Anthos Service Mesh currently provides support for the following Istio service mesh features.
Only features explicitly listed here have full Anthos Service Mesh support.

- **Default+Supported**: `istioctl` install

- Certificate distribution/rotation mechanisms:

    - **Default+Supported**: For GKE, certificate provisioning via Envoy SDS; for GKE-on-prem, certificate provisioning via secret volume mount.

- Certificate Authority (CA) support:

    - **Default+Supported**: Citadel CA

    - **Optional+Supported**: The ability to add additional root CA certs to the CA bundle

- Authentication Policy:

    - **Supported**: mesh-level and namespace-level policy.

    - Transport Security:

        - **Default+Supported**: PERMISSIVE mTLS mode is enabled at mesh-level by default

        - **Optional+Supported**: mTLS STRICT mode.

    - Request Authentication (JWT)

        - **Default+Supported**: Policy with JWT must have `origin_is_optional` set to true and principal_binding to `USE_ORIGIN`

- Authorization Policy:

- **Default+Supported**: Authorization v1beta1 policy

The telemetry features don't work on GKE On-Prem. They are supported only on GKE clusters on Google Cloud.

- Telemetry:

  - **Default+Supported**: <u>HTTP in-proxy telemetry</u>
    (https://istio.io/docs/ops/configuration/telemetry/in-proxy-service-telemetry/) to
    Stackdriver.

  - **Optional+Supported**: Prometheus as an alternative to Stackdriver

- Access Logging:

  - **Default+Supported**: Istio Stackdriver Logging

  - **Optional+Supported**: Direct Envoy to stdout

- Tracing:

  - **Optional+Supported**: Stackdriver tracing

  - **Optional+Supported**: Jaeger tracing

- Traffic interception/redirection mechanism

  - **Default+Supported**: traditional use of iptables via init containers with
    CAP_NET_ADMIN

- Protocol support:

  - **Supported**: IPv4

  - **Supported**: HTTP/1.1

  - **Supported**: HTTP/2

  - **Supported**: TCP byte streams

  - **Supported**: <u>gRPC</u> (https://grpc.io)

- Envoy deployments:

  - **Default+Supported**: Sidecars

  - **Default+Supported**: Ingress gateway

  - **Default+Supported**: Egress directly out from sidecars

  - **Optional+Supported**: Egress via egress gateways

- CRD support:

  - **Supported**: the sidecar resource

  - **Supported**: the service entry resource

  - **Supported**: percentage, fault injection, path matching, redirects, retries, rewriting, timeout, retry, mirroring, header manipulation, and CORS routing rules.

- Load balancing policies:

  - **Supported**: round robin, least connections, random, and passthrough only.

- Multi-cluster support:

  - **Optional+Supported**: shared control plane + shared Root CA + single network

- **Optional+Supported**: ASM Telemetry/Cloud Console with Telemetry V2

- **Default+Supported**: StackDriver UI

- **Optional+Supported**: Prometheus/Grafana dashboards

The following Anthos-specific beta features are currently available for Anthos Service Mesh installed on Google Cloud only:

- Observability features (/service-mesh/docs/observability/)

- Anthos Service Mesh certificate authority (Mesh CA)

- Integration with Identity-Aware Proxy (/iap/)

Contact us (https://cloud.google.com/contact/?form=anthos) if you would like to participate in our beta program and try these features.

The following service mesh features are not currently supported in Anthos Service Mesh. This list is not exhaustive and is for your information only.

- **Not Supported**: `helm` install

- **Not Supported**: Migration from Istio Add-on for GKE (/istio/docs/istio-on-gke/overview)

- Certificate Authority (CA) support:

    - **Not Supported**: Integration with custom CAs

- Authentication Policy:

    - **Not Supported**: service level policy.

    - Transport Security:

        - **Not Supported**: Auto-mTLS

- Authorization Policy:

    - **Not Supported**: RBAC v1alpha1 policy.

- **Not Supported**: Istio CNI

- Policy:

  - **Not Supported**: Policy checks

- Telemetry:

  - **Not Supported**: Telemetry V2 using WebAssembly Sandbox.

  - **Not Supported**: Custom adapters/backends, in or out of process.

  - **Not Supported**: Arbitrary Telemetry and Logging backends.

  - **Not Supported**: Telemetry V1 for any metrics.

  - **Not Supported**: Telemetry Lite for any metrics.

- Tracing:

  - **Not Supported**: Zipkin tracing

- Traffic interception/redirection mechanism

  - **Not Supported**: Istio CNI

  - **Not Supported**: whitebox sidecar

- Protocol support:

  - **Not Supported**: IPv6

  - **Not Supported**: L7 support for other protocols like WebSocket, MongoDB, Redis, Kafka, though you may be able to make them work using TCP byte stream support. If TCP byte stream cannot support the protocol (for example, Kafka sends a redirect address in a protocol-specific reply and this redirect is incompatible with Istio's routing logic) then we do not support the protocol.

- CRD support:

  - **Not Supported**: custom Envoy filters (https://istio.io/docs/reference/config/networking/v1alpha3/envoy-filter/).

- Load balancing policies:

  - **Not Supported**: consistent hash and locality weighted load balancing.

- Multi-cluster support:

    - **Not Supported**: independent Root CAs, multiple networks, and multiple federated control planes

    - **Not Supported**: Mesh Expansion for VMs

- **Not Supported**: Kiali

Anthos Service Mesh 1.4.2 is supported with the following GKE and GKE On-Prem versions:

- **GKE**:

    - 1.13.11-gke.14+

    - 1.14.8-gke.18+

    - 1.15.4-gke.15+

- **GKE On-Prem**:

    - GKE On-Prem version 1.2.0-gke.6 and later, which is included in Anthos 1.2.