

The TAMU Visualization Portal

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TAMU HPRC

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HPRC Short Course – Fall 2017



Outline

- Introduction to TAMU Visualization Portal
- Using the portal
- Hands-on: Model Build with Abaqus CAE

The TAMU Visualization Portal

- What is it?
- Who can use it?
- What's the benefit of using it?
- Is it free?
- What applications can be used with it?

The TAMU Visualization Portal

- A web service for submitting and viewing remote visualization jobs
- Ada users with our permission
- It supports major web browsers (IE, Firefox, Chrome) and can be accessed anywhere with Internet connection (VPN is needed from off-campus connections)
- It is free, but Ada allocations are charged
- Any GUI application that supports OpenGL can use the portal, including ABAQUS, ANSYS, COMSOL, Paraview, Matlab GUI, etc.

Workflow of the Portal

<https://ada7.tamu.edu/vis-portal>



End user

1. Submission request

visualization gateway



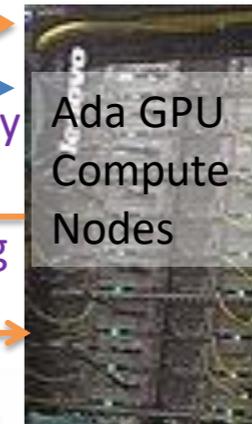
2. vncjob.submit

5. Gateway obtains the proxy port number

6. Set up port forwarding to the proxy port

7. Connect to vncserver

3. The job runs on a compute node with GPU



4. The job starts a VNC server and a websockify proxy server

Ada cluster

Accessing the Visualization Portal

- Please request permission to access the portal by sending an email to help@hprc.tamu.edu
- If you are off-campus, first login to the TAMU VPN
- Using a web-browser open <https://ada7.tamu.edu/vis-portal/>
- Please confirm the security exception to access the site
- Use your TAMU Net-ID and password to log into the portal.

<https://ada7.tamu.edu/vis-portal>

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Welcome to the Ada Remote Visualization Portal

The visualization portal is access-restricted. Please contact us at helpdesk@hprc.tamu.edu to request access to the portal.

Please login with your TAMU NetID and password.

NetID:

Password:

login

Enter your TAMU Net-ID

For New Remote Visualization Users

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Home

Jobs

Help

You are logged in as pingluo, [\[logout\]](#)

Friday, September 29, 2017

-
- You must set your VNC password at least once. Click "password" to set your VNC password.

Password

Set your VNC password

Ada Remote Visualization Portal

help@hprc.tamu.edu



Setting Your VNC Password

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Home Jobs Help

You are logged in as pingluo, [\[logout\]](#)

Friday, September 29, 2017

Your VNC password **MUST NOT** be the same as your netid password.

Your VNC password must have at least 6 characters.

Password:

Re-type Password:

OK

Ada Remote Visualization Portal

help@hprc.tamu.edu



Submitting a Visualization Job

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[Home](#) [Jobs](#) [Help](#)

You are logged in as pingluo, [\[logout\]](#)

Friday, September 29, 2017

- Customize your job specifications in the form below.
- Select a preset remote desktop resolution closest to your desktop resolution.
- Email is needed only if you want to be informed when your job starts running.
- Job specifications cannot be changed after the job is submitted.

Remote desktop resolution: width x height

Number of CPU cores:

Memory size (between 2 to 250): GB

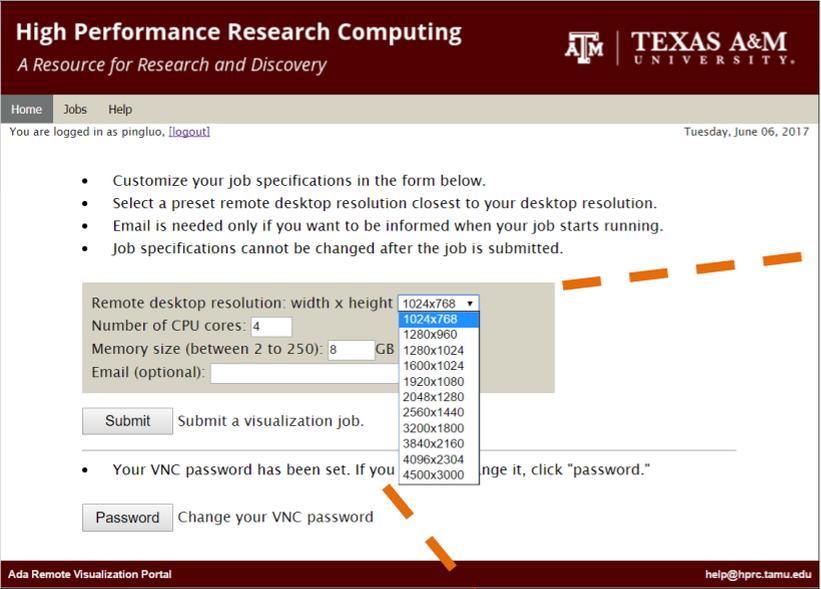
Email (optional):

Submit a visualization job.

-
- Your VNC password has been set. If you want to change it, click "password."

Change your VNC password

Submitting a Visualization Job



Remote desktop resolution: width x height

Number of CPU cores:

Memory size (between 2 to 250): GB

Email (optional):

Submit a visualization job.

- Your VNC password has been set. If you

- 1024x768
- 1024x768
- 1280x960
- 1280x1024
- 1600x1024
- 1920x1080
- 2048x1280
- 2560x1440
- 3200x1800
- 3840x2160
- 4096x2304
- 4500x3000

Submitting a Visualization Job

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A Resource for Research

Home Jobs Help

You are logged in as pingluo, [\[logout\]](#)

ada7.tamu.edu says:
You job has been submitted.

OK

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Friday, September 29, 2017

- Customize your job specifications in the form below.
- Select a preset remote desktop resolution closest to your desktop resolution.
- Email is needed only if you want to be informed when your job starts running.
- Job specifications cannot be changed after the job is submitted.

***Your usage will
be charged!***

Remote desktop resolution: width x height

Number of CPU cores:

Memory size (between 2 to 250): GB

Email (optional):

Submit a visualization job.

The Job Control Page

Home Jobs Help

You are logged in as pingluo, [\[logout\]](#)

Friday, September 29, 2017

- When your job starts running, click **View** to connect to the VNC server. You will be redirected to a different page.
- Type your VNC password to login into the remote desktop.
- The GUI application must be launched with **vglrun** to use hardware acceleration.
- To go back to the main page, first toggle up the control bar at the leftmost center of your screen, and then click the disconnect button .
- Delete your job by clicking **Delete** when you are done with your visualization job.

Your job 6238264 is running.

Connect to the VNC server and start running GUI applications.

Delete the visualization job.

-
- Your VNC password has been set. If you want to change it, click "password."

Change your VNC password

Connecting to the VNC Server



Your connection is not secure

The owner of ada7.tamu.edu has configured their website improperly. To protect your information from being stolen, Firefox has not connected to this website.

[Learn more...](#)

Go Back

Advanced

Report errors like this to help Mozilla identify and block malicious sites

ada7.tamu.edu:10056 uses an invalid security certificate.

The certificate is not trusted because it is self-signed.
The certificate is not valid for the name ada7.tamu.edu.

Error code: [SEC_ERROR_UNKNOWN_ISSUER](#)

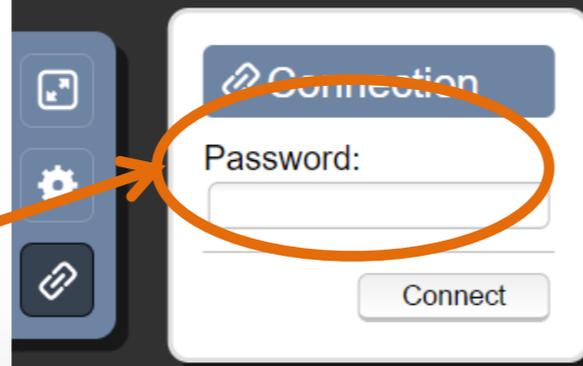
Add Exception...

***Add exception
and accept the
certificate***

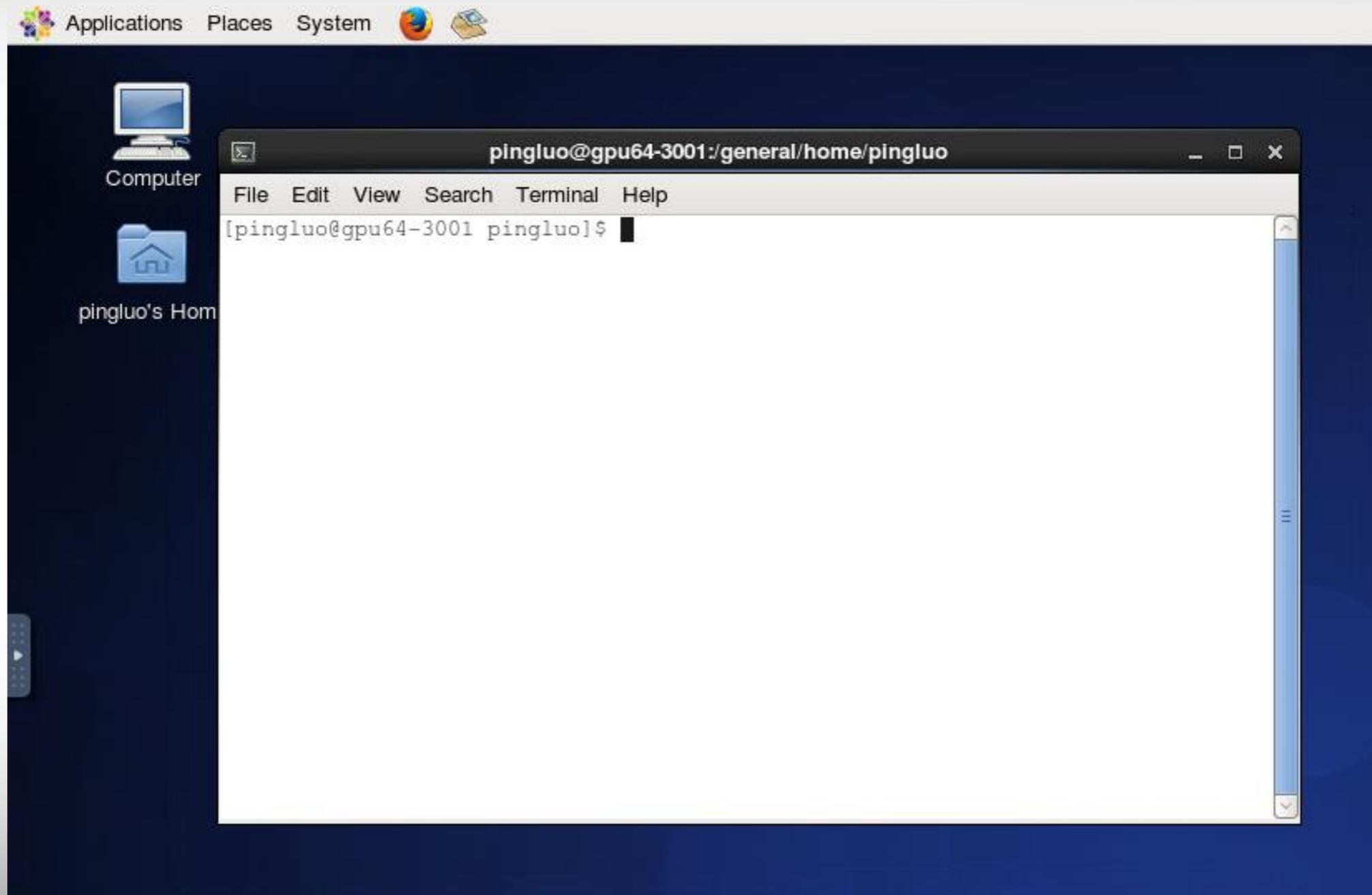
Connecting to the VNC Server

TAMU
Vis-Portal

*This is your VNC
password,
and not your TAMU
NetID password*



The Remote Desktop



Disconnecting From the VNC Server

The screenshot shows a web interface for managing VNC jobs. At the top, there are navigation tabs for 'Home', 'Jobs', and 'Help'. Below the navigation, it indicates the user is logged in as 'pingluo' with a 'logout' link and the date 'Friday, September 29, 2017'. The main content area contains instructions and controls for job management. A vertical control bar on the left side of the page contains several icons, with the 'Disconnect' icon (a square with a diagonal line) circled in orange. Below the instructions, there are buttons for 'Refresh', 'View', 'Delete', and 'Password', each with a corresponding description of its function.

Applications Places Home Jobs Help

You are logged in as pingluo, [logout](#) Friday, September 29, 2017

- When your job starts running, click **View** to connect to the VNC server. You will be redirected to a different page.
- Type your VNC password to login into the remote desktop.
- The GUI application must be launched with **vglrun** to use hardware acceleration.
- To go back to the main page, first toggle up the control bar at the leftmost center of your screen, and then click the disconnect button .
- Delete your job by clicking **Delete** when you are done with your visualization job.

Your job 6238264 is running.

Connect to the VNC server and start running GUI applications.

Delete the visualization job.

Change your VNC password

- Disconnecting returns the user to the job control page
- The job continues to run and can be accessed by clicking “view” on the job control page.
- Charging continues till the job is deleted from the Job Control page

Deleting a Visualization Job

The screenshot shows the HPRC website interface. At the top left, it says "High Performance Research Computing" and "A Resource for Research". Below this is a navigation bar with "Home", "Jobs", and "Help". A user is logged in as "pingluo" with a "[logout]" link. The date is "Friday, September 29, 2017". A modal dialog box from "ada7.tamu.edu" is open, displaying the message "You job 6238264 has been deleted." with an "OK" button. Below the dialog, a list of instructions is provided. At the bottom, there are three buttons: "Refresh", "View", and "Delete". The "Delete" button is circled in orange.

ada7.tamu.edu says:
You job 6238264 has been deleted.
OK

Home Jobs Help

You are logged in as pingluo, [\[logout\]](#) Friday, September 29, 2017

- When your job starts running, click **View** to connect to the VNC server. You will be redirected to a different page.
- Type your VNC password to login into the remote desktop.
- The GUI application must be launched with **vglrun** to use hardware acceleration.
- To go back to the main page, first toggle up the control bar at the leftmost center of your screen, and then click the disconnect button .
- Delete your job by clicking **Delete** when you are done with your visualization job.

Your job 6238264 is running.

Connect to the VNC server and start running GUI applications.

Delete the visualization job.

- Deleting a job terminates it permanently
- Charging stops at this point
- You will be brought back to the job submission page.
- To submit a new job please repeat previous the steps

How Are SUs Charged

- Equivalent CPU cores based on memory request:

0 - 2.56G		1 core
2.56G – 5.12G		2 cores
5.12G – 7.68G		3 cores
⋮	⋮	⋮

- SUs are charged based on actual wall-time times the maximum of actual CPU cores and equivalent CPU cores

$$1 \text{ SU} = 1 \text{ core} \times 1 \text{ hour}$$

$$\text{SU}_{\text{charged}} = \text{Max}\{\text{num_cores}, \text{equiv_cores}\} \times \text{wall-time}$$

- Maximum wall-time is 6 hours (remote visualization is for pre-and/or post-processing, and short analyzing).

Getting Help!

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 | **TEXAS A&M**
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Home Jobs **Help**

You are logged in as pingluo, [\[logout\]](#) Friday, September 29, 2017

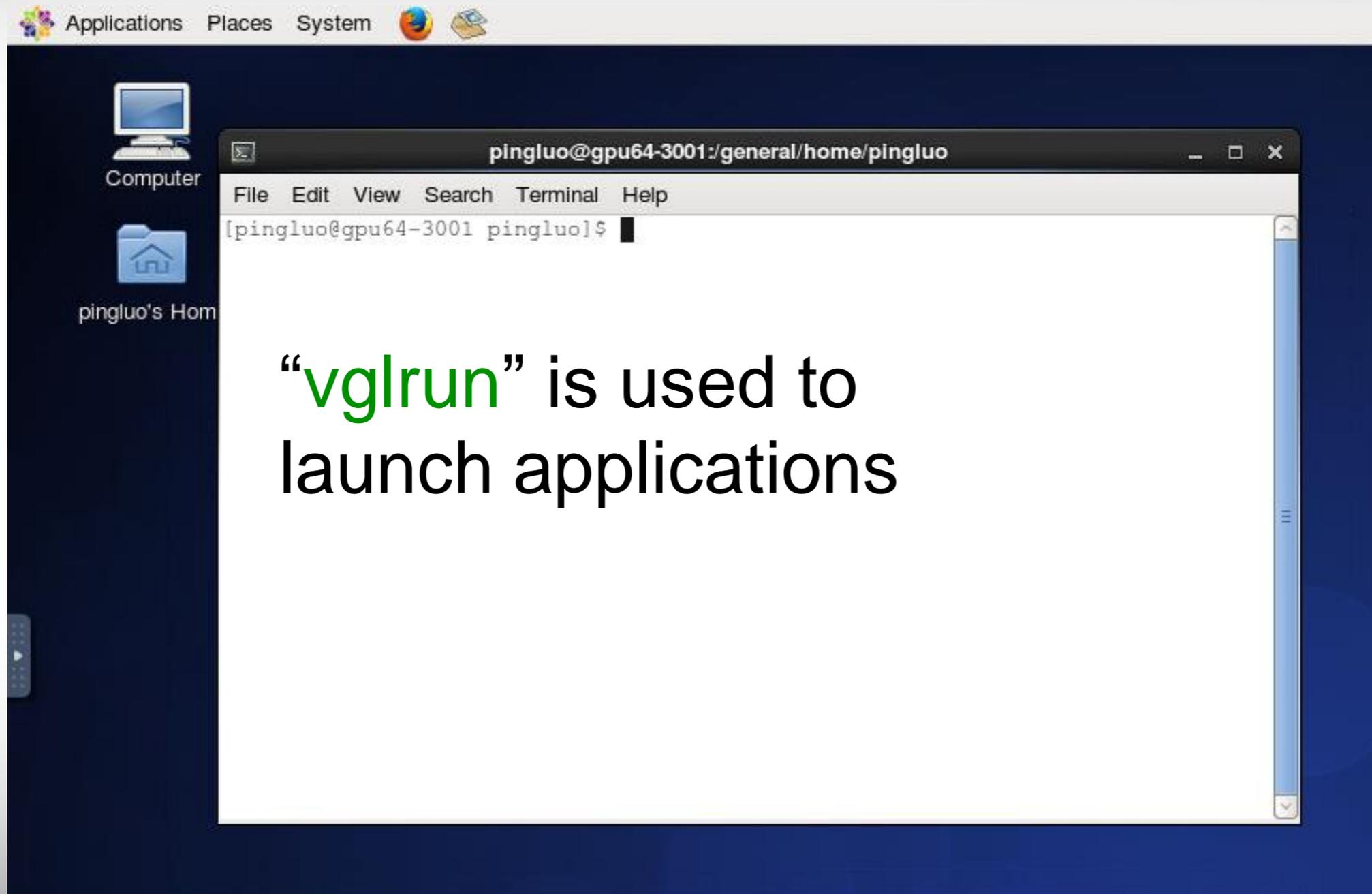
[Getting Started](#)

[FAQ \(under construction\)](#)

Ada Remote Visualization Portal help@hprc.tamu.edu

- https://hprc.tamu.edu/wiki/Ada:Remote-Viz#Alternative_Method:_Visualization_Portal
- helpdesk@hprc.tamu.edu

Launching Applications

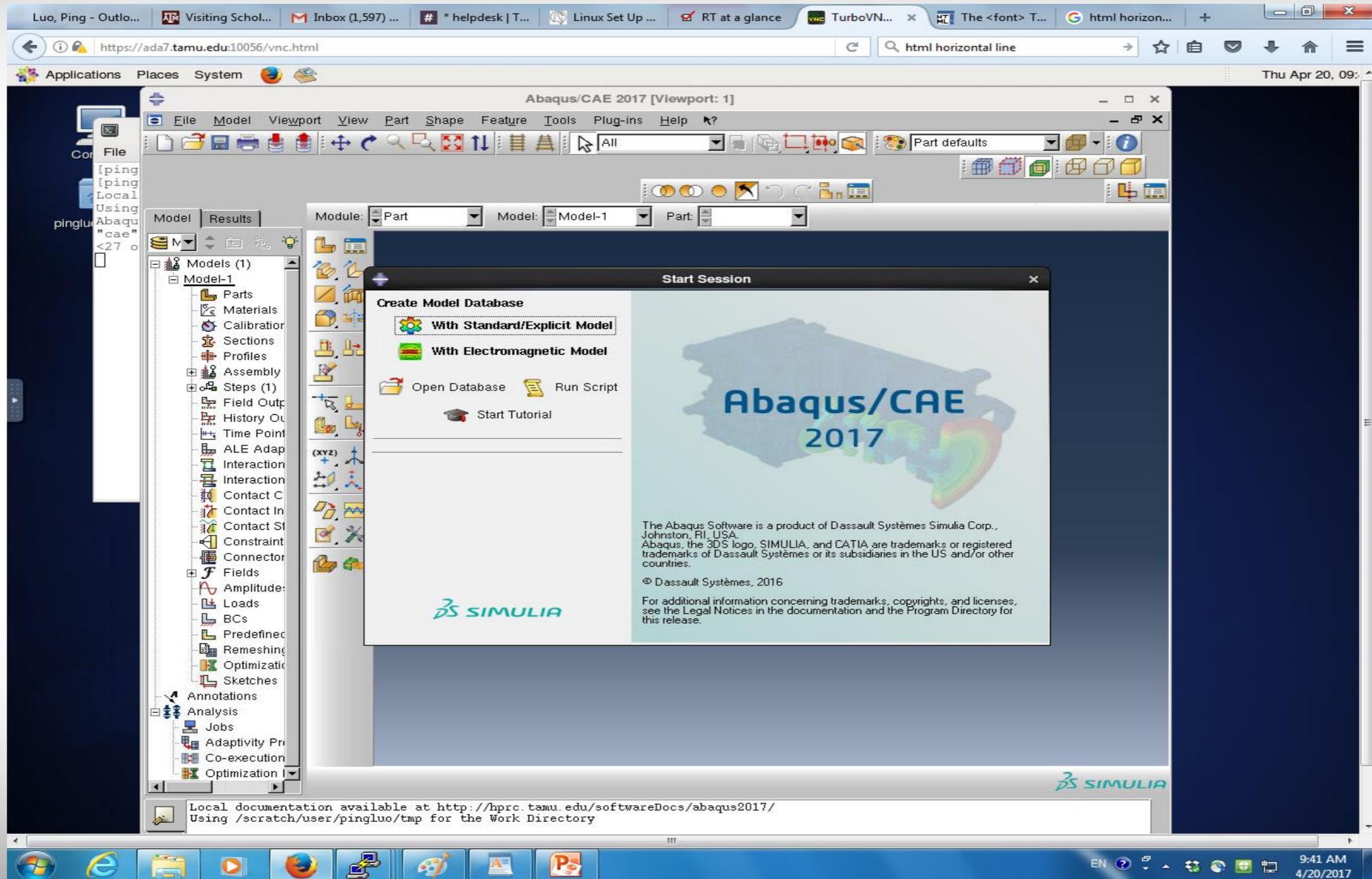


Using Abaqus CAE

```
pingluo@gpu64-3001:/general/home/pingluo
File Edit View Search Terminal Help
[pingluo@gpu64-3001 pingluo]$ module load ABAQUS/2017
[pingluo@gpu64-3001 pingluo]$ vglrun abaqus cae
```

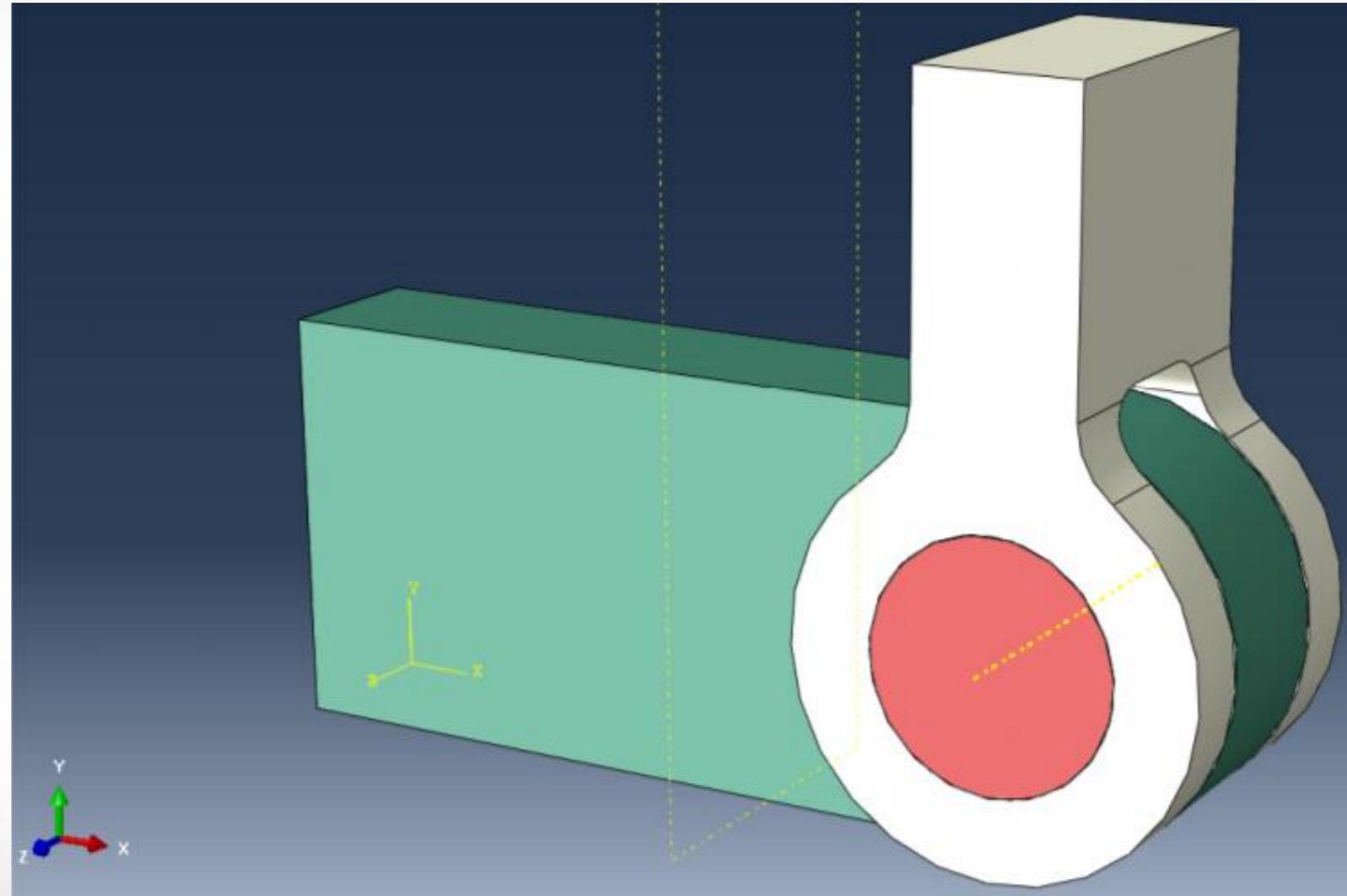
`vglrun abaqus cae`

Using Abaqus CAE



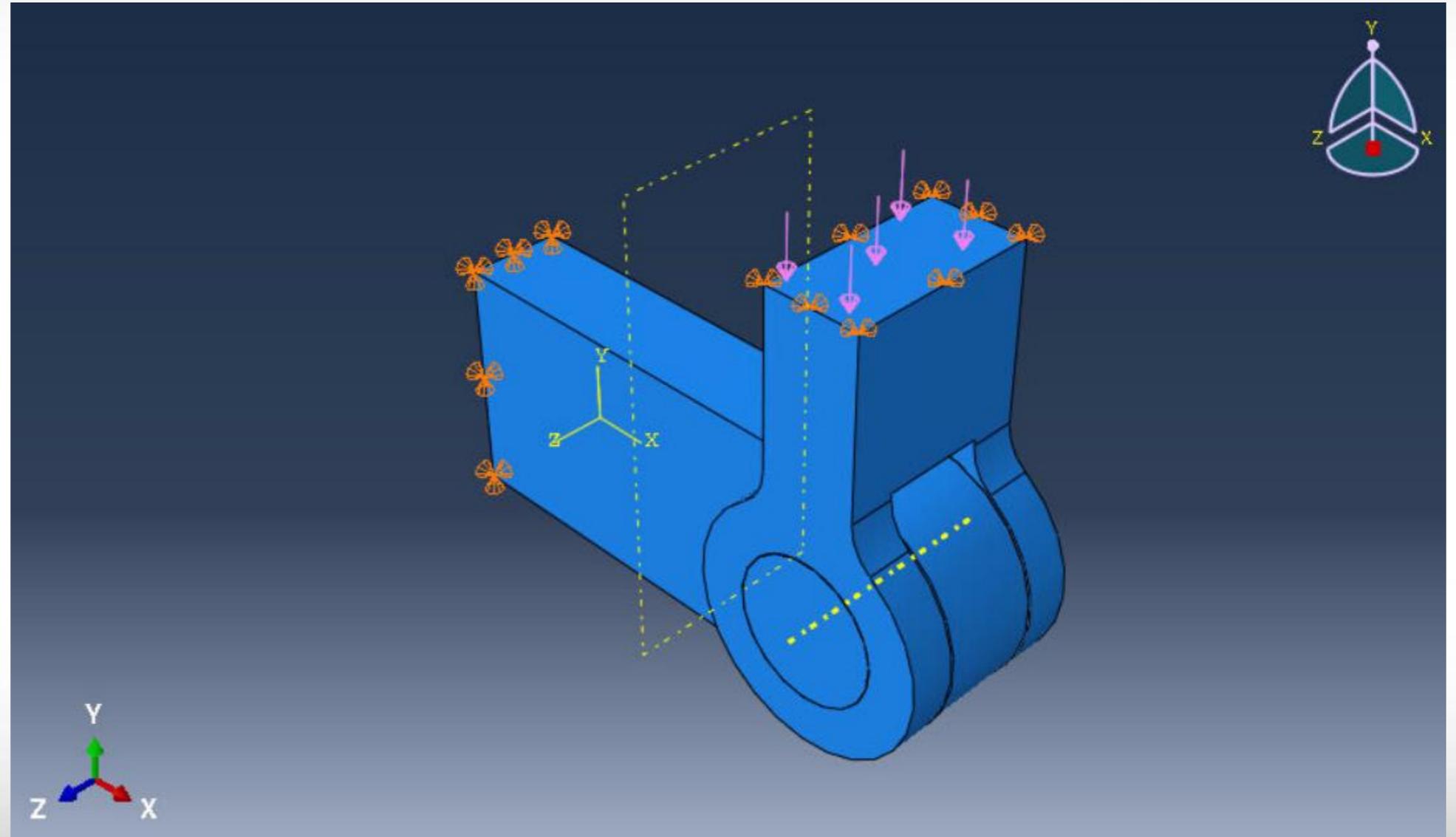
Hands-on: Model Build with Abaqus CAE

- Building the parts and assembling the model



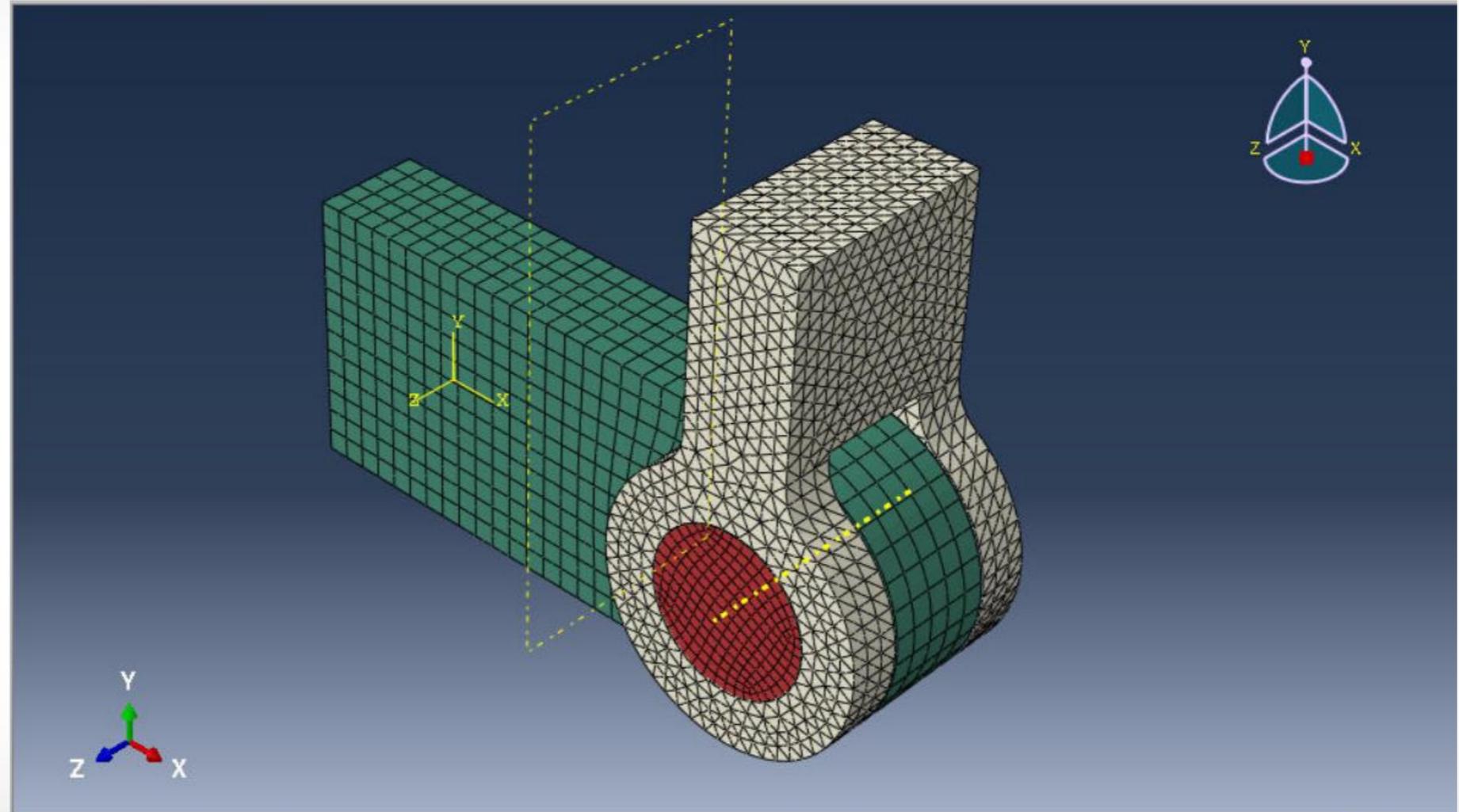
Hands-on: Model Build with Abaqus CAE

- Applying boundary conditions and loads



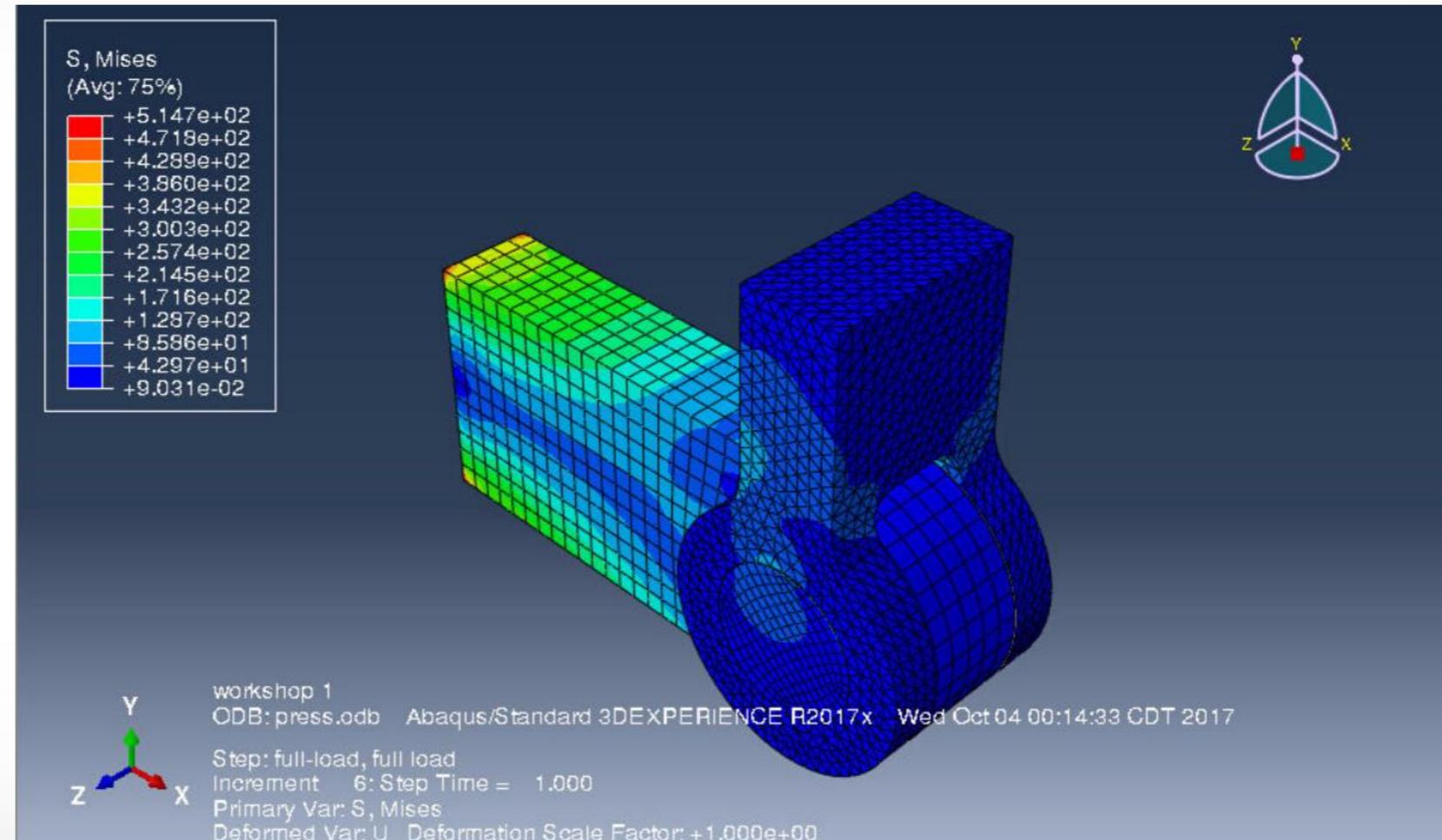
Hands-on: Model Build with Abaqus CAE

- Meshing the model



Hands-on: Model Build with Abaqus CAE

- Running analysis and viewing results



Notice:

If you are following Simulia's workshop guide, the order of "Configuring the Interactions" and "To create a general, static analysis step" should be reversed – "To create a general, static analysis step" should be done before "Configuring the Interactions".