FH Aachen
University of Applied Sciences

Faculty of Aerospace Technology

Aircraft Engineering

Report:
Install and Prepare Ubuntu with DUST and preCICE

Shreyas Ashwin Sunder

27 October 2024

I. Abstract

Abstract

A quick installation guide to install Ubuntu, preCICE and DUST with corresponding applications is given. The commands are given. It is designed to help new users install and prepare the machine themselves.

Keywords: Ubuntu, DUST, preCICE

II. Contents

1 Install Ubuntu on external Drive

Install Ubuntu:

How to Actually
Install Ubuntu on US

Follow the introduction on the previous pdf.

2 Required and Recommended Programs

2.1 List

List of Required Programs:

- Git
- MATLAB
- Paraview
- PreCice
- DUST

2.2 Installation of Packages

2.2.1 Git & Alacarte

It is highly recommended to install the following packages on ubuntu:

sudo apt install git
sudo apt install build-essential
sudo apt install alacarte

Alacarte can be executed by the menu. Then a new entry can be made. You need to define the path to the executable and by clicking on the image icon you can also define an icon. If you save this, you can directly start the corresponding application from the menu.

2.2.2 MATLAB

Download the MATLAB installation file and extract the files.
Before running the installer, the following command needs to be executed:

(sudo) xhost +SI:localuser:root

Then run the installation with sudo from the folder.

sudo ./install

After MATLAB is installed, the license needs to be activated. This can be easily done by running the "*activate_matlab*" script in the installation folder.

If additional toolboxes or packages fail to install (permission error), simply run the installation again from the folder (with sudo), this time with the desired toolboxes and add-ons.

2.2.3 ParaView

Just download the latest version of ParaView and extract the file. You can directly execute paraview from the terminal.

2.2.3.1 On WSL:

First perform following execution and then try to re-run the "config …" command

sudo apt install python3-pip
sudo apt install python3-numpy

2.2.4 DUST

Prepare the system by running these commands:

sudo apt update
sudo apt upgrade
sudo apt install make gcc g++ gfortran
sudo apt install autoconf automake libtool autotools-dev
sudo apt install libltdl-dev liblapack-dev libsuitesparse-dev libnetcdf-dev
sudo apt install libnetcdf-c++4-dev
sudo apt install libblas-dev libopenblas-dev libopenblas0 libcgns-dev libhdf5-dev
sudo apt install swig

Follow the instruction on https://public.gitlab.polimi.it/DAER/dust/-/blob/master/install.md .

It is recommened to build two different versions. One without PreCice (then do not run the "install" command at the end) and one with PreCice (run the "install" command at the end).

Since the binary files will be in the corresponding build folder.

Using WSL:

- There might be some error if HDF5 is installed on windows!

2.2.5 PreCice

You need to install PreCice to use DUST and MBDyn. Open the terminal and enter the following the introductions :

https://precice.org/quickstart.html or
https://precice.org/installation-packages.html :

Make sure that you install the current version according to your OS!
Make sure that pyprecice has the same version as the one you installed.
Smaller version than 2.5.0.4 leads to an error -> use this one!

After that you need to install a python package:

pip3 install (--user) --upgrade pip
pip3 install (--user) pyprecice=2.5.0.4

2.3 Update Packages

sudo apt update
sudo apt list –upgradable
sudo apt upgrade