



Open Science Grid

Troubleshooting Your Jobs

Brian Lin

OSG Software Team

University of Wisconsin - Madison



**The grid is
your oyster!**





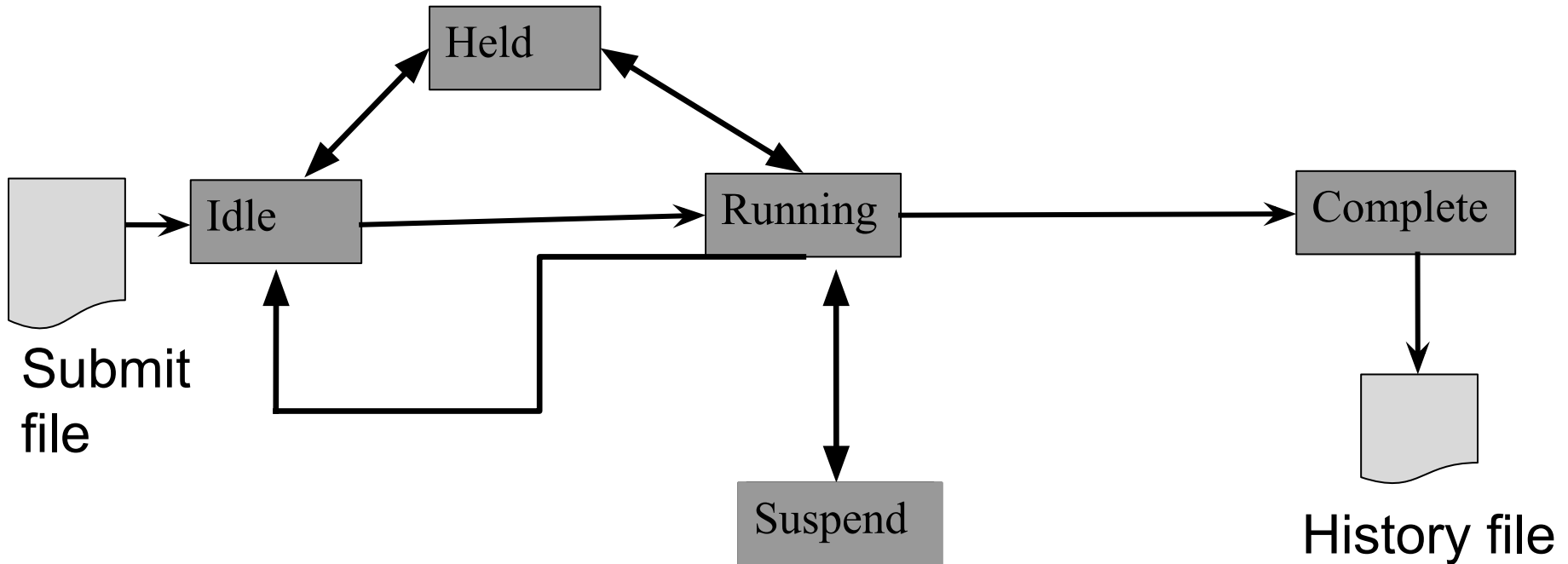
The grid is your oyster!

...if your jobs aren't broken.



Keys to Troubleshooting

Identify the problem and break it into smaller ones



Keys to Troubleshooting

Know where to find more information:

- condor_q and its options
- Output, error, log, and rescue files
- Google
- <https://support.opensciencegrid.org> knowledge base
- Local support
- user-support@opensciencegrid.org



Common Issues

Why can't I submit my job?

```
$ condor_submit sleep.sh
```

```
Submitting job(s)
```

```
ERROR: on Line 2 of submit file:
```

```
ERROR: Failed to parse command file (line 2).
```

Why can't I submit my job?

```
$ condor_submit sleep.sh
```

```
Submitting job(s)
```

```
ERROR: on Line 2 of submit file:
```

```
ERROR: Failed to parse command file (line 2).
```

Huh? You've tried to submit something that wasn't your submit file.

Solution: Submit your .sub file!

Why can't I submit my job?

```
$ condor_submit sleep.sub
```

```
Submitting job(s)
```

- ERROR: Can't open "/home/blin/school/inptu_data" with flags 00 (No such file or directory)
- Submitting job(s)No 'executable' parameter was provided
- ERROR: I don't know about the 'vanila' universe.
- ERROR: Executable file /bin/slep does not exist

Why can't I submit my job?

```
$ condor_submit sleep.sub
```

Submitting job(s)

- ERROR: Can't open "/home/blin/school/**inptu_data**" with flags 00 (No such file or directory)
- Submitting job(s)No '**executable**' parameter was provided
- ERROR: I don't know about the '**vanila**' universe.
- ERROR: Executable file **/bin/slep** does not exist

Huh? There are typos in your submit file.

Solution: Fix your typos! Condor can only catch a select few of them.

Why can't I submit my job?

```
$ condor_submit sleep.sh
```

```
Submitting job(s)
```

```
ERROR: Executable file sleep.sh is a script with CRLF (DOS/Win) line endings
```

```
Run with -allow-crlf-script if this is really what you want
```

Why can't I submit my job?

```
$ condor_submit sleep.sh
```

Submitting job(s)

ERROR: Executable file sleep.sh is a script with CRLF (DOS/Win) line endings

Run with `-allow-crlf-script` if this is really what you want

Huh? There are carriage return line endings (`^M`) in your executable.

Solution: Convert your executable with `dos2unix` or `vi -b <FILENAME>` to see and delete the carriage returns (use 'x' to delete).

What are my jobs up to?

```
$ condor_q -help status
```

```
JobStatus codes:
```

```
1 I IDLE
```

```
2 R RUNNING
```

```
3 X REMOVED
```

```
4 C COMPLETED
```

```
5 H HELD
```

```
6 > TRANSFERRING_OUTPUT
```

```
7 S SUSPENDED
```

Why are my jobs idle?

```
$ condor_q -better 29486
```

```
[...]
```

The Requirements expression for job 29486.000 reduces to these conditions:

Slots

```
Step Matched Condition
```

```
-----
```

```
[1]          8348 Target.OpSysMajorVer == 6
[7]          10841 TARGET.Disk >= RequestDisk
[9]              1 TARGET.Memory >= RequestMemory
[11]         10852 TARGET.HasFileTransfer
```

Why are my jobs still running?

```
$ condor_q -nobatch
```

```
-- Schedd: learn.chtc.wisc.edu : <128.104.100.43:9618?...>
```

ID	OWNER	SUBMITTED	RUN_TIME	ST	PRI	SIZE	CMD
14665.0	blin	7/25 18:19	0+23:00:03	R	0	0.3	sleep.sh

Solution: Use `condor_ssh_to_job <JOB ID>` to open an SSH session to the worker node running your job. Non-OSG jobs only!

Why are my jobs held?

```
$ condor_q -held
```

```
-- Schedd: learn.chtc.wisc.edu : <128.104.100.43:9618?... @ 07/18/17 15:13:42
```

ID	OWNER	HELD_SINCE	HOLD_REASON
14662.0	blin	7/25 18:05	Error from slot1_12@e163.chtc.wisc.edu: Failed to execute '/var/lib/condor/execute/slot1/dir_3090825/condor_exec.exe': (errno=8: 'Exec format error')

Why are my jobs held?

```
$ condor_q -held
```

```
-- Schedd: learn.chtc.wisc.edu : <128.104.100.43:9618?... @ 07/18/17 15:13:42
```

```
  ID      OWNER      HELD_SINCE  HOLD_REASON
14662.0  blin          7/25 18:05  Error from slot1_12@e163.chtc.wisc.edu:
Failed to execute
'/var/lib/condor/execute/slot1/dir_3090825/condor_exec.exe': (errno=8: 'Exec
format error')
```

Huh? Condor couldn't run your executable.

Solution: Add the missing 'shebang' line at the top of the executable, e.g. `#!/bin/bash`.

Why are my jobs held?

```
$ condor_q -held
```

```
-- Schedd: learn.chtc.wisc.edu : <128.104.100.43:9618?... @ 07/18/17 15:13:42
```

ID	OWNER	HELD_SINCE	HOLD_REASON
29494.0	blin	7/16 17:31	Failed to initialize user log to /home/blin/foo/bar/test-000.log or /dev/null

Why are my jobs held?

```
$ condor_q -held
```

```
-- Schedd: learn.chtc.wisc.edu : <128.104.100.43:9618?... @ 07/18/17 15:13:42
```

ID	OWNER	HELD_SINCE	HOLD_REASON
29494.0	blin	7/16 17:31	Failed to initialize user log to /home/blin/foo/bar/test-000.log or /dev/null

Huh? Condor couldn't write the job log files

Solution: On the submit server, ensure existence and write permissions for each folder in the specified path or choose a new location for your files!

Why are my jobs held?

```
$ condor_q -held
```

```
-- Schedd: learn.chtc.wisc.edu : <128.104.100.43:9618?... @ 07/18/17  
15:13:42
```

ID	OWNER	HELD_SINCE	HOLD_REASON
19.0	blin	7/14 15:07	Error from slot1_1@e026.chtc.wisc.edu: Job has gone over memory limit of 100 megabytes. Peak usage: 500 megabytes.

Why are my jobs held?

```
$ condor_q -held
```

```
-- Schedd: learn.chtc.wisc.edu : <128.104.100.43:9618?... @ 07/18/17  
15:13:42
```

```
  ID      OWNER      HELD_SINCE  HOLD_REASON  
19.0    blin          7/14 15:07  Error from  
slot1_1@e026.chtc.wisc.edu: Job has gone over memory limit of 100  
megabytes. Peak usage: 100 megabytes.
```

Huh? You've used too many resources.

Solution: Request more! 1GB of memory is a good place to start. If your max memory footprint per job is approaching 10GB, consult OSG staff

Fixing held jobs

If the problem was with your submit file - remove your jobs, fix the submit file, and resubmit:

1. `condor_rm <job ID>`
2. Add `request_disk`, `request_mem`, or `request_cpus` to your submit file
3. `condor_submit <submit file>`

If the problem was outside of your submit file - fix the issue and release the job:

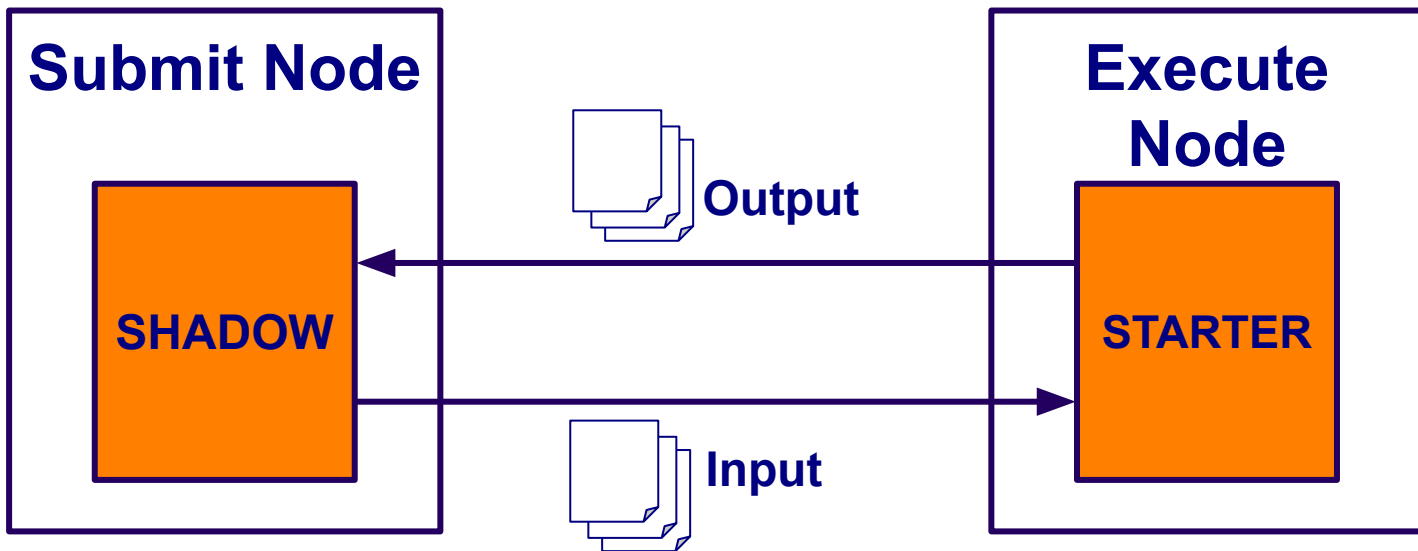
```
condor_release <job ID>
```

Why are my jobs held?

```
$ condor_q -held
```

```
-- Schedd: learn.chtc.wisc.edu : <128.104.100.43:9618?... @ 07/18/17 15:13:42  
  24.0   blin           7/14 16:12 Error from learn.chtc.wisc.edu: STARTER at  
128.104.100.52 failed to send file(s) to <128.104.100.43:64130>: error  
reading from /var/lib/condor/execute/dir_24823/bar: (errno 2) No such file or  
directory; SHADOW failed to receive file(s) from <128.104.100.52:10507>
```

Why are my jobs held?



Why are my jobs held?

```
$ condor_q -held
```

```
-- Schedd: learn.chtc.wisc.edu : <128.104.100.43:9618?... @ 07/18/17 15:13:42
  24.0   blin           7/14 16:12 Error from learn.chtc.wisc.edu: STARTER at
128.104.100.52 failed to send file(s) to <128.104.100.43:64130>: error
reading from /var/lib/condor/execute/dir_24823/bar: (errno 2) No such file or
directory; SHADOW failed to receive file(s) from <128.104.100.52:10507>
```

Huh? Your job did not create the files that you specified in `transfer_output_files`.

Solution: Check for typos in `transfer_output_files`, suspiciously quick jobs, add debugging information to your code.

Why are my jobs held?

```
$ condor_q -af holdreason
```

```
Error from slot1_1@glidein_90499_320684397@node022.local: STARTER at  
192.168.1.22 failed to send file(s) to <128.104.100.31:9618>; SHADOW at  
128.104.100.31 failed to write to file  
/home/blin/location/output/location.5164.0.out: (errno 2) No such file or  
directory
```

Why are my jobs held?

```
$ condor_q -af holdreason
```

```
Error from slot1_1@glidein_90499_320684397@node022.local: STARTER at  
192.168.1.22 failed to send file(s) to <128.104.100.31:9618>; SHADOW at  
128.104.100.31 failed to write to file  
/home/blin/location/output/location.5164.0.out: (errno 2) No such file or  
directory
```

Huh? HTCondor couldn't write the output files to the submit server

Solution: On the submit server, make sure that the directories exist and can be written to

Why are my jobs held?

	Failed to READ	Failed to WRITE
SHADOW	Input files don't exist or cannot be read on the submit server	Could not write output files to your submit server (missing or incorrect permissions on directories)
STARTER	Files in <code>transfer_output_files</code> were not created on the execute server	Something's wrong with the execute server. Contact your HTCondor admin!

My jobs completed but...

The output is wrong:

1. Check `*.log` files for return codes or unexpected behavior: short runtimes, using too many or too few resources
2. Check `*.err` and `*.out` for error messages from your executable
3. Submit an interactive job: `condor_submit -i <SUBMIT FILE>` and run the executable manually.
 - a. If it succeeds, does your submit file have the correct args? If yes, try adding `GET_ENV = True` to your submit file.
 - b. If it fails, there is an issue with your code or your invocation!

Troubleshooting Exercise



petshop bones

@direlog

Follow



'programming' is a delightful pastime in which you debug for hours only to discover the real problem is: you can't read, and you can't count

6:56 PM - 16 Jul 2017

877 Retweets 1,735 Likes



12

877

1.7K



Source: @direlog, <https://twitter.com/direlog/status/886721271102410752>

Hands-On

- Questions?
- **Exercise 1.1:** Troubleshooting
- Remember, if you don't finish, that's ok! You can make up work later or during evenings, if you'd like.
- Coming next
 - 10:30 - 10:45 Break
 - 10:45 - 12:00 HTC in action (interactive)
 - 12:00 - 12:15 Security in the OSG