidents, for example, to group different types of incident within a category.

"Mapping of OperationsExtension Subelements to HPOM Message Attributes" (on page 8) shows the mapping of OperationsExtension subelements.

Mapping of OperationsExtension Subelements to HPOM Message Attributes

OperationsExtension Subelements	HPOM Message Attribute	Description
Application	Application	Name of the application to which the incident relates.
Object	Object	Name of the object to which the incident relates.

OperationsExtension Subelements	HPOM Message Attribute	Description
StateChangeTime	Time Owned or Time Acknowledged	The time at which the incident was owned or acknowledged. The service maps whichever time is later (the time owned or the time acknowledged) StateChangeTime subelement.
CreationTime	Time Created	Time at which the agent created the incident.
ReceivedTime	Time Received	Time at which the management server received the incident.
NumberOfDuplicates	Number of Duplicates	Number of duplicates that the management server has detected for the incident. If duplicate detection is disabled, the value of this is 0.
CorrelationKey	Message Key	String that enables other processes to identify incidents that relate to each other. Related incidents have similar message keys. Message keys are not unique.
ConditionMatched	Unmatched	Indicates whether the incident was sent to the server because of a matched condition in a policy or template.
AutomaticActionStatus	Automatic Action Status	Status of the automatic action, if one is associated with the incident.
OperatorActionStatus	Operator Action Status	Status of the operator-initiated action, if one is associated with the incident.
EscalationStatus	Escalation (flag in the message browser)	Defines the escalation status of the incident, if the incident was escalated by this management server, or to a different management server.
OriginalEvent	Original Message	Details of the event that is the cause of this incident.
CustomAttributes	Custom Attributes	Each incident can have any number of custom message attributes. Each custom message attribute is a name-value pair. The service excludes the following custom message attributes from the CustomAttributes subelement: • Description • Solution • Subcategory • Product Type • Problem Type • Collaboration Mode The service maps these custom message attributes to Incident subelements instead (see "Mapping of Incident Subelements to HPOM Message Attributes" (on page 7)).
NumberOfAnnotations	Number of annotations	Number of annotations that have been added to the incident. An annotation is a short note about the incident. For example, a user can add an annotation to summarize actions taken in response to the message.

OperationsExtension Subelements	HPOM Message Attribute	Description
Source	Source	Contains the name and version of the template that created the message.

For an example incident in XML, see "Pull Response SOAP Envelope Example" (on page 76).

XML Namespaces

"Prefixes and XML Namespaces Used in this Document" (on page 10) lists the prefixes used in this document to show the namespaces of element types.

Prefixes and XML Namespaces Used in this Document

Prefix	XML Namespace
inc	http://schemas.hp.com/ism/ServiceOperation/IncidentManagement/1/Incident
incExt	http://schemas.hp.com/opr/ws/ServiceOperation/IncidentManagement/1/Incident
incFil	http://schemas.hp.com/opr/ws/ServiceOperation/IncidentManagement/1/IncidentFilter
ismCi	http://schemas.hp.com/ism/ServiceTransition/ConfigurationManagement/1/ConfigurationItem
ismNode	http://schemas.hp.com/ism/ServiceTransition/ConfigurationManagement/1/Node
ismWorkItem	http://schemas.hp.com/ism/ServiceOperation/Common/1/WorkItem
s	http://www.w3.org/2003/05/soap-envelope
tool	http://schemas.hp.com/opr/ws/ServiceOperation/ToolManagement/1/ToolExecution
toolFil	http://schemas.hp.com/opr/ws/ServiceOperation/ToolManagement/1/ToolExecutionFilter
wsa	http://schemas.xmlsoap.org/ws/2004/08/addressing
wse	http://schemas.xmlsoap.org/ws/2004/08/eventing
wsen	http://schemas.xmlsoap.org/ws/2004/09/enumeration
wsman	http://schemas.dmtf.org/wbem/wsman/1/wsman.xsd
xs	http://www.w3.org/2001/XMLSchema

Endpoint References

The WS-Management specification uses WS-Addressing endpoint references (EPRs) as the addressing model for individual resource instances. "XML Namespaces" (on page 10) lists the prefixes used in this section to show the namespace of each element type.

An EPR is an XML element of the type *wsa:EndpointReferenceType*. An EPR element contains subelements that, in combination, provide the full reference to a resource instance. In terms of the HPOM Incident Web Service, this means that an EPR provides the full reference to an individual incident on a particular management server. In terms of the HPOM Tool Web Service, an EPR provides the full reference one execution of a tool.

The following XML element shows an example of an EPR for the HPOM Incident Web Service:

```
<wsa:EndpointReference>
  <wsa:Address>
    https://manager1.example.com:443/opr-webservice/Incident.svc/
  </wsa:Address>
  <wsa:ReferenceParameters>
    <wsman:ResourceURI>
      http://schemas.hp.com/ism/ServiceOperation/IncidentManagement/1/Incident
    </wsman:ResourceURI>
    <wsman:SelectorSet>
      <wsman:Selector Name="IncidentID">
          2b9cdf48-d6ca-71db-0d4b-1039228b0000
      </wsman:Selector>
    </wsman:SelectorSet>
  </wsa:ReferenceParameters>
</wsa:EndpointReference>
```

The above EPR contains of the following conceptual elements:

- Address at which the service is available on a management server. This is in the format:

  https://<*server_name*>:<*port*>/opr-webservice/Incident.svc/

- Unique identifier for the type of resource. This is the following URI:

  `http://schemas.hp.com/ism/ServiceOperation/IncidentManagement/1/Incident`

- Selector set that identifies an incident. This contains one selector, which contains an incident ID.

When you create a new incident using the service, the service returns an EPR for the new incident. You can store this EPR, and use it to uniquely identify the incident if you need to update it later. (See "Create" (on page 19).)

WS-Addressing specifies that, to use an EPR in a request to a service, clients should add the contents of the EPR's *wsa:Address* subelement as the contents of the *wsa:To* subelement in the SOAP header. Where possible, clients should not rely on the *wsa:ReferenceParameters* subelement containing any particular subelements. Clients should instead treat the *wsa:ReferenceParameters* subelement as opaque, by unwrapping its contents and adding them all to the SOAP header of the request.

The following XML fragment shows an example of a SOAP header that contains the EPR of an incident:

```
<s:Header>
...
  <wsa:To>
    https://manager1.example.com:443/opr-webservice/Incident.svc/
  </wsa:To>
  <wsman:ResourceURI>
    http://schemas.hp.com/ism/ServiceOperation/IncidentManagement/1/Incident
```

```
  </wsman:ResourceURI>
  <wsman:SelectorSet>
    <wsman:Selector Name="IncidentID">
        2b9cdf48-d6ca-71db-0d4b-1039228b0000
    </wsman:Selector>
  </wsman:SelectorSet>
...
</s:Header>
```

Installing and Configuring the HPOM Web Services

HPOM for Windows 8.10 and later installs the HPOM Web Services by default with the management server. The HPOM Incident Web Service is also available to download and install for supported versions of HPOM for UNIX.

The service provides several configuration parameters that enable you to configure how the service responds to client requests. You can also configure the port that the service uses to listen for connections.

The following topics provide more details:

- "Service Configuration" (on page 13)
- "Port Configuration" (on page 14)
- IIS Configuration

Service Configuration

The HPOM Web Services provide several configuration parameters that enable you to configure how each service responds to client requests. You can change the values of these parameters to suit your environment.

You can configure the parameters using ovconfchg. The parameters for the Incident Web Service are in the opc.WebService namespace. The parameters for the Tool Web Service are in the opc.ToolWebService namespace.

"General Service Configuration Parameters" (on page 13) lists the parameters that are common to both web services.

General Service Configuration Parameters

Name	Default Value	Description
EnumerationExpiration	10 (minutes)	Default duration that enumeration contexts are valid for.
EnumerationExpirationMaximum	60 (minutes)	Maximum duration that enumeration contexts are valid for. If a client specifies a longer duration, the service overrides the client and uses the value of this parameter instead.
SubscriptionExpiration	60 (minutes)	Default duration that subscriptions are valid for.
SubscriptionExpirationMaximum	1440 (minutes)	Maximum duration that subscriptions are valid for. If a client specifies a longer duration, the service overrides the client and uses the value of this parameter instead.
MaxItems	100	Maximum number of items that the service returns for a PullOp operation if the client does not specify a value.
MaxItemsMaximum	500	Maximum number of items that service returns for a PullOp operation. If a client specifies a larger number, the service uses this value instead. Set this parameter to a value below 5000. A value of 5000 or higher may cause heap space exceptions.

Name	Default Value	Description
EventQueueSize	1000	Maximum number of events that an event queue can store. If the event queue contains the maximum number of events, and a new event occurs, the service discards the oldest event from the queue before it adds the new event to the end of the queue.

Tool Service Configuration Parameters lists the additional parameters for the HPOM Tool Web Service.

Tool Service Configuration Parameters

Name	Default value	Description
FinishedInstanceExpiration	300 (seconds)	Duration that the Tool Web Service stores details of finished tool executions. Clients must read the result of a tool execution within the defined number of seconds after the tool execution finishes.
RunningInstanceExpiration	43200 (seconds)	Duration that the Tool Web Service stores details of running tool executions. If an agent does not send a tool execution result within the defined number of seconds after the tool execution starts, the service deletes the tool execution.

Port Configuration

The port that the HPOM Incident Web Service is available on depends on the configuration of the Tomcat (B) servlet container on HPOM for UNIX management servers.

The service listens for HTTPS connections on port 8444 by default.

On HPOM for UNIX management servers, the service also listens for insecure HTTP connections on port 8081. This can be useful for testing your client.

To configure the service to listen for HTTPS connections on a different port, open a shell prompt on the management server, and then type the following command:

```
ovtomcatbctl -sethttpsport <port number>
```

Incident Operations Reference

The HPOM Incident Web Service provides a Web Services Definition Language (WSDL) document, which describes the service. After you install the service, the WSDL is available from the following location on the HPOM management server:

https://<*server_name*>:<*port*>/opr-webservice/Incident.svc?wsdl

This WSDL document refers to the other WSDL documents and associated XML Schema Documents (XSDs), and gives their location on the management server. These documents provide complete information about the operations that the service supports. The details of how your client uses these operations depends on the web service client development toolkit that you choose.

HP provides unsupported examples for several client development toolkits. The examples are also available on the HPOM management server after you install the service.

The following read-me files provide more information on how to develop clients with each toolkit:

- Apache Axis2

  `<install_dir>/contrib/oprweb/clients/axis/readme.txt`.

- Windows Communication Foundation

  `<install_dir>/contrib/oprweb/clients/wcf/readme.txt`.

- Wiseman

  `<install_dir>/contrib/oprweb/clients/wiseman/readme.txt`.

Alternatively, you can develop a client using any other suitable toolkit or programming language.

This chapter provides a generic reference to the operations that the service provides. For specific examples of SOAP envelopes that the service receives and sends, see "SOAP Envelope Examples" (on page 68)

"XML Namespaces" (on page 10) lists the prefixes used in this section to show the namespace of each element type.

The WSDL document contains the following operations that the service does not actually support:

- Delete
- SubscriptionEndOp

If your client attempts to use these operations, the service returns an ActionNotSupported fault.

Get

This operation returns one incident, which is identified by the incident ID.

Input

SOAP Body

Empty.

SOAP Header

- Element *wsa:Action* of type *wsa:ActionType* that contains the following string:

  `http://schemas.xmlsoap.org/ws/2004/09/transfer/Get`

- Element *wsman:ResourceURI* of type *wsman:AttributableURI*

  Contains a string that identifies the resource type. You can use the element *wsa:ReferenceParameters/wsman:ResourceURI* from an element of type *wsa:EndPointReferenceType*.

  Alternatively, create a *wsman:ResourceURI* element that contains the following string:

  `http://schemas.hp.com/ism/ServiceOperation/IncidentManagement/1/Incident`

- Element *wsman:SelectorSet* of type *wsman:SelectorSetType*

  Contains one element of type *wsman:SelectorType*, which identifies the incident instance. You can use the element *wsa:ReferenceParameters/wsman:SelectorSet* from an element of type *wsa:EndpointReferenceType*. (See "Endpoint References" (on page 10).)

  Alternatively, create a *wsman:SelectorSet* that contains one *wsman:Selector* element of type *wsman:SelectorType*:

  - *wsman:Selector* attribute Name must have the value IncidentID.
  - *wsman:Selector* must contain the ID of the incident instance to get.

- Optional element *wsman:OperationTimeout* of type *wsman:AttributableDuration*

  Contains a maximum duration within which you expect the service to respond. On an HPOM for UNIX management server, the service returns a TimedOut fault if it cannot respond in time.

Output

The SOAP body contains an element *inc:Incident* of type *inc:Incident*.

Fault

If it cannot return the incident, the service returns a fault according to the WS-Management standard.

Put

This operation updates an existing incident, which is identified by the incident ID.

Input

SOAP Body

Element *inc:Incident* of type *inc:Incident*. *inc:Incident* can contain any of the following the subelements to update on the server:

- Element *inc:Title* of type *xs:string*.
- Element *inc:Severity* of type *xs:string*. This can be one of the following strings:
  - `Normal`
  - `Warning`
  - `Minor`
  - `Major`
  - `Critical`

inc:Incident can also contain other valid subelements, although this operation ignores them and returns an incident with the contents of those subelements unchanged. In other words, if Incident contains immutable subelements, the operation does not return a fault.

SOAP Header

- Element *wsa:Action* of type *wsa:ActionType* that contains the following string:

  `http://schemas.xmlsoap.org/ws/2004/09/transfer/Put`

- Element *wsman:ResourceURI* of type *wsman:AttributableURI*

  Contains a string that identifies the resource type. You can use the element *wsa:ReferenceParameters/wsman:ResourceURI* from an element of type *wsa:EndPointReferenceType*.

  Alternatively, create a *wsman:ResourceURI* element that contains the following string:

  `http://schemas.hp.com/ism/ServiceOperation/IncidentManagement/1/Incident`

- Element *wsman:SelectorSet* of type *wsman:SelectorSetType*

  Contains one element of type *wsman:SelectorType*, which identifies the incident instance. You can use the element *wsa:ReferenceParameters/wsman:SelectorSet* from an element of type *wsa:EndpointReferenceType*. (See "Endpoint References" (on page 10).)

  Alternatively, create a *wsman:SelectorSet* that contains one *wsman:Selector* element of type *wsman:SelectorType*:

  - *wsman:Selector* attribute Name must have the value IncidentID.
  - *wsman:Selector* must contain the ID of the incident instance to get.

- Optional element *wsman:OperationTimeout* of type *wsman:AttributableDuration*

Contains a maximum duration within which you expect the service to respond. On an HPOM for UNIX management server, the service returns a TimedOut fault if it cannot respond in time.

Output

The SOAP body contains an element *inc:Incident* of type *inc:Incident*, which contains the updated incident.

Fault

If it cannot update the incident, the service returns a fault according to the WS-Management standard.

Create

This operation stores a new incident on the management server.

Input

SOAP Body

Element *inc:Incident* of type *inc:Incident*. *inc:Incident* must contain the following subelements:

- *inc:Title*
- *inc:EmittingNode/ismNode:DnsName*
- *Incident* can contain any of the following subelements:
- *inc:Description*
- *inc:Severity* (default: “Unknown”)
- *inc:Solution*
- *inc:Category*
- *inc:SubCategory*
- *inc:ProductType*
- *inc:ProblemType*
- *inc:CollaborationMode* (default: “FYI”)
- *inc:EmittingCI/ismCi:ID*
- *inc:Type*
- *inc:Extensions/incExt:OperationsExtension/incExt:Application*
- *inc:Extensions/incExt:OperationsExtension/incExt:Object*
- *inc:Extensions/incExt:OperationsExtension/incExt:CreationTime* (default: the current time)
- *inc:Extensions/incExt:OperationsExtension/incExt:CorrelationKey* (default: null)
- *inc:Extensions/incExt:OperationsExtension/incExt:CustomAttributes* (default: an empty list)

inc:Incident can also contain other valid subelements, although this operation ignores them.

SOAP Header

- Element *wsa:Action* of type *wsa:ActionType* that contains the following string:

  `http://schemas.xmlsoap.org/ws/2004/09/transfer/Create`

- Element *wsman:ResourceURI* of type *wsman:AttributableURI*

  Contains a string that identifies the resource type. You can use the element *wsa:ReferenceParameters/wsman:ResourceURI* from an element of type *wsa:EndPointReferenceType*.

  Alternatively, create a *wsman:ResourceURI* element that contains the following string:

```
http://schemas.hp.com/ism/ServiceOperation/IncidentManagement/1/Incident
```

- Element *wsman:OperationTimeout* of type *wsman:AttributableDuration*

  Contains a maximum duration within which you expect the service to respond. On an HPOM for UNIX management server, the service returns a TimedOut fault if it cannot respond in time.

For an example, see "Create Request SOAP Envelope Example" (on page 68).

Output

The SOAP body contains an element *wsa:EndpointReference* of type *wsa:EndpointReferenceType*. This element contains the subelements *wsman:ResourceURI* and *wsman:SelectorSet*, which you can use to uniquely identify the incident in subsequent operations.

For an example, see "Create Response SOAP Envelope Example" (on page 70).

Fault

If the service cannot store the incident, it returns a fault according to the WS-Management standard.

Close

This operation sets the lifecycle state of an existing incident to closed. The incident is identified by the incident ID. Alternatively, you can use the CloseMany operation to close multiple incidents in one operation. (See "CloseMany" (on page 45).)

Input

SOAP Body

Empty.

SOAP Header

- Element *wsa:Action* of type *wsa:ActionType* that contains the following string:

  `http://schemas.hp.com/ism/ServiceOperation/Common/1/Close`

- Element *wsman:ResourceURI* of type *wsman:AttributableURI*

  Contains a string that identifies the resource type. You can use the element *wsa:ReferenceParameters/wsman:ResourceURI* from an element of type *wsa:EndPointReferenceType*.

  Alternatively, create a *wsman:ResourceURI* element that contains the following string:

  `http://schemas.hp.com/ism/ServiceOperation/IncidentManagement/1/Incident`

- Element *wsman:SelectorSet* of type *wsman:SelectorSetType*

  Contains one element of type *wsman:SelectorType*, which identifies the incident instance. You can use the element *wsa:ReferenceParameters/wsman:SelectorSet* from an element of type *wsa:EndpointReferenceType*. (See "Endpoint References" (on page 10).)

  Alternatively, create a *wsman:SelectorSet* that contains one *wsman:Selector* element of type *wsman:SelectorType*:

  - *wsman:Selector* attribute Name must have the value IncidentID.
  - *wsman:Selector* must contain the ID of the incident instance to close.

- Optional element *wsman:OperationTimeout* of type *wsman:AttributableDuration*

  Contains a maximum duration within which you expect the service to respond. On an HPOM for UNIX management server, the service returns a TimedOut fault if it cannot respond in time.

For an example, see "Close Request SOAP Envelope Example" (on page 71).

Output

The SOAP body is empty. For an example, see "Close Response SOAP Envelope Example" (on page 72).

Fault

If it cannot close the incident, the service returns a fault according to the WS-Management standard.

Reopen

This operation sets the lifecycle state of a closed incident to open. The incident is identified by the incident ID.

Alternatively, you can use the ReopenMany operation to open multiple incidents in one operation. (See "ReopenMany" (on page 46).)

Input

SOAP Body

Empty.

SOAP Header

- Element *wsa:Action* of type *wsa:ActionType* that contains the following string:

  `http://schemas.hp.com/ism/ServiceOperation/Common/1/Reopen`

- Element *wsman:ResourceURI* of type *wsman:AttributableURI*

  Contains a string that identifies the resource type. You can use the element *wsa:ReferenceParameters/wsman:ResourceURI* from an element of type *wsa:EndPointReferenceType*.

  Alternatively, create a *wsman:ResourceURI* element that contains the following string:

  `http://schemas.hp.com/ism/ServiceOperation/IncidentManagement/1/Incident`

- Element *wsman:SelectorSet* of type *wsman:SelectorSetType*

  Contains one element of type *wsman:SelectorType*, which identifies the incident instance. You can use the element *wsa:ReferenceParameters/wsman:SelectorSet* from an element of type *wsa:EndpointReferenceType*. (See "Endpoint References" (on page 10).)

  Alternatively, create a *wsman:SelectorSet* that contains one *wsman:Selector* element of type *wsman:SelectorType*:

  - *wsman:Selector* attribute Name must have the value IncidentID.
  - *wsman:Selector* must contain the ID of the incident instance to reopen.

- Optional element *wsman:OperationTimeout* of type *wsman:AttributableDuration*

  Contains a maximum duration within which you expect the service to respond. On an HPOM for UNIX management server, the service returns a TimedOut fault if it cannot respond in time.

Output

The SOAP body is empty.

Fault

If it cannot reopen the incident, the service returns a fault according to the WS-Management standard. The service returns a fault if the incident is already open.

EnumerateOp

This operation returns an enumeration context, which you can then use with the PullOp operation to get batches of incidents from the service. You can specify a filter, so that the enumeration context contains only specific incidents.

Input

SOAP Body

Element *Enumerate* of type *wsen:Enumerate*. This element can contain the following subelements:

- Optional element *wsen:Expires* of type *wsen:ExpirationType*.

  Contains a duration, for which the client requires the enumeration context. If you omit this subelement, the service uses the value of the EnumerationExpiration parameter on the management server. If you specify a duration that exceeds the value of the EnumerationExpirationMaximum parameter, the service uses the value of EnumerationExpirationMaximum instead. (See "Service Configuration" (on page 13).)

- Optional element *wsen:Filter* of type *wsen:FilterType* or *wsman:Filter* of type *wsman:dialectableMixedDataType*. For compatibility with different toolkits, the service supports a filter of either type, but you must specify only one of them.

  Filter attribute Dialect must have the following value:

  ```
  http://schemas.hp.com/opr/ws/ServiceOperation/IncidentManagement/1/IncidentFilter
  ```

  Filter must contain the subelement *incFil:IncidentEnumerationFilter* of type *incFil:IncidentEnumerationFilter*. *IncidentEnumerationFilter* can contain any of the following subelements:

  - Optional element *incFil:Severity* of type *inc:Severity_OpenType*
  - Optional element *incFil:EmittingNode* of type *incFil:EmittingNode*
  - Optional element *incFil:Category* of type *xs:string*
  - Optional element *incFil:Application* of type *xs:string*
  - Optional element *incFil:Object* of type *xs:strin*g
  - Optional element *incFil:EmittingCI* of type *incFil:EmittingCI*
  - Optional element *incFil:CorrelationKey* of type *xs:string*
  - Optional element *incFil:EscalationStatus* of type *xs:string*
  - Optional element *incFil:ConditionMatched* of type *xs:boolean*
  - Optional element *incFil:ReceivedTime* of type *incFil:TimeFilter*
  - Optional element *incFil:Title* of type *incFil:KeywordFilter*
  - Optional element *incFil:CustomAttributes* of type *incFil:CustomAttributes*

  The service enumerates incidents that match the contents of the *incFil:IncidentEnumerationFilter* subelements that you specify. For more details on incident attributes, see "Incident to Message Mappings" (on page 7).

  If you omit *Filter*, the service enumerates all incidents that have the status open or work in progress.

SOAP Header

- Element *wsa:Action* of type *wsa:ActionType* that contains the following string:

  `http://schemas.xmlsoap.org/ws/2004/09/enumeration/Enumerate`

- Element *wsman:ResourceURI* of type *wsman:AttributableURI*

  Contains a string that identifies the resource type. You can use the element *wsa:ReferenceParameters/wsman:ResourceURI* from an element of type *wsa:EndPointReferenceType*.

  Alternatively, create a *wsman:ResourceURI* element that contains the following string:

  `http://schemas.hp.com/ism/ServiceOperation/IncidentManagement/1/Incident`

- Optional element *wsman:OperationTimeout* of type *wsman:AttributableDuration*

  Contains a maximum duration within which you expect the service to respond. On an HPOM for UNIX management server, the service returns a TimedOut fault if it cannot respond in time.

For an example, see "Enumerate Request SOAP Envelope Example" (on page 72).

Output

The SOAP body contains an element *wsen:EnumerateResponse* (of anonymous type), which contains the following subelements:

- Element *wsen:Expires* of type *wsen:ExpirationType*.

  Contains a duration, for which the enumeration context is valid. You can use the ReleaseOp operation to cancel the enumeration context early. (See "ReleaseOp" (on page 27).)

- Element *wsen:EnumerationContext* of type *wsen:EnumerationContextType*.

  Contains a string that identifies the enumeration context. Use *wsen:EnumerationContext* with the PullOp operation to get batches of incidents from the service. (See "PullOp" (on page 25).)

For an example, see "Enumerate Response SOAP Envelope Example" (on page 74).

Fault

If it cannot return the enumeration context, the service returns a fault according to the WS-Management standard.

PullOp

This operation returns a batch of incidents from an enumeration context.

Input

SOAP Body

Element *wsen:Pull* (of anonymous type), which contains the following subelements:

- Element *wsen:EnumerationContext* of type *wsen:EnumerationContextType*.

  Contains a string that identifies the enumeration context. Use a *wsen:EnumerationContext* that one of the following operations returns:

  - EnumerateOp (see "EnumerateOp" (on page 23))
  - SubscribeOp (see "SubscribeOp" (on page 28))
  - PullOp (see below)

- Optional element *wsen:MaxElements* of type *xs:positiveInteger*.

  Contains an integer that indicates the maximum number of incidents to return in this batch. If you omit this subelement, the service uses the value of the MaxItems parameter on the management server. (See "Service Configuration" (on page 13).)

The HPOM Incident Web Service does not support the subelements *wsen:MaxTime* or *wsen:MaxCharacters*. You should omit these subelements.

SOAP Header

- Element *wsa:Action* of type *wsa:ActionType* that contains the following string:

  `http://schemas.xmlsoap.org/ws/2004/09/enumeration/Pull`

- Element *wsman:ResourceURI* of type *wsman:AttributableURI*

  Contains a string that identifies the resource type. You can use the element *wsa:ReferenceParameters/wsman:ResourceURI* from an element of type *wsa:EndPointReferenceType*.

  Alternatively, create a *wsman:ResourceURI* element that contains the following string:

  `http://schemas.hp.com/ism/ServiceOperation/IncidentManagement/1/Incident`

- Optional element *wsman:OperationTimeout* of type *wsman:AttributableDuration*

  Contains a maximum duration within which you expect the service to respond. On an HPOM for UNIX management server, the service returns a TimedOut fault if it cannot respond in time.

  For enumeration contexts from the SubscribeOp operation, if the event queue remains empty for the specified OperationTimeout, PullOp returns a TimedOut fault.

For an example, see "Pull Request SOAP Envelope Example" (on page 75).

Output

The SOAP body contains an element *wsen:PullResponse* (of anonymous type), which contains the following subelements:

- Element *wsen:EnumerationContext* of type *wsen:EnumerationContextType*.

  Contains a string that identifies the enumeration context. This is the same as the input *wsen:EnumerationContext*.

- Element *wsen:Items* of the type *wsen:ItemListType*.

  Contains multiple *inc:Incident* elements of type *inc:Incident*.

- Optional element *wsen:EndOfSequence* of type *wsen:attributableEmpty*.

  This element is empty. If *wsen:EndOfSequence* is present, there are no remaining items to pull for this enumeration context and the enumeration context is no longer valid.

For an example, see "Pull Response SOAP Envelope Example" (on page 76).

Fault

If it cannot return the batch of incidents, the service returns a fault according to the WS-Management standard.

ReleaseOp

This operation cancels an existing enumeration context early (that is, before the client has pulled all the incidents, and before the enumeration context has expired).

You can use this operation to cancel an enumeration context from an enumerate operation. To cancel an enumeration context from a subscription operation, unsubscribe instead. (See "UnsubscribeOp" (on page 31).)

Input

SOAP Body

Element *wsen:Release* (of anonymous type), which contains the subelement *wsen:EnumerationContext* of type *wsen:EnumerationContextType*.

wsen:EnumerationContext contains a string that identifies the enumeration context. Use a *wsen:EnumerationContext* that one of the following operations returns:

- EnumerateOp (see "EnumerateOp" (on page 23))
- PullOp (see "PullOp" (on page 25))

SOAP Header

- Element *wsa:Action* of type *wsa:ActionType* that contains the following string:

  `http://schemas.xmlsoap.org/ws/2004/09/enumeration/Release`

- Element *wsman:ResourceURI* of type *wsman:AttributableURI*

  Contains a string that identifies the resource type. You can use the element *wsa:ReferenceParameters/wsman:ResourceURI* from an element of type *wsa:EndPointReferenceType*.

  Alternatively, create a *wsman:ResourceURI* element that contains the following string:

  `http://schemas.hp.com/ism/ServiceOperation/IncidentManagement/1/Incident`

- Optional element *wsman:OperationTimeout* of type *wsman:AttributableDuration*

  Contains a maximum duration within which you expect the service to respond. On an HPOM for UNIX management server, the service returns a TimedOut fault if it cannot respond in time.

Output

The SOAP body is empty.

Fault

If it cannot release the enumeration context, the service returns a fault according to the WS-Management standard.

SubscribeOp

This operation returns an enumeration context, which you can then use with the PullOp operation to get batches of new or updated incidents from the service. The service maintains an event queue of new or updated incidents. If an existing incident changes several times, the service adds the incident to the event queue several times (the service does not consolidate the events).

The value of the EventQueueSize parameter on the management server constrains the size of the event queue. (See "Service Configuration" (on page 13).) To prevent the service from deleting events from the queue, you must pull batches of updated incidents at appropriate intervals. Consider using the following procedure to manage a subscription:

1. Use the SubscribeOp operation to get an enumeration context.
2. Immediately after SubscribeOp returns the enumeration context, start a PullOp operation. As soon as the event queue contains events, PullOp returns a batch of incidents.

   If the event queue remains empty for the specified OperationTimeout, PullOp returns a TimedOut fault.
3. Immediately after the PullOp returns incidents or a fault, start another PullOp operation.

   This step ensures that you always have a PullOp running, which should prevent the event queue from becoming too large.

CAUTION:
If you restart the HPOM Incident Web Service, the service releases any enumeration contexts. The service does not maintain an event queue of new or updated incidents until the client subscribes again. This situation can also arise if the management server is part of a cluster and a failover occurs.

Input

SOAP Body

Element *wse:Subscribe* of type *wse:SubscribeType*, which contains the following subelements:

- Element *wse:Delivery* of type *wse:DeliveryType*. *wse:Delivery* attribute Mode must have the following value:

  `http://schemas.dmtf.org/wbem/wsman/1/wsman/Pull`
- Optional element *wse:Expires* of type *wse:ExpirationType*.

  Contains either a duration that specifies how long the client requires the subscription, or a date and time at which the subscription should expire. If you omit this subelement, the service uses the value of the SubscriptionExpiration parameter on the management server. If you specify a duration that exceeds the value of the SubscriptionExpirationMaximum parameter, the service uses the value of SubscriptionExpirationMaximum instead. (See "Service Configuration" (on page 13).)
- Optional element *wse:Filter* of type *wse:FilterType* or *wsman:Filter* of type *wsman:dialectableMixedDataType*. For compatibility with different toolkits, the service supports a filter of either type, but you must specify only one of them.

  Filter attribute Dialect must have the following value:

  `http://schemas.hp.com/opr/ws/ServiceOperation/IncidentManagement/1/IncidentFilter`

Filter must contain the subelement *incFil:IncidentEventingFilter* of type *incFil:IncidentEventingFilter*. *IncidentEventingFilter* can contain any of the following subelements:

- Optional element *incFil:Severity* of type *inc:Severity_OpenType*
- Optional element *incFil:EmittingNode* of type *incFil:EmittingNode*
- Optional element *incFil:Category* of type *xs:string*
- Optional element *incFil:Application* of type *xs:string*
- Optional element *incFil:Object* of type *xs:strin*g
- Optional element *incFil:EmittingCI* of type *incFil:EmittingCI*
- Optional element *incFil:CorrelationKey* of type *xs:string*
- Optional element *incFil:Type* of type *xs:string*
- Optional element *incFil:EscalationStatus* of type *xs:string*
- Optional element *incFil:ConditionMatched* of type *xs:boolean*
- Optional element *incFil:ForwardToTroubleTicket* of type *xs:boolean*

  incFil:ForwardToTroubleTicket enables you to filter incidents, depending on whether the corresponding HPOM message is flagged for forwarding to an external trouble ticket system.
- Optional element *incFil:ForwardToNotification* of type *xs:boolean*

  incFil:ForwardToNotification enables you to filter incidents depending on whether the corresponding HPOM message is flagged for forwarding to an external notification system.
- Optional element *incFil:Title* of type *incFil:KeywordFilter*
- Optional elements *incFil:ChangeType* of type *xs:string*

  incFil:ChangeType enables you to filter incidents depending on how they have changed (whether they are new, updated, closed, or reopened). *incFil:ChangeType* must contain one of the following strings:

  - new
  - modified
  - closed
  - reopened

  For example, if you are interested in new incidents only, you specify a filter with a *incFil:ChangeType* subelement that contains new. To subscribe to a combination of change types, specify several *incFil:ChangeType* subelements.

  To subscribe to all change types, you can omit the *incFil:ChangeType* subelements.
- Optional element *incFil:CustomAttributes* of type *incFil:CustomAttributes*

The service enumerates all incidents that match the contents of the *incFil:IncidentEventingFilter* subelements that you specify. For more details on incident attributes, see "Incident to Message Mappings" (on page 7).

If you omit *Filter*, the service enumerates all incidents that have the status open or work in progress.

SOAP Header

- Element *wsa:Action* of type *wsa:ActionType* that contains the following string:

  `http://schemas.xmlsoap.org/ws/2004/08/eventing/Subscribe`

- Element *wsman:ResourceURI* of type *wsman:AttributableURI*

  Contains a string that identifies the resource type. You can use the element *wsa:ReferenceParameters/wsman:ResourceURI* from an element of type *wsa:EndPointReferenceType*.

  Alternatively, create a *wsman:ResourceURI* element that contains the following string:

  `http://schemas.hp.com/ism/ServiceOperation/IncidentManagement/1/Incident`

- Optional element *wsman:OperationTimeout* of type *wsman:AttributableDuration*

  Contains a maximum duration within which you expect the service to respond. On an HPOM for UNIX management server, the service returns a TimedOut fault if it cannot respond in time.

For an example, see "SOAP Envelope Examples" (on page 68).

Output

The SOAP body contains an element *wse:SubscribeResponse* (of anonymous type), which contains the following subelements:

- Element *wse:SubscriptionManager* of type *wsa:EndpointReferenceType*.

  Contains the subelement *wsa:ReferenceParameters/wse:Identifier* of type *wse:Identifier*, which you use to identify the subscription if you unsubscribe or renew it. (See "UnsubscribeOp" (on page 31) and "RenewOp" (on page 32).)

- Element *wse:Expires* of type *wse:ExpirationType*.

  Contains a duration, for which the service maintains the subscription. You can use the RenewOp operation to renew the subscription before it expires. (See "RenewOp" (on page 32).)

- Element *wsen:EnumerationContext* of type *wsen:EnumerationContextType*.

  Contains a string that identifies the enumeration context. Use *EnumerationContext* with the PullOp operation to get batches of updated incidents from the service. (See "PullOp" (on page 25).)

Fault

If it cannot return the enumeration context, the service returns a fault according to the WS-Management standard.

UnsubscribeOp

This operation cancels a subscription before the subscription expires.

Input

SOAP Body

Element *wse:Unsubscribe* of type *wse:UnsubscribeType*. This element is required, but should be empty.

SOAP Header

- Element *wsa:Action* of type *wsa:ActionType* that contains the following string:

  `http://schemas.xmlsoap.org/ws/2004/08/eventing/Unsubscribe`

- Element *wse:Identifier* of type *xs:anyURI*.

  Contains the identifier of an active subscription. You can use the element *wse:SubscriptionManager/wsa:ReferenceParameters/wse:Identifier* from the output of a SubscribeOp operation. (See "SubscribeOp" (on page 28).)

- Element *wsman:ResourceURI* of type *wsman:AttributableURI*

  Contains a string that identifies the resource type. You can use the element *wsa:ReferenceParameters/wsman:ResourceURI* from an element of type *wsa:EndPointReferenceType*.

  Alternatively, create a *wsman:ResourceURI* element that contains the following string:

  `http://schemas.hp.com/ism/ServiceOperation/IncidentManagement/1/Incident`

- Optional element *wsman:OperationTimeout* of type *wsman:AttributableDuration*

  Contains a maximum duration within which you expect the service to respond. On an HPOM for UNIX management server, the service returns a TimedOut fault if it cannot respond in time.

Output

The SOAP body is empty.

Fault

If it cannot cancel the subscription, the service returns a fault according to the WS-Management standard.

RenewOp

This operation renews a subscription before it expires.

Input

SOAP Body

Element *wse:Renew* (of anonymous type), which contains the optional subelement *wse:Expires* of type *wse:ExpirationType*.

Contains either a duration that specifies how long the client requires the subscription, or a date and time at which the subscription should expire. If you omit this subelement, the service uses the value of the SubscriptionExpiration parameter on the management server. If you specify a duration that exceeds the value of the SubscriptionExpirationMaximum parameter, the service uses the value of SubscriptionExpirationMaximum instead. (See "Service Configuration" (on page 13).)

SOAP Header

- Element *wsa:Action* of type *wsa:ActionType* that contains the following string:

  `http://schemas.xmlsoap.org/ws/2004/08/eventing/Renew`

- Element *wse:Identifier* of type *xs:anyURI*.

  Contains the identifier of an active subscription. You can use the element *wse:SubscriptionManager/wsa:ReferenceParameters/wse:Identifier* from the output of a SubscribeOp operation. (See "SubscribeOp" (on page 28).)

- Element *wsman:ResourceURI* of type *wsman:AttributableURI*

  Contains a string that identifies the resource type. You can use the element *wsa:ReferenceParameters/wsman:ResourceURI* from an element of type *wsa:EndPointReferenceType*.

  Alternatively, create a *wsman:ResourceURI* element that contains the following string:

  `http://schemas.hp.com/ism/ServiceOperation/IncidentManagement/1/Incident`

- Optional element *wsman:OperationTimeout* of type *wsman:AttributableDuration*

  Contains a maximum duration within which you expect the service to respond. On an HPOM for UNIX management server, the service returns a TimedOut fault if it cannot respond in time.

Output

The SOAP body contains an element *wse:RenewResponse* (of anonymous type), which contains the subelement *wse:Expires* of type *wse:ExpirationType*.

wse:Expires contains the new date and time at which the subscription expires.

Fault

If it cannot renew the subscription, the service returns a fault according to the WS-Management standard.

OwnMany

This operation sets the value of the *ismWorkItem:AssignedOperator/ismWorkItem:PersonAttributes/Name* element for one or more incidents. The incidents are identified by incident IDs. The operation sets value of the *Name* element to the user name of the currently authenticated HPOM user. ("User Authentication" (on page 64).)

Input

SOAP Body

Element *incExt:IncidentIDs* of type *incExt:IncidentIDs*, which contains any number of *incExt:id* elements of type *xs:string*.

Each *incExt:id* contains the ID of an incident to own.

SOAP Header

- Element *wsa:Action* of type *wsa:ActionType* that contains the following string:

  ```
  http://s-
  chemas.hp.com/opr/ws/ServiceOperation/IncidentManagement/1/Incident/OwnMany
  ```

- Element *wsman:ResourceURI* of type *wsman:AttributableURI*

  Contains a string that identifies the resource type. You can use the element *wsa:ReferenceParameters/wsman:ResourceURI* from an element of type *wsa:EndPointReferenceType*.

  Alternatively, create a *wsman:ResourceURI* element that contains the following string:

  ```
  http://schemas.hp.com/ism/ServiceOperation/IncidentManagement/1/Incident
  ```

- Optional element *wsman:OperationTimeout* of type *wsman:AttributableDuration*

  Contains a maximum duration within which you expect the service to respond. On an HPOM for UNIX management server, the service returns a TimedOut fault if it cannot respond in time.

Output

The SOAP body is empty.

Fault

If it cannot own the incidents, the service returns a fault according to the WS-Management standard.

DisownMany

This operation clears the value of the *ism-WorkItem:AssignedOperator/ismWorkItem:PersonAttributes/Name* element for one or more incidents. The incidents are identified by incident IDs.

Input

SOAP Body

Element *incExt:IncidentIDs* of type *incExt:IncidentIDs*, which contains any number of *incExt:id* elements of type *xs:string*.

Each *incExt:id* contains the ID of an incident to disown.

SOAP Header

- Element *wsa:Action* of type *wsa:ActionType* that contains the following string:

  ```
  http://s-
  chemas.hp.com/opr/ws/ServiceOperation/IncidentManagement/1/Incident/DisownMany
  ```

- Element *wsman:ResourceURI* of type *wsman:AttributableURI*

  Contains a string that identifies the resource type. You can use the element *wsa:ReferenceParameters/wsman:ResourceURI* from an element of type *wsa:EndPointReferenceType*.

  Alternatively, create a *ResourceURI* element that contains the following string:

  ```
  http://schemas.hp.com/ism/ServiceOperation/IncidentManagement/1/Incident
  ```

- Optional element *OperationTimeout* of type *wsman:AttributableDuration*

  Contains a maximum duration within which you expect the service to respond. On an HPOM for UNIX management server, the service returns a TimedOut fault if it cannot respond in time.

Output

The SOAP body is empty.

Fault

If it cannot disown the incidents, the service returns a fault according to the WS-Management standard.

GetAnnotations

This operation returns the annotations for one incident, which is identified by the incident ID.

Input

SOAP Body

Empty.

SOAP Header

- Element *wsa:Action* of type *wsa:ActionType* that contains the following string:

  ```
  http://s-
  che-
  mas.hp.com/opr/ws/ServiceOperation/IncidentManagement/1/Incident/GetAnnotations
  ```

- Element *wsman:ResourceURI* of type *wsman:AttributableURI*

  Contains a string that identifies the resource type. You can use the element *wsa:ReferenceParameters/wsman:ResourceURI* from an element of type *wsa:EndPointReferenceType*.

  Alternatively, create a *wsman:ResourceURI* element that contains the following string:

  ```
  http://schemas.hp.com/ism/ServiceOperation/IncidentManagement/1/Incident
  ```

- Element *wsman:SelectorSet* of type *wsman:SelectorSetType*

  Contains one element of type *wsman:SelectorType*, which identifies the incident instance. You can use the element *wsa:ReferenceParameters/wsman:SelectorSet* from an element of type *wsa:EndpointReferenceType*. (See "Endpoint References" (on page 10).)

  Alternatively, create a *wsman:SelectorSet* that contains one *wsman:Selector* element of type *wsman:SelectorType*:

  - *wsman:Selector* attribute Name must have the value IncidentID.
  - *wsman:Selector* must contain the ID of the incident instance to get annotations for.

- Optional element *wsman:OperationTimeout* of type *wsman:AttributableDuration*

  Contains a maximum duration within which you expect the service to respond. On an HPOM for UNIX management server, the service returns a TimedOut fault if it cannot respond in time.

Output

The SOAP body contains an element *incExt:Annotations* of type *incExt:Annotations*, which contains any number of *incExt:Annotation* elements of type *incExt:Annotation*.

Each *incExt:Annotation* contains the following subelements:

- Optional element *incExt:Author* of type *xs:string*.
- Element *incExt:Text* of type *xs:string*.

- Optional element *incExt:Date* of type *xs:dateTime*.
- Optional element *incExt:ID* of type *xs:string*.

Fault

If it cannot return the annotations, the service returns a fault according to the WS-Management standard.

AddAnnotation

This operation stores a new annotation to an existing incident. The incident is identified by incident ID.

Input

SOAP Body

Element *incExt:AnnotationText* of type *xs:string*, which contains the text of the annotation to add. (HPOM sets the annotation's *incExt:ID*, *incExt:Date*, and *incExt:Author* automatically.)

SOAP Header

- Element *wsa:Action* of type *wsa:ActionType* that contains the following string:

  ```
  http://s-
  che-
  mas.hp.com/opr/ws/ServiceOperation/IncidentManagement/1/Incident/AddAnnotation
  ```

- Element *wsman:ResourceURI* of type *wsman:AttributableURI*

  Contains a string that identifies the resource type. You can use the element *wsa:ReferenceParameters/wsman:ResourceURI* from an element of type *wsa:EndPointReferenceType*.

  Alternatively, create a *wsman:ResourceURI* element that contains the following string:

  ```
  http://schemas.hp.com/ism/ServiceOperation/IncidentManagement/1/Incident
  ```

- Element *wsman:SelectorSet* of type *wsman:SelectorSetType*

  Contains one element of type *wsman:SelectorType*, which identifies the incident instance. You can use the element *wsa:ReferenceParameters/wsman:SelectorSet* from an element of type *wsa:EndpointReferenceType*. (See "Endpoint References" (on page 10).)

  Alternatively, create a *wsman:SelectorSet* that contains one *wsman:Selector* element of type *wsman:SelectorType*:

  - *wsman:Selector* attribute Name must have the value IncidentID.
  - *wsman:Selector* must contain the ID of the incident instance to add the annotation to.

- Optional element *wsman:OperationTimeout* of type *wsman:AttributableDuration*

  Contains a maximum duration within which you expect the service to respond. On an HPOM for UNIX management server, the service returns a TimedOut fault if it cannot respond in time.

Output

The SOAP body contains element *incExt:AnnotationId* of type *xs:string*. This is the ID that HPOM generates for the annotation.

Fault

If it cannot add the annotation, the service returns a fault according to the WS-Management standard.

UpdateAnnotation

This operation updates an annotation to an existing incident. The annotation to update is identified by annotation ID. The existing incident is identified by incident ID.

Input

SOAP Body

Element *incExt:UpdateAnnotation* of type *incExt:UpdateAnnotation*, which contains the following sub-elements:

- Element *incExt:AnnotationId* of type *xs:string*.

  Contains the ID of the annotation to update.

- Element *incExt:AnnotationText* of type *xs:string*.

  Contains the updated text for the annotation.

(HPOM updates the annotation's *incExt:Date* and *incExt:Author* automatically.)

SOAP Header

- Element *wsa:Action* of type *wsa:ActionType* that contains the following string:

  ```
  http://s-
  che-
  mas.hp.com/opr/ws/ServiceOperation/IncidentManagement/1/Incident/UpdateAnnotation
  ```

- Element *wsman:ResourceURI* of type *wsman:AttributableURI*

  Contains a string that identifies the resource type. You can use the element *wsa:ReferenceParameters/wsman:ResourceURI* from an element of type *wsa:EndPointReferenceType*.

  Alternatively, create a *wsman:ResourceURI* element that contains the following string:

  ```
  http://schemas.hp.com/ism/ServiceOperation/IncidentManagement/1/Incident
  ```

- Element *wsman:SelectorSet* of type *wsman:SelectorSetType*

  Contains one element of type *wsman:SelectorType*, which identifies the incident instance. You can use the element *wsa:ReferenceParameters/wsman:SelectorSet* from an element of type *wsa:EndpointReferenceType*. (See "Endpoint References" (on page 10).)

  Alternatively, create a *wsman:SelectorSet* that contains one *wsman:Selector* element of type *wsman:SelectorType*:

  - *wsman:Selector* attribute Name must have the value IncidentID.
  - *wsman:Selector* must contain the ID of the incident instance that contains the annotation.

- Optional element *wsman:OperationTimeout* of type *wsman:AttributableDuration*

  Contains a maximum duration within which you expect the service to respond. On an HPOM for UNIX management server, the service returns a TimedOut fault if it cannot respond in time.

Output

The SOAP body is empty.

Fault

If it cannot update the annotation, the service returns a fault according to the WS-Management standard.

DeleteAnnotation

This operation deletes an annotation from an existing incident. The annotation to delete is identified by annotation ID. The existing incident is identified by incident ID.

Input

SOAP Body

Element *incExt:AnnotationId* of type *xs:string*, which contains the ID of the annotation to delete.

SOAP Header

- Element *wsa:Action* of type *wsa:ActionType* that contains the following string:

  ```
  http://s-
  che-
  mas.hp.com/opr/ws/ServiceOperation/IncidentManagement/1/Incident/DeleteAnnotation
  ```

- Element *wsman:ResourceURI* of type *wsman:AttributableURI*

  Contains a string that identifies the resource type. You can use the element *wsa:ReferenceParameters/wsman:ResourceURI* from an element of type *wsa:EndPointReferenceType*.

  Alternatively, create a *wsman:ResourceURI* element that contains the following string:

  ```
  http://schemas.hp.com/ism/ServiceOperation/IncidentManagement/1/Incident
  ```

- Element *wsman:SelectorSet* of type *wsman:SelectorSetType*

  Contains one element of type *wsman:SelectorType*, which identifies the incident instance. You can use the element *wsa:ReferenceParameters/wsman:SelectorSet* from an element of type *wsa:EndpointReferenceType*. (See "Endpoint References" (on page 10).)

  Alternatively, create a *wsman:SelectorSet* that contains one *wsman:Selector* element of type *wsman:SelectorType*:

  - *wsman:Selector* attribute Name must have the value IncidentID.
  - *wsman:Selector* must contain the ID of the incident instance that contains the annotation to delete.

- Optional element *wsman:OperationTimeout* of type *wsman:AttributableDuration*

  Contains a maximum duration within which you expect the service to respond. On an HPOM for UNIX management server, the service returns a TimedOut fault if it cannot respond in time.

Output

The SOAP body is empty.

Fault

If it cannot delete the annotation, the service returns a fault according to the WS-Management standard.

SetCustomAttribute

This operation creates or updates a custom attribute for an existing incident. The existing incident is identified by incident ID.

Input

SOAP Body

Element *incExt:CustomAttribute* of type *incExt:CustomAttribute*, which contains the following subelements:

- Element *incExt:Key* of type *xs:string*.

  Contains the key for the custom attribute. If a custom attribute with this key exists, the operation updates the existing a custom attribute. If a custom attribute with the specified key does not exist, the operation stores an new custom attribute.

- Element *incExt:Text* of type *xs:string*.

  Contains the value of the custom attribute.

SOAP Header

- Element *wsa:Action* of type *wsa:ActionType* that contains the following string:

  ```
  http://s-
  che-
  mas.hp.com/opr/ws/ServiceOperation/IncidentManagement/1/Incident/SetCustomAttribute
  ```

- Element *wsman:ResourceURI* of type *wsman:AttributableURI*

  Contains a string that identifies the resource type. You can use the element *wsa:ReferenceParameters/wsman:ResourceURI* from an element of type *wsa:EndPointReferenceType*.

  Alternatively, create a *wsman:ResourceURI* element that contains the following string:

  ```
  http://schemas.hp.com/ism/ServiceOperation/IncidentManagement/1/Incident
  ```

- Element *wsman:SelectorSet* of type *wsman:SelectorSetType*

  Contains one element of type *wsman:SelectorType*, which identifies the incident instance. You can use the element *wsa:ReferenceParameters/wsman:SelectorSet* from an element of type *wsa:EndpointReferenceType*. (See "Endpoint References" (on page 10).)

  Alternatively, create a *wsman:SelectorSet* that contains one *wsman:Selector* element of type *wsman:SelectorType*:

  - *wsman:Selector* attribute Name must have the value IncidentID.
  - *wsman:Selector* must contain the ID of the incident instance that contains the custom attribute.

- Optional element *wsman:OperationTimeout* of type *wsman:AttributableDuration*

  Contains a maximum duration within which you expect the service to respond. On an HPOM for UNIX management server, the service returns a TimedOut fault if it cannot respond in time.

Output

The SOAP body is empty.

Fault

If it cannot create or update the custom attribute, the service returns a fault according to the WS-Management standard.

DeleteCustomAttribute

This operation deletes a custom attribute from an existing incident. The existing incident is identified by incident ID.

Input

SOAP Body

Element *incExt:CustomAttributeKey* of type *xs:string*, which contains the key of the custom attribute to delete.

SOAP Header

- Element *wsa:Action* of type *wsa:ActionType* that contains the following string:

  ```
  http://schemas.hp.com/opr/ws/ServiceOperation/IncidentManagement/1/Incident/DeleteCustomAttribute
  ```

- Element *wsman:ResourceURI* of type *wsman:AttributableURI*

  Contains a string that identifies the resource type. You can use the element *wsa:ReferenceParameters/wsman:ResourceURI* from an element of type *wsa:EndPointReferenceType*.

  Alternatively, create a *wsman:ResourceURI* element that contains the following string:

  ```
  http://schemas.hp.com/ism/ServiceOperation/IncidentManagement/1/Incident
  ```

- Element *wsman:SelectorSet* of type *wsman:SelectorSetType*

  Contains one element of type *wsman:SelectorType*, which identifies the incident instance. You can use the element *wsa:ReferenceParameters/wsman:SelectorSet* from an element of type *wsa:EndpointReferenceType*. (See "Endpoint References" (on page 10).)

  Alternatively, create a *wsman:SelectorSet* that contains one *wsman:Selector* element of type *wsman:SelectorType*:

  - *wsman:Selector* attribute Name must have the value IncidentID.
  - *wsman:Selector* must contain the ID of the incident instance that contains the custom attribute to delete.

- Optional element *wsman:OperationTimeout* of type *wsman:AttributableDuration*

  Contains a maximum duration within which you expect the service to respond. On an HPOM for UNIX management server, the service returns a TimedOut fault if it cannot respond in time.

Output

The SOAP body is empty.

Fault

If it cannot delete the custom attribute, the service returns a fault according to the WS-Management standard.

CloseMany

This operation sets the lifecycle state of multiple existing incidents to closed. The incidents are identified by incident IDs.

Input

SOAP Body

Element *incExt:IncidentIDs* of type *incExt:IncidentIDs*, which contains any number of *incExt:id* elements of type *xs:string*.

Each *incExt:id* contains the ID of an incident to close.

SOAP Header

- Element *wsman:ResourceURI* of type *wsman:AttributableURI*

  Contains a string that identifies the resource type. You can use the element *wsa:ReferenceParameters/wsman:ResourceURI* from an element of type *wsa:EndPointReferenceType*.

  Alternatively, create a *wsman:ResourceURI* element that contains the following string:

  `http://schemas.hp.com/ism/ServiceOperation/IncidentManagement/1/Incident`

- Optional element *wsman:OperationTimeout* of type *wsman:AttributableDuration*

  Contains a maximum duration within which you expect the service to respond. On an HPOM for UNIX management server, the service returns a TimedOut fault if it cannot respond in time.

Output

The SOAP body is empty.

Fault

If it cannot close the incidents, the service returns a fault according to the WS-Management standard.

ReopenMany

This operation sets the lifecycle state of multiple closed incidents to open. The incidents are identified by incident IDs.

Input

SOAP Body

Element *incExt:IncidentIDs* of type *incExt:IncidentIDs*, which contains any number of *incExt:id* elements of type *xs:string*.

Each *incExt:id* contains the ID of an incident to close.

SOAP Header

- Element *wsman:ResourceURI* of type *wsman:AttributableURI*

  Contains a string that identifies the resource type. You can use the element *wsa:ReferenceParameters/wsman:ResourceURI* from an element of type *wsa:EndPointReferenceType*.

  Alternatively, create a *wsman:ResourceURI* element that contains the following string:

  `http://schemas.hp.com/ism/ServiceOperation/IncidentManagement/1/Incident`

- Optional element *wsman:OperationTimeout* of type *wsman:AttributableDuration*

  Contains a maximum duration within which you expect the service to respond. On an HPOM for UNIX management server, the service returns a TimedOut fault if it cannot respond in time.

Output

The SOAP body is empty.

Fault

If it cannot reopen the incidents, the service returns a fault according to the WS-Management standard. If any incident is already open, the service returns a fault and stops processing the list of incidents. The service does not roll back changes to incidents that it completed successfully before the fault occurred.

StartAction

This operation starts the automatic or operator-initiated action of an existing incident. The incident is identified by the incident ID.

Input

SOAP Body

Element *incExt:ActionType* of type *xs:string*. This can be one of the following strings:

- AutomaticAction
- OperatorAction

SOAP Header

- Element *wsa:Action* of type *wsa:ActionType* that contains the following string:

  `http://schemas.hp.com/opr/ws/ServiceOperation/IncidentManagement/1/Incident/StartAction`

- Element *wsman:ResourceURI* of type *wsman:AttributableURI*

  Contains a string that identifies the resource type. You can use the element *wsa:ReferenceParameters/wsman:ResourceURI* from an element of type *wsa:EndPointReferenceType*.

  Alternatively, create a *wsman:ResourceURI* element that contains the following string:

  `http://schemas.hp.com/ism/ServiceOperation/IncidentManagement/1/Incident`

- Element *wsman:SelectorSet* of type *wsman:SelectorSetType*

  Contains one element of type *wsman:SelectorType*, which identifies the incident instance. You can use the element *wsa:ReferenceParameters/wsman:SelectorSet* from an element of type *wsa:EndpointReferenceType*. (See "Endpoint References" (on page 10).)

  Alternatively, create a *wsman:SelectorSet* that contains one *wsman:Selector* element of type *wsman:SelectorType*:

  wsman:Selector attribute Name must have the value IncidentID.

  wsman:Selector must contain the ID of the incident instance to get.

- Optional element *wsman:OperationTimeout* of type *wsman:AttributableDuration*

  Contains a maximum duration within which you expect the service to respond. On an HPOM for UNIX management server, the service returns a TimedOut fault if it cannot respond in time.

Output

The SOAP body is empty.

Fault

If it cannot start the action, the service returns a fault according to the WS-Management standard.

StopAction

This operation stops the automatic or operator-initiated action of an existing incident. The incident is identified by the incident ID.

Input

SOAP Body

Element *incExt:ActionType* of type *xs:string*. This can be one of the following strings:

- AutomaticAction
- OperatorAction

SOAP Header

- Element *wsa:Action* of type *wsa:ActionType* that contains the following string:

  `http://schemas.hp.com/opr/ws/ServiceOperation/IncidentManagement/1/Incident/StopAction`

- Element *wsman:ResourceURI* of type *wsman:AttributableURI*

  Contains a string that identifies the resource type. You can use the element *wsa:ReferenceParameters/wsman:ResourceURI* from an element of type *wsa:EndPointReferenceType*.

  Alternatively, create a *wsman:ResourceURI* element that contains the following string:

  `http://schemas.hp.com/ism/ServiceOperation/IncidentManagement/1/Incident`

- Element *wsman:SelectorSet* of type *wsman:SelectorSetType*

  Contains one element of type *wsman:SelectorType*, which identifies the incident instance. You can use the element *wsa:ReferenceParameters/wsman:SelectorSet* from an element of type *wsa:EndpointReferenceType*. (See "Endpoint References" (on page 10).)

  Alternatively, create a *wsman:SelectorSet* that contains one *wsman:Selector* element of type *wsman:SelectorType*:

  wsman:Selector attribute Name must have the value IncidentID.

  wsman:Selector must contain the ID of the incident instance to get.

- Optional element *wsman:OperationTimeout* of type *wsman:AttributableDuration*

  Contains a maximum duration within which you expect the service to respond. On an HPOM for UNIX management server, the service returns a TimedOut fault if it cannot respond in time.

Output

The SOAP body is empty.

Fault

If it cannot stop the action, the service returns a fault according to the WS-Management standard.

Tool Operations Reference

The HPOM Tool Web Service provides a Web Services Definition Language (WSDL) document, which describes the service. After you install the service, the WSDL is available from the following location on the HPOM management server:

https://<*server_name*>:<*port*>/opr-toolwebservice/ToolWebService.svc?wsdl

This WSDL document refers to the other WSDL documents and associated XML Schema Documents (XSDs), and gives their location on the management server. These documents provide complete information about the operations that the service supports. The details of how your client uses these operations depend on the web service client development toolkit that you choose.

You can develop a client using any suitable toolkit or programming language. For example, you can develop your client with one of the following web service client development toolkits:

- Apache Axis2
- Windows Communication Foundation
- Wiseman

This chapter provides a generic reference to the operations that the service provides. "Prefixes and XML Namespaces Used in this Document" (on page 10) lists the prefixes used in this section to show the namespace of each element type.

Create

This operation requests the management server to execute a specified command on a specified node. Consider using the following procedure to manage tool executions:

1. Use the SubscribeOp operation to get an enumeration context.
2. Create a tool execution.
3. Start a PullOp operation. As soon as the event queue contains events, PullOp returns a batch of updated tool executions. The updated tool executions contain the current *tool:LifecycleState*. When *tool:LifecycleState* is `finished`, the service inserts the results into *tool:Output*, *tool:ResultCode*, and *tool:FinishTime*.

   If the event queue remains empty for the specified OperationTimeout, PullOp returns a TimedOut fault.
4. Immediately after the PullOp returns updated tool executions or a fault, start another PullOp operation.

Input

SOAP Body

Element *tool:ToolExecution* of type *tool:ToolExecution*. *tool:ToolExecution* must contain the following subelements:

- *tool:Command* of type *xs:string*.

  Contains a string that specifies the tool to execute. The command can be either of the following:

  - the unique ID of an existing tool on the management server
  - an executable with all parameters
  - a script

  The command must be in the format that the agent expects. The service does no parameter replacement or other modification on this string.
- *tool:CommandType* of type *tool:CommandType_OpenType*

  Contains a string that specifies the type of command. This string can be any value, including the following strings:

  - `server-defined`

    To use this command type, *tool:Command* must contain the unique ID of a tool.
  - `executable`
  - `vbscript`
  - `jscript`
  - `perl`
  - `wshost`

- *tool:Node/ismNode:DnsName*

  Contains a string that specifies the fully qualified domain name of the node on which to execute the command. The node must exist on the HPOM management server.

tool:ToolExecution can contain any of the following subelements:

- *tool:AdditionalParameters*

  Contains a string that specifies parameters for an existing tool on the management server. The *tool:CommandType* must be `server-defined`, and the existing tool must allow operators to change parameters.

- *tool:ReplacementVariables* of type tool:ReplacementVariables

  Contains any number of subelements of type *tool:ReplacementVariable*. Each *tool:ReplacementVariable* contains a name-value pair, which the service uses to replace an environment variable in the command of an existing tool on the management server. The *tool:CommandType* must be `server-defined`. When you launch a tool from the HPOM user interface, the management server automatically replaces the environment variables with values. When you execute a tool using the tool with the tool web service, you have to specify the values.

- *tool:User* of type *xs:string*

  Contains a string that specifies the name of the user to execute the command on the node. *tool:User* can contain the name of a real user or the string $AGENT_USER. The behavior is the same as when you execute a tool from within the HPOM user interface.

- *tool:Password* of type *xs:string*

  Contains the password of the specified *tool:User*. If you specify *tool:User* without *tool:Password*, the agent attempts to switch to the specified user without the password. After the service starts the tool execution, the service replaces the password with asterisks (*).

- *tool:Context* of type *xs:string*

  Contains any string that you want to store with the tool execution. The tool web service does not use this string.

- *tool:SessionId* of type *xs:string*

  Contains any string that you want to store with the tool execution. The tool web service does not use this string.

- *tool:Display* of type *xs:string*

  Contains a display environment variable, which the agent sets before it starts the tool.You can use this to redirect the display for X programs on nodes with a UNIX or Linux operating system.

tool:ToolExecution can also contain other valid subelements, although this operation ignores them.

SOAP Header

- Element *wsa:Action* of type *wsa:ActionType* that contains the following string:

  `http://schemas.xmlsoap.org/ws/2004/09/transfer/Create`

- Element *wsman:ResourceURI* of type *wsman:AttributableURI*

  Contains a string that identifies the resource type. You can use the element *wsa:ReferenceParameters/wsman:ResourceURI* from an element of type *wsa:EndPointReferenceType*.

Alternatively, create a *wsman:ResourceURI* element that contains the following string:

```
http://schemas.hp.com/opr/ws/ServiceOperation/ToolManagement/1/ToolExecution
```

- Optional element *wsman:OperationTimeout* of type *wsman:AttributableDuration*

  Contains a maximum duration within which you expect the service to respond. On an HPOM for UNIX management server, the service returns a TimedOut fault if it cannot respond in time.

Output

The SOAP body contains an element *wsa:EndpointReference* of type *wsa:EndpointReferenceType*. This element contains the subelements *wsman:ResourceURI* and *wsman:SelectorSet*, which you can use to uniquely identify the tool execution in subsequent operations.

Fault

If the service cannot execute the tool, it returns a fault according to the WS-Management standard.

Delete

This operation deletes an existing tool execution, which is identified by the tool execution ID. The management server sends a request to the agent to stop the tool.

Input

SOAP Body

Empty.

SOAP Header

- Element *wsa:Action* of type *wsa:ActionType* that contains the following string:

  ```
  http://schemas.xmlsoap.org/ws/2004/09/transfer/Delete
  ```

- Element *wsman:ResourceURI* of type *wsman:AttributableURI*

  Contains a string that identifies the resource type. You can use the element *wsa:ReferenceParameters/wsman:ResourceURI* from an element of type *wsa:EndPointReferenceType*.

  Alternatively, create a *wsman:ResourceURI* element that contains the following string:

  ```
  http://schemas.hp.com/opr/ws/ServiceOperation/ToolManagement/1/ToolExecution
  ```

- Element *wsman:SelectorSet* of type *wsman:SelectorSetType*

  Contains one element of type *wsman:SelectorType*, which identifies the tool execution instance. You can use the element *wsa:ReferenceParameters/wsman:SelectorSet* from an element of type *wsa:EndpointReferenceType*. (See "Endpoint References" (on page 10).)

  Alternatively, create a *wsman:SelectorSet* that contains one *wsman:Selector* element of type *wsman:SelectorType*:

- *wsman:Selector* attribute **`Name`** must have the value **`ID`** .
- *wsman:Selector* must contain the ID of the tool execution to delete.

- Optional element *wsman:OperationTimeout* of type *wsman:AttributableDuration*

  Contains a maximum duration within which you expect the service to respond. On an HPOM for UNIX management server, the service returns a TimedOut fault if it cannot respond in time.

Output

The SOAP body is empty.

Fault

If the service cannot stop the tool execution, it returns a fault according to the WS-Management standard.

EnumerateOp

This operation returns an enumeration context, which you can then use with the PullOp operation to get batches of tool executions from the service. You can specify a filter, so that the enumeration context contains only specific tool executions.

Input

SOAP Body

Element *Enumerate* of type *wsen:Enumerate*. This element can contain the following subelements:

- Optional element *wsen:Expires* of type *wsen:ExpirationType*.

  Contains a duration, for which the client requires the enumeration context. If you omit this subelement, the service uses the value of the EnumerationExpiration parameter on the management server. If you specify a duration that exceeds the value of the EnumerationExpirationMaximum parameter, the service uses the value of EnumerationExpirationMaximum instead. (See "Service Configuration" (on page 13).)

- Optional element *wsen:Filter* of type *wsen:FilterType* or *wsman:Filter* of type *wsman:dialectableMixedDataType*. For compatibility with different toolkits, the service supports a filter of either type, but you must specify only one of them.

  Filter attribute **`Dialect`** must have the following value:

  `http://schemas.hp.com/opr/ws/ServiceOperation/ToolManagement/1/ToolExecutionFilter`

  Filter must contain the subelement *toolFil:ToolExecutionEnumerationFilter* of type *toolFil:ToolExecutionEnumerationFilter*. *ToolExecutionEnumerationFilter* can contain any of the following subelements:

  - Optional element *tool:ID* of type *xs:string*
  - Optional element *tool:SessionId* of type *xs:string*

  The service enumerates tool executions that match the contents of the *toolFil:ToolExecutionEnumerationFilter* subelements that you specify.

  If you omit *Filter*, the service enumerates all tool executions.

SOAP Header

- Element *wsa:Action* of type *wsa:ActionType* that contains the following string:

  `http://schemas.xmlsoap.org/ws/2004/09/enumeration/Enumerate`

- Element *wsman:ResourceURI* of type *wsman:AttributableURI*

  Contains a string that identifies the resource type. You can use the element *wsa:ReferenceParameters/wsman:ResourceURI* from an element of type *wsa:EndPointReferenceType*.

  Alternatively, create a *wsman:ResourceURI* element that contains the following string:

  `http://schemas.hp.com/opr/ws/ServiceOperation/ToolManagement/1/ToolExecution`

- Optional element *wsman:OperationTimeout* of type *wsman:AttributableDuration*

Contains a maximum duration within which you expect the service to respond. On an HPOM for UNIX management server, the service returns a TimedOut fault if it cannot respond in time.

Output

The SOAP body contains an element *wsen:EnumerateResponse* (of anonymous type), which contains the following subelements:

- Element *wsen:Expires* of type *wsen:ExpirationType*.

  Contains a duration, for which the enumeration context is valid. You can use the ReleaseOp operation to cancel the enumeration context early. (See "ReleaseOp" (on page 63).)

- Element *wsen:EnumerationContext* of type *wsen:EnumerationContextType*.

  Contains a string that identifies the enumeration context. Use *wsen:EnumerationContext* with the PullOp operation to get batches of tool executions from the service. (See "PullOp" (on page 61).)

Fault

If it cannot return the enumeration context, the service returns a fault according to the WS-Management standard.

Get

This operation returns one tool execution, which is identified by the tool execution ID.

Input

SOAP Body

Empty.

SOAP Header

- Element *wsa:Action* of type *wsa:ActionType* that contains the following string:

  `http://schemas.xmlsoap.org/ws/2004/09/transfer/Get`

- Element *wsman:SelectorSet* of type *wsman:SelectorSetType*

  Contains one element of type *wsman:SelectorType*, which identifies the tool execution instance. You can use the element *wsa:ReferenceParameters/wsman:SelectorSet* from an element of type *wsa:EndpointReferenceType*. (See "Endpoint References" (on page 10).)

  Alternatively, create a *wsman:SelectorSet* that contains one *wsman:Selector* element of type *wsman:SelectorType*:

  - *wsman:Selector* attribute **`Name`** must have the value **`ID`** .
  - *wsman:Selector* must contain the ID of the tool execution to get.

- Optional element *wsman:OperationTimeout* of type *wsman:AttributableDuration*

  Contains a maximum duration within which you expect the service to respond. On an HPOM for UNIX management server, the service returns a TimedOut fault if it cannot respond in time.

Output

The SOAP body contains an element *tool:ToolExecution* of type *tool:ToolExecution*.

Fault

If it cannot return the tool execution, the service returns a fault according to the WS-Management standard.

SubscribeOp

This operation returns an enumeration context, which you can then use with the PullOp operation to get batches of updated tool executions from the service.

Input

SOAP Body

Element *wse:Subscribe* of type *wse:SubscribeType*, which contains the following subelements:

- Element *wse:Delivery* of type *wse:DeliveryType*. *wse:Delivery* attribute **`Mode`** must have the following value:

  `http://schemas.dmtf.org/wbem/wsman/1/wsman/Pull`

- Optional element *wse:Expires* of type *wse:ExpirationType*.

  Contains either a duration that specifies how long the client requires the subscription, or a date and time at which the subscription should expire. If you omit this subelement, the service uses the value of the SubscriptionExpiration parameter on the management server. If you specify a duration that exceeds the value of the SubscriptionExpirationMaximum parameter, the service uses the value of SubscriptionExpirationMaximum instead. (See "Service Configuration" (on page 13).)

- Optional element *wsen:Filter* of type *wsen:FilterType* or *wsman:Filter* of type *wsman:dialectableMixedDataType*. For compatibility with different toolkits, the service supports a filter of either type, but you must specify only one of them.

  Filter attribute **`Dialect`** must have the following value:

  `http://schemas.hp.com/opr/ws/ServiceOperation/ToolManagement/1/ToolExecutionFilter`

  Filter must contain the subelement *toolFil:ToolExecutionEventingFilter* of type *toolFil:ToolExecutionEventingFilter*. *ToolExecutionEventingFilter* can contain any of the following subelements:

  - Optional element *tool:ID* of type *xs:string*
  - Optional element *tool:SessionId* of type *xs:string*

  The service enumerates tool executions that match the contents of the *toolFil:ToolExecutionEventingFilter* subelements that you specify.

  If you omit *Filter*, the service enumerates all tool executions.

SOAP Header

- Element *wsa:Action* of type *wsa:ActionType* that contains the following string:

  `http://schemas.xmlsoap.org/ws/2004/08/eventing/Subscribe`

- Element *wsman:ResourceURI* of type *wsman:AttributableURI*

  Contains a string that identifies the resource type. You can use the element *wsa:ReferenceParameters/wsman:ResourceURI* from an element of type *wsa:EndPointReferenceType*.

  Alternatively, create a *wsman:ResourceURI* element that contains the following string:

```
http://schemas.hp.com/opr/ws/ServiceOperation/ToolManagement/1/ToolExecution
```

- Optional element *wsman:OperationTimeout* of type *wsman:AttributableDuration*

  Contains a maximum duration within which you expect the service to respond. On an HPOM for UNIX management server, the service returns a TimedOut fault if it cannot respond in time.

Output

The SOAP body contains an element *wse:SubscribeResponse* (of anonymous type), which contains the following subelements:

- Element *wse:SubscriptionManager* of type *wsa:EndpointReferenceType*.

  Contains the subelement *wsa:ReferenceParameters/wse:Identifier* of type *wse:Identifier*, which you use to identify the subscription if you unsubscribe or renew it. (See "UnsubscribeOp" (on page 60) and "RenewOp" (on page 59).)

- Element *wse:Expires* of type *wse:ExpirationType*.

  Contains a duration, for which the service maintains the subscription. You can use the RenewOp operation to renew the subscription before it expires. (See "RenewOp" (on page 59).)

- Element *wsen:EnumerationContext* of type *wsen:EnumerationContextType*.

  Contains a string that identifies the enumeration context. Use *EnumerationContext* with the PullOp operation to get batches of updated tool executions from the service. (See "PullOp" (on page 61).)

Fault

If it cannot return the enumeration context, the service returns a fault according to the WS-Management standard.

RenewOp

This operation renews a subscription before it expires.

Input

SOAP Body

Element *wse:Renew* (of anonymous type), which contains the optional subelement *wse:Expires* of type *wse:ExpirationType*.

Contains either a duration that specifies how long the client requires the subscription, or a date and time at which the subscription should expire. If you omit this subelement, the service uses the value of the SubscriptionExpiration parameter on the management server. If you specify a duration that exceeds the value of the SubscriptionExpirationMaximum parameter, the service uses the value of SubscriptionExpirationMaximum instead.

SOAP Header

- Element *wsa:Action* of type *wsa:ActionType* that contains the following string:

  `http://schemas.xmlsoap.org/ws/2004/08/eventing/Renew`

- Element *wse:Identifier* of type *xs:anyURI*.

  Contains the identifier of an active subscription. You can use the element *wse:SubscriptionManager/wsa:ReferenceParameters/wse:Identifier* from the output of a SubscribeOp operation. (See "SubscribeOp" (on page 57).)

- Element *wsman:ResourceURI* of type *wsman:AttributableURI*

  Contains a string that identifies the resource type. You can use the element *wsa:ReferenceParameters/wsman:ResourceURI* from an element of type *wsa:EndPointReferenceType*.

  Alternatively, create a *wsman:ResourceURI* element that contains the following string:

  `http://schemas.hp.com/opr/ws/ServiceOperation/ToolManagement/1/ToolExecution`

- Optional element *wsman:OperationTimeout* of type *wsman:AttributableDuration*

  Contains a maximum duration within which you expect the service to respond. On an HPOM for UNIX management server, the service returns a TimedOut fault if it cannot respond in time.

Output

The SOAP body contains an element *wse:RenewResponse* (of anonymous type), which contains the subelement *wse:Expires* of type *wse:ExpirationType*.

wse:Expires contains the new date and time at which the subscription expires.

Fault

If the service cannot renew the subscription, the service returns a fault according to the WS-Management standard.

UnsubscribeOp

This operation cancels a subscription before the subscription expires.

Input

SOAP Body

Element *wse:Unsubscribe* of type *wse:UnsubscribeType*. This element is required, but should be empty.

SOAP Header

- Element *wsa:Action* of type *wsa:ActionType* that contains the following string:

  `http://schemas.xmlsoap.org/ws/2004/08/eventing/Unsubscribe`

- Element *wse:Identifier* of type *xs:anyURI*.

  Contains the identifier of an active subscription. You can use the element *wse:SubscriptionManager/wsa:ReferenceParameters/wse:Identifier* from the output of a SubscribeOp operation. (See "SubscribeOp" (on page 57).)

- Element *wsman:ResourceURI* of type *wsman:AttributableURI*

  Contains a string that identifies the resource type. You can use the element *wsa:ReferenceParameters/wsman:ResourceURI* from an element of type *wsa:EndPointReferenceType*.

  Alternatively, create a *wsman:ResourceURI* element that contains the following string:

  `http://schemas.hp.com/opr/ws/ServiceOperation/ToolManagement/1/ToolExecution`

- Optional element *wsman:OperationTimeout* of type *wsman:AttributableDuration*

  Contains a maximum duration within which you expect the service to respond. On an HPOM for UNIX management server, the service returns a TimedOut fault if it cannot respond in time.

Output

The SOAP body is empty.

Fault

If it cannot cancel the subscription, the service returns a fault according to the WS-Management standard.

PullOp

This operation returns a batch of tool executions from an enumeration context.

Input

SOAP Body

Element *wsen:Pull* (of anonymous type), which contains the following subelements:

- Element *wsen:EnumerationContext* of type *wsen:EnumerationContextType*.

  Contains a string that identifies the enumeration context. Use a *wsen:EnumerationContext* that one of the following operations returns:

  - EnumerateOp (see "EnumerateOp" (on page 54))
  - SubscribeOp (see "SubscribeOp" (on page 57))
  - PullOp (see below)

- Optional element *wsen:MaxElements* of type *xs:positiveInteger*.

  Contains an integer that indicates the maximum number of tool executions to return in this batch. If you omit this subelement, the service uses the value of the MaxItems parameter on the management server. (See "Service Configuration" (on page 13).)

The HPOM Tool Web Service does not support the subelements *wsen:MaxTime* or *wsen:MaxCharacters*. You should omit these subelements.

SOAP Header

- Element *wsa:Action* of type *wsa:ActionType* that contains the following string:

  `http://schemas.xmlsoap.org/ws/2004/09/enumeration/Pull`

- Element *wsman:ResourceURI* of type *wsman:AttributableURI*

  Contains a string that identifies the resource type. You can use the element *wsa:ReferenceParameters/wsman:ResourceURI* from an element of type *wsa:EndPointReferenceType*.

  Alternatively, create a *wsman:ResourceURI* element that contains the following string:

  `http://schemas.hp.com/opr/ws/ServiceOperation/ToolManagement/1/ToolExecution`

- Optional element *wsman:OperationTimeout* of type *wsman:AttributableDuration*

  Contains a maximum duration within which you expect the service to respond. On an HPOM for UNIX management server, the service returns a TimedOut fault if it cannot respond in time.

  For enumeration contexts from the SubscribeOp operation, if the event queue remains empty for the specified OperationTimeout, PullOp returns a TimedOut fault.

Output

The SOAP body contains an element *wsen:PullResponse* (of anonymous type), which contains the following subelements:

- Element *wsen:EnumerationContext* of type *wsen:EnumerationContextType*.

  Contains a string that identifies the enumeration context. This is the same as the input *wsen:EnumerationContext*.

- Element *wsen:Items* of the type *wsen:ItemListType*.

  Contains one or more *tool:ToolExecution* elements of type *tool:ToolExecution*.

- Optional element *wsen:EndOfSequence* of type *wsen:attributableEmpty*.

  This element is empty. If *wsen:EndOfSequence* is present, there are no remaining items to pull for this enumeration context and the enumeration context is no longer valid.

Fault

If the service cannot return the batch of tool executions, the service returns a fault according to the WS-Management standard.

ReleaseOp

This operation cancels an existing enumeration context early (that is, before the client has pulled all the tool executions, and before the enumeration context has expired).

You can use this operation to cancel an enumeration context from an enumerate operation. To cancel an enumeration context from a subscription operation, unsubscribe instead. (See "UnsubscribeOp" (on page 60).)

Input

SOAP Body

Element *wsen:Release* (of anonymous type), which contains the subelement *wsen:EnumerationContext* of type *wsen:EnumerationContextType*.

wsen:EnumerationContext contains a string that identifies the enumeration context. Use a *wsen:EnumerationContext* that one of the following operations returns:

- EnumerateOp (see "EnumerateOp" (on page 54))
- PullOp (see "PullOp" (on page 61))

SOAP Header

- Element *wsa:Action* of type *wsa:ActionType* that contains the following string:

  `http://schemas.xmlsoap.org/ws/2004/09/enumeration/Release`

- Element *wsman:ResourceURI* of type *wsman:AttributableURI*

  Contains a string that identifies the resource type. You can use the element *wsa:ReferenceParameters/wsman:ResourceURI* from an element of type *wsa:EndPointReferenceType*.

  Alternatively, create a *wsman:ResourceURI* element that contains the following string:

  `http://schemas.hp.com/opr/ws/ServiceOperation/ToolManagement/1/ToolExecution`

- Optional element *wsman:OperationTimeout* of type *wsman:AttributableDuration*

  Contains a maximum duration within which you expect the service to respond. On an HPOM for UNIX management server, the service returns a TimedOut fault if it cannot respond in time.

Output

The SOAP body is empty.

Fault

If it cannot release the enumeration context, the service returns a fault according to the WS-Management standard.

Security for Web Service Clients

When the client that you develop connects to an HPOM Web Service, it must use HTTP basic authentication to specify the username and password of a valid HPOM user. To ensure that malicious users cannot intercept these credentials and other communications, HP recommends that you use HTTPS connections.

The following topics provide more details:

- "User Authentication" (on page 64)
- "Secure HTTP Connections" (on page 64)

User Authentication

A client must connect to an HPOM Web Service using HTTP basic authentication. Use your normal client development toolkit to specify a username and password in the client's HTTP requests.

The username and password that you specify must be those of a valid HPOM user. The user must have appropriate rights to perform the operations that the client attempts.

On HPOM for UNIX, if the user that you specify is an operator, the client has the same permissions as the operator would have in the HPOM console. For example, the Incident Web Service EnumerateOp returns only incidents that the operator would see as messages in the console.

In contrast, on HPOM for Windows, the client may have more permissions than the operator would have in the HPOM console. In particular, any restrictions from user roles do not apply. For example, the Incident Web Service can enumerate all messages, and change messages that are not already owned by another user.

Secure HTTP Connections

HP recommends that you connect to the HPOM Web Services using HTTPS connections, which require a suitable certificate on the server. The management server installation creates a self-signed certificate for HTTPS communication, but you can replace this with a different certificate if necessary. The port that the service uses for HTTPS communication depends on the configuration of the HPOM management server.

The default HTTPS port number on HPOM for UNIX is 8444 .

For further security, HP recommends that you verify the hostname and certificate for each HTTPS connection. To verify the certificate for an HTTPS connection, the client system must trust the server's certificate. You may need to export the server's certificate and import it to the client system.

You can export the server's certificate from your management server as follows:

1. Open a shell and navigate to the directory that contains the keystore file:

   ```
   cd /var/opt/OV/certificates/tomcat/b
   ```

2. Export the certificate using the following command:

   ```
   /opt/OV/nonOV/jre/b/bin/keytool -keystore tomcat.keystore -export -alias ovtomcatb -file /tmp/server.cer
   ```

After you export the server's certificate from the management server, you must import it using the appropriate tools for your client environment. You can then program your client to verify HTTPS connections using the methods that your client development toolkit provides.

Basic Troubleshooting

If you experience problems with the HPOM Web Services, check that your client can connect to the service over the network, and that the service is available.

The following topics provide more details:

- "Troubleshoot Connectivity" (on page 66)
- "Troubleshoot on HPOM for UNIX" (on page 66)

Troubleshoot Connectivity

- Check the network connectivity from your client system to the HPOM management server. For example:
  - Use nslookup to check that the client system can resolve the management server's hostname.
  - Use ping to check that the client system can reach the management server.
- Check the connectivity from your client system to the HPOM Web Service.

  Open a web browser and navigate to the following locations on the HPOM management server:
  - `https://<server_name>:<port>/opr-webservice/Incident.svc?wsdl`
  - `https://<server_name>:<port>/opr-toolwebservice/ToolWebService.svc?wsdl`

  The port that the service is available on depends on the configuration of the HPOM management server. The service listens for HTTPS connections on port 8444 by default. On HPOM for UNIX management servers, the service also listens for insecure HTTP connections on port 8081.

  You may need to accept a certificate and provide credentials for the HPOM management server. If your browser cannot open the WSDL document, check that the service is installed and running. (See "Troubleshoot on HPOM for UNIX" (on page 66).)

Troubleshoot on HPOM for UNIX

- The service runs within the Tomcat (B) servlet container. Check the status of the ovtomcatB component by typing the following command:

  `/opt/OV/bin/ovc -status ovtomcatB`

  If ovtomcatB is not running, type the following command to start it:

  `/opt/OV/bin/ovc -start ovtomcatB`
- Check the installation of the HPOM Incident Web Service.

  Open a shell prompt or file browser, and then navigate to the following directory:

  `/opt/OV/nonOV/tomcat/b/www/webapps`

  The directory should contain the files opr-webservice.war file and the subdirectory opr-webservice directory,

  If any of the files or directories are missing, type the following command:

  `/opt/OV/bin/ovc -restart ovtomcatB`

If the files or folders are still missing, reinstall the service. (See "Deinstallation".)

- Check the following log files for errors and warnings:
  - `/var/opt/OV/log/om/incident_ws.0.en`
  - `/var/opt/OV/log/tomcat/ovtomcatb.out`

SOAP Envelope Examples

The following examples show SOAP envelopes that the HPOM Incident Web Service receives and sends for various operations.

Create Request SOAP Envelope Example

```
<s:Envelope xmlns:s="http://www.w3.org/2003/05/soap-envelope"
  xmlns:a="http://schemas.xmlsoap.org/ws/2004/08/addressing">
  <s:Header>
    <a:Action s:mustUnderstand="1">http://schemas.xmlsoap.org/ws/2004/09/transfer/Create</a:Action>
    <h:OperationTimeout xmlns:h="http://schemas.dmtf.org/wbem/wsman/1/wsman.xsd"
      xmlns="http://schemas.dmtf.org/wbem/wsman/1/wsman.xsd">
      PT10M0.00S
    </h:OperationTimeout>
    <h:ResourceURI xmlns:h="http://schemas.dmtf.org/wbem/wsman/1/wsman.xsd"
      xmlns="http://schemas.dmtf.org/wbem/wsman/1/wsman.xsd">
      http://schemas.hp.com/ism/ServiceOperation/IncidentManagement/1/Incident
    </h:ResourceURI>
    <a:MessageID>urn:uuid:2be9d179-a8be-476d-8558-576e5d2283b8</a:MessageID>
    <a:ReplyTo>
      <a:Address>http://schemas.xmlsoap.org/ws/2004/08/addressing/role/anonymous</a:Address>
    </a:ReplyTo>
    <a:To s:mustUnderstand="1">http://manager1.example.com/opr-webservice/Incident.svc</a:To>
  </s:Header>
  <s:Body xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xmlns:xsd="http://www.w3.org/2001/XMLSchema">
    <Incident xmlns="http://schemas.hp.com/ism/ServiceOperation/IncidentManagement/1/Incident">
```

```
<Title>My custom app has serious problems</Title>
<Severity>Major</Severity>
<Category>CustomApplications</Category>
<CollaborationMode>fyi</CollaborationMode>
<EmittingCI>
  <ConfigurationItemProperties
    xmlns="http://schemas.hp.com/ism/ServiceTransition/ConfigurationManagement/1/ConfigurationItem">
    <ID>92384-1232-234-2134</ID>
  </ConfigurationItemProperties>
</EmittingCI>
<EmittingNode>
  <NodeProperties xmlns="http://schemas.hp.com/ism/ServiceTransition/ConfigurationManagement/1/Node">
    <DnsName>host.example.com</DnsName>
  </NodeProperties>
</EmittingNode>
<Extensions>
  <OperationsExtension xmlns="http://schemas.hp.com/opr/ws/ServiceOperation/IncidentManagement/1/Incident">
    <Application>My custom app</Application>
    <Object>Custom Apps</Object>
    <NumberOfDuplicates>0</NumberOfDuplicates>
    <ConditionMatched>false</ConditionMatched>
    <AutomaticActionStatus>notAvailable</AutomaticActionStatus>
    <OperatorActionStatus>notAvailable</OperatorActionStatus>
    <EscalationStatus>notEscalated</EscalationStatus>
    <CustomAttributes>
```

```
            <CustomAttribute>
              <Key>Customer</Key>
              <Text>VIP</Text>
            </CustomAttribute>
          </CustomAttributes>
          <NumberOfAnnotations>0</NumberOfAnnotations>
        </OperationsExtension>
      </Extensions>
    </Incident>
  </s:Body>
</s:Envelope>
```

Create Response SOAP Envelope Example

```
<s:Envelope xmlns:s="http://www.w3.org/2003/05/soap-envelope"
  xmlns:a="http://schemas.xmlsoap.org/ws/2004/08/addressing">
  <s:Header>
    <a:Action s:mustUnderstand="1">http://schemas.xmlsoap.org/ws/2004/09/transfer/CreateResponse</a:Action>
    <a:RelatesTo>urn:uuid:2be9d179-a8be-476d-8558-576e5d2283b8</a:RelatesTo>
    <a:To s:mustUnderstand="1">http://schemas.xmlsoap.org/ws/2004/08/addressing/role/anonymous</a:To>
  </s:Header>
  <s:Body xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xmlns:xsd="http://www.w3.org/2001/XMLSchema">
    <ResourceCreated xmlns="http://schemas.xmlsoap.org/ws/2004/09/transfer">
      <a:Address>http://manager1.example.com/opr-webservice/Incident.svc</a:Address>
      <a:ReferenceParameters>
        <SelectorSet xmlns="http://schemas.dmtf.org/wbem/wsman/1/wsman.xsd">
```

```
          <Selector Name="IncidentID">a1a822f0-d485-40d5-96bb-2e42b6dd961a</Selector>
        </SelectorSet>
        <ResourceURI xmlns="http://schemas.dmtf.org/wbem/wsman/1/wsman.xsd">
          http://schemas.hp.com/ism/ServiceOperation/IncidentManagement/1/Incident
        </ResourceURI>
      </a:ReferenceParameters>
    </ResourceCreated>
  </s:Body>
</s:Envelope>
```

Close Request SOAP Envelope Example

```
<s:Envelope xmlns:s="http://www.w3.org/2003/05/soap-envelope"
  xmlns:a="http://schemas.xmlsoap.org/ws/2004/08/addressing">
  <s:Header>
    <a:Action s:mustUnderstand="1">http://schemas.hp.com/ism/ServiceOperation/Common/1/Close</a:Action>
    <h:ResourceURI xmlns:h="http://schemas.dmtf.org/wbem/wsman/1/wsman.xsd"
      xmlns="http://schemas.dmtf.org/wbem/wsman/1/wsman.xsd">
      http://schemas.hp.com/ism/ServiceOperation/IncidentManagement/1/Incident
    </h:ResourceURI>
    <h:SelectorSet xmlns:h="http://schemas.dmtf.org/wbem/wsman/1/wsman.xsd"
      xmlns="http://schemas.dmtf.org/wbem/wsman/1/wsman.xsd" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
      xmlns:xsd="http://www.w3.org/2001/XMLSchema">
      <Selector Name="IncidentID">527c6290-c5b8-71dc-1691-103941590000</Selector>
    </h:SelectorSet>
    <h:OperationTimeout xmlns:h="http://schemas.xmlsoap.org/ws/2005/06/management"
```

```
      xmlns="http://schemas.xmlsoap.org/ws/2005/06/management">
      PT10M0.00S
    </h:OperationTimeout>
    <a:MessageID>urn:uuid:73f6adda-7b30-4d4d-b1ae-d0c2848527b9</a:MessageID>
    <a:ReplyTo>
      <a:Address>http://schemas.xmlsoap.org/ws/2004/08/addressing/role/anonymous</a:Address>
    </a:ReplyTo>
    <a:To s:mustUnderstand="1">http://manager1.example.com/opr-webservice/Incident.svc</a:To>
  </s:Header>
  <s:Body xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xmlns:xsd="http://www.w3.org/2001/XMLSchema" />
</s:Envelope>
```

Close Response SOAP Envelope Example

```
<s:Envelope xmlns:s="http://www.w3.org/2003/05/soap-envelope"
  xmlns:a="http://schemas.xmlsoap.org/ws/2004/08/addressing">
  <s:Header>
    <a:Action s:mustUnderstand="1">http://schemas.hp.com/ism/ServiceOperation/Common/1/CloseResponse</a:Action>
    <a:RelatesTo>urn:uuid:73f6adda-7b30-4d4d-b1ae-d0c2848527b9</a:RelatesTo>
    <a:To s:mustUnderstand="1">http://schemas.xmlsoap.org/ws/2004/08/addressing/role/anonymous</a:To>
  </s:Header>
  <s:Body xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xmlns:xsd="http://www.w3.org/2001/XMLSchema" />
</s:Envelope>
```

Enumerate Request SOAP Envelope Example

```
<s:Envelope xmlns:s="http://www.w3.org/2003/05/soap-envelope"
```

```
xmlns:a="http://schemas.xmlsoap.org/ws/2004/08/addressing">
<s:Header>
  <a:Action s:mustUnderstand="1">http://schemas.xmlsoap.org/ws/2004/09/enumeration/Enumerate</a:Action>
  <h:OperationTimeout xmlns:h="http://schemas.dmtf.org/wbem/wsman/1/wsman.xsd"
    xmlns="http://schemas.dmtf.org/wbem/wsman/1/wsman.xsd">
    PT10M0.00S
  </h:OperationTimeout>
  <h:ResourceURI xmlns:h="http://schemas.dmtf.org/wbem/wsman/1/wsman.xsd"
    xmlns="http://schemas.dmtf.org/wbem/wsman/1/wsman.xsd">
    http://schemas.hp.com/ism/ServiceOperation/IncidentManagement/1/Incident
  </h:ResourceURI>
  <a:MessageID>urn:uuid:9e8b81d7-a725-4693-9af3-f025045750c6</a:MessageID>
  <a:ReplyTo>
    <a:Address>http://schemas.xmlsoap.org/ws/2004/08/addressing/role/anonymous</a:Address>
  </a:ReplyTo>
  <a:To s:mustUnderstand="1">http://manager1.example.com:8081/opr-webservice/Incident.svc</a:To>
</s:Header>
<s:Body xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xmlns:xsd="http://www.w3.org/2001/XMLSchema">
  <Enumerate xmlns="http://schemas.xmlsoap.org/ws/2004/09/enumeration">
    <Filter Dialect="http://schemas.hp.com/opr/ws/ServiceOperation/IncidentManagement/1/IncidentFilter">
      <IncidentEnumerationFilter
        xmlns="http://schemas.hp.com/opr/ws/ServiceOperation/IncidentManagement/1/IncidentFilter">
        <Severity>Critical</Severity>
        <Severity>Major</Severity>
        <Category>Database</Category>
```

```
          <CustomAttributes>
            <CustomAttribute>
              <Key>Customer</Key>
              <Text>VIP</Text>
            </CustomAttribute>
          </CustomAttributes>
        </IncidentEnumerationFilter>
      </Filter>
    </Enumerate>
  </s:Body>
</s:Envelope>
```

Enumerate Response SOAP Envelope Example

```
<s:Envelope xmlns:s="http://www.w3.org/2003/05/soap-envelope"
  xmlns:a="http://schemas.xmlsoap.org/ws/2004/08/addressing">
  <s:Header>
    <a:Action s:mustUnderstand="1">http://schemas.xmlsoap.org/ws/2004/09/enumeration/EnumerateResponse</a:Action>
    <a:RelatesTo>urn:uuid:f449fd93-be02-43cf-a8f3-2b32b3355ce8</a:RelatesTo>
    <a:To s:mustUnderstand="1">http://schemas.xmlsoap.org/ws/2004/08/addressing/role/anonymous</a:To>
  </s:Header>
  <s:Body xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xmlns:xsd="http://www.w3.org/2001/XMLSchema">
    <EnumerateResponse xmlns="http://schemas.xmlsoap.org/ws/2004/09/enumeration">
      <Expires>2008-01-18T12:41:20.968+01:00</Expires>
      <EnumerationContext>60d863fd-f058-41b1-8195-341652bd458a</EnumerationContext>
    </EnumerateResponse>
```

```
  </s:Body>
</s:Envelope>
```

Pull Request SOAP Envelope Example

```
<s:Envelope xmlns:s="http://www.w3.org/2003/05/soap-envelope"
  xmlns:a="http://schemas.xmlsoap.org/ws/2004/08/addressing">
  <s:Header>
    <a:Action s:mustUnderstand="1">http://schemas.xmlsoap.org/ws/2004/09/enumeration/Pull</a:Action>
    <h:OperationTimeout xmlns:h="http://schemas.dmtf.org/wbem/wsman/1/wsman.xsd"
      xmlns="http://schemas.dmtf.org/wbem/wsman/1/wsman.xsd">
      PT1000M0.00S
    </h:OperationTimeout>
    <h:ResourceURI xmlns:h="http://schemas.dmtf.org/wbem/wsman/1/wsman.xsd"
      xmlns="http://schemas.dmtf.org/wbem/wsman/1/wsman.xsd">
      http://schemas.hp.com/ism/ServiceOperation/IncidentManagement/1/Incident
    </h:ResourceURI>
    <a:MessageID>urn:uuid:42f16c88-6adc-49f0-8881-558fdecfecfe</a:MessageID>
    <a:ReplyTo>
      <a:Address>http://schemas.xmlsoap.org/ws/2004/08/addressing/role/anonymous</a:Address>
    </a:ReplyTo>
    <a:To s:mustUnderstand="1">http://manager1.example.com/opr-webservice/Incident.svc</a:To>
  </s:Header>
  <s:Body xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xmlns:xsd="http://www.w3.org/2001/XMLSchema">
    <Pull xmlns="http://schemas.xmlsoap.org/ws/2004/09/enumeration">
      <EnumerationContext>60d863fd-f058-41b1-8195-341652bd458a</EnumerationContext>
```

```
    </Pull>
  </s:Body>
</s:Envelope>
```

Pull Response SOAP Envelope Example

```
<s:Envelope xmlns:s="http://www.w3.org/2003/05/soap-envelope"
  xmlns:a="http://schemas.xmlsoap.org/ws/2004/08/addressing">
  <s:Header>
    <a:Action s:mustUnderstand="1">http://schemas.xmlsoap.org/ws/2004/09/enumeration/PullResponse</a:Action>
    <a:RelatesTo>urn:uuid:42f16c88-6adc-49f0-8881-558fdecfecfe</a:RelatesTo>
    <a:To s:mustUnderstand="1">http://schemas.xmlsoap.org/ws/2004/08/addressing/role/anonymous</a:To>
  </s:Header>
  <s:Body xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xmlns:xsd="http://www.w3.org/2001/XMLSchema">
    <PullResponse xmlns="http://schemas.xmlsoap.org/ws/2004/09/enumeration">
      <EnumerationContext>60d863fd-f058-41b1-8195-341652bd458a</EnumerationContext>
      <Items>
        <Incident xmlns="http://schemas.hp.com/ism/ServiceOperation/IncidentManagement/1/Incident">
          <AssignedOperator xmlns="http://schemas.hp.com/ism/ServiceOperation/Common/1/WorkItem">
            <PersonAttributes>
              <Name xmlns="" />
            </PersonAttributes>
          </AssignedOperator>
          <IncidentID>527c6290-c5b8-71dc-1691-103941590000</IncidentID>
          <Title>
            MS IIS Server (WWW): (1013) A process serving application pool 'DefaultAppPool' exceeded time limits during
```

```
  shut down. The process id was '5736'.
</Title>
<Type />
<LifecycleState>open</LifecycleState>
<Severity>Warning</Severity>
<Category>WINOSSPI-INTERNET_SERVICE</Category>
<CollaborationMode>fyi</CollaborationMode>
<EmittingCI>
  <ConfigurationItemProperties
    xmlns="http://schemas.hp.com/ism/ServiceTransition/ConfigurationManagement/1/ConfigurationItem">
    <ID>WINOSSPI:IIS60@@{9768285B-3AA5-4F49-B6DE-CB654F5AD67B}</ID>
  </ConfigurationItemProperties>
</EmittingCI>
<EmittingNode>
  <NodeProperties xmlns="http://schemas.hp.com/ism/ServiceTransition/ConfigurationManagement/1/Node">
    <DnsName>host.example.com</DnsName>
  </NodeProperties>
</EmittingNode>
<Extensions>
  <OperationsExtension xmlns="http://schemas.hp.com/opr/ws/ServiceOperation/IncidentManagement/1/Incident">
    <Application>IIS 6.0</Application>
    <Object>W3SVC</Object>
    <StateChangeTime>2008-01-18T12:27:16</StateChangeTime>
    <CreationTime>2008-01-18T12:25:47</CreationTime>
    <ReceivedTime>2008-01-18T12:27:16</ReceivedTime>
```

```
      <NumberOfDuplicates>0</NumberOfDuplicates>
      <CorrelationKey>host.example.com:W3SVC:0x800003F5</CorrelationKey>
      <ConditionMatched>true</ConditionMatched>
      <AutomaticActionStatus>notAvailable</AutomaticActionStatus>
      <OperatorActionStatus>notAvailable</OperatorActionStatus>
      <EscalationStatus>notEscalated</EscalationStatus>
      <Source>WINOSSPI-IIS60_FwdAllSystemWarnError(10.0)</Source>
      <NumberOfAnnotations>0</NumberOfAnnotations>
      <OriginalEvent>
        Computer: host Source: W3SVC Category: None Type: Warning Event ID: 1013 Description: A process serving
        application pool 'DefaultAppPool' exceeded time limits during shut down. The process id was '5736'.
      </OriginalEvent>
    </OperationsExtension>
 </Extensions>
</Incident>
<Incident xmlns="http://schemas.hp.com/ism/ServiceOperation/IncidentManagement/1/Incident">
  <AssignedOperator xmlns="http://schemas.hp.com/ism/ServiceOperation/Common/1/WorkItem">
    <PersonAttributes>
      <Name xmlns="" />
    </PersonAttributes>
  </AssignedOperator>
  <IncidentID>a4669be0-c5b6-71dc-1209-103941590000</IncidentID>
  <Title>(ctrl-45) Component 'opcacta' with pid 4704 exited. Restarting component.</Title>
  <Type />
  <LifecycleState>open</LifecycleState>
```

```
<Severity>Major</Severity>
<Category>OpenView</Category>
<CollaborationMode>fyi</CollaborationMode>
<EmittingCI>
  <ConfigurationItemProperties
    xmlns="http://schemas.hp.com/ism/ServiceTransition/ConfigurationManagement/1/ConfigurationItem">
    <ID />
  </ConfigurationItemProperties>
</EmittingCI>
<EmittingNode>
  <NodeProperties xmlns="http://schemas.hp.com/ism/ServiceTransition/ConfigurationManagement/1/Node">
    <DnsName>host.example.com</DnsName>
  </NodeProperties>
</EmittingNode>
<Extensions>
  <OperationsExtension xmlns="http://schemas.hp.com/opr/ws/ServiceOperation/IncidentManagement/1/Incident">
    <Application>OpenView</Application>
    <Object>ovcd</Object>
    <StateChangeTime>2008-01-18T12:15:14</StateChangeTime>
    <CreationTime>2008-01-18T12:15:14</CreationTime>
    <ReceivedTime>2008-01-18T12:15:14</ReceivedTime>
    <NumberOfDuplicates>0</NumberOfDuplicates>
    <CorrelationKey />
    <ConditionMatched>true</ConditionMatched>
    <AutomaticActionStatus>notAvailable</AutomaticActionStatus>
```

```
            <OperatorActionStatus>notAvailable</OperatorActionStatus>
            <EscalationStatus>notEscalated</EscalationStatus>
            <Source></Source>
            <NumberOfAnnotations>0</NumberOfAnnotations>
            <OriginalEvent />
          </OperationsExtension>
        </Extensions>
      </Incident>
    </Items>
    <EndOfSequence />
  </PullResponse>
 </s:Body>
</s:Envelope>
```

Subscribe Request SOAP Envelope Example

```
<s:Envelope xmlns:s="http://www.w3.org/2003/05/soap-envelope"
  xmlns:a="http://schemas.xmlsoap.org/ws/2004/08/addressing">
  <s:Header>
    <a:Action s:mustUnderstand="1">http://schemas.xmlsoap.org/ws/2004/08/eventing/Subscribe</a:Action>
    <h:ResourceURI xmlns:h="http://schemas.dmtf.org/wbem/wsman/1/wsman.xsd"
      xmlns="http://schemas.dmtf.org/wbem/wsman/1/wsman.xsd">
      http://schemas.hp.com/ism/ServiceOperation/IncidentManagement/1/Incident
    </h:ResourceURI>
    <h:OperationTimeout xmlns:h="http://schemas.xmlsoap.org/ws/2005/06/management"
      xmlns="http://schemas.xmlsoap.org/ws/2005/06/management">
```

```
      PT1000M0.00S
    </h:OperationTimeout>
    <a:MessageID>urn:uuid:2822dea3-af62-4e26-a1de-31d738f2bc59</a:MessageID>
    <a:ReplyTo>
      <a:Address>http://schemas.xmlsoap.org/ws/2004/08/addressing/role/anonymous</a:Address>
    </a:ReplyTo>
    <a:To s:mustUnderstand="1">http://manager1.example.com:8081/opr-webservice/Incident.svc</a:To>
  </s:Header>
  <s:Body xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xmlns:xsd="http://www.w3.org/2001/XMLSchema">
    <Subscribe xmlns="http://schemas.xmlsoap.org/ws/2004/08/eventing">
      <Delivery Mode="http://schemas.dmtf.org/wbem/wsman/1/wsman/Pull"/>
      <Filter Dialect="http://schemas.hp.com/opr/ws/ServiceOperation/IncidentManagement/1/IncidentFilter">
        <IncidentEventingFilter
          xmlns="http://schemas.hp.com/opr/ws/ServiceOperation/IncidentManagement/1/IncidentFilter">
          <Severity>Critical</Severity>
          <Severity>Major</Severity>
          <EmittingNode>
            <NodeProperties>
              <DnsName>host.example.com</DnsName>
            </NodeProperties>
          </EmittingNode>
          <CustomAttributes>
            <CustomAttribute>
              <Key>Customer</Key>
              <Text>VIP</Text>
```

```
            </CustomAttribute>
          </CustomAttributes>
          <ChangeType>new</ChangeType>
          <ChangeType>closed</ChangeType>
        </IncidentEventingFilter>
      </Filter>
    </Subscribe>
  </s:Body>
</s:Envelope>
```

Appendix B: Index