

Tutorial: How can I work with Jupyter at home?

There is two ways to work with Jupyter at home:

- Either you install Python, Jupyter and all other dependencies on your device so you can run Jupyter locally.
- Or you connect with the Tardis work stations you already use during the class!

There is dozens of tutorials on how to run Jupyter locally, let us therefore focus on the second solution!

The D-ITET Tardis computer network

The D-ITET has around 100 freely accessible computers to use for

- Student's personal computing/work
- Computer Classes or Student Labs
- Distributed Computing, when not in use

The computers in this network are called tardis and are enumerated with two-digit numbers and the letters: [b,c,d]. Each computer has a domain hostname and a (public) static IP address:

tardis-c13.ee.ethz.ch / 129.132.3.140

More info: <https://computing.ee.ethz.ch/Workstations/ComputerRooms>

Use Secure Shell to connect to a Tardis computer

First of all, make sure you are on the ETH Zurich network:

Use eth|eduroam WiFi or connect to the ETH virtual private network. (Almost all ETH servers are only available inside their network!)

Open a Terminal on your client and enter this command to open a SSH connection:

```
$ ssh <username>@tardis-c<XX>.ee.ethz.ch
```

Now as you are connected to a Tardis computer go to your python-class folder and start jupyter:

```
$ cd path_to_class/folder
```

```
$ anaconda
```

```
$ jupyter-notebook
```

Make note of the link that is given to you by Jupyter!

A practical approach to use SSH-Tunneling

SSH can redirect IP connections from your local computer by tunnelling them through the encrypted SSH session to the remote computer. This allows to establish connections to ports on the remote machine that are otherwise not accessible from the local computer (also by-passing firewalls). The endpoints of the tunnel are defined by an IP port on the local machine and on the remote machine. All connections to the port on the local machine will be forwarded the specified port on the remote machine.

Checkout the '-L' argument in 'man ssh' for more information.

(This can also be used to connect securely to a Desktop Environment using the VNC protocol)

To forward the port of your Jupyter-Notebook, enter this command in **another** local terminal (replace the missing keywords)

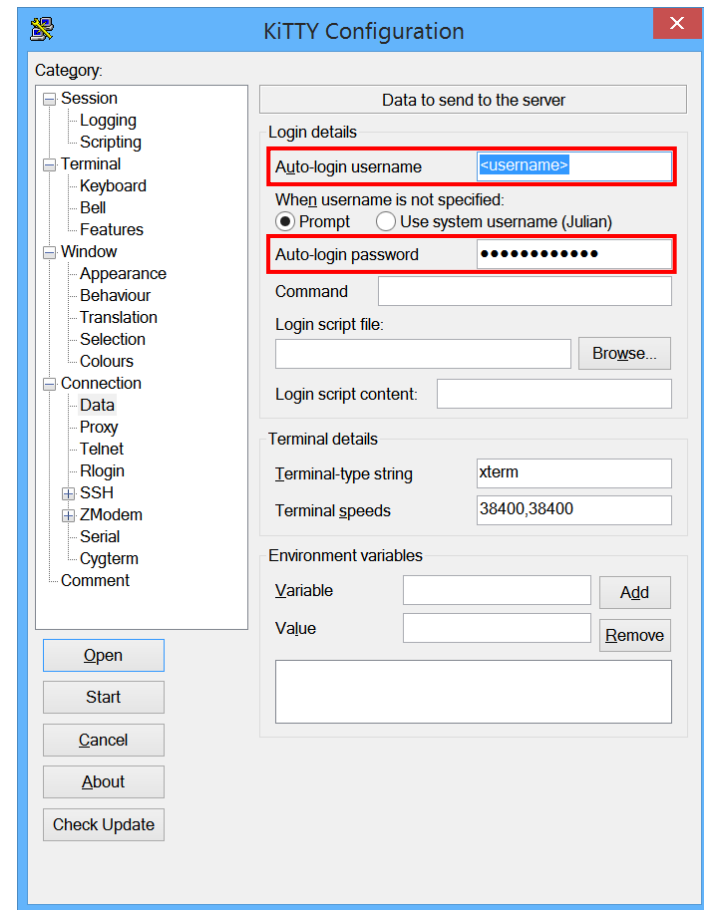
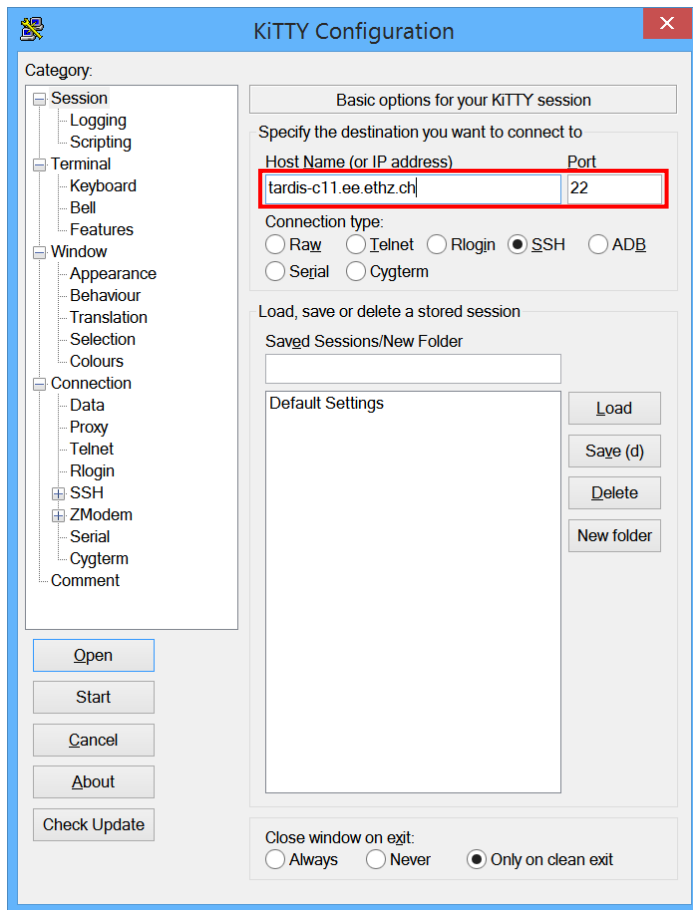
```
$ ssh -L localhost:8888:localhost:8888 <username>@tardis-cXX.ee.ethz.ch
```

Now open the link given by jupyter notebook in your local browser.

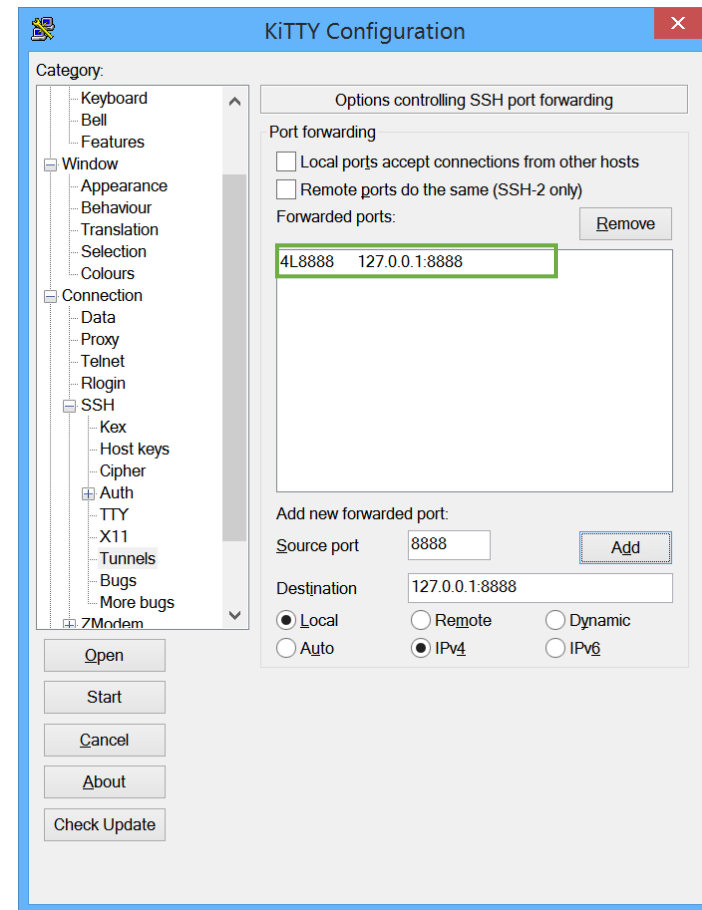
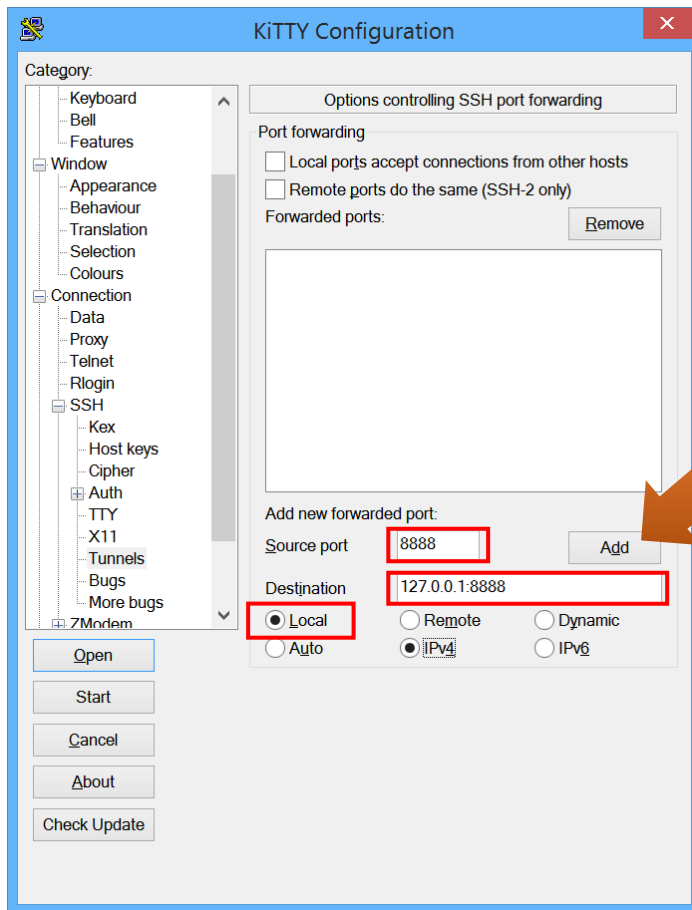
The link can look like: <http://127.0.0.1:8888/tree?token=c88dc46125c8c4a2c50848fc2e0756439b2a8edf4ad154b2>

Note: closing this SSH session will also close the forwarded network connection from your computer to jupyter-notebook on tardis-cXX.

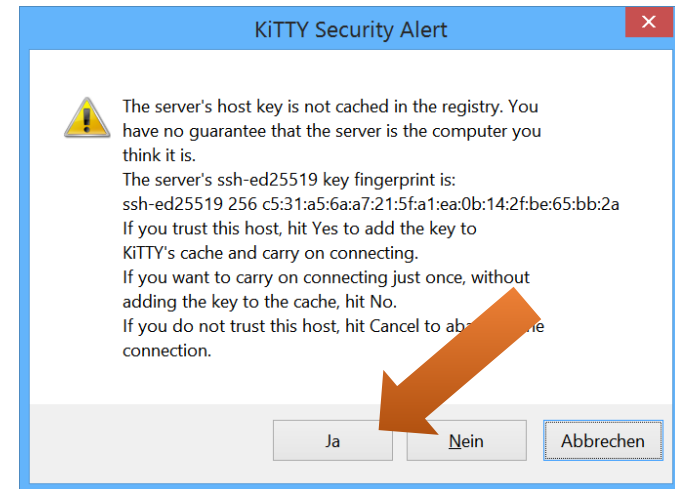
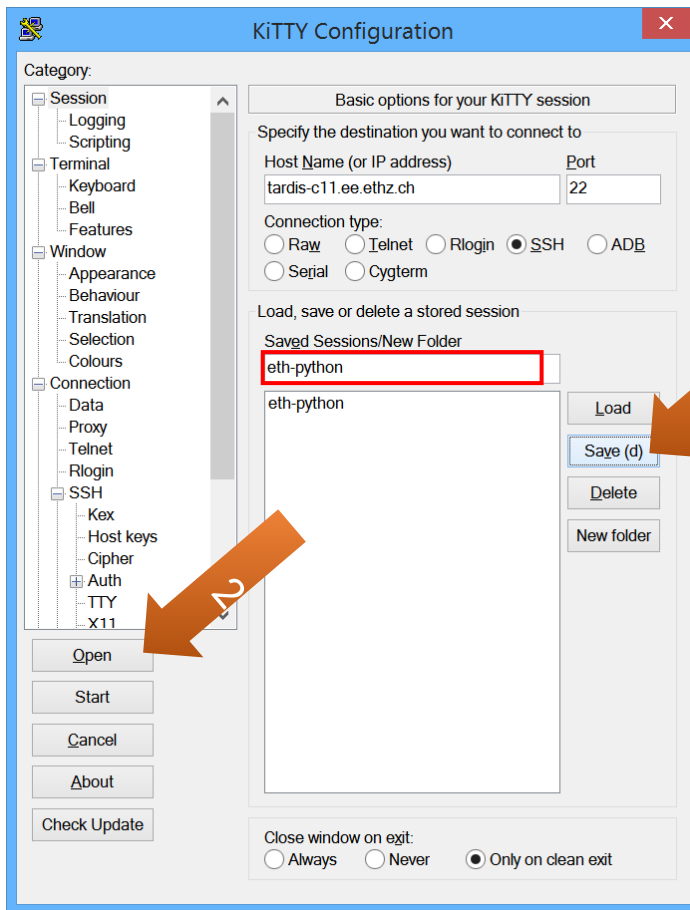
On Windows: using PuTTY/KiTTY



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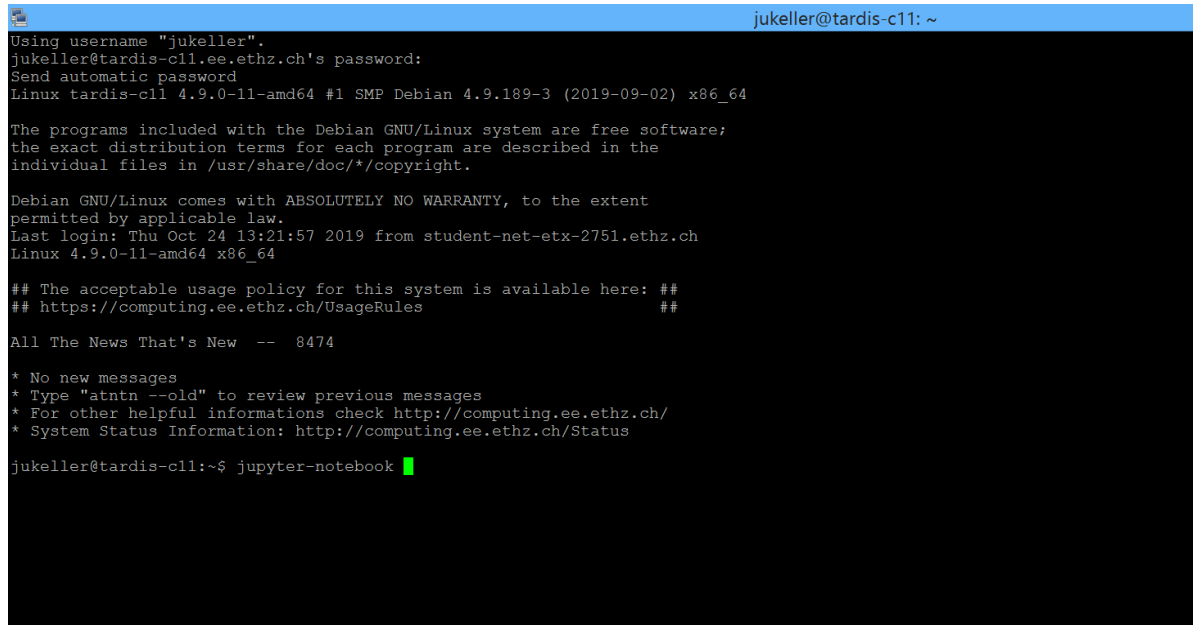


On Windows: using PuTTY/KiTTY



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Shell Prompt

A screenshot of a terminal window with a blue title bar. The title bar contains a small icon on the left and the text 'jukeller@tardis-c11: ~' on the right. The terminal text shows a login process for user 'jukeller' on a Debian system. It includes prompts for password, system information (Linux tardis-c11 4.9.0-11-amd64 #1 SMP Debian 4.9.189-3 (2019-09-02) x86_64), Debian GNU/Linux version and warranty information, last login details (Thu Oct 24 13:21:57 2019 from student-net-etx-2751.ethz.ch), and system status links. At the bottom, the user has entered 'jupyter-notebook' and a green cursor is visible.

```
jukeller@tardis-c11: ~  
Using username "jukeller".  
jukeller@tardis-c11.ee.ethz.ch's password:  
Send automatic password  
Linux tardis-c11 4.9.0-11-amd64 #1 SMP Debian 4.9.189-3 (2019-09-02) x86_64  
  
The programs included with the Debian GNU/Linux system are free software;  
the exact distribution terms for each program are described in the  
individual files in /usr/share/doc/*/copyright.  
  
Debian GNU/Linux comes with ABSOLUTELY NO WARRANTY, to the extent  
permitted by applicable law.  
Last login: Thu Oct 24 13:21:57 2019 from student-net-etx-2751.ethz.ch  
Linux 4.9.0-11-amd64 x86_64  
  
## The acceptable usage policy for this system is available here: ##  
## https://computing.ee.ethz.ch/UsageRules ##  
  
All The News That's New -- 8474  
  
* No new messages  
* Type "atntrn --old" to review previous messages  
* For other helpful informations check http://computing.ee.ethz.ch/  
* System Status Information: http://computing.ee.ethz.ch/Status  
  
jukeller@tardis-c11:~$ jupyter-notebook
```