

# Istio Ingress 部署

---

AUTHOR: 彭玲 TIME: 2022/6/16

---

## Istio Ingress 部署

[Istio 发行版](#)

[Istio 下载](#)

[Istio 安装](#)

[Deployment 资源](#)

[Service 资源](#)

[应用示例](#)

[部署](#)

[访问](#)

[使用 Istio Gateway 配置 Ingress](#)

[1. 创建 Istio Gateway](#)

[2. 配置路由](#)

[访问](#)

---

## Istio 发行版

---

Istio 发行版与 [K8s 版本支持](#) 情况如下:

Version	Currently Supported	Release Date	End of Life	Supported Kubernetes Versions	Tested, but not supported
master	No, development only				
1.14	Yes	May 24, 2022	~January 2023 (Expected)	1.21, 1.22, 1.23, 1.24	1.16, 1.17, 1.18, 1.19, 1.20
1.13	Yes	February 11, 2022	~October 2022 (Expected)	1.20, 1.21, 1.22, 1.23	1.16, 1.17, 1.18, 1.19
1.12	Yes	November 18, 2021	~June 2022 (Expected)	1.19, 1.20, 1.21, 1.22	1.16, 1.17, 1.18
1.11	Yes	August 12, 2021	Mar 25, 2022	1.18, 1.19, 1.20, 1.21, 1.22	1.16, 1.17
1.10	No	May 18, 2021	Jan 7, 2022	1.18, 1.19, 1.20, 1.21	1.16, 1.17, 1.22
1.9	No	February 9, 2021	Oct 8, 2021	1.17, 1.18, 1.19, 1.20	1.15, 1.16
1.8	No	November 10, 2020	May 12, 2021	1.16, 1.17, 1.18, 1.19	1.15
1.7	No	August 21, 2020	Feb 25, 2021	1.16, 1.17, 1.18	1.15
1.6 and earlier	No				

## Istio 下载

目前，商用环境下 K8s 版本为 1.18，为此，我们选择 Istio v1.11 下载 [istio-1.11.8-linux-amd64.tar.gz](https://github.com/istio/istio/releases/download/1.11.8/istio-1.11.8-linux-amd64.tar.gz) 并解压。

```

1 fastest@fastest:~/istio$ ll
2 total 23500
3 drwxrwxr-x  3 fastest fastest  4096 Jun 13 15:36 ./
4 drwxr-xr-x  57 fastest fastest  4096 Jun 15 02:45 ../
5 drwxr-x---  7 fastest fastest  4096 Jun 14 10:16 istio-1.11.8/
6 -rw-r--r--  1 fastest fastest 24046945 Jun 13 15:28 istio-1.11.8-linux-amd64.tar.gz

```

## Istio 安装

进入 Istio 安装目录，该目录下：

- `bin/` 中包含 `istioctl` 客户端程序
- `samples/` 中包含示例应用，比如 `bookinfo/` 和 `httpbin/` 等。

```
1 fastest@fastest:~/istio$ cd istio-1.11.8/
2 # 设置 istioctl 环境变量
3 fastest@fastest:~/istio/istio-1.11.8$ export PATH=$PWD/bin:$PATH
```

使用 `istioctl` 安装 Istio：

```
1 fastest@fastest:~$ istioctl install --set profile=demo -y
2 ✓ Istio core installed
3 ✓ Istiod installed
4 ✓ Egress gateways installed
5 ✓ Ingress gateways installed
6 ✓ Installation complete
7 Thank you for installing Istio 1.11. Please take a few minutes to tell us about your
  install/upgrade experience! https://forms.gle/kwULBRjUv7hHci7T6
```

添加一个 namespace 标签，来指示 Istio 在你以后部署你的应用时自动注入 Envoy sidecar 代理：

```
1 $ kubectl label namespace default istio-injection=enabled
2 namespace/default labeled
```

## Deployment 资源

```
1 fastest@fastest:~$ kubectl get deploy -n istio-system
2 NAME                                READY    UP-TO-DATE    AVAILABLE    AGE
3 istio-egressgateway                 1/1      1              1            2d17h
4 istio-ingressgateway                1/1      1              1            42h
5 istiod                               1/1      1              1            2d17h
```

`istio-ingressgateway` 相关端口：

```
1 fastest@fastest:~$ kubectl edit deploy istio-ingressgateway -n istio-system
2 ...
3     ports:
4     - containerPort: 15021
5       hostPort: 15021
6       protocol: TCP
7     - containerPort: 8080
8       hostPort: 80
9       protocol: TCP
10    - containerPort: 8443
11      hostPort: 8443
12      protocol: TCP
13    - containerPort: 31400
14      hostPort: 31400
15      protocol: TCP
```

```

16     - containerPort: 15443
17       hostPort: 15443
18       protocol: TCP
19     - containerPort: 15090
20       hostPort: 15090
21       name: http-envoy-prom
22       protocol: TCP
23   ...
24   nodeSelector:
25     kubernetes.io/hostname: test-n7 # test-n7 对应 ip 为 10.8.30.109
26   ...

```

## Service 资源

```

1 fastest@fastest:~$ kubectl get svc -n istio-system
2 NAME                                TYPE                CLUSTER-IP          EXTERNAL-IP          PORT(S)
3 istio-egressgateway                 ClusterIP           10.101.220.193     <none>                80/TCP,443/TCP
4 istio-ingressgateway                 NodePort            10.97.62.184       <none>                15021:30390/TCP,80:32506/TCP,443:30681/TCP,31400:32027/TCP,15443:31796/TCP
5 istiod                               ClusterIP           10.97.112.62       <none>                15010/TCP,15012/TCP,443/TCP,15014/TCP

```

其中, `istio-ingressgateway` 服务在 Istio 安装后默认为 `LoadBalancer` 类型, 修改为 `NodePort` 类型:

```

1 fastest@fastest:~$ kubectl edit svc istio-ingressgateway -n istio-system
2
3 ...
4 spec:
5   type: NodePort
6 ...

```

## 应用示例

### 部署

httpbin 应用示例:

```

1 fastest@fastest:~/istio/istio-1.11.8/samples/httpbin$ vi httpbin-nodeport.yaml
2
3 # Copyright Istio Authors
4 #
5 # Licensed under the Apache License, Version 2.0 (the "License");
6 # you may not use this file except in compliance with the License.
7 # You may obtain a copy of the License at
8 #
9 # http://www.apache.org/licenses/LICENSE-2.0

```

```
10 #
11 # Unless required by applicable law or agreed to in writing, software
12 # distributed under the License is distributed on an "AS IS" BASIS,
13 # WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
14 # See the License for the specific language governing permissions and
15 # limitations under the License.
16
17 #####
18 # httpbin service
19 #####
20 apiVersion: v1
21 kind: Service
22 # Copyright Istio Authors
23 #
24 # Licensed under the Apache License, Version 2.0 (the "License");
25 # you may not use this file except in compliance with the License.
26 # You may obtain a copy of the License at
27 #
28 # http://www.apache.org/licenses/LICENSE-2.0
29 #
30 # Unless required by applicable law or agreed to in writing, software
31 # distributed under the License is distributed on an "AS IS" BASIS,
32 # WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
33 # See the License for the specific language governing permissions and
34 # limitations under the License.
35
36 #####
37 # httpbin service
38 #####
39 apiVersion: v1
40 kind: Service
41 metadata:
42   name: httpbin
43   labels:
44     app: httpbin
45     service: httpbin
46 spec:
47   type: NodePort
48   ports:
49   - name: http
50     port: 8000
51     targetPort: 80
52   selector:
53     app: httpbin
54 ---
55 apiVersion: apps/v1
56 kind: Deployment
57 metadata:
58   name: httpbin
```

```
59 spec:
60   replicas: 1
61   selector:
62     matchLabels:
63       app: httpbin
64       version: v1
65   template:
66     metadata:
67       labels:
68         app: httpbin
69         version: v1
70     spec:
71       containers:
72         - image: docker.io/kennethreitz/httpbin
73           imagePullPolicy: IfNotPresent
74           name: httpbin
75           ports:
76             - containerPort: 80
```

部署 httpbin 应用示例:

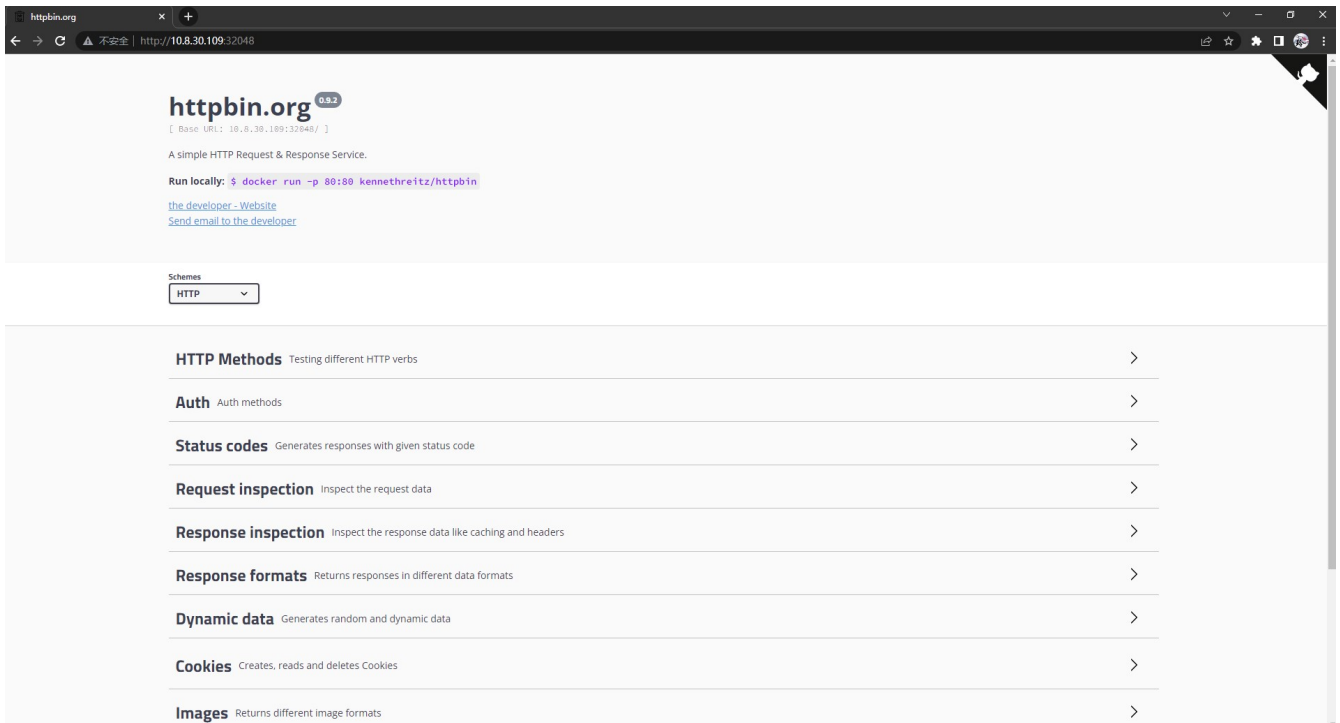
```
1 fastest@fastest:~/istio/istio-1.11.8/samples/httpbin$ kubectl apply -f httpbin-
nodeport.yaml
```

查看 httpbin 服务:

```
1 fastest@fastest:~$ kubectl get svc httpbin
2 NAME      TYPE        CLUSTER-IP    EXTERNAL-IP    PORT(S)          AGE
3 httpbin   NodePort    10.104.239.58 <none>         8000:32048/TCP  2d16h
```

## 访问

浏览器地址输入 <http://10.8.30.109:32048/> 访问 httpbin 应用示例:



## 使用 Istio Gateway 配置 Ingress

### 1. 创建 Istio Gateway

在 8080 端口为 HTTP 流量配置一个 Gateway:

```
1 fastest@fastest:~/istio/istio-1.11.8$ vi httpbin-gateway.yaml
2
3 apiVersion: networking.istio.io/v1alpha3
4 kind: Gateway
5 metadata:
6   name: httpbin-gateway
7 spec:
8   selector:
9     istio: ingressgateway # use Istio default gateway implementation
10  servers:
11    - port:
12        number: 8080
13        name: http
14        protocol: HTTP
15      hosts:
16        - "httpbin.example.com"
```

创建 Istio Gateway:

```
1 $ kubectl apply -f httpbin-gateway.yaml
```

### 2. 配置路由

为通过 Gateway 的入口流量配置路由：

```
1 fastest@fastest:~/istio/istio-1.11.8$ vi httpbin-service.yaml
2
3 apiVersion: networking.istio.io/v1alpha3
4 kind: VirtualService
5 metadata:
6   name: httpbin
7 spec:
8   hosts:
9     - "httpbin.example.com"
10  gateways:
11    - httpbin-gateway
12  http:
13    - match:
14      - uri:
15          prefix: /
16      route:
17        - destination:
18            port:
19              number: 8000
20            host: httpbin
```

应用：

```
1 | $ kubectl apply -f httpbin-service.yaml
```

## 访问

本地 hosts 配置：

```
1 | 10.8.30.109 httpbin.example.com
```

浏览器地址输入 <http://httpbin.example.com/> 访问 httpbin 应用示例：



# httpbin.org <sup>0.9.2</sup>

[ Base URL: httpbin.example.com/ ]

A simple HTTP Request & Response Service.

Run locally: `$ docker run -p 80:80 kennethreitz/httpbin`

[the developer Website](#)  
[Send email to the developer](#)

Schemes

- HTTP Methods** Testing different HTTP verbs >
- Auth** Auth methods >
- Status codes** Generates responses with given status code >
- Request inspection** Inspect the request data >
- Response inspection** Inspect the response data like caching and headers >
- Response formats** Returns responses in different data formats >
- Dynamic data** Generates random and dynamic data >
- Cookies** Creates, reads and deletes Cookies >
- Images** Returns different image formats >