WebSphere Education

Model validation and static analysis

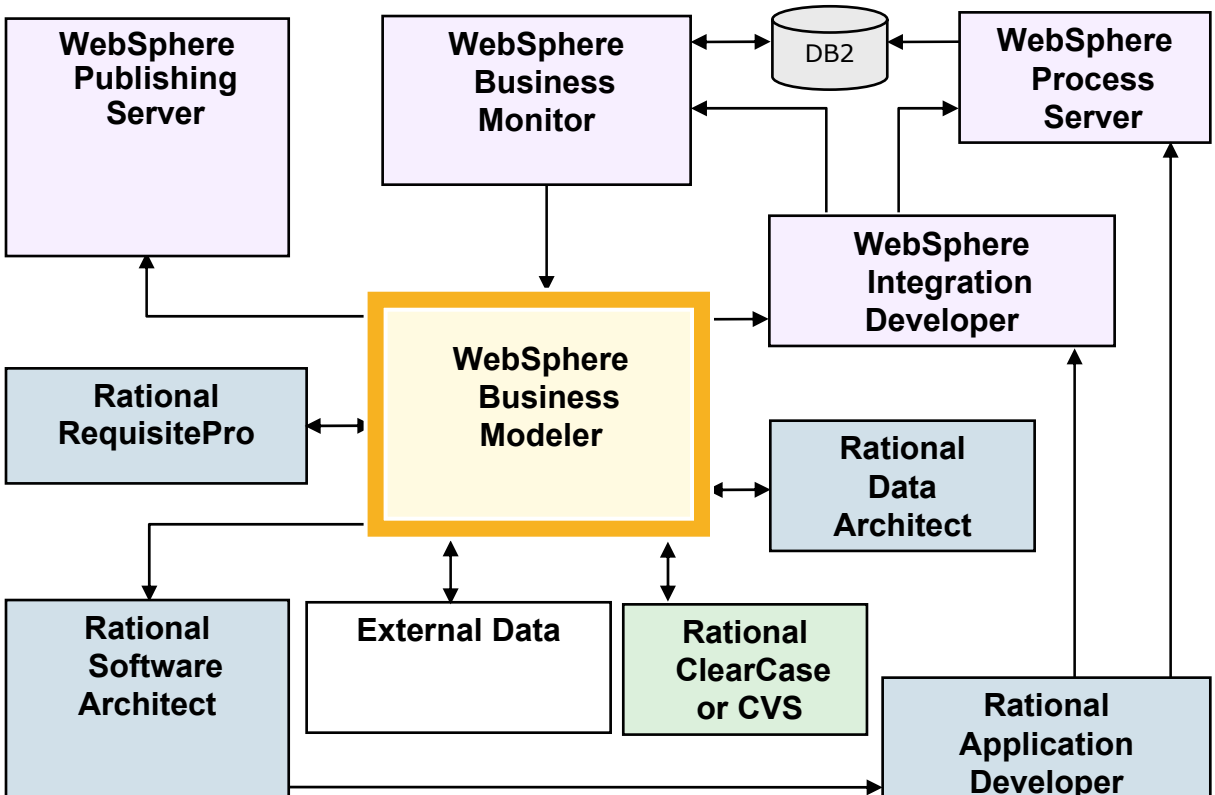
Unit 10

Unit objectives

After completing this unit, you should be able to:

- Validate the model
- Perform static analysis
- Explain time, cost, resources, and process flow

Performing static analysis with Modeler

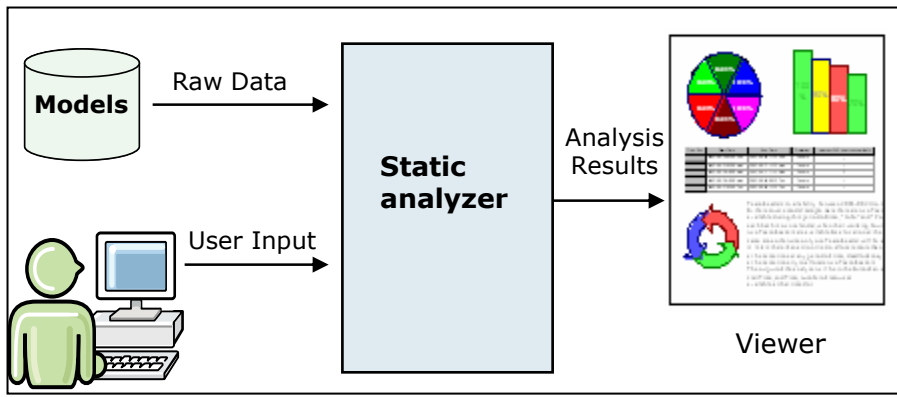


Validation fundamentals

- Syntax: Model constructs are correct and valid.
  - Is the model properly constructed to provide valid results in the Modeler?
- Semantics: The meaning of the model is correct — task attributes, organizations, roles, sequence of tasks.
  - Does the model created reflect what is occurring in the business, or what could occur in the business?
  - Is it thorough; was any data left out?
- Sense: The model is business relevant; cost (time and money) assumptions and their causes are valid.
  - Does it make sense that the model and resulting analysis show on average that it takes three weeks to process a claim when company metrics would suggest one week?
- Standards: The model adheres to the defined modeling standards — constructs, naming conventions.
  - Will the model be able to be understood by someone who was not involved with its creation?

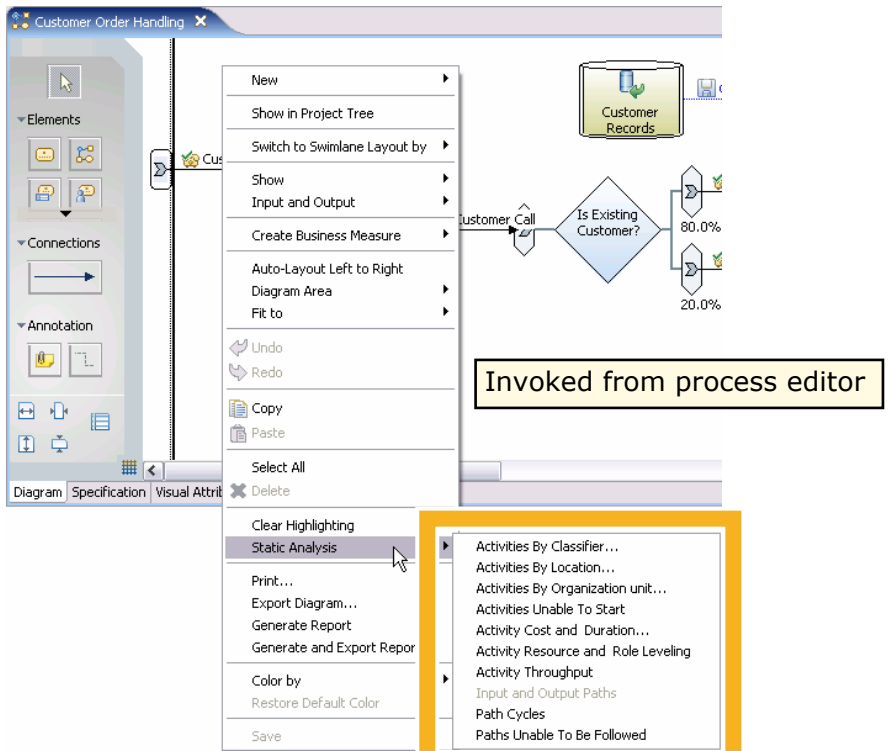
Static analysis overview

- Gives business users important information computed from the raw data in the models:
  - Cost
  - Time
  - Performance
  - Improvement capabilities
  - Process flow validity
  - Resources leveling
  - Qualified resources to play important roles

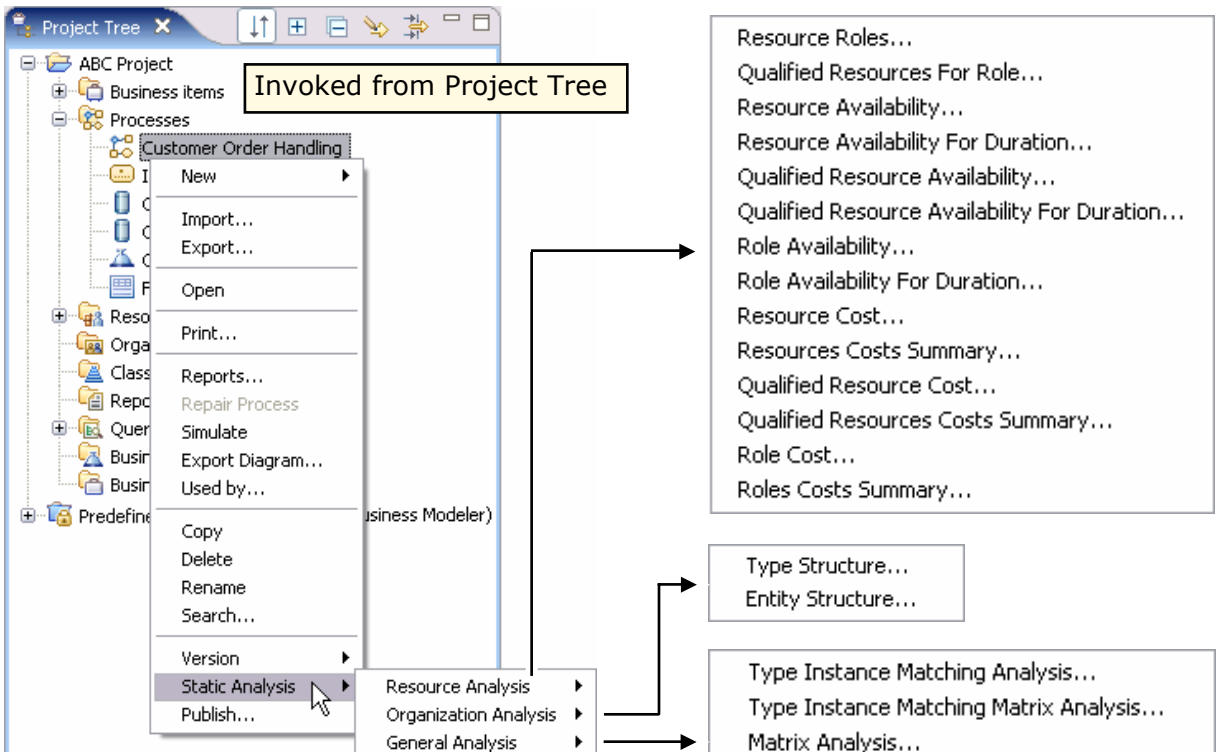


- Inputs are raw model data and parameters entered by the user.
- Results are viewed using either a tabular or graphical viewer.
  - Results can be printed using predefined report templates.

Static analysis functions in process editor



Static analysis functions in Project Tree



Process model analysis (1 of 2)

- Activities by classifier
  - Returns the activities of the process categorized by key identifiers
- Activities by location
  - Returns the activities of the process that are performed at each location
- Activities by organization unit
  - Returns the activities performed by each organization unit used within the process
- Activity cost and duration
  - Returns the cost of each activity as a sum of the average costs of the allocated resources
    - It also computes the total working duration of the allocated resources of each activity, and the minimum working duration of the activity.
- Activity resource and role leveling
  - Compares the number of required resources to the number of available resources for each activity in the process

Process model analysis (2 of 2)

- Activity throughput
  - Returns the productivity per time unit of activities in the process
- Input and output paths
  - Returns the paths in the process that lead in and out of a specified input or output of an activity
- Activities unable to start
  - Returns a list of activities in the process that cannot be performed due to unavailable resources, empty input criteria, or inputs that lack connections
- Path cycles
  - Returns the cycles in the process, where a cycle is defined as a path with a closed loop of connectors
- Paths unable to be followed
  - Returns a list of paths in the process that cannot be followed, as a result of one or more undoable input criteria of activities within the path
    - An undoable input criterion does not imply that the activity is undoable
      - It may be invoked through another input criterion

Resource analysis (1 of 3)

- Resource roles
  - Shows the qualifications of resources in terms of roles and scope of roles
- Qualified resources for role
  - Shows the resources that are qualified to perform a specified role
- Resource availability
  - Shows the periods during which a resource is available
- Resource availability for duration
  - Shows the periods a resource is available, for a specified duration
    - Duration may be continuous or divided into separate segments
      - Depends on the setting chosen when defining the analysis
- Qualified resource availability
  - Shows the periods a resource qualified for a selected role is available

Resource analysis (2 of 3)

- Qualified resource availability for duration
  - Shows the periods a resource qualified for a role is available for a duration
    - Duration may be continuous or divided into separate segments
      - Depends on a setting chosen when defining the analysis
- Role availability
  - Shows the periods during which a role is available
- Role availability for duration
  - Shows when a role is available for a specified duration
  - The duration may be continuous or it may be divided into separate segments
    - Depends on setting chosen when defining the analysis
- Resource cost
  - Shows the cost of a resource for all periods during which the resource is available between a specified start and end time
- Resources costs summary
  - Shows the costs of multiple resources for all periods during which the resources are available between a specified start and end time

Resource analysis (3 of 3)

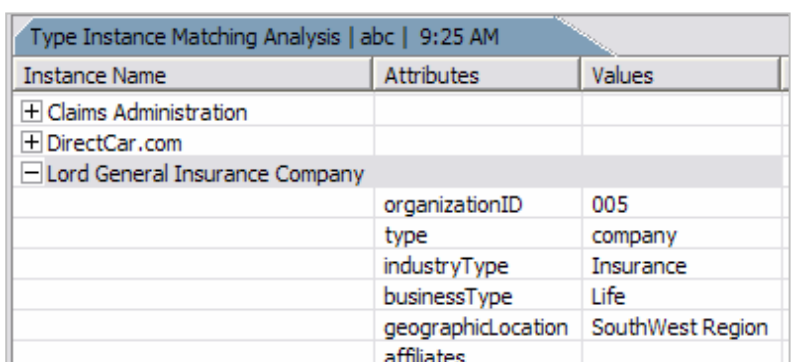
- Qualified resource cost
  - Shows the cost of a resource qualified for a selected role for all periods during which the resource is available in a specific time span
- Qualified resources costs summary
  - Shows the costs of multiple resources qualified for a selected role for all periods the resources are available in a specific time span
- Role cost
  - Shows the cost of a role for all periods during which the role is available between a specified start and end time
- Roles costs summary
  - Shows the costs of multiple roles for all periods during which the roles are available between a specified start and end time

Organization model analysis

- Identifies the use and position of organization model elements within structures and structure definitions
  - Entity structure
    - Shows each organization entity's position in all the structures defined for a project
      - For example, selection of any resource, organization unit, or location of the organization entity will display in the analysis results.
  - Type structure
    - Shows the position of a selected type in the structure definitions defined for a project
      - For example, selection of any resource definition, organization definition, or location definition as the type will display in the analysis.

General analysis

- Analysis to determine the relationships of model elements
- Used for validation and documentation of your project elements
  - **Type instance matching analysis** shows all the instances of a selected model element type that provides a type definition
  - For example:
    - Organization definition, location definition, individual resource definition



Type instance matching matrix analysis

- **Type instance matching matrix analysis** shows all the instances of a particular model element that provides a type definition.
  - Displays a row for each instance matching the selected type:
    - The first column in the row indicates the instance name.
    - Remaining columns indicate the values of the instance attributes.

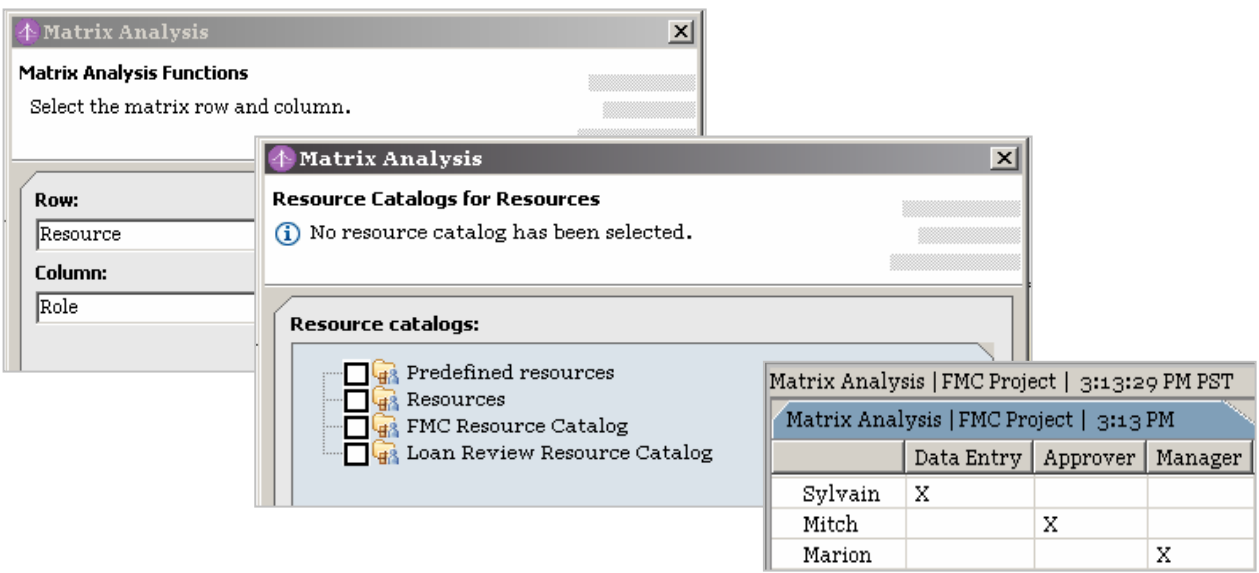
- For example, all the elements that match the type “Organization”:

Type Instance Matching Matrix Analysis | abc | 9:33 AM

	organizationID	type	industryType	businessType	geographicLocation
Claims Administration	250	HQ	Insurance	Admin	Central Office
DirectCar.com	010	Office	Insurance	Auto	Central Region
Lord General Insurance Co...	005	company	Insurance	Life	SouthWest Region

Matrix analysis

- Shows the association of a row object (resource) with a column object (role)
  - Resource role matrix analysis shows the relation between the resources and their roles
- Invoked from a context menu in the project tree
- User prompted by a wizard to select the row and column attributes of matrix
- Wizard enables user to select the required models for the selected attributes
- The analysis results are shown in a tabular view and can be printed



Checkpoint: Model validation and static analysis

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. Place your answers in the space provided.

1. What are the four fundamentals of model validation?

2. What is the Activities Unable to Start analysis?

3. What is the Activities by Classifier analysis?

4. What is matrix analysis?

Checkpoint solutions: Model validation and static analysis

1. Syntax, Semantics, Sense, and Standards.

2. Activities Unable to Start analysis returns a list of the activities of the process that cannot start because of problems with their input criteria or with the size of their resource or role requirements.

3. Activities by Classifier analysis returns the activities of the process that are associated with each classifier value of selected classifiers.

4. Matrix analysis enables the user to select two different types of model elements and to show the associations between model elements of these types.

Unit summary

Having completed this unit, you should be able to:

- Validate the model
- Perform static analysis
- Explain time, cost, resources, and process flow

Exercise overview

- Using static analysis from process editor
- Generating the following analyses:
  - Activity cost and duration analysis
  - Activities by classifier analysis
  - Activities by organization unit analysis
  - Resource availability analysis
  - Matrix analysis