Object Tracking Commands in Cisco IOS XR Software

This chapter describes the Cisco IOS XR software commands used to track objects. For information about how to use these commands to configure object tracking, see *Cisco IOS XR System Management Configuration Guide*.

clear delay

To clear entry of a duration, in seconds, before the track or interface state should be polled for a change in status, use the **clear delay** command in track configuration mode.

clear delay {**up** | **down**} [*seconds*]

Syntax Description

delay up *seconds*	Sets delay of from 1 to 10 seconds before communication of the up status of the tracked object or list of objects.
delay down *seconds*	Sets delay of from 1 to 10 seconds before communication of the down status of the tracked object or list of objects.

Defaults

No default behavior or values

Command Modes

Track configuration

Command History

Release	Modification
Release 3.6.0	This command was introduced on the Cisco CRS-1 and Cisco XR 12000 Series Router.
Release 3.7.0	No modification.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes the proper task IDs. For detailed information about user groups and task IDs, see the *Configuring AAA Services on Cisco IOS XR Software* module of the *Cisco IOS XR System Security Configuration Guide*.

Task ID

Task ID	Operations
sysmgr	read, write

Examples

The following example shows clearance of the configured delay, which had been set to notify the network administrator of a change in the up state of the interface every five seconds:

```
RP/0/RP0/CPU0:router# configuration
RP/0/RP0/CPU0:router(config)# track atm1235
RP/0/RP0/CPU0:router(config-track)# clear delay up 5
```

Related Commands

Command	Description
delay	Configures the duration, in seconds, before the track or interface state should be polled for a change in status.
track	Initiates or identifies a tracking process to track the status of an object; also enters track configuration mode.

clear interface (track)

To clear entry of a particular interface object from a line protocol tracking configuration, use the **clear interface** command in line protocol tracking configuration mode.

clear interface {*type instance-id*}

Syntax Description

type	Interface type. For more information, use the question mark (**?**) online help function.
instance-id	Identifies a physical interface or a virtual interface. **Note** Use the show interfaces command to see a list of all possible interfaces currently configured on the router. For more information about the syntax for the router, use the question mark (**?**) online help function.

Defaults

No default behavior or values

Command Modes

Line protocol tracking configuration

Command History

Release	Modification
Release 3.6.0	This command was introduced on the Cisco CRS-1 and Cisco XR 12000 Series Router.
Release 3.7.0	No modification.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes the proper task IDs. For detailed information about user groups and task IDs, see the *Configuring AAA Services on Cisco IOS XR Software* module of the *Cisco IOS XR System Security Configuration Guide*.

The **clear interface** command is accessed through line protocol tracking configuration submode.

Task ID

Task ID	Operations
sysmgr	read, write

Examples

The following example shows the use of the **clear interface** command:

```
RP/0/RP0/CPU0:router# configuration
RP/0/RP0/CPU0:router(config)# track name1
RP/0/RP0/CPU0:router(config-track)# type line-protocol state
RP/0/RP0/CPU0:router(config-track-line-prot)# clear interface atm 0/2/0/0.1
RP/0/RP0/CPU0:router(config-track-line-prot)#
```

Related Commands

Command	Description
interface (track)	Indicates an interface object type for tracking purposes.
track	Initiates or identifies a tracking process to track the status of an object; also enters track configuration mode.
type line-protocol state	Configures tracking based on the line protocol state of an interface object.

clear object

To clear entry of a particular object to be used for object for tracking, use the **clear object** command in list tracking configuration mode.

clear object *object-name* **[not]**

Syntax Description

object-name	Name of the object to be tracked.
not	Deletes tracking configured on the basis of whether an interface object is not up or down.

Defaults

No default behavior or values

Command Modes

List tracking configuration

Command History

Release	Modification
Release 3.6.0	This command was introduced on the Cisco CRS-1 and Cisco XR 12000 Series Router.
Release 3.7.0	No modification.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes the proper task IDs. For detailed information about user groups and task IDs, see the *Configuring AAA Services on Cisco IOS XR Software* module of the *Cisco IOS XR System Security Configuration Guide*.

The **clear object** command is accessed through list tracking configuration submode.

Task ID

Task ID	Operations
sysmgr	read, write

Examples

The following example shows the use of the **clear object** command:

```
RP/0/RP0/CPU0:router# configuration
RP/0/RP0/CPU0:router(config)# track name1
RP/0/RP0/CPU0:router(config-track)# type list boolean and
RP/0/RP0/CPU0:router(config-track-list)# clear object IPSEC3 not
```

Related Commands

Command	Description
object	Configures an object to be tracked.

Command	Description
track	Initiates or identifies a tracking process to track the status of an object; also enters track configuration mode.
type list boolean	Configures tracking of a list of objects based on a Boolean calculation.

clear route ipv4

To clear entry of an IP prefix route as the basis to track route reachability, use the **clear route ipv4** command in route tracking configuration mode.

clear route ipv4 {*IP prefix and subnet mask*}

Syntax Description

IP prefix and subnet mask	An IP prefix consisting of the network and subnet mask (for example, 10.56.8.10/16).

Defaults

No default behavior or values

Command Modes

Route tracking configuration

Command History

Release	Modification
Release 3.6.0	This command was introduced on the Cisco CRS-1 and Cisco XR 12000 Series Router.
Release 3.7.0	No modification.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes the proper task IDs. For detailed information about user groups and task IDs, see the *Configuring AAA Services on Cisco IOS XR Software* module of the *Cisco IOS XR System Security Configuration Guide*.

The **clear route ipv4** command is accessed through route tracking configuration submode.

Task ID

Task ID	Operations
sysmgr	read, write

Examples

The following example shows the use of the **clear route ipv4** command:

```
RP/0/RP0/CPU0:router# configuration
RP/0/RP0/CPU0:router(config)# track name1
RP/0/RP0/CPU0:router(config-track)# type route reachability
RP/0/RP0/CPU0:router(config-track-route)# clear route ipv4 10.56.8.10/16
```

Related Commands

Command	Description
route ipv4	Configures an IP prefix and subnet as the basis to track route reachability.

Command	Description
track	Initiates or identifies a tracking process to track the status of an object; also enters track configuration mode.
type route reachability	Configures tracking based on whether or not a route is part of a particular routing table.

clear type line-protocol state

To clear entry of **type line protocol state** as the basis for tracking an object, use the **clear type line-protocol** command in track configuration mode.

clear type line-protocol state

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values

Command Modes

Track configuration

Command History

Release	Modification
Release 3.6.0	This command was introduced on the Cisco CRS-1 and Cisco XR 12000 Series Router.
Release 3.7.0	No modification.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes the proper task IDs. For detailed information about user groups and task IDs, see the *Configuring AAA Services on Cisco IOS XR Software* module of the *Cisco IOS XR System Security Configuration Guide*.

Task ID

Task ID	Operations
sysmgr	read, write

Examples

The following example shows how to use the **clear type line-protocol state** command:

```
RP/0/RP0/CPU0:router# configure
RP/0/RP0/CPU0:router(config)# track track12
RP/0/RP0/CPU0:router(config-track)# clear type line-protocol state
```

Related Commands

Command	Description
track	Initiates or identifies a tracking process to track the status of an object; also enters track configuration mode.
type line-protocol state	Configures tracking based on the line protocol state of an interface object.

clear type list boolean

To clear entry of **type list boolean** as the basis for tracking an object or list of objects, use the **clear type list boolean** command in list tracking configuration mode.

clear type list boolean {**and** | **or**}

Syntax Description

and	Specifies that the list is up if all objects are up, or down if one or more objects are down. For example, when tracking two interfaces, up means that both interfaces are up, and down means that either interface is down.
or	Specifies that the list is up if at least one object is up. For example, when tracking two interfaces, up means that either interface is up, and down means that both interfaces are down.

Defaults

No default behavior or values

Command Modes

List tracking configuration

Command History

Release	Modification
Release 3.6.0	This command was introduced on the Cisco CRS-1 and Cisco XR 12000 Series Router.
Release 3.7.0	No modification.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes the proper task IDs. For detailed information about user groups and task IDs, see the *Configuring AAA Services on Cisco IOS XR Software* module of the *Cisco IOS XR System Security Configuration Guide*.

Task ID

Task ID	Operations
sysmgr	read, write

Examples

The following example shows how to use the **clear type list boolean** command:

```
RP/0/RP0/CPU0:router# configure
RP/0/RP0/CPU0:router(config)# track connection100
RP/0/RP0/CPU0:router(config-track-list)# clear type list boolean and
```

Related Commands

Command	Description
track	Initiates or identifies a tracking process to track the status of an object; also enters track configuration mode.
type list boolean	Configures tracking of a list of objects based on a Boolean calculation.

clear type route reachability

To clear entry of **type route reachability** as the basis for tracking an object, use the **clear type route reachability** command in track configuration mode.

clear type route reachability

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values

Command Modes

Track configuration

Command History

Release	Modification
Release 3.6.0	This command was introduced on the Cisco CRS-1 and Cisco XR 12000 Series Router.
Release 3.7.0	No modification.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes the proper task IDs. For detailed information about user groups and task IDs, see the *Configuring AAA Services on Cisco IOS XR Software* module of the *Cisco IOS XR System Security Configuration Guide*.

A tracked IP-route object is considered up and reachable when a routing-table entry exists for the route and the route is not inaccessible.

Task ID

Task ID	Operations
sysmgr	read, write

Examples

The following example shows how to clear tracking for route reachability.

```
RP/0/RP0/CPU0:router# configure
RP/0/RP0/CPU0:router(config)# track track22
RP/0/RP0/CPU0:router(config-track)# clear type route reachability
```

Related Commands

Command	Description
track	Initiates or identifies a tracking process to track the status of an object; also enters track configuration mode.
type route reachability	Configures tracking based on whether or not a route is part of a particular routing table.

clear vrf (track)

To clear entry of a VRF table as a basis to track route reachability, use the **clear vrf** command in route tracking configuration mode.

clear vrf {*vrf-table-name*}

Syntax Description

vrf-table-name	Name of the VRF table used for route reachability tracking.

Defaults

No default behavior or values

Command Modes

Route tracking configuration

Command History

Release	Modification
Release 3.6.0	This command was introduced on the Cisco CRS-1 and Cisco XR 12000 Series Router.
Release 3.7.0	No modification.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes the proper task IDs. For detailed information about user groups and task IDs, see the *Configuring AAA Services on Cisco IOS XR Software* module of the *Cisco IOS XR System Security Configuration Guide*.

The **clear vrf** command is accessed through route tracking configuration submode.

Task ID

Task ID	Operations
sysmgr	read, write

Examples

The following example shows the use of the **clear vrf** command:

```
RP/0/RP0/CPU0:router# configuration
RP/0/RP0/CPU0:router(config)# track name1
RP/0/RP0/CPU0:router(config-track)# type route reachability
RP/0/RP0/CPU0:router(config-track)# clear vrf vrf-table-name
```

Related Commands

Command	Description
track	Initiates or identifies a tracking process to track the status of an object; also enters track configuration mode.

Command	Description
type route reachability	Configures tracking based on whether or not a route is part of a particular routing table.
vrf (track)	Configures that a VRF table should be used as the basis to track route reachability.

delay

To configure the delay, in seconds, before the track or interface state should be polled for a change in status, use the **delay** command in the track configuration mode. To delete the configuration of delay tracking, use the **no** form of this command.

delay {up | down} *seconds*

no delay {up | down} [*seconds*]

Syntax Description

delay up *seconds*	Sets delay of from 1 to 10 seconds before communication of up status of the tracked object or list of objects.
delay down *seconds*	Sets delay of from 1 to 10 seconds before communication of down status of the tracked object or list of objects.

Defaults

No default behavior or values

Command Modes

Track configuration

Command History

Release	Modification
Release 3.6.0	This command was introduced on the Cisco CRS-1 and Cisco XR 12000 Series Router.
Release 3.7.0	No modification.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes the proper task IDs. For detailed information about user groups and task IDs, see the *Configuring AAA Services on Cisco IOS XR Software* module of the *Cisco IOS XR System Security Configuration Guide*.

The **delay** command can be used in conjunction with all track types:

- **type line-protocol state**
- **type list boolean**
- **type route reachability**

When using the **no** form of the command, the use of the *seconds* argument is optional.

Task ID

Task ID	Operations
sysmgr	read, write

Examples

The following example shows that the tracking process is configured to notify the network administrator that the interface should be polled for its up state in five second intervals:

```
RP/0/RP0/CPU0:router# configuration
RP/0/RP0/CPU0:router(config)# track name1
RP/0/RP0/CPU0:router(config-track)# delay up 5
```

Related Commands

Command	Description
clear delay	Clears entry of a delay, in seconds, before the track or interface state should be polled for a change in status.
track	Initiates or identifies a tracking process to track the status of an object; also enters track configuration mode.

interface (track)

To select an interface object type for tracking purposes, use the **interface** command in interface configuration mode. To delete the configuration of a track based on a particular interface object type, use the **no** form of this command.

interface *type interface-instance*

no interface *type interface-instance*

Syntax Description

type	Interface type. For more information, use the question mark (**?**) online help function.
interface-instance	Identifies a physical interface or a virtual interface. **Note** Use the **show interfaces** command to see a list of all possible interfaces currently configured on the router. For more information about the syntax for the router, use the question mark (**?**) online help function.

Defaults

No default behavior or values

Command Modes

Interface configuration

Command History

Release	Modification
Release 3.6.0	This command was introduced on the Cisco CRS-1 and Cisco XR 12000 Series Router.
Release 3.7.0	No modification.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes the proper task IDs. For detailed information about user groups and task IDs, see the *Configuring AAA Services on Cisco IOS XR Software* module of the *Cisco IOS XR System Security Configuration Guide*.

To access this **interface** command, you must be in line protocol tracking configuration submode.

For information about interface keywords, see *Cisco IOS XR Interface and Hardware Component Command Reference*.

Task ID

Task ID	Operations
sysmgr	read, write

Examples

The following example shows the **interface** command in the context of object tracking:

```
RP/0/RP0/CPU0:router# configure
RP/0/RP0/CPU0:router(config)# track track12
RP/0/RP0/CPU0:router(config-track)# type line-protocol state
RP/0/RP0/CPU0:router(config-track-line-prot)#interface atm 0/2/0/0.1
```

Related Commands

Command	Description
clear interface (track)	Clears entry of a particular interface object type.
track	Initiates or identifies a tracking process to track the status of an object; also enters track configuration mode.
type line-protocol state	Configures tracking based on the line protocol state of an interface object.
type list boolean	Configures tracking of a list of objects based on a Boolean calculation.
type route reachability	Configures tracking based on whether or not a route is part of a particular routing table.

line-protocol track

To associate a specific track with an IPSec or GRE interface object, use the **line-protocol track** command in interface configuration mode. To delete the association between the track and the IPSec or GRE interface object, use the **no** form of this command.

line-protocol track *object-name*

no line-protocol track *object-name*

Syntax Description

object-name	Name of object being tracked.

Defaults

No default behavior or values

Command Modes

Interface configuration

Command History

Release	Modification
Release 3.6.0	This command was introduced on the Cisco CRS-1 and Cisco XR 12000 Series Router.
Release 3.7.0	No modification.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes the proper task IDs. For detailed information about user groups and task IDs, see the *Configuring AAA Services on Cisco IOS XR Software* module of the *Cisco IOS XR System Security Configuration Guide*.

Task ID

Task ID	Operations
sysmgr	read, write

Examples

The following example shows how the **line-protocol track** command is used:

```
RP/0/RP0/CPU0:router# configure
RP/0/RP0/CPU0:router(config)# track PREFIX1
RRP/0/RP0/CPU0:router(config-track)# type route reachability
RP/0/RP0/CPU0:router(config-track-route)# route ipv4 7.0.0.0/24
RP/0/RP0/CPU0:router(config-track-route)# interface service-ipsec 1
RP/0/RP0/CPU0:router(config-if)# vrf 1
RP/0/RP0/CPU0:router(config-if)# ipv4 address 70.0.0.2 255.25.255.0
RP/0/RP0/CPU0:router(config-if)# line-protocol track PREFIX1
```

Related Commands

Command	Description
interface (track)	Indicatdes an interface object type for tracking purposes.
track	Initiates a tracking process to track the status of an object or list of objects; enters track configuration mode.

object

To configure an object for tracking, use the **object** command in list tracking configuration mode. To delete a previously configured track based on an object, use the **no** form of this command.

object *object-name* [**not**]

no object *object-name*

Syntax Description

object-name	Name of the object to be tracked.
not	(Optional) Deletes a preivously configured track based on whether an interface object is not up or down.

Defaults

No default behavior or values

Command Modes

List tracking configuration

Command History

Release	Modification
Release 3.6.0	This command was introduced on the Cisco CRS-1 and Cisco XR 12000 Series Router.
Release 3.7.0	No modification.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes the proper task IDs. For detailed information about user groups and task IDs, see the *Configuring AAA Services on Cisco IOS XR Software* module of the *Cisco IOS XR System Security Configuration Guide*.

To delete a previously configured track based on whether an interface object is *not* up or down, use the **not** keyword together with the **object** command in a list of tracked objects based on a Boolean expression.

The **object** command can only be used for a track based on a Boolean expression.

Task ID

Task ID	Operations
sysmgr	read, write

Examples

The following example shows how to configure an object, using the optional **not** keyword, in a tracked list of objects based on a Boolean calculation:

```
RP/0/RP0/CPU0:router# configure
RP/0/RP0/CPU0:router(config)# track connection100
RP/0/RP0/CPU0:router(config-track-list)# type list boolean and
RP/0/RP0/CPU0:router(config-track-list)# object obj3 not
```

Related Commands

Command	Description
clear object	Clears entry of a specific object to be used for tracking.
track	Initiates or identifies a tracking process to track the status of an object; also enters track configuration mode.
type list boolean	Configures tracking of a list of objects based on a Boolean calculation.

route ipv4

To configure that an IP prefix and subnet mask should be used as the basis to track route reachability, use the **route ipv4** command in route tracking configuration mode. To remove this configuration, use the **no** form of the command.

route ipv4 {*IP prefix and subnet mask*}

no route ipv4 [*IP prefix and subnet mask*]

Syntax Description

IP prefix and subnet mask	Network and subnet mask; for example, 10.56.8.10/16.

Defaults

No default behavior or values

Command Modes

Route tracking configuration

Command History

Release	Modification
Release 3.6.0	This command was introduced on the Cisco XR 12000 Series Router.
Release 3.7.0	No modification.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes the proper task IDs. For detailed information about user groups and task IDs, see the *Configuring AAA Services on Cisco IOS XR Software* module of the *Cisco IOS XR System Security Configuration Guide*.

The *IP prefix* and *subnet mask* arguments are optional for the **no** form of this command.

Task ID

Task ID	Operations
sysmgr	read, write

Examples

The following example displays use of the **route ipv4** command:

```
RP/0/RP0/CPU0:router# configure
RP/0/RP0/CPU0:router(config)# track track22
RP/0/RP0/CPU0:router(config-track)# type route reachability
RP/0/RP0/CPU0:router(config-track-route)# route ipv4 10.56.8.10/16
```

Related Commands

Command	Description
clear route ipv4	Clears entry of an IP prefix and subnet mask as a basis for tracking route reachability.
type route reachability	Configures tracking based on whether or not a route is part of a particular routing table.
vrf (track)	Configures that a VRF table should be used as the basis to track route reachability.

show track

To display information about objects that were tracked and to specify the format of the report, use the **show track** command in EXEC mode.

show track [*track-name* | **brief** | **interface** | **ipv4 route**]

Syntax Description

track-name	(Optional) Name of track used for tracking objects; for example, track1.
brief	(Optional) Displays a single line of information related to the preceding argument or keyword.
interface	(Optional) Displays tracked interface objects.
ipv4 route	(Optional) Displays the tracked IPv4 route objects.

Defaults

No default behavior or values

Command Modes

EXEC

Command History

Release	Modification
Release 3.6.0	This command was introduced on the Cisco CRS-1 and Cisco XR 12000 Series Router.
Release 3.7.0	No modification.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes the proper task IDs. For detailed information about user groups and task IDs, see the *Configuring AAA Services on Cisco IOS XR Software* module of the *Cisco IOS XR System Security Configuration Guide*.

Use the **show track** command to display information about objects that are tracked by the tracking process. When no arguments or keywords are specified, information for all objects is displayed.

Task ID

Task ID	Operations
sysmgr	read

Examples

The following sample output illustrates use of the **show track** command:

```
RP/0/RP0/CPU0:router# show track Track_name3
    Track_name3
        List boolean and is DOWN
        1 change, last change 10:26:20 SJC Sun Aug 05 2007
                object name2 not UP
                object name1 UP
```

Related Commands

Command	Description
track	Initiates or identifies a tracking process to track the status of an object; also enters track configuration mode.

track

To initiate or identify a tracking process used to track the status of an object or list of objects, use the **track** command in global configuration mode. To remove the tracking process, use the **no** form of this command.

track *track-name*

no track *track-name*

Syntax Description

track *track-name*	Name of track used for tracking objects; for example, track1.

Defaults

No default behavior or values

Command Modes

Global configuration

Command History

Release	Modification
Release 3.6.0	This command was introduced on the Cisco CRS-1 and Cisco XR 12000 Series Router.
Release 3.7.0	No modification.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes the proper task IDs. For detailed information about user groups and task IDs, see the *Configuring AAA Services on Cisco IOS XR Software* module of the *Cisco IOS XR System Security Configuration Guide*.

When you use the **track** command, you enter track configuration mode.

The **track** command is used in conjunction with all the following track commands and types:

- **delay**
- **show track**
- **type line-protocol state**
- **type list boolean**
- **type route reachability**

Task ID

Task ID	Operations
sysmgr	read, write

Examples

The following example shows that the tracking process is configured to notify the network administrator about the up state of the tracked object list every five seconds:

```
RP/0/RP0/CPU0:router# configure
RP/0/RP0/CPU0:router(config)# track LIST2
RP/0/RP0/CPU0:router# track LIST2 delay up 5
```

Related Commands

Command	Description
delay	Configures the duration, in seconds, before the track or interface state should be polled for a change in status.
show track	Displays information about objects that were tracked.
type line-protocol state	Configures tracking based on the line protocol state of an interface object.
type list boolean	Configures tracking based on whether or not a route is part of a particular routing table.
type route reachability	Configures tracking based on whether or not a route is part of a particular routing table.

type line-protocol state

To configure tracking of the line protocol state of an interface object, use the **type line-protocol** command in track configuration mode. To delete the configuration of line-protocol tracking, use the **no** form of this command.

type line-protocol state

no type line-protocol state

Defaults

No default behavior or values

Command Modes

Track configuration

Command History

Release	Modification
Release 3.6.0	This command was introduced on the Cisco CRS-1 and Cisco XR 12000 Series Router.
Release 3.7.0	No modification.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes the proper task IDs. For detailed information about user groups and task IDs, see the *Configuring AAA Services on Cisco IOS XR Software* module of the *Cisco IOS XR System Security Configuration Guide*.

The **type line-protocol state** command can be used in conjunction with the **delay** command to configure the delay, in seconds, before the track or interface state should be polled for a change in its status.

The **type line-protocol state** command enters line-protocol tracking configuration mode.

Task ID

Task ID	Operations
sysmgr	read, write

Examples

The following example shows how to use the **type line-protocol state** command:

```
RP/0/RP0/CPU0:router# configure
RP/0/RP0/CPU0:router(config)# track track12
RP/0/RP0/CPU0:router(config-track)# type line-protocol state
```

Related Commands

Command	Description
clear type line-protocol state	Clears entry of the line protocol state as the basis for tracking.
delay	Configures the duration, in seconds, before the track or interface state should be polled for a change in status.

Command	Description
interface (track)	Indicates an interface object type for tracking purposes.
show track	Displays information about objects that were tracked.
track	Initiates or identifies a tracking process to track the status of an object; also enters global configuration mode.

type list boolean

To configure a tracked list of objects based on a Boolean calculation, use the **type list boolean** command in track configuration mode. To remove an object tracking list based on a Boolean calculation, use the **no** form of the command.

type list boolean {**and** | **or**}

no type list boolean {**and** | **or**}

Syntax Description

and	Specifies that the list is up if all objects are up, or down if one or more objects are down. For example, when tracking two interfaces, up means that both interfaces are up, and down means that either interface is down.
or	Specifies that the list is up if at least one object is up. For example, when tracking two interfaces, up means that either interface is up, and down means that both interfaces are down.

Defaults

No default behavior or values

Command Modes

Track configuration

Command History

Release	Modification
Release 3.6.0	This command was introduced on the Cisco CRS-1 and Cisco XR 12000 Series Router.
Release 3.7.0	No modification.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes the proper task IDs. For detailed information about user groups and task IDs, see the *Configuring AAA Services on Cisco IOS XR Software* module of the *Cisco IOS XR System Security Configuration Guide*.

The **type list boolean** command enters the list tracking configuration mode, and can be used in conjunction with the **delay** command to configure the delay, in seconds, before the track or interface state should be polled for a change in its status.

To remove a track based on whether an interface object is *not* up or down, use the **not** keyword together with the **object** command as shown in the example that follows.

Task ID

Task ID	Operations
sysmgr	read, write

Examples

The following example shows how to use the **type list boolean** command in creating a list of objects to be tracked:

```
RP/0/RP0/CPU0:router# configure
RP/0/RP0/CPU0:router(config)# track LIST2
RP/0/RP0/CPU0:router(config-track)# type list boolean and
RP/0/RP0/CPU0:router(config-track-list)# object IPSec1 not
RP/0/RP0/CPU0:router(config-track-list)# object IPSec2
RP/0/RP0/CPU0:router(config-track-list)# object PREFIX1
RP/0/RP0/CPU0:router(config-track-list)# exit
RP/0/RP0/CPU0:router(config)# track IPSec1
RP/0/RP0/CPU0:router(config-track)# type line-protocol state
RP/0/RP0/CPU0:router(config-track-line-prot)# interface GigabitEthernet 0/0/0/3
RP/0/RP0/CPU0:router(config-track-line-prot)# exit
RP/0/RP0/CPU0:router(config-track)# track IPSec2
RP/0/RP0/CPU0:router(config-track)# type line-protocol state
RP/0/RP0/CPU0:router(config-track-line-prot)# interface ATM0/2/0.1
RP/0/RP0/CPU0:router(config-track-line-prot)# exit
RP/0/RP0/CPU0:router(config)# track PREFIX1
RP/0/RP0/CPU0:router(config-track)# type route reachability
RP/0/RP0/CPU0:router(config-track-route)# route ipv4 7.0.0.0/24
RP/0/RP0/CPU0:router(config-track-route)# exit
RP/0/RP0/CPU0:router(config-track)# interface service-ipsec 1
RP/0/RP0/CPU0:router(config-if)# vrf 1
RP/0/RP0/CPU0:router(config-if)# ipv4 address 70.0.0.2 255.255.255.0
RP/0/RP0/CPU0:router(config-if)# profile vrf_1_ipsec
RP/0/RP0/CPU0:router(config-if)# line-protocol track LIST2
RP/0/RP0/CPU0:router(config-if)# tunnel source 80.0.0.2
RP/0/RP0/CPU0:router(config-if)# tunnel destination 80.0.0.1
RP/0/RP0/CPU0:router(config-if)# service-location preferred-active 0/2/0
RP/0/RP0/CPU0:router(config-if)# commit
```

Related Commands

Command	Description
clear type list boolean	Clears entry of **type list boolean** as the basis for tracking an object.
delay	Configures the duration, in seconds, before the track or interface state should be polled for a change in status.
line-protocol track	Associates a specific track with an IPSec or GRE interface object.
object	Configures an object to be tracked.
show track	Displays information about objects that were tracked.
track	Initiates or identifies a tracking process to track the status of an object; also enters global configuration mode.
type line-protocol state	Configures tracking based on the line protocol state of an interface object.
type route reachability	Configures tracking based on whether or not a route is part of a particular routing table.

type route reachability

To configure the routing process to notify the tracking process when the route state changes due to a routing update, use the **type route reachability** command in track configuration mode.

To remove a track based on route reachability, use the **no** form of this command.

type route reachability

no type route reachability

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values

Command Modes

Track configuration

Command History

Release	Modification
Release 3.6.0	This command was introduced on the Cisco CRS-1 and Cisco XR 12000 Series Router.
Release 3.7.0	No modification.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes the proper task IDs. For detailed information about user groups and task IDs, see the *Configuring AAA Services on Cisco IOS XR Software* module of the *Cisco IOS XR System Security Configuration Guide*.

A tracked IP-route object is considered up and reachable when a routing-table entry exists for the route and the route is not inaccessible.

The **type route reachability** command can be used in conjunction with the **delay** command to configure the delay, in seconds, before the track or interface state should be polled for a change in its status.

The route reachability tracking process is based on either of the following, depending on your router type:

- **vrf—**A VRF table name.
- **route—**An IPv4 prefix consisting of the network and subnet mask (for example, 10.56.8.10/16).

Task ID

Task ID	Operations
sysmgr	read, write

Examples

The following example shows how to track for route reachability:

```
RP/0/RP0/CPU0:router# configure
```

```
RP/0/RP0/CPU0:router(config)# track track22
RP/0/RP0/CPU0:router(config-track)# type route reachability
```

Related Commands

Command	Description
clear type route reachability	Clears entry of **type route reachability** as the basis for tracking an object.
delay	Configures the duration, in seconds, before the track or interface state should be polled for a change in status.
show track	Displays information about objects that were tracked.
track	Initiates or identifies a tracking process to track the status of an object; also enters global configuration mode.

vrf (track)

To configure a VRF table to be used as the basis to track route reachability, use the **vrf** command in route tracking configuration mode. To delete the configuration of a VRF table for the purpose of IP route tracking purposes, use the **no** form of the command.

vrf {*vrf-table-name*}

no vrf [*vrf-table-name*]

Syntax Description

vrf-name	Network and subnet; for example, 10.56.8.10/16.

Defaults

No default behavior or values

Command Modes

Route tracking configuration

Command History

Release	Modification
Release 3.6.0	This command was introduced on the Cisco CRS-1 and Cisco XR 12000 Series Router.
Release 3.7.0	No modification.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes the proper task IDs. For detailed information about user groups and task IDs, see the *Configuring AAA Services on Cisco IOS XR Software* module of the *Cisco IOS XR System Security Configuration Guide*.

Task ID

Task ID	Operations
sysmgr	read, write

Examples

The following example displays the use of the **vrf** command:

```
RP/0/RP0/CPU0:router# configure
RP/0/RP0/CPU0:router(config)# track track22
RP/0/RP0/CPU0:router(config-track)# type route reachability
RP/0/RP0/CPU0:router(config-track-route)# vrf vrf1
```

Related Commands

Command	Description
clear vrf (track)	Clears entry of a VRF table as the basis to track route reachability.
route ipv4	Configures an IP prefix and subnet as the basis to track route reachability.
type route reachability	Configures tracking based on whether or not a route is part of a particular routing table.