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WebSphere Business Monitor

Process monitoring

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This presentation will give you an understanding of monitoring BPEL processes using WebSphere Business Monitor.

Goals

- Introduce process monitoring support in WebSphere Business Monitor including modeling support in WebSphere Business Modeler

Process monitoring

This presentation will give you an understanding of the use of WebSphere Business Monitor to monitor BPEL processes in WebSphere Process Server. This also includes the use of WebSphere Business Modeler to construct your business measures models.
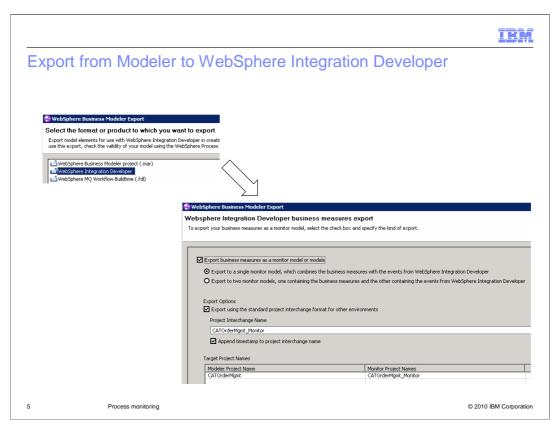
Agenda

- Business measures modeling in WebSphere Business Modeler
- Auto-generating a model in WebSphere Integration Developer
- Event enablement and usage
- Updating a monitor model from the application
- Combining and merging models
- Global process monitor model
- Process instance migration
- Enabling events for human tasks

Process monitoring

This is the agenda for this presentation. You will learn how to create and export a business measures model in WebSphere Business Modeler. You will review the use of the model generation wizard in WebSphere Integration Developer. Event usage is an important topic and you will see how events work with monitoring contexts. There are functions that help you manage updates to your monitor models, including combining or merging them. Another option that can help with process monitoring is the global process monitor model. You will see how process instance migration impacts monitor models on the monitor server. Finally you will review options for monitoring human tasks.

Business measure tab in Modeler

- Specify measures to return values

- Specify measures to view in the dashboards

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In WebSphere Business Modeler you can manage business measures in the business measures tab. In this tab there are two sub-tabs, one for monitor values and one for business performance indicators. On the 'Monitored values' tab which you can see in the upper screen capture, you can select from several built-in monitored values. For activities defined in the process, you can select processing time, processing cost, startup cost and revenue. For decisions in the process, you can select percentage per branch. For processing time and percentage per branch, the monitor values are configured for you in the business measures model, and no further action is required. For the other values, the integration developer will need to complete the implementation of the monitor model, specifying how to extract or calculate these values. For any of the monitored values, you are able to use the monitor export values widget to export actual monitored values back into the model in Modeler to get accurate data for improving your simulation runs.

On the 'Business performance indicators' tab, you can create the business measures that you want to monitor from the process. You can create Key Performance Indicators, instance metrics, and aggregate metrics. After the business measures model has been exported from Modeler and deployed on the monitor server, you are able to view the business measures in the Monitor dashboard. Note also that the values that you select on the monitor values tab automatically show up as business measures on the business performance indicators tab.

Export from Modeler to WebSphere Integration Developer

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After you complete the process model and business measures model in Modeler, you can export them to WebSphere Integration Developer so that you can complete the implementation of the models. To export them, right click a project in Modeler, select export, and then pick 'WebSphere Integration Developer' as the target. There is a page to name the process model project interchange file, and there is another page to control and name the business measures project interchange file. In the lower screen capture you see the business measures page of the export wizard. Here you choose to export a single monitor model or two models. See the next slide for more information about this.

Single model or two models

- Two options on export – single model or two models
- Single model
  - Advantage - One model to maintain and deploy
  - Disadvantage – Key performance indicator (KPI) changes and BPEL changes always impact the model
- Two models – one for process events (low level), one for KPI's (high level)
  - Advantage
    - Changes to the process model might not impact the KPI model
    - Changes to the KPI model might not impact the process model
  - Disadvantage – Additional events and complexity required to pass data
- Same two options if auto-generating process model in WebSphere Integration Developer and maintaining KPI model in Modeler

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When you export from Modeler, you can select to export to a single monitor model or two monitor models. For the single model approach, you have the advantage of a single model to maintain and deploy to the monitor server. But, you might make changes later to the key performance indicators or the process, and in either case you will need to update the monitor model. For the dual model approach, you have a high level model which contains the key performance indicators and aggregate measures. You also have a low level model which has the inbound BPEL events for communicating with the process. The low level model communicates with the high level model using a communications event which sends the metric values received from the process events. In this case you have the disadvantage of additional complexity which affects the maintenance of the models, and you have the additional event transmission for the communications event. The advantage of the dual model approach is that changes can be isolated to the appropriate model. So a change to the KPI can only affect the KPI model, whereas a change in the process can only affect the process monitor model.

You might be generating your monitor models using the model generation wizard in WebSphere Integration Developer. In this case you have a KPI model maintained in Modeler and then you have a monitor model for the process in WebSphere Integration Developer. So you also have the same two options. You can merge the two models using the combine or merge tools, or you can keep the models separate and create the communications event to keep the KPI model updated from the process model.

Auto-generating a model from module

- Model generator creates a base model and event definitions for you – add your own KPI's
- Supports BPEL processes, human task components, SCA components, mediation flows, state machines, business object maps, business rules, selectors
- In most cases:
  – auto-creation of monitoring context
  – configuration of event filters and correlation
  – event definitions for standard and customized events
- In some cases (BPEL, human task, business rule, state machine):
  – Definition of monitoring context terminating trigger
- The creation of these constructs also depends on the monitoring templates that you select
  – For more information:
  http://publib.boulder.ibm.com/infocenter/dmndhelp/v7r0mx/topic/com.ibm.wbimonitor.help.toolkit.doc/mme/commonmonitoringtemplates.html
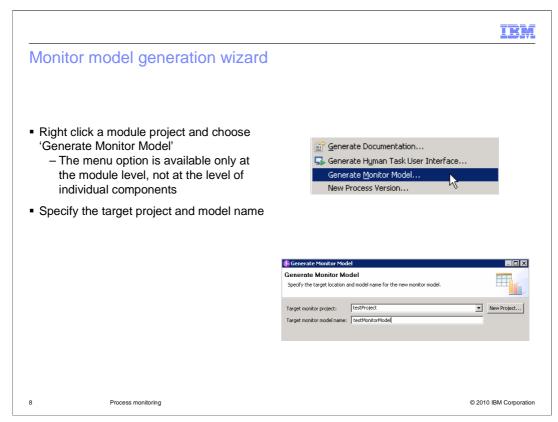
If you are not using WebSphere Business Modeler to maintain your models, then you can use the model generation wizard in WebSphere Integration Developer to create your monitor models.
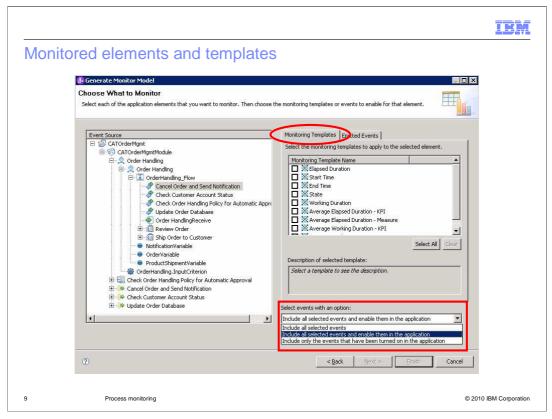
The BPEL monitor model generator automatically creates a basic monitoring model that is capable of monitoring a particular BPEL process at an instance level. This means that you will have a single monitoring context instance for each process instance that is created at runtime. It can be difficult for you to create the model yourself because the filtering and correlation is based on system-defined information in the event definitions, and not business payload information. After creating the base model, you can then create key performance indicators to track the specific monitored values for your business.

You can create monitor models for many different types of components including BPEL, human tasks, SCA, mediation, state machines, maps, business rules and selectors.

In most cases the generator creates event definitions and a base model that contains monitoring context creation events, event definitions with filtering and correlation information. In some cases the trigger is created for terminating the monitoring contexts, but in other cases it is not automatically created for you. Also, you can select from predefined monitoring templates, and these also determine the constructs that are automatically created for you. After generating the monitor model, you should review the model to verify that each monitoring context has creation and termination constructs. You might need to add any missing elements based on your particular business needs.

Monitor model generation wizard

- Right click a module project and choose 'Generate Monitor Model'
  - The menu option is available only at the module level, not at the level of individual components
- Specify the target project and model name

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To invoke the model generation wizard in WebSphere Integration Developer, right click a module project and select the option 'Generate Monitor Model'. In the wizard you are prompted to enter the target monitor model project and monitor model name.
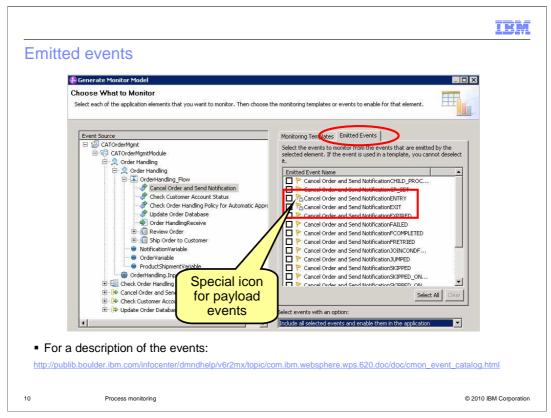
Monitored elements and templates

Next you are presented with a tree-based visualization of the application to be monitored, along with event and template information for each application element as it is selected. For any selected object in the diagram, the available templates and set of emitted events are displayed.

The monitoring templates tab shows all the monitoring templates that are applicable for the selected element. Choosing a template will create the appropriate monitoring constructs in the generated model. Elapsed duration measures the difference between any 'end' event for an event source and the 'start' event; including the time consumed during pause and suspend operations. Working duration measures the difference between any 'end' event for an event source and the 'start' event, not including time consumed during pause and suspend operations. State tracks the 'state' of an event source, such as started, stopped and failed. Start time captures the time at which the 'start' event arrived for the event source. End time captures the time at which the 'end' event arrived for the event source. Assigned user captures the user ID assigned to the human task event source. There are also measures and KPIs which are available for elapsed duration and working duration.

In the lower right corner of the dialog, you can select the event options. The first option implies that any events that you select on the emitted events tab are included in the generated model. The second option implies that the events are included and they are also enabled in the process application. You should normally select option two to ensure that the process will emit the required events. For option three, it is assumed that you have enabled the required events using the event monitor tab in the BPEL editor, so now you only want to show these events in the wizard.

Emitted events

Choose What to Monitor

Select each of the application elements that you want to monitor. Then choose the monitoring templates or events to enable for that element.

Special icon for payload events

- For a description of the events:

http://publib.boulder.ibm.com/infocenter/dmndhelp/v6r2mx/topic/com.ibm.websphere.wps.620.doc/doc/cmon_event_catalog.html

On the emitted events tab, you see all the events that the selected element is capable of emitting. These can be selected individually. Events that are required for the implementation of one or more selected templates cannot be deselected. The events that are displayed here are also dictated by the event option selection in the lower right corner. Choosing an event that is not currently being emitted by the application will result in a validation error in the problems view of the monitor model.

If you are interested in using business payload to create KPI's in the monitor model, then pay attention to the events that carry business payload. These events are marked with a special icon which has a briefcase attached to it. In the screen capture you see that the ENTRY and EXIT events for the invoke have these special icons which means they carry the business payload.
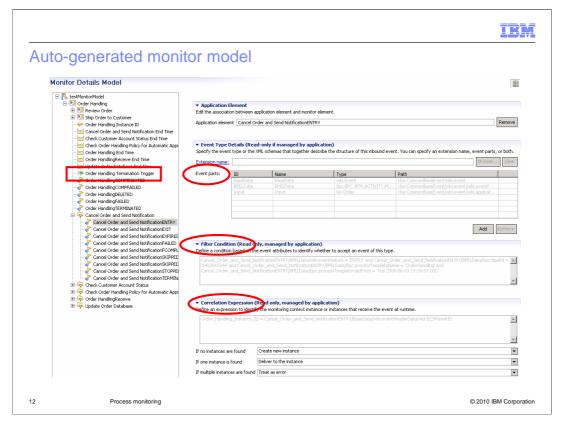
Event grouping

The filtered module tree shows only those elements that have templates or events selected for monitoring based on the previous page. The second column provides you with the ability to customize the monitoring representation of each selected element by choosing an option from the selection list. Selecting **None** indicates that the element is to have no representation in the generated monitor model. Selecting **Monitoring context** means that a monitoring context is created to represent the element. Selecting **Event group** means that an event group is created for the element.

By default, the process and any human tasks in the process will have associated monitoring contexts. The invoke type constructs in the process will have an event group folder for the inbound events.

If you want to simplify the model, you can flatten the model by changing a monitoring context to an event group. In this example the process is creating a parent monitoring context, and the human task is creating a child monitoring context. The child context creates additional correlation in the model. But if you know that the invoke is in a synchronous flow that does not require tracking multiple task instances, then you can choose to create an event group instead.

Events that are contained within the selected element are shown in the emitted events list.

Auto-generated monitor model

This screen capture shows the results of creating the auto-generated monitor model. You see the monitor model 'testMonitorModel' in the navigator along with a parent monitoring context for the process 'Order Handling'. There are two child monitoring contexts for the human tasks 'Review Order' and 'Ship Order to Customer'. Then you see the key, metrics, triggers and inbound events for the parent context. Note that there is a termination trigger which is responsible for ending the monitoring context based on process exit events. Then there are folders for the event groups for each 'invoke' construct in the process. In this example one event group has been expanded and the ENTRY event has been selected. In the detail page on the right you see the event parts listed, including the third one which is the payload which is of type Order.

For the inbound event, the filter condition has been set to access only certain events. The events are filtered by event nature, BPEL identifier, process template name and valid from date. Also, the correlation expression has been created so that the process instance ID is used to correlate events to monitored instances.

Note also that this event will cause a new monitored instance to be created if one does not already exist for this process instance ID. This is determined by the setting 'If no instances are found' which has a value 'Create new instance'.

You should verify that the other monitoring contexts in the model have creation events and termination triggers. Also, now that the monitor model has been created, you can add KPI's, aggregate measures and other instance metrics to the model based on your business needs.
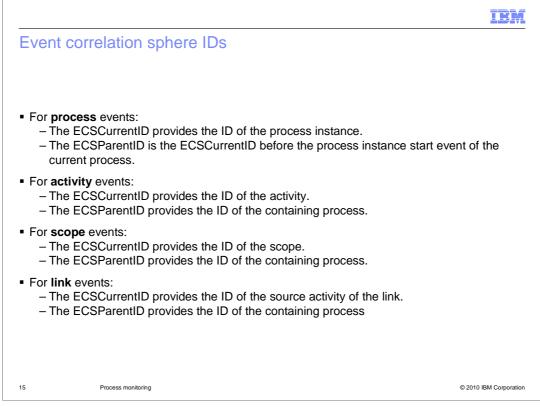
Events that have payload

- BPEL events
  - Process – EV_RECEIVED, MIGRATION_TRIGGERED, MIGRATED
  - Invoke – ENTRY, EXIT
  - Task (inline) – CREATED, EXIT, OUTPUTSET, FAULTSET
  - Receive, reply, pick - EXIT
  - Variable - CHANGED

- Task events (component) - ENTRY, INPUTSET, OUTPUTSET, FAULTSET

- SCA events – ENTRY, EXIT, FAILURE

- Business rule, selector - ENTRY, EXIT, SelectionKeyExtracted

- Mediation flow events – CUSTOM

- State machine - none

- For a comprehensive list, check the information center topic

http://publib.boulder.ibm.com/infocenter/dmndhelp/v7r0mx/topic/com.ibm.wbimonitor.help.toolkit.doc/mme/generatedmodels.html

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Some BPEL event definitions have payload and some do not. This slide shows you the event types that include payload. If you are designing your monitor model and you need to extract business data for calculating your KPIs, then you can enable and use these event types.
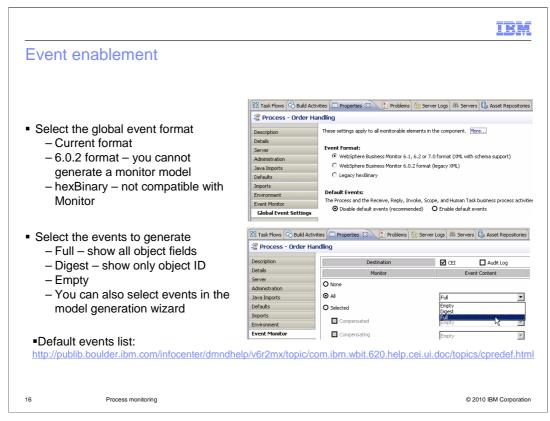
Creation and termination events

- Various events cause monitoring context creation and termination
- ENTRY, CREATED, RESTARTED events cause context creation
- EXIT, EXPIRED, FAILED, STOPPED, TERMINATED, COMPENSATED, DELETED events cause context termination
- Since processes can be restarted, a best practice is to only use the process DELETED event to terminate a monitoring context
- Activities in a process that have their own monitoring contexts can subscribe to the process-level DELETED event and use that to terminate them
- After generating the monitor model, ensure that the creation and termination of your monitoring contexts are being handled properly

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It is important that you understand which events create and terminate monitoring contexts. If you do not select the proper event types to be emitted from your business process, then when you auto-generate the monitor model from the BPEL, you can end up missing some required event types. These event types are necessary to automatically manage the monitoring contexts in the monitor model. For example, the ENTRY nature is generally used to create monitoring contexts, and the EXIT nature is generally used to terminate the monitoring contexts. But processes can be restarted and human tasks can be retried and events can arrive late, so the best indicator for terminating a monitoring context is the DELETED event. You can choose to use event groups or monitoring contexts for activities in a process. If you use monitoring contexts, then you can use the same process DELETED event to trigger the termination of the activity monitoring contexts.

After generating your monitor model, the creation events and termination triggers should be verified for each monitoring context in your model. Some might not be generated depending on the types of components that you are monitoring or the types of monitoring templates that you selected in the generation wizard. If any have not been generated then you might need to create the constructs manually using the monitor model editor.

Event correlation sphere IDs

- For **process** events:
  - The ECSCurrentID provides the ID of the process instance.
  - The ECSParentID is the ECSCurrentID before the process instance start event of the current process.

- For **activity** events:
  - The ECSCurrentID provides the ID of the activity.
  - The ECSParentID provides the ID of the containing process.

- For **scope** events:
  - The ECSCurrentID provides the ID of the scope.
  - The ECSParentID provides the ID of the containing process.

- For **link** events:
  - The ECSCurrentID provides the ID of the source activity of the link.
  - The ECSParentID provides the ID of the containing process

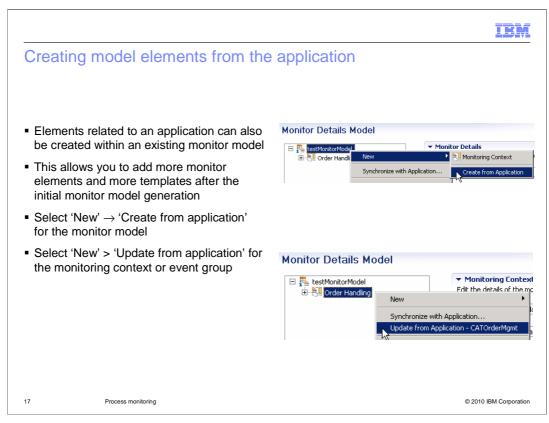15   Process monitoring   © 2010 IBM Corporation

The context data in the common base event is used for correlation of events to monitoring context instances. Generally, the ECScurrentID is the identifier of a specific activity in the process, and the ECSParentID is the identifier of the parent process which contains the activity. These IDs are used for correlation when you auto-generate the monitor model, and you might need them yourself when specifying correlation for events that you use in the model.
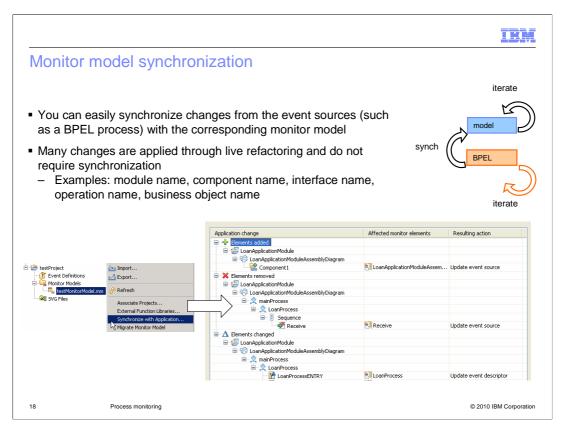
Event enablement

- Select the global event format
  - Current format
  - 6.0.2 format – you cannot generate a monitor model
  - hexBinary – not compatible with Monitor

- Select the events to generate
  - Full – show all object fields
  - Digest – show only object ID
  - Empty
  - You can also select events in the model generation wizard

- Default events list:
  http://publib.boulder.ibm.com/infocenter/dmndhelp/v6r2mx/topic/com.ibm.wbit.620.help.cei.ui.doc/topics/cpredef.html

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When you are ready to generate a monitor model for a process in WebSphere Integration Developer, you will need to set the global event format. For the process properties, click the Global Event Settings tab. Generally you will select the first option for the event format. The 6.0.2 format option might be useful if you want to create a process which generates events in the 6.0.2 style. For monitoring 6.0.2 style events, you will need to use an existing monitor model from version 6.0.2 and import it to into the monitor model editor. The hexBinary option is not compatible with WebSphere Business Monitor.

You can select to enable default events which means you will not have to enable events one at a time in the properties tabs for each component. But this can be a performance issue when enabling events that you might not need, so it is not the recommended practice. Check the information center at the supplied URL to see which events are included as default events.
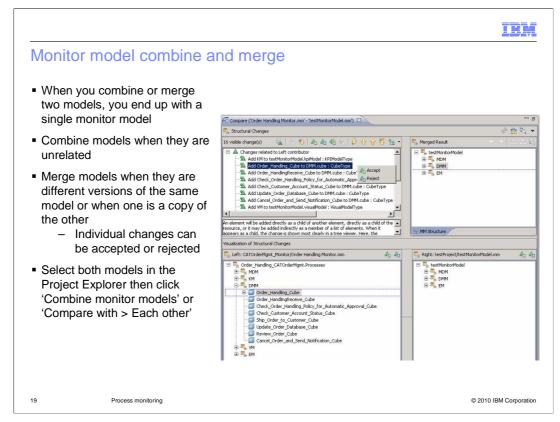
Use the event monitor tab in the properties for the components that you want to enable for monitoring. You can select all events or specific events, and for each you can select full, digest or empty for the payload. The digest option shows only the identifier of the payload object, and it does not include all the fields in the object. There is another option for enabling the events in the application, and it can be easier than setting the event monitor settings for each component. In the monitor model generator you can select the events that you want to monitor and the wizard will enable them in the application.

Creating model elements from the application

- Elements related to an application can also be created within an existing monitor model

- This allows you to add more monitor elements and more templates after the initial monitor model generation

- Select 'New' → 'Create from application' for the monitor model

- Select 'New' > 'Update from application' for the monitoring context or event group

Just as the monitor model generation wizard produces a model whose elements are linked to parts of the application, elements related to an application can also be created within an existing monitor model. This provides flexibility for you to add monitoring support for additional parts of an application after the initial monitor model generation. You can select the 'Create from application' option for the monitor model to create new elements from the application. You can also select the 'Update from application' option for a monitoring context or event group to update it from the application.

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Monitor model synchronization

iterate

- You can easily synchronize changes from the event sources (such as a BPEL process) with the corresponding monitor model

model

synch

- Many changes are applied through live refactoring and do not require synchronization
  - Examples: module name, component name, interface name, operation name, business object name

BPEL

iterate

Application change	Affected monitor elements	Resulting action
Elements added		
LoanApplicationModule		
LoanApplicationModuleAssemblyDiagram		
Component1	LoanApplicationModuleAssem…	Update event source
Elements removed		
LoanApplicationModule		
LoanApplicationModuleAssemblyDiagram		
mainProcess		
LoanProcess		
Sequence		
Receive	Receive	Update event source
Elements changed		
LoanApplicationModule		
LoanApplicationModuleAssemblyDiagram		
mainProcess		
LoanProcess		
LoanProcessENTRY	LoanProcess	Update event descriptor

testProject
  Event Definitions
  Monitor Models
    testMonitorModel.mm
  SVG Files

Import…
Export…
Refresh
Associate Projects…
External Function Libraries…
Synchronize with Application…
Migrate Monitor Model

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The synchronization option is available so that you can easily synchronize changes from the event sources, such as a BPEL process, with the corresponding monitor model. This is useful because a developer can make changes to the process module after the monitor model has already been created. Some changes will not require synchronization because they are applied through live refactoring. A message in the problems view indicates if synchronization should be performed.

Monitor model combine and merge

- When you combine or merge two models, you end up with a single monitor model

- Combine models when they are unrelated

- Merge models when they are different versions of the same model or when one is a copy of the other
  - Individual changes can be accepted or rejected

- Select both models in the Project Explorer then click 'Combine monitor models' or 'Compare with > Each other'

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There are functions in the editor to combine two models or merge two models. In both cases the result is a single monitor model. The combine is useful if the two monitor models are unrelated, for example, you have generated two models from applications and you want a single monitor model to monitor both applications. The merge function is most useful if the two monitor models are very similar and you want to create a single model with the differences. The merge makes it easy to review individual differences in the models and then choose to individually accept them or reject them. To use these functions, select both monitor models in the project explorer and then select the appropriate option in the pop-up menu.

Global process monitor model

- Monitor any process without code generation or deployment steps
- Processes can be monitored at any level of detail by enabling or disabling event emissions
- Processes are discovered dynamically as they run and emit events
- You can install manually or at profile creation
  - C:\<ServerPath>\installableApps.wbm\monitorModels\GlobalProcessMonitor.ear
  - Automatically installed with test environment
- Dashboards are provided for viewing instance, dimensions and KPI data
- See information center topic 'Configuring the global process monitor model', which also gives some suggestions for identifying the events to enable

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The global process monitor model enables you to monitor any BPEL process without monitor model generation or deployment steps. Processes are detected dynamically and tracked based on the events they emit. The collected data can be viewed in Business Space using the Instances widget, the Dimensions widget, and the KPI widget. If you choose not to install the global process monitor model when you created a profile, you can install and configure the global process model at a later time from the administrative console. Note that the global process monitor model is automatically installed in the WebSphere test environment.

To control how much data is monitored, you can enable the appropriate events in the process applications that you want to monitor. For some suggestions on what events to enable, check the information center for more details.

Global process monitor model - Widgets

This slide has some samples showing process instance data in the dashboard for the global process monitor model. You can use the supplied dashboards or configure your own dashboards manually. In the upper screen capture you see the instances widget which has been configured to show the process definitions with statistics for each process. You see statistics such as valid from dates, number started, number in progress, number finished and various duration statistics. In the lower screen capture you see the dimensions view which graphically depicts the process definitions and the statistics for the process instances. This is just one dimensions configuration, and there are many more that you can configure for displaying other types of process data.

Process instance migration

- You can move a running BPEL process instance from one version to another

- Events for both versions have different monitor model event filtering criteria

- Migration sequence (version 1 is the older version and version 2 is the newer version)
  – Update process version 1 to emit 'Migration triggered' event with full payload
  – Update process version 2 to emit Migrated event with full payload
  – Process version 2 and monitor model version 2 are installed
  – Process instance migration is initiated in the BPC explorer or using scripts
  – For each instance, two transfer events are generated containing correlation information for version 1 and version 2
  – Monitoring context instance data is moved from version 1 to version 2

- See information center topic 'Monitoring multiple versions of a running BPEL model'

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A running BPEL process instance can be migrated from an older version to a newer version, but this has implications for the associated monitor models. Since there are different event filter and correlation criteria for each monitor model, then the events that are emitted after the process instance migration are handled by the new version of the monitor model. But the new version doesn't have the monitor instance data since this data is associated with the older version. To handle this situation, the monitor model data is automatically migrated to the new version of the monitor model.
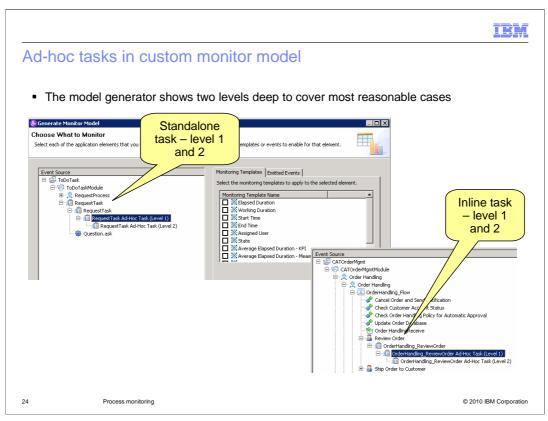
This slide lists the migration sequence for process instance migration. Assume that the older version is called version 1 and the newer version is called version 2. First you update the process version 1 to emit the migration triggered event with full payload. You also update the process version 2 to emit the migrated event with full payload. Install version 2 of the process and version 2 of the monitor model. Then you can initiate the process instance migration using the BPC explorer or using scripts. The two migration events are triggered and Monitor then automatically moves the monitoring context instance from version 1 to version 2.

Enabling events for human tasks

- Stand-alone
  - Open the human task editor in WebSphere Integration Developer
  - Select the event types to monitor in the properties view on the Event Monitor tab
- Inline
  - In the process diagram editor, double click your human task to open the human task editor
  - In the Properties tab of the human task (not the process), click the Event Monitor tab and select the event types to monitor
- Ad-hoc
  - Free form always emitted
  - For ad-hoc templates (to-do, inquiry, approval, review), enable events using trace string 'WBILocationMonitor.CEI.task.*'

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To enable events for stand-alone human tasks, in WebSphere Integration Developer use the Event Monitor tab in the human task properties to specify the event types and event content.

To enable events for inline human tasks, you should enable the HTM events instead of the BPC events. If you are using the global process monitor model to monitor processes, then it is significant whether you monitor the HTM or BPC events. When you configure the business space widgets to display data for the global process monitor, you select the monitoring context in the global process monitor for displaying monitored data. HTM events cause records to be stored in the 'Task execution' monitoring context, and BPC events cause records to be stored in the 'Task execution inline' monitoring context. Since stand-alone tasks are also stored in the 'Task execution' monitoring context, then it is beneficial to have both stand-alone and inline tasks in the same monitoring context. So to configure a single widget to display both inline and stand-alone tasks, it is necessary to emit the HTM events rather than the BPC events for inline tasks.

To enable events for ad-hoc human tasks, you need to enable trace in the administrative console.

Ad-hoc tasks in custom monitor model

- The model generator shows two levels deep to cover most reasonable cases

In this slide you can see how to enable events for a custom monitor model that you have created. Since ad-hoc tasks are created at runtime, it is impossible to know how many levels of tasks that may be created. So the model generator wizard displays two levels, so that you can select events to monitor for the initial ad-hoc tasks and then also for the next level of child ad-hoc tasks.

Instances widget events usage

Only available for Global Process Model

Monitoring context in global process model	Action in instances widget	Wired widgets	Resulting action
Process definition	Multi-select	Process definition list	Widget immediately filters to show only selected process definitions
	Click Open button	Human Workflow Diagram	Shows only one definition; first definition in list selected
Process Execution (Process instance)	Click Open button	Human Workflow Diagram	Shows only one process; first process in list selected
	Multi-select	Processes List	Widget immediately filters to show only the selected processes
Task definition (Task template)	Multi-select	Task definition list	Widget immediately filters to show only the selected task definitions
Task Execution (Task instance)	Multi-select	Tasks list	Widget immediately filters to show only the selected tasks
	Click Open button	Task Information	Each opens in a separate tab
	Click Open button	Human Workflow Diagram	Shows only one process with that task as focus; first task in list selected

If you are using the global process monitor model, which is supplied with the Monitor product, then you can wire the instances widget with other widgets in the dashboard to achieve automated results. This chart lists the widgets that can be wired to the instances widget and the resulting actions based on the monitoring context that is being displayed in the instances widget. For example, if you have configured the instances widget for the global process monitoring model, and specified the 'Task Execution' context, then you can wire three widgets. You can wire the tasks list, task information or human workflow diagram. If you wire the task information widget, then when you click the open button in the instances widget, then each instance opens in a separate tab in the task information widget.

Here you see screen captures showing the interaction between the instances widget and task information widget. The instances widget has been configured to display the Task Execution context. In the first example, clicking the open icon for a task instance, opens it in a tab in the task information widget. In the second example, selecting three task instances and clicking the open action results in three tabs in the task information widget. Note that the open action is for viewing only, so to work on a task you should use the edit action.

Filter wired widgets

- Selection in the Instances widget automatically filters the Task List and Diagram widgets.

- Must configure the wire, not automatic when tasks list dropped on canvas

This shows another example where the instances widget is wired to the tasks list widget. In this case, when you select multiple tasks in the instances widget, the tasks list is filtered to show only the selected tasks.

The wiring between these widgets is not automatic. At the bottom you see the widget wiring view which allows you to wire the widgets together. For this example you pick the 'Items Selected' event as output from the instances widget. The tasks list widget uses the items selected event to perform the filtering.

Summary

- Covered process monitoring using WebSphere Business Monitor

Process monitoring

In summary, this presentation covered the various aspects of process monitoring using WebSphere Business Monitor, including maintaining the business measures model in WebSphere Business Modeler and generating the monitor model in WebSphere Integration Developer.

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Process monitoring

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