WebSphere Education

Define elements and attributes

Unit 5

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Unit objectives

After completing this unit, you should be able to:

- Explain business items, business services, business service objects, resources, organizations, and classifiers
- Describe additional modeling elements: timer, map, broadcaster, receiver, observer
- Describe advanced attributes for tasks

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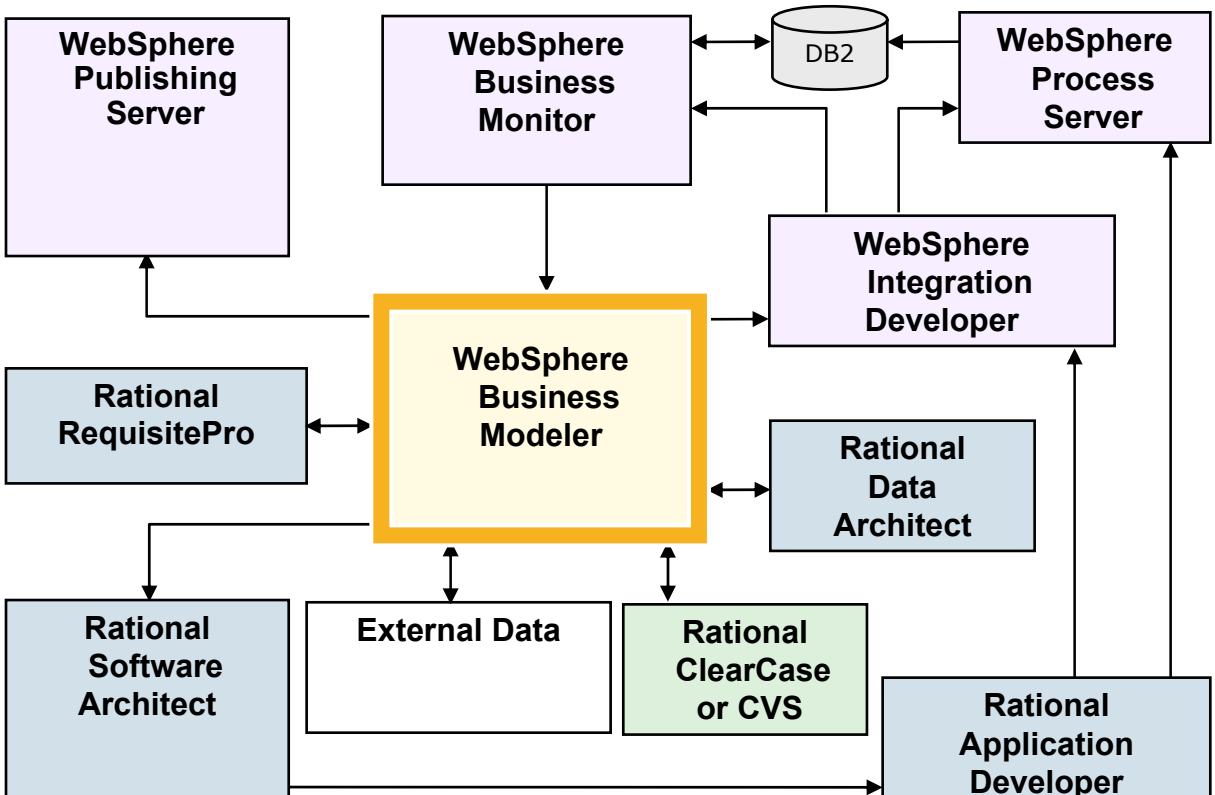
Adding elements and attributes to the model



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Adding relevant information to the diagram

- A model includes a diagram with relevant information added
  - Information on what is received, worked on, and produced
    - Business items
  - Information about who performs the work and when:
    - Resources
    - Roles
    - Timetables
  - Information on how the company is organized:
    - Organization unit
    - Location
    - Structure
  - Information on grouping related information for analysis:
    - Classifiers
- Information elements are defined and edited using editors opened in the project tree

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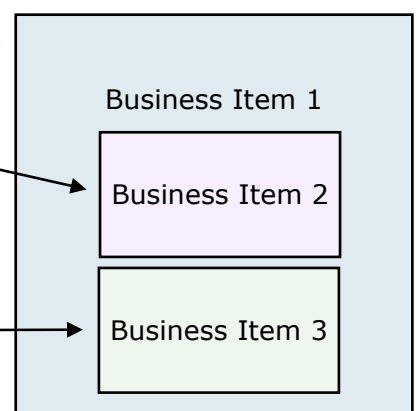
What is a business item?

- Business items
  - Business data, documents, work products, or physical commodities that are transformed by the process
  - Anything that is created, assembled, inspected, tested, modified, or worked on
  - Represented by an icon on the diagram

- Structure of a business item
  - Customer order
    - Customer information
      - First name
      - Last name
      - Street address
      - City
      - State
      - Zip code
    - Order detail
      - Item 1
      - Quantity
      - Item 2
      - Quantity



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Business item information

- Business item instance
  - A particular occurrence of a business item
    - “Ticket #7” of business item “Problem Ticket”
      - Used in a simulation model to define the sample data when creating simulation values for business items
  - Based on a business item, which defines its attributes
    - The business item instance optionally has a specific value for each attribute defined by the business item.
- Business item templates
  - Used to model groups of business items that share common attributes
- Notifications
  - Occurrences in a process that can trigger actions
    - A process can use a notification to send information to one of its already-executing subprocesses, or a subprocess can use a notification to send information to its parent process.
    - Notifications can be used to model conditions of interest to be transmitted from a sender to a set of interested parties (the receivers).
      - The sender is not aware of the receivers of the notification.
- Notification templates
  - Used to model groups of notifications that share common attributes

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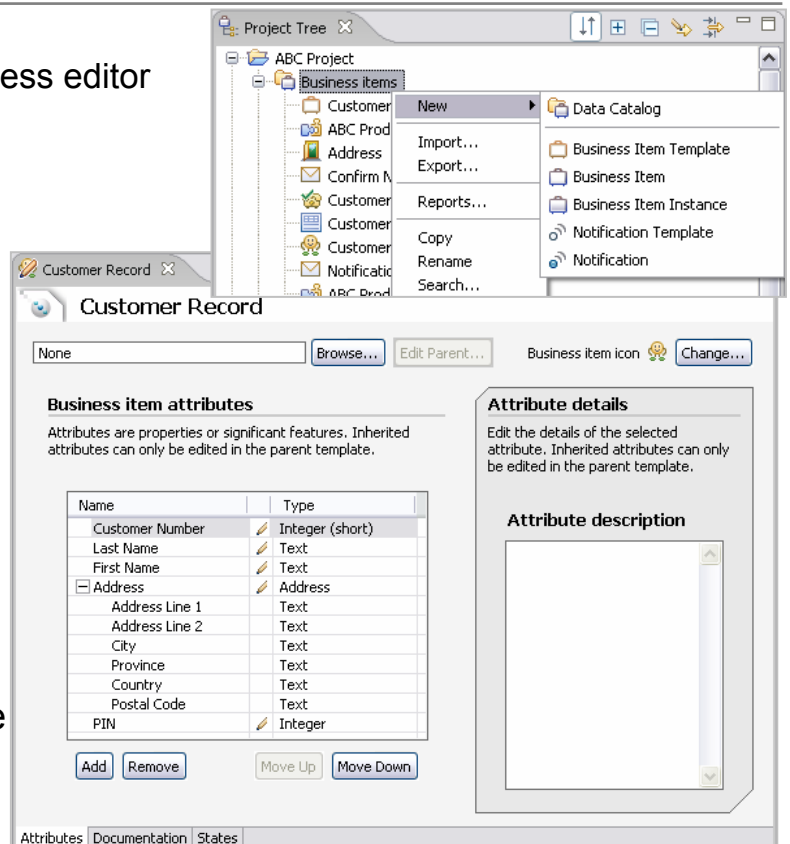
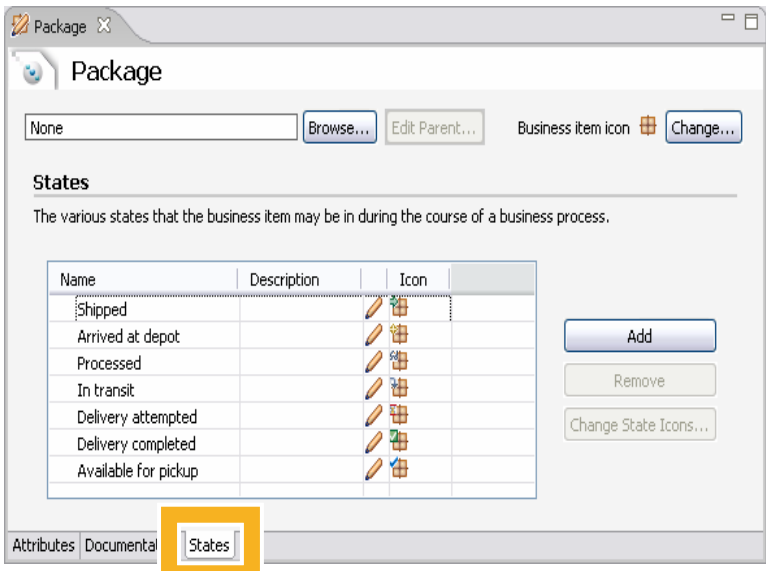
Adding business items

- Business item editor
  - Opens as tab in the process editor
- Attributes tab
  - Add one at a time
  - Based on a predefined template
- Attribute type can added
  - Basic
    - From list of data type
  - Complex
    - From list of predefined types
- Documentation tab
  - Additional documentation
  - Attachments
- Business item icon can be customized
- Notifications are similar



Business item states

- Representations of different stages of a business item
- Example:
  - Business item: Package
  - Business item states:
    - Shipped
    - Arrived at depot
    - Processed
    - In transit
    - Delivery attempted
    - Delivery completed
    - Available for pickup
- Can be added to each business item or business item template



- Business item instances do **not** have states
- Not used during simulation

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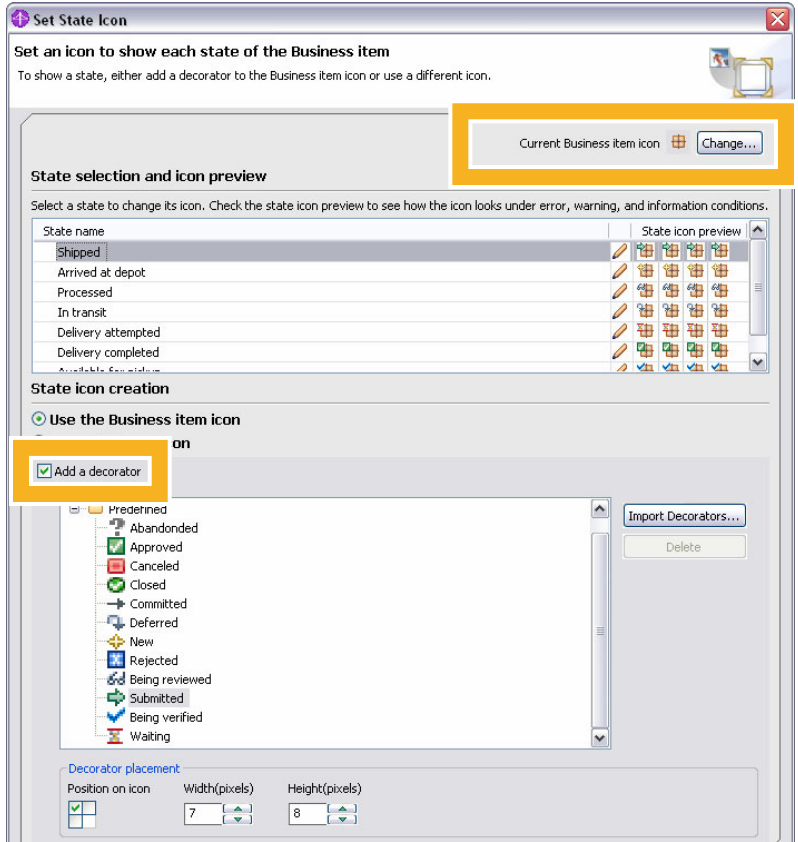
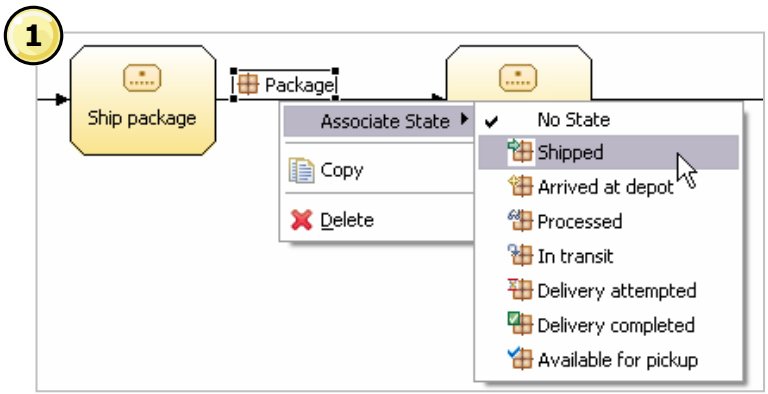
Setting state icons

- Icons for states can be customized
- Optionally add decorators



Associating business item states



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Business services and business service objects (1 of 2)

- Business services
  - Are model element representations of WSDL (Web Services Definition Language) files
- Business service objects
  - Are model element representations of XSD (XML schema) files
- Both types of files can be imported so that the information they contain can be added to the processes being modeled.
  - If the services and service objects have already been implemented, the WSDL or XSD definitions can be imported.
- When you export a process using the WebSphere Process Server export and the process refers to business services or business service objects, WebSphere Business Modeler also exports the WSDL and XSD files that were imported to create them.

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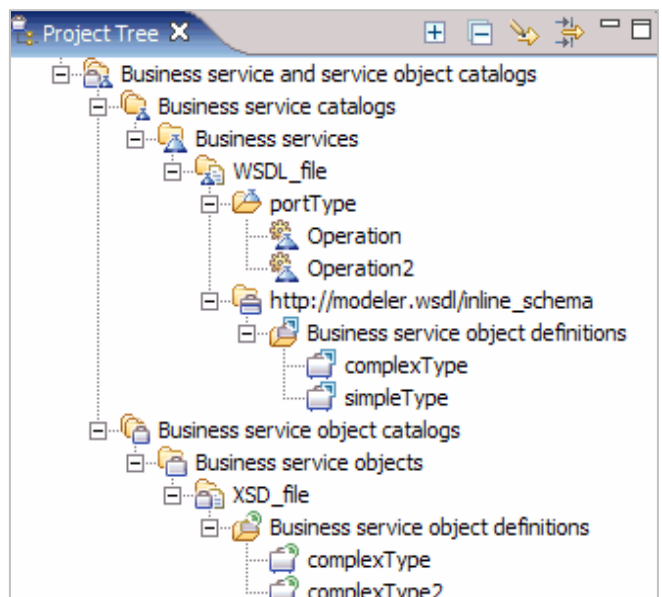
Business services and business service objects (2 of 2)

- WebSphere Business Modeler uses a separate set of catalogs for elements imported from WSDL and XSD files, despite their similarities to business items and services, because changing them would affect existing applications.
  - The business services and business service objects cannot be edited except in simulations.
  - In simulations costs, durations, interrupts, and resources can be added.
  - If a business service or business service object needs to be edited, the only way to do so is to modify the WSDL or XSD file and import again.



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Resource information

- Roles
  - Add additional characteristics to resources.
    - An employee resource could have the role of customer service representative or manager.
    - A scope dimension can be added to a role defining additional requirements.
- Resources
  - Resources represent the people, equipment, or material used to perform a task.
  - Two types of resources: individual resources and bulk resources.
    - Individual resources are resources where a specific instance is required.
    - Bulk resources are resources where any instance of a type of resource from a pool can be used.
      - Non-consumable (such as employees, vehicles, or equipment) are used.
      - Consumable (such as fuel or printer paper) are diminished or used up.
    - Bulk resources are not uniquely identified, but whether resources need to be identifiable may depend on how they are being used.
      - In a car rental agency, bulk information is important to the executive, while individual car information is important to the rental desk.
  - Predefined resource definitions can be used to define resources.
- Timetables
  - A schedule of times that determines the availability of the roles and resources and their associated costs.

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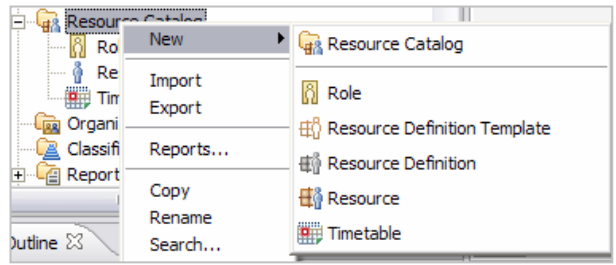
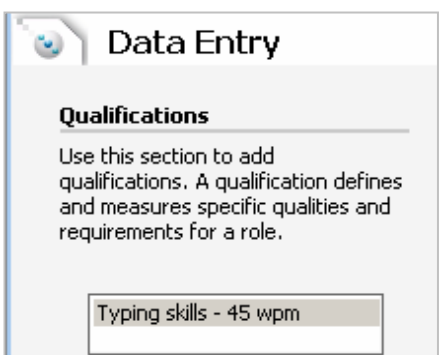
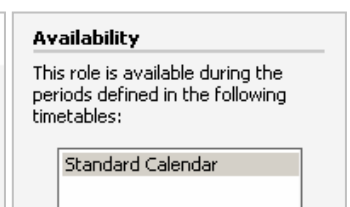
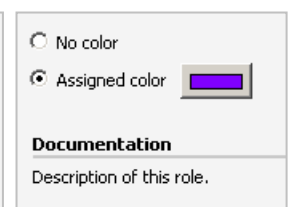
Adding a role

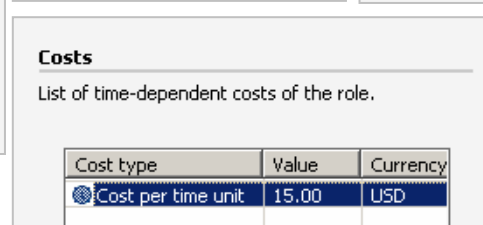
- Roles
  - Defined and edited in Project Tree
- Role editor
  - Opens as a tab in the process editor
- Four tabs











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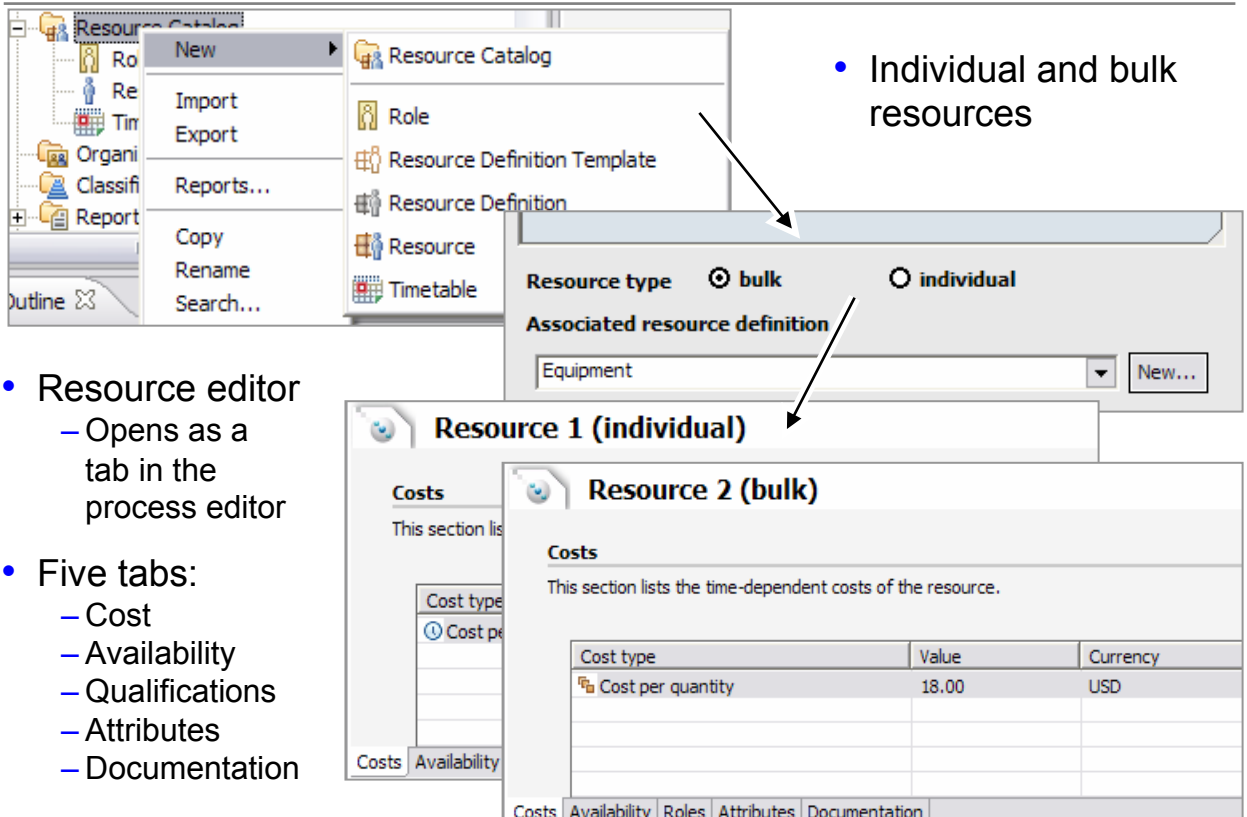
Adding resources



- Individual and bulk resources

- Resource editor
  - Opens as a tab in the process editor
- Five tabs:
  - Cost
  - Availability
  - Qualifications
  - Attributes
  - Documentation

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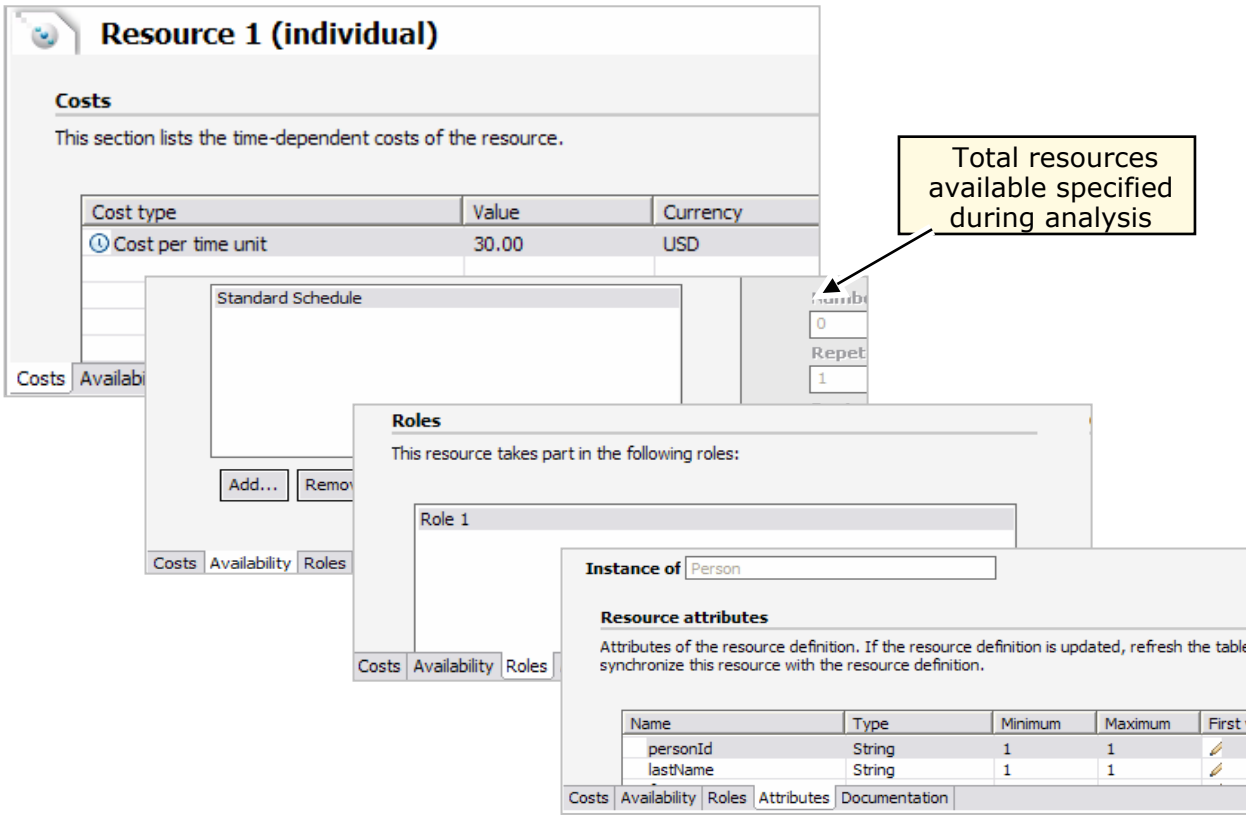
Individual resource



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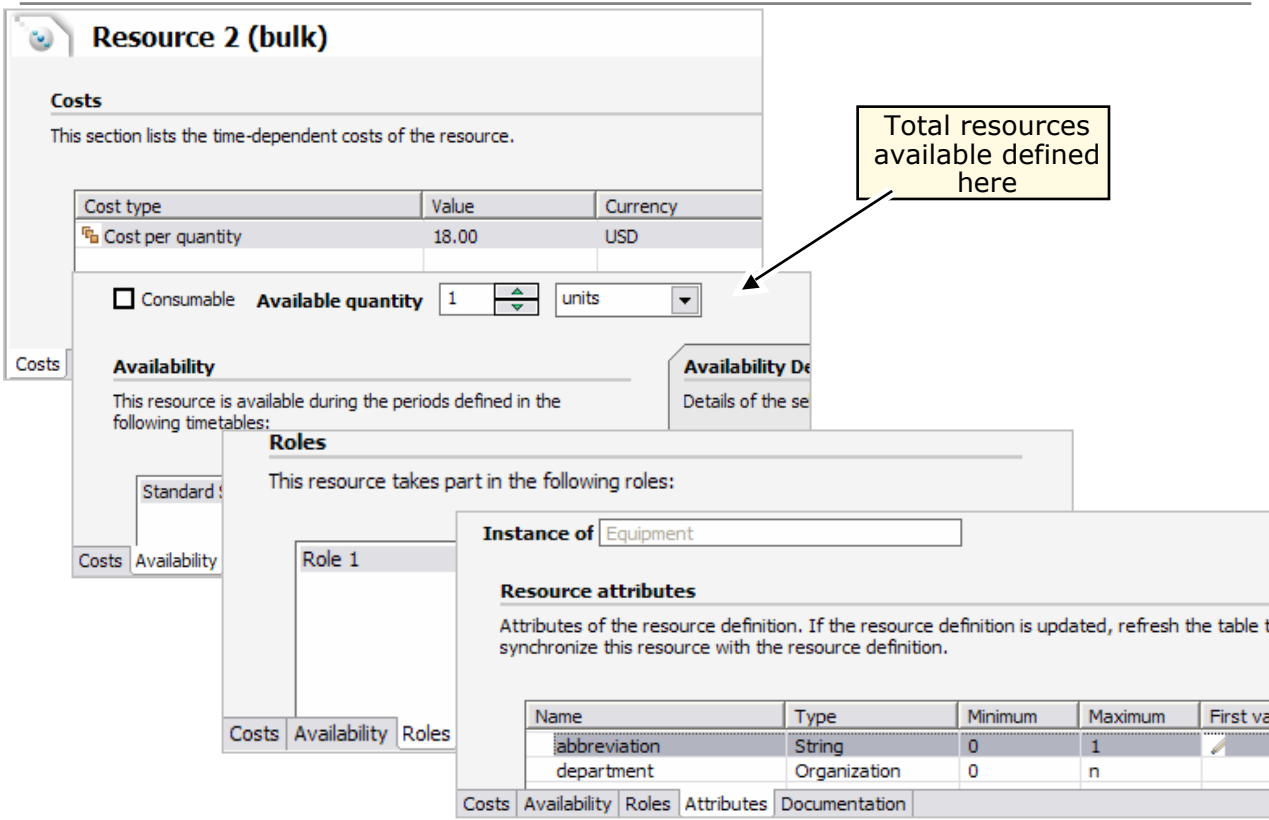
Bulk resources



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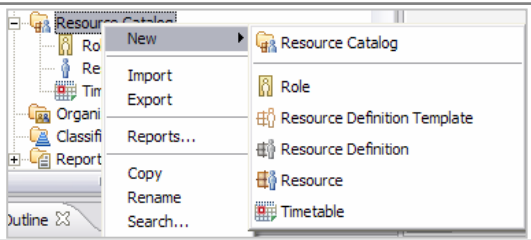
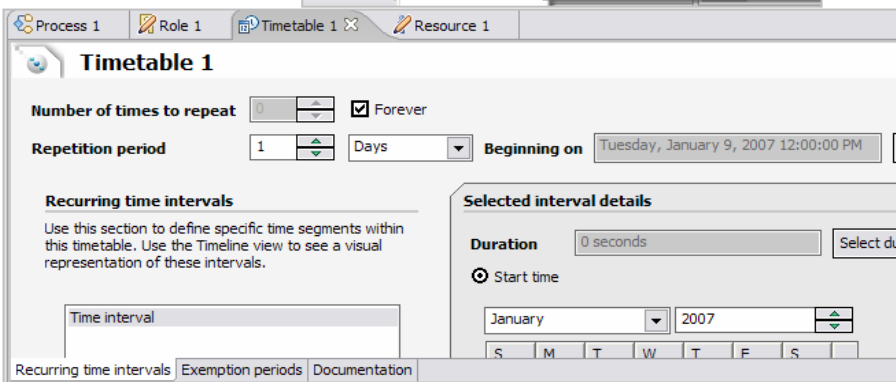
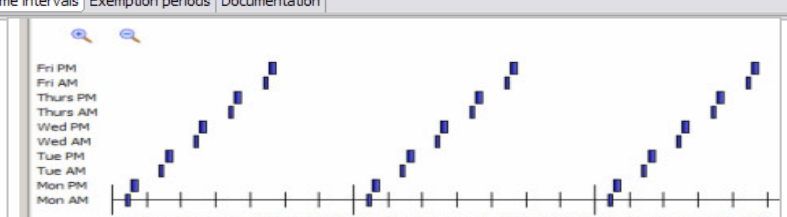
Adding a timetable

- Timetable editor
  - Opens as tab in the process editor
- Three tabs
  - Recurring time intervals
    - Times to repeat — forever
    - Repetition period
    - Beginning date and time
    - Recurring available intervals
  - Exemption periods
    - When timetable does not apply
  - Documentation
    - Additional documentation
    - Attachments
  - Attributes view
    - Visual representation







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Organization information

- Organization
  - Organization unit
    - The specific organizational groups inside an organization.
    - Organization units can be enterprises, companies, departments, or teams.
    - Every organization unit is based on an organization definition, with attributes.
  - Location
    - The specific places of interest to your organization.
    - Locations can be the name of a location, headquarters, or a physical location such as New York.
    - Use the structure editor to model how the locations relate to each other.
    - Associate the locations with elements in your process model to show where each task takes place, or where a particular resource is located.
  - Structure
    - Hierarchical relationships between different organizational entities.
    - Structures model how business elements such as locations, resources, and organization units relate to one another outside the context of a process.
    - Structures are graphical representations of relationships.

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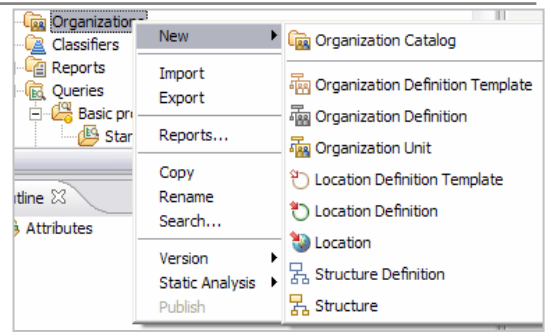
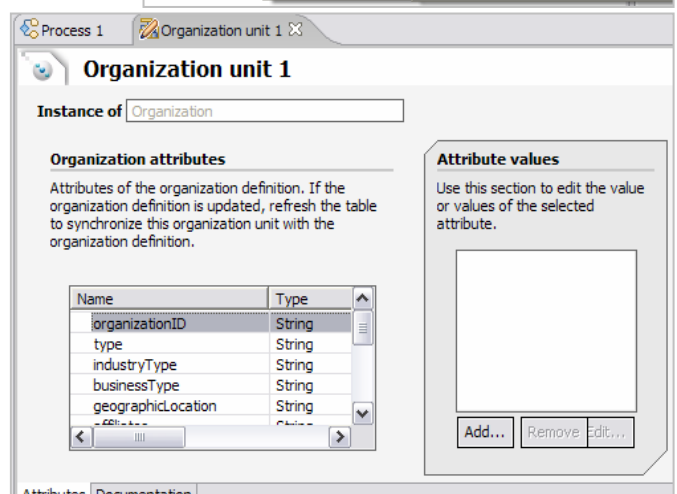
Adding an organization unit

- Organization units
  - Defined and edited in Project Tree
- Organization unit editor
  - Opens as a tab in the process editor
- Attributes tab
  - Based on organization definition
  - Create custom definitions
  - Use predefined definitions
  - Template can be created
- Attribute type can added
  - Basic
    - From list of data types
  - Complex
    - From list of predefined types
- Documentation tab
  - Additional documentation
  - Attachments





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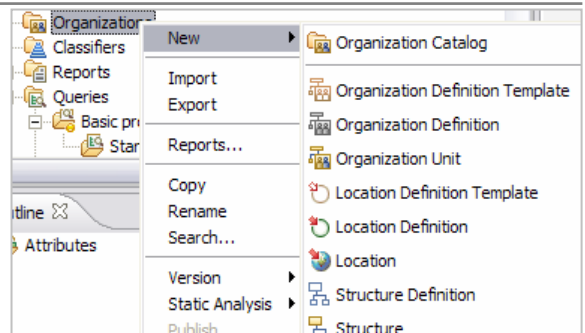
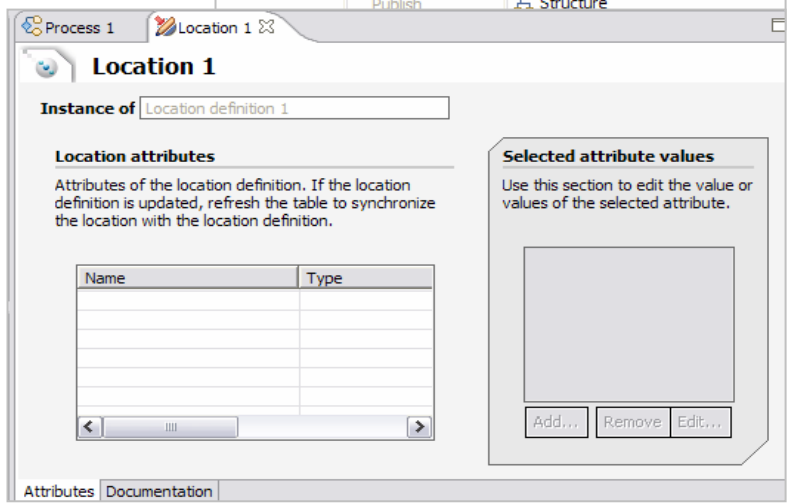
Adding a location

- Location editor
  - Opens as a tab in the process editor
- Attributes tab
  - Based on location definition
  - Create custom definitions
  - No predefined definitions
  - Template can be created
- Attribute type can added
  - Basic
    - From list of data types
  - Complex
    - From list of predefined types
- Documentation tab
  - Additional documentation
  - Attachments





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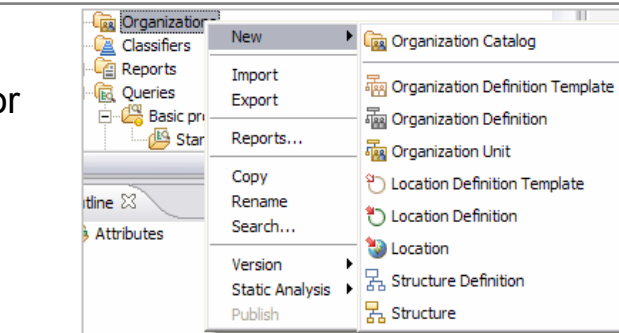
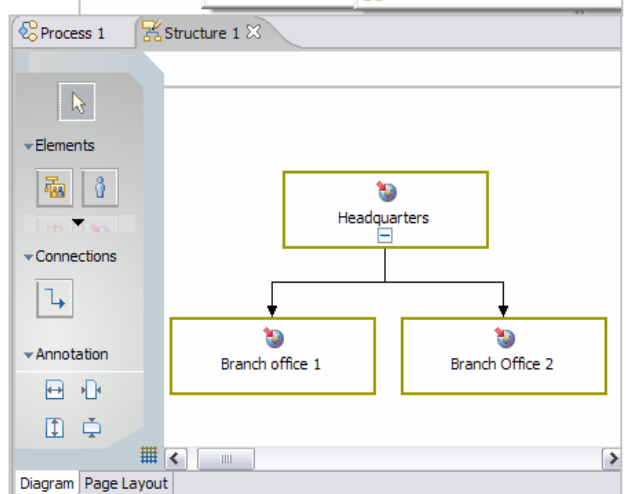
Adding structure

- Structure editor
  - Opens as tab in process editor
  - Similar to process editor
    - Graphical editor
- Diagram tab
  - Based on structure definition
  - Structure types
    - Organization units
    - Individual resources
    - Bulk resources
    - Locations
    - Categories
    - Business item instances
    - Roles
- Page layout
  - Setup for printing





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Using classifiers

- Classifiers
  - Enable you to categorize tasks and other process elements for decision-making or process optimization
  - Can be shown on the diagram for visual analysis
  - Can be shown tables for numerical analysis
- Classifier values
  - Each classifier has a number of classifier values which can be assigned
- Predefined classifiers: quality control, value added, and workflow
- Custom classifiers can be added to focus the analysis
  - Functional area
    - Values: accounting, legal, administration, sales
  - Type of work
    - Values: manual, automated, semi-automated
  - Cause-and-effect analysis
    - Values: machines, methods, materials, measurements, mother nature (environment), manpower (people)
- Multiple classifier values can be assigned to a specific element as long as each value belongs to a different classifier.

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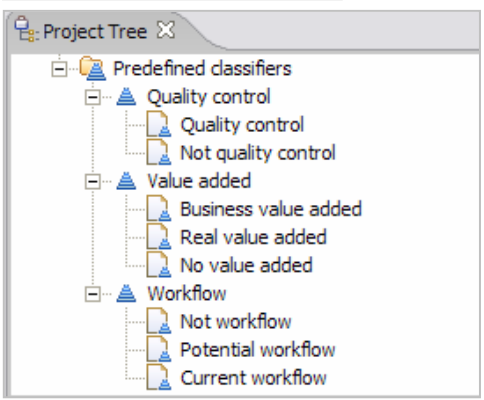
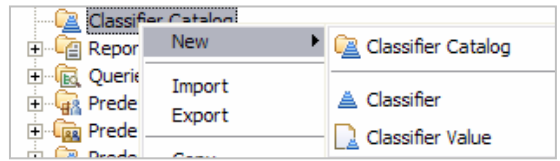
Adding classifier information

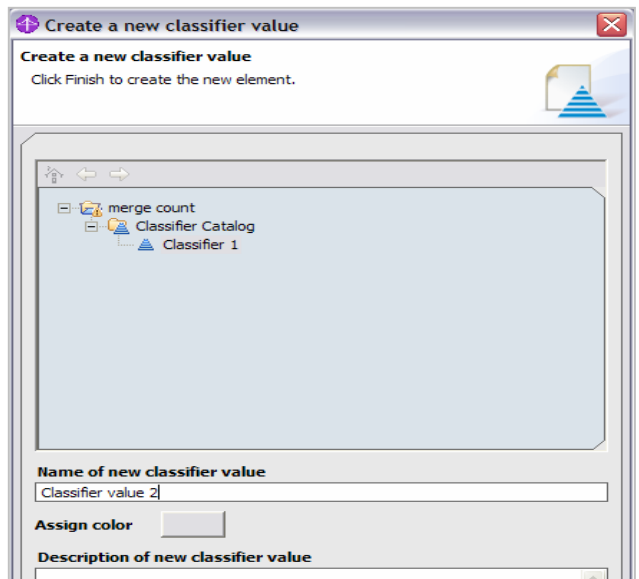
- Classifier editor
  - Pop-up window
- Classifier value editor
  - Opens as tab in the process editor
- Predefined classifiers

Predefined classifiers



Custom classifiers





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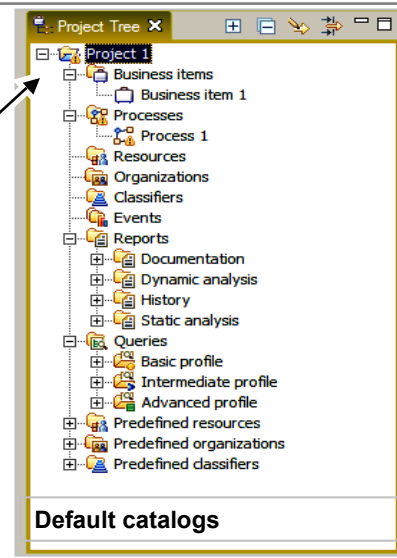
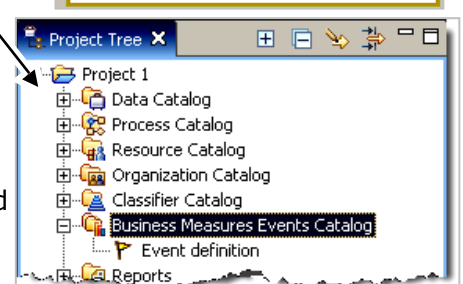
Organizing detailed model information

- Like items are grouped into catalogs for easy access.
- Each large catalog can be subdivided into lower level catalogs.
- Default catalogs are created:
  - (In this course, catalogs are renamed as shown in parentheses)
  - Business items (Data Catalog)
  - Processes (Process Catalog)
  - Resources (Resource Catalog)
  - Organizations (Organization Catalog)
  - Classifiers (Classifier Catalog)
- Predefined catalogs
  - Resources
  - Organizations
  - Classifiers





Renamed catalogs

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Additional elements

- These elements serve a specific purpose and make the model more realistic.

- Special purpose tasks
  - Timer
    - Initiates a flow at a specified point in time
  - Map
    - Transforms data from one structure to another
  - Broadcaster
    - Publishes a notification
  - Receiver
    - Listens for notifications
  - Observer
    - Watches the repository contents

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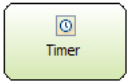
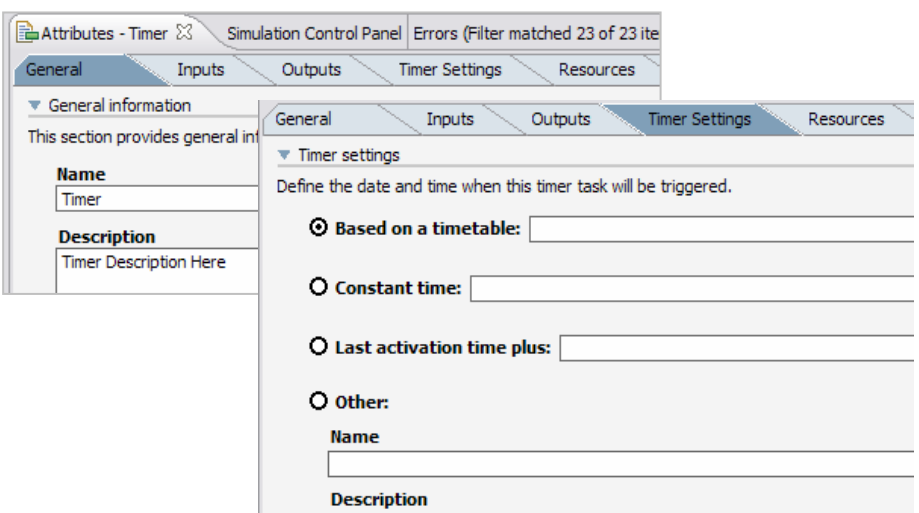
Timer



- A specialized task that initiates a flow at a specified point in time
- Two kinds of timers:
  - A timer that goes off once
    - It goes off at a specific date and time and then terminates.
    - It goes off after a specified amount of time and then terminates.
  - A timer that goes off at regular time intervals
    - It goes off at specified intervals on a scheduled basis.
    - This timer is associated with a timetable that has recurring times.



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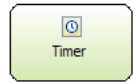
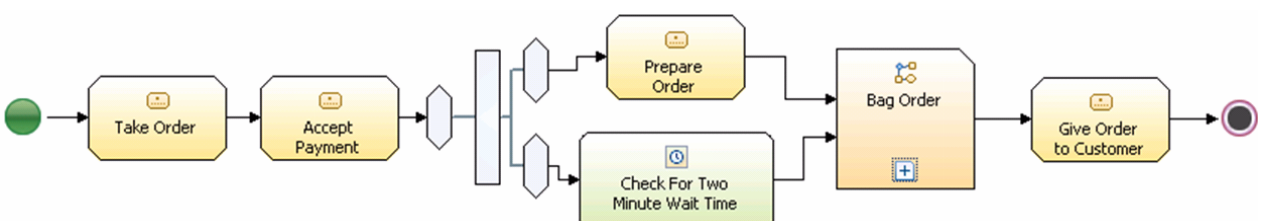
Timer: Example



- Drive-through at fast food restaurant
- If customer does not receive order within two minutes, customer receives a coupon
- Timer task starts when customer arrives
- If task duration of Prepare Order exceeds two minutes, discount coupon is included in bag



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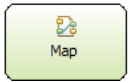
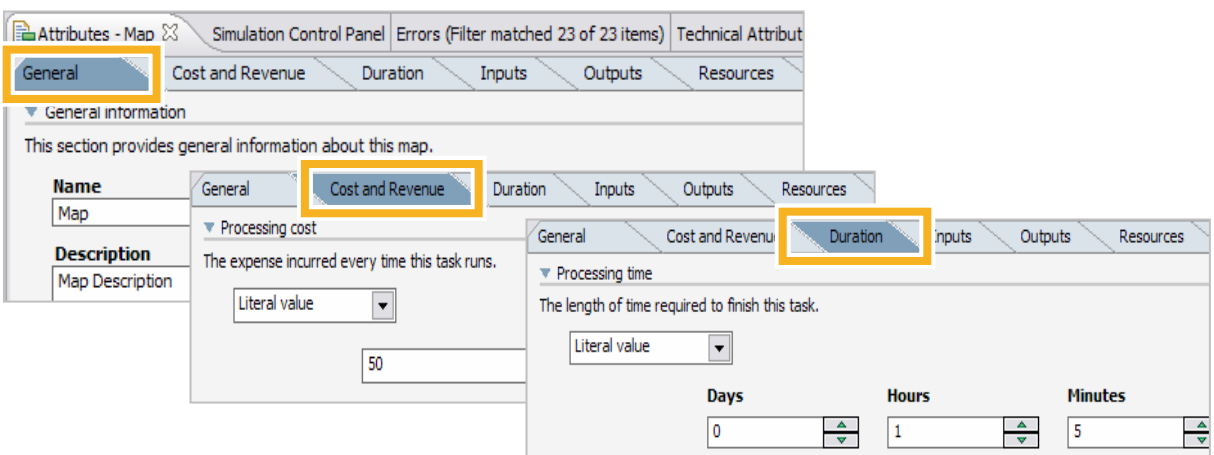
Map



- A specialized task that transforms data from one structure to another
  - A map specifies how to transform an input into output
  - Provides the same functionality as a local task
    - Provided only for diagramming purposes
- Example
  - A map could be used to represent an automated task that creates a procurement order.
    - The map (task) takes a list of requested items and a due date as input, and produces an order as output.
    - The order contains a new order number, the list of requested items, the current date.



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Notification broadcasters and receivers

- Specialized tasks that enable communication while a process is running:
  - A notification broadcaster publishes notifications.
  - A notification receiver listens for notifications and produces output.
- Sends information between executing processes:
  - A process can use a notification to send information to one of its already-executing subprocesses.
  - A subprocess can use a notification to send information to its parent process.
- Notifications allow information to be transmitted from and to multiple parties without having to explicitly draw connections between the senders of the information (the broadcasters) and the receivers of the information (the receivers).
- A notification is received by any notification receiver within its scope (specified subprocesses) that is listening for that notification.
  - There is at least one receiver for each broadcaster.
  - Usually there will be one broadcaster and several receivers.
  - Or several broadcasters (sending the same notification) and several receivers.

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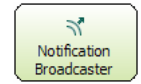
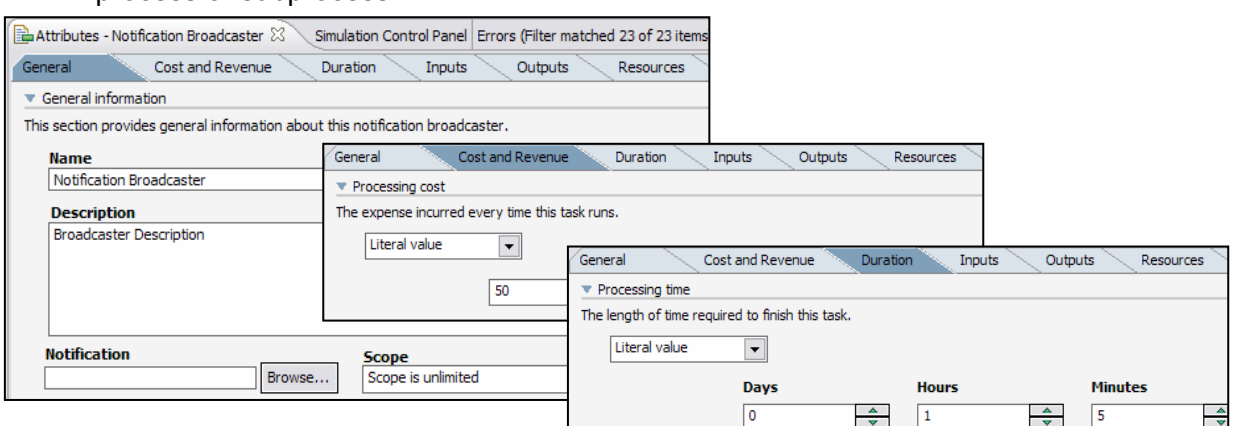
Notification broadcaster



- A specialized task that publishes a notification
  - When broadcast, any notification receiver within its scope receives it.
  - Having a receiver within your process is not sufficient unless that receiver is listening.
    - Ensure that the notification receiver starts before the notification broadcaster.
- A notification broadcaster is associated with a previously defined notification.
  - A scope can be set for a notification. If no scope is set, it is unlimited.
    - No scope means the notification is received by any notification receiver in any process that contains the process where the notification broadcaster is located.
    - A scope can be set so notification is received only by notification receivers in the local process or subprocess.



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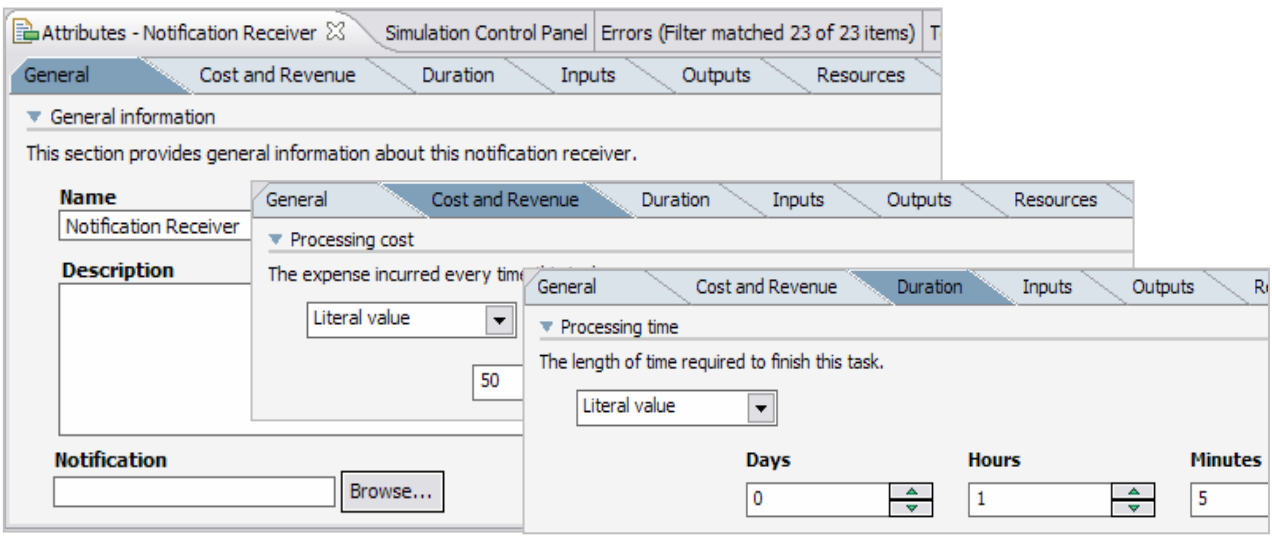
Notification receiver

- A specialized task that listens for and receives notifications
  - After receiving a notification, the receiver produces an output.
- A notification receiver starts listening for notifications when it is triggered by a task or other element.
- Notifications received can be restricted by setting conditions on the receiver.
  - The condition can check the value of an attribute in the notification.



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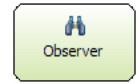
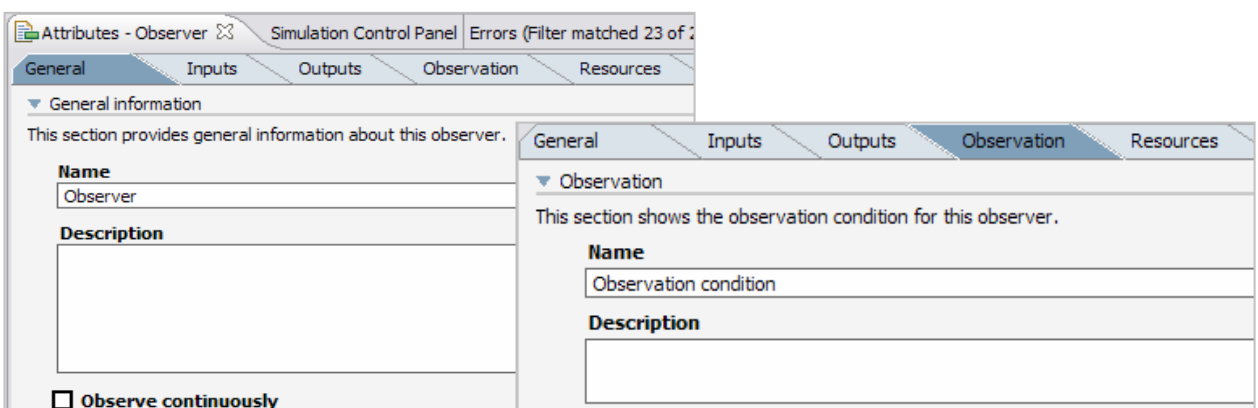
Observer



- A specialized task that watches a process and its associated repositories
  - Initiates a flow when a certain condition becomes true
    - An observer can start a flow when a repository exceeds a threshold value.
- Two kinds of observers:
  - An observer that initiates a flow once
    - It starts a flow when a repository is full and then terminates.
  - An observer that initiates a flow every time a specific condition occurs
    - It starts a flow each time an item out of stock task is reached.
      - Observe continuously is selected
- The observer is only responsible for observing the condition and producing an output when the condition is satisfied.
  - It cannot produce data and does no other work.



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Checkpoint: Define elements and attributes

Your instructor will review these questions with you as a group. If time permits, the instructor may provide you time to answer the questions on your own before the group discussion.

1. What is the definition of a business item?
2. What is the difference between a business service and a service in Modeler?
3. What is a business service object?
4. When defining timetables, how do you specify lunch break or vacation time for the resources?
5. What is the difference between roles and resources?
6. What is the function of a classifier?

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Checkpoint solutions: Define elements and attributes

1. Business data, documents, work products, or physical commodities that are transformed by the process
2. Business services are model element representations of WSDL (Web Services Definition Language) files. Services are external processes executed outside the organization.
3. Business service objects are model element representations of XSD (XML schema) files.
4. Use the exemption periods to cover lunch hours, vacation time, and weekends.
5. Roles add additional characteristics to resources while resources represent the people, equipment, or material used to perform a task.
6. Classifiers enable users to categorize tasks and other process elements for decision-making or process optimization, and it can be shown on the diagram for visual analysis or on tables for numerical analysis.

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Unit summary

Having completed this unit, you should be able to:

- Explain business items, business services, business service objects, resources, organizations, and classifiers
- Describe additional modeling elements: timer, map, broadcaster, receiver, observer
- Describe advanced attributes for tasks

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Exercise overview

In this exercise, you will:

- Create data structures
- Define organization units
- Create roles
- Associate colors with roles
- Create timetables
- Creating resources
- Assign roles and organization units to tasks
- Assign costs and durations
- Assign classifiers

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