

Resource Specification Language

- **Common notation for exchange of information between components**
 - Ø Syntax similar to MDS/LDAP filters
- **RSL provides**
 - Ø Resource requirements: Machine type, number of nodes, memory, etc.
 - Ø Job configuration: Directory, executable, args, environment
- **GT provides an API/SDK for manipulating RSL**

RSL Syntax

- **Elementary form: parenthesis clauses**
(attribute op value [value ...])
- **Some supported attributes:**
executable, arguments, environment, stdin, stdout, stderr,
resourceManagerContact, resourceName
- **Operators Supported:**
<, <=, =, >=, >, !=
- **Comments**
 - Ø Begin with (*
 - Ø End with *)
 - Ø Inline and multi line

Constraints: “&”

| Example:

```
& (count >= 5) (count <= 10)  
(max_time=240) (memory >= 64)  
(executable=myprog)
```

“Create 5-10 instances of myprog, each on a machine with at least 64 MB memory that is available to me for 4 hours”

Disjunction: “ | ”

| Example:

```
& (executable=myprog)
( | (&(count=5)(memory>=64))
  (&(count=10)(memory>=32)))
```

Create 5 instances of myprog on a machine that has at least 64MB of memory, or 10 instances on a machine with at least 32MB of memory

GRAM Attributes

arguments
directory
environment
maxTime
maxCpuTime
stdin
stderr
project
maxMemory
hostCount

count
executable
jobType
maxWallTime
gramMyjob
stdout
queue
dryRun
minMemory

DUROC Attributes

- **label**
- **subjobCommsType**
- **resourceManagerContact**
- **subjobStartType**

File Staging in RSL

```
&(executable = "gsiftp://tf73.ctsf.cdac.org.in/tmp/executable")
```

```
(stdin="$(GLOBUS_GASS_URL)/input_file")
```

```
(stdout="$(GLOBUS_GASS_URL)/output_file")
```


RSL Substitution

```
& (rsl_substitution = (TOPDIR "/home/nobody")  
  (DATADIR $(TOPDIR)/data")  
  (EXECDIR $(TOPDIR)/bin) )
```

```
(executable = $(EXECDIR)/a.out )  
(arguments = $(DATADIR)/file1 )
```

Simple Command line RSL

- `$ globusrun -r tf73.ctsf.cdac.org.in ' &(executable=/bin/lS) '`
- `$ globusrun -r tf73.ctsf.cdac.org.in ' &(executable=/bin/lS)
(arguments ="-l") '`

A multi-request example

```

+
( &
  (resourceManagerContact="tf35.ctsf.cdac.org.in" )
  (count=2 )
  (label="subjob 0" )
  (environment = (GLOBUS_DUROC_SUBJOB_INDEX 0 )
    (LD_LIBRARY_PATH $(GLOBUS_LOCATION)/lib)
    (NLSPATH /usr/lib/nls/msg/en_US/pepoe.cat)
    (MY_VAR MY_Value)
  )
  (directory="/home/tools/asvija/test-cvs/grid/visu/" )
  (executable="/home/tools/asvija/test-cvs/grid/visu/visu-aix" )
  (arguments="" )
)
( &
  (resourceManagerContact="e1.ctsf.cdac.org.in" )
  (count=1 )
  (label="subjob1" )
  (environment = (GLOBUS_DUROC_SUBJOB_INDEX 1 )
    (LD_LIBRARY_PATH $(GLOBUS_LOCATION)/lib)
    (MY_VAR MY_Value)
  )
  (directory="/home/tools/asvija/test-cvs/grid/visu" )
  (executable="/home/tools/asvija/test-cvs/grid/visu/visu-sol" )
  (arguments="" )
)

```

Conclusion

- **RSL**
 - ∅ Express constraints.
 - ∅ Simplify Job Configuration and Submission.
 - ∅ Facilitate Staging
 - ∅ Specify requirements for Parallel Jobs.



**Thank
you!**

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