

# Urblauna

Urblauna is the UNIL cluster for sensitive depersonalized data.

## Documentation

Associated documentation:

<https://wiki.unil.ch/ci/books/high-performance-computing-hpc/page/urblauna-access-and-data-transfer>

<https://wiki.unil.ch/ci/books/high-performance-computing-hpc/page/urblauna-guacamole-rdp-issues>

Nearly all the documentation for Curnagl is also applicable - see the [HPC Wiki](#)

The introductory course for using the clusters is available [HERE](#)

The slides for our other courses can be consulted [HERE](#)

*These courses are often planned and take place in the Biophore auditorium*

## Support

Please contact the DCSR via [helpdesk@unil.ch](mailto:helpdesk@unil.ch) and start the mail subject with "DCSR Urblauna"

Do not send mails to dcsr-support - they will be ignored.

## Specifications

- 18 compute nodes
- 48 cores / 1 TB memory per node
- 2 nodes with NVidia A100 GPUs
- 1PB /data filesystem
- 75TB SSD based /scratch

**Total cores: 864**

**Total memory: 18TB**

## Memory to core ratio: 21 GB/core

For those of you have already used Curnagl then things will be very familiar.

If the initial resources are found to be insufficient then more capacity can be easily added.

An [Urblauna](#) looks like:



## How to connect

The SSH and Web interfaces can be used simultaneously.

## Two Factor Authentication

You should have received a QR code which allows you to setup the 2FA - if you lose your code then let us know and we will generate a new one for you.

## SSH

```
% ssh ulambda@u-ssh.dcsr.unil.ch
```

```
(ulambda@u-ssh.dcsr.unil.ch) Password:
```

(ulambda@u-ssh.dcsr.unil.ch) Verification code:

Last login: Wed Jan 18 13:25:46 2023 from 130.223.123.456

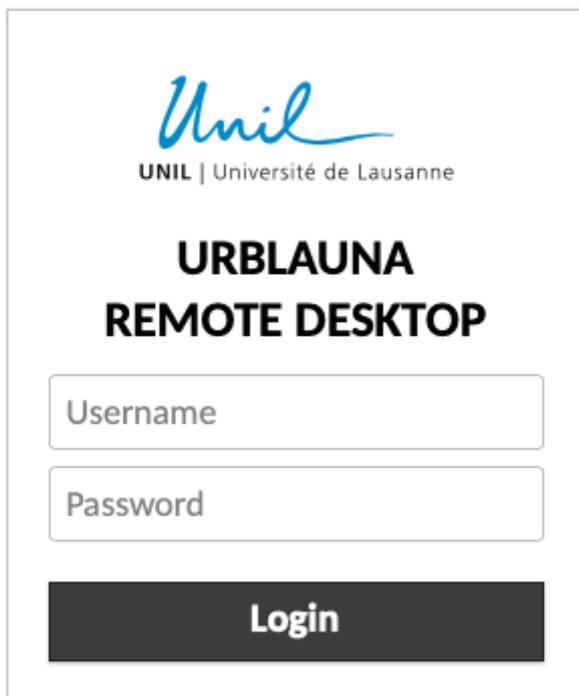
[ulambda@urblauna ~]\$

The 2FA code is cached for 1 hour in case that you connect again.

X11 Forwarding and SSH tunnels are blocked as is SCP

## Web

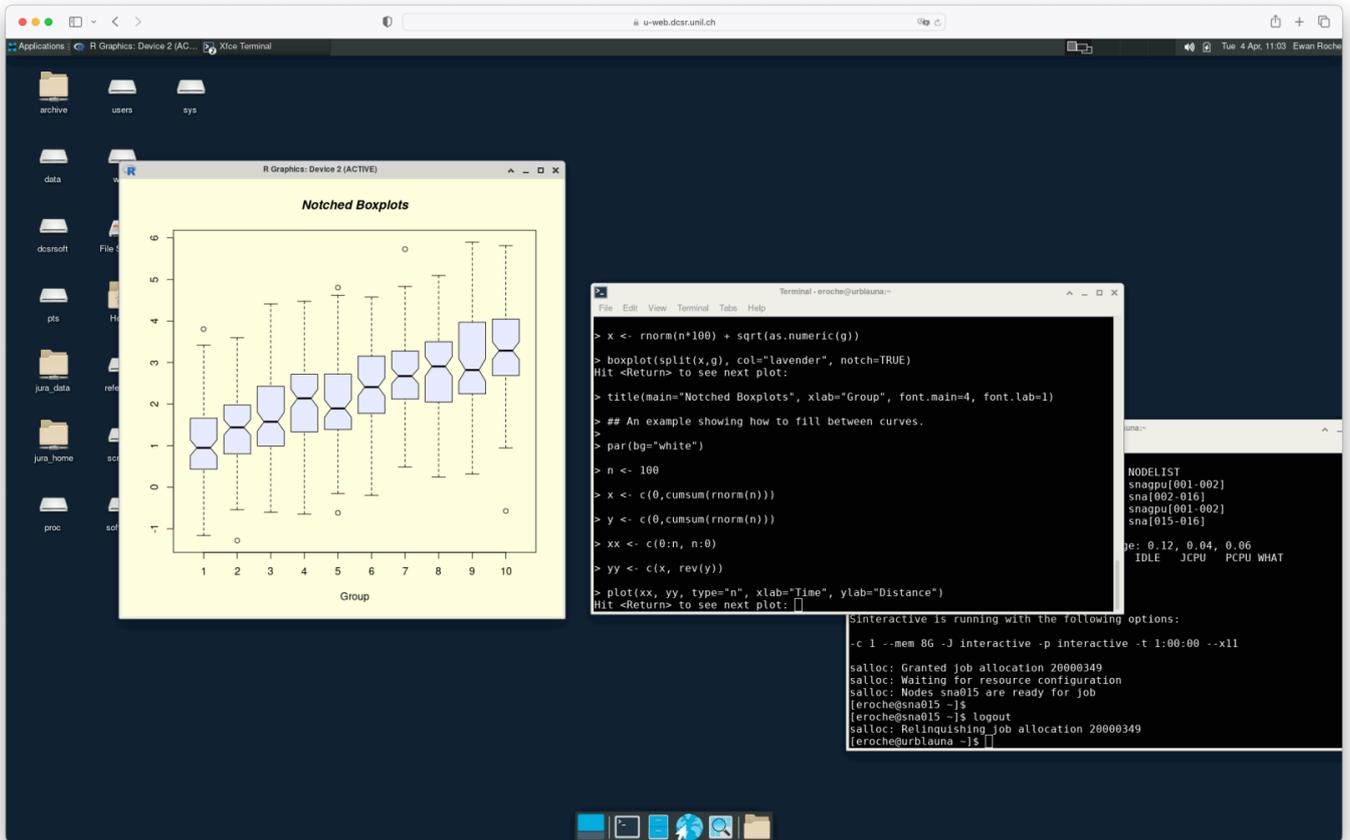
Go to [u-web.dcsr.unil.ch](http://u-web.dcsr.unil.ch) and you will be asked for your username and password followed by the 2FA code:



The image shows a login page for UNIL URBLAUNA REMOTE DESKTOP. At the top, there is the UNIL logo (a blue cursive 'Unil' script) and the text 'UNIL | Université de Lausanne'. Below this, the title 'URBLAUNA REMOTE DESKTOP' is displayed in bold black capital letters. There are two input fields: 'Username' and 'Password', both with light gray borders. At the bottom, there is a dark gray rectangular button with the word 'Login' in white text.

This will send you to a web based graphical desktop.

Note than until now the CHUV users did not have this as a connection option.



# Data Transfer

The principle method to get data in/out of Urblauna is using the SFTP protocol

On Urblauna your `/scratch/<username>` space is used as the buffer when transferring data.

```

% sftp ulambda@u-sftp.dcsr.unil.ch
(ulambda@u-sftp.dcsr.unil.ch) Password:
(ulambda@u-sftp.dcsr.unil.ch) Verification code:
Connected to u-sftp.dcsr.unil.ch.

sftp> pwd
Remote working directory: /ulambda

sftp> put mydata.tar.gz
Uploading mydata.tar.gz to /ulambda/mydata.tar.gz

```

The file will then be visible from urblauna at `/scratch/ulambda/mydata.tar.gz`

For graphical clients such as Filezilla you need to use the **interactive** login type so as to be able to enter the 2FA code.

## Direct data transfer from CHUV

There is also an SFTP endpoint `u-archive.dcsr.unil.ch` that will allow transfer to the `/archive` filesystem without 2FA from **specific IP** addresses at the CHUV.

This service will be what `stockage-horus` was originally supposed to be!

This is on request and must be validated by the CHUV security team.

# What's new

## CPUs

The nodes each have two AMD Zen3 CPUs with 24 cores for a total of 48 cores per node.

In your jobs please ask for the following core counts:

- 1
- 2
- 4
- 8
- 12
- 24
- 48

Do not ask for core counts like **20 / 32 / 40** as this makes no sense given the underlying architecture. We recommend running scaling tests to find the optimal level of parallelism for multi-threaded codes. All the CPUs are identical so all nodes will provide the same performance.

## GPUs

There are two GPU equipped nodes in Urblauna and each A100 card has been partitioned so as to provide a total of 8 GPUs with 20GB of memory.

To request a GPU use the `--gres` Slurm directive

```
#SBATCH --gres gpu:1
```

Or interactively with `Sinteractive` and the `-G` option

```
$ Sinteractive -G 1
```

Sinteractive is running with the following options:

```
--gres=gpu:1 -c 1 --mem 8G -J interactive -p interactive -t 1:00:00
```

```
salloc: Granted job allocation 20000394
salloc: Waiting for resource configuration
salloc: Nodes snagpu001 are ready for job
```

```
$ nvidia-smi
```

```
..
```

```
+-----+
| MIG devices:                                     |
+-----+-----+-----+-----+
| GPU  GI  CI  MIG |      Memory-Usage |      Vol |      Shared |
|      ID  ID  Dev |      BAR1-Usage | SM      Unc| CE  ENC  DEC  OFA  JPG|
|                  |                  |          ECC|          |
|=====+=====+=====+=====+
|  0    1  0  0  |  19MiB / 19968MiB | 42      0 |  3  0  2  0  0 |
|                  |  0MiB / 32767MiB |          |          |
+-----+-----+-----+-----+
```

```
+-----+
| Processes:                                       |
| GPU  GI  CI      PID  Type  Process name          GPU Memory |
|      ID  ID                                     Usage          |
|=====+=====+=====+=====+
| No running processes found                     |
+-----+-----+-----+-----+
```

## MPI

This is now possible... Ask us for more details if needed.

## /data

The `/data` filesystem is structured in the same way as on Curnagl

```
/ data / FAC / FACULTY / INSTITUTE / PI / PROJECT
```

This space is on reliable storage but there are no backups or snapshots.

If you wish to increase the limit then just send an e-mail to [helpdesk@unil.ch](mailto:helpdesk@unil.ch) with subject beginning with DCSR . With 1PB available all resonable requests will be accepted.

## /scratch

`/scratch` is now organised per user as on Curnagl and as it is considered as temporary space there is no fee associated.

There are no quotas but in case of the utilisation being greater than 90% then files older than 2 weeks will be removed automatically .

## `/users`

The `/users` home directory filesystem where your personal scripts reside, please don't put large data because quota is 5 GB.

## `/work`

The Curnagl `/work` filesystem is visible in read-only from inside Urblauna. This is very useful for being able to install software on an Internet connected system.

## `/reference`

This is intended to host widely used datasets

The `/db` set of biological databases can be found at `/reference/bio_db/`

## `/archive`

This is an HSM (Hierarchical Storage Management system) meaning that any files written are copied on tape in two copies, after some time the file content is erased from disk and a pointer to the file on tape remains. If you open a file which content is not on disk any more the tape cartridge has to be loaded in a drive, spooled to the right place and then transferred to disk. It is only for cold data. If you have to retrieve more than 1000 files please send us a ticket at [helpdesk@unil.ch](mailto:helpdesk@unil.ch) with subject "DCSR Urblauna archive retrieve" and the directory path. It has the same organization as `/data`

`/ archive / FAC / FACULTY / INSTITUTE / PI / PROJECT`

## The DCSR software stack

This is now the default stack and is identical to Curnagl. It is still possible to use the old Vital-IT `/software` but this is deprecated and no support can be provided.

For how to do this see the documentation at [Old software stack](#)

There's lots of information on how to use this in our [introductory course](#)

## Installing your own software

We encourage you to ask for a project on Curnagl (HPC normal data) which will allow you to install tools and then be able to use them directly inside Urblauna.

See [the documentation](#) for further details

For those who use Conda don't forget to make sure that all the directories are in your project /work space

<https://wiki.unil.ch/ci/books/high-performance-computing-hpc/page/using-conda-and-anaconda>

```
nano .condarc

pkgs_dirs:
  - /work/path/to/my/project/space

envs_dirs:
  - /work/path/to/my/project/space
```

For R packages it's easy to set an alternative library location:

```
echo 'R_LIBS_USER=/work/path/to/project/Rlib' > ~/.Renvirom
```

This will need to be run on both Curnagl and Urblauna and will allow you to install packages when connected to the internet and run them inside the air gapped environment.

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