Secure HPC

Overview

Research Technologies in partnership with the Data Science Institute is providing a secure research enclave that is HIPAA compliant. It is called Soteria. In Greek mythology, Soteria (Greek: σωτηρία) was the goddess or spirit (daemon) of safety and salvation, deliverance, and preservation from harm.

This small HPC cluster has many of the capabilities of the main HPC. There are compute nodes, with the same core count and memory. And there are two GPU nodes.

Soteria will be available for access using the OnDemand graphical interface.

⚠️ Currently Soteria is in a pilot test mode and is not generally available. It is expected that the testing will run until the middle of 2023

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Preparation

Once your Soteria request form has been reviewed and approved, you will receive an email with the subject **UA Soteria Access Request Approved.** This email will contain the next steps to take which are detailed below:

Complete Required Training in Edge Learning

The CRRSP team will register you for the required trainings listed below (courses can also be found here: [https://uaccess.arizona.edu](https://uaccess.arizona.edu)):

- HIPAA Essentials
- Information Security: Insider Threat Awareness
- Information Security Awareness Certification

Assignment to the Soteria VPN

Once you have completed your required training, the CRRSP team will notify you via email when you have been assigned access to the Soteria VPN. This VPN is an important part of our HIPAA compliance and differentiates Soteria usage from the standard HPC clusters. Soteria access cannot be established when not connect to the VPN. For VPN access, use: [vpn.arizona.edu/soteria](https://vpn.arizona.edu/soteria).

Additional Instructions

The computer you will use to access Soteria services must meet the following requirements:

- The Operating System and applications must be updated with the latest patches
- You must have a strong password to log into the computer (at least 8 characters and a mix of character types).
- This must not be a shared computer with other users
- Up to date anti-virus software

Resources

The cluster has four standard compute nodes. Each has 94 cores and 512GB memory available. The two GPU nodes have the same resources but there are also four V100 GPU's in each. You can use the regular parts of the documentation to learn how to use slurm with these nodes. In case you are interested, these nodes are named by their physical location and you will see this if you are connected to an interactive session. And with OnDemand (OOD) your connection will show the node hostname.

<table>
<thead>
<tr>
<th>Standard Nodes</th>
<th>GPU Nodes</th>
</tr>
</thead>
<tbody>
<tr>
<td>r1u26n1, r1u27n1, r1u28n1, r1u29n1</td>
<td>r1u30n1, r1u32n1</td>
</tr>
</tbody>
</table>

For the purpose of this early testing, the allocations of time and space will be similar to HPC. The time allocation will be 100,000 hours. Your account will come with space in /home and /groups where you can put your data. Currently those directories are not subject to a quota limit.

System Access

You must be connected to the Soteria VPN (see section above) to access the system.
GUI Access

GUI Applications/GUI Access to Soteria

⚠️ To access GUI applications, first connect to the Soteria VPN

Similar to the other HPC clusters, we offer the service Open OnDemand to provide web browser access to Soteria. This can be used to navigate, view, and edit files as well as gain access to graphical applications.

In your favorite browser, go to: https://ondemand-hipaa.hpc.arizona.edu

The applications currently available are RStudio, Matlab and Python 3.9 (Jupyter)

RStudio
RStudio

Starting from the OnDemand access, select RStudio server from the Interactive Apps dropdown.

Choose the resources you need and enter your PI's accounting group for the PI Group field.

Matlab

Starting from the OnDemand access, just select Interactive Desktop from the Interactive Apps dropdown.
Choose the resources you need and enter your PI's accounting group for the PI Group field.

Once the session is assigned to a compute node, Launch Interactive Desktop.
Click on the icon representing the Mate Terminal

Enter `module load matlab`, then `matlab`
Wait a while for Matlab to load as it comes with many files. Subsequent uses will load more quickly.
Jupyter Notebooks and Python

Follow the Matlab instructions up to opening the Mate Terminal session. Then enter `module load python/3.9`, followed by `jupyter-notebook`.
Command Line Access to Soteria

Soteria command line access is available with ssh. The hostname is `shell.cougar.hpc.arizona.edu`

**Soteria Access**

```
$ ssh your_netid@shell.cougar.hpc.arizona.edu
```

Authorized uses only. All activity may be monitored and reported.

```
Last login: Tue Nov 29 06:18:33 2022 from ans-02.hpc.arizona.edu
```

Authorized uses only. All activity may be monitored and reported.

```
netid@taub:~ $
```

Taub is a login node and will provide the same functionality and have the same policies as the other HPC clusters. Modules are available on Soteria’s compute nodes but not on the login node. The command `interactive` is available to request a session on a compute node and jobs may be submitted using the standard `sbatch`. More details on SLURM commands can be found in: [Running Jobs with SLURM](#)

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Transferring and Accessing Data

**Globus**

Globus can be used for moving data in and out of the Soteria environment. For more information on using Globus: [https://public.confluence.arizona.edu/display/UAHPC/Transferring+Data#TransferringData-GridFTP/Globus](https://public.confluence.arizona.edu/display/UAHPC/Transferring+Data#TransferringData-GridFTP/Globus)

Soteria’s endpoint is: **UA HPC HIPAA Filesystems**

**File Paths**

Your files can be accessed on the `filexfer` nodes:

- `/hipaa/groups/<pi_netid>`
- `/hipaa/home/uxx/<your_netid>`

When connected to a **Soteria login/compute node**, you can find these under:

- `/groups/<pi_netid>`
- `/home/uxx/<your_netid>`

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Getting Help

We use ServiceNow and can be reached with a support ticket.