National College of Ireland

Configuration Manual

MSc Internship
MSc in Cybersecurity

Kona Siva Sarat
Student ID: X18170366

School of Computing
National College of Ireland

Supervisor: Christos Grecos

National College of Ireland
Project Submission Sheet
School of Computing

National College of Ireland

Student Name:	Kona Siva Sarat
Student ID:	X18170366
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Configuration Manual

Kona Siva Sarat
X18170366

1 Config Manual Introduction

This manual provides information on the software tools used to implement this project. Also this manual includes step by step installation of required software, Loading the code into systems and execution of project to get the results.

2 Hardware details

2.1 Specification

The neural network processing need heavy duty resources. The hardware specifications of my hosted machine are below. These value are not minimum requirements. you can consider the specifications of each software individually from their official websites. The can in values will affect the performance of the project.

2.1.1 Hardware

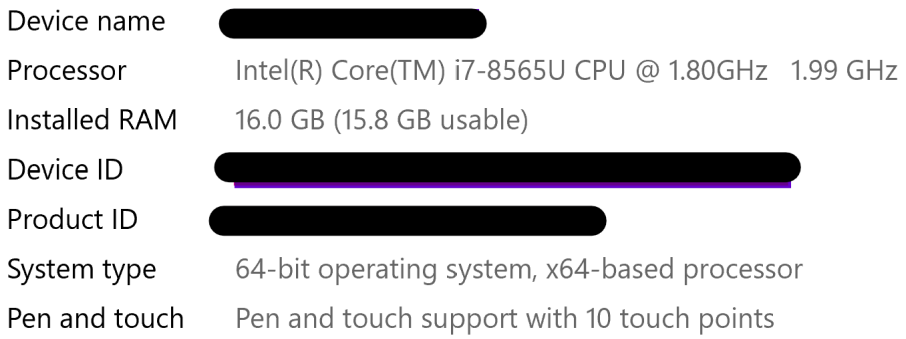

Figure 1: Hardware details

As we are dealing with high amount of data in LSTM analysis and by default neural networks need high amount of resources based on the learning process. Even better hardware is recommended to achieve high performance.

2.1.2 Operating System - Windows 10

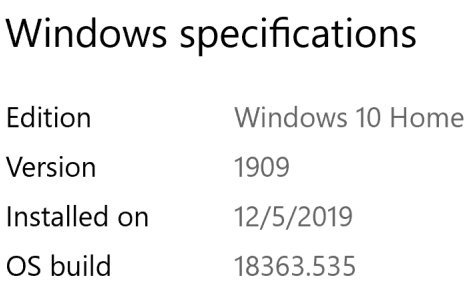

Figure 2: windows software version

Any operating system is recommended, with support to python IDE (preferably Anaconda Navigator) and python 3. Windows is one of the easy OS to understand and to install.

3 Required software

The project is developed in python version 3, to install every software and configuring them is a cumbersome process. So, i used a packaged tool called Anaconda navigator which will have everything required for this project.

3.1 Download - how & where

3.1.1 Python

Open-source software and available for free download. We used Python 3 during development because it is new and support for newer software. I haven't tested my code with python 2.[1]

Figure 3: python download representational image[1]

[1]Python official download url: `https://www.python.org/downloads/`

The dotted version is not specific, we can go with any version of python 3. Higher is better.

3.1.2 Anaconda Navigator

The packaged software used to manage the python and R IDE's with the required libraries. Download the 64bit or 32bit based on your operating system.[2]

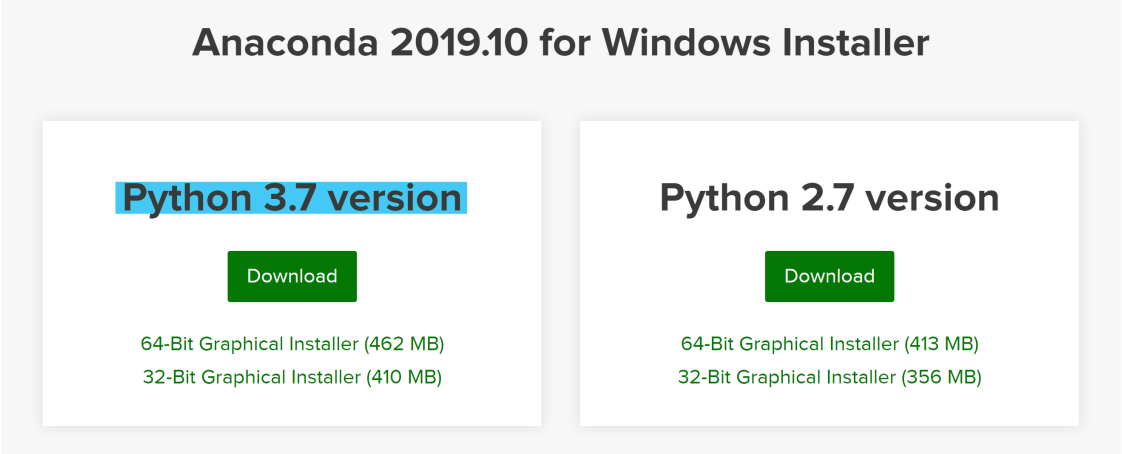

Figure 4: Anaconda download representational image[2]

3.1.3 Dataset

The dataset used in this project is CICIDS2017, The data set is cleansed and filtered with various tools to fit the algorithm. The source and licence details are mentioned below. There is no requirement to download the dataset here. Dataset is already provided in the ICT package.[3]

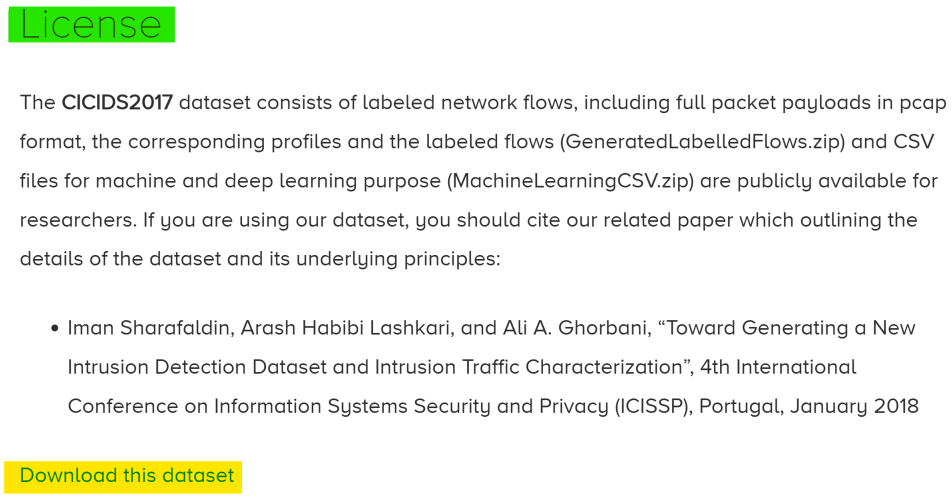

Figure 5: Dataset licence & download representational image[3]

[2]Anaconda official url: `https://www.anaconda.com/distribution/`
[3]Dataset details and download url: `https://www.unb.ca/cic/datasets/ids-2017.html`

4 Installation

4.1 Python

The installation is straight forward and just like any normal software installation in windows. Do not check or select any additional options other than default.

4.2 Anaconda

The installation is similar to python. Install the software with all default options.

5 Post Installation steps

5.1 Update conda software

After successful anaconda installation, We will get a graphical user interface and command line interface (terminal/command prompt).

Open "Anaconda Prompt"

Execute the below commands:

conda update conda
conda update anaconda

After successful installation restart GUI if opened earlier.

5.2 Install required packages

conda install pandas
conda install keras
conda install tensorflow
conda install sklearn

6 Execution of code

Below are the steps to run the code

1. Download the IDT zip with datasets and python files
2. unzip the files into a folder
3. Open Spyder or Jupyter through anaconda GUI
4. open .py files in Spyder and .ipynb file in Jupyter
5. change the path to path referncing dataset with in your folder
6. Run the code, either step by step or whole code at the same time.

Sample execution of code html file available in ICT zip.

References