

HEC-WAT RiverWare Plugin Version 1.2 Installation and User Guide

Center for Advanced Decision Support for Water and Environmental Systems (CADSWES)

September 5, 2023

The installation consists of three files:

- WATRiverWarePlugin.jar – The RiverWare plugin Java archive file.
- RiverWare.installinfo – The RiverWare installation information file.
- RiverWare.ver – The RiverWare version file.

Supporting documentation includes:

- WAT RiverWare Plugin Release Notes.pdf – An overview of the changes in each release.
- WAT RiverWare Plugin User Guide.pdf – This document, containing the RiverWare plugin installation and user guides.

1. Installing RiverWare and WAT

Installing RiverWare

The WAT RiverWare Plugin version 1.1 integration requires RiverWare release 9.1 or later. This document assumes that RiverWare release 9.1 is installed in the default location:

```
C:\Program Files\CADSWES\RiverWare 9.1\
```

References to directory and file paths will need to be adjusted accordingly if a different RiverWare release (e.g., 9.1.2) is installed or if RiverWare is installed in a different location.

RiverWare plugin network connection

The WAT RiverWare plugin communicates with RiverWare using IP address 127.0.0.1 (localhost) and port number 27002. If this port is unavailable due to firewall or other issues, a plugin using a different port number can be provided.

Installing WAT

WAT integration requires WAT release 1.0. Please follow the WAT installation instructions for further information on WAT 1.0.x. This document assumes that WAT is installed in:

```
C:\HEC-WAT\1.0\
```

References to directory and file paths will need to be adjusted accordingly if WAT is installed in a different directory.

2. Adding RiverWare to WAT

Install the RiverWare plugin Java archive file

Copy WATRiverWarePlugin.jar to the directory:

C:\HEC-WAT\1.0\HEC-WAT\jar\ext

The model plugins in this directory are named with prefixes which determine the order in which they appear in the WAT user interface, but which otherwise have no impact on model behavior. For example, WAT 1.0 typically displays the models HMS, ResSim, and RAS in that order as the associated plugins have the following names:

S10hmsPlugin.jar
S15resSimPlugin.jar
S20rasPlugin.jar

If you would like the RiverWare plugin to appear before ResSim you would rename WATRiverWarePlugin.jar to S14WATRiverWarePlugin.jar; to appear after ResSim you would rename it to S16WATRiverWarePlugin.jar.

[Install the RiverWare installation information and version files](#)

Copy RiverWare.installinfo and RiverWare.ver to:

C:\HEC-WAT\1.0\HEC-WAT\config

RiverWare.installinfo contains the directory path of the RiverWare installation directory:

<InstallLocation>C:\Program Files\CADSWES\RiveWare 9.1\</InstallLocation>

The value is currently set to the default location for the 9.1 release; if a different release (e.g., 9.1.2) is installed or if RiverWare is installed in a different location then the file will need to be edited.

RiverWare.ver contains the RiverWare version:

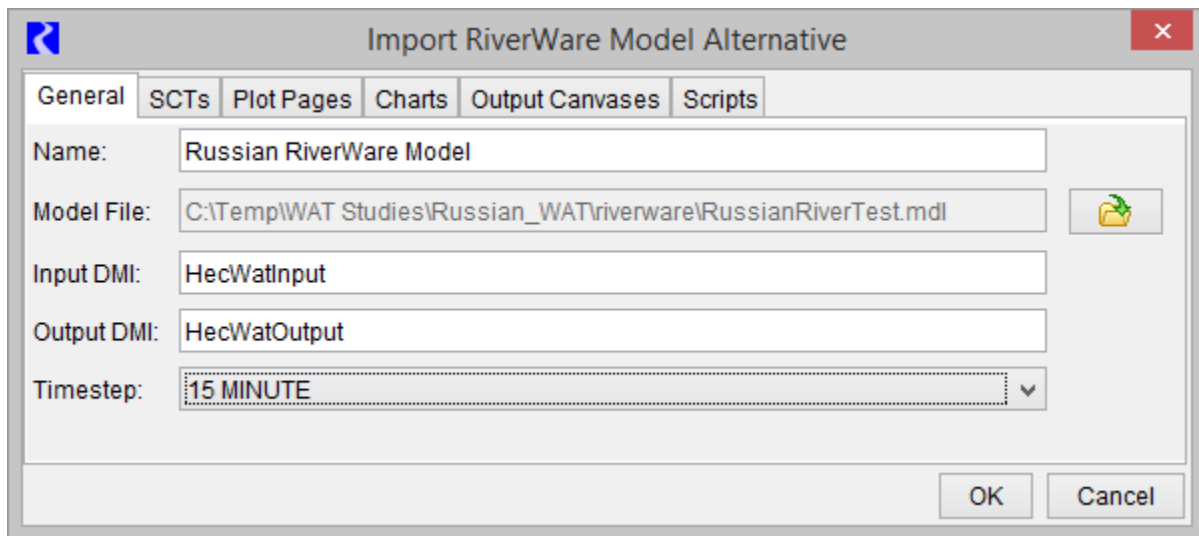
9.1+

The value is currently set for the 9.1 release (or later).

3. WAT RiverWare plugin user guide

The majority of the WAT RiverWare plugin's functionality is accessed via general mechanisms that apply to all models, as described in the WAT user manual. However, when one imports a RiverWare model alternative, the plugin presents a special dialog (Import RiverWare Model) for gathering the necessary information. This dialog has six tabs: General, SCTs, output devices (Plot Pages, Charts, and Output Canvases) and Scripts.

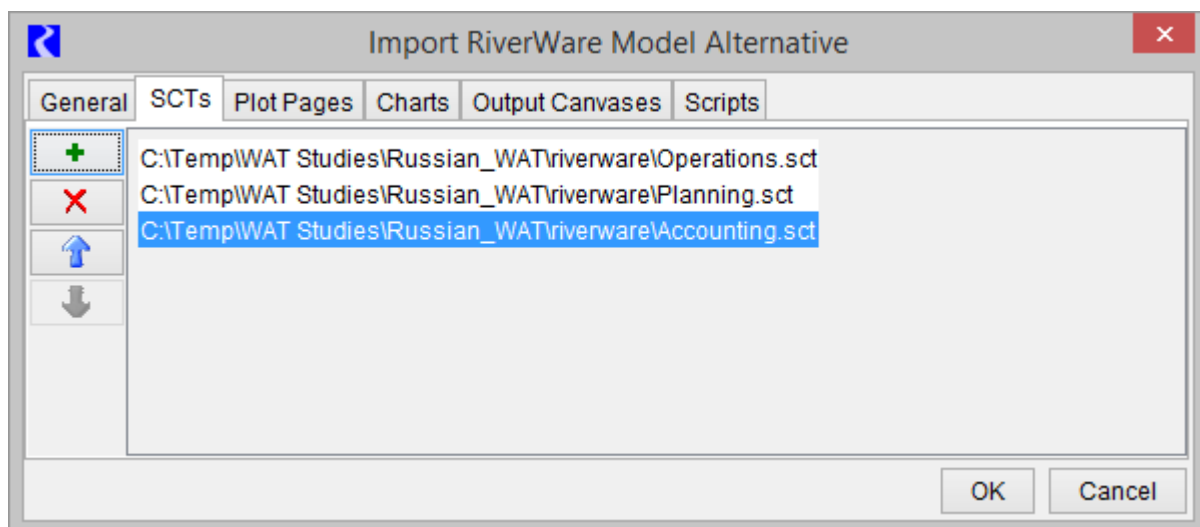
General Tab



The General tab enables you to:

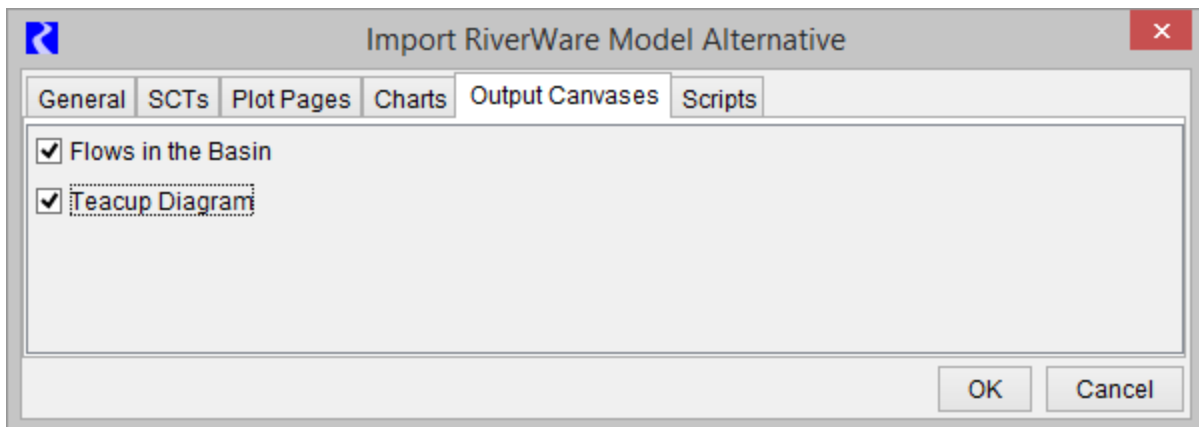
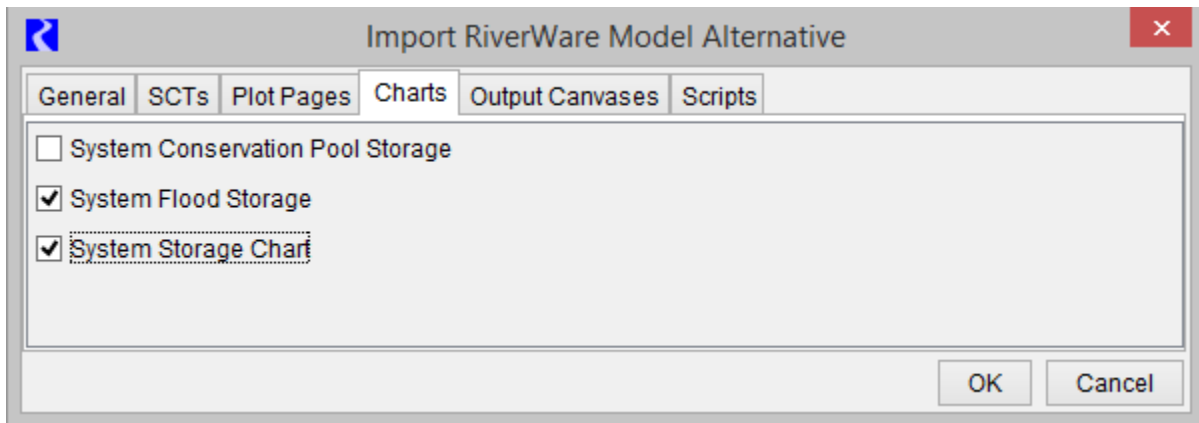
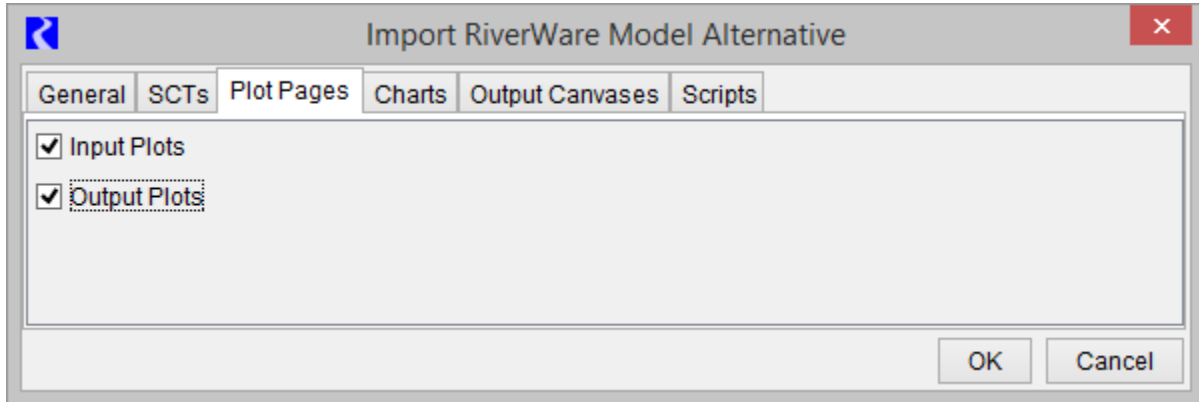
- Specify the model alternative name. The name defaults to the model file name with file suffixes removed.
- Select the model file. For rulebased simulation models, the policy (global function sets and ruleset) must be saved within the model file.
- Specify the input and output DMI names. The default names, HecWatInput and HecWatOutput, respectively, are shown in the figure above.
- Specify the time step of the model file. The time step is for verification purposes; if the time step doesn't match the model file time step the compute fails. See the CWMS RiverWare Plugin user guide on RiverWare.org for more information on how to have a RiverWare model at a different timestep than the WAT compute timestep.

SCTs Tab



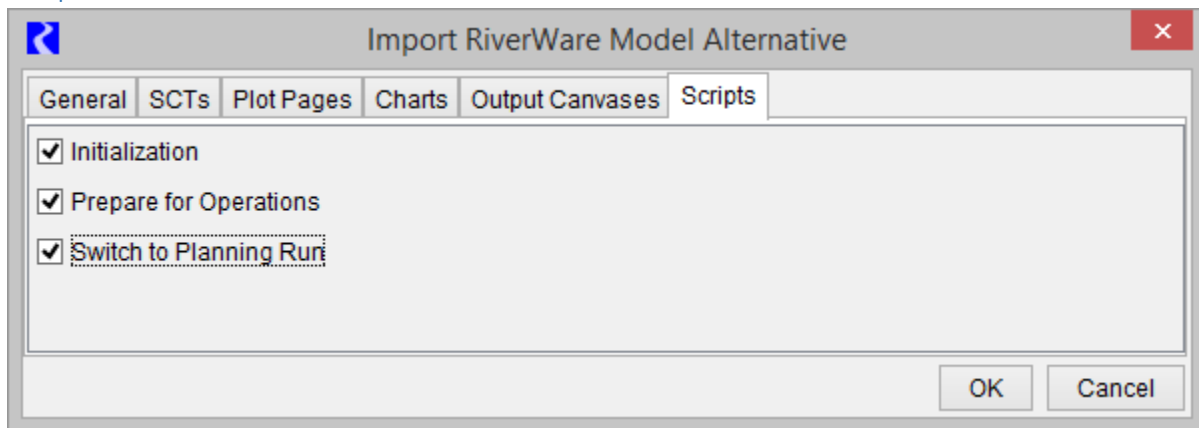
The SCTs tab enables you to create an ordered list of SCT files. There are buttons to add, remove and reorder the files. The file names, with suffixes removed, are shown on buttons and in context menus in the WAT user interface.

Output Devices (Plot Pages, Charts, Output Canvases) Tabs



The Plot Pages, Charts and Output Canvases tabs enables you to select the output devices which are shown on buttons and in context menus in the WAT user interface.

Scripts Tab



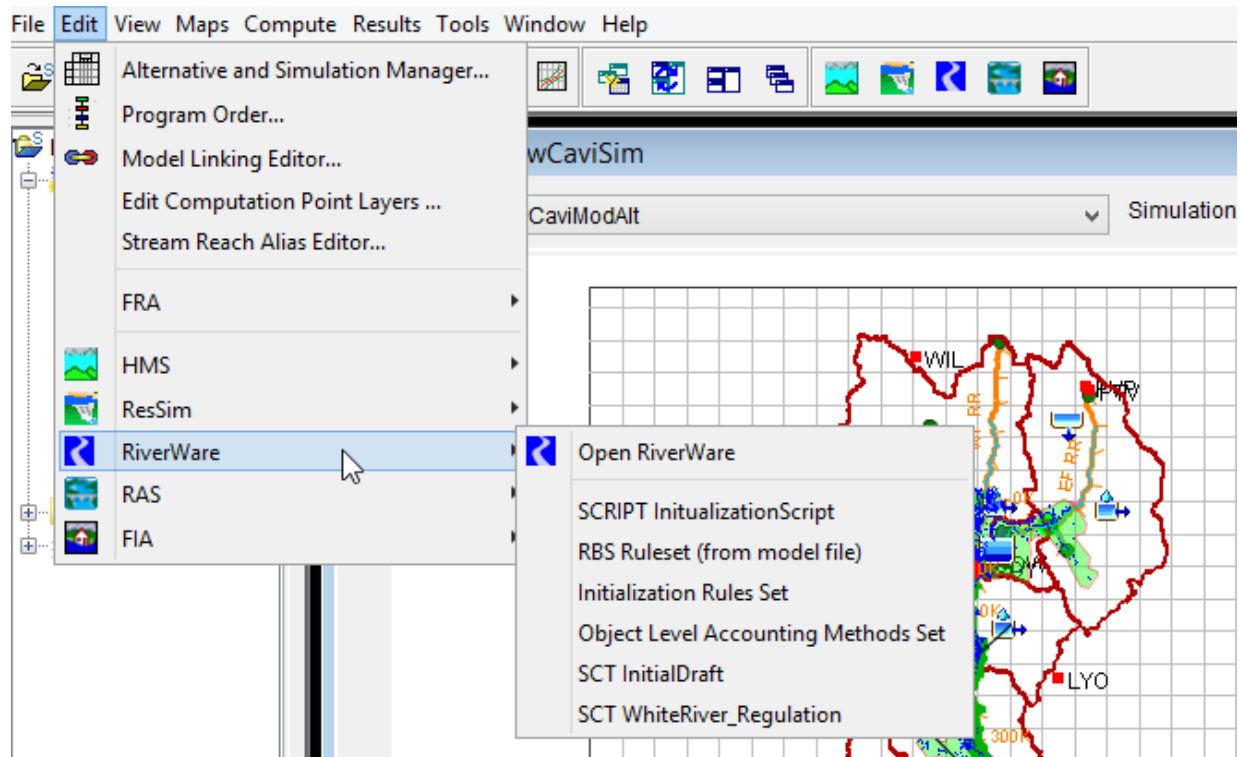
The Scripts tab enables you to select the scripts which are shown on menus in the WAT user interface.

4. RiverWare user interface

The following RiverWare dialogs are directly accessible from WAT menus:

- The RiverWare workspace (from which all RiverWare dialogs are available)
- RPL editors (rulesets must be saved in the model file)
- SCTs
- Plot dialogs
- Plot Page dialogs
- Chart dialogs
- Output Canvas dialogs
- Script Dashboard dialogs
- Open object dialogs
- Diagnostic Output dialog

For example, use the Edit and then RiverWare cascading menu to access RiverWare edit operations as shown in the screenshot:



Click the RiverWare icon on the tool bar to get directly to the RiverWare workspace. Remember, from the RiverWare Workspace, you can get to any other RiverWare dialog.

5. RiverWare Usability Notes

RiverWare Compute

RiverWare will simulate as part of a WAT compute. In the plugin version 1.1, the Flood Risk Analysis computes and output variables are not supported.

RiverWare diagnostics

The WAT user interface presents important RiverWare diagnostic messages in the Messages window; for a complete set of messages refer to RiverWare's native Diagnostic Output dialog. The dialog can be opened from a context menu in the WAT user interface.

RiverWare debug files

The RiverWare plugin writes debug messages to the file:

```
C:\Users\\AppData\Local\Temp\RwWatPlugin.log
```

and RiverWare writes debug messages to the file:

```
C:\Users\\AppData\Local\Temp\RwServer.27002.log
```

(The number in the second file name will change if the RiverWare plugin uses a different port number, as discussed above.)

The files contain messages about the low-level interaction between the RiverWare plugin and RiverWare and will be useful if RiverWare isn't functioning properly in WAT.

Geolocation of RiverWare objects

For RiverWare simulation objects to be correctly located within WAT map displays, the imported RiverWare model must contain coordinates for those objects as well as a description of the associated coordinate system. There are several ways to accomplish this; which method is most convenient will depend on the context. For example, if you have a map of the watershed which includes projection information metadata, then it will probably be most convenient to configure that as the background image of the geospatial view's canvas and then place icons by hand. Alternatively, if you have a WKT (well known text) representation of a coordinate system and object coordinates in a shapefile format with appropriate attributes, then these can be provided to the Geospatial Canvas Configuration dialog and Object Coordinate Manager, respectively. For more details, see the RiverWare help.

If you do not geolocate RiverWare objects, they will not show up in the map or in the WAT Graphic Elements dialog.