

Technical Installation Manual

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July 30, 2023

Contents

1	Introduction	1
1.1	Overview of installation process	2
2	Prerequisites - General Software	2
2.1	Operating System	2
2.2	Web Browser	3
2.3	Python 3.8	3
2.3.1	Linux	3
2.3.2	Windows	3
2.4	Pipenv (any 2022 or post 2022 version)	3
2.5	Node.js v18 or later	3
2.6	Angular v14	4
2.7	MongoDB (Community Edition v6 or later)	4
2.8	PostgreSQL 12	4
3	Prerequisites - Hardware	4
4	Installation	4
4.1	Cloning the repo	4
4.2	Configuring the application	5
4.3	Installing dependencies	5
4.3.1	Backend	5
4.3.2	Frontend	5
4.4	Configuring the application for local deployment	6
4.4.1	Setting up enviroment variables	6
4.4.2	Acquiring API Keys	6
5	Deployment and Running	6

1 Introduction

The following is a Technical Installation Manual for COS301 capstone project, Domain Pulse - A Sentiment Analysis Platform. Domain Pulse is a system

designed to fetch, analyse, aggregate, and present results of sentiment analysis on publically available data pertaining to businesses, products, places, and more! Sources of data include (but are not limited to) Google reviews, TripAdvisor and Youtube.

This installation guide details how to setup and install the system locally. The system uses a Django backend (consisting of 5 independently deployable projects), an Angular frontend as well as PostgreSQL and MongoDB databases. The installation of these components and the packages used within in them, shall be explained within this manual.

Please note that the production application is a web application that is deployed to a private virtual machine acting as a web server. For security purposes, this guide will not provide details or keys for connecting to the deployment server - instead this details local installation of the application.

Once again, this is not the recommended approach for using the application. Instead, is it recommended that one interacts with the hosted web application available at: www.domainpulse.app

1.1 Overview of installation process

The process of installing the application consists of the following stages, each of which is to be described in detail later in the manual:

- Installation and acquisition of prerequisites
- Downloading and configuring application
- Installing project specific dependencies
- Running the application

2 Prerequisites - General Software

The following software are prerequisites for the complete installation and set-up of Domain Pulse: Python 3.8, Pipenv (any 2022 or post 2022 version), Node.js (v18 later), Angular (v14), MongoDB (Community Edition, v6 or later), PostgreSQL 12. Of course an operating system of either Linux (Ubuntu) or Windows is required, as well as a modern web browser.

Note: The installation of the project specific dependencies and packages is detailed later in the manual.

2.1 Operating System

The system may be installed locally on either a Windows or Linux (Ubuntu) operating system. The following versions are most suitable

- Linux (Ubuntu): v22 or later
- Windows: v10 or later

Note that earlier or different versions of these operating systems may successfully install and run the application, however the provided versions are deemed to be most suitable and confirmed to work.

2.2 Web Browser

Any modern web browser should support the appropriate rendering of the application. The following browsers have been confirmed as suitable:

- Google Chrome - Latest version
- Mozilla Firefox - Latest version
- Brave - Latest version

2.3 Python 3.8

2.3.1 Linux

The following resources commands be used for installing Python 3.8 on Linux:

```
sudo apt-get update
sudo add-apt-repository ppa:deadsnakes/ppa -y
sudo apt-get update
sudo apt install python3.8
```

Ensure that the correct version of python is installed by running the following command: `python -version`

2.3.2 Windows

The following resources may be used for installing Python 3.8 on Windows:
<https://www.python.org/downloads/release/python-380/>

2.4 Pipenv (any 2022 or post 2022 version)

Once Python is installed, pip will be installed along with in. To install pipenv, enter into the terminal:

```
pip install pipenv
```

2.5 Node.js v18 or later

Node.js is needed for the installation and use of Angular and can be installed following the instructions on the following resource:
<https://nodejs.dev/en/learn/how-to-install-nodejs/>

2.6 Angular v14

Once Node.js is installed, Angular can be installed by entering the following command into the terminal:

```
npm install -g @angular/cli
```

2.7 MongoDB (Community Edition v6 or later)

The following resources may be used for installing MongoDB

- Windows: <https://www.mongodb.com/docs/manual/tutorial/install-mongodb-on-windows/>
- Ubuntu: <https://www.mongodb.com/docs/manual/tutorial/install-mongodb-on-ubuntu/>
- MacOS: <https://www.mongodb.com/docs/manual/tutorial/install-mongodb-on-os-x/>

2.8 PostgreSQL 12

The following resource can be used for installing PostgreSQL 12

- <https://www.postgresql.org/download/>

Important note: Ensure that, regardless of what installer is used, PostgreSQL 12 specifically is installed.

3 Prerequisites - Hardware

The following are the minimum recommended specifications required to install and run Domain Pulse locally

- CPU: Intel i5 11th Gen or Ryzen equivalent recommended
- RAM: 8GB minimum, 16GB recommended
- Storage: At least 20GB free space recommended (but database size dependent on use of application)

4 Installation

4.1 Cloning the repo

The repo may be cloned locally from Github using the following command:

```
git clone https://github.com/COS301-SE-2023/Domain-Pulse-A-Sentiment-Analysis-Platform.git
```

4.2 Configuring the application

4.3 Installing dependencies

4.3.1 Backend

In terminal, navigate to the 'backend' directory. To install all necessary dependencies at the appropriate versions, issue the following command:

```
pipenv install
```

This will install all the necessary dependencies into a local virtual environment.

Note: Some of the dependencies are fairly sizable. Depending on Internet speeds, this process may take a few minutes.

The full list of dependencies that will be installed can be found in the file backend/Pipfile. Furthermore, to see the specific versions you may issue the CLI command:

```
pipenv graph
```

The dependencies are as follows:

- coverage==7.2.6
- django-cors-headers==4.2.0
- django-rest-framework-simplejwt==5.2.2
- mock==5.1.0
- nltk==3.8.1
- psycpg2-binary==2.9.6
- pymongo==4.4.0
- python-dotenv==1.0.0
- transformers==4.30.2
- vaderSentiment==3.3.2

Note that each dependencies may have its own sub-dependencies. These too will be installed via `pipenv install`

4.3.2 Frontend

To install the dependencies required for the frontend, navigate to the 'frontend' directory and issue the following command to install all the necessary dependencies at the correct version:

```
npm ci
```

A list of the dependencies that will be installed (along with their appropriate versions) can be found in the file `package.json`

4.4 Configuring the application for local deployment

Domain Pulse is a web application deployed to a private virtual machine provided by our industry client. Consequently, the default configuration of the application is set to interact with this server via SSH. For security reasons, this guide details how to configure the application for local deployment only, and no SSH or API credential will be provided.

4.4.1 Setting up environment variables

To establish connections to local database, you will need to create an environment variable file called `.postgresql.env` (in the root of the project directory). The file needs to have the following contents:

Similarly, you will need to create a file named `.env` which will contain a number of other details:

4.4.2 Acquiring API Keys

In order for the project to successfully interact with the necessary external services, one needs to acquire API keys for the following services:

- Outscraper: <https://outscraper.com/>
- Youtube Data API v3: <https://blog.hubspot.com/website/how-to-get-youtube-api-key>

Installation - this describes how the installation of your system would work. My understanding is this would be like actually getting the code onto your machine and how to install the prerequisites once you have the code. Luckily we've got stuff like pipenv installed to just get all the python packages.

5 Deployment and Running

Deployment/Running - detail how your system should be executed and provide the link to your user manual on how the system should be used.

Ideally we can write a script that just goes and runs the frontend and backend so we don't need to write down the actual details or commands.