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# NP04 Offline

- [MyNP4Status][NP04 Status] - Conditions while running



# Data File Access

[https://wiki.dunescience.org/wiki/Basic\\_sam\\_access\\_example](https://wiki.dunescience.org/wiki/Basic_sam_access_example)

# EOS

```
export EOS_MGM_URL=root://eospublic.cern.ch
source /afs/cern.ch/project/eos/installation/0.3.121-aquamarine.public/etc/setup.sh
xrdcp test.txt root://eospublic.cern.ch//eos/experiment/neutplatform/protodune/npmcproddisk
xrdcp test.txt root://eospublic.cern.ch//eos/experiment/neutplatform/protodune/np04tier0/daq
```

# Beamline Data

- Python tools for machine data analysis and equipment control
  - ◆ <https://indico.cern.ch/event/560447/>
- [swan.cern.ch](http://swan.cern.ch)
- <https://github.com/swan-cern/help>

## pytimber

- <https://gitlab.cern.ch/scripting-tools/pytimber>

## DB Replication at Fermilab

- Igor Mandrichenko
- Uses the C++ DIP library.
- <http://cdcvs.fnal.gov/projects/protodune-bidb>

## DIP

- <https://readthedocs.web.cern.ch/display/ICKB/DIP+and+DIM>
- DIP is a communication system which allows relatively small amounts of soft real-time data to be exchanged between very loosely coupled heterogeneous systems.

## DIM

- <http://dim.web.cern.ch/dim/>
- DIM is a communication system for distributed / mixed environments, it provides a network transparent inter-process communication layer. This manual provides an overview of DIM's functionality and guidance on its usage.

## - Python in HEP

From Karol Hennessey

- All presentations are available on the agenda <https://indico.cern.ch/event/694818/timetable/>, including a "general-info" PDF from the keynote presentation by Vidar Tonaas Fauske.
- We are happy to inform you about a new Gitter channel "PyHEP", <https://gitter.im/HSF/PyHEP>, as suggested during the workshop. Thank you Chris Tunnell for setting it up!
- We had a lively and interesting discussion around training and education. As a second post-workshop action we are happy to inform you first-hand that the LHCb StarterKit has been moved to a fresh new HSF-training repository, see <https://github.com/hsf-training>. The repository contains training material for Python, and also Git and bash, BTW. We feel this is a step further in the preparation of training materials by and for the community, a point largely discussed in the HSF community white paper.

# Monitoring Data Flow

## Meeting at CERN

<https://indico.cern.ch/event/724210/>

These are questions we would like to cover in our discussion related to monitoring. Based on our discussion with Geoff it looks like it would be useful to do the following:

- Add monitoring all buffers filling rate, quotas, send alarms
- Add monitoring of services FTS - light and FTS
- Monitoring of network (protodune switch) - need to see if we could get this information from CERN ES
- Add monitoring of EOS usage and quota, r/w rates and alarms
- Pull from MONIT ES EOS report.log info related to protodune
- Create dashboard's layout for shifters (red/green/yellow buttons with the ability to drill down)
- Add data quality batch jobs monitoring and output plot creation date alert.
- What alarms should we generate? Where should they go? log book? Slack?
- What is the timeline for this?

# Data Challenge 2

[https://wiki.dunescience.org/wiki/ProtoDUNE\\_Dual\\_Phase\\_and\\_Single\\_Phase\\_Joint\\_Data\\_Challenge#Detailed\\_day-t](https://wiki.dunescience.org/wiki/ProtoDUNE_Dual_Phase_and_Single_Phase_Joint_Data_Challenge#Detailed_day-t)

- Monitoring on np04-srv-001 and 002
  - ◆ iotop
  - ◆ top
  - ◆ iftop -b -i bond0
  - ◆ ganglia???
- CERN network monitoring - <https://cs-capc-pc.cern.ch:8182>
  - ◆ 40GigabitEthernet1/2/6 - 40 Gb Link to EOS
  - ◆ np04-srv-001 bonded link (20Gb)
    - ◇ 10GigabitEthernet1/1/17 - 10 Gb link
    - ◇ 10GigabitEthernet1/1/18 - 10 Gb link
  - ◆ np04-srv-002 bonded link (20Gb)
    - ◇ 10GigabitEthernet1/1/19 - 10 Gb link
    - ◇ 10GigabitEthernet1/1/20 - 10 Gb link
- np04-srv-001

```
[root@np04-srv-001 ~]# uname -r
3.10.0-693.17.1.el7.x86_64
```

```
[root@np04-srv-001 ~]# ./np04-check-disk-config.sh
/sys/block/md0/md/group_thread_cnt = 0
/sys/block/md1/md/group_thread_cnt = 0
/sys/block/md2/md/group_thread_cnt = 0
/sys/block/md3/md/group_thread_cnt = 0
/proc/sys/vm/dirty_background_ratio = 10
/proc/sys/vm/dirty_ratio = 20
RO   RA   SSZ   BSZ   StartSec           Size   Device
rw 20480 512 4096           0 60010408181760 /dev/md0
rw 20480 512 4096           0 60010408181760 /dev/md1
rw 20480 512 4096           0 60010408181760 /dev/md2
rw 20480 512 4096           0 60010408181760 /dev/md3
/proc/sys/dev/raid/speed_limit_min = 1000
/proc/sys/dev/raid/speed_limit_max = 200000
```

- np04-srv-002

```
[np04data@np04-srv-002 test]$ uname -r
4.4.126-1.el7.elrepo.x86_64
```

```
[root@np04-srv-002 ~]# ./np04-check-disk-config.sh
/sys/block/md0/md/group_thread_cnt = 4
/sys/block/md1/md/group_thread_cnt = 4
/sys/block/md2/md/group_thread_cnt = 4
/sys/block/md3/md/group_thread_cnt = 4
/proc/sys/vm/dirty_background_ratio = 1
/proc/sys/vm/dirty_ratio = 2
RO   RA   SSZ   BSZ   StartSec           Size   Device
rw 131072 512 4096           0 60010408181760 /dev/md0
rw 131072 512 4096           0 60010408181760 /dev/md1
rw 131072 512 4096           0 60010408181760 /dev/md2
rw 131072 512 4096           0 60010408181760 /dev/md3
/proc/sys/dev/raid/speed_limit_min = 50000
/proc/sys/dev/raid/speed_limit_max = 500000
```



# CERN Openstack Virtual Machines

## SLC 6

### dune-vm-build-02

```
[root@dune-vm-build-02 yum]# yum install https://ecsft.cern.ch/dist/cvmfs/cvmfs-release/cvmfs-rel
sudo yum install cvmfs cvmfs-config-default
```

```
[root@dune-vm-build-02 yum]# yum repolist
Loaded plugins: changelog, kernel-module, protectbase, security, tsflags,
               : versionlock
156 packages excluded due to repository protections
repo id      repo name                      status
cernvm       CernVM packages                60+1
epel         UNSUPPORTED: Extra Packages for Enterprise Linux add-ons 12,216+156
slc6-extras Scientific Linux CERN 6 (SLC6) add-on packages, no forma 854
slc6-os      Scientific Linux CERN 6 (SLC6) base system packages      6,963
slc6-updates Scientific Linux CERN 6 (SLC6) bugfix and security updat 27,107
repolist: 47,200
```

```
[root@dune-vm-build-02 ~]# cvmfs_config setup
```

```
create /etc/cvmfs/default.local
```

```
[root@dune-vm-build-02 cvmfs]# cat default.local
CVMFS_REPOSITORIES=dune.opensciencegrid.org,fermilab.opensciencegrid.org
CVMFS_HTTP_PROXY="http://ca-proxy.cern.ch:3128"
```

## 7

### dune-vm-build-01

```
root/config.txt
Geoff Savage
03-Aug-2017
```

Some notes on configuring a CC7 VM for running protoDUNE software.

```
[root@dune-vm-build-01 ~]# locmap --list
[Available Modules]
```

```
Module name : kerberos[enabled]
Module name : sendmail[enabled]
Module name : cernbox[disabled]
Module name : ntp[enabled]
Module name : gpg[enabled]
Module name : cvmfs[disabled]
Module name : ssh[enabled]
Module name : lpadmin[enabled]
Module name : nscd[disabled]
Module name : eosclient[disabled]
Module name : sudo[enabled]
Module name : afs[enabled]
```

```
[root@dune-vm-build-01 ~]# locmap --disable lpadmin
[INFO] Disabling lpadmin module..
```

```
[root@dune-vm-build-01 ~]# locmap --enable cernbox
[INFO] Enabling cernbox module.
```

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```
[root@dune-vm-build-01 ~]# locmap --enable cvmfs
[INFO] Enabling cvmfs module.
```

```
[root@dune-vm-build-01 ~]# locmap --enable eosclient
[INFO] Enabling eosclient module.
```

```
[root@dune-vm-build-01 ~]# locmap --list
[Available Modules]
```

```
Module name : kerberos[enabled]
Module name : sendmail[enabled]
Module name : cernbox[enabled]
Module name : ntp[enabled]
Module name : gpg[enabled]
Module name : cvmfs[enabled]
Module name : ssh[enabled]
Module name : lpadmin[disabled]
Module name : nscd[disabled]
Module name : eosclient[enabled]
Module name : sudo[enabled]
Module name : afs[enabled]
```

```
[root@dune-vm-build-01 ~]# locmap --configure all
[INFO] Configuring all enabled modules.
```

```
[INFO] Account dostefan already exists.
```

```
[INFO] Account dsavage already exists.
```

```
[INFO] Account espinal already exists.
```

```
[INFO] Account hennessy already exists.
```

```
[INFO] Account mpotekhi already exists.
```

```
[INFO] Account mxp already exists.
```

```
[INFO] Account pordes already exists.
```

```
[INFO] Account rosulej already exists.
```

```
[INFO] User(s) ['espinal'] found with public ssh key.
```

```
Notice: Compiled catalog for dune-vm-build-01.cern.ch in environment production in 1.44 seconds
Notice: /Stage[main]/Eosclient/Package[jemalloc]/ensure: created
Notice: /Stage[main]/Afs::Pam/Exec[enable krb5]/returns: executed successfully
Notice: /Stage[main]/Eosclient/Package[lsof]/ensure: created
Notice: /Stage[main]/Eosclient::Fuse::Interactive/File[/etc/profile.d/eos-select.sh]/ensure: defined content changed
Notice: /Stage[main]/Eosclient::Fuse/File[/usr/local/sbin/eos-cleanup.sh]/ensure: defined content changed
Notice: /Stage[main]/Eosclient::Fuse/Cron[eos-cleanup]/ensure: created
Notice: /Stage[main]/Cernbox::Install/Yumrepo[cernbox]/ensure: created
Notice: /Stage[main]/Cernbox::Install/Package[cernbox-client]/ensure: created
Notice: /Stage[main]/Eosclient/Package[eos-client]/ensure: created
Notice: /Stage[main]/Afs::Config/Exec[Grab CellServDB context from http://afs.web.cern.ch/afs/Cel
Notice: /Stage[main]/Cvmfs::Install/Package[cvmfs]/ensure: created
Notice: /Stage[main]/Cvmfs::Install/File[/etc/cvmfs/cvmfsfacts.yaml]/ensure: defined content as '
Notice: /Stage[main]/Cvmfs::Config/File[/etc/fuse.conf]/content: content changed '{md5}464a1a320c
Notice: /Stage[main]/Cvmfs::Config/Augeas[cvmfs_automaster]/returns: executed successfully
Notice: /Stage[main]/Cvmfs/Cvmfs::Domain[cern.ch]/File[/etc/cvmfs/domain.d/cern.ch.local]/ensure:
Notice: /Stage[main]/Cvmfs::Config/File[/etc/cvmfs/domain.d/README.PUPPET]/ensure: defined conten
Notice: /Stage[main]/Eosclient::Fuse::Interactive/File[/etc/profile.d/eos-select.csh]/ensure: def
Notice: /Stage[main]/Eosclient::Fuse/Package[eos-fuse-core]/ensure: created
Notice: /Stage[main]/Eosclient::Fuse/Augeas[eosfuse_logrotate]/returns: executed successfully
Notice: /Stage[main]/Eosclient::Fuse/File[/etc/sysconfig/eos]/ensure: defined content as '{md5}d7
Notice: /Stage[main]/Eosclient::Fuse/File[/eos]/ensure: created
Notice: /Stage[main]/Eosclient::Fuse/Eosclient::Mount[ams]/File[/etc/sysconfig/eos.ams]/ensure: d
Notice: /Stage[main]/Eosclient::Fuse/Eosclient::Mount[experiment]/File[/var/log/eos/fuse/fuse.exp
```

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```
Notice: /Stage[main]/Eosclient::Fuse/Eosclient::Mount [project]/File[/etc/sysconfig/eos.project]/e
Notice: /Stage[main]/Eosclient::Fuse/Eosclient::Mount [workspace]/File[/etc/sysconfig/eos.workspac
Notice: /Stage[main]/Eosclient::Fuse/Eosclient::Mount [atlas]/File[/var/log/eos/fuse/fuse.atlas.lo
Notice: /Stage[main]/Eosclient::Fuse/Eosclient::Mount [user]/File[/var/log/eos/fuse/fuse.user.log]
Notice: /Stage[main]/Eosclient::Fuse/Eosclient::Mount [theory]/File[/var/log/eos/fuse/fuse.theory.
Notice: /Stage[main]/Eosclient::Fuse/Eosclient::Mount [project]/File[/var/log/eos/fuse/fuse.projec
Notice: /Stage[main]/Eosclient::Fuse/Eosclient::Mount [lhcb]/File[/etc/sysconfig/eos.lhcb]/ensure:
Notice: /Stage[main]/Eosclient::Fuse/Eosclient::Mount [ams]/File[/var/log/eos/fuse/fuse.ams.log]/e
Notice: /Stage[main]/Eosclient::Fuse/Eosclient::Mount [user]/File[/etc/sysconfig/eos.user]/ensure:
Notice: /Stage[main]/Eosclient::Fuse/Eosclient::Mount [cms]/File[/var/log/eos/fuse/fuse.cms.log]/e
Notice: /Stage[main]/Eosclient::Fuse/Eosclient::Mount [cms]/File[/etc/sysconfig/eos.cms]/ensure: d
Notice: /Stage[main]/Eosclient::Fuse/Eosclient::Mount [atlas]/File[/etc/sysconfig/eos.atlas]/ensur
Notice: /Stage[main]/Eosclient::Fuse/Eosclient::Mount [theory]/File[/etc/sysconfig/eos.theory]/ens
Notice: /Stage[main]/Eosclient::Fuse/Eosclient::Mount [lhcb]/File[/var/log/eos/fuse/fuse.lhcb.log]
Notice: /Stage[main]/Eosclient::Fuse/Eosclient::Mount [workspace]/File[/var/log/eos/fuse/fuse.work
Notice: /Stage[main]/Eosclient::Fuse/Eosclient::Mount [experiment]/File[/etc/sysconfig/eos.experim
Notice: /Stage[main]/Eosclient::Fuse::Interactive/Exec[EOSFUSE at SSH login]/returns: executed su
Notice: /Stage[main]/Eosclient::Autofs/Ini_setting[set autofs browse mode yes]/value: value chang
Notice: /Stage[main]/Eosclient::Autofs/File[/etc/auto.eos]/ensure: defined content as '{md5}b6ac5
Notice: /Stage[main]/Eosclient::Autofs/Augeas[eos_automaster]/returns: executed successfully
Notice: /Stage[main]/Cvmfs::Config/Concat[/etc/cvmfs/default.local]/File[/etc/cvmfs/default.local
Notice: /Stage[main]/Cvmfs::Service/Service[autofs]/ensure: ensure changed 'stopped' to 'running'
Notice: /Stage[main]/Cvmfs::Service/Exec[Reloading cvmfs]: Triggered 'refresh' from 1 events
Notice: Finished catalog run in 81.18 seconds
```

```
[root@dune-vm-build-01 ~]#
```

```
[root@dune-vm-build-01 ~]# cat .k5login
# This file is managed by puppet and will be overwritten
# every time puppet runs against the system.
dostefan@CERN.CH
dsavage@CERN.CH
espinal@CERN.CH
hennessey@CERN.CH
mpotekhi@CERN.CH
mxp@CERN.CH
pordes@CERN.CH
rosulej@CERN.CH
```

```
[root@dune-vm-build-01 sudoers.d]# cat 000-sudo-users
#Sudo privileges to the responsible user
dostefan      ALL=(ALL)      ALL
dsavage       ALL=(ALL)      ALL
espinal       ALL=(ALL)      ALL
hennessey     ALL=(ALL)      ALL
mpotekhi      ALL=(ALL)      ALL
mxp           ALL=(ALL)      ALL
pordes        ALL=(ALL)      ALL
rosulej       ALL=(ALL)      ALL
```

```
[root@dune-vm-build-01 sudoers.d]# cat cern-config-users
## This file is controlled by the cern-config-users script, do no edit!
dostefan      ALL=(ALL)      ALL
dsavage       ALL=(ALL)      ALL
espinal       ALL=(ALL)      ALL
hennessey     ALL=(ALL)      ALL
mpotekhi      ALL=(ALL)      ALL
pordes        ALL=(ALL)      ALL
rosulej       ALL=(ALL)      ALL
```

```
From landb.
Responsible for the device:
DUNE-COMP-VM E-GROUP EP URD
```

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```
DUNE-COMP-VM@CERN.CH / Tlf: 7XXXX
Main User of the device:
DUNE-COMP-VM E-GROUP EP URD
DUNE-COMP-VM@CERN.CH / Tlf: 7XXXX
```

From lxplus

First need to set the project correctly.

```
.openrc
```

```
export OS_PROJECT_NAME=DUNE
```

```
openstack server show dune-vm-build-01
```

```
[dsavage@lxplus073 ~]$ openstack server set --property landb-mainuser="dune-comp-users" dune-vm-b
```

```
ERROR: openstack No server with a name or ID of 'dune-vm-build-01' exists.
```

```
Maybe openstack registrations take time be registered everywhere.
```

```
[root@dune-vm-build-01 /]# cat /etc/passwd
```

```
root:x:0:0:root:/root:/bin/bash
```

```
bin:x:1:1:bin:/bin:/sbin/nologin
```

```
daemon:x:2:2:daemon:/sbin:/sbin/nologin
```

```
adm:x:3:4:adm:/var/adm:/sbin/nologin
```

```
lp:x:4:7:lp:/var/spool/lpd:/sbin/nologin
```

```
sync:x:5:0:sync:/sbin:/bin/sync
```

```
shutdown:x:6:0:shutdown:/sbin:/sbin/shutdown
```

```
halt:x:7:0:halt:/sbin:/sbin/halt
```

```
mail:x:8:12:mail:/var/spool/mail:/sbin/nologin
```

```
operator:x:11:0:operator:/root:/sbin/nologin
```

```
games:x:12:100:games:/usr/games:/sbin/nologin
```

```
ftp:x:14:50:FTP User:/var/ftp:/sbin/nologin
```

```
nobody:x:99:99:Nobody:/:/sbin/nologin
```

```
systemd-bus-proxy:x:999:997:systemd Bus Proxy:/:/sbin/nologin
```

```
systemd-networkd:x:192:192:systemd Network Management:/:/sbin/nologin
```

```
dbus:x:81:81:System message bus:/:/sbin/nologin
```

```
polkitd:x:998:996:User for polkitd:/:/sbin/nologin
```

```
rpc:x:32:32:Rpcbind Daemon:/var/lib/rpcbind:/sbin/nologin
```

```
postfix:x:89:89:/:var/spool/postfix:/sbin/nologin
```

```
tss:x:59:59:Account used by the trousers package to sandbox the tcsd daemon:/dev/null:/sbin/nologin
```

```
ntp:x:38:38:/:etc/ntp:/sbin/nologin
```

```
puppet:x:52:52:Puppet:/var/lib/puppet:/sbin/nologin
```

```
rpcuser:x:29:29:RPC Service User:/var/lib/nfs:/sbin/nologin
```

```
nfsnobody:x:65534:65534:Anonymous NFS User:/var/lib/nfs:/sbin/nologin
```

```
sshd:x:74:74:Privilege-separated SSH:/var/empty/ssh:/sbin/nologin
```

```
chrony:x:997:995:/:var/lib/chrony:/sbin/nologin
```

```
colord:x:996:993:User for colord:/var/lib/colord:/sbin/nologin
```

```
dostefan:x:51643:2835:Dorota Stefan,9999 0-000,,:/afs/cern.ch/user/d/dostefan:/bin/bash
```

```
dsavage:x:98358:2841:Geoff Savage,892 2-B15,,:/afs/cern.ch/user/d/dsavage:/bin/bash
```

```
espinal:x:3808:1307:Xavier Espinal Curull,31 1-014,+41227663533,:/afs/cern.ch/user/e/espinal:/bin/bash
```

```
hennessy:x:21340:2841:Karol Hennessy,22 1-011,+41227674834,:/afs/cern.ch/user/h/hennessy:/bin/bash
```

```
mpotekhi:x:28506:1307:Maxim Potekhin,892 2-D23,+41227676509,:/afs/cern.ch/user/m/mpotekhi:/bin/bash
```

```
pordes:x:8044:2835:Ruth Pordes,892 2-B20,,:/afs/cern.ch/user/p/pordes:/bin/tcsh
```

```
rosulej:x:71307:2841:Robert Sulej,594 R-026,+41227677556,:/afs/cern.ch/user/r/rosulej:/bin/bash
```

```
mxp:x:51644:51644:/:home/mxp:/bin/bash
```

```
saslauthd:x:995:76:Saslauthd user:/run/saslauthd:/sbin/nologin
```

```
mailnull:x:47:47:/:var/spool/mqueue:/sbin/nologin
```

```
smmsp:x:51:51:/:var/spool/mqueue:/sbin/nologin
```

```
cvmfs:x:994:992:CernVM-FS service account:/var/lib/cvmfs:/sbin/nologin
```

-- DavidGeoffreySavage - 2017-10-26

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Topic revision: [r14 - 2018-11-26](#) - [DavidGeoffreySavage](#)



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