

Lab 4 Cloud Data Centres – Istio

Istio Download:

I downloaded Istio by using the following command in the terminal:

```
aaron@Aarons-MacBook-Air ~ % curl -L https://istio.io/downloadIstio | sh -

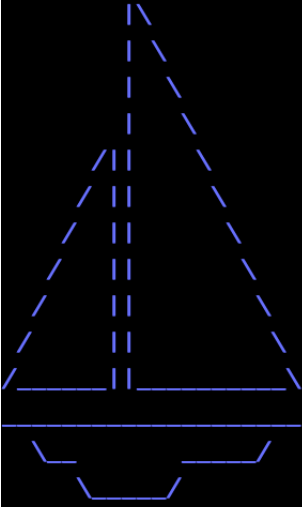
% Total    % Received % Xferd  Average Speed   Time    Time     Time  Current
           Dload  Upload   Total     Spent    Left     Speed
100  101    100    101     0     0    391      0  --:--:-- --:--:-- --:--:--    392
100  5124    100  5124     0     0  11532      0  --:--:-- --:--:-- --:--:--     0

Downloading istio-1.25.0 from https://github.com/istio/istio/releases/download/1.25.0/istio-1.25.0-osx-arm64.tar.gz ...

Istio 1.25.0 download complete!
```

I then installed the demo profile as can be seen in the screenshot below:

```
aaron@Aarons-MacBook-Air istio-1.25.0 % istioctl install -f samples/bookinfo/demo-profile-no-gateways.yaml -y
```



```

✓ Istio core installed 🚢
✓ Istiod installed 🧠
✓ Installation complete
```

Then I gave it a namespace label so I can inject envoy sidecar proxies later:

```
aaron@Aarons-MacBook-Air istio-1.25.0 % kubectl label namespace default istio-injection=enabled
namespace/default labeled
```

Installing Kubernetes Gateway

Here I am installing the gateway API CRD's through terminal:

```
aaron@Aarons-MacBook-Air istio-1.25.0 % kubectl get crd gateways.gateway.networking.k8s.io &> /dev/null || \
{ kubectl kustomize "github.com/kubernetes-sigs/gateway-api/config/crd?ref=v1.2.1" | 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
```

Deploying the sample app

Here I'm deploying the book info sample app

```
aaron@Aarons-MacBook-Air istio-1.25.0 % 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
```

Here I am just ensuring all the pods ran correctly:

```
aaron@Aarons-MacBook-Air istio-1.25.0 % kubectl get services
NAME                TYPE          CLUSTER-IP      EXTERNAL-IP      PORT(S)          AGE
details             ClusterIP     10.104.209.253  <none>           9080/TCP         2m2
1s
hello-node          LoadBalancer 10.107.47.31    <pending>        8080:30181/TCP   5d
kubernetes           ClusterIP     10.96.0.1       <none>           443/TCP          5d
productpage         ClusterIP     10.102.18.103   <none>           9080/TCP         2m2
1s
ratings             ClusterIP     10.96.193.84    <none>           9080/TCP         2m2
1s
reviews             ClusterIP     10.111.64.78    <none>           9080/TCP         2m2
1s
aaron@Aarons-MacBook-Air istio-1.25.0 % kubectl get pods

NAME                                READY   STATUS             RESTARTS   AGE
details-v1-54ffdd5947-6shdz         2/2     Running            0          2m37s
productpage-v1-d49bb79b4-c8mxl      0/2     PodInitializing    0          2m36s
ratings-v1-856f65bcff-tsfhr        2/2     Running            0          2m37s
reviews-v1-848b8749df-6rsj6         0/2     PodInitializing    0          2m37s
reviews-v2-5fdf9886c7-798kz        2/2     Running            0          2m37s
reviews-v3-bb6b8ddc7-dsmpw         2/2     Running            0          2m37s
aaron@Aarons-MacBook-Air istio-1.25.0 %
```

Here I'm ensuring that the app is running:

```
aaron@Aarons-MacBook-Air istio-1.25.0 % 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>
```

Opening the app to outside traffic

Here I'm creating a Kubernetes gateway for the app

```
aaron@Aarons-MacBook-Air istio-1.25.0 % 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
```

Here I'm changing the service type to ClusterIP

```
aaron@Aarons-MacBook-Air istio-1.25.0 % kubectl annotate gateway bookinfo-gateway networking.istio.io/service-type=ClusterIP --namespace=default

gateway.gateway.networking.k8s.io/bookinfo-gateway annotated
```

This is the gateway running correctly

```
aaron@Aarons-MacBook-Air istio-1.25.0 % kubectl get gateway
```

NAME	CLASS	ADDRESS	PR
bookinfo-gateway	istio	bookinfo-gateway-istio.default.svc.cluster.local	True

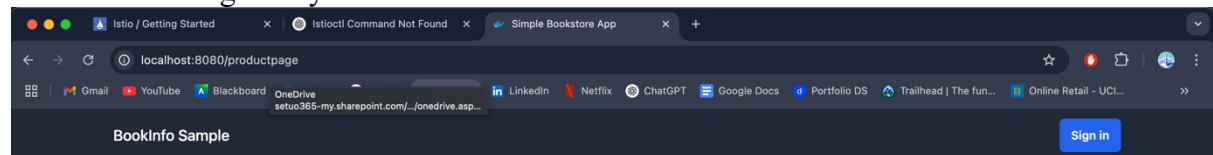
Access the application

Here I am loading the app onto port 8080

```
aaron@Aarons-MacBook-Air istio-1.25.0 % kubectl port-forward svc/bookinfo-gateway-istio 8080:80
```

Forwarding from 127.0.0.1:8080 -> 80
Forwarding from [::1]:8080 -> 80
Handling connection for 8080
Handling connection for 8080

Here it is running on my browser



The Comedy of Errors

Wikipedia Summary: The Comedy of Errors is one of **William Shakespeare's** early plays. It is his shortest and one of his most farcical comedies, with a major part of the humour coming from slapstick and mistaken identity, in addition to puns and word play.

[Learn more about Istio →](#)

Book Details

ISBN-10	Publisher	Pages	Type	Language
1234567890	PublisherA	200	paperback	English

Book Reviews

★★★★★

★★★★☆

View the dashboard

Here I am installing Kiali

```
aaron@Aarons-MacBook-Air istio-1.25.0 % 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...
```

Then I loaded the dashboard

```
aaron@Aarons-MacBook-Air istio-1.25.0 % istioctl dashboard kiali

http://localhost:20001/kiali
```

Here it is on the browser:

