Storage Areas & NVMe

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Available Storage Areas on Spock

NFS Directories – This is where you might want to keep source code, scripts, etc.

NOTE: These directories are read-only from the compute nodes!

`/ccs/home/<userid>`
- Your personal home directory

`/ccs/proj/<projid>`
- Can be accessed by all members of your project

| Long-term storage |
| Backup provided |
| Not purged |
| 50 GB Quota |

GPFS Directories (parallel file system) – This is where you should write data when running on Spock's compute nodes.

`/gpfs/alpine/<projid>/scratch/<userid>`
- Your personal GPFS scratch directory

`/gpfs/alpine/<projid>/proj-shared`
- Can be accessed by all members of your project

`/gpfs/alpine/<projid>/world-shared`
- Can be accessed by all users on the system

| Short-term storage |
| No backup provided |
| Purged after 90 days |
| 50 TB Quota |

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https://docs.olcf.ornl.gov/systems/spock_quick_start_guide.html#data-and-storage

Archive Storage (HPSS)

User- and Project-Centric Archive Directories – This is where you should backup important data for long-term storage

NOTE: HPSS is not accessible from Spock, but is accessible from the data-transfer nodes (DTNs) ⟶ `dtn.ccs.ornl.gov`

`/home/<userid>`
- User archive directory
- Data from <userid> not specific to any project

`/hpss/prod/<projid>/users/<userid>`
- Member archive
- Data specific to <projid> accessible only by <userid>

`/hpss/prod/<projid>/proj-shared`
- Project archive
- Data specific to <projid> accessible by all members of <projid>

`/hpss/prod/<projid>/world-shared`
- World archive
- Data specific to <projid> accessible by all users of the system

No backup provided

Not purged

100 TB Quota

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https://docs.olcf.ornl.gov/data/index.html

NVMe (SSD)

```bash
#!/bin/bash
#SBATCH -A <projid>
#SBATCH -J nvme_test
#SBATCH -o %x-%j.out
#SBATCH -t 00:05:00
#SBATCH -p batch
#SBATCH -N 1
#SBATCH -C nvme

date

# Change directory to user scratch space (GPFS)
cd /gpfs/alpine/<projid>/scratch/<userid>

echo " "
echo "*****ORIGINAL FILE*****"
cat test.txt
echo "**********************"

# Move file from GPFS to SSD
mv test.txt /mnt/bb/<userid>

# Edit file from compute node
srun -n1 hostname >> /mnt/bb/<userid>/test.txt

# Move file from SSD back to GPFS
mv /mnt/bb/<userid>/test.txt .

echo " "
echo "*****UPDATED FILE******"
cat test.txt
echo "**********************"
```

Each Spock compute node has [2x] 3.2 TB NVMe
- KIOXIA Model: KCM6XVUL3T20
- 6900 MB/s (read), 4200 MB/s (write)

Users must
- Request access to NVMe (e.g., #SBATCH –C nvme)
- Move/copy data to/from NVMe

When –C nvme is specified for a job allocation, the SSD will be available at /mnt/bb/<userid>

```
$ cat nvme_test-<jobid>.out
Mon May 17 12:28:18 EDT 2021

*****ORIGINAL FILE*****
This is my file. There are many like it but this one is mine.
**********************

*****UPDATED FILE******
This is my file. There are many like it but this one is mine.
spock25
**********************
```

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https://docs.olcf.ornl.gov/systems/spock_quick_start_guide.html#nvme-usage

Questions?

Summit here

Frontier here

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