

Deterlab - Lab 1

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I logged into DeterLab with my given username and password:

The screenshot shows the SPHERE Research Infrastructure dashboard. On the left, a sidebar menu includes options like Dashboard, Users, Organizations, Projects, Experiments (with Manage, Reservations, Activations), XDCs, Model Editor, and Resources. The main content area displays several news items:

- Upcoming INDIS submission deadline**: Please consider submitting a paper to the 11th Annual International Workshop on Innovating the Network for Data-Intensive Science (INDIS 2024) in conjunction with SC24. See the [CFP](#) for more information.
7/16/2024, 8:00:00 AM
- XDC Changes**: New feature: mrq utility can now create two types of XDCs: personal or shared. For more information, please consult the [updated documentation](#).
6/12/2024, 8:05:00 PM
- Upcoming CSET submission deadline**: The CSET submission deadline is May 17, 2024. For more information, please visit <https://cset24.iis.edu/>.
5/12/2024, 2:17:00 PM
- Node Reset Feature Implemented**: The ModDeter testbed now allows users to reboot and reimage nodes of existing materializations. See the documentation for examples and command usage.
3/21/2024, 3:29:00 PM

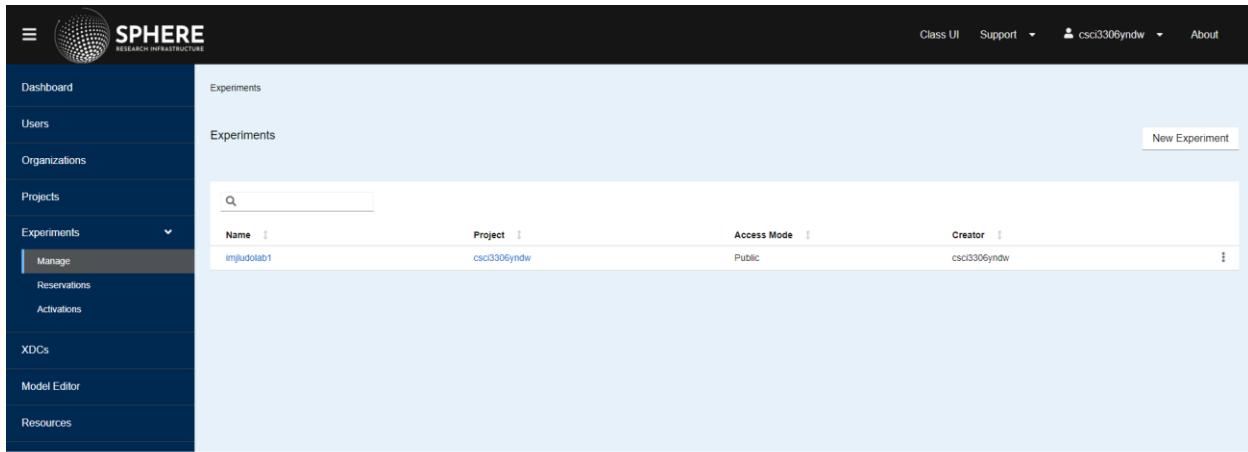
On the right, there are sections for "Activated Experiments" (empty), "Allocated, But Inactive Experiments (Reservations)" (empty), and "Resource Usage by Project". The resource usage chart shows 11 TB of Memory used (blue bar) and 6784 Machine Cores used (green bar). There are also 9 TB of memory and 6192 machine cores unused.

I then clicked on Experiments, selected Manage, and clicked on New Experiment:

The screenshot shows the "New Experiment" dialog box. The sidebar menu on the left has "Experiments" selected under "Manage". The dialog box contains the following fields:

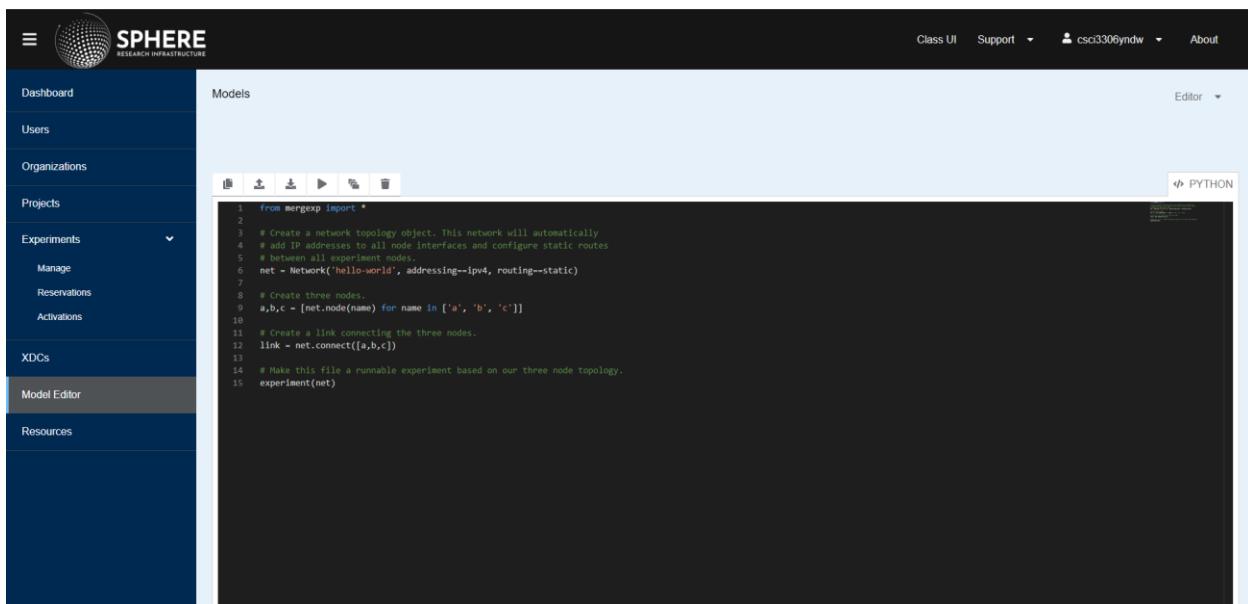
Project	csc3306yndw
Creator	csc3306yndw
Name	imjjudolab1
Description	My First DeterLab Experiment :)

A "Submit" button is at the bottom of the dialog. The background shows a dark grey dashboard interface.



The screenshot shows the SPHERE Research Infrastructure Experiment Management interface. The left sidebar has a dark blue background with white text and icons. It includes links for Dashboard, Users, Organizations, Projects, Experiments (with Manage selected), Reservations, Activations, XDCs, Model Editor (selected), and Resources. The main content area has a light blue header with 'Experiments' and a 'New Experiment' button. Below is a search bar and a table with columns: Name, Project, Access Mode, and Creator. One row is visible: 'imjuludab1' under 'Project', 'Public' under 'Access Mode', and 'csci3306yndw' under 'Creator'. The table has a 'More' button at the bottom right.

I then clicked on Model Editor, clicked on start from scratch, and copied the Hello World Web Interface Documentation:



The screenshot shows the SPHERE Research Infrastructure Model Editor interface. The left sidebar has a dark blue background with white text and icons. It includes links for Dashboard, Users, Organizations, Projects, Experiments (with Manage selected), Reservations, Activations, XDCs, Model Editor (selected), and Resources. The main content area has a light blue header with 'Models' and an 'Editor' dropdown set to 'Python'. Below is a code editor window titled 'PYTHON' containing Python code for creating a network topology. The code imports 'mergeexp' and defines a network with three nodes ('a', 'b', 'c') connected by a link.

```
1  from mergeexp import *
2
3  # Create a network topology object. This network will automatically
4  # add IP addresses to all node interfaces and configure static routes
5  # between all experiment nodes.
6  net = Network('hello-world', addressing='ipv4', routing='static')
7
8  # Create three nodes
9  a,b,c = [net.node(name) for name in ['a', 'b', 'c']]
10
11 # Create a link connecting the three nodes.
12 link = net.connect([a,b,c])
13
14 # Make this file a runnable experiment based on our three node topology.
15 experiment(net)
```

I compile the code and push:

The screenshot shows the SPHERE Model Editor interface. On the left is a dark sidebar with navigation links: Dashboard, Users, Organizations, Projects, Experiments (with sub-links Manage, Reservations, Activations), XDCs, Model Editor (which is selected and highlighted in grey), and Resources. The main area is titled 'Models' and contains a green notification bar with a checkmark icon and the text 'Compilation Successful'. Below this is a code editor window with a Python file named 'hello-world.py'. The code defines a network topology with three nodes (a, b, c) and a link between them, followed by a call to experiment(net). The code editor has standard icons for file operations like Open, Save, and Copy. A small 'PYTHON' icon is in the top right corner of the editor.

```
1  from mergexp import *
2
3  # Create a network
4  # add IP addresses
5  # between all experiment nodes.
6  net = Network('hello-world', addressing='ipv4', routing='static')
7
8  # Create three nodes
9  a,b,c = [net.node(name) for name in ['a', 'b', 'c']]
10
11 # Create a link connecting the three nodes.
12 link = net.connect([a,b,c])
13
14 # Make this file a runnable experiment based on our three node topology.
15 experiment(net)
```

This screenshot is similar to the previous one but includes a modal dialog box titled 'Push Model to Experiment'. The dialog has fields for 'Experiment' (set to 'imjuludlab1.csci3306yndw'), 'Branch' (set to 'master'), and 'Tag' (empty). At the bottom of the dialog is a large blue 'Push' button. The background of the main interface is dimmed to indicate it is not active while the dialog is open.

This is my topology:

The screenshot shows the 'Compiled Topology' interface. On the left, there are several sections: 'Revision Details' (ID: hello-world), 'Model View' (Nodes selected), 'Topology View' (2D selected), and 'Topology Display' (Node Size: 3, Font Scale: 20). On the right, a 2D topology diagram shows three nodes labeled 'a', 'b', and 'c' connected by lines, forming a triangle.

Reserved the revision:

The screenshot shows the SPHERE Research Infrastructure dashboard. The left sidebar includes 'Dashboard', 'Users', 'Organizations', 'Projects', 'Experiments' (selected), 'XDCs', 'Model Editor', and 'Resources'. The main area shows a 'Revisions' list for project 'imjiludolab1'. A 'Reserve Revision' dialog box is open, prompting the user to reserve resources for experiment 'imjiludolab1' under project 'csci3306yndw'. The dialog includes fields for 'Reservation Name' (set to 'helloworldjoshualudolf') and a 'Submit' button. In the background, the topology view from the previous screenshot is visible.

I clicked on the three dots on the right and selected Activate:



SPHERE
RESEARCH INFRASTRUCTURE

Class UI Support csci3306yndw About

Dashboard

User > csci3306yndw > Reservations

Reservations

View All

Q

Reservation	Experim...	Project	Creator	Created	Expires	Revision	Succeeded	Nodes	Links
helloworldjoshuatudor!	imjuludab1	csci3306yndw	csci3306yndw	8/27/2024, 6:27:41 PM	9/3/2024, 6:27:41 PM	67afbc44	Yes	3	2



SPHERE
RESEARCH INFRASTRUCTURE

User > cs4406av > Activations

Activations

View All

Activation	Metal Nodes	Virtual No...	Links	Ingresses	Created	Last Updated	Status
helloworldjoshualudolf.lmjudolab1.cs4406av	0	3	2		8/27/2024, 3:44:18 PM	8/27/2024, 3:44:29 PM	Success

Dashboard

Users

Organizations

Projects

Experiments

Manage

Reservations

Activations

XDCs

Model Editor

Resources



SPHERE
RESEARCH INFRASTRUCTURE

User > csc3306yndw > Reservations

Reservations

View All

Reservation	Experim...	Project	Creator	Created	Expires	Revision	Succeeded	Nodes	Links
helloworldjoshualudolf	lmjudolab1	csc3306yndw	csc3306yndw	8/27/2024, 6:27:41 PM	9/3/2024, 6:27:41 PM	67a5fc44	Yes	3	2

Relinquish

Activate

Update

Dashboard

Users

Organizations

Projects

Experiments

Manage

Reservations

Activations

XDCs

Model Editor

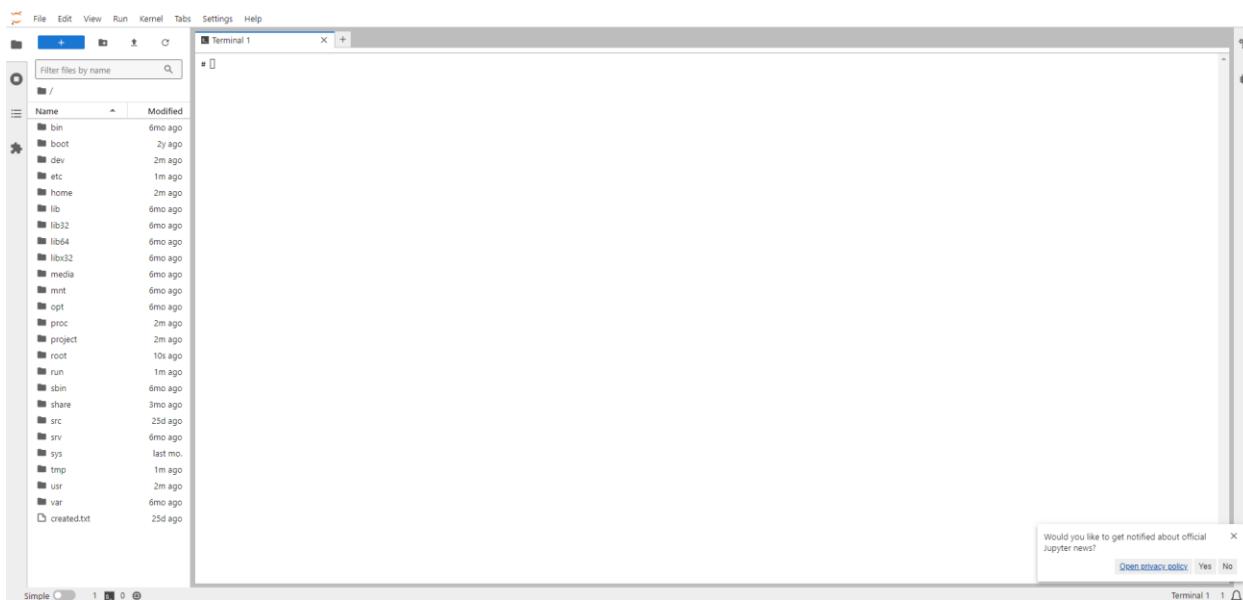
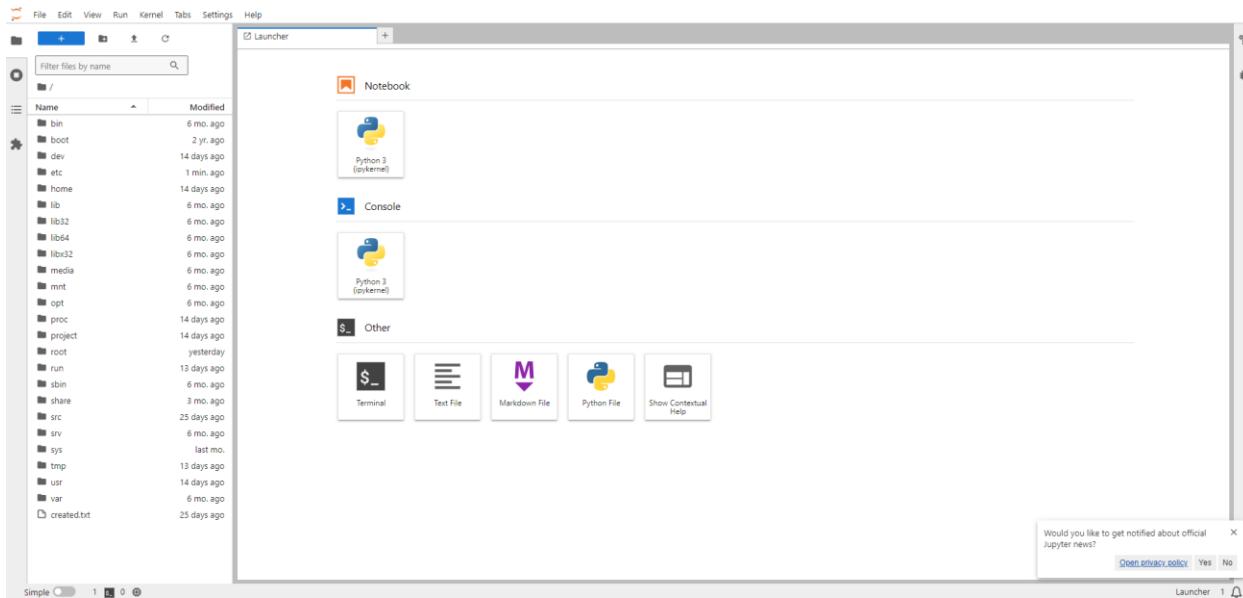
Resources

Attaching materialization to my XDC:

The screenshot shows the SPHERE research infrastructure web interface. The left sidebar has a dark blue background with white text and icons. The 'XDCs' section is currently selected. The main area is titled 'Experiment Development Containers' and contains a table of XDCs. A modal window titled 'Attach to Materialization' is open over the table. It has two dropdown menus: 'Project' set to 'csci3306yndw' and 'Materialization' set to 'helloworldjoshualudolf imjluolab1 csci3306yndw'. A blue 'Attach' button is at the bottom of the modal. The table in the background has columns: Name, Project, Type, Attached, URL, SSH Name, Creator, Memory..., CPU Limit, and Image. One row is visible: 'csci3306yndw' under Project, 'shared' under Type, 'Jupyter' under URL, 'csci3306yndw-csci3306yndw' under SSH Name, 'csci3306yndw' under Creator, '2' under Memory..., '2' under CPU Limit, and 'xdc-base v1.3.9' under Image.

This screenshot shows the same SPHERE interface after the attachment process. The 'XDCs' table now includes a new row for the attached materialization. The columns and data are identical to the previous screenshot, except for the additional row: 'csci3306yndw' under Project, 'shared' under Type, 'Attached' under Attached, 'Jupyter' under URL, 'csci3306yndw-csci3306yndw' under SSH Name, 'csci3306yndw' under Creator, '2' under Memory..., '2' under CPU Limit, and 'xdc-base v1.3.9' under Image.

I clicked on the Jupyter URL and selected terminal (it says terminal 2 as I didn't document first time):



Finally, I typed commands to save username and password for the project:

The screenshot shows a terminal window titled "Terminal 1" running as root. The user has run several commands to set up a password for a user named "pjuf6djh0U". The terminal output is as follows:

```
# su - csci3306yndw
To run a command as administrator (user "root"), use "sudo <command>".
See "man sudo_root" for details.

csci3306yndw@csci3306yndw:~$ echo pjuf6djh0U > pass.txt
csci3306yndw@csci3306yndw:~$ echo pjuf6djh0U > pass.txt
csci3306yndw@csci3306yndw:~$ exit
logout
# su - csci3306yndw
To run a command as administrator (user "root"), use "sudo <command>".
See "man sudo_root" for details.

csci3306yndw@csci3306yndw:~$
```

A small modal dialog box is visible in the bottom right corner, asking if the user wants to be notified about official Jupyter news.

This is my Dashboard now:

The screenshot shows the SPHERE Research Infrastructure dashboard. The left sidebar navigation includes "Dashboard", "Users", "Organizations", "Projects", "Experiments" (selected), "XDCs", "Model Editor", and "Resources". The main content area displays "SPHERE News" (10 unread), "Activated Experiments" (one entry for "helloworldjoshualudolf.imjulolab1.csci3306yndw" with a "Deactivate" button), and three news items: "Upcoming INDIS submission deadline", "XDC Changes", and "Upcoming CSET submission deadline". At the bottom, there are tabs for "Allocated", "Outstanding Requirements / Documentation", and "Open Issues by Owner".