2장. 쿠버네티스 클러스터 생성

Mastering kubernetes

OpenShift Origin (OKD) 3.10 설치

- 참고 사이트 : https://www.server-world.info/en/note?os=CentOS_7&p=openshift310&f=1

오픈시프트

위키백과, 우리 모두의 백과사전.

오픈시프트(OpenShift)는 컨테이너 기반 소프트웨어의 디플로이 및 관리를 위한 레드햇의 컴퓨터 소프트웨어 제품이다. 구체적으로 말해, 가속화된 애플리케이션 개발을 위해 도커 컨테이너와 데브옵스 도구를 사용하는 쿠버네티스의 지원 배포판이라 할 수 있다.

목차 [숨기기]

오픈시프트

OPENSHIFT

개발자	레드햇
발표일	2011년 5월 4일 (7년 전)
최근 버전	3.5 / 2017년 4월

설치를 위한 준비(중요)

- 노드 구성

[ctrl.srv.world] (Master Node) (Infra Node) (Compute Node)	[node01.srv.world] (Compute Node)	[node02.srv.world] (Compute Node)

- 클러스터를 구성하기 위한 필수 요구사항
  1. Master 노드는 4vCPU, 16GB 메모리 이상
  2. Compute 노드는 1vCPU, 8GB 메모리 이상
  3. 모든 노드는 RHEL(CentOS) 7.4 이상의 운영체제

모든 노드에서 준비 작업

필요한 계정 생성

[root@ctrl ~]# useradd origin

[root@ctrl ~]# passwd origin

[root@ctrl ~]# echo -e 'Defaults:origin !requiretty₩norigin ALL = (root) NOPASSWD:ALL' | tee /etc/sudoers.d/openshift

[root@ctrl ~]# chmod 440 /etc/sudoers.d/openshift

방화벽 오픈

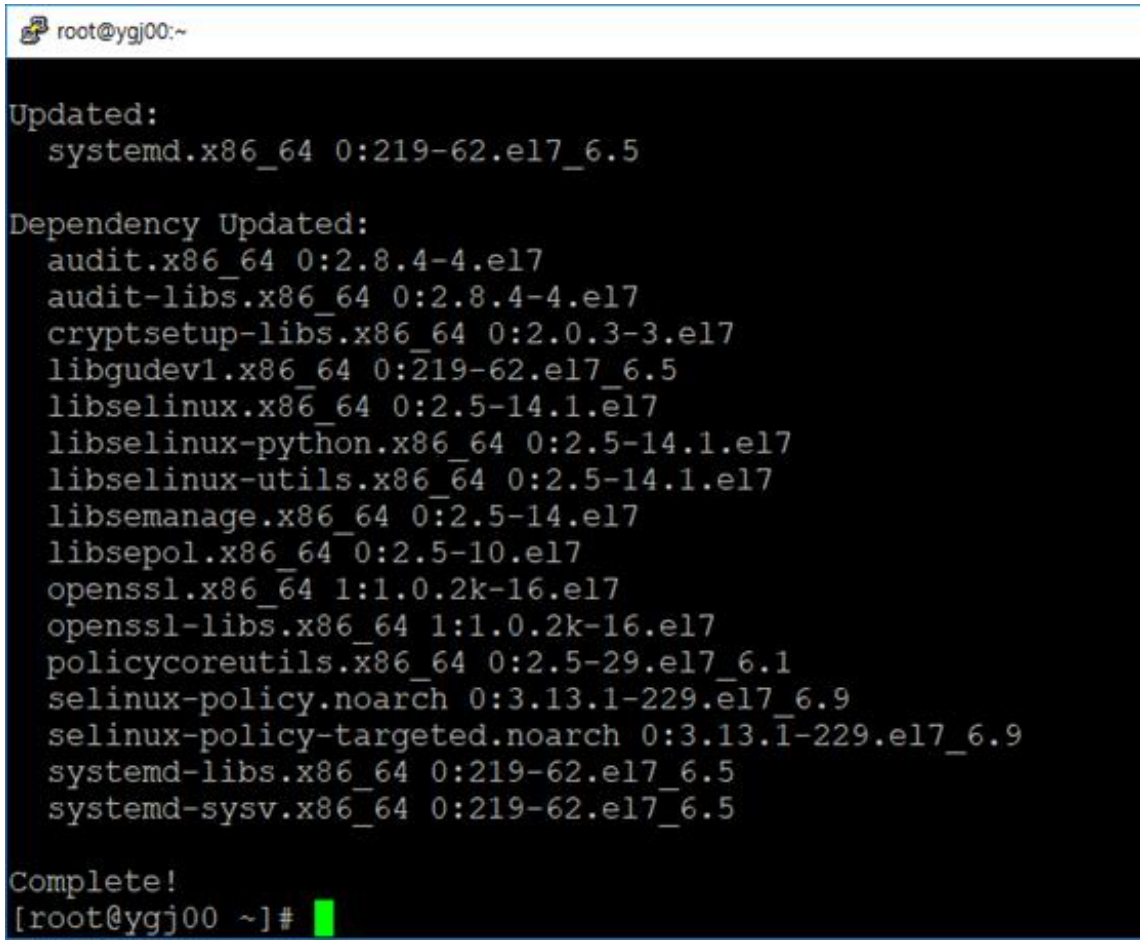
if Firewalld is running, allow SSH
[root@ctrl ~]# firewall-cmd --add-service=ssh --permanent

[root@ctrl ~]# firewall-cmd --reload

모든 노드에서 준비 작업

[root@ctrl ~]# yum -y install centos-release-openshift-origin310 epel-release docker git pyOpenSSL
[root@ctrl ~]# systemctl start docker

[root@ctrl ~]# systemctl enable docker



Master 노드에서 작업

자동 로그인을 위한 작업
[origin@ctrl ~]$ ssh-keygen -q -N ""
Enter file in which to save the key (/home/origin/.ssh/id_rsa):
[origin@ctrl ~]$ vi ~/.ssh/config
create new (define each node)
```
Host ctrl
     Hostname ctrl.srv.world
     User origin
Host node01
     Hostname node01.srv.world
     User origin
Host node02
     Hostname node02.srv.world
     User origin
```
[origin@ctrl ~]$ chmod 600 ~/.ssh/config
transfer public-key to other nodes

[origin@ctrl ~]$ ssh-copy-id node01
origin@node01.srv.world's password:
```
Number of key(s) added: 1 Now try logging into the machine, with: "ssh 'node01'" and check to make
sure that only the key(s) you wanted were added.
```

[origin@ctrl ~]$ ssh-copy-id node02
[origin@ctrl ~] $ ssh-copy-id ctrl

Master 노드에서 작업

자동설치를 위한 도구 설치

[origin@ctrl ~]$ sudo yum -y install openshift-ansible

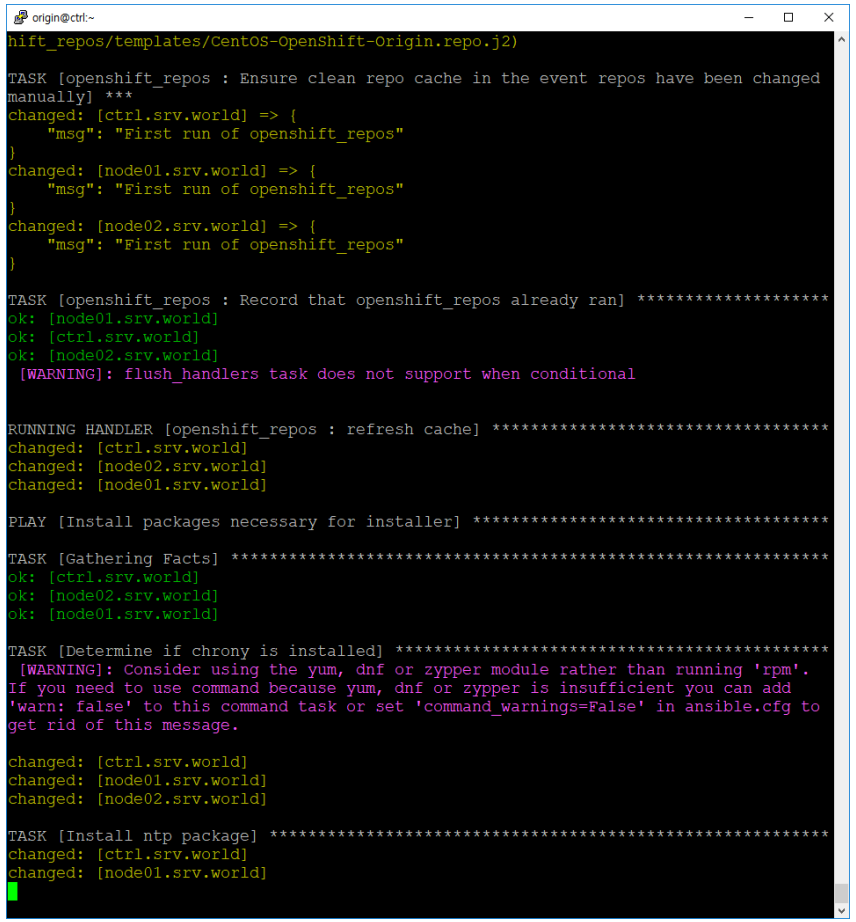
자동설치를 위한 옵션 설정

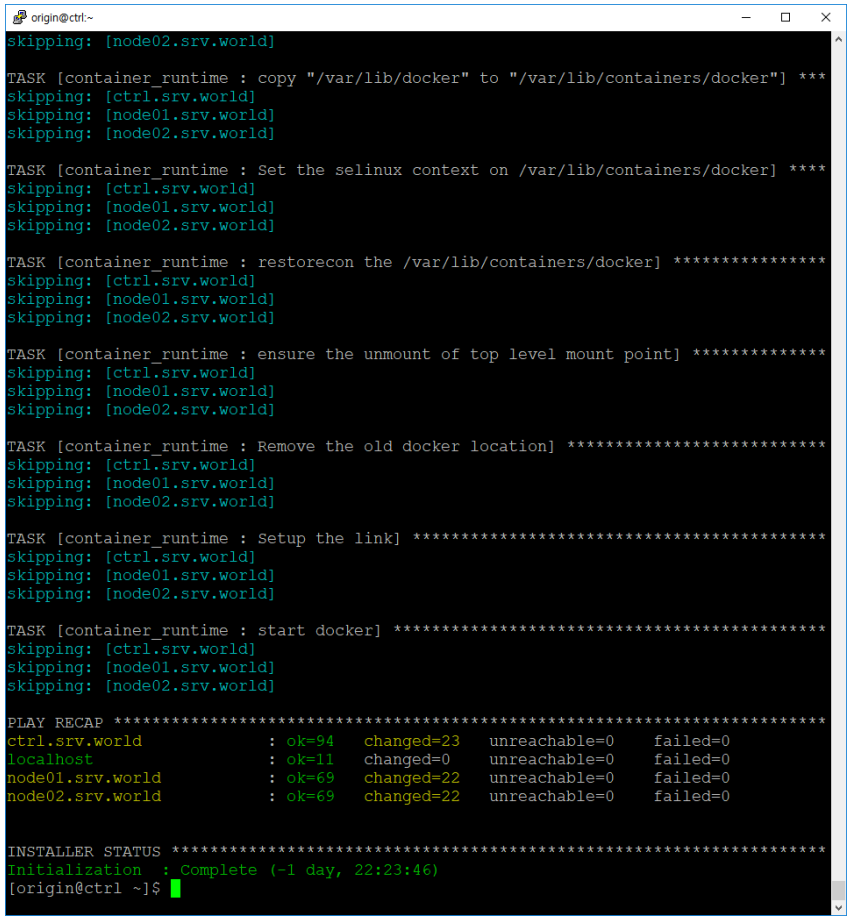
[origin@ctrl ~]$ sudo vi /etc/ansible/hosts

```
# add follows to the end
[OSEv3:children]
masters
nodes
etcd
[OSEv3:vars]
# admin user created in previous section
ansible_ssh_user=origin
ansible_become=true
openshift_deployment_type=origin
# use HTPasswd for authentication
openshift_master_identity_providers=[{'name': 'htpasswd_auth', 'login': 'true', 'challenge': 'true', 'kind': 'HTPasswdPasswordIdentityProvider'}]
# define default sub-domain for Master node
openshift_master_default_subdomain=apps.srv.world
# allow unencrypted connection within cluster
openshift_docker_insecure_registries=172.30.0.0/16
[masters]
ctrl.srv.world openshift_schedulable=true containerized=false
[etcd]
ctrl.srv.world
[nodes]
# defined values for [openshift_node_group_name] in the file below
# [/usr/share/ansible/openshift-ansible/roles/openshift_facts/defaults/main.yml]
ctrl.srv.world openshift_node_group_name='node-config-master-infra'
node01.srv.world openshift_node_group_name='node-config-compute'
node02.srv.world openshift_node_group_name='node-config-compute'
```

Master 노드에서 작업

오픈쉬프트 설치를 위한 준비작업을 실행
run Prerequisites Playbook
[origin@ctrl ~]$ ansible-playbook /usr/share/ansible/openshift-ansible/playbooks/prerequisites.yml





Master 노드에서 작업

오픈쉬프트 설치(3개의 노드에 알아서 접속해서 자동 설치), 30분 정도 소요
run Deploy Cluster Playbook
[origin@ctrl ~]$ ansible-playbook /usr/share/ansible/openshift-ansible/playbooks/deploy_cluster.yml

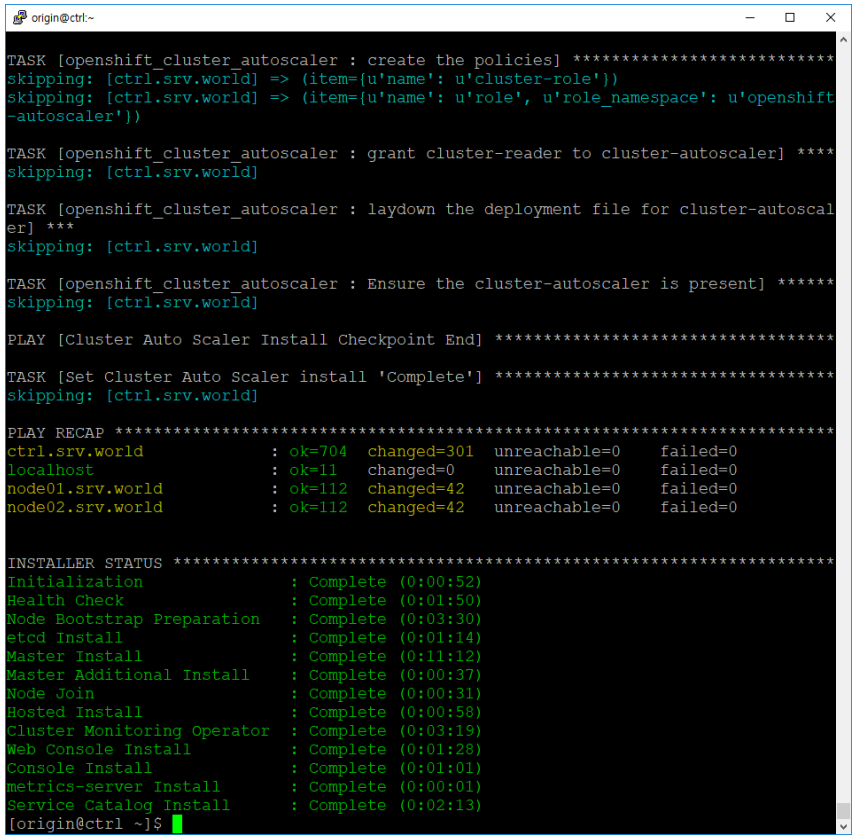
오른쪽 이미지는 RHEL(CentOS) 7.4 미만의 운영체제에서 설치했때의 오류 메시지

수정방법 : Kernel 업데이트를 해보면 됨.

Master 노드에서 작업

상태확인
[origin@ctrl ~]$ oc get nodes

show state with labels
[origin@ctrl ~]$ oc get nodes --show-labels=true



Master 노드에서 작업

cent 라는 사용자 추가
[origin@ctrl ~]$ sudo htpasswd /etc/origin/master/htpasswd cent

New password: # set password

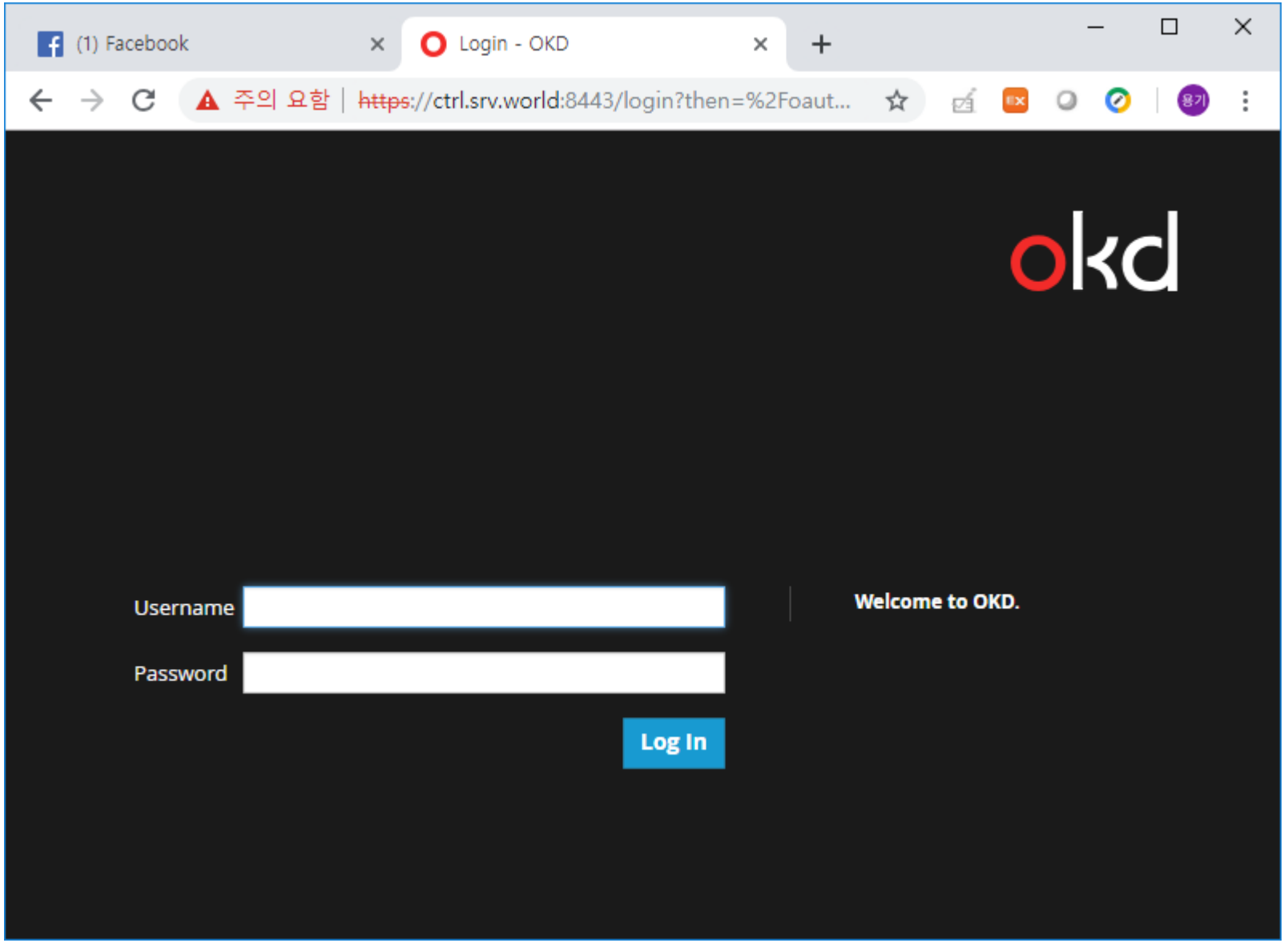
Re-type new password:
Adding password for user cent

접속 허용
[cent@ctrl ~]$ oc login
Server [https://localhost:8443]: https://ctrl.srv.world:8443
The server uses a certificate signed by an unknown authority.
You can bypass the certificate check, but any data you send to the server could be intercepted by others.
Use insecure connections? (y/n): y

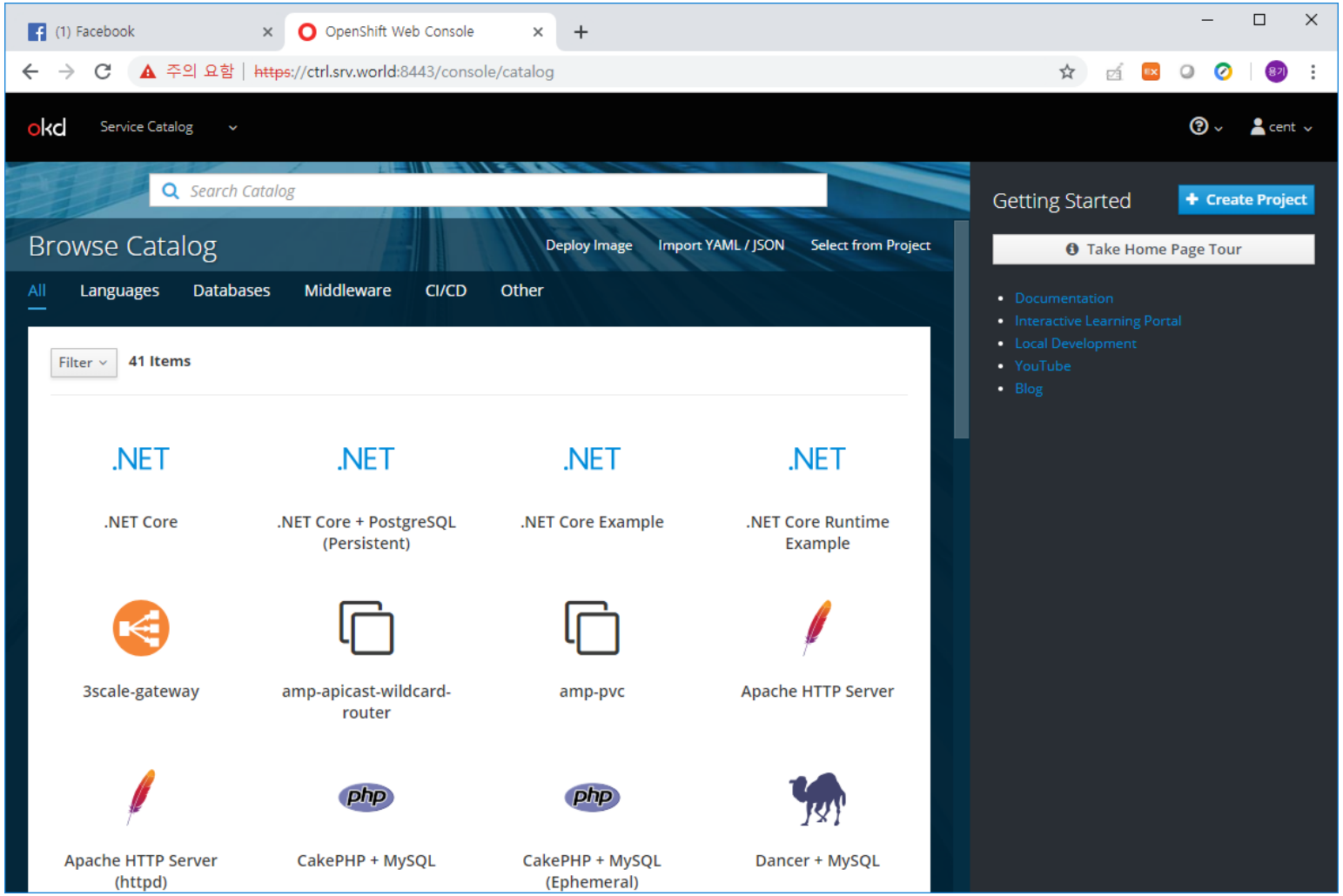
Authentication required for https://ctrl.srv.world:8443 (openshift)
Username: cent
Password:
Login successful.

You don't have any projects. You can try to create a new project, by running

관리웹화면


(1) Facebook
Login - OKD
주의 요함
https://ctrl.srv.world:8443/login?then=%2Foaut...
okd
Username
Password
Log In
Welcome to OKD.

관리웹에 로그인된 화면


(1) Facebook
OpenShift Web Console
주의 요함 | https://ctrl.srv.world:8443/console/catalog
okd
Service Catalog
cent
Search Catalog
Browse Catalog
Deploy Image
Import YAML / JSON
Select from Project
All
Languages
Databases
Middleware
CI/CD
Other
Filter
41 Items
.NET Core
.NET Core + PostgreSQL (Persistent)
.NET Core Example
.NET Core Runtime Example
3scale-gateway
amp-apicast-wildcard-router
amp-pvc
Apache HTTP Server
Apache HTTP Server (httpd)
CakePHP + MySQL
CakePHP + MySQL (Ephemeral)
Dancer + MySQL
Getting Started
Create Project
Take Home Page Tour
Documentation
Interactive Learning Portal
Local Development
YouTube
Blog