IBM WebSphere Software

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Troubleshooting common CEI related issues with WebSphere Business Monitor

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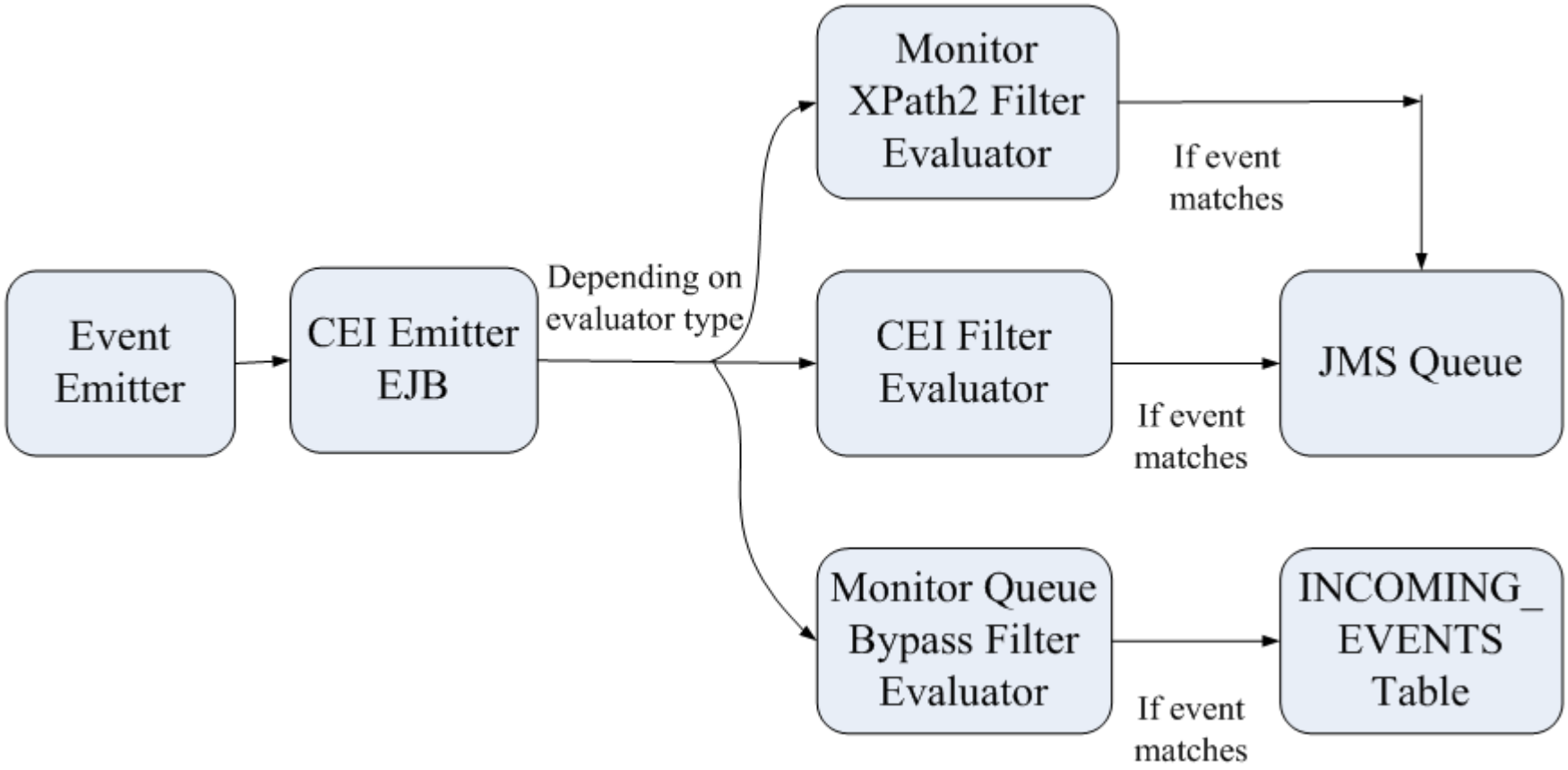
Agenda

1	**Overview**
2	**General info to collect for problems**
3	**Common CEI related issues and Debug Tips**
3.1	*CEI deployment and configuration issues*
3.2	*CEI issues in Event processing*
3.3	*Step to verify the event flow*

Overview

- **If you are unable to monitor instances in the WebSphere Business Monitor dashboard views anymore, your event process configuration might not be correct because Monitor consumes Common Base Events delivered by the CEI.**
  - Help the troubleshooting of event flow issues and provide additional debug tips for common CEI related issues in WebSphere® Business Monitor.
  - Specify some general steps to verify for WebSphere® Business Monitor related event processing issues
- **This session assumes and applies to BPEL-based event monitoring with WebSphere Business Monitor. It does not cover all the possible cases, but serves as a guideline when you encounter the symptoms defined in this article.**

Event Flow Overview



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General info to collect for problems

- **Problem Description**
  - List the names of any models, events, or metrics that you believe might be involved in the issue.
  - Think about how often the problem occurs. Include details about recent problem occurrences, including timestamps.
- **Environment Description**
  - Check if monitor fixpack versions in all cluster members are same by running

    versionInfo –maintenancePackages
- **Server logs**
  - State the exact error message received
  - Gather the logs and FFDC files from each server that is involved in the issue to check for the possible error messages with the associated timestamps.

General info to collect for problems (Continue…)

- **Traces**
  - For event processing problems for a model using queue based routing:
    - Set the trace string on each CEI target server or cluster to:

      =info: com.ibm.events.distribution.=all

      Note: *=info: com.ibm.wbimonitor.router.distribution.<mmID>.<mmVersion>=all on a CEI target lets you limit the trace to routing information about events in and events out.
  - For event processing problems on V6.2 or later for a model using queue bypass routing:
    - Set the trace string on each CEI target server or cluster and on the monitor model moderator to:

      =info: com.ibm.wbimonitor.router.=all
  - In addition, for any model regardless of routing method, set the trace specified above under the section for monitor model runtime problems. Refer to below Monitor MustGather link:

    http://www-01.ibm.com/support/docview.wss?uid=swg21405891
  - You may also be able to set a trace for the model version to see that events are being filtered out. The following trace string is an example how to enable trace for a model.

    <mmID>.<mmVersion>=all

    i.e. *=info: clipsbpm_2011.02.14T15.25.04Z=all

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How to make sure CEI service is correctly configured and enabled

- Determine whether CEI has been configured

- **1. Sign in to the WebSphere administrative console.**
- **2. Click Service Integration. If Common Event Infrastructure is listed below it, then CEI has been deployed.**
- **3. If you have run the deployEventService wsadmin task but have not restarted the deployment manager, Common Event Infrastructure will not appear on the WebSphere administrative console. (If in doubt, you can simply restart your deployment manager to be sure)**
- **Deploying and configuring CEI is a manual task that consists of running several wsadmin commands. These commands are documented in the information center. At a high level, the sequence of commands to run is:**
- **1). deployEventService**
- **2). configEventServiceDB2DB**
- **3). enableEventService**
- **4). setEventServiceJmsAuthAlias**

How to make sure CEI service is correctly configured and enabled

- Determine whether CEI has been enabled

- **1. Log in to the WebSphere administrative console.**
- **2. For each server or cluster member:**
- **a. Navigate to Servers > Application servers and then click on the name of the server or cluster member.**
- **b. Under Container Settings, expand Container Services.**
- **c. Select Common Event Infrastructure Service.**
- **d. Check the Enable service at server startup box, if it is not already checked. Click Apply.**
- **e. Click Container Services in the breadcrumb trail near the top of the page.**
- **f. Select Startup beans service.**
- **g. Check the Enable service at server startup box, if it is not already checked. Click Apply.**
- **3. Click Save to save the configuration changes.**
- **4. In a stand-alone environment, restart the server. In a network deployment environment, synchronize the nodes and then restart the cluster.**
- **After restart, you should see a message similar to the following in the SystemOut.log file on the server (stand-alone) or at least one member of the cluster where the model is deployed (ND ENV.):**

  ConsumerDaemo I com.ibm.wbimonitor.mm.<model_name>_<version>.moderator.ConsumerDaemonHandlerImpl startDaemon() CWMRT3005I: The Monitor Model "<model_name>_<version>" is starting consumption on this server or cluster member...

CEI bus fails to start with Error Message

- **When your CEI bus fails to start, please firstly check the SystemOut.log file for errors.**
- **If you find the following error message:**
  - SWSIS1524E: Data source, jdbc/com.ibm.ws.sib/monSuppCluster-CommonEventInfrastructure_Bus, not found.
  - You need to create a JDBC data source and run the database scripts that create the CEI messaging engine data store.
- **If you find the following error message:**
  - CWSIT0073W: No intra-bus messaging engine authentication alias is configured.
  - You need to run the setEventServiceJmsAuthAlias command, using the following parameters for a clustered environment:
    - $AdminTask setEventServiceJmsAuthAlias { -clusterName *monSupportCluster* –userName *monadmin* –password *monadmin* }
    - $AdminConfig save

Monitor model deployment issue with remote CEI
- Cannot create RMI connector

- **Error:**
  - In the Monitor Lifecyle Step "Select Monitor Model CEI options" deployment fails with the error "ADMC0017E: Could not create an RMI connector to connect to host <remote_host_name> at port <port> due to insufficient or empty credentials."
  - There is also a message in SystemOut saying that authentication failed when using LTPA keys. You might need to exchange the LTPA keys both ways.
- **Tips: Sometimes, in a cross-cell configuration, the LTPA keys must be exchanged both ways.**
  - 1). Export the LTPA keys from cell 1.
  - 2). Import the LTPA keys from cell 1 into cell 2.
  - 3). Export the LTPA keys from cell 2.
  - 4). Import the LTPA keys from cell 2 into cell 1.
  - 5). In a stand-alone environment, restart both servers. In a network deployment environment, restart both deployment managers.
- **For more information, please refer to the following links:**
  - See the WebSphere Business Monitor Information Center for information about sharing LTPA keys. http://publib.boulder.ibm.com/infocenter/dmndhelp/v7r0mx/index.jsp?topic=%2Fcom.ibm.btools.help.monitor.sec.doc%2Fsec%2Fltpa_cfg.html
  - See this link in the Information Center for another possible problem causing an LTPA key mismatch.

    http://publib.boulder.ibm.com/infocenter/dmndhelp/v7r0mx/index.jsp?topic=%2Fcom.ibm.btools.help.monitor.trbl.doc%2Ftrbl%2Fadmin_ltpa_problem.html

New version monitor model deployment issue with inactive CEI distribution mode

- **When a new version of an existing monitor model is installed on a production mode server, all active monitoring context (MC) instances from the previous version must be moved to the new version. Then, the CEI distribution mode of the new version can be set to "Active" if any previous versions have a CEI distribution mode set to "Inactive (event queue recoverable)."**
- **The number of active MC instances for the previous version can be checked on the Version Details page for the previous version in the WebSphere® Application Server administrative console. If the number is greater than 0, then the following LifecycleServices MBean method must be invoked before the CEI distribution mode of the new version can be set to "Active" (this should be typed as one line):**

  LifecycleResultsBean moveMCInstances(String *modelID*, long *versionDate*, long *toVersionDate*, boolean *activeInstancesOnly*)

- **If the moveMCInstances command fails, you can ignore ignore the active MC instances and invoke the following LifecycleServices MBean method**

  LifecycleResultsBean confirmMoveMCInstances(String *modelID*, long *versionDate*, long *toVersionDate*)

- **Now you can change the CEI distribution mode of the new version to Active.**

Unable to change CEI configuration on installed Monitor model

- **In general, if active monitoring contexts (MC's) or scheduled services for an installed Monitor model exist, that will prevent the CEI configuration to be modified. To make it work, you must ensure the following conditions are met:**
  - 1) There are no active monitoring contexts (MC's) for that model.
  - 2) The Monitor model is stopped.
  - 3) All scheduled services for the model are suspended.
- **Besides, you would get LTPA authentication exception when changing CEI configuration on a multiple versions model with the following conditions:**
  - 1) Multiple versions of a monitor model are installed.
  - 2) The CEI target is remote.
  - 3) The CEI distribution mode of at least one version is not Inactive.
  - 4) The credentials (user name and/or password) for the administrative user on the cell or server hosting the remote CEI instance have changed since the last version of the model was installed.
- **If any version of the model has a CEI distribution mode other than Inactive, the only way to change the CEI user ID or password (for all versions of the model) is to use the applyCEICredentials() method of the LifecycleServices MBean. Please see this technote "Multiple versions model to change CEI distribution mode got LTPA authentication exception after CEI password changed".**

  (http://www-01.ibm.com/support/docview.wss?uid=swg21498269).

Specifying the jdbcProvider parameter on a remote CEI server

- **Problem**
  - On a cross-cell configuration. When you are using the **wbmConfigureQueueBypassDatasource** command on the remote dmgr to create the data source for Monitor, it is likely that no jdbcProvider definition exists on the remote CEI server, so you must create the required jdbcProvider definition before run the command.
- **Tips:**
  - To create a jdbcProvider definition on your remote CEI server, create one same definition on cell scope that matches the "**MonitorDBProvider**" jdbcProvider definition on your Monitor server.

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Locked messages

- Avoid the locked event situation or the locked or in-doubt state

- **In a network deployment environment, remember that the startup and shutdown order of your servers is important.**
  - It will avoid the locked events situation or the locked or in-doubt state.
- **You should always use the following order, to stop the monitoring environment:**
  - 1) Stop the cluster hosting the monitor model applications.
  - 2) Stop the cluster hosting the CEI server.
  - 3) Stop the cluster hosting the messaging engine.
- **And the following order to start the environment:**
  - 1) Start the cluster hosting the messaging engine.
  - 2) Start the cluster hosting the CEI server.
  - 3) Start the cluster hosting the monitor model applications.

Locked messages

- Delete locked messages

- **Problem: events processing stops due to database locked error messages in logs**
- **Reason**
  - A message is on a queue.
  - CEI attempts to deliver that message to an application over the SIB.
  - CEI waits for the application to send an acknowledgement back that says "We now have the message".
  - If CEI gets that acknowledgement, it unlocks the message and it disappears from the queue.
  - If CEI does not get that acknowledgement it will keep the message locked until it is received.
- **Solution:**

  To delete the locked message
  - 1) When a message is in a locked state on a queue you cannot delete it because it is in the middle of an internal transaction. Deleting it would mean having to break the transaction and that is an unsafe practice that is not recommended.

    Following is a tool that can help you move the locked messages off the queue:

    SIB Destination Handler:

    http://www.ibm.com/support/docview.wss?uid=swg24021439&rss=ct802websphere
  - 2) If the locked message cannot be removed from either the administrative console or SIB handler, you may have to manually delete them from the Database. Please ask for IBM support assistance of how to delete the locked message from database.

CEI event filter setting

- Empty CEI event filter condition causes unrecoverable events

- **Problem: An inbound event in a monitor model that is defined with an empty filter condition can lead to a large number of unexpected results, such as unrecoverable events, at monitor model run time.**
- **Problem diagnosis:**
  - When a monitor model is created in the Monitor Model editor, the following warning is displayed.

    ```
    CWMMV0705W: A filter expression or extension name should be specified,
    or this definition will match all events.
    ```
- **Solution:**
  - Take action to add a filter condition for the corresponding inbound event before deploying the monitor model.
  - If the monitor model has already been deployed and there are many unrecoverable events that become difficult to manage, then consider making a revision to the monitor model to include specific filter conditions for inbound events.
  - See the “Inbound events” documentation section referenced for information about filter conditions.
    - http://publib.boulder.ibm.com/infocenter/dmndhelp/v7r0mx/topic/com.ibm.btools.help.monitor.dev.doc/model/inboundevents.html

CEI event filter setting

- CEI event filter ignores messages for incompatible event format

- **Problem:**
  - When a CEI event filter selector is used, some events that match the specified criteria are not processed.
  - The same behavior occurs with custom event filters.
- **Problem diagnosis:**
  - If CEI trace is enabled (com.ibm.events.*=all), the following message appears in the trace file:

    <thread> EventSelector 1 com.ibm.events.util.xpath.EventSelectorParser parseEventSelector Received JXPathException when parsing event selector <selector xmlns:wbi="http://www.ibm.com/xmlns/prod/websphere/monitoring/6.1" xmlns:xs="http://www.w3.org/2001/XMLSchema" xmlns:bpc="http://www.ibm.com/xmlns/prod/websphere/scdl/business-process/6.0.0"
- **Reason:**
  - Event format used in Monitor 6.0.2 is not compatible with Monitor 6.1 or custom event filters is not compatible.
  - Monitor V6.1 event format requires the customEventSelectorFilterClass custom property to be defined for the event group. When this property is defined, CEI uses the custom class instead of the native CEI event selector.
- **Solution:**
  - 1) Ensure that the **customEventSelectorFilterClass** property is defined on selector's event group in CEI Server.
  - 2) Define the **customEventSelectorFilterClass** property for the event group as described in the technote "Event Selector not working for Business Process Data".
    - http://www-01.ibm.com/support/docview.wss?uid=swg21395079

CEI server failed to distribute an event notification

- CEI server can not connect to the JMS destination

- **Problem: CEI server failed to distribute an event notification**
- **Problem diagnosis: Following error occur in the log.**

  EventDistribu E com.ibm.events.distribution.impl.EventDistribution publishEventNotifications CEIES0011E The event server failed to distribute an event notification.

  Exception message: CEIES0004E No event notifications were sent because the event server could not connect to the Java Message Service (JMS) destination.

  The event group name is all events.

  JMS connection factory Java Naming and Directory Interface (JNDI) name: jms/cei/notification/AllEventsTopicConnectionFactory

  JMS destination JNDI name: jms/cei/notification/AllEventsTopic

- **Reason: Security may not be configured for: QueueConnection Factory, Activation Specifications, and Topic Connection Factories.**
- **Solution: configure security for the factories via the administrative console, click:**
  - Resources -> JMS -> Queue connection factories. Click CommonEventInfrastructure_QueueCF. Scroll down to the Advanced Administrative section and specify *CommonEventInfrastructureJMSAuthAlias* authorization alias for the Component-managed authentication alias.
  - Resources -> JMS -> Activation Specifications. Select the CommonEventInfrastructure_ActivationSpec. Scroll down to the Additional section and specify *CommonEventInfrastructureJMSAuthAlias* authorization alias for the authentication alias.
  - Resources -> JMS -> Topic Connection Factories. Select CommonEventInfrastructure_AllEventsTopicCF. Scroll down to the Advanced Administrative section and specify *CommonEventInfrastructureJMSAuthAlias* authorization alias for the Component-managed authentication alias.

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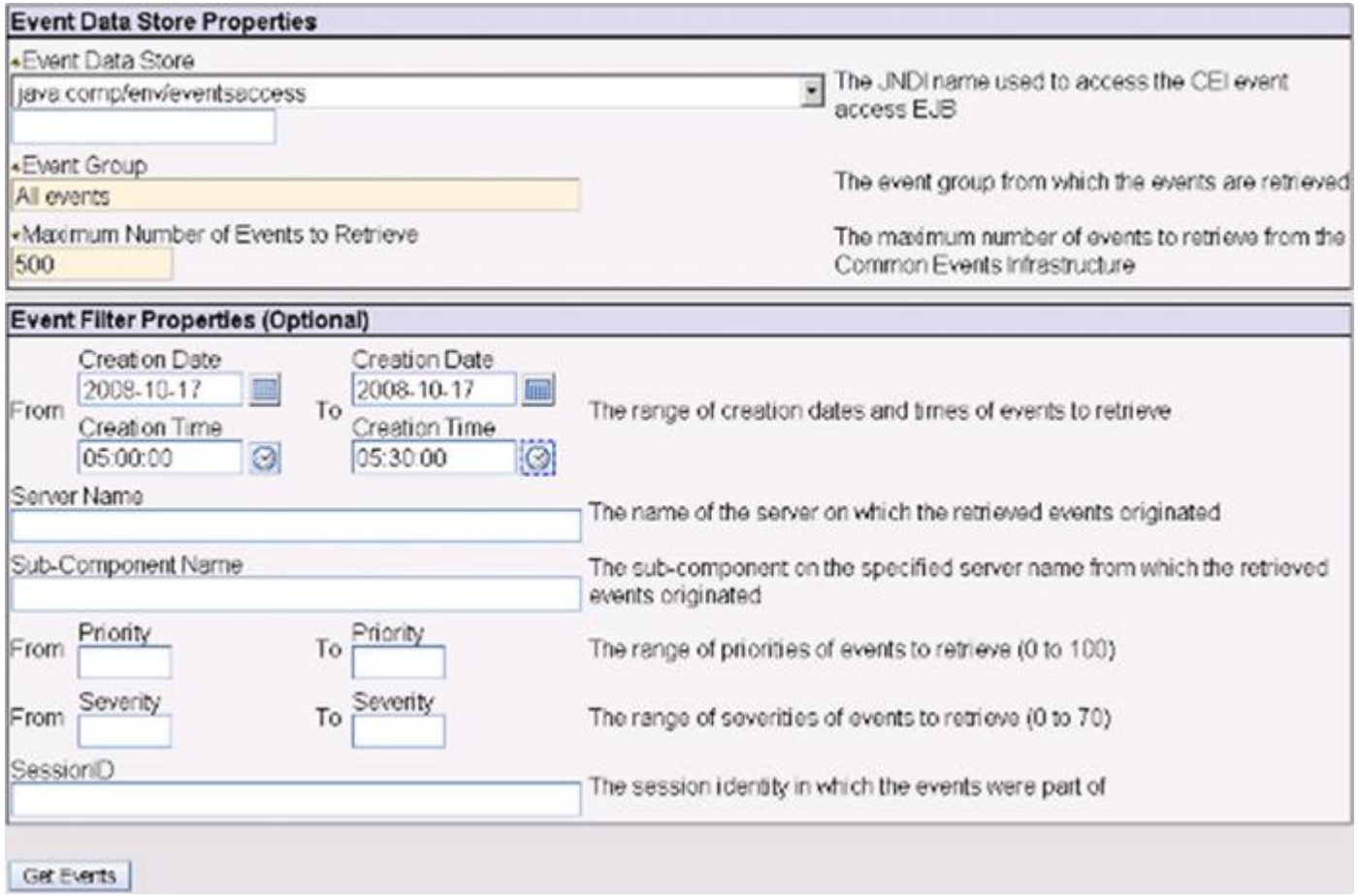
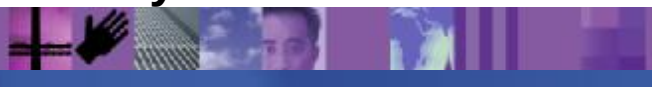
Do events arrive at CEI?

- **Please follow up below steps to verify:**
  - If the CEI/event data store is enabled you can check using the CBE Browser.
  - In the admin console, navigate to Integration Applications -> Common Base Event Browser.



Do the events get to the MM queue when the MM is in a stopped state?

- **In the admin console, stop the monitor model by navigating to Applications -> Monitor Models and click the stop button.**
- **If you are in a non-production ENV, clear all existing events in the queue. If you are in a production environment, note the existing queue depth.**
  - The events are listed in the following location in the administrative console: Service integration -> Buses -> Monitor_bus_name -> Destinations -> destination_name -> Queue points -> listed Identifier -> Current message depth on the runtime tab.
  - Note: Under the listed destinations, there should be listed with your model id and timestamp version for MM version. Select the one that ends in _Q_Destination.
- **Send events or start new process instances to emit events.**
- **Verify the queue depth. The Current message depth is listed on the Runtime tab.**
  - If the queue depth increases, the events are being produced correctly and are ready to be consumed.
  - If the queue depth does not increase, verify your service integration bus link is properly configured, and repeat the previous steps.
- **For the Queue ByPass (Table based) setup, the procedure remains the same, except that the database table "INCOMING_EVENTS" table has to be checked for any increase in number of records.**



Are events never taken off the MM queue when MM is started and nothing shows up in the log for the MM version?

- **Problem:**
  - In the SystemOut.log and/or trace.log you should see the following message (or similar) when the MM application is started:

```
[6/24/08 7:38:24:734 EDT] 00000011 DaemonHandler I
com.ibm.wbimonitor.mm.MyTestModel.20070511083029.runtime.moderator
.DaemonHandler startDaemon() CWMRT3005I: The Monitor Model
"MyTestModel 20070511083029" is starting consumption on this
server or cluster member in SERIAL_MT mode.
```

  If the above is missing, this is a problem.

  - If you see the following message in the server/cluster where the monitor model moderator is deployed, this also indicates a problem.

```
[6/23/08 10:06:49:341 EDT] 0000000a StartUpServic I   STUP0008I:
The Startup Beans service is disabled.
```

- **Reason: The cluster/server might not have been created using the Monitor server template.**
- **Solution: Use the correct server templates to re-create the servers or clusters.**

Resources

- **BPM's IBM Education Assistant**

  http://publib.boulder.ibm.com/infocenter/ieduasst/v1r1m0/topic/com.ibm.iea.bpm/plugin_coverpage.html

- **Monitor troubleshooting:**

  http://www-01.ibm.com/support/search.wss?rs=802&tc=SSSRR3&dc=DB520%20DB560&dtm

- **Information Center:**

  http://pic.dhe.ibm.com/infocenter/dmndhelp/v8r0mx/index.jsp

  http://publib.boulder.ibm.com/infocenter/dmndhelp/v7r5m1/topic/com.ibm.wbpm.mon.doc/home.html

  http://publib.boulder.ibm.com/infocenter/dmndhelp/v7r0mx/topic/com.ibm.btools.help.monitor.doc/home/home.html

- WebSphereChina BPM Forum

  http://www.webspherechina.net/club/forum-40-1.html

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Q & A

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Traditional Chinese

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Swedish

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Brazilian Portuguese

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English

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Danish

Danke
German

Grazie
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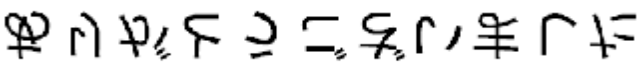
Dankon
Esperanto


Hebrew


Japanese

Dank u
Dutch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go raibh maith agat
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Tamil

Dekujeme Vam
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