CMDS

- [root] export USER=<username>; useradd ${USER} ; passwd ${USER} ; /usr/sbin/setquota -u ${USER} 20000000 30000000 0 0 /export ; # usermod -G vault ${USER}

TROUBLESHOOTING

- If nodes won't properly boot (usually caused by unclean shutdown)
  - Remove 'old' boot image on master, for this node: **/tftpboot/pxelinux/pxelinux.cfg/C0A800F?** where ? = EDCBA9 for nodes 012345
  - Manually reboot node (force PXE boot with F12 if needed)
- If network is slow (dmesg | grep eth says “Link is up at 10 Mbps, half duplex”) force with ethtool:
  - `ethtool -s eth1 speed 1000`
  - for eth0 `ifdown eth0; ifup eth0`

DONE

- ROCKS user guide: http://www.rocksclusters.org/roll-documentation/base/5.1/
- Changed aliases c0 .. c5 ; drop ; f for frontend
  - `[root@drop ~]# for i in `seq 0 5`; do rocks add host alias compute-0-$i c$i; done`
- RAID: set up raid check + e-mail
  - Smart Array P600
  - 'hpacucli' rpm (e-mail frank) + RPMs compat-lidstdc*
  - per http://www.mulder.franken.de/workstuff/ (changed to incorporate “Bay Numbers” vs HW drives)
  - `/etc/cron.hourly/raidcheck` + `/root/bin/check-hp-raid-status.pl`
  - [TODO] add /root/bin/backup-vault-to-sara to cron.weekly (after initial tunneled scp to archive.sara.nl)
    - cd /export/; scp -pr home vault joerivl@archive:/archive/joerivl/drop/
  - front-end
    - e2label /dev/sda5 /scratch ..etc
    - edited /etc/fstab + run `sudo mount -a` ; /export now on 4TB raid, /data on 7TB raid; scratch=local disk
    - turned off automount ; /etc/auto.master now empty ; /etc/exports now /data/ and /exports/
    - using fdisk “type fd” and mdadm –create etc, added 2×750 software RAID0
- RAID INITIAL BUILD with `/usr/sbin/hpacucli` (Guide, p44+)
  - `ctrl slot=1 pd all show`
  - `ctrl slot=1 ld all delete`
  - `ctrl slot=1 create type=ld drives=1E:1:1,1E:1:2,1E:1:3,1E:1:4,1E:1:5,1E:1:6,1E:1:7 raid=6`
  - `ctrl slot=1 create type=ld drives=1E:1:8,1E:1:9,1E:1:10,1E:1:11,1E:1:12 raid=0`
  - `parted /dev/cciss/c0d1` (after some fiddling to delete old partitions)
    - `mklabel gpt`
    - `mkpartfs primary ext3 0 -0`
- RAID0 REBUILD
  - Blink LED (`ctrl slot=1 pd 1E:1:10 modify led=on`), Replace disk, re-enable logical drive {`ctrl slot=1 ld 2 modify reenable forced`) (from Cheat sheet)

- RAID PHYS CONFIG
  - Drive 1 = left, top; Count seems to be 1-3 = left column, top to bottom. RAID0=two lowest in second-to-right colum + entire right column
- CROSSMOUNTS
  - removed automounter. changed `/etc/exports` and node script to hard mount. Homedirs are /export/home/
  - `make -C /var/411 clean; make -C /var/411; make -C /var/411 force; cluster-fork 411get --all`
  - `/etc/rc.d/init.d/nfs restart; /etc/rc.d/init.d/nfs restart; make -C /var/411; service autofs reload; exportfs -a`
  - `mv /usr/local /usr/local.rocks`
  - Write speeds: RAID6 10MB/s, RAID0 40MB/s, local disk 40MB/s (10*2GB file)
  - after `/usr/sbin/hpacucli ctrl slot=1 modify drivewritecache=enable` (..`disable`)
    - Write speeds: RAID6 70MB/s, RAID0 130MB/s, local disk 40MB/s (10*2GB file)
  - Read speeds: RAID0 160MB/s, RAID5/local 140MB/s
  - Increased number of NFS threads from 8 to 32 (link 12)
- GRID ENGINE
  - Some HOWTO links: 1, 2, removing state 'E'
  - qconf -mq all.q to reduce numbers of slots on nodes
- NODE CONFIG
  - replace-partition.xml; extend-compute.xml
  - `rocks remove host partition compute-0-0`
  - `cd /export/rocks/install ; rocks create distro ; ssh c0 “/boot/kickstart/cluster-kickstart-pxe” ; #OR; ssh c0 “/boot/kickstart/cluster-kickstart”`
  - rocks remove host partition compute-0-1 #etc; cluster-fork -n 'c%d:1-5' 'rm /.rocks-release; /boot/kickstart/cluster-kickstart-pxe' ;
  - (removed /tftpboot/pxelinux/pxelinux.cfg/C0A800FE)
  - fftw compile + /usr/local; made fftw(l)(f) wisdom, added custom paths, /etc/hostname
  - tempo from gasp in /usr/local/src/tempo
  - installed subversion by RPM, cfitsio-3.140 from source: `./configure –prefix=/usr/local`
  - pgplot from source $PGPLOT_DIR, g77 from RPM
    - `ln -s /usr/local/include/pgplot/libpgplot.so /usr/local/lib`
    - also compiled **gfortran** version (g77 and gfortran, for f90, not compatible) per link
      - in /usr/local/include/pgplot-gfortran
  - Built LAPACK + ATLAS from source (HOWTO)
    - `../configure -Fa alg -fPIC –with-netlib-lapack=/usr/local/src/lapack-3.2.1/lapack_LINUX.a`
    - `cd /usr/local/lib; ln -s /usr/local/src/ATLAS/ATLAS.x86_64/lib/lib* .`
  - Numpy, SciPy from svn
    - `rm -Rf build ; python ./setup.py build` **`--fcompiler=gnu95`**`; python ./setup.py install --prefix=/usr/local/`
    - + (Nose from web)
  - iPython, matplotlib (+tkinter), PyFFTW, ctypes, git from source
  - presto from ~~svn~~ tar from github ; keep changes in old Makefile
    - (had to link libs2g.so to /usr/lib64), `/usr/local/src/presto`
    - ppgplot: `ppgplot_libraries = [“cpgplot”, “pgplot”, “X11”, “png”, “m”, “g2c”]` + `ppgplot_library_dirs = [“/usr/X11R6/lib”]`

    - Set UseDNS to NO in /etc/ssh/sshd_config for master+nodes, after very slow logins after IP changes to front node
        - Which turned out to be caused by outdated DNS server in named.conf and resolve.conf: `rocks set var Kickstart PublicDNSServers 195.169.63.49`

in python/setup.py

- NODE PACKAGES
    - cd /export/rocks/install/contrib/5.1/x86_64/RPMS
    - pgplot i386 & x86_64? http://rpm.pbone.net/index.php3?stat=3&search=pgplot&srodzaj=3
    - check depencies with yum; downloader from http://www.cyberciti.biz/faq/yum-downloadonly-plugin/
        - look/google for EL5 or FC9/10, x86_64 (+ potentially i386)
        - check https://www.icts.uiowa.edu/confluence/display/ICTSit/ROCKS+5.1+Documentation to make your own
- ADMIN
    - User quota (1, 2, chmod 644 quota file, quotaon -a)
    - `groupadd vault; usermod -G vault leeuwen; #etc`

DOING

- LIGHTPATH
    - installed eth2 on c4. edited `/etc/sysconfig/network-scripts/ifcfg-eth2` to static `IPADDR=192.87.39.129`, `NETMASK=255.255.255.248`, `MTU=9000`
    - On command line, added `route add 145.100.26.152 gw 192.87.39.130` for Huygens

TODO

- Read OAK topics and redo