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Aquator Version 4.3

This version of Aquator adds a significant enhancement to the V4.2 release along with some minor bug fixes.

The V4.3 download is currently available with a time-limited evaluation licence. If you wish to load projects created using an earlier version of Aquator then you will need to obtain your own V4.3 licence – see *Aquator licencing* later in this document. If upgrading from an earlier version of Aquator the installer will detect a previous installation and offer to uninstall it for you. You must accept this option before installing a later version.

Please be aware that upgrading projects from versions earlier than 4.3 may involve some issues, previously documented in the release notes for V4.2 itself. If necessary, upgrade old projects to V4.2 and test them before using this release. **We strongly recommend making a backup of all Aquator databases before performing any kind of upgrade.**

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Release notes

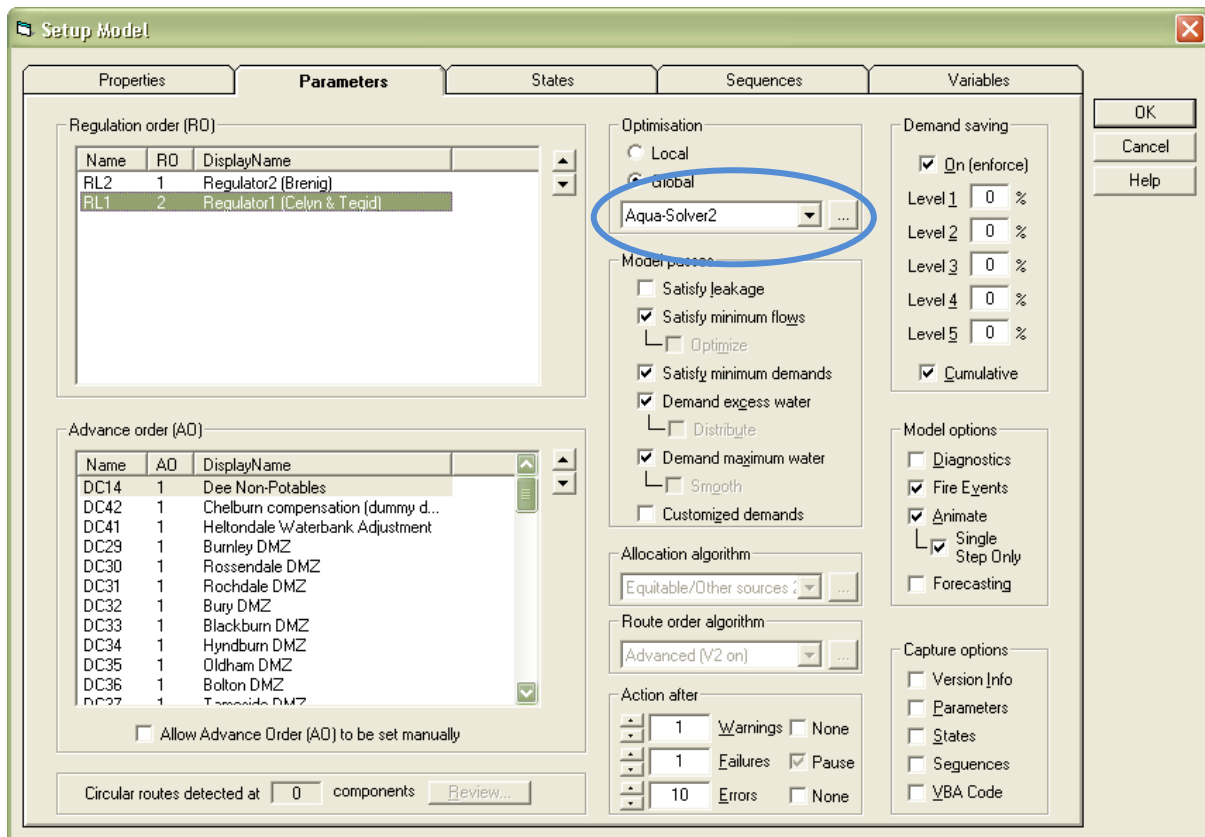
Aqua-Solver2

This release contains a new optimisation algorithm named *AquaSolver2*. This algorithm provides a pass 4 (minimise cost) and pass 5 (maximise resource state) solution in one step instead of two steps.

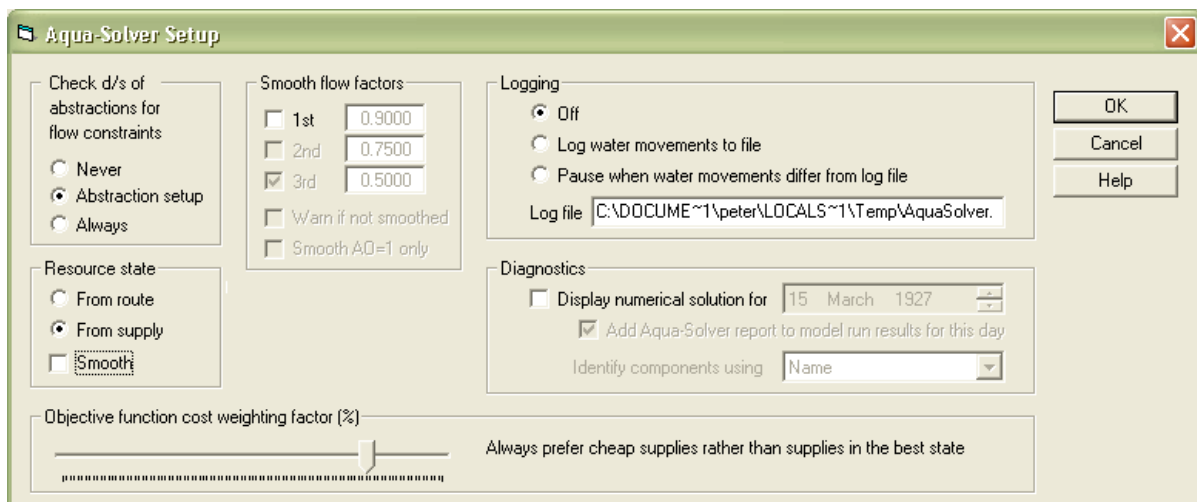
This algorithm will generally have the following effects compared to the original *AquaSolver* method.

- Use cheap water more heavily even when supplies become constrained
- Reduce deployable output due to heavier use of cheap supplies in a poor state
- Run more quickly due to computing fewer solutions and the use of a faster numerical analysis library

The choice between *Aqua-Solver* and *Aqua-Solver2* is made on the model setup dialog.

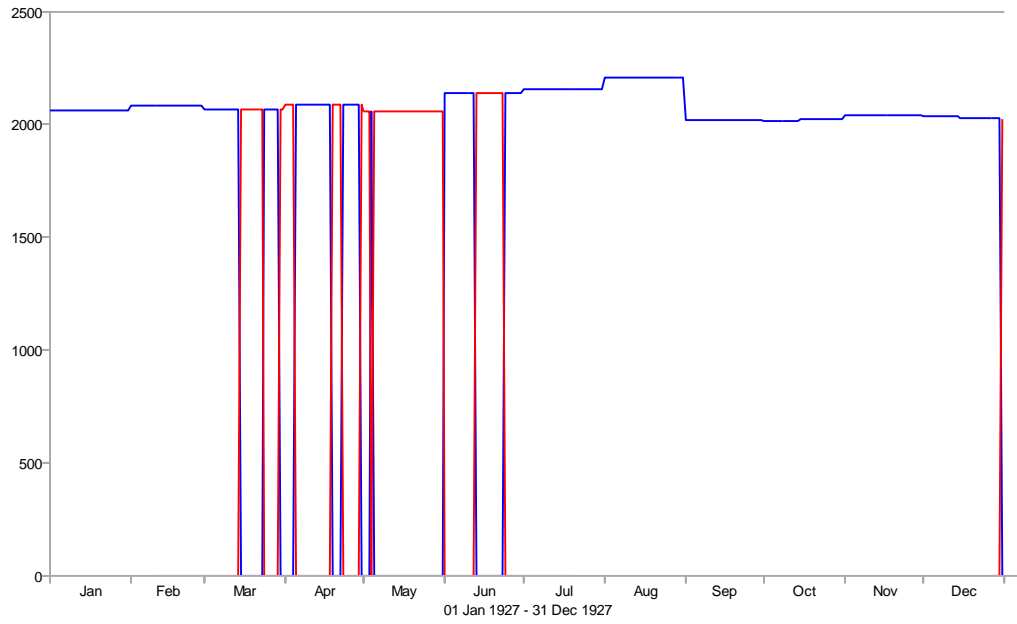


Click the “...” button adjacent to the dropdown list above to show the setup dialog for *AquaSolver2*.

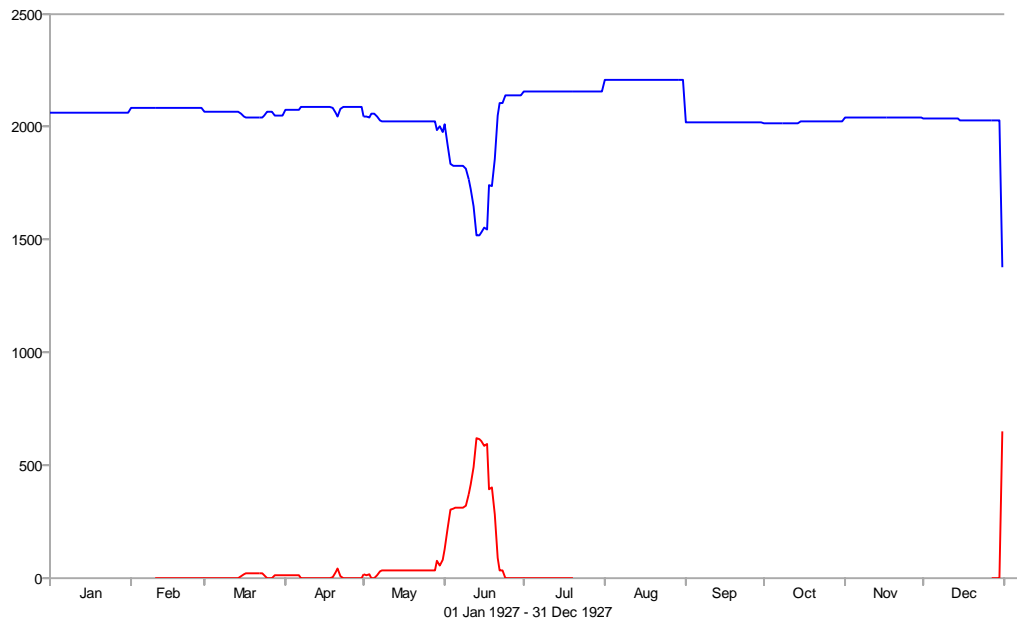


AquaSolver and AquaSolver2 comparison example

AquaSolver Pass 4 / 5 supply

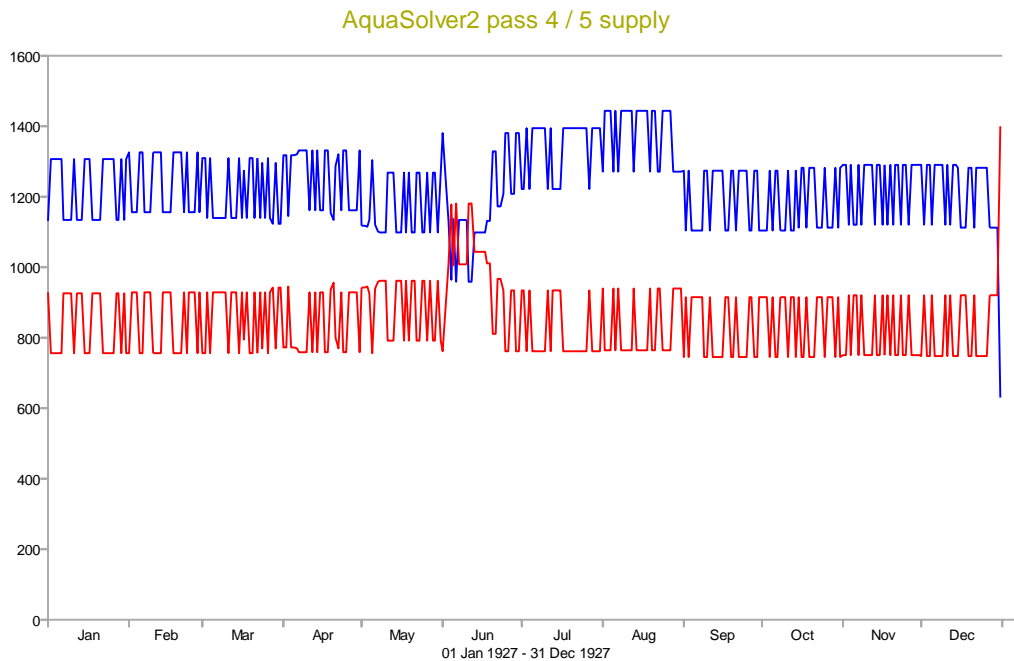
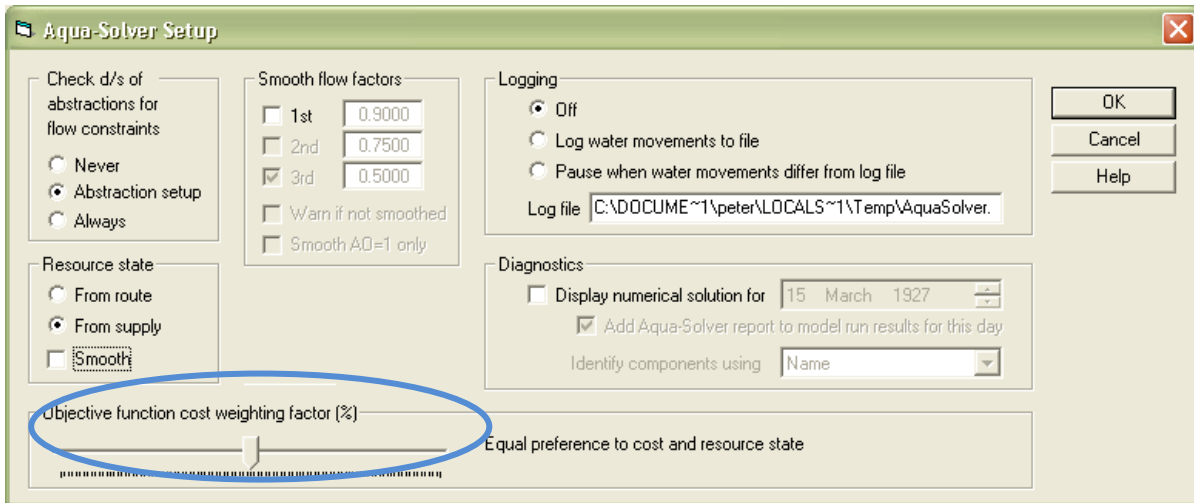


AquaSolver2 Pass 4 / 5 supply



Adjust cost versus resource state weighting

You can choose to weight resource state more heavily with respect to cost. This may increase DO but lead to large daily variations in flows.



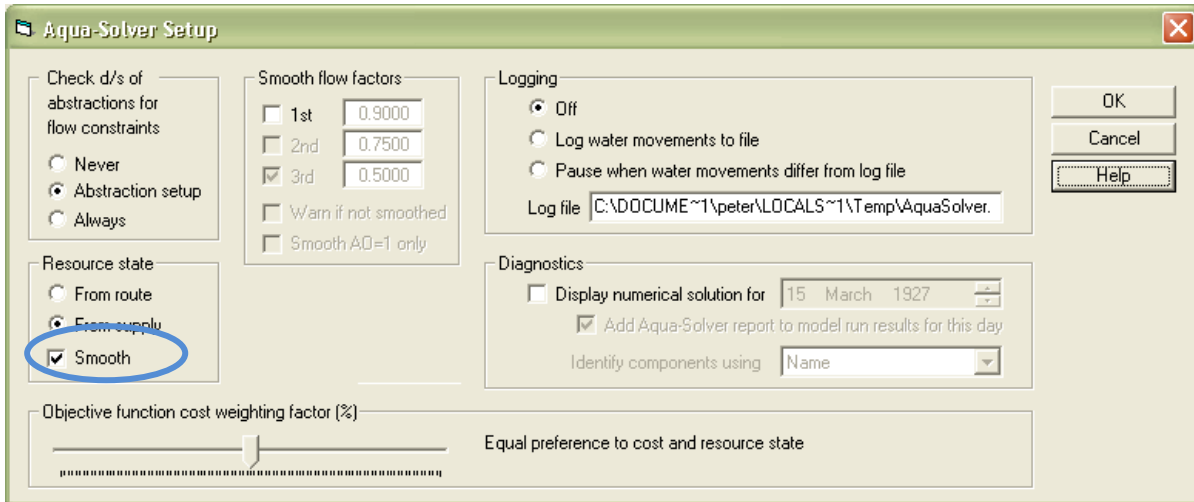
This weighting factor should be kept in the range 0.2 to 0.8 and should never be set to the extreme values of 0 or 1.

A weight of 0.8 makes all costs more important than all resource states. Conversely a weight of 0.2 makes all resource states more important than all costs. The default value of 0.5 should be optimal when water is plentiful.

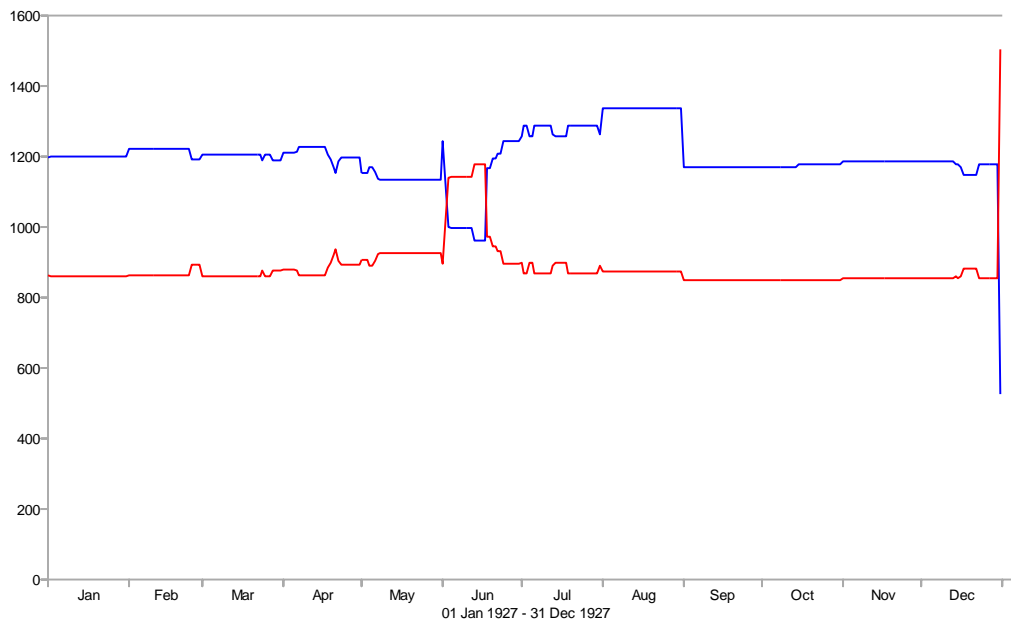
When water becomes scarce it may be useful to experiment using VBA to reduce the weighting factor and thereby make resource state become more important relative to cost.

Smooth the pass 4/5 balance

You can then try smoothing the pass 4/5 balance. This keeps the resource state for any supply fixed for one month at the value on the 1st of each month. This option may further reduce DO.

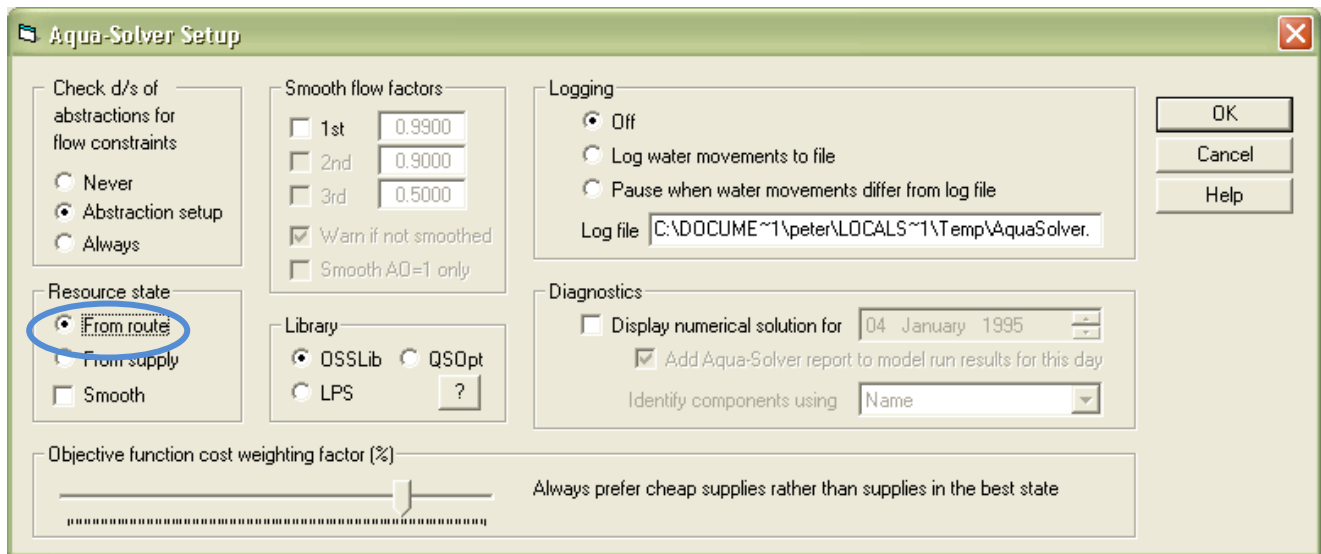


AquaSolver2 pass 4 / 5 supply

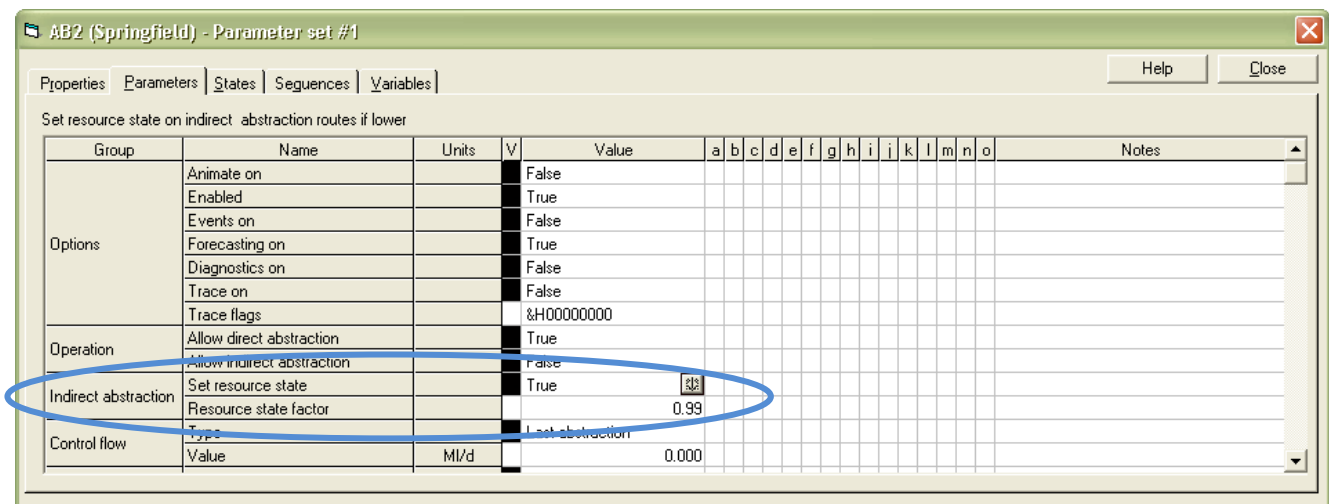


Allow abstractions to reduce the resource state of upstream supplies

First, set *Aqua-Solver2* to take the resource state from the route rather than the supply itself.



Then edit the following Abstraction parameters as shown in this screen shot:



The intention is to make the preferred solution take water from the river (direct abstraction) rather than route the demand to an upstream supply (indirect abstraction) even if the upstream supply is in a better state, the rationale being that river water cannot be held back for use later in the model run whereas upstream Groundwater supplies (for example) can be.

Other enhancements

- The Abstraction component can optionally reduce the resource state of supplies upstream of the Abstraction in order to make direct abstraction (taking water out of the river at the Abstraction) more attractive than indirect abstraction (routing the demand up the river to the upstream supply).
- Using VBA to either step a model run one day or to run a model to a set date are now synchronous method calls and will not return until the next day or the set date has been reached.

Bug fixes

- A problem cloning parameter sets has been fixed. This occurred only when cloning a set earlier in the list than the currently selected parameter set. Please inspect your parameter sets carefully to see if this bug has affected you and contact OSS Ltd for help in resolving any problems stemming from this defect.
- A problem preventing a sequence set to be moved has been fixed.
- Reservoir supply cost was being incorrectly calculated.
- A large number of parameter sets combined with a very long user-defined string parameter can lead to a runtime error when comparing parameters sets and projects. The strings have been truncated at 1000 characters to prevent this error.
- A bug preventing VBA reading the contents of a model run output log has been fixed.
- Fixed problem whereby if the model run does not start on 1st of a month and monthly time series data is used, the remainder of the first month of time series data is returned as 'missing'

Aquator licensing

To assist you in your evaluation of V4.3 you may install this release on any machine and run for 30 days without restrictions except that you may not open a project created with an earlier version of Aquator. Therefore please request a temporary V4.3 licence if you wish to load V4.2 projects into this release.

After installation of V4.2 Aquator will display a "Time Limited Evaluation Version" warning dialog when it starts unless you copy a valid Aquator licence file to the installation directory. Bona-fide licencees may request licence file(s) for specified workstation(s) by logging in to the Aquator web site (<http://www.oxscisoft.com/aquator/>) and uploading the information generated by the *File...Licence Info* command of Aquator. You can then request that your licence file be emailed to you from the web site. It is no longer necessary to email support@oxscisoft.com with the licence request information.

Online help

Aquator help while running the application is provided in compiled HTML format with an index and a search facility. Installing Aquator will also install the Microsoft HTML help runtime if required.

Problem reporting

Users of Aquator should report problems by email to support@oxscisoft.com. It will often be useful to attach the Aquator error log file to the email. This file is named ERRORLOG.CSV and will be located in the default projects directory which you specify when Aquator is run for the first time. This log file can be loaded into Excel or any text editor if you wish to inspect it before transmission.

Support and information via the Internet

The URL <http://www.oxscisoft.com/aquator/> is the root page for information about Aquator. A password-protected user area provides

- a complete list of known issues and workarounds
- downloads to fix known problems
- downloads to provide additional functionality e.g. macros

To request access to this area please send your contact details to support@oxscisoft.com.

Installation, de-installation, and repair

Installation

If you have a previous version of Aquator installed then make a safe copy of any database(s) containing Aquator projects. As an added precaution run any existing version of Aquator, load each project in turn, and then choose *File...Save As Text* which will save a copy of the project in a text file. In principle, on a best-effort basis, we can use the resulting text file to restore a project in the event of problems with the new version of Aquator. We need the database as well in order to do this.

Remove any previous version of Aquator in the usual way, by going to "Add/Remove Programs" in Control Panel. Alternatively allow the V4.2 setup program to uninstall any previous version for you.

The only OS version supported is now Windows 7. You must have administrator privileges to install.

To install Aquator run SETUP.EXE from the Aquator directory of the CD or network image. At a minimum this will install Aquator itself and Visual Basic for Applications. The installer will also install any required Microsoft components. Running SETUP.EXE should be the *only* program you need to run to install Aquator but it *may* install VBA V6.4 if this is not already on your system. **If the installation of Microsoft VBA 6.4 should fail for any reason** it can be installed manually:

- navigate to the VBA sub-folder of the folder where SETUP.EXE is located
- right-click on the VBAOF11.MSI file and choose *Install*
- then do the same to the file VBA\1033\VBAOF11.MSI

By default Aquator will be installed in

C:\Program files\Oxford Scientific Software\Aquator4

but choosing a **Custom** setup at the appropriate point in the installation process will allow you to install to any chosen directory. We recommend you do *not* use the same folder as for previous versions.

Optional and customer-specific components must be installed by choosing a **Custom** setup at the appropriate point in the installation process.

A shortcut to the Aquator application is placed in a folder called Aquator under the start menu Programs folder. Shortcuts to these release notes and online help are also added.

De-installation and repair

Go to "Add/Remove Programs" in Control Panel and select Aquator to either repair a damaged installation or remove Aquator completely.