AgES is a Java-based watershed model. AgES is built upon the OMS framework. The OMS framework attempts to create an easy way to connect components of other projects to create a single model. The current plant growth model is an adaptation of the plant growth model in SWAT. This module was re-written in Java. UPGM is another plant growth model that was originally adapted from WEPS and other models. UPGM is written in Fortran. Therefore, to connect UPGM and AgES requires communication between these two languages. The first step in integration UPGM into AgES is the creation of a variable list that describes the input and output of the SWAT plant growth model. This list is needed to know what input and output AgES is expected to give and retrieve from UPGM. The next step is modifying the Fortran to build an interface so that OMS can preprocess it. To do this required minimal changes to UPGM. AgES would basically create a new Fortran program that would mirror the UPGM entry point and call the subroutines of UPGM. In this new Fortran file the variables would use comments to annotate variables. The common annotations are Description, Unit, In, and Out. Description and Unit are optional; however, In and Out are required to tell OMS whether a variable is expected as input, output, or both. This wrapper program exists outside UPGM therefore UPGM can still be run standalone without the assistance of OMS. The only changes to OMS was pulling output variables that were local in subroutines to global in common blocks. This was done so the wrapper could read the output variables to pass them back to AgES. Putting these variables into common blocks does not prevent UPGM from running standalone. The AgES/UPGM integration uses two of these wrapper programs. The first is called to initialize crop parameters that will not change. The other is used for daily calculations which requires climate variables and daily output variables. Once the Fortran wrappers are successfully built and tested to produce the same output as the standalone. OMS generates an interfaces for each of the wrappers and an OMS component for calling the compiled Fortran library. The Java code in AgES mostly will use the OMS generated component to directly call the Fortran code. Because UPGM is designed for only a single HRU and uses common blocks to pass data each HRU needs its only copy of the UPGM library to prevent variable corruption. Therefore, AgES will first copy the compiled library to a temporary location with a unique name for each HRU. It will then generate and pass the appropriate input and output variables to the UPGM components. UPGM is an optional component of AgES. There exists a flag for controlling whether UPGM or the SWAT plant growth model will be used.