WebSphere® Business Monitor V6.1

Deployment of monitor models

This presentation introduces deployment of monitor models in WebSphere® Business Monitor Version 6.1.

Goals

- Introduce changes to deployment of monitor models

This presentation should introduce you to the changes in WebSphere Business Monitor Version 6.1 for deployment of monitor models.

Agenda

- Deploying a model

- Un-deploying a model

- Security

- Troubleshooting

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You will see how to deploy and un-deploy monitor models, review how to setup security for your monitor models and you will review various logs to use when you encounter problems.

Development server deployment

- Install using "Add and Remove Projects…" dialog
  - Run create schema scripts automatically
  - Create Alphablox® cubes if local Alphablox installation
  - Configure CEI distribution mode to "active" for local server
  - DMS can be enabled using administrative console (not supported on Derby)
  - Single version per model
- Install EAR using administrative console, same as above except…
  - Install Wizard option to automatically enable data movement services (DMS) during install (not supported on Derby)
  - Install Wizard option to specify Alphablox server location (local or remote)
  - Install Wizard option to specify CEI server location (local or remote) and CEI distribution mode

When you are deploying a monitor model using the toolkit, you can install using 'Add and Remove Projects' off the server menu. Or you can export the EAR for the Monitor application J2EE project then install it from the administrative console. In the first case, the schema is created automatically along with the cubes. DMS can be enabled using the administrative console but not if you are using Derby such as in a toolkit environment. Note that you can only have one version per model.

In the second case, where you are installing using the console, you get additional options to enable DMS, setup Alphablox and set the CEI server configuration.

Creating the monitor model J2EE projects

This slide shows you how you generate the monitor model J2EE projects. On the right you see the three Java™ projects in the project explorer, one for the monitor model application, one for the model logic and one for the event moderator. At this point, you can export the Application to an EAR, or you can add the project to the server if the monitor server is defined in the server view.

Development server un-deployment

- Uninstall using "Add and Remove Projects…" dialog, or uninstall EAR using the administrative console

- These functions are performed automatically:
  - CEI distribution mode configuration ("inactive")
  - Remove Alphablox cubes
  - Disable dashboards
  - Run drop schema scripts automatically (no data preserved)

This slide shows the process for un-deployment on a development server. You can either remove the project in Rational Application Developer or WebSphere Integration Developer using the 'Add and Remove Projects" option. Or you can also uninstall the EAR using the administrative console. The cubes are removed automatically and the schema is removed as well. Note that no monitor data is preserved.

Test environment iteration

- Install using "Add and Remove Projects…" dialog from the server menu

- Test
  - ▶ Test client – model menu
  - ▶ Common base event browser – server menu
  - ▶ Web dashboard – server menu

- Make changes using monitor model editor (MME)

- Publish – server menu
  - ▶ Auto publish can be selected on the monitor preferences, and this overrides the server settings for auto publish

Add and Remove Projects…

Launch Integrated Test Client
Generate Monitor J2EE Projects

Common Base Event Browser
WebSphere Business Monitor Dashboard

Common Base Event Browser
WebSphere Business Monitor Dashboard

Publish

☐ Force code generation when validation errors exist
☑ Prepare for deployment
☑ Automatically republish project to Server

In this version it is very easy to iterate in the test environment. For the initial deployment, you can quickly deploy to the server, then use the Monitor test client, common base event browser and Web dashboard to help test the application. All of this is done in the Rational Application Developer or WebSphere Integration Developer environment. When you are ready to make changes, then you can open the monitor model editor in Rational Application Developer or WebSphere Integration Developer to make updates to the monitor model. Then, you can easily republish to the server and retest.

Production server deployment

- Install EAR using administrative console "Install New Application" link
- New install wizard page customized for Monitor model only
- Option to run create schema scripts (default is yes)
- Option to run enable DMS scripts (default is no)
- Option to run drop schema scripts during uninstall (default is no)
- Option to migrate user-defined KPIs (default is yes)
- Option to edit Alphablox server configuration
- Option to create Alphablox cubes (default is yes)
- Option to edit CEI server configuration
- Option to specify CEI distribution mode (default is "active")
- Support for versions - previous version CEI distribution mode set to "active (no new MC instances)"

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For a production server deployment, you have much more control over how you deploy the monitor model. In the administrative console, you install the application and there are some new pages which are specific for monitor model applications. You have the option to run the schema scripts, run the DMS scripts, to setup cubes and to setup CEI configuration information. If this is a new version of an existing model, then you can migrate user-defined KPIs from the previous version. If this is a new version of an existing model then the older versions are set with distribution mode "active (no new MC instances)".

Production server deployment
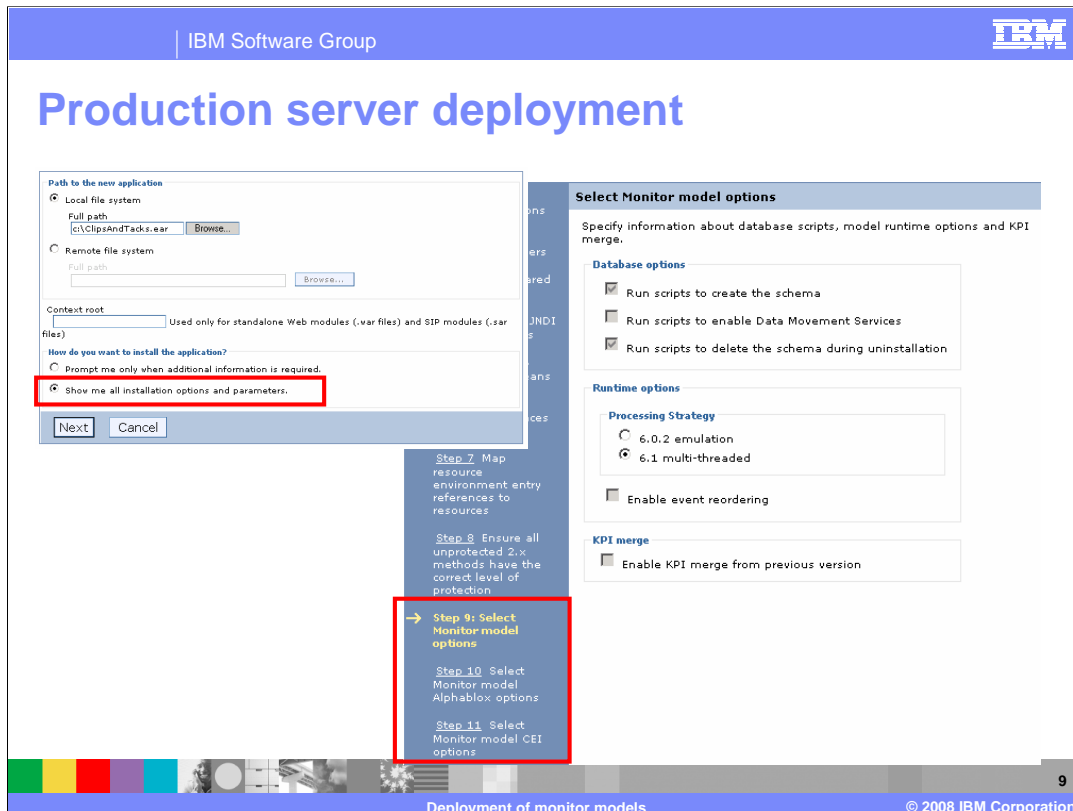
When you are installing a monitor application using the administrative console, you are given the option to show additional installation options, so you should choose this to gain additional control over the deployment. On the right, you see three steps that are specific to monitor models, step 9 for monitor model options, step 10 for Alphablox options and step 11 for CEI options.

In this example step 9 is selected, and you can see the model options page. For database options, if you choose not to run the schema scripts during install, you can run them later on the manage schema page. If you are not running Derby, then the second option is used to run the DMS scripts, and you can always run them after the installation as well. If you don't select to delete the schema during uninstall, you can later do it on the manage schema page.

For runtime options, you can choose a processing strategy. You can choose 6.0.2 emulation or 6.1 multi-threaded.

The 6.0.2 emulation is also known as serial consumption single-threaded processing. This mode is designed to emulate the 6.0.2 style of message consumption and processing. As such, it does not support event reordering, and it does not support the failed event queue. In this mode, an unprocessable event causes all event processing for this monitor model version to stop until the event can be successfully processed.

6.1 multi-threaded processing consumes events in a single thread but partitions them according to a root instance correlation predicate, and processes multiple event streams in parallel. This mode supports event reordering and supports the failed event queue. In this mode, an unprocessable event causes only related events to stop processing and be sent to the failed event queue. If the sequence ID expression is not guaranteed unique, the order of events with the same sequence ID will be the order in which they were received. This mode is available only if the model has a root instance correlation predicate for every inbound event definition.

You can also check to enable event reordering. This option is not available for 6.0.2 emulation. Event reordering can be disabled based on your monitor model, but to ensure that it is enabled, make sure all inbound events have a correlation expression that references the key of the top-most monitoring context. Also, make sure that you defined

Production server un-deployment

- Uninstall using administrative console "Uninstall" button on "Enterprise Applications" page
  - ▶ Drop scripts are not run automatically so monitored data is preserved
- Version remains in repository and on Monitor models page in administrative console marked as uninstalled
- Version specific WebSphere Application Server resources deleted (work managers, JMS queues)
- Options that are not dependent upon Monitor EAR remain available
  - ▶ Create/remove Alphablox cubes
  - ▶ Run schema drop scripts
- Purge can be run after all versions of a model are uninstalled in order to remove the entries from the Monitor models page.

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To uninstall a monitor model from a production server, you can start it in the administrative console on the applications page. Note that the drop scripts are not automatically run so your monitored data can be preserved for use in dashboards or other reporting. Also, the version remains in the repository so you will see it on the monitor models page of the console, but it is marked as uninstalled. You must uninstall all versions of a model before you can do a purge which will then remove the model from the repository. Even after you uninstall a model version, you can still use options that are not dependent on the monitor EAR, such as maintaining the Alphablox cubes or the schema.

Security

- Use user/group management in WebSphere Application Server 6.1 (federated repositories/VMM)
  - ▸ Monitor does not manage users or user groups
  - ▸ No default rights, so the monitor administrator must explicitly grant permission to newly deployed models.

- WebSphere Application Server 6.1 authentication
  - ▸ Using virtual member manager in WebSphere Application Server 6.1 you can configure file system, LDAP, and custom registries

- Portal 6.0.1 authentication
  - ▸ Lightweight directory access protocol (LDAP) user registry
  - ▸ Local OS registry

For version 6.1 you will use functions in WebSphere Application Server to manage your users and user groups. When you deploy a model, there are no default rights, so you need to set them up after the deployment.

New in WebSphere Application Server 6.1 is the virtual member manager which provides the ability to map entries from multiple individual user repositories into a single virtual repository. For Monitor server you can setup authentication using any registry available to the virtual member manager in WebSphere Application Server, so you can configure file system registries, LDAP registries or custom registries.

For the dashboard server running on Portal, you can setup authentication based on Portal 6.0.1 which allows for LDAP registries or local OS registries.

Security

- Security can be disabled from the console.
  - No "Global Security" in 6.1 (Split into administrative security and application security)
    - Both of these must be enabled to force an authentication flow.
- REST URI access
  - All URIs are denied unless explicitly granted
  - J2EE role-based authorization in inadequate for representational state transfer (REST) services authorization. To this end a resource authorization table has been established to control access to data provided using REST.

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Security is set differently in WebSphere Application Server 6.1. Now instead of global security, you set administrative security and application security. Both must be enabled to force Monitor to fully secure your data.

Monitor server and the dashboards use the REST URI's to access the monitor metadata and monitored data. A table controls this access and a user interface is provided in the administrative console that gives a monitor administrator the ability to assign permissions to specific resources and to groups.

This shows the security option in the administrative console. Here you can create a new resource group, and then for each resource group you can add one or more models to it. Then you can also specify which users or group are in each role for this particular resource.

Security roles

Role name	URI	Allowed HTTP action
KPI-Administrator	/models/*/kpis/*	GET, PUT, POST, DELETE
KPI-Administrator	/models/*/version/*/kpis/*	GET, PUT, POST, DELETE
KPI-Administrator	/models/*	GET
Personal-KPI-Administrator	/models/*/kpis/*	GET, PUT, POST, DELETE
Personal-KPI-Administrator	/models/*	GET
Public-KPI-Administrator	/models/*/kpis/*	GET, PUT, POST, DELETE
Public-KPI-Administrator	/models/*	GET
Business-Manager	/models/*	GET
SuperUser	All URIs without restrictions	GET, PUT, POST, DELETE

This slide shows the different security roles which are pre-defined for Monitor along with the URI's that each can access and the type of actions to performed against those actions. There are KPI roles in various flavors, there is a business manager role which basically provides read capability, and a super user role which can do everything.

Monitor model failed events

You can use the WebSphere Application Server administrative console to manually manage failed event sequences and view unrecoverable events.

If an event cannot be processed, the model stops processing all subsequent messages for the instance in which the fault occurred. Other instances of the model can continue to process incoming events. Manual intervention is therefore only required to restart processing of a particular instance. For failed events you can use the console to view, export, import, replace, delete, re-sequence and resubmit them.

If a model could not parse an incoming event for example due to malformed XML, then it goes to the unrecoverable events queue. Unrecoverable events can be inspected in an attempt to establish the cause of a failure, but they cannot be resubmitted. So you can use the console to view, export and delete them.

Service integration bus configuration

- Configuration of a simple stand-alone monitor server with a local CEI server is provided

- Monitor installed in an network deployment cluster environment
  - ‣ <serverPath>/scripts.wbm/sib/monitorSIBConfig.py
  - ‣ Python script provided to configure systems integration bus

- Monitor receiving events from a CEI server in a different cell
  - ‣ A command line Java utility is provided to configure the remote bus and foreign bus link between the server cells
  - ‣ <serverPath>/scripts.wbm/crossCell/mon<61to61 or 61to602>CrossCell.zip – extract jars into remote cell's lib folder (6.0.2) or plug-in folder (6.1)
  - ‣ configRemoteMonitorBus.bat (or .sh for UNIX®)

When installing a Monitor model application, the WebSphere Business Monitor server creates the JMS queue required by that monitor model application and then configures a CEI event service to distribute interested events to those JMS queues. For a stand-alone monitor server, the CEI server is automatically configured when the monitor model is deployed.

For a network deployment environment, there is a Python script provided which configures the systems integration bus for you.

If Monitor server is located in one cell and the events are being produced in another cell, then you will need to configure a remote bus and foreign bus link between the cells. There is a script to assist you in setting this up. You will need to extract jar files into the remote cell, and there are two versions, one for version 6.1 and another for version 6.0.2.

Troubleshooting

- Check the Monitor server logs
  - ‣ <serverPath>\profiles\WBMon01\logs
- Check the Portal server logs
- Check the Monitor install logs
  - ‣ <serverPath>\logs\wbm
- Check the Alphablox logs
  - ‣ <profile>\Alphablox_server1\install.log
  - ‣ <profile>\Alphablox_server1\repository\servers\AlphabloxAnalytics\logs
- Check the DMS history table – DMS_HISTORY_T
- Check the events
  - ‣ Make sure you have turned on CEI logging on the Runtime Server
  - ‣ Common Base Event Browser – now installed by Monitor Toolkit installer on embedded WebSphere Application Server
  - ‣ For WebSphere Application Server, use the 'eventquery' script in <serverPath>\profiles\WBMon01\bin

This slide shows some areas to check when you are troubleshooting. There are logs for the Monitor server, logs for the dashboard server on Portal, and Monitor installation logs. To see a history of data movement services, you can check the DMS history table.

You can also verify that your events are processed properly using the common base event browser which is now provided by the Monitor toolkit. You can also use the event query script to browse persisted events.

Troubleshooting

- Check Valid From date in WebSphere Integration Developer process
- Check tables in MONITOR tables to see if it is getting any data
  - MCT_[model_id]_[version]
- Check tables in DATAMART tables to see if DMS is running
  - [model_id].TGT_[mc_id]_[versionString]
- Check alerts in database
  - DASHBOARD_ALERT_T, ACT_MGR_ALERTS_T
- Need a scalable vector graphics (SVG) viewer for dashboard diagram view
  - Tested with Adobe SVG Viewer 3.03
- Browser
  - Internet Explorer® 6.0 SP2 or later, Firefox 2.0 or later, Mozilla 1.7.8 or later

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You should check the valid from date on the BPEL process if you are having trouble getting the process to run.

To check the Monitor database for data, you can look at the monitoring context table. Note, if DMS is enabled, then completed instances are deleted here and moved to the Datamart tables, so if they don't show up here, check in the Datamart tables.

For Dashboards, you will need an SVG viewer. You can download an SVG viewer from www.adobe.com. Search for 'svg viewer' and download the latest one.

Summary

- Covered deploying models and troubleshooting

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In summary, you have reviewed many different aspects of deploying monitor models using Monitor version 6.1.

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