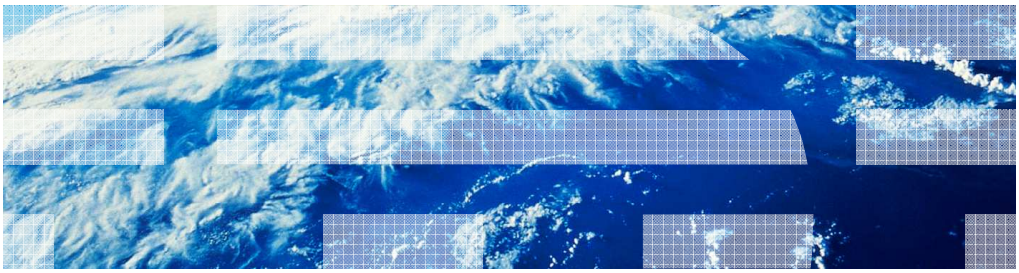
IBM Business Monitor

Monitor sub-models



This presentation should provide an overview of the sub-models in a monitor model in IBM Business Monitor.

Goals

- Introduce monitor sub-models including KPI, dimensional, visual and event

This presentation will give you an overview of several sub-models in IBM Business Monitor, including KPI, dimensional, visual and event.

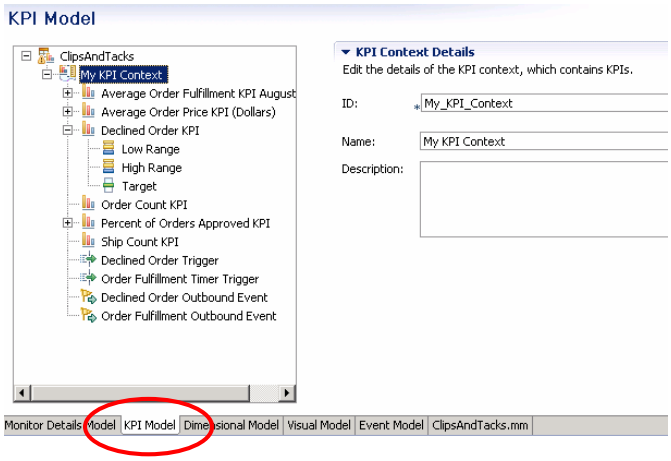
Agenda

- KPI model
- Dimensional model
- Visual model
- Event model
- XML editor
- Monitoring flow

Another presentation provides an overview of monitor models and the monitor details model. This presentation reviews the other sub-models including KPI model, dimensional model, visual model, and event model. Also, the XML editor and monitoring flow view are discussed.

KPI model

- One or more KPI context definitions can be added to the KPI model
- A KPI context is a container for your KPIs
- Right click the model
  – New > KPI Context



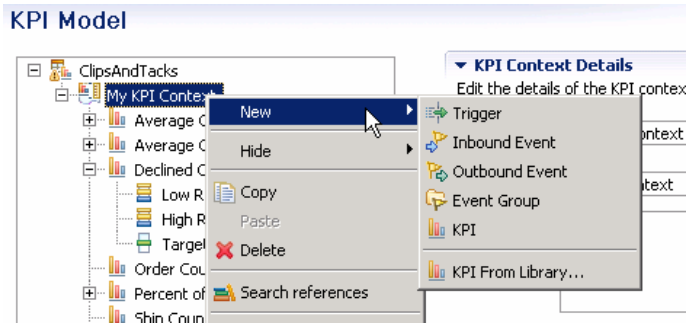
Here you see a screen capture of the KPI model tab in the monitor model editor.

You can create one or more KPI contexts (KC), which are containers for your KPIs. You can associate a separate scalable vector graphics (SVG) diagram in the visual model with each KPI context and each monitoring context in the model.

To create a new KPI context, right click the model in the tree and select ‘New’, then select ‘KPI Context’.

KPI context

- Right click the KPI context to create new KPI elements
  - Trigger
    - Like monitoring context (MC) trigger, except cannot terminate MC and condition based on KPIs only
  - Inbound event
    - Like MC inbound event, except condition/trigger based on KPI context artifacts not MC
  - Outbound event
    - Like MC outbound event, except condition/trigger based on KPI context artifacts not MC
  - Event group
  - KPI
  - KPI from library

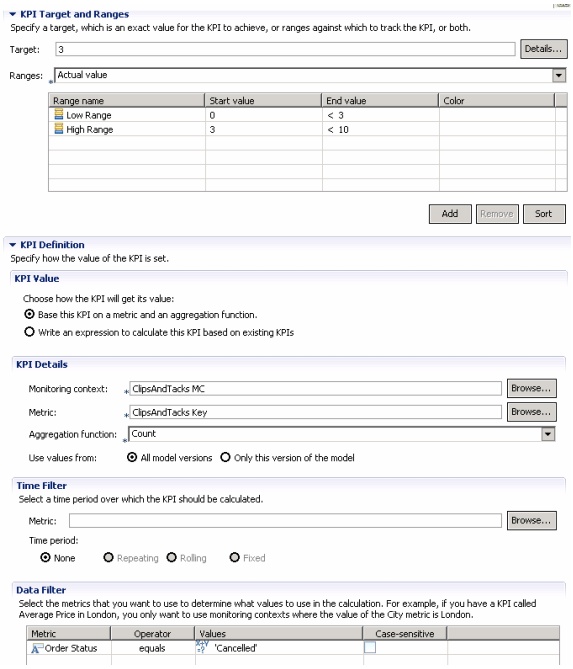


In the KPI Context (KC), you can define triggers, inbound events, outbound events, event groups or KPIs. KC triggers can be evaluated based on inbound events or periodic evaluations, but they cannot terminate an MC and a KPI condition must be based on KPI values not MC values. An inbound event is used to trigger KPI calculations or outbound events in the KC. An outbound event can be used to emit business situation events or other events, based on triggers or inbound events defined in the KC. KPIs are defined in the KC. You can create them manually or you can access KPI's from a library. The KPI library is based on APQC's Process Classification Framework.

To create the elements of the KC, right click the KC in the tree and select 'New'.

KPI

- Type is decimal or duration
- Target
- Ranges with actual values or percentage of target value
- KPI value – metric aggregation or expression
- Time filter
  - Repeating – daily, monthly, yearly; last period or period in progress
  - Rolling – number of days; last period or period in progress
  - Fixed – start date, end date
- Data filter



KPIs are aggregated metrics that have acceptable ranges or targets associated with them. KPIs can be defined as type decimal or duration.

On this slide you see a screen capture of a KPI definition in the monitor model editor. You can optionally specify a target value for the KPI. For ranges, you can specify actual value or percentage of target value. For actual value, ranges will reference upper and lower bounds for the KPI range. For percentage of target value, the ranges will specify target margins as a percentage of the target where the target is 100 percent. For each range, you specify a name, start value and end value. Ranges must be contiguous so there cannot be any gaps in the ranges and ranges cannot overlap one another. Ranges and targets are visualized in the KPI widget in the dashboard.

You can specify that your KPI is based on a metric and an aggregation function. So for example, you can use a metric such as order value, and then a function such as average. This gives you a KPI which keeps track of the average order values in your process.

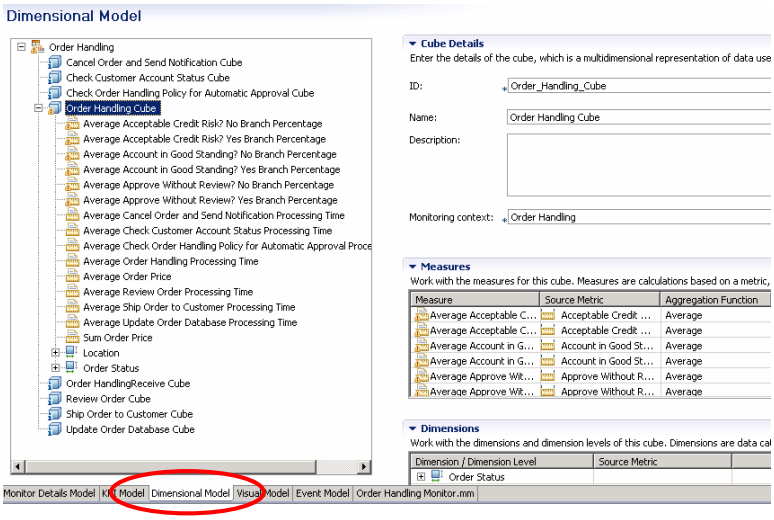
You can also specify that a KPI is based on an expression. This expression can reference other KPI's in the model, and it can also reference any built-in functions or any of your user defined functions.

You can filter the data values that are aggregated by using time periods. The time periods can be repeating, rolling or fixed. Repeating periods can be daily, monthly, or yearly and based on the last completed period or the period in progress. Rolling periods are specified as several days and fixed periods are specified as a specific start date and end date.

You can optionally specify a metric to be used as a filter. In the example you see that this KPI is only going to show values where the order status metric is set to 'Cancelled'.

Dimensional model

- Defines
  - Cubes
  - Dimensions
  - Measures



Here is a screen capture of the dimensional model in the monitor model editor. In the dimensional mode you will define cubes, dimensions, and measures.

The dimensional model is the part of the monitor model that contains the cubes that are used for dimensional analysis. The cubes in turn contains measures and dimensions. Using dimensional analysis you should be able to retrieve information from cubes that will answer questions such as these:

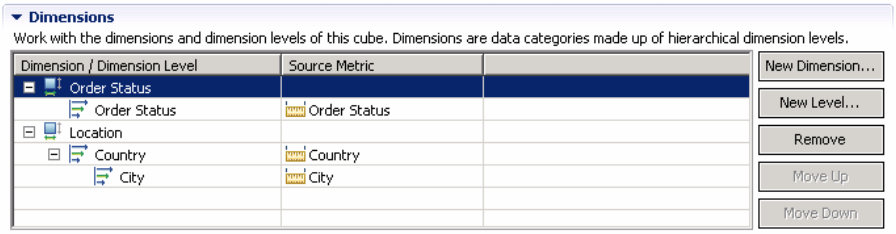
What are the total sales for each product by location?

Which products are selling best over time?

Who is your highest-performing salesperson?

Dimensions

- Contains one or more attributes
- Attribute source is metric, counter or key
- Order of attributes represents the level



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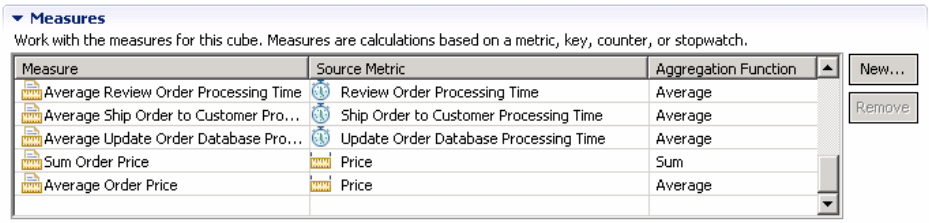
Dimensions are data categories that are used to organize and select monitoring context instances for reporting and analysis. Some examples of dimensions are order status or order location. A dimension can be sourced based on one or more attributes, such as a metric, counter or a key. The order of the attributes is important and represents the level of each attribute. For example, in this screen capture, location is a dimension and country and city are attributes of location. This allows you to aggregate measures for a country, then for a specific country you can aggregate measures for specific cities in that country.

Measures

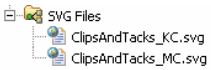
- Measures are used for aggregation
- Source can be a key, metric, counter, stopwatch
- Aggregation function is average, count, max, min, sum, standard deviation

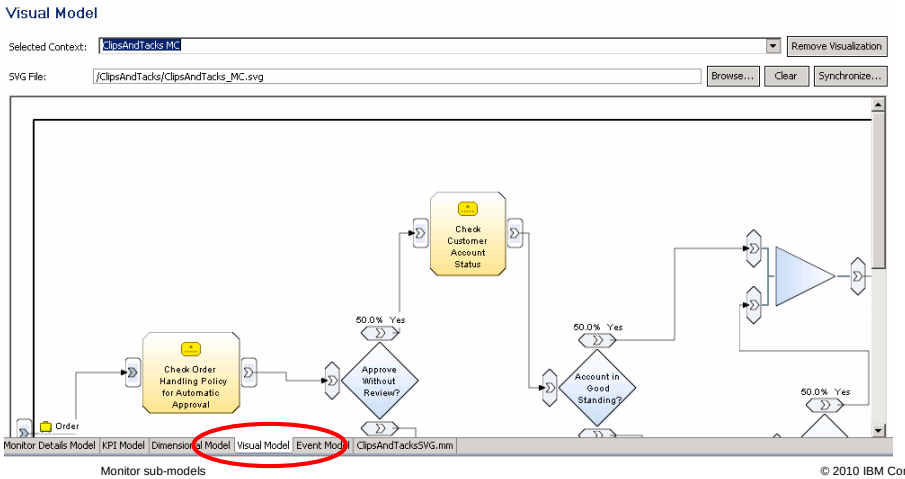


A measure is created to perform aggregations against quantitative information. A measure points to a metric and performs a function against it. For example, it can be an average of the order price for customer orders. The source for the aggregate measure can be a key, metric, counter or stopwatch. The functions that are available for aggregation are average, count, max, min, sum or standard deviation.

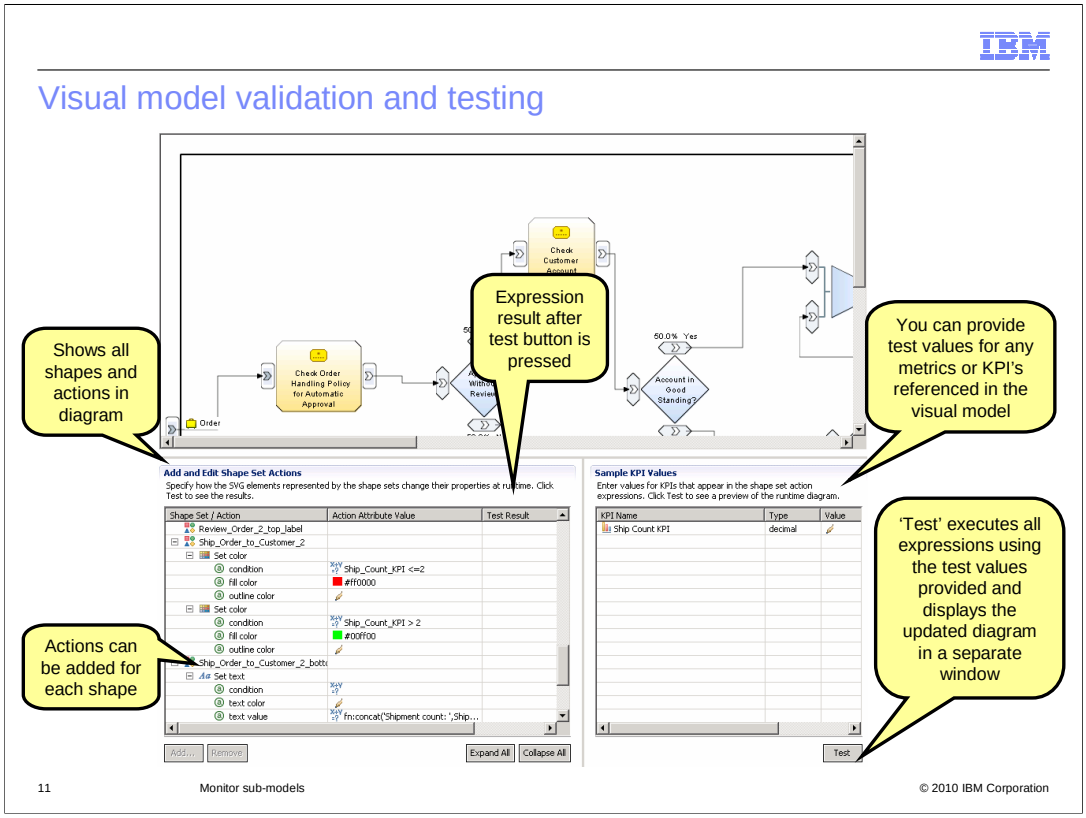
Visual model

- You can associate a diagram with a monitoring context or KPI context
- Diagram is a scalable vector graphics (SVG) file
- Displayed in diagrams view on the dashboard
- SVG diagrams shown in the project tree within 'SVG Files' group





In the visual model tab in the model, you can associate one SVG diagram with each monitoring context and each KPI context. These diagrams are displayed on the diagrams widget on the dashboard. In the monitor model editor you can annotate the SVG diagrams to display metric values or KPI values or to perform other functions such as changing the color of shapes or performing inter-diagram navigation. The SVG diagrams in the model are listed in the SVG files folder in the project explorer.



This screen capture shows the visual model editor. In the shape set table on the bottom left, expression editors are used to specify the actions to be associated with certain conditions. For example, the ship activity is set to green color or red color depending on the value of the ship count KPI.

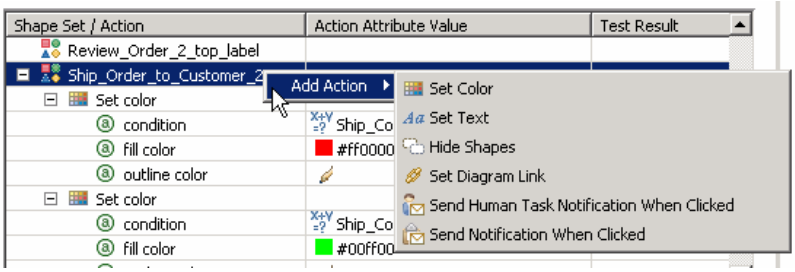
The table for sample test data on the bottom right shows all the metrics and KPIs referenced by expressions in the visual model, as specified in the shape set editor on the left.

You enter sample test data for each metric and KPI and then click the 'test' button to evaluate the results of the visual model customization using this sample data.

When the 'test' button is clicked, a new window opens which displays the customized diagram. The diagram is formatted based on the sample test data, used in conjunction with the shape set actions and associated conditions that have been defined.

Visual model actions

- For each shape in the diagram:
  - Set color
  - Set text
  - Hide shapes
  - Set diagram link
  - Send human task notification when clicked
  - Send notification when clicked



In the visual model editor, you can assign actions to different shape sets in the diagram.

Use ‘Set Color’ to change the fill or outline color of the SVG element.

Use ‘Set Text’ to set a text value somewhere in the diagram. For example, a text box can display explanatory text or the value of a KPI or metric.

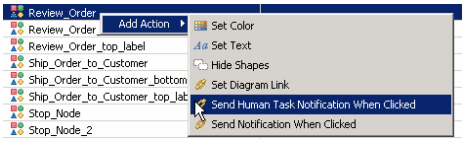
Use ‘Set Diagram Link’ to associate a shape set with a context ID, providing a hyperlink to another image when the SVG element is clicked. For example, clicking a state on a map of the United States can link to a diagram of that individual state.

Use ‘Hide Shapes’ to hide a set of diagram elements.

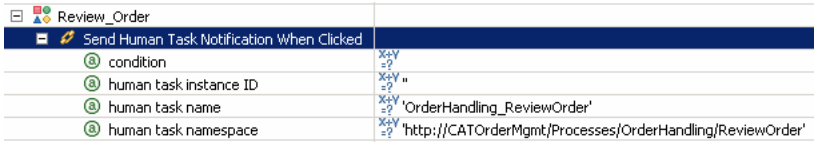
Use ‘Send Human Task Notification When Clicked’ to affect certain human task widgets on the same page in the Business Space.

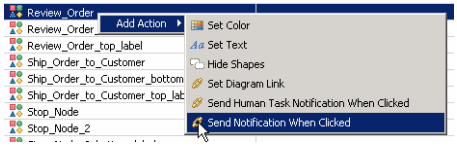
Use ‘Send Notification When Clicked’ to affect custom widgets on the same page in the Business Space.

Notification in the visual model



- Interacts with human tasks widget or my team's tasks widget





- Interacts with custom widget

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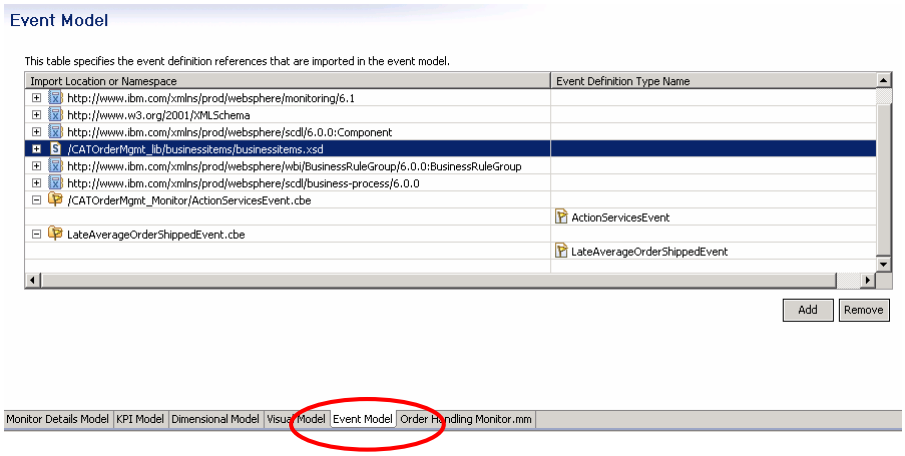
In the visual model you can setup notification so that when a shape is clicked in the diagram widget, then a cooperative link is invoked to other widgets in the dashboard. This works with the human tasks widget or the my team's tasks widget. In the dashboard you need to setup wiring links between the diagram widget and the human task widgets. In the visual model, you specify the human task instance ID, name and namespace. If you import a monitor model and process model from WebSphere Business Modeler, the human task name and namespace are not automatically filled in for you. But you can get this information from the human task properties in the BPEL diagram.

If you create a custom widget, you can send information to the custom widget when you click the diagram, by using the visual action 'Send notification when clicked'. You can optionally specify a condition. The event code is any arbitrary string, but you also specify this event code in the custom widget when you create the widget. In the widget you also specify any metrics for the monitoring context that you want to send to the widget. For more information on creating and using custom widgets, see the business space information center.

Event model

- Lists the event definitions in the model
  - Common base event (CBE), XSD, WSDL
  - Same as the event definitions listed in Project Explorer for the model

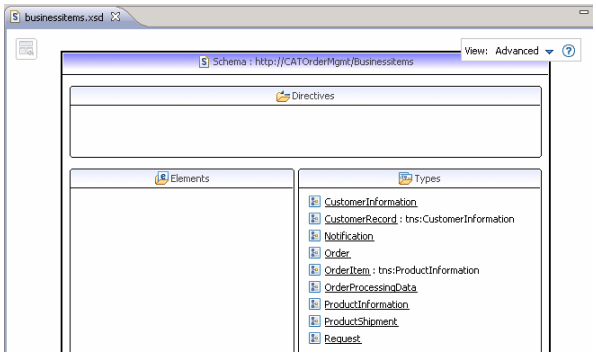


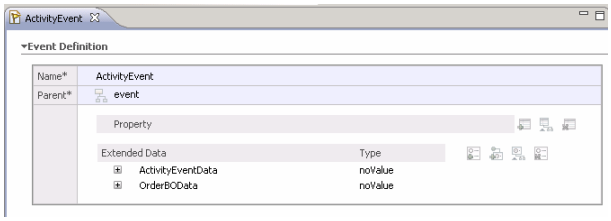
The event model refers to all of the event definitions used in the monitor model. The event model refers to each event definition that you use as an inbound or outbound event type in the monitor details model or KPI model. It also refers to any schemas that are used to describe the structure of individual event parts.

You can use CBE (Common Base Event), XSD (XML Schema Definition), or WSDL (Web services Description Language) files, or a combination of types of files, as your event definitions. Event definition files are shown in the event definitions group in the Project Explorer view.

Event definitions

- Two editors
  - XSD event – uses XSD to define the format but still uses CBE wrapper
  - CBE event – extended data elements





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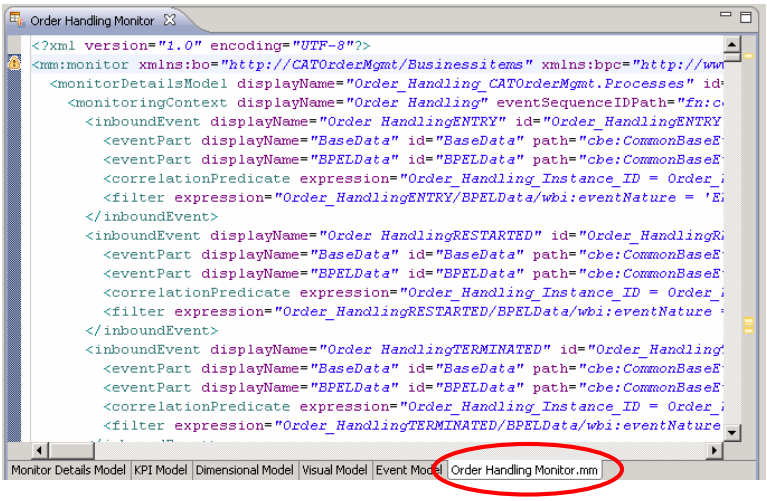
There are two event type editors for the two different event types, XSD and CBE The XSD event is the newer style event which uses schema definitions to describe the layout of the payload. Note that the event itself is still using the common base event envelope as a wrapper for the XSD. At runtime, XML is used to represent the business object based on the XSD for the business object. The CBE event is the older style which uses extended data elements in the CBE to define the business payload.

XML editor

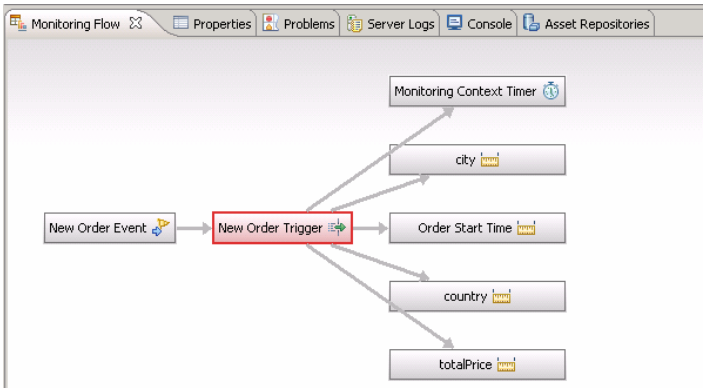
- Text based view of the monitor model editors
- Updates can be made in the GUI editors or the XML editor or both
- Useful for copy and paste functions between models



The XML editor in the monitor model editor is an XML text editor for the monitor model file. When updating the monitor model using the graphical pages, the XML file is created for you in the background. You can use the graphical pages or the XML editor to update the model. The XML text editor is useful if you need to copy portions of another model into a new model.

Monitoring flow

- For a selected element in the monitor model navigator, this view shows other elements that are associated with it
- Double click an element to bring up its flow view
- Applies to monitoring contexts and KPI contexts



The monitoring flow view shows the relationship that exists between elements in the model. So if you select an element in the navigation tree of the monitor details model or the KPI model, you will see that element and any other elements that it are associated with it. To see the flow view for any other element currently displayed in the view, double click an element in the flow.

The monitoring flow view applies to monitoring contexts and KPI contexts.

In summary, this presentation covered various sub-models in the monitor model which are used in conjunction with IBM Business Monitor.

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