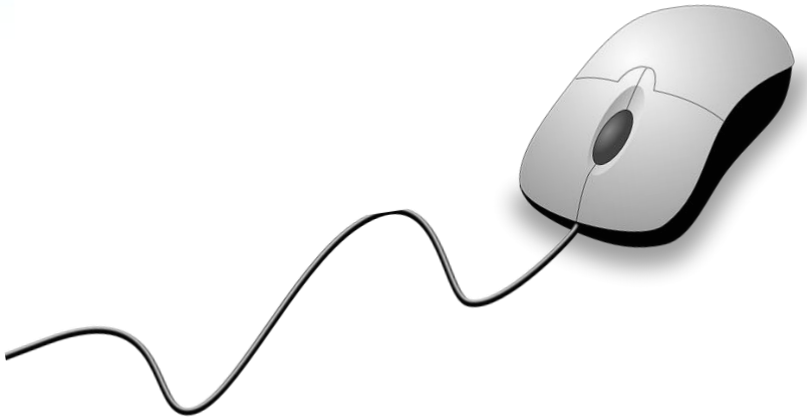
공개SW 솔루션 설치 & 활용 가이드

미들웨어 -> 클라우드서비스



RANCHER®

제대로 배워보자

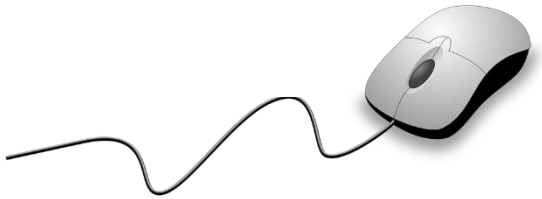
How to Use Open Source Software

Open Source Software Installation & Application Guide

OPENUP

오픈소스 소프트웨어 통합지원센터

Open Source Software Support Center



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1. 개요

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<tr><td>소개</td><td colspan="3">• 컨테이너 워크로드 관리자를 위한 멀티 클러스터 관리 툴</td></tr>
<tr><td>주요기능</td><td colspan="3">• 퍼블릭 클라우드와 온프렘 상의 쿠버네티스의 설치 및 통합 관제</td></tr>
<tr><td>대분류</td><td>• 미들웨어</td><td>소분류</td><td>• 클라우드서비스</td></tr>
<tr><td rowspan="2">라이선스형태</td><td rowspan="2">• Apache License 2.0
(https://github.com/rancher/rancher/blob/master/LICENSE)</td><td>사전설치 솔루션</td><td>• Docker</td></tr>
<tr><td>버전</td><td>• v2.5.7 (2021년 4월 기준)</td></tr>
<tr><td>특징</td><td colspan="3">• 간편하고 쉽게 매니지드 쿠버네티스 서비스인 EKS, AKS, GKE 사용 가능
• 모든 테스트의 안전한 정지 및 롤백 지원
• SOC II Certified RBAC, MFA, SSO
• 스택의 모든 레이어에 장애공격 테스트 가능</td></tr>
<tr><td>개발회사/커뮤니티</td><td colspan="3">• https://slack.rancher.io/
• https://rancher.com/community/</td></tr>
<tr><td>공식 홈페이지</td><td colspan="3">• https://rancher.com/</td></tr>
</table>

- ✓ 온 프레미스, 클라우드 등 모든 곳에 Kubernetes 클러스터를 배포. Rancher는 이러한 클러스터를 통합하여 일관된 운영, 워크로드 관리 및 엔터프라이즈 급 보안을 보장

2. 기능요약

- 통합 된 다중 클러스터 관리
  - ✓ Rancher는 중앙 집중식 인증 및 액세스 제어, 엔터프라이즈 보안, 감사, 백업, 업그레이드, 관찰 가능성 및 경고를 통해 Kubernetes 클러스터를 통합
  - ✓ 직관적 인 UI 또는 강력한 CLI를 사용하여 어디서나 몇 분 안에 일관되게 클러스터를 배포하고 보호
- 역할 기반 액세스 제어
  - ✓ 일반 계정 시스템을 자체적으로 가지고 있으며 외부 계정시스템 (AD, GitHub, LDAP)을 사용하거나 SAML/SSO 인증등을 지원
- 중앙 집중식 앱 카탈로그
  - ✓ Helm을 활용한 다양한 오픈소스 배포

3. 실행환경

- 호스트 운영 체제
  - ✓ Linux(ControlPlane / etcd / Worker)
  - ✓ Windows는 Worker노드만 가능

- CPU/Memory 요구사항
  - ✓ RKE and Hosted Kubernetes

DEPLOYMENT SIZE	CLUSTERS	NODES	VCPUS	RAM
Small	Up to 150	Up to 1500	2	8 GB
Medium	Up to 300	Up to 3000	4	16 GB
Large	Up to 500	Up to 5000	8	32 GB
X-Large	Up to 1000	Up to 10,000	16	64 GB
XX-Large	Up to 2000	Up to 20,000	32	128 GB

3. 실행환경

✓ K3s Kubernetes

DEPLOYMENT SIZE	CLUSTERS	NODES	VCPUS	RAM	DATABASE SIZE
Small	Up to 150	Up to 1500	2	8 GB	2 cores, 4 GB + 1000 IOPS
Medium	Up to 300	Up to 3000	4	16 GB	2 cores, 4 GB + 1000 IOPS
Large	Up to 500	Up to 5000	8	32 GB	2 cores, 4 GB + 1000 IOPS
X-Large	Up to 1000	Up to 10,000	16	64 GB	2 cores, 4 GB + 1000 IOPS
XX-Large	Up to 2000	Up to 20,000	32	128 GB	2 cores, 4 GB + 1000 IOPS

✓ RancherD

DEPLOYMENT SIZE	CLUSTERS	NODES	VCPUS	RAM
Small	Up to 5	Up to 50	2	5 GB
Medium	Up to 15	Up to 200	3	9 GB

3. 실행환경

RANCHER

✓ Docker

DEPLOYMENT SIZE	CLUSTERS	NODES	VCPUS	RAM
Small	Up to 5	Up to 50	1	4 GB
Medium	Up to 15	Up to 200	2	8 GB

4. 설치 및 실행

세부 목차

4. 설치 및 실행

4.1 docker 설치

- **Docker 설치**

  $ apt install docker.io

```
root@ubuntu:~# apt install docker.io
Building dependency tree
Reading state information... Done
The following additional packages will be installed:
  bridge-utils cgroupfs-mount containerd pigz runc ubuntu-fan
Suggested packages:
  ifupdown aufs-tools debootstrap docker-doc rinse zfs-fuse | zfsutils
The following NEW packages will be installed:
  bridge-utils cgroupfs-mount containerd docker.io pigz runc ubuntu-fan
0 upgraded, 7 newly installed, 0 to remove and 84 not upgraded.
Need to get 63.8 MB of archives.
After this operation, 320 MB of additional disk space will be used.
Do you want to continue? [Y/n] y
Get:1 http://kr.archive.ubuntu.com/ubuntu bionic/universe amd64 pigz amd64 2.4-1 [57.4 kB]
```

- **Docker 시작/상태 확인**

  $ systemctl start docker / $ systemctl enable docker

```
root@ubuntu:~# systemctl start docker
root@ubuntu:~# systemctl enable docker
Created symlink /etc/systemd/system/multi-user.target.wants/docker.service → /lib/systemd/system/docker.service.
root@ubuntu:~# systemctl status docker
● docker.service - Docker Application Container Engine
   Loaded: loaded (/lib/systemd/system/docker.service; enabled; vendor preset: enabled)
   Active: active (running) since Tue 2021-04-13 05:40:41 UTC; 9s ago
     Docs: https://docs.docker.com
 Main PID: 2965 (dockerd)
    Tasks: 9
   CGroup: /system.slice/docker.service
           └─2965 /usr/bin/dockerd -H fd:// --containerd=/run/containerd/containerd.sock

Apr 13 05:40:40 ubuntu dockerd[2965]: time="2021-04-13T05:40:40.944539216Z" level=warning msg="Your kernel does not support swap memory limit"
Apr 13 05:40:40 ubuntu dockerd[2965]: time="2021-04-13T05:40:40.944758405Z" level=warning msg="Your kernel does not support cgroup rt period"
Apr 13 05:40:40 ubuntu dockerd[2965]: time="2021-04-13T05:40:40.944862370Z" level=warning msg="Your kernel does not support cgroup rt runtime"
Apr 13 05:40:40 ubuntu dockerd[2965]: time="2021-04-13T05:40:40.945109784Z" level=info msg="Loading containers: start."
Apr 13 05:40:41 ubuntu dockerd[2965]: time="2021-04-13T05:40:41.086222968Z" level=info msg="Default bridge (docker0) is assigned with an IP address 172.17.0.0/16. Daemon option --bip ca
Apr 13 05:40:41 ubuntu dockerd[2965]: time="2021-04-13T05:40:41.173875290Z" level=info msg="Loading containers: done."
Apr 13 05:40:41 ubuntu dockerd[2965]: time="2021-04-13T05:40:41.200399781Z" level=info msg="Docker daemon" commit=369ce74a3c graphdriver(s)=overlay2 version=19.03.6
Apr 13 05:40:41 ubuntu dockerd[2965]: time="2021-04-13T05:40:41.200803885Z" level=info msg="Daemon has completed initialization"
Apr 13 05:40:41 ubuntu systemd[1]: Started Docker Application Container Engine.
Apr 13 05:40:41 ubuntu dockerd[2965]: time="2021-04-13T05:40:41.251617193Z" level=info msg="API listen on /var/run/docker.sock"
lines 1-19/19 (END)
```

4. 설치 및 실행

4.2 Rancher 배포

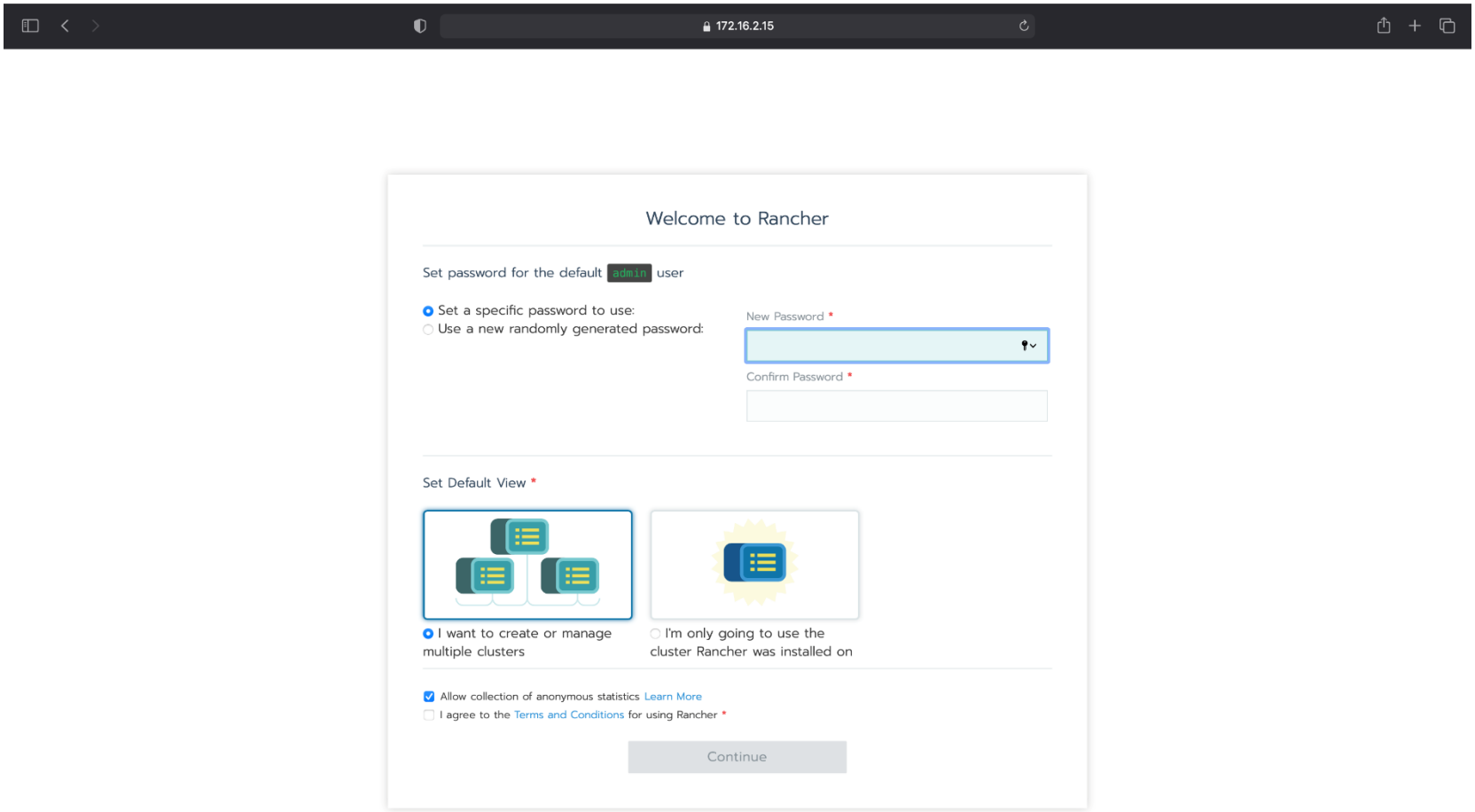
```
$ docker run -d --restart=unless-stopped ₩
 -p 80:80 -p 443:443 ₩
 --privileged ₩
 rancher/rancher:latest
```

```
root@ubuntu:~# docker run -d --restart=unless-stopped \
>   -p 80:80 -p 443:443 \
>   --privileged \
>   rancher/rancher:latest
Unable to find image 'rancher/rancher:latest' locally
latest: Pulling from rancher/rancher
92dc2a97ff99: Pull complete
be13a9d27eb8: Pull complete
c8299583700a: Pull complete
1cfc4b91f663: Pull complete
89e5e49c9f45: Pull complete
b9a1f2396473: Download complete
05acc7758320: Download complete
802ebebc6939: Download complete
84d12ccfb318: Download complete
c30c8b067a5c: Download complete
ec91bd223976: Download complete
ea81a3940aa1: Download complete
a62e7995c65c: Download complete
32fb6c8e3291: Download complete
7a8f77efbf71: Download complete
c1ff92705bd6: Download complete
cf09cd3d7cd8: Download complete
0cf21519ca3d: Download complete
0ecded6172d8: Download complete
1b0500935351: Download complete
```

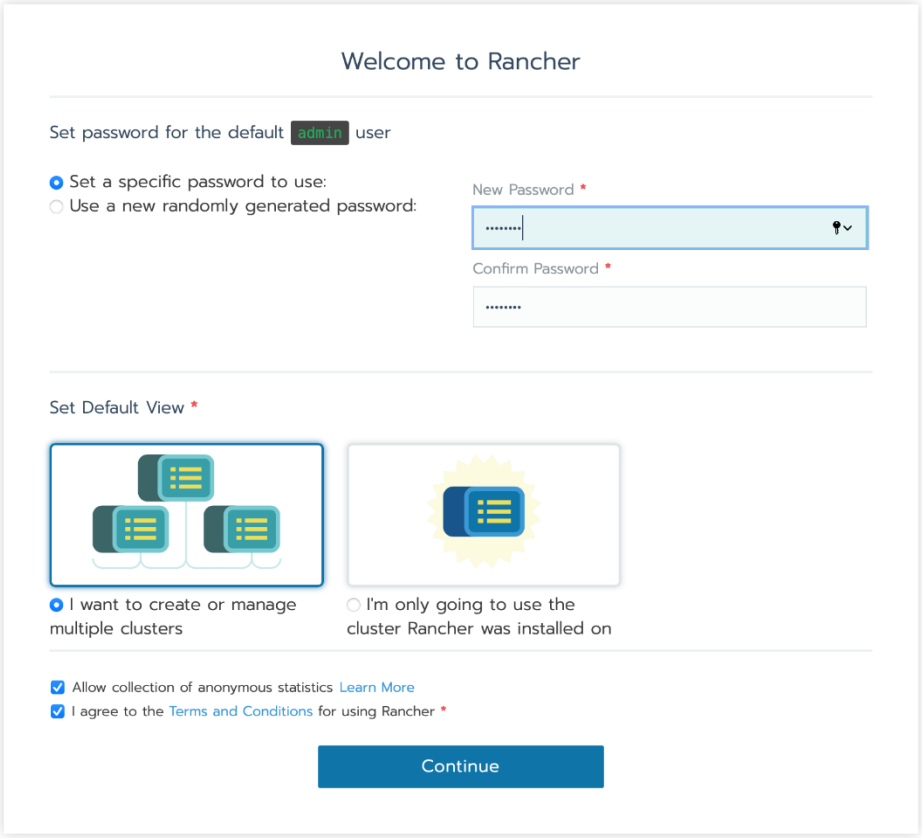
4. 설치 및 실행

4.2 Rancher 배포

- Rancher 접속



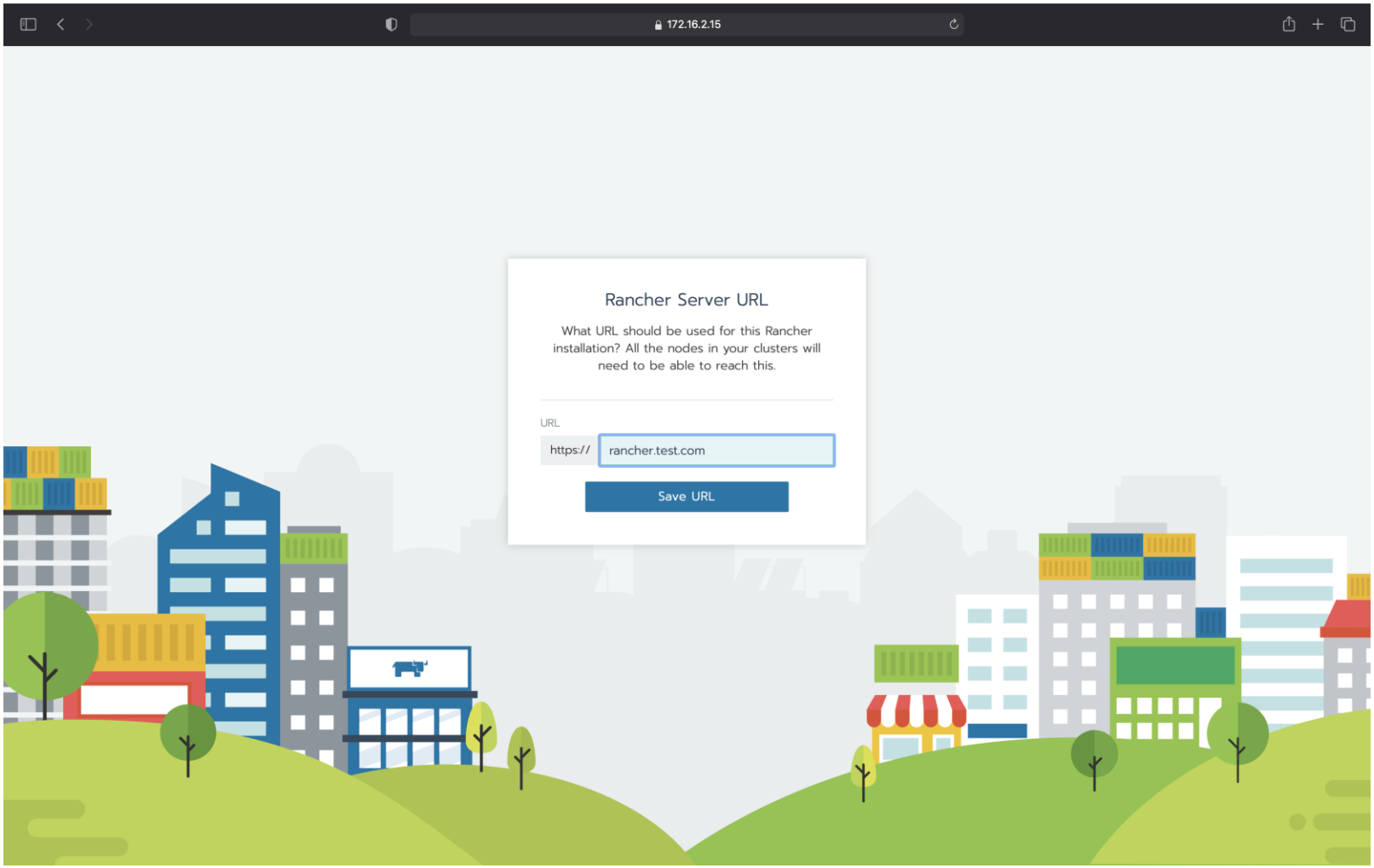
- Password 입력


Welcome to Rancher
Set password for the default admin user
Set a specific password to use:
Use a new randomly generated password:
New Password *
Confirm Password *
Set Default View *
I want to create or manage multiple clusters
I'm only going to use the cluster Rancher was installed on
Allow collection of anonymous statistics Learn More
I agree to the Terms and Conditions for using Rancher *
Continue

4. 설치 및 실행

4.2 Rancher 배포

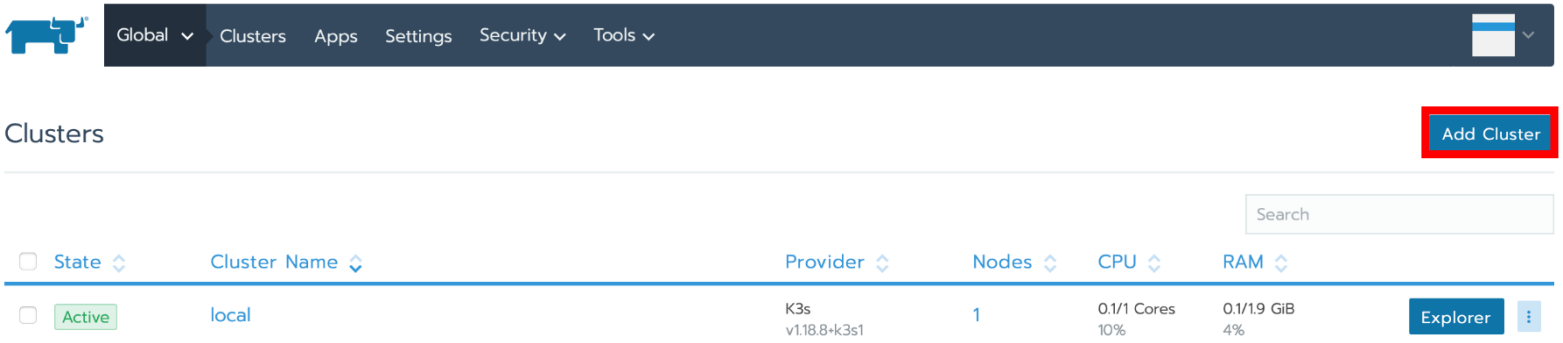
- Rancher Server URL 설정



4. 설치 및 실행

4.3 Rancher Cluster 추가

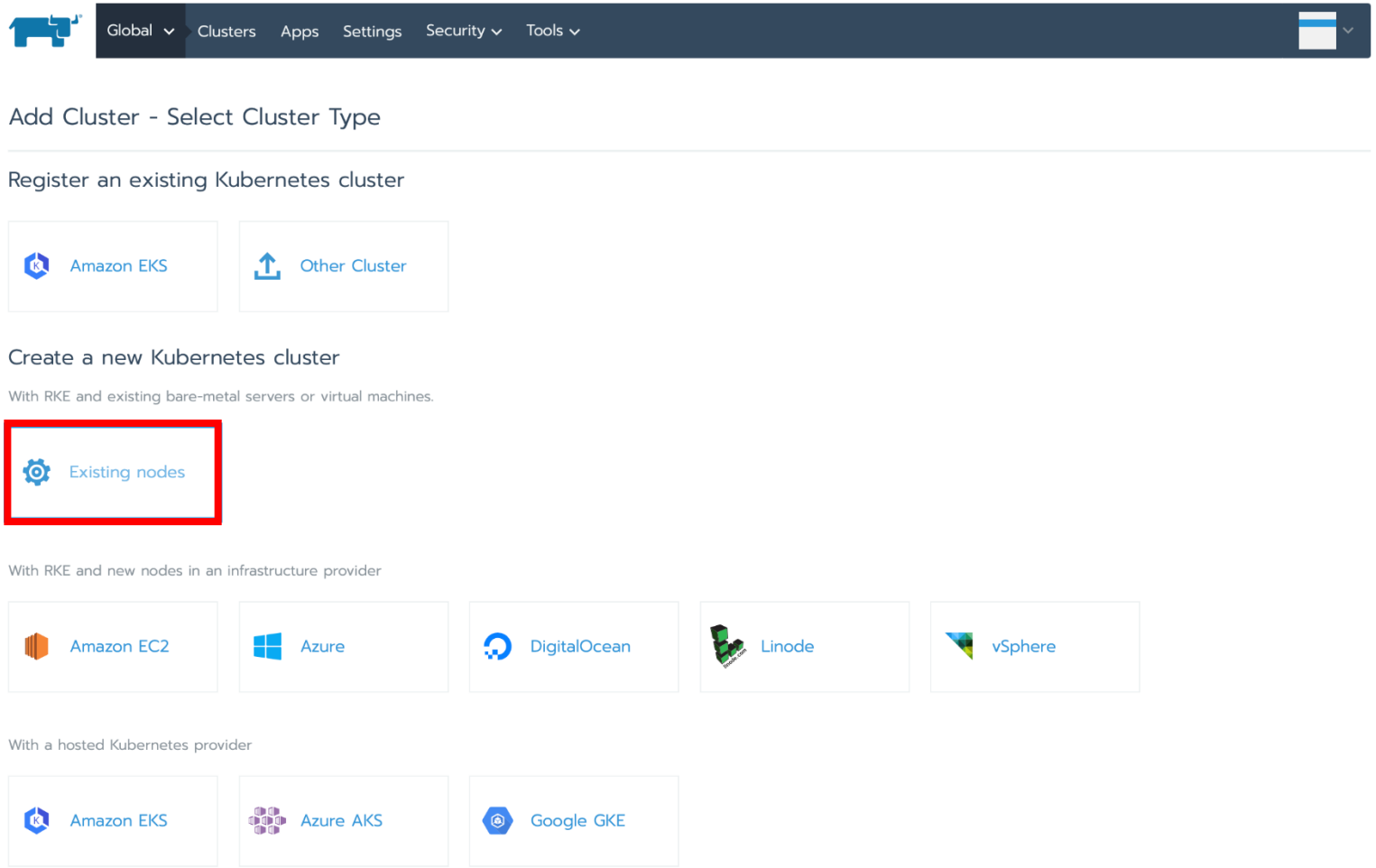
- Rancher Host 추가



4. 설치 및 실행

4.3 Rancher Cluster 추가

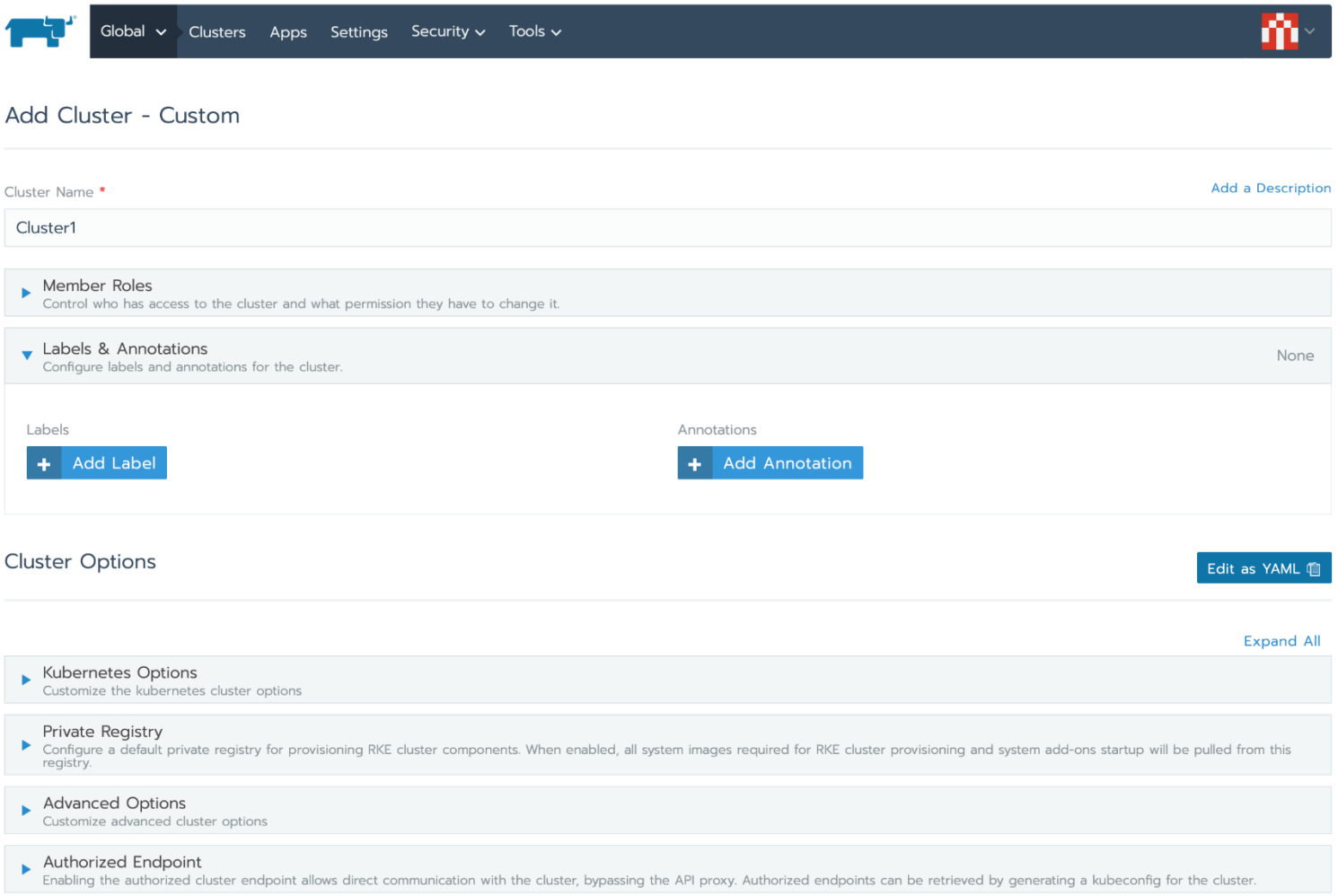
- Bare-metal server위에 cluster 추가



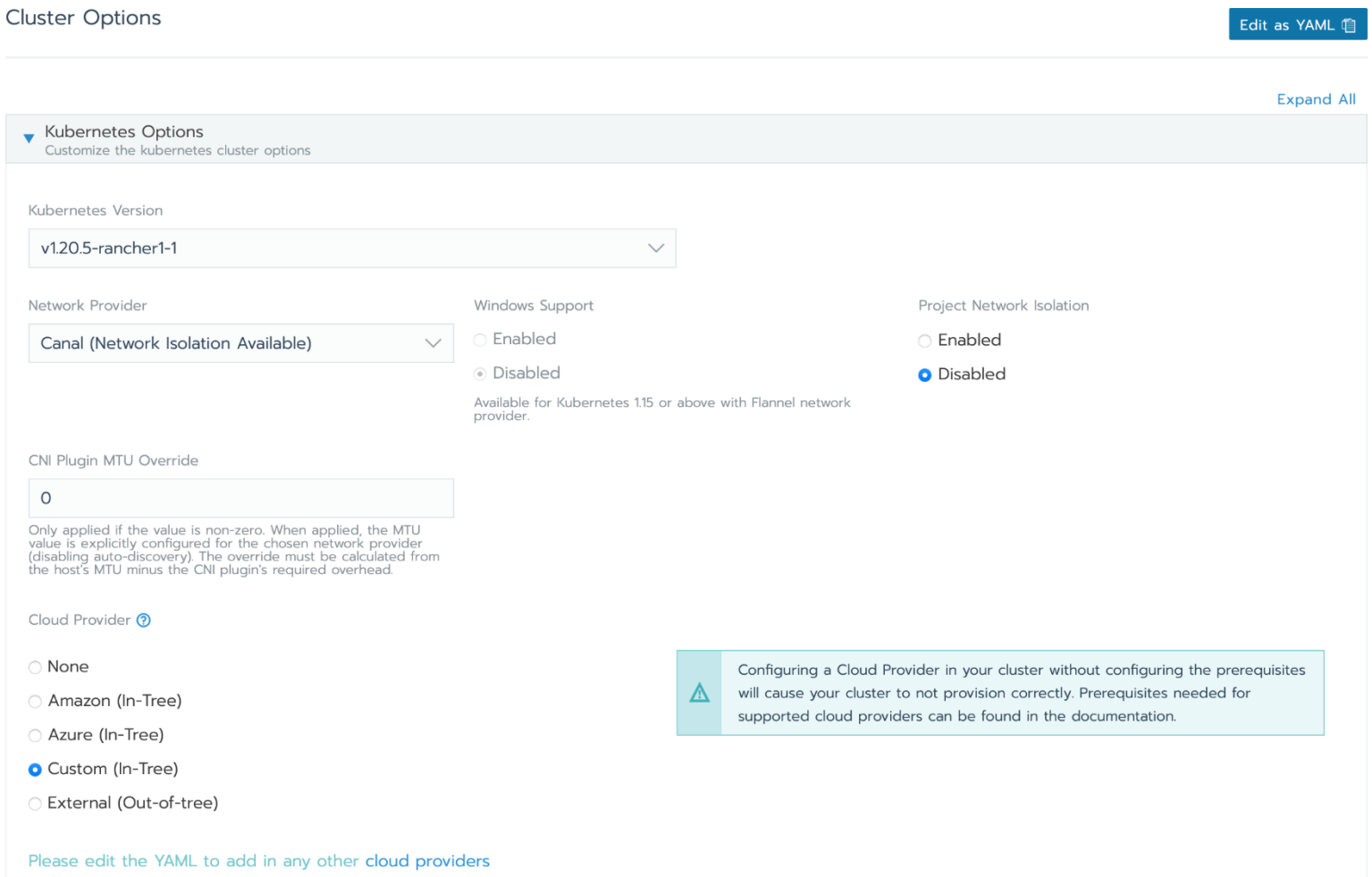
4. 설치 및 실행

4.3 Rancher Cluster 추가

- Cluster 설정

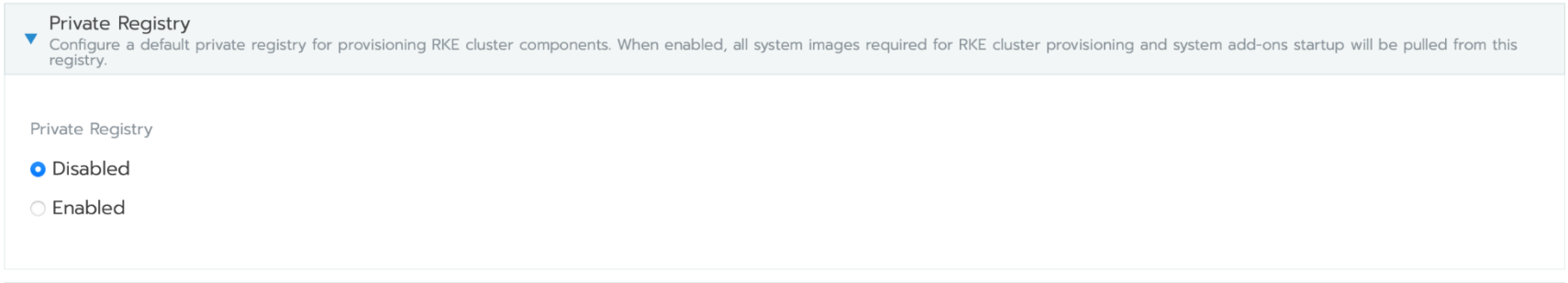


- Kubernetes 옵션

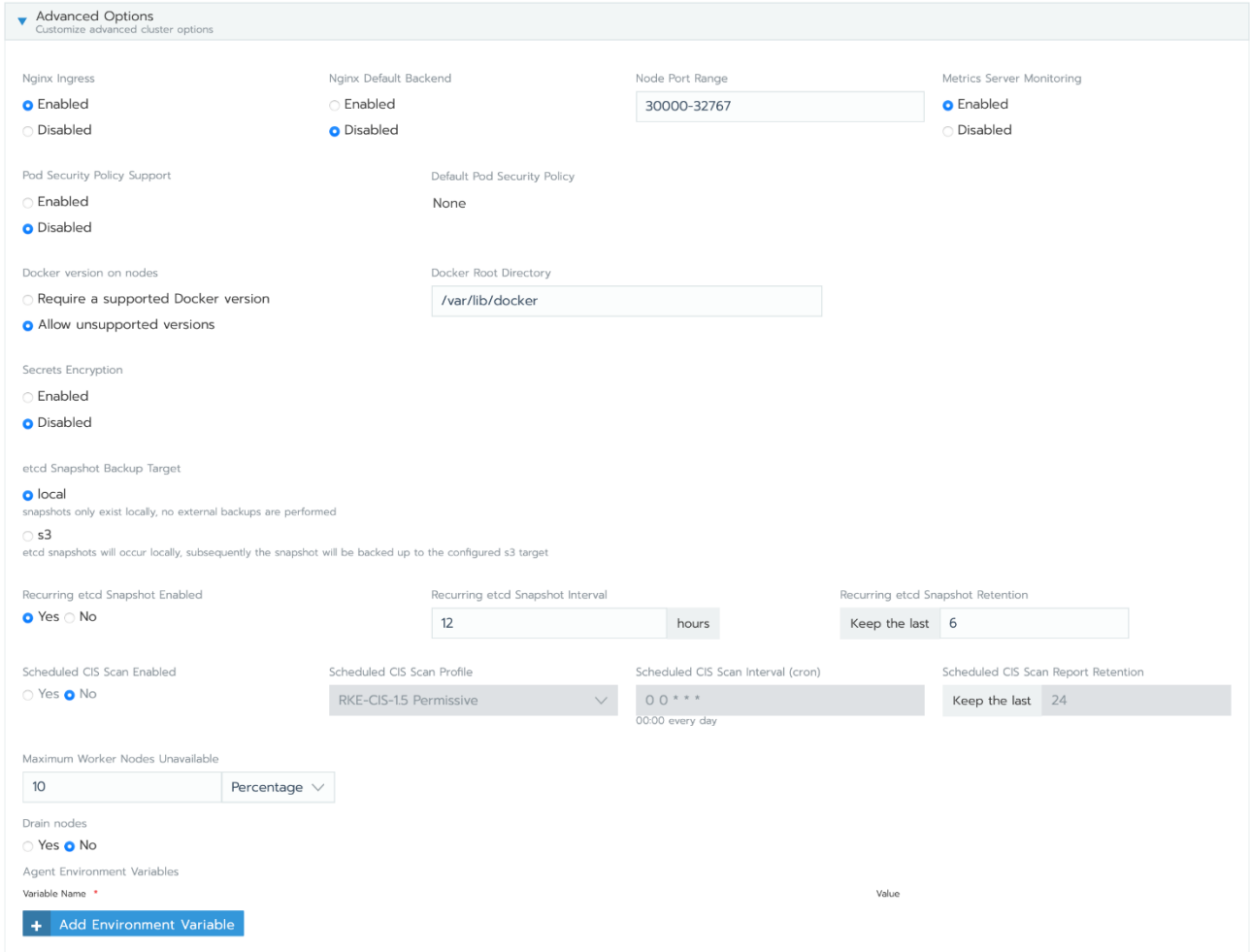


4.3 Rancher Cluster 추가

- Private Registry 옵션



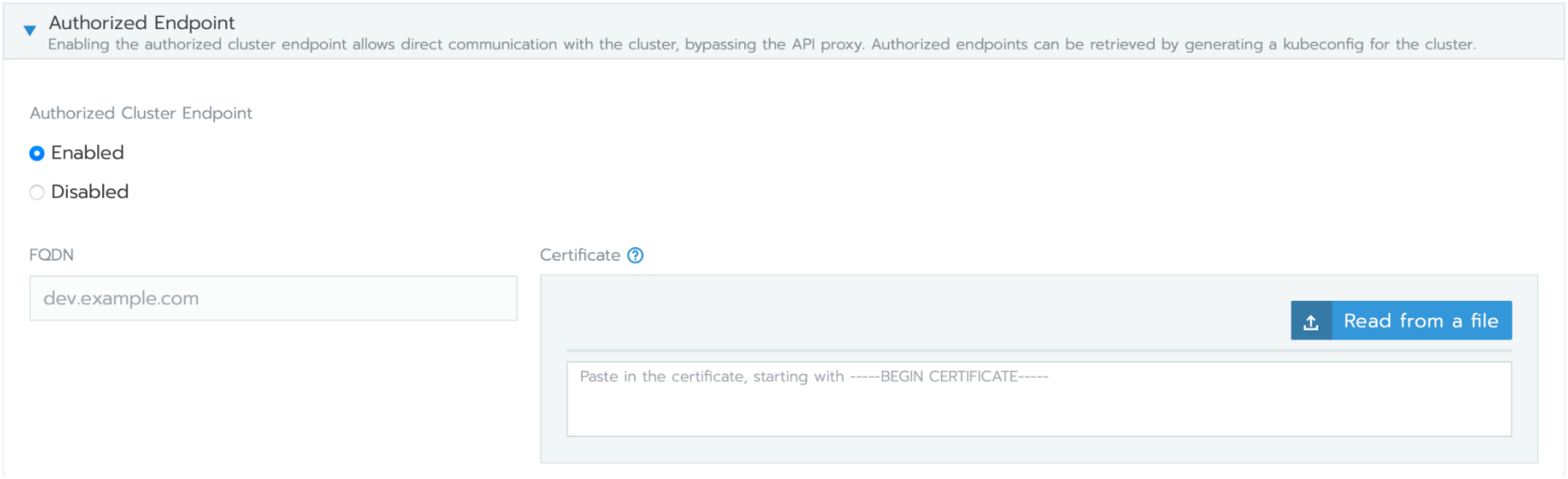
- Advanced Options



4. 설치 및 실행

4.3 Rancher Cluster 추가

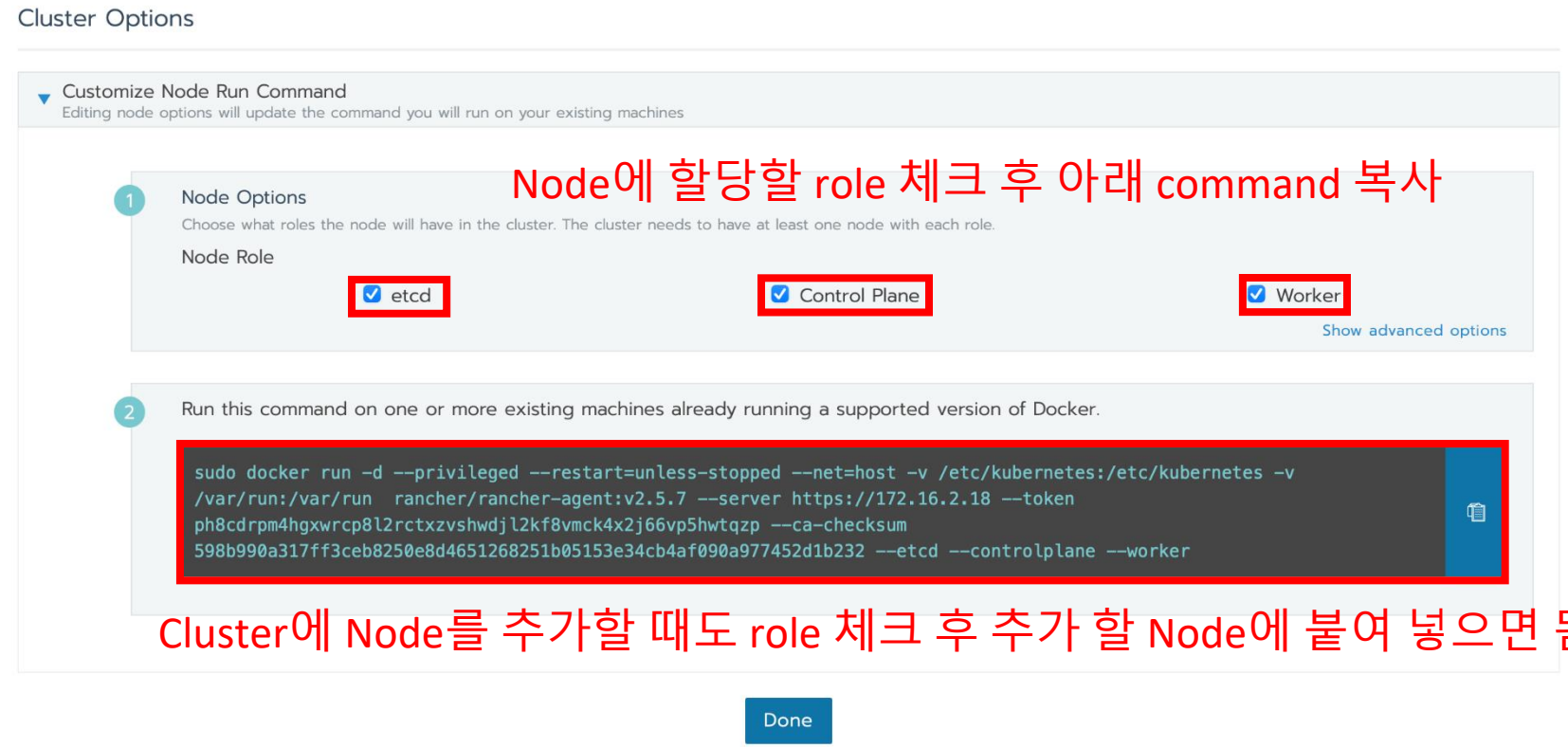
- Authorized Endpoint



4. 설치 및 실행

4.3 Rancher Cluster 추가

- Node option



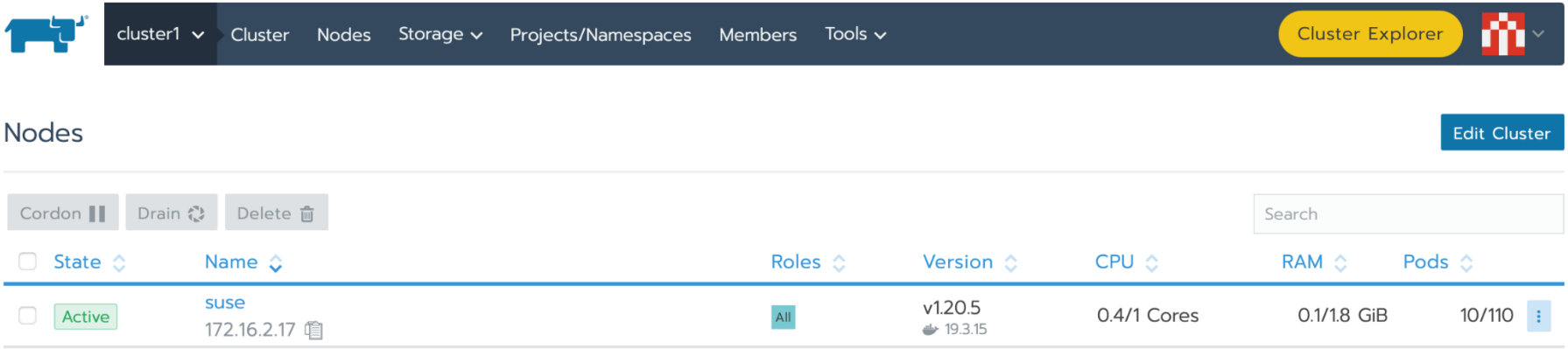
4. 설치 및 실행

4.3 Rancher Cluster 추가

- Docker가 설치 된 노드에 붙여넣기

```
~ — daniel@daniel: / — ssh root@172.16.2.18   ~ — root@down: ~ — ssh root@172.16.2.16   ~ — Terminal — ssh root@172.16.2.17
suse:~ # sudo docker run -d --privileged --restart=unless-stopped --net=host -v /etc/kubernetes:/etc/kubernetes -v /var/run:/var/run  rancher/rancher-agent:v2.5.7 --server https://172.1
6.2.18 --token ph8cdrpm4hgxwrcp8l2rctxzvshwdjl2kf8vmck4x2j66vp5hwtqzp --ca-checksum 598b990a317ff3ceb8250e8d4651268251b05153e34cb4af090a977452d1b232 --etcd --controlplane --worker
```

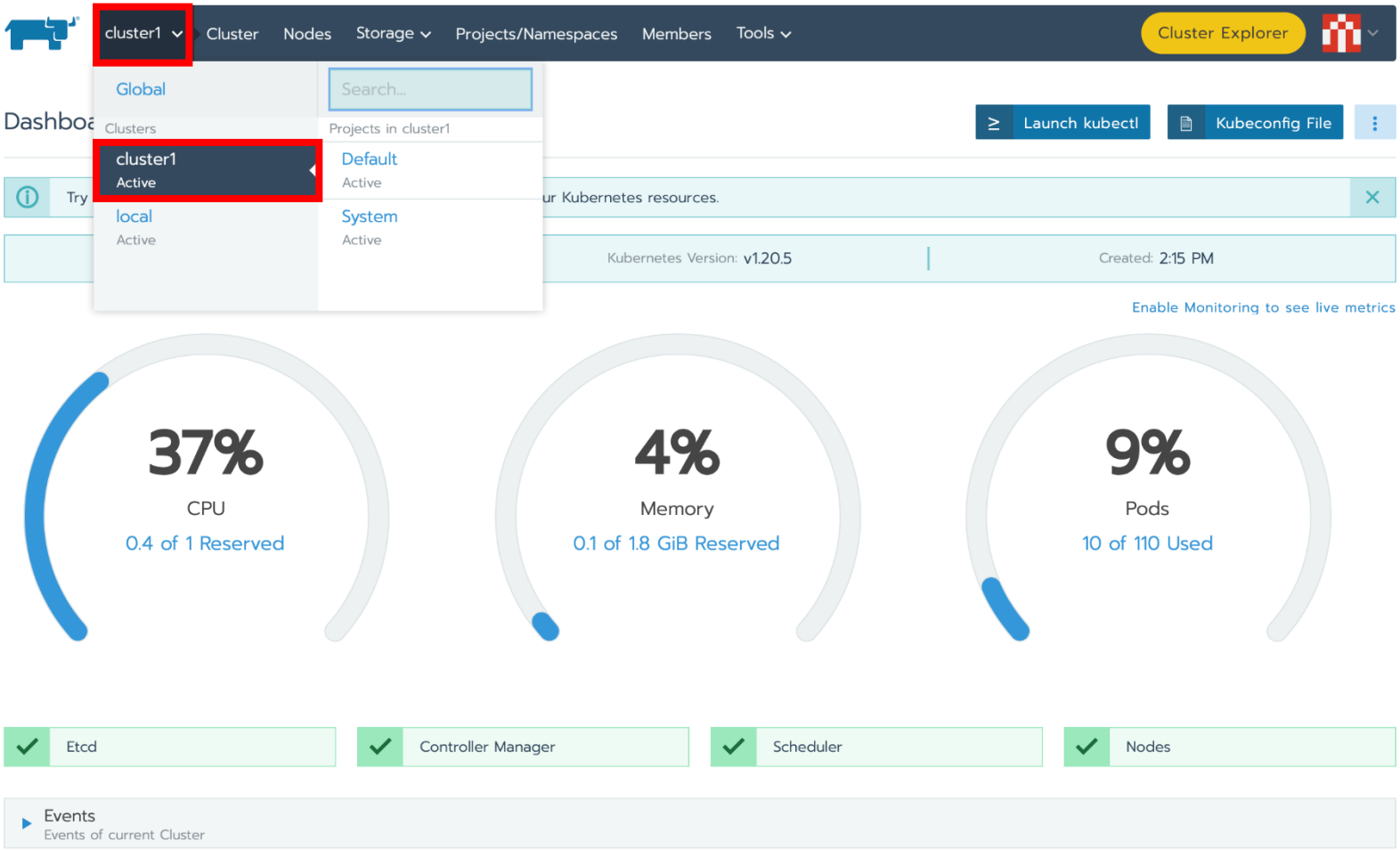
- Cluster에서 노드 확인



4. 설치 및 실행

4.4 Rancher Cluster Dashboard

- Cluster 모니터링

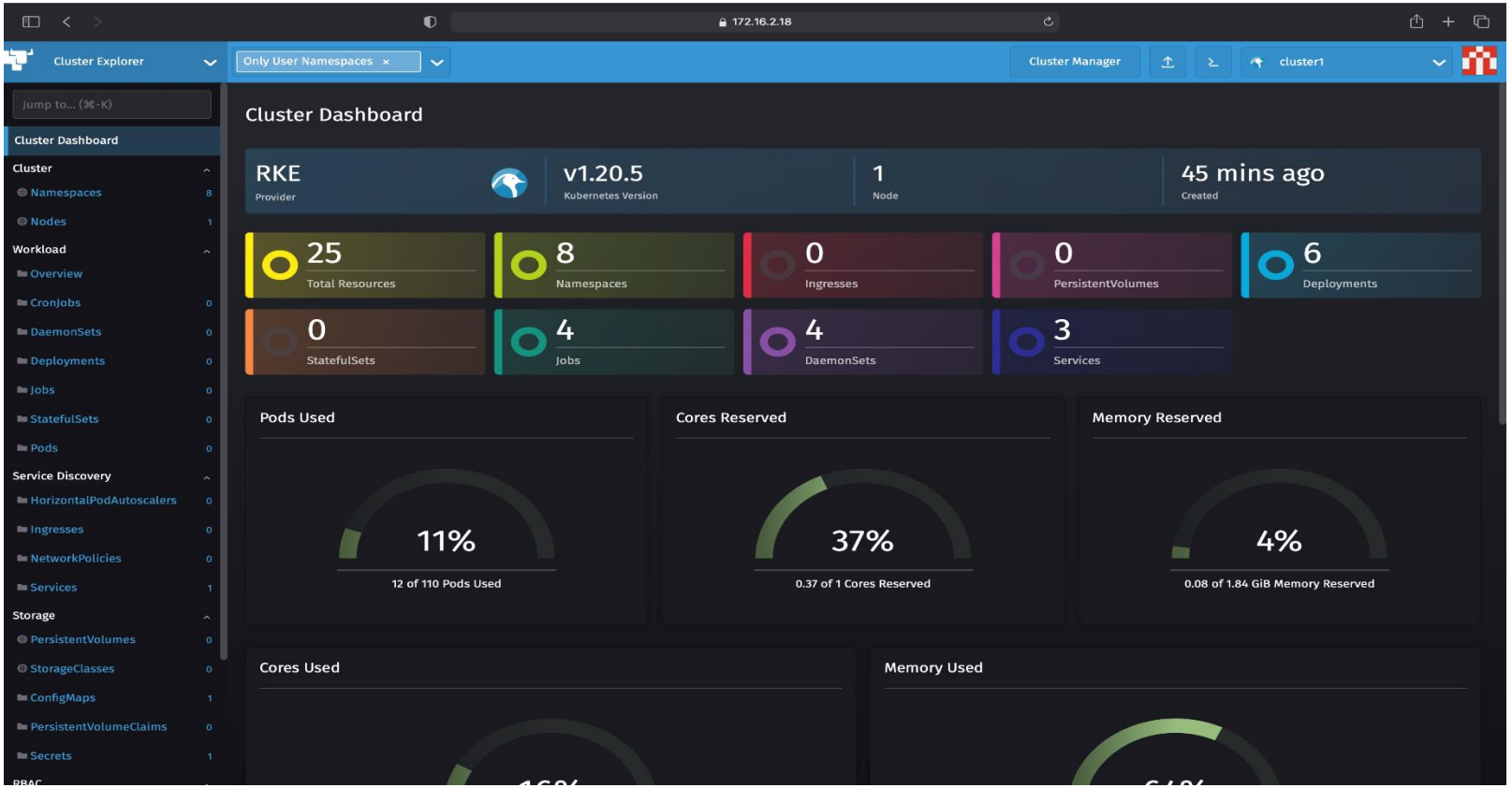


4. 설치 및 실행

4.5 kubernetes 관리

- Kubernetes 관리

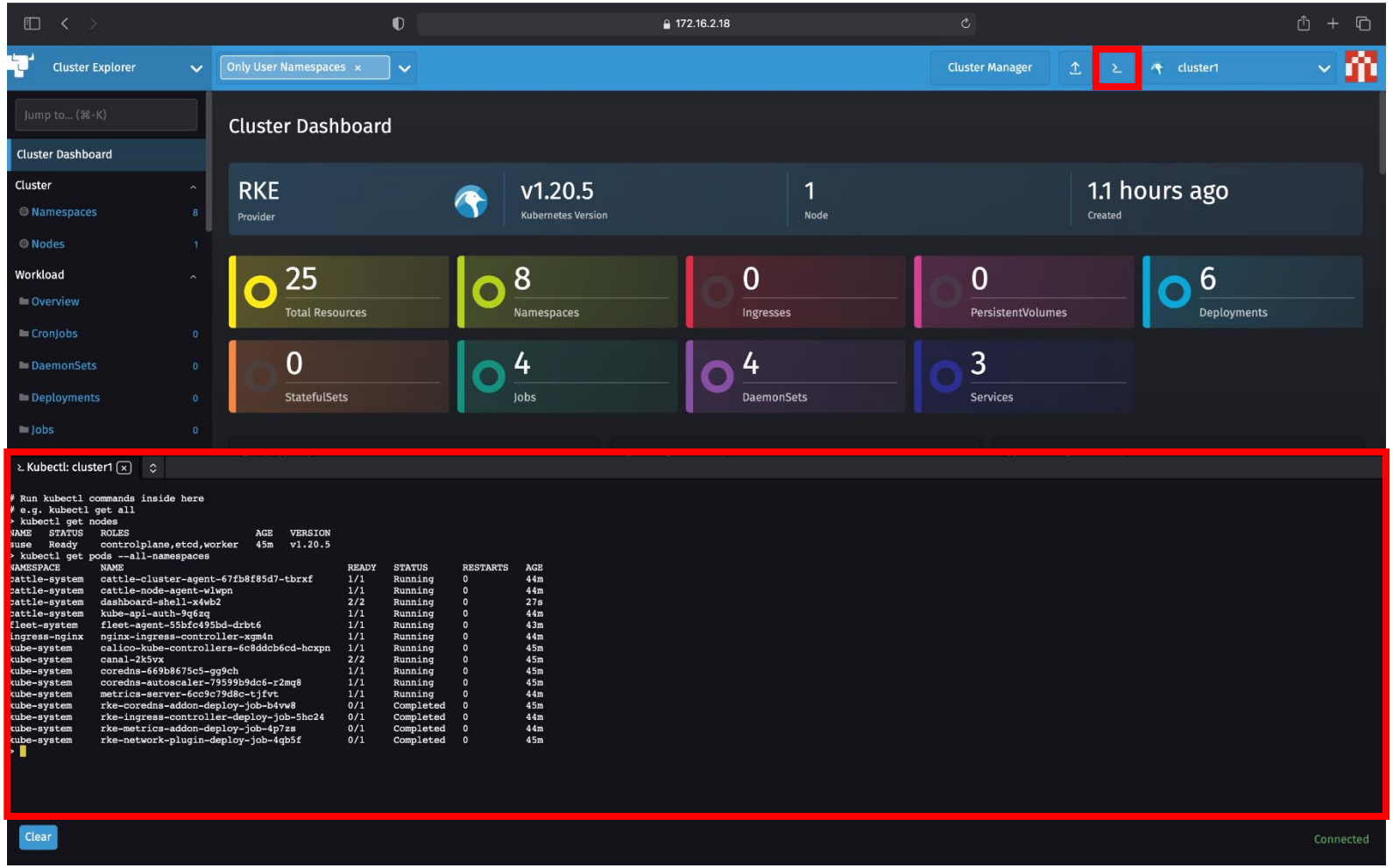
State	Cluster Name	Provider	Nodes	CPU	RAM	
Active	cluster1	Custom v1.20.5	1	0.4/1 Cores 37%	0.1/1.8 GiB 4%	Explorer



4. 설치 및 실행

4.5 kubernetes 관리

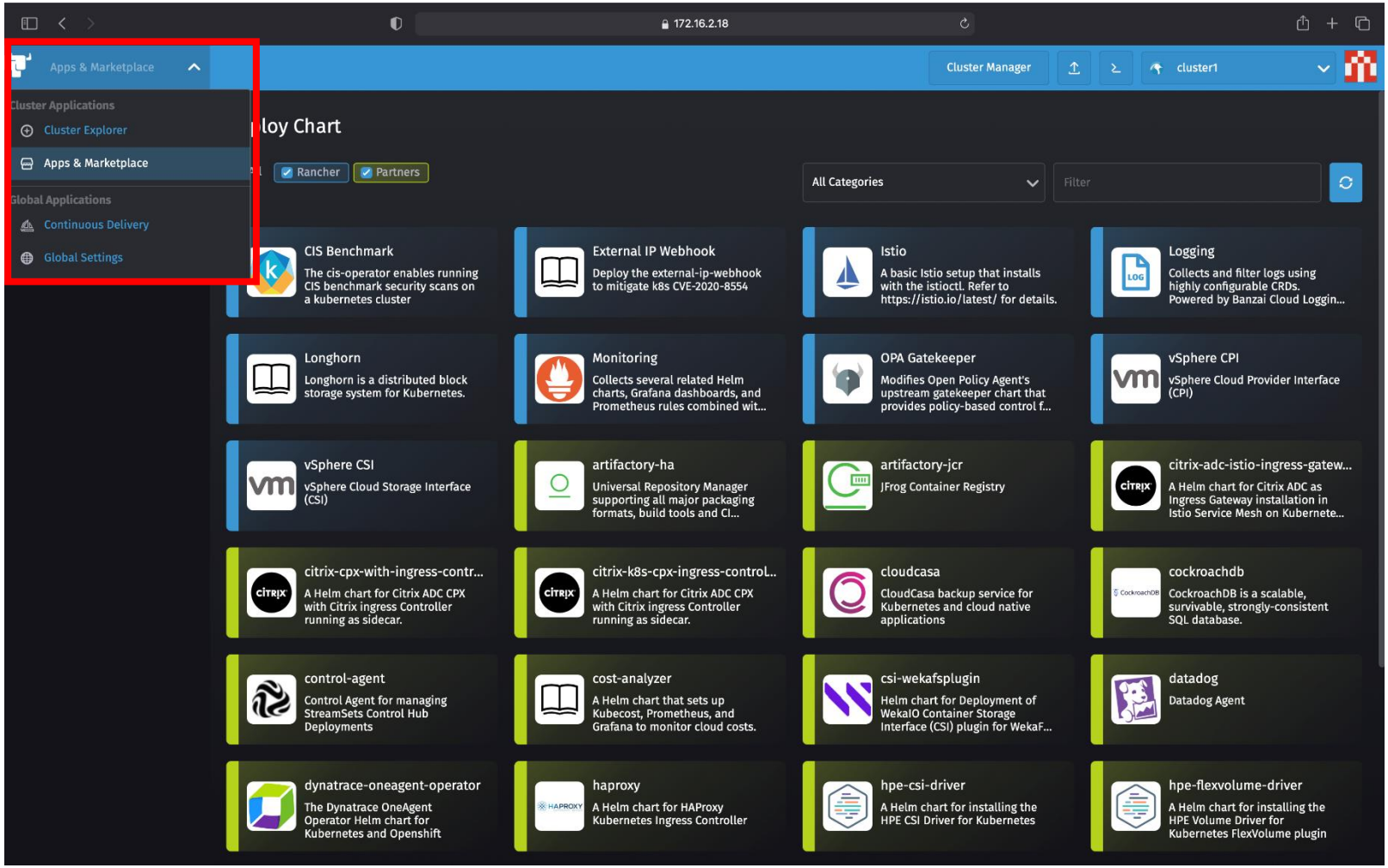
- Kubernetes 관리



4. 설치 및 실행

4.6 Rancher Marketplace

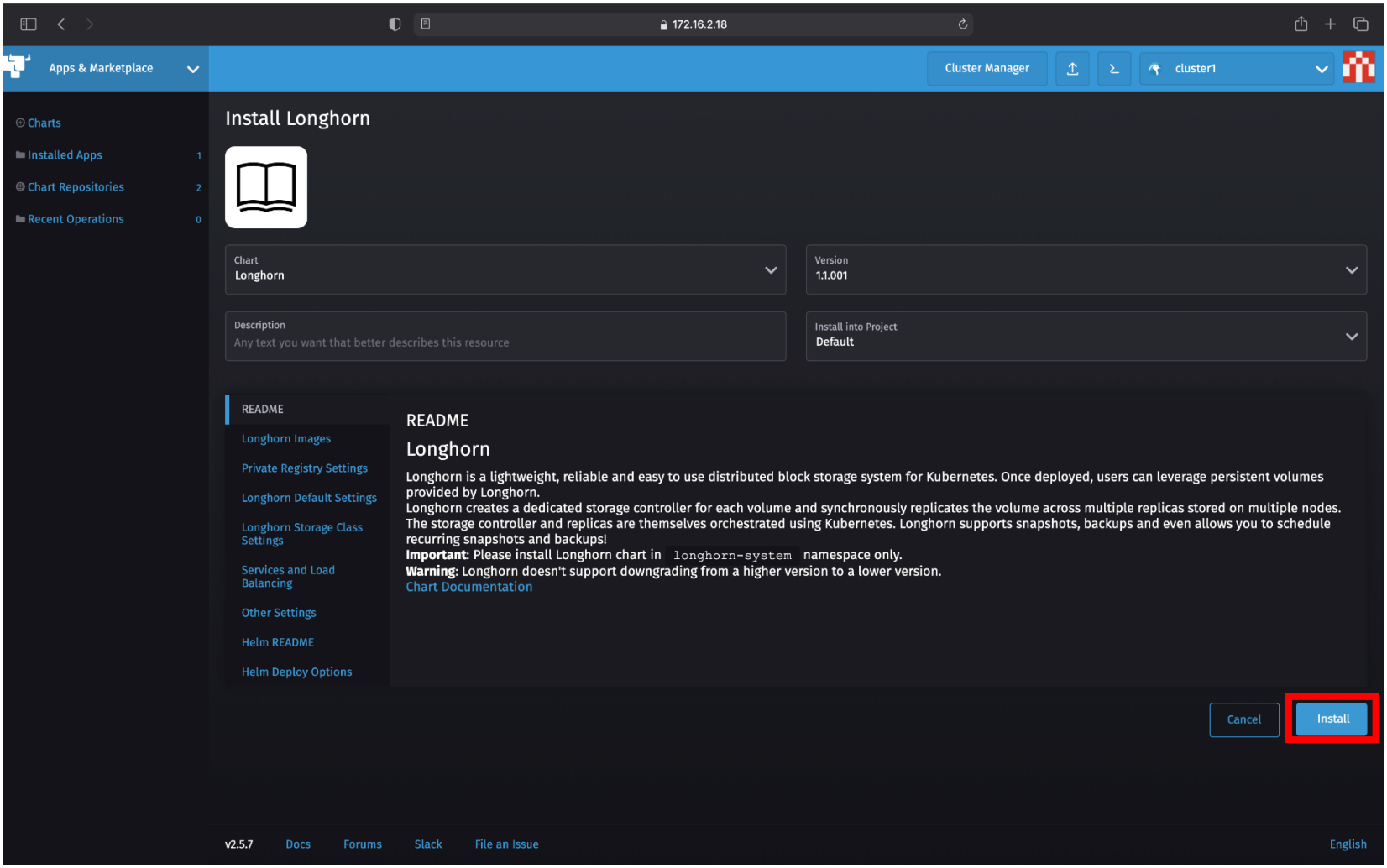
- 다양한 오픈소스 툴 제공



4. 설치 및 실행

4.6 Rancher Marketplace

- 오픈소스 설치



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