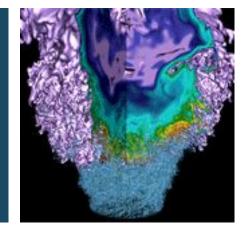
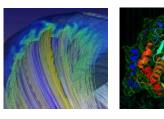
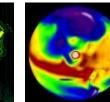
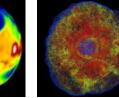
Connecting to NERSC

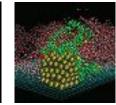




















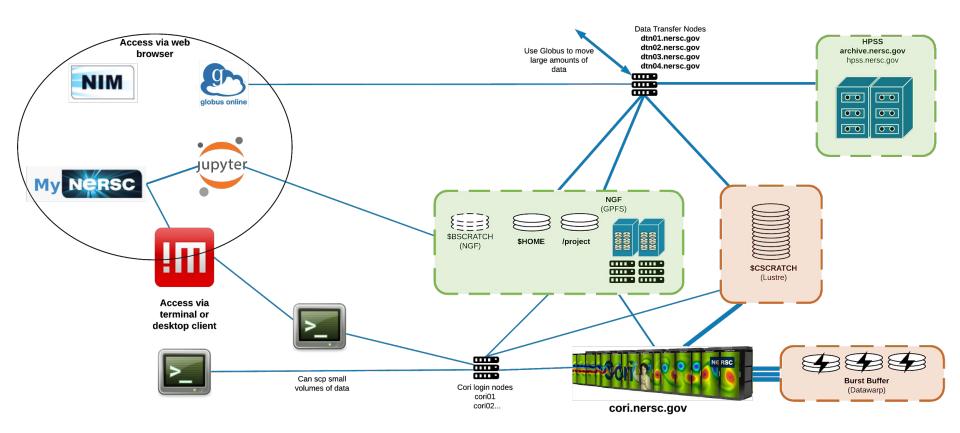
- 1. Options for connecting
- 2. MFA (Multi-Factor Authentication)
- 3. Password resets and login failures (NIM)
- 4. **NX**
- 5. **SSH**





Connecting to NERSC













1. Options for connecting

2. MFA (Multi-Factor Authentication)

3. Password resets and login failures (NIM)

4. NX

5. **SSH**





MFA



- Multi-Factor Authentication
 - NIM password + OTP ("One-Time Password")
 - OTP obtained via Google Authenticator on your smartphone

https://play.google.com/store/apps/details?id=com.google.android.apps.authenticator2&hl=en https://itunes.apple.com/us/app/google-authenticator/id388497605?mt=8

- Alternative/backup option: Authy on desktop <u>https://authy.com/</u>
- Much harder for someone to hack your account

Mandatory

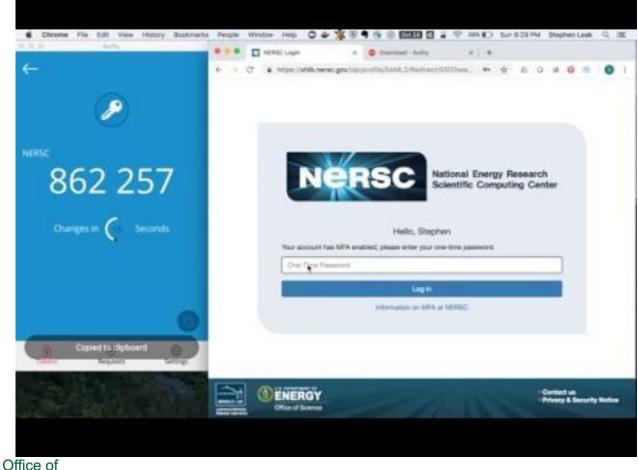
except in special circumstances







Shibboleth (help.nersc.gov, some science gateways)







MFA on NERSC services



Jupyter-dev, RStudio RStudio Sign In × + $\leftarrow \rightarrow$ C https://rstudio.nersc.gov/auth-sign-in 🛧 💧 🔾 🔊 🔞 📄 : C JupyterHub × + ← → C (▲ https://jupyter-dev.nersc.gov/hub/login 🛧 🛆 🖉 🔊 😨 🖄 😭 😫 **R**Studio 💭 jupyter Sign in to RStudio Username: Password: Username: MFA Token (testing): Password: Notice: NERSC will enable MFA on RStudio in the near future. MFA [If Enabled]: Stay signed in Sign In







• MyNERSC

- similar to Jupyter, Rstudio
- SSH, NX, etc:
 - details below ...









- 1. Options for connecting
- 2. MFA (Multi-Factor Authentication)
- 3. Password resets and login failures (NIM)
- 4. NX
- 5. **SSH**







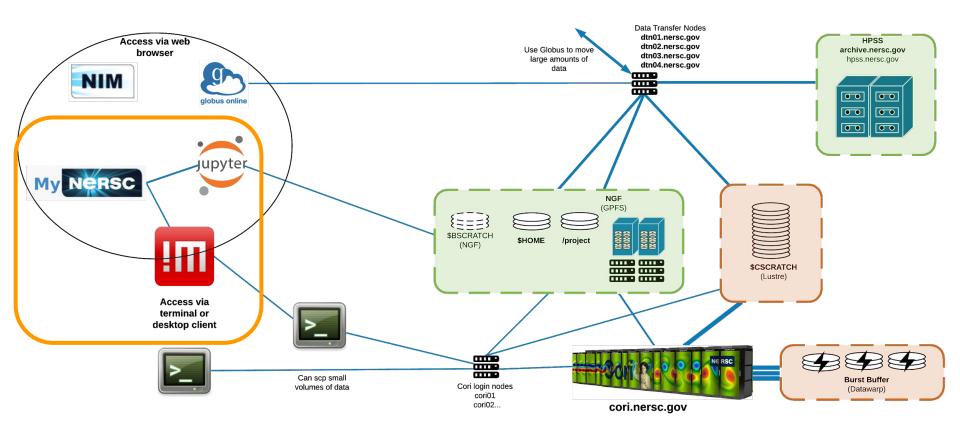
https://nim.nersc.gov

i nim.nersc.gov Č	(†
NERSC NIM NERSC Information Management	
Please sign in NERSC Username:	If you have no MFA tokens (first time logging in, or logging in after clicking "Lost your tokens), then leave this empty
New to NERSC? Get valuable information about using NIM here: NIM User's Manual. NERSC recommends using Multi-Factor Authentication (MFA) to increase your account security. Read instructions here. Reset your NIM password using the link above. If you have problems resetting your password, contact Account Support at the number below. NERSC Account Support: 1-800-66-NERSC (menu option #2) or 510-486-8612. NERSC Consultants: 1-800-66-NERSC (menu option #3) or 510-486-8611, consult@nersc.gov	
Browser Requirements NOTICE TO USERS All connections are logged. Please DO NOT BOOKMARK this page. Bookmark http://nim.nersc.gov/	



Connecting to NERSC











https://my.nersc.gov

C 🗎 Secure http://www.secure	os://my.ner	sc.gov/index.php	* (5 🖸 35 😯 🗶 🐣 E
Admin 📄 NESAP 📄 Mon	itoring 🗎	User Docs 🗎 SCC 📄 Interesting 📄 NERSC sites 🗎 Git resources 🗎 Markup resource	es 📄 Saved State 📄 troubleshooting	
MyNERSC				
Sign In		Dashboard		
B Dashboard		Lull My Repo Usage	System Status	
I Jobs	. <			
D Center Status	<	Please Login	Compute Systems:	
File Browser		i≣ My Personal Disk Usage	Cori	Up
My Tickets			Edison	Up
III Data Dashboard		Please Login	Genepool	Up
NX Desktop			PDSF	Up
Jupyter Hub		I My Project Disk Usage	PDSF	op
Changelog		Please Login	Global Filesystems	
INERSC Homepage			DNA	Up
		I My Active Jobs	Global Common	Up
		Please Login		









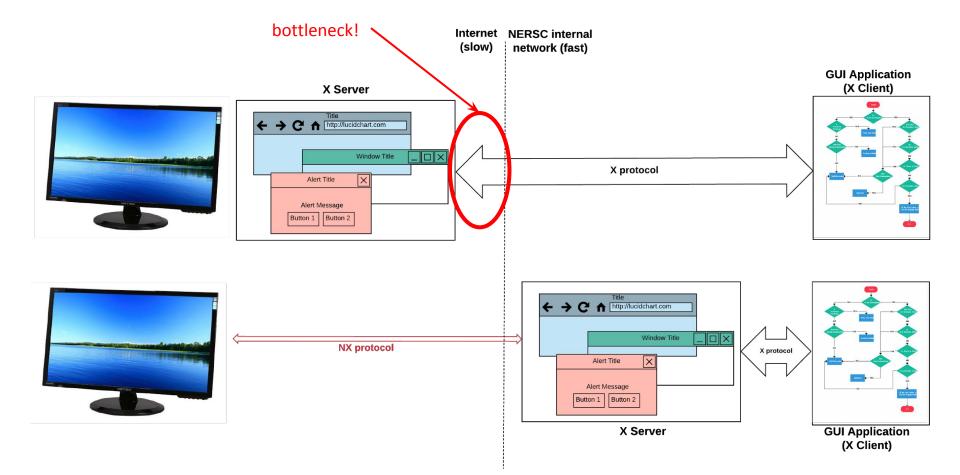
- 1. Options for connecting
- 2. MFA (Multi-Factor Authentication)
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NX@NERSC - Accelerated X













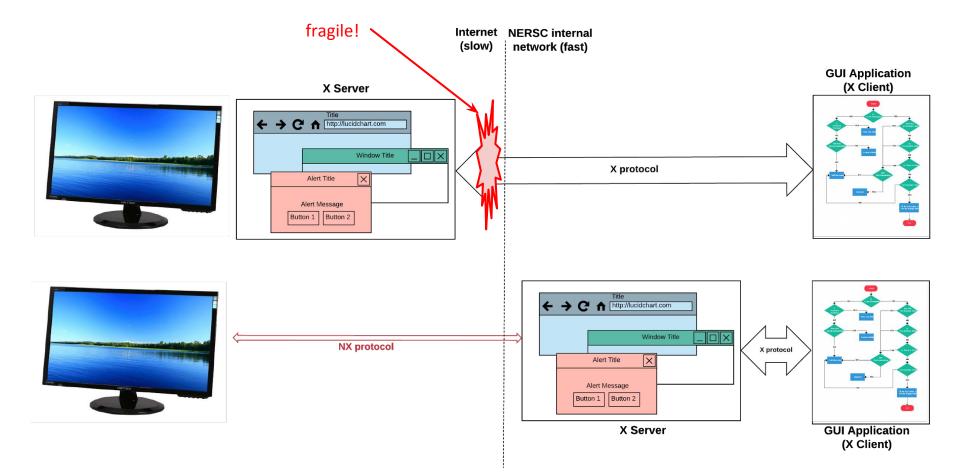
- Slow Speeds: X-Windows is slow over network. Remote windows from emacs can take minutes to open
- Solution: NX Buffers/Compresses X messages, giving much better X experience





NX@NERSC - Accelerated X









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Reasons for NX

Long Lasting Desktop:

NX gives you a desktop, so you can connect to NERSC resources (eg, cori) and start your GUI applications.

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	Scrollback Bookmarks Settings Help	
	03/71/18 7.00 19:00 FDT, Scheduled maintenance. Planned maintenance event for Edison system upgrade. Edison will be unemailable dering this violadov of time.	Î
PSS üser:	03/21/18 9-08-14:09 FDT, Schedulad maintenasce. 1955 systems will be unavailable while NERSC engineers perform a scheduled maintenance.	
IPSS Backup:	03/21/18 9-00-14:00 /DT, Scheduled maintenance. 1955 systems will be unavailable while NDSC engineers perform a scheduled maintenance.	
ark:	03/22/18 7-00-16-00 FDT, Scheduled maintenance. Cers will be unavailable shile MERSC anglemers perform system software maintenance.	
icsence Gateways	03/23/18 10:00-13:00 FDT, Scheduled maintenance. MEMT will be smarailable for 3-3 hours while being migrafed to new hardware.	
Genepos 1	05/08/18 7:08-38:00 PDT, Scheduled maintenance.	
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Ids son:	#5/00/18 7:00-18:00 PDT, Scheduled maintanance.	
(aris)	05/08/38 7:00-18:00 PDT, Scheduled eastcanance.	
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in Outages in Las	at 24 Moors	
for past outages.	see: http://my.mersc.gov/outagelog-cs.php	

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- Lost Connections: If I lose internet connection, I might lose all running processes.
- **Solution:** NX provides sessions. You can suspend the session without terminating the running processes.
 - And get back to the same point when reconnected, even from a different location or computer.



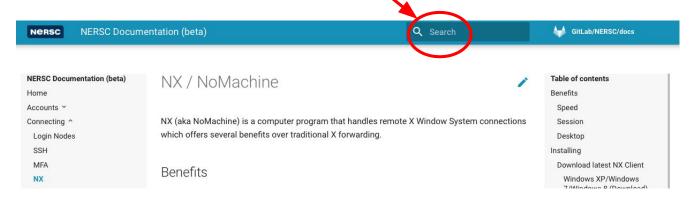




- Any desktop/laptop
 - Windows/Linux/Mac
- NX Client software (free)

http://www.nersc.gov/users/connecting-to-nersc/using-nx/download-tested-nx-player/ http://www.nersc.gov/users/connecting-to-nersc/using-nx/nxconfig-2/

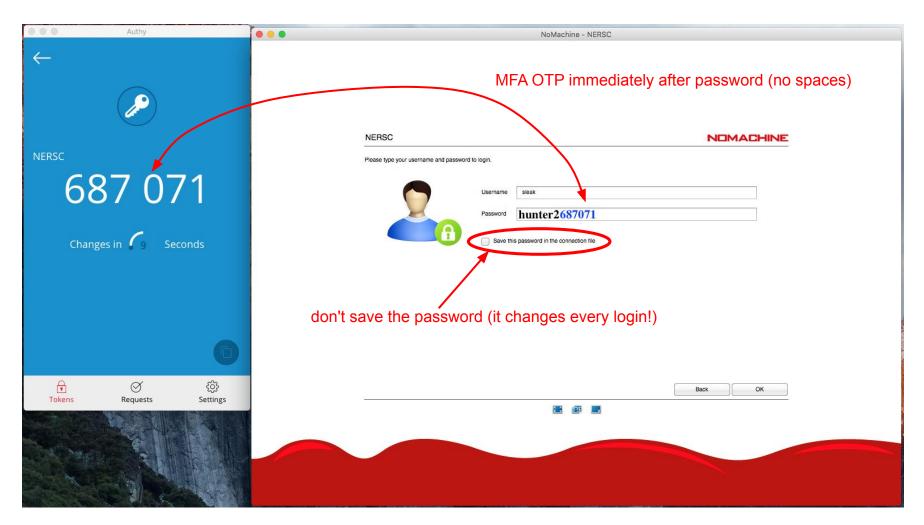
Search for "NX" on <u>docs.nersc.gov</u>



















- 1. Options for connecting
- 2. MFA (Multi-Factor Authentication)
- 3. Password resets and login failures (NIM)
- 4. NX
- 5. **SSH**









- All NERSC computational systems are accessible via ssh
- First: you need a terminal program on your desktop/laptop
 - Mac: "terminal" (built-in) or "iTerm2"
 - (https://www.iterm2.com/)
 - Windows: PuTTY (or XWin32 or Git BASH) (<u>https://www.chiark.greenend.org.uk/~sgtatham/putty/latest.html</u>)
 - Linux: Your own favorite :)
- If you will use X-forwarding (coming up) (Note: NX is better!) then you also need an X server
 - Mac: XQuartz (<u>https://www.xquartz.org/</u>)
 - Windows: Cygwin/X (<u>http://x.cygwin.com/</u>)
 - Linux: built in





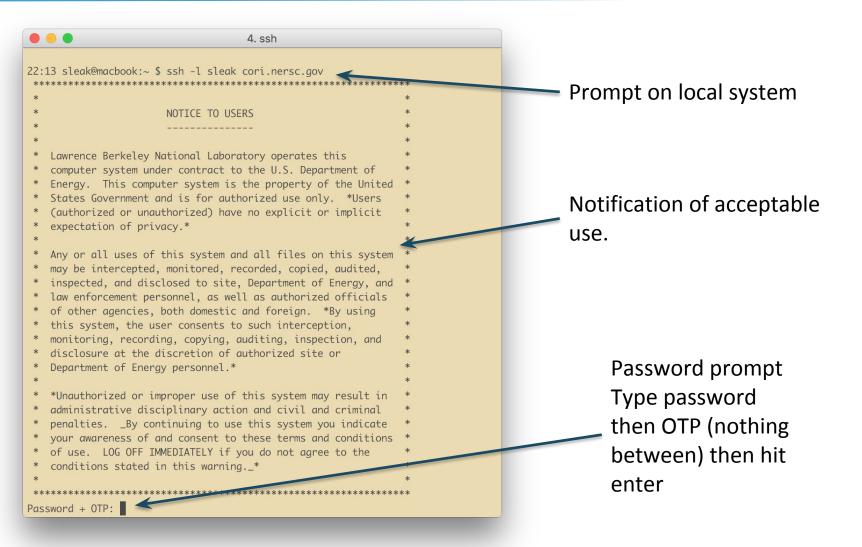
Example Session (terminal only)

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NERSC Message of the Day



 After you type the password and logged in to a system, you will see NERSC MOTD before your session prompt appears

Last login: Wed Feb 22 16:07:29 2017 from 198.128.212.1	Service Status as of 2017-02-22 14:35 PST All services are available.
NERSC Contactshttp://www.nersc.gov/about/contact-us/NERSC Statushttp://www.nersc.gov/users/live-status/NERSC: 800-66-NERSC (USA)510-486-8600 (outside continental USA) Current Status as of 2017-02-22 14:35 PST	 Cori: 02/28/17 6:00-03/01/17 6:00 PST, Scheduled maintenance. Cori will be degraded due to cabinet additions. Datawarp nodes will be reduced during this time.
Compute Resources: Cori: Available. Edison: Available. Genepool: Available.	Cori: 03/01/17 6:00-03/03/17 17:00 PST, Scheduled maintenance. Cori will be down for adding cabinets and HSN (high-speed network) maintenance. Logins will not be available.
PDSF: Available.	Data Transfer Nodes: 03/01/17 9:00-12:00 PST, Scheduled maintenance.
Global Filesystems: DNA: Available. Global Common: Available. Global Homes: Available.	 Cori: 02/21/17 8:00-21:15 PST, Scheduled maintenance. Cori will be unavailable while updates are applied. Logins will be available, however no jobs will run.
Project: Available. ProjectA: Available. ProjectB: Available.	Cori: 02/21/17 21:15-22:15 PST, System in degraded mode. The majority of the system's compute nodes are currently unavailable. Engineers are investigating the issue
Mass Storage Systems: HPSS Backup: Available. HPSS User: Available.	For past outages, see: http://my.nersc.gov/outagelog-cs.php





Example with X-forwarding



 Allows you to access Visualization programs remotely at NERSC

Example:

localhost% ssh -1 elvis(-Y)cori.nersc.gov

e/elvis> module load matlab e/elvis> matlab <MATLAB starts up>

NERSC Recommends using NX instead of X-forwarding (faster, more reliable)

000	Terminal — ssh — 102×24		
Cori will be down network) maintena		MATLAB R2016a	
		Search Documentat	ion 🔎 7
P	🤯 妃 🗁 🗔 Find Files Jew New Open 📴 Compare		OURCES
ori: 02/21/17 8:00-21:1 Cori will be unav	cript • • •	• • •	-
be available, how	• ➡ 🔁 🖾 / ► global ►		▼ <i>3</i>
unavallable. Eng	urrent Fo Command □ □ □ □ □ □ □ □ □	Window ⑦	
For past outages, see: http://my.ne			
/unhe@cori04:~> module load matlab	etails ^		
ATLAB is selecting SOFTWARE OPENGL	endering.		





Logging in with MFA













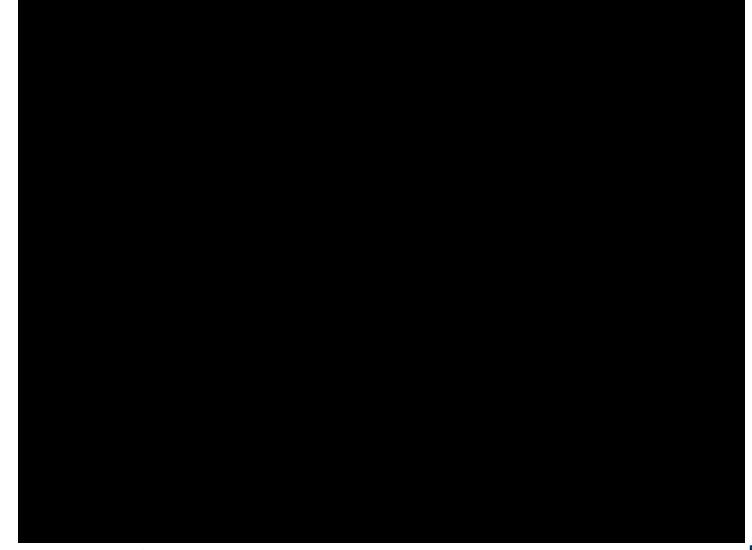
- Tired of repeatedly typing password + OTP?
- sshproxy creates a short-term (24 hours) certificate
- Run sshproxy.sh once, then you can ssh to NERSC systems for the next 24 hours before being asked for password+OTP again









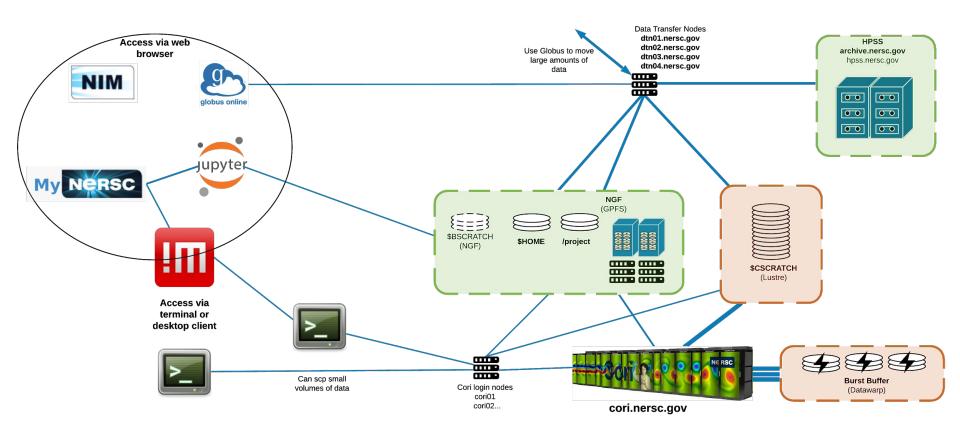






Connecting to NERSC











Thank you.

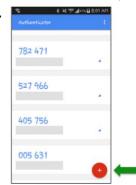




Setting up MFA



- 1. Install Google Authenticator (on phone)
- 2. Enrol OTP Token
 - from "MFA Tokens" tab in NIM, hit "Add Token"
 - Give it a name, hit "Submit" then scan the QR
 - code with Google Authenticator





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Science

 Use your NIM password followed by the numbers provided by Google Authenticator

ssh cori.ne		
*********	******	***********
*		*
*	NOTICE TO USERS	*
*		*
Password + OT	P :	



In the above example ("my phone"), the user is trying to generate a token that will be used with the Google Authenticator on a phone. If you have more than one token from different devices, you can add a proper description for each token for your reference.

Click the 'Submit' button. Then, the webpage will display a token and a QR code that is to be scanned into your device. Note the token ID (TOTP22856A68 in the following example).

User	Serial Id	Token Description		Falls
wyang	TOTP22856A68	my phone		0
	Add Token		Delete All	
OATH	Soft Token OTF	seed		
QR-Code	for installing the OATH comp	atible Soft Tokens (FreeOTP, Go	ogle Authenticator and othe	r apps using the 'otpauth:// synta
This will	he the only time you will be	able to scan this code into you		selmiles app) or use the URI
		able to scall this code into you	ir Google Authenticator (c	er similar app), or use the ord.
string bel	ow.	-		er samnar app), or use one one.
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otpauth://totp/NERSC-wyang-TOTP22856A68? secret=KCTIWS3MEWJGVI4YL3NMZ6TL6HULS42L TOTP22856A68

