

# JSDL Use Case Abstract: Flexible Resource Scheduling

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## Abstract

We have found with Genesis II a strong need to be able to schedule grid jobs based off of things like Architecture and Operating System (as well as things like memory, wall-clock time, etc.). However, doing so using JSDL 1.0 unnecessarily constrains us for certain types of tasks. Consider for example the case where someone has a BASH shell script that he or she intends to run as a program, or the case where the user is assuming that a certain environment or application exists on the target machine (such as Matlab, R, or Java). In these cases, it may make sense to constrain based not on one operating system or architecture, but rather on a set of architectures or operating systems.

To that end, the use case(s) from the Genesis II team at UVa will relate to users requesting that their job(s) run on any of a set of machine classes. Common versions of this would be:

- Attempting to run a Java program on any machine type that supports Mac OS X or Linux
- Attempting to run an R program for which the architecture is 32-bit and either Windows or Mac OS X
- Attempting to run an arbitrary executable from a set of pre-compiled binaries that will be staged in where the run is restricted to 32-bit windows machines with 2 G of available ram, or 64-bit windows machines with 4 G of ram.