IBM Tivoli Composite Application Manager for SOA Event Handler for WebSphere Service Registry and Repository Version 6.0.2, 6.1 and 6.2 User Guide

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Introduction

The IBM Tivoli Composite Application Manager (ITCAM) for SOA Event Handler for WebSphere Service Registry and Repository (referenced herein as Event Handler) is designed to reside between WebSphere Service Registry and Repository and IBM Tivoli Monitoring, providing coarse-grained information about service health to registry users, such as mediations that dynamically select services, and users choosing a specific service to access. When an ITCAM for SOA situation event for a service is detected by IBM Tivoli Monitoring, IBM Tivoli Monitoring sends an event to the Event Handler (optionally via Tivoli Enterprise Console or Tivoli Netcool/OMNIbus) which updates metadata in the registry for that service. The Event Handler creates, updates, or removes properties on the WSDL Port and/or SCA Export logical objects in the registry.

You can configure the Event Handler to process ITCAM for SOA situation events generated from the Services Inventory_610 table. ITCAM for SOA provides a set of pre-defined situations for this table. You can also use the IBM Tivoli Monitoring Situation Editor to define custom situations for the Services Inventory_610 table. The ITCAM for SOA situation events contain a list of property-value pairs. Event properties are also called *event class attributes* in the IBM Tivoli Monitoring documentation.

IBM Tivoli Monitoring can be configured to send events directly to the Event Handler, to the Tivoli Enterprise Console, or to Tivoli Netcool/OMNIbus. When events are sent to the Tivoli Enterprise Console, a resend rule can be used to forward ITCAM for SOA events to the Event Handler. When events are sent from IBM Tivoli Monitoring to Tivoli Netcool/OMNIbus, IBM Tivoli Monitoring is configured to forward events to the Probe for Event Integration Facility (EIF). The Probe forwards events to the Tivoli Netcool/OMNIbus ObjectServer and the ObjectServer is configured to forward ITCAM for SOA events to the Event Handler.

You can also configure IBM Tivoli Monitoring, Tivoli Enterprise Console, or Tivoli Netcool/OMNIbus to forward events to a list of Event Handlers. This capability allows you to define a backup Event Handler for the scenario where the event server is unable to contact the primary Event Handler.

Mapping Event Data to WSDL Ports and SCA Exports

The Event Handler uses the service port name and service port namespace event properties to identify the WSDL Port and/or SCA Export to update in the registry. If the

service port name and service port namespace do not match a WSDL Port, the Event Handler uses the service port namespace event property to identify the affected SCA Module and, if it finds a matching SCA Module, updates all of the Exports for the SCA Module.

ITCAM for SOA forwards events detected for service requesters and service providers to the Event Handler. However, the Event Handler only updates properties in the registry when it receives an event for a service provider.

For Web services, the ITCAM for SOA data collectors do not always discover the service port name and service port namespace defined in a WSDL document in the registry. When this occurs, the Event Handler is not able to correlate the information in an event to a WSDL Port in the registry. For example, the ITCAM for SOA CICS data collector is not able to discover the service port name or namespace from a WSDL document for CICS-based Web services and the .NET data collector is not able to discover the service port name in a WSDL document. For the Event Handler to update properties for WebSphere Message Broker SOAP services, you must have a WSDL document in the registry that matches the service port name and namespace discovered by ITCAM for SOA for your WebSphere Message Broker SOAP services.

If the Event Handler finds multiple matching WSDL Ports, it compares the application server hostname from the event to the hostname in the SOAP address of each matching WSDL Port. If it finds a SOAP address that contains the hostname, it updates the associated WSDL Port. This approach does not always find a matching WSDL Port. Here are a few example scenarios where the application server hostname will not match the hostname in the SOAP address:

- SOAP over JMS is being used as the transport
- The SOAP address in the registry is a proxy endpoint address (e.g. Web server address) instead of the actual application server endpoint address.
- ITCAM for SOA is monitoring WebSphere DataPower SOA Appliances and has been configured to use display groups to monitor multiple appliances for a single ITCAM for SOA data collector subnode. In this case, the ITCAM for SOA events do not include the hostname of the affected DataPower SOA Appliances.
- ITCAM for SOA is monitoring WebSphere DataPower SOA Appliances and has been configured to monitor DataPower domains on the same appliance in different ITCAM for SOA data collector subnodes. In this case, the ITCAM for SOA events for each subnode will contain the same hostname and the event handler will be unable to determine which WSDL port to update since all WSDL port instances will have the same hostname in the SOAP address.
- There are multiple SOAP addresses with the same hostname (but different HTTP port number) which can occur if a Web service application is deployed in a vertically clustered application server deployment.
- There are multiple instances of an SCA module in the registry. The event handler cannot determine which SCA module to update, because there is no SOAP address or endpoint address in a SCA module definition,.

When a WSDL Port has more than operation and the same situation can fire for each operation the compound option must be utilised (see Table 2 : Event Mapping Settings for more details). An alternative is to define separate situations for each operation defined on the port.

When a SCA Module has multiple components and operations, separate situations should be defined for each component's operations. This ensures that a unique property is set on the SCA Module's Export(s) for each component and operation combination monitored by ITCAM for SOA.

Prerequisites

The following are prerequisites for the ITCAM for SOA Event Handler:
- IBM WebSphere Application Server (WAS) V6.0.2 Fix Pack 11 or a later fix pack, or IBM WebSphere Application Server (WAS) V6.1 Fix Pack 13 or a later fix pack.
  This can be the same application server to which the registry is installed. It is not necessary to run the Event Handler on the same level of WAS on which WSRR is deployed.
- IBM WebSphere Service Registry and Repository (WSRR) V6.0.2.x, V6.1.x or V6.2.x installed and configured.
- IBM Tivoli Monitoring V6.1 Fix Pack 4 or a later fix pack, or V6.2 and its fix packs
- IBM Tivoli Composite Application Manager for SOA V6.1 or V7.1
- IBM Tivoli Enterprise Console V3.9 (optional)
  Note : If you are using IBM Tivoli Monitoring V6.1 Fix Pack 6 or later and you are forwarding events from IBM Tivoli Enterprise Console to the Event Handler, you must use IBM Tivoli Enterprise Console V3.9 Fix Pack 5 or later.

- IBM Tivoli Netcool/OMNIbus 7.1 and the Probe for Tivoli Event Integration Facility (EIF) (optional).
  Notes:
  - If you are using Netcool/OMNIbus on a Windows operating system, you must use Netcool/OMNIbus 7.1.0.3 Fix Pack 3 or a later fix pack.
  - If you are using the Netcool/OMNIbus TME10 TEC Adaptor Probe (also called the tme10tecad Probe), you should upgrade to the Probe for Tivoli EIF which is a later and renamed version of the Netcool/OMNIbus TME10 TEC Adaptor Probe.

Event Handler Installation

Download sa04_6.0.2.1.zip or sa04_6.0.2.1.tgz from the [Event Handler SupportPac site](), save it to a temporary location and extract the ITCAMListener.ear. Using the WebSphere Application Server administration console or command line wsadmin tool, deploy

ITCAMListener.ear to the chosen instance of WebSphere Application Server. For more information on this refer to the WebSphere Application Server Information Center (v6.0,v6.1).

If the Event Handler is installed on the same application server as the registry, use the WebSphere Application Server administration console to change the starting weight value for the ITCAMWebEAR enterprise application. Set the starting weight to a value greater than the starting weight for the ServiceRegistry enterprise application so that the Event Handler is started after the registry is started. For more information on changing the general configuration properties of an enterprise application, refer to the WebSphere Application Server Information Center (v6.0,v6.1).

Two client jar files are required for the Event Handler to function, and the procedure to specify these jar files in WebSphere Application Server varies depending on which version of WebSphere Application Server is running the Event Handler. The client jar files for the service registry are available online as a SupportPac. Please download them here for use in the next step.

For WebSphere Application Server V6.0.2.x:
>   Copy the ServiceRegistryClient.jar and sdo-int.jar (for WSRR V6.0.2) to the $WAS_HOME/classes directory of the server where the Event Handler is to run.

For WebSphere Application Server V6.1 (and later), complete these steps:
1. Create a directory in a location of your choice on the file system.
2. Copy sdo-int.jar and ServiceRegistryClient.jar (for WSRR V6.1, even if you are using a V6.0.2 registry) into this directory.
3. Create a Shared Library in the application server where the Event Handler is installed to reference these WSRR jar files. See the WebSphere Application Server Information Center (v6.1) for more details on how to do this.
4. Reference this shared library from the ITCAMWebEAR application. See the WebSphere Application Server Information Center (v6.1) for more details on how to do this.
5. Modify the class loader order for the ITCAMWebEAR enterprise application to *application class loader first* (default is *parent class loader first*) to ensure that the classes referenced in the shared library are referenced first. Find more on changing this setting in the WebSphere Application Server Information Center (v6.1).
6. Restart the application server.

Event Handler Upgrade

To upgrade the Event Handler, complete these steps:
1. If a previous version of the Event Handler is already installed and configured and the configuration is to be maintained, back up the existing config.xml file to a temporary location. The config.xml file can be found in this location:

%PROFILE_HOME%/InstalledApps/*<cell_name>*/ITCAMWebEAR.ear/ITCAMWeb.war/WEB-INF/classes

In this directory path:
- o %PROFILE_HOME% is the location where WebSphere Application Server is installed, for example, on Windows operating systems: C:\Program Files\IBM\WebSphere\AppServer
- o <cell_name> is the name of the cell, for example, myserverNode01Cell.

2. With the config.xml file backed up, download the new version of the Event Handler from the [SupportPac site](#) as previously described.
3. Use the WebSphere Application Server administration console or command line wsadmin tool to update the ITCAMWebEAR application using the new ITCAMListener.ear file. For more information on this procedure, refer to the WebSphere Application Server Information Center ([v6.0](#), [v6.1](#)).
4. Stop the application.
5. Copy the previously backed up config.xml file back to its original location.
6. Restart the application.

Event Handler Configuration

Configure the Event Handler using a Web user interface. The URL for this interface is http://*<server name>*:*<port number>*/ITCAMWeb/admin, for example http://myserver:9080/ITCAMWeb/admin.

From the Configuration page, specify the registry to be updated by the Event Handler along with any required security information and logging information. On the left hand side are links to the Status page, where the Event Handler is stopped and started, and the EventMapping page where the incoming events that are to be mapped to custom properties in the registry are specified.

Click Submit to save the configuration, or click Refresh to revert the Configuration page settings back to the currently saved configuration data.

You can install the Event Handler to a WebSphere Application Server cluster, however the application is not cluster ready, i.e. the configuration is specific to each WebSphere Application Server. You should install the Event Handler separately to individual servers within the cluster. It might be easier to install the Event Handler to many machines by using a cluster, however mapping the application to an HTTP server would make configuration difficult. For example, it would not be possible to determine which Event Handler is being configured.

If multiple Event Handlers are installed and configured to provide backup support, you must configure each instance of the Event Handler to process the same events. This can be a time consuming activity, especially if there are a lot of events to be configured. You can complete this task quicker by configuring a single instance of the Event Handler. You can then copy the resulting config.xml file to all the other instances of the Event

Handler, and then restart the Event Handler. The config.xml file can be found in this location:

%PROFILE_HOME%/InstalledApps/*<cell_name>*/ITCAMWebEAR.ear/ITCAMWeb.war/WEB-INF/classes

In this directory path:
- %PROFILE_HOME% is the location where WebSphere Application Server is installed, for example, on Windows operating systems:
  C:\Program Files\IBM\WebSphere\AppServer
- *<cell_name>* is the name of the cell, for example, myserverNode01Cell.

There might be minor changes required on each Event Handler instance depending on whether there are any instance or machine dependent items in the configuration file, such as the location of logs files. The sections in this document that describe how to configure IBM Tivoli Monitoring, Tivoli Enterprise Console, or Tivoli Netcool/OMNIbus to forward events to the Event Handler also describe how to configure those products to forward events to a list of Event Handlers.

ITCAMListener

In the ITCAMListener section of the Event Handler Configuration page, you configure the *Port* parameter to specify the TCP/IP port number that the Event Handler listens on for events. The value should be left as *1111* unless there is a conflict with a port for an existing service on the server on which the Event Handler is installed. IBM Tivoli Monitoring, the Tivoli Enterprise Console, or Tivoli Netcool/OMNIbus must also be configured to use this same port number. See the sections *Configuring IBM Tivoli Monitoring to Send Events to the Event Handler*
Configuring Tivoli Enterprise Console to Send Events to the Event Handler*, and *Configuring Tivoli Netcool/OMNIbus to Send Events to the Event Handler* for more details.

WSRRLocation

In the WSRRLocation section of the Event Handler Configuration page, you configure the *Endpoint* parameter which is the Web services endpoint of the WebSphere Service Registry and Repository that the Event Handler updates. The endpoint address depends on whether security is enabled or disabled for the application server where the WebSphere Service Registry and Repository instance is running.
- If security is disabled, the endpoint is:
  http://*<server name>*:*<port number>*/WSRRCoreSDO/services/WSRRCoreSDOPort
  For example:
  http://myserver:9080/WSRRCoreSDO/services/WSRRCoreSDOPort
- If security is enabled, the endpoint is:

https://*<server name>*:*<secure port number>*/WSRRCoreSDO/services/WSRRCoreSDOPort
Note that in this case https is used instead of http. For example:
 https://myserver:9443/WSRRCoreSDO/services/WSRRCoreSDOPort.

To configure the Event Handler to communicate with a WebSphere Service Registry and Repository system that has been installed into a WAS cluster, the endpoint must point to an HTTP server fronting the WAS cluster.

- If security is disabled on the WebSphere Service Registry and Repository cluster, the endpoint is http://*<http server name>*:*<port number>*/WSRRCoreSDO/services/WSRRCoreSDOPort For example: http://myhttpserver/WSRRCoreSDO/services/WSRRCoreSDOPort.
   (Port 80 can be omitted as it is the default value for unsecured HTTP traffic).

- If security is enabled on the WebSphere Service Registry and Repository cluster, the endpoint is http://*<http server name>*:*<port number>*/WSRRCoreSDO/services/WSRRCoreSDOPort For example: http://myhttpserver/WSRRCoreSDO/services/WSRRCoreSDOPort.
   (Port 443 can be omitted as it is the default value for secured HTTP traffic).

Note: If connecting to a secure registry then the certificate of the server hosting the registry must be loaded into the trust store of the WAS server hosting the Event Handler. In the case of a cluster the certificate of the web server fronting the cluster should be loaded, otherwise load the certificate of the WAS server. (v6.0.2, v6.1)

The *User* and *Password* parameters refer to the user name and password required to log in to the registry. These are only needed when connecting to a security registry, otherwise leave blank. The user name must be mapped explicitly or implicitly (using a group or the special subjects *Everyone* or *All Authenticated Users*) to either the Administrator or User J2EE roles of the ServiceRegistry enterprise application. Find more information on mapping user names and groups to J2EE roles in the WebSphere Application Server Information Center (v6.0, v6.1).

When security is enabled, access control policies are also enabled in the registry. The default Administrator access control policies allow users to retrieve and update all objects in the registry. If custom access control policies are created to restrict the retrieve and update actions, the user name configured for the Event Handler must be mapped explicitly or implicitly (using a group or the special subject *All Authenticated Users*) to an access control role that allows the actions listed in Table 1 to be performed on the XPATH targets also shown in the table.

Action	XPATH Target
srrUpdate	/WSRR/WSDLPort
srrRetrieve	/WSRR/WSDLPort
srrRetrieve	/WSRR/WSDLService
srrRetrieve	/WSRR/SOAPAddress

srrRetrieve	/WSRR/Module
srrRetrieve	/WSRR/Export
srrUpdate	/WSRR/Export

Table 1: Access Control Actions and XPATH Targets

Find more information on access control policies in the WebSphere Service Registry and Repository Information Center (v6.0.2, v6.1).

EIFLogger

The EIFLogger section of the Event Handler Configuration page is used to configure the logging and tracing parameters for the Event Integration Facility (EIF) used by the Event Handler. The file where the logging is saved is specified as *LogFileName*, and the tracing file is specified as *TraceFileName*. They are in the usual format for the operating system. *LogLevel* and *TraceLevel* specify the level of logging (or tracing). Use the default values unless otherwise instructed by IBM support personnel. The traces for the Event Handler are specified in the WebSphere Application Server Administrative Console. See the Information Center (v6.0,v6.1) for more details. Use the string *com.ibm.wsrr.integrationmodule.*=all* when specifying the Event Handler log detail level. The log messages for the Event Handler are written to the SystemOut.log file for the application server.

If multiple Event Handlers are installed and configured, the logs and traces for each Event Handler are local to the machine on which the Event Handler is installed.

EventMap

The EventMap configuration is accessed by following the EventMapping link on the left side of the page. Here events of interest are identified for mapping to property updates in the WebSphere Service Registry and Repository.

Each row in the EventMap table represents one mapping for events with a given situation name, which is also called an *EventID*. Each event has a status with one of these values:
- *Y*: the situation event is open (received)
  When an event with this status is received by the Event Handler, it attempts to create or update a property as specified by the *Received* type and value in the EventMap table. Table 2 describes the supported values for the *Received* type and value settings.
- *N*: the situation event is closed (cleared)
  When an event with this status is received by the Event Handler, it attempts to update the property using the *Cleared* type and value information in the EventMap table. Table 2 describes the supported values for the *Cleared* type and value settings.
- *P*: the situation is no longer being monitored
  When an event with this status is received by the Event Handler, all properties associated with that EventID are removed from the repository.

When the Event Handler is first installed, several event mappings are preconfigured. Table 2 describes the settings for each mapping.

Setting		Explanation
EventID		The name of the ITCAM for SOA situation
WSRRPropertyName		The name of the property to be created, updated or removed in the registry
Compound		Appends the name of the service operation that triggered the event to the front of the property name, for example methodname.propertyname. This differentiates properties associated with different operations that share a service endpoint.
WSRR Property Value	Received Type	The Received Type section is used for events received with a status of *Y (open)*. Possible values: *Property Value* or *Static String*: • A value of *Property Value* indicates that the registry property will contain the value of the event property entered in the Received Value column. See the *ITCAM for SOA Event Properties* section for the list of event property names that can be specified. • A value of *Static String* indicates that the registry property will contain the value specified in the Received Value column.
	Received Value	Used for Received Types of *PropertyValue* and *StaticString*, this value is used to specify which event property of the incoming event to put in the registry property value, or the static string to put in the registry property value. See the *ITCAM for SOA Event Properties* section for the list of event property names that can be specified for this setting when the Received Type is set to *Property Value*.

	Cleared Type	The Cleared Type selection is used for events received with a status of *N (closed)*. Possible values: *Removal*, *Property Value* or *Static String*: - A value of *Removal* indicates the registry property associated with the received event will be removed. - A value of *Property Value* indicates the value of the registry property associated with the received event will be updated with the value of the event property entered in the Cleared Value column. - A value of *Static String* indicates the value of the registry property associated with the received event will be updated with the value of the string entered in the Cleared Value column.
	Cleared Value	Used for Cleared Types of *Property Value* and *Static String*, this value is used to specify which event property of the incoming clearing event to place in the registry property value, or the static string to place in the registry property value. Disabled when Cleared Type is *Removal*. See the *ITCAM for SOA Event Properties* section for the list of event property names that can be specified for this setting when the Cleared Type is set to *Property Value*.

Table 2 : Event Mapping Settings

New event mappings can be introduced by clicking Create which creates an empty row in the EventMap table. When this page is revisited the EventIDs are ordered alphabetically, so a new event map might no longer be seen at the bottom of the table. Clicking Submit saves the configuration, and clicking Refresh reverts the configuration page back to the last saved configuration.

Note: If you change the Received Type, Received Value, Cleared Type, or Cleared Value properties for an Event ID, the Event Handler does not change or clean up the values of the properties that may already be set in the registry for that Event ID.

Any ITCAM for SOA situation based on the Services Inventory_610 table can be configured to write corresponding properties in the registry. However, the situation definition in IBM Tivoli Monitoring must be configured to use the Unique_Key_U

attribute as the Display Item. Only situations from the Services Inventory_610 table should be configured for the Event Handler. Each situation should be assigned to a unique property name. Sharing properties among situations causes unpredictable results due to the random ordering of events that clear situations.

ITCAM for SOA Message Arrival events are ignored by the Event Handler as they are pure events and do not originate from the Services Inventory_610 table.

Note: In addition to the registry property defined in the event map, the Event Handler also writes or removes correlation properties in the registry. The name of the correlation property is a concatenation of values received in the event:
<situation_name>---<situation_displayitem>---<situation_origin>

For example:
ResponseTimeCritical_610---343e64e14341cc26267585b1f84a2e8d---D4--467c60d6--cs-gr2qh5jaqiz-serve

Its value is the name of the registry property that is written for the received event, for example, ResponseTime. The correlation property allows the Event Handler to identify the registry property that needs to be changed or removed when the situation clears.

Event Handler Runtime

After the configuration of the Event Handler is saved, the changes do not take effect until the Event Handler application is started (or stopped and restarted).
Start the Event Handler by clicking the State link on the left hand side of the page, then clicking Submit so that the Event Handler state changes to *active*. To restart the Event Handler application, click Submit twice: once to stop the application and again to start it. When the application server is restarted, the Event Handler and its listener will automatically be started.

Configuring IBM Tivoli Monitoring to Send Events to the Event Handler

If IBM Tivoli Monitoring has not been configured to forward events to an event server, you should configure IBM Tivoli Monitoring to forward ITCAM for SOA events from the Hub Tivoli Enterprise Monitoring Server directly to the Event Handler as described in *Configuring event forwarding when IBM Tivoli Monitoring is using a single event destination*.

If IBM Tivoli Monitoring has been configured to forward events to an event server, how you configure event forwarding to the Event Handler depends on the version of IBM Tivoli Monitoring that you are using:
- If you have IBM Tivoli Monitoring V6.1 installed and it is forwarding events to Tivoli Enterprise Console, Tivoli Enterprise Console must be configured to

forward ITCAM for SOA events to the Event Handler. See *Configuring Tivoli Enterprise Console to Send Events to the Event Handler* for details.

- If you have IBM Tivoli Monitoring V.61 installed and it is forwarding events to Tivoli Netcool/OMNIbus, Netcool/OMNIbus must be configured to forward ITCAM for SOA events to the Event Handler. See *Configuring Tivoli Netcool/OMNIbus to Send Events to the Event Handler* for details.

- If you have IBM Tivoli Monitoring V6.2 installed and it is forwarding events to Tivoli Enterprise Console or Tivoli Netcool/OMNIbus, you do not have to perform the procedures described in *Configuring Tivoli Enterprise Console to Send Events to the Event Handler* or *Configuring Tivoli Netcool/OMNIbus to Send Events to the Event Handler.* Instead you can use IBM Tivoli Monitoring to create an event destination for the Event Handler and specify which situation events should be forwarded to that event destination. See *Configuring an Event Destination for the Event Handler* for details.
  Note: If you are already using Tivoli Enterprise Console or Tivoli Netcool/OMNIbus to forward events to the Event Handler and have just upgraded to IBM Tivoli Monitoring V6.2, you can continue to use the event servers to forward events to the Event Handler and do not need to create an event destination in IBM Tivoli Monitoring for the Event Handler.

Note: If you are upgrading from ITCAM for SOA V6.1 to V7.1 and have configured IBM Tivoli Monitoring to forward events directly to the Event Handler, no upgrade steps are required for your event forwarding configuration.

Note: Currently you cannot forward events directly from a Hub Tivoli Enterprise Monitoring Server running on z/OS to the Event Handler, Tivoli Enterprise Console, or Tivoli Netcool/OMNIbus. To have IBM Tivoli Monitoring forward events detected for z/OS monitoring, you have these options:

a) You can run the Tivoli Enterprise Monitoring Server in zLinux and from there forward the situations to the Event Handler or your event server.
b) You can run the Tivoli Enterprise Monitoring Server in a distributed system and then forward the events to the Event Handler or your event server.

Configuring event forwarding when IBM Tivoli Monitoring is using a single event destination

Follow the procedure in this section if situation events should be sent to the Event Handler and not to any other event destinations (e.g. Tivoli Enterprise Console).

To configure IBM Tivoli Monitoring to forward events to a single event destination, complete these steps:

1. Enable event forwarding for the Hub Tivoli Enterprise Monitoring Server:

For Windows monitoring servers *only*, complete these steps on the server where the Hub Tivoli Enterprise Monitoring Server is installed:

 a. Open the *Manage Tivoli Enterprise Monitoring Services* application.
 b. Right-click the *Tivoli Enterprise Monitoring Server* and click **Reconfigure**.
 c. On the configuration options window, select **TEC Event Integration Facility**.
 d. Click **OK** and **OK**.
 e. Complete the following fields on the **TEC Server: Location and Port Number** window and click **OK**:

  i. **TEC Server Location:** Type the host name or IP address for the server where the Event Handler is installed.

  ii. **TEC Port Number:** Type the port number that the Event Handler is listening on. By default, the Event Handler uses port number *1111*. The port number must match the port number value specified when you configured the Event Handler.

For UNIX and Linux monitoring servers, complete these steps on the server where the Hub Tivoli Enterprise Monitoring Server is installed:

 a. At the command line, change to the **/opt/IBM/ITM/bin** directory (or the directory where you installed IBM Tivoli Monitoring).
 b. Run this command:

```
./itmcmd config -S -t tems_name
```

  where *tems_name* is the name of your monitoring server (for example, HUB_itmdev17).
 c. You are prompted for the monitoring server configuration values. Enter the same values that you provided when you installed the monitoring server until you are asked about the **TEC Event Integration Facility**. Answer *YES* for this question and click Enter. Complete the following additional steps:

  • At the **TEC Server** prompt, type the hostname or IP address of the server where the Event Handler is installed.

  • At the **TEC Port** prompt, type the port number that the Event Handler is listening on. By default, the Event Handler uses port number *1111*. The port number must match the port number value specified when you configured the Event Handler.

2. Edit the Event Integration Facility (EIF) configuration file, om_tec.config, located on the server where the Hub Tivoli Enterprise Monitoring Server is installed:

 • On a Windows system, the file is located at
  <ITM_Home> \cms\TECLIB\
 • On a UNIX or Linux system, the file is located at:
  <ITM_Home>/tables/*host name*/TECLIB

where *<ITM_Home>* is the location where the Hub Tivoli Enterprise Monitoring Server is installed (for example, the default locations, C:\IBM\ITM or /opt/IBM/ITM) and *host name* is the value supplied during the Tivoli Enterprise Monitoring Server configuration.

The following parameters should be added or modified in the EIF configuration file:

Parameter name	Value	Parameter Description
FilterMode=	IN	Enables event filtering
Filter:Class=	ITM_Services_Inventory_610;	Event filter which forwards all ITCAM for SOA events for the Services_Inventory_610 table to the Event Handler.
FilterCache:Class=	ITM_Services_Inventory_610;	Filter that specifies which events to cache when IBM Tivoli Monitoring is unable to forward an event to the Event Handler.

Table 3 : EIF Configuration Parameters

Notes:

a) If the EIF configuration file already contains values for any of the parameters listed above, you should replace the current values with the values described in Table 3.

b) The EIF configuration file also contains other parameters, including ServerLocation and ServerPort parameters which are set to the values configured in step 1. However, you must use the procedure described in step 1 to specify the hostname and port number for the Event Handler rather than editing the EIF configuration file directly with these values.

c) If you are installing multiple instances of the Event Handler to support the backup scenario, you should configure a transport list with a channel for each Event Handler instance and comment out the ServerLocation and ServerPort keywords in the om_tec.config file. For example:

```
# The two lines below must be commented out since they
# cannot be used when the TransportList keyword is
# configured.
#ServerLocation=soawin11.tivlab.raleigh.ibm.com
#ServerPort=1111

TransportList=tp1
```

```
tp1Type=SOCKET

# The line below defines two channels
tp1Channels=tp1c1,tp1c2

# The next two lines define the hostname and port number
# for the primary Event Handler channel
tp1c1ServerLocation=soawin11.tivlab.raleigh.ibm.com
tp1c1Port=1111

# The next two lines defined the hostname and port number
# for the backup Event Handler channel
tp1c2ServerLocation=soawin12.tivlab.raleigh.ibm.com
tp1c2Port=2222
```

For more information on configuring a transport list and channels, see the [Tivoli Event Integration Facility Reference documentation](#).

When multiple channels are configured in om_tec.config, IBM Tivoli Monitoring attempts to forward ITCAM for SOA events to the first channel in the list. If the Event Handler specified for that channel cannot be reached, IBM Tivoli Monitoring attempts to forward events to the next channel in the list. If a connection cannot be established to any of the Event Handler channels, IBM Tivoli Monitoring caches the events until it is able to contact one of the Event Handler instances.

For more information on configuring IBM Tivoli Monitoring to forward and cache events, see the IBM Tivoli Monitoring documentation ([V6.2](#), [V6.1](#)) for more details on editing the om_tec.config file.

3. Ensure the kd4.map file is copied to the directory where the EIF configuration file is located:
   - If you have installed ITCAM for SOA V6.1, the kd4.map file is available in the /kd4/tec directory on the ITCAM for SOA V6.1 installation media and also in the itcam4soa-tec-files.zip file that is included in the sa04_6.0.2.zip and sa04_6.0.2.tgz files that are downloaded from the [Event Handler SupportPac site](#).
   - If you have installed an ITCAM for SOA V6.1 fix pack release, you must use the version of kd4.map from the /kd4/tec directory on the ITCAM for SOA V6.1 fix pack installation media to ensure that you have the latest updates.
   - If you are using ITCAM for SOA V7.1, the kd4.map file is copied to the appropriate directory during product installation.

4. Restart the Hub Tivoli Enterprise Monitoring Server.

   Note: If you have installed IBM Tivoli Monitoring V6.2, you can use the **refreshTECinfo** Tivoli Administrative command (tacmd) instead of restarting the

monitoring server. See the IBM Tivoli Monitoring V6.2 documentation for more details on this command.

For restarting Windows monitoring servers, use the *Manage Tivoli Enterprise Monitoring Services* application to restart the monitoring server.

For restarting UNIX and Linux monitoring servers, do the following:

- At the command line, change to the directory where you installed IBM Tivoli Monitoring (for example, /opt/IBM/ITM).
- Run these commands:

> ./itmcmd server stop *tems_name*
>
> ./itmcmd server start *tems_name*

where *tems_name* is the name of your monitoring server (for example, HUB_itmdev17).

See the **Command Reference** in the IBM Tivoli Monitoring documentation (V6.2, V6.1) for more information on these commands.

Configuring an Event Destination for the Event Handler

If you are using IBM Tivoli Monitoring V6.2, you can create event destinations for forwarding situation events. You can associate event destinations with individual situations. When a situation event is opened, the EIF event is forwarded to all event destinations configured for the situation. You can specify up to eight event destinations per situation.

Using event destinations gives you the flexibility to forward situation events to multiple EIF receivers. For example, if you are currently forwarding situation events to the Tivoli Enterprise Console and you also want to forward ITCAM for SOA events to the Event Handler, you can use event destinations to forward situation events to both destinations.

There is a default event destination that is already configured when you enable IBM Tivoli Monitoring to forward events to an event server.

You can create additional event destinations using the Tivoli administrative commands *createEventDest* and *refreshTECinfo*. For more information on these commands, refer to the IBM Tivoli Monitoring V6.2 documentation. For example, you can use these commands to create an event destination for the Event Handler. You can also specify a

backup Event Handler server and port number when creating the Event Handler event destination.

Event destinations are associated with situations using the Tivoli Enterprise Portal Situation Editor. For each situation that you want the Event Handler to process, select the Event Handler event destination when creating or modifying the situation. For more information on using the Situation Editor to specify event destinations, refer to the [IBM Tivoli Monitoring V6.2 documentation](#).

Configuring Tivoli Enterprise Console to Send Events to the Event Handler

If IBM Tivoli Monitoring has been configured to forward events to Tivoli Enterprise Console, how you configure event forwarding to the Event Handler depends on the version of IBM Tivoli Monitoring that you are using:

- If you have IBM Tivoli Monitoring V6.1 installed and it is forwarding events to Tivoli Enterprise Console, Tivoli Enterprise Console must be configured to forward ITCAM for SOA events to the Event Handler. The instructions in this section describe how to perform this configuration.

- If you are using IBM Tivoli Monitoring V6.2, you can either

    o Use IBM Tivoli Monitoring event destinations to forward situation events to Tivoli Enterprise Console and the Event Handler. Event destinations provide a way to forward events to both destinations without having to perform additional installation and configuration on the Tivoli Enterprise Console. For more information, see *Configuring an Event Destination for the Event Handler*.

    o Configure Tivoli Enterprise Console to forward ITCAM for SOA events to the Event Handler using the instructions in this section.

To use Tivoli Enterprise Console to forward events to the Event Handler, the Event Synchronization support for IBM Tivoli Monitoring on Tivoli Enterprise Console must be installed. See the IBM Tivoli Monitoring documentation ([V6.2](#), [V6.1](#)) for details on installing and configuring this function.

After IBM Tivoli Monitoring is configured to forward events to the Tivoli Enterprise Console, perform the steps described below in the section, *Installing the Event Handler Rule*. This procedure configures Tivoli Enterprise Console to send ITCAM for SOA events to the Event Handler. Perform these steps on the server where Tivoli Enterprise Console is installed.

To modify any of the files described in step 3 of section titled, *Installing the Event Handler Rule* after the Event Handler rule has been installed, or to stop using the Event Handler rule, perform the procedure described in the section titled, *Deleting or Modifying the Event Handler Rule Files for Tivoli Enterprise Console*.

If you are upgrading from ITCAM for SOA V6.1 to ITCAM for SOA V7.1, perform the procedure described in the section titled, *Upgrading the Tivoli Enterprise Console Event Handler Support from ITCAM for SOA V6.1 to V7.1.*

Installing the Event Handler Rule into Tivoli Enterprise Console

This procedure installs the Event Handler resend rule into Tivoli Enterprise Console.

1. Create a temporary directory on the computer system where Tivoli Enterprise Console is installed, for example **C:\temp\itcamsoarules** on a Windows system
2. Extract itcam4soa-tec-files.zip file from the sa04_6.0.2.zip or sa04_6.0.2.tgz file that is available on the [Event Handler SupportPac site](#).
3. Extract the following files from the itcam4soa-tec-files.zip file to the temporary directory that you created in step 1:
   - install_itcam_rb.sh
   - tec_itcam.rls
   - tec_itcam.conf

   Notes:
   - If Tivoli Enterprise Console is installed on a UNIX or Linux system, ensure that the script named install_itcam_rb.sh is granted execute permission.
   .

4. Copy the kd4.baroc file for your ITCAM for SOA release into the temporary directory that you created in step 1.
   - If you have installed ITCAM for SOA V6.1, the kd4.baroc file is included in the 6.1 subfolder of the itcam4soa-tec-files.zip file and in the /kd4/tec directory of the ITCAM for SOA product installation media.
   - If you have installed an ITCAM for SOA V6.1 fix pack release, you must use the version of kd4.baroc from the /kd4/tec directory on the ITCAM for SOA V6.1 fix pack installation media instead of the version in the itcam4soa-tec-files.zip.
   - If you have installed ITCAM for SOA V7.1, use the kd4.baroc file installed on your Hub Tivoli Enterprise Management Server.

     On a Windows system, the file is located at :
       <ITM_Home> \cms\TECLIB\

     On a UNIX or Linux system, the file is located at:

<ITM_Home>/tables/*host name*/TECLIB

> where <ITM_Home> is the location where the Hub Tivoli
> Enterprise Monitoring Server is installed (for example, the default
> locations, C:\IBM\ITM or /opt/IBM/ITM) and *host name* is the
> value supplied during the Tivoli Enterprise Monitoring Server
> configuration.

5. Edit these parameters in the tec_itcam.conf file:

Parameter name	Value	Parameter Description
ServerLocation=	Event Handler server address	Hostname or IP address of the server where the Event Handler is installed
ServerPort=	Event Handler port number	Port number that the Event Handler is listening on. By default, the Event Handler uses port number *1111*. The port number must match the port number value specified when you configured the Event Handler.
BufEvtPath	Event cache file location	The file where events are cached if a connection with the Event Handler cannot be established. Cached events are forwarded when the connection is re-established. Modify this parameter only if the default value is not suitable.

Table 4 : Tivoli Event Console Configuration Parameters

Note: If you are installing multiple instances of the Event Handler to support the backup scenario, configure Tivoli Enterprise Console to forward events to a list of Event Handlers. To configure a list of Event Handlers, specify a list of hostnames or IP addresses for the ServerLocation parameter and a list of port numbers for the ServerPort parameter as shown in the example below:

    ServerLocation=soawin11.tivlab.raleigh.ibm.com,soawin12.tivlab.raleigh.ibm.com
    ServerPort=1111,2222

The hostname and port numbers are positional. In the example above, port number *1111* is used when contacting the Event Handler on host

soawin11.tivlab.raleigh.ibm.com, and port number *2222* is used when contacting the Event Handler on host soawin12.tivlab.raleigh.ibm.com.

When a list of Event Handlers is configured, Tivoli Enterprise Console attempts to send ITCAM for SOA events to the first Event Handler in the list. If that Event Handler cannot be reached, Tivoli Enterprise Console attempts to forward events to the next Event Handler in the list. If a connection cannot be established to any of the Event Handler instances, Tivoli Enterprise Console caches the events until it is able to contact one of the Event Handlers. For more information on configuring event caching in the tec_itcam.conf EIF configuration file, see the Tivoli Event Integration Facility Reference documentation.

6. Edit these variables in install_itcam_rb.sh:

Variable name	Value Description
DIR=	Set this variable to the temporary directory that contains the install_rb.sh file. For example, DIR=C:/temp/itcamsoarules
RuleBase=	Set this variable to the rule base that was specified when the IBM Tivoli Monitoring event synchronization component was installed with Tivoli Enterprise Console.
RuleBasePath=	Set this variable to the rule base path that was specified when the IBM Tivoli Monitoring event synchronization component was installed with Tivoli Enterprise Console.

Table 5 : Install Script Rule Variables

Note: If you cannot remember the rule base or rule base path that was specified when the IBM Tivoli Monitoring event synchronization support was installed on the event server, use the *wrb –lsrb* Tivoli Enterprise Console command to list the rule bases. See the Tivoli Enterprise Console product documentation for more information on the *wrb* command.

7. Open a command line window

8. Set up the Tivoli Management Framework environment by running the following command:

On a Windows system, run this command:

```
C:\WINDOWS\system32\drivers\etc\Tivoli\setup_env.cmd
```

On a Linux or UNIX system, run this command from a shell environment:

```
. /etc/Tivoli/setup_env.sh
```

9. Change to the directory created in step 1.

10. Enter these commands :

```
bash

./install_itcam_rb.sh
```

Note: If the ITCAM for SOA monitoring agent .baroc file (kd4.baroc) is already loaded in the Tivoli Enterprise Console rule base, the install_itcam_rb.sh script will display error messages. You can ignore these messages.

11. Restart Tivoli Enterprise Console

12. If you are using ITCAM for SOA V6.1 or one of its fixpack releases, ensure the kd4.map file is copied to one of these directories on the system where the Hub Tivoli Enterprise Monitoring Server is installed:

-   On a Windows system: *<ITM_Home>*\cms\TECLIB.
-   On a UNIX or Linux system: *<ITM_Home>*/tables/*host name*/TECLIB.

    where <ITM_Home> is the default location where the Tivoli Enterprise Monitoring Server is installed (for example, C:\IBM\ITM or /opt/IBM/ITM) and *host name* is the value supplied during the Tivoli Enterprise Monitoring Server configuration.

If you have installed ITCAM for SOA V6.1, the kd4.map file is included in the 6.1 subfolder of the itcam4soa-tec-files.zip file and in the /kd4/tec directory on the ITCAM for SOA product installation media. If you have installed an ITCAM for SOA V6.1 fix pack release, you must use the version of kd4.map from the /kd4/tec directory of the ITCAM for SOA V6.1 fix pack installation media instead of the version in the itcam4soa-tec-files.zip.

After you copy the kd4.map file to the appropriate directory you must restart the Hub Tivoli Enterprise Monitoring Server.

Note: If you have installed IBM Tivoli Monitoring V6.2, you can use the **refreshTECinfo** Tivoli Administrative command (tacmd) instead of restarting the monitoring server. See the [IBM Tivoli Monitoring documentation](#) ([v6.2](#)) for more details on the refreshTECinfo command.

For restarting Windows monitoring servers, use the *Manage Tivoli Enterprise Monitoring Services* application to restart the monitoring server.

For restarting UNIX and Linux monitoring servers, do the following:
- At the command line, change to the directory where you installed IBM Tivoli Monitoring (for example, /opt/IBM/ITM).
- Run these commands:

> ./itmcmd server stop *tems_name*
>
> ./itmcmd server start *tems_name*

where *tems_name* is the name of your monitoring server (for example, HUB_itmdev17).

See the **Command Reference** in the IBM Tivoli Monitoring documentation (V6.1) for more information on these commands.

Note: If you are using ITCAM for SOA V7.1, the kd4.map file is copied to the appropriate directory during product installation. It is not necessary to stop and restart the Hub Tivoli Enterprise Monitoring Server in this case.

The steps above install a re-send rule that forwards all ITCAM for SOA events to the Event Handler. All events, except events with the severity set to *Harmless*, are sent to the Event Handler.

Deleting or Modifying the Event Handler Rule Files for Tivoli Enterprise Console

To stop using the Event Handler resend rule, or to modify one or more Event Handler rule files, complete these steps:

1. Create a temporary directory on the computer system where Tivoli Enterprise Console is installed.
2. Extract itcam4soa-tec-files.zip file from the sa04_6.0.2.zip or sa04_6.0.2.tgz file that is available on the Event Handler SupportPac site.
3. Extract the delete_itcam_rb.sh file from the itcam4soa-tec-files.zip file to the directory you created in step 1. If you want to modify the Event Handler rule files, you should also extract the install_itcam_rb.sh file.
4. Save a copy of the Event Handler rule files for future use. Copy the following files to the directory you created in step 1:
   - *RuleBasePath*/TEC_CLASSES/kd4.baroc
   - *RuleBasePath*/TEC_RULES/tec_itcam.rls

- *RuleBasePath*/TEC_RULES/tec_itcam.conf

where *RuleBasePath* is the rule base path directory you specified when the IBM Tivoli Monitoring event synchronization component was installed with Tivoli Enterprise Console.

Note: If you cannot remember the rule base path directory, use the *wrb –lsrb* Tivoli Enterprise Console command to list rule bases and their paths. See the [Tivoli Enterprise Console product documentation](#) for more information on the *wrb* command.

5. Edit the following variable in delete_itcam_rb.sh:

Variable name	Value Description
RuleBase=	Set this variable to the rule base that was specified when the IBM Tivoli Monitoring event synchronization component was installed with Tivoli Enterprise Console.

Table 6 : Delete Script Rule Variable

6. Open a command line window.

7. Set up the Tivoli Management Framework environment by running this command:

On a Windows system, run this command:

```
C:\WINDOWS\system32\drivers\etc\Tivoli\setup_env.cmd
```

On a Linux or UNIX system, run this command from a shell environment:

```
. /etc/Tivoli/setup_env.sh
```

8. Change to the directory created in step 1.

9. Enter these commands :

```
bash

./delete_itcam_rb.sh
```

10. If you want to modify Event Handler rule files, complete these additional steps:

    a.   Modify the Event Handler rule files that you copied in step 4.

Note: See step 4 in section *Installing the Event Handler Rule into Tivoli Enterprise Console* for details on how to configure the tec_itcam.conf file so that ITCAM for SOA events are forwarded to a list of Event Handlers.

    b.   Edit the following variables in install_itcam_rb.sh:

Variable name	Value Description
DIR=	Set this variable to the directory that contains the install_rb.sh file and the Event Handler rule files that you modified. For example, DIR=C:/temp/itcamsoarules
RuleBase=	Set this variable to the rule base that was specified when the IBM Tivoli Monitoring event synchronization component was installed with Tivoli Enterprise Console.
RuleBasePath=	Set this variable to the rule base path that was specified when the IBM Tivoli Monitoring event synchronization component was installed with Tivoli Enterprise Console.

Table 7 : Modify Script Rule Variables

    c.   Enter this command:

    ./install_itcam_rb.sh

11. Restart Tivoli Enterprise Console.

Upgrading the Tivoli Enterprise Console Event Handler Support from ITCAM for SOA V6.1 to V7.1

If you have upgraded ITCAM for SOA V6.1 to V7.1 and are using Tivoli Enterprise Console to forward events to the Event Handler, perform these steps:

1. Follow the steps outlined in *Deleting or Modifying the Event Handler Rule Files for Tivoli Enterprise Console* to delete the event handler rules files for ITCAM for SOA V6.1.

2. Follow the steps outlined in *Installing the Event Handler Rule into Tivoli Enterprise Console* to add the event handler rules files for ITCAM for SOA V7.1.

Configuring Tivoli Netcool/OMNIbus to Send Events to the Event Handler

If IBM Tivoli Monitoring has been configured to forward events to Tivoli Netcool/OMNIbus, how you configure event forwarding to the Event Handler depends on the version of IBM Tivoli Monitoring that you are using:

- If you have IBM Tivoli Monitoring V6.1 installed and it is forwarding events to Netcool/OMNIbus, Netcool/OMNIbus must be configured to forward ITCAM for SOA events to the Event Handler. The instructions in this section describe how to perform this configuration.

- If you are using IBM Tivoli Monitoring V6.2, you can either

  o Use IBM Tivoli Monitoring event destinations to forward situation events to Netcool/OMNIbus and the Event Handler. Event destinations provide a way to forward events to both destinations without having to perform additional installation and configuration on the Netcool/OMNIbus. For more information, see *Configuring an Event Destination for the Event Handler*.

  o Configure Netcool/OMNIbus to forward ITCAM for SOA events to the Event Handler using the instructions in this section.

If you are using IBM Tivoli Monitoring V6.1, ensure that the Tivoli Monitoring to Netcool/OMNIbus option of the *Tivoli and Netcool Event Flow Integration* package is installed and configured, and that IBM Tivoli Monitoring events are flowing to the Netcool/OMNIbus Object Server. The *Tivoli and Netcool Event Flow Integration* package is available from IBM Tivoli Open Process Automation Library.

If you are using IBM Tivoli Monitoring V6.2, you should configure event forwarding from IBM Tivoli Monitoring to Netcool/OMNIbus. See the *Installation and Setup Guide* in the IBM Tivoli Monitoring V6.2 documentation for details.

After IBM Tivoli Monitoring is configured to forward events to Netcool/OMNIbus, complete these steps to configure Netcool/OMNIbus to send ITCAM for SOA events to the Event Handler. Complete these steps on the server where Netcool/OMNIbus is installed:

1. Create a temporary directory, for example /tmp/itcamsoa on a Linux or Unix system.

2. Extract itcam4soa-omnibus-files.zip file from the sa04_6.0.2.zip or sa04_6.0.2.tgz file that is available on the Event Handler SupportPac site.

3. Extract the files from the itcam4soa-omnibus-files.zip file to the temporary directory that you created in step 2.

4. Follow the instructions in the itcamsoa_omnibus.readme to enable Netcool/OMNIbus to send events to the Event Handler.

Note: If you are installing multiple instances of the Event Handler to support the backup scenario, you should configure a transport list with a channel for each instance and comment out the ServerLocation and ServerPort keywords in the itcamsoa_forward.conf file described in the itcamsoa_omnibus.readme. See the example lines below:

```
# The two lines below must be commented out since they
# cannot be used when the TransportList keyword is
# configured.
#ServerLocation=soawin11.tivlab.raleigh.ibm.com
#ServerPort=1111

TransportList=tp1
tp1Type=SOCKET

# The line below defines two channels
tp1Channels=tp1c1,tp1c2

# The next two lines define the hostname and port number
# for the primary Event Handler channel
tp1c1ServerLocation=soawin11.tivlab.raleigh.ibm.com
tp1c1Port=1111

# The next two lines defined the hostname and port number
# for the backup Event Handler channel
tp1c2ServerLocation=soawin12.tivlab.raleigh.ibm.com
tp1c2Port=2222
```

For more information on configuring a transport list and channels, see the Tivoli Event Integration Facility Reference documentation.

When multiple channels are configured in itcamsoa_forward.conf, Netcool/OMNIbus attempts to forward ITCAM for SOA events to the first channel in the list. If the Event Handler specified for that channel cannot be reached, Netcool/OMNIbus attempts to forward events to the next channel in the list. If a connection cannot be established to any of the Event Handler channels, the event is not forwarded.

Upgrading the Tivoli Netcool/OMNIbus Event Handler Support from ITCAM for SOA V6.1 to V7.1

If you have upgraded ITCAM for SOA V6.1 to V7.1 and are using Netcool/OMNIbus to forward events to the Event Handler, you do not need to re-install the Event Handler files on Netcool/OMNIbus. However, you should modify the Event Handler itcamsoa_forward.conf file on Netcool/OMNIbus and set the BufferEvents variable to *NO*. The itcamsoa_forward.conf file is located in the *<OMNIHOME>*/utils directory, where *<OMNIHOME>* is the Netcool/OMNIbus install directory.

ITCAM for SOA Event Properties

Table 8 lists the names of the event properties in the ITCAM for SOA events generated from the Services Inventory_610 table, also called an attribute group. It also indicates which properties are included in the events sent when a situation event has been opened and which properties are included in events sent when a situation event has been closed.

Note: If you define a custom situation for the Services Inventory_610 table that the Event Handler should process, you must select the unique_key_u event property as the value of the Display Item selection when configuring the advanced situation options.

Event Property Name	Description	Included in Open Event	Included in Close Event
adapter_host	Base event class attribute that contains the managed system name of the ITCAM for SOA monitoring agent associated with this situation.	X	X
appl_label	Application specific data related with the event, if any.	X	X
application_server_cellName_u	Name of the application server cell where the port and operation are deployed	X	
application_servercluster_u	Name of the application server cluster where the port and operation are deployed	X	
application_servername_u	Name of the application server where the port and operation are deployed	X	
application_server_nodename_u	Node name of the application server where the port and operation are deployed	X	
application_serverenv	Specifies the application server environment (1=WebSphere Application Server; 2=.NET; 3=WebLogic Server; 4=JBoss; 5=CICS; 6=SAP; 7=WebSphere Community Edition; 8=DataPower; 10=WebSphere Message Broker)	X	
avg_elapsed_time	Average elapsed round trip time in milliseconds during this monitoring interval. This does not include values which were set to -1 to indicate entry requests.	X	
avg_msg_length	The average message length, in bytes, observed during this monitoring interval (including headers when possible).	X	
cms_hostname	TCP/IP host name of the Tivoli Enterprise Monitoring Server that forwards the event.	X	X
cms_port	Tivoli Enterprise Monitoring Server port on which the service is listening.	X	X
date	Base event class attribute containing the date when event was detected.	X	X
dispatcher	Base event class attribute set to Default_Dispatcher.	X	X
elapsed_time_msg_count	Number of messages observed during this monitoring interval that contain an elapsed time value.	X	
fault_count	Number of faults observed during this monitoring interval.	X	
hostname	Base event class attribute that contains the TCP/IP hostname of the managed system where the event originates, if available.	X	X

integration_type	Indicator to help Tivoli Enterprise Console performance. • *N* for a new event, the first time the event is raised • *U* for update event, subsequent event status changes	X	X
interval_begin_time	Inclusive beginning date and time of the monitoring interval.	X	
interval_end_time	Exclusive ending date and time of the monitoring interval.	X	
interval_length	Length of the monitoring interval in minutes.	X	
interval_status	Specifies the status of this monitoring interval (1=Incomplete, 2=Complete). Incomplete means the end of this monitoring interval has not yet been reached.	X	
local_hostname_u	Hostname of the machine where the port and operation were observed. **Note**: If the port and operation were observed by the ITCAM for SOA data collector for WebSphere DataPower SOA Appliance, this property specifies the hostname of the server where the ITCAM for SOA data collector is running and not the hostname of the DataPower appliance.	X	
local_ipaddress_u	IP address of the machine where the port and operation were observed **Note**: If the port and operation were observed by the ITCAM for SOA data collector for WebSphere DataPower SOA Appliance, this property specifies the IP address of the server where the ITCAM for SOA data collector is running and not the IP address of the DataPower appliance.	X	
master_reset_flag	Master reset indicator set for master reset events. Value is NULL for all other events: • *R* for Tivoli Enterprise Monitoring Server recycle master_reset • *S* for hotstandby master_reset	X	X

max_elapsed_time	Longest elapsed time, in milliseconds, of any message observed during this monitoring interval.	X	
max_msg_length	Length of the largest message, in bytes, observed during this monitoring interval.	X	
min_elapsed_time	Shortest elapsed time, in milliseconds, of any message observed during this monitoring interval.	X	
min_msg_length	Length of the smallest message, in bytes, observed during this monitoring interval.	X	
msg	Base event class attribute that contains the situation name and formula.	X	X
msg_count	The number of messages observed during this monitoring interval.	X	
operation_name_u	Web Services Description Language (WSDL) operation name	X	
operation_namespace_u	Namespace used to fully qualify the operation name.	X	
origin	Base event class attribute containing the TCP/IP address of the managed system where the event originates, if available. The address is in dotted-decimal format.	X	X
origin_node	Managed system name of the ITCAM for SOA data collector subnode that observed the port and operation identified in the event.	X	
port_namespace_u	Namespace used to fully qualify the service port name.	X	
port_number	The number of the port, *0 - 65535*, on which the application container being monitored is listening. *-1* if unknown.	X	
probe	Base event class attribute set to *Default_Probe*	X	
service_name_u	Service port name also known as the Web Services Description Language (WSDL) port name	X	
service_type	Specifies the type of service. Valid values include: • *0* (for Requester) • *1* (for Provider) **Note**: The event handler only processes events where the service_type is set to 1	X	
severity	Base event class attribute that contains the resolved severity.	X	X

situation_displayitem	Display item of associated situation, if available. If it is available, it is the value of the unique_key_u property.	X	X
situation_eventdata	Event data attributes in key-value pair format. The event data can be truncated because the Event Integration Facility (EIF) imposes a 2k size limit.	X	X
situation_name	Name of the associated situation.	X	X
situation_origin	Same value as sub_source attribute.	X	X
situation_status	Current status of the situation event. • *Y* indicates the event has been opened. • *N* indicates the event has been closed • *P* indicates the situation has been stopped. **Note**: There are additional status values but the Event Handler does not take an action on those values.	X	X
situation_time	Timestamp of the situation event.	X	X
situation_type	Situation event type • *S* for sampled event • *P* for pure event **Note**: This property is only available when IBM Tivoli Monitoring 6.1 FP6 or later is installed.	X	X
situation_thrunode	Reserved for future use. **Note**: This property is only available when IBM Tivoli Monitoring 6.1 FP6 or later is installed.	X	X
source	Base event class attribute that is set to *ITM*	X	X
sqhostname	Base Event class attribute that contains the fully qualified hostname, if available. **Note**: this property is only present if IBM Tivoli Monitoring V6.2 is installed.	X	X
std_dev_elapsed_time	The standard deviation of all elapsed round trip times, in milliseconds, observed during this monitoring interval.	X	
std_dev_msg_length	Standard deviation of all message lengths, in bytes, observed during this monitoring interval.	X	
sub_origin	Base event class attribute. This is the same as the situation_displayitem, if available.	X	X

sub_source	Base event class attribute that contains the origin managed system name for the associated situation.	X	

svc_port_name_type	Identifies the type of name that is stored in the service_name_u field (e.g. WSDL port name, SCA Component name, URI)
	
	Notes:
	  1. This property is only available in situation events for services monitored by ITCAM for SOA V7.1 or later agents. It is also not available to the Event Handler if Netcool/OMNIbus is used to forward the event to the Event Handler.
	
	  2. When ITCAM for SOA monitors services processed by WebSphere DataPower SOA Appliance, the svc_port_name_type event property is always set to the value for WSDL port name.
		X	

table_version_u	The version of this table definition.	X	
tmr	Base event class attribute set to Default_TMR	X	X
unique_key_u	A unique hash of the service port namespace, service port name, operation namespace, operation name, and service type in this event.	X	

Table 8 : ITCAM for SOA Event Properties