

# Noto troubleshooting guide

## Reminders

Remember how **noto** (JupyterHub) works:

1. Students connect to the hub (GASPAR/Tequila authentication).
2. The hub automatically starts a session (a personal “server” for the student) with the JupyterLab interface.

Both (the session on the hub and the personal server) are completely independent of the student’s browser:

- If the student closes a tab or the browser, this has no effect on the running kernel(s), nor on the current session on the hub.
- If a student has already started his personal server—when he closes his browser, restarts it and goes to `noto.epfl.ch`, he will be automatically reconnected to his personal server.

While the personal server cannot work without an active session on the hub, the reverse is not true: a student can have an open session on the hub but no active personal server.

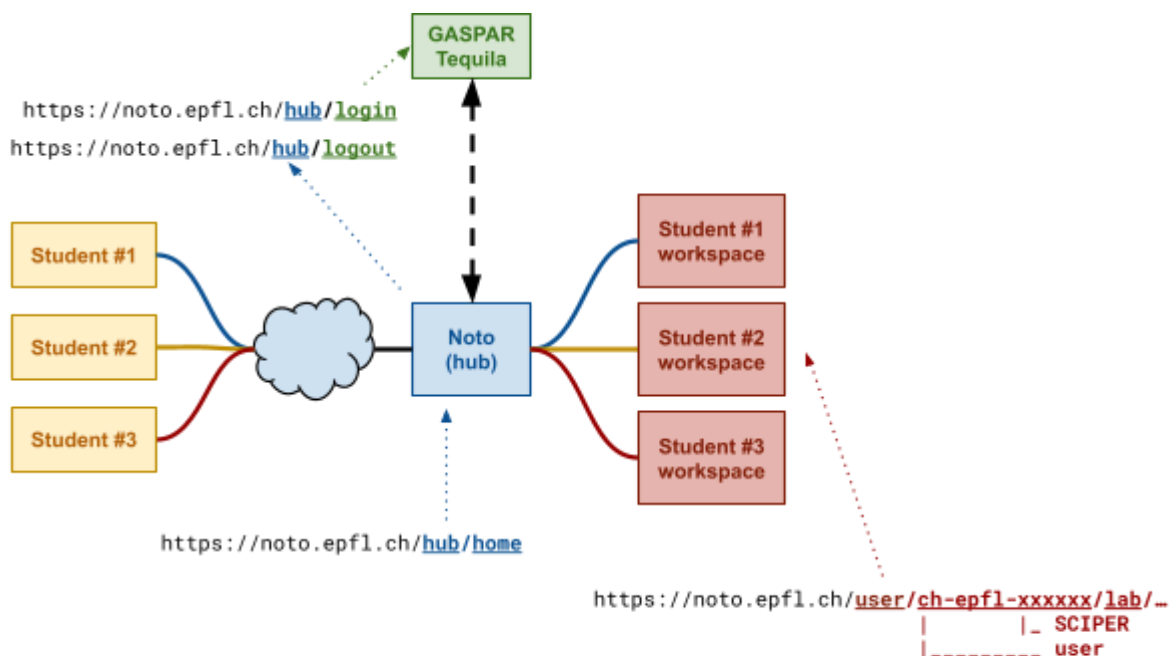


Fig. 1. The different parts of the URL are handled by different components of noto.

## How do I access the Hub?

There are two ways:

1. Go to <https://noto.epfl.ch/hub/home>
2. From JupyterLab: “File → Hub” control panel, you can manage your own session (kill the server, restart it, or log out of the hub—which will kill the server).

## How do I stop my personal server?

From the Hub (see above):

- Click on “Logout” (=> the server is stopped and the session on the Hub is also stopped).
- Click on "Stop My Server" (=> only the personal server will be stopped).

From the personal server (JupyterLab)

- *File → Log out*

From a new window:

- Enter the following URL manually: <https://noto.epfl.ch/hub/logout>

## Our recommendations

### Your browser

Recommended browsers

1. Chrome / Chromium
2. Firefox

Safari and Edge are **not** recommended.

Also, some extensions or plugins are known to block the operation of noto.

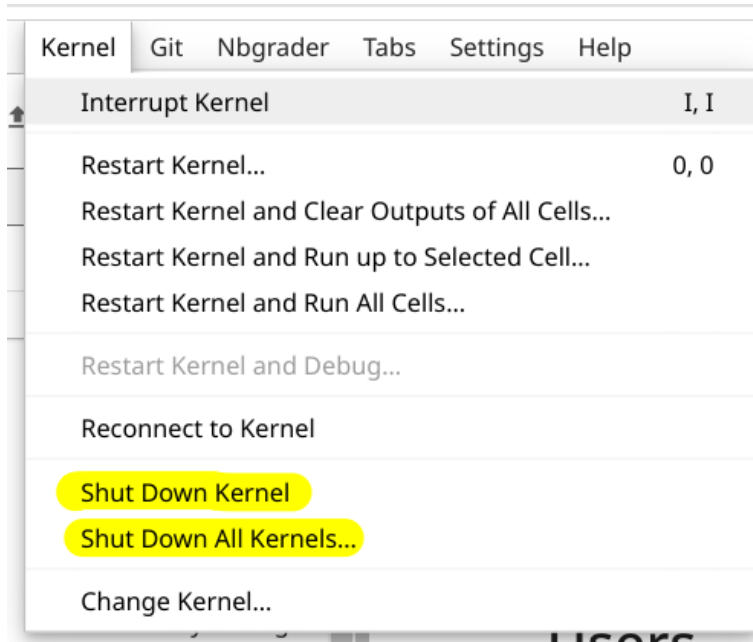
### Tabs / Workspaces

It is not recommended to open multiple tabs/windows/browsers—it is generally useless, makes logging in/out difficult and creates multiple workspaces. In the end, each tab/browser will be connected to the same personal server anyway.

### Notebooks and Kernels

Each time you open a notebook, a new kernel is started: if you do not need to *run* these notebooks, you can stop their kernels:

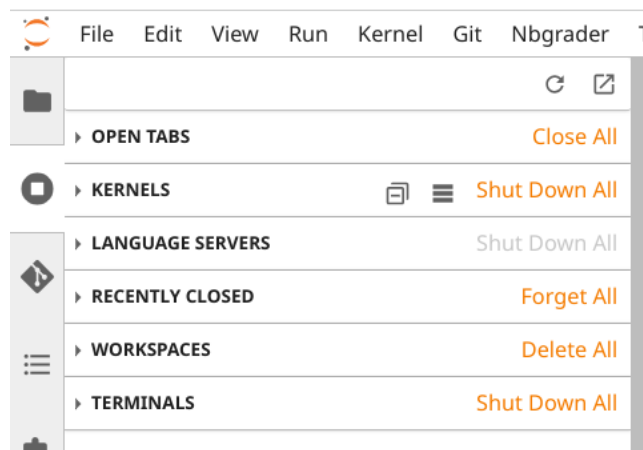
- *Kernel → Shut Down Kernel*
- *Kernel → Shut Down All Kernels*



It is also possible to see which kernels (and terminals) are currently running:



By clicking on the two counters (or on the tab), it is possible to control all kernels, terminals and workspaces:



# Troubleshooting

## “Spawn fail” / Error 503

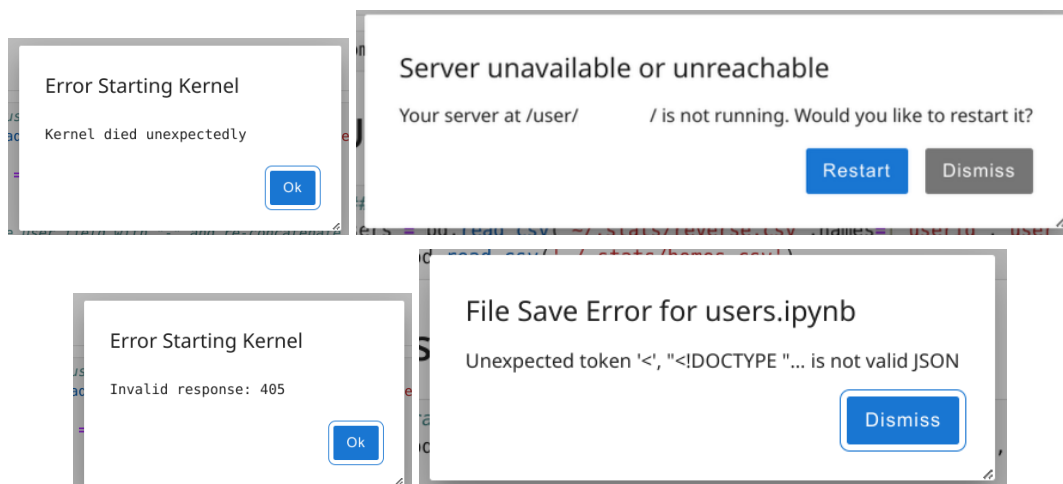
If noto gives an error when starting the personal server (“**spawn fail**” or **Error 503**—which can happen when 300 students connect at the same time) —there is nothing to do, just wait 30 seconds. The student can perform a voluntary logout (“Logout” button or do it manually: <https://noto.epfl.ch/hub/logout>) and try to log in again 30 seconds later.

If the startup systematically gives an error, there is a problem in the student’s workspace: he/she may have installed Python modules or changed the JupyterLab configuration.

=> You need to contact noto support with the student's SCIPER.

If the student has tested noto before the exam, he/she should not have this kind of problem.

## Loss of personal server and/or kernel



This type of message indicates that the personal server is no longer available for one of the following reasons:

- The session was automatically terminated after 20 minutes of inactivity.
- The Personal Server has been stopped...
  - ... by the student (e.g. in another tab),
  - ... by noto because the personal server was using too many resources (e.g. more than 2GB of RAM).
- The student has **logged out** from the hub.

**WARNING:** These messages are not trivial. Clicking on “**OK**” or “**Dismiss**” will not solve the problem!

**WARNING:** The interface visible in the browser remains functional in appearance... but as there is no longer a personal server, cell executions and automatic saves will be no longer effective.

## Out-of-Memory Killer

Each user is entitled to a fixed amount of RAM to run their personal server and notebooks (2GB).

In the event of problems running a notebook (memory filling up during a loop, loading a file too large for memory), the host machine of the personal server will find the faulty process and kill it (out-of-memory kill).

It will be necessary to restart the kernel, or even the session if the problem is more serious. As long as the personal server is running, it will be possible to save the work done. The students must know how to stop a kernel (click on the bottom left in the kernel and terminal control area) or how to log out voluntarily (*File* → *Logout*) or (*File* → *Hub control panel* → *Stop my server*).

## Automatic backups

There is no risk of losing the work done—notebooks are saved automatically every 30 seconds. It is always possible to save voluntarily (*File* → *Save*). Obviously, if the personal server is no longer operational, backups (automatic and manual) are no longer possible!

Student cannot connect to noto		
		1. Check the <b>network connection</b> (can the student access other EPFL services? Moodle, tequila, etc.)
		2. Check the <b>browser</b> (type and extensions/plugins, see recommendations above)
<b>The student gets a “Spawn failed” / “Error 503” error (his personal server does not launch correctly)</b>		
		1. Perform a <b>logout</b> ; wait for <b>30 seconds</b> (the time for noto to time out), and try again.
		2. If the problem persists after 2 or 3 attempts, the student's workspace may be corrupted. <b>Contact noto support to give this student a temporary workspace.</b>
<b>The JupyterLab interface takes too long to appear completely or does not appear (blank page)</b>		
		1. Sometimes starting up the personal server may take a long time. You must wait 1 to 2 minutes. If the interface still does not appear, <b>log out</b>
		2. If the interface still does not appear after 2 or 3 attempts, the student's workspace may be corrupted. <b>Contact noto support to give this student a temporary workspace.</b>
<b>The student can connect to noto, but there are problems ...</b>		
<b>The cells do not execute</b>		
		1. <b>Check that the kernel is running.</b> If the kernel has been stopped by noto (e.g. exceeding the 2GB quota), it is necessary to check that other processes have not been stopped (e.g. check that the interface is working correctly by saving the notebook or opening a new terminal). If the session is not working, <b>log out</b> . If everything is OK, <b>restart the kernel</b> .
		2. <b>Verify that the Personal Server is still active</b> (by saving the notebook or opening a new terminal, for example). If the session is not in a working state, <b>log out</b> .

	<b>The cells are running slowly</b>	
		1. Check the number of kernels started, close the ones you do not need.
		2. Monitor the activity of kernels and other processes in the student session. Open a terminal and issue the command <b>top</b> . Press <b>q</b> to exit.
<pre>top - 10:58:25 up 1 day,  2:58,  0 user,  load average: 9.29, 12.67, 10.83 Tasks:  5 total,  1 running,  4 sleeping,  0 stopped,  0 zombie %Cpu(s): 28.5 us,  3.9 sy,  0.0 ni, 66.6 id,  0.7 wa,  0.0 hi,  0.3 si,  0.0 st MiB Mem : 64301.2 total, 11559.5 free, 42443.1 used, 11029.7 buff/cache MiB Swap: 16402.0 total, 15809.9 free,   592.1 used. 21858.1 avail Mem    PID USER      PR  NI   VIRT   RES   SHR  S  %CPU  %MEM    TIME+  COMMAND     1 xxxxxxxx  20   0 1298476 228612 34816 S   3.0   0.3   0:13.41 jupyter-labhub    114 xxxxxxxx  20   0   8268   4352  3584 S   0.0   0.0   0:00.03 bash    122 xxxxxxxx  20   0 686008  65536 17792 S   0.0   0.1   0:00.96 python3.12    125 xxxxxxxx  20   0 686012  65792 17664 S   0.0   0.1   0:01.00 python3.12    153 xxxxxxxx  20   0   12396   5632  3456 R   0.0   0.0   0:00.03 top</pre>		
<p>The <b>top</b> command allows you to see the different processes (with their identifier: PID). The <b>jupyter-labhub</b> command is always the one with PID=1. Here we see that there is a terminal opened with the <b>bash</b> shell (PID=114), as well as two <b>python3.12</b> kernels (PID=122 and PID=125), and the <b>top</b> command is also listed (PID=153).</p> <p>The <b>%CPU</b> column shows the activity of the process and the <b>TIME</b> column shows the CPU time used so far.</p>		
<p>The upper part gives information about the (real) machine on which the personal server is running. In this case, we can see that the CPU is 66.6% idle, that there is 11 GB of free RAM and that 592.1 MB of SWAP is being used. This is a normal situation.</p>		
<p>The following command (to be run in a terminal) will allow you to find out the number of the real machine in the noto cluster. Run the command <b>ip a</b> and look at the last two digits (<b>XY</b>) of the machine's IP address, which starts with <b>192.168.130.1XY</b>.</p>		
	<b>Cells are not editable</b>	
		1. Some of the cells in the exam are not editable and/or clearable.
		2. If the personal server stops responding, some cells will not be editable or the notebook backup will not work. If the session is not working, <b>log out</b> .
	<b>Certain cells disappear</b>	
		1. Ask the student to use a compatible browser or to disable certain extensions.
	<b>Appearance of pop-ups (warning messages)</b>	
		1. The pop-up appears when the student's browser loses contact with the personal server or the

		kernel that was running.
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