PROJET FINAL DEVOPS

Groupe 3

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Introduction

Contexte

Formation

- chez AJC Formation
- du 25/07/2022 au 13/10/2022
- sur le **DevOps**

Ce document est le rendu du projet final

Rappel du sujet

La société IC GROUP souhaite mettre sur pied un site **web vitrine** devant permettre d'accéder à ses 02 applications phares: **Odoo** et **pgAdmin**

Analyse du sujet

Partie 1

- Conteneurisation de la web app python (Flask) avec **Docker**
- Déploiement des 3 produits sur un cluster **Kubernetes**

Partie 2

- Mise en place d'un pipeline CI/CD à l'aide de **Jenkins** et de **Ansible**

Méthodologie

2 possibilités:

- Coopération: chacun traite un point particulier de son côté puis mise en commun
- Collaboration: tout le monde se concentre sur le même point particulier

Source: https://www.votre-it-facile.fr/travail-collaboratif-et-travail-cooperatif-difference/

Choix des outils

- Communication (voix / texte / partage d'écran)
  - Discord
- Versionnement
  - Git
  - Github
  - Gitkraken: client Git beau et ergonomique
- Infrastructure
  - Virtualbox
  - Vagrant

Partie 1

Approche Kubernetes

Infrastructure

- Github https://github.com/Romain-Revel/ajc-projet-final
- Docker https://hub.docker.com/repository/docker/sh0t1m3/ic-webapp
- Kubernetes / Minikube
- Postes: **Windows 10** et **Linux Mint** -> complications

Vagrant

Utilisation d'un fichier Vagrant fourni par **Dirane** lors de notre formation, adapté pour répondre à notre besoin.

```
# Version initiale fonctionnant uniquement sous Windows
Vagrant.configure("2") do |config|
  config.vm.define "docker" do |docker|
    docker.vm.box = "geerlingguy/centos7"
    docker.vm.network "private_network",  type: "static", ip: "192.168.99.11"
    docker.vm.hostname = "docker"
    docker.vm.provider "virtualbox" do |v|
      v.name = "docker"
      v.memory = 1024
      v.cpus = 2
    end
    docker.vm.provision :shell do |shell|
      shell.path = "install_docker.sh"
      shell.env = { 'ENABLE_ZSH' => ENV['ENABLE_ZSH'] }
    end
  end
end
```

Comme nous utilisons deux environnements différents, nous avons fait un module dans le fichier vagrant (en ruby). Ce module sera utilisé pour tous les fichiers vagrant qui suivront.

```
# Module pour gérer l'OS hôte
module OS
        def OS.windows?
                (/cygwin|mswin|mingw|bccwin|wince|emx/ =~ RUBY_PLATFORM) != nil
        end
        def OS.mac?
                (/darwin/ =~ RUBY_PLATFORM) != nil
        end
        def OS.unix?
                !OS.windows?
        end
        def OS.linux?
                OS.unix? and not OS.mac?
        end
end
```

Voici comment utiliser le module.

```
# Ajout
docker.vm.box = "geerlingguy/centos7"
if OS.linux?
    # Sous linux, il FAUT préciser le nom du réseau hôte
    # https://www.vagrantup.com/docs/providers/virtualbox/networking
    # Dans Virtualbox > Fichier > Gestionnaire de réseau hôte (CTRL + H):
    # - Vérifier la présence de vboxnet0, sinon le créer
    # - Vérifier l'adresse IPv4 et le masque, sinon les modifier (à faire 2 fois pour être pris en compte)
    #
    # Vérifier avec "ip -a" le nom, l'IP et le masque
    docker.vm.network "private_network",  type: "static", ip: "192.168.99.11", name: "vboxnet0"
elsif OS.windows?
    docker.vm.network "private_network",  type: "static", ip: "192.168.99.11"
else
    puts 'OS not managed'
end
# ...
```

Conteneurisation de la web app

La première étape est de procéder à la conteneurisation de l'application web vitrine.

https://github.com/sadofrazer/ic-webapp.git

Comment l'intégrer dans notre repo git ?

- Copier-coller -> le plus simple
- Git submodules -> trop compliqué et risqué
- Git subtrees -> pas le temps

Pour cela un fichier Dockerfile a été créé enfin de générer une image.

```
# Dockerfile ic-webapp
FROM alpine:3.6
ENV ODOO_URL=""
ENV PGADMIN_URL=""
# Install python and pip
RUN apk add --no-cache --update python3 py3-pip bash && \
        # Install dependencies
        pip3 install Flask && \
        # Add a Group and user icwebapp
        addgroup -S icwebapp && \
        adduser -S icwebapp -G icwebapp
# Add our code
COPY --chown=icwebapp:icwebapp ic-webapp /opt/ic-webapp/
USER icwebapp
WORKDIR /opt/ic-webapp
EXPOSE 8080
CMD [ "python3", "app.py" ]
```

On peut voir que pour des raisons de bonnes pratiques, nous avons créé un USER (icwebapp) qui lancera l'application.

Bien entendu, il faut tester l'application. Afin de répéter les commandes un script a été créé.

```
#!/bin/bash
# Script avec les commandes séquentielles
image="ic-webapp"
name="test-ic-webapp"
port="8080"
docker stop ${name} && docker rm ${name}
# Build soit en taggant directement soit en retaggant:
# docker tag SOURCE_IMAGE[:TAG] TARGET_IMAGE[:TAG]
docker build -t sh0t1m3/${image}:1.0 .
docker run -d -p ${port}:${port} \
  -e ODOO_URL='https://www.odoo.com/' \
  -e PGADMIN_URL='https://www.pgadmin.org/' \
  --name=${name} sh0t1m3/${image}:1.0

sleep 3

curl http://localhost:${port}
```

IC GROUP

Intranet Applications

Rechercher

Search

Une fois l'image construite, et un conteneur créé à partir de cette image a été testé. Nous pouvons publier l'image sur le registry dockerhub.

```
#!/bin/bash
# Script de publication et de nettoyage
image="ic-webapp"
name="test-ic-webapp"

docker stop ${name}
docker rm ${name}

docker login
docker push sh0t1m3/${image}:1.0

# docker rmi ${image}
# docker rm $(docker ps -aq)
# docker rmi $(docker images -aq)
```

Docker Hub — Mozilla Firefox

AJC-PROJET-FINAL [Jenkins] | Docker Hub

https://hub.docker.com/repository/docker/sh0t1m3/ic-webapp

docker hub | Search for great content (e.g., mysql) | Explore | Repositories | Organizations | Help | Upgrade | sh0t1m3

sh0t1m3 > Repositories > ic-webapp

Using 1 of 1 private repositories. Get more

General | Tags | Builds | Collaborators | Webhooks | Settings

Add a short description for this repository

The short description is used to index your content on Docker Hub and in search engines. It's visible to users in search results.

Update

sh0t1m3 / ic-webapp

Description

This repository does not have a description

Last pushed: 9 minutes ago

Docker commands

Public View

To push a new tag to this repository,

```
docker push sh0t1m3/ic-webapp:tagname
```

Tags and scans

VULNERABILITY SCANNING - DISABLED

Enable

This repository contains 1 tag(s).

Tag	OS	Pulled	Pushed
1.0		---	9 minutes ago

See all

Go to Advanced Image Management

Automated Builds

Manually pushing images to Hub? Connect your account to GitHub or Bitbucket to automatically build and tag new images whenever your code is updated, so you can focus your time on creating.

Available with Pro, Team and Business subscriptions.

Upgrade | Learn more

README

Repository description is empty. Click here to edit.

Déploiement avec Kubernetes

Afin de pouvoir déployer la totalité de l'environnement, dans cette approche nous allons utiliser kubernetes (minikube)
On a installé longhorn qui est chargé de gérer les PVs (Persistent Volume)

- Installation de longhorn (avec helm)
- Création des manifests
- Application des manifests

Helm

Kubernetes package manager : https://helm.sh/

```
#!/bin/bash
# Helm installation
HELM_PATH="$(which helm)"

if [ "${HELM_PATH}" == "" ]; then
        # Get HELM
        curl https://get.helm.sh/helm-v3.10.0-linux-amd64.tar.gz -o helm-v3.10.0-linux-amd64.tar.gz
        tar xfz helm-v3.10.0-linux-amd64.tar.gz
        sudo mv linux-amd64/helm /usr/local/bin && chmod +x /usr/local/bin/helm
        rm -Rf tar xfz helm-v3.10.0-linux-amd64.tar.gz linux-amd64/
        HELM_PATH=/usr/local/bin/helm
fi
```

Longhorn

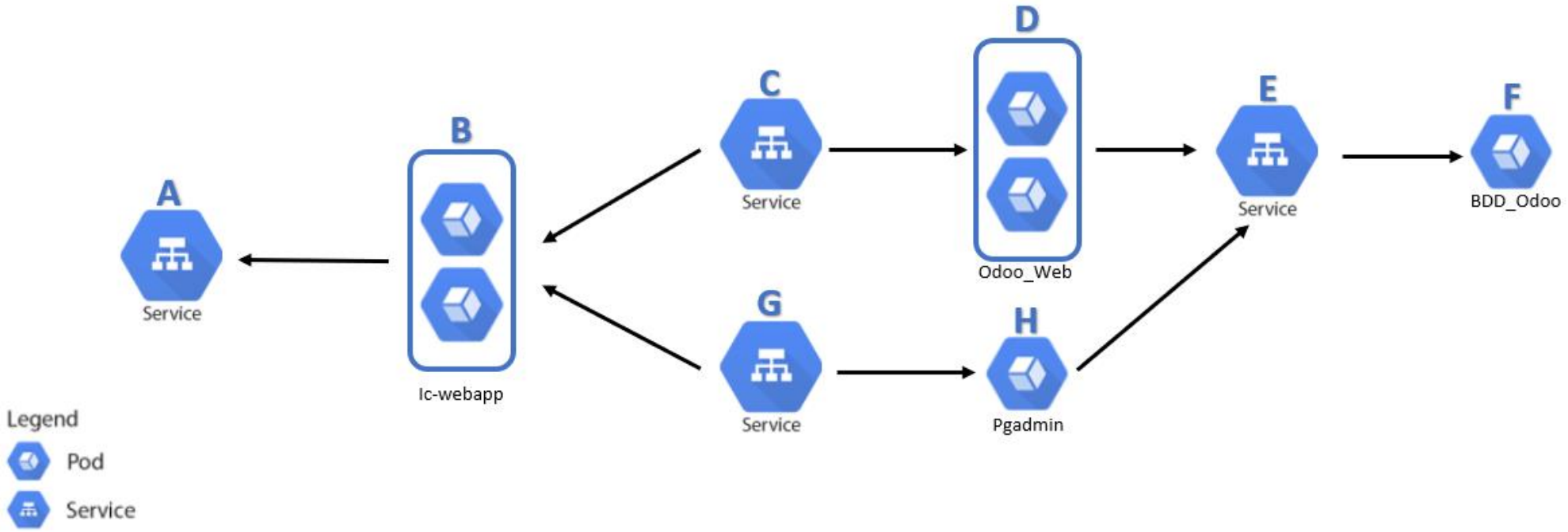
Cloud native distributed block storage for Kubernetes

```
# Longhorn installation with helm
su vagrant -c "${HELM_PATH} repo add longhorn https://charts.longhorn.io"
if [ $? -ne 0 ]; then
        echo "Impossible d'ajouter le repo à helm"
        exit 1
fi

su vagrant -c "${HELM_PATH} repo update"

su vagrant -c "${HELM_PATH} install longhorn longhorn/longhorn --namespace longhorn-system --create-namespace"
if [ $? -ne 0 ]; then
        echo "Impossible d'installer longhorn"
        exit 1
fi
```

Architecture du namespace



Les manifests

- Namespace

```
kubectl create ns icgroup
```

- Secrets
  La génération des secrets doit etre manuelle pour éviter un stockage du mot de passe.

```
kubectl create secret generic  odoo-pgsql-password --from-literal=odoo=YOUR_PASSWORD -n icgroup
kubectl create secret generic  pgadmin --from-literal=pgadmin-password=YOUR_PASSWORD -n icgroup --dry-run=client -o yaml >10-secret_pgadmin.yaml
```

- Pré-génération des manifestes:

Trame du template container dans le deployment

```
kubectl run --image=postgres:13 pod pgsql -n icgroup -l \
env=prod -l app=odoo-pgsql --env POSTGRES_DB=postgres \
--env POSTGRES_USER=odoo --port=5432 --dry-run=client -o yaml
```

Trame du deployment

```
kubectl create deploy bdd-odoo --image postgres:13 -n icgroup \
--port=5432 --replicas=1 --dry-run=client -o yaml
```

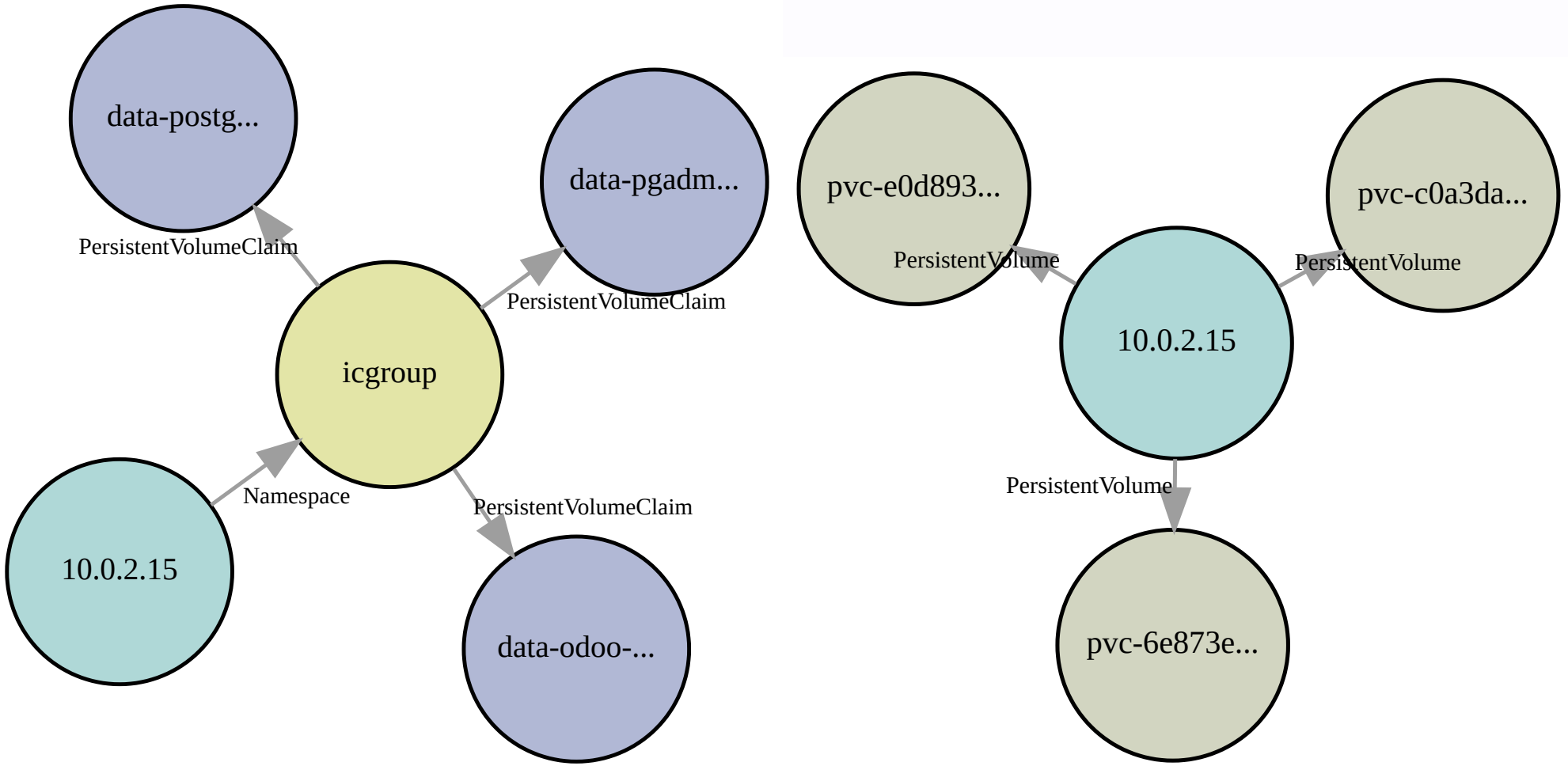
Trame du service

```
kubectl expose deploy bdd-odoo --port=5433 --type=ClusterIP \
--target-port=5432 --name=service-bdd -n icgroup --dry-run=client -o yaml
```

- PVCs (pour les applications où cela est nécessaire)
  - Storageclass Longhorn

```yaml
apiVersion: v1
kind: PersistentVolumeClaim
metadata:
  name: data-postgres-claim
  namespace: icgroup
spec:
  accessModes:
    - ReadWriteOnce
  storageClassName: "longhorn"
  resources:
    requests:
      storage: 2Gi
```

Liste des PVC



Liste des PV générés par longhorn

- Deploiements

Un **Deployment** fournit des mises à jour déclaratives pour les **Pods** et les **ReplicaSets**.

```
apiVersion: apps/v1
kind: Deployment
metadata:
  name: pgadmin
  namespace: icgroup
spec:
  replicas: 1
  selector:
    matchLabels:
      app: pgadmin
      env: prod
```

```
  template:
    metadata:
      labels:
        app: pgadmin
        env: prod
    spec:
      securityContext:
        runAsUser: 5050
        runAsGroup: 5050
        fsGroup: 5050
        fsGroupChangePolicy: "OnRootMismatch"
      volumes:
        - name: pgadmin-config
          configMap:
            name: pgadmin-config
        - name: pgadmin-data
          persistentVolumeClaim:
            claimName: data-pgadmin-claim
```

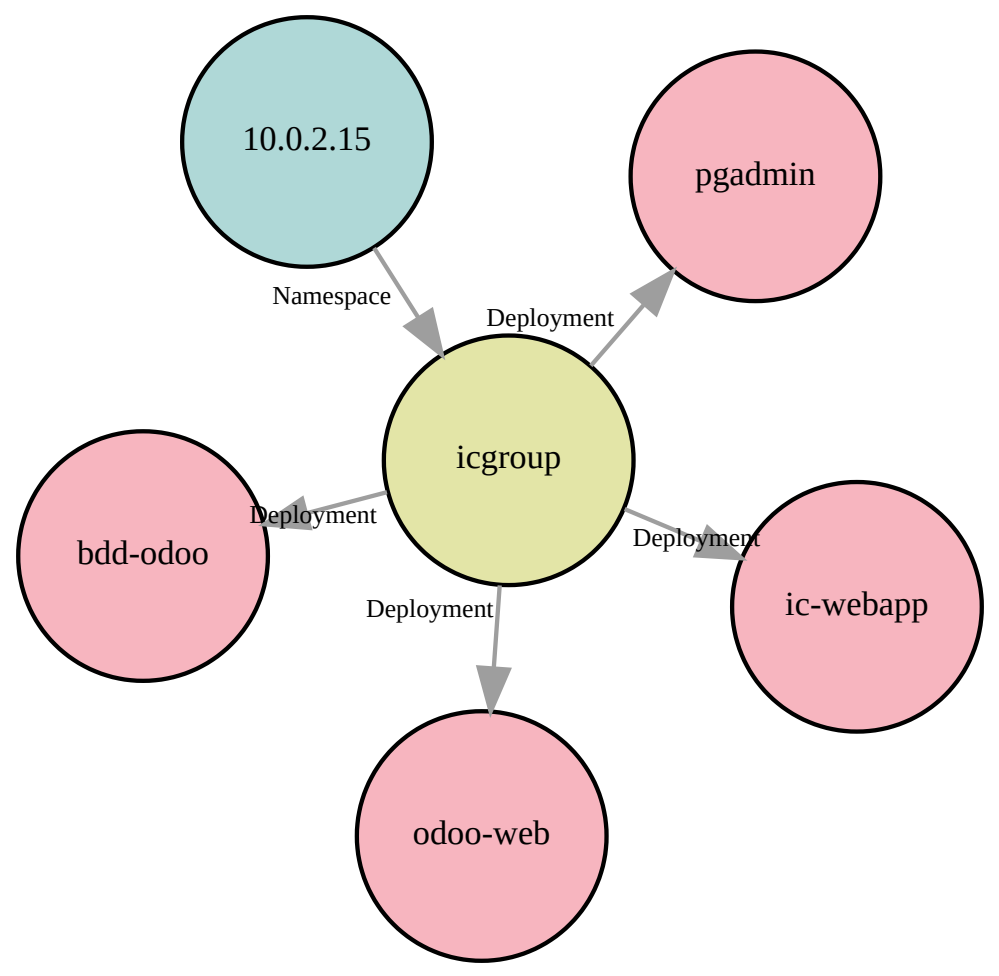
```
      containers:
        - name: pgadmin
#          securityContext:
#            readOnlyRootFilesystem: true
          image: dpage/pgadmin4:6.14
          env:
            - name: PGADMIN_LISTEN_ADDRESS
              value: 0.0.0.0
            - name: PGADMIN_PORT
              value: "80"
            - name: PGADMIN_DEFAULT_EMAIL
              value: user@domain.com
            - name: PGADMIN_DEFAULT_PASSWORD
              valueFrom:
                secretKeyRef:
                  name: pgadmin
                  key: pgadmin-password
          ports:
            - name: http
              containerPort: 80
              protocol: TCP

          volumeMounts:
            - name: pgadmin-config
              mountPath: /pgadmin4/servers.json
              subPath: servers.json
              readOnly: true
            - name: pgadmin-data
              mountPath: /var/lib/pgadmin
          readinessProbe:
            httpGet:
              path: /
              port: 80
          resources: {}
#            requests:
#              memory: "300Mi"
#              cpu: "100m"
#            limits:
#              memory: "300Mi"
#              cpu: "200m"
```

Le ConfigMap pour le fichier servers.json

```
apiVersion: v1
kind: ConfigMap
metadata:
 name: pgadmin-config
 namespace: icgroup
data:
 servers.json: |
    {
        "Servers": {
                "1": {
                "Name": "Minimally Defined Server",
                "Group": "Server Group 1",
                "Port": 5432,
                "Username": "odoo",
                "Host": "odoo-postgres",
                "SSLMode": "prefer",
                "MaintenanceDB": "postgres"
                }
        }
    }
```

Liste des déploiements



- Services
  - ClusterIP
  - NodePort
  - Loadbalancing(round-robin)

```yaml
apiVersion: v1
kind: Service
metadata:
  creationTimestamp: null
  labels:
     env: prod
     app: ic-webapp
  name: ic-webapp-service
  namespace: icgroup
spec:
  ports:
  - port: 25000
    protocol: TCP
    targetPort: 8080
    nodePort: 31500
  selector:
    env: prod
    app: ic-webapp
  type: NodePort
status:
  loadBalancer: {}
```

Liste des services

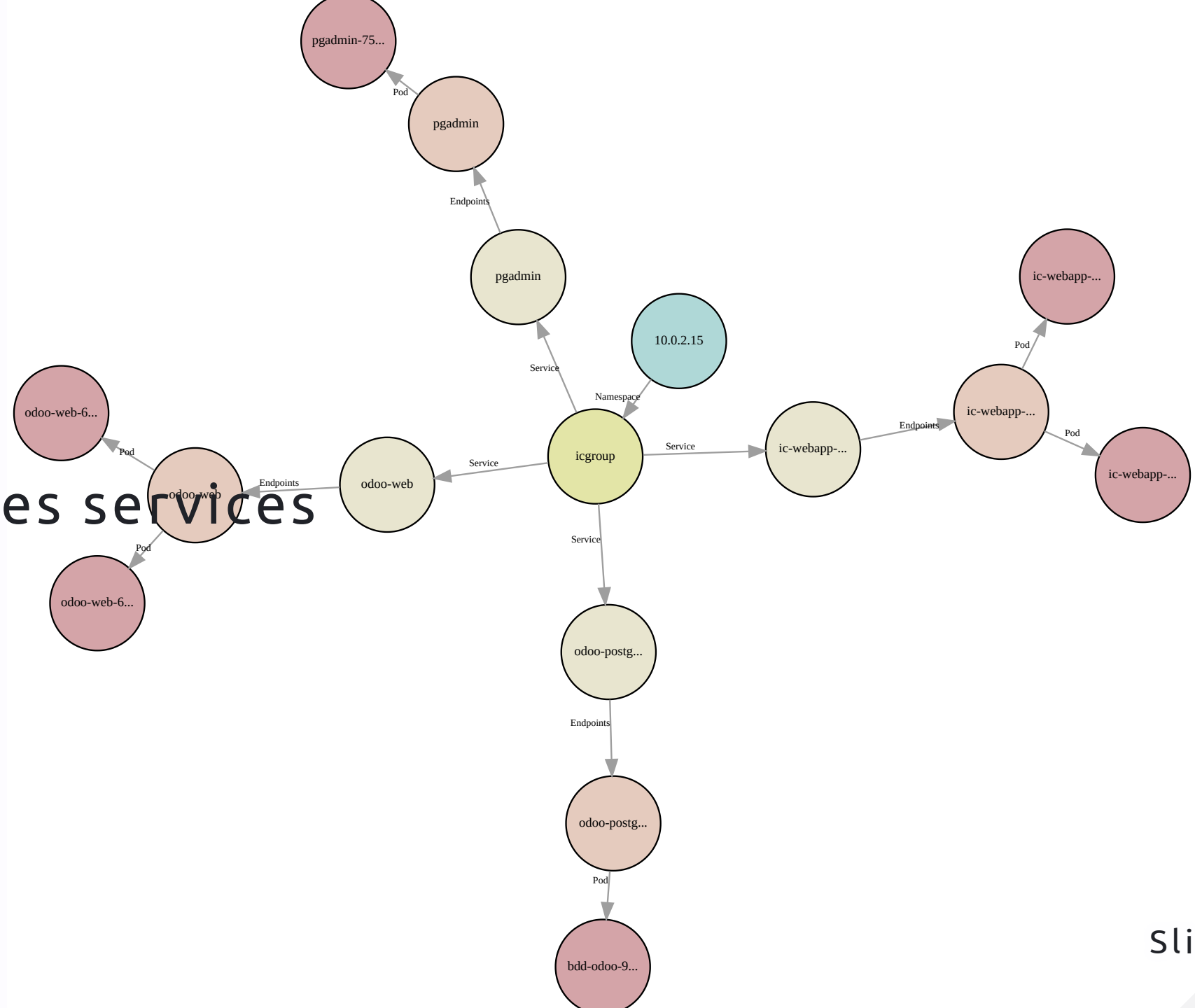
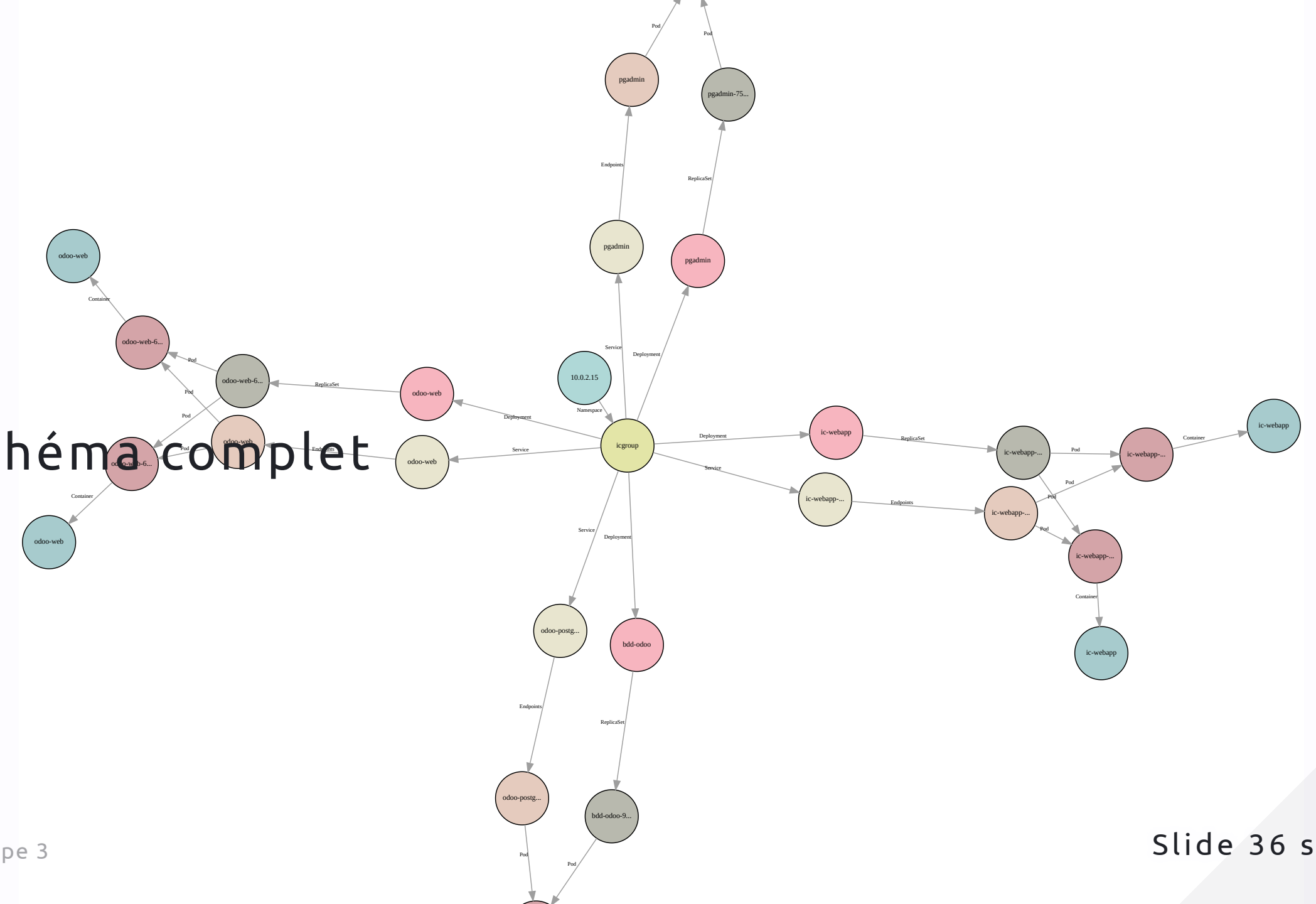


Schéma complet



Procédure de déploiement

- Kubernetes existant

```
git clone https://github.com/Romain-Revel/ajc-projet-final-2.git
cd ajc-projet-final-2/manifests
```

Vous pouvez personnalisé l'environnement en modifiant les manifests que ce soit pour les paramètres des conteneurs ou la configuration des services.

Une fois configurée, il suffit de faire :

```
./install_app.sh
```

Ce script demandera de rentrer les mots de passes qui devront être utilisés. Celui de la base de données `postgres` et de l'utilisateur `pgadmin`

- Avec vagrant

```
git clone https://github.com/Romain-Revel/ajc-projet-final-2.git
cd ajc-projet-final-2/infrastructure/ic-webapp
vagrant up
```

Cela installera une VM contenant minikube, longhorn et tout l'environnement de production avec comme mot de passe pour la BDD : odoo et pour pgadmin : pgadmin
Si vous avez besoin de changer ces mots de passe, il faut éditer le script `install_app.sh` présent dans le répertoire.

La validation des fichiers

- hooks de pre-commit

- shellcheck pour les scripts d'installation

```
shellcheck $(find . -type f -name "*.sh")
```

```
In ./infrastructure/docker/install_docker.sh line 14:
if [[ !(-z "$ENABLE_ZSH")  &&  ($ENABLE_ZSH == "true") ]]
       ^-- SC1035: You are missing a required space here.

In ./infrastructure/docker/install_docker.sh line 19:
    su - vagrant  -c  'echo "Y" | sh -c "$(curl -fsSL https://raw.githubusercontent.com/ohmyzsh/ohmyzsh/master/tools/install.sh)"'
                      ^-- SC2016: Expressions don't expand in single quotes, use double quotes for that.


In ./infrastructure/minikube/install_minikube.sh line 15:
sudo curl -LO https://storage.googleapis.com/kubernetes-release/release/`curl -s https://storage.googleapis.com/kubernetes-release/release/stable.txt`/bin/linux/amd64/kubectl
                                                                        ^-- SC2046: Quote this to prevent word splitting.
                                                                        ^-- SC2006: Use $(..) instead of legacy `..`.


In ./infrastructure/minikube/install_minikube.sh line 18:
sudo echo '1' > /proc/sys/net/bridge/bridge-nf-call-iptables
             ^-- SC2024: sudo doesn't affect redirects. Use ..| sudo tee file


In ./infrastructure/minikube/install_minikube.sh line 22:
echo 'source <(kubectl completion bash)' >> ~vagrant/.bashrc
^-- SC2129: Consider using { cmd1; cmd2; } >> file instead of individual redirects.


In ./infrastructure/minikube/install_minikube.sh line 26:
if [[ !(-z "$ENABLE_ZSH")  &&  ($ENABLE_ZSH == "true") ]]
   ^-- SC2039: In POSIX sh, [[ ]] is not supported.
       ^-- SC1035: You are missing a required space here.


In ./infrastructure/minikube/install_minikube.sh line 31:
    su - vagrant  -c  'echo "Y" | sh -c "$(curl -fsSL https://raw.githubusercontent.com/ohmyzsh/ohmyzsh/master/tools/install.sh)"'
                      ^-- SC2016: Expressions don't expand in single quotes, use double quotes for that.
```

- kube-linter pour les manifests

```
docker run --rm -v /home/vagrant/ajc-projet-final/manifests/:/dir stackrox/kube-linter lint /dir
```

- hadolint pour le Dockerfile

```
docker run --rm -i hadolint/hadolint <ajc-projet-final/ic-webapp/Dockerfile
```

```
-:7 DL3013 warning: Pin versions in pip. Instead of `pip install <package>` use `pip install <package>==<version>` or `pip install --requirement <requirements file>`
-:7 DL3018 warning: Pin versions in apk add. Instead of `apk add <package>` use `apk add <package>=<version>`
-:7 DL3042 warning: Avoid use of cache directory with pip. Use `pip install --no-cache-dir <package>`
```

Partie 2

Mise en place d’un pipeline CI/CD

Ansible

Création des Rôles Ansible

Déployer des conteneurs docker avec 2 rôles :

- odoo_role : lance 1 conteneur **odoo** et 1 **postgres**
- pgadmin_role : lance le site vitrine **ic-webapp** et un conteneur **pgadmin**

NB : Toutes les données sont variabilisées donc pourront être surchargée par ansible

NB : Il faudrait par la suite passer par un rôle de ansible galaxy https://galaxy.ansible.com/geerlingguy/docker

Rôle Odoo

Déploie 2 conteneurs avec le template docker-compose :

- Conteneur odoo
- Conteneur postgres

templates/docker-compose.yml.j2

```
# Template docker-compose for odoo
version: '3.3'
services:
    {{ SERVICE_POSTGRES }}:
        environment:
            - 'POSTGRES_USER={{ DB_USER }}'
            - 'POSTGRES_PASSWORD={{ DB_PASS }}'
            - 'POSTGRES_DB={{ DB_NAME }}'
        networks:
            - {{ NETWORK_NAME }}
        volumes:
            - 'pgdata:{{ MOUNT_POINT_POSTGRES }}'
        container_name: {{ CONTAINER_NAME_POSTGRES }}
        image: 'postgres:13'
        ports:
            - '{{ POSTGRES_PORT }}:5432'
```

```
    {{ SERVICE_ODOO }}:
        depends_on:
            - {{ SERVICE_POSTGRES }}
        ports:
            - '{{ ODOO_PORT }}:8069'
        container_name: {{ CONTAINER_NAME_ODOO }}
        networks:
            - {{ NETWORK_NAME }}
        volumes:
            - 'odoo-web-data:/var/lib/odoo'
        environment:
            - 'USER={{ DB_USER }}'
            - 'PASSWORD={{ DB_PASS }}'
            - 'HOST={{ DB_NAME }}'
        image: odoo:13
volumes:
    odoo-web-data:
    pgdata:
networks:
    {{ NETWORK_NAME }}:
      driver: bridge
```

defaults/main.yml

```
# defaults file for odoo_role

DB_USER: "odoo"
DB_PASS: "odoo"
DB_NAME: "postgres"
POSTGRES_PORT: "5432"
ODOO_PORT: "8081"
IC_PORT: "80"
HOST_IP: "192.168.99.20"
SERVICE_POSTGRES: "postgres"
SERVICE_ODOO: "odoo"
NETWORK_NAME: "ic_network"
CONTAINER_NAME_POSTGRES: "postgres"
CONTAINER_NAME_ODOO: "odoo"
MOUNT_POINT_POSTGRES: "/var/lib/postgresql/data"
```

tasks/main.yml

```
# tasks file for odoo_role

- name: creation un repertoire files
  file:
    path: "/home/{{ ansible_user }}/files/"
    recurse: yes
    state: directory
- name: generer un fichier docker-compose
  template:
    src: "docker-compose.yml.j2"
    dest: "/home/{{ ansible_user }}/files/docker-compose.yml"
- name: "Deploiement"
  command: "docker-compose up -d"
  args:
    chdir: "/home/{{ ansible_user }}/files"
```

Rôle PgAdmin

Déploie deux conteneurs via les templates docker-compose et servers :

- pgadmin
- ic-webapp

templates/docker-compose.yml.j2

```
# Template docker-compose for pgadmin and ic-webapp
version: '3.3'
services:
    {{ SERVICE_PGADMIN }}:
        container_name: {{ CONTAINER_NAME_PGADMIN }}
        image: dpage/pgadmin4
        networks:
            - {{ NETWORK_NAME }}
        environment:
            - 'PGADMIN_DEFAULT_EMAIL={{ PGADMIN_EMAIL }}'
            - 'PGADMIN_DEFAULT_PASSWORD={{ PGADMIN_PASS }}'
        ports:
            - "{{ PGADMIN_PORT }}:80"
        volumes:
            - /home/{{ ansible_user }}/files/servers.json:/pgadmin4/servers.json
            - 'pgadmin_data:/var/lib/pgadmin'
    {{ SERVICE_ICWEBAPP }}:
        container_name: {{ CONTAINER_NAME_ICWEBAPP }}
        ports:
            - "{{ IC_PORT }}:8080"
        environment:
            - "ODOO_URL=http://{{ POSTGRES_IP }}:{{ ODOO_PORT }}/"
            - "PGADMIN_URL=http://{{ HOST_IP }}:{{ PGADMIN_PORT }}/"
        image: '{{ IMAGE_NAME }}:{{ IMAGE_TAG }}'
        networks:
            - {{ NETWORK_NAME }}
volumes:
    pgadmin_data:
networks:
    {{ NETWORK_NAME }}:
Groupe 3   driver: bridge
```

servers.json.j2

```
{
    "Servers": {
        "1": {
            "Name": "{{ DB_NAME }}",
            "Group": "docker_postgres_group_1",
            "Port": {{ POSTGRES_PORT }},
            "Username": "{{ DB_USER }}",
            "Host": "{{ POSTGRES_IP }}",
            "SSLMode": "prefer",
            "MaintenanceDB": "{{ DB_NAME }}"
        }
    }
}
```

ATTENTION : Le port de Postgre **DOIT** être **numérique**

defaults/main.yml

```yaml
# defaults file for pgadmin_role
PGADMIN_EMAIL: "user@domain.com"
PGADMIN_PASS: "odoo_pgadmin_password"
PGADMIN_PORT: "8082"
DB_USER: "odoo"
DB_PASS: "odoo"
DB_NAME: "postgres"
POSTGRES_PORT: "5432"
ODOO_PORT: "8081"
IC_PORT: "80"
HOST_IP: "192.168.99.21"
POSTGRES_IP: "192.168.99.20"
IMAGE_NAME: "sh0t1m3/ic-webapp"
IMAGE_TAG: "1.0"
SERVICE_PGADMIN: "pgadmin"
SERVICE_ICWEBAPP: "ic-webapp"
NETWORK_NAME: "ic_network"
CONTAINER_NAME_PGADMIN: "pgadmin"
CONTAINER_NAME_ICWEBAPP: "ic-webapp"
```

tasks/main.yml

```
- name: creation repertoire files
  file:
    path: "/home/{{ ansible_user }}/files/"
    recurse: yes
    state: directory
- name: générer docker-compose
  template:
    src: "docker-compose.yml.j2"
    dest: "/home/{{ ansible_user }}/files/docker-compose.yml"

- name: pgadmin config file servers
  template:
    src: "servers.json.j2"
    dest: "/home/{{ ansible_user }}/files/servers.json"

- name: "Deploiement"
  command: "docker-compose up -d"
  args:
    chdir: "/home/{{ ansible_user }}/files"
```

Le playbook Ansible

Un playbook Ansible est un modèle de tâches d'automatisation. Les playbooks Ansible sont exécutés sur un **ensemble**, un **groupe** ou une **classification** d'hôtes, qui forment ensemble un inventaire.

Source: https://www.redhat.com/fr/topics/automation/what-is-an-ansible-playbook

play.yml

```
# Notre playbook
- name: "installation de odoo"
  hosts: prod-odoo
  roles:
    - role: odoo_role
- name: "Installation de pgadmin"
  hosts: prod-pgadmin
  roles:
    - role: pgadmin_role
```

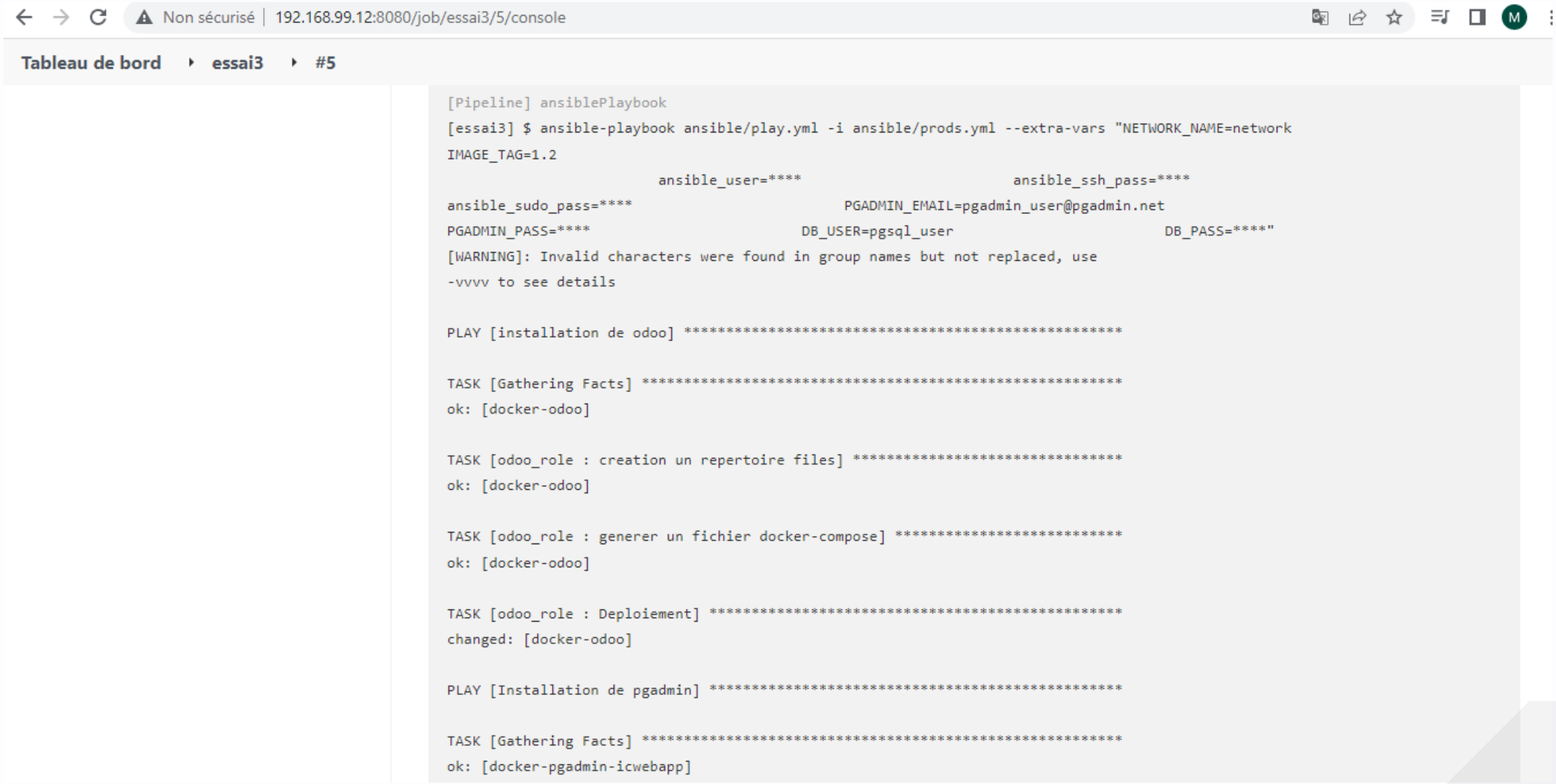
prods.yml

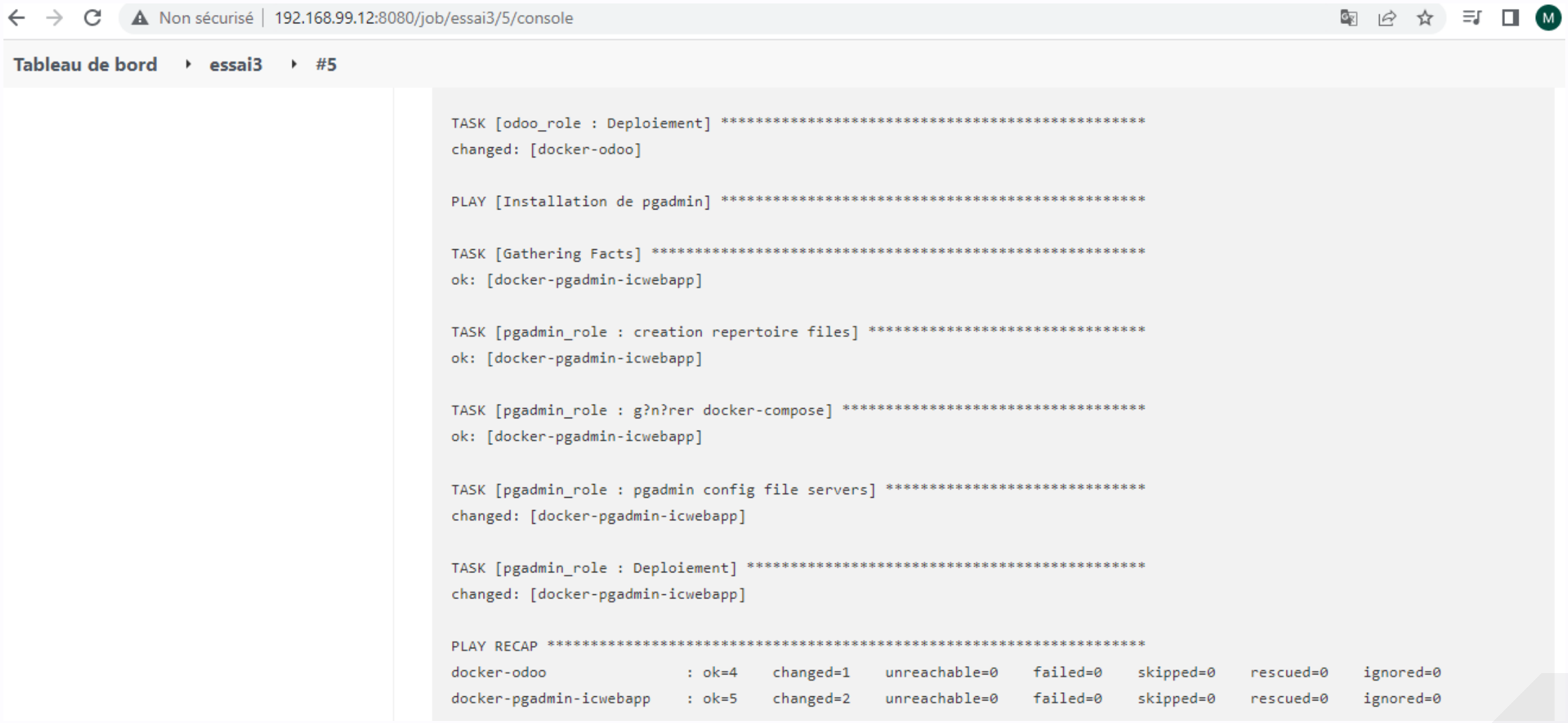
```
# L'inventaire
all:
  children:
    prod-odoo:
      hosts:
        docker-odoo:
    prod-pgadmin:
      hosts:
        docker-pgadmin-icwebapp:
```

La structure de notre répertoire Ansible

```
├── group_vars
│   ├── prod-odoo.yml
│   └── prod-pgadmin.yml
├── host_vars
│   ├── docker-odoo.yml
│   └── docker-pgadmin-icwebapp.yml
├── play.yml
├── prods.yml
└── roles
    ├── odoo_role
    └── pgadmin_role
```

```
└── roles
    ├── odoo_role
    │   ├── defaults
    │   │   └── main.yml
    │   ├── handlers
    │   │   └── main.yml
    │   ├── meta
    │   │   └── main.yml
    │   ├── README.md
    │   ├── tasks
    │   │   └── main.yml
    │   ├── templates
    │   │   └── docker-compose.yml.j2
    │   ├── tests
    │   │   ├── inventory
    │   │   └── test.yml
    │   └── vars
    │       └── main.yml
    │
```


Non sécurisé | 192.168.99.12:8080/job/essai3/5/console
Tableau de bord ▸ essai3 ▸ #5
[Pipeline] ansiblePlaybook
[essai3] $ ansible-playbook ansible/play.yml -i ansible/prods.yml --extra-vars "NETWORK_NAME=network
IMAGE_TAG=1.2
ansible_user=**** ansible_ssh_pass=****
ansible_sudo_pass=**** PGADMIN_EMAIL=pgadmin_user@pgadmin.net
PGADMIN_PASS=**** DB_USER=pgsql_user DB_PASS=****"
[WARNING]: Invalid characters were found in group names but not replaced, use
-vvvv to see details
PLAY [installation de odoo] ****
TASK [Gathering Facts] ****
ok: [docker-odoo]
TASK [odoo_role : creation un repertoire files] ****
ok: [docker-odoo]
TASK [odoo_role : generer un fichier docker-compose] ****
ok: [docker-odoo]
TASK [odoo_role : Deploiement] ****
changed: [docker-odoo]
PLAY [Installation de pgadmin] ****
TASK [Gathering Facts] ****
ok: [docker-pgadmin-icwebapp]


Non sécurisé | 192.168.99.12:8080/job/essai3/5/console
Tableau de bord ▸ essai3 ▸ #5
TASK [odoo_role : Deploiement] **
changed: [docker-odoo]
PLAY [Installation de pgadmin] **
TASK [Gathering Facts] **
ok: [docker-pgadmin-icwebapp]
TASK [pgadmin_role : creation repertoire files] *******************************
ok: [docker-pgadmin-icwebapp]
TASK [pgadmin_role : g?n?rer docker-compose] **********************************
ok: [docker-pgadmin-icwebapp]
TASK [pgadmin_role : pgadmin config file servers] *****************************
changed: [docker-pgadmin-icwebapp]
TASK [pgadmin_role : Deploiement] ***
changed: [docker-pgadmin-icwebapp]
PLAY RECAP **
docker-odoo : ok=4 changed=1 unreachable=0 failed=0 skipped=0 rescued=0 ignored=0
docker-pgadmin-icwebapp : ok=5 changed=2 unreachable=0 failed=0 skipped=0 rescued=0 ignored=0

Jenkins

Infrastructure

- Serveur 1 : **192.168.99.12** Jenkins https://github.com/sadofrazer/jenkins-frazer.git
- Serveur 2 : **192.168.99.21** Applications web site vitrine + pgadmin4
- Serveur 3 : **192.168.99.20** Application Odoo (PostgreSQL)

Serveurs 2 et 3 - boucle

```
Vagrant.configure("2") do |config|
  array = ["odoo", "pgadmin-icwebapp"]
  # Boucle pour créer les 2
  array.each_with_index do |val, index|
        config.vm.define "docker-#{val}" do |docker|
                #...
                    docker.vm.network "private_network",  type: "static", ip: "192.168.99.2#{index}", name: "vboxnet0"
                #...
                        docker.vm.network "private_network",  type: "static", ip: "192.168.99.2#{index}"
                #...
                docker.vm.hostname = "docker-#{val}"
                #...
                        v.name = "docker-#{val}"
                #...
```

Modification du fichier releases.txt

Il est demandé de pouvoir reconstruire l'image de l'application web vitrine lors de la modification du fichier releases.txt

```
ODOO_URL: http://192.168.99.20:8081
PGADMIN_URL: http://192.168.99.21:8082
version: 1.2
```

Ce fichier alimentera le script de lancement de l'application web vitrine.
(Il faudrait le tester dans la pipeline pour vérifier que les paires champs:valeur soient cohérentes)

Modification du dockerfile

```
FROM alpine:3.6

ENV ODOO_URL=""
ENV PGADMIN_URL=""

# Install python and pip
RUN apk add --no-cache --update python3 py3-pip bash && \
        # Install dependencies
        pip3 install Flask && \
        # Add a Group and user icwebapp
        addgroup -S icwebapp && \
        adduser -S icwebapp -G icwebapp

# Add our code
COPY --chown=icwebapp:icwebapp ic-webapp /opt/ic-webapp/
COPY --chown=icwebapp:icwebapp releases.txt /opt/ic-webapp/releases.txt

USER icwebapp
# Create the entry point script
RUN echo -e "#!/bin/bash\nexport ODOO_URL=$(cat /opt/ic-webapp/releases.txt | \
grep ODOO_URL |sed -e 's/^ODOO_URL: \(.*\)$/\1/') && export PGADMIN_URL=$(cat /opt/ic-webapp/releases.txt | grep PGADMIN_URL | \
sed -e 's/^PGADMIN_URL: \(.*\)$/\1/') && python3 app.py" \> /opt/ic-webapp/start.sh \
    && chmod +x /opt/ic-webapp/start.sh

WORKDIR /opt/ic-webapp
EXPOSE 8080

ENTRYPOINT [ "./start.sh" ]
```

Jenkins - Script d'installation

```
#!/bin/bash
# Script d'installation de Jenkins fourni par Dirane
yum -y update
yum -y install epel-release
# install ansible
yum -y install ansible
# retrieve ansible code
yum -y install git
git clone https://github.com/diranetafen/cursus-devops.git
cd cursus-devops/ansible
ansible-galaxy install -r roles/requirements.yml
ansible-playbook install_docker.yml
sudo usermod -aG docker vagrant
cd ../jenkins
/usr/local/bin/docker-compose up -d
echo "For this Stack, you will use $(ip -f inet addr show enp0s8 | \
sed -En -e 's/.*inet ([0-9.]+).*/\1/p') IP Address"
```

Interface

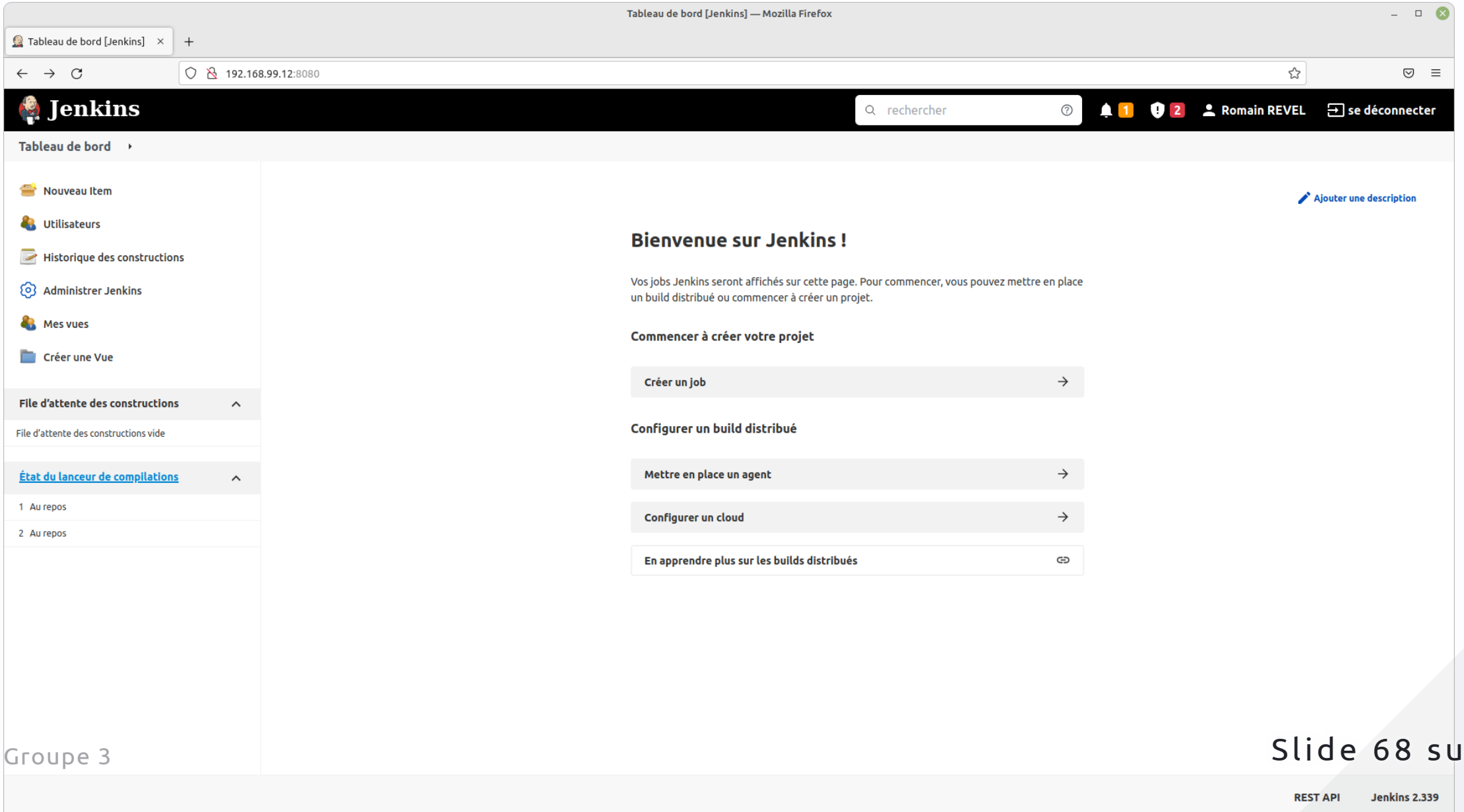


Tableau de bord [Jenkins] — Mozilla Firefox
Tableau de bord [Jenkins]
192.168.99.12:8080
Jenkins
rechercher
1
2
Romain REVEL
se déconnecter
Tableau de bord
Nouveau Item
Utilisateurs
Historique des constructions
Administrer Jenkins
Mes vues
Créer une Vue
File d'attente des constructions
File d'attente des constructions vide
État du lanceur de compilations
1 Au repos
2 Au repos
Ajouter une description
Bienvenue sur Jenkins !
Vos jobs Jenkins seront affichés sur cette page. Pour commencer, vous pouvez mettre en place un build distribué ou commencer à créer un projet.
Commencer à créer votre projet
Créer un job
Configurer un build distribué
Mettre en place un agent
Configurer un cloud
En apprendre plus sur les builds distribués
REST API
Jenkins 2.339

Jenkins - Inconvénients

- Version datée
- Interface web **laide** et **non ergonomique**
- Les installations ne partagent pas:
  - Comptes
  - Plugins
  - Jobs
  - Secrets
  - Configuration globale

Automatisation de l'installation

jenkins-custom :

- Docker
- jenkins/jenkins:lts-jdk11

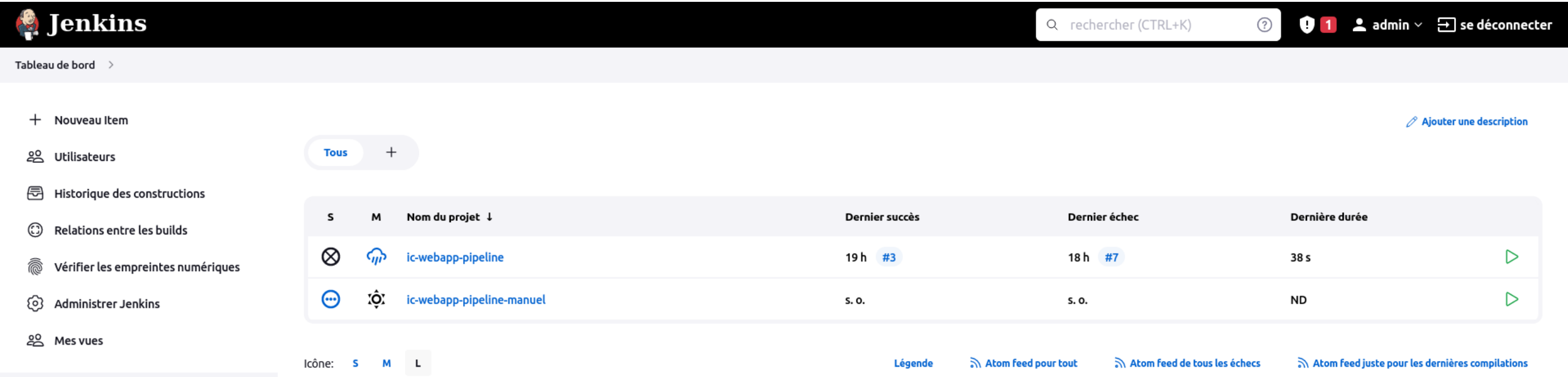
```
FROM jenkins/jenkins:lts-jdk11
USER root
ENV JAVA_OPTS -Djenkins.install.runSetupWizard=false
ENV CASC_JENKINS_CONFIG /var/jenkins_home/jenkins.casc.yml
# Installation
RUN apt-get update && \
    apt-get install -qy curl python3 python3-pip sshpass shellcheck && \
    pip3 install ansible && \
    curl -sSL https://get.docker.com/ | sh
USER jenkins
# Plugins Jenkins
COPY jenkins.plugins.txt /usr/share/jenkins/ref/jenkins.plugins.txt
RUN jenkins-plugin-cli --list && \
    jenkins-plugin-cli --plugin-file /usr/share/jenkins/ref/jenkins.plugins.txt && \
    jenkins-plugin-cli --list
# Configuration as code Jenkins
COPY jenkins.casc.yml /var/jenkins_home/jenkins.casc.yml
```

Plugins par défaut

```
antisamy-markup-formatter:latest
build-timeout:latest
cloudbees-folder:latest
credentials-binding:latest
email-ext:latest
git:latest
github-branch-source:latest
mailer:latest
pam-auth:latest
pipeline-github-lib:latest
pipeline-stage-view:latest
ssh-slaves:latest
timestamper:latest
workflow-aggregator:latest
ws-cleanup:latest
```

Plugins supplémentaires

```
ansible:latest
authorize-project:latest
configuration-as-code:latest
docker-plugin:latest
docker-workflow:latest
matrix-auth:latest
```


Jenkins
rechercher (CTRL+K)
1
admin
se déconnecter
Tableau de bord
Nouveau Item
Utilisateurs
Historique des constructions
Relations entre les builds
Vérifier les empreintes numériques
Administrer Jenkins
Mes vues
File d'attente des constructions
File d'attente des constructions vide
État du lanceur de compilations
1 Au repos
2 Au repos
Ajouter une description
Tous
S
M
Nom du projet
Dernier succès
Dernier échec
Dernière durée
ic-webapp-pipeline
19 h #3
18 h #7
38 s
ic-webapp-pipeline-manuel
s. o.
s. o.
ND
Icône: S M L
Légende
Atom feed pour tout
Atom feed de tous les échecs
Atom feed juste pour les dernières compilations

jenkins-cli

- https://www.jenkins.io/doc/book/managing/cli/
- https://medium.com/@muku.hbti/export-import-jenkins-job-and-their-plugins-53cafa5869fa
- https://www.digitalocean.com/community/tutorials/how-to-automate-jenkins-setup-with-docker-and-jenkins-configuration-as-code

```
#/bin/bash
# Téléchargement de jenkins-cli
if [[ -z "${JENKINS_USERNAME}" ]]; then
    echo "La variable JENKINS_USERNAME n'existe pas. Veuillez l'exporter.";
    exit 1;
fi
if [[ -z "${JENKINS_PASSWORD}" ]]; then
    echo "La variable JENKINS_PASSWORD n'existe pas. Veuillez l'exporter.";
    exit 1;
fi
# Valeurs par défaut
[[ ! -z "${JENKINS_IP}" ]] || JENKINS_IP="192.168.99.13";
[[ ! -z "${JENKINS_PORT}" ]] || JENKINS_PORT="8080";
URL="http://${JENKINS_IP}:${JENKINS_PORT}";
JOB_NAME="TEST";
# Téléchargement de la cli jenkins
if [[ ! -f "jenkins-cli.jar" ]]; then
    wget "${URL}/jnlpJars/jenkins-cli.jar";
fi
```

```
# Pour lister les jobs
java -jar jenkins-cli.jar -s "${URL}" -auth "${JENKINS_USERNAME}":"${JENKINS_PASSWORD}" list-jobs;

# Récupérer la liste de tous les jobs et les exporter
JOBS=$(java -jar jenkins-cli.jar -s "${URL}" -auth "${JENKINS_USERNAME}":"${JENKINS_PASSWORD}" list-jobs);
mkdir -p "jobs";
for JOB_NAME in $JOBS
do
    java -jar jenkins-cli.jar -s "${URL}" -auth "${JENKINS_USERNAME}":"${JENKINS_PASSWORD}" get-job "${JOB_NAME}" > "jobs/${JOB_NAME}.xml";
done

# Restaurer tous les jobs
for JOB_FILE in $(cd "jobs"; ls *.xml)
do
    # echo $JOB_FILE
    # echo ${JOB_FILE%%.xml}
    java -jar jenkins-cli.jar -s "${URL}" -auth "${JENKINS_USERNAME}":"${JENKINS_PASSWORD}" create-job "${JOB_FILE%%.xml}" < "jobs/${JOB_FILE}"
done
```

Configuration de Jenkins

Plugin Configuration as code

- Compte(s) admin
- URL
- Credentials
- Security (bonus)

Compte admin

```
jenkins:
  securityRealm:
    local:
      allowsSignup: false
      enableCaptcha: false
      users:
        - id: admin
          password: password
          properties:
          - "apiToken"
          - mailer:
              emailAddress: "admin@hotmail.fr"
          - preferredProvider:
              providerId: "default"
```

URL

```
unclassified:
  location:
    url: http://192.168.99.13:8080/
```

Credentials

```
credentials:
  system:
    domainCredentials:
    - credentials:
      - string:
          description: "Token dockerhub"
          id: "dockerhub"
          scope: GLOBAL
          secret: "{AQAAABAAAAAw632BD8V0u3jO0s90yYiMwllBr6OzIrtmGMqWAEvtIDcqXa2XCyH2WBJPrmSdH9fPnShuX2v4AMjjUbicqwo2Ag==}"
      - usernamePassword:
          id: "ansible_user_credentials"
          password: "vagrant"
          scope: GLOBAL
          username: "vagrant"
          usernameSecret: true
      - usernamePassword:
          id: "pgadmin_credentials"
          password: "pgadmin"
          scope: GLOBAL
          username: "pgadmin@local.domain" // @ Très important
          usernameSecret: true
```

Sécurité

```
jenkins:
  //...
  authorizationStrategy:
    globalMatrix:
      permissions:
        - "USER:Overall/Administer:admin"
        - "GROUP:Overall/Read:authenticated"
  remotingSecurity:
      enabled: true

security:
  queueItemAuthenticator:
    authenticators:
    - global:
        strategy: triggeringUsersAuthorizationStrategy
```

Rendre Jenkins accessible avec Ngrok

Ngrok est un reverse-proxy qui permet d'ouvrir sur internet des ports d'une machine

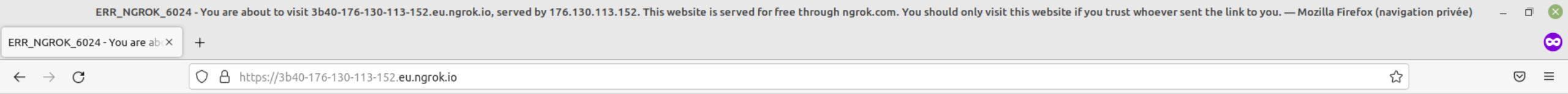
Utilisé pour la partie **webhook**

Alternatives à ngrok:

- Vagrant share
  https://www.vagrantup.com/docs/share
- Localtunnel
  https://github.com/localtunnel/localtunnel

```bash
#!/bin/bash
# Script d'installation et de lancement de ngrok
FILE_NAME="ngrok-v3-stable-linux-amd64.tgz";
if [[ ! -f "/usr/local/bin/ngrok" ]]; then
    # Téléchargement
    # https://ngrok.com/download
    if [[ ! -f "${FILE_NAME}" ]]; then
        wget "https://bin.equinox.io/c/bNyj1mQVY4c/${FILE_NAME}";
    fi

    # Décompression et installation
    sudo tar xvzf "${FILE_NAME}" -C /usr/local/bin;
fi
sleep 3
# Enregistrement
ngrok config add-authtoken $(cat token.txt);
# Lancement
nohup ngrok http 8080 &
# Récupération de l'URL
curl "http://localhost:4040/api/tunnels";
```



You are about to visit:

3b40-176-130-113-152.eu.ngrok.io

Website IP: 176.130.113.152

- This website is served for free through ngrok.com.
- You should only visit this website if you trust whoever sent the link to you.
- Be careful about disclosing personal or financial information like passwords, phone numbers, or credit cards.

Visit Site

Are you the developer?

We display this page to prevent abuse. Visitors to your site will only see it once.

To remove this page:

- Set and send an `ngrok-skip-browser-warning` request header with any value.
- Or, set and send a custom/non-standard browser `User-Agent` request header.
- Or, please upgrade to any paid ngrok account.

ngrok Learn how ngrok fights abuse

Powered by ngrok

S'identifier [Jenkins] — Mozilla Firefox (navigation privée)

S'identifier [Jenkins]

https://3b40-176-130-113-152.eu.ngrok.io/login?from=%2F

Bienvenue dans Jenkins !

Utilisateur

Mot de passe

Garder ma session ouverte

S'identifier

Pipeline(s)

Structure

```
// Jenkinsfile
pipeline {

    environment {
        IMAGE_NAME = "ic-webapp"
        IMAGE_TAG = "${sh(returnStdout: true, script: 'cat ic-webapp/releases.txt \
        |grep version | cut -d\\: -f2|xargs')}"
        CONTAINER_NAME = "ic-webapp"
        USER_NAME = "sh0t1m3"
    }

    agent any

    stages {
        // stage 1...
    }
}
```

Lint YAML

```
stage('Lint yaml files') {
    when { changeset "**/*.yml"}
    agent {
        docker {
            image 'sdesbure/yamllint'
        }
    }
    steps {
        sh 'yamllint --version'
        sh 'yamllint ${WORKSPACE} >report_yml.log || true'
    }
    post {
        always {
            archiveArtifacts 'report_yml.log'
        }
    }
}
```

Lint markdown

```
stage('Lint markdown files') {
    when { changeset "**/*.md"}
    agent {
        docker {
            image 'ruby:alpine'
        }
    }
    steps {
        sh 'apk --no-cache add git'
        sh 'gem install mdl'
        sh 'mdl --version'
        sh 'mdl --style all --warnings --git-recurse ${WORKSPACE} > md_lint.log || true'
    }
    post {
        always {
            archiveArtifacts 'md_lint.log'
        }
    }
}
```

Lint ansible

```
stage("Lint ansible playbook files") {
    when { changeset "ansible/**/*.yml"}
    agent {
        docker {
            image 'registry.gitlab.com/robconnolly/docker-ansible:latest'
        }
    }
    steps {
        sh '''
            cd "${WORKSPACE}/ansible/"
            ansible-lint play.yml > "${WORKSPACE}/ansible-lint.log" || true
        '''
    }
    post {
        always {
            archiveArtifacts "ansible-lint.log"
        }
    }
}
```

Lint shell scripts

```
stage('Lint shell script files') {
    when { changeset "**/*.sh" }
    agent any
    steps {
        sh 'shellcheck */*.sh >shellcheck.log || true'
    }
    post {
        always {
            archiveArtifacts 'shellcheck.log'
        }
    }
}
```

Lint shell scripts - checkstyle

```
stage('Lint shell script files - checkstyle') {
    when { changeset "**/*.sh" }
    agent any
    steps {
        catchError(buildResult: 'SUCCESS') {
            sh """#!/bin/bash
                # The null command `:` only returns exit code 0 to ensure following task executions.
                shellcheck -f checkstyle */*.sh > shellcheck.xml || true
            """
        }
    }
    post {
        always {
            archiveArtifacts 'shellcheck.xml'
        }
    }
}
```

Lint docker files

```
stage ("Lint docker files") {
    when { changeset "**/Dockerfile"}
    agent {
        docker {
            image 'hadolint/hadolint:latest-debian'
        }
    }
    steps {
        sh 'hadolint $PWD/**/Dockerfile | tee -a hadolint_lint.log'
    }
    post {
        always {
            archiveArtifacts 'hadolint_lint.log'
        }
    }
}
```

Push docker image

```
stage ('Login and push docker image') {
    when { changeset "ic-webapp/releases.txt"}
    agent any
    environment {
        DOCKERHUB_PASSWORD  = credentials('dockerhub')
    }
    steps {
        script {
        sh '''
            echo "${DOCKERHUB_PASSWORD}" | docker login -u ${USER_NAME} --password-stdin;
            docker push ${USER_NAME}/${IMAGE_NAME}:${IMAGE_TAG};
        '''
        }
    }
}
```

AJC-PROJET-FINAL [Jenkins] — Mozilla Firefox

AJC-PROJET-FINAL [Jenkins ×

192.168.99.12:8080/job/AJC-PROJET-FINAL/

120 %

Tableau de bord › AJC-PROJET-FINAL ›

- Full Stage View
- Renommer
- Pipeline Syntax

Historique des builds tendance

Filter builds...

- #14 10 oct. 2022 13:18
- #13 10 oct. 2022 13:10
- #12 10 oct. 2022 13:08
- #11 10 oct. 2022 13:03
- #10 10 oct. 2022 12:56
- #9 10 oct. 2022 12:54
- #8 10 oct. 2022 12:51
- #7 10 oct. 2022 12:49
- #6 10 oct. 2022 12:46
- #5 10 oct. 2022 12:41
- #4 10 oct. 2022 07:49
- #3 10 oct. 2022 07:44
- #2 10 oct. 2022 07:43
- #1 10 oct. 2022 07:43

Atom feed des builds
Atom feed des échecs

Stage View

	Declarative: Checkout SCM	Lint yaml files	Lint markdown files	Lint ansible playbook files	Lint shell script files	Lint shell script files - checkstyle	Lint docker files	Build docker image	Test docker image	Login and push docker image
Average stage times: (Average full run time: ~1min 14s)	1s	4s	8s	6s	30s	1s	3s	624ms	15s	6s
#14 Oct 10 13:18 — 1 commit	1s	5s	9s	6s	28s	1s	3s			
#13 Oct 10 13:10 — 1 commit	1s	4s	8s	6s	30s	1s	3s	630ms	15s	6s
#12 Oct 10 13:08 — 2 commits	910ms	4s	8s	6s	28s	953ms	3s	619ms	15s	5s
#11 Oct 10 13:03 — 7 commits	2s	4s	8s	6s	33s	1s	3s	623ms	13s	6s

Liens permanents

- Dernier build (#7), il y a 49 s
- Dernier build stable (#4), il y a 5 h 1 mn

AJC-PROJET-FINAL [Jenkins] — Mozilla Firefox

AJC-PROJET-FINAL [Jenkins] | Docker Hub

192.168.99.12:8080/job/AJC-PROJET-FINAL/

120 %

Tableau de bord › AJC-PROJET-FINAL ›

- Full Stage View
- Renommer
- Pipeline Syntax

Historique des builds tendance

Filter builds...

- #17 10 oct. 2022 13:29
- #16 10 oct. 2022 13:26
- #15 10 oct. 2022 13:21
- #14 10 oct. 2022 13:18
- #13 10 oct. 2022 13:10
- #12 10 oct. 2022 13:08
- #11 10 oct. 2022 13:03
- #10 10 oct. 2022 12:56
- #9 10 oct. 2022 12:54
- #8 10 oct. 2022 12:51
- #7 10 oct. 2022 12:49
- #6 10 oct. 2022 12:46
- #5 10 oct. 2022 12:41
- #4 10 oct. 2022 07:49
- #3 10 oct. 2022 07:44
- #2 10 oct. 2022 07:43

Stage View

	Declarative: Checkout SCM	Lint yaml files	Lint markdown files	Lint ansible playbook files	Lint shell script files	Lint shell script files - checkstyle	Lint docker files	Build docker image	Test docker image	Login and push docker image
Average stage times: (Average full run time: ~1min 15s)	2s	4s	8s	6s	29s	1s	3s	950ms	15s	7s
#17 Oct 10 13:29 — 1 commit	981ms	4s	8s	6s	29s	954ms	3s	1s	15s	12s
#16 Oct 10 13:26 — 1 commit	5s	6s	9s	6s	26s	986ms	3s			
#15 Oct 10 13:21 — 1 commit	953ms	4s	8s	6s	27s	969ms	3s	1s	15s	5s
#14 Oct 10 13:18 — 1 commit	1s	5s	9s	6s	28s	1s	3s			
#13 Oct 10 13:10 — 1 commit	1s	4s	8s	6s	30s	1s	3s	630ms	15s	6s
#12 Oct 10 — 1 commit										

Docker Hub — Mozilla Firefox

AJC-PROJET-FINAL [Jenkins] | Docker Hub

https://hub.docker.com/repository/docker/sh0t1m3/ic-webapp

docker hub | Search for great content (e.g., mysql) | Explore | Repositories | Organizations | Help | Upgrade | sh0t1m3

sh0t1m3 > Repositories > ic-webapp

Using 1 of 1 private repositories. Get more

General | Tags | Builds | Collaborators | Webhooks | Settings

Add a short description for this repository

The short description is used to index your content on Docker Hub and in search engines. It's visible to users in search results.

Update

sh0t1m3 / ic-webapp

Description

This repository does not have a description

Last pushed: 9 minutes ago

Docker commands

Public View

To push a new tag to this repository,

```
docker push sh0t1m3/ic-webapp:tagname
```

Tags and scans

VULNERABILITY SCANNING - DISABLED

Enable

This repository contains 1 tag(s).

Tag	OS	Pulled	Pushed
1.0		--	9 minutes ago

See all

Go to Advanced Image Management

Automated Builds

Manually pushing images to Hub? Connect your account to GitHub or Bitbucket to automatically build and tag new images whenever your code is updated, so you can focus your time on creating.

Available with Pro, Team and Business subscriptions.

Upgrade | Learn more

README

Repository description is empty. Click here to edit.

Docker Hub — Mozilla Firefox

AJC-PROJET-FINAL [Jenkins] | Docker Hub

https://hub.docker.com/repository/docker/sh0t1m3/ic-webapp

docker hub | Search for great content (e.g., mysql) | Explore | Repositories | Organizations | Help | Upgrade | sh0t1m3

sh0t1m3 > Repositories > ic-webapp

Using 1 of 1 private repositories. Get more

General | Tags | Builds | Collaborators | Webhooks | Settings

Add a short description for this repository

The short description is used to index your content on Docker Hub and in search engines. It's visible to users in search results.

Update

sh0t1m3 / ic-webapp

Description

This repository does not have a description

Last pushed: a few seconds ago

Docker commands

Public View

To push a new tag to this repository,

```
docker push sh0t1m3/ic-webapp:tagname
```

Tags and scans

VULNERABILITY SCANNING - DISABLED

Enable

This repository contains 2 tag(s).

Tag	OS	Pulled	Pushed
1.2		---	a few seconds ago
1.0		---	8 minutes ago

See all

Go to Advanced Image Management

Automated Builds

Manually pushing images to Hub? Connect your account to GitHub or Bitbucket to automatically build and tag new images whenever your code is updated, so you can focus your time on creating.

Available with Pro, Team and Business subscriptions.

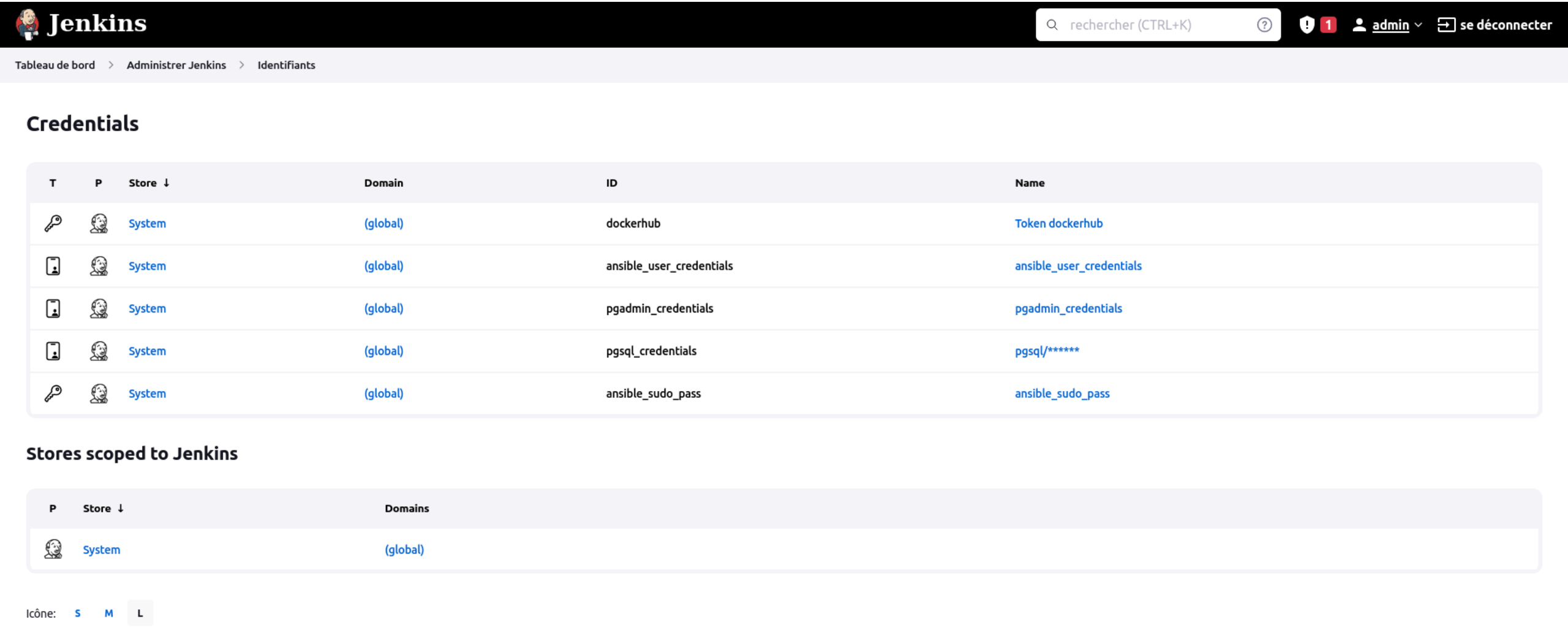
Upgrade | Learn more

README

Repository description is empty. Click here to edit.

Déploiement avec Ansible

Credentials à déclarer dans Jenkins pour déployer par Ansible


Jenkins
rechercher (CTRL+K)
1
admin
se déconnecter
Tableau de bord
Administrer Jenkins
Identifiants
Credentials
T P Store ↓ Domain ID Name
System (global) dockerhub Token dockerhub
System (global) ansible_user_credentials ansible_user_credentials
System (global) pgadmin_credentials pgadmin_credentials
System (global) pgsql_credentials pgsql/******
System (global) ansible_sudo_pass ansible_sudo_pass
Stores scoped to Jenkins
P Store ↓ Domains
System (global)
Icône: S M L

```
stage ('Deploy to prod with Ansible') {
    steps {
        withCredentials([
            usernamePassword(credentialsId: 'ansible_user_credentials', usernameVariable: 'ansible_user', passwordVariable: 'ansible_user_pass'),
            usernamePassword(credentialsId: 'pgadmin_credentials', usernameVariable: 'pgadmin_user', passwordVariable: 'pgadmin_pass'),
            usernamePassword(credentialsId: 'pgsql_credentials', usernameVariable: 'pgsql_user', passwordVariable: 'pgsql_pass'),
            string(credentialsId: 'ansible_sudo_pass', variable: 'ansible_sudo_pass')
        ])
        {
            ansiblePlaybook (
                disableHostKeyChecking: true,
                installation: 'ansible',
                inventory: 'ansible/prods.yml',
                playbook: 'ansible/play.yml',
                extras: '--extra-vars "NETWORK_NAME=network \
                        IMAGE_TAG=${IMAGE_TAG} \
                        ansible_user=${ansible_user} \
                        ansible_ssh_pass=${ansible_user_pass} \
                        ansible_sudo_pass=${ansible_sudo_pass} \
                        PGADMIN_EMAIL=${pgadmin_user} \
                        PGADMIN_PASS=${pgadmin_pass} \
                        DB_USER=${pgsql_user} \
                        DB_PASS=${pgsql_pass}"'
            )
        }
    }
}
```

Test final

```
stage ('Test full deployment') {
    steps {
        sh '''
            sleep 10;

            curl -LI http://192.168.99.21 | grep "200";
            curl -L http://192.168.99.21 | grep "IC GROUP";

            curl -LI http://192.168.99.20:8081 | grep "200";
            curl -L http://192.168.99.20:8081 | grep "Odoo";

            curl -LI http://192.168.99.21:8082 | grep "200";
            curl -L http://192.168.99.21:8082 | grep "pgAdmin 4";
        '''
    }
}
```

Troubleshooting

- Attention aux redirections HTTP
- Attention au délai entre la fin d'Ansible et la disponibilité du site web

Trivy

Scanner de vulnérabilité

- code source (fs, repo)
- dépendances
- images conteneur
- ...

https://semaphoreci.com/blog/continuous-container-vulnerability-testing-with-trivy

```
stage("Trivy scan") {
    agent any
    steps {
        sh 'rm -Rf ./trivy || true'
        sh 'curl -sfL https://raw.githubusercontent.com/aquasecurity/trivy/main/contrib/install.sh | sh -s -- -b . v0.18.3'
        sh './trivy --exit-code 0  image -o trivy-icwebapp.log ${USER_NAME}/${IMAGE_NAME}:${IMAGE_TAG}'
        sh './trivy --exit-code 1  image --severity=CRITICAL -o trivy-icwebapp_CRITICAL.log ${USER_NAME}/${IMAGE_NAME}:${IMAGE_TAG}'
        sh './trivy --exit-code 0  image --severity=CRITICAL -o trivy-odoo13.log odoo:13'
        sh './trivy --exit-code 0  image --severity=CRITICAL -o trivy-postgres13.log postgres:13'
        sh './trivy --exit-code 0  image --severity=CRITICAL -o trivy-pgadmin4.log dpage/pgadmin4'
    }
    post {
        always {
            archiveArtifacts "trivy-icwebapp.log"
            archiveArtifacts "trivy-icwebapp_CRITICAL.log"
            archiveArtifacts "trivy-odoo13.log"
            archiveArtifacts "trivy-postgres13.log"
            archiveArtifacts "trivy-pgadmin4.log"
        }
    }
}
```

Déclenchement automatique

- Webhook Github
- Tâche planifiée qui vérifie régulièrement les modifications du SCM
- Tâche planifiée qui build régulièrement (MAUVAIS)

Problèmes rencontrés avec Jenkins

- Version pas à jour
- Agent docker ne fonctionne pas pour (shellcheck, trivy)
- Jenkins difficile à configurer automatiquement
- Documentation non officielle plus forcément bonne

Astuces

- Commencer simplement, par des étapes qui fonctionnent
- when **{ changeset "**/*.ext"}** pour éviter de relancer inutilement certains stages
- Il est possible de rejouer un build à partir d'une étape mais sur le **même** commit
- Créer un **job manuel** pour faire des tests...
- ...et qui ne teste que l'étape souhaitée
- Exporter, versionner, importer les jobs

TODO

- Webhook github
- Healthcheck sur les conteneurs
- Auto-merge sur main à la réussite du pipeline
- Utiliser un master Jenkins et un ou plusieurs slaves
- Tester l'installation **Jenkins** avec un role ansible https://github.com/geerlingguy/ansible-role-jenkins
- Job qui exporte ET versionne automatiquement les pipelines

Conclusion

- Approche kubernetes :
  - Avantages
  - Inconvénients
- Approche pipeline CI/CD avec ansible et docker
  - Avantages
  - Inconvénients