# Lab 4

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# Getting Started

```
qadeer@QHVictus:~$ curl -L https://istio.io/downloadIstio | sh -
  % Total    % Received % Xferd  Average Speed   Time    Time     Time  Current
                                 Dload  Upload   Total   Spent    Left  Speed
100   101  100   101    0     0    750      0 --:--:-- --:--:-- --:--:--   753
100  5124  100  5124    0     0  21358      0 --:--:-- --:--:-- --:--:-- 21358

Downloading istio-1.26.0 from https://github.com/istio/istio/releases/download/1.26.0/istio-1.26.0-linux-amd64.tar.gz ...

Istio 1.26.0 download complete!

The Istio release archive has been downloaded to the istio-1.26.0 directory.

To configure the istioctl client tool for your workstation,
add the /home/qadeer/istio-1.26.0/bin directory to your environment path variable with:
        export PATH="$PATH:/home/qadeer/istio-1.26.0/bin"

Begin the Istio pre-installation check by running:
        istioctl x precheck

Try Istio in ambient mode
        https://istio.io/latest/docs/ambient/getting-started/
Try Istio in sidecar mode
        https://istio.io/latest/docs/setup/getting-started/
Install guides for ambient mode
        https://istio.io/latest/docs/ambient/install/
Install guides for sidecar mode
        https://istio.io/latest/docs/setup/install/

Need more information? Visit https://istio.io/latest/docs/
```

```
qadeer@QHVictus:~$ cd istio-1.26.0
qadeer@QHVictus:~/istio-1.26.0$ export PATH=$PWD/bin:$PATH
```

# Install Istio

```
qadeer@QHVictus:~/istio-1.26.0$ istioctl install -f samples/bookinfo/demo-profile-no-gateways.yaml -y
```

```
✔Istio core installed ⛵
✔Istiod installed 🧭
✔Installation complete
qadeer@QHVictus:~/istio-1.26.0$ kubectl label namespace default istio-injection=enabled
namespace/default labeled
```

# Install the Kubernetes Gateway API CRDs

```
qadeer@QHVictus:~/istio-1.26.0$ kubectl get crd gateways.gateway.networking.k8s.io &> /dev/null || \
{ kubectl kustomize "github.com/kubernetes-sigs/gateway-api/config/crd?ref=v1.3.0-rc.1" | kubectl apply -f -; }
customresourcedefinition.apiextensions.k8s.io/gatewayclasses.gateway.networking.k8s.io created
customresourcedefinition.apiextensions.k8s.io/gateways.gateway.networking.k8s.io created
customresourcedefinition.apiextensions.k8s.io/grpcroutes.gateway.networking.k8s.io created
customresourcedefinition.apiextensions.k8s.io/httproutes.gateway.networking.k8s.io created
customresourcedefinition.apiextensions.k8s.io/referencegrants.gateway.networking.k8s.io created
```

# Deploy the sample application

```
qadeer@QHVictus:~/istio-1.26.0$ kubectl apply -f samples/bookinfo/platform/kube/bookinfo.yaml
service/details created
serviceaccount/bookinfo-details created
deployment.apps/details-v1 created
service/ratings created
serviceaccount/bookinfo-ratings created
deployment.apps/ratings-v1 created
service/reviews created
serviceaccount/bookinfo-reviews created
deployment.apps/reviews-v1 created
deployment.apps/reviews-v2 created
deployment.apps/reviews-v3 created
service/productpage created
serviceaccount/bookinfo-productpage created
deployment.apps/productpage-v1 created
qadeer@QHVictus:~/istio-1.26.0$ kubectl get services
NAME          TYPE        CLUSTER-IP       EXTERNAL-IP   PORT(S)    AGE
details       ClusterIP   10.105.153.135   <none>        9080/TCP   5s
kubernetes    ClusterIP   10.96.0.1        <none>        443/TCP    3m38s
productpage   ClusterIP   10.109.199.193   <none>        9080/TCP   5s
ratings       ClusterIP   10.103.226.47    <none>        9080/TCP   5s
reviews       ClusterIP   10.98.45.201     <none>        9080/TCP   5s
qadeer@QHVictus:~/istio-1.26.0$ kubectl get pods
NAME                             READY   STATUS    RESTARTS   AGE
details-v1-766844796b-2fvqm      0/2     Init:0/1  0          8s
productpage-v1-54bb874995-fp6dw  0/2     Init:0/1  0          8s
ratings-v1-5dc79b6bcd-4cwms      0/2     Init:0/1  0          8s
reviews-v1-598b896c9d-pwb5h      0/2     Init:0/1  0          8s
reviews-v2-556d6457d-dsnc9       0/2     Init:0/1  0          8s
reviews-v3-564544b4d6-mvckt      0/2     Init:0/1  0          8s
```

```
qadeer@QHVictus:~/istio-1.26.0$ kubectl exec "$(kubectl get pod -l app=ratings -o jsonpath='{.items[0].metadata.name}')" -c ratings -- curl -sS productpage:9080/productpage | grep -o "<title>.*</title>"
<title>Simple Bookstore App</title>
```

# Open the application to outside traffic

```
qadeer@QHVictus:~/istio-1.26.0$ kubectl apply -f samples/bookinfo/gateway-api/bookinfo-gateway.yaml
gateway.gateway.networking.k8s.io/bookinfo-gateway created
httproute.gateway.networking.k8s.io/bookinfo created
qadeer@QHVictus:~/istio-1.26.0$ kubectl annotate gateway bookinfo-gateway networking.istio.io/service-type=ClusterIP --namespace=default
gateway.gateway.networking.k8s.io/bookinfo-gateway annotated
qadeer@QHVictus:~/istio-1.26.0$ kubectl get gateway
NAME              CLASS   ADDRESS                                          PROGRAMMED   AGE
bookinfo-gateway  istio   bookinfo-gateway-istio.default.svc.cluster.local   True         7s
```

# Access the application

```
qadeer@QHVictus:~/istio-1.26.0$ kubectl port-forward svc/bookinfo-gateway-istio 8080:80
Forwarding from 127.0.0.1:8080 -> 80
Forwarding from [::1]:8080 -> 80
```

# View the dashboard

```
qadeer@QHVictus:~/istio-1.26.0$ kubectl apply -f samples/addons
kubectl rollout status deployment/kiali -n istio-system
serviceaccount/grafana created
configmap/grafana created
service/grafana created
deployment.apps/grafana created
configmap/istio-grafana-dashboards created
configmap/istio-services-grafana-dashboards created
deployment.apps/jaeger created
service/tracing created
service/zipkin created
service/jaeger-collector created
serviceaccount/kiali created
configmap/kiali created
clusterrole.rbac.authorization.k8s.io/kiali created
clusterrolebinding.rbac.authorization.k8s.io/kiali created
service/kiali created
deployment.apps/kiali created
serviceaccount/loki created
configmap/loki created
configmap/loki-runtime created
clusterrole.rbac.authorization.k8s.io/loki-clusterrole created
clusterrolebinding.rbac.authorization.k8s.io/loki-clusterrolebinding created
service/loki-memberlist created
service/loki-headless created
service/loki created
statefulset.apps/loki created
serviceaccount/prometheus created
configmap/prometheus created
clusterrole.rbac.authorization.k8s.io/prometheus created
clusterrolebinding.rbac.authorization.k8s.io/prometheus created
service/prometheus created
deployment.apps/prometheus created
Waiting for deployment "kiali" rollout to finish: 0 of 1 updated replicas are available...
deployment "kiali" successfully rolled out
qadeer@QHVictus:~/istio-1.26.0$ istioctl dashboard kiali
http://localhost:20001/kiali
```