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## Lab 5

### Download and install istio

```
Administrator: Command Prompt
Microsoft Windows [Version 10.0.22000.2538]
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C:\WINDOWS\system32>curl -L https://istio.io/downloadIstio | sh -
'sh' is not recognized as an internal or external command,
operable program or batch file.

C:\WINDOWS\system32>curl -L https://istio.io/downloadIstio | tar xz
  % Total    % Received % Xferd  Average Speed   Time    Time     Time  Current
                                 Dload  Upload   Total   Spent    Left   Speed
  0     0     0     0     0     0      0      0  --:--:-- --:--:-- --:--:--    0tar: Error opening archive: Failed to open '\\.\tape0'
100  101  100  101     0     0    292      0  --:--:-- --:--:-- --:--:--   294
100 4899  100 4899     0     0   8812      0  --:--:-- --:--:-- --:--:--   8812
curl: (23) Failure writing output to destination

C:\WINDOWS\system32>cd C:\istio-1.22.0\bin

C:\istio-1.22.0\bin>. \istioctl version
no ready Istio pods in "istio-system"
1.22.0

C:\istio-1.22.0\bin>
C:\istio-1.22.0\bin>istioctl install --set profile=demo -y
✓Istio core installed
✓Istiod installed
✓Egress gateways installed
✓Ingress gateways installed
✓Installation complete
Make this installation the default for injection and validation.

C:\istio-1.22.0\bin>kubectl label namespace default istio-injection=enabled
namespace/default labeled

C:\istio-1.22.0\bin>
```

Ran the following command to install Istio using the demo profile

Labeled the default namespace to enable automatic Envoy sidecar injection

## Deploy the sample application

```
Administrator: Command Prompt
27/05/2024 21:40 1,026 productpage-nodeport.yaml
27/05/2024 21:39 137 README.md
22 File(s) 51,020 bytes
2 Dir(s) 41,374,969,856 bytes free

C:\istio-1.22.0\samples\bookinfo\platform\kubernetes>cd C:\istio-1.22.0\samples\bookinfo\platform\kubernetes
C:\istio-1.22.0\samples\bookinfo\platform\kubernetes>kubectl apply -f 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

C:\istio-1.22.0\samples\bookinfo\platform\kubernetes>kubectl get services
NAME      TYPE      CLUSTER-IP    EXTERNAL-IP    PORT(S)      AGE
details   ClusterIP  10.109.238.136 <none>          9080/TCP      16s
kubernetes ClusterIP  10.96.0.1      <none>          443/TCP       5h34m
kubernetes-bootstrap NodePort    10.96.226.182 <none>          8080:31537/TCP 4h52m
productpage ClusterIP  10.98.167.148 <none>          9080/TCP      15s
ratings   ClusterIP  10.98.170.65   <none>          9080/TCP      16s
reviews   ClusterIP  10.104.146.121 <none>          9080/TCP      16s

C:\istio-1.22.0\samples\bookinfo\platform\kubernetes>kubectl get pods
NAME                                READY   STATUS    RESTARTS   AGE
details-v1-64bcb758dc-8g6qc         0/2     PodInitializing 0          18s
kubernetes-bootstrap-978dd9cbc-h28hp 1/1     Running        0          4h53m
productpage-v1-787b7cdd-89t7x       0/2     PodInitializing 0          17s
ratings-v1-86bdf4c6c-686bz         0/2     PodInitializing 0          18s
reviews-v1-867dd8b5b9-ssbc7        0/2     PodInitializing 0          17s
reviews-v2-b4c897c97-m6xm2         0/2     PodInitializing 0          17s
reviews-v3-76f7b975d5-nj76z        0/2     PodInitializing 0          17s

C:\istio-1.22.0\samples\bookinfo\platform\kubernetes>kubectl apply -f bookinfo-gateway.yaml
error: the path "bookinfo-gateway.yaml" does not exist

C:\istio-1.22.0\samples\bookinfo\platform\kubernetes>kubectl apply -f bookinfo-gateway.yaml
gateway.networking.istio.io/bookinfo-gateway created
virtualservice.networking.istio.io/bookinfo created
```

Deployed the Bookinfo sample application

Checked the services and pods to ensure they are running

Associated the application with the Istio Ingress Gateway

```
Administrator: Command Prompt - kubectl delete pod -l app=details
C:\istio-1.22.0\samples\bookinfo\platform\kubernetes>istioctl analyze
Error [IST0101] (VirtualService default/bookinfo) Referenced host+subset in destinationrule not found: "reviews+v2"
Error [IST0101] (VirtualService default/bookinfo) Referenced host+subset in destinationrule not found: "reviews+v3"
Warning [IST0103] (Pod default/kubernetes-bootstrap-978dd9cbc-h28hp) The pod default/kubernetes-bootstrap-978dd9cbc-h28hp is missing the Istio proxy. This can often be resolved by restarting or redeploying the workload.
Warning [IST0162] (Gateway default/bookinfo-gateway) The gateway is listening on a target port (port 80) that is not defined in the Service associated with its workload instances (Pod selector istio-ingressgateway). If you need to access the gateway port through the gateway Service, it will not be available.
Info [IST0118] (Service default/kubernetes-bootstrap) Port name (port: 8080, targetPort: 8080) doesn't follow the naming convention of Istio port.
Error: Analyzers found issues when analyzing namespace: default.
See https://istio.io/v1.22/docs/reference/config/analysis for more information about causes and resolutions.

C:\istio-1.22.0\samples\bookinfo\platform\kubernetes>
C:\istio-1.22.0\samples\bookinfo\platform\kubernetes>kubectl apply -f samples\bookinfo\networking\destination-rule-all.yaml
error: the path "samples\bookinfo\networking\destination-rule-all.yaml" does not exist

C:\istio-1.22.0\samples\bookinfo\platform\kubernetes>cd C:\istio-1.22.0\samples\bookinfo\networking
C:\istio-1.22.0\samples\bookinfo\networking>kubectl apply -f destination-rule-all.yaml
destinationrule.networking.istio.io/productpage created
destinationrule.networking.istio.io/reviews created
destinationrule.networking.istio.io/ratings created
destinationrule.networking.istio.io/details created

C:\istio-1.22.0\samples\bookinfo\networking>istioctl analyze
Warning [IST0103] (Pod default/kubernetes-bootstrap-978dd9cbc-h28hp) The pod default/kubernetes-bootstrap-978dd9cbc-h28hp is missing the Istio proxy. This can often be resolved by restarting or redeploying the workload.
Warning [IST0162] (Gateway default/bookinfo-gateway) The gateway is listening on a target port (port 80) that is not defined in the Service associated with its workload instances (Pod selector istio-ingressgateway). If you need to access the gateway port through the gateway Service, it will not be available.
Info [IST0118] (Service default/kubernetes-bootstrap) Port name (port: 8080, targetPort: 8080) doesn't follow the naming convention of Istio port.

C:\istio-1.22.0\samples\bookinfo\networking>kubectl delete pod kubernetes-bootstrap-978dd9cbc-h28hp
pod "kubernetes-bootstrap-978dd9cbc-h28hp" deleted

C:\istio-1.22.0\samples\bookinfo\networking>kubectl label namespace default istio-injection-enabled --overwrite
namespace/default not labeled

C:\istio-1.22.0\samples\bookinfo\networking>kubectl get namespace -l istio-injection
NAME      STATUS   AGE    ISTIO-INJECTION
default   Active   5h47m  enabled
istio-system Active   24m
kube-node-lease Active   5h47m
kube-public Active   5h47m
kube-system Active   5h47m

C:\istio-1.22.0\samples\bookinfo\networking>kubectl delete pod -l app=productpage
pod "productpage-v1-787b7cdd-89t7x" deleted

C:\istio-1.22.0\samples\bookinfo\networking>kubectl delete pod -l app=details
```

Checking and resolving configuration issues

```
Administrator: Command Prompt - minikube tunnel

C:\istio-1.22.0\samples\bookinfo\networking>kubectl apply -f C:\istio-1.22.0\samples\bookinfo\platform\kube\bookinfo.yaml
service/details unchanged
serviceaccount/bookinfo-details unchanged
deployment.apps/details-v1 unchanged
service/ratings unchanged
serviceaccount/bookinfo-ratings unchanged
deployment.apps/ratings-v1 unchanged
service/reviews unchanged
serviceaccount/bookinfo-reviews unchanged
deployment.apps/reviews-v1 unchanged
deployment.apps/reviews-v2 unchanged
deployment.apps/reviews-v3 unchanged
service/productpage unchanged
serviceaccount/bookinfo-productpage unchanged
deployment.apps/productpage-v1 unchanged

C:\istio-1.22.0\samples\bookinfo\networking>kubectl apply -f C:\istio-1.22.0\samples\bookinfo\networking\bookinfo-gateway.yaml
gateway.networking.istio.io/bookinfo-gateway configured
virtualservice.networking.istio.io/bookinfo configured

C:\istio-1.22.0\samples\bookinfo\networking>kubectl apply -f C:\istio-1.22.0\samples\bookinfo\networking\destination-rule-all.yaml
destinationrule.networking.istio.io/productpage unchanged
destinationrule.networking.istio.io/reviews unchanged
destinationrule.networking.istio.io/ratings unchanged
destinationrule.networking.istio.io/details unchanged

C:\istio-1.22.0\samples\bookinfo\networking>kubectl get pods
NAME                                READY   STATUS    RESTARTS   AGE
details-v1-64bcb758dc-qndwk         2/2     Running   0           5m25s
kubernetes-bootcamp-978dd9c8c-8krf8 2/2     Running   0           9m53s
productpage-v1-78787b7cdd-j2sg4     2/2     Running   0           5m32s
ratings-v1-86bdf4c6c-d5m9r          2/2     Running   0           4m38s
reviews-v1-867dd8b5b9-p6tf5         2/2     Running   0           5m16s
reviews-v2-b4c897c97-829r7          2/2     Running   0           5m16s
reviews-v3-767b975d5-scscs          2/2     Running   0           5m15s

C:\istio-1.22.0\samples\bookinfo\networking>istioctl analyze
Info [IST0118] (Service default/kubernetes-bootcamp) Port name (port: 8080, targetPort: 8080) doesn't follow the naming convention of Istio port.
```

Reapplied the Bookinfo Application

Applied Gateway Configuration and Destination Rule

Verified pods

## Open the sample application

```
Select Administrator: Windows PowerShell

>>
X Exiting due to SVC_NOT_FOUND: Service 'istio-ingressgateway' was not found in 'istio-system' namespace.
You may select another namespace by using 'minikube service istio-ingressgateway -n <namespace>', Or list out all the services using 'minikube service list'

PS C:\WINDOWS\system32> istioctl install --set profile=demo -y
>>
Istio core installed
Istiod installed
Ingress gateways installed
Egress gateways installed
Installation complete

ade this installation the default for injection and validation.
PS C:\WINDOWS\system32> kubectl get pods -n istio-system
>>
NAME                                READY   STATUS    RESTARTS   AGE
istio-egressgateway-6d69ddff5-hvx2m 1/1     Running   0           92s
istio-ingressgateway-749fbd8f49-wn84p 1/1     Running   0           92s
istiod-7797d66567-qmvz2              1/1     Running   0           2m8s
PS C:\WINDOWS\system32> kubectl apply -f C:\istio-1.22.0\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
PS C:\WINDOWS\system32> kubectl apply -f C:\istio-1.22.0\samples\bookinfo\networking\bookinfo-gateway.yaml
>>
gateway.networking.istio.io/bookinfo-gateway created
virtualservice.networking.istio.io/bookinfo created
PS C:\WINDOWS\system32> kubectl apply -f C:\istio-1.22.0\samples\bookinfo\networking\destination-rule-all.yaml
>>
destinationrule.networking.istio.io/productpage created
destinationrule.networking.istio.io/reviews created
destinationrule.networking.istio.io/ratings created
destinationrule.networking.istio.io/details created
PS C:\WINDOWS\system32> kubectl get svc -n istio-system
>>
NAME                                TYPE           CLUSTER-IP      EXTERNAL-IP      PORT(S)                                     AGE
istio-egressgateway                 ClusterIP      10.104.95.159    <none>            80/TCP,443/TCP                             3m
istio-ingressgateway                 LoadBalancer  10.109.129.251   <pending>         15021:31730/TCP,80:30762/TCP,443:30777/TCP,31400:32426/TCP,15443:31394/TCP 3m
istiod                              ClusterIP      10.99.169.240    <none>            15010/TCP,15012/TCP,443/TCP,15014/TCP       3m37s
PS C:\WINDOWS\system32>
```

```
Administrator: Windows PowerShell
Windows PowerShell
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Install the latest PowerShell for new features and improvements! https://aka.ms/PSWindows

PS C:\WINDOWS\system32> minikube tunnel
>
! Executing "docker container inspect minikube --format={{.State.Status}}" took an unusually long time: 2.6173896s
* Restarting the docker service may improve performance.
* Tunnel successfully started

* NOTE: Please do not close this terminal as this process must stay alive for the tunnel to be accessible ...

! Access to ports below 1024 may fail on Windows with OpenSSH clients older than v0.1. For more information, see: https://minikube.sigs.k8s.io/docs/handbook/accessing/#access-to-ports-1024-on-windows-requires-root-permission
* Starting tunnel for service istio-ingressgateway.
docker@127.0.0.1's password:
docker@127.0.0.1's password:
docker@127.0.0.1's password:
* Stopped tunnel for service istio-ingressgateway.
PS C:\WINDOWS\system32> minikube tunnel
>
! Executing "docker container inspect minikube --format={{.State.Status}}" took an unusually long time: 2.7076374s
* Restarting the docker service may improve performance.
* Tunnel successfully started

* NOTE: Please do not close this terminal as this process must stay alive for the tunnel to be accessible ...

! Access to ports below 1024 may fail on Windows with OpenSSH clients older than v0.1. For more information, see: https://minikube.sigs.k8s.io/docs/handbook/accessing/#access-to-ports-1024-on-windows-requires-root-permission
* Starting tunnel for service istio-ingressgateway.
docker@127.0.0.1's password:
docker@127.0.0.1's password:
docker@127.0.0.1's password:
* Stopped tunnel for service istio-ingressgateway.
PS C:\WINDOWS\system32> minikube service istio-ingressgateway -n istio-system --url
>
! Executing "docker container inspect minikube --format={{.State.Status}}" took an unusually long time: 2.5442876s
* Restarting the docker service may improve performance.
docker@127.0.0.1's password: http://127.0.0.1:60909
http://127.0.0.1:60910
http://127.0.0.1:60911
http://127.0.0.1:60912
http://127.0.0.1:60913
! Because you are using a Docker driver on windows, the terminal needs to be open to run it.
PS C:\WINDOWS\system32>
PS C:\WINDOWS\system32> Restart-Service docker
```

```
C:\WINDOWS\system32>FOR /F "tokens=1,2 delims=" %i IN ('minikube service istio-ingressgateway -n istio-system --url') DO set INGRESS_HOST=%i
docker@127.0.0.1's password: ! Because you are using a Docker driver on windows, the terminal needs to be open to run it.

C:\WINDOWS\system32>echo "http://$GATEWAY_URL/productpage"
"http://$GATEWAY_URL/productpage"

C:\WINDOWS\system32>echo http://%GATEWAY_URL%/productpage
http://127.0.0.1:60719/productpage

C:\WINDOWS\system32>
```

## View the dashboard



### This site can't be reached

127.0.0.1 refused to connect.

Try:

- Checking the connection
- [Checking the proxy and the firewall](#)

ERR\_CONNECTION\_REFUSED

Reload

Details

I tried all the steps but the configuration on my laptop is not letting me access the page but I followed all the steps leading up to this.

## Summary

### **Minikube Cluster Setup**

Successfully deleted the existing Minikube cluster.

Recreated the Minikube cluster using the Docker driver.

### **Istio Installation:**

Reinstalled Istio using the demo profile.

Verified that Istio components are running in the istio-system namespace.

### **Bookinfo Application Deployment:**

Deployed the Bookinfo sample application in the default namespace.

Applied the Bookinfo gateway configuration.

Applied the necessary destination rules for the Bookinfo application.

### **Ingress Gateway Configuration:**

Verified the Istio Ingress Gateway service is available in the istio-system namespace.

Set up Minikube tunnel to expose the Istio Ingress Gateway service.

### **Access to Bookinfo Application:**

Retrieved the Ingress Host and Port for accessing the Istio Ingress Gateway.

### **Generated Traffic for Metrics:**

Sent multiple requests to the Bookinfo application to generate traffic for metrics collection.