

Chemical Engineering 374

Nuclear Reactor Design and Analysis

MCNP: Setup and Basics



Spiritual Thought

“Nephi didn’t mess up! It was a learning experience. Line upon line, precept upon precept he was being prepared to go back, not knowing beforehand the things that he should do... If you’re doing your best: you’re consecrated, you’re devoted, you’re not going to mess somebody up! Heaven is in charge of this, not you, not me.”

-Elder David A. Bednar



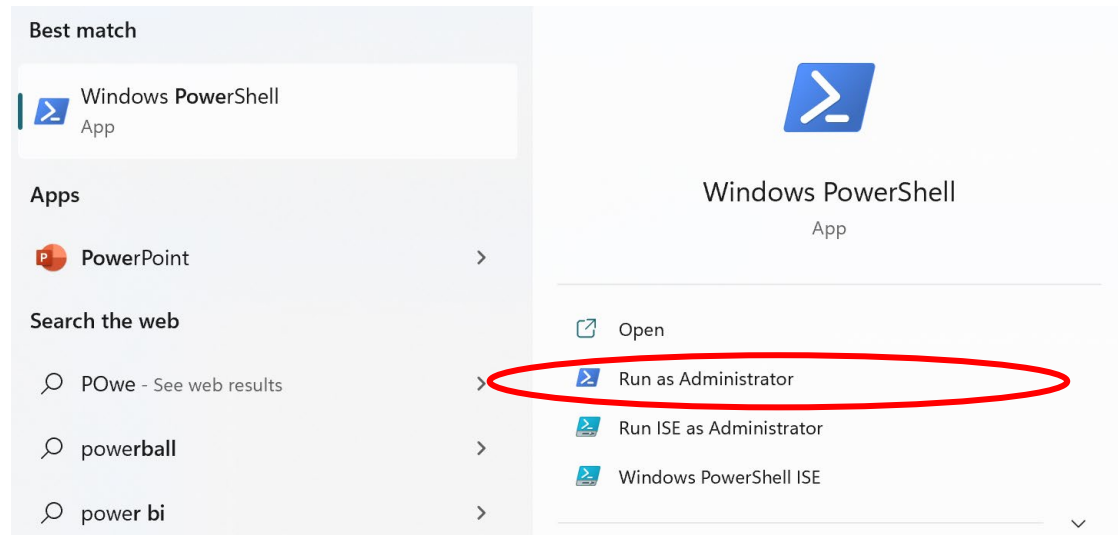
Guide To Installation



- WSL set up (Windows users only)
- Conda Set up
- OpenMC Installation
- Jupyter Notebook Set up

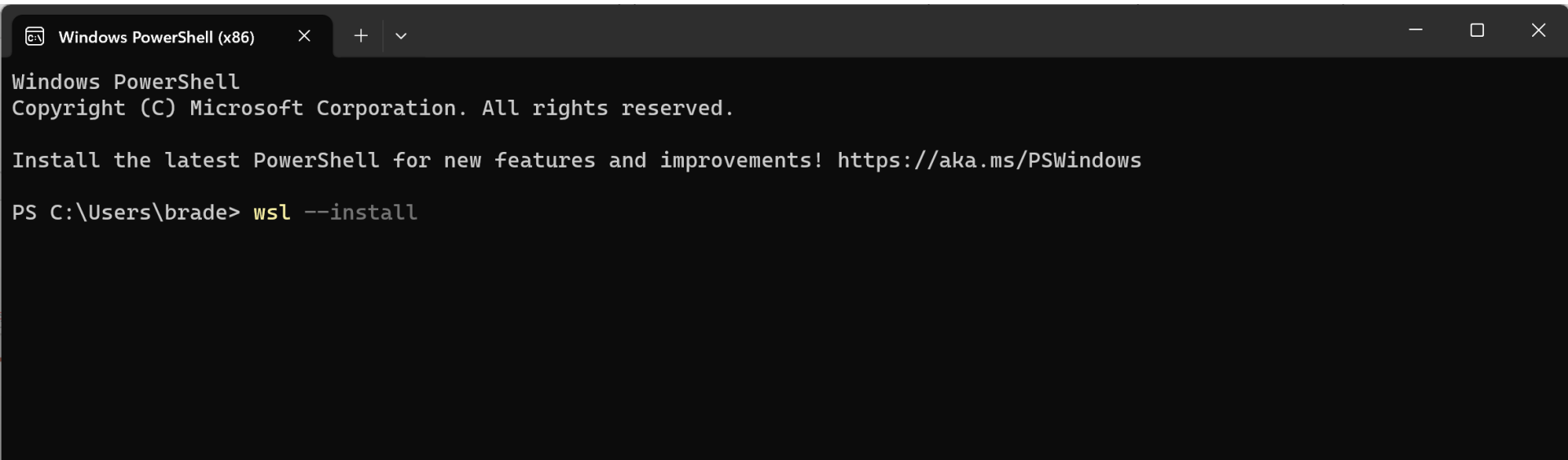
WSL set up for Windows

- Open Windows PowerShell as an Administrator



WSL Cont.

- When the terminal opens enter the following command:
 - `wsl --install`



```
Windows PowerShell (x86)
Windows PowerShell
Copyright (C) Microsoft Corporation. All rights reserved.

Install the latest PowerShell for new features and improvements! https://aka.ms/PSWindows

PS C:\Users\brade> wsl --install
```



WSL Cont.

- After it is approved, the terminal will give a prompt similar to the following:
- As the installation loads, you may need to approve portions of it. Follow any prompts as they are printed on the screen
- Once complete, you will be prompted to close the terminal and restart the computer.



A screenshot of a Windows terminal window. The title bar shows the file path 'C:\Program Files\WSL\wsl.exe' and standard window controls. The terminal output displays the installation progress of the Virtual Machine Platform, including the deployment image servicing tool version (10.0.22621.2792) and the image version (10.0.22621.2861).

```
C:\Program Files\WSL\wsl.exe
Installing: VirtualMachinePlatform
Deployment Image Servicing and Management tool
Version: 10.0.22621.2792
Image Version: 10.0.22621.2861
```



WSL Troubleshooting and Additional Resources

- <https://learn.microsoft.com/en-us/windows/wsl/install>



https://mooseframework.inl.gov/getting_started/installation/conda.html

(Only the first section)



Conda Set Up

1. Open Powershell as an administrator
2. Enter Linux system using `wsl/` command
3. Go to your linux home using `cd ~` command
4. Copy and paste the following commands to begin Conda set up

Linux Users:

- `curl -L -O https://github.com/conda-forge/miniforge/releases/latest/download/Miniforge3-Linux-x86_64.sh`
- `bash Miniforge3-Linux-x86_64.sh -b -p ~/miniforge`

Macintosh Users with Intel processors:

- `curl -L -O https://github.com/conda-forge/miniforge/releases/latest/download/Miniforge3-MacOSX-x86_64.sh`
- `bash Miniforge3-MacOSX-x86_64.sh -b -p ~/miniforge`

Macintosh Users with Apple Silicon processors:

- `curl -L -O https://github.com/conda-forge/miniforge/releases/latest/download/Miniforge3-MacOSX-arm64.sh`
- `bash Miniforge3-MacOSX-arm64.sh -b -p ~/miniforge`



Conda Set Up Cont.

5) With Miniforge installed in your home directory, export PATH so that it may be used:

- `export PATH=$HOME/miniforge/bin:$PATH`

6) Now that we can execute conda, initialize it and then exit the terminal:

- `conda init --all`

7) Close the terminal

- `Exit`

Upon restarting your terminal, you should see your prompt prefixed with (base). This indicates you are in the base environment, and Conda is ready for operation:

`$ (base) ~>`



Conda Trouble shooting and debugging resources

- https://mooseframework.inl.gov/help/faq/conda_issues.html



<https://docs.openmc.org/en/stable/quickinstall.html>



OpenMC install

- 1) Open Powershell as an administrator, Enter Linux system using `wsl` command, Go to your linux home using `cd ~` command
- 2) First, add the conda-forge channel with:
 - `conda config --add channels conda-forge`
- 3) Then create and activate a new conda enviroment called openmc-env in which to install OpenMC.
 - `conda create -n openmc-env`
 - `conda activate openmc-env`
- 4) Then install mamba, which will be used to install OpenMC.
 - `conda install mamba`



OpenMC install Cont.

5) To list the versions of OpenMC that are available on the *conda-forge* channel, in your terminal window or an Anaconda Prompt run:

- `mamba search openmc`

6) OpenMC can then be installed with:

- `mamba install openmc`

You are now in a conda environment called *openmc-env* that has OpenMC installed.



Step 9 of Old Installation Doc.



Jupyter Notebook for OpenMC

Follow Step #9 from this old installation guide:

<https://byu.box.com/s/qc8zfwqcfv343rprz3rox2c3ayr4pmm1>

