

Hands-On Activity #3:

Setting Up and Managing a Conda Environment

Objective:

In this activity, you'll learn how to install Miniconda, create a Conda environment, manage dependencies using an environment file, and install, activate, and explore the environment. This will help you manage reproducible environments for your computational work.

Instructions:

Step 1: Install Miniconda

1. **Download Miniconda:**
 - Visit the Miniconda installation page and download the installer for your operating system (Windows, macOS, or Linux).
2. **Install Miniconda:**
 - Follow the installation instructions for your operating system
3. **Verify installation:**
 - Open a terminal and run `conda --version`

Step 2: Create a conda environment file

1. **Write a YAML File:**
 - Create a new file called `environment.yml` and specify a Conda environment. Include at least:
 - A version of Python.
 - An additional package (e.g., `numpy`, `pandas`, or another relevant package).
 - Template:

```
name: a_descriptive_name
channels:
  - conda-forge
  - defaults
dependencies:
  - python=3.11
  - jupyter=1.0
  - pandas=2.0
```

Step 3: Install and activate the environment

1. **Create the conda environment:**
 - Use conda to create the environment from the `environment.yml` file:
 - Run: `conda env create --force environment.yml`
2. **Activate the conda environment:**
 - Use conda to activate the environment, you will activate the name you provide

- Run `conda activate a_descriptive_name`

Step 4: Verify the environment

1. List Installed Packages:

- Use the following command to list all installed packages in the environment:
 - Run `conda list`

Step 5: Modify the environment, common in active development

1. [Good] Add a new package

- It is not recommended to mix environment managers (e.g., pip and conda)
- To add a new package, run `conda install matplotlib` for example

2. [Better] Add this package to the environment list and rerun `env create`

```
name: a_descriptive_name
channels:
- conda-forge
- defaults
dependencies:
- python=3.11
- jupyter=1.0
- pandas=2.0
- matplotlib
```

Deliverables:

- Show your environment.yml
- Show your conda list

Resources:

- [Miniconda Installation Guide](#)
- [Conda Documentation](#)
- [Managing Conda Environments](#)
- [Mamba](#)