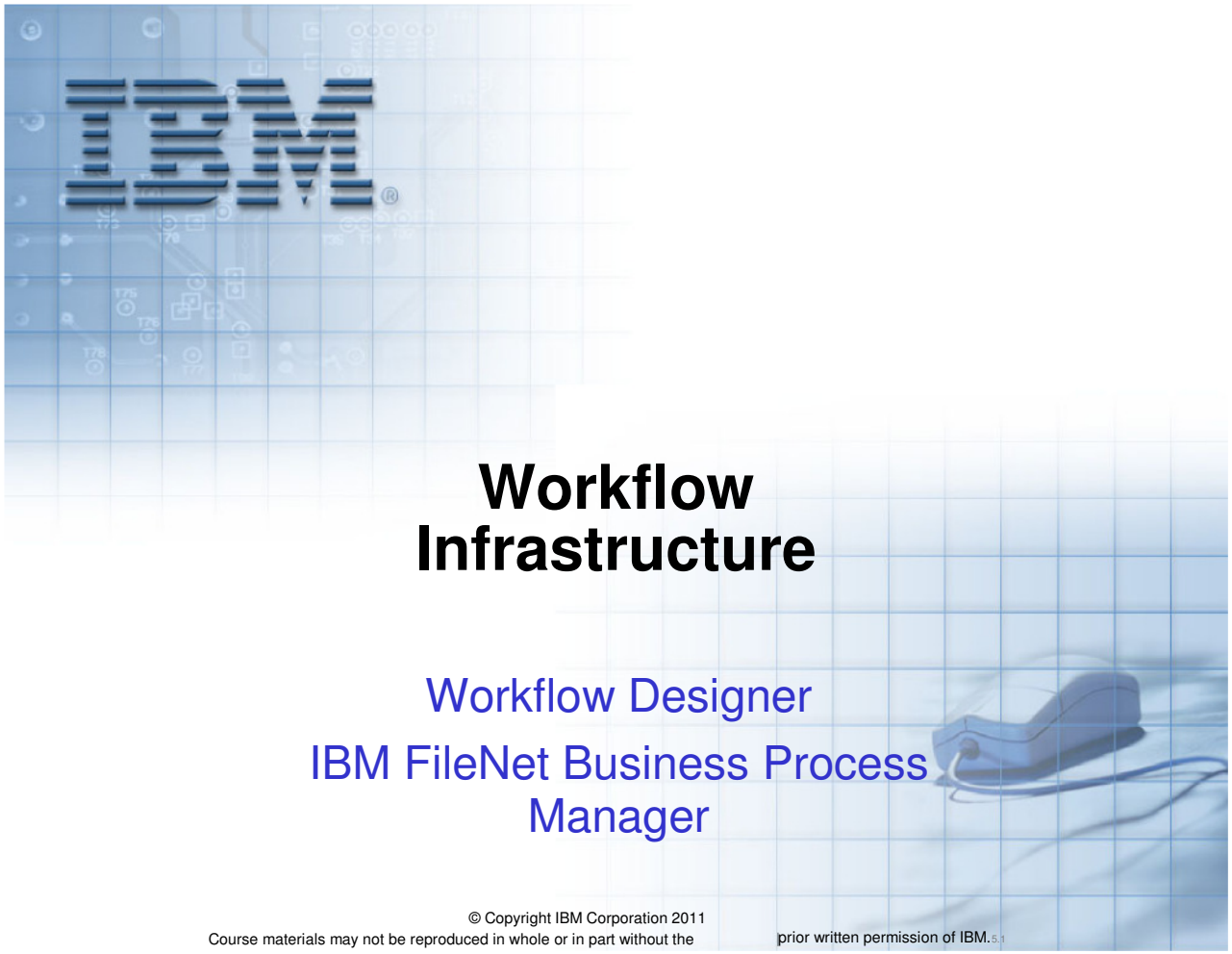


Workflow Infrastructure

Workflow Designer

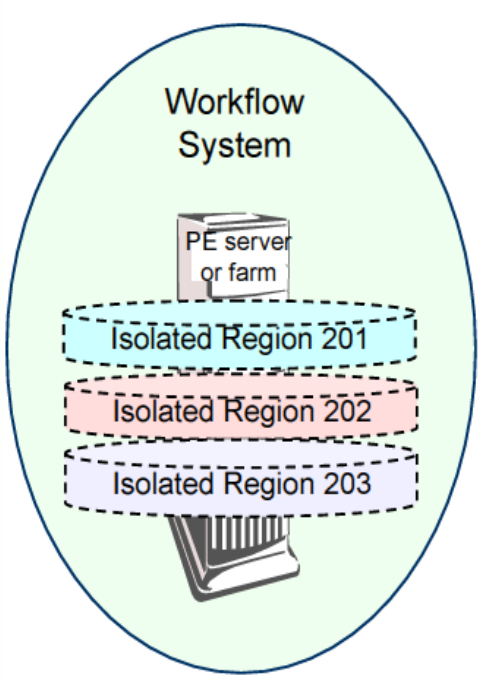
IBM FileNet Business Process Manager

Required configuration for Process Engine

- Before implementing and running workflows
  - –Workflow database structures must be created in the Process Engine.
- Workflow designer and IT developer –Configure test system region to design and develop new workflows.
  - –Communicate the region configuration settings to production system and workflow administrators.
- System and workflow administrators
  - –Configure production regions to support new IBM FileNet BPM applications.
  - –Perform other workflow-related configuration tasks for Content Engine and Application Engine.

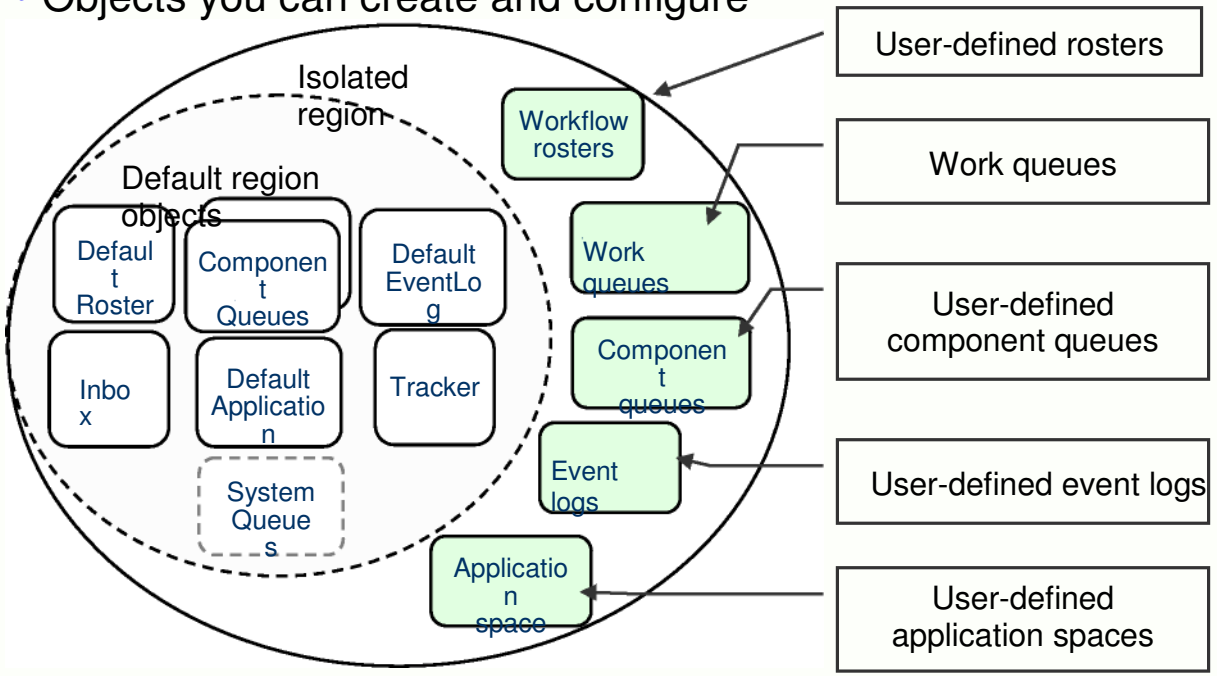
Isolated regions

- Each distinct workflow system can be configured with multiple isolated regions.
  - –Work cannot be shared or moved between isolated regions.
  - –Each isolated region has its own workflow database objects
- Administrator configures Process Engine settings for the following: –Each isolated region
  - –The entire workflow system



Isolated Region Data Structures

- Objects you can create and configure

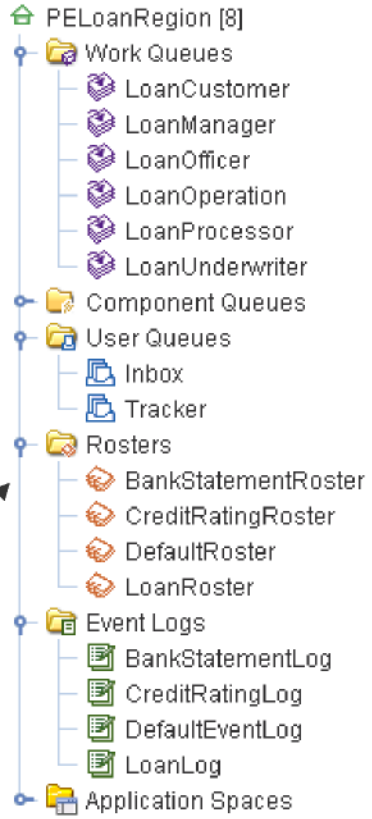


–You can also configure the properties of default region objects.

Work with a region using Configuration view

- Process Designer Configuration view displays the region hierarchy.
  - –Must have privileges to make changes
  - –Most actions are context-sensitive and depend on the node you select.
- For use only with your isolated region
  - –Cannot access other regions
  - –Administrator uses Process Configuration Console tool for full access to all regions.

Example of a configured region with default and user-defined region objects



Prepare an isolated region for workflows

1. Initialize the isolated region (usually done by administrator).
   - Required to prepare Process Engine for configuration
   - Initialization creates default region objects.
1. Import an existing configuration (if available).
   - To copy an existing region and use it as a base for further customization
1. Create and configure region objects (optional step if you imported a configuration).
   - To create a custom starting point or to add region objects
   - To customize and configure default and imported region objects

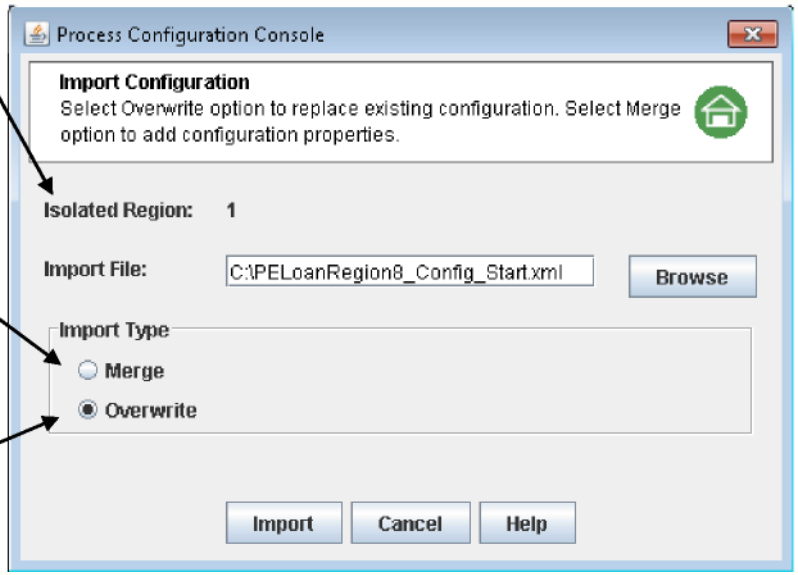
Import a region configuration file

- In Process Designer Configuration view, Action > Import from XML file

- Target region must already be initialized.
- It can contain added region objects.

If region contains information, select Merge to add new properties.

Select overwrite to replace any existing objects of the same name.



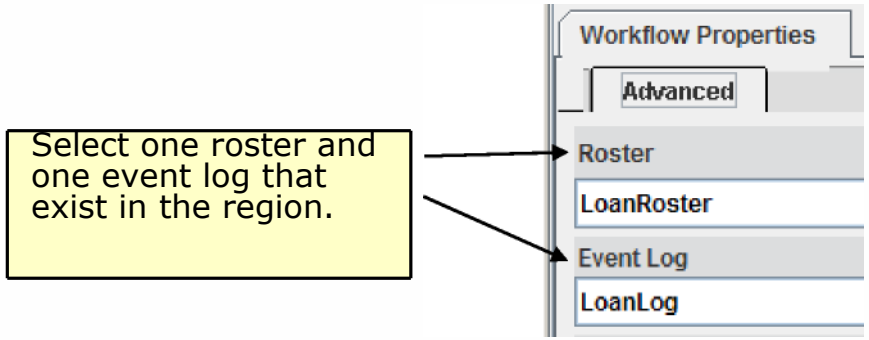
Global settings for a workflow

- Settings can affect the behavior of the entire workflow and apply to all steps.
- Workflow properties set in Process Designer: –Roster and event log assignment

  –Email notification for workflow participants –Workflow fields definition and assignment
- Queue and roster properties set in Configuration view: –Security settings control who can launch and process a workflow. –Other region object properties are discussed in other lessons.

Roster and event log properties

- In Workflow Properties > Advanced tab, assign the roster and event log that a workflow uses.
  - –Setting applies to all workflows launched from the workflow definition.
  - –Value of properties cannot change during workflow processing.
- Use additional rosters and event logs to increase application efficiency.
  - –You can search a roster for active workflows that use the roster.
  - –You can search an event log for history of workflow activity.



Email notification for a workflow

- Email notification is optional and beneficial for some users.
  - –Infrequent participation in a process
  - –Infrequent sign-in or no access to Workplace XT or Content Navigator
- Workflow designer
  - –Enables email notification in Workflow Properties for the workflow definition
- System administrator
  - –Configures email notification for the Process Engine
  - –Customizes the email templates for the region (optional)
- Individual users
  - –Configure notifications they want to receive in user preferences
  - –Process work using the embedded email link or Tasks pages in Workplace XT or Content Navigator

Workflow fields

Workflow properties and security

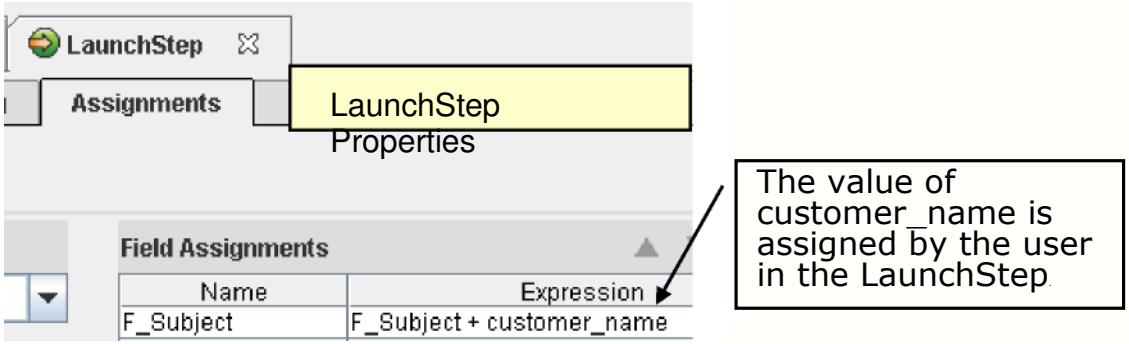
- All data fields and system fields associated with a workflow
  - Value of a field is limited to the one instance of the workflow.
  - Value set in one step persists to other steps in the workflow.
- Uses
  - In one or more steps in a workflow
  - In conditional tests for determining the routing of work
  - In searching for items using administrative tools, if the field is exposed in a region data structure
- Data fields
  - Are defined in the workflow definition using Workflow Properties tab
- System fields
  - Are defined by the system

What are system fields?

- A system-defined workflow field used by the Process Engine to perform workflow processing
  - Begins with “F_” characters
- Examples of system fields
  - F_Originator (integer)
- The user ID of the user that launched the workflow
  - F_Subject (string)
- The default subject assigned in the workflow properties or by the user when a workflow is launched
  - F_Comment (string)
- Contains current comment made by the user at a step
- Does not persist across steps; history retained in event log
- If specified, allows the participant to view the history of comments

Example: Using the F_Subject system field

- F_Subject is a string field used to hold the workflow subject.
  - –Value is assigned at launch time and default is workflow subject.
- At design time, you can assign an expression to F_Subject that is meaningful to the workflow participant.
  - –Use an expression that is dependent on the value of a workflow field.
  - –Use Assignments After Completion on LaunchStep Properties.

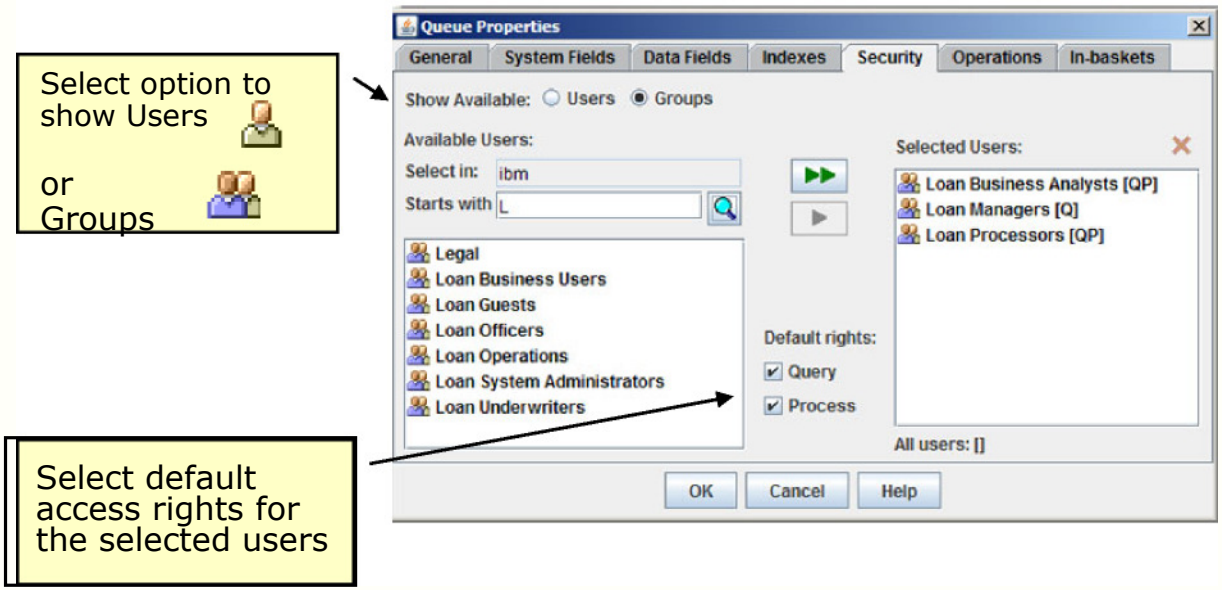


Workflow security

- Region object security affects who can process a workflow.
  - –In Configuration view, assign access rights to region objects.
  - –If you do not assign anyone specific access rights to an object, then everyone has access
- Workflow definition security affects who can launch and modify a workflow from Process Designer.
  - –When saving a workflow definition file, you can assign access rights.
- Application security affects who can run workflow applications.
  - –Special Access Roles set in Workplace Site Preferences
- PWAdministrator
- PWDesigner
- PWConfiguration
- PWDiagram

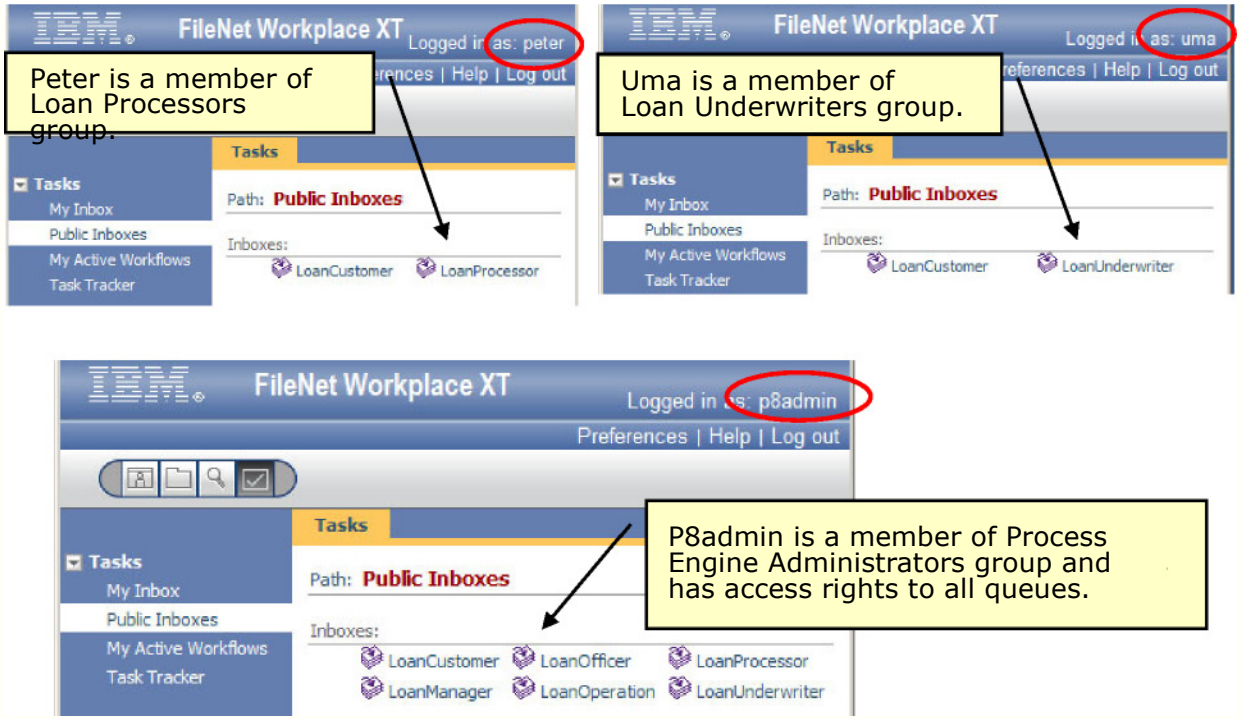
Security for queues and rosters

- Assigned in Configuration view for each object
  - On Security tab for the queue or roster, you specify the user and group access rights.

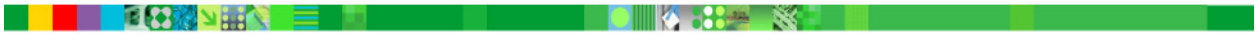


Example: Loan processing workflow security

- Compare the Workplace XT Tasks pages for various users.



Step types and the BPM Palette



- Activity step
  - –Can be assigned to a participant or to a work queue
- System step –Executes one or more functions performed by the system
- Component step –Performed by a custom Java or JMS application component
- Submap step –Represents a call to another map in the workflow definition
- Launch step
  - –The first step in a workflow
  - –Automatically placed on the main workflow map –Not available in the BPM Palette

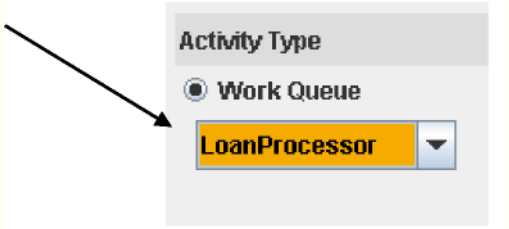
Overview of activity step properties

- For each step, you define properties used only in that step: – General tab
- Activity type, participant privileges, instructions, and step processor – Parameters tab
- Data fields, attachments, workflow groups, and access rights for each – Routing tab
- Responses, incoming and outgoing routing information
  – Assignments tab
- Dynamically assigned values for data fields, before or after processing a step
- Milestones
  – Deadline tab
- Time limit and reminder – Custom Attributes
  – Simulation tab
  - Description

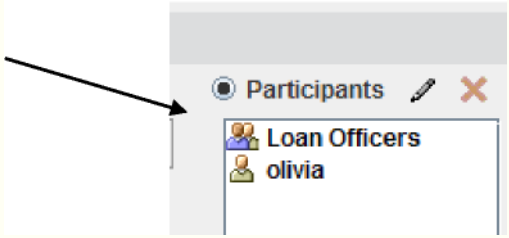
Activity type

- For an activity step, you specify how the step is processed: – By Work Queue or Participants

Work Queue step:
No specific assignment
•Participants with [QP] queue access privileges can select and process work.
•Set security for queue in Configuration tool.



Participants step:
Work is specifically assigned and placed in the Inbox for
•LDAP users and groups
•Workflow groups



Step processors for activity steps

- Applications that perform the operations associated with a work queue step or participant step in a workflow
  - Provide information and resources needed to complete processing of the step
  - Two types: step processor and launch processor
- You must specify which step processor or launch processor is used for each step in step properties.
- Custom step processors can be developed and deployed in an isolated region.
- Default system-provided step processors are available.
  - Approval HTML (FileNET) and Approval Launch HTML (FileNET)
  - HTML (FileNET) and Launch HTML (FileNET)

System steps

- Are executed by the Process Engine, **not** by a workflow participant
- Provide a way to include one or more system functions in a workflow
  - System functions provide control over logic and flow
- System steps are available and grouped on palettes found in the step palette section of the toolbar and in the floating Palette window.
  - General System palette – Checkpoint palette
  - Timer palette
  - Web Services palette

Add a system step to a map

- To add a system step that executes a **single** system function

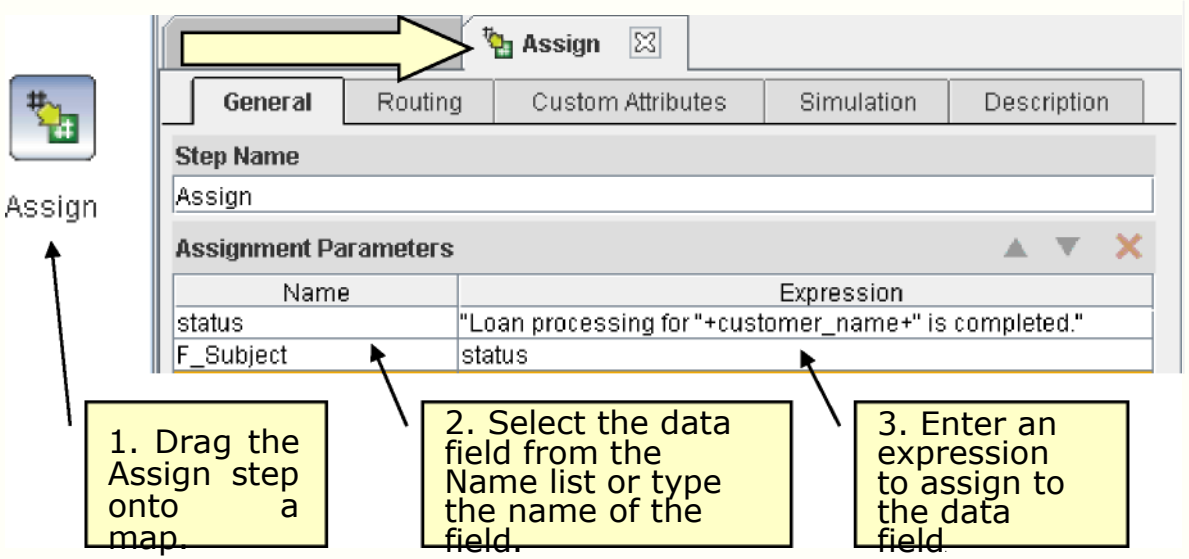
1. Drag the specific system step directly onto the map from a palette.
2. Configure the step parameters, if any, in the step properties pane.

- To add a system step that executes **multiple** system functions

1. Add a new System step from the BPM palette to the map.
2. In the Properties pane, select one or more system functions to be executed at that step.
3. For each function, double-click and configure function parameters, if any.

Example: Assign system step

- Executes the Assign system function
- Is found on the General System step palette
- Assigns values to workflow data fields
- Allows for one or more fields to be assigned an expression



Change a step type

- Saves design time when you need to replace a step with one of another type in an existing map
- Changes a step on a workflow map from one type to another
  - –You must redefine the new step parameters.
    - –Routes and route properties are left intact.
- Right-click the step and click Change Step Type.
  - –Select a new step type: Activity, System, Component, or Submap. –
  - Available for all step types, except the launch step

Assemble a custom step palette

- My Palette feature allows you to customize your own step palette.
- Add steps to My Palette and save the palette to a local file or object store.
  - –Right-click a step on the map and click Add to My Palette. –

Configured properties for the step are also saved.

- The Palette menu provides options for file save, checkin, checkout, delete, and so forth.
- Saves design time when you want to reuse a step in multiple workflow definitions

Using submap steps

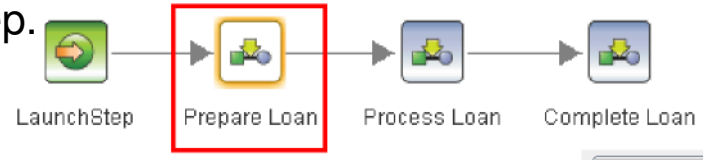
- Submap step is a single step that represents a call to another map in the same workflow definition.
  - –Control returns to the calling step when the steps in the submap are completed.
  - –You can include a submap step on any map in a workflow definition.
  - –Advantage: Makes workflow definition more modular
- Submaps
  - –Each map always begins with submap start step that is automatically included.
  - –Use the map toolbar to list, select, create, and delete maps. –Also, use the Action > Go to Map option to display a map.

Define a new submap

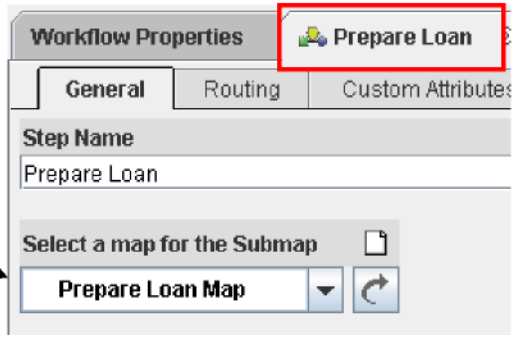
- Click Create Map on the map toolbar.
  - –Assign a unique name to the map.
  - –Add steps and routes to the submap.
  - –Submap begins with a StartStep, which you can edit.
- Use a submap by assigning it to a submap step.
  - –In submap step General properties, select the submap from the list.
- Workflow Properties > Maps displays a list of all maps in the current workflow definition.
  - –Map Usage pane shows where maps are used in the workflow. You can create and delete maps.

Example: Using a submap step

- Workflow (main map) contains a Prepare Loan submap step.



- The Prepare Loan step properties specify that the Prepare Loan Map is called.



- When the Prepare Loan step executes, the Prepare Loan Map submap is called and its steps are executed.

Implicit and explicit return from a called map

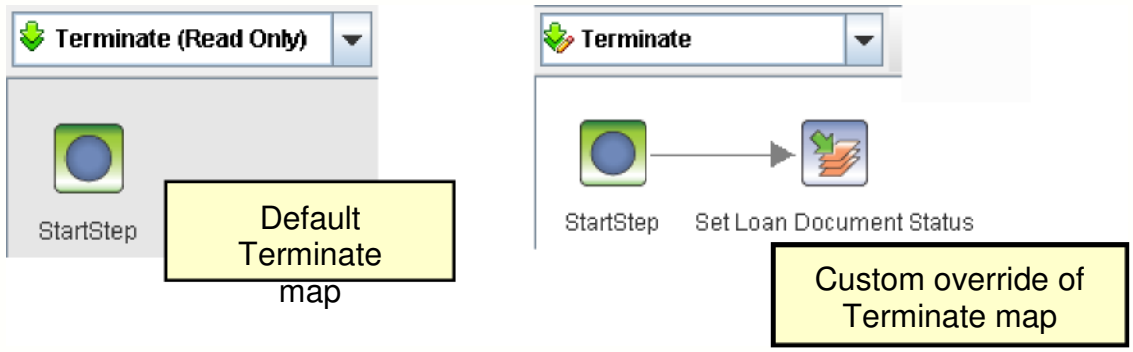
- Every submap has an implicit (automatic) return to its calling map.
  - –By default, processing continues in the calling map at the stage immediately after the submap was called.
- You can change this behavior by adding an explicit Return system step in the called submap.
  - –Return system step has an option to control how called map returns.
  - –Return system step is useful for exception handling.
  - –Described and used in another lesson

Default system maps

- System-provided maps are in every workflow definition:
  - –Workflow (main map)
  - –Terminate
  - Malfunction
- Each workflow definition has its own copy of these maps.
- Process Engine executes these maps automatically under certain conditions.
- You are already familiar with the Workflow map.
  - –It is always the main map.
  - –Execution of a workflow always starts with its launch step.

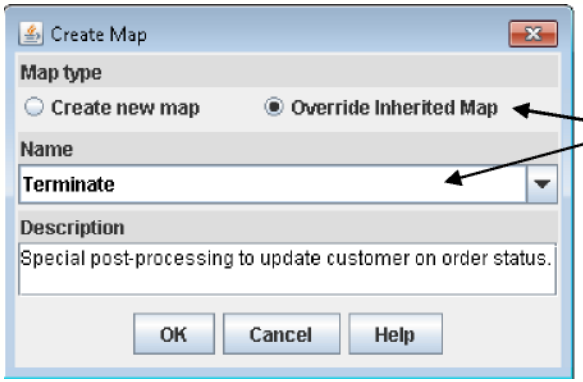
Workflow termination

- By default, the Terminate system map is executed after a workflow completes processing.
- The default Terminate map
  - –Contains only a submap StartStep
  - –Therefore, the workflow is terminated immediately.
- You can override the default Terminate map behavior. –You add post-processing steps to the Terminate map.
  - –Workflow terminates after the custom Terminate map completes.



Override a system map

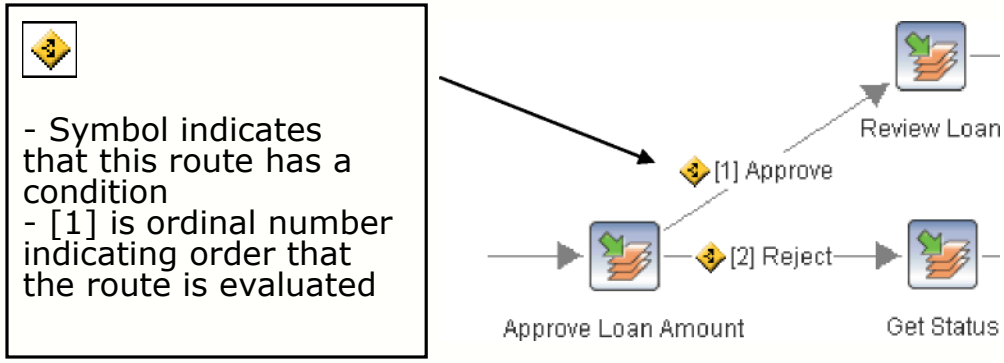
- The default Terminate and Malfunction system maps are displayed as Read Only in Process Designer.
- Override the default maps by using the Create Map tool.
- Use care when overriding system maps.
  - –If you redefine the map, be aware that the conditions under which the map is executed remain the same.



To override a map, select "Override Inherited Map" and then select the map.

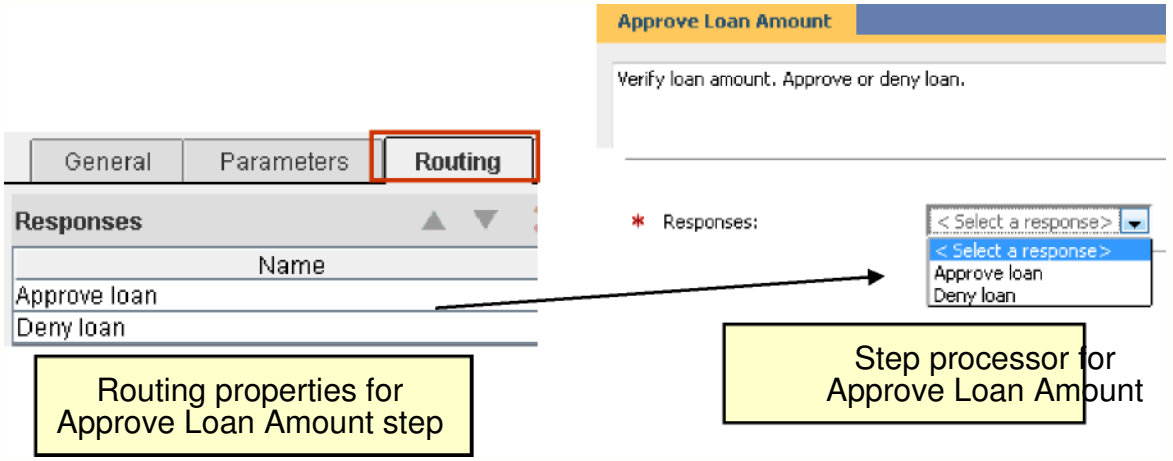
Conditional routing

- For a step, multiple outbound routes can be based on conditions, such as
  - –One or more participant responses at the step
  - –The value of an expression using one or more workflow fields –A combination of these
- Route conditions are evaluated in order.
  - –You control the order in the step routing properties.
- Best practice: Label routes with meaningful names.



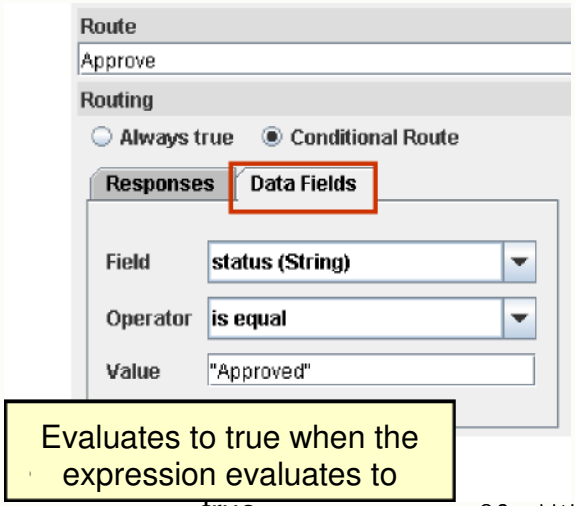
Step responses

- You can define responses for an Activity step.
  - –At design time, responses are defined in Routing tab of the step properties.
  - –At run time, response is selected by the participant.
- Example: Approve Loan Amount step has two responses.
  - –Approve loan or Deny loan

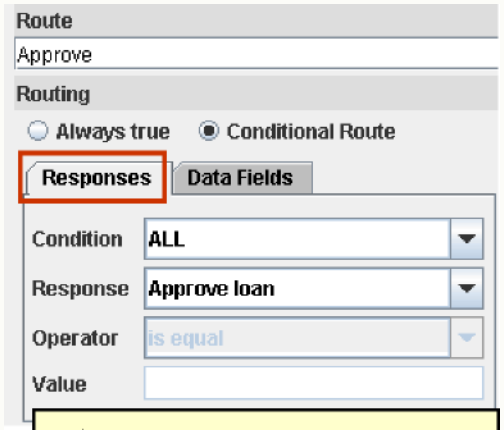


Route properties

- Always true (no condition)
- Conditional Route based on responses
  - –You must first define the responses for participants to select.
- Conditional Route based on data fields
  - –Evaluates an expression you define



Evaluates to true when the expression evaluates to true



Evaluates to true when **all** participants select the "Approve loan" response

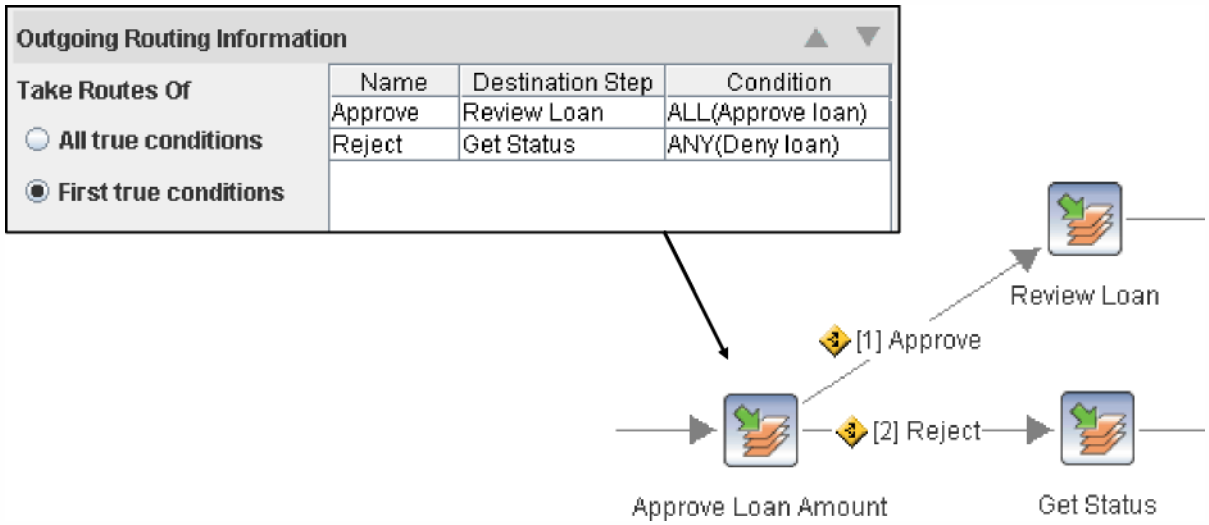
Step routing information

- Outgoing routing information
  - –You specify which outgoing routes to take.
- “All true conditions” or only the “First true condition” that is evaluated – Outgoing routes are evaluated in the order listed.
  - –You can change the order of evaluation using the arrow buttons. –Click Details to view the routing conditions, if any.
- Incoming routing information
  - –You can designate the step as a collector step. –Used for parallel processing

Example: Route based on participant responses

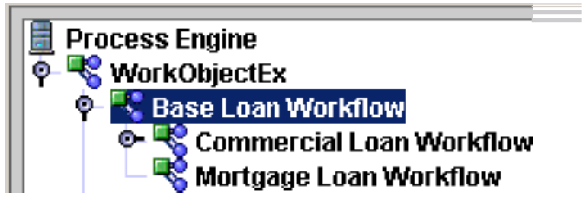
- Outgoing routes from Approve Loan Amount step

1. Approve route is taken to the Review Loan step if **all** responses are "Approve loan."
2. Reject route is taken to the Get Status step if **any** response is "Deny loan."



Using workflow inheritance

- You can create a workflow definition that is derived from and reuses elements from a base workflow.
  - Define common characteristics at a higher level in the class hierarchy.
  - Properties are automatically passed to derived workflows.
- Advantages of creating a hierarchy of workflow definitions:
  - Consistent processing across related workflows
  - More modular implementation with reusability
- Example: loan origination in financial services company



Inherited elements

- When you create a new workflow definition based on another workflow definition, the new workflow inherits the following:
  - Workflow main map
  - Submaps
  - Data fields, attachments, workflow groups
  - Deadlines and reminders
  - Milestones
  - Event log and workflow roster
- These elements are designated Read Only in the new, derived workflow.
  - Unless you override the inherited item by redefining it

The base workflow

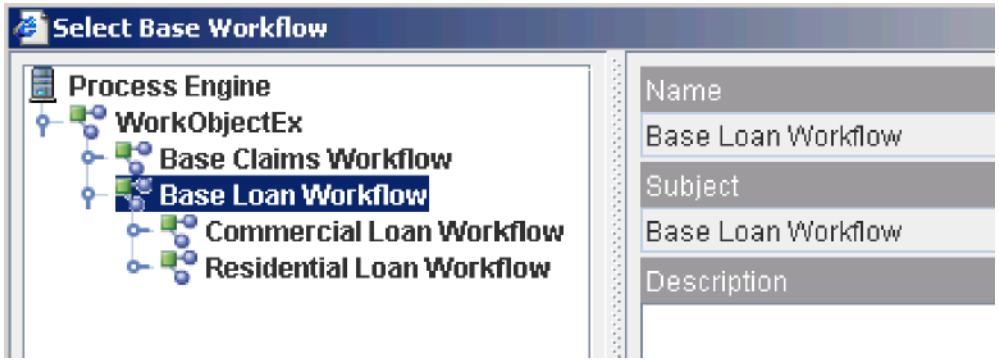
- To use inheritance, you specify a base workflow from which to inherit maps and properties.
  - –Multiple levels of workflow hierarchy are possible
- Before you can select a base workflow, it must already be transferred into the isolated region.
- If you modify the base workflow definition
  - –You must retransfer both the base workflow and the derived workflow in order to implement changes.
- The default base workflow is called WorkObjectEx –Contains system data fields and empty system maps –All workflows are derived from WorkObjectEX
  - –Special case: workflows for IBM Case Manager solutions

Workflow Preferences for inheritance

- To use inheritance in Process Designer, you must select the Enable Inheritance preferences option.
  - –Use Settings > Preferences > Workflows tab
  - –If the option is selected
- Workflow inheritance functionality is fully available.
- You can select a previously transferred base workflow from which to inherit.
  - –If the option is cleared
- Workflow inheritance functionality is disabled in Process Designer.
- WorkObjectEx is the base workflow.

Create a workflow hierarchy

- You specify a base workflow in Workflow Properties > General > Base Workflow field.
  - –Click the Modify icon.
- The Select Base Workflow window lists only transferred workflows in the isolated region.
  - –Select a base workflow to establish a workflow hierarchy.



Override an inherited map

- Use the Create Map icon on map toolbar.
  - –Select the Override Inherited Map option.
  - –Select name of inherited submap you want to override.
- Inherited submap is no longer Read Only.
  - –You can modify the inherited submap.
  - –You can modify inherited workflow properties, but **not** delete them.
- In Workflow Properties, symbols indicate the status of maps and workflow fields.
  - –Inherited symbol indicates an inherited item 
  - –Overridden symbol indicates an item that is overridden