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WebSphere® Business Monitor V6

Situation Events in the Business Measures Editor



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This presentation will cover configuring Situation Events in the Business Measures Editor.

Goals

- Describe how Situation Events are handled with the Business Measures Editor.


The goal of this presentation is to explain what situation events are and to describe how they can be defined in the Business Measures Editor.

Agenda

- Describe Situation Events
- Situation Events and the Action Manager
- Event definition
- Situation Events




The agenda for this presentation starts with defining what situation events are, and then describes how Situation Events are handled by the Action Manager. Then it covers the configuration steps needed in the Business Measures Editor to create event definitions and situation events.

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Section

Situation Events

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Situation Events are a different kind of business measure. In fact the term 'business measure' does not seem very appropriate for them. Situation Events are used to signify moments in the process that are significant, and to *produce* an output event at that moment. This is different from a business measure because instead of measuring something, Situation Events are produced.

These situation events are captured at runtime by the Action Manager component of Monitor Server. Action Manager will take some action when it receives the Situation Events, for example it may produce an alert in the dashboard, or send an e-mail.

It is recommended that you review the Action Manager Lab and Administration presentation to understand the Action Manager more fully.

What are Situation Events?

- Generated when a business situation occurs
 - ▶ For example, New order received
- Can associate with changes in a business measure
 - ▶ For example, customer address has changed
- Can be conditional
 - ▶ Average response time **is greater than 10 seconds**
 - ▶ Sales count falls **below \$1000 per hour**
- Repeatable
 - ▶ Sent each time condition is true
- Non-Repeatable
 - ▶ Sent each time condition changes from false to true
 - ▶ Not sent when measure changes but condition was already true

Situation Events are a mechanism by which you can emit an event when something happens in the process. Instead of measuring something, you use them to output data that can then be used to trigger certain actions, perhaps to remedy an abnormal situation.

Situation Events can be defined to happen in many different *situations* – basically any point in the process. They can also be set to occur whenever a business measure value is written to. For example the customer address may be a field that is defined as a Metric and is being measured. You can then add a Situation Event to produce event data whenever that customer address field is written to or updated.

You may also specify conditional logic as shown by the examples in the slide.

There is also the option to make them either repeatable or non-repeatable. A repeatable Situation Event is one that continues to fire every time the condition evaluates to true. For example, if the condition was 'response time > 10 seconds' then the event would be created when the response time moved from 10 to 11, then again when it moved from 11 to 12, 12 to 13 and so on. A non-repeatable event will only fire the first time the condition becomes true, and it will not fire again until it becomes false first and then true again. So if the response time went from 10 to 11, it would fire, but then 11 to 12 would not cause it to fire. If it fell back down to 10 that would make the condition false again, so any subsequent rise above 10 would cause one more event to fire.

Situation Events and Action Manager flow

▪ In the Business Measures Editor:

- 1) A template is created to describe what data the situation event will carry. This template is called an 'Event Definition'
- 2) A moment of significance in the running process is marked as a 'Situation Event' and an Event Definition is associated with this Situation Event. In addition, the data fields for the Situation Event are populated.

In Action Manager:

- 1) One or more 'Notification Templates' are defined to say how a notification will be sent (e-mail, alert and so on) and also which users will receive this notification using an LDAP query.
- 2) A Situation Event Binding is defined to listen for the specific type of Event Definition that was created in Business Measures Editor. Any number of notification templates are then added to this binding so that each notification is made to the appropriate user or users when the event is received by Action Manager.



This gives a quick overview of how Situation Events work. It is very useful to understand how the Event Definition, Situation Event, Notification Template and Situation Event Binding concepts tie together at a high level before exploring them in more detail.

To begin with an Event Definition is created. This involves setting what data will be carried by the event by creating fields with name and types.

Once an event is defined, you create a 'Situation Event' – a point within the process at which you want to generate an event. When you create the Situation Event you must specify which Event Definition to use, and also how to populate the data fields within the event definition using the process instance data. This is the end of the work in Business Measures Editor.

The Action Manager is configured by an administrator on the WebSphere Business Monitor server. The administrator creates an Event Notification Template to specify which users are to be notified (using an LDAP query) and how to notify them (for example e-mail, alerts and so on).

Once the event notification template is complete, the administrator creates a Situation Event Binding which specifically looks for events that match the Event Definition you created in Business Measures Editor. The administrator then selects which notifications to trigger when such an event arrives, by adding notification templates to the binding.

Note: in addition to notification templates, the Action Manager can also trigger Web Services when a Situation Event is received.

Situation Events and Action Manager (cont.)

- Event Definition defined in the BME's Event Definition editor
 - ▶ Extend template definition
 - ▶ Specify what data the event will carry
- Specify when events occur by adding Situation Events in the BME at appropriate points
- Associate the situation event with an event definition
 - ▶ Populate the data fields with runtime data
- The situation event object is then emitted by WebSphere Business Monitor at runtime
- The Action Manager component of WebSphere Business Monitor listens for the events
- Action Manager can produce alerts, e-mails, invoke Web Services when a situation event is detected



This slide expands on the concepts in the previous one in some more detail.

The Event Definition is created in the Business Measures Editor using a dedicated editor. The definition is of an event type, and should extend a pre-provided Business Situation template that is recognizable by the Action Manager. The definition is then customized to add any data fields that need to be passed to the Action Manager.

Situation Events are then defined in the Business Measures Editor to say when an event should be produced. Each Situation Event must use an Event Definition and you must also populate the data fields of the Event Definition as part of defining the Situation Event.

At runtime, the WebSphere Business Monitor server will emit the Situation Event and this will be captured by Action Manager (provided an administrator has configured Action Manager to listen for that event type). Action Manager can then produce alerts, e-mails or invoke a Web Service when it receives such an event.

Defining an Event Definition

- Event Definition extends the provided 'Business Situation' event template, which itself extends the Common Base Event format
- Action Manager automatically recognizes situation events that follow this format
- WebSphere Business Modeler supports
 - ▶ Creating Event Definitions and Event Definition templates
 - ▶ Associating Situation Events with measures, specifying any conditions and indicating if the are repeatable or non-repeatable

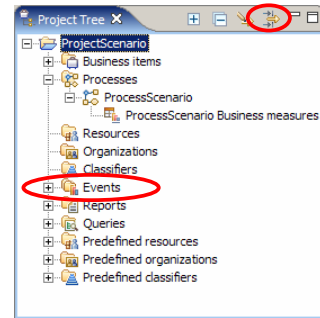


Defining an event is straightforward. All events use the Common Base Event as their basic type. There is a specific 'Business Situation' event definition that is pre-provided and this is the type of event that is recognizable by the Action Manager. All of your event definitions will extend from this 'Business Situation' template and will add additional fields.

In WebSphere Business Modeler and the Business Measures Editor component, you can create Event Definitions and you can also create Event Definition templates should you choose not to use the default one. You can also associate Situation Events with changes to your measures, or with any other trigger point you like. You also indicate any conditions and whether the Situation Event should fire repeatedly or not.

Defining an Event Definition

- Definitions shown in Project Tree
 - ▶ Must have 'business measures events' filter unset
- New > Event Definition wizard
- Opens Event Editor



Extends
'Business
Situation'
template

Default
Attributes –
add your own

Name	Type
BusinessSituationName	String
ContextID	Long
ContextDef	String
CreationTime	DateTime

Here is what it looks like to define an Event Definition. You must use the Project View in the Business Integration perspective and you must also click the 'Filters' icon at the top right of the view. This is because 'business measures events' are not shown by default (the filter hides them). Clicking the filter allows you to deselect them from the filter so they are no longer hidden.

Once you have done this you can right click on the 'Events' node in the Project View and select **New > Event Definition** to open the Event Definition editor.

The default new Event Definition will inherit from the '\Business Situation' parent template. This provides a set of four default attributes for your event definition. You can easily add your own.

Defining a Situation Event

Name	Type	Minimum	Maximum	Container
BusinessSituationName	String	0	1	Extended Data Element
ContextID	Long	0	1	Context Data Element
ContextDef	String	0	1	Context Data Element
CreationTime	DateTime	0	1	CBE
OrderNumber	String	1	1	Extended Data Element

Field used by Monitor's Action Manager to identify situation event

First four attributes are part of the template

OrderNumber is a custom attribute – add as many as necessary

Here are the four default attributes (their inheritance from the parent template is indicated by the up arrow). In this example one custom attribute has been added – the OrderNumber. This is to provide that information in the event payload so that it can be passed on in any alert, notification or web service invocation.

The only pre-provided field that you need to work with is the 'BusinessSituationName'. When you use your event definition within an Situation Event you will need to populate this field with a text value. The Action Manager administrator then specifies the same value and this is how the Action Manager can recognize what type of event it has received.

Creating a Situation Event

- Associate with :
 - ▶ KPIs
 - ▶ Aggregate metrics
 - ▶ Metrics
 - ▶ Counters
 - ▶ Triggers

▼ Situation events

Optionally, specify situation events that are sent when the value of the selected business measure changes.

Event definition	Event attribute	Attribute type	Attribute calculation

Send only once (or, if "On condition" is set, send only when the condition changes from false to true)
 Send every time (or, if "On condition" is set, send every time the condition is true)

On Condition

You can create Situation Events in many places within the business measures model. You may associate a Situation Event with any of the instance measures (Metrics, Counters, Stopwatches) or aggregate measures (KPIs, aggregate measures). You can also simply associate one with a trigger.

Whenever any of these values is updated (even with a value that is the same as the old value), the Situation Event will be produced.

Each of the measures mentioned above has a 'Situation Events' section in their Attributes view – this is where you click Add and choose which Event Definition to use for your new Situation Event.

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Configuring Event Data

▼ Situation events
Optionally, specify situation events that are sent when the value of the selected business measure changes.

Event definition	Event attribute	Attribute type	Attribute calculation
[-] Event Order	BusinessSituationName	String	"New Order"
	ContextID	Long	
	ContextDef	String	
	CreationTime	DateTime	
	OrderNumber	String	'Input.Criterion.Input.OrderNumber'

Send only once (or, if "On condition" is set, send only when the condition changes from false to true)
 Send every time (or, if "On condition" is set, send every time the condition is true)

On Condition

Clear Edit...

Repeatable

Optional Condition

BusinessSituationName is a special field used by the Action Manager. Set it to a unique string and configure Action Manager to look for that name

Populate any custom attributes using fixed values, calculations or business item data from within the process

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Here is an example where a Situation Event has been added and is using an Event Definition that was previously created called 'Event Order'. Once the event definition is added, you must specify how each of the attributes or field values are calculated.

The first attribute you must populate is the 'BusinessSituationName'. You may choose to hardcode a string here and then match that string when you configure Action Manager.

You can also use data from the running process to populate or calculate an attribute. In this example the 'OrderNumber' from the process is being used to populate the 'OrderNumber' in the event.

Finally you can set whether the event is repeatable or not (explained earlier) and any condition.

This is all that you do in Business Measures Editor – all the remaining work is configuration of Action Manager.

Summary

- Defined Situation Events
- Illustrated the relationship between Situation Events and the Action Manager
- Described Event definition
- Explained creating Situation Events



In summary, this presentation has defined Situation Events and how the Action Manager handles them, then it described creating event definitions and situation events.

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