포팅 메뉴얼

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개발 환경

- Windows (10, 11)
- 안드로이드
    - Android Studio 2021.3.1
    - 테스트 기기 : Galaxy S 10, Galaxy Z Flip 4
- AI
    - Python
    - Pytorch
    - GPU서버
- 데이터베이스
    - MySQL 5.7
- AWS Ubuntu 20.04 LTS
- 백엔드
    - IntelliJ 2022.1
    - openJDK 11
    - Spring Boot 2.7.5
    - Gradle 7.5.1
- 인프라
    - Jenkins 2.361.2
    - Docker 20.10.12
    - Nginx 1.18.0

앱 빌드 메뉴얼

서버 배포 메뉴얼

Spring Server 수동 배포

```
git clone https://lab.ssafy.com/s07-final/S07P31A304.git

cd intagralServer
# credential-config.yaml을 복사
sudo cp /var/lib/jenkins/workspace/credential-config.yaml ./src/main/resources
# 빌드
chmod +x gradlew
./gradlew build
# 실행
java -jar ./build/libs/intagral-0.0.1-SNAPSHOT.jar
```

credential-config.yaml

```
spring:
  datasource:
    driver-class-name: com.mysql.cj.jdbc.Driver
    url: jdbc:mysql://k7a304.p.ssafy.io:3306/intagral?characterEncoding=UTF-8&serverTimezone=UTC
    hikari:
      username: a304
      password: integral304

jwt:
  secret: aW50YWdyYWw=
  # unit is ms. 15 * 24 * 60 * 60 * 1000 = 15days
  expiration: 1296000000

cloud:
  aws:
    region:
      static: ap-northeast-2
    stack:
      auto: false
    credentials:
      access-key: AKIAUCIWIK7JXOXURU5P
      secret-key: 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
    s3:
      bucket: intagral-file-upload-bucket

---
spring:
  config:
    activate:
      on-profile: prod

  datasource:
    url: jdbc:mysql://localhost:3306/intagral?characterEncoding=UTF-8&serverTimezone=UTC
```

위 Yaml 파일을 ec2의 `/var/lib/jenkins/workspace/` 로 복사

- spring 서버 빌드시 필요

EC2 세팅

서버 시간 변경

```
# 서버 시간 확인
date

# 서버 시간 변경
sudo ln -sf /usr/share/zoneinfo/Asia/Seoul /etc/localtime
```

도커 설치

```
# apt update
sudo apt update

# docker 설치
sudo apt install docker.io
```

데이터베이스

```
# 도커 mysql 5.7 이미지 pull
sudo docker pull mysql:5.7

# 도커 MYSQL 설치
sudo docker run -d -p 3306:3306 -v ~/mysql:/var/lib/mysql -e MYSQL_ROOT_PASSWORD='banatag304' --name mysql5.7 mysql:5.7 --character-se

# ~/mysql로 dump 파일 이동

# 도커 mysql 접속
sudo docker exec -it mysql5.7 mysql -u root -p

# mysql root 이름 변경 X
```

```
update user set user='a304' where user='root';

# 여기서 sql 실행
# bash에서 dump 실행

# 테이블 생성 X
CREATE DATABASE moweb DEFAULT CHARACTER SET utf8mb4 COLLATE utf8mb4_general_ci;

# 계정 생성
create user 'a304'@localhost identified by 'integral304';
create user 'a304'@'%' identified by 'integral304';

# schema 생성 X
create database ;

# moweb 데이터베이스 권한 부여
grant all privileges on moweb.* to 'user_a507'@localhost identified by '5moweB0!@7';
grant all privileges on moweb.* to 'user_a507'@'%' identified by '5moweB0!@7';

grant select, update, delete, insert on intagral.* to 'a304'@'localhost' identified by 'integral304';
grant select, update, delete, insert on intagral.* to 'a304'@'%' identified by 'integral304'

# 디비 변경사항 메모리에 반영
flush privileges;

# 권한 확인
show grants for 'user_a507'@localhost;
show grants for 'user_a507'@'%';

# 시간 설정
set time_zone='Asia/Seoul';
set global time_zone='Asia/Seoul';
```

JAVA

```
# apt-get update
sudo apt-get update
sudo apt-get upgrade

# java 11 jdk 설치
sudo apt-get install openjdk-11-jre openjdk-11-jdk

# java 버전 확인
java -version

# 환경 변수 적용
vim ~/.bashrc

# ~/.bashrc
export JAVA_HOME=$(dirname $(dirname $(readlink -f $(which java))))
export PATH=
$PATH
:$JAVA_HOME/bin

# 변경사항 적용
source ~/.bashrc
```

Nginx

```
sudo apt update

sudo apt install nginx

/etc/nginx/sites-available/default 수정
server_name    k7a304.p.ssafy.io

sudo systemctl start nginx
```

certbot 적용 후

```
sudo vim /etc/nginx/sites-available/default

# 443 포트
server {
        # reverse proxy 설정
        # Backend API
        location /api {
                proxy_pass http://127.0.0.1:8080/api;
```

```
        }
        ....
}

# 80 포트
server {

        if ($host = k7a304.p.ssafy.io) {
                # http request method를 보장하기 위해 308로 redirect
                return 308 https://$host$request_uri;
        }

        listen 80 default_server;
        listen [::]:80 default_server;

        server_name     k7a304.p.ssafy.io;
    return 404; # managed by Certbot


}
```

파일 업로드 용량 제한 증가

```
sudo vim /etc/nginx/nginx.conf

# client_max_body_size 용량; 을 추가
http {

        ##
        # Basic Settings
        ##

        sendfile on;
        tcp_nopush on;
        tcp_nodelay on;
        keepalive_timeout 65;
        types_hash_max_size 2048;
        # server_tokens off;

        # max file size
        # default 1M
        client_max_body_size 10M;
...
}
```

certbot

```
sudo apt udpate

sudo apt install certbot python3-certbot-nginx

sudo certbot --nginx
```

```
Saving debug log to /var/log/letsencrypt/letsencrypt.log
Plugins selected: Authenticator nginx, Installer nginx
Enter email address (used for urgent renewal and security notices) (Enter 'c' to
cancel): 이메일@domain.com
```

```
Please read the Terms of Service at
https://letsencrypt.org/documents/LE-SA-v1.2-November-15-2017.pdf. You must
agree in order to register with the ACME server at
https://acme-v02.api.letsencrypt.org/directory
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
(A)gree/(C)ancel: A
```

```
Would you be willing to share your email address with the Electronic Frontier
Foundation, a founding partner of the Let's Encrypt project and the non-profit
organization that develops Certbot? We'd like to send you email about our work
encrypting the web, EFF news, campaigns, and ways to support digital freedom.
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
(Y)es/(N)o: N
```

```
Which names would you like to activate HTTPS for?
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
1: k7a304.p.ssafy.io
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
Select the appropriate numbers separated by commas and/or spaces, or leave input
blank to select all options shown (Enter 'c' to cancel): 1
```

```
Please choose whether or not to redirect HTTP traffic to HTTPS, removing HTTP access.
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
1: No redirect - Make no further changes to the webserver configuration.
2: Redirect - Make all requests redirect to secure HTTPS access. Choose this for
new sites, or if you're confident your site works on HTTPS. You can undo this
change by editing your web server's configuration.
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
Select the appropriate number [1-2] then [enter] (press 'c' to cancel): 2
```

젠킨스

```
# jenkins key 파일 업데이트
sudo wget -q -O - https://pkg.jenkins.io/debian/jenkins.io.key | sudo apt-key add -
echo deb http://pkg.jenkins.io/debian-stable binary/ | sudo tee /etc/apt/sources.list.d/jenkins.list'

# jenkins 설치
sudo apt-get install jenkins

# jenkins 실행
sudo systemctl daemon-reload
sudo systemctl start jenkins
sudo systemctl status jenkins

# jenkins 초기 비밀번호 확인
cat var/lib/jenkins/secrets/initialAdminPassword

# suggested plugin install 선택
# gitlab 검색 → 다 설치
# nodejs 검색 → 설치
```

```
# 포트수정
# jenkins config 열기
sudo vim /usr/lib/systemd/system/jenkins.service

# Port to listen on for HTTP requests. Set to -1 to disable.
# To be able to listen on privileged ports (port numbers less than 1024),
# add the CAP_NET_BIND_SERVICE capability to the AmbientCapabilities
# directive below.
Environment="JENKINS_PORT=8090"
```

```
# jenkins build excute shell

cd intagralServer
sudo cp /var/lib/jenkins/workspace/credential-config.yaml ./src/main/resources
chmod +x gradlew
./gradlew build --stacktrace
docker login -u "docker아이디" -p "docker패스워드" docker.io
docker stop A304_Backend && docker rm A304_Backend;
docker rmi "docker아이디"/intagral_springboot:latest;
```

```
docker build -t "docker아이디"/intagral_springboot:latest .
docker push "docker아이디"/intagral_springboot:latest
docker run -d -p 8080:8080 --name A304_Backend --restart=always "docker아이디"/intagral_springboot:latest
```

AI 포팅, 학습 메뉴얼

1. intagralModel/yolov5 디렉토리로 이동
2. anaconda 가상환경 (선택)
3. 파이썬 패키지 설치 (`pip install -r requirements.txt` 로 간단히 설치)
    - 파이썬 3.9 이상
    - clearml
    - mlflow
    - docker
    - fiftyone
    - pycocotools
4.

mlflow 시작
mlflow server --backend-store-uri sqlite:///mlflow.db --default-artifact-root ./artifacts --host 0.0.0.0 --port 8304 &

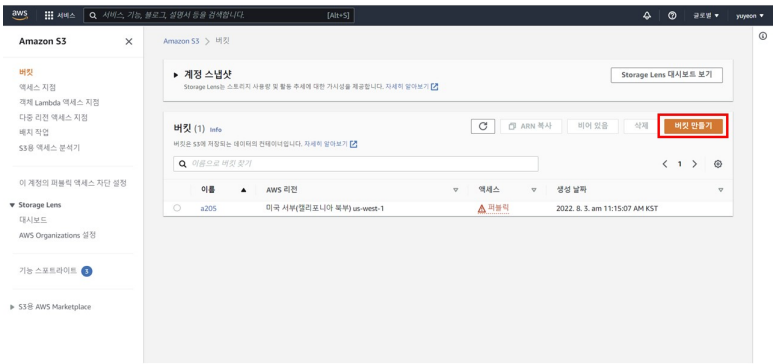
학습 시작
python train.py --img 640 --batch 64 --epochs 100 --data coco.yaml --weights yolov5m.pt

테스트
python3 detect.py --source ../datasets/coco2017/images/room1/ --weights ./runs/train/exp65/weights/best.pt

clearml 데이터 싱크 (데이터셋 위치에서)
clearml-data sync --project a304 --name coco128 --folder .
clearml 학습
python coco128train.py --img 640 --batch 16 --epochs 50 --data clearml://7747ad4c50064a3fa864564d7ffd7ea0 --weights yolov5m.pt --cache

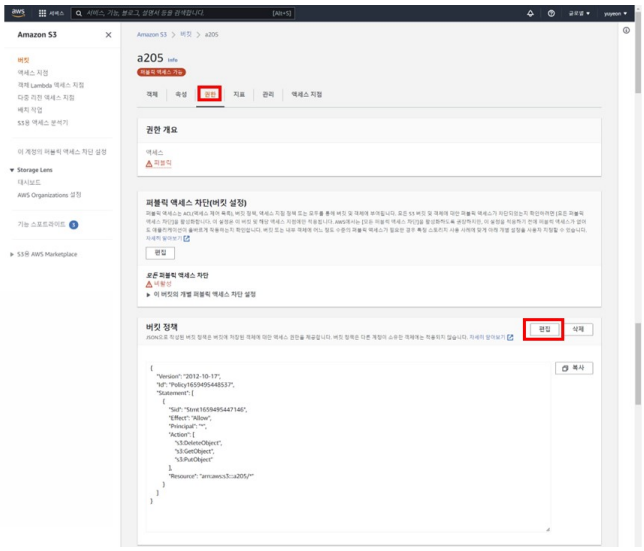
AWS S3 Bucket

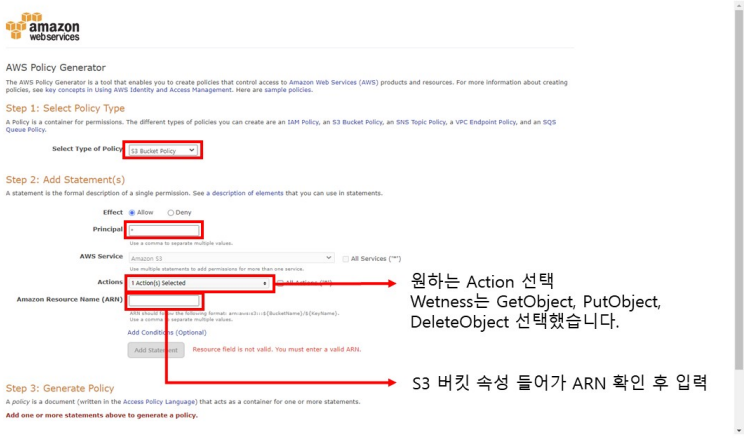
1. AWS 계정 생성
2. AWS S3 검색해서 S3 Management Console 접속 → 버킷 만들기



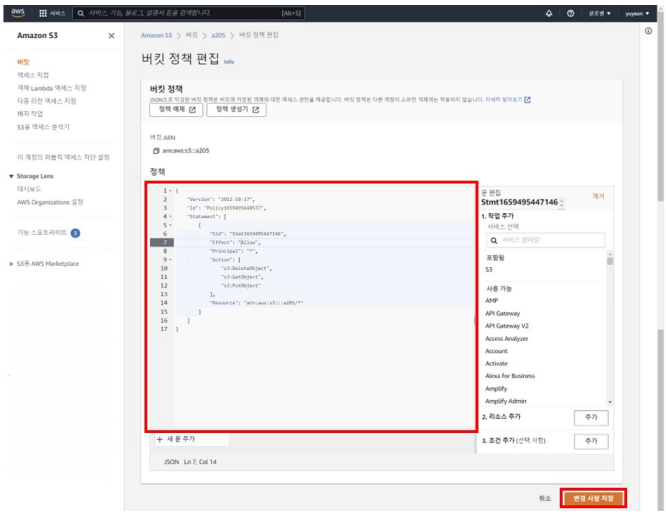
3. S3 버킷 설정 후 생성

4. 생성한 버킷 클릭 → 권한 설정으로 들어가 버킷 정책 생성

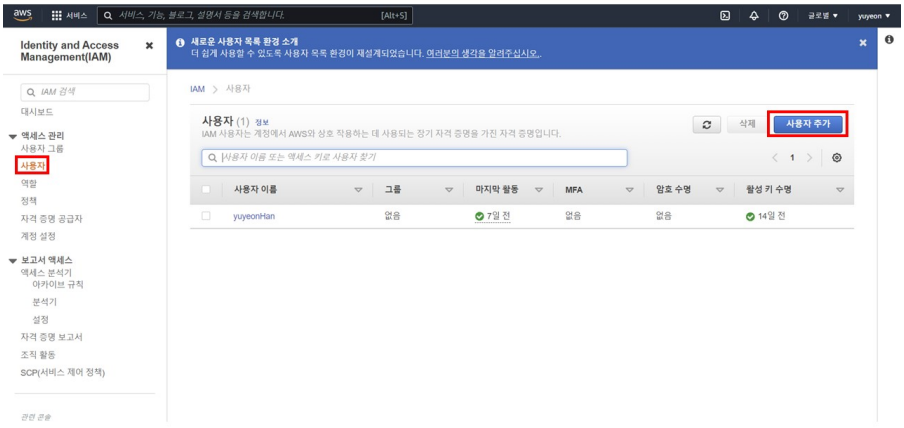


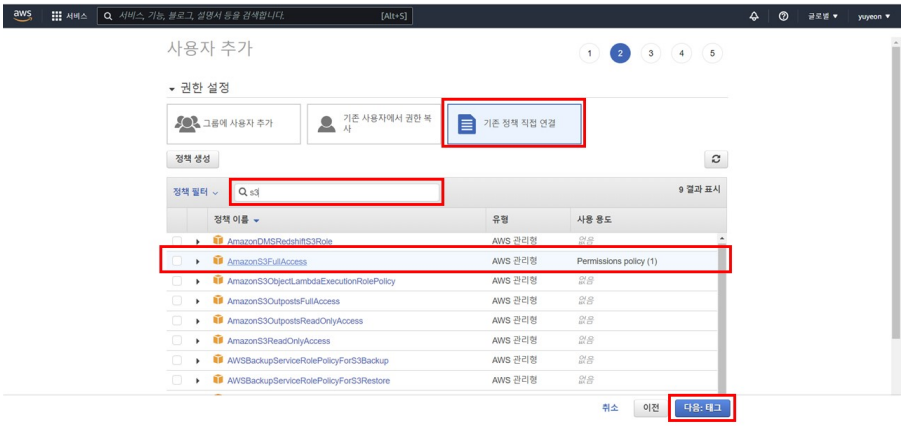


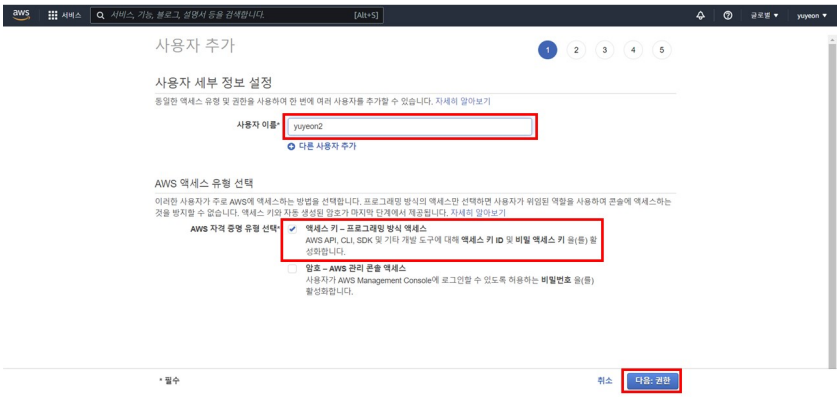
5. 생성된 JSON을 정책에 입력



6. IAM 검색해서 IAM 콘솔로 들어가, 사용자 추가







7. 생성한 직후, csv 다운로드 클릭해 AccessKey, SecretKey를 저장

```
Saving debug log to /var/log/letsencrypt/letsencrypt.log
Plugins selected: Authenticator nginx, Installer nginx
Enter email address (used for urgent renewal and security notices) (Enter 'c' to
cancel): 이메일@domain.com
```