

# Introduction to Perl

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High Performance  
Research Computing  
DIVISION OF RESEARCH

# For Assistance...

Website: <https://hprc.tamu.edu>  
Email: [help@hprc.tamu.edu](mailto:help@hprc.tamu.edu)  
Telephone: (979) 845-0219  
Visit us: Henderson 211, Blocker 217D  
(Mon-Thu) (Fri)

Help us, help you -- *we need more info*

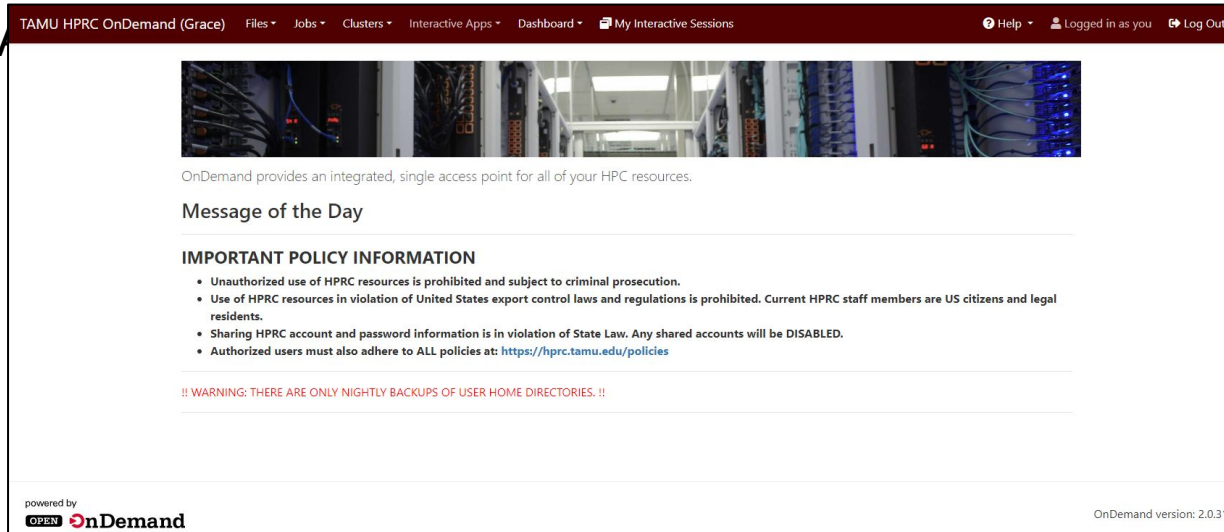
- Which Cluster
- NetID
- Job ID(s) if any
- Location of your job files, input/output files
- Application used & module(s) loaded if any
- Error messages
- Steps you have taken, so we can reproduce the problem

# Course Material

[https://hprc.tamu.edu/training/intro\\_perl.html](https://hprc.tamu.edu/training/intro_perl.html)

# Open Grace Portal

- TAMU NetID users: <https://portal-grace.hprc.tamu.edu/>



The screenshot displays the TAMU HPRC OnDemand (Grace) portal. The top navigation bar is dark red and contains links for Files, Jobs, Clusters, Interactive Apps, Dashboard, and My Interactive Sessions. On the right side of the bar are links for Help, Logged in as you, and Log Out. Below the navigation bar is a banner image of server racks. The main content area includes a message stating that OnDemand provides an integrated access point for HPC resources. This is followed by a 'Message of the Day' section and an 'IMPORTANT POLICY INFORMATION' section. The policy information lists three bullet points regarding unauthorized use, export control laws, and account sharing. A warning message in red text states that there are only nightly backups of user home directories. At the bottom left, the portal is noted as being powered by OPEN OnDemand, and at the bottom right, the version is listed as 2.0.31.

TAMU HPRC OnDemand (Grace) Files Jobs Clusters Interactive Apps Dashboard My Interactive Sessions Help Logged in as you Log Out

OnDemand provides an integrated, single access point for all of your HPC resources.

Message of the Day

**IMPORTANT POLICY INFORMATION**

- Unauthorized use of HPRC resources is prohibited and subject to criminal prosecution.
- Use of HPRC resources in violation of United States export control laws and regulations is prohibited. Current HPRC staff members are US citizens and legal residents.
- Sharing HPRC account and password information is in violation of State Law. Any shared accounts will be DISABLED.
- Authorized users must also adhere to ALL policies at: <https://hprc.tamu.edu/policies>

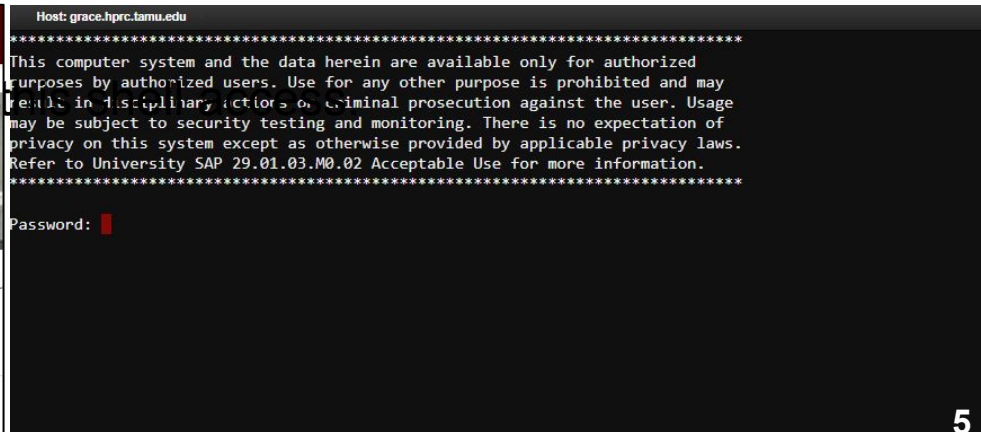
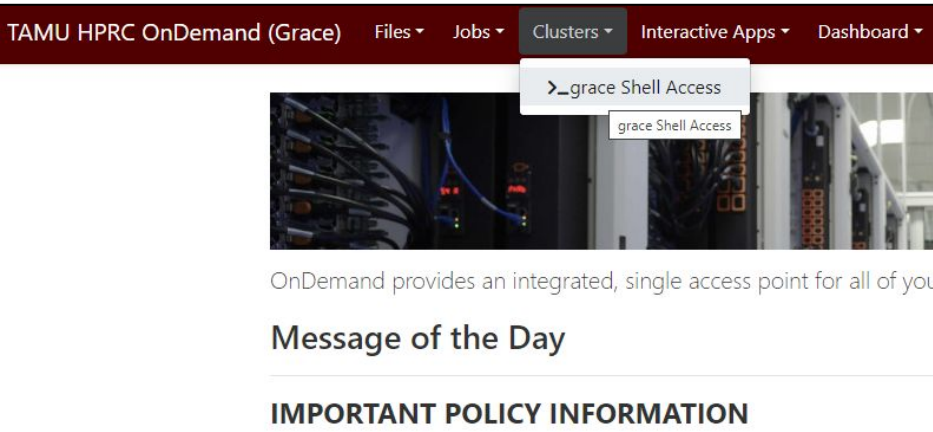
!! WARNING: THERE ARE ONLY NIGHTLY BACKUPS OF USER HOME DIRECTORIES. !!

powered by  
OPEN OnDemand

OnDemand version: 2.0.31

# Open Grace Portal

- Once you navigate to the portal, TAMU NetId users may be asked to login to the Central Authentication Service (CAS)
- On the top menu bar, click **Clusters** and then **>\_grace Shell Access**



# Clone Perl Files

- Enter the following commands, which will create the directory `/scratch/user/NetID/perl` :

```
cd $SCRATCH
```

```
git clone https://github.com/kjtamu/perl.git
```

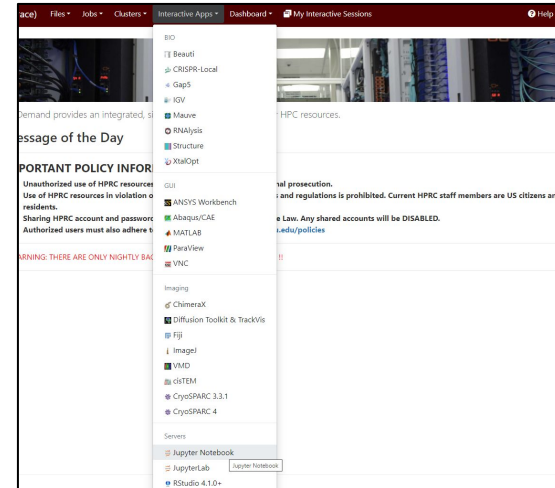
```
cd perl
```

```
ls
```

```
Host: grace.hprc.tamu.edu
you@login1$ cd $SCRATCH
you@login1$ git clone https://github.com/kjtamu/perl.git
Cloning into 'perl'...
remote: Enumerating objects: 72, done.
remote: Counting objects: 100% (72/72), done.
remote: Compressing objects: 100% (59/59), done.
remote: Total 72 (delta 30), reused 35 (delta 9), pack-reused 0
Unpacking objects: 100% (72/72), done.
you@login1$ cd perl
/scratch/user/you/perl
you@login1$ ls
total 100
 4 bounds.pl   56 Intro_to_Perl.ipynb   4 proccount.pl   4 sum.pl
 4 closeq.pl   4 ips*                 4 README.md      4 synerr.pl
 4 image/      4 nofile.pl            4 scopeex.pl     4 twoeq.pl
you@login1$
```

# Open Jupyter Notebook

- Return back to the previous browser tab for the Grace Portal with the title “Dashboard”.
- On the top menu, choose **Interactive Apps** and the scroll all the way down to **Jupyter Notebook**



# Open Jupyter Notebook

Interactive Apps

BIO

IT Beauti

CRISPR-Local

Gap5

IGV

Mauve

RNAlysis

Structure

XtalOpt

GUI

ANSYS Workbench

Abaqus/CAE

MATLAB

ParaView

VNC

Imaging

ChimeraX

Diffusion Toolkit & TrackVis

Fiji

ImageJ

VMD

cisTEM

CryoSPARC 3.3.1

CryoSPARC 4

Servers

Jupyter Notebook

JupyterLab

RStudio 4.1.0+

Jupyter Notebook

This app will launch a Jupyter Notebook server on the Grace cluster.

Type of environment

Anaconda environment

Select the type of environment in which Jupyter is installed. Help me choose

Module selected

Anaconda3/5.3.0

Select a Conda module to load. All modules listed include Python and Jupyter.

Optional Environment to be activated

Enter the name of environment to be activated. This field is optional.

Your optional environment must have been previously built with the Anaconda module selected in the Module option above. Please see instructions.

Number of hours (max 168)

3

Number of cores (max 48)

1

Total GB memory (max 360)

7

Node type

CPU only

- A100, RTX 6000, A40, or T4, select a GPU node for 2D/3D visualization for software that supports GPU usage. Grace has the following GPUs available:
  - 100 x A100 40GB GPUs (max 2 per job)
  - 9 x RTX 6000 24GB GPUs (max 2 per job)
  - 14 x A40 48GB GPUs (max 3 per job)
  - 8 x T4 16GB GPUs (max 4 per job)
- CPU - select CPU node to reduce wait time for job to launch.

Account

This field is optional.

Email

This field is optional.

Launch

\* The Jupyter Notebook session data for this session can be accessed under the data

- Set Number of hours to 3,

Total GB memory to 7, and

click **Launch** at bottom of dialog

Session was successfully created.

Home / My Interactive Sessions

Interactive Apps

BIO

IT Beauti

CRISPR-Local

Gap5

IGV

Mauve

RNAlysis

Structure

Jupyter Notebook (9103026)

1 node | 1 core | Running

Host: >\_c0k1

Created at: 2023-10-12 16:59:23 CDT

Time Remaining: 2 hours and 58 minutes

Session ID: 22f1cf2b-43e0-4cc8-8cf7-9eaf45e1b4ee

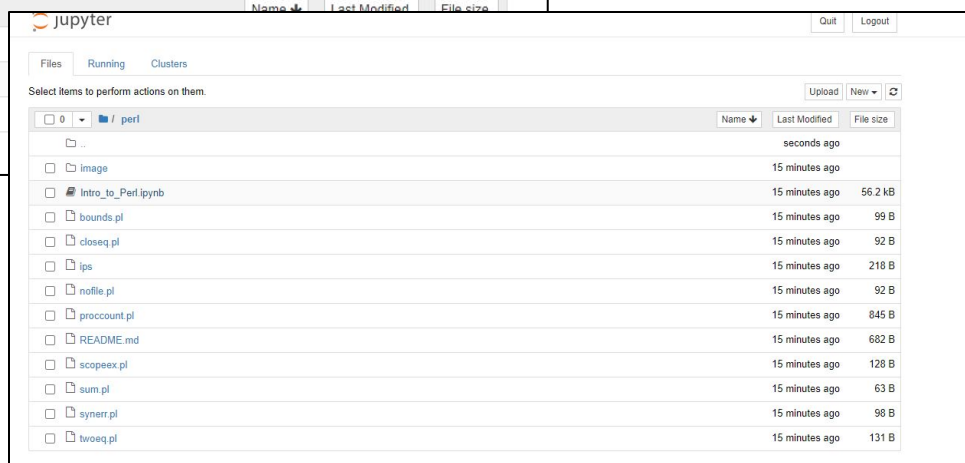
Connect to Jupyter

Delete



# Open Jupyter Notebook

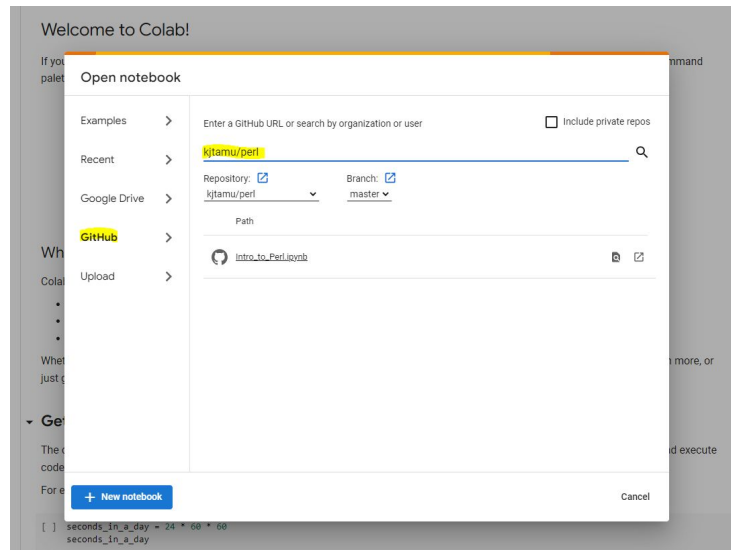
- Click **perl** and then click **Intro\_to\_Perl.ipynb**



# Using Google Colab

For users without HPRC accounts, do the following:

- Go to <https://colab.research.google.com>
- On the top navigation bar, click the **GitHub** tab.
- Type **kjtamu/perl** on the long search line under “Enter a GitHub URL or search by organization or user”
- On the line with **Intro\_to\_Perl.ipynb**, click open icon to the far right





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[https://u.tamu.edu/hprc\\_shortcourse\\_survey](https://u.tamu.edu/hprc_shortcourse_survey)

Help us help you. Please include details in your request for support, such as, Cluster (FASTER, Grace, ACES, Launch), NetID (UserID), Job information (Job id(s), Location of your jobfile, input/output files, Application, Module(s) loaded, Error messages, etc), and Steps you have taken, so we can reproduce the problem.