

Monitoring a node during a job.

The Delta documentation has moved to <https://docs.ncsa.illinois.edu/systems/delta/>. Please update any bookmarks you may have.
Click in the link above if you are not automatically redirected in 5 seconds.

You have ssh access to nodes in your running job(s) . A couple basic monitoring tools are demonstrated in the example transcript here. Screen shots are appended so that you can see the output from the tools. Most common linux utilities are available from the compute nodes (free, strace, ps ...).

```
[arnoldg@dt-login03 python]$ squeue -u $USER
      JOBID PARTITION    NAME    USER  ST       TIME  NODES NODELIST(REASON)
      1214412 gpuA40x4- interact  arnoldg  R       8:14      1 gpub045
[arnoldg@dt-login03 python]$ ssh gpub045
gpub045.delta.internal.ncsa.edu (141.142.145.145)
OS: RedHat 8.4  HW: HPE   CPU: 64x   RAM: 252 GB
Last login: Wed Dec 14 09:45:26 2022 from 141.142.144.42
[arnoldg@gpub045 ~]$ nvidia-smi

[arnoldg@gpub045 ~]$ module load nvtop
-----
The following dependent module(s) are not currently loaded: cuda/11.6.1 (required by: ucx/1.11.2, openmpi/4.1.2)
-----

The following have been reloaded with a version change:
  1) cuda/11.6.1 => cuda/11.7.0

[arnoldg@gpub045 ~]$ nvtop

[arnoldg@gpub045 ~]$ module load anaconda3_gpu
[arnoldg@gpub045 ~]$ nvitop

[arnoldg@gpub045 ~]$ top -u $USER
```

nvidia-smi :

jupyter.salloc - python [SSH: delta] - Visual Studio Code

File Edit Selection View Go Run Terminal Help

jobcharge_grp.py 1, 4 jupyter.salloc

```
1 salloc --account=bbka-delta-gpu --partition=gpuA40x4-interactive \  
2 --nodes=1 --tasks-per-node=1 \  
3 --cpus-per-task=2 --mem=16g \  
4 --gpus-per-node=2  
5  
6
```

PROBLEMS 1 OUTPUT DEBUG CONSOLE TERMINAL PORTS

```
+-----+  
[arnoldg@gpub045 ~]$ nvidia-smi  
Wed Dec 14 09:46:46 2022  
+-----+  
| NVIDIA-SMI 515.65.01    Driver Version: 515.65.01    CUDA Version: 11.7  
+-----+  
| GPU   Name      Persistence-M| Bus-Id        Disp.A | Volatile Uncorr. ECC |  
| Fan   Temp  Perf  Pwr:Usage/Cap|      Memory-Usage | GPU-Util  Compute M. |  
|================================|=====================|=====|  
| 0   NVIDIA A40      On          | 00000000:46:00:0 Off |    24%    Default  |  
| 0%    34C    P0      79W / 300W | 259MiB / 46068MiB |             MIG M. |  
+-----+  
| 1   NVIDIA A40      On          | 00000000:C7:00:0 Off |    0%    Default  |  
| 0%    33C    P0      79W / 300W | 259MiB / 46068MiB |             MIG M. |  
+-----+  
+-----+  
| Processes:  
| GPU   GI    CI          PID    Type    Process name                        GPU Memory  
|=====|=====|=====|=====|  
| 0   N/A  N/A   2665497      C   ...x/release/./bandwidthTest      257MiB  
| 1   N/A  N/A   2665497      C   ...x/release/./bandwidthTest      257MiB  
+-----+  
[arnoldg@gpub045 ~]$  
[arnoldg@gpub045 ~]$  
[arnoldg@gpub045 ~]$  
[arnoldg@gpub045 ~]$  
[arnoldg@gpub045 ~]$  
[arnoldg@gpub045 ~]$
```

SSH: delta master* 0 0 1 0 Ln 4, Col 20 Spaces: 2 UTF-8 LF Plain Text

nvtop :

jupyterter.salloc - python [SSH: delta] - Visual Studio Code

File Edit Selection View Go Run Terminal Help

jobcharge_grp.py 1, 4
jupyterter.salloc

```

1  salloc --account=bbka-delta-gpu --partition=gpuA40x4-interactive \
2  --nodes=1 --tasks-per-node=1 \
3  --cpus-per-task=2 --mem=16g \
4  --gpus-per-node=2
5
6

```

PROBLEMS 1 OUTPUT DEBUG CONSOLE TERMINAL PORTS

Device 0 [NVIDIA A40] PCIe GEN 4@16x RX: 0.000 KiB/s TX: 0.000 KiB/s
GPU 210MHz MEM 7250MHz TEMP 33°C FAN 0% POW 57 / 300 W
GPU[0%] MEM[0.560Gi/44.988Gi]

Device 1 [NVIDIA A40] PCIe GEN 4@16x RX: 0.000 KiB/s TX: 0.000 KiB/s
GPU 210MHz MEM 7250MHz TEMP 33°C FAN 0% POW 57 / 300 W
GPU[0%] MEM[0.560Gi/44.988Gi]

GPU0 %

GPU0 mem%

GPU1 %

GPU1 mem%

PID	USER	DEV	TYPE	GPU	GPU MEM	CPU	HOST MEM	Command
F2	Setup							
F6	Sort							
F9	Kill							
F10	Quit							
F12	Save Config							

SSH: delta master* 0 0 1 0
Ln 4, Col 20 Spaces: 2 UTF-8 LF Plain Text

nvitop :

jupyterter.salloc - python [SSH: delta] - Visual Studio Code

File Edit Selection View Go Run Terminal Help

jobcharge_grp.py 1, 4

jupyterter.salloc

```

1  salloc --account=bbka-delta-gpu --partition=gpuA40x4-interactive \
2  --nodes=1 --tasks-per-node=1 \
3  --cpus-per-task=2 --mem=16g \
4  --gpus-per-node=2
5
6

```

PROBLEMS 1

OUTPUT

DEBUG CONSOLE

TERMINAL

PORTS

Wed Dec 14 09:50:59 2022

(Press **h** for help or **q** to quit)

NVITOP 0.10.2

Driver Version: 515.65.01

CUDA Driver Version: 11.7

GPU	Name	Persistence-M	Bus-Id	Disp.A	Volatile Uncorr. ECC	MEM:
Fan	Temp	Pwr:Usage/Cap	Memory-Usage	GPU-Util	Compute M.	UTL:
0	A40	On	00000000:46:00:0	Off	0	MEM: 0.7%
0%	35C	78W / 300W	326MiB / 44.99GiB		26%	UTL: 26%
1	A40	On	00000000:C7:00:0	Off	0	MEM: 0.0%
0%	33C	36W / 300W	3MiB / 44.99GiB		0%	UTL: 0%

Load Average: 3.10 2.92 2.85

CPU: 5.7%

120s | 60s | 30s

MEM: 13.2%

SWP: 0.0%

AVG GPU MEM: 0.3%

AVG GPU UTL: 28.5%

Processes:

GPU	PID	USER	GPU-MEM	%SM	%CPU	%MEM	TIME	COMMAND
0	2666414	C arnoldg	311MiB	53	99.8	0.1	0:06	/projects/bbka/slurm_test_scripts/gpu/cuda/cuda..

ssh

srun release

SSH: delta

master*

0 0 1

0

Ln 4, Col 20

Spaces: 2

UTF-8

LF

Plain Text

top -u \$USER :

File Edit Selection View Go Run Terminal Help

jobcharge_grp.py 1, 4

jupyter.salloc

jupyter.salloc

```
1 salloc --account=bbka-delta-gpu --partition=gpuA40x4-interactive \  
2 --nodes=1 --tasks-per-node=1 \  
3 --cpus-per-task=2 --mem=16g \  
4 --gpus-per-node=2  
5  
6
```

PROBLEMS 1 OUTPUT DEBUG CONSOLE TERMINAL PORTS

```
top - 09:54:25 up 120 days, 20:33, 6 users, load average: 3.17, 2.94, 2.86  
Tasks: 999 total, 4 running, 995 sleeping, 0 stopped, 0 zombie  
%Cpu(s): 5.0 us, 0.9 sy, 0.0 ni, 94.1 id, 0.0 wa, 0.0 hi, 0.0 si, 0.0 st  
MiB Mem : 257667.4 total, 201574.9 free, 19102.0 used, 36990.5 buff/cache  
MiB Swap: 0.0 total, 0.0 free, 0.0 used. 223413.5 avail Mem
```

PID	USER	PR	NI	VIRT	RES	SHR	S	%CPU	%MEM	TIME+	COMMAND
2666701	arnoldg	20	0	9982.2m	343032	288896	R	100.0	0.1	0:23.85	bandwidthTest
2666709	arnoldg	20	0	276164	6132	4420	R	0.3	0.0	0:00.03	top
2666452	arnoldg	20	0	177476	6692	4720	S	0.0	0.0	0:00.00	sshd
2666453	arnoldg	20	0	237576	7760	3520	S	0.0	0.0	0:00.02	bash

ssh

srun release

< SSH: delta master*

0 1

Ln 4, Col 20 Spaces: 2 UTF-8 LF Plain Text