

## Confluence node

A Confluence node represents a natural join in a river system (such as a tributary or re-connection of an anabranch). Both inflows combine into a single effluent without any loss or delay. The behaviour of a confluence node depends on the number of branches that are regulated. You can describe the arrangement of the natural system as one of:

- Neither branch is regulated - no configuration is required as there are no orders;
- One branch is regulated; or
- Both branches are regulated.

**Note:** The confluence node adds the upstream minimum and maximum constraints together.



# Unregulated branches

For rules based ordering, the confluence forecast model ignores any upstream nodes on the unregulated branch. This means that any upstream inflow node forecast models are ignored in the confluence node forecast calculation in rules based ordering phase. For network LP ordering, the unregulated branch may be configured as regulated if processes on the unregulated branch are to be modelled in the order phase.

# One regulated branch

If there is only one regulated branch, the unregulated branch behaves like an inflow node. As there is only one regulated upstream branch, priority setting is not required. In this case, the confluence node can be thought of as acting in a similar manner to an inflow node.

As such, the branch which is unregulated needs to have forecasting ability of the inflow arriving, so that orders may be adjusted for the expected inflow. Therefore the confluence node has a forecasting model attached to it (as shown in Figure 1). The forecast model is the same as that available for an inflow node (see [Forecasting inflows](#)).

**Note:** You may have to select the regulated link and then re-select the unregulated link before the forecasting controls become visible.


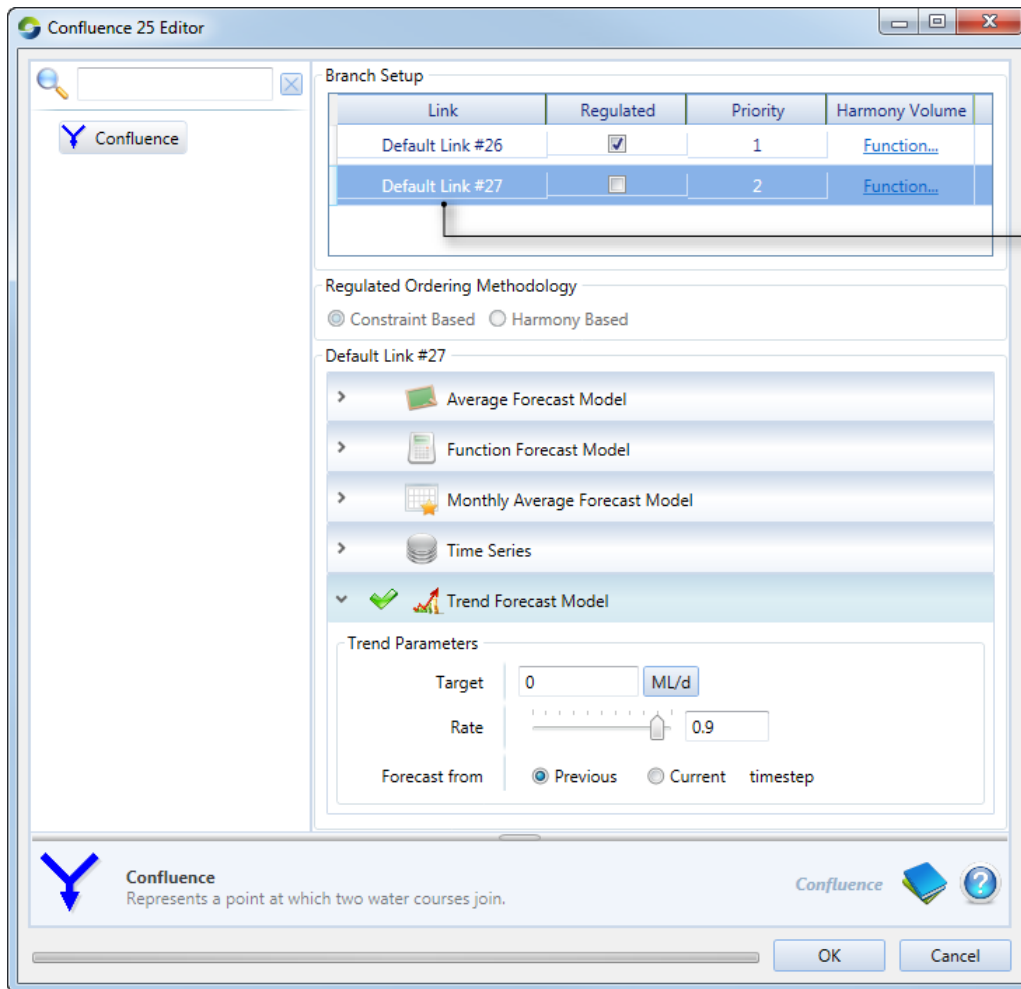
 **Warning:** The Inflow forecast should not forecast from the current time-step. It does not know flow until flow phase, but forecasting flow is used in ordering phase which is before flow phase, so it can only get flow from previous time step

Figure 1. Confluence node (Single regulated branch)



These link r correspond node's upst

# Both regulated branches

If both branches are regulated, you need to define how orders may be split by choosing one of the two methods specified under **Regulated Ordering Methodology** (Figure 2).

## Constraint Based

Specify a priority for each branch. Click the cell in the Priority column and edit the value. This is the default option.

## Harmony Based

You must also specify how to split the upstream orders (under **Harmony Ordering Setup**) - using either:

- A **Function** that defines the proportion of the total order assigned to the named upstream branch based on model parameters; or
- A **Table** that has the proportional relationship on how orders are to be split upstream based upon the defined volume of water up each branch for each owner (eg. Figure 2).

If you select the table option, you must also define the upstream volume for each branch using functions (in the **Branch Setup** table). The top row of the Harmony Ordering Setup Table displays the volume of the first branch, its name is listed above the table (eg. Storage1 Link, Figure 2). The first column lists the volume for the second branch (eg. Storage2 Link, Figure 2). The table entries define the proportional split of the orders between the two branches, relative to the first branch. For the example shown in Figure 2, if there was 80000 ML up the Storage1 Link (as defined by the \$Storage1Volume function) and 100000 ML up the Storage 2 Link (as defined by the \$Storage2Volume function), then 80% of the orders would be sent up the Storage1 Link, and 20% would be sent up the Storage2 Link.

Use the table as follows:

- Right click on volumes in the top row to open the context menu, where you can select:
  - **Add Volume** to add a new column, entering the volume.
  - **Modify Volume** to edit the volume for that column
  - **Remove Volume** to delete the column.
- To add a row, click on a cell in the last row to highlight and edit it.

Figure 2. Confluence node, harmony based

Confluence 3 Editor

Confluence

Branch Setup

Link	Regulated	Priority	Harmony Volume
Storage1 Link	<input checked="" type="checkbox"/>	1	$\$Storage1Volume$
Storage2 Link	<input checked="" type="checkbox"/>	2	$\$Storage2Volume$

Regulated Ordering Methodology

Constraint Based  Harmony Based

Harmony Ordering Setup

Function

Table

Storage1 Link

	ML		80000	100000
Storage2 Link	80000	0	1	1
	100000	0	0.8	0.7
	200000	0	0.5	0.5

Right-click to change units

Add Volume  
Modify Volume  
Remove Volume

Confluence  
Represents a point at which two water courses join.

Confluence

OK Cancel