



Creating, Viewing, and Editing Data in ORA

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Center for Computational Analysis of
Social and Organizational Systems
<http://www.casos.cs.cmu.edu/>



Overview

- Load and import a dataset
- View and edit nodesets
- View and edit nodes
- View and edit networks
- View and edit links



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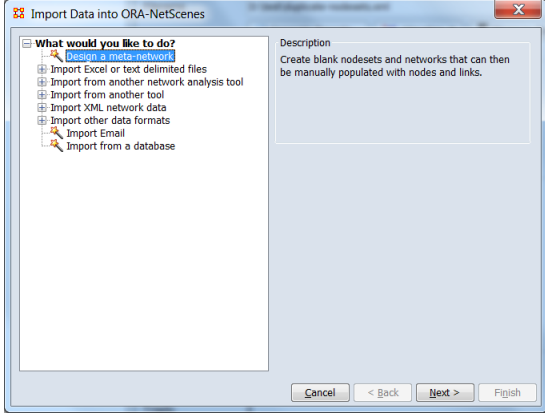
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Creating a meta-network

– Open the Data Import Wizard (File \ Data Import Wizard)

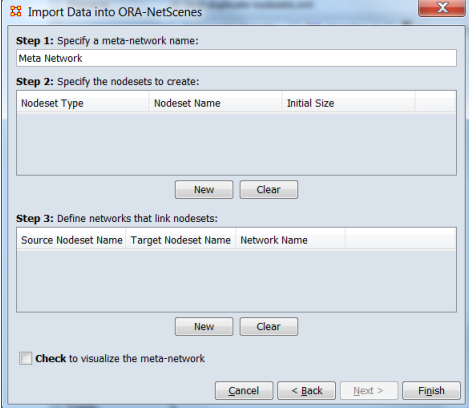


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Creating a meta-network...



Step 1: a meta-network has a Name

Step 2: create one or more nodesets. Each one has a Class and a Name (must be unique across nodesets)

Step 3: associate a pair of nodesets to create a network

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Creating a meta-network...

Step 1: Specify a meta-network name:
Meta Network

Step 2: Specify the nodesets to create:

Nodeset Type	Nodeset Name	Initial Size
Agent	Employee	5

New Clear

Step 3: Define networks that link nodesets:

Source Nodeset Name	Target Nodeset Name	Network Name
Employee	Employee	Works With

New Clear

Check to visualize the meta-network

Cancel < Back Next > Finish

We will create a simple meta-network for a company.

First, we add a single employee nodeset of class Agent.

Next, we create a "works with" network that associates employees.

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Creating a meta-network...

Step 1: Specify a meta-network name:
Meta Network

Step 2: Specify the nodesets to create:

Nodeset Type	Nodeset Name	Initial Size
Agent	Employee	5
Knowledge	Skill	3

New Clear

Step 3: Define networks that link nodesets:

Source Nodeset Name	Target Nodeset Name	Network Name
Employee	Employee	Works With
Employee	Skill	Employee x Skill

New Clear

Check to visualize the meta-network

Cancel < Back Next > Finish

Next we added another nodeset of skill of class knowledge.

And another network that associates employee and skill.

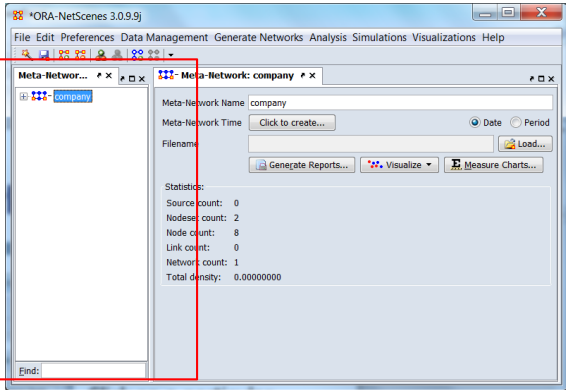
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Meta-Network Manager



Lists the meta-networks and the nodesets and networks of each.

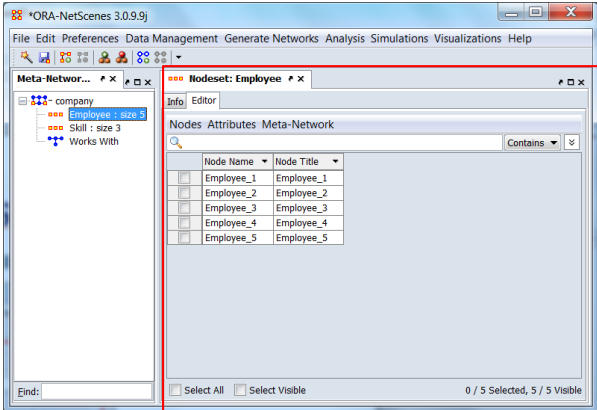
Click on a particular nodeset or network to view its details in the right-hand panel.

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Nodeset Editor



Click on a nodeset within the Meta-Network Manager

Node Name	Node Title
Employee_1	Employee_1
Employee_2	Employee_2
Employee_3	Employee_3
Employee_4	Employee_4
Employee_5	Employee_5

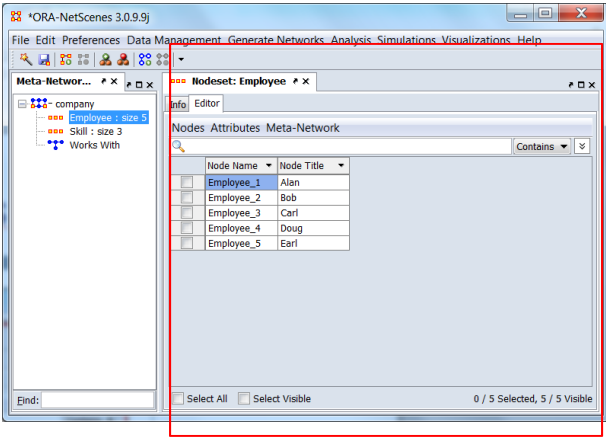
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Nodeset Editor...



The screenshot shows the Nodeset Editor window with a table of nodes. The 'Node Title' column has been edited for each node. The table is as follows:

Node Name	Node Title
Employee_1	Alan
Employee_2	Bob
Employee_3	Carl
Employee_4	Doug
Employee_5	Earl

Lists each node and its attributes (our employees do not have any yet).

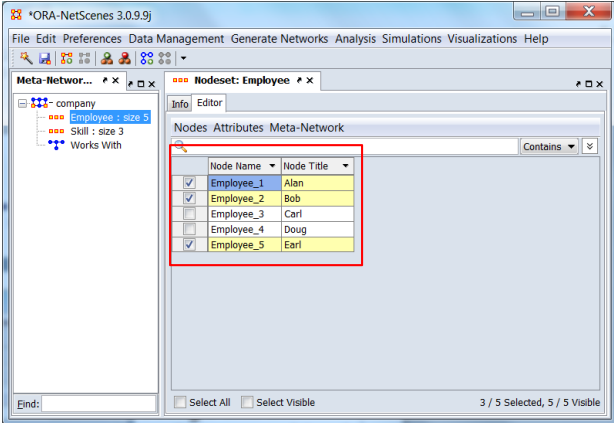
Here we have edited the node titles.

Note: Node Names must be unique to the nodeset. Titles are used in reports and visualizations.

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Nodeset Editor: Node Actions



The screenshot shows the Nodeset Editor window with the same table of nodes. The 'Employee_1', 'Employee_2', and 'Employee_5' rows are highlighted in yellow, and their checkboxes are checked. The table is as follows:

Node Name	Node Title
<input checked="" type="checkbox"/> Employee_1	Alan
<input checked="" type="checkbox"/> Employee_2	Bob
<input type="checkbox"/> Employee_3	Carl
<input type="checkbox"/> Employee_4	Doug
<input checked="" type="checkbox"/> Employee_5	Earl

Select one or more nodes to the left of their Node Name.

Use the Nodes menu items:

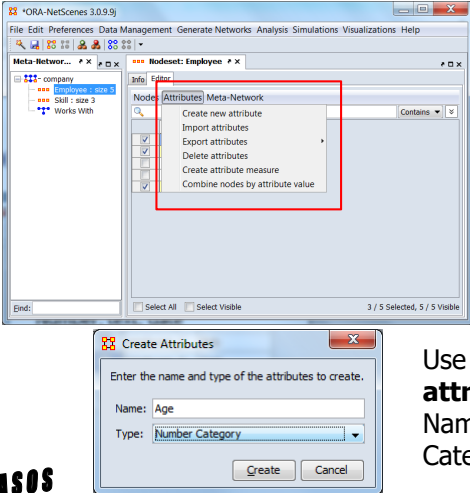
- Delete** deletes the selected nodes.
- Merge** combines the nodes and their associated links.
- Move** nodes to a different nodeset.
- Clean** finds and merges nodes with similar node names.

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Nodeset Editor: Attributes



Nodes can have attributes:
Age, Gender, Experience, etc.

Attributes have a data type:
Number, text, date

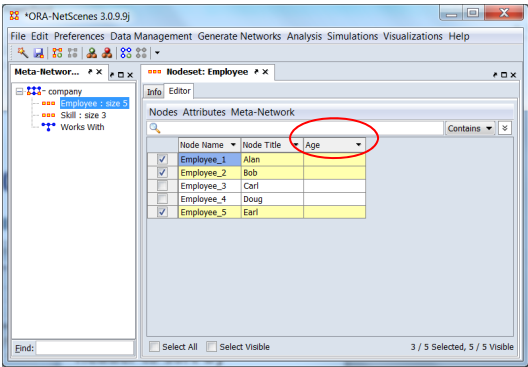
Use the **Attributes \ Create new attribute** menu item and choose Name = Age, Type = Number Category.

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Nodeset Editor: Attributes



Fill in the Attribute column.

Click on the Age column header to sort by attribute value.

Use the down arrow in the column header (circled in red) to filter nodes by age.

Node Name	Node Title	Age
Employee_1	Alan	
Employee_2	Bob	
Employee_3	Carl	
Employee_4	Doug	
Employee_5	Earl	

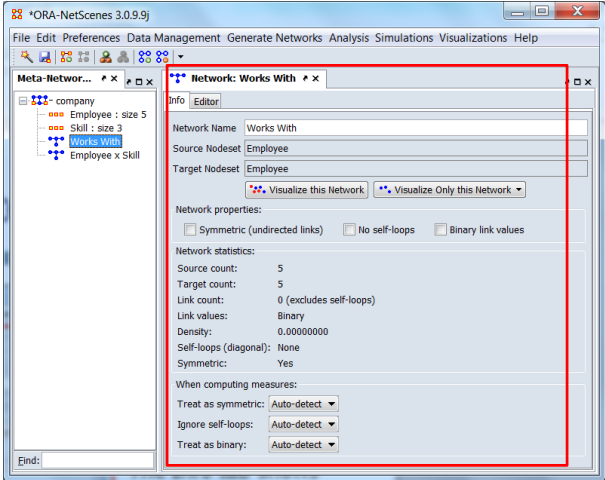
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Network Editor: Info tab



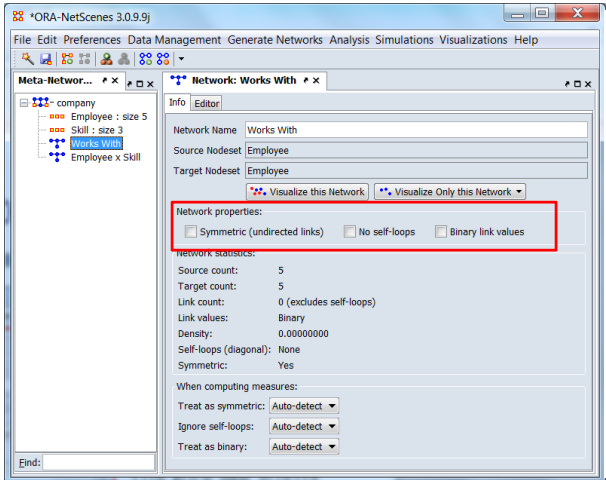
Click on the **Works With** network in the manager to load the Network Editor.

The Info tab shows high level information.

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Network Editor: Info Tab - Network Properties



Use the Network Properties check boxes to make the network:

- Symmetric (undirected)
- Allow self-loops
- Have weighted or binary link values

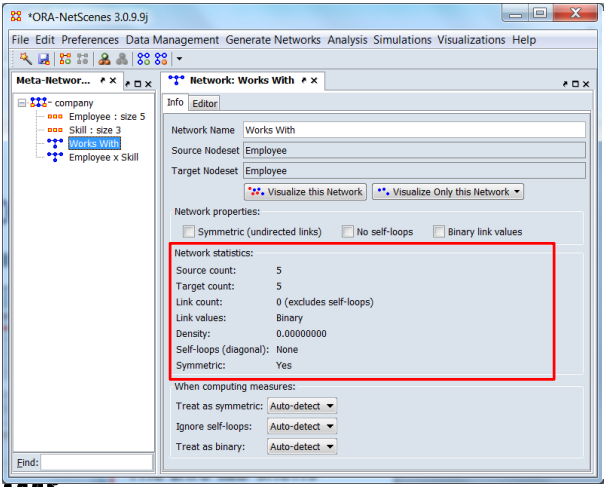
These options can add or remove links when clicked.

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Network Editor: Info Tab - Network Statistics



The network statistics section shows the key statistics of the network.

These are based on the current links in the network, and are therefore affected by the Network Properties selected.

Network statistics:

- Source count: 5
- Target count: 5
- Link count: 0 (excludes self-loops)
- Link values: Binary
- Density: 0.00000000
- Self-loops (diagonal): None
- Symmetric: Yes

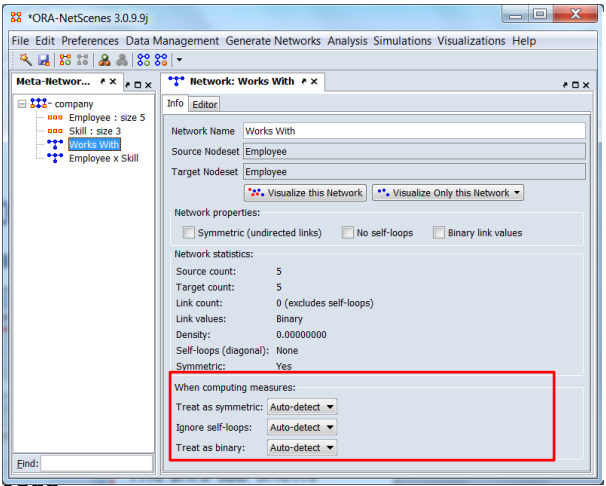
When computing measures:

- Treat as symmetric: Auto-detect
- Ignore self-loops: Auto-detect
- Treat as binary: Auto-detect

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Network Editor: Info Tab – When computing measures



The **When computing measures** section does not add or remove links to the network.

Rather, it temporarily transforms the network before computing measures.

The options are “temporary” versions of the network properties.

When computing measures:

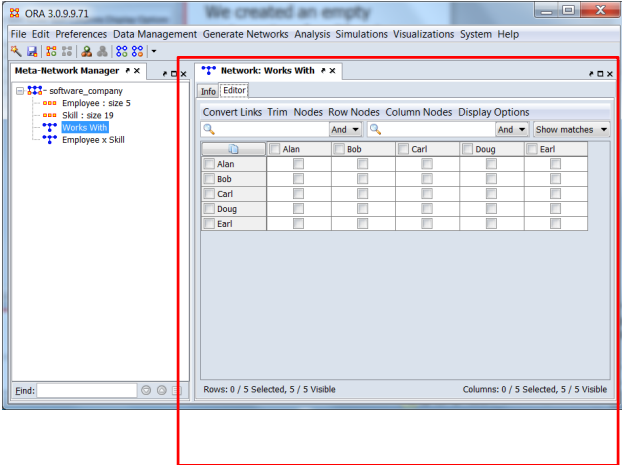
- Treat as symmetric: Auto-detect
- Ignore self-loops: Auto-detect
- Treat as binary: Auto-detect

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Network Editor: Editor tab



The editor tab shows the links.

We created an empty meta-network, without links.

Make Alan work-with all colleagues → check mark his row.

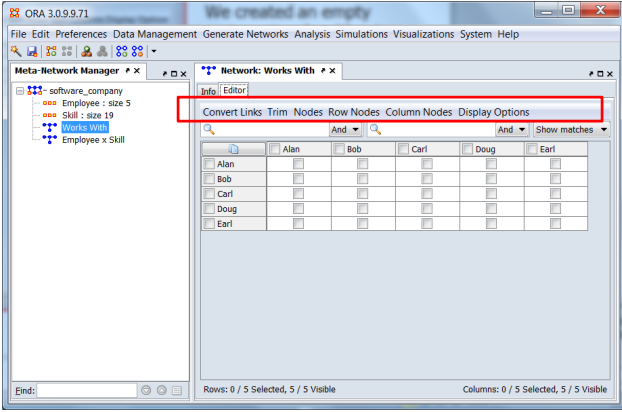
Make everyone work with Alan → check mark his column.

ORA 3.0.9.9.71 We created an empty
File Edit Preferences Data Management Generate Networks Analysis Simulations Visualizations System Help
Meta-Network Manager Network: Works With
Info Editor
Convert Links Trim Nodes Row Nodes Column Nodes Display Options
And And Show matches
Alan Bob Carl Doug Earl
Alan Bob Carl Doug Earl
Rows: 0 / 5 Selected, 5 / 5 Visible Columns: 0 / 5 Selected, 5 / 5 Visible

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Network Editor: Transformations



Convert Links has options to transform link values: e.g. adding one to links, taking the log of link values, etc.

Trim has options to remove (filter) nodes and links using various criteria.

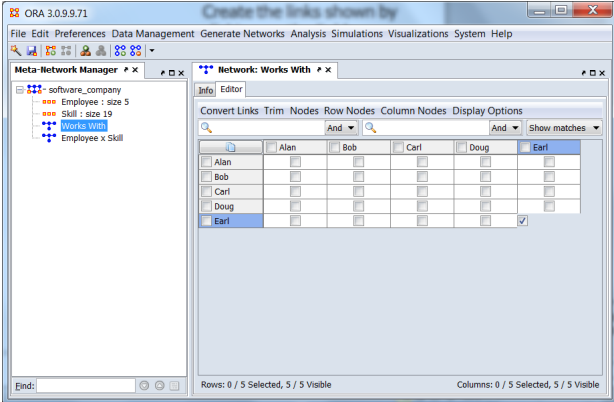
ORA 3.0.9.9.71 We created an empty
File Edit Preferences Data Management Generate Networks Analysis Simulations Visualizations System Help
Meta-Network Manager Network: Works With
Info Editor
Convert Links Trim Nodes Row Nodes Column Nodes Display Options
And And Show matches
Alan Bob Carl Doug Earl
Alan Bob Carl Doug Earl
Rows: 0 / 5 Selected, 5 / 5 Visible Columns: 0 / 5 Selected, 5 / 5 Visible

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Network Editor: Creating Links



Click on the employee x skill network as shown.

Create the links shown by clicking on the link's check box; this makes a link of weight one.

To create weighted networks, use Display Options \ Numeric Link Values.

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