OMS Usages in AgES-W

NGMF

1. Every \*.java file – Annotations in ngmf. These are used on every class for documentation. They are also used on most public variables for documentation and flow control.
2. All class in the ages package (not including subpackages) as well as HRURouting and ReachRouting (in the routing package) and UPGM (in the upgm package) extend from the class Compound which is a class defined ngmf. This class is used to aggregate multiple components in to a single class. I.E. a class to run groundwater and upgm components for a single hru. This class defines all of the connection types. I.E. field2in, out2in, etc.
3. Provides the OMS under the hood items that allow for the connection types to properly work. I.E. FieldInvoker, FieldAccess, AsyncFieldAccess, MethodInvoker, etc.
4. Provides the Conversions class. This will allow certain java types to be converted to another type. I.E. convert a string to a date object, convert an integer array to a double array, etc. This is used by OutputSummary, OutputSummaryList, and ParameterOverrideReader. Conversions is also used by OMS under the hood if data types do not exactly match between components. I.E. passing a float from one component to a double in another.
5. Provides additional extensions to the Compound class for common control statements. For example, While, If, Until, etc. The classes that use While are PrepTemporalCalculator, PrepTemporalReader, RegionalizationTemporal, and Temporal.
6. Provides the Threads utility class for running multiple threads. This is used by the compounds to run each HRU (all the class in the ages packages except for AgES and Temporal). This is also used by Parallel to perform parallelization of hrus in SubSurfaceProcesses. Parallel is also used by ReachRouting to parallelize the reaches.

NGMF.SIM

1. Provides the command line interface (CLI) that is required to run an oms sim file. This is used by Netbeans to run/debug/profile a specific run configuration.
2. Provides all the tools for building the OMS internal representation of the sim file. This Sim object will call the initialize, execute, and finish methods of the root Compound. In AgES-W, this compound is the class AgES.

NGMF.EXT

1. Contains all the required elements for reading and writing OMS format files. This includes class like DataIO which is responsible for reading and writing the files.
2. Contains the class CSTable and the implementations such as FileTable and MemoryTable which are returned by or given to DataIO to read and write the OMS files.
3. Contains the CSProperties class which is used by the parameters to initialized AgES with the parameters.
4. Contains the Native Annotation Processor (NAP) which is used to read annotations in a language such as Fortran and produce the stubs and required information to call the native code in OMS. This is what AgES uses to build the classes required to run UPGM. (Note: JNA a third party is used to run the native code. NAP is only used to generate the JNA stubs that are required)

NGMF.UI

1. This is used by the OMS console to determine which variables are to be plotted. The “console.inc” file is included in the project sim file. To actually run AgES this is not required; however, AgES will fail to run if “console.inc” is included and the ngmf.ui jar is not present.