



Uporaba superračunalnika

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Dostop do HPC-FS



HPC in FEM: Komercialna programska oprema

9 Feb 2022, 13:00 → 11 Feb 2022, 17:00 Europe/Ljubljana

Dogodek bo potekal prek videokonferenčnega sistema Zoom.

Description Tematika delavnice je uporaba komercialno dostopnih rešitev za numerične simulacije na zmogljivih superračunalnikih (HPC). Delavnica bo potekala preko sistema Zoom. Izvedli jo bomo v treh popoldnevih. Spoznali se bomo s teoretičnim ozadjem, povezovanjem in delom na HPC-ju ter z uporabo komercialne programske opreme Ansys.



Projekt EuroCC je financiran s sredstvi Skupnega podjetja za visoko zmogljivo računalništvo (EuroHPC JU) v skladu s sporazumom o dodelitvi sredstev št. 951732. EuroHPC JU je prejelo finančno podporo iz EU programa Obzorje 2020 ter Nemčije, Bolgarije, Avstrije, Hrvaške, Cipra, Češke, Danske, Estonije, Finske, Grčije, Madžarske, Irske, Italije, Litve, Latvije, Poljske, Portugalske, Romunije, Slovenije, Španije, Švedske, Združenega kraljestva, Francije, Nizozemske, Belgije, Luksemburga, Slovaške, Norveške, Švice, Turčije, Republike Severne Makedonije, Islandije in Črne gore.

NoMachine - HPCF...

Contact eurocc@sling.si
[+386 40 293 494](tel:+38640293494)

<https://indico.ijs.si/event/1355/timetable/>

Dostop do HPC-FS



NoMachine for Windows

Windows i386/AMD64 XP/Vista/7/8/8.1/10/Windows Server 2008/2012/2016/2019

 Download



NoMachine for Mac

Mac Intel 64-bit OS X 10.7 or later, macOS 10.12/10.13/10.14/10.15/11/12

 Download



NoMachine for Linux

Linux i386/AMD64, RHEL 4.4 or later, SUSE 10 or later, Fedora 10 or later, Debian 4 or later, Ubuntu 8.04 or later

 Download



<https://www.nomachine.com/download>

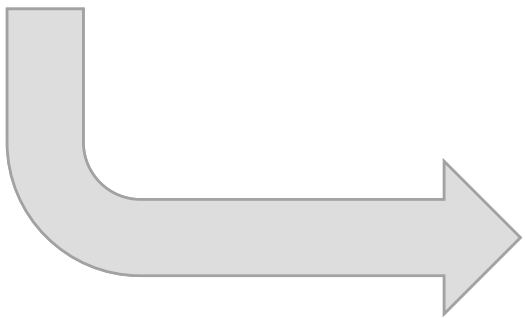
Dostop do HPC-FS



1 Machines

Buttons: Add, Edit, Connect, Search, View, Order, Settings

No computers were found on your local network.
<Click here to create a connection>



viz.hpc.fs.uni-lj.si

2 Add connection

3 Machine address: viz.hpc.fs.uni-lj.si

4 Connect

Name: campus20

Port: 4000 Protocol: NX

Dostop do HPC-FS



NoMachine - campus20

campus20

NOMACHINE

Please type your username and password to login.

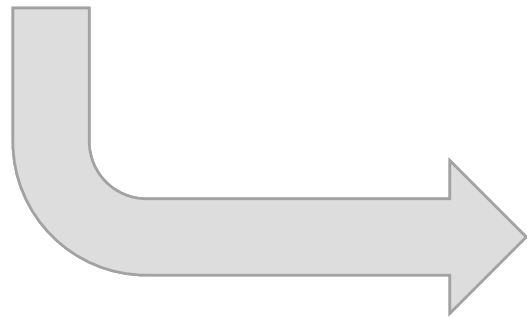


1
Username

2
Password

Save this password in the connection file

3



NoMachine - campus20

campus20

NOMACHINE

My desktops New desktop Create Find a type View Order

4
Create a new virtual desktop
Create a new RDP virtual desktop
Create a new custom session

Save this setting in the connection file

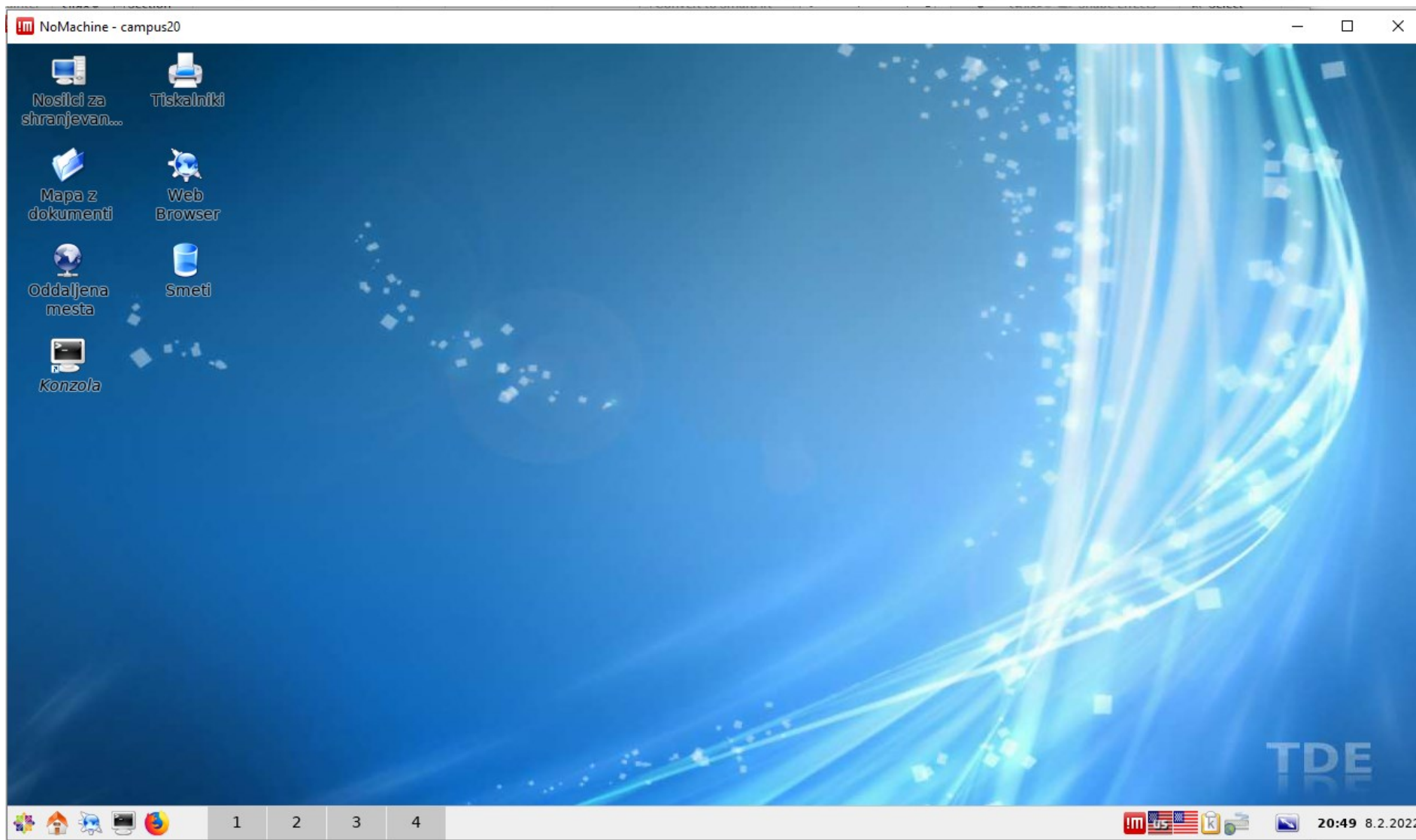
Logged in as user campus20

TERMINAL SERVER

Dostop do HPC-FS



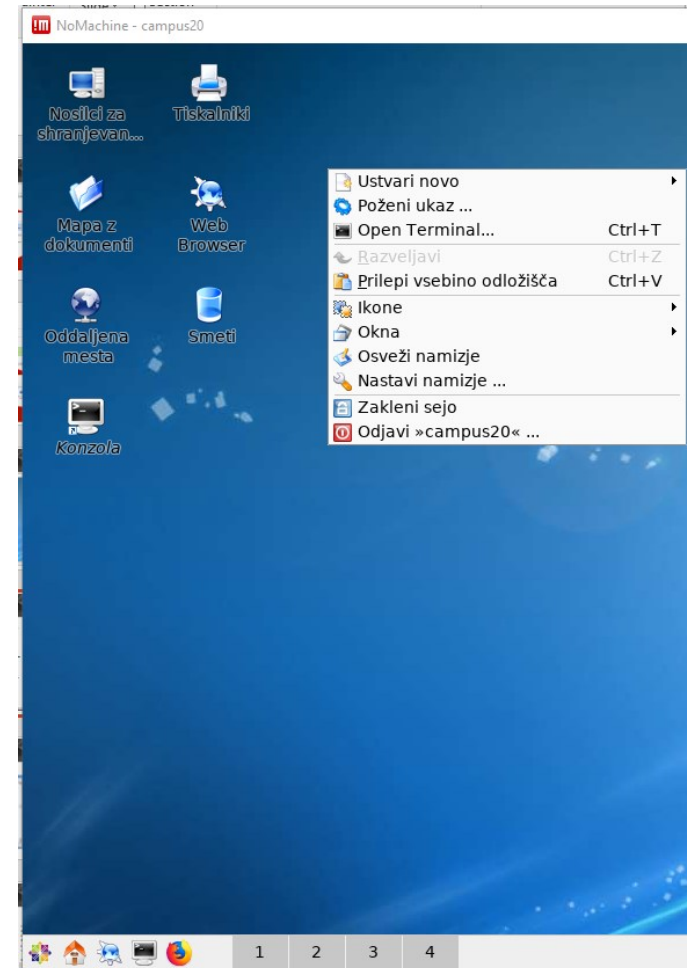
SLING



Dostop do HPC-FS



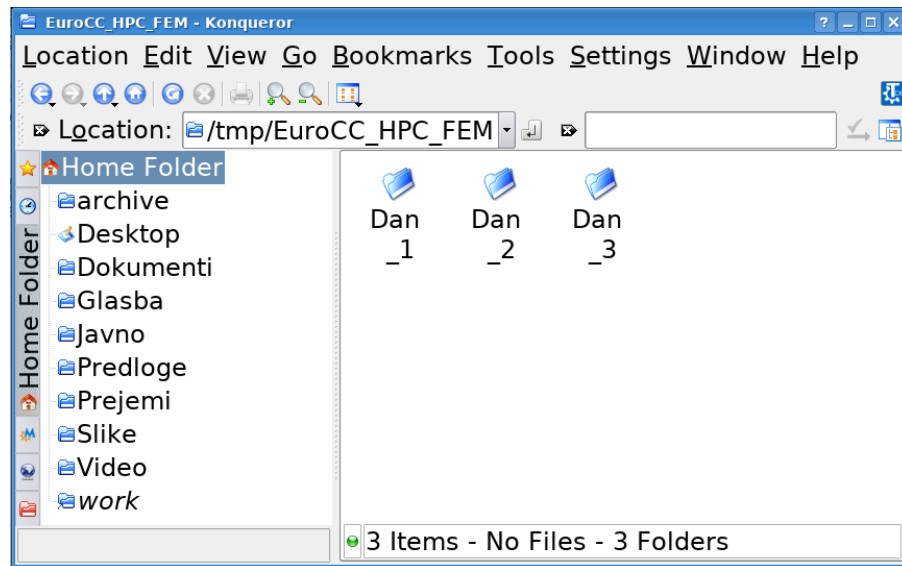
- V Linux OS se večino dela opravi preko ukazne vrstice (terminal)
 - Ctrl-t
- Osnovni ukazi:
 - pwd – plot your current directory path
 - ls – content in current directory
 - cd – go to a specific directory (e. g. cd .. – go to one directory above current)
 - mkdir <dirname> – make new folder
 - rmdir <dirname> – delete empty directory
 - rm <filename> – delete specific file in folder
 - rm -r <dirname> - delete folder containing files
 - touch <filename> - create new file
 - man <command> - manual info for specific command (also can use <command> -help)
 - cp – copy
 - cat – plot the content of a file



Datoteke za delo



Preko uporabniškega vmesnika



Preko ukazne vrstice

```
campus20@viz:~ - Shell - Konsole
Session Edit View Bookmarks Settings Help

[campus20@viz ~]$ cd ..
[campus20@viz home]$ cd ..
[campus20@viz /]$ ls
apps      boot  hadoop_store  lib          media  opt  run  sys  var
archive  dev   home          lib64        mnt    proc sbin tmp  work
bin       etc   iscsi         lost+found   newnode root  srv  usr

[campus20@viz /]$ cd home
[campus20@viz home]$ ls
achat      campus18  campus69      jmencinger  omans
agosar     campus19  campus70      jpeternel   operezznakar
agrm       campus20  campus71      jpirnar     pahalane

[campus20@viz home]$ cd campus20
[campus20@viz ~]$ mkdir Delavnica
[campus20@viz ~]$ cd Delavnica
[campus20@viz Delavnica]$ cp -R /tmp/EuroCC_HPC_FEM/Dan_1 ./
[campus20@viz Delavnica]$ ls
Dan_1

[campus20@viz Delavnica]$ cd Dan_1/
[campus20@viz Dan_1]$ ls
Test_case

[campus20@viz Dan_1]$
```

```
cp -R /tmp/EuroCC_HPC_FEM/Dan_1 ./
```


Pregled programskih paketov



module avail

```
campus20@viz:~ - Shell - Konsole
Session Edit View Bookmarks Settings Help

[campus20@viz ~]$ module avail

----- /opt/pkg/modules/all -----
ANSYS/19.3
ANSYS/20.1
ANSYS/21.R1 (D) Default version
ANSYS/21.1
ANSYS/2021R2
ATK/2.22.0-foss-2016b
ATK/2.28.1-fosscuda-2018b
ATK/2.32.0-GCCcore-8.2.0 (D)
ATLAS/3.10.2-GCC-5.4.0-2.26-LAPACK-3.6.1
Arrow/0.17.1-foss-2020a-Python-3.8.2
Autoconf/2.69-foss-2016b
Autoconf/2.69-GCC-4.9.3-2.25
Autoconf/2.69-GCC-5.4.0-2.26
Autoconf/2.69-GCCcore-6.3.0
Autoconf/2.69-GCCcore-6.4.0
Autoconf/2.69-GCCcore-7.3.0
Autoconf/2.69-GCCcore-8.2.0
Autoconf/2.69-GCCcore-8.3.0
Autoconf/2.69-GCCcore-9.2.0
Autoconf/2.69-GCCcore-9.3.0
Autoconf/2.69-GCCcore-10.2.0
Autoconf/2.69
--More--
```

module avail ansys

```
campus20@viz:~ - Shell - Konsole
Session Edit View Bookmarks Settings Help

[campus20@viz ~]$ module avail ansys

----- /opt/pkg/modules/all -----
ANSYS/19.3 ANSYS/21.R1 (D) ANSYS/2021R2
ANSYS/20.1 ANSYS/21.1

----- /usr/local/Modules/Application-Software -----
AnsysEM/18.1 ansys/17.2 (D) ansys/19.0
ansys/13.0 ansys/18.2

Where:
D: Default Module

Use "module spider" to find all possible modules.
Use "module keyword key1 key2 ..." to search for all
possible modules matching any of the "keys".

[campus20@viz ~]$
```

Zagon Ansys-a



```
module load ANSYS
```

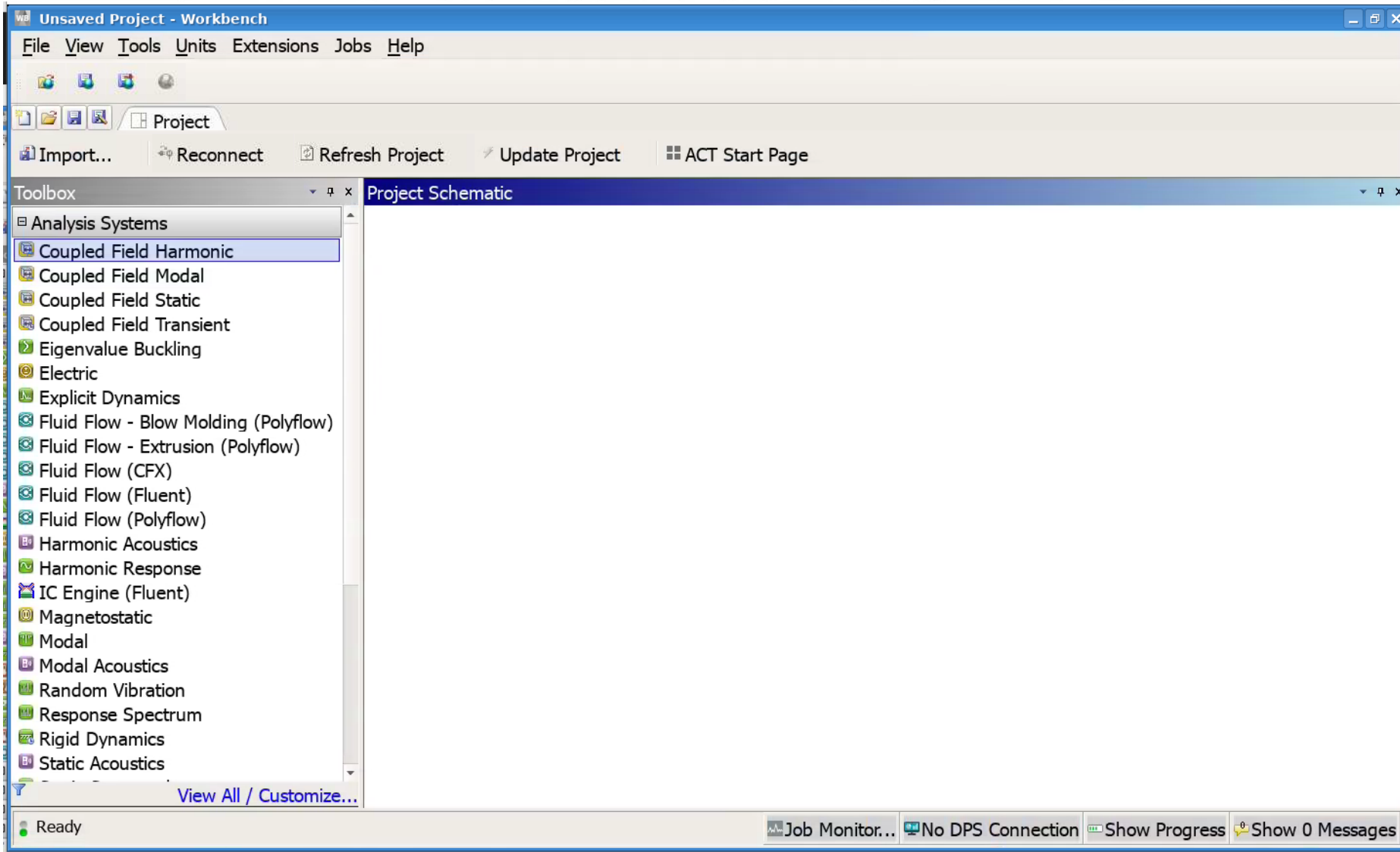
A terminal window titled 'campus20@viz:~ - Shell - Konsole' with a menu bar 'Session Edit View Bookmarks Settings Help'. The terminal shows the following commands and their execution:

```
[campus20@viz ~]$ module load ANSYS  
[campus20@viz ~]$ module purge  
[campus20@viz ~]$ module load ANSYS  
[campus20@viz ~]$ runwb2
```

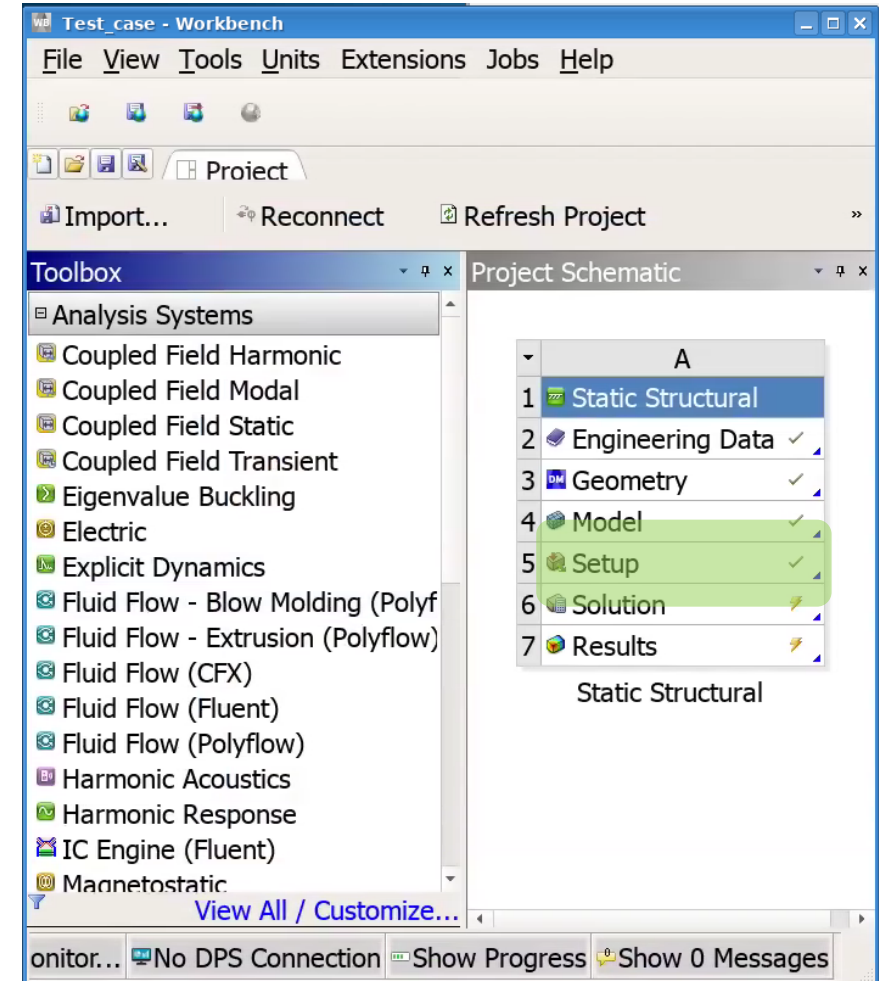
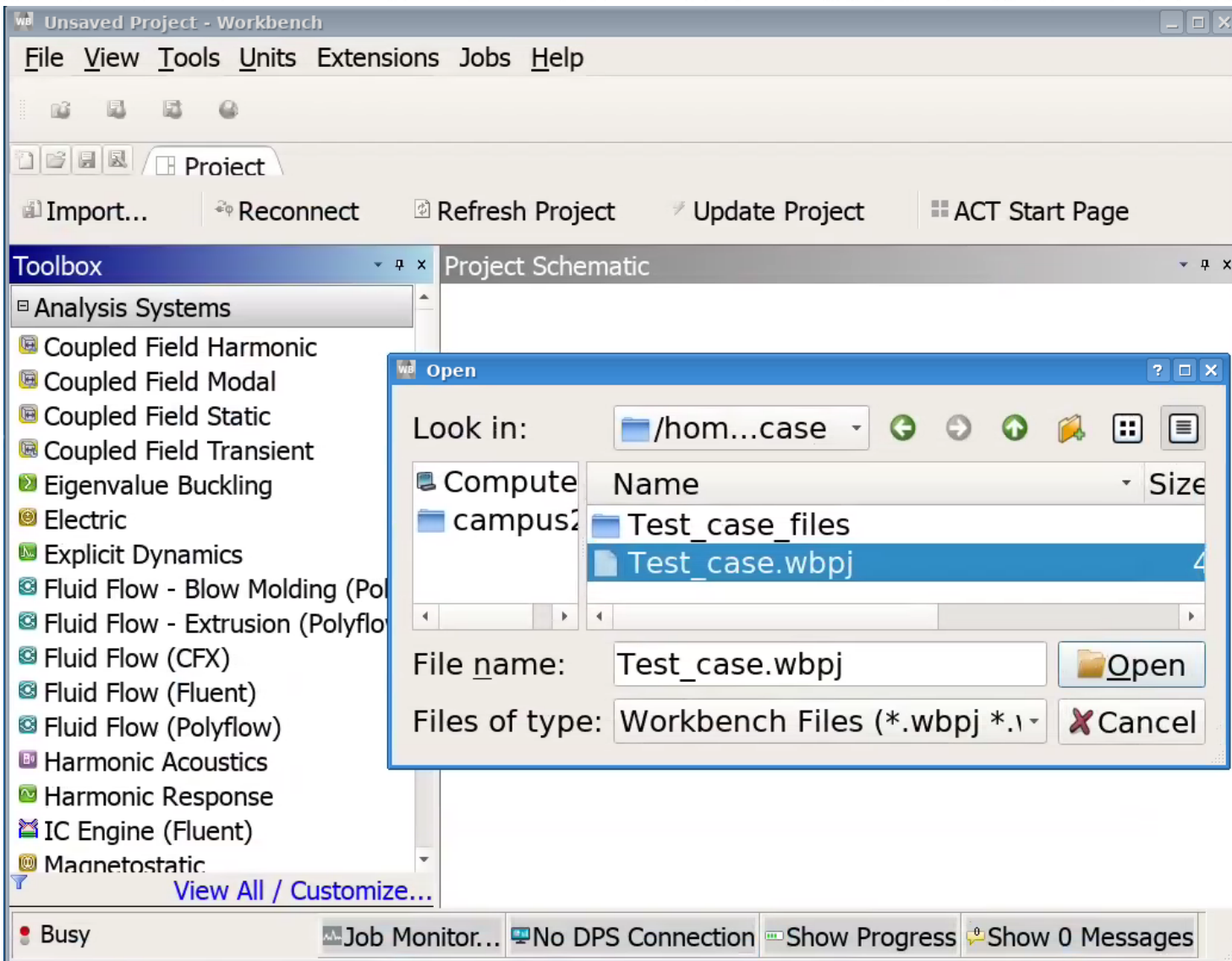
The terminal window has a blue title bar and a light gray background. A 'Shell' tab is visible at the bottom left.

Can also choose a different version:
e.g. `module load ANSYS/20.1`

Zagon Ansys-a



Testni primer



Testni primer



SLING

Project*

- Model (A4)
 - Geometry
 - Materials
 - Coordinate Systems
 - Mesh
 - Static Structural (A5)
 - Analysis Settings
 - Force
 - Remote Displacement
 - Solution (A6)
 - Solution Information
 - Equivalent Stress
 - Directional Deformati

Details of "Force"

Scoping Method	Geomet...
Geometry	1 Face

Definition

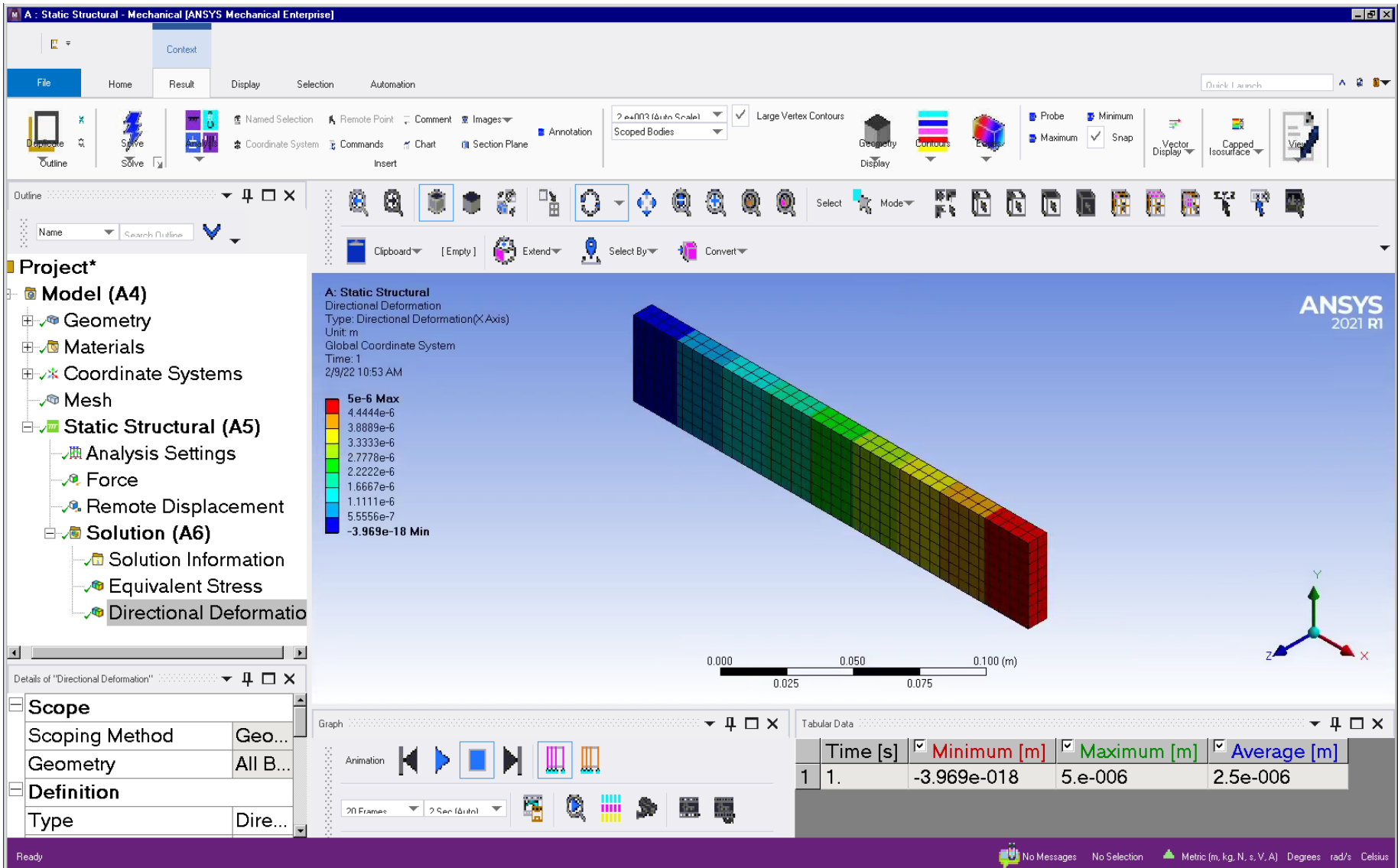
Type	Force

Graph

Tabular Data

Steps	Time [s]	X [N]	Y [N]	Z [N]
1	0.	= 0.	= 0.	= 0.
2	1.	2000.	0.	0.

Testni primer





Hvala za pozornost!



This project has received funding from the European High-Performance Computing Joint Undertaking (JU) under grant agreement No 951732. The JU receives support from the European Union's Horizon 2020 research and innovation programme and Germany, Bulgaria, Austria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Greece, Hungary, Ireland, Italy, Lithuania, Latvia, Poland, Portugal, Romania, Slovenia, Spain, Sweden, United Kingdom, France, Netherlands, Belgium, Luxembourg, Slovakia, Norway, Switzerland, Turkey, Republic of North Macedonia, Iceland, Montenegro



EuroHPC
Joint Undertaking