Cleaning up an HEC-ResSim Watershed

Unless you do something about it, the size of HEC-ResSim watersheds will grow and grow and grow. Why do they do this? There are 2 primary reasons:

- First, ResSim produces a lot of output. And, with each new feature added, it produces even more. This output is nicely encapsulated in each simulation's simulation.dss file, but each simulation.dss file can get quite large (for period-of-record studies, we've seen it grow to over 1GByte in size.) If you haven't already, use HEC-DSSVue to take a good look at one of these files. There's a lot of good stuff in there that you may not see if you only use the default plots and reports available from the ResSim interface.

- And second, because, like most kids, ResSim does not clean up after itself (it *is* still fairly young, after all!). What that means is: when you delete something from within the program, you cause ResSim to forget about it, but, for the most part, ResSim doesn't actually delete it from disk (i.e., the associated files do not get deleted from the watershed).   Also, for almost every file ResSim creates, it also creates a backup file (.bak); so, even when ResSim *does* delete a file, it never deletes the backup.

To clean up the watershed, you need to target first, those files and directories that have been deleted from within the program but remain on disk. The instructions below will help you do this.

1) **Make a Backup of the Watershed.**

    From the **base** directory containing your watershed, create a zip file of the whole watershed directory tree. See separate document ***Making Backups*** for detailed instructions. Rename the .zip file to include words like "BeforeCleanup" and a date (in addition to the watershed name).

2) **Open ResSim. Open the watershed. Delete unwanted stuff. Make lists.**

    From the Simulation module, delete all **simulations** that you no longer want to use or refer to. Then, make a list of the simulations you kept.

    Tip *Alt-PrintScreen of the Open Simulation editor can help*

    Also, make a list of the Alternatives that are used by the simulations you are keeping – you may need this later.

    From the Network module, delete all **networks and alternatives** that you no longer want to use. Be careful when deleting alternatives – don't

delete those that exist in simulations you want to save. Make a list of the remaining networks and another list of the remaining alternatives.

> *Note – Alternatives are listed in the alternative editor by configuration, if you are using more than one configuration, be sure to check all lists in the alternative editor.*

> **Tip** *The table of alternatives in the Alternative Editor is a "smart" table – right click within the table and you will get a pop-up menu that will include Print and Print Preview.*

When finished building the three lists (simulations, networks, alternatives), save your watershed and Exit from ResSim.

3) **Delete Simulations from disk.**

After deleting the appropriate Simulations from within ResSim (step 2 above), then open Windows Explorer (or the equivalent). Browse to the **rss** folder of your watershed. View "details". Sort the folder by name and/or by type. Look for files with the extension: **.simperiod.bak.**

> For example, if I deleted "MySimulation", I should find a file named "MySimulation.simperiod.bak".

The .simperiod.bak file is a backup of the **.simperiod** file that defines a simulation. If there is not a .simperiod file with the same base name (e.g., MySimulation.simperiod), then the .simperiod.bak file is left over from the delete of a simulation.

A **folder** with the same basename (e.g., MySimulation) will also be left over. The $basename$.simperiod.bak file and $basename$ folder can both be deleted from disk. Refer to your 'saved' list to be sure you do not delete any simulations that should be saved.

> *Note – You may encounter a* .simperiod *file for a simulation which is no longer listed in the ResSim "Open Simulation" editor. The simulation identified by the* .simperiod *file was likely deleted by an older version of ResSim. Since ResSim no longer sees this simulation as active, the* .simperiod*, .simperiod.bak, and associated simulation folder may all be deleted.*

4) **Delete Networks from disk.**

After deleting the appropriate Networks from within ResSim (step 2 above), then use Windows Explorer, view the **rss** folder of the watershed, sort by name or type, and identify the files with a **.rsys.bak** extension. The .rsys.bak file is the backup of the primary **.rsys** file containing the reservoir network definition. The .rsys file, like the .simperiod file, is

usually deleted when the network is deleted. However, a multitude of other files related to the network may remain behind. The other files associated with a reservoir network (for example, named *NET*) include:

NET.rsys.bak – the backup of the primary network file
NET.dss – the paired data associated with all the physical elements
*NET*Op.dbf (.dbt, .mdx) – the database files holding the operations
    data
*NET*SysOp.dbf (.dbt, .mdx) – the database files holding the reservoir
    system data

These files can be deleted if they are for a network which is not on your list of 'saved' networks.

> *Note – By design, the .dss file associated with a network is not deleted because it contains all of the tabular physical reservoir data for the network (specifically, the elevation-storage-area tables and the outlet capacity data). You wouldn't want to lose this information "accidentally".*

> *Note – You may encounter a **.rsys** file for a network which is no longer listed in the ResSim "Open Network" editor. The network identified by the* .rsys *file was likely deleted by an older version of ResSim. Since ResSim no longer sees this network as available, all the associated network files, including the* .rsys *file, may be deleted.*

5) Delete Alternatives from Disk.

After deleting the appropriate Alternatives from within ResSim (step 2 above), then use Windows Explorer, view the **rss** folder of the watershed, sort by name or type, and identify the files with a **.ralt.bak** extension. The .ralt.bak file is the backup of the primary **.ralt** file that defines an alternative. The files that get created for an alternative (for example, named *ALT1*) are many:

ALT1.ralt, *ALT1*.ralt.bak – the primary alternative definition file and
    its backup
ALT1.malt, *ALT1*.malt.bak – a secondary alternative file and its
    backup
ALT1.fits, *ALT1*.fits.bak – the list of dss pathnames mapped to each
    inflow or other time-series input parameter and its backup
*ALT1*Obs.fits, *ALT1*Obs.fits.bak – the list of dss pathnames mapped
    to each selected observed model variable and its backup
ALT1------.simrun, *ALT1*------.simrun.bak – the file holding
    overrides and other "run" data associated with the alternative.

When you delete an alternative from within ResSim, the .ralt, .malt, and .simrun files are usually deleted. The remaining alternative (*ALT1*) files (*ALT1*.fits, *ALT1*.fits.bak, *ALT1*Obs.fits, *ALT1*Obs.fits.bak, *ALT1*.malt.bak, *ALT1*.ralt.bak, *ALT1*------.simrun.bak) can be deleted if they are not for an alternative that is on your list of "saved" alternatives.

> *Note – You may encounter a* **.ralt***,* **.malt***,* **.fits***,and/or* **.simrun** *file for an alternative which is no longer listed in the ResSim Alternative editor. The alternative identified by the* .ralt*,* .malt*, *.fits*, and/or* .simrun *file was likely deleted by an older version of ResSim. Since ResSim no longer sees this alternative as available, all the associated alternative files, including the* .ralt*, *.malt*, .fits*, and* .simrun *files, may be deleted.*

6) Verify.

Open ResSim. Open the watershed you just cleaned up.

From the <u>Network</u> module, open each network that you retained. Do spot checks of one or two reservoirs to be sure that your data is still there.

In the <u>Alternative</u> Editor, for each alternative that you retained, step through the tabs to be sure they still contain their settings.

From the <u>Simulation</u> module, open each simulation. Make each alternative active in turn, and check that the network and alternative data are complete and that results can still be viewed.

7) Make Another Backup.

Again, from the **base** directory containing your watershed, create a zip file of the whole watershed directory tree. See separate document ***Making Backups*** for detailed instructions. Rename the .zip file to include words like "AfterCleanup" and a date (in addition to the watershed name).

Congratulations! You have successfully cleaned up your watershed!

> *Tip* *This may be a good time to "move" all of your old archives (backups) of this watershed to a CD (or DVD) for long term storage, thereby cleaning up your* **base** *folder. It's a good idea to leave a copy of the "AfterCleanup" zip file as backup in the base folder for easy reference.*