DSM2 Bay-Delta Tutorial 5: Batch Preprocessing

Purpose: This tutorial will teach you to preprocess a large number of CalSim output files, each of which represents a different alternative.

A typical situation with planning studies is that the input scenarios are represented by different CalSim output files. These files reside in a directory structure that follows a pattern, for instance:

```
/calsim
    /altname1
        /dss
            /d1641
                2020d09edvsa.dss
   /altname2
        /dss
            /d1641
                2020d09edvsa.dss
```

Note that CalSim uses directory structure, not the DSS path system, to differentiate its output – the pathnames in each of the dss files named above will be identical. The DSM2 input will follow a different convention. The processed CalSim output (DSM2 input) will be placed in a file whose name is based on the alternative, e.g. altname1.dss. In addition, the preprocessor will combine the alternative name with the original CalSim DSS F Part so that every path in the preprocessed input is unique even across DSS files.

This tutorial will be based on the planning_sdip simulation and config_sdip.inp configuration file. Our CalSim output is in the tutorial/simulations/planning/calsim folder. The directory structure is a bit flatter than the one above:

```
/calsim
    /alt1
        2005a01advsa.dss
    /alt2
        2005a01advsa.dss
```

1. **Adjust the configuration file:**
   a. In windows, navigate to *\{DSM2_home}\tutorial\planning*.
   b. Open the configuration file config_sdip.inp.
   c. Make sure the study dates cover the full 1974-1991 period for planning runs. It is usually a good idea to preprocess the whole period, even if you are going to do run dsm2 on a subset of the simulation period.
   d. Replace the envvar representing the alternative name (DSM2MODIFIER) with a line that refers to a batch DSM2MODIFIER:

```
DSM2MODIFIER            ${batch_dsm2modifier}
```

   Note that the variable ${batch_dsm2modifier} is not going to be defined in the config system. We are going to use a real environmental variable, which is going to be set in a loop inside a batch file. This way we can iterate over many different alternatives.
   e. Replace the name of the CalSim file name and modifier:

```
CALSIMNAME  2005a01advsa  # File name without DSS extension
CALSIMSTUDY_ORIGINAL  2005A01A   # F part in CalSim file
```

   The batch script depends on this being the same for every CalSim output file, which is usually the case.
   f. Change the name of the CalSim output directory to an environmental variable that can be changed in a loop in the batch_prepro script:

```
CALSIMDIR               ${batch_calsimdir} # For batch prepro
```

2. **Create the scenarios.txt file**
   a. In your study, create a file called scenarios.txt
   b. On each line of the file, put the name of one scenario. The name should be descriptive of the alternative. It also has a utility function – you will use it to recreate both the name of the CalSim output directory and to create the DSM2MODIFIER to describe the run in DSM2. In the present case, our alternatives will just be “alt1”, “alt2” and “alt3”, though in a real study they might be more elaborate like “t02feb_slr”.

3. **Adjust the batch_prepro.bat script:**

   There are two small changes you need to make in the batch preprocessing script that tend to be very study specific. The first is the line that tells the script how to convert the scenario name to a DSM2MODIFIER. You can use the scenario name as-is, or you can add a short label common to the whole study:

   ```
   set batch_dsm2modifier=batchtutor_%alt%
   ```

   The second change to the batch_prepro.bat is the line that tells the script how to convert the scenario name to the CalSim output directory. In the present case, this will be quite simple:

   ```
   set batch_calsimdir=./calsim/%alt%
   ```

4. **Launch batch_prepro.bat**

   a. In the study directory, obtain a command prompt and type:

   ```
   > batch_prepro config_sdip.inp
   ```

5. **Examine the products**

   a. The preprocessing product is a HEC-DSS file in the local time series directory for each scenario. If you are doing this tutorial on your own, you may choose to launch dsm2 on each alternative. To do this you must change DSM2MODIFIER in the configuration file from ${BATCH_DSM2ODIFIER} to one of the concrete alternative names. Then launch:

   ```
   > dsm2 both config_sdip.inp
   ```

   We will not run the simulations in class because of the time required.