

Computing at Nikhef

Juan Rojo

VU Amsterdam & Theory group, Nikhef

18/11/2020, Welcome at Nikhef Theory meeting

First the basics

As members of the Nikhef Theory group you should have obtained a **Nikhef computing account** which allows you to:

- 📌 Check your **Nikhef webmail**
- 📌 Use the local **printers and scanners**
- 📌 Access the **Nikhef computing network**, both from within and from outside Nikhef
- 📌 Use the **Nikhef VPN** to access paywalled journals and publications
- 📌 Take profit of computing tools for which **Nikhef has a subscription**: Zoom, SurfDrive, Overleaf etc
- 📌 And many other perks!

Here I only mention Nikhef-related IT aspects. If you are **employed by universities** (UvA, VU, Maastricht, Nijmegen etc) you should have access to **additional services**

e.g. VU employees can install Office, Mathematica, ...

First the basics

Most information that you might need for **Nikhef IT-related matters** can be found here:

https://wiki.nikhef.nl/ct/Main_Page

As well as in the website for the Nikhef computing course:

<https://www.nikhef.nl/grid/computing-course/index.html>

In case of questions, send an email to the Nikhef IT helpdesk

helpdesk@nikhef.nl

or even better, go talk to them to their office!! (once covid restrictions lifted ;))

Specially useful in this period is the section about **working from home**:

https://wiki.nikhef.nl/ct/Working_remotely

Webmail

Log in to your Nikhef webmail via **webmail.nikhef.nl**:

The screenshot displays the Nikhef webmail interface. On the left, a sidebar shows the user profile for Juan Rojo (j.rojo@nikhef.nl) and a list of folders: Inbox (8214), Drafts, Sent, Trash, and Junk. The main area shows the 'Inbox' with 8331 messages. A list of emails is displayed, with the top one selected: from Abhay Deshpande, titled '[eicug-users] Fwd: Postdoctoral position at Saclay', received at 13:53, with a size of 168 KiB. Below this, other emails from Rabah Abdul Khalek, Eric Laenen, and Juan Rojo are visible. On the right, the content of the selected email is shown, dated Thursday, October 15, 2020, 13:53 CEST, from Abhay Deshpande (abhay.deshpande@stonybrook.edu). The email body reads: 'Dear EIC Enthusiasts, Here is an experimental post doc position at CE consider. Cheers, Abhay'.

Important: even if you don't use the Nikhef email account, make sure to set up an **automated forward** to get emails from theory-wide, nikhef-wide, and son on

(You might want to use an email client rather than the web interface)

VPN

In order to **access the Nikhef network from the outside** (to access your local computer or the computing cluster, to access paywalled publications, to use software which requires a licence) you need to install the **EduVPN**

EduVPN

eduVPN protects you on unsecure networks, for example, against nearby prying eyes while on the train. The service also offers secure access to protected services when accessing from outside your institution's network.

At Nikhef we offer two 'variants' of eduVPN:

Secure Internet

helps you to surf safely on the general internet. This service is a courtesy of SURF and Nikhef, and allows you to 'escape' from restrictive environments (hotels networks, cafes) that only allow web browsing, **and** at the same time protects your network traffic via encryption.

Institute Access

connect you safely to all internal, local, Nikhef services directly. You can **login to Stoomboot, view internal web pages, and mount your home directory via CIFS** from anywhere in the world. It is like being connected to our local wireless and wired network with your laptop ("DHCPnet"). However: it **only** takes your traffic to Nikhef, and you cannot use Institute Access to access non-Nikhef resources, as the name already suggests.

eduVPN is available for Windows, Linux, MacOS, Android, and iOS devices.

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Getting eduVPN

On your laptop, download the eduVPN client or use your existing OpenVPN or Tunnelblick installation. SURF has provided an excellent [guide and tutorial for installing eduVPN](#).

If you cannot use the special eduVPN client or would prefer your existing OpenVPN installation, you can download personalised "ovpn" configurations directly:

- [Secure Internet](#) terminating in the Netherlands
- [Nikhef Institute Access](#)

Note: you can use Secure Internet and Institute Access simultaneously - if you want both access to Nikhef resources and safely 'escape' a public or hotel wifi - by using the [advanced profiles](#) and the [OpenVPN client directly](#) (look for "Andere platforms") for Safe Internet access, next to the Institute Access via the eduVPN app.

<https://wiki.nikhef.nl/ct/EduVPN>

Stoomboot

Stoomboot is the Nikhef computing cluster, currently composed by around **2000 cores**. It works with a standard batch system and a range of queue options for your jobs

Instructions about how to log in and launch jobs on Stoomboot can be found here:

https://wiki.nikhef.nl/ct/Stoomboot_cluster

We have accumulated a fair amount of expertise in **running efficiently jobs in Stoomboot** (choosing the right submission settings and queues, exploiting the Theory quota), so if you plan to run jobs there please get in touch

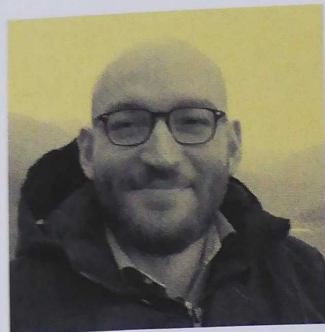


centos7 queues	walltime [HH:MM]	remarks
express7	00:10	test jobs (max 2 running jobs per user)
short7	04:00	
generic7	24:00	default queue
long7	48:00	max. walltime of 96:00 via resource list

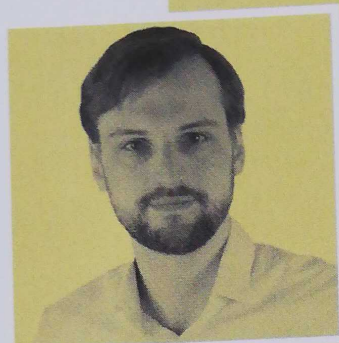
A brand new cluster **smefit (theory+ATLAS)** is available: 1152 cores (AMD Rome, with 19.17 HS06/core), 8 GByte RAM and 50 GByte/core SSD.

Stoomboot

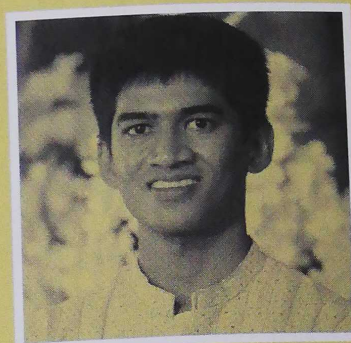
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Rabah
Abdul Khalek



Joran
Angevaere



Rahul
Balasubramanian

RECORDHOUDERS

Nikhef maakt elk jaar op de jaarvergadering de top drie bekend van meest intensieve rekenaars van het afgelopen jaar.

Promovendus **Rabah Abdul Khalek** van de Theoriegroep was vorig jaar recordhouder.

Zijn rekenwerk aan de quarks en gluonen in een botsend proton hield in 2020 ruim 67 CPU's (Central Processing Units) een jaar lang volledig in beslag.

Khalek werkt sinds 2017 aan de sterke kernkracht (Quantum chromodynamics of QCD) van een botsend proton. Het krachtenspel is moeizaam te berekenen omdat het sterker wordt op gro-

de deuren van de kasten staan
nstaanders mysterieuze namen.
Kip-Sate. Marsepein. Taai-Taai.
t. Het zijn de namen van clus-
machines, uitbreidingen van het
rum. De namen verwijzen naar
tijde dat de hardware binnen-
is vaak rond Sinterklaas.
was een zomerse aanschaf.
al heeft Nikhef op het Science
el computerpower in huis dat het
de energiehuishouding een
belang is. De warmte van de
le processoren is in het data-
ast beklemmend, maar die wordt
nd afgevoerd door een omvang-
em van luchtbehandeling. De
n warmte wordt via pijpleidingen

Theory is now one of the main users of Stoomboot!

with Rabah as record holder for most stoomboot use in 2020: **70 CPUs** *used on average continuously through the whole year!*

plans to further boost stoomboot on its way e.g. via projects

Stoomboot

Note that you need to be inside the Nikhef network to **access Stoomboot**

Accessing Machines through a Gateway

Sometimes a machine you'd like to access cannot be reached directly from the network you are on. The interactive stoomboot nodes, for example, can only be reached from the Nikhef networks. If you'd like to connect to one of them from home or from a university network, you'd first have to log in to the gateway machine - `login.nikhef.nl` in this case - before being able to connect to the remote machine. Doing that by hand in two steps is cumbersome.

SSH allows this to be achieved using a single connection command by setting up a `ProxyJump` in your ssh configuration file. To connect to `stbc-i5` through `login.nikhef.nl` add the following to the configuration section for the stoomboot nodes (create if it doesn't exist):

```
Host stbc*.nikhef.nl stbc*  
  User username  
  ProxyJump login.nikhef.nl
```

To test this, ensure you're on a network where the nodes cannot be directly contacted, for example by using the "Amsterdam Science Park" wifi network. Executing

```
$> ssh stbc-i5.nikhef.nl
```

Should now allow you to connect. If you are asked for your password multiple times, ensure your `ssh agent` is setup and running.

Zoom

With a Nikhef account you benefit from a pro Zoom subscription (wo time limits)

https://wiki.nikhef.nl/ct/Video_conferencing_from_home

Introduction

There are various applications available for remote (video) communication. Nikhef advises using the Zoom tool. This tool can be used under Windows, Mac OSX and various Unix distributions and is user-friendly. The free version of Zoom offers meetings for up to only 40 minutes, so Nikhef has purchased Business licenses with which meetings can be organized for longer. Getting your own license to act as a host requires an administrative action from the helpdesk. You do not need a license to join as a participant. If you need a license, send an email to helpdesk-at-nikhef.nl and we will look into it.

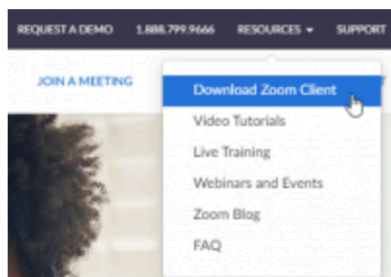
To manage your Nikhef Zoom account, use the [Nikhef Zoom page](#) , backed by our usual SSO login.

[Read on the Intranet pages about Nikhef zoom – for your safety, comfort, and privacy](#) (requires SSO login, being on-site, or eduVPN IA).

Windows installation and instructions

For Windows, as the organizer of a meeting, follow the steps below.

- Go to <https://zoom.us/> to download the Zoom Client.
- Click **Resources** at the top right and choose **Download Zoom Client**.



Handy since some universities do not provide Zoom accounts!

Disk space

We can store files in two different places:

/data/theorie/: scratch space, no backup, meant for heavy files (e.g. MC events)

```
[rojo@stbc-i1 ~]$ cd /data/theorie/
[rojo@stbc-i1 theorie]$ ls
Gijs      avanish  dscott   ffaura   gtx      jjethier  karl      mathiasr  mzaro    rabah    rgauld   soniaelh  t58      vbertone
abelbk    cluster  enocera  gmagni   ipostmes jthoeve   lost+found michaelb  pbraat   raquel   smefit   svheijst  tgiani
```

/project/theorie/: backup, meant for code developement and important file storage

```
[rojo@stbc-i1 theorie]$ cd /project/theorie
[rojo@stbc-i1 theorie]$ ls
NumRecipes  avanishb  dscott   ffaura   gmagni   jdamste   jorindev  michaelb  rabah    svn    t45    t60    vbertone
apapaefs    avogt     enocera  form     gtx      jjethier  leoverna  mzaro     rgauld   t38    t58    t68    wouterw
```

once you leave nikhef, please move your files to the new institution, else sooner or later we will delete them

e.g. someone “forgot” 5 gb of MC event files that saturated our quota ;)

```
[rojo@stbc-i1 theorie]$ df /project/theorie
Filesystem      1K-blocks    Used Available Use% Mounted on
ebro.nikhef.nl:/theorie 360369024 304676480 55692544 85% /project/theorie
[rojo@stbc-i1 theorie]$ df /data/theorie
Filesystem      1K-blocks    Used Available Use% Mounted on
data-02:/theorie 10737418240 4674002048 6063416192 44% /data/theorie
```

we can request more quota if needed, but deleting from time to time unused files is good practice

IT equipment



If you need IT equipment and consumables, **it can be purchased via Nikhef**: tablets, headphones, keyboard, home office stuff etc

Please discuss with your supervisor beforehand. Tablets can be purchased but only after approval of the Nikhef MT

Never buy IT consumables via Amazon or bol.com and then claim reimbursement: make sure you request the IT helpdesk to purchase them on your behalf!



loudspeakers/BRIOs/ OWLs can also be purchased if needed via Nikhef

FAQ

- 📌 My Desktop/laptop/tablet has broken down! *If it is Nikhef property, the IT Helpdesk can provide a replacement one while they fix your device*
- 📌 I ran out of disk space in my account! *Ask the Helpdesk to increase your quota. Note that there is a very large amount of scratch space (non-backup) available*
- 📌 My jobs in Stoomboot keep crashing! *Ask local theorists with experience with the cluster*
- 📌 I would like to suggest structural changes to Nikhef IT services, or propose new services or activities! *Get in touch with the Theory representative at the CGO, the Nikhef Computing Users' Group (yours truly)*
- 📌 I would like to purchase a new laptop/tables/desktop, what can I do? *The Helpdesk can do this for you, but first discuss with your supervisor*
- 📌 Can I order computing equipment (keyboards, mouse, screens, hard disks) via the Helpdesk? *Yes, so no upfront charges from our side! But please check with your supervisor first.*

Until recently, Theory has been using Nikhef computing resources much less than other programs, so **our quotas are not too high**. The more users we have, the better we can argue for increase in quotas. So please get in touch if you feel **your research deserves more IT resources!**