

**Mississippi State University (MSU)**  
**High Performance Computing Collaboratory (HPC<sup>2</sup>)**  
**Center for Advanced Vehicular Systems (CAVS)**

**SimSys Software Packages**

MSU SimSys Packages are distributed in the form of archive files. Each Package archive file is self-contained with all files for a working system, including; architecture specific executables, documentation, and examples. Developer Packages for building new executables or integrating with other systems also include system `/bin/sh` shell script files, architecture specific object code libraries, include files, and partial or full source code. Primary SimSys Software Packages are listed below.

**AFLR2:** Advancing-Front/Local-Reconnection (*AFLR*) unstructured 2D planar triangular/quadrilateral element version mesh generation executable code with BL capability.

**AFLR2C:** Advancing-Front/Local-Reconnection (*AFLR*) unstructured 2D planar triangular/quadrilateral element version mesh generation executable code with metric based anisotropic adaptation capability.

**AFLR3:** Advancing-Front/Local-Reconnection (*AFLR*) unstructured 3D tetrahedral/pentahedral/hexahedral element version mesh generation executable code with metric based anisotropic adaptation and BL capabilities.

**AFLR4:** Advancing-Front/Local-Reconnection (*AFLR*) unstructured 3d surface triangular element version mesh generation executable code with *EGADS* CAD system coupling and full automation capability.

**BLOOM3:** Unstructured 3D boundary-layer mesh generation executable code.

**AFLR3\_LIB:** Advancing-Front/Local-Reconnection (*AFLR*) unstructured 3D tetrahedral/pentahedral/hexahedral element mesh generation libraries.

**AFLR4\_LIB:** Advancing-Front/Local-Reconnection (*AFLR*) unstructured 3D surface triangular element mesh generation libraries.

**AFLR\_LIB:** Advancing-Front/Local-Reconnection (*AFLR*) unstructured 3D tetrahedral/pentahedral/hexahedral element mesh generation and unstructured 3D surface triangular element mesh generation libraries.

**BLOOM3\_LIB:** Unstructured 3d boundary-layer mesh generation libraries.

**UVMAP\_SRC:** UV mapping generator source code library for unstructured 3D surface triangular element meshes.

**UG\_IO\_SRC:** Unstructured mesh file I/O source code library for various file types.

**SM:** Includes the *SolidMesh* solid modeling and unstructured mesh generation system with integrated *AFLR4* surface mesh generation and pre-processing for the *AFLR3* volume mesh generator. This system is no longer actively developed, only works on older systems, and future support is not available. Requires the use of a *sh* shell script to set the required environment variable. *SolidMesh* is only available for *Linux* and *MacOSX* systems.

**GRID\_TOOLS:** Includes a variety of grid related tools, including those for checking and modifying properties of existing grids. These tools are no longer actively developed, and support is very limited.

Package tar file names include the name of the package and a comma separated build or version number. Specialized package files not listed above follow this same naming convention. Package tar file names are specified as follows.

*Package\_Name,primary\_version\_number,total\_build\_number,system\_type.suffix*

where

*Package\_Name*: Package name.

*,primary\_version\_number*: Version number for the primary package file component. If this is not available, then this field is omitted.

*,total\_build\_number*: Total build number that is dependent upon the sum of the version numbers for each component. If any of the components do not have build or version numbers, then the date is used for its version number. If none of the components have build or version numbers, then the date is used for the total build number. The *total\_build\_number* is unique for the given package components and changes if any of the components are modified.

*,system\_type*: Specific system for which the package archive was built. At present this will be either *Linux-x86*, *MacOSX-x86* or *WIN*. If the *system\_type* is omitted, then either the package applies to all systems or it contains files for all supported systems (Developer Packages).

*suffix*: Archive and compression suffix. Package archives are built using *tar* with *gzip* compression on *Linux* and *MacOSX* based systems. For *WINDOWS* based systems the package archives are built and compressed using *zip*.

For example a package name of *MAIN,1.2.3,21.17.82,MacOSX-x86.tar.gz* implies that it is a package for program *MAIN* that is at version *1.2.3*, the total build number for all the components in the package is *21.17.82*, executables in the package are compiled for *MacOSX-x86* systems, and that the archive is in *tar* format with *gzip* compression.