

# Pipe Junction node

A pipe junction node is used to transfer water from one place to another. It can be used to represent a pump station in water supply system.

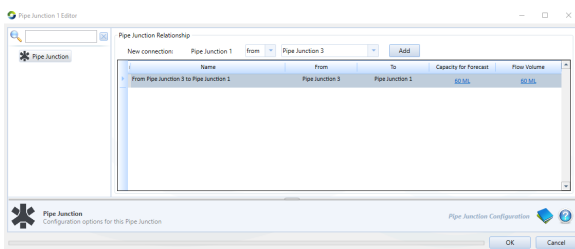
## Rule based ordering

In rule based ordering, to add a new pipe junction relationship:

- If current pipe junction (such as pipe junction 1 in the screenshot below) is a destination site to accept pumped water, choose "from" and the source pipe junction site (such as pipe junction 3 in the screenshot below) from the drop down list on the left side of "Add" button.
- Then click "Add" button. By doing this, a new pipe connection is added. Water will pump from pipe junction 3 to pipe junction 1. If current pipe junction is a source site to pump water out, you can choose "to" instead of "from" and then the selected pipe junction from the drop down list will be a destination site to accept water.
- Edit "Flow Volume" and "Capacity for Forecast" for this new created connection. These two parameters can be edited as a simple constant, a series of pump volume record or a function which can refer to other component in the model such as storage water level from upstream or downstream, water requirement that will be met by pumped water etc.



**Note:** "Flow Volume" is the expected pump volume for the current time step. "Capacity for Forecast" is the maximum pump constraint which is used when there is travel time. The volume of pumped water is assumed to be the same as the expected pump volume even if there is a shortfall. So it is important to take all possible losses into consideration when defining the expected pump volume.



## NetLP

In NetLP, the process to add a pipe junction relationship are very similar to the one in rule based ordering. The only difference is the two parameters defined for each connection. In NetLP, "Capacity" is the maximum pump capacity for the connection relationship. It can be defined as a simple constant, a series of pump volume record or a function. "Cost" represents pump cost per ML. It can also be defined as a simple constant, a series of pump cost record or a function which can give different cost for different situation.

