

calico-image-vp-whdev-v3.21.6

minikube k8s-v1.28.0, --kind

minikube k8s-v1.20.15

v3.21.6

calico calicoctl apply -f calicoctl.yaml

```
docker pull harbor.iovhm.com/hub/calico/cni:v3.21.6
docker pull harbor.iovhm.com/hub/calico/pod2daemon-flexvol:v3.21.6
docker pull harbor.iovhm.com/hub/calico/node:v3.21.6
```

```
---
# Source: calico/templates/calico-config.yaml
# This ConfigMap is used to configure a self-hosted Calico installation.
kind: ConfigMap
apiVersion: v1
metadata:
  name: calico-config
  namespace: kube-system
data:
  # Typha is disabled.
  typha_service_name: "none"
  # Configure the backend to use.
  calico_backend: "bird"

  # Configure the MTU to use for workload interfaces and tunnels.
  # By default, MTU is auto-detected, and explicitly setting this field should not be
  required.
  # You can override auto-detection by providing a non-zero value.
  veth_mtu: "0"

  # The CNI network configuration to install on each node. The special
  # values in this config will be automatically populated.
```

```
cni_network_config: |-
{
  "name": "k8s-pod-network",
  "cniVersion": "0.3.1",
  "plugins": [
    {
      "type": "calico",
      "log_level": "info",
      "log_file_path": "/var/log/calico/cni/cni.log",
      "datastore_type": "kubernetes",
      "nodename": "__KUBERNETES_NODE_NAME__",
      "mtu": __CNI_MTU__,
      "ipam": {
        "type": "calico-ipam"
      },
      "policy": {
        "type": "k8s"
      },
      "kubernetes": {
        "kubeconfig": "__KUBECONFIG_FILEPATH__"
      }
    },
    {
      "type": "portmap",
      "snat": true,
      "capabilities": {"portMappings": true}
    },
    {
      "type": "bandwidth",
      "capabilities": {"bandwidth": true}
    }
  ]
}
```

Source: calico/templates/kdd-crds.yaml

apiVersion: apiextensions.k8s.io/v1

kind: CustomResourceDefinition

metadata:

name: bgpconfigurations.crd.projectcalico.org

```

spec:
  group: crd.projectcalico.org
  names:
    kind: BGPConfiguration
    listKind: BGPConfigurationList
    plural: bgpconfigurations
    singular: bgpconfiguration
  scope: Cluster
  versions:
    - name: v1
      schema:
        openAPIV3Schema:
          description: BGPConfiguration contains the configuration for any BGP routing.
          properties:
            apiVersion:
              description: 'APIVersion defines the versioned schema of this representation
                of an object. Servers should convert recognized schemas to the latest
                internal value, and may reject unrecognized values. More info:
https://git.k8s.io/community/contributors/devel/sig-architecture/api-conventions.md#resources'
              type: string
            kind:
              description: 'Kind is a string value representing the REST resource this
                object represents. Servers may infer this from the endpoint the client
                submits requests to. Cannot be updated. In CamelCase. More info:
https://git.k8s.io/community/contributors/devel/sig-architecture/api-conventions.md#types-kinds'
              type: string
            metadata:
              type: object
            spec:
              description: BGPConfigurationSpec contains the values of the BGP configuration.
              properties:
                asNumber:
                  description: 'ASNumber is the default AS number used by a node. [Default:
                    64512]'
                  format: int32
                  type: integer
                communities:
                  description: Communities is a list of BGP community values and their
                    arbitrary names for tagging routes.
                  items:

```

description: Community contains standard or large community value and its name.

properties:

name:

description: Name given to community value.

type: string

value:

description: Value must be of format `aa:nn` or `aa:nn:mm`.

For standard community use `aa:nn` format, where `aa` and `nn` are 16 bit number. For large community use `aa:nn:mm` format, where `aa`, `nn` and `mm` are 32 bit number. Where, `aa` is an AS Number, `nn` and `mm` are per-AS identifier.

pattern: `^(\d+):(\d+)$|^\d+:\d+:\d+$`

type: string

type: object

type: array

listenPort:

description: ListenPort is the port where BGP protocol should listen.

Defaults to 179

maximum: 65535

minimum: 1

type: integer

logSeverityScreen:

description: 'LogSeverityScreen is the log severity above which logs are sent to the stdout. [Default: INFO]'

type: string

nodeToNodeMeshEnabled:

description: 'NodeToNodeMeshEnabled sets whether full node to node BGP mesh is enabled. [Default: true]'

type: boolean

prefixAdvertisements:

description: PrefixAdvertisements contains per-prefix advertisement configuration.

items:

description: PrefixAdvertisement configures advertisement properties for the specified CIDR.

properties:

cidr:

description: CIDR for which properties should be advertised.

type: string

communities:

description: Communities can be list of either community names already defined in `Specs.Communities` or community value of format `aa:nn` or `aa:nn:mm`. For standard community use `aa:nn` format, where `aa` and `nn` are 16 bit number. For large community use `aa:nn:mm` format, where `aa`, `nn` and `mm` are 32 bit number. Where, `aa` is an AS Number, `nn` and `mm` are per-AS identifier.

items:

type: string

type: array

type: object

type: array

serviceClusterIPs:

description: ServiceClusterIPs are the CIDR blocks from which service cluster IPs are allocated. If specified, Calico will advertise these blocks, as well as any cluster IPs within them.

items:

description: ServiceClusterIPBlock represents a single allowed ClusterIP CIDR block.

properties:

cidr:

type: string

type: object

type: array

serviceExternalIPs:

description: ServiceExternalIPs are the CIDR blocks for Kubernetes Service External IPs. Kubernetes Service ExternalIPs will only be advertised if they are within one of these blocks.

items:

description: ServiceExternalIPBlock represents a single allowed External IP CIDR block.

properties:

cidr:

type: string

type: object

type: array

serviceLoadBalancerIPs:

description: ServiceLoadBalancerIPs are the CIDR blocks for Kubernetes Service LoadBalancer IPs. Kubernetes Service status.LoadBalancer.Ingress IPs will only be advertised if they are within one of these blocks.

items:

```

        description: ServiceLoadBalancerIPBlock represents a single allowed
        LoadBalancer IP CIDR block.
    properties:
        cidr:
            type: string
        type: object
    type: array
    type: object
    type: object
    served: true
    storage: true
status:
    acceptedNames:
        kind: ""
        plural: ""
    conditions: []
    storedVersions: []

---
apiVersion: apiextensions.k8s.io/v1
kind: CustomResourceDefinition
metadata:
    name: bgppeers.crd.projectcalico.org
spec:
    group: crd.projectcalico.org
    names:
        kind: BGPPeer
        listKind: BGPPeerList
        plural: bgppeers
        singular: bgpeer
    scope: Cluster
    versions:
    - name: v1
      schema:
        openAPIV3Schema:
          properties:
            apiVersion:
              description: 'APIVersion defines the versioned schema of this representation
              of an object. Servers should convert recognized schemas to the latest
              internal value, and may reject unrecognized values. More info:
https://git.k8s.io/community/contributors/devel/sig-architecture/api-conventions.md#resources'

```

type: string

kind:

description: 'Kind is a string value representing the REST resource this object represents. Servers may infer this from the endpoint the client submits requests to. Cannot be updated. In CamelCase. More info:

<https://git.k8s.io/community/contributors/devel/sig-architecture/api-conventions.md#types-kinds>'

type: string

metadata:

type: object

spec:

description: BGPPeerSpec contains the specification for a BGPPeer resource.

properties:

asNumber:

description: The AS Number of the peer.

format: int32

type: integer

keepOriginalNextHop:

description: Option to keep the original nexthop field when routes are sent to a BGP Peer. Setting "true" configures the selected BGP Peers node to use the "next hop keep;" instead of "next hop self;"(default) in the specific branch of the Node on "bird.cfg".

type: boolean

maxRestartTime:

description: Time to allow for software restart. When specified, this is configured as the graceful restart timeout. When not specified, the BIRD default of 120s is used.

type: string

node:

description: The node name identifying the Calico node instance that is targeted by this peer. If this is not set, and no nodeSelector is specified, then this BGP peer selects all nodes in the cluster.

type: string

nodeSelector:

description: Selector for the nodes that should have this peering. When this is set, the Node field must be empty.

type: string

password:

description: Optional BGP password for the peerings generated by this BGPPeer resource.

properties:

secretKeyRef:

description: Selects a key of a secret in the node pod's namespace.

properties:

key:

description: The key of the secret to select from. Must be a valid secret key.

type: string

name:

description: 'Name of the referent. More info:

<https://kubernetes.io/docs/concepts/overview/working-with-objects/names/#names>

TODO: Add other useful fields. apiVersion, kind, uid?'

type: string

optional:

description: Specify whether the Secret or its key must be defined

type: boolean

required:

- key

type: object

type: object

peerIP:

description: The IP address of the peer followed by an optional port number to peer with. If port number is given, format should be

`[<IPv6>]:port`

or ``<IPv4>: <port>`` for IPv4. If optional port number is not set, and this peer IP and ASNumber belongs to a calico/node with ListenPort set in BGPCConfiguration, then we use that port to peer.

type: string

peerSelector:

description: Selector for the remote nodes to peer with. When this is set, the PeerIP and ASNumber fields must be empty. For each peering between the local node and selected remote nodes, we configure an IPv4 peering if both ends have NodeBGPSpec.IPv4Address specified, and an IPv6 peering if both ends have NodeBGPSpec.IPv6Address specified.

The

remote AS number comes from the remote node's NodeBGPSpec.ASNumber, or the global default if that is not set.

type: string

sourceAddress:

description: Specifies whether and how to configure a source address for the peerings generated by this BGPPeer resource. Default value

"UseNodeIP" means to configure the node IP as the source address. "None" means not to configure a source address.

type: string

type: object

type: object

served: true

storage: true

status:

acceptedNames:

kind: ""

plural: ""

conditions: []

storedVersions: []

apiVersion: apiextensions.k8s.io/v1

kind: CustomResourceDefinition

metadata:

name: blockaffinities.crd.projectcalico.org

spec:

group: crd.projectcalico.org

names:

kind: BlockAffinity

listKind: BlockAffinityList

plural: blockaffinities

singular: blockaffinity

scope: Cluster

versions:

- name: v1

schema:

openAPIV3Schema:

properties:

apiVersion:

description: 'APIVersion defines the versioned schema of this representation of an object. Servers should convert recognized schemas to the latest internal value, and may reject unrecognized values. More info:

<https://git.k8s.io/community/contributors/devel/sig-architecture/api-conventions.md#resources>

type: string

kind:

description: 'Kind is a string value representing the REST resource this object represents. Servers may infer this from the endpoint the client

submits requests to. Cannot be updated. In CamelCase. More info:

<https://git.k8s.io/community/contributors/devel/sig-architecture/api-conventions.md#types-kinds>

```
    type: string
  metadata:
    type: object
  spec:
    description: BlockAffinitySpec contains the specification for a BlockAffinity
      resource.
    properties:
      cidr:
        type: string
      deleted:
        description: Deleted indicates that this block affinity is being deleted.
          This field is a string for compatibility with older releases that
          mistakenly treat this field as a string.
        type: string
      node:
        type: string
      state:
        type: string
    required:
      - cidr
      - deleted
      - node
      - state
    type: object
  type: object
  served: true
  storage: true
status:
  acceptedNames:
    kind: ""
    plural: ""
  conditions: []
  storedVersions: []

---
apiVersion: apiextensions.k8s.io/v1
kind: CustomResourceDefinition
metadata:
```

```

annotations:
  controller-gen.kubebuilder.io/version: (devel)
creationTimestamp: null
name: caliconodestatuses.crd.projectcalico.org
spec:
  group: crd.projectcalico.org
  names:
    kind: CalicoNodeStatus
    listKind: CalicoNodeStatusList
    plural: caliconodestatuses
    singular: caliconodestatus
  scope: Cluster
  versions:
    - name: v1
      schema:
        openAPIV3Schema:
          properties:
            apiVersion:
              description: 'APIVersion defines the versioned schema of this representation
                of an object. Servers should convert recognized schemas to the latest
                internal value, and may reject unrecognized values. More info:
https://git.k8s.io/community/contributors/devel/sig-architecture/api-conventions.md#resources'
              type: string
            kind:
              description: 'Kind is a string value representing the REST resource this
                object represents. Servers may infer this from the endpoint the client
                submits requests to. Cannot be updated. In CamelCase. More info:
https://git.k8s.io/community/contributors/devel/sig-architecture/api-conventions.md#types-kinds'
              type: string
            metadata:
              type: object
            spec:
              description: CalicoNodeStatusSpec contains the specification for a
                CalicoNodeStatus
              resource:
                properties:
                  classes:
                    description: Classes declares the types of information to monitor
                      for this calico/node, and allows for selective status reporting
                      about certain subsets of information.

```

```

    items:
      type: string
    type: array
  node:
    description: The node name identifies the Calico node instance for
      node status.
    type: string
  updatePeriodSeconds:
    description: UpdatePeriodSeconds is the period at which CalicoNodeStatus
      should be updated. Set to 0 to disable CalicoNodeStatus refresh.
      Maximum update period is one day.
    format: int32
    type: integer
  type: object
status:
  description: CalicoNodeStatusStatus defines the observed state of
CalicoNodeStatus.

  No validation needed for status since it is updated by Calico.
properties:
  agent:
    description: Agent holds agent status on the node.
  properties:
    birdV4:
      description: BIRDV4 represents the latest observed status of bird4.
    properties:
      lastBootTime:
        description: LastBootTime holds the value of lastBootTime
          from bird.ctl output.
        type: string
      lastReconfigurationTime:
        description: LastReconfigurationTime holds the value of
lastReconfigTime
          from bird.ctl output.
        type: string
      routerID:
        description: Router ID used by bird.
        type: string
      state:
        description: The state of the BGP Daemon.
        type: string
      version:

```

```

        description: Version of the BGP daemon
        type: string
    type: object
birdV6:
    description: BIRDV6 represents the latest observed status of bird6.
    properties:
        lastBootTime:
            description: LastBootTime holds the value of lastBootTime
                from bird.ctl output.
            type: string
        lastReconfigurationTime:
            description: LastReconfigurationTime holds the value of
lastReconfigTime
                from bird.ctl output.
            type: string
        routerID:
            description: Router ID used by bird.
            type: string
        state:
            description: The state of the BGP Daemon.
            type: string
        version:
            description: Version of the BGP daemon
            type: string
    type: object
type: object
bgp:
    description: BGP holds node BGP status.
    properties:
        numberEstablishedV4:
            description: The total number of IPv4 established bgp sessions.
            type: integer
        numberEstablishedV6:
            description: The total number of IPv6 established bgp sessions.
            type: integer
        numberNotEstablishedV4:
            description: The total number of IPv4 non-established bgp sessions.
            type: integer
        numberNotEstablishedV6:
            description: The total number of IPv6 non-established bgp sessions.
            type: integer

```

peersV4:

description: PeersV4 represents IPv4 BGP peers status on the node.

items:

description: CalicoNodePeer contains the status of BGP peers on the node.

properties:

peerIP:

description: IP address of the peer whose condition we are reporting.

type: string

since:

description: Since the state or reason last changed.

type: string

state:

description: State is the BGP session state.

type: string

type:

description: Type indicates whether this peer is configured via the node-to-node mesh, or via an explicit global or per-node BGPPeer object.

type: string

type: object

type: array

peersV6:

description: PeersV6 represents IPv6 BGP peers status on the node.

items:

description: CalicoNodePeer contains the status of BGP peers on the node.

properties:

peerIP:

description: IP address of the peer whose condition we are reporting.

type: string

since:

description: Since the state or reason last changed.

type: string

state:

description: State is the BGP session state.

type: string

type:

description: Type indicates whether this peer is configured

via the node-to-node mesh, or via an explicit global or per-node BGPPeer object.

type: string

type: object

type: array

required:

- numberEstablishedV4
- numberEstablishedV6
- numberNotEstablishedV4
- numberNotEstablishedV6

type: object

lastUpdated:

description: LastUpdated is a timestamp representing the server time when CalicoNodeStatus object last updated. It is represented in RFC3339 form and is in UTC.

format: date-time

nullable: true

type: string

routes:

description: Routes reports routes known to the Calico BGP daemon on the node.

properties:

routesV4:

description: RoutesV4 represents IPv4 routes on the node.

items:

description: CalicoNodeRoute contains the status of BGP routes on the node.

properties:

destination:

description: Destination of the route.

type: string

gateway:

description: Gateway for the destination.

type: string

interface:

description: Interface for the destination

type: string

learnedFrom:

description: LearnedFrom contains information regarding where this route originated.

properties:

```
    peerIP:
      description: If sourceType is NodeMesh or BGPPeer, IP
        address of the router that sent us this route.
      type: string
    sourceType:
      description: Type of the source where a route is learned
        from.
      type: string
  type: object
type:
  description: Type indicates if the route is being used for
    forwarding or not.
  type: string
type: object
type: array
routesV6:
  description: RoutesV6 represents IPv6 routes on the node.
  items:
    description: CalicoNodeRoute contains the status of BGP routes
      on the node.
    properties:
      destination:
        description: Destination of the route.
        type: string
      gateway:
        description: Gateway for the destination.
        type: string
      interface:
        description: Interface for the destination
        type: string
      learnedFrom:
        description: LearnedFrom contains information regarding
          where this route originated.
      properties:
        peerIP:
          description: If sourceType is NodeMesh or BGPPeer, IP
            address of the router that sent us this route.
          type: string
        sourceType:
          description: Type of the source where a route is learned
            from.
```



```

        type: string
        type: object
    type:
        description: Type indicates if the route is being used for
            forwarding or not.
        type: string
    type: object
    type: array
    type: object
    type: object
    type: object
    served: true
    storage: true
status:
    acceptedNames:
        kind: ""
        plural: ""
    conditions: []
    storedVersions: []

---
apiVersion: apiextensions.k8s.io/v1
kind: CustomResourceDefinition
metadata:
    name: clusterinformations.crd.projectcalico.org
spec:
    group: crd.projectcalico.org
    names:
        kind: ClusterInformation
        listKind: ClusterInformationList
        plural: clusterinformations
        singular: clusterinformation
    scope: Cluster
    versions:
        - name: v1
          schema:
            openAPIV3Schema:
                description: ClusterInformation contains the cluster specific information.
                properties:
                    apiVersion:
                        description: 'APIVersion defines the versioned schema of this representation

```

of an object. Servers should convert recognized schemas to the latest internal value, and may reject unrecognized values. More info:

<https://git.k8s.io/community/contributors/devel/sig-architecture/api-conventions.md#resources>

type: string

kind:

description: 'Kind is a string value representing the REST resource this object represents. Servers may infer this from the endpoint the client submits requests to. Cannot be updated. In CamelCase. More info:

<https://git.k8s.io/community/contributors/devel/sig-architecture/api-conventions.md#types-kinds>

type: string

metadata:

type: object

spec:

description: ClusterInformationSpec contains the values of describing the cluster.

properties:

calicoVersion:

description: CalicoVersion is the version of Calico that the cluster is running

type: string

clusterGUID:

description: ClusterGUID is the GUID of the cluster

type: string

clusterType:

description: ClusterType describes the type of the cluster

type: string

datastoreReady:

description: DatastoreReady is used during significant datastore migrations to signal to components such as Felix that it should wait before accessing the datastore.

type: boolean

variant:

description: Variant declares which variant of Calico should be active.

type: string

type: object

type: object

served: true

storage: true

status:

acceptedNames:

```

    kind: ""
    plural: ""
    conditions: []
    storedVersions: []

---
apiVersion: apiextensions.k8s.io/v1
kind: CustomResourceDefinition
metadata:
  name: felixconfigurations.crd.projectcalico.org
spec:
  group: crd.projectcalico.org
  names:
    kind: FelixConfiguration
    listKind: FelixConfigurationList
    plural: felixconfigurations
    singular: felixconfiguration
  scope: Cluster
  versions:
    - name: v1
      schema:
        openAPIV3Schema:
          description: Felix Configuration contains the configuration for Felix.
          properties:
            apiVersion:
              description: 'APIVersion defines the versioned schema of this representation
                of an object. Servers should convert recognized schemas to the latest
                internal value, and may reject unrecognized values. More info:
https://git.k8s.io/community/contributors/devel/sig-architecture/api-conventions.md#resources'
              type: string
            kind:
              description: 'Kind is a string value representing the REST resource this
                object represents. Servers may infer this from the endpoint the client
                submits requests to. Cannot be updated. In CamelCase. More info:
https://git.k8s.io/community/contributors/devel/sig-architecture/api-conventions.md#types-kinds'
              type: string
          metadata:
            type: object
        spec:
          description: FelixConfigurationSpec contains the values of the Felix

```

configuration.

properties:

allowIPIPPacketsFromWorkloads:

description: 'AllowIPIPPacketsFromWorkloads controls whether Felix will add a rule to drop IPIP encapsulated traffic from workloads [Default: false]'

type: boolean

allowVXLANPacketsFromWorkloads:

description: 'AllowVXLANPacketsFromWorkloads controls whether Felix will add a rule to drop VXLAN encapsulated traffic from workloads [Default: false]'

type: boolean

awsSrcDstCheck:

description: 'Set source-destination-check on AWS EC2 instances. Accepted value must be one of "DoNothing", "Enable" or "Disable". [Default: DoNothing]'

enum:

- DoNothing
- Enable
- Disable

type: string

bpfConnectTimeLoadBalancingEnabled:

description: 'BPFConnectTimeLoadBalancingEnabled when in BPF mode, controls whether Felix installs the connection-time load balancer. The connect-time load balancer is required for the host to be able to reach Kubernetes services and it improves the performance of pod-to-service connections. The only reason to disable it is for debugging purposes.

[Default:

true]'

type: boolean

bpfDataIfacePattern:

description: BPFDataIfacePattern is a regular expression that controls which interfaces Felix should attach BPF programs to in order to catch traffic to/from the network. This needs to match the interfaces that Calico workload traffic flows over as well as any interfaces that handle incoming traffic to nodeports and services from outside the cluster. It should not match the workload interfaces (usually named cali...).

type: string

bpfDisableUnprivileged:

description: 'BPFDisableUnprivileged, if enabled, Felix sets the

kernel.unprivileged_bpf_disabled

sysctl to disable unprivileged use of BPF. This ensures that unprivileged users cannot access Calico's BPF maps and cannot insert their own BPF programs to interfere with Calico's. [Default: true]

type: boolean

bpfEnabled:

description: 'BPFEnabled, if enabled Felix will use the BPF dataplane. [Default: false]'

type: boolean

bpfExtToServiceConnmark:

description: 'BPFExtToServiceConnmark in BPF mode, control a 32bit mark that is set on connections from an external client to a local service. This mark allows us to control how packets of that connection are routed within the host and how is routing interpreted by RPF check. [Default: 0]'

type: integer

bpfExternalServiceMode:

description: 'BPFExternalServiceMode in BPF mode, controls how connections from outside the cluster to services (node ports and cluster IPs) are forwarded to remote workloads. If set to "Tunnel" then both request and response traffic is tunneled to the remote node. If set to "DSR", the request traffic is tunneled but the response traffic is sent directly from the remote node. In "DSR" mode, the remote node appears to use the IP of the ingress node; this requires a permissive L2 network. [Default: Tunnel]'

type: string

bpfKubeProxyEndpointSlicesEnabled:

description: BPFKubeProxyEndpointSlicesEnabled in BPF mode, controls whether Felix's embedded kube-proxy accepts EndpointSlices or not.

type: boolean

bpfKubeProxyIptablesCleanupEnabled:

description: 'BPFKubeProxyIptablesCleanupEnabled, if enabled in BPF mode, Felix will proactively clean up the upstream Kubernetes kube-proxy's iptables chains. Should only be enabled if kube-proxy is not running.

[Default:

true]'

type: boolean

bpfKubeProxyMinSyncPeriod:

description: 'BPFKubeProxyMinSyncPeriod, in BPF mode, controls the minimum time between updates to the dataplane for Felix's embedded kube-proxy. Lower values give reduced set-up latency. Higher values

```
    reduce Felix CPU usage by batching up more work. [Default: 1s]'
    type: string
bpfLogLevel:
    description: 'BPFLogLevel controls the log level of the BPF programs
        when in BPF dataplane mode. One of "Off", "Info", or "Debug". The
        logs are emitted to the BPF trace pipe, accessible with the command
        `tc exec bpf debug`. [Default: Off].'
```

type: string

bpfPSNATPorts:

anyOf:

- type: integer
- type: string

description: 'BPFPSNATPorts sets the range from which we randomly
 pick a port if there is a source port collision. This should be
 within the ephemeral range as defined by RFC 6056 (1024–65535) and
 preferably outside the ephemeral ranges used by common operating
 systems. Linux uses 32768–60999, while others mostly use the IANA
 defined range 49152–65535. It is not necessarily a problem if this
 range overlaps with the operating systems. Both ends of the range
 are inclusive. [Default: 20000:29999]'

pattern: ^.*

x-kubernetes-int-or-string: true

chainInsertMode:

description: 'ChainInsertMode controls whether Felix hooks the kernel's
 top-level iptables chains by inserting a rule at the top of the
 chain or by appending a rule at the bottom. insert is the safe default
 since it prevents Calico's rules from being bypassed. If you switch
 to append mode, be sure that the other rules in the chains signal
 acceptance by falling through to the Calico rules, otherwise the
 Calico policy will be bypassed. [Default: insert]'

type: string

dataplaneDriver:

type: string

debugDisableLogDropping:

type: boolean

debugMemoryProfilePath:

type: string

debugSimulateCalcGraphHangAfter:

type: string

debugSimulateDataplaneHangAfter:

type: string

defaultEndpointToHostAction:

description: 'DefaultEndpointToHostAction controls what happens to traffic that goes from a workload endpoint to the host itself (after the traffic hits the endpoint egress policy). By default Calico blocks traffic from workload endpoints to the host itself with an iptables "DROP" action. If you want to allow some or all traffic from endpoint to host, set this parameter to RETURN or ACCEPT. Use RETURN if you have your own rules in the iptables "INPUT" chain; Calico will insert its rules at the top of that chain, then "RETURN" packets to the "INPUT" chain once it has completed processing workload endpoint egress policy. Use ACCEPT to unconditionally accept packets from workloads after processing workload endpoint egress policy. [Default: Drop]'

type: string

deviceRouteProtocol:

description: This defines the route protocol added to programmed device routes, by default this will be RTPROT_BOOT when left blank.

type: integer

deviceRouteSourceAddress:

description: This is the source address to use on programmed device routes. By default the source address is left blank, leaving the kernel to choose the source address used.

type: string

disableConntrackInvalidCheck:

type: boolean

endpointReportingDelay:

type: string

endpointReportingEnabled:

type: boolean

externalNodesList:

description: ExternalNodesCIDRList is a list of CIDR's of external-non-calico-nodes which may source tunnel traffic and have the tunneled traffic be accepted at calico nodes.

items:

type: string

type: array

failsafeInboundHostPorts:

description: 'FailsafeInboundHostPorts is a list of UDP/TCP ports and CIDRs that Felix will allow incoming traffic to host endpoints on irrespective of the security policy. This is useful to avoid

nodes

accidentally cutting off a host with incorrect configuration. For back-compatibility, if the protocol is not specified, it defaults to "tcp". If a CIDR is not specified, it will allow traffic from all addresses. To disable all inbound host ports, use the value none. The default value allows ssh access and DHCP. [Default: tcp:22, udp:68, tcp:179, tcp:2379, tcp:2380, tcp:6443, tcp:6666, tcp:6667]'

items:

description: ProtoPort is combination of protocol, port, and CIDR.

Protocol and port must be specified.

properties:

net:

type: string

port:

type: integer

protocol:

type: string

required:

- port
- protocol

type: object

type: array

failsafeOutboundHostPorts:

description: 'FailsafeOutboundHostPorts is a list of UDP/TCP ports and CIDRs that Felix will allow outgoing traffic from host endpoints to irrespective of the security policy. This is useful to avoid accidentally cutting off a host with incorrect configuration. For back-compatibility, if the protocol is not specified, it defaults to "tcp". If a CIDR is not specified, it will allow traffic from all addresses. To disable all outbound host ports, use the value none. The default value opens etcd's standard ports to ensure that Felix does not get cut off from etcd as well as allowing DHCP and DNS. [Default: tcp:179, tcp:2379, tcp:2380, tcp:6443, tcp:6666, tcp:6667, udp:53, udp:67]'

items:

description: ProtoPort is combination of protocol, port, and CIDR.

Protocol and port must be specified.

properties:

net:

type: string

port:

type: integer


```

    protocol:
      type: string
    required:
      - port
      - protocol
    type: object
  type: array
featureDetectOverride:
  description: FeatureDetectOverride is used to override the feature
    detection. Values are specified in a comma separated list with no
    spaces, example;
"SNATFullyRandom=true,MASQFullyRandom=false,RestoreSupportsLock=".
    "true" or "false" will force the feature, empty or omitted values
    are auto-detected.
  type: string
floatingIPs:
  default: Disabled
  description: FloatingIPs configures whether or not Felix will program
    floating IP addresses.
  enum:
    - Enabled
    - Disabled
  type: string
genericXDPEnabled:
  description: 'GenericXDPEnabled enables Generic XDP so network cards
    that don''t support XDP offload or driver modes can use XDP. This
    is not recommended since it doesn''t provide better performance
    than iptables. [Default: false]'
  type: boolean
healthEnabled:
  type: boolean
healthHost:
  type: string
healthPort:
  type: integer
interfaceExclude:
  description: 'InterfaceExclude is a comma-separated list of interfaces
    that Felix should exclude when monitoring for host endpoints. The
    default value ensures that Felix ignores Kubernetes'' IPVS dummy
    interface, which is used internally by kube-proxy. If you want to
    exclude multiple interface names using a single value, the list

```

supports regular expressions. For regular expressions you must wrap the value with `'/'`. For example having values `''/^kube/,veth1''` will exclude all interfaces that begin with `''kube''` and also the interface `''veth1''`. [Default: kube-ipvs0]

type: string

interfacePrefix:

description: 'InterfacePrefix is the interface name prefix that identifies workload endpoints and so distinguishes them from host endpoint interfaces. Note: in environments other than bare metal, the orchestrators configure this appropriately. For example our Kubernetes and Docker integrations set the `''cali''` value, and our OpenStack integration sets the `''tap''` value. [Default: cali]'

type: string

interfaceRefreshInterval:

description: InterfaceRefreshInterval is the period at which Felix rescans local interfaces to verify their state. The rescan can be disabled by setting the interval to 0.

type: string

ipipEnabled:

type: boolean

ipipMTU:

description: 'IPIPMTU is the MTU to set on the tunnel device. See Configuring MTU [Default: 1440]'

type: integer

ipsetsRefreshInterval:

description: 'IpsetsRefreshInterval is the period at which Felix re-checks all iptables state to ensure that no other process has accidentally broken Calico's rules. Set to 0 to disable iptables refresh. [Default: 90s]'

type: string

iptablesBackend:

description: IptablesBackend specifies which backend of iptables will be used. The default is legacy.

type: string

iptablesFilterAllowAction:

type: string

iptablesLockFilePath:

description: 'IptablesLockFilePath is the location of the iptables lock file. You may need to change this if the lock file is not in its standard location (for example if you have mapped it into Felix's container at a different path). [Default: /run/xtables.lock]'

```
type: string
iptablesLockProbeInterval:
  description: 'IptablesLockProbeInterval is the time that Felix will
    wait between attempts to acquire the iptables lock if it is not
    available. Lower values make Felix more responsive when the lock
    is contended, but use more CPU. [Default: 50ms]'
  type: string
iptablesLockTimeout:
  description: 'IptablesLockTimeout is the time that Felix will wait
    for the iptables lock, or 0, to disable. To use this feature, Felix
    must share the iptables lock file with all other processes that
    also take the lock. When running Felix inside a container, this
    requires the /run directory of the host to be mounted into the calico/node
    or calico/felix container. [Default: 0s disabled]'
  type: string
iptablesMangleAllowAction:
  type: string
iptablesMarkMask:
  description: 'IptablesMarkMask is the mask that Felix selects its
    IPTables Mark bits from. Should be a 32 bit hexadecimal number with
    at least 8 bits set, none of which clash with any other mark bits
    in use on the system. [Default: 0xff000000]'
  format: int32
  type: integer
iptablesNATOutgoingInterfaceFilter:
  type: string
iptablesPostWriteCheckInterval:
  description: 'IptablesPostWriteCheckInterval is the period after Felix
    has done a write to the dataplane that it schedules an extra read
    back in order to check the write was not clobbered by another process.
    This should only occur if another application on the system doesn't
    respect the iptables lock. [Default: 1s]'
  type: string
iptablesRefreshInterval:
  description: 'IptablesRefreshInterval is the period at which Felix
    re-checks the IP sets in the dataplane to ensure that no other process
    has accidentally broken Calico's rules. Set to 0 to disable IP
    sets refresh. Note: the default for this value is lower than the
    other refresh intervals as a workaround for a Linux kernel bug that
    was fixed in kernel version 4.11. If you are using v4.11 or greater
    you may want to set this to, a higher value to reduce Felix CPU
```

```
    usage. [Default: 10s]'
    type: string
  ipv6Support:
    type: boolean
  kubeNodePortRanges:
    description: 'KubeNodePortRanges holds list of port ranges used for
      service node ports. Only used if felix detects kube-proxy running
      in ipvs mode. Felix uses these ranges to separate host and workload
      traffic. [Default: 30000:32767].'
```

items:

- anyOf:
- type: integer
- type: string

pattern: ^.*

x-kubernetes-int-or-string: true

type: array

logFilePath:

description: 'LogFilePath is the full path to the Felix log. Set to
none to disable file logging. [Default: /var/log/calico/felix.log]'

type: string

logPrefix:

description: 'LogPrefix is the log prefix that Felix uses when rendering
LOG rules. [Default: calico-packet]'

type: string

logSeverityFile:

description: 'LogSeverityFile is the log severity above which logs
are sent to the log file. [Default: Info]'

type: string

logSeverityScreen:

description: 'LogSeverityScreen is the log severity above which logs
are sent to the stdout. [Default: Info]'

type: string

logSeveritySys:

description: 'LogSeveritySys is the log severity above which logs
are sent to the syslog. Set to None for no logging to syslog. [Default:
Info]'

type: string

maxIpsetSize:

type: integer

metadataAddr:

description: 'MetadataAddr is the IP address or domain name of the

server that can answer VM queries for cloud-init metadata. In OpenStack, this corresponds to the machine running nova-api (or in Ubuntu, nova-api-metadata). A value of none (case insensitive) means that Felix should not set up any NAT rule for the metadata path. [Default: 127.0.0.1]'

type: string

metadataPort:

description: 'MetadataPort is the port of the metadata server. This, combined with global.MetadataAddr (if not ''None''), is used to set up a NAT rule, from 169.254.169.254:80 to MetadataAddr:MetadataPort. In most cases this should not need to be changed [Default: 8775].'

type: integer

mtuIfacePattern:

description: MTUIfacePattern is a regular expression that controls which interfaces Felix should scan in order to calculate the host's MTU. This should not match workload interfaces (usually named cali...).

type: string

natOutgoingAddress:

description: NATOutgoingAddress specifies an address to use when performing source NAT for traffic in a natOutgoing pool that is leaving the network. By default the address used is an address on the interface the traffic is leaving on (ie it uses the iptables MASQUERADE target)

type: string

natPortRange:

anyOf:

- type: integer
- type: string

description: NATPortRange specifies the range of ports that is used for port mapping when doing outgoing NAT. When unset the default behavior of the network stack is used.

pattern: ^.*

x-kubernetes-int-or-string: true

netlinkTimeout:

type: string

openstackRegion:

description: 'OpenstackRegion is the name of the region that a particular Felix belongs to. In a multi-region Calico/OpenStack deployment, this must be configured somehow for each Felix (here in the datamodel, or in felix.cfg or the environment on each compute node), and must match the [calico] openstack_region value configured in neutron.conf on each node. [Default: Empty]'

```
    type: string
policySyncPathPrefix:
  description: 'PolicySyncPathPrefix is used to by Felix to communicate
    policy changes to external services, like Application layer policy.
    [Default: Empty]'
  type: string
prometheusGoMetricsEnabled:
  description: 'PrometheusGoMetricsEnabled disables Go runtime metrics
    collection, which the Prometheus client does by default, when set
    to false. This reduces the number of metrics reported, reducing
    Prometheus load. [Default: true]'
  type: boolean
prometheusMetricsEnabled:
  description: 'PrometheusMetricsEnabled enables the Prometheus metrics
    server in Felix if set to true. [Default: false]'
  type: boolean
prometheusMetricsHost:
  description: 'PrometheusMetricsHost is the host that the Prometheus
    metrics server should bind to. [Default: empty]'
  type: string
prometheusMetricsPort:
  description: 'PrometheusMetricsPort is the TCP port that the Prometheus
    metrics server should bind to. [Default: 9091]'
  type: integer
prometheusProcessMetricsEnabled:
  description: 'PrometheusProcessMetricsEnabled disables process metrics
    collection, which the Prometheus client does by default, when set
    to false. This reduces the number of metrics reported, reducing
    Prometheus load. [Default: true]'
  type: boolean
prometheusWireGuardMetricsEnabled:
  description: 'PrometheusWireGuardMetricsEnabled disables wireguard
    metrics collection, which the Prometheus client does by default,
    when set to false. This reduces the number of metrics reported,
    reducing Prometheus load. [Default: true]'
  type: boolean
removeExternalRoutes:
  description: Whether or not to remove device routes that have not
    been programmed by Felix. Disabling this will allow external applications
    to also add device routes. This is enabled by default which means
    we will remove externally added routes.
```

```
    type: boolean
reportingInterval:
  description: 'ReportingInterval is the interval at which Felix reports
    its status into the datastore or 0 to disable. Must be non-zero
    in OpenStack deployments. [Default: 30s]'
  type: string
reportingTTL:
  description: 'ReportingTTL is the time-to-live setting for process-wide
    status reports. [Default: 90s]'
  type: string
routeRefreshInterval:
  description: 'RouteRefreshInterval is the period at which Felix re-checks
    the routes in the dataplane to ensure that no other process has
    accidentally broken Calico's rules. Set to 0 to disable route refresh.
    [Default: 90s]'
  type: string
routeSource:
  description: 'RouteSource configures where Felix gets its routing
    information. - WorkloadIPs: use workload endpoints to construct
    routes. - CalicoIPAM: the default - use IPAM data to construct routes.'
  type: string
routeTableRange:
  description: Calico programs additional Linux route tables for various
    purposes. RouteTableRange specifies the indices of the route tables
    that Calico should use.
  properties:
    max:
      type: integer
    min:
      type: integer
  required:
    - max
    - min
  type: object
serviceLoopPrevention:
  description: 'When service IP advertisement is enabled, prevent routing
    loops to service IPs that are not in use, by dropping or rejecting
    packets that do not get DNAT'd by kube-proxy. Unless set to "Disabled",
    in which case such routing loops continue to be allowed. [Default:
    Drop]'
  type: string
```

sidecarAccelerationEnabled:

description: 'SidecarAccelerationEnabled enables experimental sidecar acceleration [Default: false]'

type: boolean

usageReportingEnabled:

description: 'UsageReportingEnabled reports anonymous Calico version number and cluster size to projectcalico.org. Logs warnings returned by the usage server. For example, if a significant security vulnerability has been discovered in the version of Calico being used. [Default: true]'

type: boolean

usageReportingInitialDelay:

description: 'UsageReportingInitialDelay controls the minimum delay before Felix makes a report. [Default: 300s]'

type: string

usageReportingInterval:

description: 'UsageReportingInterval controls the interval at which Felix makes reports. [Default: 86400s]'

type: string

useInternalDataplaneDriver:

type: boolean

vxlanEnabled:

type: boolean

vxlanMTU:

description: 'VXLANMTU is the MTU to set on the tunnel device. See Configuring MTU [Default: 1440]'

type: integer

vxlanPort:

type: integer

vxlanVNI:

type: integer

wireguardEnabled:

description: 'WireguardEnabled controls whether Wireguard is enabled. [Default: false]'

type: boolean

wireguardHostEncryptionEnabled:

description: 'WireguardHostEncryptionEnabled controls whether Wireguard host-to-host encryption is enabled. [Default: false]'

type: boolean

wireguardInterfaceName:

description: 'WireguardInterfaceName specifies the name to use for


```

        the Wireguard interface. [Default: wg.calico]'
    type: string
  wireguardListeningPort:
    description: 'WireguardListeningPort controls the listening port used
      by Wireguard. [Default: 51820]'
    type: integer
  wireguardMTU:
    description: 'WireguardMTU controls the MTU on the Wireguard interface.
      See Configuring MTU [Default: 1420]'
    type: integer
  wireguardRoutingRulePriority:
    description: 'WireguardRoutingRulePriority controls the priority value
      to use for the Wireguard routing rule. [Default: 99]'
    type: integer
  xdpEnabled:
    description: 'XDPEnabled enables XDP acceleration for suitable untracked
      incoming deny rules. [Default: true]'
    type: boolean
  xdpRefreshInterval:
    description: 'XDPRefreshInterval is the period at which Felix re-checks
      all XDP state to ensure that no other process has accidentally broken
      Calico's BPF maps or attached programs. Set to 0 to disable XDP
      refresh. [Default: 90s]'
    type: string
  type: object
  type: object
  served: true
  storage: true
status:
  acceptedNames:
    kind: ""
    plural: ""
  conditions: []
  storedVersions: []

---
apiVersion: apiextensions.k8s.io/v1
kind: CustomResourceDefinition
metadata:
  name: globalnetworkpolicies.crd.projectcalico.org
spec:

```

```
group: crd.projectcalico.org
names:
  kind: GlobalNetworkPolicy
  listKind: GlobalNetworkPolicyList
  plural: globalnetworkpolicies
  singular: globalnetworkpolicy
scope: Cluster
versions:
- name: v1
  schema:
    openAPIV3Schema:
      properties:
        apiVersion:
          description: 'APIVersion defines the versioned schema of this representation
            of an object. Servers should convert recognized schemas to the latest
            internal value, and may reject unrecognized values. More info:
https://git.k8s.io/community/contributors/devel/sig-architecture/api-conventions.md#resources'
          type: string
        kind:
          description: 'Kind is a string value representing the REST resource this
            object represents. Servers may infer this from the endpoint the client
            submits requests to. Cannot be updated. In CamelCase. More info:
https://git.k8s.io/community/contributors/devel/sig-architecture/api-conventions.md#types-kinds'
          type: string
        metadata:
          type: object
        spec:
          properties:
            applyOnForward:
              description: ApplyOnForward indicates to apply the rules in this policy
                on forward traffic.
              type: boolean
            doNotTrack:
              description: DoNotTrack indicates whether packets matched by the rules
                in this policy should go through the data plane's connection tracking,
                such as Linux conntrack. If True, the rules in this policy are
                applied before any data plane connection tracking, and packets allowed
                by this policy are marked as not to be tracked.
              type: boolean
            egress:
```

description: The ordered set of egress rules. Each rule contains a set of packet match criteria and a corresponding action to apply.

items:

description: "A Rule encapsulates a set of match criteria and an action. Both selector-based security Policy and security Profiles reference rules - separated out as a list of rules for both ingress and egress packet matching. \n Each positive match criteria has a negated version, prefixed with \"Not\". All the match criteria within a rule must be satisfied for a packet to match. A single rule can contain the positive and negative version of a match and both must be satisfied for the rule to match."

properties:

action:

type: string

destination:

description: Destination contains the match criteria that apply to destination entity.

properties:

namespaceSelector:

description: "NamespaceSelector is an optional field that contains a selector expression. Only traffic that originates from (or terminates at) endpoints within the selected namespaces will be matched. When both NamespaceSelector and another selector are defined on the same rule, then only workload endpoints that are matched by both selectors will be selected by the rule. \n For NetworkPolicy, an empty NamespaceSelector implies that the Selector is limited to selecting only workload endpoints in the same namespace as the NetworkPolicy. \n For NetworkPolicy, `global()` NamespaceSelector implies that the Selector is limited to selecting only GlobalNetworkSet or HostEndpoint. \n For GlobalNetworkPolicy, an empty NamespaceSelector implies the Selector applies to workload endpoints across all namespaces."

type: string

nets:

description: Nets is an optional field that restricts the rule to only apply to traffic that originates from (or terminates at) IP addresses in any of the given subnets.

items:

type: string

```
    type: array
notNets:
  description: NotNets is the negated version of the Nets
    field.
  items:
    type: string
  type: array
notPorts:
  description: NotPorts is the negated version of the Ports
    field. Since only some protocols have ports, if any ports
    are specified it requires the Protocol match in the Rule
    to be set to "TCP" or "UDP".
  items:
    anyOf:
      - type: integer
      - type: string
    pattern: ^.*
    x-kubernetes-int-or-string: true
  type: array
notSelector:
  description: NotSelector is the negated version of the Selector
    field. See Selector field for subtleties with negated
    selectors.
  type: string
ports:
  description: "Ports is an optional field that restricts
    the rule to only apply to traffic that has a source (destination)
    port that matches one of these ranges/values. This value
    is a list of integers or strings that represent ranges
    of ports. \n Since only some protocols have ports, if
    any ports are specified it requires the Protocol match
    in the Rule to be set to \"TCP\" or \"UDP\"."
  items:
    anyOf:
      - type: integer
      - type: string
    pattern: ^.*
    x-kubernetes-int-or-string: true
  type: array
selector:
  description: "Selector is an optional field that contains
```

a selector expression (see Policy for sample syntax).
Only traffic that originates from (terminates at) endpoints matching the selector will be matched. Note that: in addition to the negated version of the Selector (see NotSelector below), the selector expression syntax itself supports negation. The two types of negation are subtly different. One negates the set of matched endpoints, the other negates the whole match: Selector = "!has(my_label)" matches packets that are from other Calico-controlled endpoints that do not have the label "my_label". NotSelector = "has(my_label)" matches packets that are not from Calico-controlled endpoints that do have the label "my_label".
The effect is that the latter will accept packets from non-Calico sources whereas the former is limited to packets from Calico-controlled endpoints."

type: string

serviceAccounts:

description: ServiceAccounts is an optional field that restricts the rule to only apply to traffic that originates from (or terminates at) a pod running as a matching service account.

properties:

names:

description: Names is an optional field that restricts the rule to only apply to traffic that originates from (or terminates at) a pod running as a service account whose name is in the list.

items:

type: string

type: array

selector:

description: Selector is an optional field that restricts the rule to only apply to traffic that originates from (or terminates at) a pod running as a service account that matches the given label selector. If both Names and Selector are specified then they are AND'ed.

type: string

type: object

services:

description: "Services is an optional field that contains

options for matching Kubernetes Services. If specified, only traffic that originates from or terminates at endpoints within the selected service(s) will be matched, and only to/from each endpoint's port. \n Services cannot be specified on the same rule as Selector, NotSelector, NamespaceSelector, Nets, NotNets or ServiceAccounts. \n Ports and NotPorts can only be specified with Services on ingress rules."

properties:

name:

description: Name specifies the name of a Kubernetes Service to match.

type: string

namespace:

description: Namespace specifies the namespace of the given Service. If left empty, the rule will match within this policy's namespace.

type: string

type: object

type: object

http:

description: HTTP contains match criteria that apply to HTTP requests.

properties:

methods:

description: Methods is an optional field that restricts the rule to apply only to HTTP requests that use one of the listed HTTP Methods (e.g. GET, PUT, etc.) Multiple methods are OR'd together.

items:

type: string

type: array

paths:

description: 'Paths is an optional field that restricts the rule to apply to HTTP requests that use one of the listed HTTP Paths. Multiple paths are OR'd together.

e.g: - exact: /foo - prefix: /bar NOTE: Each entry may ONLY specify either a `exact` or a `prefix` match. The validator will check for it.'

items:

description: 'HTTPPath specifies an HTTP path to match.

It may be either of the form: exact: <path>: which matches

```

        the path exactly or prefix: <path-prefix>: which matches
        the path prefix'
    properties:
        exact:
            type: string
        prefix:
            type: string
    type: object
type: array
type: object
icmp:
    description: ICMP is an optional field that restricts the rule
        to apply to a specific type and code of ICMP traffic. This
        should only be specified if the Protocol field is set to "ICMP"
        or "ICMPv6".
    properties:
        code:
            description: Match on a specific ICMP code. If specified,
                the Type value must also be specified. This is a technical
                limitation imposed by the kernel's iptables firewall,
                which Calico uses to enforce the rule.
            type: integer
        type:
            description: Match on a specific ICMP type. For example
                a value of 8 refers to ICMP Echo Request (i.e. pings).
            type: integer
    type: object
ipVersion:
    description: IPVersion is an optional field that restricts the
        rule to only match a specific IP version.
    type: integer
metadata:
    description: Metadata contains additional information for this
        rule
    properties:
        annotations:
            additionalProperties:
                type: string
            description: Annotations is a set of key value pairs that
                give extra information about the rule
            type: object

```

```

    type: object
notICMP:
  description: NotICMP is the negated version of the ICMP field.
  properties:
    code:
      description: Match on a specific ICMP code. If specified,
        the Type value must also be specified. This is a technical
        limitation imposed by the kernel's iptables firewall,
        which Calico uses to enforce the rule.
      type: integer
    type:
      description: Match on a specific ICMP type. For example
        a value of 8 refers to ICMP Echo Request (i.e. pings).
      type: integer
  type: object
notProtocol:
  anyOf:
    - type: integer
    - type: string
  description: NotProtocol is the negated version of the Protocol
    field.
  pattern: ^.*
  x-kubernetes-int-or-string: true
protocol:
  anyOf:
    - type: integer
    - type: string
  description: "Protocol is an optional field that restricts the
    rule to only apply to traffic of a specific IP protocol. Required
    if any of the EntityRules contain Ports (because ports only
    apply to certain protocols). \n Must be one of these string
    values: \"TCP\", \"UDP\", \"ICMP\", \"ICMPv6\", \"SCTP\",
    \"UDPLite\" or an integer in the range 1-255."
  pattern: ^.*
  x-kubernetes-int-or-string: true
source:
  description: Source contains the match criteria that apply to
    source entity.
  properties:
    namespaceSelector:
      description: "NamespaceSelector is an optional field that

```


contains a selector expression. Only traffic that originates from (or terminates at) endpoints within the selected namespaces will be matched. When both NamespaceSelector and another selector are defined on the same rule, then only workload endpoints that are matched by both selectors will be selected by the rule. \n For NetworkPolicy, an empty NamespaceSelector implies that the Selector is limited to selecting only workload endpoints in the same namespace as the NetworkPolicy. \n For NetworkPolicy, `global()` NamespaceSelector implies that the Selector is limited to selecting only GlobalNetworkSet or HostEndpoint. \n For GlobalNetworkPolicy, an empty NamespaceSelector implies the Selector applies to workload endpoints across all namespaces."

type: string

nets:

description: Nets is an optional field that restricts the rule to only apply to traffic that originates from (or terminates at) IP addresses in any of the given subnets.

items:

type: string

type: array

notNets:

description: NotNets is the negated version of the Nets field.

items:

type: string

type: array

notPorts:

description: NotPorts is the negated version of the Ports field. Since only some protocols have ports, if any ports are specified it requires the Protocol match in the Rule to be set to "TCP" or "UDP".

items:

anyOf:

- type: integer

- type: string

pattern: ^.*

x-kubernetes-int-or-string: true

type: array

notSelector:

description: NotSelector is the negated version of the Selector field. See Selector field for subtleties with negated selectors.

type: string

ports:

description: "Ports is an optional field that restricts the rule to only apply to traffic that has a source (destination) port that matches one of these ranges/values. This value is a list of integers or strings that represent ranges of ports. \n Since only some protocols have ports, if any ports are specified it requires the Protocol match in the Rule to be set to \"TCP\" or \"UDP\"."

items:

anyOf:

- type: integer

- type: string

pattern: ^.*

x-kubernetes-int-or-string: true

type: array

selector:

description: "Selector is an optional field that contains a selector expression (see Policy for sample syntax). \n Only traffic that originates from (terminates at) endpoints matching the selector will be matched. \n Note that: in addition to the negated version of the Selector (see NotSelector below), the selector expression syntax itself supports negation. The two types of negation are subtly different. One negates the set of matched endpoints, the other negates the whole match: \n \tSelector = \"!has(my_label)\" matches packets that are from other Calico-controlled \tendpoints that do not have the label \"my_label\". \n \tNotSelector = \"has(my_label)\" matches packets that are not from Calico-controlled \tendpoints that do have the label \"my_label\". \n The effect is that the latter will accept packets from non-Calico sources whereas the former is limited to packets from Calico-controlled endpoints."

type: string

serviceAccounts:

description: ServiceAccounts is an optional field that restricts the rule to only apply to traffic that originates from (or terminates at) a pod running as a matching service

```
    account.
  properties:
    names:
      description: Names is an optional field that restricts
        the rule to only apply to traffic that originates
        from (or terminates at) a pod running as a service
        account whose name is in the list.
      items:
        type: string
      type: array
    selector:
      description: Selector is an optional field that restricts
        the rule to only apply to traffic that originates
        from (or terminates at) a pod running as a service
        account that matches the given label selector. If
        both Names and Selector are specified then they are
        AND' ed.
      type: string
    type: object
  services:
    description: "Services is an optional field that contains
      options for matching Kubernetes Services. If specified,
      only traffic that originates from or terminates at endpoints
      within the selected service(s) will be matched, and only
      to/from each endpoint's port. \n Services cannot be specified
      on the same rule as Selector, NotSelector, NamespaceSelector,
      Nets, NotNets or ServiceAccounts. \n Ports and NotPorts
      can only be specified with Services on ingress rules."
  properties:
    name:
      description: Name specifies the name of a Kubernetes
        Service to match.
      type: string
    namespace:
      description: Namespace specifies the namespace of the
        given Service. If left empty, the rule will match
        within this policy's namespace.
      type: string
    type: object
  type: object
required:
```

- action

type: object

type: array

ingress:

description: The ordered set of ingress rules. Each rule contains a set of packet match criteria and a corresponding action to apply.

items:

description: "A Rule encapsulates a set of match criteria and an action. Both selector-based security Policy and security Profiles reference rules - separated out as a list of rules for both ingress and egress packet matching. \n Each positive match criteria has a negated version, prefixed with \"Not\". All the match criteria within a rule must be satisfied for a packet to match. A single rule can contain the positive and negative version of a match and both must be satisfied for the rule to match."

properties:

action:

type: string

destination:

description: Destination contains the match criteria that apply to destination entity.

properties:

namespaceSelector:

description: "NamespaceSelector is an optional field that contains a selector expression. Only traffic that originates from (or terminates at) endpoints within the selected namespaces will be matched. When both NamespaceSelector and another selector are defined on the same rule, then only workload endpoints that are matched by both selectors will be selected by the rule. \n For NetworkPolicy, an empty NamespaceSelector implies that the Selector is limited to selecting only workload endpoints in the same namespace as the NetworkPolicy. \n For NetworkPolicy, `global()` NamespaceSelector implies that the Selector is limited to selecting only GlobalNetworkSet or HostEndpoint. \n For GlobalNetworkPolicy, an empty NamespaceSelector implies the Selector applies to workload endpoints across all namespaces."

type: string

nets:

description: Nets is an optional field that restricts the

```
rule to only apply to traffic that originates from (or
terminates at) IP addresses in any of the given subnets.
items:
  type: string
type: array
notNets:
  description: NotNets is the negated version of the Nets
    field.
  items:
    type: string
  type: array
notPorts:
  description: NotPorts is the negated version of the Ports
    field. Since only some protocols have ports, if any ports
    are specified it requires the Protocol match in the Rule
    to be set to "TCP" or "UDP".
  items:
    anyOf:
      - type: integer
      - type: string
    pattern: ^.*
    x-kubernetes-int-or-string: true
  type: array
notSelector:
  description: NotSelector is the negated version of the Selector
    field. See Selector field for subtleties with negated
    selectors.
  type: string
ports:
  description: "Ports is an optional field that restricts
    the rule to only apply to traffic that has a source (destination)
    port that matches one of these ranges/values. This value
    is a list of integers or strings that represent ranges
    of ports. \n Since only some protocols have ports, if
    any ports are specified it requires the Protocol match
    in the Rule to be set to \"TCP\" or \"UDP\"."
  items:
    anyOf:
      - type: integer
      - type: string
    pattern: ^.*
```

```

    x-kubernetes-int-or-string: true
  type: array
  selector:
    description: "Selector is an optional field that contains
      a selector expression (see Policy for sample syntax).
      \n Only traffic that originates from (terminates at) endpoints
      matching the selector will be matched. \n Note that: in
      addition to the negated version of the Selector (see NotSelector
      below), the selector expression syntax itself supports
      negation. The two types of negation are subtly different.
      One negates the set of matched endpoints, the other negates
      the whole match: \n \tSelector = \"!has(my_label)\" matches
      packets that are from other Calico-controlled \tendpoints
      that do not have the label \"my_label\". \n \tNotSelector
      = \"has(my_label)\" matches packets that are not from
      Calico-controlled \tendpoints that do have the label \"my_label\".
      \n The effect is that the latter will accept packets from
      non-Calico sources whereas the former is limited to packets
      from Calico-controlled endpoints."
    type: string
  serviceAccounts:
    description: ServiceAccounts is an optional field that restricts
      the rule to only apply to traffic that originates from
      (or terminates at) a pod running as a matching service
      account.
  properties:
    names:
      description: Names is an optional field that restricts
        the rule to only apply to traffic that originates
        from (or terminates at) a pod running as a service
        account whose name is in the list.
      items:
        type: string
      type: array
    selector:
      description: Selector is an optional field that restricts
        the rule to only apply to traffic that originates
        from (or terminates at) a pod running as a service
        account that matches the given label selector. If
        both Names and Selector are specified then they are
        AND' ed.

```

```
    type: string
  type: object
  services:
    description: "Services is an optional field that contains
      options for matching Kubernetes Services. If specified,
      only traffic that originates from or terminates at endpoints
      within the selected service(s) will be matched, and only
      to/from each endpoint's port. \n Services cannot be specified
      on the same rule as Selector, NotSelector, NamespaceSelector,
      Nets, NotNets or ServiceAccounts. \n Ports and NotPorts
      can only be specified with Services on ingress rules."
    properties:
      name:
        description: Name specifies the name of a Kubernetes
          Service to match.
        type: string
      namespace:
        description: Namespace specifies the namespace of the
          given Service. If left empty, the rule will match
          within this policy's namespace.
        type: string
    type: object
  type: object
http:
  description: HTTP contains match criteria that apply to HTTP
    requests.
  properties:
    methods:
      description: Methods is an optional field that restricts
        the rule to apply only to HTTP requests that use one of
        the listed HTTP Methods (e.g. GET, PUT, etc.) Multiple
        methods are OR'd together.
      items:
        type: string
      type: array
    paths:
      description: 'Paths is an optional field that restricts
        the rule to apply to HTTP requests that use one of the
        listed HTTP Paths. Multiple paths are OR'd together.
        e.g. - exact: /foo - prefix: /bar NOTE: Each entry may
        ONLY specify either a `exact` or a `prefix` match. The
```

```
    validator will check for it.'
  items:
    description: 'HTTPPath specifies an HTTP path to match.
      It may be either of the form: exact: <path>: which matches
      the path exactly or prefix: <path-prefix>: which matches
      the path prefix'
    properties:
      exact:
        type: string
      prefix:
        type: string
    type: object
  type: array
type: object
icmp:
  description: ICMP is an optional field that restricts the rule
    to apply to a specific type and code of ICMP traffic. This
    should only be specified if the Protocol field is set to "ICMP"
    or "ICMPv6".
  properties:
    code:
      description: Match on a specific ICMP code. If specified,
        the Type value must also be specified. This is a technical
        limitation imposed by the kernel's iptables firewall,
        which Calico uses to enforce the rule.
      type: integer
    type:
      description: Match on a specific ICMP type. For example
        a value of 8 refers to ICMP Echo Request (i.e. pings).
      type: integer
  type: object
ipVersion:
  description: IPVersion is an optional field that restricts the
    rule to only match a specific IP version.
  type: integer
metadata:
  description: Metadata contains additional information for this
    rule
  properties:
    annotations:
    additionalProperties:
```



```

    type: string
    description: Annotations is a set of key value pairs that
        give extra information about the rule
    type: object
type: object
notICMP:
    description: NotICMP is the negated version of the ICMP field.
    properties:
        code:
            description: Match on a specific ICMP code. If specified,
                the Type value must also be specified. This is a technical
                limitation imposed by the kernel's iptables firewall,
                which Calico uses to enforce the rule.
            type: integer
        type:
            description: Match on a specific ICMP type. For example
                a value of 8 refers to ICMP Echo Request (i.e. pings).
            type: integer
    type: object
notProtocol:
    anyOf:
        - type: integer
        - type: string
    description: NotProtocol is the negated version of the Protocol
        field.
    pattern: ^.*
    x-kubernetes-int-or-string: true
protocol:
    anyOf:
        - type: integer
        - type: string
    description: "Protocol is an optional field that restricts the
        rule to only apply to traffic of a specific IP protocol. Required
        if any of the EntityRules contain Ports (because ports only
        apply to certain protocols). \n Must be one of these string
        values: \"TCP\", \"UDP\", \"ICMP\", \"ICMPv6\", \"SCTP\",
        \"UDPLite\" or an integer in the range 1-255."
    pattern: ^.*
    x-kubernetes-int-or-string: true
source:
    description: Source contains the match criteria that apply to

```

source entity.

properties:

namespaceSelector:

description: "NamespaceSelector is an optional field that contains a selector expression. Only traffic that originates from (or terminates at) endpoints within the selected namespaces will be matched. When both NamespaceSelector and another selector are defined on the same rule, then only workload endpoints that are matched by both selectors will be selected by the rule. \n For NetworkPolicy, an empty NamespaceSelector implies that the Selector is limited to selecting only workload endpoints in the same namespace as the NetworkPolicy. \n For NetworkPolicy, `global()` NamespaceSelector implies that the Selector is limited to selecting only GlobalNetworkSet or HostEndpoint. \n For GlobalNetworkPolicy, an empty NamespaceSelector implies the Selector applies to workload endpoints across all namespaces."

type: string

nets:

description: Nets is an optional field that restricts the rule to only apply to traffic that originates from (or terminates at) IP addresses in any of the given subnets.

items:

type: string

type: array

notNets:

description: NotNets is the negated version of the Nets field.

items:

type: string

type: array

notPorts:

description: NotPorts is the negated version of the Ports field. Since only some protocols have ports, if any ports are specified it requires the Protocol match in the Rule to be set to "TCP" or "UDP".

items:

anyOf:

- type: integer

- type: string

```

    pattern: ^.*
    x-kubernetes-int-or-string: true
  type: array
notSelector:
  description: NotSelector is the negated version of the Selector
    field. See Selector field for subtleties with negated
    selectors.
  type: string
ports:
  description: "Ports is an optional field that restricts
    the rule to only apply to traffic that has a source (destination)
    port that matches one of these ranges/values. This value
    is a list of integers or strings that represent ranges
    of ports. \n Since only some protocols have ports, if
    any ports are specified it requires the Protocol match
    in the Rule to be set to \"TCP\" or \"UDP\"."
  items:
    anyOf:
      - type: integer
      - type: string
    pattern: ^.*
    x-kubernetes-int-or-string: true
  type: array
selector:
  description: "Selector is an optional field that contains
    a selector expression (see Policy for sample syntax).
    \n Only traffic that originates from (terminates at) endpoints
    matching the selector will be matched. \n Note that: in
    addition to the negated version of the Selector (see NotSelector
    below), the selector expression syntax itself supports
    negation. The two types of negation are subtly different.
    One negates the set of matched endpoints, the other negates
    the whole match: \n \tSelector = \"!has(my_label)\" matches
    packets that are from other Calico-controlled \tendpoints
    that do not have the label \"my_label\". \n \tNotSelector
    = \"has(my_label)\" matches packets that are not from
    Calico-controlled \tendpoints that do have the label \"my_label\".
    \n The effect is that the latter will accept packets from
    non-Calico sources whereas the former is limited to packets
    from Calico-controlled endpoints."
  type: string

```

serviceAccounts:

description: ServiceAccounts is an optional field that restricts the rule to only apply to traffic that originates from (or terminates at) a pod running as a matching service account.

properties:

names:

description: Names is an optional field that restricts the rule to only apply to traffic that originates from (or terminates at) a pod running as a service account whose name is in the list.

items:

type: string

type: array

selector:

description: Selector is an optional field that restricts the rule to only apply to traffic that originates from (or terminates at) a pod running as a service account that matches the given label selector. If both Names and Selector are specified then they are AND'ed.

type: string

type: object

services:

description: "Services is an optional field that contains options for matching Kubernetes Services. If specified, only traffic that originates from or terminates at endpoints within the selected service(s) will be matched, and only to/from each endpoint's port. \n Services cannot be specified on the same rule as Selector, NotSelector, NamespaceSelector, Nets, NotNets or ServiceAccounts. \n Ports and NotPorts can only be specified with Services on ingress rules."

properties:

name:

description: Name specifies the name of a Kubernetes Service to match.

type: string

namespace:

description: Namespace specifies the namespace of the given Service. If left empty, the rule will match within this policy's namespace.

```

        type: string
    type: object
    type: object
    required:
    - action
    type: object
    type: array
namespaceSelector:
    description: NamespaceSelector is an optional field for an expression
        used to select a pod based on namespaces.
    type: string
order:
    description: Order is an optional field that specifies the order in
        which the policy is applied. Policies with higher "order" are applied
        after those with lower order. If the order is omitted, it may be
        considered to be "infinite" - i.e. the policy will be applied last.

```

Policies

```

    with identical order will be applied in alphanumerical order based
    on the Policy "Name".
    type: number
preDNAT:
    description: PreDNAT indicates to apply the rules in this policy before
        any DNAT.
    type: boolean
selector:
    description: "The selector is an expression used to pick pick out
        the endpoints that the policy should be applied to. \n Selector
        expressions follow this syntax: \n \tlabel == \"string_literal\"
        \ -> comparison, e.g. my_label == \"foo bar\" \tlabel != \"string_literal\"
        \ -> not equal; also matches if label is not present \tlabel in
        { \"a\", \"b\", \"c\", ... } -> true if the value of label X is
        one of \"a\", \"b\", \"c\" \tlabel not in { \"a\", \"b\", \"c\",
        ... } -> true if the value of label X is not one of \"a\", \"b\",
        \"c\" \thas(label_name) -> True if that label is present \t! expr
        -> negation of expr \texpr && expr -> Short-circuit and \texpr
        || expr -> Short-circuit or \t( expr ) -> parens for grouping \tall()
        or the empty selector -> matches all endpoints. \n Label names are
        allowed to contain alphanumerics, -, _ and /. String literals are
        more permissive but they do not support escape characters. \n Examples
        (with made-up labels): \n \ttype == \"webserver\" && deployment
        == \"prod\" \ttype in {\"frontend\", \"backend\"} \tdeployment !=

```

```

        \ "dev\ " \t! has(label_name)"
    type: string
serviceAccountSelector:
    description: ServiceAccountSelector is an optional field for an expression
        used to select a pod based on service accounts.
    type: string
types:
    description: "Types indicates whether this policy applies to ingress,
        or to egress, or to both. When not explicitly specified (and so
        the value on creation is empty or nil), Calico defaults Types according
        to what Ingress and Egress rules are present in the policy. The
        default is: \n - [ PolicyTypeIngress ], if there are no Egress rules
        (including the case where there are also no Ingress rules) \n
        - [ PolicyTypeEgress ], if there are Egress rules but no Ingress
        rules \n - [ PolicyTypeIngress, PolicyTypeEgress ], if there are
        both Ingress and Egress rules. \n When the policy is read back again,
        Types will always be one of these values, never empty or nil."
    items:
        description: PolicyType enumerates the possible values of the PolicySpec
            Types field.
        type: string
    type: array
type: object
type: object
served: true
storage: true
status:
    acceptedNames:
        kind: ""
        plural: ""
    conditions: []
    storedVersions: []

---
apiVersion: apiextensions.k8s.io/v1
kind: CustomResourceDefinition
metadata:
    name: globalnetworksets.crd.projectcalico.org
spec:
    group: crd.projectcalico.org
    names:

```

```
kind: GlobalNetworkSet
listKind: GlobalNetworkSetList
plural: globalnetworksets
singular: globalnetworkset
scope: Cluster
versions:
- name: v1
  schema:
    openAPIV3Schema:
      description: GlobalNetworkSet contains a set of arbitrary IP sub-networks/CIDRs
        that share labels to allow rules to refer to them via selectors. The labels
        of GlobalNetworkSet are not namespaced.
      properties:
        apiVersion:
          description: 'APIVersion defines the versioned schema of this representation
            of an object. Servers should convert recognized schemas to the latest
            internal value, and may reject unrecognized values. More info:
https://git.k8s.io/community/contributors/devel/sig-architecture/api-conventions.md#resources'
          type: string
        kind:
          description: 'Kind is a string value representing the REST resource this
            object represents. Servers may infer this from the endpoint the client
            submits requests to. Cannot be updated. In CamelCase. More info:
https://git.k8s.io/community/contributors/devel/sig-architecture/api-conventions.md#types-kinds'
          type: string
        metadata:
          type: object
        spec:
          description: GlobalNetworkSetSpec contains the specification for a NetworkSet
            resource.
          properties:
            nets:
              description: The list of IP networks that belong to this set.
              items:
                type: string
              type: array
            type: object
          type: object
      served: true
      storage: true
```

```

status:
  acceptedNames:
    kind: ""
    plural: ""
  conditions: []
  storedVersions: []

---
apiVersion: apiextensions.k8s.io/v1
kind: CustomResourceDefinition
metadata:
  name: hostendpoints.crd.projectcalico.org
spec:
  group: crd.projectcalico.org
  names:
    kind: HostEndpoint
    listKind: HostEndpointList
    plural: hostendpoints
    singular: hostendpoint
  scope: Cluster
  versions:
    - name: v1
      schema:
        openAPIV3Schema:
          properties:
            apiVersion:
              description: 'APIVersion defines the versioned schema of this representation
                of an object. Servers should convert recognized schemas to the latest
                internal value, and may reject unrecognized values. More info:
https://git.k8s.io/community/contributors/devel/sig-architecture/api-conventions.md#resources'
              type: string
            kind:
              description: 'Kind is a string value representing the REST resource this
                object represents. Servers may infer this from the endpoint the client
                submits requests to. Cannot be updated. In CamelCase. More info:
https://git.k8s.io/community/contributors/devel/sig-architecture/api-conventions.md#types-kinds'
              type: string
          metadata:
            type: object
      spec:

```


description: HostEndpointSpec contains the specification for a HostEndpoint resource.

properties:

expectedIPs:

description: "The expected IP addresses (IPv4 and IPv6) of the endpoint. If \"InterfaceName\" is not present, Calico will look for an interface matching any of the IPs in the list and apply policy to that. Note: \tWhen using the selector match criteria in an ingress or egress security Policy \tor Profile, Calico converts the selector into a set of IP addresses. For host \tendpoints, the ExpectedIPs field is used for that purpose. (If only the interface \tname is specified, Calico does not learn the IPs of the interface for use in match \tcriteria.)"

items:

type: string

type: array

interfaceName:

description: "Either \"*\", or the name of a specific Linux interface to apply policy to; or empty. \"*\" indicates that this HostEndpoint governs all traffic to, from or through the default network namespace of the host named by the \"Node\" field; entering and leaving that namespace via any interface, including those from/to non-host-networked local workloads. \n If InterfaceName is not \"*\", this HostEndpoint only governs traffic that enters or leaves the host through the specific interface named by InterfaceName, or - when InterfaceName is empty - through the specific interface that has one of the IPs in ExpectedIPs. Therefore, when InterfaceName is empty, at least one expected IP must be specified. Only external interfaces (such as \"eth0\") are supported here; it isn't possible for a HostEndpoint to protect traffic through a specific local workload interface. \n Note: Only some kinds of policy are implemented for \"*\" HostEndpoints; initially just pre-DNAT policy. Please check Calico documentation for the latest position."

type: string

node:

description: The node name identifying the Calico node instance.

type: string

ports:

description: Ports contains the endpoint's named ports, which may be referenced in security policy rules.

items:

```

    properties:
      name:
        type: string
      port:
        type: integer
      protocol:
        anyOf:
          - type: integer
          - type: string
        pattern: ^.*
        x-kubernetes-int-or-string: true
      required:
        - name
        - port
        - protocol
      type: object
    type: array
  profiles:
    description: A list of identifiers of security Profile objects that
      apply to this endpoint. Each profile is applied in the order that
      they appear in this list. Profile rules are applied after the selector-
based
      security policy.
    items:
      type: string
    type: array
  type: object
  served: true
  storage: true
status:
  acceptedNames:
    kind: ""
    plural: ""
  conditions: []
  storedVersions: []

---
apiVersion: apiextensions.k8s.io/v1
kind: CustomResourceDefinition
metadata:
```

```

name: ipamblocks.crd.projectcalico.org
spec:
  group: crd.projectcalico.org
  names:
    kind: IPAMBlock
    listKind: IPAMBlockList
    plural: ipamblocks
    singular: ipamblock
  scope: Cluster
  versions:
  - name: v1
    schema:
      openAPIV3Schema:
        properties:
          apiVersion:
            description: 'APIVersion defines the versioned schema of this representation
              of an object. Servers should convert recognized schemas to the latest
              internal value, and may reject unrecognized values. More info:
https://git.k8s.io/community/contributors/devel/sig-architecture/api-conventions.md#resources'
            type: string
          kind:
            description: 'Kind is a string value representing the REST resource this
              object represents. Servers may infer this from the endpoint the client
              submits requests to. Cannot be updated. In CamelCase. More info:
https://git.k8s.io/community/contributors/devel/sig-architecture/api-conventions.md#types-kinds'
            type: string
        metadata:
          type: object
      spec:
        description: IPAMBlockSpec contains the specification for an IPAMBlock
          resource.
        properties:
          affinity:
            type: string
          allocations:
            items:
              type: integer
              # TODO: This nullable is manually added in. We should update controller-gen
              # to handle []*int properly itself.
              nullable: true

```

```
    type: array
  attributes:
    items:
      properties:
        handle_id:
          type: string
        secondary:
          additionalProperties:
            type: string
            type: object
          type: object
      type: array
  cidr:
    type: string
  deleted:
    type: boolean
  strictAffinity:
    type: boolean
  unallocated:
    items:
      type: integer
    type: array
  required:
    - allocations
    - attributes
    - cidr
    - strictAffinity
    - unallocated
  type: object
  type: object
  served: true
  storage: true
status:
  acceptedNames:
    kind: ""
    plural: ""
  conditions: []
  storedVersions: []

---
apiVersion: apiextensions.k8s.io/v1
```

```

kind: CustomResourceDefinition
metadata:
  name: ipamconfigs.crd.projectcalico.org
spec:
  group: crd.projectcalico.org
  names:
    kind: IPAMConfig
    listKind: IPAMConfigList
    plural: ipamconfigs
    singular: ipamconfig
  scope: Cluster
  versions:
    - name: v1
      schema:
        openAPIV3Schema:
          properties:
            apiVersion:
              description: 'APIVersion defines the versioned schema of this representation
                of an object. Servers should convert recognized schemas to the latest
                internal value, and may reject unrecognized values. More info:
https://git.k8s.io/community/contributors/devel/sig-architecture/api-conventions.md#resources'
              type: string
            kind:
              description: 'Kind is a string value representing the REST resource this
                object represents. Servers may infer this from the endpoint the client
                submits requests to. Cannot be updated. In CamelCase. More info:
https://git.k8s.io/community/contributors/devel/sig-architecture/api-conventions.md#types-kinds'
              type: string
          metadata:
            type: object
          spec:
            description: IPAMConfigSpec contains the specification for an IPAMConfig
              resource.
            properties:
              autoAllocateBlocks:
                type: boolean
              maxBlocksPerHost:
                description: MaxBlocksPerHost, if non-zero, is the max number of blocks
                  that can be affine to each host.
                type: integer

```

```

        strictAffinity:
          type: boolean
      required:
        - autoAllocateBlocks
        - strictAffinity
      type: object
    type: object
  served: true
  storage: true
status:
  acceptedNames:
    kind: ""
    plural: ""
  conditions: []
  storedVersions: []

---
apiVersion: apiextensions.k8s.io/v1
kind: CustomResourceDefinition
metadata:
  name: ipamhandles.crd.projectcalico.org
spec:
  group: crd.projectcalico.org
  names:
    kind: IPAMHandle
    listKind: IPAMHandleList
    plural: ipamhandles
    singular: ipamhandle
  scope: Cluster
  versions:
    - name: v1
      schema:
        openAPIV3Schema:
          properties:
            apiVersion:
              description: 'APIVersion defines the versioned schema of this representation
                of an object. Servers should convert recognized schemas to the latest
                internal value, and may reject unrecognized values. More info:
https://git.k8s.io/community/contributors/devel/sig-architecture/api-conventions.md#resources'
              type: string
            kind:

```

description: 'Kind is a string value representing the REST resource this object represents. Servers may infer this from the endpoint the client submits requests to. Cannot be updated. In CamelCase. More info:

<https://git.k8s.io/community/contributors/devel/sig-architecture/api-conventions.md#types-kinds>'

```
    type: string
  metadata:
    type: object
  spec:
    description: IPAMHandleSpec contains the specification for an IPAMHandle resource.
    properties:
      block:
        additionalProperties:
          type: integer
        type: object
      deleted:
        type: boolean
      handleID:
        type: string
    required:
      - block
      - handleID
    type: object
  type: object
served: true
storage: true
```

```
status:
  acceptedNames:
    kind: ""
    plural: ""
  conditions: []
  storedVersions: []
```

```
apiVersion: apiextensions.k8s.io/v1
kind: CustomResourceDefinition
metadata:
  name: ippools.crd.projectcalico.org
spec:
  group: crd.projectcalico.org
```

```

names:
  kind: IPPool
  listKind: IPPoolList
  plural: ippools
  singular: ippool
scope: Cluster
versions:
- name: v1
  schema:
    openAPIV3Schema:
      properties:
        apiVersion:
          description: 'APIVersion defines the versioned schema of this representation
            of an object. Servers should convert recognized schemas to the latest
            internal value, and may reject unrecognized values. More info:
https://git.k8s.io/community/contributors/devel/sig-architecture/api-conventions.md#resources'
          type: string
        kind:
          description: 'Kind is a string value representing the REST resource this
            object represents. Servers may infer this from the endpoint the client
            submits requests to. Cannot be updated. In CamelCase. More info:
https://git.k8s.io/community/contributors/devel/sig-architecture/api-conventions.md#types-kinds'
          type: string
        metadata:
          type: object
        spec:
          description: IPPoolSpec contains the specification for an IPPool resource.
          properties:
            allowedUses:
              description: AllowedUse controls what the IP pool will be used for. If
                not specified or empty, defaults to ["Tunnel", "Workload"] for back-
compatibility
              items:
                type: string
              type: array
            blockSize:
              description: The block size to use for IP address assignments from
                this pool. Defaults to 26 for IPv4 and 112 for IPv6.
              type: integer
            cidr:

```


description: The pool CIDR.

type: string

disableBGPExport:

description: 'Disable exporting routes from this IP Pool's CIDR over BGP. [Default: false]'

type: boolean

disabled:

description: When disabled is true, Calico IPAM will not assign addresses from this pool.

type: boolean

ipip:

description: 'Deprecated: this field is only used for APIv1 backwards compatibility. Setting this field is not allowed, this field is for internal use only.'

properties:

enabled:

description: When enabled is true, ipip tunneling will be used to deliver packets to destinations within this pool.

type: boolean

mode:

description: The IPIP mode. This can be one of "always" or "cross-

subnet". A

mode of "always" will also use IPIP tunneling for routing to destination IP addresses within this pool. A mode of "cross-subnet" will only use IPIP tunneling when the destination node is on a different subnet to the originating node. The default value (if not specified) is "always".

type: string

type: object

ipipMode:

description: Contains configuration for IPIP tunneling for this pool.

If not specified, then this is defaulted to "Never" (i.e. IPIP tunneling is disabled).

type: string

nat-outgoing:

description: 'Deprecated: this field is only used for APIv1 backwards compatibility. Setting this field is not allowed, this field is for internal use only.'

type: boolean

natOutgoing:

description: When nat-outgoing is true, packets sent from Calico networked

```

        containers in this pool to destinations outside of this pool will
        be masqueraded.
    type: boolean
  nodeSelector:
    description: Allows IPPool to allocate for a specific node by label
    selector.
    type: string
  vxlanMode:
    description: Contains configuration for VXLAN tunneling for this pool.
    If not specified, then this is defaulted to "Never" (i.e. VXLAN
    tunneling is disabled).
    type: string
  required:
  - cidr
  type: object
type: object
served: true
storage: true
status:
  acceptedNames:
    kind: ""
    plural: ""
  conditions: []
  storedVersions: []

---
apiVersion: apiextensions.k8s.io/v1
kind: CustomResourceDefinition
metadata:
  name: ipreservations.crd.projectcalico.org
spec:
  group: crd.projectcalico.org
  names:
    kind: IPReservation
    listKind: IPReservationList
    plural: ipreservations
    singular: ipreservation
  scope: Cluster
  versions:
  - name: v1
    schema:

```

```

openAPIV3Schema:
  properties:
    apiVersion:
      description: 'APIVersion defines the versioned schema of this representation
        of an object. Servers should convert recognized schemas to the latest
        internal value, and may reject unrecognized values. More info:
https://git.k8s.io/community/contributors/devel/sig-architecture/api-conventions.md#resources'
      type: string
    kind:
      description: 'Kind is a string value representing the REST resource this
        object represents. Servers may infer this from the endpoint the client
        submits requests to. Cannot be updated. In CamelCase. More info:
https://git.k8s.io/community/contributors/devel/sig-architecture/api-conventions.md#types-kinds'
      type: string
    metadata:
      type: object
    spec:
      description: IPReservationSpec contains the specification for an IPReservation
        resource.
      properties:
        reservedCIDRs:
          description: ReservedCIDRs is a list of CIDRs and/or IP addresses
            that Calico IPAM will exclude from new allocations.
          items:
            type: string
          type: array
        type: object
      type: object
    served: true
    storage: true
  status:
    acceptedNames:
      kind: ""
      plural: ""
    conditions: []
    storedVersions: []

---
apiVersion: apiextensions.k8s.io/v1
kind: CustomResourceDefinition

```

```

metadata:
  name: kubecontrollersconfigurations.crd.projectcalico.org
spec:
  group: crd.projectcalico.org
  names:
    kind: KubeControllersConfiguration
    listKind: KubeControllersConfigurationList
    plural: kubecontrollersconfigurations
    singular: kubecontrollersconfiguration
  scope: Cluster
  versions:
    - name: v1
      schema:
        openAPIV3Schema:
          properties:
            apiVersion:
              description: 'APIVersion defines the versioned schema of this representation
                of an object. Servers should convert recognized schemas to the latest
                internal value, and may reject unrecognized values. More info:
https://git.k8s.io/community/contributors/devel/sig-architecture/api-conventions.md#resources'
              type: string
            kind:
              description: 'Kind is a string value representing the REST resource this
                object represents. Servers may infer this from the endpoint the client
                submits requests to. Cannot be updated. In CamelCase. More info:
https://git.k8s.io/community/contributors/devel/sig-architecture/api-conventions.md#types-kinds'
              type: string
          metadata:
            type: object
          spec:
            description: KubeControllersConfigurationSpec contains the values of the
              Kubernetes controllers configuration.
            properties:
              controllers:
                description: Controllers enables and configures individual Kubernetes
                  controllers
                properties:
                  namespace:
                    description: Namespace enables and configures the namespace controller.
                      Enabled by default, set to nil to disable.

```

```
properties:
  reconcilerPeriod:
    description: 'ReconcilerPeriod is the period to perform reconciliation
      with the Calico datastore. [Default: 5m]'
    type: string
  type: object
node:
  description: Node enables and configures the node controller.
    Enabled by default, set to nil to disable.
  properties:
    hostEndpoint:
      description: HostEndpoint controls syncing nodes to host endpoints.
        Disabled by default, set to nil to disable.
      properties:
        autoCreate:
          description: 'AutoCreate enables automatic creation of
            host endpoints for every node. [Default: Disabled]'
          type: string
        type: object
    leakGracePeriod:
      description: 'LeakGracePeriod is the period used by the controller
        to determine if an IP address has been leaked. Set to 0
        to disable IP garbage collection. [Default: 15m]'
      type: string
    reconcilerPeriod:
      description: 'ReconcilerPeriod is the period to perform reconciliation
        with the Calico datastore. [Default: 5m]'
      type: string
    syncLabels:
      description: 'SyncLabels controls whether to copy Kubernetes
        node labels to Calico nodes. [Default: Enabled]'
      type: string
  type: object
policy:
  description: Policy enables and configures the policy controller.
    Enabled by default, set to nil to disable.
  properties:
    reconcilerPeriod:
      description: 'ReconcilerPeriod is the period to perform reconciliation
        with the Calico datastore. [Default: 5m]'
      type: string
```

```
    type: object
  serviceAccount:
    description: ServiceAccount enables and configures the service
      account controller. Enabled by default, set to nil to disable.
    properties:
      reconcilerPeriod:
        description: 'ReconcilerPeriod is the period to perform reconciliation
          with the Calico datastore. [Default: 5m]'
        type: string
      type: object
  workloadEndpoint:
    description: WorkloadEndpoint enables and configures the workload
      endpoint controller. Enabled by default, set to nil to disable.
    properties:
      reconcilerPeriod:
        description: 'ReconcilerPeriod is the period to perform reconciliation
          with the Calico datastore. [Default: 5m]'
        type: string
      type: object
  type: object
  etcdV3CompactionPeriod:
    description: 'EtcdV3CompactionPeriod is the period between etcdv3
      compaction requests. Set to 0 to disable. [Default: 10m]'
    type: string
  healthChecks:
    description: 'HealthChecks enables or disables support for health
      checks [Default: Enabled]'
    type: string
  logSeverityScreen:
    description: 'LogSeverityScreen is the log severity above which logs
      are sent to the stdout. [Default: Info]'
    type: string
  prometheusMetricsPort:
    description: 'PrometheusMetricsPort is the TCP port that the Prometheus
      metrics server should bind to. Set to 0 to disable. [Default: 9094]'
    type: integer
  required:
  - controllers
  type: object
  status:
    description: KubeControllersConfigurationStatus represents the status
```

of the configuration. It's useful for admins to be able to see the actual config that was applied, which can be modified by environment variables on the kube-controllers process.

properties:

environmentVars:

additionalProperties:

type: string

description: EnvironmentVars contains the environment variables on the kube-controllers that influenced the RunningConfig.

type: object

runningConfig:

description: RunningConfig contains the effective config that is running in the kube-controllers pod, after merging the API resource with any environment variables.

properties:

controllers:

description: Controllers enables and configures individual Kubernetes controllers

properties:

namespace:

description: Namespace enables and configures the namespace controller. Enabled by default, set to nil to disable.

properties:

reconcilerPeriod:

description: 'ReconcilerPeriod is the period to perform reconciliation with the Calico datastore. [Default: 5m]'

type: string

type: object

node:

description: Node enables and configures the node controller. Enabled by default, set to nil to disable.

properties:

hostEndpoint:

description: HostEndpoint controls syncing nodes to host endpoints. Disabled by default, set to nil to disable.

properties:

autoCreate:

description: 'AutoCreate enables automatic creation of host endpoints for every node. [Default: Disabled]'

type: string

```
    type: object
  leakGracePeriod:
    description: 'LeakGracePeriod is the period used by the
      controller to determine if an IP address has been leaked.
      Set to 0 to disable IP garbage collection. [Default:
      15m]'
```

type: string

```
  reconcilerPeriod:
    description: 'ReconcilerPeriod is the period to perform
      reconciliation with the Calico datastore. [Default:
      5m]'
```

type: string

```
  syncLabels:
    description: 'SyncLabels controls whether to copy Kubernetes
      node labels to Calico nodes. [Default: Enabled]'
```

type: string

```
type: object
policy:
  description: Policy enables and configures the policy controller.
    Enabled by default, set to nil to disable.
  properties:
    reconcilerPeriod:
      description: 'ReconcilerPeriod is the period to perform
        reconciliation with the Calico datastore. [Default:
        5m]'
```

type: string

```
type: object
serviceAccount:
  description: ServiceAccount enables and configures the service
    account controller. Enabled by default, set to nil to disable.
  properties:
    reconcilerPeriod:
      description: 'ReconcilerPeriod is the period to perform
        reconciliation with the Calico datastore. [Default:
        5m]'
```

type: string

```
type: object
workloadEndpoint:
  description: WorkloadEndpoint enables and configures the workload
    endpoint controller. Enabled by default, set to nil to disable.
  properties:
```



```

    reconcilerPeriod:
      description: 'ReconcilerPeriod is the period to perform
        reconciliation with the Calico datastore. [Default:
        5m]'
      type: string
    type: object
  type: object
etcdV3CompactionPeriod:
  description: 'EtcdV3CompactionPeriod is the period between etcdv3
    compaction requests. Set to 0 to disable. [Default: 10m]'
  type: string
healthChecks:
  description: 'HealthChecks enables or disables support for health
    checks [Default: Enabled]'
  type: string
logSeverityScreen:
  description: 'LogSeverityScreen is the log severity above which
    logs are sent to the stdout. [Default: Info]'
  type: string
prometheusMetricsPort:
  description: 'PrometheusMetricsPort is the TCP port that the Prometheus
    metrics server should bind to. Set to 0 to disable. [Default:
    9094]'
  type: integer
required:
- controllers
  type: object
  type: object
  type: object
served: true
storage: true
status:
  acceptedNames:
    kind: ""
    plural: ""
  conditions: []
  storedVersions: []

---
apiVersion: apiextensions.k8s.io/v1
kind: CustomResourceDefinition

```

```

metadata:
  name: networkpolicies.crd.projectcalico.org
spec:
  group: crd.projectcalico.org
  names:
    kind: NetworkPolicy
    listKind: NetworkPolicyList
    plural: networkpolicies
    singular: networkpolicy
  scope: Namespaced
  versions:
  - name: v1
    schema:
      openAPIV3Schema:
        properties:
          apiVersion:
            description: 'APIVersion defines the versioned schema of this representation
              of an object. Servers should convert recognized schemas to the latest
              internal value, and may reject unrecognized values. More info:
https://git.k8s.io/community/contributors/devel/sig-architecture/api-conventions.md#resources'
            type: string
          kind:
            description: 'Kind is a string value representing the REST resource this
              object represents. Servers may infer this from the endpoint the client
              submits requests to. Cannot be updated. In CamelCase. More info:
https://git.k8s.io/community/contributors/devel/sig-architecture/api-conventions.md#types-kinds'
            type: string
        metadata:
          type: object
      spec:
        properties:
          egress:
            description: The ordered set of egress rules. Each rule contains
              a set of packet match criteria and a corresponding action to apply.
            items:
              description: "A Rule encapsulates a set of match criteria and an
                action. Both selector-based security Policy and security Profiles
                reference rules - separated out as a list of rules for both ingress
                and egress packet matching. \n Each positive match criteria has
                a negated version, prefixed with \"Not\". All the match criteria

```

within a rule must be satisfied for a packet to match. A single rule can contain the positive and negative version of a match and both must be satisfied for the rule to match."

properties:

action:

type: string

destination:

description: Destination contains the match criteria that apply to destination entity.

properties:

namespaceSelector:

description: "NamespaceSelector is an optional field that contains a selector expression. Only traffic that originates from (or terminates at) endpoints within the selected namespaces will be matched. When both NamespaceSelector and another selector are defined on the same rule, then only workload endpoints that are matched by both selectors will be selected by the rule. \n For NetworkPolicy, an empty NamespaceSelector implies that the Selector is limited to selecting only workload endpoints in the same namespace as the NetworkPolicy. \n For NetworkPolicy, `global()` NamespaceSelector implies that the Selector is limited to selecting only GlobalNetworkSet or HostEndpoint. \n For GlobalNetworkPolicy, an empty NamespaceSelector implies the Selector applies to workload endpoints across all namespaces."

type: string

nets:

description: Nets is an optional field that restricts the rule to only apply to traffic that originates from (or terminates at) IP addresses in any of the given subnets.

items:

type: string

type: array

notNets:

description: NotNets is the negated version of the Nets field.

items:

type: string

type: array

notPorts:

description: NotPorts is the negated version of the Ports field. Since only some protocols have ports, if any ports are specified it requires the Protocol match in the Rule to be set to "TCP" or "UDP".

items:

anyOf:

- type: integer
- type: string

pattern: ^.*

x-kubernetes-int-or-string: true

type: array

notSelector:

description: NotSelector is the negated version of the Selector field. See Selector field for subtleties with negated selectors.

type: string

ports:

description: "Ports is an optional field that restricts the rule to only apply to traffic that has a source (destination) port that matches one of these ranges/values. This value is a list of integers or strings that represent ranges of ports. \n Since only some protocols have ports, if any ports are specified it requires the Protocol match in the Rule to be set to \"TCP\" or \"UDP\"."

items:

anyOf:

- type: integer
- type: string

pattern: ^.*

x-kubernetes-int-or-string: true

type: array

selector:

description: "Selector is an optional field that contains a selector expression (see Policy for sample syntax). \n Only traffic that originates from (terminates at) endpoints matching the selector will be matched. \n Note that: in addition to the negated version of the Selector (see NotSelector below), the selector expression syntax itself supports negation. The two types of negation are subtly different. One negates the set of matched endpoints, the other negates the whole match: \n \tSelector = \"!has(my_label)\" matches

packets that are from other Calico-controlled \tendpoints that do not have the label \"my_label\". \n \tNotSelector = \"has(my_label)\" matches packets that are not from Calico-controlled \tendpoints that do have the label \"my_label\". \n The effect is that the latter will accept packets from non-Calico sources whereas the former is limited to packets from Calico-controlled endpoints."

type: string

serviceAccounts:

description: ServiceAccounts is an optional field that restricts the rule to only apply to traffic that originates from (or terminates at) a pod running as a matching service account.

properties:

names:

description: Names is an optional field that restricts the rule to only apply to traffic that originates from (or terminates at) a pod running as a service account whose name is in the list.

items:

type: string

type: array

selector:

description: Selector is an optional field that restricts the rule to only apply to traffic that originates from (or terminates at) a pod running as a service account that matches the given label selector. If both Names and Selector are specified then they are AND'ed.

type: string

type: object

services:

description: "Services is an optional field that contains options for matching Kubernetes Services. If specified, only traffic that originates from or terminates at endpoints within the selected service(s) will be matched, and only to/from each endpoint's port. \n Services cannot be specified on the same rule as Selector, NotSelector, NamespaceSelector, Nets, NotNets or ServiceAccounts. \n Ports and NotPorts can only be specified with Services on ingress rules."

properties:

```
    name:
      description: Name specifies the name of a Kubernetes
        Service to match.
      type: string
    namespace:
      description: Namespace specifies the namespace of the
        given Service. If left empty, the rule will match
        within this policy's namespace.
      type: string
  type: object
type: object
http:
  description: HTTP contains match criteria that apply to HTTP
    requests.
  properties:
    methods:
      description: Methods is an optional field that restricts
        the rule to apply only to HTTP requests that use one of
        the listed HTTP Methods (e.g. GET, PUT, etc.) Multiple
        methods are OR'd together.
    items:
      type: string
    type: array
  paths:
    description: 'Paths is an optional field that restricts
      the rule to apply to HTTP requests that use one of the
      listed HTTP Paths. Multiple paths are OR'd together.
      e.g: - exact: /foo - prefix: /bar NOTE: Each entry may
      ONLY specify either a `exact` or a `prefix` match. The
      validator will check for it.'
    items:
      description: 'HTTPPath specifies an HTTP path to match.
        It may be either of the form: exact: <path>: which matches
        the path exactly or prefix: <path-prefix>: which matches
        the path prefix'
      properties:
        exact:
          type: string
        prefix:
          type: string
      type: object
```

```
    type: array
  type: object
icmp:
  description: ICMP is an optional field that restricts the rule
    to apply to a specific type and code of ICMP traffic. This
    should only be specified if the Protocol field is set to "ICMP"
    or "ICMPv6".
  properties:
    code:
      description: Match on a specific ICMP code. If specified,
        the Type value must also be specified. This is a technical
        limitation imposed by the kernel's iptables firewall,
        which Calico uses to enforce the rule.
      type: integer
    type:
      description: Match on a specific ICMP type. For example
        a value of 8 refers to ICMP Echo Request (i.e. pings).
      type: integer
  type: object
ipVersion:
  description: IPVersion is an optional field that restricts the
    rule to only match a specific IP version.
  type: integer
metadata:
  description: Metadata contains additional information for this
    rule
  properties:
    annotations:
      additionalProperties:
        type: string
      description: Annotations is a set of key value pairs that
        give extra information about the rule
      type: object
  type: object
notICMP:
  description: NotICMP is the negated version of the ICMP field.
  properties:
    code:
      description: Match on a specific ICMP code. If specified,
        the Type value must also be specified. This is a technical
        limitation imposed by the kernel's iptables firewall,
```

```

        which Calico uses to enforce the rule.
    type: integer
type:
    description: Match on a specific ICMP type. For example
        a value of 8 refers to ICMP Echo Request (i.e. pings).
    type: integer
type: object
notProtocol:
    anyOf:
    - type: integer
    - type: string
    description: NotProtocol is the negated version of the Protocol
        field.
    pattern: ^.*
    x-kubernetes-int-or-string: true
protocol:
    anyOf:
    - type: integer
    - type: string
    description: "Protocol is an optional field that restricts the
        rule to only apply to traffic of a specific IP protocol. Required
        if any of the EntityRules contain Ports (because ports only
        apply to certain protocols). \n Must be one of these string
        values: \"TCP\", \"UDP\", \"ICMP\", \"ICMPv6\", \"SCTP\",
        \"UDPLite\" or an integer in the range 1-255."
    pattern: ^.*
    x-kubernetes-int-or-string: true
source:
    description: Source contains the match criteria that apply to
        source entity.
    properties:
        namespaceSelector:
            description: "NamespaceSelector is an optional field that
                contains a selector expression. Only traffic that originates
                from (or terminates at) endpoints within the selected
                namespaces will be matched. When both NamespaceSelector
                and another selector are defined on the same rule, then
                only workload endpoints that are matched by both selectors
                will be selected by the rule. \n For NetworkPolicy, an
                empty NamespaceSelector implies that the Selector is limited
                to selecting only workload endpoints in the same namespace

```


as the NetworkPolicy. \n For NetworkPolicy, `global()` NamespaceSelector implies that the Selector is limited to selecting only GlobalNetworkSet or HostEndpoint. \n For GlobalNetworkPolicy, an empty NamespaceSelector implies the Selector applies to workload endpoints across all namespaces."

type: string

nets:

description: Nets is an optional field that restricts the rule to only apply to traffic that originates from (or terminates at) IP addresses in any of the given subnets.

items:

type: string

type: array

notNets:

description: NotNets is the negated version of the Nets field.

items:

type: string

type: array

notPorts:

description: NotPorts is the negated version of the Ports field. Since only some protocols have ports, if any ports are specified it requires the Protocol match in the Rule to be set to "TCP" or "UDP".

items:

anyOf:

- type: integer

- type: string

pattern: ^.*

x-kubernetes-int-or-string: true

type: array

notSelector:

description: NotSelector is the negated version of the Selector field. See Selector field for subtleties with negated selectors.

type: string

ports:

description: "Ports is an optional field that restricts the rule to only apply to traffic that has a source (destination) port that matches one of these ranges/values. This value

is a list of integers or strings that represent ranges of ports. \n Since only some protocols have ports, if any ports are specified it requires the Protocol match in the Rule to be set to \"TCP\" or \"UDP\"."

items:

anyOf:

- type: integer
- type: string

pattern: ^.*

x-kubernetes-int-or-string: true

type: array

selector:

description: "Selector is an optional field that contains a selector expression (see Policy for sample syntax).

\n Only traffic that originates from (terminates at) endpoints matching the selector will be matched. \n Note that: in addition to the negated version of the Selector (see NotSelector below), the selector expression syntax itself supports negation. The two types of negation are subtly different. One negates the set of matched endpoints, the other negates the whole match: \n \tSelector = \"!has(my_label)\" matches packets that are from other Calico-controlled \tendpoints that do not have the label \"my_label\". \n \tNotSelector = \"has(my_label)\" matches packets that are not from Calico-controlled \tendpoints that do have the label \"my_label\". \n The effect is that the latter will accept packets from non-Calico sources whereas the former is limited to packets from Calico-controlled endpoints."

type: string

serviceAccounts:

description: ServiceAccounts is an optional field that restricts the rule to only apply to traffic that originates from (or terminates at) a pod running as a matching service account.

properties:

names:

description: Names is an optional field that restricts the rule to only apply to traffic that originates from (or terminates at) a pod running as a service account whose name is in the list.

items:

```

        type: string
    type: array
    selector:
        description: Selector is an optional field that restricts
            the rule to only apply to traffic that originates
            from (or terminates at) a pod running as a service
            account that matches the given label selector. If
            both Names and Selector are specified then they are
            AND' ed.
        type: string
    type: object
    services:
        description: "Services is an optional field that contains
            options for matching Kubernetes Services. If specified,
            only traffic that originates from or terminates at endpoints
            within the selected service(s) will be matched, and only
            to/from each endpoint's port. \n Services cannot be specified
            on the same rule as Selector, NotSelector, NamespaceSelector,
            Nets, NotNets or ServiceAccounts. \n Ports and NotPorts
            can only be specified with Services on ingress rules."
    properties:
        name:
            description: Name specifies the name of a Kubernetes
                Service to match.
            type: string
        namespace:
            description: Namespace specifies the namespace of the
                given Service. If left empty, the rule will match
                within this policy's namespace.
            type: string
    type: object
    type: object
    required:
    - action
    type: object
    type: array
    ingress:
        description: The ordered set of ingress rules. Each rule contains
            a set of packet match criteria and a corresponding action to apply.
    items:
        description: "A Rule encapsulates a set of match criteria and an

```

action. Both selector-based security Policy and security Profiles reference rules - separated out as a list of rules for both ingress and egress packet matching. \n Each positive match criteria has a negated version, prefixed with \"Not\". All the match criteria within a rule must be satisfied for a packet to match. A single rule can contain the positive and negative version of a match and both must be satisfied for the rule to match."

properties:

action:

type: string

destination:

description: Destination contains the match criteria that apply to destination entity.

properties:

namespaceSelector:

description: "NamespaceSelector is an optional field that contains a selector expression. Only traffic that originates from (or terminates at) endpoints within the selected namespaces will be matched. When both NamespaceSelector and another selector are defined on the same rule, then only workload endpoints that are matched by both selectors will be selected by the rule. \n For NetworkPolicy, an empty NamespaceSelector implies that the Selector is limited to selecting only workload endpoints in the same namespace as the NetworkPolicy. \n For NetworkPolicy, `global()` NamespaceSelector implies that the Selector is limited to selecting only GlobalNetworkSet or HostEndpoint. \n For GlobalNetworkPolicy, an empty NamespaceSelector implies the Selector applies to workload endpoints across all namespaces."

type: string

nets:

description: Nets is an optional field that restricts the rule to only apply to traffic that originates from (or terminates at) IP addresses in any of the given subnets.

items:

type: string

type: array

notNets:

description: NotNets is the negated version of the Nets field.

```

    items:
      type: string
    type: array
  notPorts:
    description: NotPorts is the negated version of the Ports
      field. Since only some protocols have ports, if any ports
      are specified it requires the Protocol match in the Rule
      to be set to "TCP" or "UDP".
    items:
      anyOf:
        - type: integer
        - type: string
      pattern: ^.*
      x-kubernetes-int-or-string: true
    type: array
  notSelector:
    description: NotSelector is the negated version of the Selector
      field. See Selector field for subtleties with negated
      selectors.
    type: string
  ports:
    description: "Ports is an optional field that restricts
      the rule to only apply to traffic that has a source (destination)
      port that matches one of these ranges/values. This value
      is a list of integers or strings that represent ranges
      of ports. \n Since only some protocols have ports, if
      any ports are specified it requires the Protocol match
      in the Rule to be set to \"TCP\" or \"UDP\"."
    items:
      anyOf:
        - type: integer
        - type: string
      pattern: ^.*
      x-kubernetes-int-or-string: true
    type: array
  selector:
    description: "Selector is an optional field that contains
      a selector expression (see Policy for sample syntax).
      \n Only traffic that originates from (terminates at) endpoints
      matching the selector will be matched. \n Note that: in
      addition to the negated version of the Selector (see NotSelector

```

below), the selector expression syntax itself supports negation. The two types of negation are subtly different. One negates the set of matched endpoints, the other negates the whole match: \n \tSelector = \ "!has(my_label)\ " matches packets that are from other Calico-controlled \tendpoints that do not have the label \ "my_label\ ". \n \tNotSelector = \ "has(my_label)\ " matches packets that are not from Calico-controlled \tendpoints that do have the label \ "my_label\ ". \n The effect is that the latter will accept packets from non-Calico sources whereas the former is limited to packets from Calico-controlled endpoints."

type: string

serviceAccounts:

description: ServiceAccounts is an optional field that restricts the rule to only apply to traffic that originates from (or terminates at) a pod running as a matching service account.

properties:

names:

description: Names is an optional field that restricts the rule to only apply to traffic that originates from (or terminates at) a pod running as a service account whose name is in the list.

items:

type: string

type: array

selector:

description: Selector is an optional field that restricts the rule to only apply to traffic that originates from (or terminates at) a pod running as a service account that matches the given label selector. If both Names and Selector are specified then they are AND' ed.

type: string

type: object

services:

description: "Services is an optional field that contains options for matching Kubernetes Services. If specified, only traffic that originates from or terminates at endpoints within the selected service(s) will be matched, and only to/from each endpoint's port. \n Services cannot be specified

on the same rule as Selector, NotSelector, NamespaceSelector, Nets, NotNets or ServiceAccounts. \n Ports and NotPorts can only be specified with Services on ingress rules."

properties:

name:

description: Name specifies the name of a Kubernetes Service to match.

type: string

namespace:

description: Namespace specifies the namespace of the given Service. If left empty, the rule will match within this policy's namespace.

type: string

type: object

type: object

http:

description: HTTP contains match criteria that apply to HTTP requests.

properties:

methods:

description: Methods is an optional field that restricts the rule to apply only to HTTP requests that use one of the listed HTTP Methods (e.g. GET, PUT, etc.) Multiple methods are OR'd together.

items:

type: string

type: array

paths:

description: 'Paths is an optional field that restricts the rule to apply to HTTP requests that use one of the listed HTTP Paths. Multiple paths are OR'd together.

e.g: - exact: /foo - prefix: /bar NOTE: Each entry may ONLY specify either a `exact` or a `prefix` match. The validator will check for it.'

items:

description: 'HTTPPath specifies an HTTP path to match.

It may be either of the form: exact: <path>: which matches the path exactly or prefix: <path-prefix>: which matches the path prefix'

properties:

exact:

```

        type: string
    prefix:
        type: string
    type: object
type: array
type: object
icmp:
    description: ICMP is an optional field that restricts the rule
        to apply to a specific type and code of ICMP traffic. This
        should only be specified if the Protocol field is set to "ICMP"
        or "ICMPv6".
    properties:
        code:
            description: Match on a specific ICMP code. If specified,
                the Type value must also be specified. This is a technical
                limitation imposed by the kernel's iptables firewall,
                which Calico uses to enforce the rule.
            type: integer
        type:
            description: Match on a specific ICMP type. For example
                a value of 8 refers to ICMP Echo Request (i.e. pings).
            type: integer
    type: object
ipVersion:
    description: IPVersion is an optional field that restricts the
        rule to only match a specific IP version.
    type: integer
metadata:
    description: Metadata contains additional information for this
        rule
    properties:
        annotations:
            additionalProperties:
                type: string
            description: Annotations is a set of key value pairs that
                give extra information about the rule
            type: object
    type: object
notICMP:
    description: NotICMP is the negated version of the ICMP field.
    properties:

```



```

code:
  description: Match on a specific ICMP code. If specified,
    the Type value must also be specified. This is a technical
    limitation imposed by the kernel's iptables firewall,
    which Calico uses to enforce the rule.
  type: integer
type:
  description: Match on a specific ICMP type. For example
    a value of 8 refers to ICMP Echo Request (i.e. pings).
  type: integer
type: object
notProtocol:
  anyOf:
    - type: integer
    - type: string
  description: NotProtocol is the negated version of the Protocol
    field.
  pattern: ^.*
  x-kubernetes-int-or-string: true
protocol:
  anyOf:
    - type: integer
    - type: string
  description: "Protocol is an optional field that restricts the
    rule to only apply to traffic of a specific IP protocol. Required
    if any of the EntityRules contain Ports (because ports only
    apply to certain protocols). \n Must be one of these string
    values: \"TCP\", \"UDP\", \"ICMP\", \"ICMPv6\", \"SCTP\",
    \"UDPLite\" or an integer in the range 1-255."
  pattern: ^.*
  x-kubernetes-int-or-string: true
source:
  description: Source contains the match criteria that apply to
    source entity.
  properties:
    namespaceSelector:
      description: "NamespaceSelector is an optional field that
        contains a selector expression. Only traffic that originates
        from (or terminates at) endpoints within the selected
        namespaces will be matched. When both NamespaceSelector
        and another selector are defined on the same rule, then

```

only workload endpoints that are matched by both selectors will be selected by the rule. \n For NetworkPolicy, an empty NamespaceSelector implies that the Selector is limited to selecting only workload endpoints in the same namespace as the NetworkPolicy. \n For NetworkPolicy, `global()` NamespaceSelector implies that the Selector is limited to selecting only GlobalNetworkSet or HostEndpoint. \n For GlobalNetworkPolicy, an empty NamespaceSelector implies the Selector applies to workload endpoints across all namespaces."

type: string

nets:

description: Nets is an optional field that restricts the rule to only apply to traffic that originates from (or terminates at) IP addresses in any of the given subnets.

items:

type: string

type: array

notNets:

description: NotNets is the negated version of the Nets field.

items:

type: string

type: array

notPorts:

description: NotPorts is the negated version of the Ports field. Since only some protocols have ports, if any ports are specified it requires the Protocol match in the Rule to be set to "TCP" or "UDP".

items:

anyOf:

- type: integer

- type: string

pattern: ^.*

x-kubernetes-int-or-string: true

type: array

notSelector:

description: NotSelector is the negated version of the Selector field. See Selector field for subtleties with negated selectors.

type: string

ports:

description: "Ports is an optional field that restricts the rule to only apply to traffic that has a source (destination) port that matches one of these ranges/values. This value is a list of integers or strings that represent ranges of ports. \n Since only some protocols have ports, if any ports are specified it requires the Protocol match in the Rule to be set to \"TCP\" or \"UDP\"."

items:

anyOf:

- type: integer
- type: string

pattern: ^.*

x-kubernetes-int-or-string: true

type: array

selector:

description: "Selector is an optional field that contains a selector expression (see Policy for sample syntax). \n Only traffic that originates from (terminates at) endpoints matching the selector will be matched. \n Note that: in addition to the negated version of the Selector (see NotSelector below), the selector expression syntax itself supports negation. The two types of negation are subtly different. One negates the set of matched endpoints, the other negates the whole match: \n \tSelector = \"!has(my_label)\" matches packets that are from other Calico-controlled \tendpoints that do not have the label \"my_label\". \n \tNotSelector = \"has(my_label)\" matches packets that are not from Calico-controlled \tendpoints that do have the label \"my_label\". \n The effect is that the latter will accept packets from non-Calico sources whereas the former is limited to packets from Calico-controlled endpoints."

type: string

serviceAccounts:

description: ServiceAccounts is an optional field that restricts the rule to only apply to traffic that originates from (or terminates at) a pod running as a matching service account.

properties:

names:

description: Names is an optional field that restricts

the rule to only apply to traffic that originates from (or terminates at) a pod running as a service account whose name is in the list.

items:

type: string

type: array

selector:

description: Selector is an optional field that restricts the rule to only apply to traffic that originates from (or terminates at) a pod running as a service account that matches the given label selector. If both Names and Selector are specified then they are AND' ed.

type: string

type: object

services:

description: "Services is an optional field that contains options for matching Kubernetes Services. If specified, only traffic that originates from or terminates at endpoints within the selected service(s) will be matched, and only to/from each endpoint's port. \n Services cannot be specified on the same rule as Selector, NotSelector, NamespaceSelector, Nets, NotNets or ServiceAccounts. \n Ports and NotPorts can only be specified with Services on ingress rules."

properties:

name:

description: Name specifies the name of a Kubernetes Service to match.

type: string

namespace:

description: Namespace specifies the namespace of the given Service. If left empty, the rule will match within this policy's namespace.

type: string

type: object

type: object

required:

- action

type: object

type: array

order:

description: Order is an optional field that specifies the order in which the policy is applied. Policies with higher "order" are applied after those with lower order. If the order is omitted, it may be considered to be "infinite" - i.e. the policy will be applied last.

Policies

with identical order will be applied in alphanumerical order based on the Policy "Name".

type: number

selector:

description: "The selector is an expression used to pick pick out the endpoints that the policy should be applied to. \n Selector expressions follow this syntax: \n \tlabel == \"string_literal\" \n -> comparison, e.g. my_label == \"foo bar\" \tlabel != \"string_literal\" \n -> not equal; also matches if label is not present \tlabel in { \"a\", \"b\", \"c\", ... } -> true if the value of label X is one of \"a\", \"b\", \"c\" \tlabel not in { \"a\", \"b\", \"c\", ... } -> true if the value of label X is not one of \"a\", \"b\", \"c\" \thas(label_name) -> True if that label is present \t! expr -> negation of expr \texpr && expr -> Short-circuit and \texpr || expr -> Short-circuit or \t(expr) -> parens for grouping \tall() or the empty selector -> matches all endpoints. \n Label names are allowed to contain alphanumerics, -, _ and /. String literals are more permissive but they do not support escape characters. \n Examples (with made-up labels): \n \ttype == \"webserver\" && deployment == \"prod\" \ttype in {\"frontend\", \"backend\"} \tdeployment != \"dev\" \t! has(label_name)"

type: string

serviceAccountSelector:

description: ServiceAccountSelector is an optional field for an expression used to select a pod based on service accounts.

type: string

types:

description: "Types indicates whether this policy applies to ingress, or to egress, or to both. When not explicitly specified (and so the value on creation is empty or nil), Calico defaults Types according to what Ingress and Egress are present in the policy. The default is: \n - [PolicyTypeIngress], if there are no Egress rules (including the case where there are also no Ingress rules) \n - [PolicyTypeEgress], if there are Egress rules but no Ingress rules \n - [PolicyTypeIngress, PolicyTypeEgress], if there are both Ingress and Egress rules. \n When the policy is read back again, Types will always be one

```

        of these values, never empty or nil."
    items:
        description: PolicyType enumerates the possible values of the PolicySpec
            Types field.
        type: string
    type: array
type: object
type: object
served: true
storage: true
status:
    acceptedNames:
        kind: ""
        plural: ""
    conditions: []
    storedVersions: []

---
apiVersion: apiextensions.k8s.io/v1
kind: CustomResourceDefinition
metadata:
    name: networksets.crd.projectcalico.org
spec:
    group: crd.projectcalico.org
    names:
        kind: NetworkSet
        listKind: NetworkSetList
        plural: networksets
        singular: networkset
    scope: Namespaced
    versions:
    - name: v1
      schema:
        openAPIV3Schema:
            description: NetworkSet is the Namespaced-equivalent of the GlobalNetworkSet.
            properties:
                apiVersion:
                    description: 'APIVersion defines the versioned schema of this representation
                        of an object. Servers should convert recognized schemas to the latest
                        internal value, and may reject unrecognized values. More info:
                        https://git.k8s.io/community/contributors/devel/sig-architecture/api-conventions.md#resources'
```

```

    type: string
  kind:
    description: 'Kind is a string value representing the REST resource this
      object represents. Servers may infer this from the endpoint the client
      submits requests to. Cannot be updated. In CamelCase. More info:
https://git.k8s.io/community/contributors/devel/sig-architecture/api-conventions.md#types-
      kinds'
    type: string
  metadata:
    type: object
  spec:
    description: NetworkSetSpec contains the specification for a NetworkSet
      resource.
    properties:
      nets:
        description: The list of IP networks that belong to this set.
        items:
          type: string
        type: array
      type: object
    type: object
  served: true
  storage: true
status:
  acceptedNames:
    kind: ""
    plural: ""
  conditions: []
  storedVersions: []

---
---
# Source: calico/templates/calico-kube-controllers-rbac.yaml

# Include a clusterrole for the kube-controllers component,
# and bind it to the calico-kube-controllers serviceaccount.
kind: ClusterRole
apiVersion: rbac.authorization.k8s.io/v1
metadata:
  name: calico-kube-controllers
rules:
```

```
# Nodes are watched to monitor for deletions.
- apiGroups: [""]
  resources:
    - nodes
  verbs:
    - watch
    - list
    - get

# Pods are watched to check for existence as part of IPAM controller.
- apiGroups: [""]
  resources:
    - pods
  verbs:
    - get
    - list
    - watch

# IPAM resources are manipulated when nodes are deleted.
- apiGroups: ["crd.projectcalico.org"]
  resources:
    - ippools
    - ippreservations
  verbs:
    - list

- apiGroups: ["crd.projectcalico.org"]
  resources:
    - blockaffinities
    - ipamblocks
    - ipamhandles
  verbs:
    - get
    - list
    - create
    - update
    - delete
    - watch

# kube-controllers manages hostendpoints.
- apiGroups: ["crd.projectcalico.org"]
  resources:
    - hostendpoints
  verbs:
    - get
```



```
- list
- create
- update
- delete

# Needs access to update clusterinformations.
- apiGroups: ["crd.projectcalico.org"]
resources:
  - clusterinformations
verbs:
  - get
  - create
  - update

# KubeControllersConfiguration is where it gets its config
- apiGroups: ["crd.projectcalico.org"]
resources:
  - kubecontrollersconfigurations
verbs:
  # read its own config
  - get
  # create a default if none exists
  - create
  # update status
  - update
  # watch for changes
  - watch

---
kind: ClusterRoleBinding
apiVersion: rbac.authorization.k8s.io/v1
metadata:
  name: calico-kube-controllers
roleRef:
  apiGroup: rbac.authorization.k8s.io
  kind: ClusterRole
  name: calico-kube-controllers
subjects:
- kind: ServiceAccount
  name: calico-kube-controllers
  namespace: kube-system

---

---
```

```
# Source: calico/templates/calico-node-rbac.yaml
# Include a clusterrole for the calico-node DaemonSet,
# and bind it to the calico-node serviceaccount.
kind: ClusterRole
apiVersion: rbac.authorization.k8s.io/v1
metadata:
  name: calico-node
rules:
  # The CNI plugin needs to get pods, nodes, and namespaces.
  - apiGroups: [""]
    resources:
      - pods
      - nodes
      - namespaces
    verbs:
      - get
  # EndpointSlices are used for Service-based network policy rule
  # enforcement.
  - apiGroups: ["discovery.k8s.io"]
    resources:
      - endpointslices
    verbs:
      - watch
      - list
  - apiGroups: [""]
    resources:
      - endpoints
      - services
    verbs:
      # Used to discover service IPs for advertisement.
      - watch
      - list
      # Used to discover Typhas.
      - get
  # Pod CIDR auto-detection on kubeadm needs access to config maps.
  - apiGroups: [""]
    resources:
      - configmaps
    verbs:
      - get
  - apiGroups: [""]
```

resources:

- nodes/status

verbs:

Needed for clearing NodeNetworkUnavailable flag.

- patch

Calico stores some configuration information in node annotations.

- update

Watch for changes to Kubernetes NetworkPolicies.

- apiGroups: ["networking.k8s.io"]

resources:

- networkpolicies

verbs:

- watch

- list

Used by Calico for policy information.

- apiGroups: [""]

resources:

- pods

- namespaces

- serviceaccounts

verbs:

- list

- watch

The CNI plugin patches pods/status.

- apiGroups: [""]

resources:

- pods/status

verbs:

- patch

Calico monitors various CRDs for config.

- apiGroups: ["crd.projectcalico.org"]

resources:

- globalfelixconfigs

- felixconfigurations

- bgppeers

- globalbgpconfigs

- bgpconfigurations

- ippools

- ipreservations

- ipamblocks

- globalnetworkpolicies

- globalnetworksets
- networkpolicies
- networksets
- clusterinformations
- hostendpoints
- blockaffinities
- caliconodestatuses

verbs:

- get
- list
- watch

Calico must create and update some CRDs on startup.

- apiGroups: ["crd.projectcalico.org"]

resources:

- ippools
- felixconfigurations
- clusterinformations

verbs:

- create
- update

Calico must update some CRDs.

- apiGroups: ["crd.projectcalico.org"]

resources:

- caliconodestatuses

verbs:

- update

Calico stores some configuration information on the node.

- apiGroups: [""]

resources:

- nodes

verbs:

- get
- list
- watch

These permissions are only required for upgrade from v2.6, and can

be removed after upgrade or on fresh installations.

- apiGroups: ["crd.projectcalico.org"]

resources:

- bgpconfigurations
- bgppeers

verbs:

- create
- update

These permissions are required for Calico CNI to perform IPAM allocations.

- apiGroups: ["crd.projectcalico.org"]

resources:

- blockaffinities
- ipamblocks
- ipamhandles

verbs:

- get
- list
- create
- update
- delete

- apiGroups: ["crd.projectcalico.org"]

resources:

- ipamconfigs

verbs:

- get

Block affinities must also be watchable by confd for route aggregation.

- apiGroups: ["crd.projectcalico.org"]

resources:

- blockaffinities

verbs:

- watch

The Calico IPAM migration needs to get daemonsets. These permissions can be

removed if not upgrading from an installation using host-local IPAM.

- apiGroups: ["apps"]

resources:

- daemonsets

verbs:

- get

apiVersion: rbac.authorization.k8s.io/v1

kind: ClusterRoleBinding

metadata:

name: calico-node

roleRef:

apiGroup: rbac.authorization.k8s.io

kind: ClusterRole

```
    name: calico-node
subjects:
- kind: ServiceAccount
  name: calico-node
  namespace: kube-system

---
# Source: calico/templates/calico-node.yaml
# This manifest installs the calico-node container, as well
# as the CNI plugins and network config on
# each master and worker node in a Kubernetes cluster.
kind: DaemonSet
apiVersion: apps/v1
metadata:
  name: calico-node
  namespace: kube-system
  labels:
    k8s-app: calico-node
spec:
  selector:
    matchLabels:
      k8s-app: calico-node
  updateStrategy:
    type: RollingUpdate
    rollingUpdate:
      maxUnavailable: 1
  template:
    metadata:
      labels:
        k8s-app: calico-node
    spec:
      nodeSelector:
        kubernetes.io/os: linux
      hostNetwork: true
      tolerations:
        # Make sure calico-node gets scheduled on all nodes.
        - effect: NoSchedule
          operator: Exists
        # Mark the pod as a critical add-on for rescheduling.
        - key: CriticalAddonsOnly
          operator: Exists
```

```

- effect: NoExecute
  operator: Exists
serviceAccountName: calico-node
# Minimize downtime during a rolling upgrade or deletion; tell Kubernetes to do a "force
# deletion": https://kubernetes.io/docs/concepts/workloads/pods/pod/#termination-of-
pods.
terminationGracePeriodSeconds: 0
priorityClassName: system-node-critical
initContainers:
  # This container performs upgrade from host-local IPAM to calico-ipam.
  # It can be deleted if this is a fresh installation, or if you have already
  # upgraded to use calico-ipam.
  - name: upgrade-ipam
    image: harbor.iovhm.com/hub/calico/cni:v3.21.6
    command: ["/opt/cni/bin/calico-ipam", "-upgrade"]
    envFrom:
      - configMapRef:
          # Allow KUBERNETES_SERVICE_HOST and KUBERNETES_SERVICE_PORT to be overridden for
eBPF mode.
          name: kubernetes-services-endpoint
          optional: true
    env:
      - name: KUBERNETES_NODE_NAME
        valueFrom:
          fieldRef:
            fieldPath: spec.nodeName
      - name: CALICO_NETWORKING_BACKEND
        valueFrom:
          configMapKeyRef:
            name: calico-config
            key: calico_backend
    volumeMounts:
      - mountPath: /var/lib/cni/networks
        name: host-local-net-dir
      - mountPath: /host/opt/cni/bin
        name: cni-bin-dir
    securityContext:
      privileged: true
  # This container installs the CNI binaries
  # and CNI network config file on each node.
  - name: install-cni

```

```

image: harbor.iovhm.com/hub/calico/cni:v3.21.6
command: ["/opt/cni/bin/install"]
envFrom:
- configMapRef:
    # Allow KUBERNETES_SERVICE_HOST and KUBERNETES_SERVICE_PORT to be overridden for
eBPF mode.

    name: kubernetes-services-endpoint
    optional: true
env:
  # Name of the CNI config file to create.
  - name: CNI_CONF_NAME
    value: "10-calico.conflist"
  # The CNI network config to install on each node.
  - name: CNI_NETWORK_CONFIG
    valueFrom:
      configMapKeyRef:
        name: calico-config
        key: cni_network_config
  # Set the hostname based on the k8s node name.
  - name: KUBERNETES_NODE_NAME
    valueFrom:
      fieldRef:
        fieldPath: spec.nodeName
  # CNI MTU Config variable
  - name: CNI_MTU
    valueFrom:
      configMapKeyRef:
        name: calico-config
        key: veth_mtu
  # Prevents the container from sleeping forever.
  - name: SLEEP
    value: "false"
volumeMounts:
  - mountPath: /host/opt/cni/bin
    name: cni-bin-dir
  - mountPath: /host/etc/cni/net.d
    name: cni-net-dir
securityContext:
  privileged: true
  # Adds a Flex Volume Driver that creates a per-pod Unix Domain Socket to allow

```



```

# to communicate with Felix over the Policy Sync API.
- name: flexvol-driver
  image: harbor.iovhm.com/hub/calico/pod2daemon-flexvol: v3.21.6
  volumeMounts:
    - name: flexvol-driver-host
      mountPath: /host/driver
  securityContext:
    privileged: true
containers:
  # Runs calico-node container on each Kubernetes node. This
  # container programs network policy and routes on each
  # host.
  - name: calico-node
    image: harbor.iovhm.com/hub/calico/node: v3.21.6
    envFrom:
      - configMapRef:
          # Allow KUBERNETES_SERVICE_HOST and KUBERNETES_SERVICE_PORT to be overridden for
eBPF mode.

          name: kubernetes-services-endpoint
          optional: true
    env:
      # Use Kubernetes API as the backing datastore.
      - name: DATASTORE_TYPE
        value: "kubernetes"
      # Wait for the datastore.
      - name: WAIT_FOR_DATASTORE
        value: "true"
      # Set based on the k8s node name.
      - name: NODENAME
        valueFrom:
          fieldRef:
            fieldPath: spec.nodeName
      # Choose the backend to use.
      - name: CALICO_NETWORKING_BACKEND
        valueFrom:
          configMapKeyRef:
            name: calico-config
            key: calico_backend
      # Cluster type to identify the deployment type
      - name: CLUSTER_TYPE
        value: "k8s,bgp"

```

```
# Auto-detect the BGP IP address.
- name: IP
  value: "autodetect"
# Enable IPIP
- name: CALICO_IPV4POOL_IPIP
  value: "Always"
# Enable or Disable VXLAN on the default IP pool.
- name: CALICO_IPV4POOL_VXLAN
  value: "Never"
# Set MTU for tunnel device used if ipip is enabled
- name: FELIX_IPINIPMTU
  valueFrom:
    configMapKeyRef:
      name: calico-config
      key: veth_mtu
# Set MTU for the VXLAN tunnel device.
- name: FELIX_VXLANMTU
  valueFrom:
    configMapKeyRef:
      name: calico-config
      key: veth_mtu
# Set MTU for the Wireguard tunnel device.
- name: FELIX_WIREGUARDMTU
  valueFrom:
    configMapKeyRef:
      name: calico-config
      key: veth_mtu
# The default IPv4 pool to create on startup if none exists. Pod IPs will be
# chosen from this range. Changing this value after installation will have
# no effect. This should fall within `--cluster-cidr`.
# - name: CALICO_IPV4POOL_CIDR
#   value: "192.168.0.0/16"
# Disable file logging so `kubectl logs` works.
- name: CALICO_DISABLE_FILE_LOGGING
  value: "true"
# Set Felix endpoint to host default action to ACCEPT.
- name: FELIX_DEFAULTENDPOINTTOHOSTACTION
  value: "ACCEPT"
# Disable IPv6 on Kubernetes.
- name: FELIX_IPV6SUPPORT
  value: "false"
```

```
- name: FELIX_HEALTHENABLED
  value: "true"
securityContext:
  privileged: true
resources:
  requests:
    cpu: 250m
lifecycle:
  preStop:
    exec:
      command:
        - /bin/calico-node
        - -shutdown
livenessProbe:
  exec:
    command:
      - /bin/calico-node
      - -felix-live
      - -bird-live
  periodSeconds: 10
  initialDelaySeconds: 10
  failureThreshold: 6
  timeoutSeconds: 10
readinessProbe:
  exec:
    command:
      - /bin/calico-node
      - -felix-ready
      - -bird-ready
  periodSeconds: 10
  timeoutSeconds: 10
volumeMounts:
  # For maintaining CNI plugin API credentials.
  - mountPath: /host/etc/cni/net.d
    name: cni-net-dir
    readOnly: false
  - mountPath: /lib/modules
    name: lib-modules
    readOnly: true
  - mountPath: /run/xtables.lock
    name: xtables-lock
```

```

    readOnly: false
-   mountPath: /var/run/calico
    name: var-run-calico
    readOnly: false
-   mountPath: /var/lib/calico
    name: var-lib-calico
    readOnly: false
-   name: policysync
    mountPath: /var/run/nodeagent

```

For eBPF mode, we need to be able to mount the BPF filesystem at /sys/fs/bpf so we mount in the

```

# parent directory.

```

```

-   name: sysfs
    mountPath: /sys/fs/

```

Bidirectional means that, if we mount the BPF filesystem at /sys/fs/bpf it will propagate to the host.

If the host is known to mount that filesystem already then Bidirectional can be omitted.

```

    mountPropagation: Bidirectional
-   name: cni-log-dir
    mountPath: /var/log/calico/cni
    readOnly: true

```

volumes:

```

# Used by calico-node.

```

```

-   name: lib-modules

```

```

    hostPath:

```

```

        path: /lib/modules

```

```

-   name: var-run-calico

```

```

    hostPath:

```

```

        path: /var/run/calico

```

```

-   name: var-lib-calico

```

```

    hostPath:

```

```

        path: /var/lib/calico

```

```

-   name: xtables-lock

```

```

    hostPath:

```

```

        path: /run/xtables.lock

```

```

        type: FileOrCreate

```

```

-   name: sysfs

```

```

    hostPath:

```

```

        path: /sys/fs/

```

```

        type: DirectoryOrCreate

```

```
# Used to install CNI.
- name: cni-bin-dir
  hostPath:
    path: /opt/cni/bin
- name: cni-net-dir
  hostPath:
    path: /etc/cni/net.d
# Used to access CNI logs.
- name: cni-log-dir
  hostPath:
    path: /var/log/calico/cni
# Mount in the directory for host-local IPAM allocations. This is
# used when upgrading from host-local to calico-ipam, and can be removed
# if not using the upgrade-ipam init container.
- name: host-local-net-dir
  hostPath:
    path: /var/lib/cni/networks
# Used to create per-pod Unix Domain Sockets
- name: policysync
  hostPath:
    type: DirectoryOrCreate
    path: /var/run/nodeagent
# Used to install Flex Volume Driver
- name: flexvol-driver-host
  hostPath:
    type: DirectoryOrCreate
    path: /usr/libexec/kubernetes/kubelet-plugins/volume/exec/nodeagent~uds
```

```
apiVersion: v1
kind: ServiceAccount
metadata:
  name: calico-node
  namespace: kube-system
```

```
# Source: calico/templates/calico-kube-controllers.yaml
# See https://github.com/projectcalico/kube-controllers
apiVersion: apps/v1
kind: Deployment
metadata:
```

```
name: calico-kube-controllers
namespace: kube-system
labels:
  k8s-app: calico-kube-controllers
spec:
  # The controllers can only have a single active instance.
  replicas: 1
  selector:
    matchLabels:
      k8s-app: calico-kube-controllers
  strategy:
    type: Recreate
  template:
    metadata:
      name: calico-kube-controllers
      namespace: kube-system
      labels:
        k8s-app: calico-kube-controllers
    spec:
      nodeSelector:
        kubernetes.io/os: linux
      tolerations:
        # Mark the pod as a critical add-on for rescheduling.
        - key: CriticalAddonsOnly
          operator: Exists
        - key: node-role.kubernetes.io/master
          effect: NoSchedule
      serviceAccountName: calico-kube-controllers
      priorityClassName: system-cluster-critical
      containers:
        - name: calico-kube-controllers
          image: harbor.iovhm.com/hub/calico/kube-controllers:v3.21.6
          env:
            # Choose which controllers to run.
            - name: ENABLED_CONTROLLERS
              value: node
            - name: DATASTORE_TYPE
              value: kubernetes
          livenessProbe:
            exec:
              command:
```

```
    - /usr/bin/check-status
    - -l
  periodSeconds: 10
  initialDelaySeconds: 10
  failureThreshold: 6
  timeoutSeconds: 10
  readinessProbe:
    exec:
      command:
        - /usr/bin/check-status
        - -r
    periodSeconds: 10
```

```
apiVersion: v1
kind: ServiceAccount
metadata:
  name: calico-kube-controllers
  namespace: kube-system
```

This manifest creates a Pod Disruption Budget for Controller to allow K8s Cluster Autoscaler to evict

```
apiVersion: policy/v1beta1
kind: PodDisruptionBudget
metadata:
  name: calico-kube-controllers
  namespace: kube-system
  labels:
    k8s-app: calico-kube-controllers
spec:
  maxUnavailable: 1
  selector:
    matchLabels:
      k8s-app: calico-kube-controllers
```

Source: calico/templates/calico-etcd-secrets.yaml

Source: calico/templates/calico-typha.yaml

Source: calico/templates/configure-canal.yaml

#8

21 2023 05:41:41

8 2025 02:35:35