IBM Software Group

WebSphere® Business Modeler V6.0.2

Business measures view

@business on demand.

© 2007 IBM Corporation
Updated April 17, 2007

This presentation provides a description of the Business Measures View that is a new feature of WebSphere Business Modeler V6.0.2

Agenda

- WebSphere business measures view
- WebSphere Business Monitor developer toolkit

Business Measures view

This presentation discusses the business measures view in WebSphere Business Modeler V6.0.2, explaining the evolution of the monitoring specification capabilities and the relationship with the WebSphere Business Monitor toolkit.

WBModeler602_BMV.ppt

Function comparison: V6.0.1 and V6.0.2

Existing 6.0.1	WebSphere Business Modeler and WebSphere Monitor were tightly coupled through the business measures model. ▸ The WebSphere Business Modeler must be used to create or change the business measures model
New 6.0.2	Business measures view has been introduced to create KPIs and metrics associated with a business process.
Benefits	The monitoring model is decoupled from the WebSphere Business Modeler. ▸ The monitoring model is created using the *monitoring model editor of the WebSphere Business Monitor development toolkit.*

With the release of WebSphere Business Modeler V6.0.2 there have been significant changes with the way business measures are specified.

With WebSphere Business Modeler V6.0.1 the Business Model and the Business Measures model which was used by WebSphere Business Monitor were very tightly coupled. The models were essentially elements of the same model and to realize the monitoring model the integration developer was required to use WebSphere Business Modeler.

With WebSphere Business Modeler V6.0.2 the creation and maintenance of the Monitor Model, has been moved to a separate tool called the WebSphere Business Monitor Development Toolkit, which is an Eclipse plug-in. This allows the integration developer to create a much richer monitoring model that can use information from the WebSphere Business Modeler business model, but is not dependent upon it.

Comparing 6.0.1 to 6.0.2

Version 6.0.1

- Separate editor in Modeler
- Business measures models displayed in project tree
- Export format is an archive file (.zip) with an XMI file inside
- Export target is the Monitor server directly (a runtime, not a tool)
- Directly tied to the details of the BPEL process. If the BPEL changes, the *business measures model* is likely out of sync
- Values to return are predefined and not configurable

Version 6.0.2

- Single view in the process editor for specifying business measures
- Export format is monitor model XML
- Export target is the monitor model editor (a tool, not a runtime)
- Completely disconnected from the BPEL process implementation
- Includes export of SVG process diagrams as separate files for use with the dashboard
- Values to return are predefined and configurable

Business Measures view

4

© 2007 IBM Corporation

The comparison chart shown here captures the key differences between WebSphere Business Modeler V6.0.1 and V6.0.2 and the way the business measures are managed.

To begin with, the Business Measures Editor in V6.0.1 has been reduced to a view of the process editor. This is an important distinction because this means that the business measures specifications are now associated directly with the business process, which will have ramifications on version handling strategies for business process models.

The next significant item is the export format and target. With V6.0.2 the export format is now using standard XML and the export target is now the WebSphere Business Monitor Development Toolkit instead of the monitor runtime. The Monitor Toolkit is where the monitor model is really created and the business measures flowing from the WebSphere Business Modeler become 'suggestions' or recommendations about what should be monitored. The WebSphere Business Modeler describes the analysis model while WebSphere Integration Developer and the Monitor Toolkit define the implementation models, providing a clear separation between analysis and design.

Separating the monitoring model in this way also decouples it from the BPEL model allowing the evolution of the monitoring model without impacting the BPEL implementation.

With V6.0.2 the process diagrams are also exported as SVG files so they can be displayed by the monitor dashboard.

Business measures view

- It is a <u>view</u> associated with the business process.

- Tabs for …

  ▶ Business performance Indicators

  - Business measures details
    - Key performance indicator (KPI)
    - Instance metric
    - Aggregate metric
    - Unspecified metric

  ▶ Monitored values

  - Information which can be monitored and collected and then returned to modeler to improve the accuracy of the simulations.

5

The specifications for the business measures are configured in a view of the business process editor.

There are two tabs in this view, one for the Business Performance Indicators and another for the Monitored Values.

The Business Measures are specified on the Business Performance Indicators tab. The details will be discussed in coming slides.

On the Monitored Values tab, you can specify what process information to collect in WebSphere Business Monitor to be returned to WebSphere Business Modeler.

You use this information to improve the accuracy of simulations by providing realistic and accurate data derived from actually running the process.

Business measures view

- Set Modeler to the *Advanced mode*

- If working from an older model the view will not be present by default.
  - Go to
    Windows -> Show View -> Other
    and select
    Business Measures from the Business modeler views folder.
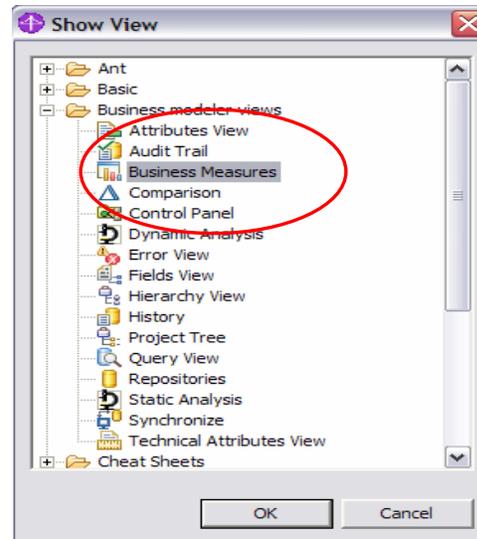
First, set the Modeler Mode to the Advanced Mode.

If you are starting from a new WebSphere Business Modeler V6.0.2 workspace then the tab for the Business Measures view will be visible in the workspace by default.

If you are starting from a WebSphere Business Modeler V6.0.1 workspace you may not see the new Business Measures view.

If you do not see it, you can use the Show View dialog to add it to your workspace.

Business Measures view

Shown here is the Business measures view with the Business Performance Indicators tab selected.

There is one key performance indicator already defined. A new one can be created by selecting the Add button, which will open a form for specifying the KPI and its optional properties.

Business measures details

Business Measure Details

Business Measure Details
Specify additional details to describe how the business measure is calculated.

Name   Measure 1

Type   ○ KPI ○ Instance metric ○ Aggregate metric ● Unspecified

Description

▶ Dashboard views

OK   Cancel
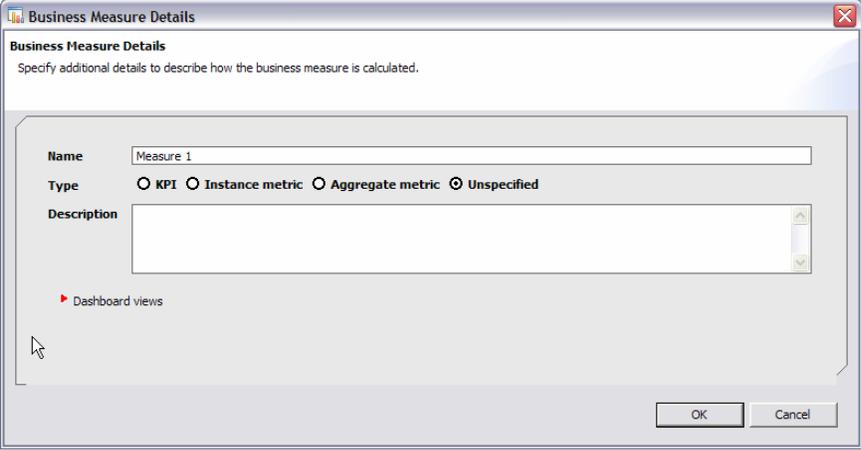
By default the Business Measures Details window comes up with *unspecified* selected.

The information presented will depend on the **Type** selected.
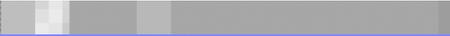
Business Measures view   8   © 2007 IBM Corporation

After you click the Add button, you are presented with a dynamic form.

The contents that are displayed depend on the radio button that is selected.

Here the Unspecified radio button is selected by default and you can see that there is little to specify – only the description of what this Business Measure should be capturing.

Notice the red triangle indicator for the Dashboard View. More on this in the next slide.

Selecting the radio button for the KPI will present a larger form with more options. The dialog is too large to fit onto a single slide and it has very distinct sections. This is the first section with the triangular indicator for the Dashboard views expanded.

First notice the Description field.

This is the most important field in the entire specification. Remember, that with V6.0.2 you will be describing what the KPI will do.

The metrics defined here are hints and guidelines for the integration developer who will be implementing the monitoring model, using the WebSphere Business Monitor development toolkit. For this reason it is very important to have a complete description of the intent and purpose of the KPI business measure.

The Dashboard Views provide information that will help the Business Analyst determine how to specify the optional KPI values so that the integration developer will be able to implement them to achieve the required result.

Selecting the link for a dashboard view will display a sample view. Shown here is the gauge, which is a likely candidate for a KPI. The other fields in the form, which are optional, will provide the additional information required to implement a gauge.

The dashboard design is not part of WebSphere Business Modeler.

Details: Key performance indicator

- Additional fields that are available for the *KPI* business measure.

  ▸ Target value and type
  ▸ Time period
  ▸ Range details
  ▸ When to send an alert
  ▸ Dimensions

10
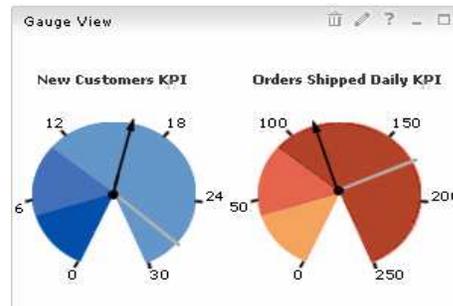
Listed here are the optional fields associated with the KPI type of business measure.

These are all optional but will be very helpful to the integration developer who will be constructing the monitoring model.

Target value and type define what it is that you want to capture.

Time period defines the period of time for which you want to gather the information; this can be a finite period of time or a recurring interval.

Setting range details is how you specify the ranges on the gauge that are categorized as acceptable, good or bad values.

When to send an alert allows you to specify what value of the KPI will trigger an alert being sent to a configurable address.

Specifying dimensions allows you to group the data in categories such as location or time.

Notice the check box under the mouse pointer. This indicates that this is an optional parameter.
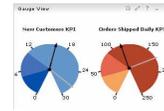
The Type is limited to Number or Duration and the duration can be days, hours, minutes, seconds or milliseconds as shown in the slide.

If the Type is number, then the target value displayed will change to a single field for entering decimal numbers.

If no type is selected, the value is optional and can be any text.

The repeated time option lets the business analyst specify the time period over which to collect the information;

repeated, rolling or fixed.

Repeated:

Select the Period type (daily, monthly, or yearly) and specify whether you want to see the last full period or the period in progress.

For example, if you select daily, then the KPI can either show the value from yesterday, or the value based on the day so far.

Rolling:

Select the Number of previous days that you want to see and specify whether you want to include the last full day (yesterday) or the day in progress.
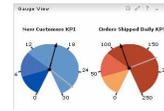
For example, if you select 30 days, you will see the value of the KPI based on the last 30 days either up until yesterday, or up to the current time.

Restrictions:

Rolling dates are limited to 100 days.

Start and end dates cannot be more that 100 days apart

Details: KPI range details

- Range details
  - ▶ A range or set of ranges against which to track the KPI
    - Percentage of the target value.
    - Actual value

☑ **Specify range details:**

Ranges can be defined as percentages of the target value or as fixed, actual values.
○ Percentage of target value (target value = 100%)
◉ Actual value

Specify ranges
A range is a set of values, such as allowable margins or lower and upper limits, against which to track your KPI.

Range name	Start value	End value
Dya 1	0 seconds	< 1 days
Day 2	1 days	< 2 days
Day 3	2 days	< 3 days
Day 4	3 days	< 4 days
Day 5	4 days	< 5 days

Add
Remove
Sort

Remember the dashboard view that was presented earlier, it was the gauge.

This is where you specify the ranges that should be displayed, something like high, medium, or low.

There are two options, the percentage of the target value can be used or the actual value can be used.

Select Percentage of target value to have the target value treated as 100% for setting the ranges, or select Actual value if you have no target or want to specify exact values.

For example, you might have an Acceptable range that is from 90% to 100% of the target and a Good range that is from 100% to 110% of the target.

Or, using actual values, you might have an Acceptable range that is from 5 to 10 and a Good range that is from 10 to 20.

Details: KPI alerts
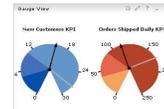
- Alerts
  - ▸ Describe the conditions under which an alert should be sent and what should happen as a result of the alert.
  - ▸ This description will be used by the Monitoring Model implementer.
- **Example**: "If the value of the KPI dips into the Poor range, send an e-mail to the manager" or "If the value of the KPI exceeds the target, notify Marketing."

☐ **Specify when to send an alert and the action to take as a result**

For example, when this measure exceeds a certain value, an email may need to be sent.

Alert description	Add
	Remove

14

Business Measures view   © 2007 IBM Corporation

Alerts are fairly straightforward. You can have an alert sent by selecting this box. The text in the description will tell the integration developer when the alert should be sent and to whom.

A clear and concise description is paramount for this option.

Alert description:

Describe the conditions under which an alert should be sent and what should happen as a result of the alert.

For example, you could type "If the value of the KPI dips into the Poor range, send an e-mail to the manager" or "If the value of the KPI exceeds the target, notify Marketing."
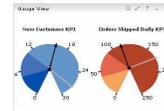
Specify the dimensions to use to calculate the KPI value to specify the data categories that will be used to calculate the value of the KPI.

All the dimensions that you have previously added are displayed. If a previously defined dimension is not appropriate for the KPI being specified, clear the check box.

To add a new dimension, click Add. Change the default name of the dimension to a dimension name such as Location, Sales Rep, or Product.

To specify a dimension that is available for calculating this KPI, select the check box.

Details: Instance metrics

Business Measure Details

Business Measure Details
Specify additional details to describe how the business measure is calculated.

Name: Items in Order
Type: ○ KPI ⦿ Instance metric ○ Aggregate metric ○ Unspecified
Description: This metric will capture the number of items in a given order

▼ Dashboard views

Dashboards present continuously updated business measures data in a graphical format to make it easy to track process performance.

An instance metric contains a value resulting from one run of the process, such as "Number of items in order." This type of data can be displayed in the following dashboard views:

Alerts: Displays alerts that notify users of defined situations occurring at run time.
Dimensional: Provides a multidimensional view of business performance data. Charts and grids present data for analysis against different dimensions.
Instances: Displays the business measures for individual instances or user-defined groups of instances.
Report: Displays performance reports relative to a time axis. Such reports typically contain tables and graphs with textual descriptions of the analysis.

Instance View
AutoParts New Orders
Results 1 to 7 of 7

Diagram	OrderID	CustomerID	Order Account
	1000	153101	435
	1001	849468	1439
	1002	890572	085
	1003	242399	821
	1004	054135	7312
	1005	895317	957
	2006	684623	050

OK   Cancel

- Instance metrics capture the result from one run of a business process.

IBM Software Group

16

Business Measures view   © 2007 IBM Corporation

Shown here is the beginning of the dialog for specifying a second type of business measure called an instance metric.

An instance metric is used to capture specific information about a single (individual) run of the business process.

An example of an instance metric might be the number of items in a given order.

< a few words about how the instances metrics are used in the monitor dashboard >

The Dashboard Instances view

In the monitor dashboard, the Instances view displays the modeled instance metrics.

The dashboard administrator selects the instances or set of instances to display.

The administrator can connect the Instances view to the Alerts view. When a user clicks the source of an alert in the Alerts view, the process instance that triggered the alert is displayed in the Instances view. Similarly, the administrator can connect the Instances view to the Diagram view. The instance diagram can be highlighted based on the instance selected from the Instances view.

Details: Instance metrics

- Additional fields that are available for the *instance metric* business measure.

    ▶ Default value and type
    ▶ When to send an alert
    ▶ How to aggregate across multiple runs
    ▶ Dimensions

17

The list of optional parameters for the instance metric business measure is smaller than for the KPI business measure.

Here, for the instance metric, the default value and type, when to send and how to aggregate over what dimension can be specified.

Details: Instance metrics

- Default type and value
  - ▸ If a type other than *unspecified* is selected, then a default value must be supplied.
  - ▸ Types:
    - Boolean   integer
    - Date   string
    - DateTime   time
    - Duration   unspecified

☑ **Specify a default value and type**

Type: Integer ▾   Default value: 6

Duration
Integer
String
Time
Unspecified

☐ Specify ~~as a result~~

Business Measures view

18

© 2007 IBM Corporation

There are four different types of instance metrics that can be specified, 5 if you want to count unspecified as a type.

Boolean, Date, DateTime and Duration.

For the example given in the previous slide, where the instance metric represents the number of items in the order, the type would be Integer and the default value would be 1.

If the requirement was to flag all orders that took longer than 15 minutes to complete, then the type could be a Boolean or maybe a duration. This would depend on what data is available in the implementation model.

Specifying the alert for the instance metric business measure is the same as for the KPI business measure.

The description is all important. In the example shown here the descriptions are not very good examples because they specify when to fire the alert but they do not say to who they should be directed to or what other kind of action can be taken. The more details here, the better.

Details: Instance metrics

- How to specify <u>aggregation</u> across multiple runs of the process.

- When this metric is aggregated you can specify the aggregate value to be a *min, max, sum, count or average*.

- You may specify more than one with the **Add** button.

The instance metric provides information about a single instance of a business process but that does not mean that it can not be aggregated over several runs to highlight trends.

When specifying how the instance metric is to be aggregated, there are five functions that can be applied to the data:

min, max, sum, count or average.

You are not limited to just one. You can specify more than one by adding another with the Add button.

Details: Instance metrics

- Dimensions
    - ▸ Specify data categories that you can use to organize and select data for retrieval, monitoring, and analysis
    - ▸ All of the dimensions that have been previously added are already displayed. (example: Order handling was added when specifying the KPI metric)

☑ **Specify how to break down the aggregate business measure in the Dimensional view**

For example, break down the business measure by country, sales representative, or month.

Dimension	
Order Handling (Current) Dimension	Add
	Remove

Specifying the dimension for the instance metric is the same as with the KPI business measure.

Details: Aggregate metrics

- Aggregate metrics capture the results across multiple runs of a business process.

- When exported to Monitor, these show up as *Business Measures*

The aggregate metrics capture the results across multiple runs of a business process.

When they are exported to the WebSphere Business Monitor Development Toolkit they show up as business measures.

Notice that there are fewer dashboard views that are available.

Details: Aggregate metrics

- Additional fields that are available for the *Aggregate Metric* business measure.

  ▸ How to aggregate across multiple runs
  ▸ Dimension

The optional parameters have been reduced to the only those that are applicable to the aggregations, that is, how to aggregate and what dimensions should be used.

Shown here is the Business Measures View with the Monitored Values tab selected.

For each of the major constructs in the business model the business analyst can specify which values should be monitored and returned back to WebSphere Business Modeler.

Processing Time, Processing Cost, Startup Cost, Revenue, % per Branch

In the early iterations of the model, the business analyst may not have enough information to develop a good cost or revenue model so they would focus on the Processing Time and maybe in some cases the Processing Cost.

After the monitoring model has been running for a sufficient period of time, the values can be returned to WebSphere Business Modeler using export and import functions. The newly imported values will replace the monitored values which are a part of the business model and thus modify the behavior of the simulations. Running simulations with the new values will provide more accurate simulations.

Exporting the business measures

- When the specification of the *Business Measures* is completed, the next step is to export them using the

  WebSphere Business Monitor Development Toolkit

  type.

WebSphere Business Modeler Export

Select type.
Select a format and click Next.

Types

- WebSphere Business Modeler project (.mar)
- UML Business Modeling Profile
- WebSphere MQ Workflow (.fdl)
- WebSphere Business Integration Server Foundation
- Delimited text (.csv, .txt)
- WebSphere Business Modeler XML (.xml)
- WebSphere Process Server
- WebSphere Business Monitor Development Toolkit (.mm)

< Back   Next >   Finish   Cancel

Name ▲

- KM_Order_Handling__x0028_Current_x0029__KC.svg
- MDM_Order_Handling__x0028_Current_x0029__MC.svg
- MDM_Order_Handling__x0028_Current_x0029__MC_Receive_Order_MC.svg
- Order Handling (Current) Business Measures.mm

Business Measures view

25

© 2007 IBM Corporation

Having completed the specifications of the business model, the business analysts then exports the monitor model from WebSphere Business Modeler.

The export is composed of several files, the .MM file in XML format, and several SVG files.

There is one SVG file generated for each process, sub-process, and loop in the process diagram, and a second SVG file is generated for the KPI context that will be used for aggregation information.

Agenda

- WebSphere business measures view
- WebSphere Business Monitor developer toolkit

The next topic to discuss is the WebSphere Business Monitor Toolkit and its relationship to WebSphere Business Modeler V6.0.2.

WebSphere Business Monitor toolkit

- The Business Monitor toolkit comes with *WebSphere Business Monitor*.

- Installs into *WebSphere Integration Developer* as an Eclipse plug-in.

- A **business monitoring perspective**

- A **business monitoring project**
  - ▶ Event definitions
  - ▶ Monitoring models
    - The input from the Monitor goes to the monitoring models.

- Import the files exported from Modeler using the *system file* type.

Business Measures view   © 2007 IBM Corporation

The WebSphere Business Monitor Toolkit is an Eclipse plug-in that comes with the WebSphere Business Monitor.

Once the plug-in is installed, a Business Monitoring Perspective is available where the integration developer can create the Business Monitoring Project.

When the files exported from the WebSphere Business Modeler are imported into the WebSphere Business Monitor Toolkit the imported information is placed into the Monitoring Models folder.

There is no specific import type for the .MM file so when importing, use the System File type of import, to import the individual files.

Importing into Business Monitor toolkit
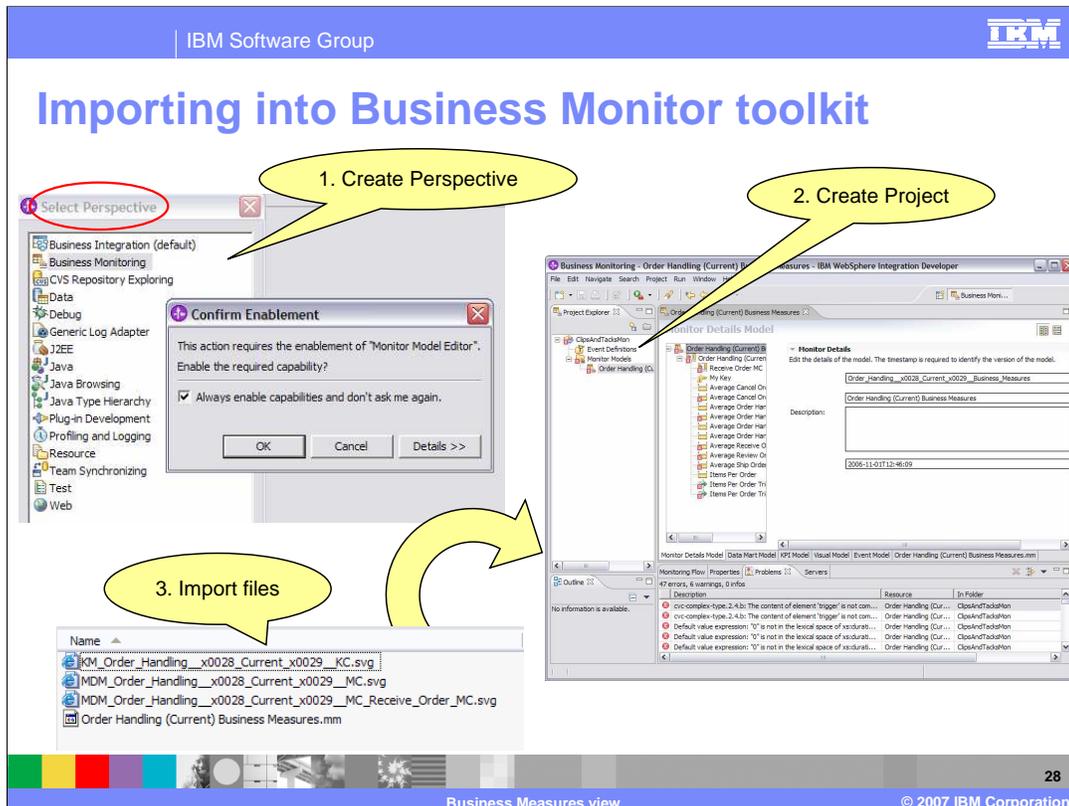
The Business Measures Specifications that are made in WebSphere Business Modeler are guidelines for the integration developer to use when developing the Monitoring Model.

It will be up to the integration developer to use the input provided from the Business Modeler, to complete the Monitoring Model. Anticipate collaboration between the business analyst and the integration developer during the early phases of the development cycle and later during the project as the results of the monitoring requires changes to the models, both business and monitoring.

Shown here are the basic tasks the integration developer must do to get started working with the business measures specification.

Create the perspective

Create the project

Import the files

Notice that there are a lot of red flags in the error view after the import. This is to be expected as the business measures specification is only a starting point, describing what the analyst needs. It is the work of the integration developer to understand the errors and warnings and to create the complete and correct monitor model.

Importing Monitor results into Modeler

- The model has been implemented as a WebSphere Process Server application and has been instrumented to monitor the key performance indicators specified in the business model.

- Time passes… and data has been collected and it is now time to bring that data back into Modeler and revisit the simulations, basing them on the new data.

The monitor model and the business process models are both completed and then installed into their respective runtime environments.

Data is collected over a period of time and then the monitored values are exported from the monitor runtime and given to the business analyst.

Importing the Monitor data (xml)
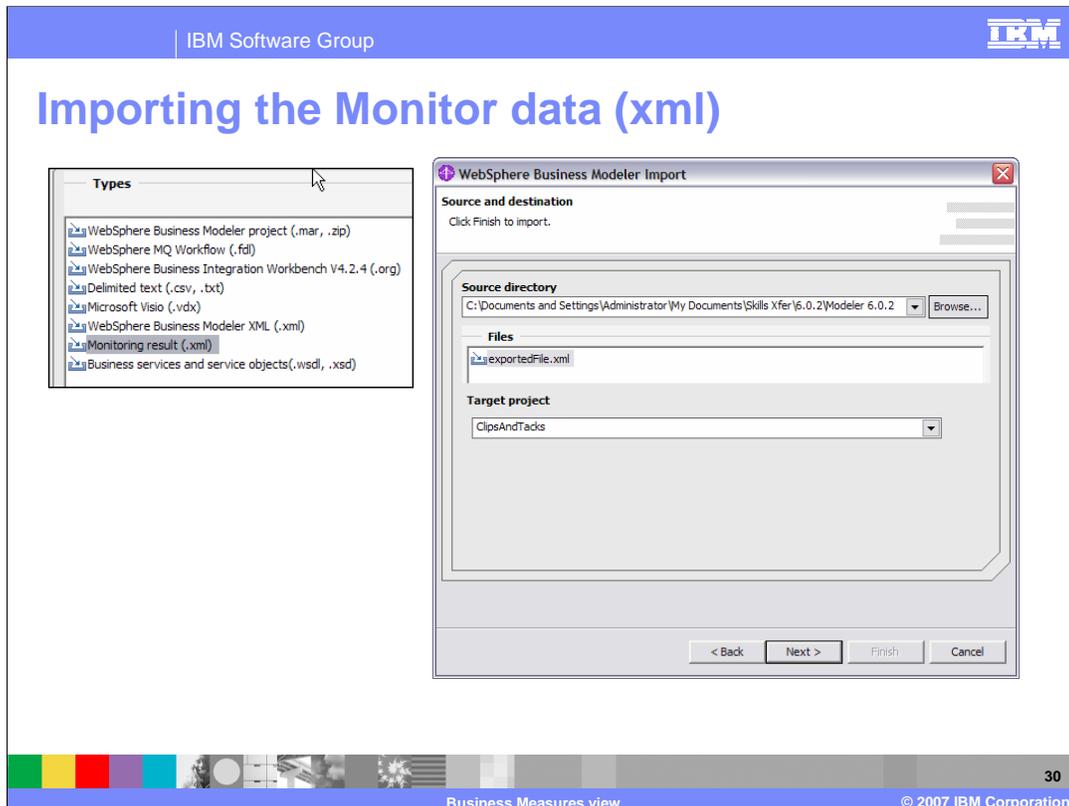
Having received the latest monitored values from the integration developer the business analyst then imports them into WebSphere Business Modeler.

There is a special import type specifically for this called, Monitoring results.

Make sure there is a backup of the target project and then…

just locate the source files and point them to the target project and select next.

It is recommended to use next and not just finish at this point.

Importing the Monitor data (xml)
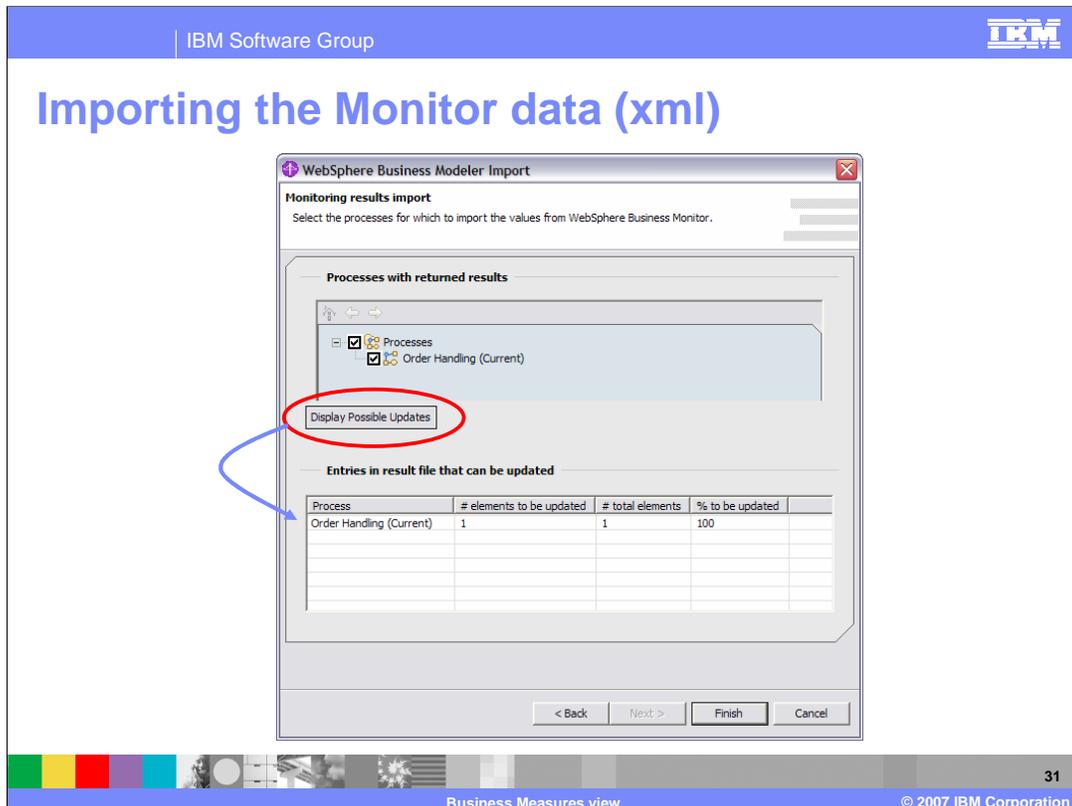
By selecting next, the business analyst gets an opportunity to asses the impact of the changes using the Display Possible Updates button.

This provides some information, but it is still not clear exactly what is going to be updated.

The next few slides will discuss how to identify and verify exactly which elements in the business model are going to be updated.

Export for Monitor: Details

- When exporting for Monitor, the identity of a given KPI is maintain across the tool boundary with a 'tracking id'.
  - ▸ Look in the .mm file that is exported and search on track.

Exported from Modeler

```
<measure aggregationType="avg"
source="Order_Handling__x0028_Current_x0029__MCFactTable/Average_Ship_Order_to_Customer_Processing_TimeFact"
trackingKey="BLM-ebfd8a5dbb54d558a7ab18baab48fdcc/BLM-62c884c67fbb6b2aabce9e5626bc1048/processingTime"/>

<measure aggregationType="avg"
source="Order_Handling__x0028_Current_x0029__MCFactTable/Average_Order_Handling__x0028_Current_x0029__Processing_TimeFact"
trackingKey="BLM-ebfd8a5dbb54d558a7ab18baab48fdcc/BLM-50523648a63bcc5af46e65a518ea6684/processingTime"/>
```

Imported from Monitor

```
<runtimeData xmlns="http://www.ibm.com/xmlns/prod/websphere/monitoring/6.0.2/mr">
<measure>
<trackingKey>BLM-ebfd8a5dbb54d558a7ab18baab48fdcc/BLM-50523648a63bcc5af46e65a518ea6684/processingTime</trackingKey>
<valueType>double</valueType>
<value>3.672E8</value>
</measure>
</runtimeData>
```

Monitored value in msec

32

Shown here are key snippets from the files that were exported from WebSphere Business Modeler and imported from monitor (that is, exported from monitor to be imported into WebSphere Business Modeler)

Notice that the name Order_Handling…..does not show up in the file coming from Monitor. The only way to match it up with the original export from WebSphere Business Modeler is with the tracking ID.

When a Monitor Model is exported from Modeler and the business analyst has indicated that some actual values are to be returned to the process model, the export creates a 'Measure' for each value to be returned. It assigns a tracking key that will allow the actual value for that measure to be correlated to a particular process model attribute at import time. The tracking key itself is not particularly human readable... it is constructed using system IDs of objects in Modeler.

When the monitor model containing the measures has been deployed and is running in the Monitor Server, the system integrator can choose to 'export actual values' from the dashboard. This results in an XML file that basically contains a key/value mapping between tracking key and the value of the corresponding measure. This file is used as the import to Modeler at which point the tracking key is interrogated and used to identify the process attribute that should be updated with the corresponding value from the XML file.

Once the actual values have been imported, you can verify that the process model attributes now have the value that was observed on the dashboard. For example, if you chose to return the Processing Time for a particular task back to Modeler, you can look at the value of the Processing Time attribute for that task in the Attributes View of Modeler, before and after the import.

Summary

- Simpler to specify Business Measures
  - ▶ implementation details in the Monitor toolkit.
  - ▶ *Business Measures Editor* replaced by the *Business Measures View*.

- Business analysts create suggestions for the integrator developer

- Monitored Values can be imported back into Modeler.

33

© 2007 IBM Corporation

Specifying Business Measures in WebSphere Business Modeler V6.0.2 has been simplified, moving the implementation details to the Monitor Toolkit. The Business Measures Editor has been replaced by the Business Measures View.

Specifications in WebSphere Business Modeler are suggestions from the business analysts for the integrator developer who will be completing the Monitor Model in the toolkit.

The Monitored Values can be imported back into Modeler. However, keep an eye on the tracking ID.

Feedback

Your feedback is valuable

You can help improve the quality of IBM Education Assistant content to better meet your needs by providing feedback.

- Did you find this module useful?

- Did it help you solve a problem or answer a question?

- Do you have suggestions for improvements?

Click to send e-mail feedback

Business Measures view

You can help improve the quality of IBM Education Assistant content by providing feedback.

IBM Software Group

Trademarks, copyrights, and disclaimers

The following terms are trademarks or registered trademarks of International Business Machines Corporation in the United States, other countries, or both:

WebSphere

Windows, and the Windows logo are registered trademarks of Microsoft Corporation in the United States, other countries, or both.

Product data has been reviewed for accuracy as of the date of initial publication. Product data is subject to change without notice. This document could include technical inaccuracies or typographical errors. IBM may make improvements or changes in the products or programs described herein at any time without notice. Any statements regarding IBM's future direction and intent are subject to change or withdrawal without notice, and represent goals and objectives only. References in this document to IBM products, programs, or services does not imply that IBM intends to make such products, programs or services available in all countries in which IBM operates or does business. Any reference to an IBM Program Product in this document is not intended to state or imply that only that program product may be used. Any functionally equivalent program, that does not infringe IBM's intellectual property rights, may be used instead.

Information is provided "AS IS" without warranty of any kind. THE INFORMATION PROVIDED IN THIS DOCUMENT IS DISTRIBUTED "AS IS" WITHOUT ANY WARRANTY, EITHER EXPRESS OR IMPLIED. IBM EXPRESSLY DISCLAIMS ANY WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE OR NONINFRINGEMENT. IBM shall have no responsibility to update this information. IBM products are warranted, if at all, according to the terms and conditions of the agreements (for example, IBM Customer Agreement, Statement of Limited Warranty, International Program License Agreement, etc.) under which they are provided. Information concerning non-IBM products was obtained from the suppliers of those products, their published announcements or other publicly available sources. IBM has not tested those products in connection with this publication and cannot confirm the accuracy of performance, compatibility or any other claims related to non-IBM products.

IBM makes no representations or warranties, express or implied, regarding non-IBM products and services.

The provision of the information contained herein is not intended to, and does not, grant any right or license under any IBM patents or copyrights. Inquiries regarding patent or copyright licenses should be made, in writing, to:

IBM Director of Licensing
IBM Corporation
North Castle Drive
Armonk, NY 10504-1785
U.S.A.

Performance is based on measurements and projections using standard IBM benchmarks in a controlled environment. All customer examples described are presented as illustrations of how those customers have used IBM products and the results they may have achieved. The actual throughput or performance that any user will experience will vary depending upon considerations such as the amount of multiprogramming in the user's job stream, the I/O configuration, the storage configuration, and the workload processed. Therefore, no assurance can be given that an individual user will achieve throughput or performance improvements equivalent to the ratios stated here.

© Copyright International Business Machines Corporation 2007. All rights reserved.

Note to U.S. Government Users - Documentation related to restricted rights-Use, duplication or disclosure is subject to restrictions set forth in GSA ADP Schedule Contract and IBM Corp.

35

Business Measures view

© 2007 IBM Corporation

WBModeler602_BMV.ppt

Page 35 of 35