

## 4.11 - Production Release (December 2019)

eWater is pleased to announce the latest Production Release of Source version 4.11.

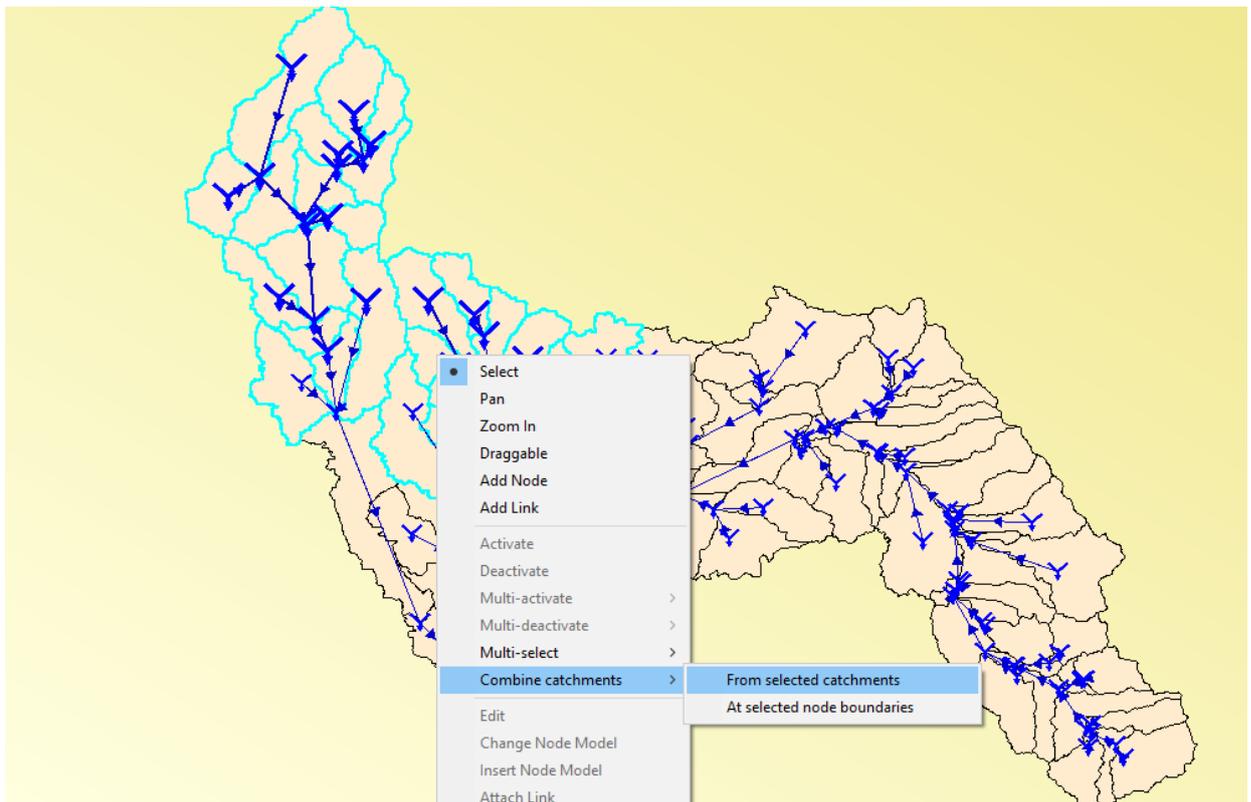
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Version 4.11 includes three significant features:

- You can now **combine sub-catchments** in a geographic scenario.
- The **Calibration tool** has been changed from a flow calibration tool to a generic calibration tool.
- You can use the new **Environmental flows work with NetLP**.

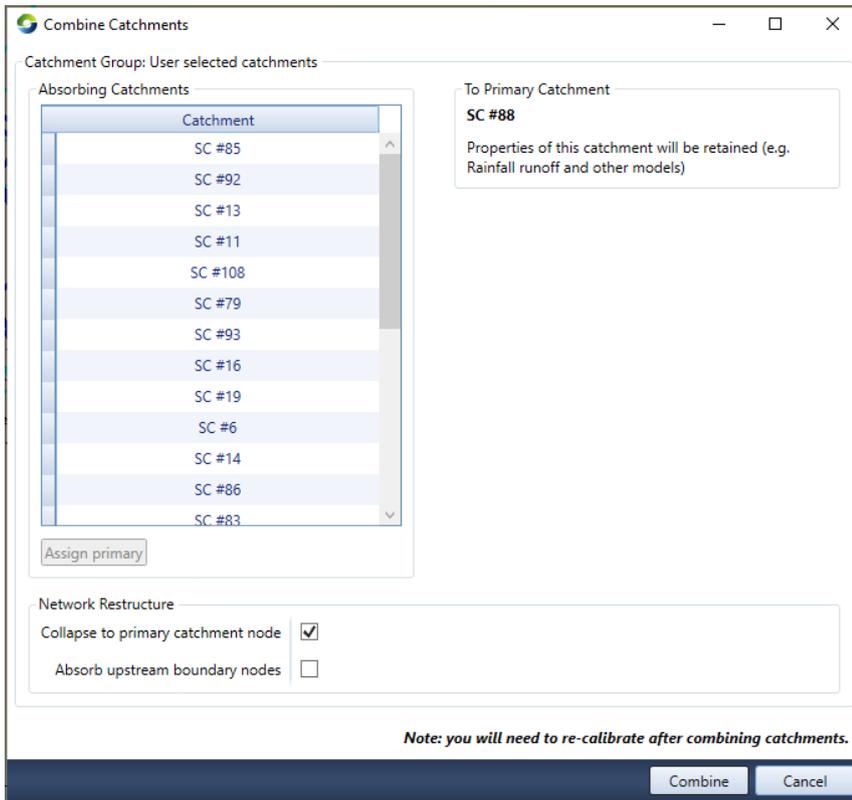
# Combine Subcatchments

You can now combine sub-catchments in a geographic scenario:



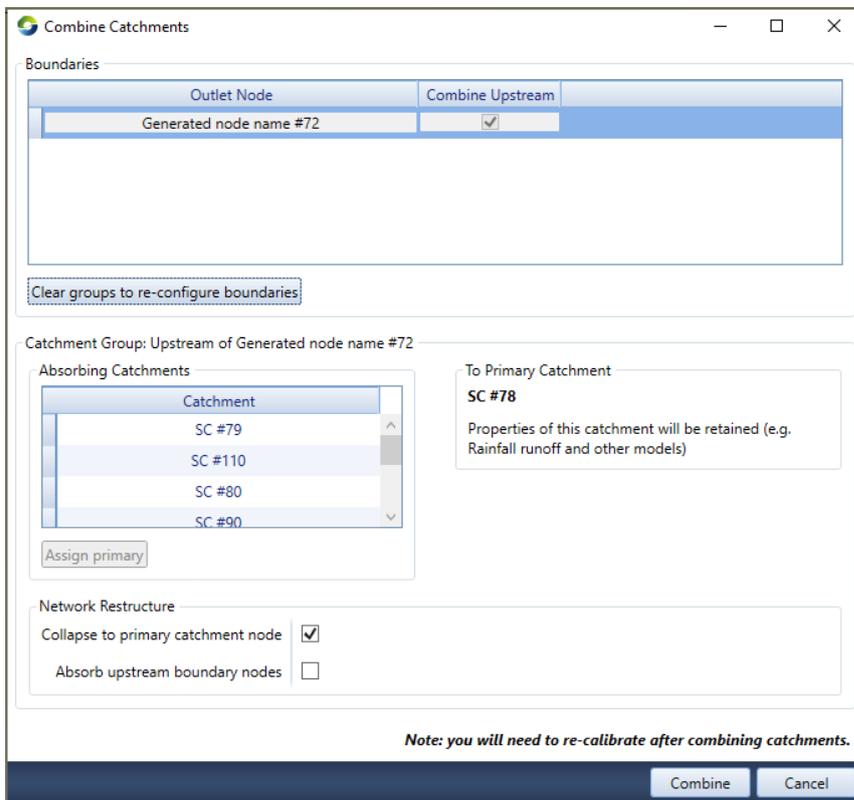
## From selected catchments:

The first catchment selected is deemed to be the **Primary Catchment**.



At the moment you need to have a single outlet for all of the sub-catchments you are combining. This restriction will be relaxed in future versions.

**At Selected Node Boundaries:**



You can select a single node and combine all of the catchments upstream of it.

# Calibration tool enhancements

The calibration tool has undergone significant enhancements. It has been changed from a flow calibration tool to a generic calibration tool. You can now specify any recordable output (including functions) to be used as part of the objective function in the calibration wizard. The independent variable can now be a Data Source, rather than a separately loaded text file.

We still have more work to do in allowing any parameters to be modified. We have enabled users to calibrate constituents as a first step.

# Environmental Flows with NetLP

The new Environmental Flow node and Environmental Flow Manager now work with NetLP ordering. To determine the "marginal" difference in orders that are required by the Environmental Flow Node, NetLP determines probable flows throughout the system prior to determining environmental flow orders. The model does the order phase twice - firstly **Expected Flows** without initiating new Environmental Flow orders are determined. These flows are then provided to the environmental Flow Nodes to perform their ordering calculations. NetLP is then given the environmental flow demands as well as all of the other demands and works out the most efficient way to deliver the orders.

# Minor changes

- Improved generation of orders at Storages and Weirs. Source now allows the user to specify a factor to smooth the rate at which downstream storages orders water from upstream.
- Off allocation had an option called "Equalise Shares", which wasn't used by any of the jurisdictions, and has now been removed.
- climate Data import tool improvements, including the ability to extend the duration of data
- zoom all the time with the scroll wheel for Catchment Scenarios
- a fix for projects being corrupted by windows (affected a small number of users)
- modelled variables are now more stable when moving links
- optional improvement of ordering using Operating Targets with Rules-based orders at storages
- resolution of infinite loops
- Insight now produces a cache of model run results
- addressed some charting issues.

## Infinite loops removed from Off Allocation and the Environmental Flow Manager

We have modified Off Allocation and Environmental Flow Manager distribution logic to remove the infinite loops that could occur in some models.

## Insight changes

Insight now produces a file which is a cache of model run results. This means that when you run an insight optimisation and then decide to increase the number of generations of the optimisation, you can continue the extended optimisation from the end of the previous optimisation. This also means you can stop an insight run and restart it without wasting a large amount of time.

## Chart changes

We have resolved a number of issues identified with charts and the mass balance tool since their redevelopment.

Chart aggregation can now ignore null values. This allows for the aggregation of seasonal data to an annual time series. e.g. you can now generate a series of the total summer inflows each year.

# Community Plugin Changes

- Blackwater plugin Initial conditions can now be specified as varying according to elevation

# Plugin Developers

ScenarioRunFinalise now happens on all plugins. If there was an exception in one plugin, it previously wouldn't run ScenarioRunFinalise for the remaining plugins when there were multiple plugins.

We are currently on .net 4.6.2, which hasn't changed from Source 4.7. We are planning on moving to C# 7, Visual Studio 2019 and .NET 4.8.0 soon, so you will need to make sure you have updated Visual Studio to continue developing plugins in the beta versions. We also intend to move to .NET 5 in 2020. [.NET 5](#).

# Results and Configuration Changes

Some results have changed between Source 4.9 and Source 4.11. Result changes are mostly around weirs and improvements to unit validation: [4.11 Result Changes from 4.9](#)