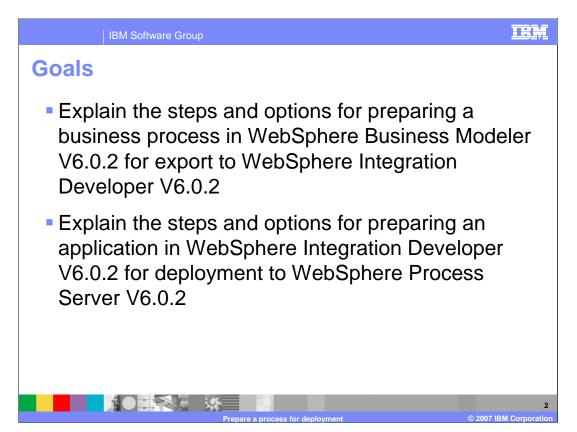
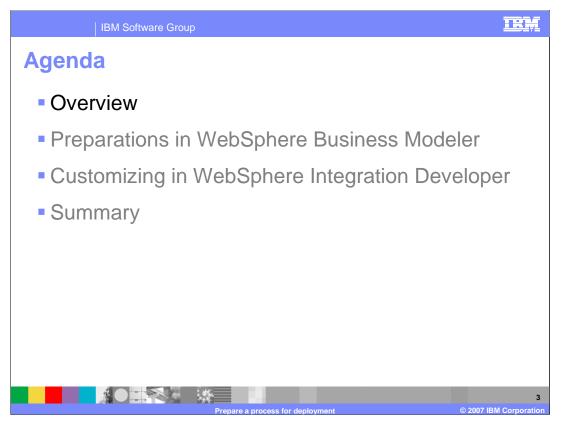


This presentation will provide an overview of preparing a Process in WebSphere® Business Modeler V6.0.2 for deployment to WebSphere Process Server V6.0.2.

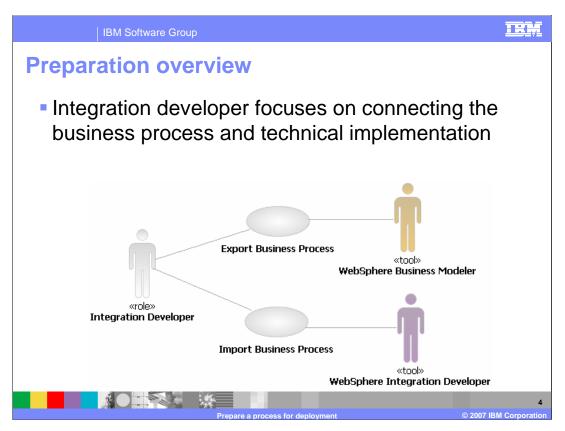


The goals of this presentation are to discuss the steps and options available in WebSphere Business Modeler V6.0.2 that are necessary to prepare the business model for export to WebSphere Integration Developer V6.0.2

and the module assembly activities in WebSphere Integration Developer V6.0.2 required to map and connect the business processes to the service implementations.



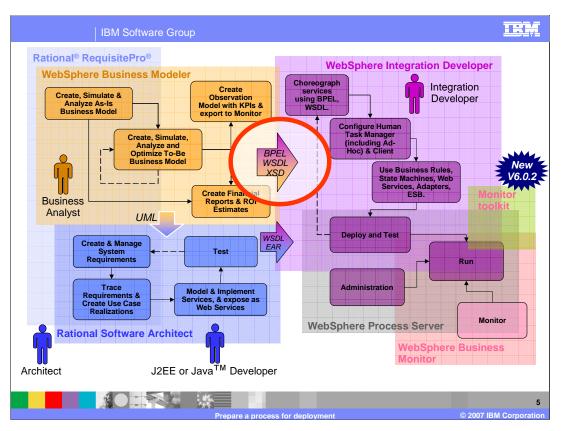
This section of the presentation will provide an overview of the series of steps required to move a process from WebSphere Business Modeler to WebSphere Integration Developer in preparation for deployment into WebSphere Process Server.



Business analysts are the primary users of WebSphere Business Modeler as they define the business processes and perform simulations.

The integration developer is the technical specialist that bridges the gap between the business analyst and the Java developer. The integration developer understands the business processes and models and also understands the development environment used by the Java developers to create the implementation. The integration developer also understands BPEL and how to develop flows and invoke services.

With WebSphere Business Modeler, you can specify the technical details in the business model that are used when importing into WebSphere Integration Developer in preparation for deployment to WebSphere Process Server. Specifying these details in the business model allows the import tool in WebSphere Integration Developer to construct a more accurate implementation model, reducing the development time.



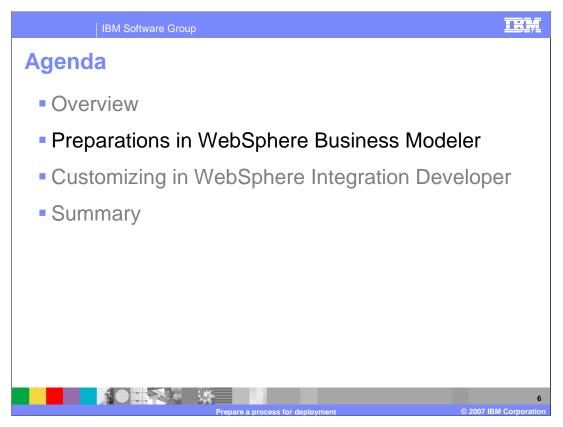
Several steps occur as a process is moved into the production environment.

First, a business analyst will design the business process, simulate and optimize it using WebSphere Business Modeler. Once the process is complete, there are 3 types of exports that can be done from WebSphere Business Modeler.

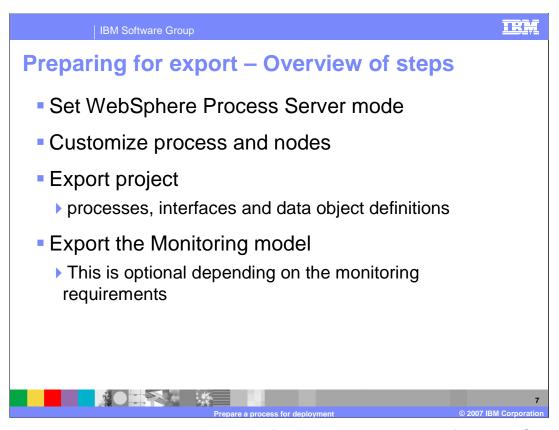
- 1. It can be exported as a Unified Modeling Language (UML) document and consumed using Rational® Software Architect, which includes Rational Application Developer. For those services that are not implemented already, an architect and J2EE Developer can create the services to provide implementations and make the service interfaces available to WebSphere Integration Developer.
- 2. In WebSphere Integration Developer, the service information is used along with the process, which is imported into the workspace. The activities in the BPEL business process are connected to the service implementations that were created by the architect and J2EE/Java developer or implemented with other components. Other types of integration logic can be added through business rules, state machines, Web services, and adapters to Enterprise Information Systems.

After creating the services and implementing the business process, the process can be deployed to the WebSphere Process Server runtime.

3. If there are business metrics and key performance indicators specified for the business of process in WebSphere Business Modeler, then they can be exported separately and



This section will provide an overview of the preparation for the transition between WebSphere Business Modeler V6.0.2 and WebSphere Integration Developer V6.0.2.

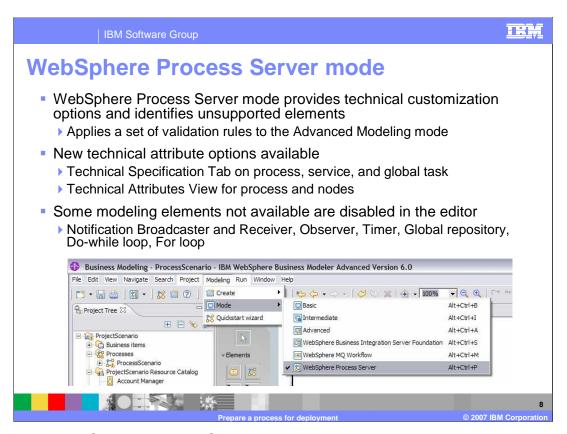


There are some steps that must be done before exporting the project from WebSphere Business Modeler.

The first step is to set the WebSphere Process Server Mode to Modeler as soon as possible, followed by customization of the processes and nodes, and finally, exporting the project.

Optionally export the monitoring model if monitoring is required.

Each of these steps will be described in more detail.

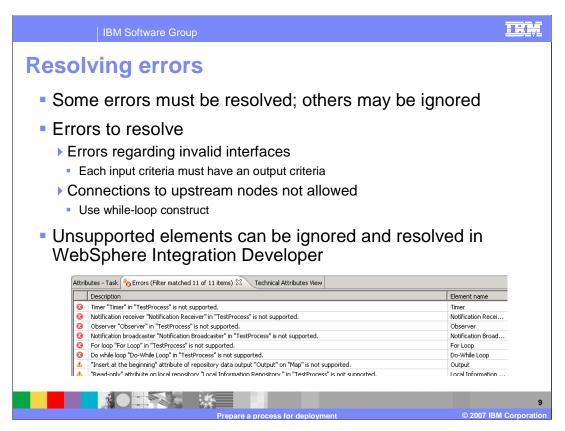


Changing to WebSphere Process Server mode makes some options available and enforces additional sets of validation rules.

Once this mode is set, a **Technical Specification** tab will be added on the <u>Process Editor</u>. There is also a **Technical Attributes View** for individual nodes as well as for the process. You will also find a Technical Specification Tab on the service and global task editors.

In the Technical Attributes View, specific technical information or values for deployment for these nodes can be specified. With the WebSphere Process Server mode set, some of the modeling elements such as notification broadcaster and receiver, observer, timer, global repository, do-while loop, and for loop will be disabled in the editor, so you will not be able to add these to a process. If these unsupported elements already exist in the process editor, they will be flagged as not compatible with WebSphere Process Server mode.

It is up to you to decide if they should be replaced with elements that are supported in WebSphere Business Modeler or handled in WebSphere Integration Developer. Because unsupported elements cause additional work prior to deployment into production, it is recommended that you set the WebSphere Process Server mode as soon as you select WebSphere Process Server as your production environment.

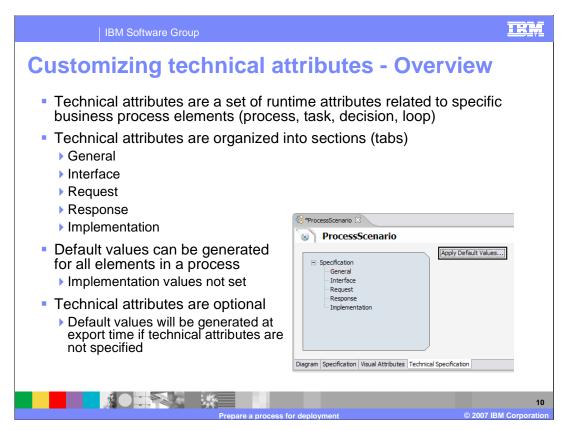


In addition to unsupported elements, you could also receive errors on other artifacts represented by flags in the Error View.

For the flags related to those unsupported elements, it is up to you to decide whether or not to keep those artifacts. You will need to fix them in WebSphere Integration Developer or change them to types of artifacts supported by the Modeler.

Other errors, such as invalid interfaces or error messages regarding input and output criteria should be resolved within Modeler. If there is any connection back upstream within a process, that should be converted to a while-loop in Modeler.

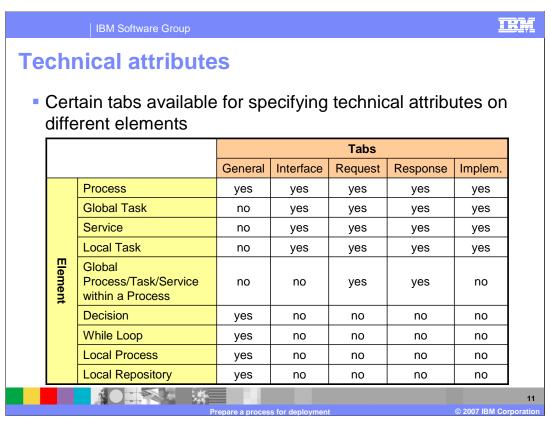
Be sure to make backups of the processes in a repository before making changes to resolve the error and warning flags.



Enabling the WebSphere Process Server mode provides additional technical attributes that can be specified on processes and tasks depending on the type of element.

Technical attributes are organized into the General, Interface, Request, Response, and Implementation sections. Different attributes can be specified for each of these sections. From the <u>Technical Specifications tab of the Process Editor</u>, (as shown here), you can generate the default values for these attributes by selecting the **Apply Default Values** button.

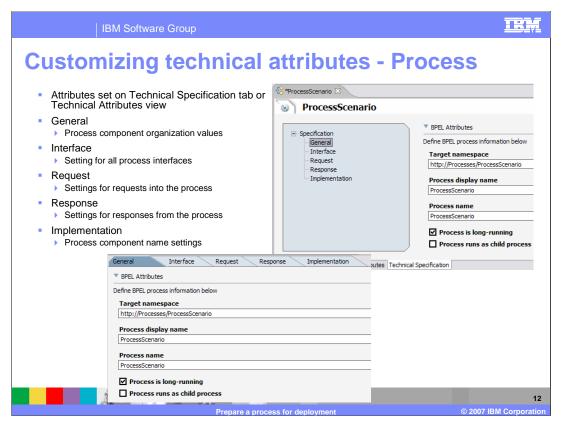
This provides a convenient way to set values in the correct format and allows you to easily update them with more appropriate and specific values. Technical attributes are optional and if none are specified, default values will be used at export time.



This table summarizes the technical attributes that can be specified for different elements. For example, General information can be specified for the process, decision and while-loops.

Interface information, including the Request and Response can be specified for elements as well.

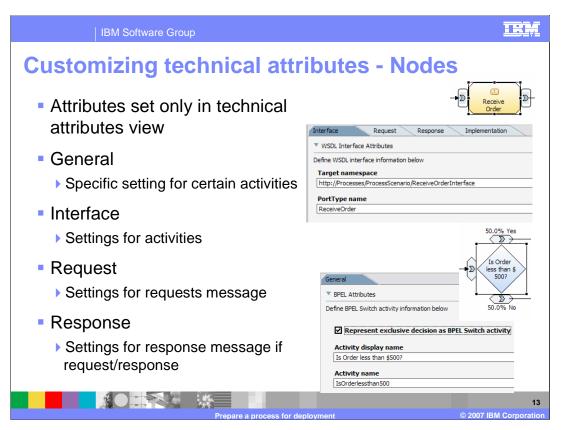
This information becomes part of the WSDL artifact generated for the element.



The technical attributes for the business process can be specified in 2 places.

On the Technical Specification tab in the process editor, the values can be set for the process, interface, request, response and implementation.

These same values can also be set on the Technical Attributes view when the Diagram tab is selected in the process editor. Changing the values at either location will result in the same value being updated.



Technical attributes can also be specified for node elements.

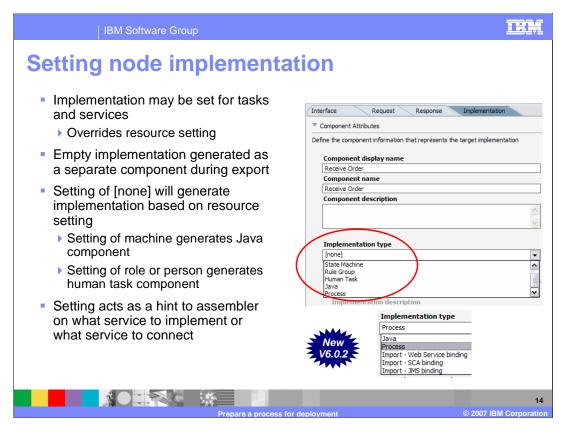
Depending on the task, different technical attributes will also be available.

For example, the Receive Order task has four technical attributes - general, interface, request and response.

Interface indicates name space and port type for the interface that defines the task.

Request and response are the settings for request and response messages.

For decision elements, a BPEL switch activity can be specified to be used. Otherwise, it uses logic in links inside a flow activity by default.



The Implementation tab primarily applies to local and global tasks. The underlying implementation can be specified and an empty implementation of that particular type will be generated while exporting from Modeler and recognized as an empty component by WebSphere Integration Developer.

If None (the default type) is specified for a particular task, it will generate an implementation based on a number of factors, including the type of resource specified for that task.

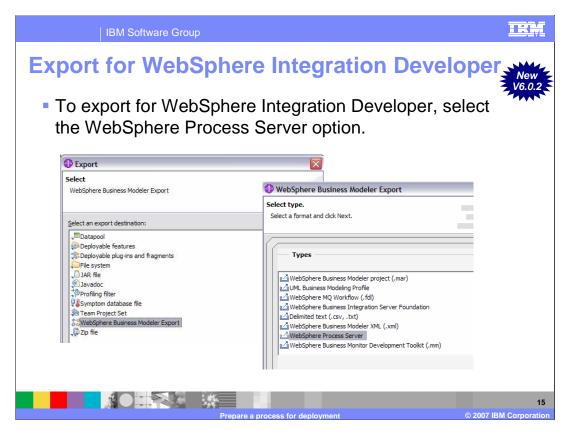
If a machine is specified, a Java component is generated.

If a role or a person is specified, a human task component is generated.

If the task is a local task and the resource is human, then the type of implementation becomes an inline human task inside the BPEL process.

With WebSphere Business Modeler V6.0.2 there are 3 new implementation types that can be specified, "import – Web Service Binding", "import SCA binding", and "import JMS binding". By using these implementation types the assembly editor in WebSphere Integration Developer will be able to take the extra step of constructing the module assembly.

A local task with Java specified as the implementation will become a Java component inside the module. Because the implementations are empty even when a specific type is selected it is best to think of the implementation type as a hint to the Integration Specialist (or whoever is performing the assembly of the process to services) as to what component



With the process and tasks customized, the process is now ready for export.

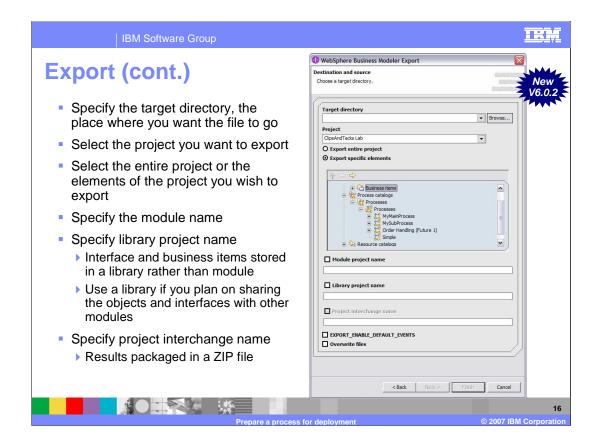
If you select export from the file menu you'll get the first export dialog.

Selecting "WebSphere Business Modeler Export" will invoke the second dialog listing the various export options.

For exporting to WebSphere Integration Developer, select the WebSphere Process Server option.

Remember that WebSphere Integration Developer is the development tool for WebSphere Process Server.

With WebSphere Business Modeler V6.0.2 the monitor model with the business measures and the key performance indicators have been separated from the export for WebSphere Process Server. If monitoring is a requirement then the monitor model must be exported separately, using the "WebSphere Business Monitor Development Toolkit (.mm)" export type.



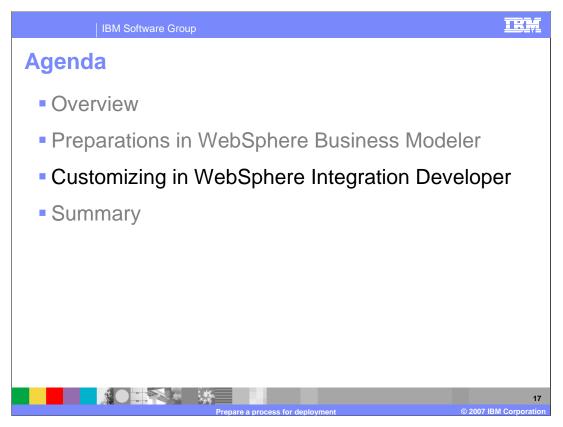
On the next screen of the export wizard you have the opportunity to specify the target directory, source project, and either the entire project or just specific elements of it.

You will also need to specify the module name and a library name.

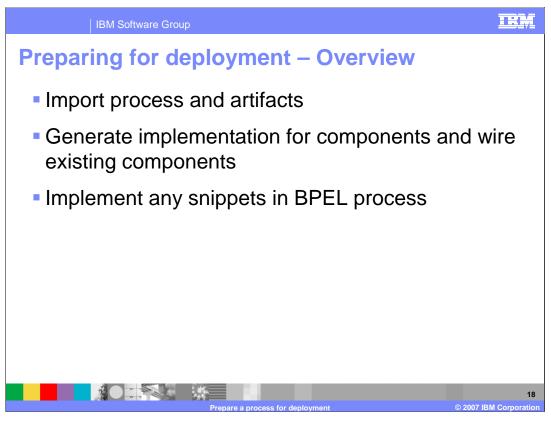
If a library is not specified, all of the interface and business item information will be placed in a single module, making it more difficult to use with other components.

You should also specify a project interchange name, which will result in all of the contents being packaged in a single ZIP file rather than in a directory structure.

You can also export the artifacts directly into a WebSphere Integration Developer workspace. However, this option is not recommended because it will overwrite any existing files, which could contain implementation details.



This section will provide an overview of customizing the process in WebSphere Integration Developer.

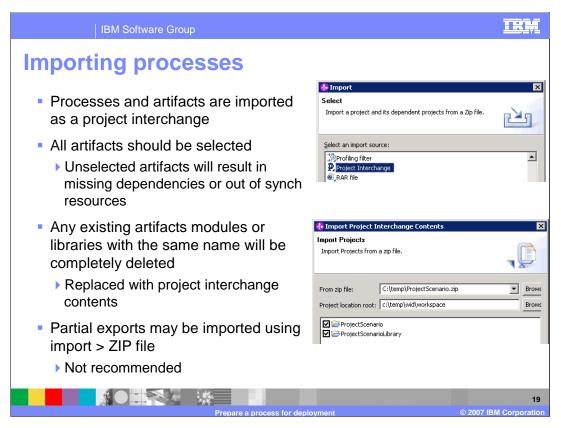


Some primary steps are necessary for customizing the process once it is imported into WebSphere Integration Developer.

After importing, you must complete the implementation for any components or connect to existing components.

If there are any snippets in the BPEL process that are the result of using unsupported elements in the process in WebSphere Business Modeler, you must implement those as well.

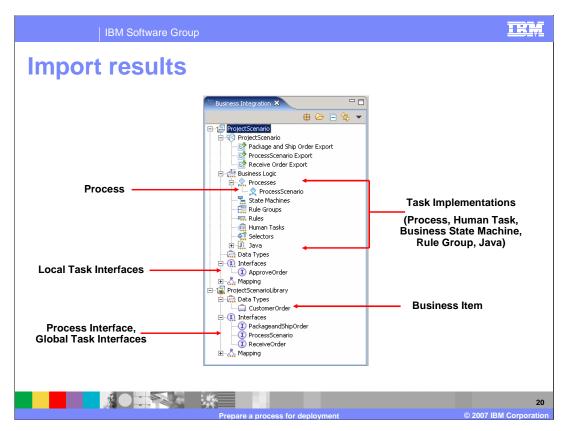
Each of these steps will be discussed in more detail.



The Project Interchange import option should be used, rather than individual files, for importing artifacts into WebSphere Integration Developer.

Any existing artifacts, modules or libraries with the same name will be completely removed and replaced with Project Interchange contents.

If you are importing a process that you already implemented in that workspace, it is important that you back up the appropriate modules and libraries accordingly.



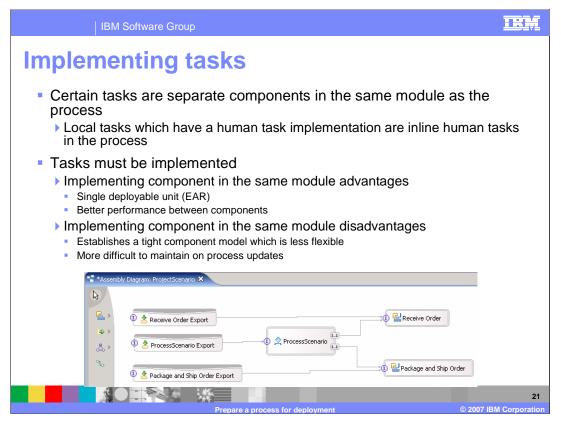
When you import a project into WebSphere Integration Developer V6.0.2, you will find that the processes in WebSphere Business Modeler becomes BPEL processes.

The tasks in the business process will have empty components, corresponding to the implementation type value specified for the task.

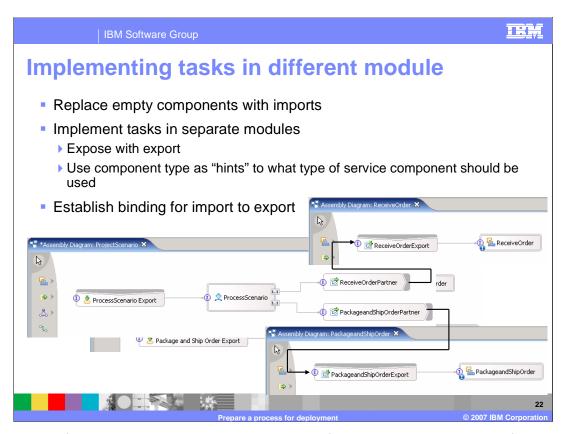
If any of the tasks are local tasks, the interface is created in the module.

If any of the tasks are marked as global and a library was specified at export time, the interface will be placed in a library project.

If the Library option was specified when exporting the project, interfaces for the processes and business items will be imported into the library module. Otherwise, they will go into the modules with their associated business processes.



As previously indicated, the various tasks that comprise the process will be implemented as empty components of a particular type. These tasks can be opened and implemented from the Business Integration view or from the Assembly Editor inside WebSphere Integration Developer. When implementing the tasks, you have a variety of options. If a service exists, the empty component can be removed and the process reference can be wired to reuse that existing service. Existing services are typically in a separate module and you would use an import component to represent the service. If the service does not exist, you can implement the empty component in the same module. There are advantages and disadvantages to implementing the component in the same module. One advantage is that performance between components within the same module is better than components in separate modules. Another advantage is that there will be fewer applications to manage in the production environment, because each module maps to an enterprise application or EAR file. A disadvantage of implementing the component in the same module would be the need to change one of the components. Whether it is the process or a component based on a task, the entire module with both components must be updated in the production environment. Also, with the components directly connected, there is no way to change the binding information. With the components wired in separate modules, wiring can be changed in production, making it possible to use a different component with the same interface. Everything in one module also makes it difficult to maintain updates when a new version of the process is assembled in WebSphere Integration Developer and deployed to WebSphere Process Server. For most environments, the disadvantages outweigh the advantages and it is better to use separate modules rather than have all of the components in the same module.



This example further emphasizes the advantages of using separate modules for task implementations. By default, the process has empty components generated in the same module as the BPEL process. These components can act as hints to indicate what type of component should be used in another module. The component can be replaced with an import and a binding to the export of the component in another module can be made. Using this solution, a change to the process requires only a set of rewire operations by the integration developer, and not a change to the components.

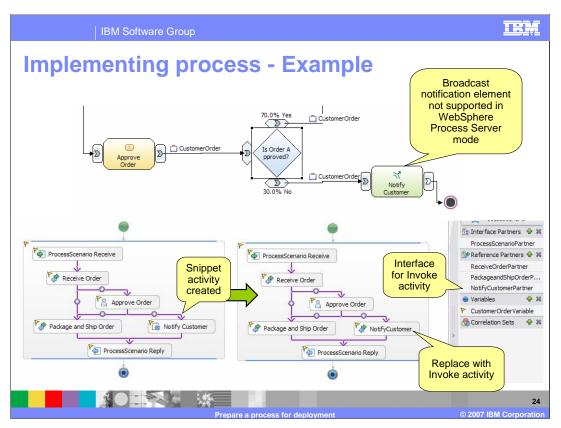
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Implementing processes

- Certain tasks and constructs from modeler do not have matching BPEL activities
 - Implemented as empty snippets
- Snippets can be replaced with invoke activities or custom library snippets can be created and reused
 - Interfaces for invoke activities should be placed in a separate library
- Certain BPEL concepts and constructs do not have modeler equivalent and should be used carefully
 - Faults, fault handlers, compensate, compensation handlers, wait activity, scopes (not associated with a local sub-process in WebSphere business modeler), expirations, event handler



In addition to the various tasks, there is implementation that must to be done in the process. Certain tasks and constructs that are used in WebSphere Business Modeler are not supported in BPEL and will be implemented as empty snippets, which need the appropriate code added. Any code that you add will be lost if you import a new version of the process. You can make use of the custom snippet support in WebSphere Integration Developer and then reuse the code when you make updates to the process. You can also replace snippets with invoke activities, which call out of the process to components existing in the same module or, preferably, in a different module. When you make future updates to a process, the snippet would just need to be replaced with an invoke activity again. Certain BPEL concepts and constructs, such as faults, fault handlers, compensate, compensation handlers, wait activity, and scopes that are not associated with local subprocesses, expirations, and event handlers do not have equivalent elements in WebSphere Business Modeler and should be used carefully. They should be created in a separate process within a separate component. You should make as few changes to the BPEL process as possible.



This slide shows an example of implementing a process containing snippets. In this process, if an order is not approved, the customer must be notified. The notify customer task is a notification, which is not supported when exported to BPEL. A snippet is created in the process and must be implemented to perform the notify customer option. Putting in your own code will result in a loss of that code if a new version of the process is imported into WebSphere Integration Developer. Therefore, it is better to replace the snippet with an invoke activity and implement the logic in a component in a separate module. An interface, defined in library, will be associated with that invoke activity through a partner defined on the process.

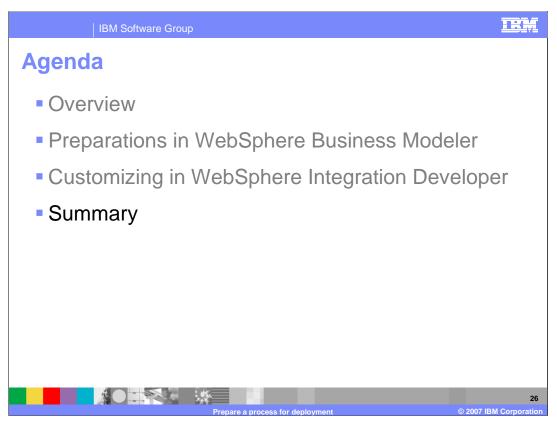
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Other considerations and notes

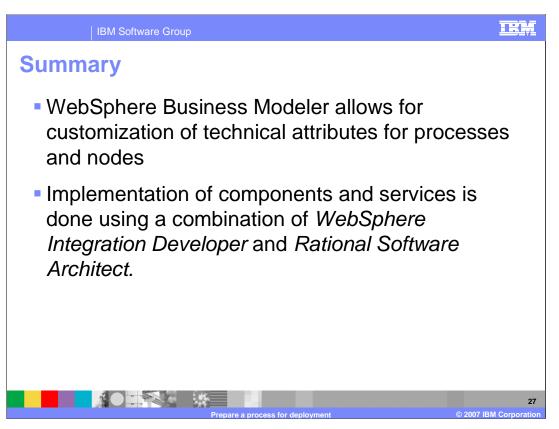
- Do not change interfaces or business objects in WebSphere Integration Developer
 - Use interface and data maps if existing implementation interfaces and data objects are different
- Limit amount of changes to BPEL process
 - ▶ Use business rules, custom snippets, and invoke activities to other components for additional logic and processing
- Do not modify Event Monitoring settings in BPEL process
 - Settings defined in modeler for monitoring by WebSphere Business Monitor
- Do not change the Valid From date setting
 - Changes will cause generated events to be ignored and discarded by WebSphere Business Monitor



There are some important things to consider when assembling a process in WebSphere Integration Developer. It is best not to make any changes to interfaces or business objects in WebSphere Integration Developer. If you are connecting the process to existing services, use interface maps and data maps if the existing service interfaces are different. Limit the number of changes to BPEL process. Any changes you make will be lost when you import a new version of the process into WebSphere Integration Developer. WebSphere Business Modeler will set event monitoring settings for the BPEL process, variables, and Invoke activities. These settings should not be changed because it could affect how WebSphere Business Monitor processes and records events for the process and reports business metrics and key performance indicators. Finally, do not change the Valid From date setting in WebSphere Integration Developer. This value is set at the time the process is exported from WebSphere Business Modeler and will match the Valid From Date on the business measures. Any changes to the date could cause WebSphere Business Modeler to ignore and discard events generated from the process.



This section will provide a summary of this presentation.

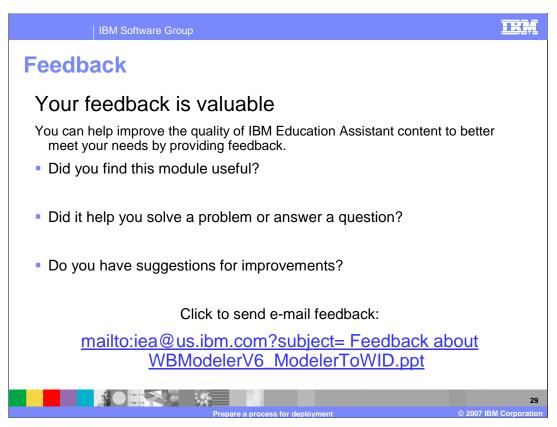


In summary, WebSphere Business Modeler allows for technical attributes to be specified for processes and nodes prior to export. With WebSphere Integration Developer, processes can be further implemented in preparation for deployment to WebSphere Process Server.



New BPEL/WSDL generation support

- BPEL <pick> activity generation
 - By defining multiple Input Criteria on the Process, which represents multiple exclusive trigger points of the Process, Modeler will generate a BPEL <pick> activity
- BPEL <switch> activity generation
- An option is provided that is presented as a Technical Attribute on a Decision node to generate a BPEL <switch> activity for the Decision node
- Support of one-way operation
 - Support the configuration of the WSDL operation type through Technical Attributes
 - User can specify whether the WSDL operation to be generated is a one-way or request/response type operation
- Optimized the number of variables generated
 - In Modeler 5.1, the BPEL variables are not re-used between the input and output of a BPEL activity, thus many variables are created. In 6.0, the number of variables generated has been optimized and variables are reused as
- Optimized transformation of control actions (Fork, Decision, Merge, Join)
 - In Modeler 5.1, control actions like Fork, Decision, Merge, and Join may generate a BPEL <empty> activity
 - In 6.0, the transformation is optimized and no longer generates unnecessary empty activity
- Generation of WS-I compliant WSDL Message
 - In 6.0, the generated WSDL Message conforms with the WebSphere Integration Developer convention using a document-literal wrapped style
- Technology Mode support
 - In 6.0, the concept of User Profile and Mode in 5.1 has been unified into a single concept of Mode
 - Six different modes including Basic, Intermediate, Advanced, WebSphere MQ Work Flow, WebSphere Business Integration Server Foundation, and WebSphere Process Server
 - The later three technology related modes will sit on top of the advanced mode which exposes all the attributes in the model
 - Technical Attributes support available only in the WebSphere Process Server mode.



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Prepare a process for deploymen