

# Jobs/Apps/Systems Parameter Matrix (export version)

Cloud and Interactive Computing

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# 1 Common attributes for Jobs, Applications and Systems

Attribute	J o b	A p p	S y s	Notes
<b>System Definition Values<sup>s</sup></b>				
host			x	the host associated with this system
canExec			x	boolean flag indicating if system can be used to execute jobs.
jobWorkingDir			x	See <a href="#">Directory Semantics</a> ; TACC systems will often assign HOST_EVAL(\$SCRATCH)
jobExecClass			x	One of: NORMAL, PROTECTED
jobContainerRuntimes			x	Zero or more: Docker, Singularity, etc.
jobEnvVariables	x	x	x	environment variables passed into application containers
jobMaxJobs		x	x	Apps can lower the limit set by Systems
jobMaxJobsPerUser		x	x	Apps can lower the limit set by Systems
jobsBatch			x	boolean flag indicating if system uses a batch scheduler to run jobs. By default this is <i>false</i> .
batchScheduler			x	slurm, pbs, condor, etc.
batchLogicalQueues			x	Tapis-defined queues
batchDefaultLogicalQueue			x	Default tapis-defined queue
batchHPCQueue			x	Name of actual queue on HPC system
jobCapabilities			x	parameters.execSystemConstraints field in <a href="#">SubmitJobRequest</a>
dtnSystemId			x	An alternate system to use as a Data Transfer Node (DTN).
dtnMountPoint			x	mount point on the execution system (maps dtnMountSourcePath from DTN system)

Attribute	J o b	A p p	S y s	Notes
dtNMountSourcePath			x	the relative path that defines the DTN source directory relative to the DTN rootDir.
isDtn			x	boolean flag indicating if system will be used as a DTN.
<b>Job Request Values<sup>\$</sup></b>				
job name	x			User supplied job name
job description	x	x		Long description
archiveOnAppError	x	x		default = true
dynamicExecSystem	x	x		default = false, use constraints to dynamically choose a best fit execution system
execSystemId	x	x		required
execSystemExecDir	x	x		See <a href="#">Directory Semantics</a>
execSystemInputDir	x	x		See <a href="#">Directory Semantics</a>
execSystemOutputDir	x	x		See <a href="#">Directory Semantics</a>
execSystemLogicalQueue	x	x	*	Defaults to system's <i>batchDefaultLogicalQueue</i>
archiveSystemId	x	x		Set to enable archiving; <i>archiveSystemDir</i> must also be set.
archiveSystemDir	x	x		See <a href="#">Directory Semantics</a>
nodeCount	x	x		
coresPerNode	x	x		
memoryMB	x	x		
maxMinutes	x	x		

Attribute	J o b	A p p	S y s	Notes
fileInputs	x	x		See <a href="#">SubmitJobRequest</a>
parameterSet	x	x		See <a href="#">SubmitJobRequest</a>
execSystemConstraints	x	x		See <a href="#">SubmitJobRequest</a> , (array of sql strings)
subscriptions	x	x		See <a href="#">SubmitJobRequest</a> (array of notification subscriptions)
tags	x	x		list of strings

***\$ All App fields that can be overridden in a Job request are embedded in a jobAttributes object in App's JSON schema.***

## 2 Directory Semantics

### 2.1 System Directories

The required *jobWorkingDir* value in a system definition specifies the root directory where most I/O occurs during job execution. The following syntax can be used:

1. ***/*{path}** - the path relative to *rootDir* in the System definition. An empty {path} designates the system's *rootDir* itself. **Macro** substitution is applied to calculate the path.
2. **HOST\_EVAL(\$SOME\_ENV\_VARIABLE)** - the value of the specified environment variable when evaluated on the host under the job's effective user ID. This is a dynamic value determined at job submission time. This function extracts specific environment variable values for use during job setup. In particular, the TACC-specific values of \$HOME, \$WORK, \$SCRATCH and \$FLASH can be referenced.

The specified environment variable name is used *as-is*: it is not subject to macro substitution. However, the function call can have a path string appended to it, such as in HOST\_EVAL(\$SCRATCH)/my/dir, and macro substitution is applied to the path string.