

DESIGNSAFE-CI

A NATURAL HAZARDS
ENGINEERING COMMUNITY

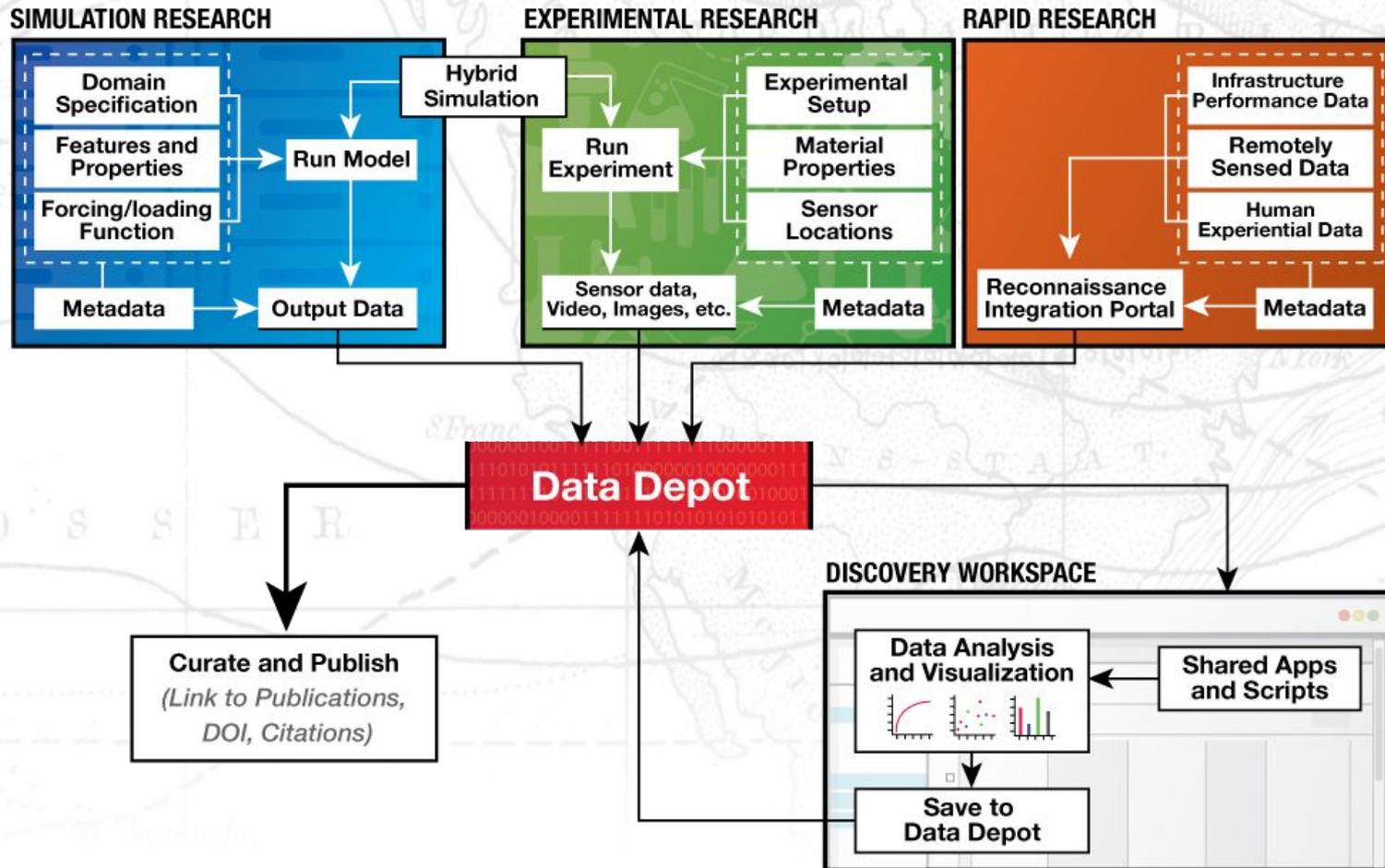


A New Cyberinfrastructure for the Natural Hazards Community

DesignSafe Vision

- A CI that is an integral and dynamic part of research discovery
- Cloud-based tools that support the analysis, visualization, and integration of diverse data types
 - Key to unlocking the power of “big data”
- Support end-to-end research workflows and the full research lifecycle
- Enhance, amplify, and link the capabilities of the other NHERI components

DesignSafe: Enabling Research



DesignSafe: Walkthrough

DesignSafe: The Research Workbench

DESIGNSAFE-CI
A NATURAL HAZARDS ENGINEERING COMMUNITY

A NATURAL HAZARDS ENGINEERING RESEARCH INFRASTRUCTURE (NHRI)

Log In Register

NHERI Community Research Workbench NHERI Facilities Learning Center About Contact

- NHERI COMMUNITY**
Relevant news, field-based opportunities, and user-guided discussions aimed at bringing the natural hazards engineering community together.
- RESEARCH WORKBENCH**
A comprehensive cloud-based research environment for experimental, theoretical, and computational engineering and science.
- NHERI FACILITIES**
Shared-use sites including Experimental Facilities, the Computational Modeling and Simulation Center, and the Network Coordination Office.
- LEARNING CENTER**
Training resources, site support, outreach, and student engagement opportunities to enhance research and better utilize DesignSafe's toolbox.

NHERI Community Research Workbench NHERI Facilities Learning Center About Contact

RESEARCH WORKBENCH

Service Notices

DesignSafe Status: Available
01-24-2017 4:00PM CST
No planned maintenance at this time.

- Data Depot**
Full lifecycle data curation - discover, publish, share, upload/download.
- Discovery Workspace**
Data analytics tools, HPC computational resources, and scientific visualization software.
- User Support**
DesignSafe technical staff collaborating with your research team as needed, including ECSS.
- Developer's Portal**
Build your own tools and embed DesignSafe capabilities into your applications via our API.
- Reconnaissance Integration Portal**
Access reconnaissance data collected within a geospatial framework.
- Getting Started**
Quick Start Guide, Workbench User Guide, and Help links to support site visitors and users.

DesignSafe: The Data Depot

The screenshot shows the DesignSafe Research Workbench website. At the top, there is a navigation bar with links for NHERI Community, Research Workbench, NHERI Facilities, Learning Center, About, and Contact. Below the navigation bar is the 'RESEARCH WORKBENCH' header. Underneath, there is a 'Service Notices' section with a status update: 'DesignSafe Status: Available 01-24-2017 4:00PM CST. No planned maintenance at this time.' The main content area features six tiles, each with a computer icon and a title. The 'Data Depot' tile is circled in red. The tiles are: Data Depot (Full lifecycle data curation - discover, publish, share, upload/download.), Discovery Workspace (Data analytics tools, HPC computational resources, and scientific visualization software.), User Support (DesignSafe technical staff collaborating with your research team as needed, including ECSS.), Developer's Portal (Build your own tools and embed DesignSafe capabilities into your applications via our API.), Reconnaissance Integration Portal (Access reconnaissance data collected within a geospatial framework.), and Getting Started (Quick Start Guide, Workbench User Guide, and Help links to support site visitors and users.).

A place to host the full lifecycle for data curation: discover, publish, share, upload/download, collaborate

The Data Depot is a multi-purpose data repository for experimental, simulation, and field data that uses a flexible data model applicable to diverse and large data sets and is accessible from other DesignSafe-ci components

DesignSafe: The Data Depot



Welcome, Sushobhon! 120

[My account](#) ▾

A NATURAL HAZARDS ENGINEERING RESEARCH INFRASTRUCTURE (NHRI)



Research Workbench

Overview

Data Depot

Workspace ▾

Support ▾

Roadmap

Search data...



+ Add

My Data

My Projects

Shared with Me

Box.com

Published

charlie

Name	Size	Last modified	Details
.ipynb_checkpoints	4.0 kB	12/14/16 2:23 PM	Details
.Trash	4.0 kB	4/22/16 7:13 AM	Details
1107_Practice.ipynb	8.5 kB	11/30/16 3:09 PM	Details
animationTest1-Copy1.ipynb	6.0 kB	12/14/16 2:25 PM	Details
animationTest1.ipynb	79.2 kB	1/20/17 11:12 AM	Details



DesignSafe: My Data

Welcome, Sushobhon! 120 My account

DESIGNSAFE-CI
A NATURAL HAZARDS ENGINEERING COMMUNITY

A NATURAL HAZARDS ENGINEERING RESEARCH INFRASTRUCTURE (NHRI)

Research Workbench Overview Data Depot Workspace Support Roadmap

Search data...

Download Preview View / Edit Metadata Share Copy Move Rename Move to Trash Details

Add

My Data My Projects Shared with Me Box.com Published

Name	Size	Last modified	Details
.ipynb_checkpoints	4.0 kB	12/14/16 2:23 PM	Details
.Trash	4.0 kB	4/22/16 7:13 AM	Details
1107_Practice.ipynb	8.5 kB	11/30/16 3:09 PM	Details
animationTest1-Copy1.ipynb	6.0 kB	12/14/16 2:25 PM	Details
animationTest1.ipynb	79.2 kB	1/20/17 11:12 AM	Details

<https://www.designsafe-ci.org/data/browser/agave/designsafe.storage.default/charlie/>

My Data is a place for you to save your files, from scripts to data to reports to photographs; everything you need to do your research.

DesignSafe: My Projects

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Welcome, Sushobhon! 120 My account

A NATURAL HAZARDS ENGINEERING RESEARCH INFRASTRUCTURE (NHRI)

Research Workbench Overview Data Depot Workspace Support Roadmap

Download Preview View / Edit Metadata Share Copy Move Rename Move to Trash Details

Add

My Data
My Projects
Shared with Me
Box.com
Published

Project title	PI	Created
Jupyter Notebooks are Fun	Scott Brandenburg (sjbrande)	10/31/16 4:03 PM
MASW	Sushobhon Dey (charlie)	1/20/17 11:00 AM
ContourData	Sushobhon Dey (charlie)	11/30/16 3:22 PM
training	Sushobhon Dey (charlie)	12/13/16 12:17 PM

My Projects is a new feature created to enable collaboration on projects with multiple users.

DesignSafe: Shared with Me

DESIGNSAFE-CI
A NATURAL HAZARDS ENGINEERING COMMUNITY

Welcome, Sushobhon! 120 My account

A NATURAL HAZARDS ENGINEERING RESEARCH INFRASTRUCTURE (NHERI)

Research Workbench Overview Data Depot Workspace Support Roadmap

Search data...

Download Preview View / Edit Metadata Share Copy Move Rename Move to Trash Details

+ Add

Shared with me

Name	Size	Last modified	Details
fymerc 201611-St Louis NHERI Workshop	4.0 kB	11/17/16 3:23 PM	Details
tg832193	4.0 kB	1/4/17 2:32 PM	Details
gsaygili/.Trash/D... 1GM_Sufficieny	32.0 kB	8/6/16 8:04 AM	Details
bbc484 extraCredit_bbc484.ipynb	62.8 kB	12/1/16 1:25 PM	Details
naveen34	4.0 kB	11/22/16 3:50 PM	Details
jl62688 [SDS392] R Assignment Jaewon Lee (jl62688).ipynb	177.4 kB	11/17/16 10:22 AM	Details
chaines R Contour Plot.ipynb	93.5 kB	12/2/16 1:23 AM	Details

<https://www.designsafe-ci.org/data/browser/shared/designsafe.storage>

Differing from **My Projects**, which is meant for collaboration, **Shared with Me** are files explicitly shared with you by other users in the DesignSafe community

DesignSafe: Published

The screenshot shows the DesignSafe-CI web interface. At the top, it says 'Welcome, Sushobhon!' and 'My account'. Below the navigation bar, there is a search bar with 'Search data...' and a list of actions: Download, Preview, View / Edit Metadata, Share, Copy, Move, Rename, Move to Trash, and Details. A sidebar on the left shows 'Add' and 'Published' categories. The main content area displays a table with the following data:

Name	Size	Details
Real-time Fast Hybrid Testing Steel Frame Test	23.6 MB	Details

This screenshot shows the DesignSafe-CI interface with a search for 'Real-time Fast Hybrid Testing Steel Frame Test'. The search results are displayed in a table with the following data:

Name	Size	Details
Real-time Fast Hybrid Testing Steel Frame Test	23.6 MB	Details
Evaluation of Ground Rupture Effects on Critical Lifelines	9.7 GB	Details
RC Collapse Test	16.4 MB	Details
Semiactive Control of Nonlinear Structures	35.9 GB	Details

Published data is publicly available data which can be utilized by the Designsafesafe community in their own research. A Designsafesafe account is not required to search and access the publicly available datasets

DesignSafe: Discovery Workspace

The screenshot shows the DesignSafe Research Workbench website. At the top, there is a navigation bar with links for NHERI Community, Research Workbench, NHERI Facilities, Learning Center, About, and Contact. Below the navigation bar, the main heading is 'RESEARCH WORKBENCH'. Underneath, there is a 'Service Notices' section with the text: 'DesignSafe Status: Available 01-24-2017 4:00PM CST No planned maintenance at this time.' The main content area features a grid of six tiles, each with a computer icon and a title. The tiles are: 'Data Depot' (Full lifecycle data curation - discover, publish, share, upload/download.), 'Discovery Workspace' (Data analytics tools, HPC computational resources, and scientific visualization software.), 'User Support' (DesignSafe technical staff collaborating with your research team as needed, including ECSS.), 'Developer's Portal' (Build your own tools and embed DesignSafe capabilities into your applications via our API.), 'Reconnaissance Integration Portal' (Access reconnaissance data collected within a geospatial framework.), and 'Getting Started' (Quick Start Guide, Workbench User Guide, and Help links to support site visitors and users.). A red circle highlights the 'Discovery Workspace' tile.

A place for you to do your research.

The Discovery Workspace allows users to perform simulations and analyze data using popular open source simulation codes OpenSees, ADCIRC, and OpenFOAM, as well as commercial tools such as MATLAB.

DesignSafe: Applications

DESIGNSAFE-CI
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Welcome, Sushobhon! 120 My account

A NATURAL HAZARDS ENGINEERING RESEARCH INFRASTRUCTURE (NHRI)

Research Workbench Overview Data Depot Workspace Support Roadmap

DISCOVERY WORKSPACE

Public Private

Compress folder 0.1 MATLAB Large 0.3 Extract tar/zip/gzip File 0.1 MATLAB 0.1 Paraview 4.3.1 ADCIRC 51.33 Parallel ADCIRC 51.33 OpenSeesSP 2.5.0.6480 OpenFOAM 2.4.0

DATA DEPOT BROWSER

Select data source
My Data

Browsing:
/ charlie

File name

- .ipynb_checkpoints
- .Trash
- archive
- ContourData
- Input_Files
- MASW
- MASW_kdw
- Scalar PGA M Model

SELECT AN APP

Select an application from the tray above.

This initial version of the *Discovery Workspace* allows users to perform simulations and analyze data using popular open source simulation codes OpenSees, ADCIRC, and OpenFOAM, as well as commercial tools such as MATLAB (software license verification required). The selection of codes and tools will continue to be expanded as seen at the [Workbench Roadmap](#).

At the top of the Discovery Workspace, you'll see the Application Bar, all the publicly available applications are shown here. Each applications links to documentation providing details of that particular app.

DesignSafe: Applications

The screenshot shows the DesignSafe-CI web interface. At the top, there is a navigation bar with links for Research Workbench, Overview, Data Depot, Workspace, Support, and Roadmap. Below this is the 'DISCOVERY WORKSPACE' section, which includes a 'Public' and 'Private' filter and a table of application versions:

Application	Version
Compress folder	0.1
MATLAB Large	0.3
Extract tar/zip/gzip File	0.1
MATLAB	0.1
Paraview	4.3.1
ADCIRC F	51.33

Below the table is the 'DATA DEPOT BROWSER' section. It includes a 'Select data source' dropdown set to 'My Data', a 'Browsing:' section with a '/ charlie' link, and a 'File name' section with a list of folders: .ipynb_checkpoints, .Trash, archive, ContourData, Input_Files, and MASW. The main content area is titled 'RUN OPENSEESSP' and contains the following text:

OpenSees is a software framework for simulating the seismic response of structural and geotechnical systems. The version of OpenSees available here performs analysis using a single tcl script, and runs on an HPC system. Interactive OpenSees as well as parallel processing capabilities through OpenSeesSP and OpenSeesMP will be available soon. This interpreter is for the analysis of very large models by users who have little understanding of parallel computing and who have an input file that is too large or takes too long to run on a sequential machine (single processor). This interpreter will process the same script that the OpenSees interpreter running on a sequential machine will process. There are no special commands for parallel processing, though there are additional options when it comes to choosing solvers. It will be referred to as the 'Single Parallel Interpreter' application.

[OpenSeesSP Documentation](#)

Inputs

Input Directory

Select

The directory containing your OpenSees input files as well as your OpenSees TCL script. You can drag the link for the directory from the Data Browser on the left, or click the 'Select Input' button and then select the directory. To try out sample data copy and paste 'agave://designsafe.storage.default/mock/examples/opensees/FreefieldAnalysisEffective' above.

TCL Script

The filename only of the OpenSees TCL script to execute. This file should reside in the Input Directory specified. To try this out copy and paste in 'freeFieldEffective.tcl'.

Job details

Maximum job runtime

In HH:MM:SS format. The maximum time you expect this job to run for. After this amount of time your job will be killed by the job scheduler. Shorter run times result in shorter queue wait times. Maximum possible time is 48:00:00 (48 hours).

Job name

Each applications links to documentation providing details of that particular app. To execute an app, fill out the necessary criteria on the form, and click RUN

DesignSafe: MATLAB

Public Private

Compress folder 0.1 MATLAB Large 0.3 Extract tar/zip/gzip File 0.1 **MATLAB 0.1** Paraview 4.3.1 ADCIRC 51.33 Parallel ADCIRC 51.33 OpenSeesSP 2.5.0.6480 OpenFOAM 2.4.0 JuPyter 4.1.0 OpenSeesMP 2.5.0.6480

DATA DEPOT BROWSER

Select data source
My Data

Browsing:
/ charlie

File name

- .ipynb_checkpoints
- .Trash
- archive
- ContourData
- Input_Files
- MASW
- MASW_kdw
- Scalar PGA M Model
- test
- virtualenvs

RUN MATLAB

Run an interactive Matlab 2016a session on a virtual machine. Work directly on your files rather than needing to copy them to and from Stampede.

[MATLAB Documentation](#)

Inputs

Job details

Maximum job runtime
24:00:00

In HH:MM:SS format. The maximum time you expect this job to run for. After this amount of time your job will be killed by the job scheduler. Shorter run times result in shorter queue wait times. Maximum possible time is 48:00:00 (48 hours).

Job name

A recognizable name for this job

Job output archive location (optional)
Select

Specify a location where the job output should be archived. By default, job output will be archived at:
`<username>/archive/jobs/${YYYY-MM-DD}/${JOB_NAME}-${JOB_ID}`

Jobs Status

DesignSafe: MATLAB

The screenshot displays the DesignSafe MATLAB web interface. On the left is the 'DATA DEPOT BROWSER' with a file tree. The main area shows a 'Job Submitted Successfully' message and configuration options for 'RUN MATLAB', including job runtime and name. On the right is the 'JOBS STATUS' panel listing various jobs and their completion states.

DATA DEPOT BROWSER

Select data source: My Data

Browsing: / charlie

File name

- .ipynb_checkpoints
- .Trash
- archive
- ContourData
- Input_Files
- MASW
- MASW_kdw
- Scalar PGA M Model
- test
- virtualenvs

Job Submitted Successfully

Your job *matlab100* has been submitted. Monitor its status on the right.

RUN MATLAB

Run an interactive Matlab 2016a session on a virtual machine. Work directly on your files rather than needing to copy them to and from Stampede.

[MATLAB Documentation](#)

Inputs

Job details

Maximum job runtime

24:00:00

In HH:MM:SS format. The maximum time you expect this job to run for. After this amount of time your job will be killed by the job scheduler. Shorter run times result in shorter queue wait times. Maximum possible time is 48:00:00 (48 hours).

Job name

A recognizable name for this job

Job output archive location (optional)

Select <username>/archive/jobs/\${YYYY-MM-DD}/\${JOB_NAME}-\${JOB_ID}

Specify a location where the job output should be archived. By default, job output will be archived at: <username>/archive/jobs/\${YYYY-MM-DD}/\${JOB_NAME}-\${JOB_ID}.

Run Close

JOBS STATUS

- matlab100*
PENDING [More info](#)
- deytest*
FAILED [More info](#)
- testing*
FINISHED [More info](#)
- dey_testing*
FINISHED [More info](#)
- Matlab demo*
FINISHED [More info](#)
- DemoingOpenSEES*
FINISHED [More info](#)
- Demo*
FINISHED [More info](#)
- demo*

DesignSafe: MATLAB

DATA DEPOT BROWSER

Select data source
My Data

Browsing:
/ charlie

File name

- .ipynb_checkpo
- .Trash
- archive
- ContourData
- Input_Files
- MASW
- MASW_kdw
- Scalar PGA M M
- test
- virtualenvs

Job Submitted Successfully
Your job *matlab100* has been submitted. Monitor its status on the right.

JOBS STATUS

matlab100
PENDING [More info](#)

Your interactive session has started!

To connect to your interactive session, click the button below.
To end the job, quit the application (e.g. MATLAB) within the session.
Your files may take some time to appear in your archive directory after the job has completed.

[Connect!](#) [Close](#)

RUN MATLAB

Select

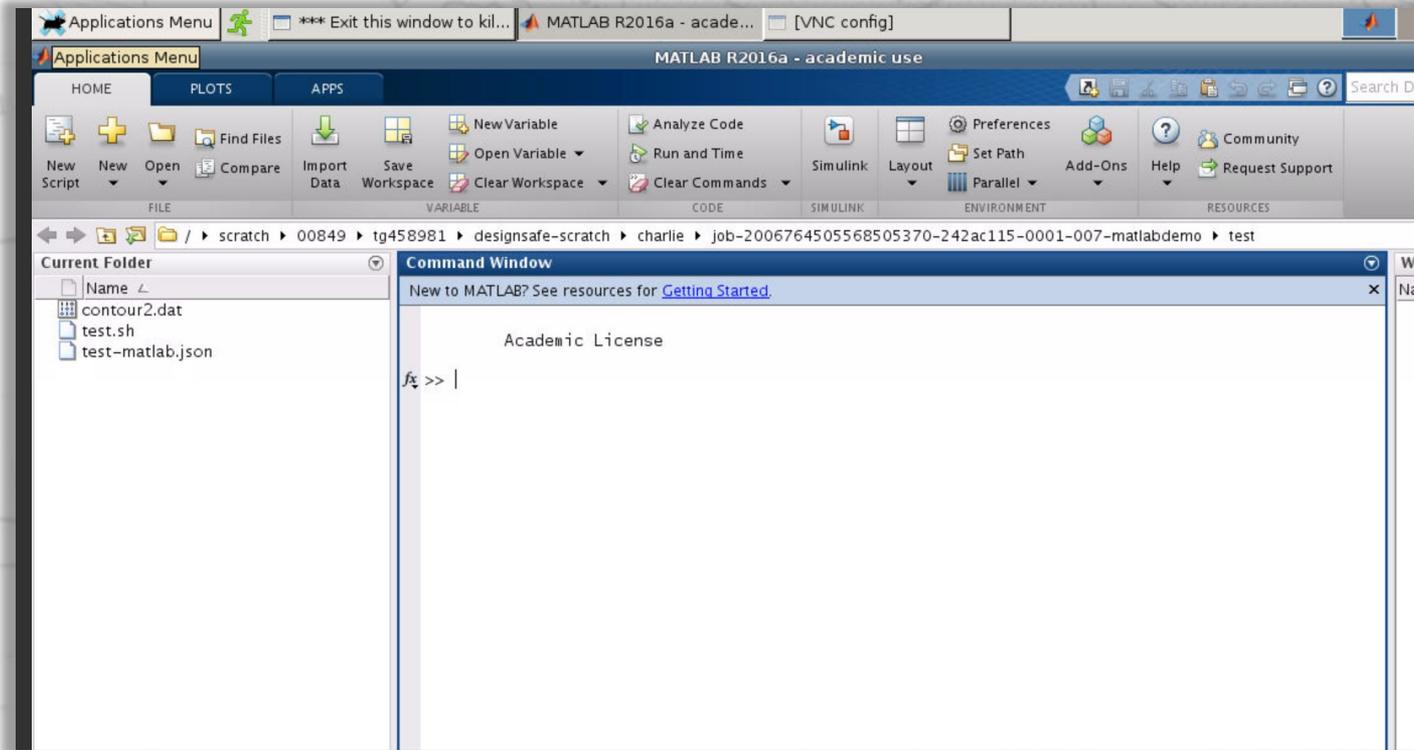
Specify a location where the job output should be archived. By default, job output will be archived at: .

[Run](#) [Close](#)

Demo
FINISHED [More info](#)

demo

DesignSafe: MATLAB



DesignSafe: Jupyter

DESIGNSAFE-CI
A NATURAL HAZARDS ENGINEERING COMMUNITY

Welcome, Sushobhon! 121 [My account](#)

A NATURAL HAZARDS ENGINEERING RESEARCH INFRASTRUCTURE (NHRI)

Research Workbench Overview Data Depot **Workspace** Support Roadmap

DISCOVERY WORKSPACE

- Discovery Workspace
- Developer's Portal
- Jupyter

Public Private

Tool	Version
Compress folder	0.1
MATLAB Large	0.3
Extract tar/zip/gzip File	0.1
MATLAB	0.1
Paraview	4.3.1
ADCIRC	51.33
Parallel ADCIRC	51.33
OpenSeesSP	2.5.0.6480
OpenFOAM	2.4.0

What are Jupyter Notebooks?

A web-based, interactive computing tool for capturing the whole computation process: developing, documenting, and executing code, as well as communicating the results.

How do Jupyter Notebooks Work?

An open notebook has exactly one interactive session connected to a kernel which will execute code sent by the user and communicate back results. This kernel remains active if the web browser window is closed, and reopening the same notebook from the dashboard will reconnect the web application to the same kernel.

What's this mean?

Notebooks are an interface to kernel, the kernel executes your code and outputs back to you through the notebook. The kernel is essentially our programming language we wish to interface with.

DesignSafe: Jupyter

DESIGNSAFE-CI
A NATURAL HAZARDS ENGINEERING COMMUNITY

Welcome, Sushobhon! 121 [My account](#)

A NATURAL HAZARDS ENGINEERING RESEARCH INFRASTRUCTURE (NHERI)

Research Workbench Overview Data Depot **Workspace** Support Roadmap

DISCOVERY WORKSPACE

- Discovery Workspace
- Developer's Portal
- Jupyter**

Public Private

Compress folder 0.1	MATLAB Large 0.3	Extract tar/zip/gzip File 0.1	MATLAB 0.1	Paraview 4.3.1	ADCIRC 51.33	Parallel ADCIRC 51.33	OpenSeesSP 2.5.0.6480	OpenFOAM 2.4.0
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DesignSafe: Jupyter

DESIGNSAFE-CI
A NATURAL HAZARDS ENGINEERING COMMUNITY

Welcome, Sushobhan! 121 [My account](#)

A NATURAL HAZARDS ENGINEERING RESEARCH INFRASTRUCTURE (NHRI)

Research Workbench Overview Data Depot Workspace Support Roadmap

Discovery Workspace
Developer's Portal

DISCOVERY WORKSPACE

JUPYTER

DesignSafe's Jupyter Hub is available to all DesignSafe users. Simply use your DesignSafe credentials to log in.

The Jupyter Notebook is a web application that allows you to create and share documents that contain live code, equations, visualizations and explanatory text. Uses include: data cleaning and transformation, numerical simulation, statistical modeling, machine learning and [much more](#).

[Proceed to Jupyter Hub](#)

START A JUPYTER SESSION

1. Click the green "Start Server" button to launch a Jupyter session. When you are done working in Jupyter, click the red "Stop My Server" button.

[Logout](#)

[Stop My Server](#) [My Server](#)

DesignSafe: Jupyter

The screenshot shows the top navigation bar of the DesignSafe-CI website. On the left is the logo for DesignSafe-CI, described as 'A NATURAL HAZARDS ENGINEERING COMMUNITY'. On the right, it says 'Welcome, Sushobhan!' with a user ID '121' and a 'My account' dropdown menu. Below this is a secondary header for 'A NATURAL HAZARDS ENGINEERING RESEARCH INFRASTRUCTURE (NHRI)'. The main navigation menu includes 'Research Workbench', 'Overview', 'Data Depot', 'Workspace', 'Support', and 'Roadmap'. A 'Discovery Workspace' dropdown menu is also visible, showing 'Developer's Portal'.

DISCOVERY WORKSPACE

JUPYTER

DesignSafe's Jupyter Hub is available to all DesignSafe users. Simply use your DesignSafe credentials to log in.

The Jupyter Notebook is a web application that allows you to create and share documents that contain live code, equations, visualizations and explanatory text. Uses include: data cleaning and transformation, numerical simulation, statistical modeling, machine learning and [much more](#).

 [Proceed to Jupyter Hub](#)

START A JUPYTER SESSION

1. Click the green "Start Server" button to launch a

 [jupyter](#)

The screenshot shows the Jupyter login page. At the top left is the Jupyter logo. The main content area is mostly blank, with a prominent orange oval highlighting a 'Log in' button located at the bottom center of the page.

DesignSafe: Jupyter

The image shows a screenshot of the DesignSafe-CI Jupyter interface. At the top left is the DesignSafe-CI logo with the text 'A NATURAL HAZARDS ENGINEERING COMMUNITY'. To the right, it says 'Welcome, Sushobhan! 121' and 'My account'. Below this is a navigation bar with 'Research Workbench', 'Overview', 'Data Depot', 'Workspace', 'Support', and 'Roadmap'. The main content area is titled 'DISCOVERY WORKSPACE' and 'JUPYTER'. A 'Public' section is visible. A 'Start My Server' button is highlighted with an orange oval. A 'Logout' button is in the top right corner of the Jupyter interface. Below the Jupyter interface, there is a 'START A...' section with a list item '1. Click the gre...' and a Jupyter logo.

DesignSafe: Jupyter

 jupyter

Control Panel

Logout

Files

Running

Clusters

Select items to perform actions on them.

Upload

New ▾



<input type="checkbox"/>	▼	
<input type="checkbox"/>	📁	cli
<input type="checkbox"/>	📁	mydata
<input type="checkbox"/>	📁	public
<input type="checkbox"/>	📁	util
<input type="checkbox"/>	📄	README.txt

Jupyter Notebooks, Structure

- Code Cells
 - Code cells allow you to enter and run code
 - Run a code cell using Shift-Enter
- Markdown Cells
 - Text can be added to Jupyter Notebooks using Markdown cells. Markdown is a popular markup language that is a superset of HTML.

Jupyter Notebooks, Structure

- Markdown Cells

- You can add headings:

- # Heading 1
 - # Heading 2
 - ## Heading 2.1
 - ## Heading 2.2

- You can add lists

- 1. First ordered list item
 - 2. Another item
 - * Unordered sub-list.
 - 1. Actual numbers don't matter, just that it's a number
 - 1. Ordered sub-list
 - 4. And another item.

Jupyter Notebooks, Structure

- Markdown Cells

- pure HTML

- `<dl>`

- `<dt>Definition list</dt>`

- `<dd>Is something people use sometimes.</dd>`

- `<dt>Markdown in HTML</dt>`

- `<dd>Does not work very well. Use HTML tags.</dd>`

- `</dl>`

- And even, Latex!

- $e^{i\pi} + 1 = 0$

Jupyter Notebooks, Workflow

Typically, you will work on a computational problem in pieces, organizing related ideas into cells and moving forward once previous parts work correctly. This is much more convenient for interactive exploration than breaking up a computation into scripts that must be executed together, as was previously necessary, especially if parts of them take a long time to run.

Jupyter Notebooks, Workflow

- Let a traditional paper lab notebook be your guide:
 - Each notebook keeps a historical (and dated) record of the analysis as it's being explored.
 - The notebook is not meant to be anything other than a place for experimentation and development.
 - Notebooks can be split when they get too long.
 - Notebooks can be split by topic, if it makes sense.

Jupyter Notebooks, Shortcuts

- **Shift-Enter**: run cell
- Execute the current cell, show output (if any), and jump to the next cell below. If **Shift-Enter** is invoked on the last cell, a new code cell will also be created. Note that in the notebook, typing **Enter** on its own *never* forces execution, but rather just inserts a new line in the current cell. **Shift-Enter** is equivalent to clicking the **Cell | Run** menu item.

Jupyter Notebooks, Shortcuts

- **Ctrl-Enter**: run cell in-place
 - Execute the current cell as if it were in “terminal mode”, where any output is shown, but the cursor *remains* in the current cell. The cell’s entire contents are selected after execution, so you can just start typing and only the new input will be in the cell. This is convenient for doing quick experiments in place, or for querying things like filesystem content, without needing to create additional cells that you may not want to be saved in the notebook.

Jupyter Notebooks, Shortcuts

- **Alt-Enter**: run cell, insert below
 - Executes the current cell, shows the output, and inserts a *new* cell between the current cell and the cell below (if one exists). (shortcut for the sequence **Shift-Enter**, **Ctrl-m a**. (**Ctrl-m a** adds a new cell above the current one.))
- **Esc** and **Enter**: **Command mode** and **edit mode**
 - In command mode, you can easily navigate around the notebook using keyboard shortcuts. In edit mode, you can edit text in cells.

DesignSafe: Hands On

- **Log in to DesignSafe**
- **Data Depot**
 - **Search Published data**
 - Navigate an experiment
 - View the Metadata
 - Preview/Download Files
 - **Navigate to My Data**
 - Upload files
 - Copy files
 - Share files with others
 - **Navigate to Projects**
 - Demonstrate creating a Project
 - Adding collaborators
 - Copying files in/out of a Project
- **Workspace**
 - View the available applications
 - Launch an application
 - Launch MATLAB
 - Launch Jupyter

DesignSafe: Thanks

Ellen Rathje, Tim Cockerill, Jamie Padgett, Scott
Brandenberg, Dan Stanzione, Steve Mock, Josue Coronel,
Craig Jansen, Joe Stubbs, Matt Stelmaszek, Hedda
Prochaska, Joonyee Chuah

DesignSafe: Future Webinars

- Introduction to Python and Matplotlib
- Advanced Python
- Introduction to Data Analysis and Plotting with R
- Advanced R

For additional questions, feel free to contact us

- Email:

training@designsafe-ci.org

- or fill out a ticket:

<https://www.designsafe-ci.org/help/tickets>

DesignSafe: Questions?