

Cluster Setup

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Metal LB

This section is to get metallb setup and working for a bare metal setup.

Let create the namespace

```
kubectl create namespace metallb-system  
kubectl label namespace metallb-system pod-security.kubernetes.io/enforce=privileged
```

We will use helm for ease of upgrades and the initial install. First, we need to add the repo.

```
helm repo add metallb https://metallb.github.io/metallb
```

Now, install metallb with helm.

```
helm install metallb metallb/metallb -n metallb-system
```

We need to choose a pool of IP addresses that metal lb can hand out for the type LoadBalancer. In my case, I really just want this for nginx ingress. We need to create the following yaml file to apply to the API.

```
apiVersion: metallb.io/v1beta1  
kind: IPAddressPool  
metadata:  
  name: main-pool  
  namespace: metallb-system  
spec:  
  addresses:  
    - 192.168.249.10-192.168.249.11  
---  
apiVersion: metallb.io/v1beta1  
kind: L2Advertisement  
metadata:  
  name: l2-lb  
  namespace: metallb-system
```

Lets verify everything is up and running.

```
kubectl get pods -n metallb-system
```


nginx Ingress Controller

After installing metallb we can move on to the ingress part of setup. My preferred choice is nginx. We will also get this ready for monitoring with Prometheus.

Create the namespace.

```
kubectl create namespace ingress-nginx  
kubectl label namespace ingress-nginx pod-security.kubernetes.io/enforce=privileged
```

We will use helm to install nginx. This will help with upgrades in the future. Note the extra values for Prometheus.

```
helm upgrade --install ingress-nginx ingress-nginx --repo https://kubernetes.github.io/ingress-nginx --namespace  
ingress-nginx --set controller.metrics.enabled=true --set-string  
controller.podAnnotations."prometheus.io/scrape"="true" --set-string  
controller.podAnnotations."prometheus.io/port"="10254"
```

After a little bit of time, we can check the status of the namespace. The important part to note is the service/ingress-nginx-controller. It should have an External-IP provided by metallb.

```
kubectl get all -n ingress-nginx
```

Example Output:

NAME	READY	STATUS	RESTARTS	AGE
pod/ingress-nginx-controller-8b8b9f598-jqxc	1/1	Running	0	23m

NAME	TYPE	CLUSTER-IP	EXTERNAL-IP	PORT(S)	AGE
service/ingress-nginx-controller	LoadBalancer	10.109.19.205	192.168.249.10	80:32588/TCP,443:30617/TCP	23m
service/ingress-nginx-controller-admission	ClusterIP	10.100.21.15	<none>	443/TCP	23m
service/ingress-nginx-controller-metrics	ClusterIP	10.107.12.193	<none>	10254/TCP	23m
service/prometheus-server	NodePort	10.97.78.93	<none>	9090:32631/TCP	5s

NAME	READY	UP-TO-DATE	AVAILABLE	AGE
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deployment.apps/ingress-nginx-controller	1/1	1	1	23m
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