



# KNIME Server Webinar


## Embedding KNIME into the Organization

For questions and suggestions please contact [education@knime.com](mailto:education@knime.com)

# Goal of Today's Webinar

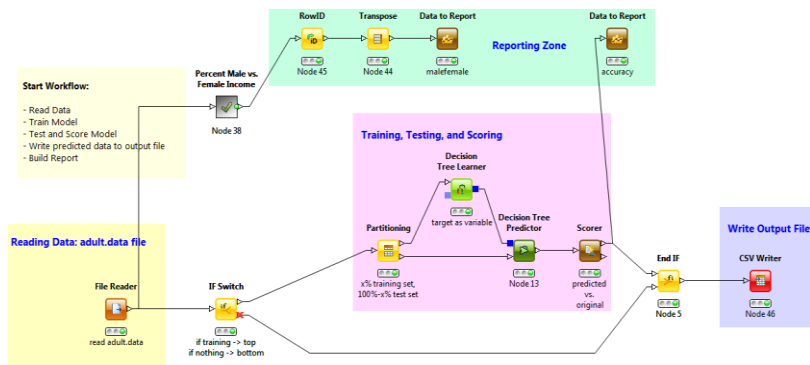
We will go through the full development cycle of a KNIME workflow.

# Resources

- **KNIME** pages ([www.knime.org](http://www.knime.org))
  - **APPLICATIONS** for example workflows
  - **RESOURCES** with links to a number of resource pages, like downloads, updates, documentation, ...
- **KNIME Tech** pages (<http://tech.knime.org/>)
  - **FORUM** for questions and answers (with a **Server** section)
  - **DOCUMENTATION** for documentation, FAQ, changelogs, ...
  - **LABS** where to find new experimental nodes
  - **COMMUNITY CONTRIBUTIONS** for development instructions and third party nodes
- **KNIME TV** channel on 

# The Workflow Production Chain

Development of a KNIME  
Server Application on the  
KNIME Desktop



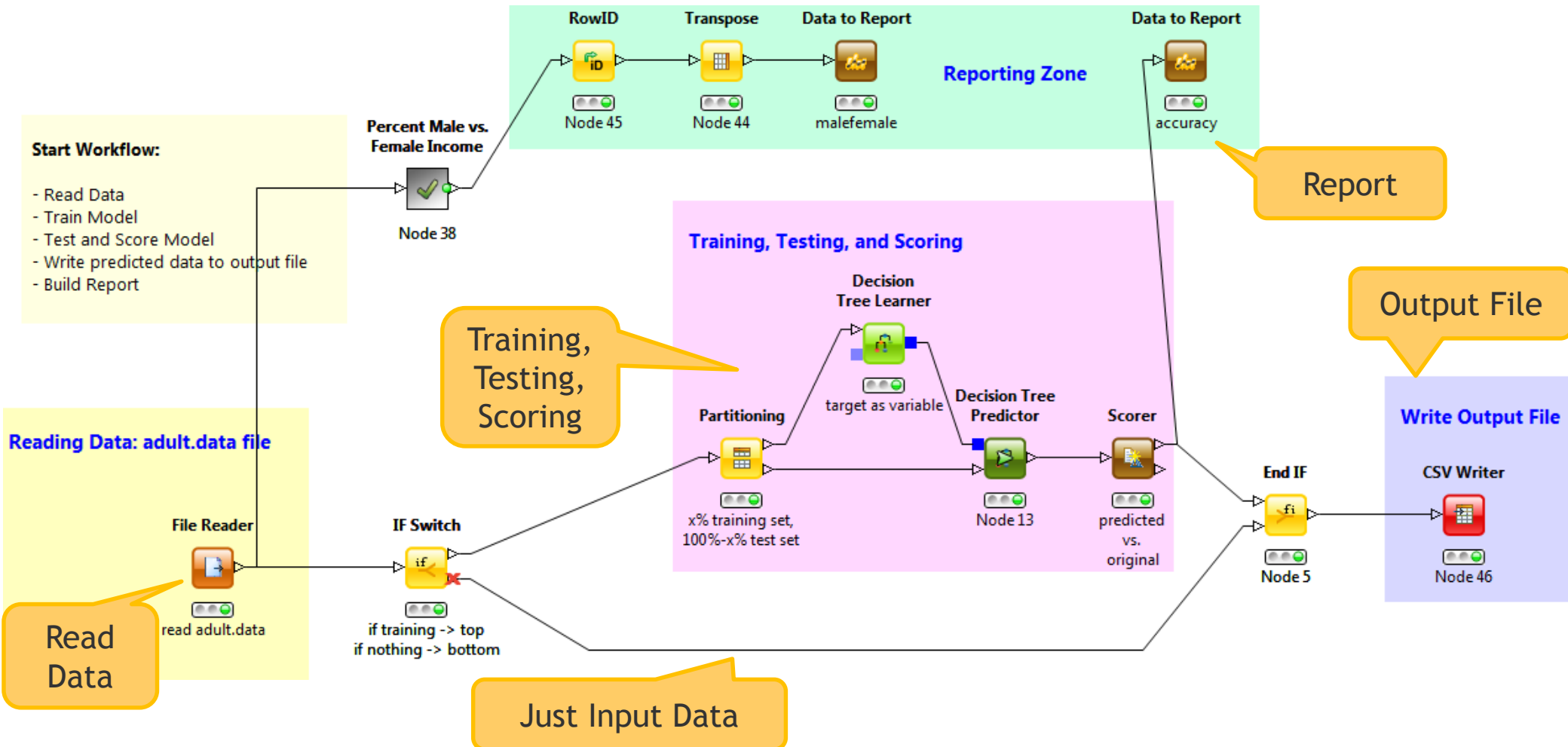
Deployment into  
Production



- Data Access from and to Server
- Quickform Nodes for Workflow Control
- Shaping Output Web Page / Report

- Upload Workflow and Data
- Set Permissions
- Schedule Execution

# Start Workflow



# Report



1 / 1 KNIME Server Webinar of Jul 4, 2013 12:00 PM

## KNIME Server Webinar Results

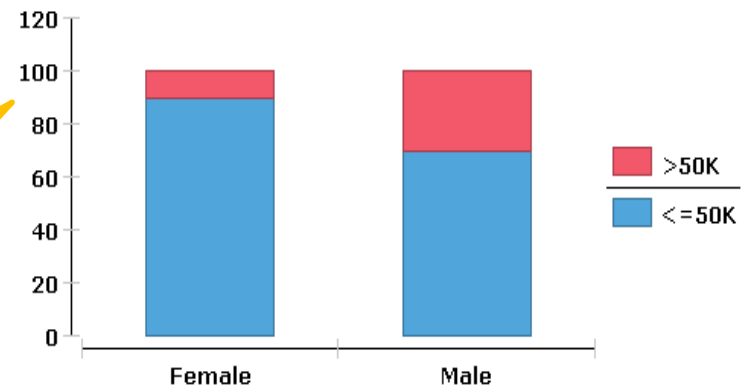
Confusion Matrix

	<=50K	>50K
<=50K	6575	740
>50K	951	1353

From Scorer Node

From original data

% of women vs. men about income



Created with KNIME Report Designer. Provided by KNIME.com AG, Zurich, Switzerland



# Goal of Today's Webinar

We want to migrate this workflow into a productive server application, that can be run by other people and its results displayed on a web browser.

Parameters?

Input data  
file reside on  
my machine

GUI for  
Parameter  
Values

Visualize  
Results on  
Web Browser

# Install the KNIME Server Update

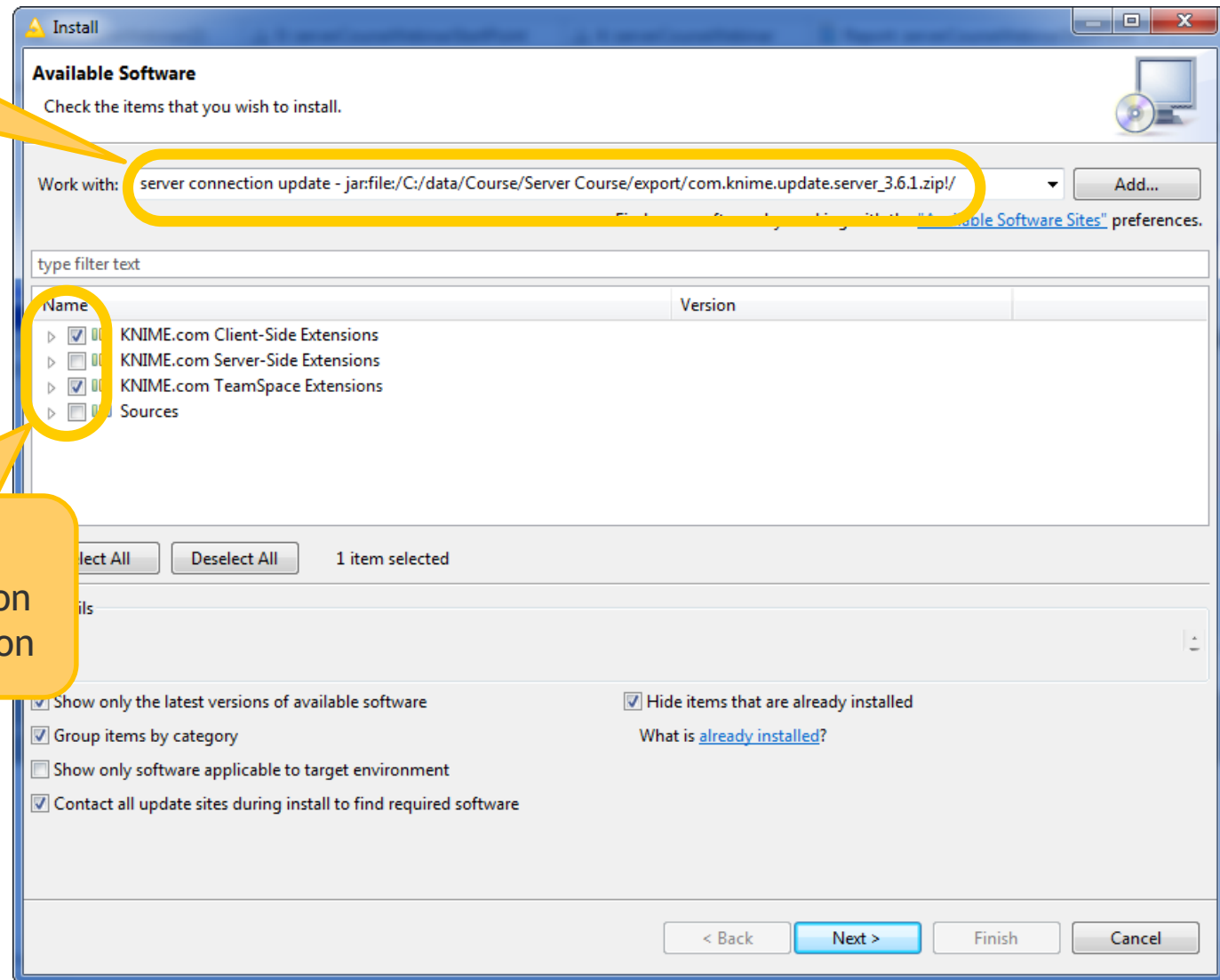
- The KNIME Server license resides on the server
- You must still install the piece of software to make the KNIME Desktop (the client) communicate with the KNIME Server
- The TeamSpace license resides on the client
- You can still install the TeamSpace extension on the client. It is useful to communicate with the KNIME Server



# Installation



Server Update File  
from KNIME



Install:

- Client Side Extension
- TeamSpace Extension



# **Access the KNIME Server from the Client**

Login/Logout, Upload/Download

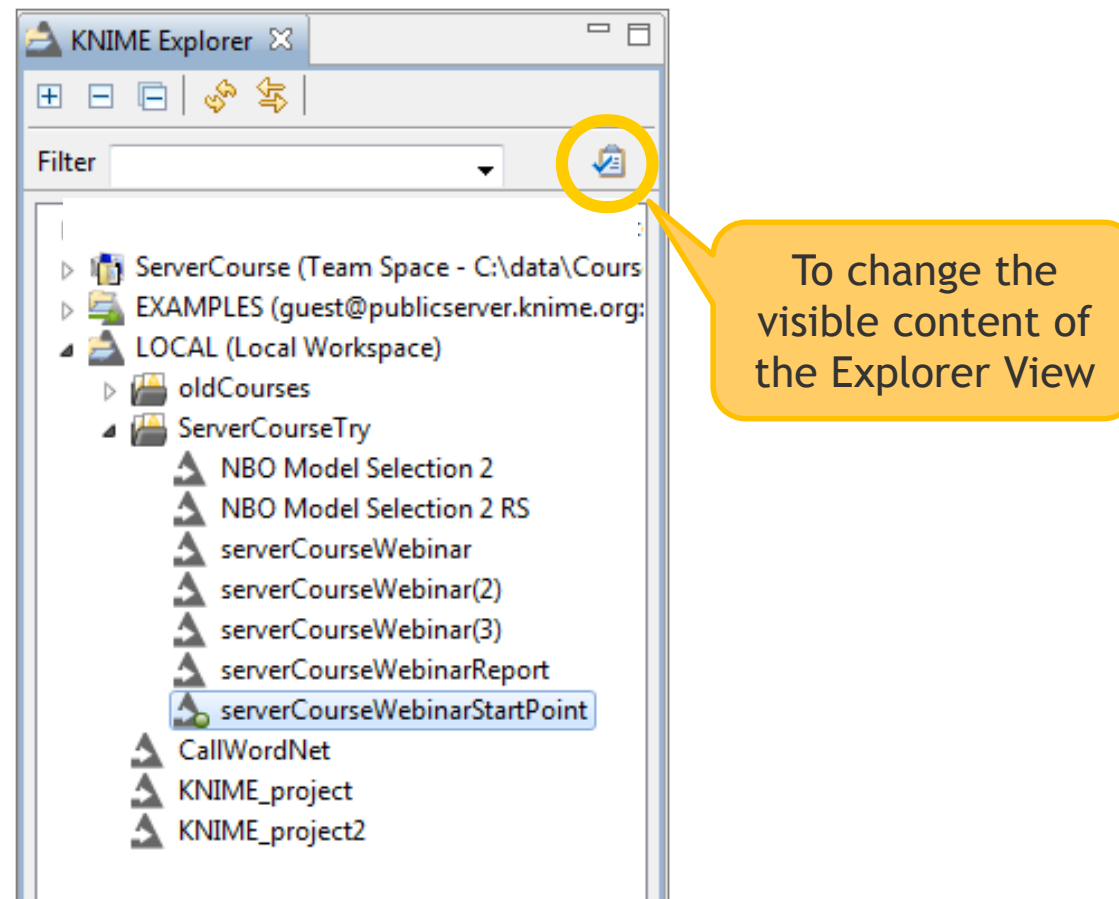
# The KNIME Explorer

- Add a KNIME Server to the KNIME Explorer View
- Login/Logout to/from a KNIME Server
- Download/Upload workflows

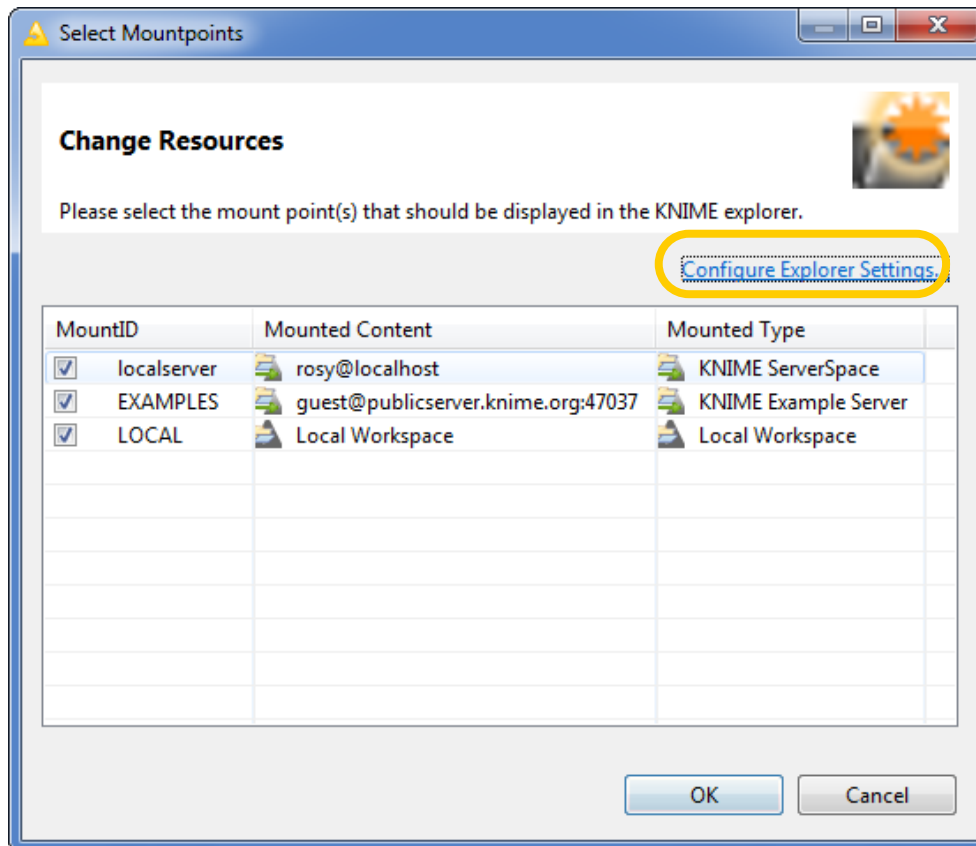
# Add a KNIME Server into KNIME Explorer

1. Insert new Server
2. Define Mount ID (name in your KNIME client)
3. Provide server name and login infos
4. Enable your server via Mount ID

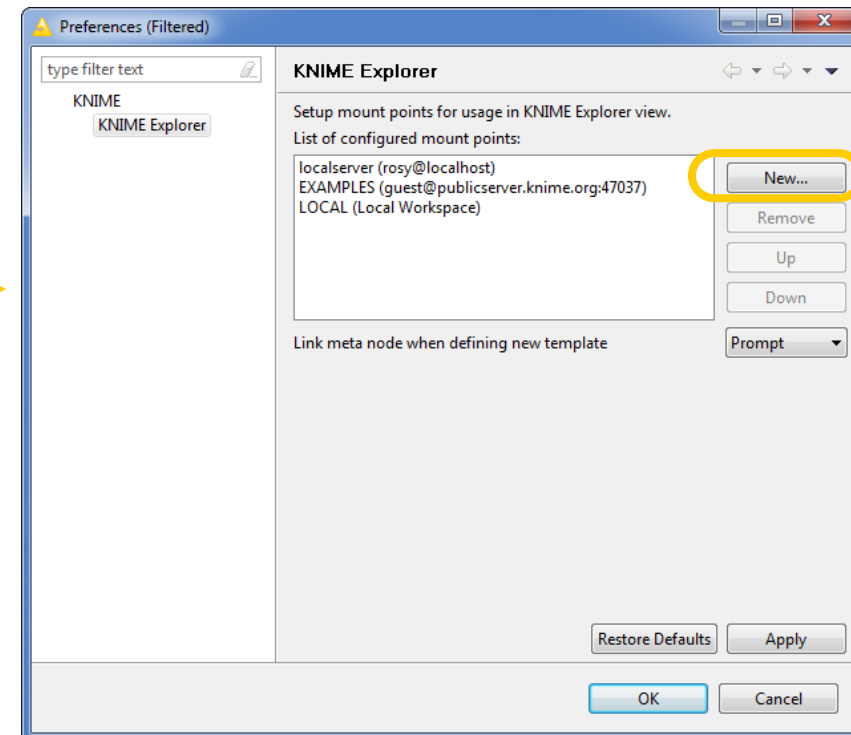
# Add a Server into KNIME Explorer



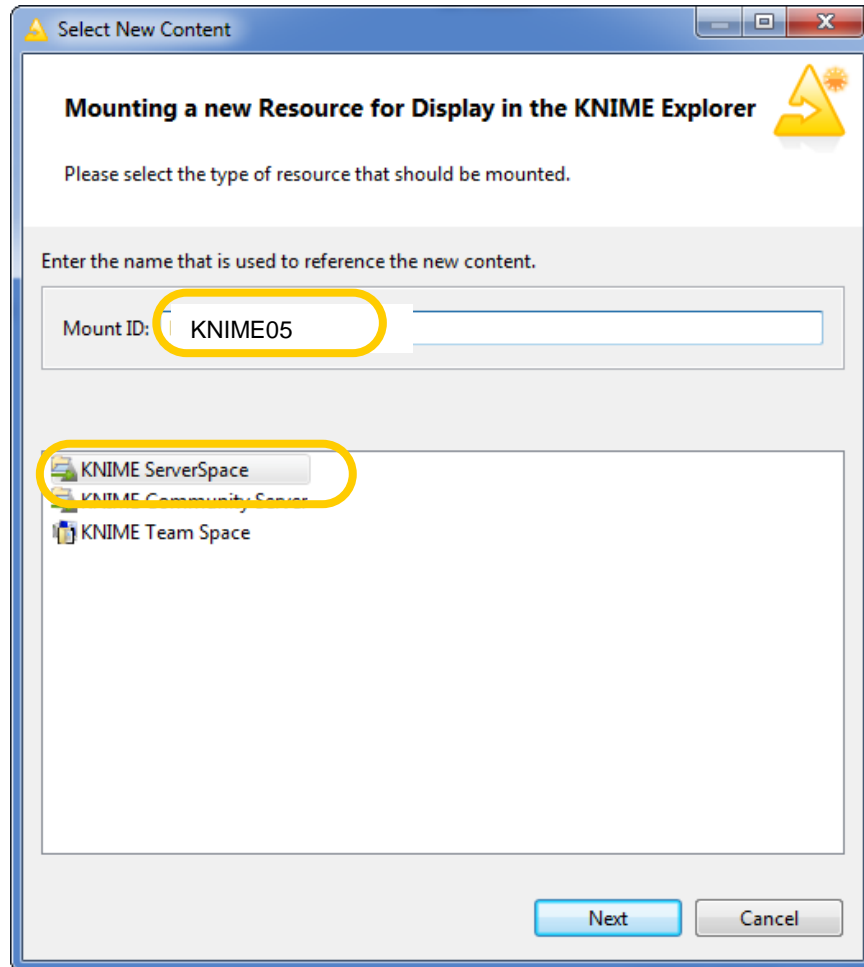
# Add a Server into KNIME Explorer



## 1. Insert new Server



# Add a Server into KNIME Explorer



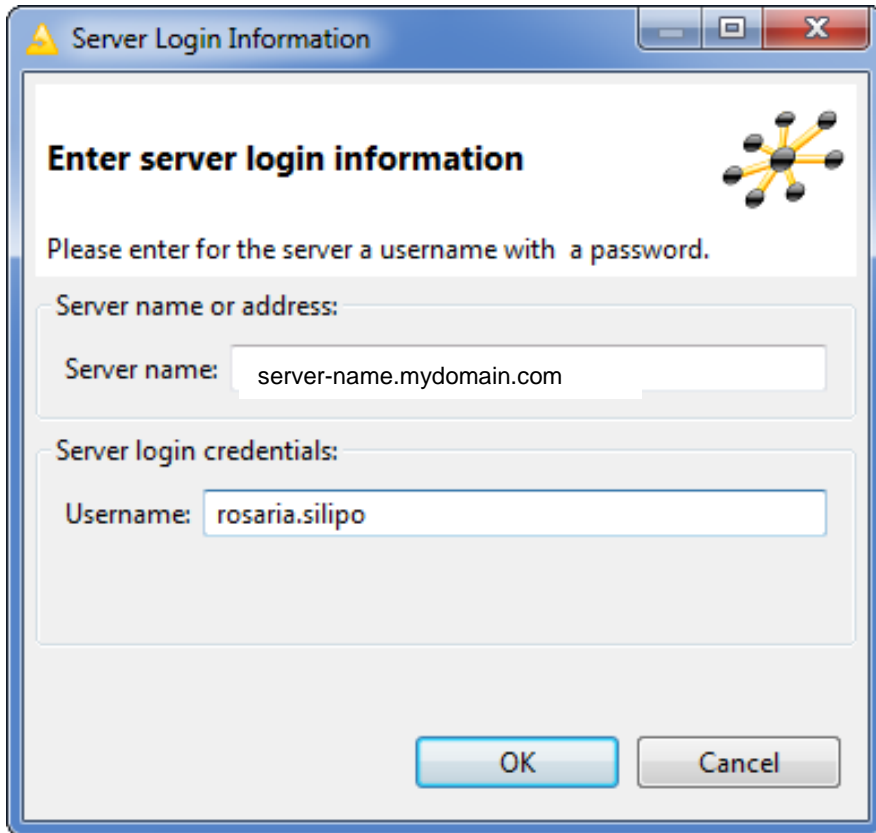
## 2. Define Mount ID

Just [A-Z] [a-z] [0-9] . –

Do not insert special character

Example: KNIME05

# Add a Server into KNIME Explorer



**Server Login Information**

**Enter server login information**

Please enter for the server a username with a password.

Server name or address:

Server name:

Server login credentials:

Username:

OK Cancel

## 3. Add Server Name and Login Infos

MountID = KNIME05

Server = knime05.knime.com

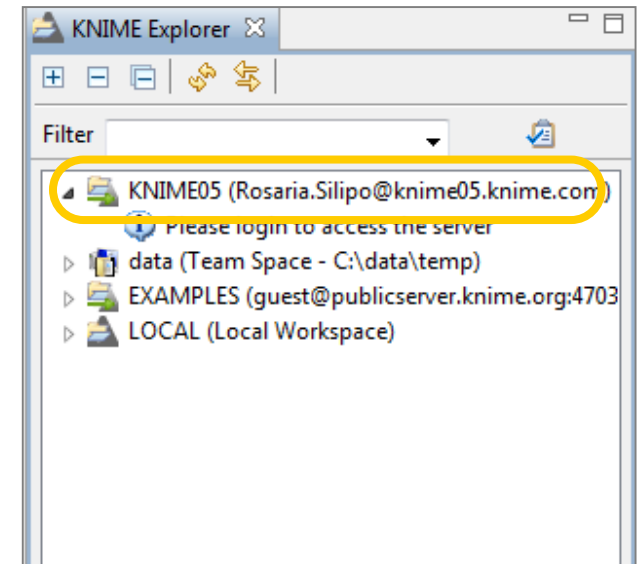
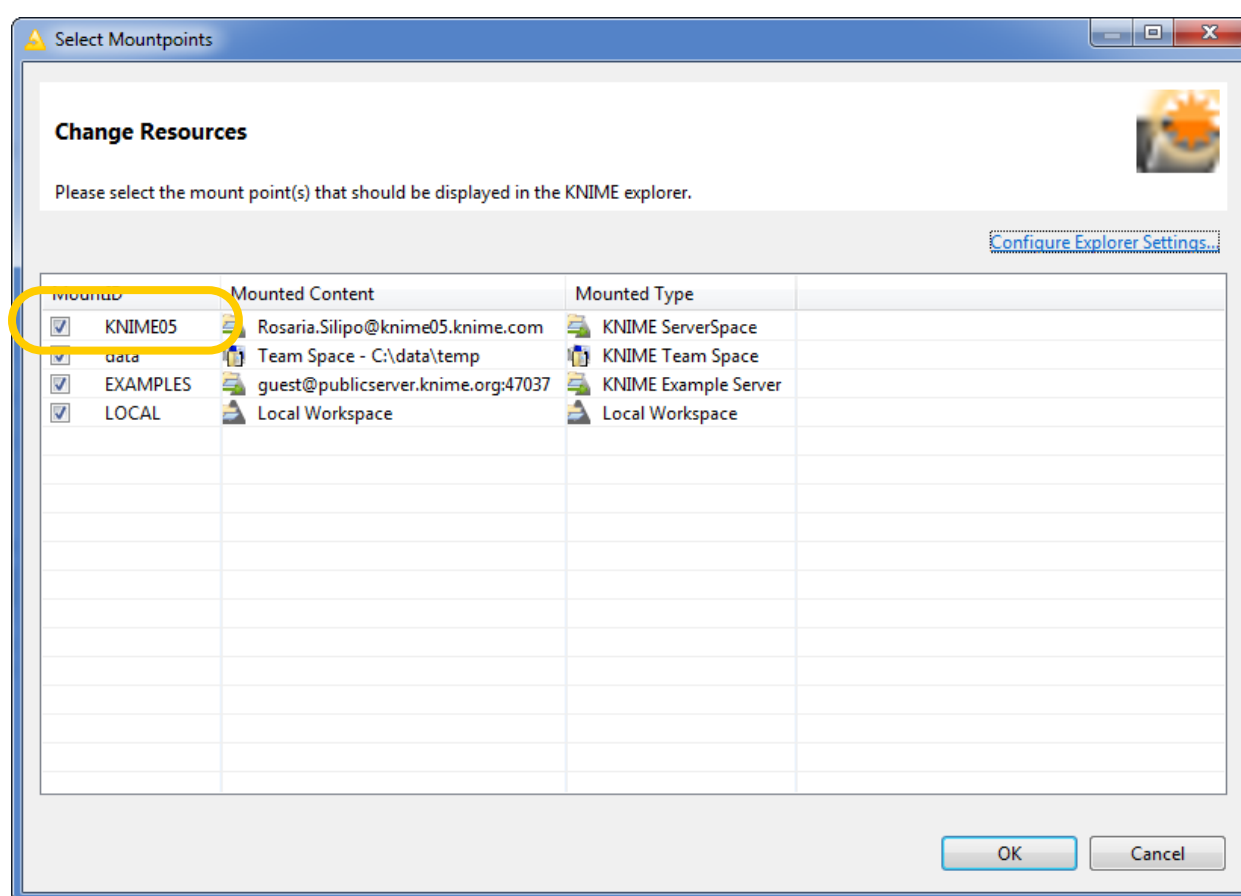
Username = <username>

Password = <password>



# Add Server into KNIME Explorer

4. Enable your server via Mount ID

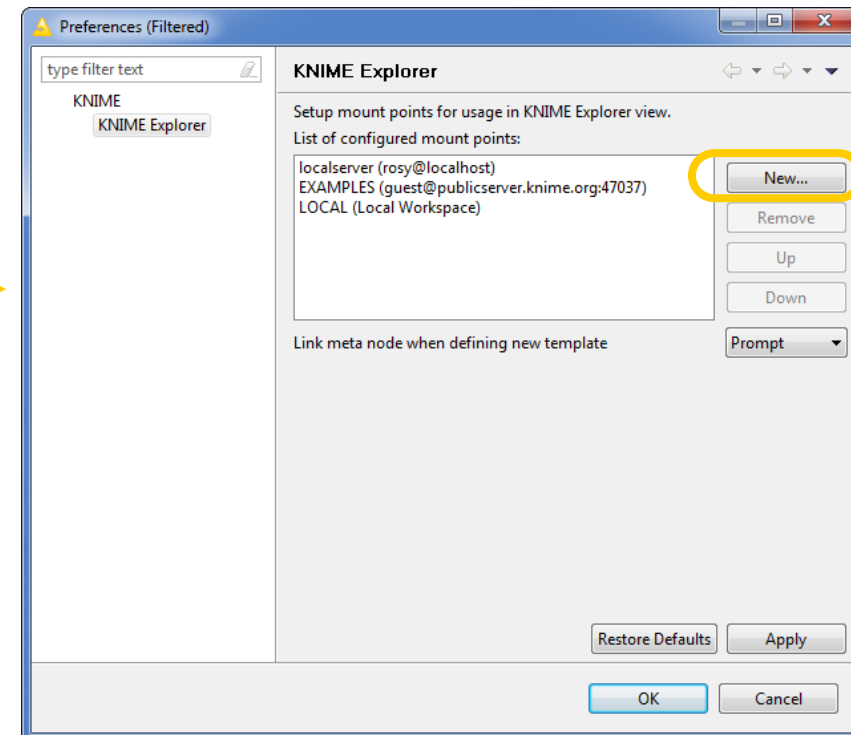
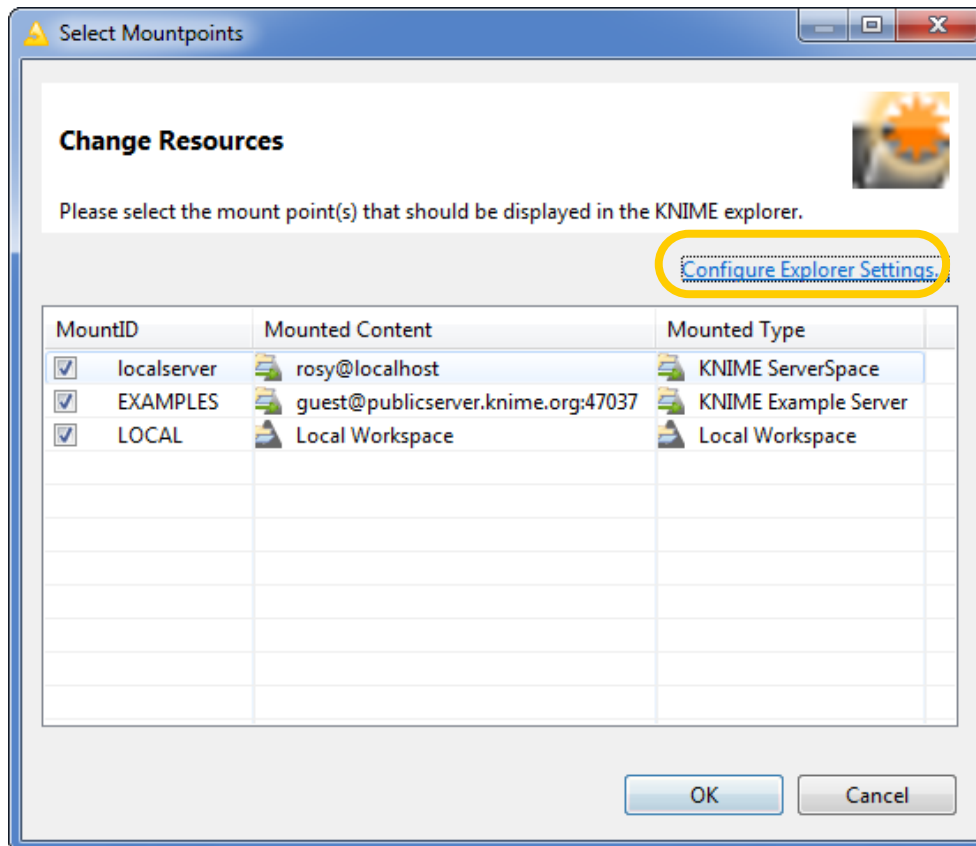


# Add a Team Space into KNIME Explorer

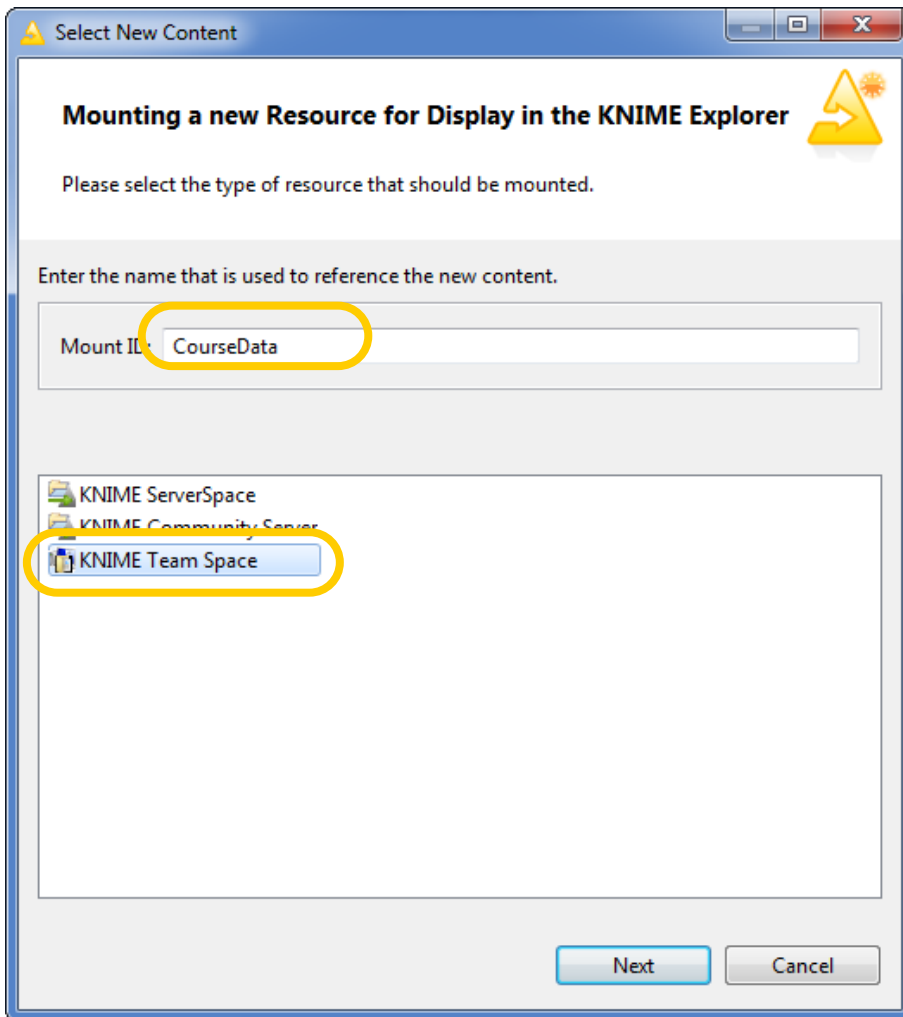
1. Insert new Team Space
2. Define Mount ID (name in your KNIME client)
3. Provide path to Team Space local directory (no login required)
4. Team Space license is different and separated from Server license

# Add a Team Space into KNIME Explorer

## 1. Insert new Team Space



# Add a Team Space into KNIME Explorer



## 2. Define Mount ID

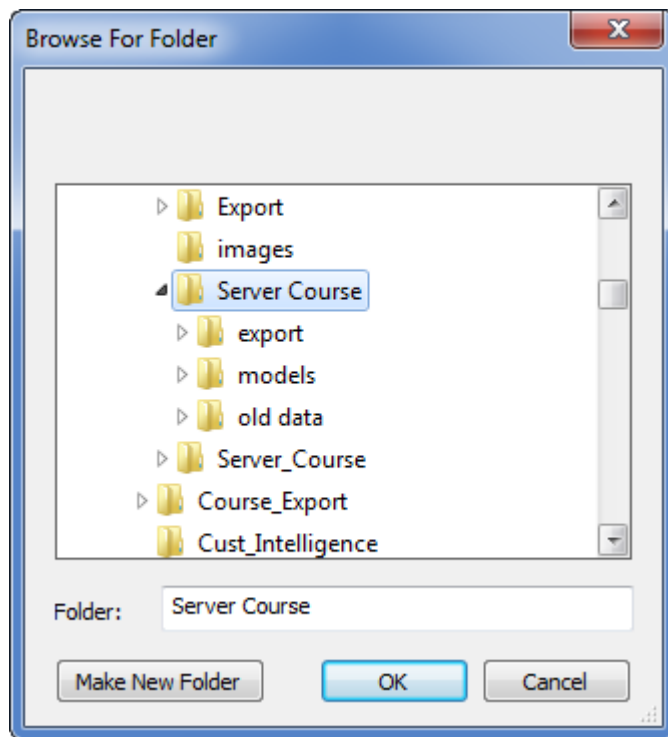
Just [A-Z] [a-z] [0-9] . –

Do not insert special character

Example: CourseData

# Add a Team Space into KNIME Explorer

## 3. Add Team Space folder path



MountID = CourseData

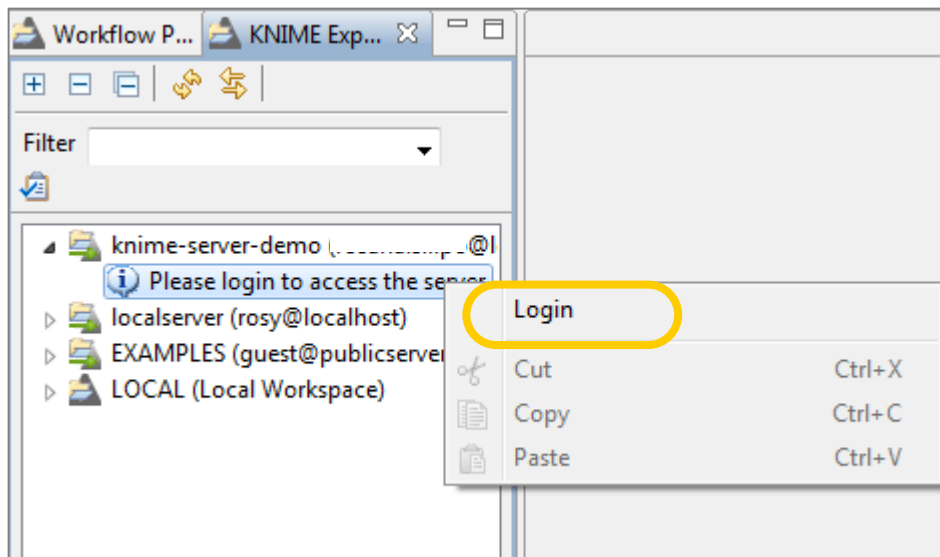
path= C:\data\Course\ServerCourse

No login infos!

# The KNIME Explorer

- Add a KNIME Server to the KNIME Explorer View
- Login/Logout to/from a KNIME Server
- Download/Upload workflows

# Login into the KNIME Server

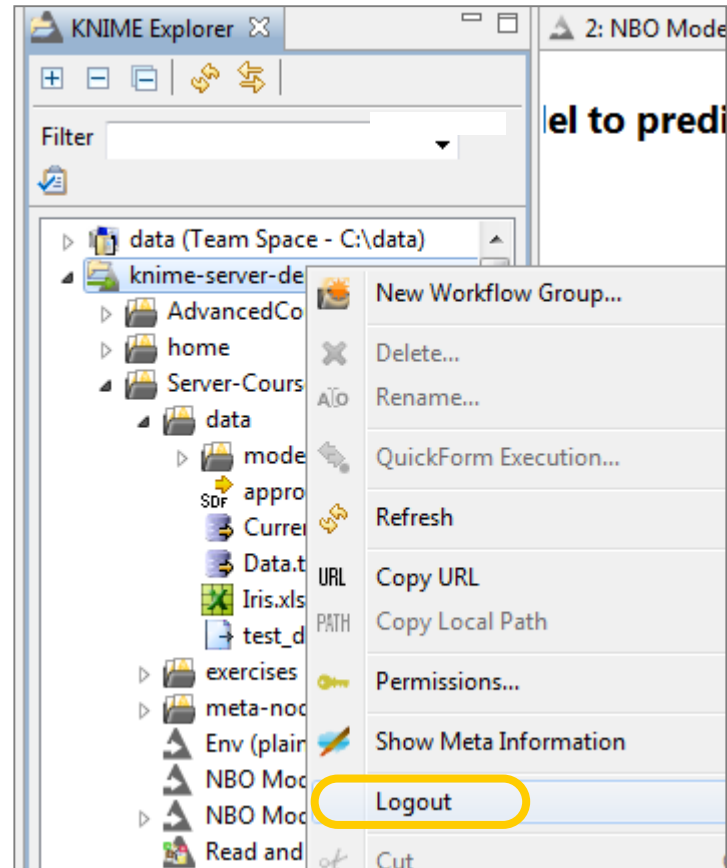


In KNIME Explorer:

- Right-click the server name
- Select „Login“
- Enter password

**Note.** You can log in into only one KNIME Server at a time

# Logout from a KNIME Server



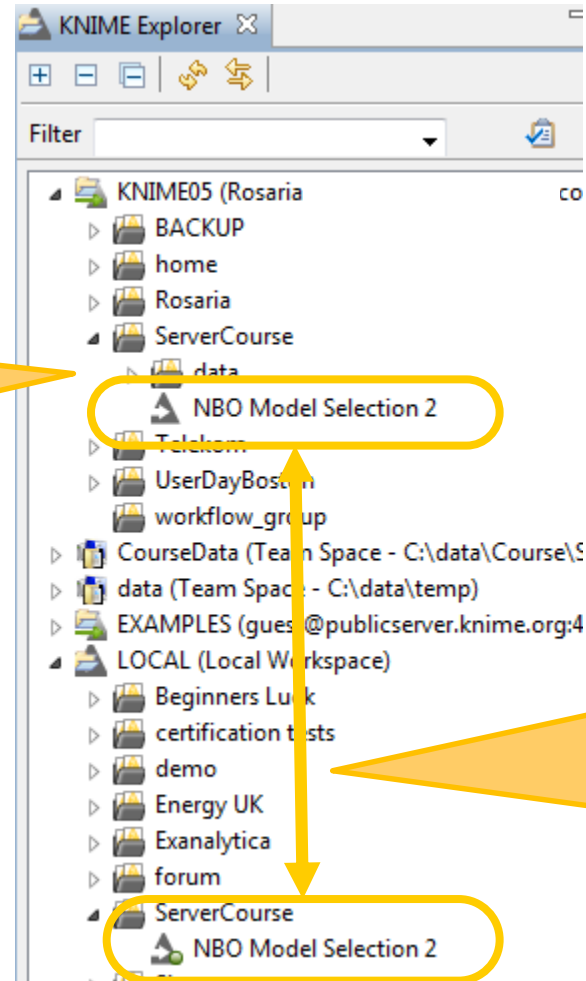


# The KNIME Explorer

- Add a KNIME Server to the KNIME Explorer View
- Login/Logout to/from a KNIME Server
- Download/Upload workflows

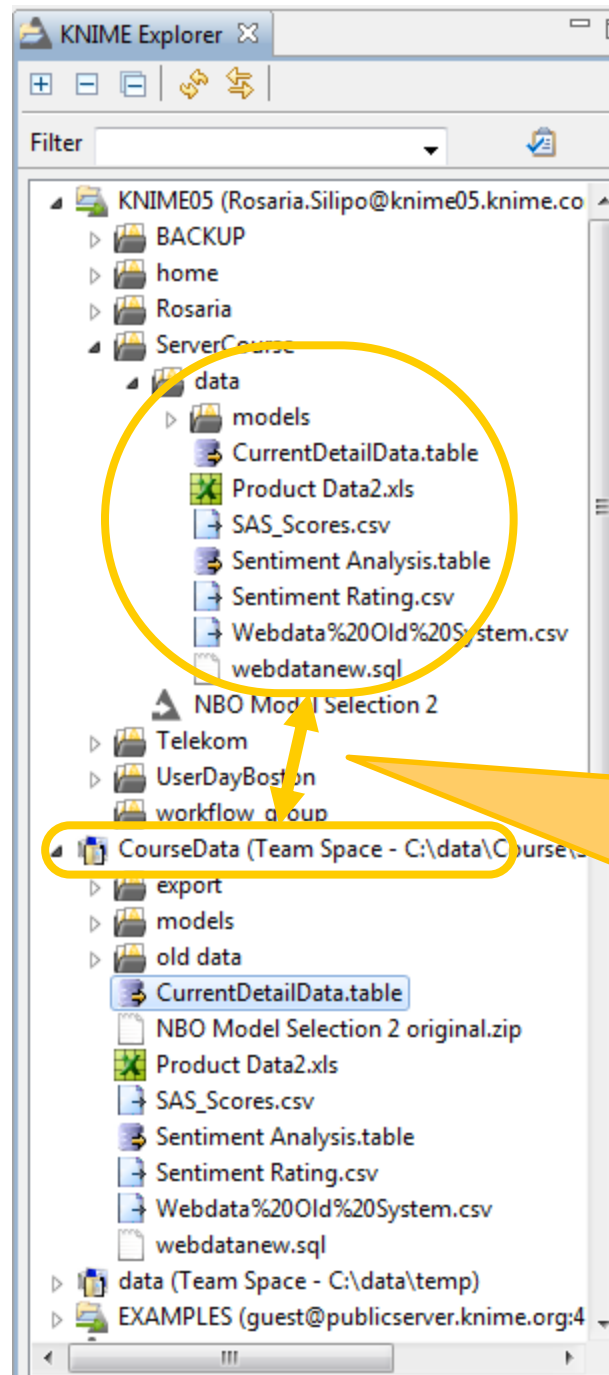
# Download Workflows

View of  
knime05  
after login



Drag and drop to  
upload/download  
from local space  
to/from server

# Download/Upload Data



Drag and drop or  
copy/paste „data“  
to/from server  
from/to Team  
Space



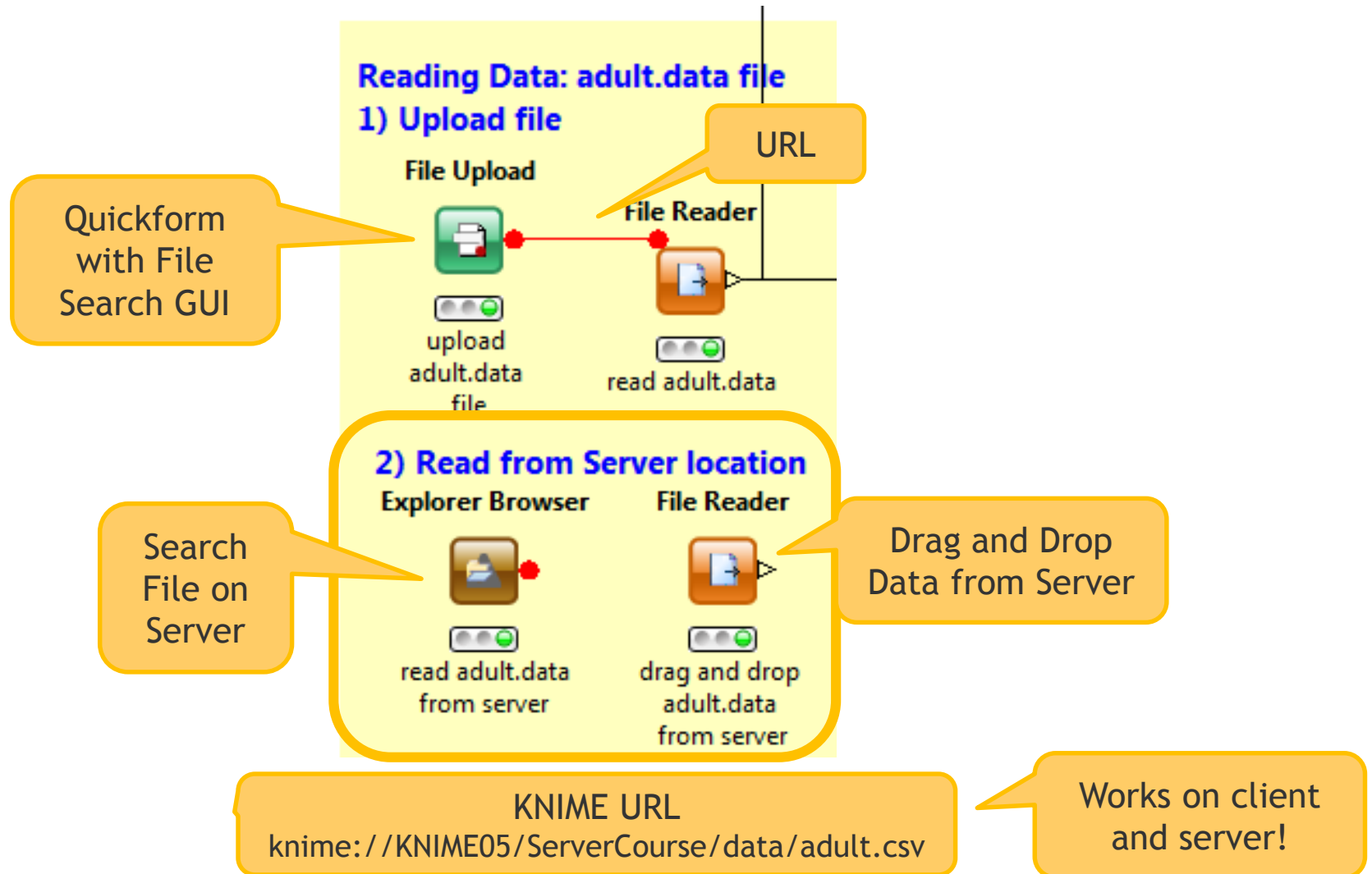
# Workflow Development

Quickforms and Meta-Nodes

# Overview

- Read data from Server
- Write data to Server
- Quickforms
- Meta-Nodes Sharing and Locking
- Testing Workflows and Meta-Nodes
- The Output Quickforms

# Read Data from Server



## Note

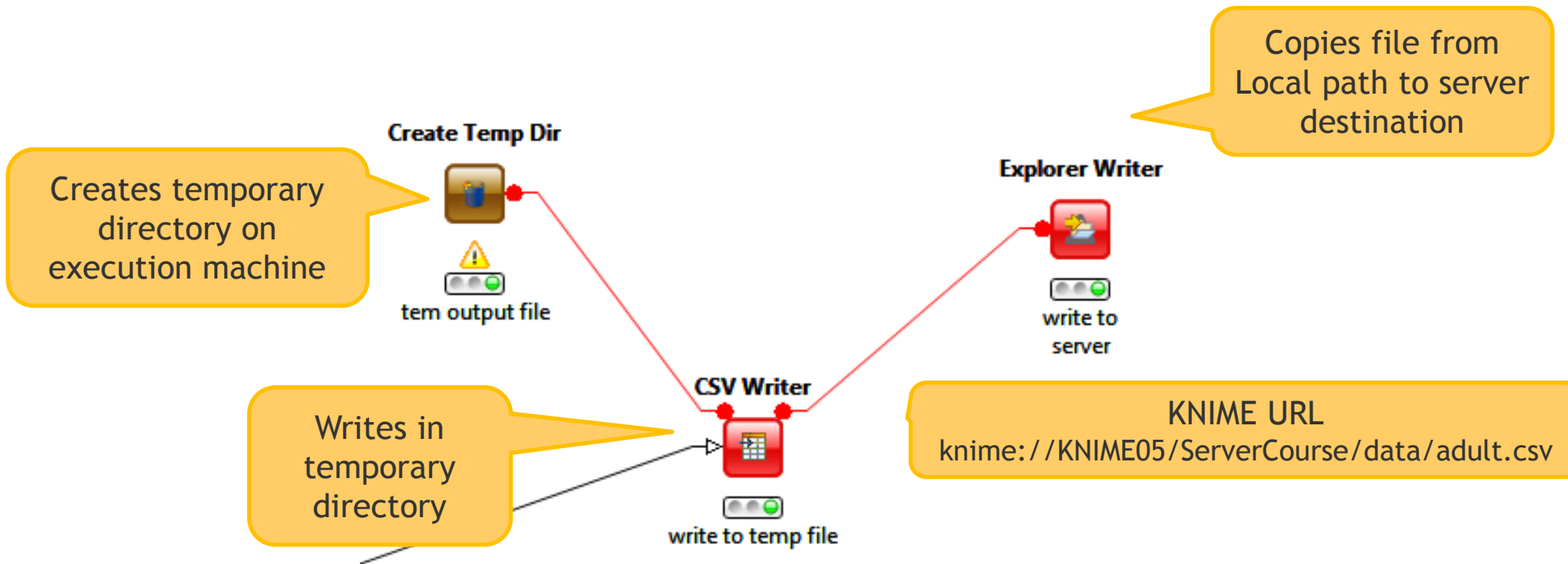
In order to refer to data files on the server using the KNIME URL, you need KNIME Team Space installed on the server and with the same Mount ID as the server mount ID (in this case KNIME05).

# Overview

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# Write Data to Server



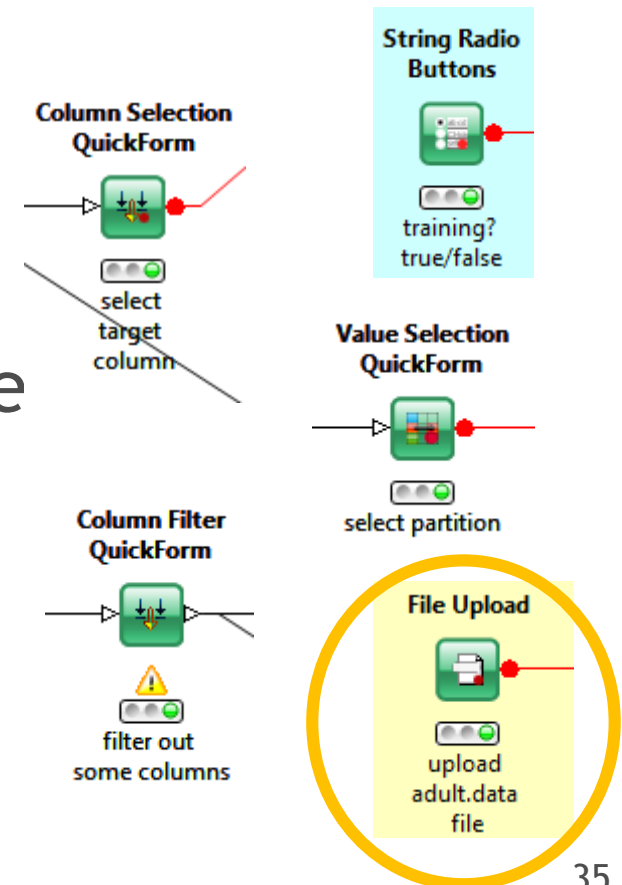
# Overview

- Read data from Server
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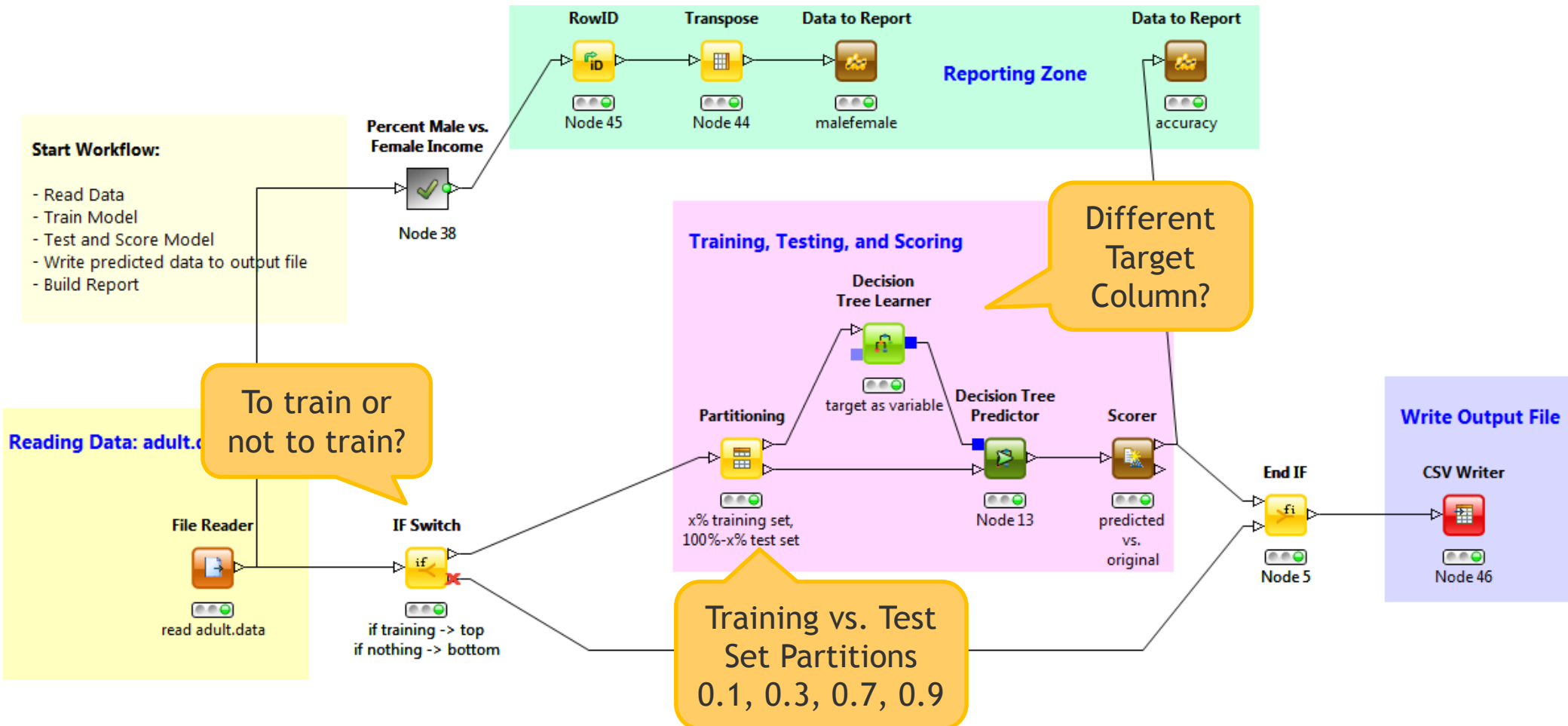
# Quickforms

Quickforms are special nodes to parameterize workflows, like to:

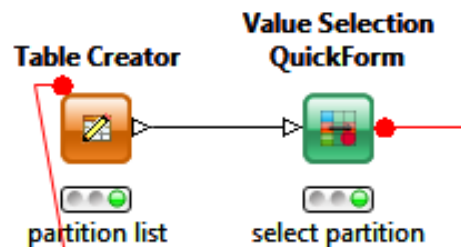
- Select File path
- Select a Column
- Insert String/Integer/Double Value
- Select Value(s) from a Menu
- Select Value from Radio Buttons
- Output Quickforms



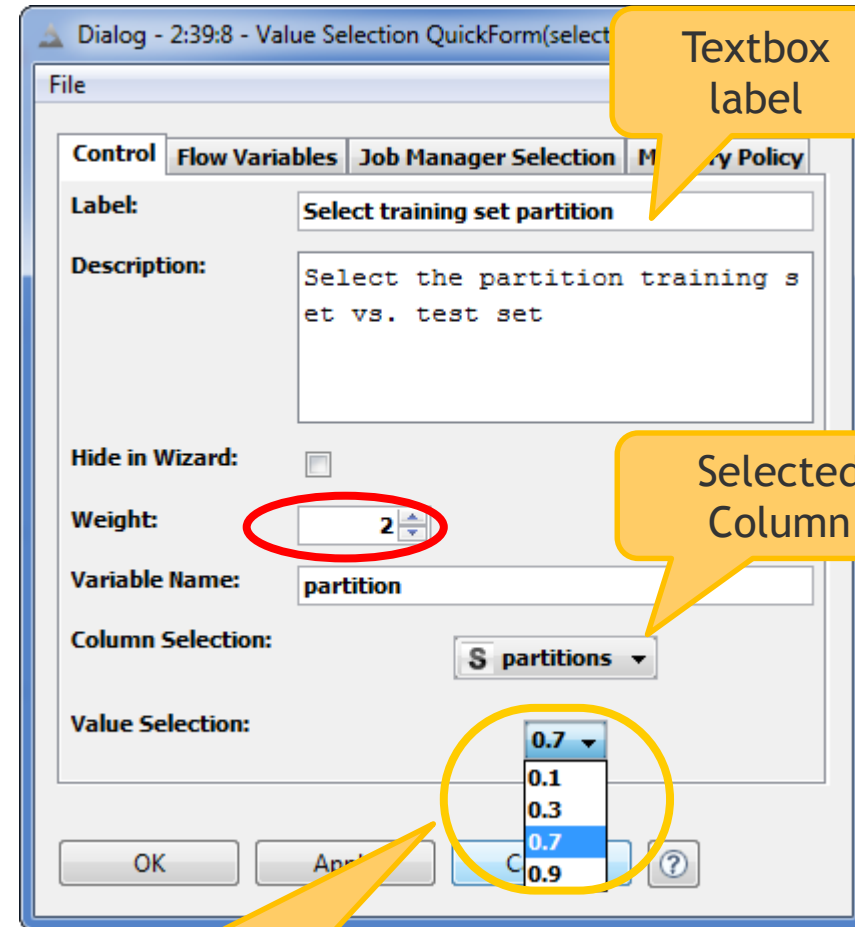
# Training Parameters



# Select Value from a Menu



Selects and outputs a value from a list built from a column's values



The screenshot shows the **Value Selection QuickForm** dialog box with the following settings:

- Label:** Select training set partition
- Description:** Select the partition training set vs. test set
- Hide in Wizard:** ☐
- Weight:** 2
- Variable Name:** partition
- Column Selection:** \$ partitions
- Value Selection:** 0.7

Textbox label

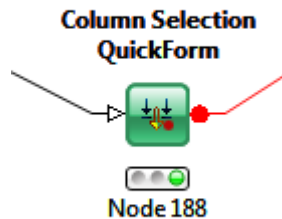
Selected Column

Values from column „partitions“

# Select Data Column



Selects one column and outputs a variable with the selected column name



Dialog - 2:39:14 - Column Selection QuickForm(select...

File

Control Flow Variables Job Manager Selection Memory Policy

Label: Select Target Column

Description:

Hide in Wizard: ☐

Weight: 1

Variable Name: target

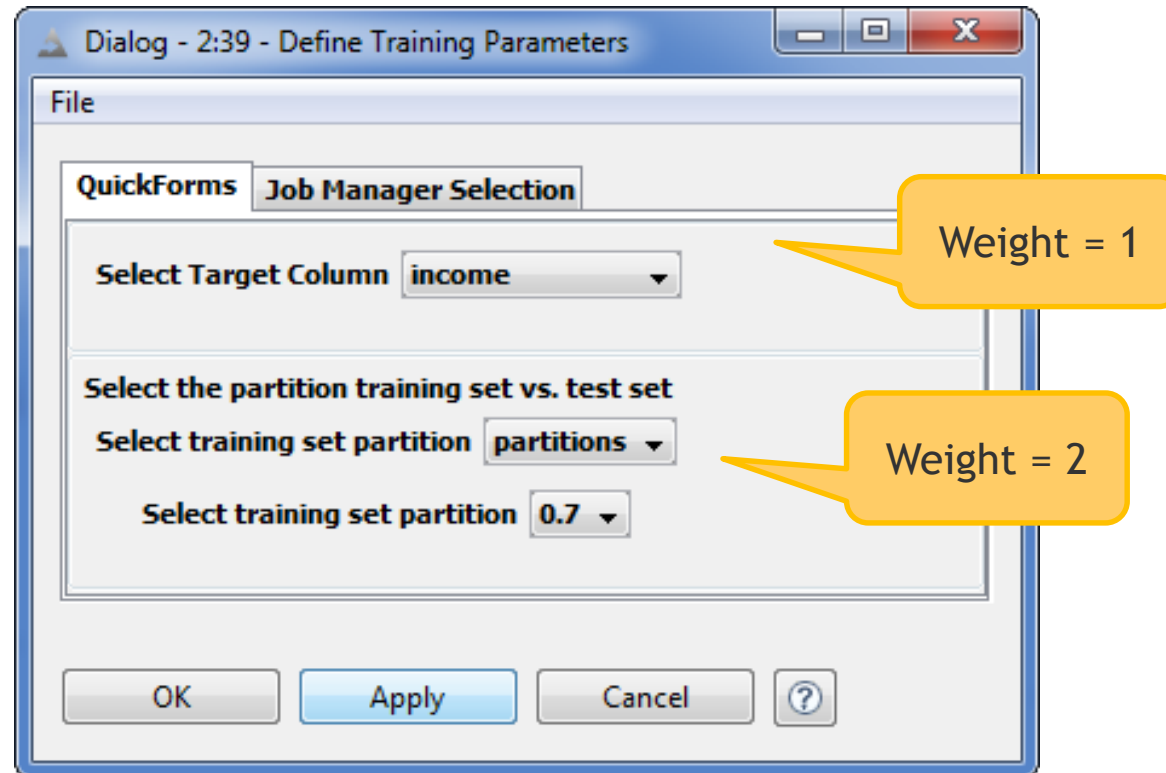
Column Selection:

- \$ income
- \$ relationship
- \$ race
- \$ sex
- | capital-gain
- | capital-loss
- | hours-per-week
- \$ native-country
- \$ income

OK Apply

Selected column

# Collapse into a Metanode



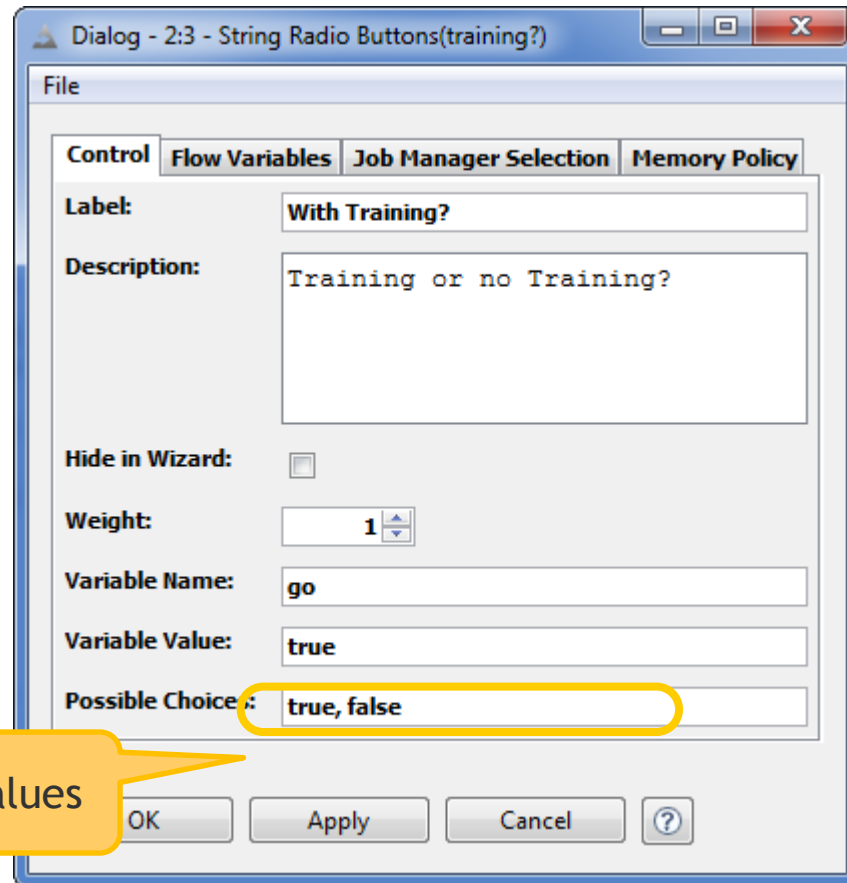
# Select Value from Radio Buttons

Allows to choose between two possible values and outputs the result

String Radio Buttons



Node 187



Dialog - 2:3 - String Radio Buttons(training?)

File

Control Flow Variables Job Manager Selection Memory Policy

Label: With Training?

Description: Training or no Training?

Hide in Wizard: ☐

Weight: 1

Variable Name: go

Variable Value: true

Possible Choice: true, false

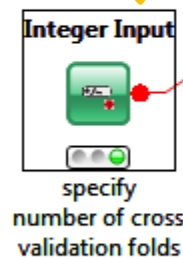
OK Apply Cancel ?

The only two possible values



# Insert String/Integer/Double Value

Exports an Integer/Double/String value as a Flow Var



Dialog - 0:185:149 - Integer Input(specify)

File

Control Flow Variables Memory Policy

Label: Enter # folds in cross-validation:

Description: Enter number of folds for cross validation runs.

Weight: 2

Variable Name: NrFolds

Int Value: 3

OK Apply Cancel ?

Flow Var containing the value set in the textbox

# Overview

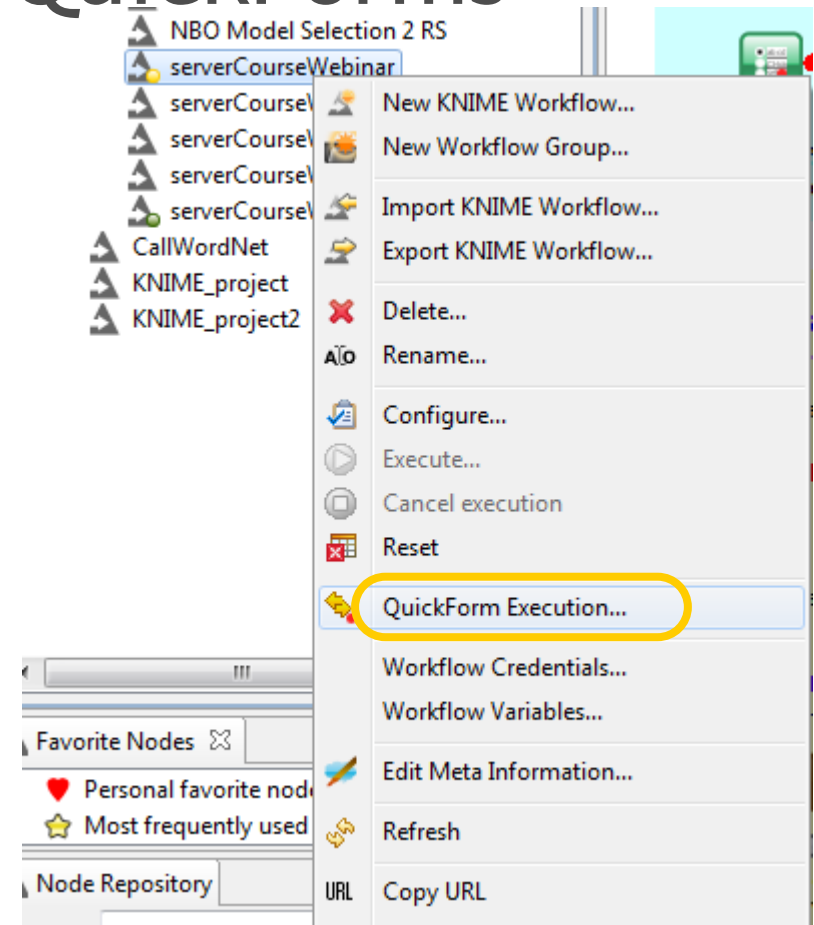
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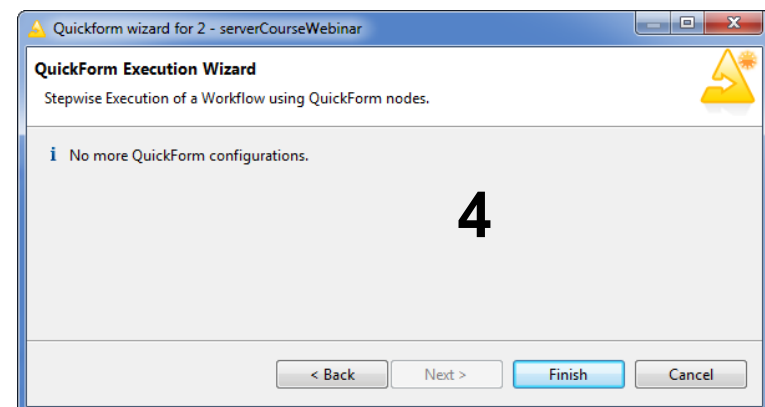
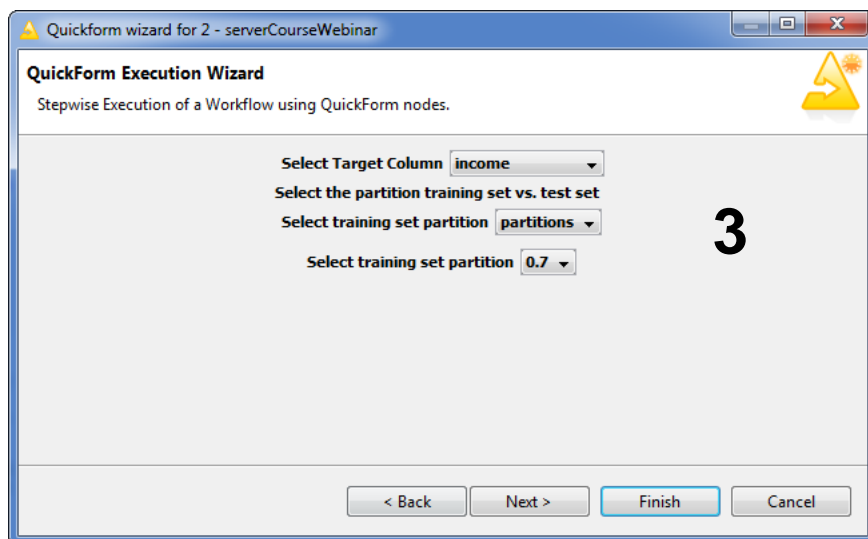
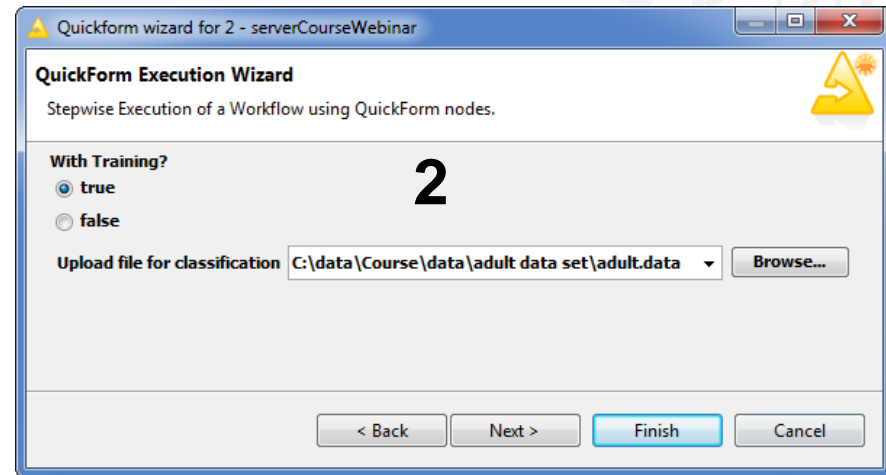
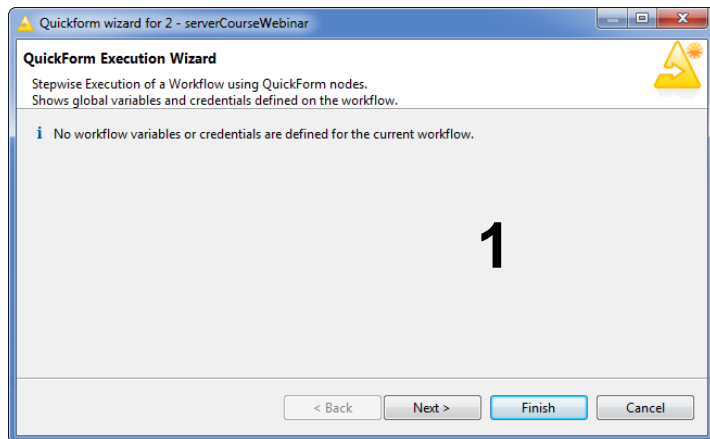
# Testing/Simulating QuickForms

Reset Workflow

Simulate Server Execution Wizard  
with:

- right-click workflow in KNIME Explorer View
- Select „Quickform Execution“
- Follow your Quickforms Instructions





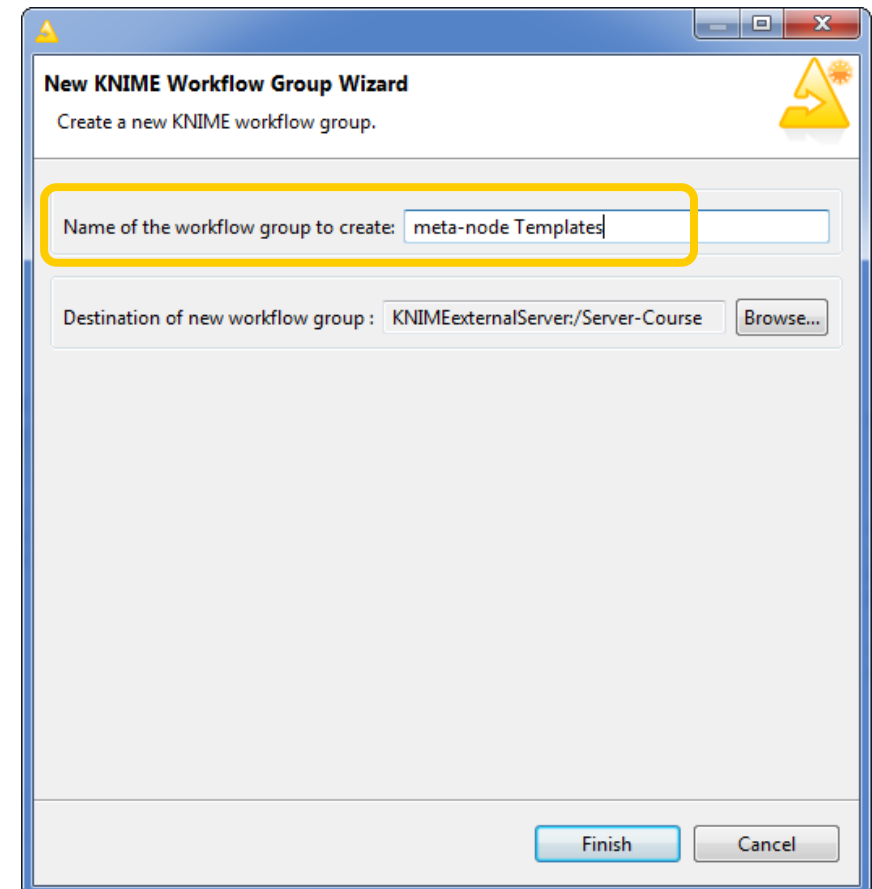
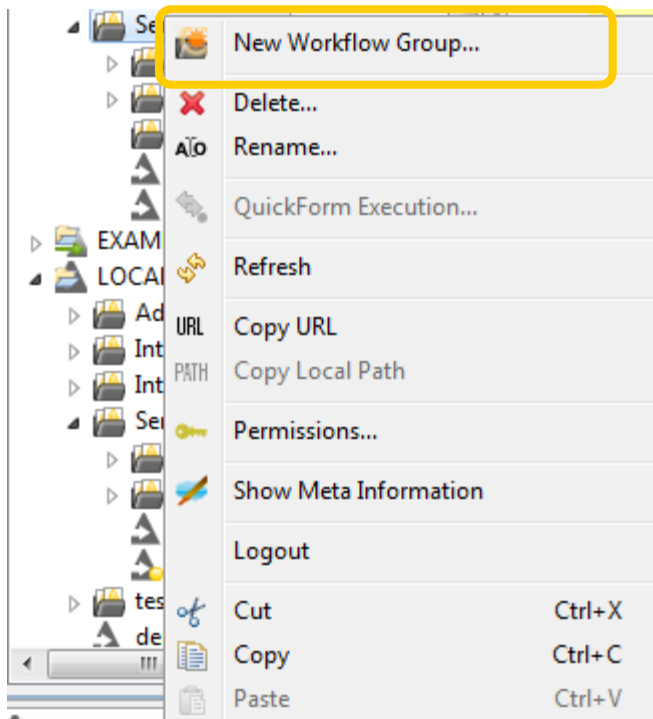
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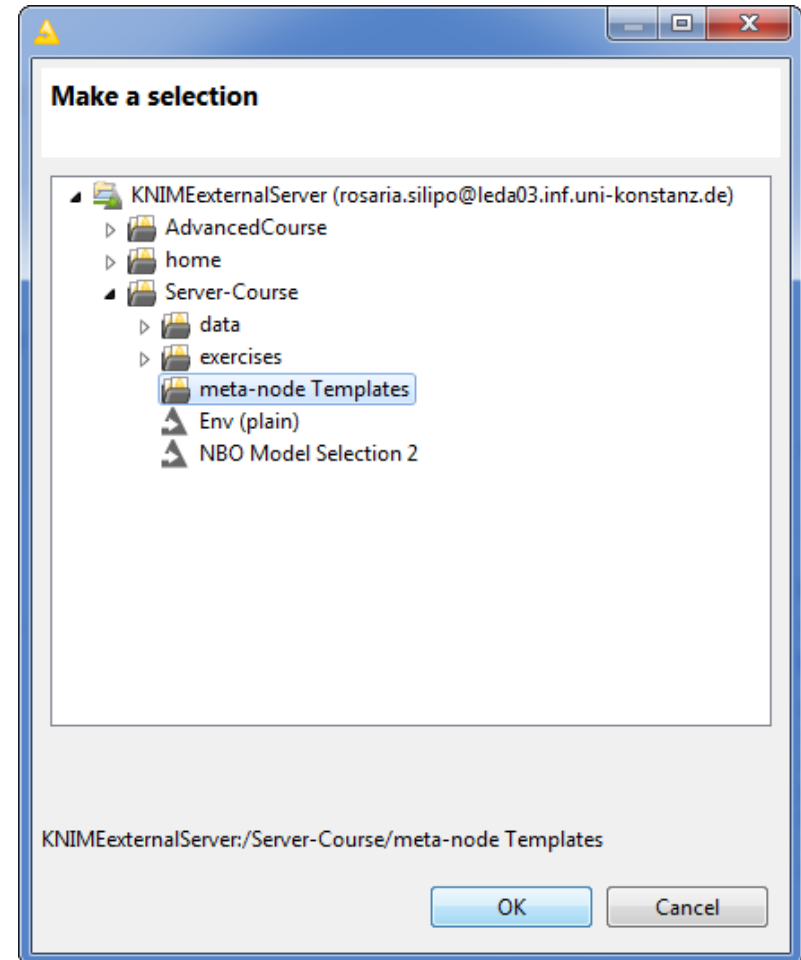
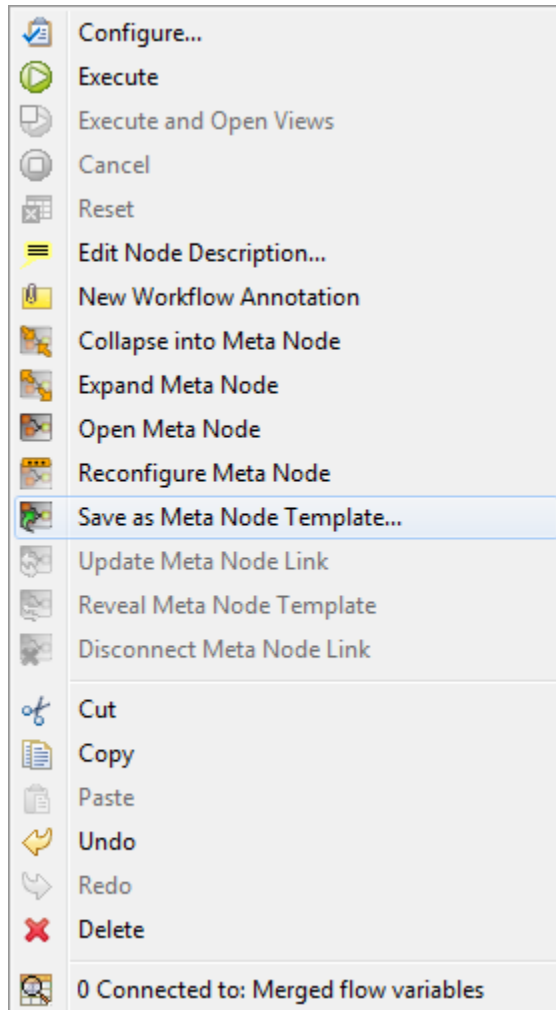
## Meta-Node Sharing

- Create a meta-node template on the server
- Set permissions, that is set who can see the meta-node template
- Create a link to the meta-node template in a new workflow
- Create a physical copy of a meta-node template in a new workflow

# Create a Workflow Group on the Server

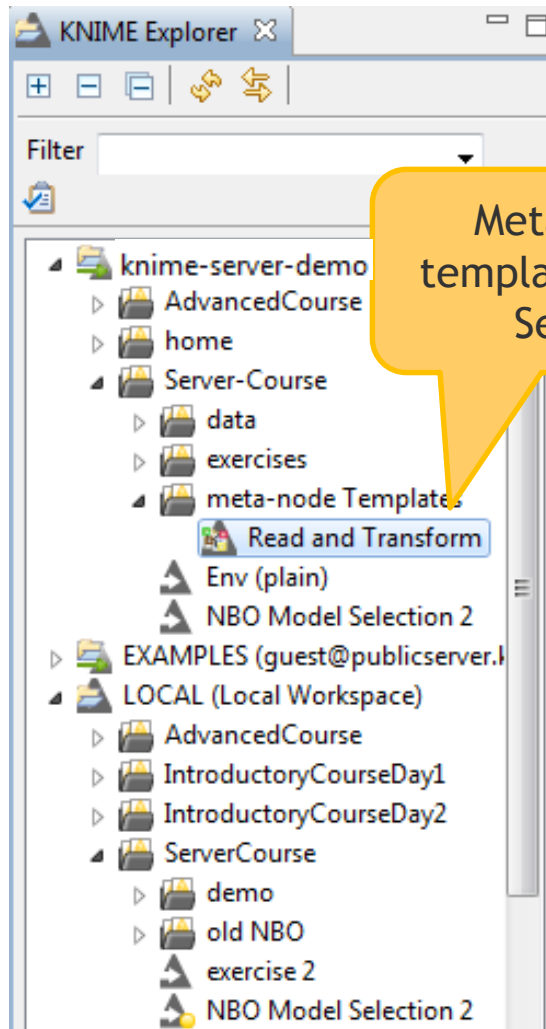


# Create a Meta-Node Template

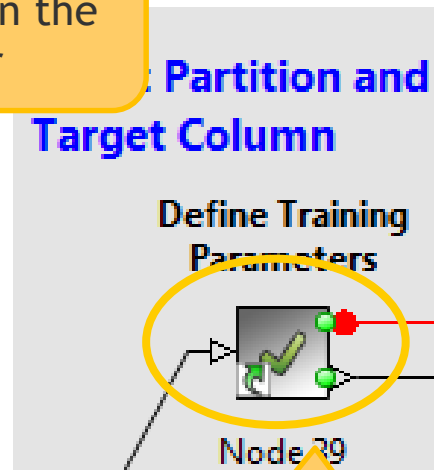




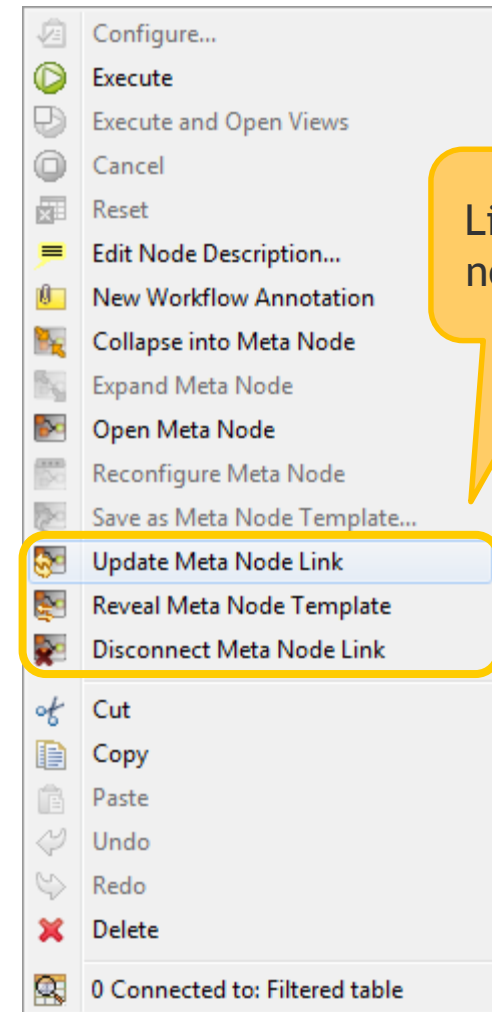
# Meta-node as Link to Template



Meta-node template on the Server



Linked Meta-node in the local space workflow



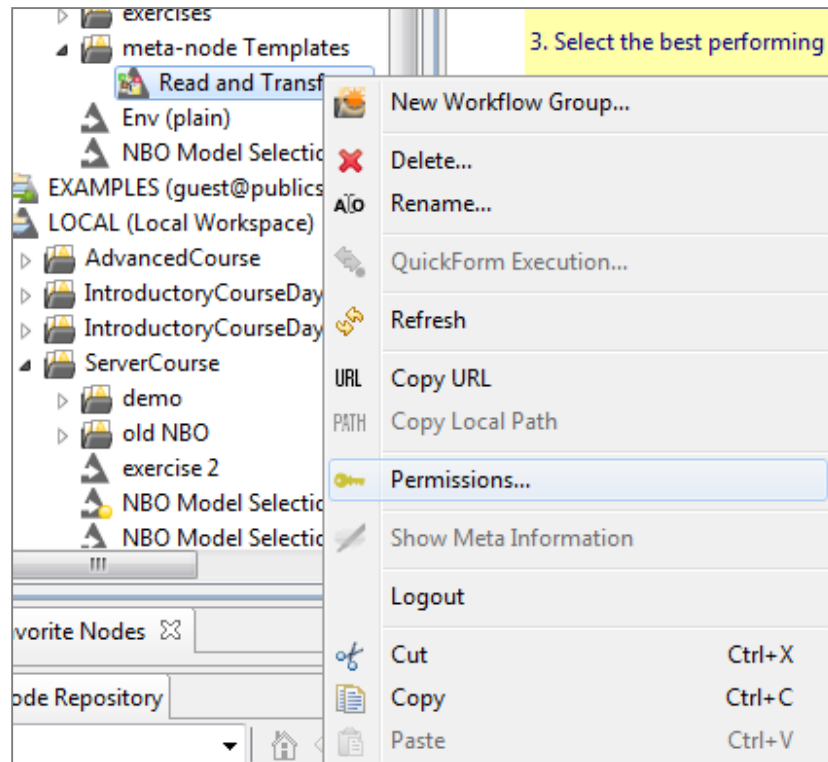
Linked Meta-node options

## Linked Meta-Node Options

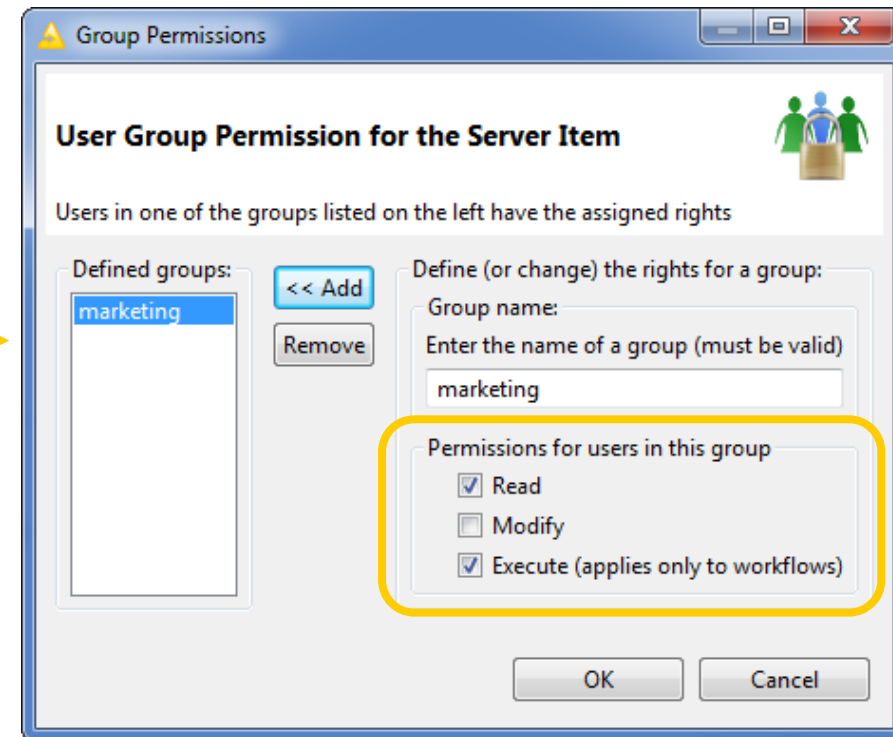
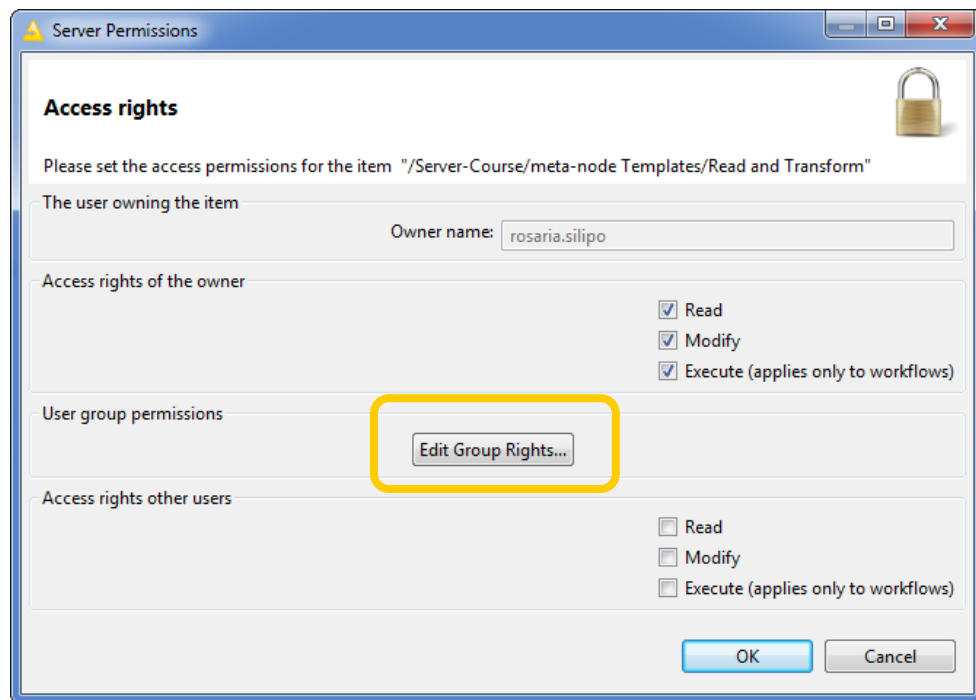
- „Update Meta Node Link“ updates the content of the linked meta-node in case the meta-node template has been changed.
- „Reveal Meta Node Template“ opens the location with the meta-node template in the KNIME Explorer panel.
- „Disconnect Meta Node Link“ makes a physical copy of the meta-node template instead of a link.

# Set Meta-Node Template Permissions

Right-click meta-node template on server in KNIME Explorer and select „Permissions“

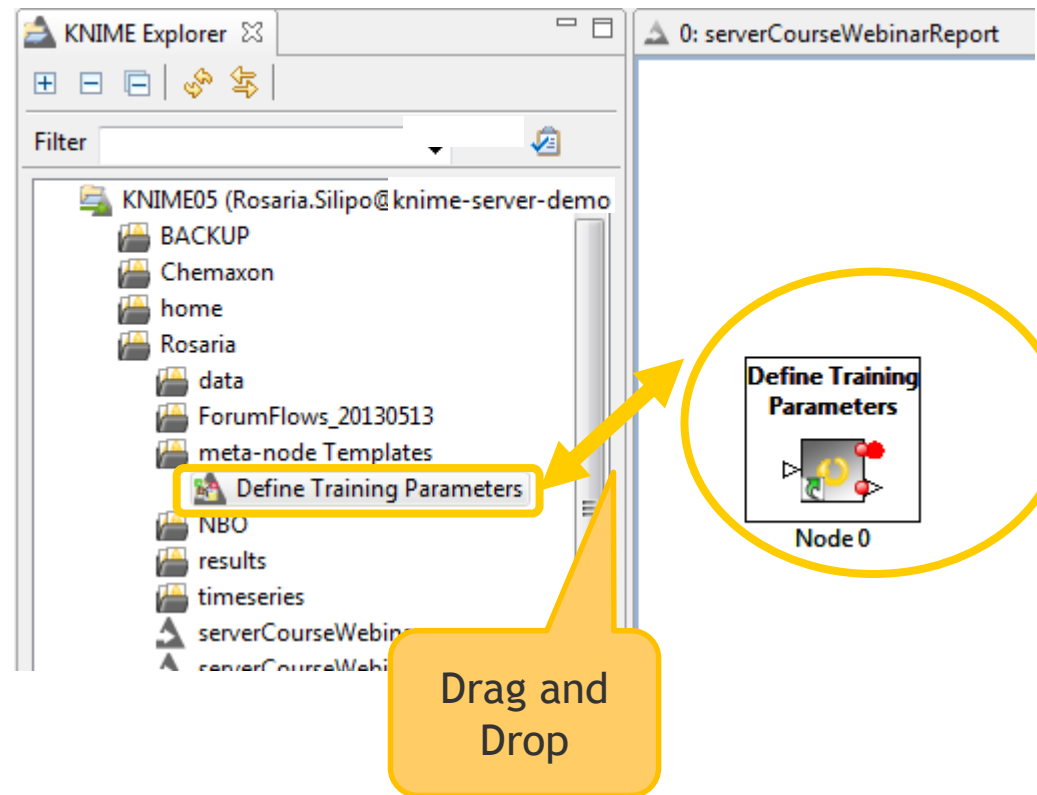


# Set Meta-Node Template Permissions



# Create a Link to a Meta-Node Template

Drag and drop the meta-node template from the server to the local workspace to create a linked meta-node.



# Lock a Meta-Node

In knime.ini insert:

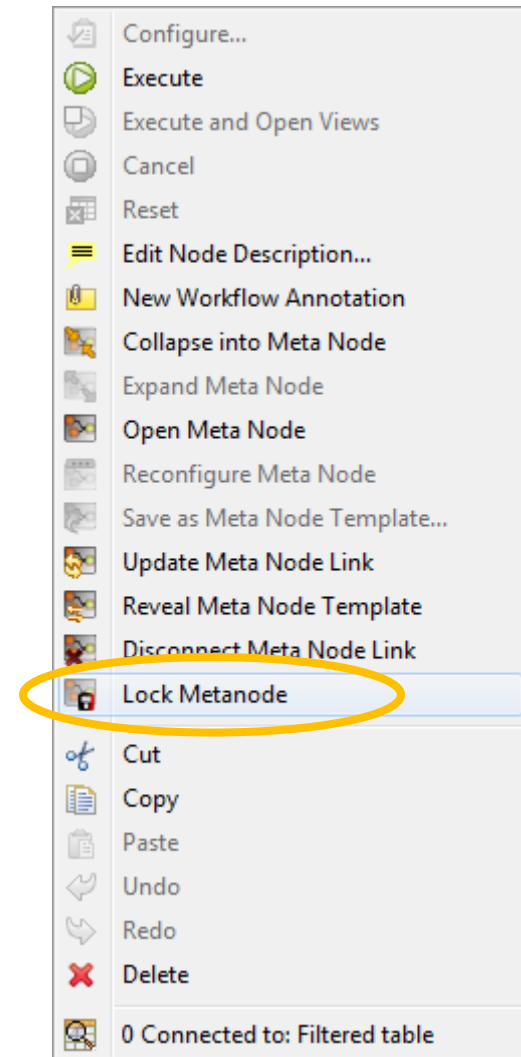
-Dknime.showaction.metanodelock=true

Password: secret

Hex:

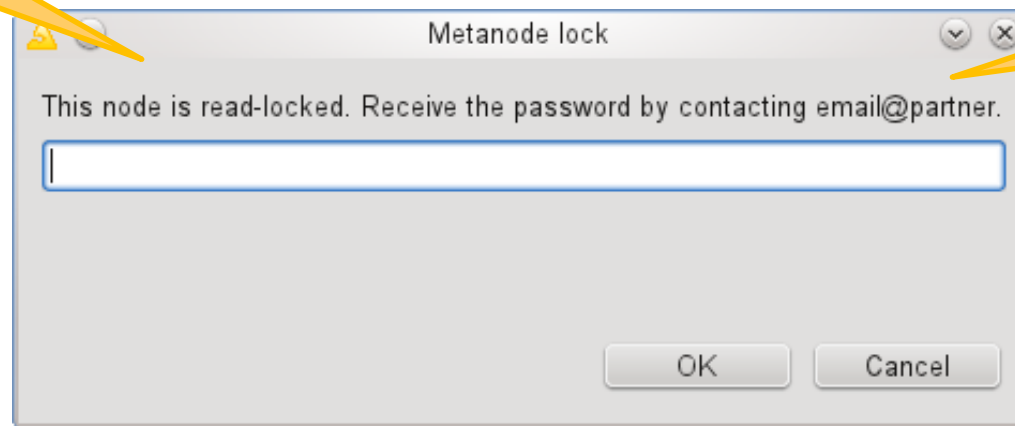
0780A24EA75407E62D0060E742222DA66D05550FA7022A

0B10BE100B0110A0010B010102BDBA010A001



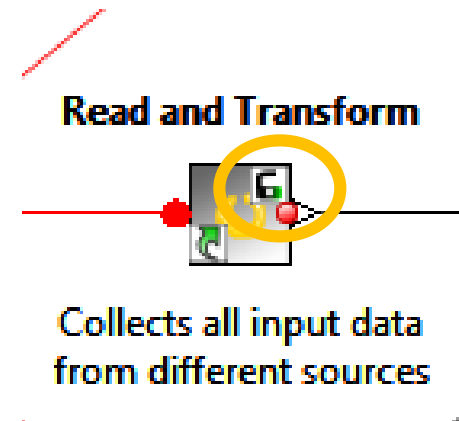
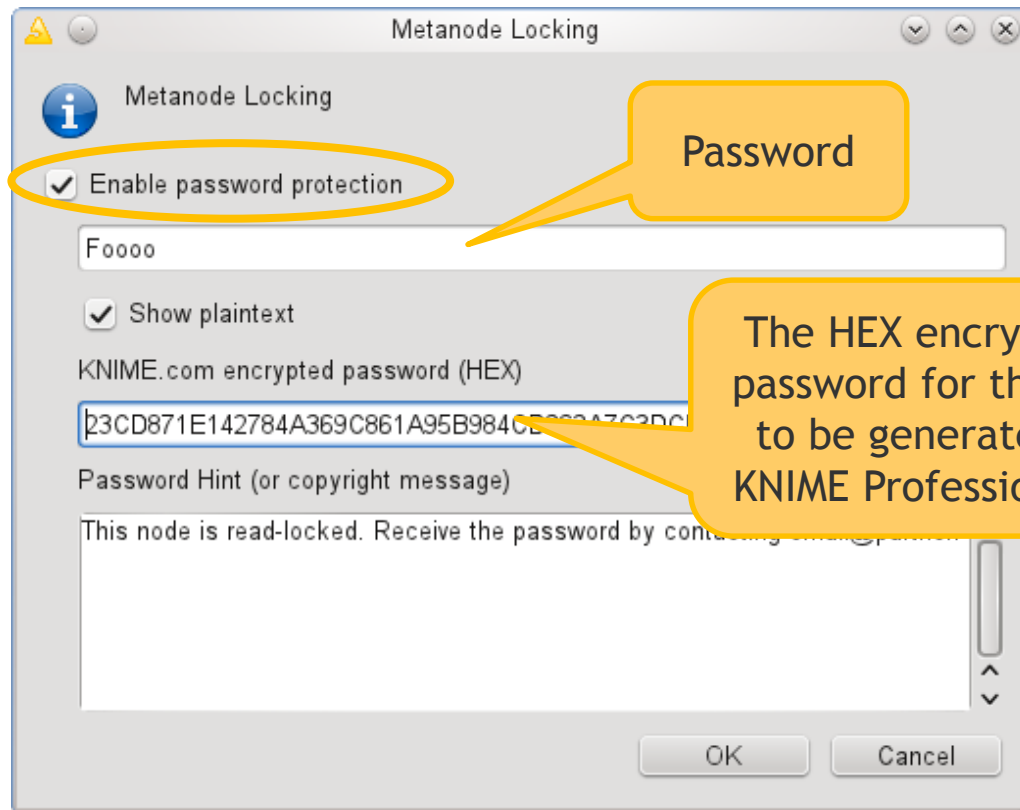
# Lock a Meta-Node

Window when  
trying to open  
the meta-node



Password

# Lock a Meta-Node (Professional)





# Overview

- Read data from Server
- Write data to Server
- Quickforms
- Meta-Nodes Sharing and Locking
- Testing Workflows and Meta-Nodes
- The Output Quickforms

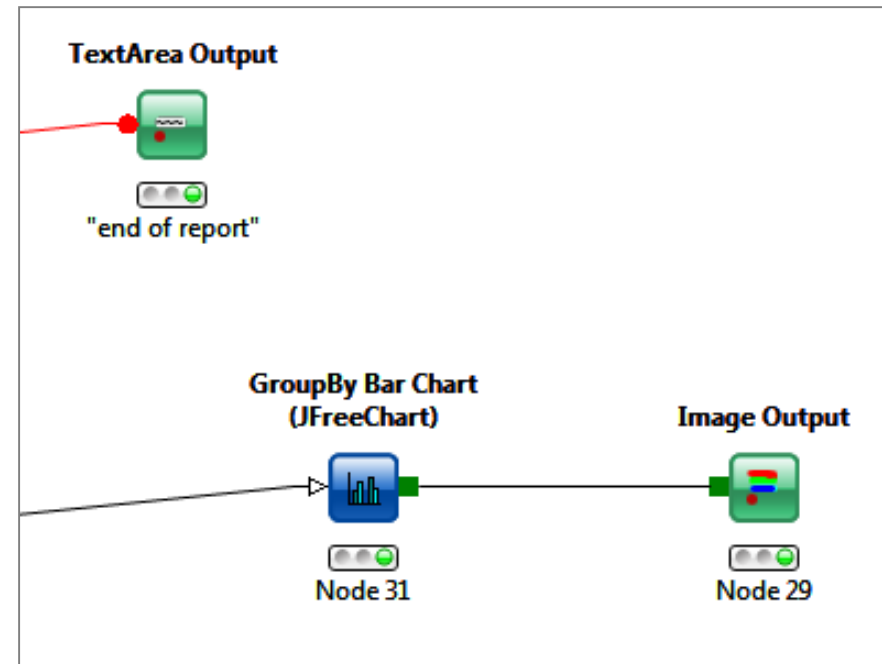
# The Output Quickforms

The Output Quickforms produce an output on the Web Portal:

- An image

OR

- Text





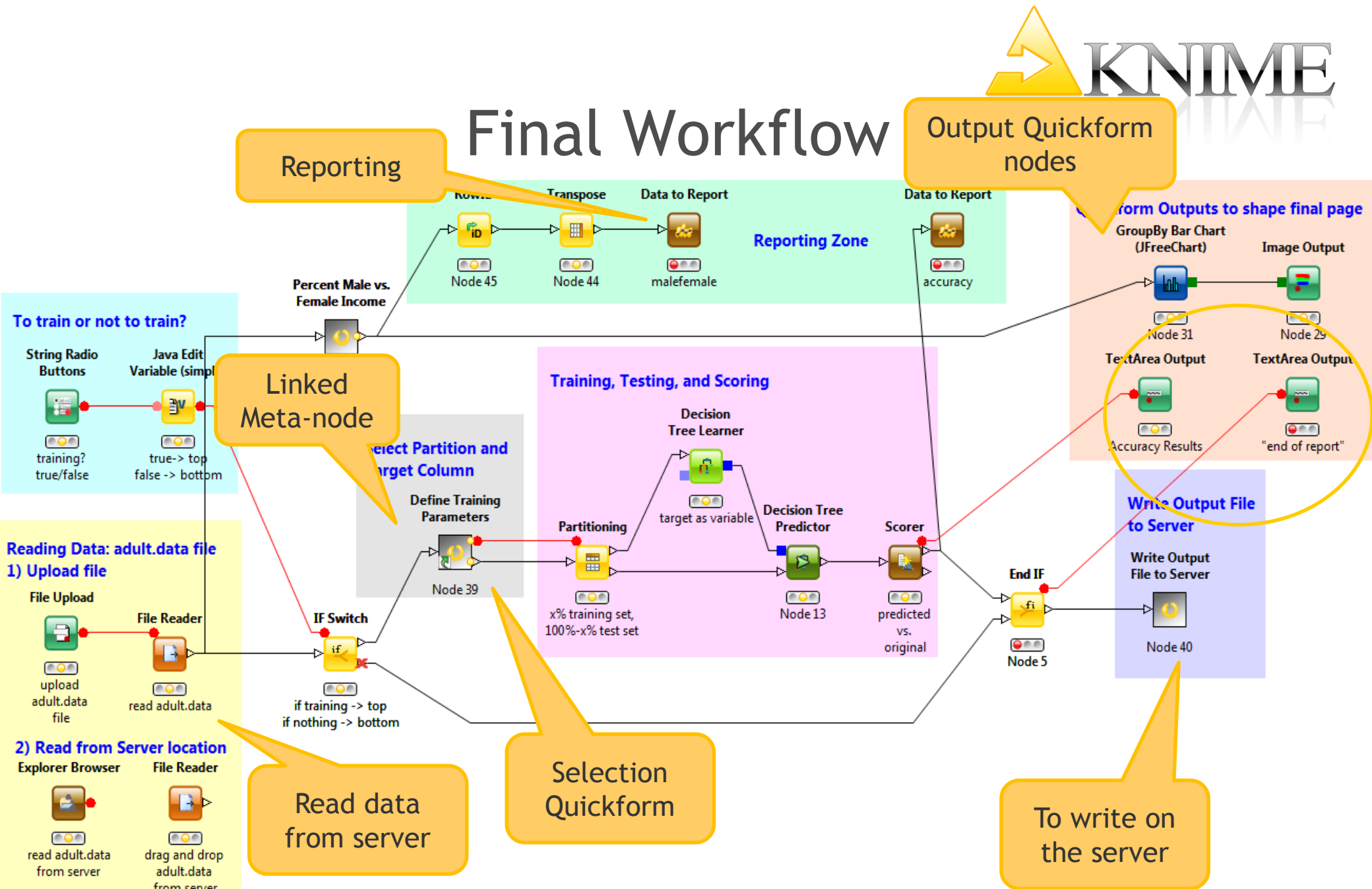
# Move into Production

Quickforms and Meta-Nodes

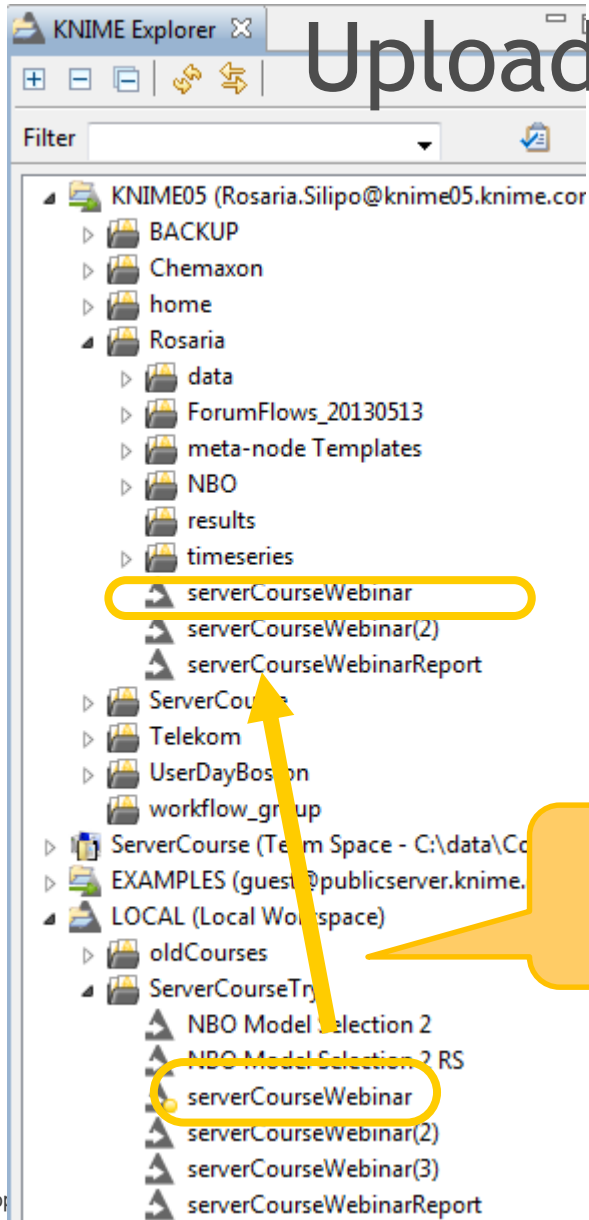
# Overview

- Upload Workflow to Server
- Define Access Rights and Scheduling
- Call Workflows via Web Service

# Final Workflow



# Upload Workflow to the Server

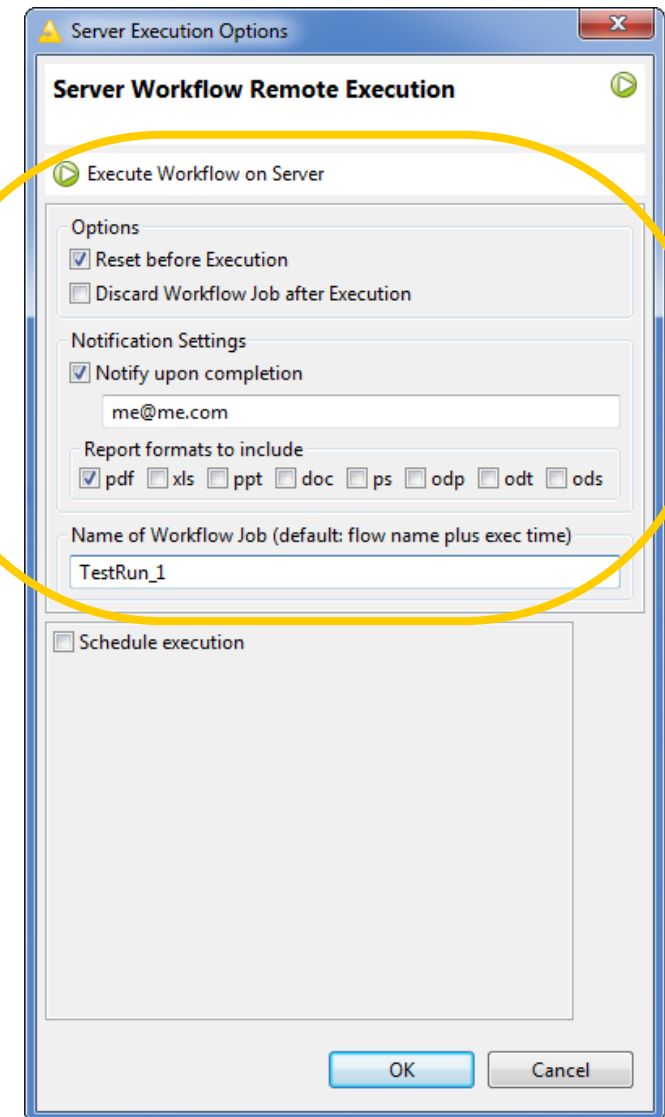
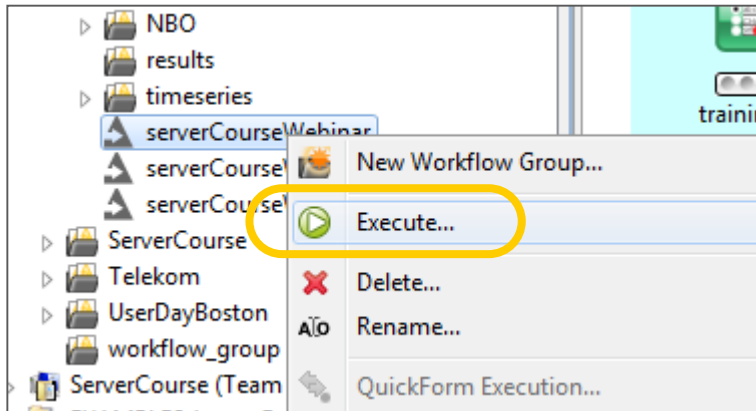


Reset the workflow,  
before uploading!

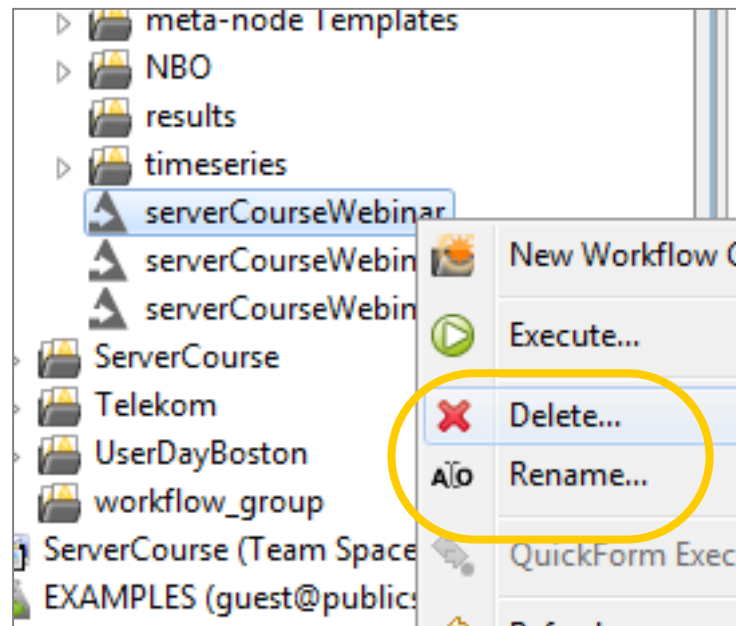
Uploading workflows to a  
server is done by drag  
and drop, like  
downloading workflows  
from the server.

Drag and  
Drop

# Test Run

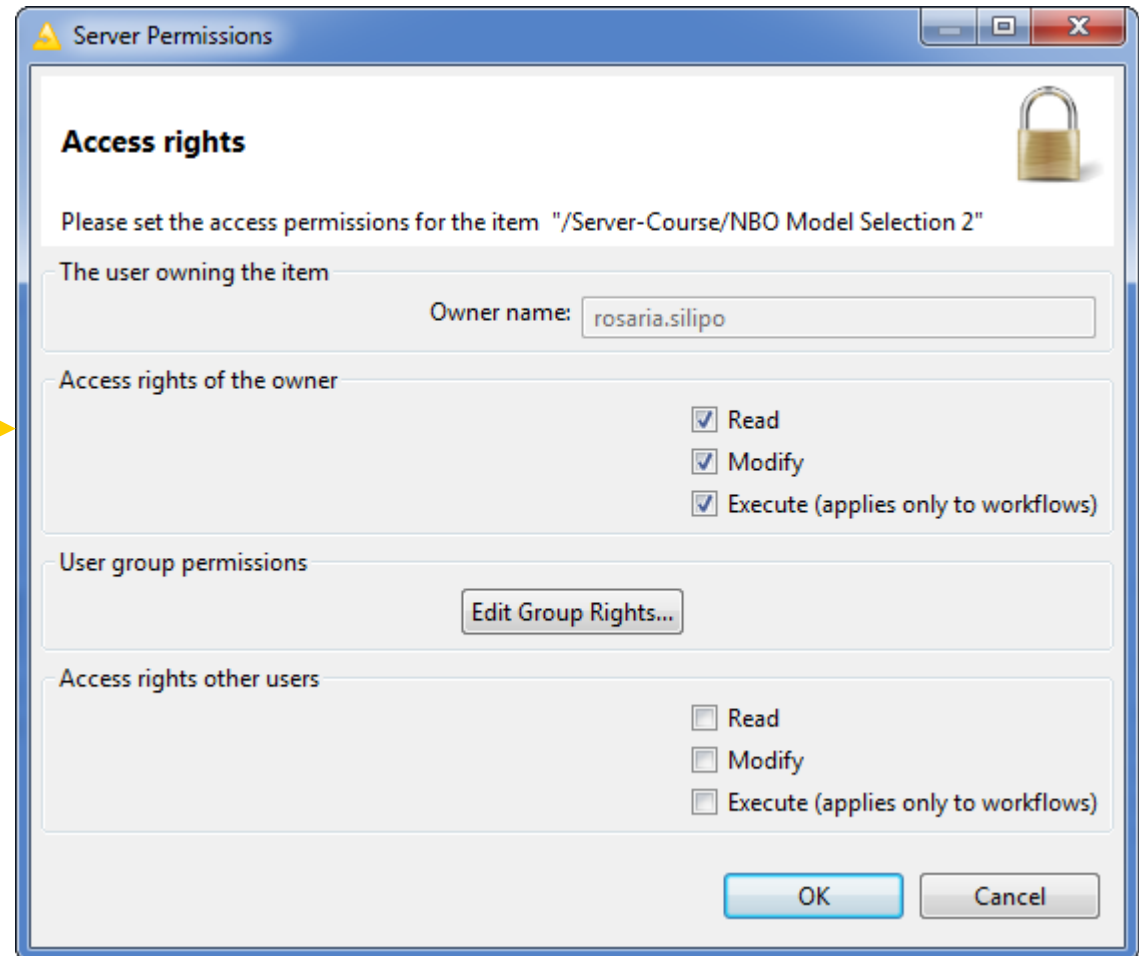
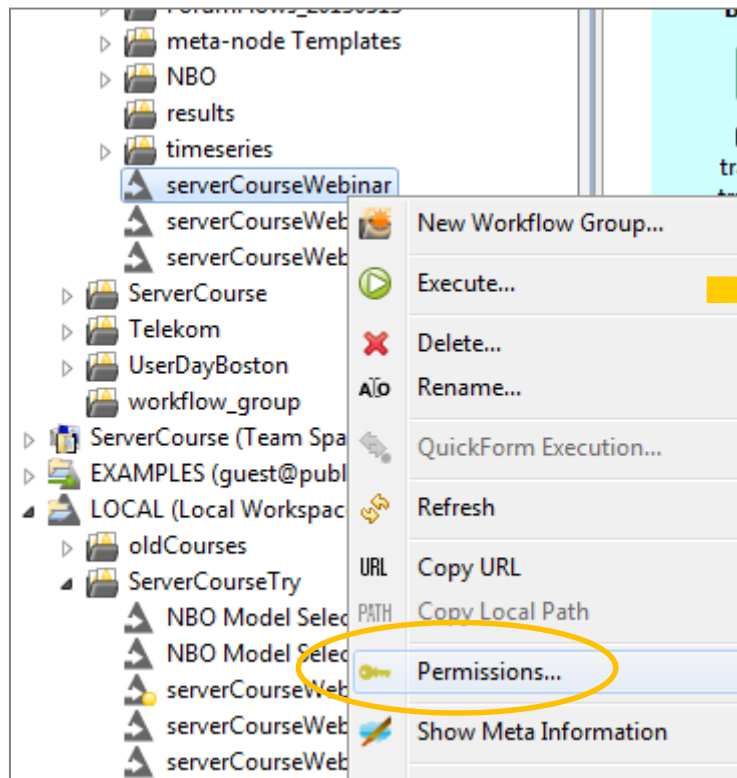


# Delete/Rename Workflow/Data File

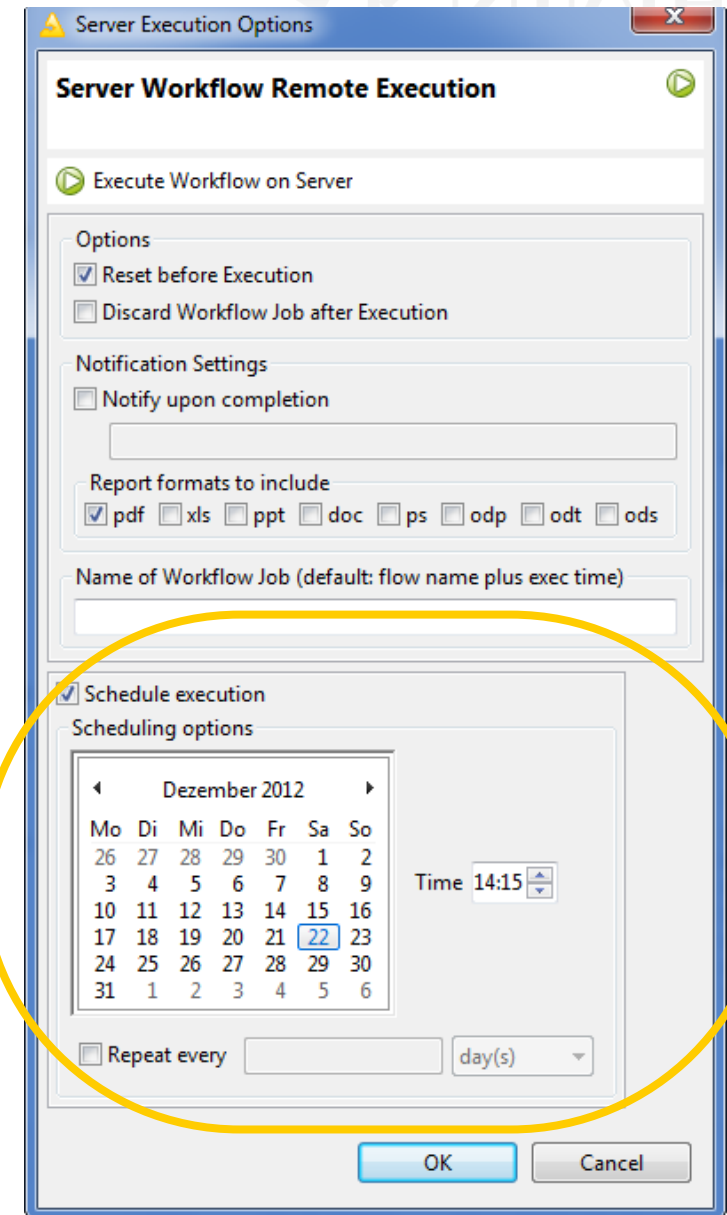
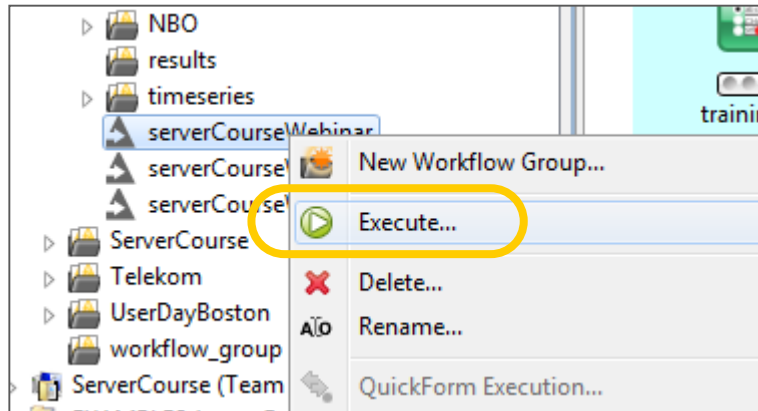




# Set Access Rights



# Scheduling



# Web Service Call

The KNIME server offers a basic web service interface using the SOAP protocol. To see the service description, login to the admin page (<http://<servername>:4848>) and select “Web Services” → “GenericWorkflow” from the menu on the left. For the operations description, refer to the server installation guide.

The default WSDL location is:

”<http://<servername>:8080/GenericWorkflowService/GenericWorkflow?wsdl>”.

The Web Service Demo Panel is a java example implementation for a web service client.



# Run Workflow from the Web Portal

Execute/Stop Workflows, Web Portal


# The Web Portal



Login:

A screenshot of a web browser window showing the KNIME WebPortal login page. The browser's address bar displays "8080/com.knime.webportal/APP/". The page header features the KNIME logo and the text "KNIME.com WebPortal". The main content area is a solid gray. On the right side, there is a login form with the heading "Login" in a small, italicized font. Below the heading are two input fields: "Username" and "Password". At the bottom of the form is a button labeled "Login". An orange speech bubble with the text "Login Page" points to the login form area.

8080/com.knime.webportal/APP/

 **KNIME.com** **WebPortal**

**Login Page**

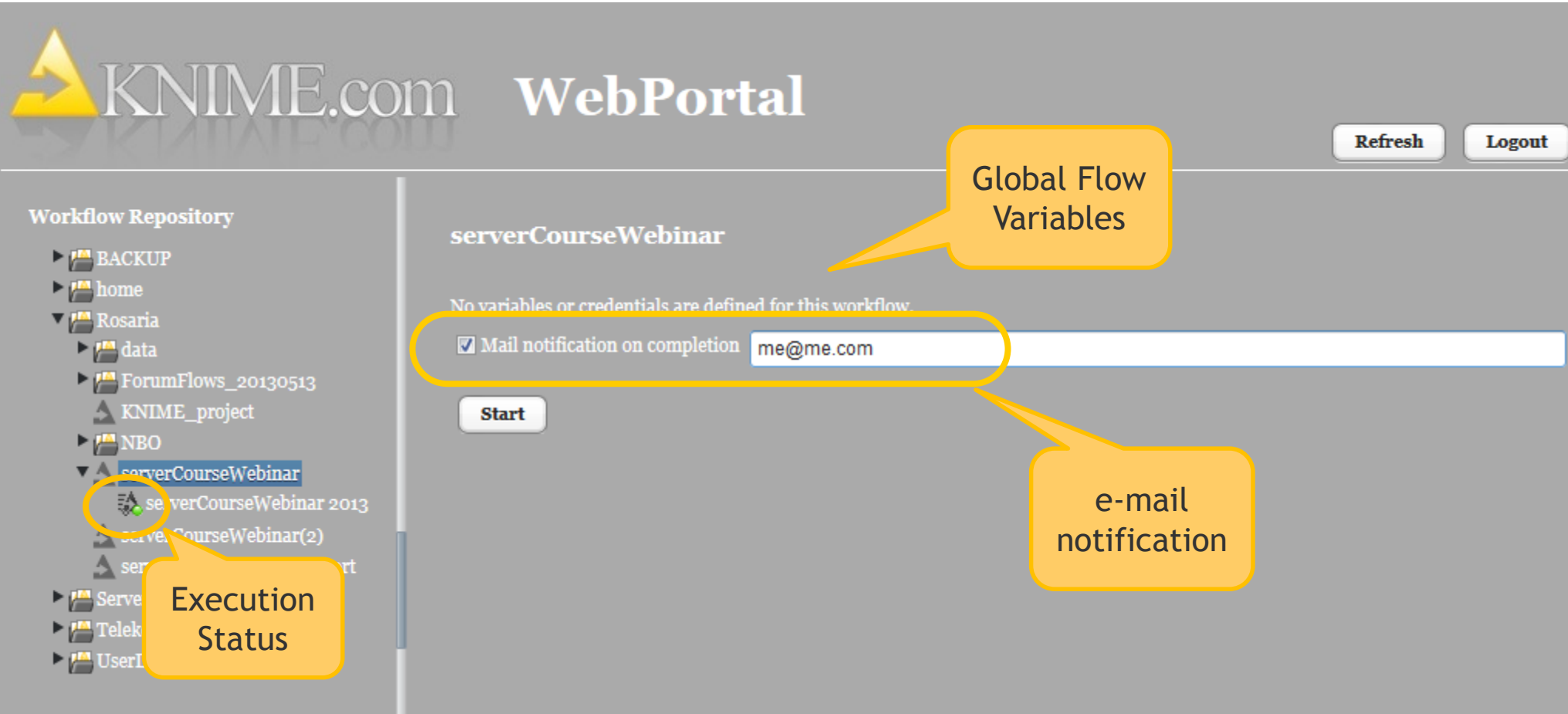
*Login*

Username

Password

**Login**

# The Web Portal



The screenshot shows the KNIME WebPortal interface. The top header includes the KNIME.com logo, the title "WebPortal", and "Refresh" and "Logout" buttons. The left sidebar, titled "Workflow Repository", lists various folders and workflows. The "serverCourseWebinar" workflow is selected and highlighted. The main content area displays the workflow name "serverCourseWebinar" and a message: "No variables or credentials are defined for this workflow." Below this, there is a checkbox labeled "Mail notification on completion" which is checked, followed by a text input field containing "me@me.com". A "Start" button is located below the input field. Three yellow callout boxes provide additional information: one points to the "serverCourseWebinar" workflow in the repository with the label "Execution Status"; another points to the "Mail notification on completion" checkbox with the label "e-mail notification"; and a third points to the text input field with the label "Global Flow Variables".

Workflow Repository

- BACKUP
- home
- Rosaria
  - data
  - ForumFlows\_20130513
  - KNIME\_project
  - NBO
  - serverCourseWebinar
  - serverCourseWebinar 2013
  - serverCourseWebinar(2)
  - serverCourseWebinar(3)
- Server
- Telek
- UserI

serverCourseWebinar

No variables or credentials are defined for this workflow.

☒ Mail notification on completion me@me.com

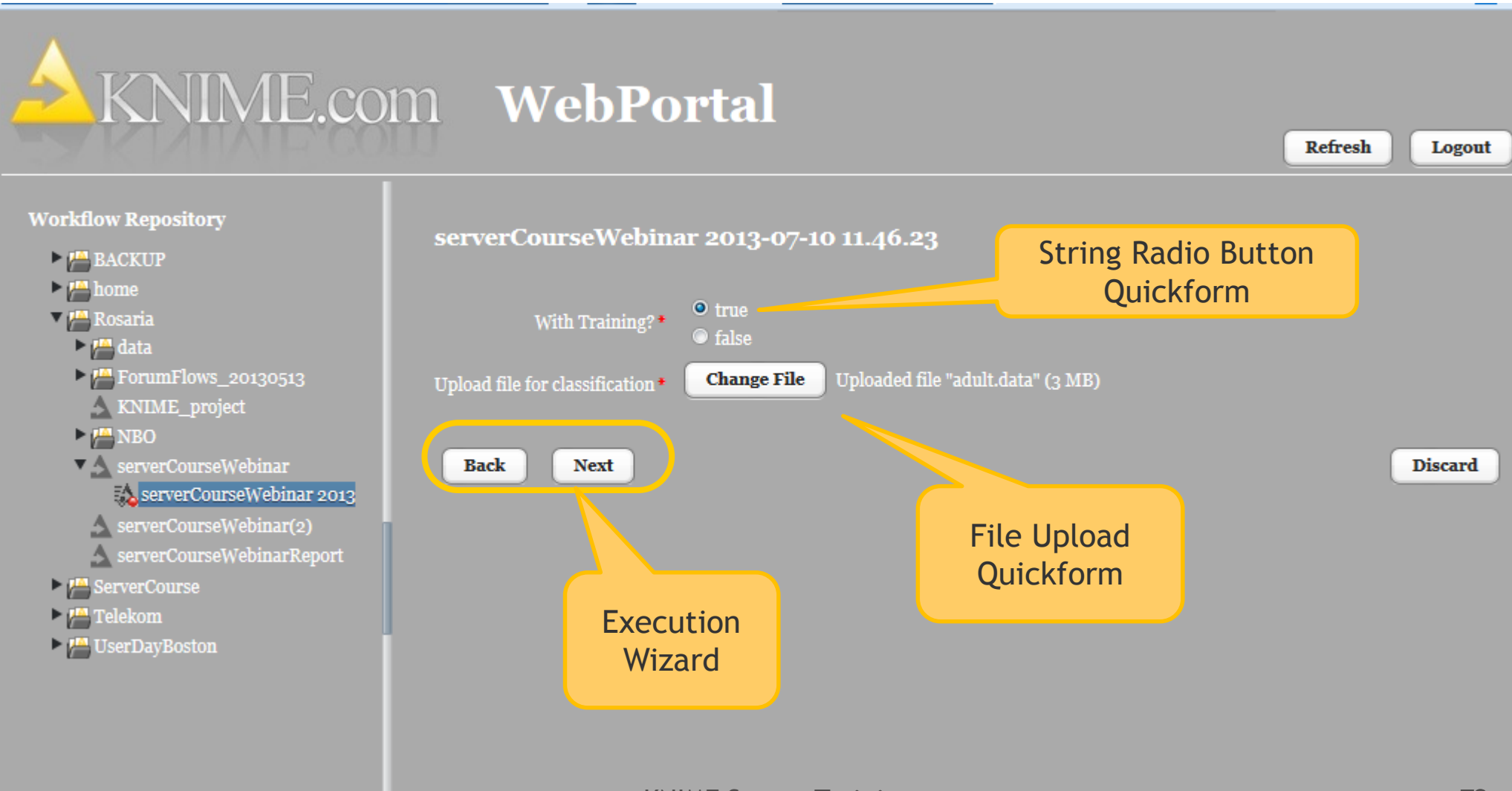
Start

Global Flow Variables

e-mail notification

Execution Status

# The Web Portal



**Workflow Repository**

- ▶ BACKUP
- ▶ home
- ▼ Rosaria
  - ▶ data
  - ▶ ForumFlows\_20130513
  - ▶ KNIME\_project
  - ▶ NBO
  - ▼ serverCourseWebinar
    - ▶ serverCourseWebinar 2013
    - ▶ serverCourseWebinar(2)
    - ▶ serverCourseWebinarReport
- ▶ ServerCourse
- ▶ Telekom
- ▶ UserDayBoston

**serverCourseWebinar 2013-07-10 11.46.23**

With Training? \* ☒ true ☐ false

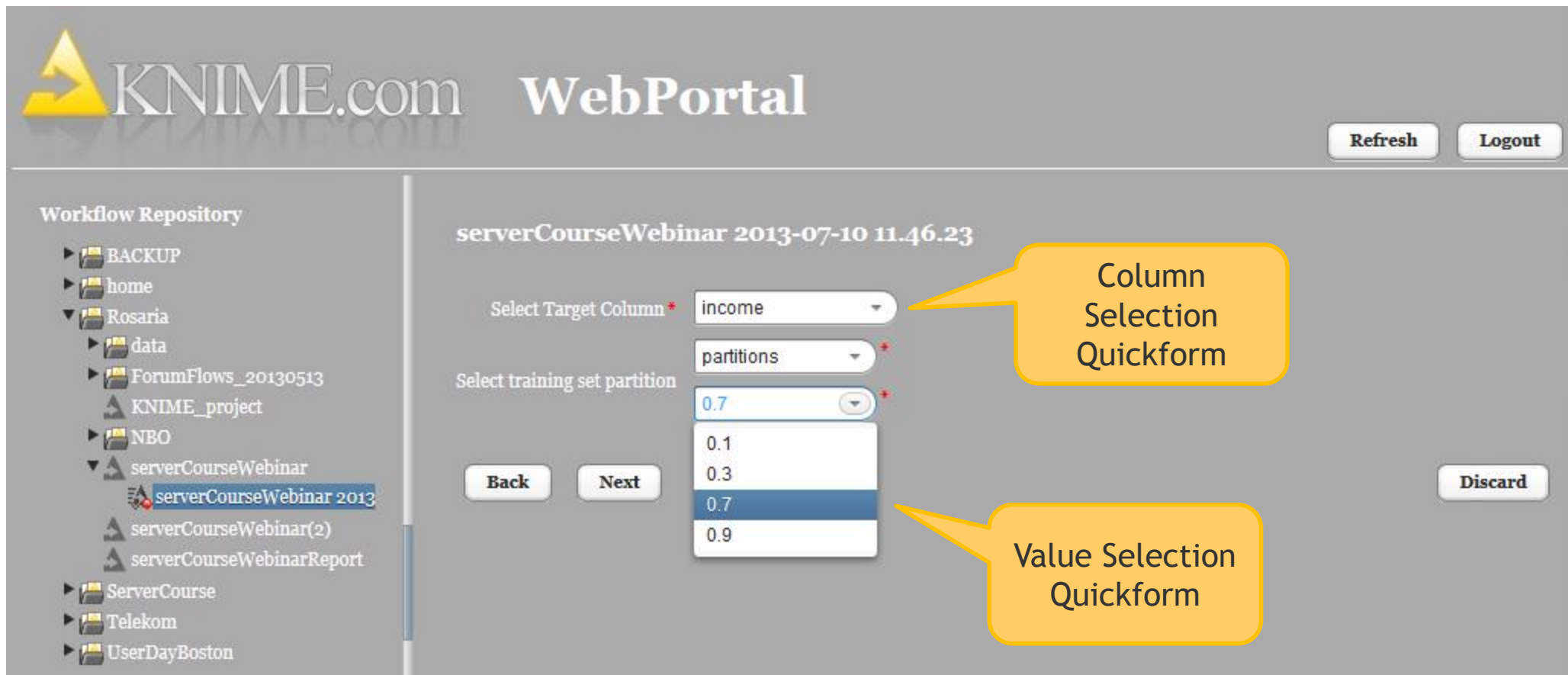
Upload file for classification \*  Uploaded file "adult.data" (3 MB)

**String Radio Button Quickform**

**File Upload Quickform**

**Execution Wizard**

# The Web Portal



**Workflow Repository**

- ▶ BACKUP
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  - ▶ NBO
  - ▼ serverCourseWebinar
    - ▶ serverCourseWebinar 2013
    - ▶ serverCourseWebinar(2)
    - ▶ serverCourseWebinarReport
- ▶ ServerCourse
- ▶ Telekom
- ▶ UserDayBoston

**serverCourseWebinar 2013-07-10 11.46.23**

Select Target Column \*

Select training set partition

**Column Selection Quickform**

**Value Selection Quickform**



# The Web Portal

serverCourseWebinar 2013-07-10 11.46.23

Workflow executed successfully (1 warning occurred.)

## Accuracy Result

Weight = 1

Decision tree trained on: income with 0.7 of data for training set got accuracy value 0.8940056598919475.



Weight = 2

The Output Quickforms

## End of Report

Weight = 3

# The Web Portal

Report Preview for serverCourseWebinar 2013-07-10 11.46.23

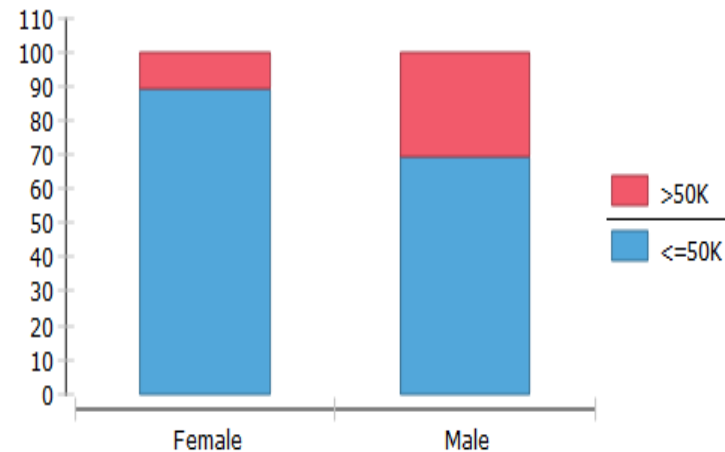
## KNIME Server Webinar Results

The Report

Confusion Matrix

	<=50K	>50K
<=50K	13932	853
>50K	1207	3443

% of women vs. men about income



[Open HTML preview in a new window](#)

Download Report as

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Export Formats

## What is new in Server 3.7

- New Quickform functionalities
- New Quickform nodes with customizable GUI
- New Web Portal with nicer look and feel
- Running workflows on Web Portal with parameters in URL string

## Interest?

If you are interested in trying out the KNIME Server, we can offer a temporary (and restricted) access to KNIME05 or a temporary Virtual Machine with the KNIME Server installed for internal evaluations.

Just write to [education@knime.com](mailto:education@knime.com)

# Thank you

[education@knime.com](mailto:education@knime.com)