Interface IP Configuration Requirements

- Resource Summary for IP Interface
- Interface Resources
- Interface State
- Interface Statistics

Resource Summary for IP Interface

		HTTP Method			
Resource	**URL (BaseURL)**	**GET**	**POST**	**PUT**	**DELETE**
Interface	/api/v1/interfaces	Y	Y	N	N
	/api/v1/interfaces/{if-id}[1]	Y	N	Y	Y*
Interface Statistics	/api/v1/interfaces/{if-id}/statistics	Y	Y	N	N
Interface State	/api/v1/interfaces/{if-id}/state	Y	N	Y	N

1. {if-id} = Interface ID returned from the REST API used to create the interface.

Interface Resources

History

Release	Modification
IOS XE 3.10	Introduced for the CSR1000V platform
IOS XE 3.11	Added the following properties: • icmp-redirects • icmp-unreachable • proxy-arp • verify-unicast-source • subinterface-vlan (includes sub-properties described below)
IOS XE 3.13	Enhanced interface API for BDI support: Added a new interface type: "bdi"
IOS XE 3.14	Introduced for ASR1001-X and ASR1002-X platforms

Properties

Property	Type	Required for POST and PUT	Description
kind	string	Not applicable	Object type. Has the fixed value "object#interface"
type	string	Mandatory	Interface type. Read-only
if-name	string	Mandatory	Interface name. Note that the name follows the usual IOS slot/port convention.
description	string	Optional	Interface Description
ip-address	ip-address	Mandatory	IP address in the format x.x.x.x
subnet-mask	ipsubnet	Mandatory	Subnet mask in the format x.x.x.x
nat-direction	string	Mandatory	Indicates if the interface is viewed as "inside" or "outside" from NAT point of view.
icmp-redirects	boolean	Optional	ICMP Redirects
icmp-unreachable	boolean	Optional	ICMP Unreachable
proxy-arp	boolean	Optional	Proxy Arp, enabled or disabled
verify-unicast-source	boolean	Optional	Unicast Source Address Verification enabled or disabled

Property	Type	Required for POST and PUT	Description
subinterface-vlan	object	Optional	This property is only used by a sub-interface; a full interface does not have this property. Includes three sub-properties: encap-type, vlan-id, encapsulated-vlan
encap-type	string	Optional	(sub-property of subinterface-vlan) Possible values: • DOT1Q • QINQ
vlan-id	number	Mandatory	(sub-property of subinterface-vlan) vlan-id. Possible values: 1 to 4094
encapsulated-vlan	string	Optional	(sub-property of subinterface-vlan) Used in QINQ subinterface configuration to specify the second vlan-id. Possible values: are 1 to 4094 as a numerical string.

JSON Representation

```
{
    "if-name": "string",
    "type": "string",
    "ip-address": "string",
    "subnet-mask": "string",
    "description": "string",
    "nat-direction": "string",
    "icmp-redirects":"boolean",
    "icmp-unreachable": "boolean",
    "proxy-arp": "boolean",
    "verify-unicast-source": "boolean",
    "subinterface-vlan":
    {
        "encap-type": "string",
        "vlan-id": "number",
        "encapsulated-vlan": "string",
    },
}
```

Examples Demonstrating Use of Interface ID

Examples Using Interface ID

Resource URI

Verb	URI
[GET PUT]	/api/v1/interfaces/{if-id}

Example 1: Creating a Loopback Interface

The following example is for a logical Ethernet network interface, and creates a loopback interface.

```
{
    "type": "{string}",
    "if-name": "{interface-name}",
    "description": "loopback ",
    "ip-address": "170.15.15.11",
    "subnet-mask": "255.255.255.0",
    "nat-direction": ""
}
```

Note POST /api/v1/ is available only for loopback. Cisco IOS XE 3.10 does not support POST /api/v1/ on a sub-interface.

Example 2: Retrieving an Interface

JSON Request

```
GET /api/v1/gigabitEthernet1
Accept: application/json
```

JSON Response

```
200 OK
Content-Type: application/json

{
    "kind"                 : "object#",
    "type"                 : "ethernet",
    "if-name"              : "gigabitEthernet1",
    "description"          : "outside ",
    "ip-address"           : "172.15.15.15",
    "subnet-mask"          : "255.255.254.0",
    "nat-direction"        : "outside",
    "icmp-redirects"       : true,
    "icmp-unreachable"     : true,
    "proxy-arp"            : true,
    "verify-unicast-source": true
}
```

Example 3: Modifying an Interface

JSON Request

```
PUT /api/v1/gigabitEthernet1
Content-Type: application/json

{
    "type"                   : "ethernet",
    "if-name"                : "gigabitEthernet1",
    "description"            : "outside ",
    "ip-address"             : "172.15.15.16",
    "subnet-mask"            : "255.255.254.0",
    "nat-direction"          : "outside"
    "icmp-redirects"         : true,
    "icmp-unreachable"       : true,
    "proxy-arp"              : true,
    "verify-unicast-source"  : true
}
```

JSON Response

```
204 No Content
```

Examples Without Interface ID

Resource URI

Verb	URI
[GET POST]	/api/v1/interfaces

Example: GET

JSON Request

```
GET /api/v1/interfaces
Accept: application/json
```

JSON Response

```
200 OK
Content-Type: application/json

{
"kind" : "collection#interface",
"items": [
       {
        "kind"          : "object#",
        "type"          : "ethernet",
        "if-name"       : "gigabitEthernet1",
        "description"   : "outside ",
        "ip-address"    : "172.15.15.15",
        "subnet-mask"   : "255.255.254.0",
        "nat-direction" : "outside",
        "icmp-redirects"  : true,
        "icmp-unreachable": true,
```

```
            "proxy-arp"             : true,
            "verify-unicast-source" : true
        }
          ]
}
```

Example: POST

JSON Request

```
POST /api/v1/
Content-Type: application/json

{
    "type"                  : "loopback",
    "if-name"               : "loopback1",
    "description"           : "outside ",
    "ip-address"            : "172.15.15.16",
    "subnet-mask"           : "255.255.254.0",
    "nat-direction"         : "outside"
    "icmp-redirects"        : true,
    "icmp-unreachable"      : true,
    "proxy-arp"             : true,
    "verify-unicast-source" : true
}
```

JSON Response

```
201 Created
Location: https://host/api/v1/interfaces/loopback1
```

Retrieve Interface Details

Resource URI

Verb	URI
GET	/api/v1/interfaces/{if-id}

Example 1: Retrieve Interface Details

JSON Request

```
GET /api/v1/interfaces/gigabitEthernet1
Accept: application/json
```

JSON Response

```
200 OK

Content-Type: application/json
{
    "kind"          : "object#interface",
    "type"          : "ethernet",
    "if-name"       : "gigabitEthernet1",
    "description"   : "outside interface",
    "ip-address"    : "172.15.15.15",
```

```
    "subnet-mask"   : "255.255.254.0",
    "nat-direction" : "outside"
}
```

Example 2: Retrieve Sub-interface Details

Note Available in Cisco IOS XE 3.11 and later

JSON Request

```
GET /api/v1/interfaces/GigabitEthernet2.23
Accept: application/json
```

JSON Response

```
200 OK
Content-Type: application/json

{
    "kind": "object#interface",
    "description": "",
    "if-name": "GigabitEthernet2.23",
    "proxy-arp": true,
    "subnet-mask": "255.255.255.0",
    "icmp-unreachable": true,
    "nat-direction": "",
    "icmp-redirects": true,
    "ip-address": "22.10.10.23",
    "subinterface-vlan": {"vlan-id": 23, "encap-type": "DOT1Q"},
    "type": "ethernet",
    "verify-unicast-source": false
}
```

Retrieve All Interfaces and Details

Resource URI

Verb	URI
GET	/api/v1/interfaces

Properties for Retrieve All

Property	Type	Description
kind	string	Object type. Has fixed value "collection#interface"
items	array	Array of interface objects

Example

JSON Request

```
GET /api/v1/interfaces

Accept: application/json
```

JSON Response

```
200 OK

Content-Type: application/json
{
 "kind" : "collection#interface",
 "items": [
           {
             "kind"        : "object#interface",
             "type"        : "ethernet",
             "if-name"     : "gigabitEthernet1",
             "description" : "management interface",
             "ip-address"  : "129.10.10.10",
             "subnet-mask" : "255.255.254.0"
           },

           {
             "kind"          : "object#interface",
             "type"          : "ethernet",
             "if-name"       : "gigabitEthernet2",
             "description"   : "outside interface",
             "ip-address"    : "172.15.15.15",
             "subnet-mask"   : "255.255.254.0",
             "nat-direction" : "outside"
           },
           {
             "kind"          : "object#interface",
             "type"          : "ethernet",
             "if-name"       : "gigabitEthernet3",
             "description"   : "inside interface",
             "ip-address"    : "10.10.10.15",
             "subnet-mask"   : "255.255.254.0",
             "nat-direction" : "inside"
           }
        ]
}
```

Modify an Interface Configuration

Resource URI

Verb	URI
PUT	/api/v1/interfaces/{if-id}

Example 1: Changing the IP-address from 172.15.15.15 to 172.15.15.16

JSON Request

```
PUT /api/v1/interfaces/gigabitEthernet1

Content-Type: application/json
{
    "type"          : "ethernet",
    "if-name"       : "gigabitEthernet1",
    "description"   : "outside interface",
    "ip-address"    : "172.15.15.16",
    "subnet-mask"   : "255.255.254.0",
    "nat-direction" : "outside"
}
```

JSON Response

```
204 No Content
```

Example 2: Modify VLAN IDs (Example Includes Sub-interface Property)

JSON Request

```
PUT /api/v1/interfaces/GigabitEthernet2.23
Content-Type: application/json

{  "subinterface-vlan":{"vlan-id":230},
    "if-name":"GigabitEthernet2.23",
    "subnet-mask":"255.255.255.0",
    "ip-address":"22.10.10.23",
    "type":"ethernet"
}
```

JSON Response

```
204 No content
```

Create an Interface

Enables:

- Creating a loopback or sub-interface and IP address
  - The loopback or sub-interface cannot be on the same network as a physical interface.
  - After a loopback interface is configured, a router-id can be generated from it.
- Changing properties of a physical interface

If the if-name in the HTTP POST body has a dash (for example, myintf-0), the API controller code would add another dash to the if-name to make an if-id (for example, myintf--0). The if-name with one dash should be passed to the 1-P API calls.

Resource URI

Verb	URI
POST	/api/v1/interfaces

Example 1: Create a Loopback Interface

JSON Request

```
POST /api/v1/interfaces
Accept: application/json

Content-Type: application/json
{
    "type"          : "loopback",
    "if-name"       : "loopback11",
    "description"   : "loopback ",
    "ip-address"    : "170.15.15.11",
    "subnet-mask"   : "255.255.255.0",
    "nat-direction" : ""
}
```

JSON Response: Returning the Interface ID

```
201 Created
Location: http://host/api/v1/interfaces/loopback11_ifid
```

Example 2: Create a Sub-interface

Note Available in Cisco IOS XE 3.11 and later

JSON Request

```
POST /api/v1/interfaces
Content-Type: application/json

{
  "subinterface-vlan": {"vlan-id":23},
  "if-name": "GigabitEthernet2.23",
  "subnet-mask": "255.255.255.0",
  "ip-address": "22.10.10.23",
  "type": "ethernet"
}
```

JSON Response

```
201 Created
Location: https://host/api/v1/interfaces/GigabitEthernet2.23
```

Delete an Interface

Resource URI

Verb	URI
DELETE	/api/v1/interfaces/{if-id}

Example 1: Delete an Interface

JSON Request

```
DELETE /api/v1/interfaces/11
```

JSON Response

```
204 No Content
```

Example 2: Delete a Sub-interface

Note Available in Cisco IOS XE 3.11 and later

JSON Request

```
DELETE /api/v1/interfaces/GigabitEthernet2.23
```

JSON Response

```
204 No Content
```

Interface State

History

Release	Modification
IOS XE 3.10	Introduced for the CSR1000V platform
IOS XE 3.14	Introduced for ASR1001-X and ASR1002-X platforms

Properties

Property	Type	Required for POST and PUT	Description
kind	string	Not applicable	Object type. Has the fixed value "object#interface-state"
if-name	string	Mandatory	Interface Name. Read-only
enabled	boolean	Mandatory	Enables (up) or Disables (down) interface

Retrieve Interface State

Resource URI

Verb	URI
GET	/api/v1/interfaces/{if-id}/state

Example

JSON Request

```
GET /api/v1/interfaces/gigabitEthernet1/state

Accept: application/json
```

JSON Response

```
200 OK

Content-Type: application/json
Accept: application/json


{
    "kind"    : "object#interface-state",
    "if-name" : "gigabitEthernet1",
    "enabled" : true
}
```

Bring an Interface Up or Down

Resource URI

Verb	URI
PUT	/api/v1/interfaces/{if-id}/state

Example: "no shut" GigabitEthernet1

JSON Request

```
PUT /api/v1/interfaces/gigabitEthernet1/state

Content-Type: application/json
Accept: application/json

{
    "if-name" : "gigabitEthernet1",
    "enabled" : true
}
```

JSON Response

```
204 No Content
```

Interface Statistics

History

Release	Modification
IOS XE 3.10	Introduced for the CSR1000V platform
IOS XE 3.14	Introduced for ASR1001-X and ASR1002-X platforms

Properties

Property	Type	Description
kind	string	Object type. Has the fixed value "object#interface-statistics"
if-name	string	Interface Name. Read-only
in-errors	number	Sum of all input related errors
in-packet-drops	number	Input packet drop count is caused when the input queue is full.
in-current-packets	number	Total packets received since the last reset of statistics
in-packet-rate-bps	number	Input packet receive rate in bytes per second
in-packet-rate-pps	number	Input packet receive rate in packets per second
out-errors	number	Sum of all output related errors
out-packet-drops	number	Output packet drop count is caused when the output queue is full.
out-current-packets	number	Total packets transmitted since the last statistics
out-packet-rate-bps	number	Output packet transmit rate in bytes per second
out-packet-rate-pps	number	Output packet transmit rate in packets per second

Retrieve Interface Statistics

Resource URI

Verb	URI
GET	/api/v1/interfaces/{if-id}/statistics

Example

JSON Request

```
GET /api/v1/interfaces/gigabitEthernet1/statistics

Accept: application/json
```

JSON Response

```
200 OK

Content-Type: application/json

{
    "kind"                : "object#interface-statistics",
    "if-name"             : "gigabitEthernet1",
    "in-errors"           : 0,
    "in-packet-drops"     : 0,
    "in-current-packets"  : 17,
    "in-packet-rate-bps"  : 0,
    "in-packet-rate-pps"  : 0,
    "out-errors"          : 0,
    "out-packet-drops"    : 0,
    "out-current-packets" : 0,
    "out-packet-rate-bps" : 0,
    "out-packet-rate-pps" : 0
}
```

Clear Interface Statistics

This resource also supports clearing of interface statistics by doing a POST on the resource with the following request message. See Resource specific operations for more details & examples.

Example

JSON Request

```
POST /api/v1/interfaces/statistics

Content-Type: application/json
Accept: application/json

{
 "action" : "clear"
}
```

JSON Response

```
204 No Content
```