**Case Study – Technical manual**

**“Only Flights”**

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Description automatically generated

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Case Study - Group 10

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# Setup database for work

## Purpose of the using the playbook scripts

To configure able to use and manage the data in the database, the user has to perform the following **‘.yml’** file.

## Requirement before installation

* Ansible must be install
* Inventory file must contain the IP addresses of the servers where the playbook will work on

## Sequence of execution

* The user must execute the playbook named **“install\_mysql.yml”**

## Precise description of the embedded functions inside the codes

‘install\_mysql.yml’

By executing the forementioned code, the system will perform couple commands. It will install MySQL and then the service will be started.

**Note:** *The file can be found in the following directory*:

* [[OnlyFlights - Ansible Playbooks/install\_mysql.yml · main · Andreev,Kaloyan K.K. / Semester 3 - Case Study project · GitLab (fhict.nl)](https://git.fhict.nl/I476236/semester-3-case-study-project/-/blob/main/OnlyFlights%20-%20Ansible%20Playbooks/install_mysql.yml)](https://git.fhict.nl/I476236/semester-3-case-study-project/-/blob/main/Bash%20Scripts/ansible_playbook.sh)

## Troubles while using the scripts?

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# Configuration of Ansible and pre-configured playbooks

## Purpose of the using the scripts

To set up Ansible on the Admin’s EC2, a specific ‘Shell’ scripts must be executed. The user has to enter the details that the scripts will ask for so everything could be setup properly. In addition, he or she must be aware of the setup of the system, before start executing the scripts

## Sequence of execution

* Firstly, the user must execute transfer the folder with all **‘Shell’** code by executing **‘onlyflights\_shell\_scrips.sh’**
* Secondly, the user must connect to the instance and execute **‘config\_ansible.sh’**

## Precise description of the embedded functions inside the codes

‘onlyflights\_shell\_scripts.sh’

The purpose of the following code is to transfer the folder, that will contain the shell scripts needed for configuration of Ansible, from the user’s local machine directly onto admin’s server. This will be done by the command **‘scp’** embedded into the shell script. The only task, that customer have to do while this process, is to enter the correct full name (including the type of the file – **‘.pem’**) of the private key when he or she is asked by the console. Once everything is done successful, the user will be notified by a message. In case of an error (most likely duo to connection time out), another message will appear on the screen that will outline the exact mistake.

‘config\_ansible.sh’

By running this shell script on the admin’s instance, the server will execute number of commands that will prepare it for work in a couple of minutes. All commands are divided into several functions for easier configuration and will be performed one after another.

The first four tasks will update all packages so, the machine will be able to install Ansible and to operate properly.

The next two functions are related to the configuration of the forementioned automation tool. The user will be asked to input the IP addresses of the servers that would be used so, the system will adjust the inventory file of Ansible.

When all functions are done successfully, the user will be notified by a message displayed on the console.

**Note:** *The file can be found in the following directory*:

* [[OnlyFlights - Shell Scripts/config\_ansible.sh · main · Andreev,Kaloyan K.K. / Semester 3 - Case Study project · GitLab (fhict.nl)](https://git.fhict.nl/I476236/semester-3-case-study-project/-/blob/main/OnlyFlights%20-%20Shell%20Scripts/config_ansible.sh)](https://git.fhict.nl/I476236/semester-3-case-study-project/-/blob/main/Bash%20Scripts/ansible_playbook.sh)

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# Configuration of GitLab Runner instance

## Purpose of the using the Ansible Playbooks

To set up the GitLab Runner EC2, several pre-configured playbooks must be executed from the admin’s instances. The user must be aware of, is the sequence of their execution. Otherwise, some of the playbooks will not be performed successfully.

## Sequence of execution

* Firstly, the user must execute **“install\_docker.yml”**. To check if docker is successfully install, connect to the **“GitLab Runner”** and type “**systemctl status docker”**.
* Secondly, the user has to install **“awscli”**. To do so, execute **“install\_awscli.yml”** file. After seeing the successful message in the console, it has to be configured with the account credentials of the user. Go through the following article to make it work.
  + [Quick setup - AWS Command Line Interface (amazon.com)](https://docs.aws.amazon.com/cli/latest/userguide/getting-started-quickstart.html#getting-started-quickstart-new)
* The third step is to setup the actual runner. Perform the playbook named **“config\_gitrunner.yml”.** To make it work, lastly the user has to register it by typing **“sudo gitlab-runner register --url https://git.fhict.nl/ --registration-token $REGISTRATION\_TOKEN”**. Then, in the configuration process, it must be selected **“shell”** as an engine.

## Precise description of the playbooks

‘install\_docker.yml’

The purpose of the following code is to install and configure docker. Firstly, playbook will install aptitude and the required system packages. Then, Docker GPG apt key will be added as well as a Docker repository. Lastly, the system will install “docker-ce” and docker module for Python.

**Note:** *The file can be found in the following directory*:

* [[[OnlyFlights - Ansible Playbooks/install\_docker.yml · main · Andreev,Kaloyan K.K. / Semester 3 - Case Study project · GitLab (fhict.nl)](https://git.fhict.nl/I476236/semester-3-case-study-project/-/blob/main/OnlyFlights%20-%20Ansible%20Playbooks/install_docker.yml)](https://git.fhict.nl/I476236/semester-3-case-study-project/-/blob/main/OnlyFlights%20-%20Shell%20Scripts/config_ansible.sh)](https://git.fhict.nl/I476236/semester-3-case-study-project/-/blob/main/Bash%20Scripts/ansible_playbook.sh)

‘install\_awscli.yml’

The function of this playbook is to install “awscli”. The system will download the needed packages, then the certain folder will be unzipped and at the end, “awscli” will be installed.

**Note:** *The file can be found in the following directory*:

* [[[OnlyFlights - Ansible Playbooks/install\_awscli.yml · main · Andreev,Kaloyan K.K. / Semester 3 - Case Study project · GitLab (fhict.nl)](https://git.fhict.nl/I476236/semester-3-case-study-project/-/blob/main/OnlyFlights%20-%20Ansible%20Playbooks/install_awscli.yml)](https://git.fhict.nl/I476236/semester-3-case-study-project/-/blob/main/OnlyFlights%20-%20Shell%20Scripts/config_ansible.sh)](https://git.fhict.nl/I476236/semester-3-case-study-project/-/blob/main/Bash%20Scripts/ansible_playbook.sh)

‘config\_gitrunner.yml’

By executing the following ansible scripts, the system will perform a couple of commands. Firstly, a specific binary code will be downloaded, depending on the system that is used (Linux). Then, the user has to grant permission so the forementioned file to be executable. Lastly, the system will create a new GitLab Runner user and it will install the service.

**Note:** *The file can be found in the following directory*:

* [[[[OnlyFlights - Ansible Playbooks/config\_gitrunner.yml · main · Andreev,Kaloyan K.K. / Semester 3 - Case Study project · GitLab (fhict.nl)](https://git.fhict.nl/I476236/semester-3-case-study-project/-/blob/main/OnlyFlights%20-%20Ansible%20Playbooks/config_gitrunner.yml)](https://git.fhict.nl/I476236/semester-3-case-study-project/-/blob/main/OnlyFlights%20-%20Ansible%20Playbooks/install_docker.yml)](https://git.fhict.nl/I476236/semester-3-case-study-project/-/blob/main/OnlyFlights%20-%20Shell%20Scripts/config_ansible.sh)](https://git.fhict.nl/I476236/semester-3-case-study-project/-/blob/main/Bash%20Scripts/ansible_playbook.sh)

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# Install and configure Prometheus

## Purpose of the using the scripts

To configure the Prometheus, both pre-configured ansible playbooks and shell scripts must be executed. Everything is automated except including new targets to Prometheus. This can be done manually.

## Sequence of execution

* Firstly, the user must install Prometheus by performing **‘install\_prometheus.sh’**.
* Secondly, to configure the monitoring app, execute **‘configure\_prometheus.sh’**.
* Lastly, setup up the targets, run the playbook named **‘install\_prometheus\_node\_explorer.yml’**.

## Precise description of the embedded functions inside the codes

‘install\_prometheus.sh’

By executing the following script from the admin’s instance, the process of installation of Prometheus will start. Firstly, the system will create the Prometheus system user and group. Once the system group is added, the next function will create Prometheus system user and assign primary group created. Prometheus needs a directory to store its data so, the scripts will create it under */var/lib/prometheus*. Prometheus primary configuration files directory is /etc/prometheus/ , but it will need to have some sub-directories. For that reason, a special function will create them.

Then the latest release of Prometheus archive has to be downloaded and extract it to get binary file. At the end, the binary files must be move to /usr/local/bin/ directory as well as Prometheus configuration template and consoles and console\_libraries to /etc and /etc/prometheus respectively.

**Note:** *The file can be found in the following directory*:

* [[[[[OnlyFlights - Shell Scripts/install\_prometheus.sh · main · Andreev,Kaloyan K.K. / Semester 3 - Case Study project · GitLab (fhict.nl)](https://git.fhict.nl/I476236/semester-3-case-study-project/-/blob/main/OnlyFlights%20-%20Shell%20Scripts/install_prometheus.sh)](https://git.fhict.nl/I476236/semester-3-case-study-project/-/blob/main/OnlyFlights%20-%20Ansible%20Playbooks/config_gitrunner.yml)](https://git.fhict.nl/I476236/semester-3-case-study-project/-/blob/main/OnlyFlights%20-%20Ansible%20Playbooks/install_docker.yml)](https://git.fhict.nl/I476236/semester-3-case-study-project/-/blob/main/OnlyFlights%20-%20Shell%20Scripts/config_ansible.sh)](https://git.fhict.nl/I476236/semester-3-case-study-project/-/blob/main/Bash%20Scripts/ansible_playbook.sh)

‘configure\_prometheus.sh’

The forementioned code will make the final changes needed to make the Prometheus work. To manage Prometheus service with systemd, the user needs to explicitly define the following unit file.

sudo tee /etc/systemd/system/prometheus.service<<EOF

[Unit]

Description=Prometheus

Documentation=https://prometheus.io/docs/introduction/overview/

Wants=network-online.target

After=network-online.target

[Service]

Type=simple

User=prometheus

Group=prometheus

ExecReload=/bin/kill -HUP \$MAINPID

ExecStart=/usr/local/bin/prometheus \

--config.file=/etc/prometheus/prometheus.yml \

--storage.tsdb.path=/var/lib/prometheus \

--web.console.templates=/etc/prometheus/consoles \

--web.console.libraries=/etc/prometheus/console\_libraries \

--web.listen-address=0.0.0.0:9090 \

--web.external-url=

SyslogIdentifier=prometheus

Restart=always

[Install]

WantedBy=multi-user.target

EOF

Then, the ownership of some directories will be changed to Prometheus user and group. At the end, if your server has a running firewall service, the scripts will execute command to open port 9090.

**Note:** *The file can be found in the following directory*:

* [[[[[[OnlyFlights - Shell Scripts/configure\_prometheus.sh · main · Andreev,Kaloyan K.K. / Semester 3 - Case Study project · GitLab (fhict.nl)](https://git.fhict.nl/I476236/semester-3-case-study-project/-/blob/main/OnlyFlights%20-%20Shell%20Scripts/configure_prometheus.sh)](https://www.server-world.info/en/note?os=Ubuntu_18.04&p=prometheus&f=2)](https://computingforgeeks.com/install-prometheus-server-on-debian-ubuntu-linux/)](https://git.fhict.nl/I476236/semester-3-case-study-project/-/blob/main/OnlyFlights%20-%20Ansible%20Playbooks/install_docker.yml)](https://git.fhict.nl/I476236/semester-3-case-study-project/-/blob/main/OnlyFlights%20-%20Shell%20Scripts/config_ansible.sh)](https://git.fhict.nl/I476236/semester-3-case-study-project/-/blob/main/Bash%20Scripts/ansible_playbook.sh)

‘install\_prometheus\_node\_explorer.yml’

The last script will install Prometheus node explorer on the OpenVPN and GitLab Runner instances. Comparing to the previous two codes, this time the system will execute only one command. After that, the user will be able to add them as targets in the main server (Admin) by editing the template file.

**Note:** *For more detailed information about the installation and configuration of Prometheus, please visit the following article*:

* [[[[[Ubuntu 18.04 LTS : Prometheus : Add Target Hosts : Server World (server-world.info)](https://www.server-world.info/en/note?os=Ubuntu_18.04&p=prometheus&f=2)](https://computingforgeeks.com/install-prometheus-server-on-debian-ubuntu-linux/)](https://git.fhict.nl/I476236/semester-3-case-study-project/-/blob/main/OnlyFlights%20-%20Ansible%20Playbooks/install_docker.yml)](https://git.fhict.nl/I476236/semester-3-case-study-project/-/blob/main/OnlyFlights%20-%20Shell%20Scripts/config_ansible.sh)](https://git.fhict.nl/I476236/semester-3-case-study-project/-/blob/main/Bash%20Scripts/ansible_playbook.sh)

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# Install and configure Grafana

## Purpose of the using the script

To setup Grafana, another shell script has to be executed. Everything is automated except creating the creating the dashboards. This should be done manually.

## Requirement before installation

* Make sure port 3000 is open on the Admin EC2

## Sequence of execution

* The user must perform **‘install\_grafana.sh’** script.

## Precise description of the embedded functions inside the codes

‘install\_grafana.sh’

By executing the following script from the admin’s instance, the process of installation of Grafana will start. Firstly, the system will install and configure the needed packages depending on the OS that is being used (Linux). Then, the daemon has to be reloaded and at the end the service has to start. To make sure whether everything is done properly, type the IP address of the instance and add the early mentioned opened port (3000). Grafana login page must show on the screen and the credentials are the following:

***username:*** admin

***password:*** admin

**Note:** *The file can be found in the following directory*:

* [[[[[OnlyFlights - Shell Scripts/install\_grafana.sh · main · Andreev,Kaloyan K.K. / Semester 3 - Case Study project · GitLab (fhict.nl)](https://git.fhict.nl/I476236/semester-3-case-study-project/-/blob/main/OnlyFlights%20-%20Shell%20Scripts/install_grafana.sh)](https://git.fhict.nl/I476236/semester-3-case-study-project/-/blob/main/OnlyFlights%20-%20Ansible%20Playbooks/install_prometheus_node_explorer.yml)](https://git.fhict.nl/I476236/semester-3-case-study-project/-/blob/main/OnlyFlights%20-%20Ansible%20Playbooks/install_docker.yml)](https://git.fhict.nl/I476236/semester-3-case-study-project/-/blob/main/OnlyFlights%20-%20Shell%20Scripts/config_ansible.sh)](https://git.fhict.nl/I476236/semester-3-case-study-project/-/blob/main/Bash%20Scripts/ansible_playbook.sh)

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