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Sandia National Laboratories

Improving your Python Notebook Workspace with Custom JupyterLab Extensions

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jupyterlab TNG

python™

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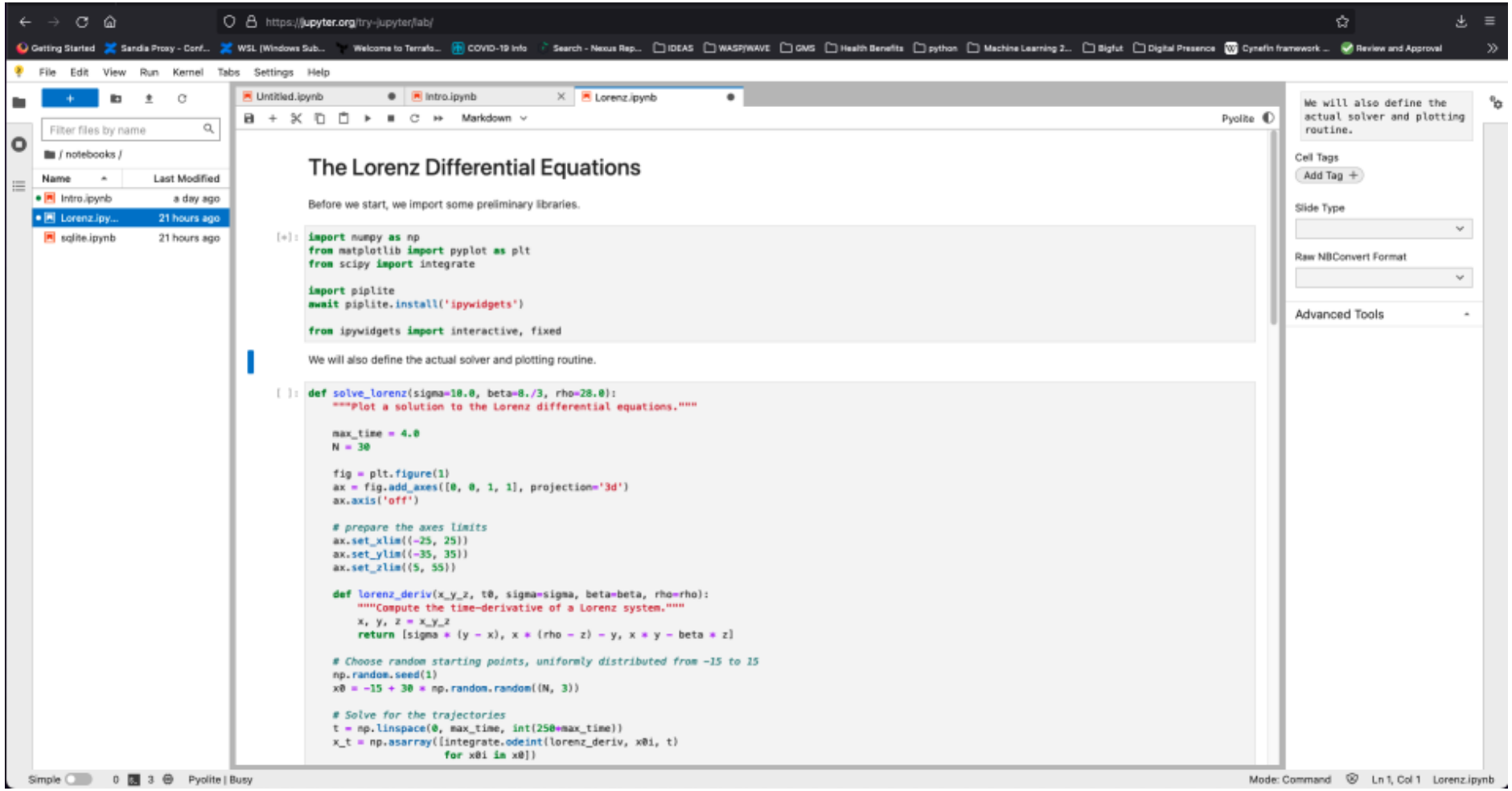
Free software, open standards, and web services for interactive computing across all programming languages

Why JupyterLab?

- “Individuals and interactions over processes and tools” http://agilemanifesto.org/
- Scientists and Researchers need to
  - Share results quickly and in a compelling way
  - Share results with audiences of diverse backgrounds
  - Have direct access to data
  - Adapt to changes in funding
- Enables quick start up
- Flexible to different domains of study

JupyterLab Demonstration

- https://jupyter.org/try-jupyter/lab/

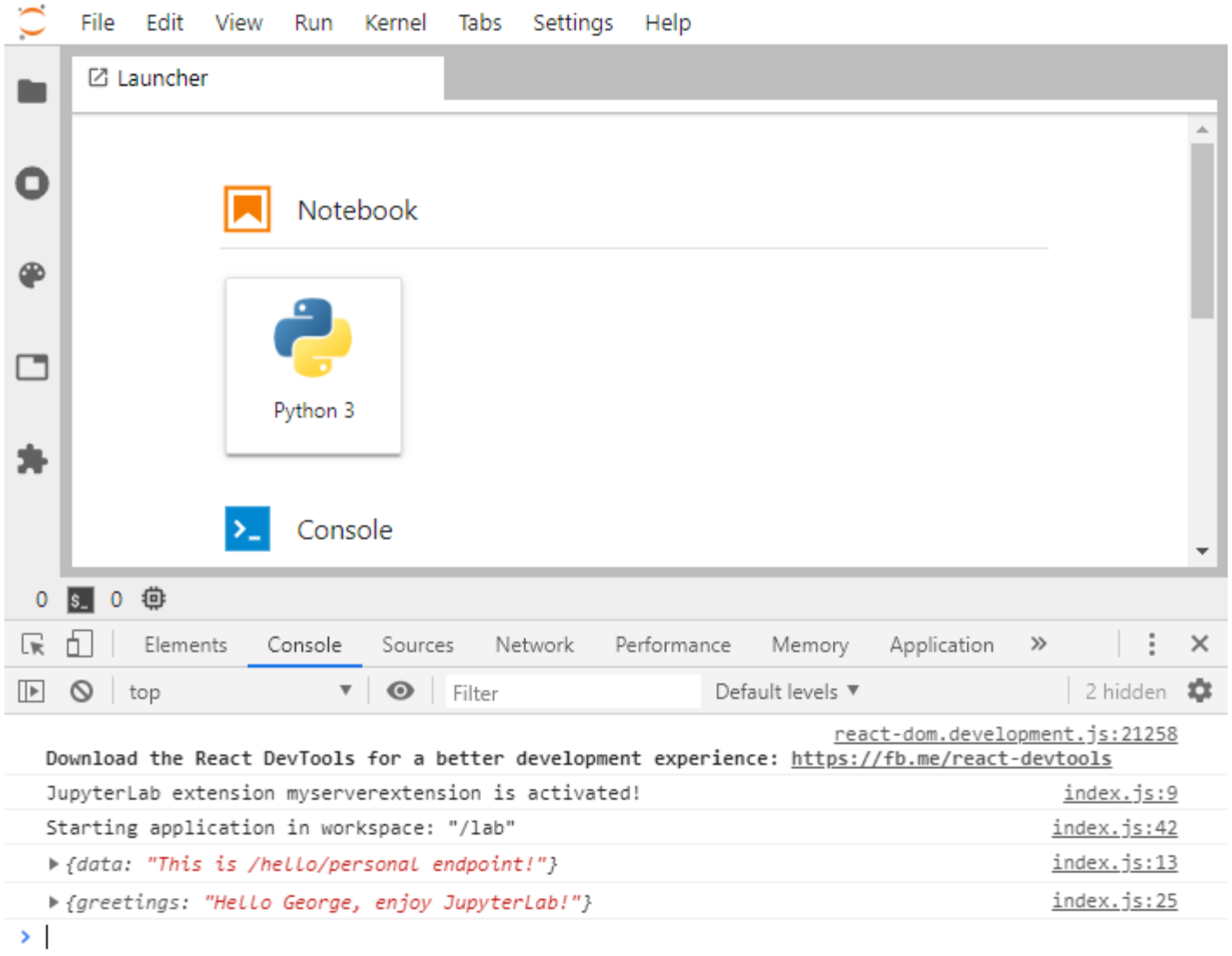


Customize or Not?

- I have a custom file format that I want to display.
- I want to share my JupyterLab notebook to non technical users.
- I want other researchers to be able to repeat my work with little to no setup.
- I want to minimize the amount of unnecessary implementation details the user sees.

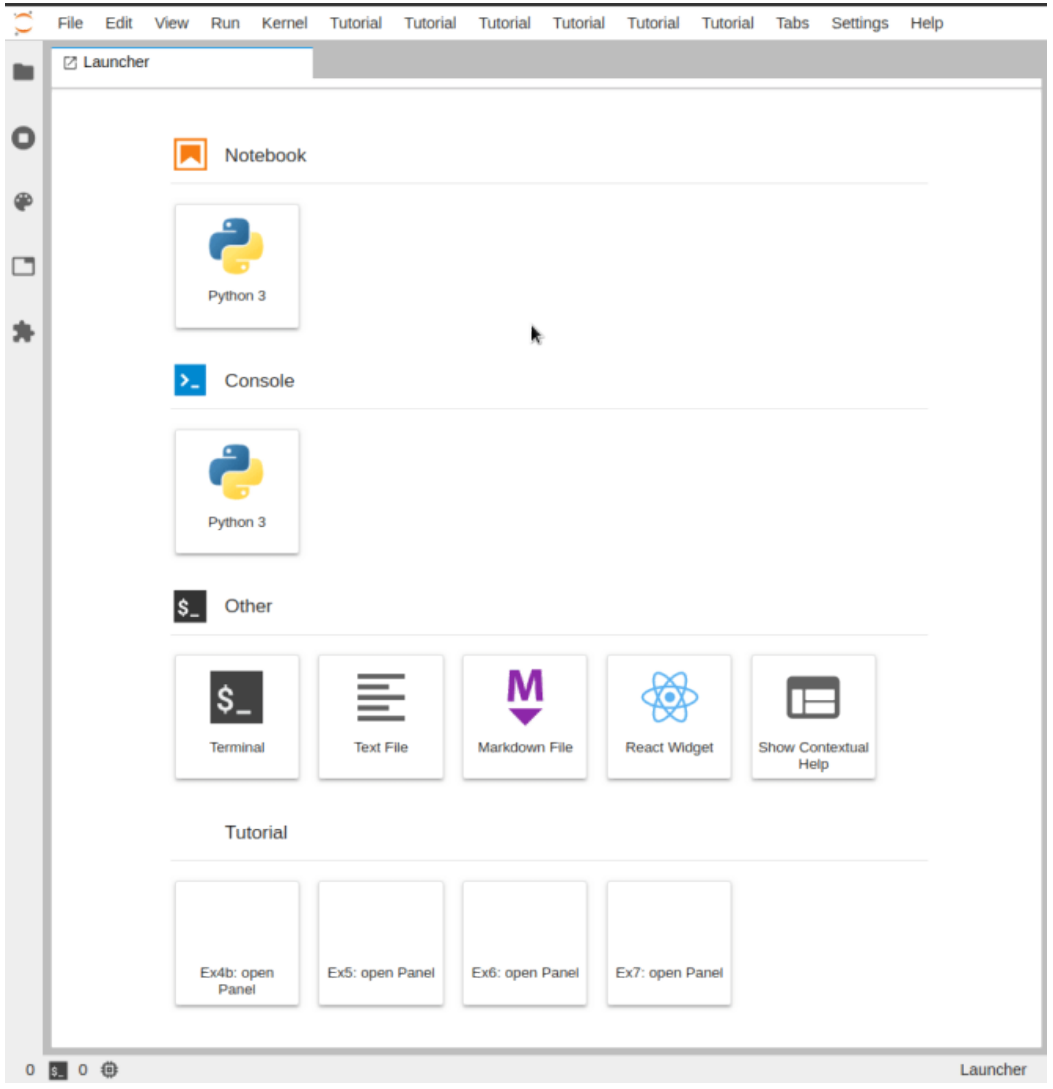
Custom JupyterLab Extensions

- Server Extension
  - https://github.com/jupyterlab/extension-examples/tree/master/server-extension



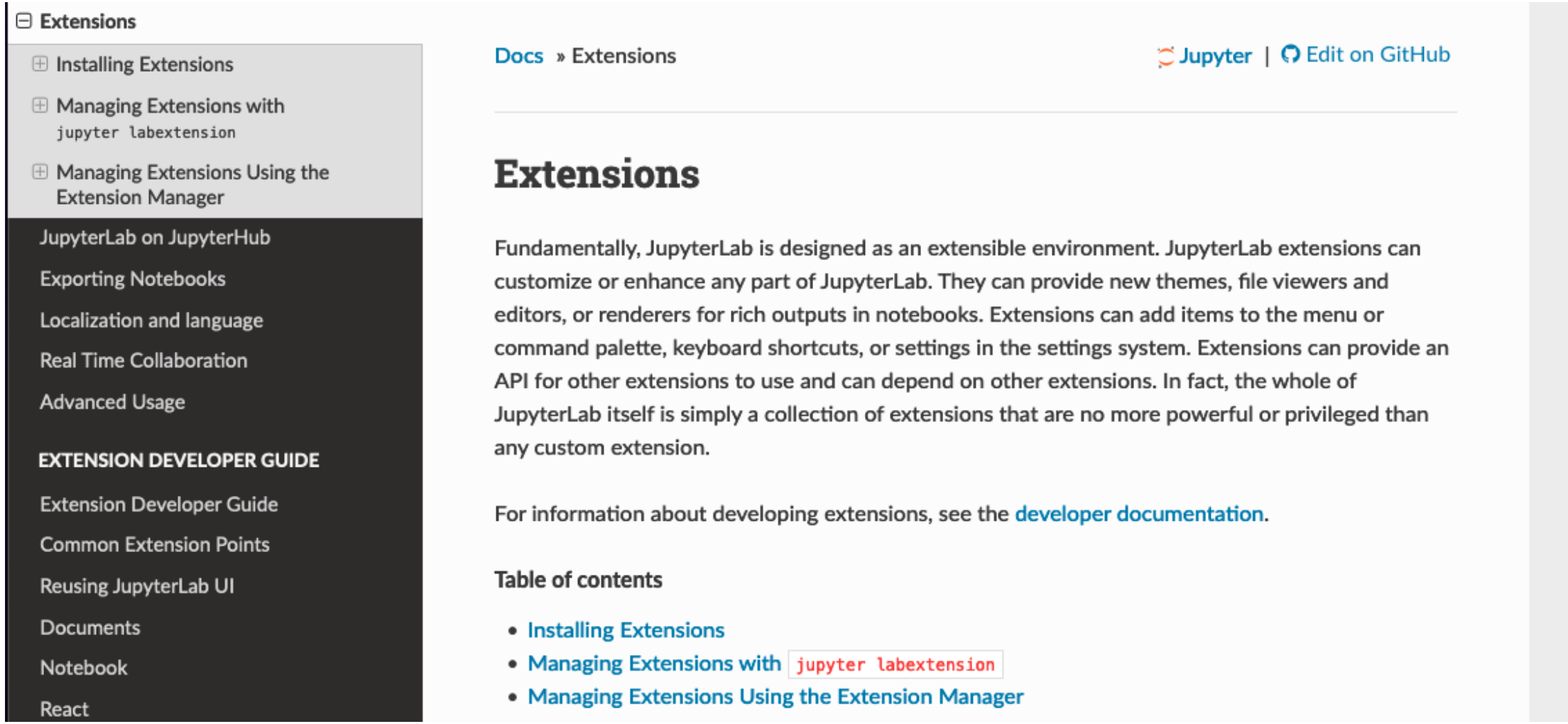
Custom JupyterLab Extensions

- React Widget Extension
  - https://github.com/jupyterlab/extension-examples/tree/master/react-widget



Documentation

https://jupyterlab.readthedocs.io/en/stable/user/extensions.html



Deployment

- Conda-Pack
  - Sharing JupyterLab extensions
  - https://conda.github.io/conda-pack/
  - Demonstration

conda-pack

A tool for packaging and distributing conda environments.

Watch

build passing

Navigation

CLI Docs
API Docs
Usage with Apache Spark on YARN
Parcels
SquashFS

Need help?

Open an issue in the issue tracker.

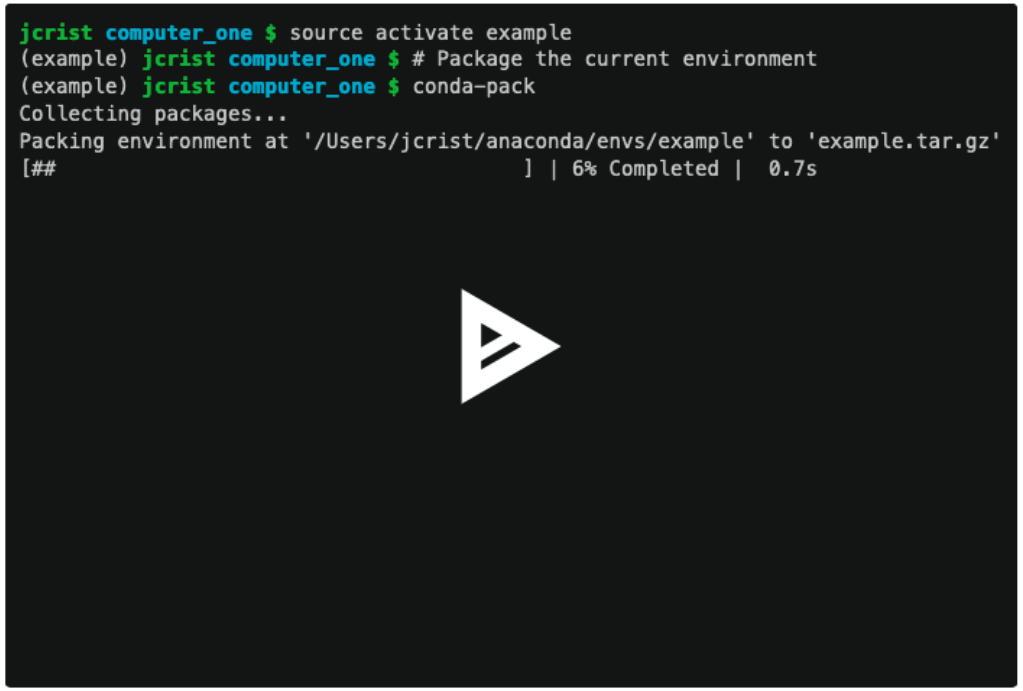
Quick search

Go

Conda-Pack

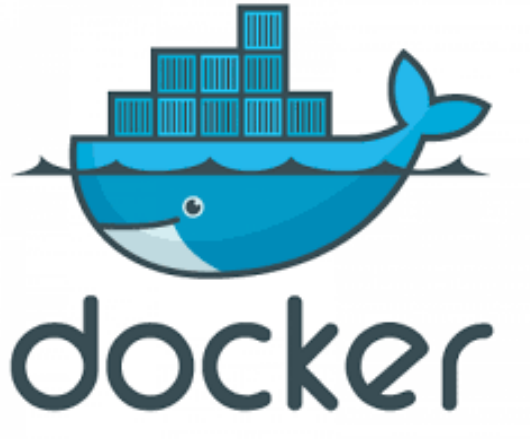
`conda-pack` is a command line tool for creating archives of conda environments that can be installed on other systems and locations. This is useful for deploying code in a consistent environment—potentially where python and/or conda isn't already installed.

A tool like `conda-pack` is necessary because conda environments *are not relocatable*. Simply moving an environment to a different directory can render it partially or completely inoperable. `conda-pack` addresses this challenge by building archives from original conda package sources and reproducing conda's own relocation logic.



Deployment

- Localhost
  - Demonstration
- Remote
  - Demonstration



Linux

Mac