Features, bugs, tips and tricks of the new T4-system

ouranos: `ouranos` is still available but has no specific function. `ouranos` has been replaced by `castor` which is a Linux machine.

castor: For the observations *login now on `castor`*. `castor` is the main machine which replaces all previous functionalities of `ouranos`. Look at the 'Coralie Daily Check-List' for an overview of how to observe with Coralie.

Sun-Solaris: Login can be done via the 4 user stations '`t4main`' (to be used for the observations), '`t4aux-left`' (for example for running the data reduction software), '`t4aux-center`' and '`t4aux-right`' (both for general user purposes. Do not login on the Sun Solaris stations (no applications), since they are used only as X-Terminals. Only use these terminals to login on `castor`, `castor1` and `castor2`.

LCUs: The LCU (Local Control Unit) which control the various subsystems have been replaced by new Linux-PCs. They are called `glspc11` (spectro coralie), `glspc12` (imager coralie), `glspc13` (guiding coralie), `glspc14` (services). `glspc6` (camer2) and `titan` (telescope) remain unchanged.

LCU-off To switch off an LCU, login as root on the respective LCU and type '`init 0`'. The switch-off to be complete, you have to turn off the power on the back of the computer.

Re-booting: To re-boot the machines follow the new instructions in 'How to reboot the computers'

Web Server: The web server is now [http://castor[.ls.eso.org]](http://castor.ls.eso.org)

Web Cam: The telescope TV has been replaced by a web cam. You can watch the telescope moving on: http://glscam2, user: *guest*, password: *guest*.

CUFD message: During start-up and shut-down of the telescope the following message may appear: **Problème pendant la fin de nuit: FATAL ON CUFD _PARAMETER150_BIT15 PROBLEME CUFD Try xrunall -> restart Euler.** There is no failure associated to this message. You can just ignore it and click the error message away. Verify however that the telescope status is on *green*.

CCD noise: The read-out noise of the CCD in the 'fast' read-out' mode has increased from 12e to typically 17e. This problem will has to be solved later. For the moment we recommend to use the 'slow' read-out mode (5e), if you are working at low signal-to-noise ratios and if the measurement depend critically on noise.

Catalog window: When you open a catalogue the rdb-select window will not open completely. Draw the window from the bottom-left edge to see the catalogue contents.

Calibrations: Use the standard calibrations whenever possible (*insert calib*). The Coralie standard calibrations contain: 1 localisation of the object fiber (LOCO), 1 localisation of the reference fiber (LOCC), 1x5 flat-fields of the object fiber (FFO), 1x5 flat-fields of the reference fiber (FFC), and 3 wavelength calibrations (THA2). If needed you can increase the number of flat-fields to be done in the FFO and FFC exposures (5 by default).

Autofocus: As before, the is an 'Autofocus' button on the top-left of the *edp*. When activated, the telescope will automatically refocus using a look-up table for the best focus before each exposure. If you do not want to use this function, then deactivate it. In that case you should do FOCT exposures (through-focus) much more frequently, typically 3 to 4 times per night.

Defocus: Associated with the 'Autofocus', you can now enter a 'Defocus' value on the top-right of the *edp*. This value (0.1mm by default) will offset the secondary mirror with regard to the position delivering the smallest star image on the guiding camera. We have remarked that the best fiber-input efficiency (exposure meter) is achieved when the telescope is defocused by 0.05 to 0.15 mm with regard to the best-image position. If you do not want to use this correction please set the defocus value to 0.

Centering window: The first time the guiding asks you to pick-up the star for centering it may happen that you hear a bip, but the warning window does not open completely. You will see a very small icon/window above the centering/acquisition image. Draw it to see the message. Once you did it the first time during the night, this pop-up will work correctly.

Afficheur: If you want to quit the *afficheur* (*aff*), you have to do it by choosing *quit*. If you do it by clicking on the cross on the top-right of the window, the process will not halt and start to consume 100% of your computer resources.

New Coralie DRS: The new observing system does not any more integrate the *tacos* data reduction. Instead you can use a separate DRS which has been derived from the HARPS DRS. This DRS works independently from the observing system. To launch it we recommend to login on castor1 from the 't4aux-left' terminal, open a terminal window and type `trig.csh online`. This so-called trigger will detect the new raw frames arriving on the disk, associate them with the corresponding DRS recipe, and launch it. Everything is done automatically. The data structure is as follows:

Raw data: `/gls/data/raw/`*`night`*
Reduced data: `/gls/data/reduced/`*`night`*
Night logs: `/gls/data/msg`

Correlation: To avoid that the correlation is performed in the new DRS the catalog must contain a radvel value of '99999'. To make the DRS to search

automatically for a radial velocity enter '-99999' in the catalog. ***Every entry must contain a velocity value.***

Re-processing: If you have to re-process a full night, remove the file *date*.`'r'` file in the `'/gls/data/msg/'` directory, and re-launch the trigger with the command: `'trig.csh 'online `*date*`'` where *date* is the night directory, e.g. `'2004-12-03'`.

rdb – starbase: `'rdb'` on the `ouranos` has been replaced on `castor` by `'starbase'`. Verify the functionalities if you have old programs using `'rdb'`.

C2 archiving: As before the system change use the command `'save_night'`. Use `'save_night -h'` for the help on how to archive C2 data on CD-ROMs.

Coralie archiving: `'save_night'` has been replaced by `'dau.csh'`. You can use this new utility to burn CDs or DVDs, or/and to put your data on an USB disk. Look at the description of how to use the DAU for further details.

How to use the DAU (Data Archiving Unit)

1. Login on 'castor'

2. Open a terminal and type dau.csh

3. Enter the date of the night you want to archive (date of the start of the night)

4. Select the data to be archived ('RAW', 'RED', 'LOG'). Standard is to choose everything.

5. Select 'BACKUP' if you want to back-up the data on the local disk. This will allow you to have a back-up copy of your data until you're data have arrived healthy at the final destination.

6. If you want to burn a CDROM select 'CD IMAGE', 'WRITE', and 'CD'. If you want to burn a DVD, select 'DVD IMAGE', 'WRITE', and 'DVD'. In both cases the DAU will manage the data splitting on several CD/DVDs if the total data amount exceed the disk space.
   Press 'Go' and follow the instructions. When the programme asks you, insert blank CD/DVD in the DVD-R unit of the 'DAU' PC on the big electronic rack inside the computer room. At the end of the burning process remove the disk and close the rack again.
   You can burn several disks by repeating the `WRITE' operation, without selecting BACKUP and CD/DVD IMAGE this time. Verify your disk at the end of the process and remove temporary files created by the DAU by typing the following:

   ```
   castor:~> rsh glspc13
   glspc13:~> mount /cdr
   glspc13:~> ls /cdr/<date_1>/raw/<date>
   glspc13:~> umount /cdr
   glspc13:~> rm /tmp/check.md5
   glspc13:~> rm /tmp/CORA\*
   glspc13:~> exit
   ```

7. If you choose to put your data on an USB disk select 'USB'. In that case you have to connect the disk to castor. You will find a disk 'wallet' on the smaller rack inside the computer room, and an USB cable to which you have to connect your drive. Click on 'Go' and follow the instructions.

In case of problems copy the 'Log' and contact Danuta.Sosnowska@obs.unige.ch.

How to reboot the computers

In case of big trouble, for example if you cannot start the xrunall, you may have to reboot one or more machines.

Generally, if you reboot a machine, try to stay observing the whole boot process, note and report what astonish you or any suspect message. Don't be impatient, the boot processes are always long and fastidious.

If you reboot several machines including `castor`, please reboot `castor` first, because it's the central disks, services (NIS) and DHCP (dynamic ip adresses) server.

`castor` is also the new Euler Web server.

So depending on the machines you have to reboot, do the appropriate following steps. If you don't know exactly which machine causes problems, execute the complete list :

1. Reboot `castor`

The console for `castor` is located at extreme left of the control room table.

This console is also the console for `castor1` and `castor2`, through a KVM (Keyboard-Video-Mouse) switch located in the small castor rack.
This switch is controlled by the castor keyboard.

Pressing `<SHIFT>`, Release `<SHIFT>`, Press `<Numeric Pad +>` will switch the console to the next machine in the following list. You may have at each step to move the mouse in order to reactivate the screen:

        castor – castor1 – castor2 – "NO VIDEO" (empty location)

Pressing `<SHIFT>`, Release `<SHIFT>`, Press `<Numeric Pad ->` will switch the console to the previous machine in the list.

1. Find out on the console to which machine the console is connected.
2. Connect it to `castor` with the preceding key combinations.
3. If you are in the X graphical user interface, switch to a console by pressing simultaneously the <CTRL> + <ALT> + <F1> keys.
4. Reboot `castor` by pressing simultaneously the <CTRL> + <ALT> + <DEL> keys.
5. Wait until castor has completely and properly rebooted. As `castor` does not depend on the other machines, it should become active even if other computers are still blocked.

2. Reboot `castor1` and `castor2`

Do the same for `castor1` and `castor2`. You are not obliged to wait the term of one operation before launching the other one.

3. Reboot the LCUs

The LCUs are named `glspc11`, `glspc12`, `glspc13` and `glspc14`. They are all independent and may be rebooted in any order if they all need to be.

Each LCU is connected to a screen located behind the glass window between the control room and the computer room. They share a single keyboard through another KVM switch located in the big LCU rack. They are not configured with X, so they don't have any mouse. The common keyboard, identified by a "rack LCU" label, is located in the control room, below the LCUs screens. The KVM switch may also be controlled by the keyboard, through the following key sequential combination:

```
<CTRL>, <CTRL>, <1>, <RETURN> ->  glspc11
<CTRL>, <CTRL>, <2>, <RETURN> ->  glspc12
<CTRL>, <CTRL>, <3>, <RETURN> ->  glspc13
<CTRL>, <CTRL>, <4>, <RETURN> ->  glspc14
```

1. Identify the machine connected to the keyboard by pressing several times `<RETURN>` and looking at the different screens.
2. Connect it to the desired machine with the preceding key combinations.
3. Reboot the machine by pressing simultaneously the `<CTRL>` + `<ALT>` + `<DEL>` keys.

4. Reboot `megere`, `alecto` and `ouranos`

`megere` and `alecto` are the SUN servers where the SunRays server SW is running. Thus they are essential to get the control of everything through the front end workplaces located in the control room.

`ouranos` used to be the main Euler server until the so called "Big-bang" technical run of end 2004, where the complete computing system has been changed, with the exception of `titan`, which is a SUN workstation controlling the telescope, which uses `ouranos`. That's the main reason to keep this server alive.

These three SUN servers are connected to a VT520 terminal, whose screen is the latest screen on the left behind the separation window between the control and computers rooms. The keyboard is located in the control room below the screen.

The connection of the terminal to the different servers is controlled by a manual switch located near the keyboard. Positions of the button establish the following connections:

```
A      ->     megere
B      ->     alecto
C      ->     ouranos
```

1. Connect the terminal to the desired machine with the switch.
2. Interrupt the OS and set the machine in the boot monitor by pressing the `<F5>` (Break) key. This will give you the prompt "`{1} ok`"
3. Type "`reset`" followed by `<RETURN>` to reinitialize completely the machine. `ouranos` is old and sometimes lunatic. If you get another "`ok`" prompt after reset, you have to type boot followed by `<RETURN>`.

5. Reboot `titan`

`titan`, as said before, is an old SUN Ultra 1 machine, that has to be temporarily
kept for the telescope interface due to its transputer interface card. It is
located above the castor rack in the computer room, and it's console is also
located there.

`titan` has to be rebooted after `ouranos`.

1. Go to the computer room, activate the screen with the mouse or the keyboard
2. Press simultaneously on the `<STOP>` and the `<A>` keys. It gives you the prompt "`{1} ok`"
3. Proceed as for `megere`, `alecto` and `ouranos`.

Comment créer un nouvel utilisateur sur `castor`

1. Login dans `castor` sous `root`, allez dans le répertoire des NIS:
   `cd /etc/yp`

2. Exécutez la commande (le point est important, car il y aussi un adduser du système):
   `./adduser`

3. Suivez les instructions. Lorsque le script vous demande un mot de passe, entrez une fois le mot de passe de `root`, puis deux fois celui que vous voulez donner à l'utilisateur.

4. Si vous voulez copier l'ancien répertoire de l'utilisateur:
   `cp /net/ouranos/export/disk2/`***`<user>/* /home/<user>`***
   soyez prudents dans la copie des fichiers d'initialisation, ne copiez que les parties dont vous êtes sur, vous risquez de modifier le comportement du système en les copiant intégralement.

5. Sortez de session