



Troubleshooting Control Plane Issues

Lab 18



What are you Learning?

In this lesson you'll be troubleshooting Kubernetes control plane nodes.

Why is it important?

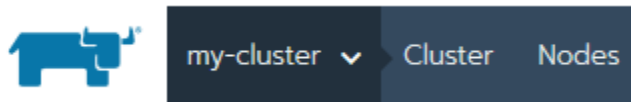
The control plane is the brain of Kubernetes. It includes the [Kubernetes API, the Scheduler and the Controller Manager](#). These processes and their [associated subprocesses](#) allow Kubernetes, to schedule, provision, manage, and destroy compute, storage, other resources at scale. Like etcd, without the control plane there is no cluster.

Troubleshooting Control Plane Nodes

1. You'll need node access to the control plane nodes. For nodes provisioned with Rancher via an infrastructure provider, you can [download the SSH keys](#).
2. For the cluster you'll be diagnosing,



3. Navigate to nodes



4. Select Download Keys
Nodes

| State | Name | Roles | Version | CPU | RAM | Pods |
|--------|-------------------------|-------|--------------------|-------------|-------------|-------|
| Active | all-1 52.252.103.175 | All | v1.15.11 19.3.8 | 0.4/1 Cores | 0.1/3.2 GiB | 9/110 |

5. Once you've connected via SSH, you're going to look at the logs in Docker.
6. There are multiple process running on the control plane nodes. [These are the API, the controller manager, and the scheduler.](#)
7. First, [check that they're all up.](#)
8. Next, [check their logs.](#)

9. The controller manager and the scheduler are highly available processes. Like etcd, they are distributed and have a leader.
10. [Check to make sure the controller manager has a leader.](#)
11. [Check to make sure the scheduler has a leader.](#)

Testing that it Works

Without the [controller manager](#), [controllers](#) won't function and nothing can be deployed to your infrastructure. Without the [scheduler](#), nothing will be deployed as the scheduler must determine where applications are deployed. Without the API, the cluster can't change state. All other processes communicate with the API to determine desired state. You'll know it's working because your cluster is operating as expected.

References

- Kubernetes Components - <https://rancher.com/docs/rancher/v2.x/en/troubleshooting/kubernetes-components/>
- Concepts Underlying the Cloud Controller Manager - <https://kubernetes.io/docs/concepts/architecture/cloud-controller/>
- Troubleshooting Control Plane Nodes - <https://rancher.com/docs/rancher/v2.x/en/troubleshooting/kubernetes-components/controlplane/>
- Troubleshooting Kubernetes Resources - <https://rancher.com/docs/rancher/v2.x/en/troubleshooting/kubernetes-resources>
- Kube-controller-manager - <https://kubernetes.io/docs/reference/command-line-tools-reference/kube-controller-manager/>
- Controllers - <https://kubernetes.io/docs/concepts/architecture/controller/>
- Kubernetes Scheduler - <https://kubernetes.io/docs/concepts/scheduling-eviction/kube-scheduler/>