Universal Event Monitor for SOA 6.7.x

Reference Guide

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Universal Event Monitor for SOA 6.7.x Reference Guide

- Universal Event Monitor for SOA
- Detailed Information
- Universal Event Monitor for SOA Examples

Universal Event Monitor for SOA

Universal Event Monitor for SOA - together with Universal Event Monitor - comprise Stonebranch Inc.'s Universal Event Monitor (UEM) family of products.

Universal Event Monitor (UEM) monitors one or more local or remote system events. It also can execute a system command or script based on the outcome of the events that it is monitoring.

Universal Event Monitor for SOA - the SOA "Listener" - lets you create file-based events from inbound Internet and message-based messages, and write the events to file. As such it integrates Internet and message-based applications with systems management functions such as:

- Alerting and notification
- Incident and problem management
- Job scheduling
- Data movement

Detailed Information

The following pages provide detailed information for Universal Event Monitor for SOA:

- Universal Event Monitor for SOA Architecture
- Universal Event Monitor for SOA Configuration
- Universal Event Monitor for SOA Operation
- Universal Event Monitor for SOA Troubleshooting
- UAC.xml File Description
- Web Services Description Language (WSDL) File

Universal Event Monitor for SOA Examples

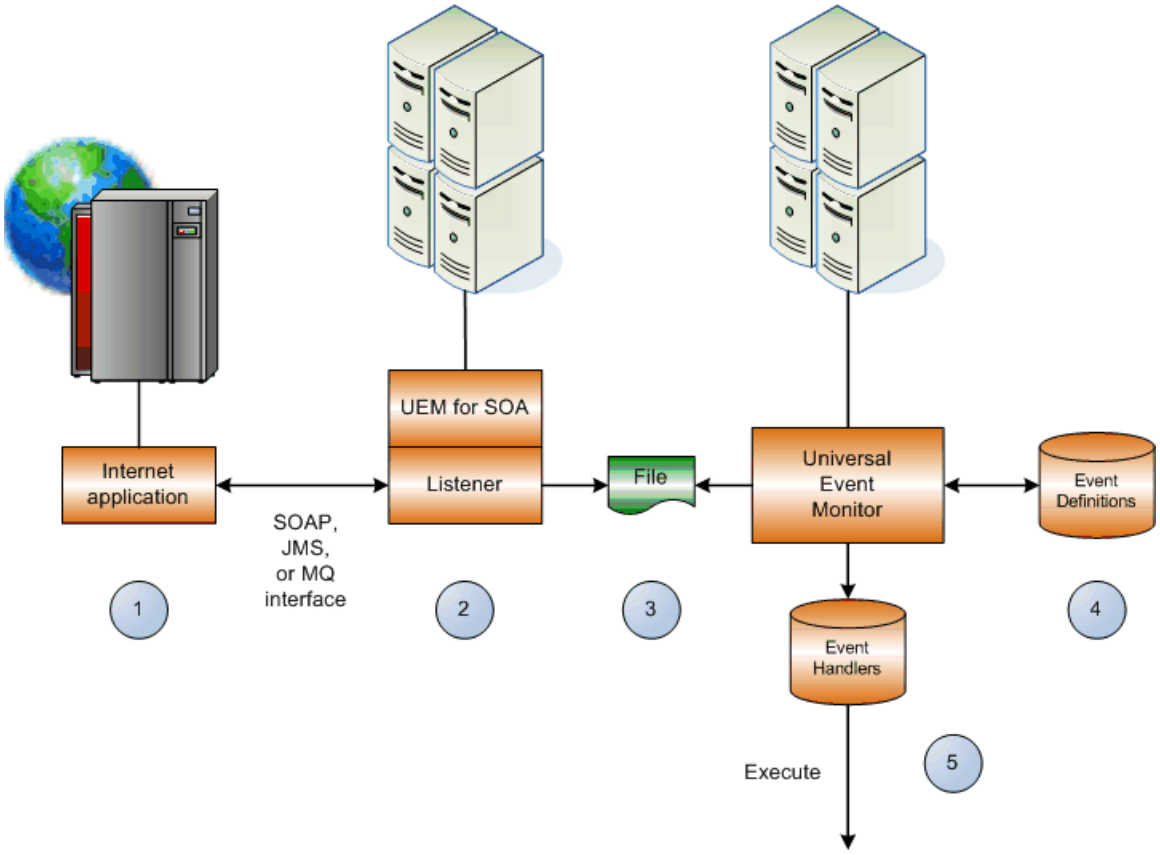
See Web Services Execution (Inbound Implementation) - Examples for examples of how to use Universal Event Monitor for SOA.

Universal Event Monitor for SOA Architecture

- Universal Event Monitor for SOA Workflow
  - Workflow Description
- Supported Protocols
  - SOAP Protocol
  - JMS Protocol
- Message Exchange Pattern
  - Listen MEP
  - Logical View of Listen MEP
- Connectors
  - SOAP Connector
  - JMS Connector
- Defined Ports

Universal Event Monitor for SOA Workflow

The following figure illustrates the workflow of Universal Event Monitor for SOA.



Workflow Description

1. Internet or message\-based application sends a message to Universal Event Monitor for SOA via a SOAP or JMS interface.
2. SOAP Listener processes the incoming message.
3. Universal Event Monitor for SOA writes the message to a file (payload or header / payload).
4. UEM reads the file and matches the message against an event definition.
5. UEM executes an event handler based on the message match up to the event definitions. UEM can:
   - Execute when it reads a file.
   - Execute depending on what's in the file.
   - Pass along the file data.

The handler can execute either:

- Script
- Universal Command
- Universal Data Mover

Supported Protocols

Universal Event Monitor for SOA supports synchronous and asynchronous communication for file-based event detection via two protocols: SOAP and JMS.

Synchronous communication requires that the calling party wait for a response from the target application before beginning the next task.

Asynchronous communication allows the calling party to move to the next task without waiting for a response (if there is one) from the target application.

SOAP Protocol

SOAP (Simple Object Access Protocol) is a synchronous protocol for exchanging XML-based messages over computer networks. It is the foundation layer of the web services stack.

For Universal Event Monitor for SOA, the SOAP protocol is used to allow an inbound SOAP message to be sent by any application that supports the SOAP protocol. This inbound message can represent an event and can contain data relevant to the event or the target application.

JMS Protocol

JMS (Java Message Service) defines the standard for reliable Enterprise Messaging and uses both point-to-point (queue-based) and publish / subscribe (topic-based) messaging patterns.

For Universal Event Monitor for SOA, the JMS protocol is used to allow an inbound JMS message to be sent by any application that supports the JMS protocol. This inbound message can represent an event and can contain data relevant to the event or the target application. Unlike a SOAP message, the JMS message is not required to contain data.

Message Exchange Pattern

A Message Exchange Pattern (MEP) describes the pattern of messages required by a communications protocol to establish or use a communication channel.

There are two major types of MEPs:

- Request-response pattern (synchronous)
- One-way pattern (asynchronous)

Universal Event Monitor for SOA supports the one-way (asynchronous) MEP, more commonly referred to as the Listen MEP.

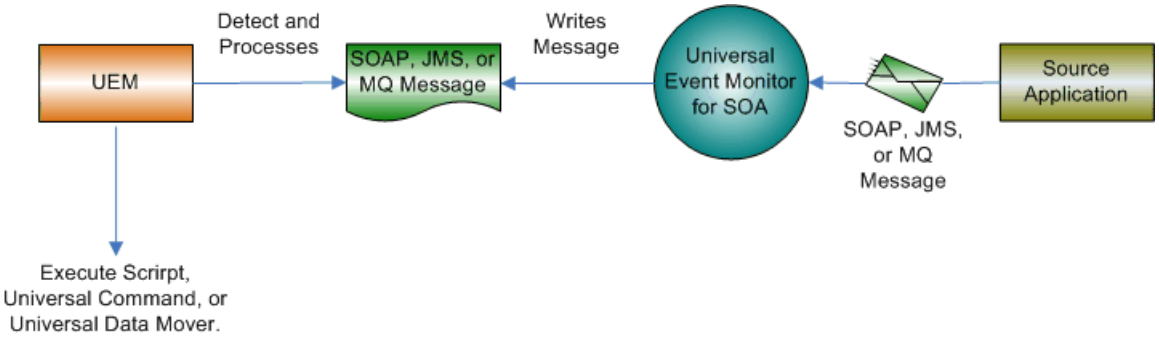
Listen MEP

The Listen MEP represents an asynchronous inbound event initiated by an external application. This operation is a publish only from the external application, meaning that Universal Event Monitor for SOA will not reply to the inbound request. External applications can make use of both the JMS and SOAP protocols for inbound operations.

Currently, Universal Event Monitor for SOA will write the inbound message to a file for processing by Universal Event Monitor.

Logical View of Listen MEP

The following figure illustrates a logical view of the Listen MEP.



Connectors

The work of transforming the command line and STDIN input to the appropriate protocol message is the responsibility of the connectors that are deployed in the Universal Event Monitor for SOA environment.

A summary of the current connectors follows.

SOAP Connector

The SOAP connector supports inbound operations via the SOAP protocol.

It is a synchronous listener component that supports the following features:

- Supports the SOAP 1.1 specification
- Supports the Listen MEP

JMS Connector

The JMS connector supports inbound operations via the JMS protocol using asynchronous communication.

It supports the following features:

- Supports the JMS 1.1 specification.
- Supports the Listen MEP.
- Supports Queue- and Topic-based operations.

> **Note**
> The Universal Event Monitor for SOA platform allows for the addition of connectors to support future business requirements.

Defined Ports

Universal Event Monitor for SOA uses a specific set of ports.

Port Number	Description
7880	HTTP port for inbound SOAP operations.
7843	HTTPS port for secure inbound SOAP operations.

Universal Event Monitor for SOA Configuration

- Universal Event Monitor for SOA Configuration
- Inbound Transactions
- Required Order of Inbound Transactions
  - Multiple Types of Providers
  - Subsets
  - Unacceptable Order
- Additional Information

Universal Event Monitor for SOA Configuration

Depending on which message exchange pattern (MEP) you are using - and, in the case of JMS, what JMS Provider you are using - there are several operations that may need to be configured before you can use Universal Event Monitor for SOA.

Inbound Transactions

To transact an inbound operation, you first must configure Universal Event Monitor for SOA for inbound transactions via the **UAC.xml** configuration file. This file specifies the listening attributes of UAC for SOAP, JMS, and MQ inbound operations, such as connection and destination information, as well as information regarding the name and location of the output file.

AIX	The **UAC.xml** file is located in **`/etc/universal/UAC.xml`**.
Linux	The **UAC.xml** file is located in **`/etc/universal/UAC.xml`**.
Windows	The **UAC.xml** file is located in **`%ALLUSERSPROFILE%\Application Data\Universal\conf\UAC.xml`**.

Insert new text between the line beginning with **<sb:UAC** and the last line, which must terminate with **</sb:UAC>**. An error will occur if **</sb:UAC>** appears in the file anywhere other than the last line.

The XML is just text; no special tools are required to create or modify an XML document.

Also, if you are using JMS or MQ for inbound operations, you must have a JMS or MQ Provider with a queue or topic configured on which UAC can listen.

Required Order of Inbound Transactions

The **UAC.xml** file can contain multiple definitions for inbound transactions for multiple providers. When multiple different types of inbound transactions are defined, it is important to note that there is a required order in which these definitions occur.

Multiple Types of Providers

The required order when defining multiple types of providers is:

1. JMS providers
2. SOAP transactions
3. MQ Providers

Subsets

It is entirely acceptable to define a subset of these providers (including just a single provider). However, the order is still imperative.

For example:

1. JMS providers
2. MQ providers

or

1. SOAP transactions
2. MQ providers

Unacceptable Order

The following scenario(s) are not allowed:

1. MQ providers
2. JMS providers
3. SOAP transactions

or

1. SOAP transactions
2. JMS providers

Additional Information

The following pages provide additional detailed information for Universal Event Monitor for SOA configuration:

- JMS Provider Client Jar Files for Inbound
- MQ Client Jar Files for Inbound
- JMS Inbound Connection
- SOAP Inbound Connection
- MQ Inbound Connection

JMS Provider Client Jar Files for Inbound

- Overview
- Location of Client Jar Files
- Queue or Topic Infrastructure

Overview

As each JMS provider implementation is vendor-specific, you must acquire the client jar files that allow third-party applications to connect and communicate with your JMS provider.

For example, if you are using the JMS functions in IBM's WebSphere Application Server on Linux or Windows, you need the following files:

- **sibc.jms.jar**
- **sibc.jndi.jar**
- **sibc.orb.jar**

Location of Client Jar Files

You must place the JMS provider client jar files in the following location:

Linux	**`/opt/universal/uac/container/webapps/axis2/WEB-INF/lib`**
Windows	**`\Program Files\Universal\uac\container\webapps\axis2\WEB-INF\lib`**.

The names of the jar files differ depending on which JMS provider you are using.

Queue or Topic Infrastructure

The Universal Event Monitor for SOA JMS or MQ Series Connector does not provide the queue or topic infrastructure.

You must have a JMS provider or MQ Series Broker with queues or topics configured to use the JMS or MQ Series inbound operations.

MQ Client Jar Files for Inbound

- Overview
- Required Files
- Queue or Topic Infrastructure

Overview

As is the case for outbound, you must have the IBM MQ client jar files for inbound or request / reply operations.

You would place the MQ client jar files in the following location:

Linux	**`/opt/universal/uac/container/webapps/axis2/WEB-INF/lib`**
Windows	**`\Program Files\Universal\uac\container\webapps\axis2\WEB-INF\lib`**

Required Files

You will need the following jar files:

- **com.ibm.mq.commonservices.jar**
- **com.ibm.mq.jar**
- **com.ibm.mq.pcf.jar**
- **com.ibm.mq.headers.jar**
- **com.ib.mq.jmqi.jar**
- **connector.jar**

Queue or Topic Infrastructure

The Universal Command Agent for SOA: MQ Connector does not provide the queue or topic infrastructure. You must have a WebSphere MQ Message Broker with queues configured to use the MQ outbound or request / reply operations.

JMS Inbound Connection

- Overview
- Setting Up an Inbound JMS Listener
- JMS Connection Sample

Overview

You can have multiple JMS Connections defined in the **UAC.xml** file. The only requirement is that you have the corresponding queues or topics configured in your JMS Provider.

Setting Up an Inbound JMS Listener

To set up an inbound JMS Listener, you must:

1. Supply values for the following items in the **UAC.xml** file:
   - **Name**
     Name of the connection which is user-defined. If you are going to define more than one JMS listener, the name for each JMS Connection must be unique.
   - **Initial Context Properties**
     Name/value pairs identified as properties that specify JMS Provider-specific information. Two items that must be specified are the Initial Context Factory and the Provider URL.
   - **Connection Factory**
     Name of the JMS Provider Connection Factory class to use.
2. Specify the attributes for the JMS Listener, which include Destination and Actions. Currently, the only Action that is supported is writing the inbound transaction to a file.
   - **Destination**
     Queue or topic on which to listen for inbound messages.
   - **Directory**
     Output directory where UAC will write the file. You must specify an absolute path to a directory associated with the relevant business process. This path should be valid and reachable either locally or via a network. The only requirement is that the directory must exist prior to commencing inbound operations.
   - **File Name Pattern**
     Name of the file and the sequence pattern (if there will be more than one file written to the same directory). The format is < **filenamehere%Seq%.txt**>, where **filenamehere** is the name of the file you have chosen.

File name restrictions are enforced by the file system to which the file is being written. For example, using double quotation marks (**"**) around a file name in Windows will result in an error.

- **Start Sequence Number**
  Starting number to use for the pattern sequence (**%Seq%**).
- **Write Properties**
  Specification for whether or not the JMS properties should be written to the file. The default value is **false**. However, if it is useful to see what was specified in the properties of the JMS message, set the value to **true**.

JMS Connection Sample

The following figure illustrates a sample JMS Connection section in the **UAC.xml** file. The values in red are the values discussed above.

(This sample illustrates a configuration using IBM's WebSphere Application Server as the JMS Provider.)

See UAC.xml File Description for details on the elements and structure of the **UAC.xml** file.

```
<sb:JMSConnection>
  <sb:Name>WebSphere</sb:Name>
  <sb:InitialContextProperties>
    <sb:Property>
      <sb:Name>java.naming.factory.initial</sb:Name>
      <sb:Value>com.ibm.websphere.naming.WsnInitialContextFactory</sb:Value>
    </sb:Property>
    <sb:Property>
      <sb:Name>java.naming.provider.url</sb:Name>
      <sb:Value>iiop://myServer:2809</sb:Value>
    </sb:Property>
    <sb:Property>
      <sb:Name>com.ibm.CORBA.ORBInit</sb:Name>
      <sb:Value>com.ibm.ws.sib.client.ORB</sb:Value>
    </sb:Property>
  </sb:InitialContextProperties>
  <sb:ConnectionFactory>jms/ConnectionFactory</sb:ConnectionFactory>
  <sb:Listeners>
    <sb:JMSListener>
      <sb:Destination>jms/IntegrationTestQueue1</sb:Destination>
      <sb:Actions>
        <sb:JMSFileWriter>
          <sb:Directory>/home/userdirectory/outputDirectory</sb:Directory>
          <sb:FilenamePattern>WASjmsMessageQueue%Seq%.txt</sb:FilenamePattern>
          <sb:StartSequenceNumber>1</sb:StartSequenceNumber>
          <sb:WriteProperties>false</sb:WriteProperties>
        </sb:JMSFileWriter>
      </sb:Actions>
    </sb:JMSListener>
  </sb:Listeners>
</sb:JMSConnection>
```

SOAP Inbound Connection

- Overview
- Setting Up an Inbound SOAP Listener
- SOAP Connection Sample

Overview

You can have only one SOAP Connection defined in the **UAC.xml** file.

Setting Up an Inbound SOAP Listener

To set up an inbound SOAP Listener, you must:

1. Supply values for the following items in the **UAC.xml** file:
   - **Operation**
     Name of the SOAP operation from the inbound source application's web service call.
     Note: If the operation of the calling web service does not match the operation specified here, the inbound web service call will fail.
   - **URI**
     Path to the inbound service. This value should be set to: **/axis2/services/UACInbound**.
2. Specify the attributes for the SOAP Listener, which include Destination and Actions.
   Currently, the only Action that is supported is writing the inbound transaction to a file.
   - **Directory**
     Output directory where UAC will write the file. If only a name is given, it is considered relative to the UAC directory. A fully qualified path can be given, as long as it is reachable locally or via a network. The only requirement is that the directory must exist prior to commencing inbound operations.
   - **File Name Pattern**
     Name of the file and the sequence pattern, if there will be more than one file written to the same directory. The format is < **filenamehere%Seq%.txt**>, where **filenamehere** is the name of the file you have chosen.

File name restrictions are enforced by the file system to which the file is being written. For example, using double quotation marks (**"**) around a file name in Windows will result in an error.

- **Start Sequence Number**
  Starting number to use for the pattern sequence (**%Seq%**).
- **Write Properties**
  The default value is **false**. However, if it is useful to see what was specified in the properties of the SOAP message, especially if more than one node is involved, set the value to **true**

SOAP Connection Sample

The following figure illustrates a sample SOAP Connection section. The values in red are the values discussed above.

See UAC.xml File Description for details on the elements and structure of the **UAC.xml** file.

```
<sb:SOAPConnection>
  <sb:URI>/axis2/services/UACInbound</sb:URI>
  <sb:Listeners>
    <sb:SOAPListener>
      <sb:Operation>Operation</sb:Operation>
      <sb:Actions>
        <sb:SOAPFileWriter>
          <sb:Directory>outputDirectory</sb:Directory>
          <sb:FilenamePattern>soapMessage%Seq%.xml</sb:FilenamePattern>
          <sb:StartSequenceNumber>1</sb:StartSequenceNumber>
          <sb:WriteEnvelope>false</sb:WriteEnvelope>
        </sb:SOAPFileWriter>
      </sb:Actions>
    </sb:SOAPListener>
  </sb:Listeners>
</sb:SOAPConnection>
```

MQ Inbound Connection

- Overview
- Setting Up and Inbound MQ Listener
- MQ Connection Sample

Overview

You can have multiple MQ Connections defined in the **UAC.xml** file. The only requirement is that you have the corresponding queues configured in your MQ Broker.

Setting Up and Inbound MQ Listener

To set up an inbound MQ Listener, you must:

1. Supply values for the following items in the **UAC.xml** file:
    - **Name**
      Name of the connection which is user-defined. If you are going to define more than one MQ listener, the name for each MQ Connection must be unique.
    - **Host**
      Name or address of the server hosting the MQ Broker.
    - **QueueManagerName**
      Name of the MQ QueueManager.
    - **Channel**
      Name of the MQ Channel.
    - **Port**
      Port where the MQ Series Broker is listening (default is 1414).
2. Specify the attributes for the MQ Listener, which include QueueName and Actions. Currently, the only Action that is supported is writing the inbound transaction to a file.
    - **QueueName**
      Queue on which to listen for inbound messages.
    - **Directory**
      Output directory where UAC will write the file. You must specify an absolute path to a directory associated with the relevant business process. This path should be valid and reachable either locally or via a network. The only requirement is that the directory must exist prior to commencing inbound operations.
    - **File Name Pattern**
      Name of the file and the sequence pattern (if there will be more than one file written to the same directory). The format is < **filenamehere%Seq%.txt**>, where **filenamehere** is the name of the file you have chosen. File name restrictions are enforced by the file system to which the file is being written. For example, using double quotation marks (") around a file name in Windows will result in an error.
    - **Start Sequence Number**
      Starting number to use for the pattern sequence (%Seq%).
    - **Write Properties**
      Specification for whether or not the MQ message properties should be written to the file. The default value is false. However, if it is useful to see what was specified in the properties of the MQ message, set the value to true.

MQ Connection Sample

The following figure illustrates a sample MQ Connection section. The values highlighted in red are the values discussed above.

See UAC.xml File Description for details on the elements and structure of the **UAC.xml** file.

```
<sb:MQConnection>
    <sb:Name>MQ Series Listener</sb:Name>
    <sb:Host>Server Host or IP</sb:Host>
    <sb:QueueManagerName>MQ QueueManager</sb:QueueManagerName>
    <sb:Channel>MQ Channel</sb:Channel>
    <sb:Port>MQ Listening Port</sb:Port>
    <sb:Listeners>
      <sb:MQListener>
        <sb:QueueName>MQ Queue to Listen to</sb:QueueName>
        <sb:Actions>
          <sb:MQFileWriter>
            <sb:Directory>Directory location to write file to</sb:Directory>
            <sb:FilenamePattern>Filename pattern to write with %Seq% variable</sb:FilenamePattern>
            <sb:StartSequenceNumber>0</sb:StartSequenceNumber>
            <sb:WriteProperties>false</sb:WriteProperties>
          </sb:MQFileWriter>
        </sb:Actions>
      </sb:MQListener>
    </sb:Listeners>
  </sb:MQConnection>
```

Universal Event Monitor for SOA Operation

Universal Event Monitor for SOA Operation

Universal Event Monitor for SOA allows you to execute Internet and message-based workload using three transaction scenarios:

- SOAP Connector Inbound
- JMS Connector Inbound
- MQ Connector Inbound

Each connector uses the Listen MEP and supports a set of transaction scenarios.

SOAP Connector Inbound

- Overview
- System Flow
- System Flow Description

Overview

The SOAP Connector - Inbound operation is a synchronous operation that uses the Listen MEP.

It consists of an application workload making a web services call using the SOAP protocol to the Universal Event Monitor for SOA SOAP Listener on (default) port 7880.

The body of the message, which is usually associated with the application data, is written to a file where either:

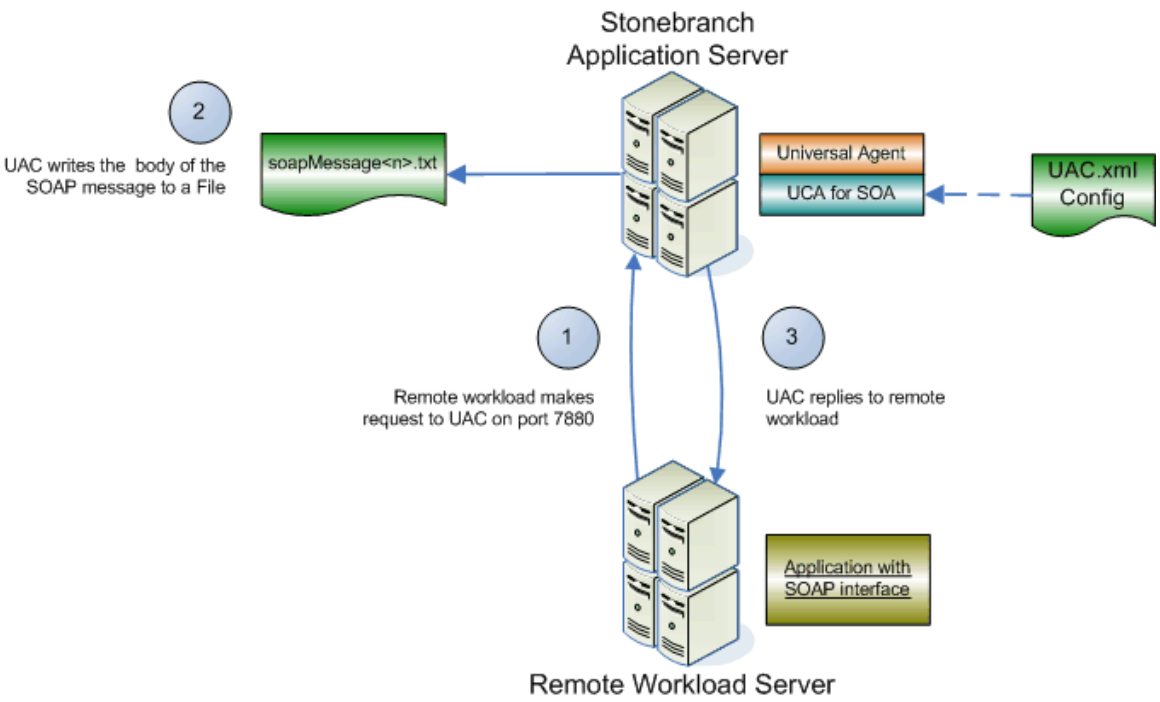
- Universal Event Monitor (UEM) can use the event as a trigger.
- External application, such as a scheduler, can access the files directly.

> **Note**
> A SOAP operation that matches the SOAP operation of the remote application workload must exist in the **UAC.xml** configuration file.

See SOAP Inbound Connection for examples and UAC.xml File Description for a description of the elements and structure of the **UAC.xml** file.

System Flow

The following figure illustrates the system flow for a SOAP Connector - Listen inbound operation using the Universal Event Monitor for SOA SOAP Connector.



System Flow Description

The following list describes the steps (1 - 3), above.

Step 1	The application workload makes a SOAP request to Universal Event Monitor for SOA using the SOAP protocol on port 7880. Note that Universal Event Monitor for SOA consumes the message locally, meaning on the server that hosts Universal Event Monitor for SOA.
Step 2	The SOAP connector consumes (that is, processes) the SOAP request and writes the content of the SOAP message to a file whose name and location are specified in the **UAC.xml** configuration file. If you set the **writeEnvelope** attribute to **true**, Universal Event Monitor for SOA will write the entire SOAP message, including the envelope, to the specified file.
Step 3	The SOAP connector will then reply to the initial request using a message with a single node, meaning its an acknowledgement only. The purpose of the reply is to satisfy the request / reply operation and release the block of the initial request.

JMS Connector Inbound

- Overview
- System Flow
- System Flow Description

Overview

The JMS Connector - Inbound operation is an asynchronous operation that uses the Listen MEP.

It consists of a remote application workload publishing a JMS message using the JMS protocol to a specified destination queue hosted by the JMS provider. The JMS provider, which hosts the queues that represent the JMS destination, can be located on a remote application server or on the local application server that hosts Universal Event Monitor for SOA.

The JMS inbound connector listens on the specified destination queue for messages to arrive. When a message arrives, it reads the message off of the queue. The body of the message, which is usually associated with the application data, is written to a file where either:

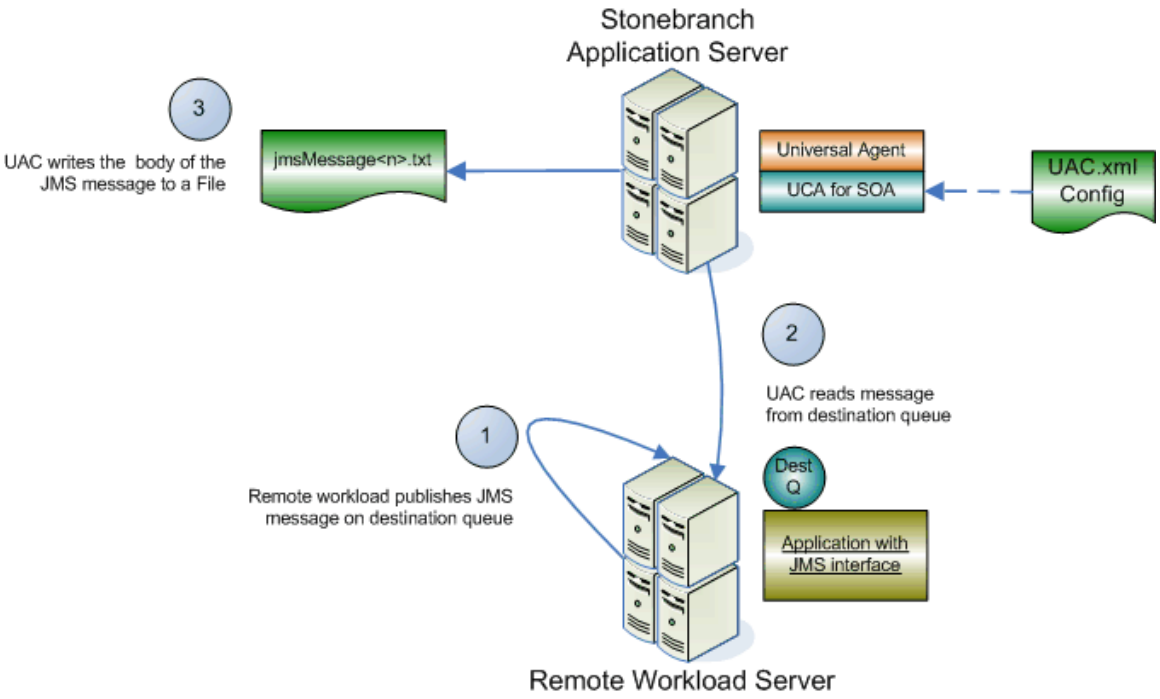
- Universal Event Monitor (UEM) can use the event as a trigger.
- External application, such as a scheduler, can access the files directly.

> **Note**
> The destination queue must be hosted by the JMS provider and be associated to the application workload via the **UAC.xml** configuration file.

See JMS Inbound Connection for examples and UAC.xml File Description for a description of the elements and structure of the **UAC.xml** file.

System Flow

The following figure illustrates the system flow for a JMS Listen inbound operation using the Universal Event Monitor for SOA JMS Connector.



System Flow Description

The following list describes the steps (1 - 3), above.

Step 1	The application workload publishes a JMS message to a specified destination queue hosted by a JMS provider. The JMS Inbound Connector listens on the provider queue for the incoming message.
Step 2	The JMS Inbound Connector reads the JMS message from the inbound queue. Because the read is destructive, once the message is read from the queue, it is no longer available to other applications. The destination queue must be configured in the **UAC.xml** file in order for the JMS Inbound Connector to know what to read from.
Step 3	The JMS Inbound Connector writes the content of the message to the file whose name and location you specify in the UAC.xml configuration file. If you set the **writeProperties** attribute to **true**, Universal Event Monitor for SOA will write both the properties and content of the JMS message to the file.

MQ Connector Inbound

- Overview
- System Flow
- System Flow Description

Overview

The MQ Connector - Inbound operation is an asynchronous operation that uses the Listen MEP.

It consists of a remote application workload publishing an MQ message using the MQ protocol to a specified destination queue hosted by the MQ provider. The MQ provider, which hosts the queues that represent the MQ destination, can be located on a remote application server or on the local application server that hosts Universal Event Monitor for SOA.

The MQ inbound connector listens on the specified destination queue for messages to arrive. When a message arrives, it reads the message off of the queue. The body of the message, which is usually associated with the application data, is written to a file where either:

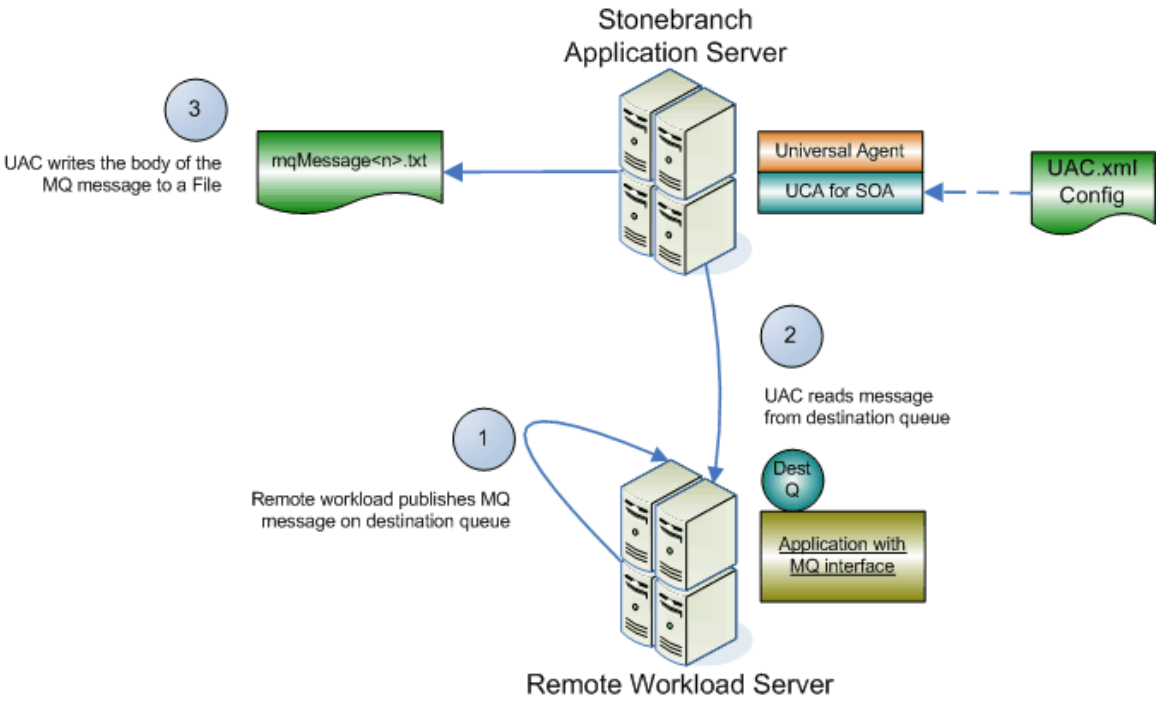
- Universal Event Monitor (UEM) can use the event as a trigger.
- External application, such as a scheduler, can access the files directly.

> **Note**
> The destination queue must be hosted by the MQ provider and be associated to the application workload via the **UAC.xml** configuration file.

See MQ Inbound Connection for examples and UAC.xml File Description for a description of the elements and structure of the **UAC.xml** file.

System Flow

The following figure illustrates the system flow for an MQ Listen inbound operation using the Universal Event Monitor for SOA MQ Connector.



System Flow Description

The following list describes the steps (1 - 3), above.

Step 1	The application workload publishes an MQ message to a specified destination queue hosted by an MQ provider. The MQ Inbound Connector listens on the provider queue for the incoming message.
Step 2	The MQ Inbound Connector reads the MQ message from the inbound queue. Because the read is destructive, once the message is read from the queue, it is no longer available to other applications. The destination queue must be configured in the **UAC.xml** file in order for the MQ Inbound Connector to know what to read from.
Step 3	The MQ Inbound Connector writes the content of the message to the file whose name and location you specify in the **UAC.xml** configuration file. If you set the **writeProperties** attribute to **true**, Universal Event Monitor for SOA will write both the properties and content of the MQ message to the file.

Universal Event Monitor for SOA Troubleshooting

- Logging Operations
- Logging Configuration
  - Logging Levels
- Server Component Logging Configuration
  - Appenders (Sinks) Availability
- Server Component log4jConfiguration.xml Example

Logging Operations

This information pertains to logging operations that may assist you in troubleshooting, should that be necessary. It includes different types of log files, their locations, methods of directing output, and examples.

The following table identifies the Universal Event Monitor for SOA for AIX / Linux product directories and files located under the **/var/opt/universal** parent directory.

Windows
Logging output is directed to the Windows Event Viewer.

Directory / File	Description
log/uac	Directory containing log and work artifacts for the UAC component. It includes the following sub-directories and files.
work	Sub-directory used by the web services framework for temporary operations. It requires no user interaction.
catalina.out	Container engine log file. This file contains messages and errors pertaining to the operation of the container and its infrastructure. On Windows, there is no **catalina.out** file.
container.log	Web services framework log file. This file contains messages and errors pertaining to the operation of the web services framework (axis2) and its infrastructure. On Windows, this file is located under **`\program files\universal\uac\container\logs`**.
derby.log	Database log file. This file contains messages and errors pertaining to the operation of the database and its infrastructure. On Windows, this file is located in **`\program files\universal\uac`**.
uac.log	uac log file. This file contains the messages and errors pertaining to the operation of the Universal Event Monitor for SOA. This includes application messages and errors related to the business process being implemented. On AIX / Linux, the file is written to the file system. On Windows, the file is written to the Event Viewer.

Logging Configuration

At some point, you may want to check the logs for information regarding the operation of Universal Event Monitor for SOA.

Configuration of the logging operations is done via the **log4jConfiguration.xml** file for the server component.

AIX	This file is located in the **uac** product directory at **`/opt/universal/uac`**.
UNIX	This file is located in the **uac** product directory at **`/opt/universal/uac`**.
Windows	This file is located under **`\program files\universal\uac`**.

Logging Levels

The logging levels supported by the logging implementation are:

- DEBUG
- INFO
- WARN
- ERROR (default)

The logging level should be changed only at the request of Stonebranch, Inc. Customer Support, as it can have a huge impact on performance.

Server Component Logging Configuration

By default, the logs are configured to write to a file on Linux and to write to the Event Viewer on Windows with the logging level set to **error**.

Appenders (Sinks) Availability

The following appenders, or sinks, are available to the server component.

Rolling File Appender

This is the default appender on Linux and logs to a file.

The following attributes can be specified:

- **Name** - name of the appender.
- **File** - path and name of the log file.
- **Max File Size** - maximum size of the log file before rolling over.
- **Max Backup Index** - number of times the log file can be rolled before starting over.
- **Class** - java class that implements the logger.
- **Conversion Pattern** - output format of the log text.

LF5 Appender

Logs to the LF5 program with a user interface that displays the log in row/column format and enables searches within the log file. Use this for debug only.

The following attributes can be specified:

- **Name** - name of the appender.
- **Class** - java class that implements the logger.
- **Max Number Of Records** - maximum number of records displayed.

NT Event Log Appender

This is the default appender on Windows and logs to the Windows Event Viewer.

The following attributes can be specified:

- **Name** - name of the appender.
- **Class** - java class that implements the logger.
- **Source** - source component that is outputting the log.
- **Conversion Pattern** - output format of the log text.

Console Appender

Logs to the console on STDOUT or STDERR.

The following attributes can be specified:

- **Name** - name of the appender.
- **Class** - java class that implements the logger.
- **Target** - specification to log to STDOUT or STDERR (STDERR is the default).
- **Conversion Pattern** - the output format of the log text.

Server Component log4jConfiguration.xml Example

```
<?xml version="1.0" encoding="UTF-8"?>
<!DOCTYPE log4j:configuration SYSTEM "log4j.dtd">
<log4j:configuration xmlns:log4j="http://jakarta.apache.org/log4j/" debug="false" threshold="all">
  <appender name="RollingFileAppender"
  class="org.apache.log4j.RollingFileAppender">
    <param name="File" value="/var/opt/universal/log/uac/uac.log"/>
    <param name="MaxFileSize" value="1000KB"/>
    <param name="MaxBackupIndex" value="4"/>
    <layout class="org.apache.log4j.PatternLayout">
    <param name="ConversionPattern" value="%d %-5p %-17c{2} (%30F:%L) %3x - %m%n"/>
    </layout>
  </appender>
  <appender name="LF5Appender" class="org.apache.log4j.lf5.LF5Appender">
    <param name="MaxNumberOfRecords" value="1000"/>
  </appender>
    <appender name="NTEventLogAppender"
    class="org.apache.log4j.nt.NTEventLogAppender">
    <param name="Source" value="UAC"/>
    <layout class="org.apache.log4j.PatternLayout">
    <param name="ConversionPattern" value="%c{1} %M - %m%n"/>
    </layout>
  </appender>
  <appender name="ConsoleAppender" class="org.apache.log4j.ConsoleAppender">
    <param name="Target" value="System.err"/>
    <layout class="org.apache.log4j.PatternLayout">
    <param name="ConversionPattern" value="%d %-5p %-17c{2} (%30F:%L) %3x - %m%n"/>
    </layout>
  </appender>
  <logger name="com.stonebranch" additivity="true">
    <level value="error"/>
  </logger>
  <root>
    <priority value="error"/>
    <!--<appender-ref ref="LF5Appender"/>-->
    <appender-ref ref="RollingFileAppender"/>
    <!--<appender-ref ref="ConsoleAppender"/>-->
    <!--appender-ref ref="NTEventLogAppender"/-->
  </root>
</log4j:configuration>
```

UAC.xml File Description

- Overview
- UAC.xml File - Main Elements
- UAC.xml File - Sample

Overview

The **UAC.xml** file specifies listening attributes of UAC for inbound SOAP, JMS, and MQ operations.

As with the outbound operations, inbound listeners require connection and destination information as well as information regarding the name and location of the output file.

UAC.xml File - Main Elements

The following figure identifies the main elements of the **UAC.xml** file and describes the information specified by each element.

Element <UAC>
Root element (node) of the UAC.xml document of which there can be only one.

- **Element <JMSConnection>**
  Properties for the connection to the JMS provider and for the listeners associated with the queues or topics for the specified inbound operation. Multiple <JMSConnection> elements are allowed within the <UAC> element.
  - **Element <Name>**
    Name of the JMS Connection. You could name your connection myOperation, ActiveMQ, WebSphere, or any other reasonably descriptive name.
  - **Element <InitialContextProperties>**
    Any properties of the JMS connection. They are listed in name-value pairs using the <property> element. Only one <InitialContextProperties> element is allowed in a <JMSConnection> element.
    - **Element <Property>**
      Any properties associated with the <JMSConnection> element that may be needed to initiate the connection such as the initial context factory and the service URL. It consists of a <Name> and <Value> element.
      Multiple **<Property>** elements are allowed within the <InitialContextProperties> element.
      - **Element <Name>** - Name of the property.
      - **Element <Value>** - Value of the property.
  - **Element <ConnectionFactory>**
    Connection factory name that is associated with the JMS Provider being accessed. Only one <ConnectionFactory> element is allowed per <JMSConnection> element.
  - **Element <Listeners>**
    Listeners that will be created for associated <JMSConnection> element. The <Listeners> element includes the information for the destination and action associated with the inbound operation.
    - **Element <Destination>**
      Destination in the JMS Provider, queue or topic, of the inbound operation.
    - **Element <Actions>**
      Action to take when a message is received. Currently only writing the message to a file is supported via the <JMSFileWriter> element.
    - **Element <JMSFileWriter>**
      Information necessary to write the body of the JMS message to a file and includes the following:
      - **Element <Directory>**
        Directory location of the file. This can be any available local or network based location.
      - **Element <FileNamePattern>**
        Name of the file and the sequence pattern if there will be more than one file written to the same directory.
      - **Element <StartSequenceNumber>**
        Starting number to use for the pattern sequence.
      - **Element <WriteProperties>**
        Specification for whether or not the JMS properties should be written to the file. Default is false.
- **Element <SOAPConnection>**
  Properties for the SOAP connection that the target workload can connect to for the specified inbound operation. Multiple <SOAPConnection> elements are not allowed within the <UAC> element.
  - **Element <URI>**
    Unique Resource Identifier, the name of the object or resource requested by the user. This identifier contains a "path" to a method. This element must contain **/axis2/services/UACInbound**.
  - **Element <Listeners>**
    Listeners that will be created for associated <SOAPConnection> element. The <Listeners> element includes the information for the operation and action associated with the inbound operation.

- **Element <Operation>**
  SOAP operation associated with the inbound operation.
- **Element <Actions>**
  Action to take when a message is received. Currently only writing the message to a file is supported via the <SOAPFileWriter> element.
- **Element <SOAPFileWriter>**
  Information necessary to write the body of the JMS message to a file and includes the following:
  - **Element <Directory>**
    Directory location of the file. This can be any available local or network based location.
  - **Element <FileNamePattern>**
    Name of the file and the sequence pattern if there will be more than one file written to the same directory. File name restrictions are enforced by the file system to which the file is being written. For example, using double quotation marks (") around a file name in Windows will result in an error.
  - **Element <StartSequenceNumber>**
    Starting number to use for the pattern sequence.
  - **Element <WriteEnvelope>**
    Specification for whether or not the SOAP envelope should be written to the file. Default is false.

Element <MQConnection>
Properties for the connection to the MQ provider and for the MQ listeners associated with the queues for the specified inbound operation. Multiple <MQConnection> elements are allowed within the <UAC> element.
Element <Name>
Name of the connection which is user-defined. If you are going to define more than one MQ listener, the name for each MQ Connection must be unique
Element <Host>
Name or address of the server hosting the MQ Broker
Element <QueueManagerName>
Name of the MQ QueueManager.
It is the queue manager that provides the queuing services to the application program.
Element <Channel>
Name of the MQ Channel
Channels are named links between platforms across which messages are transmitted.
Element <Port>
Port where the MQ Series Broker is listening (default is 1414).
Element <Listeners>
Listeners that will be created for associated <MQConnection> element.
The <Listeners> element includes the information for the operation and action associated with the inbound operation.
Element <QueueName>
Name of the MQ Queue to listen to.
Queues are named message repositories upon which messages accumulate until they are retrieved by programs that service those queues.
Element <MQFileWriter>
Information necessary to write the body of the MQ message to a file And includes the following:

- **Element <Directory>**
  Directory location of the file. This can be any available local or network based location.
- **Element <FileNamePattern>**
  Name of the file and the sequence pattern if there will be more than one file written to the same directory.
- **Element <StartSequenceNumber>**
  Starting number to use for the pattern sequence.
- **Element <WriteProperties>**
  Specification for whether or not the MQ properties should be written to the file. Default is false.

UAC.xml File - Sample

The following figure illustrates a sample **UAC.xml** file.

```
<?xml version="1.0" encoding="UTF-8"?>
<sb:UAC xmlns:sb="http://com.stonebranch/uac/"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
   xsi:schemaLocation="http://com.stonebranch/uac/ UAC.xsd ">
   <sb:JMSConnection>
      <sb:Name>ActiveMQ</sb:Name>
      <sb:InitialContextProperties>
         <sb:Property>
            <sb:Name>java.naming.factory.initial</sb:Name>
            <sb:Value>org.apache.activemq.jndi.ActiveMQInitialContextFactory
            </sb:Value>
         </sb:Property>
         <sb:Property>
            <sb:Name>java.naming.provider.url</sb:Name>
            <sb:Value>tcp://172.16.30.101:61616</sb:Value>
```

```
        </sb:Property>
      </sb:InitialContextProperties>
      <sb:ConnectionFactory>ConnectionFactory</sb:ConnectionFactory>
      <sb:Listeners>
        <sb:JMSListener>
          <sb:Destination>dynamicQueues/MyQueue</sb:Destination>
          <sb:Actions>
            <sb:JMSFileWriter>
              <sb:Directory>outputDirectory</sb:Directory>
              <sb:FilenamePattern>jmsMessageQueue%Seq%.txt
              </sb:FilenamePattern>
              <sb:StartSequenceNumber>1</sb:StartSequenceNumber>
              <sb:WriteProperties>false</sb:WriteProperties>
            </sb:JMSFileWriter>
          </sb:Actions>
        </sb:JMSListener>
        <sb:JMSListener>
          <sb:Destination>dynamicTopics/MyTopic</sb:Destination>
          <sb:Actions>
            <sb:JMSFileWriter>
              <sb:Directory>outputDirectory</sb:Directory>
              <sb:FilenamePattern>jmsMessageTopic%Seq%.txt
              </sb:FilenamePattern>
              <sb:StartSequenceNumber>1</sb:StartSequenceNumber>
              <sb:WriteProperties>false</sb:WriteProperties>
            </sb:JMSFileWriter>
          </sb:Actions>
        </sb:JMSListener>
      </sb:Listeners>
    </sb:JMSConnection>
    <sb:SOAPConnection>
      <sb:URI>/axis2/services/UACInbound</sb:URI>
      <sb:Listeners>
        <sb:SOAPListener>
          <sb:Operation>myOperation</sb:Operation>
          <sb:Actions>
            <sb:SOAPFileWriter>
              <sb:Directory>outputDirectory</sb:Directory>
              <sb:FilenamePattern>soapMessage%Seq%.xml</sb:FilenamePattern>
              <sb:StartSequenceNumber>1</sb:StartSequenceNumber>
              <sb:WriteEnvelope>false</sb:WriteEnvelope>
            </sb:SOAPFileWriter>
          </sb:Actions>
        </sb:SOAPListener>
      </sb:Listeners>
    </sb:SOAPConnection>
    <sb:MQConnection>
      <sb:Name>MQ Series Listener</sb:Name>
      <sb:Host>Server Host or IP</sb:Host>
      <sb:QueueManagerName>MQ QueueManager</sb:QueueManagerName>
      <sb:Channel>MQ Channel</sb:Channel>
      <sb:Port>MQ Listening Port</sb:Port>
      <sb:Listeners>
        <sb:MQListener>
          <sb:QueueName>MQ Queue to Listen to</sb:QueueName>
          <sb:Actions>
            <sb:MQFileWriter>
              <sb:Directory>Directory location to write file to</sb:Directory>
              <sb:FilenamePattern>Filename pattern to write with %Seq% variable</sb:FilenamePattern>
              <sb:StartSequenceNumber>0</sb:StartSequenceNumber>
              <sb:WriteProperties>false</sb:WriteProperties>
            </sb:MQFileWriter>
          </sb:Actions>
        </sb:MQListener>
```

```
        </sb:Listeners>
    </sb:MQConnection>
</sb:UAC>
```

Web Services Description Language (WSDL) File

- Overview
  - File Location
- WSDL File
  - WSDL file (page 1)
  - WSDL file (page 2)
  - WSDL file (page 3)

Overview

Web Services Description Language (WSDL) is a way for an external client to obtain knowledge of the SOAP services and methods made available by a server.

File Location

The location of the WSDL file is:

```
http://[hostname or Address]:[Port]/axis2/services/UACInbound?wsdl
```

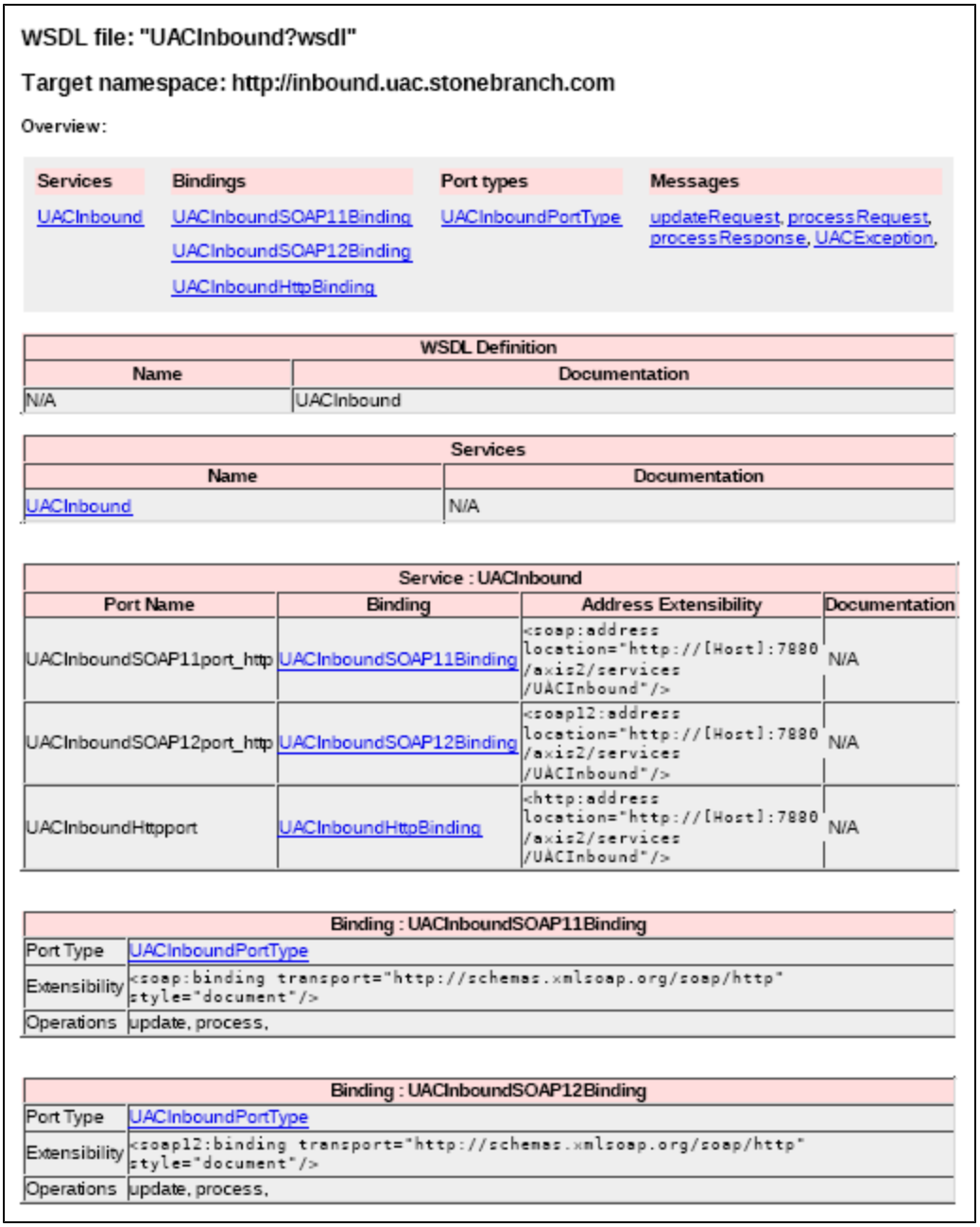
In this format:

- **[hostname or Address]** = Hostname or IP Address of the server hosting the Universal Event Monitor for SOA.
- **[Port]** = Listening port of the SOAP Connector (default 7880).

WSDL File

The WSDL file illustrates the information provided by a WSDL request. The information has been formatted for readability.

WSDL file (page 1)



WSDL file: "UACInbound?wsdl"

Target namespace: http://inbound.uac.stonebranch.com

Overview:

Services	Bindings	Port types	Messages
UACInbound	UACInboundSOAP11Binding UACInboundSOAP12Binding UACInboundHttpBinding	UACInboundPortType	updateRequest, processRequest, processResponse, UACException,

WSDL Definition	
Name	**Documentation**
N/A	UACInbound

Services	
Name	**Documentation**
UACInbound	N/A

Service : UACInbound			
Port Name	**Binding**	**Address Extensibility**	**Documentation**
UACInboundSOAP11port_http	UACInboundSOAP11Binding	<soap:address location="http://[Host]:7880/axis2/services/UACInbound"/>	N/A
UACInboundSOAP12port_http	UACInboundSOAP12Binding	<soap12:address location="http://[Host]:7880/axis2/services/UACInbound"/>	N/A
UACInboundHttpport	UACInboundHttpBinding	<http:address location="http://[Host]:7880/axis2/services/UACInbound"/>	N/A

Binding : UACInboundSOAP11Binding	
Port Type	UACInboundPortType
Extensibility	<soap:binding transport="http://schemas.xmlsoap.org/soap/http" style="document"/>
Operations	update, process,

Binding : UACInboundSOAP12Binding	
Port Type	UACInboundPortType
Extensibility	<soap12:binding transport="http://schemas.xmlsoap.org/soap/http" style="document"/>
Operations	update, process,

WSDL file (page 2)

Binding : UACInboundHttpBinding	
Port Type	UACInboundPortType
Extensibility	<http:binding verb="POST"/>
Operations	update, process,

Port Type : UACInboundPortType			
Operation Name	Input message	Output message	Documentation
process	processRequest	processResponse	N/A

Messages:

updateRequest

Documentation :

N/A

Part Name	Element	Type	Documentation
parameters	ns0:update	N/A	N/A

processRequest

Documentation :

N/A

Part Name	Element	Type	Documentation
parameters	ns0:process	N/A	N/A

processResponse

Documentation :

N/A

Part Name	Element	Type	Documentation
parameters	ns0:processResponse	N/A	N/A

WSDL file (page 3)

UACException

Documentation :

N/A

Part Name	Element	Type	Documentation
parameters	ns0:UACException	N/A	N/A