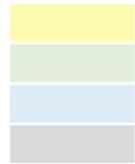


EuroHPC
Joint Undertaking

Federation Platform



EFP Interactive

4 March 2026

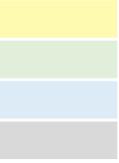
Robin Karlsson

CSC - IT Center for Science

<https://my-eurohpc.eu>



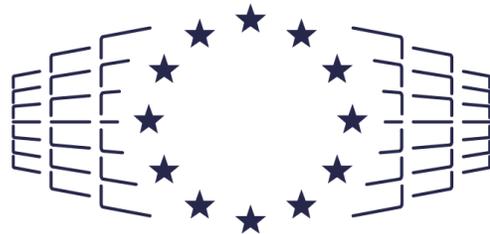
The EuroHPC Federation Platform (EFP)



"A one-stop-shop for accessing and utilizing EuroHPC systems and services"

A platform and federation framework which provides a **streamlined, single point of onboarding** and via which user can **access all systems and services** available to them in the EuroHPC ecosystem.

Direct access | Interactive interfaces | Programmatic APIs | Unified software stack



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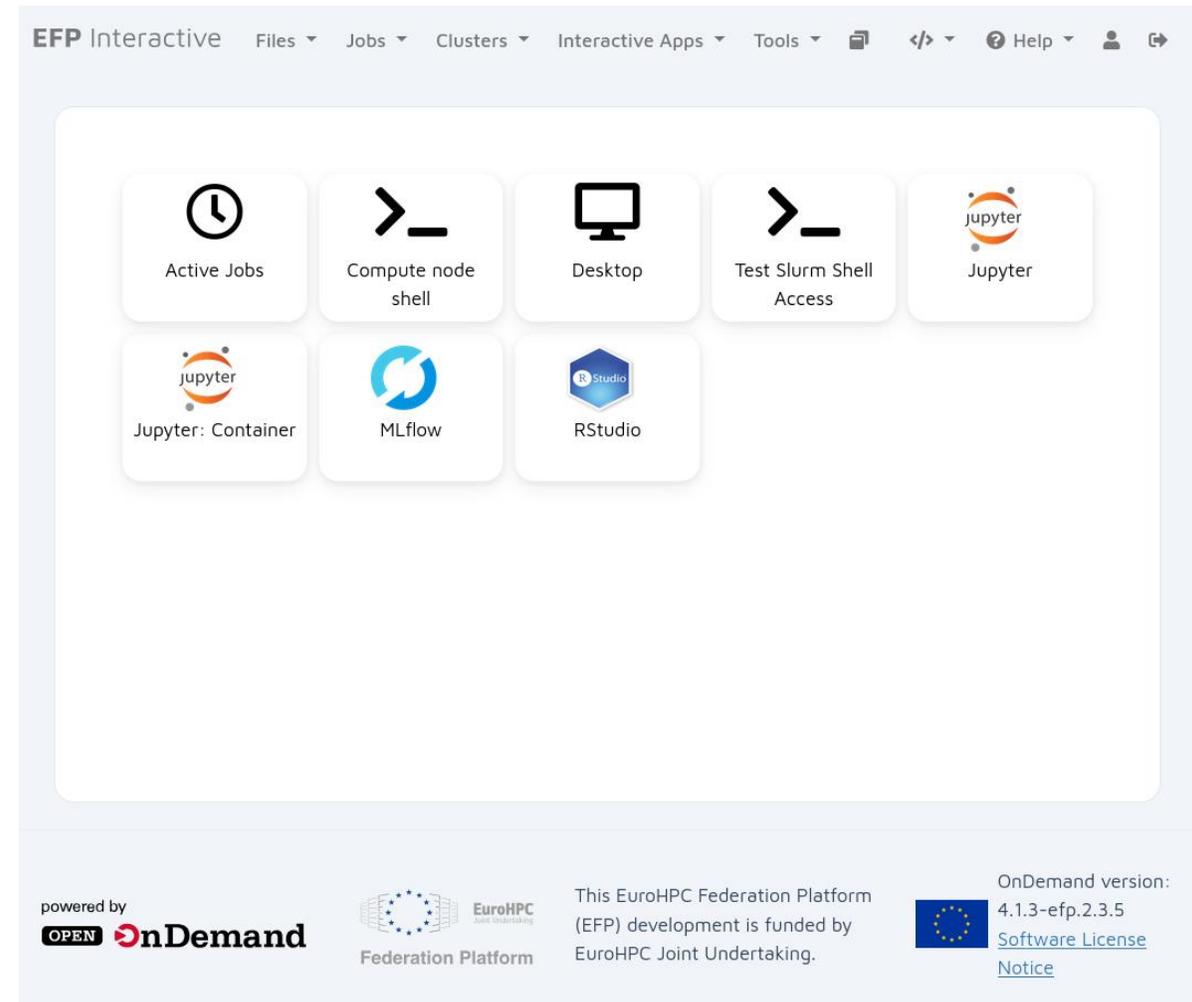
EFP Interactive

- EFP Interactive provides interactive access
- Easy to use web interface
 - Suitable for both new and advanced users
 - Standard internet browser works, no plugins
- Main features
 - File management
 - Job management
 - Shell access
 - Interactive apps
- Based on Open OnDemand
 - Centralized federated instance for EFP

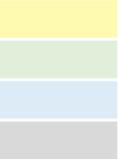


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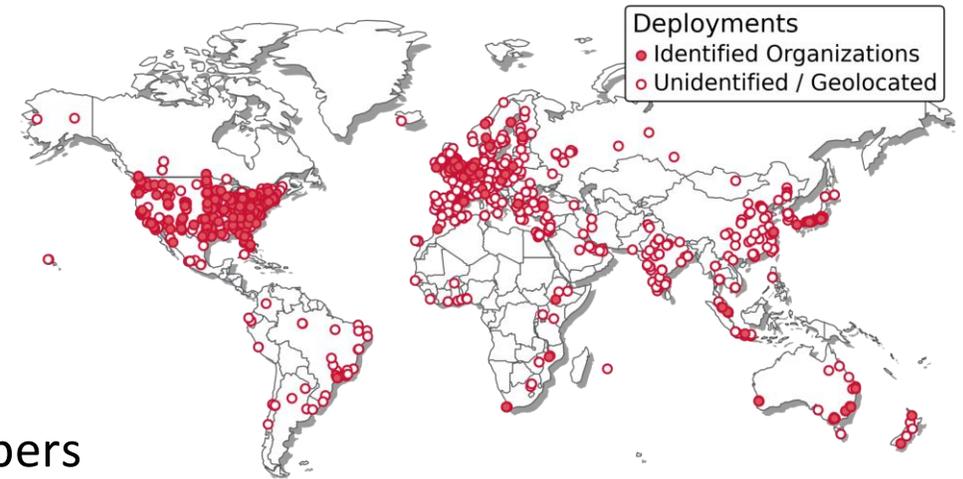


Open OnDemand

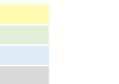


Open OnDemand is the base for EFP Interactive

- Open-source web portal for HPC
- Maintained by Ohio Supercomputer Center
- Used by over 2,100 organizations worldwide
- EFP consortium is in close touch with Open OnDemand developers



<https://www.openondemand.org>



Main features of EFP Interactive: File management

- GUI for managing files on the cluster
- Supported file operations
 - Create, edit, copy, move, rename, delete files and directories
- Upload (within limits) and download files

The screenshot displays the EFP Interactive file management interface. On the left, a terminal window shows a shell prompt and a series of commands for setting up a GROMACS environment, including module loading, test data preparation, and execution. On the right, a file browser shows the current directory structure with a table of files and folders. The table includes columns for Type, Name, Size, and Modified at. The files listed are bin, efp-ondemand, gromacs_test, p, python_venv, and notebook.ipynb. The interface also features a top navigation bar with buttons for 'Open in Terminal', 'Refresh', 'New File', 'New Directory', 'Upload', 'Download', 'Copy/Move', and 'Delete'. A sidebar on the left contains settings for 'Save', 'Key Bindings', 'Font Size', 'Mode', 'Theme', 'Wrap', and 'Soft Tabs'.

```
1 #!/bin/bash
2 #SBATCH --job-name=EESSI_GROMACS
3 #SBATCH --mem=2G
4 #SBATCH --nodes=1
5 #SBATCH --ntasks-per-node=1
6 #SBATCH --cpus-per-task=1
7 #SBATCH --time=5:00
8
9 source /cvmfs/software.eessi.io/versions/2023.06/init/lmod/bash
10
11 module load GROMACS/2024.1-foss-2023b
12
13 # prepare test data if not yet present
14 if [ ! -f GROMACS_TestCaseA.tar.gz ]; then
15     curl -OL https://repository.prace-ri.eu/ueabs/GROMACS/1.2/GROMACS_TestCaseA.tar.gz
16     fi
17 if [ ! -f ion_channel.tpr ]; then
18     tar xzf GROMACS_TestCaseA.tar.gz
19     fi
20
21 rm -f ener.edr eessi_logfile.log
22
23 echo "Running GROMACS"
24
25 echo "Let's print some more text"
26
27 time gmx mdrun -ntmpi 2 -ntomp 2 -s ion_channel.tpr -maxh 0.50 -resethway -noconfout -nsteps 200
28
```

Type	Name	Size	Modified at
Folder	bin	-	2/10/2026 1:22:44 PM
Folder	efp-ondemand	-	2/11/2026 11:59:46 AM
Folder	gromacs_test	-	3/2/2026 12:36:44 PM
Folder	p	-	2/12/2026 4:30:03 PM
Folder	python_venv	-	2/25/2026 10:30:35 AM
File	notebook.ipynb	35.84 kB	2/20/2026 2:08:31 PM

Main features of EFP Interactive: Job management

- List and manage active Slurm jobs
 - Queued, running and recently completed
 - Older batch jobs submitted from EFP Interactive
- Submit Slurm batch jobs

Submit new Slurm job

Cluster
efp_test_slurm

Script path

Job name

Slurm account

Slurm partition

Working directory

ID	Name	User	Account	Time Used	Queue	Status	Cluster	Actions
>	1201	EESL_GROMACS	test04__00	hpc_ju-revie-1	00:01:59	small	Completed	Test Slurm
▼	1202	EESL_GROMACS	test04__00	hpc_ju-revie-1	00:00:37	small	Running	Test Slurm

Running EESL_GROMACS 1202

Cluster Test Slurm

Job Id 1202

Array Job Id 1202

Array Task Id N/A

Job Name EESL_GROMACS

User test04__00

Account hpc_ju-revie-1

Partition small

State RUNNING

Reason None

Total Nodes 1

Node List compute01

Total CPUs 1

Time Limit 5:00

Time Used 00:00:40

Start Time 2026-03-02 10:46:25

End Time 2026-03-02 10:51:25

Memory 2048M

Output Location:

Main features of EFP Interactive: Shell access

- Login node shell
 - Session ends when browser tab closes or on network disconnection
- Compute node shell
 - Uses tmux to be persistent
 - Can safely close tab and resume later
 - More resources, runs in a Slurm job
- No need for browser plugins

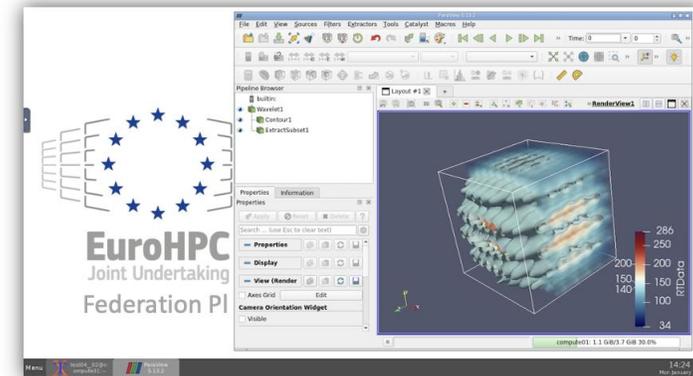


```
Host: compute01@slurm-login.stg.my-eurohpc.eu Initial directory: /1203 Themes: Default
test04__00@compute01:~>

drwxr-xr-x  5 test04__00 test04__00   70 Feb 23 14:20 .jupyter
-rw-r----- 1 test04__00 test04__00   47 Feb 23 15:13 .lessshst
drwxr-xr-x  3 test04__00 test04__00   19 Feb 13 13:36 .local
-rw-r--r--  1 test04__00 test04__00 35841 Feb 20 12:08 notebook.ipynb
drwxr-xr-x  3 test04__00 test04__00   19 Feb 23 16:31 .npm
drwxr-xr-x  4 test04__00 test04__00   47 Feb 12 14:30 p
-rw-r--r--  1 test04__00 test04__00  1028 Feb 10 11:22 .profile
drwxr-xr-x  8 test04__00 test04__00   118 Feb 25 08:30 python_venv
-rw-r--r--  1 test04__00 test04__00  1062 Feb 24 12:47 Untitled2.ipynb
-rw-r--r--  1 test04__00 test04__00 121632 Feb 24 16:58 Untitled3.ipynb
drwx----- 2 test04__00 test04__00    52 Feb 11 12:14 .vnc
-rw-r----- 1 test04__00 test04__00   206 Feb 11 12:14 .Xauthority
test04__00@compute01:~>
```

Main features of EFP Interactive: Interactive apps

- Runs on the compute nodes
- Runs software from EFP FSC (EESSI)
- Currently available:
 - Jupyter
 - RStudio
 - MLflow
 - Desktop with GUI applications
 - For example: ParaView
- No need for browser plugins



Main features of EFP Interactive: Interactive apps

1. Launch app through form
 - Select cluster, Slurm account, resources, etc.
 - Select app specific settings
2. Wait for job to queue and start
3. Connect

Use modules

Modules

EESSI/2025.06 JupyterLab/4.4.9-GCCcore-14.3.0

[Hide module selector](#) [Reset modules to default](#)

EESSI/2025.06 [Show only used modules](#)

Search: scipy

Module	Software Stack	Actions
▶ scikit-learn	EESSI/2025.06	Add
▶ SciPy-bundle	EESSI/2025.06	Add

1 to 2 of 2 entries (filtered from 2,915 total entries)

Previous [SciPy-bundle/2025.06-gfbf-2025a](#) [SciPy-bundle/2024.05-gfbf-2024a](#)

Show entries

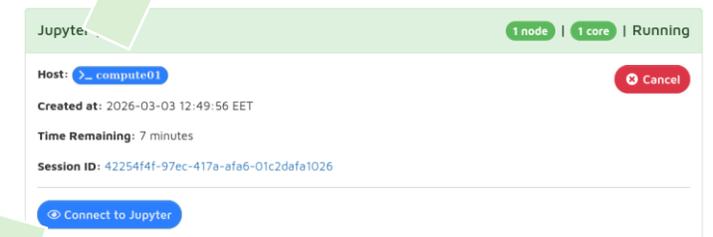
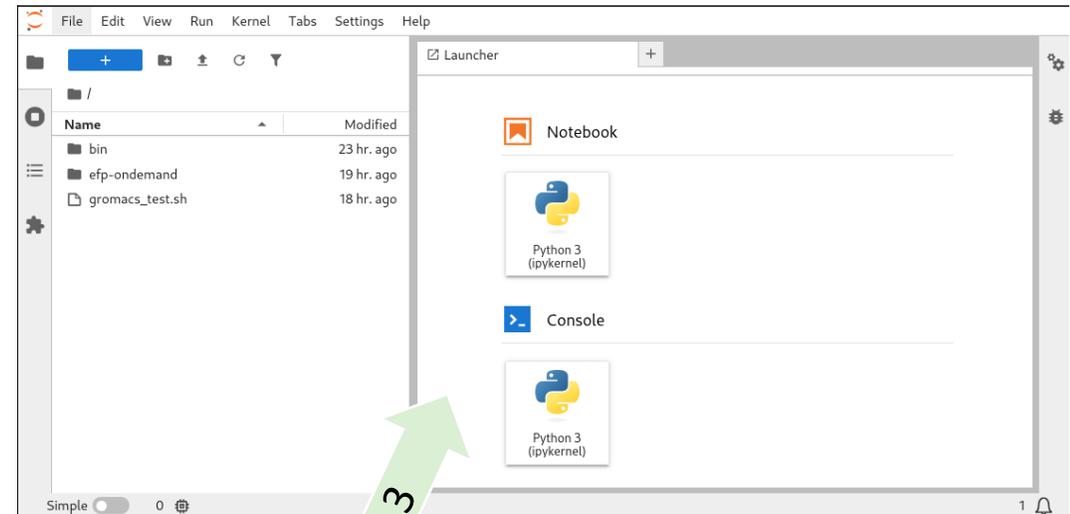
Enable user packages

Enable Python user site-packages. Disabling this will set `$PYTHONUSERSITE`.

Enable virtual environment

Enable an existing or create a new virtual environment.

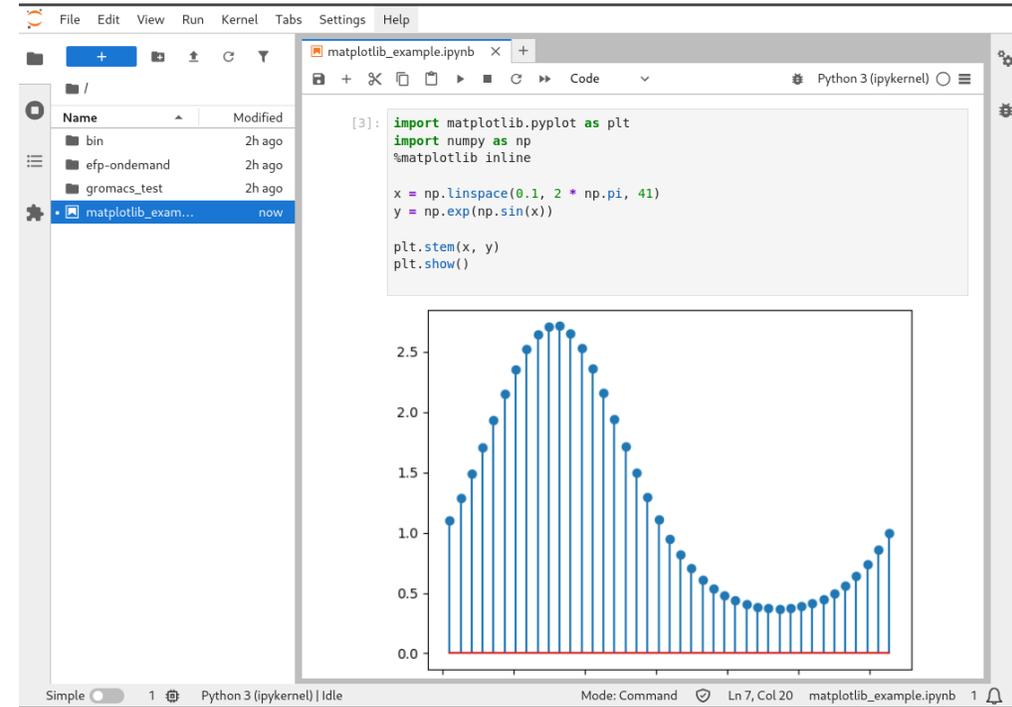
[Launch](#)



EFP Interactive: Jupyter

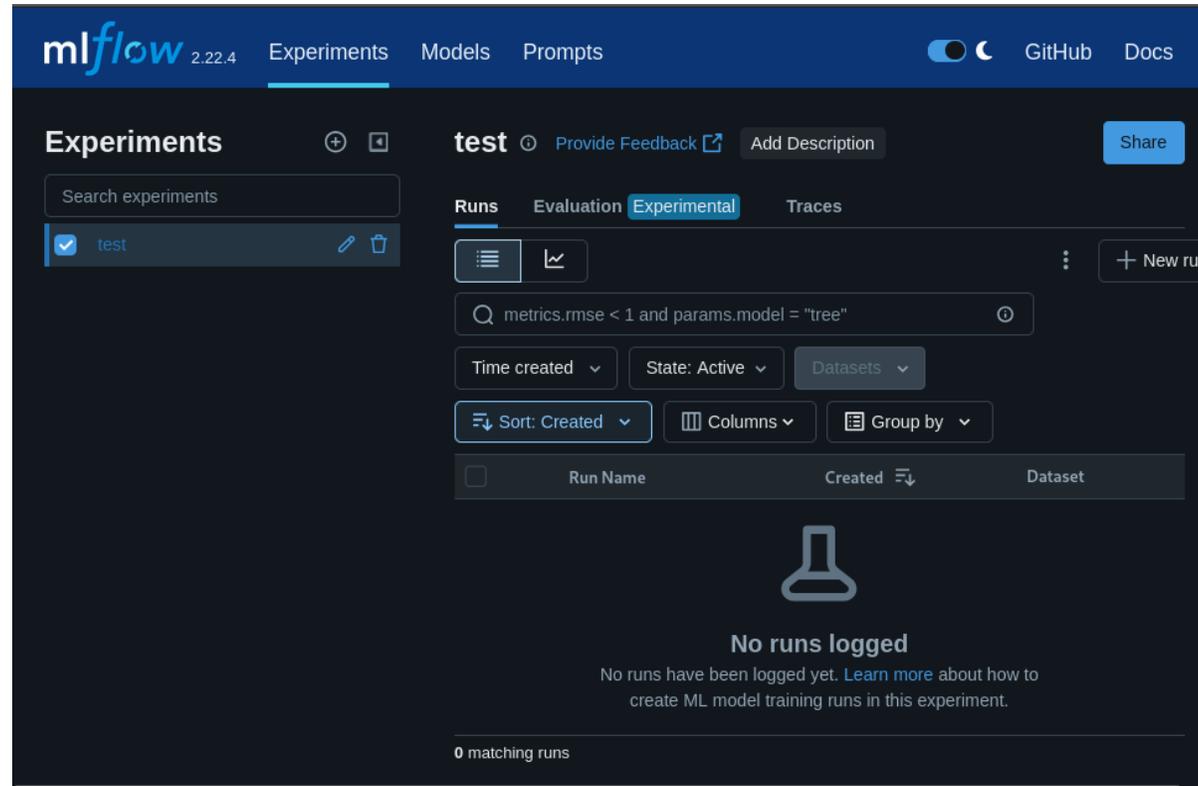
- Jupyter
 - Two different versions provided: container and normal
- Normal Jupyter
 - Python environment from modules
 - Mainly EESSI 2025.06 (and 2023.06)
 - Extend with user packages or virtual environments
- Container Jupyter
 - Python environment in a Singularity/Apptainer container
 - Container images on shared filesystem or from container registries
 - Extend with user packages or virtual environment

<https://jupyter.org/>



EFP Interactive: MLflow

- Runs the MLflow Tracking UI
 - Visually explore machine learning experiments and runs
- MLflow module from EESSI
 - Currently version 2.22.4



<https://mlflow.org/docs/latest/ml/tracking/>

EFP Interactive: RStudio

- Interactive RStudio session
- Current versions (from EESSI):
 - 2024.12.0
 - 2024.09.0

The screenshot displays the RStudio environment. The main editor shows a script with several sections of code and comments, including demos for 'base', 'graphics', and 'stats' packages. The console at the bottom shows the output of the 'demo()' function, listing various R objects and their classes. The environment pane on the right shows the current environment with variables like 'Brand', 'Fr', 'M.user', 'nr', 'Soft', 'Temp', and 'x'.

```
Demos in package 'base':
error.catching      More examples on catching and handling errors
is.things           Explore some properties of R objects and is.FOO() functions.
Not                for newbies!
recursion           Using recursion for adaptive integration
scoping            An illustration of lexical scoping.

Demos in package 'graphics':
Hershey            Tables of the characters in the Hershey vector fonts
Japanese          Tables of the Japanese characters in the Hershey vector fonts
graphics          A show of some of R's graphics capabilities
image             The image-like graphics builtins of R
persp             Extended persp() examples
plotmath          Examples of the use of mathematics annotation

Demos in package 'grDevices':
colors            A show of R's predefined colors()
hclColors         Exploration of hcl() space

Demos in package 'stats':
glm.vr            Some glm() examples from V&R with several predictors
lm.glm           Some linear and generalized linear modelling examples from 'An
                 Introduction to Statistical Modelling' by Annette Dobson
nlm              Nonlinear least-squares using nlm()
smooth          'Visualize' steps in Tukey's smoothers

Use 'demo(package = .packages(all.available = TRUE))'
to list the demos in all *available* packages.
```

```
R - R 4.4.2 ~ /
SoftSoft          . . . . . 1
M.userY:SoftMedium . . . . . 1
M.userY:SoftSoft . . . . . 1
TempHigh:SoftMedium . . . . . 1
TempHigh:SoftSoft . . . . . 1
M.userY:TempHigh:SoftMedium . . . . . 1
M.userY:TempHigh:SoftSoft . . . . . 1
BrandM           . . . . . 1
M.userY:BrandM . . . . . 1
TempHigh:BrandM . . . . . 1
M.userY:TempHigh:BrandM . . . . . 1
attr(,"legend")
[1] 0 ' 0.3 ' 0.6 ' 0.8 '+' 0.9 '*' 0.95 'B' 1

> anova(detg.m0, detg.mod, test=FALSE)
Analysis of Deviance Table

Model 1: Fr ~ M.user * Temp * Soft + Brand
Model 2: Fr ~ M.user * Temp * Soft + Brand * M.user * Temp
  Resid. Df Resid. Dev Df Deviance
1      11    32.826
2       8     5.656  3    27.17
> |
```

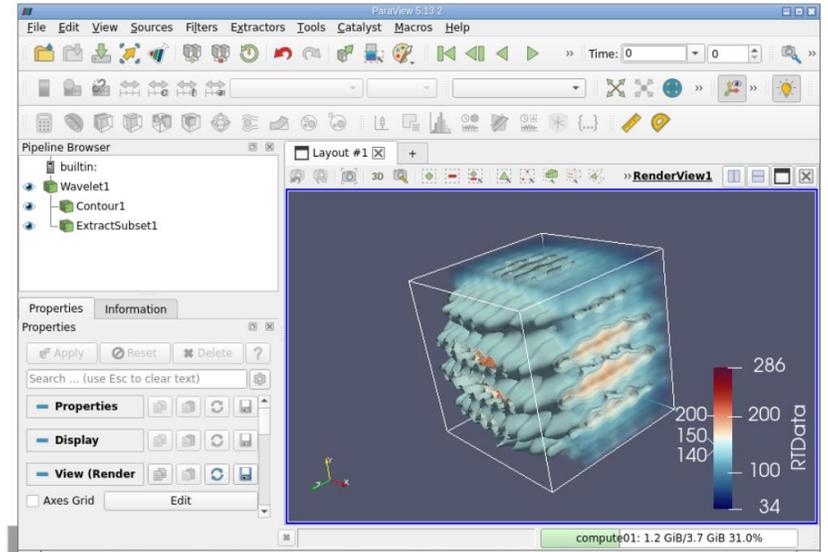
<https://posit.co/products/open-source/rstudio-server/>

EFP Interactive: Desktop

- VNC desktop where you can run GUI applications
- Currently has ParaView and a terminal
- Based on Openbox, tint2, jgmenu, picom
- More tools and improvements coming later
 - Xfce desktop coming soon
- It is possible to run other applications in the Desktop
 - Runs an X server
 - Terminal has `$DISPLAY` set



Federation Platform



Getting help for EFP Interactive

- If you have questions related to EFP Interactive, contact EFP Helpdesk

helpdesk@my-eurohpc.eu

- We can provide help with:
 - Answer questions related to using EFP Interactive, incl. provided interactive apps
 - Resolving problems with features and interactive apps provided by EFP Interactive
 - Onboarding of additional software in EFP FSC for use in EFP Interactive

Upcoming webinars – more info at <https://my-eurohpc.eu/training>

Webinar 1 of 5 — Introduction to the EuroHPC Federation Platform

[Recording available!](#)

Webinar 2 of 5 — EFP Federated Software Catalog

[Recording available!](#)

Webinar 4 of 5 — EFP Authentication & Authorization Infrastructure (AAI)

Date: Wed 29 April 2026 14:00-15:00 CET

Speaker: Josh Howlett (GÉANT)

Webinar 5 of 5 — EFP Workflows

Date: 21 May 2026 (*registration will open soon*)

Speaker: Martin Golasowski (IT4I)



Scan me for more information
on upcoming EFP webinars!

In case of questions, contact EFP consortium via: helpdesk@my-eurohpc.eu



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