

**VTN-based Real Time Media (RTM) Network Service**

**User’s Manual**

**V1.0  
  
Contributed by NEC for Open Source SDN Community: Project ASPEN**Open Source Software License Apache 2.0  
Document is licensed by Creative Commons CC BY version 2.0 license, 2015 (You are allowed to 1) Share — copy and redistribute the material in any medium or format; 2) Adapt — remix, transform, and build upon the material for any purpose, even commercially. The licensor cannot revoke these freedoms as long as you follow the license terms.

Contents

[Purpose 3](#_Toc404347951)

[Introduction 3](#_Toc404347952)

[VTN-based RTM Network Service Overview 4](#_Toc404347953)

[Structure of Document 4](#_Toc404347955)

[Session Operations 5](#_Toc404347956)

[GET api/v1.0/sessions/ 5](#_Toc404347957)

[GET api/v1.0/sessions/{**session\_id**} 9](#_Toc404347958)

[POST api/v1.0/sessions/ 12](#_Toc404347959)

[Delete api/v1.0/sessions/{**session\_id**} 15](#_Toc404347960)

[Media Operations 16](#_Toc404347961)

[GET api/v1.0/sessions/{**session\_id**}/media/ 16](#_Toc404347962)

[GET api/v1.0/sessions/{**session\_id**}/media/{**media\_type**} 19](#_Toc404347963)

[POST api/v1.0/sessions/{**session\_id**}/media/ 21](#_Toc404347964)

[Delete api/v1.0/sessions/{**session\_id**}/media/{**media\_type**} 24](#_Toc404347965)

[PUT api/v1.0/sessions/{**session\_id**}/media/{**media\_type**} 25](#_Toc404347966)

[patch api/v1.0/sessions/{**session\_id**}/media/{**media\_type**} 28](#_Toc404347967)

[Policy Operations 32](#_Toc404347968)

[GET api/v1.0/policies/ 32](#_Toc404347969)

[GET api/v1.0/policies/{**policy\_id**} 35](#_Toc404347970)

[POST api/v1.0/policies/ 37](#_Toc404347971)

[Delete api/v1.0/policies/{**policy\_id**} 39](#_Toc404347972)

[PUT api/v1.0/policies/{**policy\_id**} 40](#_Toc404347973)

[patch api/v1.0/policies/{**policy\_id**} 42](#_Toc404347974)

[DSCP Mapping Operations 45](#_Toc404347975)

[GET api/v1.0/dscpmappings/ 45](#_Toc404347976)

[GET api/v1.0/dscpmappings/{**application\_class**} 47](#_Toc404347977)

[POST api/v1.0/dscpmappings/ 48](#_Toc404347978)

[Delete api/v1.0/dscpmappings/{**application\_class**} 49](#_Toc404347979)

[PUT api/v1.0/dscpmappings/{**application\_class**} 50](#_Toc404347980)

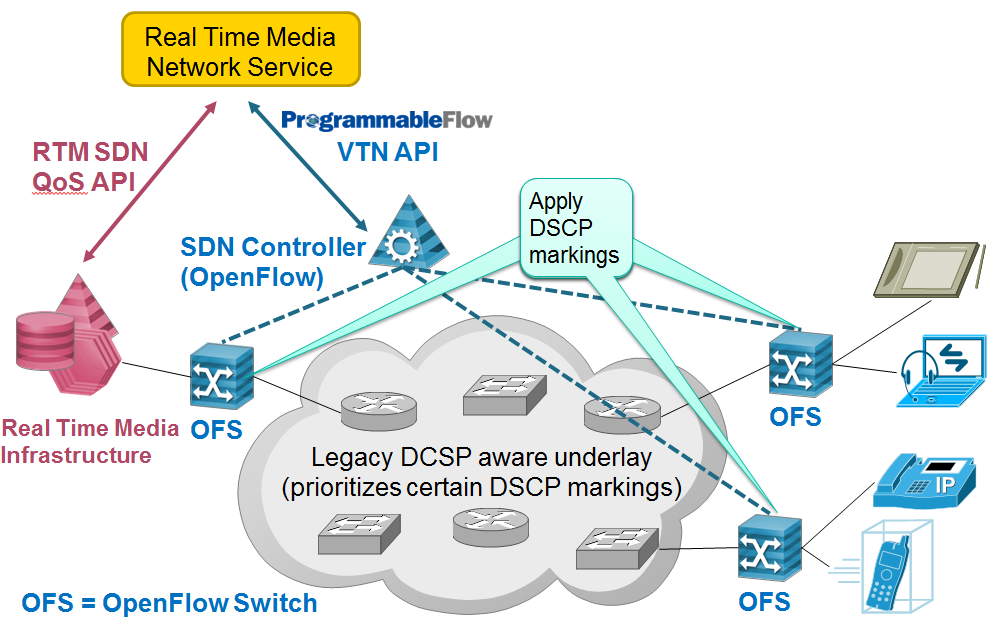
# Purpose

The purpose of this document is to help you understand better the general idea of the VTN-based Real Time Media (RTM) Network Service and also to be used as a reference for the operations that are provided from the service.

# Introduction

The VTN-based RTM Network Service is an implementation that complies with ONF’s RTM API Specification. The purpose of the service is to offer better overall experience to the end-users of RTM applications by interacting with the SDN Controller via Northbound Interfaces.

The RTM Network service allows RTM applications to dynamically negotiate application treatment with the network. The figure below shows a possible use case scenario.



A RTM Application (e.g Lync,Webex etc) interacts with the RTM Network Service and provides information about the application sessions (e.g new session or update session). Then the RTM Network Service is responsible to interact with a VTN-enabled SDN Controller (ProgrammableFlow or Opendaylight) via the VTN Rest API to apply the appropriate DSCP markings to each session according to the information that the application provided and the current state of the network. The DSCP markings are applied to the edge Switches (OF enabled) of the network . This approach has several advantages:

* We control the DSCP markings so that the end users can’t cheat and request whatever DSCP marking they want.
* The core of the network can be a legacy network (hybrid deployments). The DSCP markings are applied at the Edge Switches and they remain in the packet until the end.

## VTN-based RTM Network Service Overview

The below figure shows the layering of the whole architecture.

# Y:\VTN Demo\overview.PNG

On the top we have the RTM applications (in our demo’s we used vlc with a wrapper that we implemented that extracts the desired information). The RTM applications are responsible to send information that complies with ONF’s RTM Specification Information Model to the VTN-based RTM Network Service.

The VTN-based RTM Network Service is responsible to translate the information from RTM application to VTN configuration according to the given information and the current state of the network. The VTN configuration is specified using the REST Api of the VTN interface.

The VTN-enabled SDN controller is responsible to translate the VTN configuration to Openflow rules and apply them to the appropriate network elements.

# Structure of Document

The rest of this document provides the reference for all the operations that the VTN-based RTM Network Service. It provides all the necessary information to execute the REST calls with examples and explanations for each element.

# Session Operations

GET api/v1.0/sessions/

**Description**: Provides all the information about the sessions and the media elements of each session.

|  |
| --- |
| **REQUEST** |
| GET /api/v1.0/sessions/  Accept: application/json |
| **RESPONSE** |
| 200  Content-Type: application/json  {  "session1" : {  "sessionElement" : {  "groupId" : "**group\_id**",  "media1" : {  "mediaElement" : {  "ageOutTimer": "**age\_out\_timer**",  "flowElement": {  "destinationIpAddress" : "**destination\_ip\_address**",  "destinationIpPort" : "**destination\_ip\_port**",  "flowId" : "**flow\_id**",  "ipAddressType": "**ip\_address\_type**",  "sourceIpAddress" : "**source\_ip\_address**",  "sourceIpPort" : "**source\_ip\_port**",  "transportType" : "**transport\_type**"  },  "grantedQos" : {  "actualBandwidth" : "**actual\_bandwidth**",  "actualClass" : "**actual\_class**",  "dscp" : "**dscp**"  },  "mediaType": "**media\_type**",  "requestedQos" : {  "applicationClass" : "**application\_class**",  "averageBandwidth" : "**average\_bandwidth**",  "maxBandwidth" : "**max\_bandwidth**",  "minBandwidth" : "**min\_bandwidth**"  }  }  },  "media2": {  "mediaElement" : {  "ageOutTimer": "**age\_out\_timer**",  "flowElement": {  "destinationIpAddress" : "**destination\_ip\_address**",  "destinationIpPort" : "**destination\_ip\_port**",  "flowId" : "**flow\_id**",  "ipAddressType": "**ip\_address\_type**",  "sourceIpAddress" : "**source\_ip\_address**",  "sourceIpPort" : "**source\_ip\_port**",  "transportType" : "**transport\_type**"  },  "grantedQos" : {  "actualBandwidth" : "**actual\_bandwidth**",  "actualClass" : "**actual\_class**",  "dscp" : "**dscp**"  },  "mediaType": "**media\_type**",  "requestedQos" : {  "applicationClass" : "**application\_class**",  "averageBandwidth" : "**average\_bandwidth**",  "maxBandwidth" : "**max\_bandwidth**",  "minBandwidth" : "**min\_bandwidth**"  }  }  },  "sessionId": "**session\_id**",  "startTime": "**start\_time**"  }  },  "session2": {  "sessionElement" : {  "groupId" : "**group\_id**",  "media1" : {  "mediaElement" : {  "ageOutTimer": "**age\_out\_timer**",  "flowElement": {  "destinationIpAddress" : "**destination\_ip\_address**",  "destinationIpPort" : "**destination\_ip\_port**",  "flowId" : "**flow\_id**",  "ipAddressType": "**ip\_address\_type**",  "sourceIpAddress" : "**source\_ip\_address**",  "sourceIpPort" : "**source\_ip\_port**",  "transportType" : "**transport\_type**"  },  "grantedQos" : {  "actualBandwidth" : "**actual\_bandwidth**",  "actualClass" : "**actual\_class**",  "dscp" : "**dscp**"  },  "mediaType": "**media\_type**",  "requestedQos" : {  "applicationClass" : "**application\_class**",  "averageBandwidth" : "**average\_bandwidth**",  "maxBandwidth" : "**max\_bandwidth**",  "minBandwidth" : "**min\_bandwidth**"  }  }  } |

Description of Elements in Response Body

|  |  |  |  |
| --- | --- | --- | --- |
| **Element** | **Description** | **Required** | **Valid Values** |
| **session\_id** | Identifier of the session | Yes | Up to 32 characters including alpanumerics and underscores |
| **start\_time** | Timestamp of the session | Yes | ---------- |
| **group\_id** | Group Id for the session | Yes | ---------- |
| **media\_type** | Media Type (e.g video,audio) | Yes | video, audio, conference |
| **age\_out\_timer** | Specifies when the media element expires | no | Positive Decimal Number |
| **ip\_type** | IP address version (valid values: ipv4,ipv6) | Yes | Ipv4, ipv6 |
| **transport** | Transport Protocol of the Media (valid values: udp, tcp) | Yes | udp , tcp |
| **source\_ip\_address** | Source IP Address | Yes | IPv4 dot-separated format / prefix (Example: 192.168.1.1/24) |
| **Source\_ip\_port** | Source IP Port | Yes | Decimal number (0 to 65535) |
| **destination\_ip\_address** | Destination IP Address | Yes | IPv4 dot-separated format / prefix(Example: 192.168.1.1/24) |
| **destination\_ip\_port** | Destination IP Port | yes | Decimal number (0 to 65535) |
| **flow\_id** | Flow Identifier | yes | ------ |
| **actual\_class** | Qos Class that has been assigned to the session | No | Up to 32 characters including alpanumerics and underscores |
| **dscp** | DSCP value that has been assigned to the session | No | Decimal number (1 to 63) |
| **actual\_bandwidth** | Actual Bandwidth of the session | No | Positive Decimal Number |
| **application\_class** | The requested by the application Qos class | Yes | Up to 32 characters including alpanumerics and underscores |
| **average\_bandwidth** | The requested by the application average bandwidth | Yes | Positive Decimal Number |
| **min\_bandwidth** | The minimum bandwidth of the session | No | Positive Decimal Number |
| **max\_bandwidth** | The maximum bandwidth of the session | No | Positive Decimal Number |

HTTP status code for response

* On Success

200 (OK)

* On Failure

400, 500

GET api/v1.0/sessions/{**session\_id**}

**Description**: Provides all the information about the specified session and all the media elements of the session

|  |
| --- |
| **REQUEST** |
| GET /api/v1.0/sessions/**{session\_id}**  Accept: application/json |
| **RESPONSE** |
| 200  Content-Type: application/json  {  "sessionElement" : {  "groupId" : "**group\_id**",  "media1" : {  "mediaElement" : {  "ageOutTimer": "**age\_out\_timer**",  "flowElement": {  "destinationIpAddress" : "**destination\_ip\_address**",  "destinationIpPort" : "**destination\_ip\_port**",  "flowId" : "**flow\_id**",  "ipAddressType": "**ip\_address\_type**",  "sourceIpAddress" : "**source\_ip\_address**",  "sourceIpPort" : "**source\_ip\_port**",  "transportType" : "**transport\_type**"  },  "grantedQos" : {  "actualBandwidth" : "**actual\_bandwidth**",  "actualClass" : "**actual\_class**",  "dscp" : "**dscp**"  },  "mediaType": "**media\_type**",  "requestedQos" : {  "applicationClass" : "**application\_class**",  "averageBandwidth" : "**average\_bandwidth**",  "maxBandwidth" : "**max\_bandwidth**",  "minBandwidth" : "**min\_bandwidth**"  }  }  },  "media2": {  "mediaElement" : {  "ageOutTimer": "**age\_out\_timer**",  "flowElement": {  "destinationIpAddress" : "**destination\_ip\_address**",  "destinationIpPort" : "**destination\_ip\_port**",  "flowId" : "**flow\_id**",  "ipAddressType": "**ip\_address\_type**",  "sourceIpAddress" : "**source\_ip\_address**",  "sourceIpPort" : "**source\_ip\_port**",  "transportType" : "**transport\_type**"  },  "grantedQos" : {  "actualBandwidth" : "**actual\_bandwidth**",  "actualClass" : "**actual\_class**",  "dscp" : "**dscp**"  },  "mediaType": "**media\_type**",  "requestedQos" : {  "applicationClass" : "**application\_class**",  "averageBandwidth" : "**average\_bandwidth**",  "maxBandwidth" : "**max\_bandwidth**",  "minBandwidth" : "**min\_bandwidth**"  }  }  },  "sessionId": "**session\_id**",  "startTime": "**start\_time**"  } |

Description of Elements in Request URI

|  |  |  |
| --- | --- | --- |
| **Element** | **Description** | **Valid Value** |
| **session\_id** | Session Identifier | Up to 32 characters including alpanumerics and underscores |

Description of Elements in Response Body

|  |  |  |  |
| --- | --- | --- | --- |
| **Element** | **Description** | **Required** | **Valid Values** |
| **session\_id** | Identifier of the session | Yes | Up to 32 characters including alpanumerics and underscores |
| **start\_time** | Timestamp of the session | Yes | ---------- |
| **group\_id** | Group Id for the session | Yes | ---------- |
| **media\_type** | Media Type (e.g video,audio) | Yes | video, audio, conference |
| **age\_out\_timer** | Specifies when the media element expires | no | Positive Decimal Number |
| **ip\_type** | IP address version (valid values: ipv4,ipv6) | Yes | Ipv4, ipv6 |
| **transport** | Transport Protocol of the Media (valid values: udp, tcp) | Yes | udp , tcp |
| **source\_ip\_address** | Source IP Address | Yes | IPv4 dot-separated format / prefix (Example: 192.168.1.1/24) |
| **Source\_ip\_port** | Source IP Port | Yes | Decimal number (0 to 65535) |
| **destination\_ip\_address** | Destination IP Address | Yes | IPv4 dot-separated format / prefix(Example: 192.168.1.1/24) |
| **destination\_ip\_port** | Destination IP Port | yes | Decimal number (0 to 65535) |
| **flow\_id** | Flow Identifier | yes | ------ |
| **actual\_class** | Qos Class that has been assigned to the session | No | Up to 32 characters including alpanumerics and underscores |
| **dscp** | DSCP value that has been assigned to the session | No | Decimal number (1 to 63) |
| **actual\_bandwidth** | Actual Bandwidth of the session | No | Positive Decimal Number |
| **application\_class** | The requested by the application Qos class | Yes | Up to 32 characters including alpanumerics and underscores |
| **average\_bandwidth** | The requested by the application average bandwidth | Yes | Positive Decimal Number |
| **min\_bandwidth** | The minimum bandwidth of the session | No | Positive Decimal Number |
| **max\_bandwidth** | The maximum bandwidth of the session | No | Positive Decimal Number |

HTTP status code for response

* On Success

200 (OK)

* On Failure

400, 500

POST api/v1.0/sessions/

**Description**: Creates a new session

|  |
| --- |
| **REQUEST** |
| POST /api/v1.0/sessions/  Accept: application/json  {  "groupId" : "**group\_id**",  "media1" : {  "mediaElement" : {  "ageOutTimer": "**age\_out\_timer**",  "flowElement": {  "destinationIpAddress" : "**destination\_ip\_address**",  "destinationIpPort" : "**destination\_ip\_port**",  "flowId" : "**flow\_id**",  "ipAddressType": "**ip\_address\_type**",  "sourceIpAddress" : "**source\_ip\_address**",  "sourceIpPort" : "**source\_ip\_port**",  "transportType" : "**transport\_type**"  },  "grantedQos" : {  "actualBandwidth" : "**actual\_bandwidth**",  "actualClass" : "**actual\_class**",  "dscp" : "**dscp**"  },  "mediaType": "**media\_type**",  "requestedQos" : {  "applicationClass" : "**application\_class**",  "averageBandwidth" : "**average\_bandwidth**",  "maxBandwidth" : "**max\_bandwidth**",  "minBandwidth" : "**min\_bandwidth**"  }  }  } |
| **RESPONSE** |
| 201 Created  Content-Type: application/json  {  "groupId" : "**group\_id**",  "media1" : {  "mediaElement" : {  "ageOutTimer": "**age\_out\_timer**",  "flowElement": {  "destinationIpAddress" : "**destination\_ip\_address**",  "destinationIpPort" : "**destination\_ip\_port**",  "flowId" : "**flow\_id**",  "ipAddressType": "**ip\_address\_type**",  "sourceIpAddress" : "**source\_ip\_address**",  "sourceIpPort" : "**source\_ip\_port**",  "transportType" : "**transport\_type**"  },  "grantedQos" : {  "actualBandwidth" : "**actual\_bandwidth**",  "actualClass" : "**actual\_class**",  "dscp" : "**dscp**"  },  "mediaType": "**media\_type**",  "requestedQos" : {  "applicationClass" : "**application\_class**",  "averageBandwidth" : "**average\_bandwidth**",  "maxBandwidth" : "**max\_bandwidth**",  "minBandwidth" : "**min\_bandwidth**"  }  }  } |

Description of Request Elements in Request Body

|  |  |  |  |
| --- | --- | --- | --- |
| **Element** | **Description** | **Required** | **Valid Values** |
| **session\_id** | Identifier of the session | Yes | Up to 32 characters including alpanumerics and underscores |
| **start\_time** | Timestamp of the session | Yes | ---------- |
| **group\_id** | Group Id for the session | Yes | ---------- |
| **media\_type** | Media Type (e.g video,audio) | Yes | video, audio, conference |
| **age\_out\_timer** | Specifies when the media element expires | no | Positive Decimal Number |
| **ip\_type** | IP address version (valid values: ipv4,ipv6) | Yes | Ipv4, ipv6 |
| **transport** | Transport Protocol of the Media (valid values: udp, tcp) | Yes | udp , tcp |
| **source\_ip\_address** | Source IP Address | Yes | IPv4 dot-separated format / prefix (Example: 192.168.1.1/24) |
| **Source\_ip\_port** | Source IP Port | Yes | Decimal number (0 to 65535) |
| **destination\_ip\_address** | Destination IP Address | Yes | IPv4 dot-separated format / prefix(Example: 192.168.1.1/24) |
| **destination\_ip\_port** | Destination IP Port | yes | Decimal number (0 to 65535) |
| **flow\_id** | Flow Identifier | yes | ------ |
| **actual\_class** | Qos Class that has been assigned to the session | No | Up to 32 characters including alpanumerics and underscores |
| **dscp** | DSCP value that has been assigned to the session | No | Decimal number (1 to 63) |
| **actual\_bandwidth** | Actual Bandwidth of the session | No | Positive Decimal Number |
| **application\_class** | The requested by the application Qos class | Yes | Up to 32 characters including alpanumerics and underscores |
| **average\_bandwidth** | The requested by the application average bandwidth | Yes | Positive Decimal Number |
| **min\_bandwidth** | The minimum bandwidth of the session | No | Positive Decimal Number |
| **max\_bandwidth** | The maximum bandwidth of the session | No | Positive Decimal Number |

HTTP status code for response

* On Success

200 (OK)

* On Failure

400, 500

Delete api/v1.0/sessions/{**session\_id**}

**Description**: Deletes an existing session

|  |
| --- |
| **REQUEST** |
| DELETE /api/v1.0/sessions/{**session\_id**}  Accept: application/json |
| **RESPONSE** |
| 200 No content |

Description of Elements in Request URI

|  |  |  |
| --- | --- | --- |
| **Element** | **Description** | **Valid Value** |
| **session\_id** | Session Identifier | Up to 32 characters including alpanumerics and underscores |

HTTP status code for response

* On Success

200 (OK)

* On Failure

400, 500

# Media Operations

GET api/v1.0/sessions/{**session\_id**}/media/

**Description**: This operation returns all the media elements for a specific session

|  |
| --- |
| **REQUEST** |
| GET /api/v1.0/sessions/**{session\_id}**/media/  Accept: application/json |
| **RESPONSE** |
| 200  Content-Type: application/json  {  "json\_list": [  {  "mediaElement" : {  "ageOutTimer": "**age\_out\_timer**",  "flowElement": {  "destinationIpAddress" : "**destination\_ip\_address**",  "destinationIpPort" : "**destination\_ip\_port**",  "flowId" : "**flow\_id**",  "ipAddressType": "**ip\_address\_type**",  "sourceIpAddress" : "**source\_ip\_address**",  "sourceIpPort" : "**source\_ip\_port**",  "transportType" : "**transport\_type**"  },  "grantedQos" : {  "actualBandwidth" : "**actual\_bandwidth**",  "actualClass" : "**actual\_class**",  "dscp" : "**dscp**"  },  "mediaType": "**media\_type**",  "requestedQos" : {  "applicationClass" : "**application\_class**",  "averageBandwidth" : "**average\_bandwidth**",  "maxBandwidth" : "**max\_bandwidth**",  "minBandwidth" : "**min\_bandwidth**"  }  }  },  {  "mediaElement" : {  "ageOutTimer": "**age\_out\_timer**",  "flowElement": {  "destinationIpAddress" : "**destination\_ip\_address**",  "destinationIpPort" : "**destination\_ip\_port**",  "flowId" : "**flow\_id**",  "ipAddressType": "**ip\_address\_type**",  "sourceIpAddress" : "**source\_ip\_address**",  "sourceIpPort" : "**source\_ip\_port**",  "transportType" : "**transport\_type**"  },  "grantedQos" : {  "actualBandwidth" : "**actual\_bandwidth**",  "actualClass" : "**actual\_class**",  "dscp" : "**dscp**"  },  "mediaType": "**media\_type**",  "requestedQos" : {  "applicationClass" : "**application\_class**",  "averageBandwidth" : "**average\_bandwidth**",  "maxBandwidth" : "**max\_bandwidth**",  "minBandwidth" : "**min\_bandwidth**"  }  }  }  ]  } |

Description of Request Elements in URI

|  |  |  |
| --- | --- | --- |
| **Element** | **Description** | **Valid Value** |
| **session\_id** | Session Identifier | Up to 32 characters including alpanumerics and underscores |

Description of Elements in Response Body

|  |  |  |  |
| --- | --- | --- | --- |
| **Element** | **Description** | **Required** | **Valid Values** |
| **media\_type** | Media Type (e.g video,audio) | Yes | video, audio, conference |
| **age\_out\_timer** | Specifies when the media element expires | no | Positive Decimal Number |
| **ip\_type** | IP address version (valid values: ipv4,ipv6) | Yes | Ipv4, ipv6 |
| **transport** | Transport Protocol of the Media (valid values: udp, tcp) | Yes | udp , tcp |
| **source\_ip\_address** | Source IP Address | Yes | IPv4 dot-separated format / prefix (Example: 192.168.1.1/24) |
| **Source\_ip\_port** | Source IP Port | Yes | Decimal number (0 to 65535) |
| **destination\_ip\_address** | Destination IP Address | Yes | IPv4 dot-separated format / prefix(Example: 192.168.1.1/24) |
| **destination\_ip\_port** | Destination IP Port | yes | Decimal number (0 to 65535) |
| **flow\_id** | Flow Identifier | yes | ------ |
| **actual\_class** | Qos Class that has been assigned to the session | No | Up to 32 characters including alpanumerics and underscores |
| **dscp** | DSCP value that has been assigned to the session | No | Decimal number (1 to 63) |
| **actual\_bandwidth** | Actual Bandwidth of the session | No | Positive Decimal Number |
| **application\_class** | The requested by the application Qos class | Yes | Up to 32 characters including alpanumerics and underscores |
| **average\_bandwidth** | The requested by the application average bandwidth | Yes | Positive Decimal Number |
| **min\_bandwidth** | The minimum bandwidth of the session | No | Positive Decimal Number |
| **max\_bandwidth** | The maximum bandwidth of the session | No | Positive Decimal Number |

HTTP status code for response

* On Success

200 (OK)

* On Failure

400, 500

GET api/v1.0/sessions/{**session\_id**}/media/{**media\_type**}

**Description:** This operation returns a specific media element information. The media element is identified by the Session Id and the Media Type

|  |
| --- |
| **REQUEST** |
| GET /api/v1.0/sessions/**{session\_id}**/media/**{media\_type}**  Accept: application/json |
| **RESPONSE** |
| 200  Content-Type: application/json  {  "mediaElement" : {  "ageOutTimer": "**age\_out\_timer**",  "flowElement": {  "destinationIpAddress" : "**destination\_ip\_address**",  "destinationIpPort" : "**destination\_ip\_port**",  "flowId" : "**flow\_id**",  "ipAddressType": "**ip\_address\_type**",  "sourceIpAddress" : "**source\_ip\_address**",  "sourceIpPort" : "**source\_ip\_port**",  "transportType" : "**transport\_type**"  },  "grantedQos" : {  "actualBandwidth" : "**actual\_bandwidth**",  "actualClass" : "**actual\_class**",  "dscp" : "**dscp**"  },  "mediaType": "**media\_type**",  "requestedQos" : {  "applicationClass" : "**application\_class**",  "averageBandwidth" : "**average\_bandwidth**",  "maxBandwidth" : "**max\_bandwidth**",  "minBandwidth" : "**min\_bandwidth**"  }  }  } |

Description of Elements in Request URI

|  |  |  |
| --- | --- | --- |
| **Element** | **Description** | **Valid Value** |
| **session\_id** | Session Identifier | Up to 32 characters including alpanumerics and underscores |
| **media\_type** | Type of media element | video,audio, conference |

Description of Elements in Response Body

|  |  |  |  |
| --- | --- | --- | --- |
| **Element** | **Description** | **Required** | **Valid Values** |
| **media\_type** | Media Type (e.g video,audio) | Yes | video, audio, conference |
| **age\_out\_timer** | Specifies when the media element expires | no | Positive Decimal Number |
| **ip\_type** | IP address version (valid values: ipv4,ipv6) | Yes | Ipv4, ipv6 |
| **transport** | Transport Protocol of the Media (valid values: udp, tcp) | Yes | udp , tcp |
| **source\_ip\_address** | Source IP Address | Yes | IPv4 dot-separated format / prefix (Example: 192.168.1.1/24) |
| **Source\_ip\_port** | Source IP Port | Yes | Decimal number (0 to 65535) |
| **destination\_ip\_address** | Destination IP Address | Yes | IPv4 dot-separated format / prefix(Example: 192.168.1.1/24) |
| **destination\_ip\_port** | Destination IP Port | yes | Decimal number (0 to 65535) |
| **flow\_id** | Flow Identifier | yes | ------ |
| **actual\_class** | Qos Class that has been assigned to the session | No | Up to 32 characters including alpanumerics and underscores |
| **dscp** | DSCP value that has been assigned to the session | No | Decimal number (1 to 63) |
| **actual\_bandwidth** | Actual Bandwidth of the session | No | Positive Decimal Number |
| **application\_class** | The requested by the application Qos class | Yes | Up to 32 characters including alpanumerics and underscores |
| **average\_bandwidth** | The requested by the application average bandwidth | Yes | Positive Decimal Number |
| **min\_bandwidth** | The minimum bandwidth of the session | No | Positive Decimal Number |
| **max\_bandwidth** | The maximum bandwidth of the session | No | Positive Decimal Number |

HTTP status code for response

* On Success

200 (OK)

* On Failure

400, 500

POST api/v1.0/sessions/{**session\_id**}/media/

**Description**: Creates a new media element inside an existing session element

|  |
| --- |
| **REQUEST** |
| POST /api/v1.0/sessions/{**session\_id**}/media/  Accept: application/json  {  "mediaType": "**media\_type**",  "ageOutTimer": "**age\_out\_timer**",  "flowElement": {  "destinationIpAddress" : "**destination\_ip\_address**",  "destinationIpPort" : "**destination\_ip\_port**",  "flowId" : "**flow\_id**",  "ipAddressType": "**ip\_address\_type**",  "sourceIpAddress" : "**source\_ip\_address**",  "sourceIpPort" : "**source\_ip\_port**",  "transportType" : "**transport\_type**"  },  "grantedQos" : {  "actualBandwidth" : "**actual\_bandwidth**",  "actualClass" : "**actual\_class**",  "dscp" : "**dscp**"  },  "requestedQos" : {  "applicationClass" : "**application\_class**",  "averageBandwidth" : "**average\_bandwidth**",  "maxBandwidth" : "**max\_bandwidth**",  "minBandwidth" : "**min\_bandwidth**"  }  } |
| **RESPONSE** |
| 201 Created  Content-Type: application/json  {  "mediaElement" : {  "ageOutTimer": "**age\_out\_timer**",  "flowElement": {  "destinationIpAddress" : "**destination\_ip\_address**",  "destinationIpPort" : "**destination\_ip\_port**",  "flowId" : "**flow\_id**",  "ipAddressType": "**ip\_address\_type**",  "sourceIpAddress" : "**source\_ip\_address**",  "sourceIpPort" : "**source\_ip\_port**",  "transportType" : "**transport\_type**"  },  "grantedQos" : {  "actualBandwidth" : "**actual\_bandwidth**",  "actualClass" : "**actual\_class**",  "dscp" : "**dscp**"  },  "mediaType": "**media\_type**",  "requestedQos" : {  "applicationClass" : "**application\_class**",  "averageBandwidth" : "**average\_bandwidth**",  "maxBandwidth" : "**max\_bandwidth**",  "minBandwidth" : "**min\_bandwidth**"  }  }  } |

Description of Request Elements in Request Body

|  |  |  |  |
| --- | --- | --- | --- |
| **Element** | **Description** | **Required** | **Valid Values** |
| **media\_type** | Media Type (e.g video,audio) | Yes | video, audio, conference |
| **age\_out\_timer** | Specifies when the media element expires | no | Positive Decimal Number |
| **ip\_type** | IP address version (valid values: ipv4,ipv6) | Yes | Ipv4, ipv6 |
| **transport** | Transport Protocol of the Media (valid values: udp, tcp) | Yes | udp , tcp |
| **source\_ip\_address** | Source IP Address | Yes | IPv4 dot-separated format / prefix (Example: 192.168.1.1/24) |
| **Source\_ip\_port** | Source IP Port | Yes | Decimal number (0 to 65535) |
| **destination\_ip\_address** | Destination IP Address | Yes | IPv4 dot-separated format / prefix(Example: 192.168.1.1/24) |
| **destination\_ip\_port** | Destination IP Port | yes | Decimal number (0 to 65535) |
| **flow\_id** | Flow Identifier | yes | ------ |
| **actual\_class** | Qos Class that has been assigned to the session | No | Up to 32 characters including alpanumerics and underscores |
| **dscp** | DSCP value that has been assigned to the session | No | Decimal number (1 to 63) |
| **actual\_bandwidth** | Actual Bandwidth of the session | No | Positive Decimal Number |
| **application\_class** | The requested by the application Qos class | Yes | Up to 32 characters including alpanumerics and underscores |
| **average\_bandwidth** | The requested by the application average bandwidth | Yes | Positive Decimal Number |
| **min\_bandwidth** | The minimum bandwidth of the session | No | Positive Decimal Number |
| **max\_bandwidth** | The maximum bandwidth of the session | No | Positive Decimal Number |

HTTP status code for response

* On Success

200 (OK)

* On Failure

400, 500

Delete api/v1.0/sessions/{**session\_id**}/media/{**media\_type**}

**Description**: Deletes an existing media element.

|  |
| --- |
| **REQUEST** |
| DELETE /api/v1.0/sessions/{**session\_id**}/media/{**media\_type**}  Accept: application/json |
| **RESPONSE** |
| 200 No content |

Description of Elements in Request URI

|  |  |  |
| --- | --- | --- |
| **Element** | **Description** | **Valid Value** |
| **session\_id** | Session Identifier | Up to 32 characters including alpanumerics and underscores |
| **media\_type** | Type of media element | video,audio, conference |

HTTP status code for response

* On Success

200 (OK)

* On Failure

400, 500

PUT api/v1.0/sessions/{**session\_id**}/media/{**media\_type**}

**Description:** This operation updates an existing media element. The user must specify all the attributes of the media element. The flow element attributes and media type element can’t updated. This is a design choice.

|  |
| --- |
| **REQUEST** |
| PUT /api/v1.0/sessions/{**session\_id**}/media/{**media\_type**}  Accept: application/json  {  "mediaType": "**media\_type**",  "ageOutTimer": "**age\_out\_timer**",  "flowElement": {  "destinationIpAddress" : "**destination\_ip\_address**",  "destinationIpPort" : "**destination\_ip\_port**",  "flowId" : "**flow\_id**",  "ipAddressType": "**ip\_address\_type**",  "sourceIpAddress" : "**source\_ip\_address**",  "sourceIpPort" : "**source\_ip\_port**",  "transportType" : "**transport\_type**"  },  "grantedQos" : {  "actualBandwidth" : "**actual\_bandwidth**",  "actualClass" : "**actual\_class**",  "dscp" : "**dscp**"  },  "requestedQos" : {  "applicationClass" : "**application\_class**",  "averageBandwidth" : "**average\_bandwidth**",  "maxBandwidth" : "**max\_bandwidth**",  "minBandwidth" : "**min\_bandwidth**"  }  } |
| **RESPONSE** |
| 200  Content-Type: application/json  {  "mediaElement" : {  "ageOutTimer": "**age\_out\_timer**",  "flowElement": {  "destinationIpAddress" : "**destination\_ip\_address**",  "destinationIpPort" : "**destination\_ip\_port**",  "flowId" : "**flow\_id**",  "ipAddressType": "**ip\_address\_type**",  "sourceIpAddress" : "**source\_ip\_address**",  "sourceIpPort" : "**source\_ip\_port**",  "transportType" : "**transport\_type**"  },  "grantedQos" : {  "actualBandwidth" : "**actual\_bandwidth**",  "actualClass" : "**actual\_class**",  "dscp" : "**dscp**"  },  "mediaType": "**media\_type**",  "requestedQos" : {  "applicationClass" : "**application\_class**",  "averageBandwidth" : "**average\_bandwidth**",  "maxBandwidth" : "**max\_bandwidth**",  "minBandwidth" : "**min\_bandwidth**"  }  }  } |

Description of Elements in Request URI

|  |  |  |
| --- | --- | --- |
| **Element** | **Description** | **Valid Value** |
| **session\_id** | Session Identifier | Up to 32 characters including alpanumerics and underscores |
| **media\_type** | Type of media element | video,audio, conference |

Description of Request Elements in Request Body

|  |  |  |  |
| --- | --- | --- | --- |
| **Element** | **Description** | **Required** | **Valid Values** |
| **media\_type** | Media Type (e.g video,audio) | Yes | video, audio, conference |
| **age\_out\_timer** | Specifies when the media element expires | no | Positive Decimal Number |
| **ip\_type** | IP address version (valid values: ipv4,ipv6) | Yes | Ipv4, ipv6 |
| **transport** | Transport Protocol of the Media (valid values: udp, tcp) | Yes | udp , tcp |
| **source\_ip\_address** | Source IP Address | Yes | IPv4 dot-separated format / prefix (Example: 192.168.1.1/24) |
| **Source\_ip\_port** | Source IP Port | Yes | Decimal number (0 to 65535) |
| **destination\_ip\_address** | Destination IP Address | Yes | IPv4 dot-separated format / prefix(Example: 192.168.1.1/24) |
| **destination\_ip\_port** | Destination IP Port | yes | Decimal number (0 to 65535) |
| **flow\_id** | Flow Identifier | yes | ------ |
| **actual\_class** | Qos Class that has been assigned to the session | No | Up to 32 characters including alpanumerics and underscores |
| **dscp** | DSCP value that has been assigned to the session | No | Decimal number (1 to 63) |
| **actual\_bandwidth** | Actual Bandwidth of the session | No | Positive Decimal Number |
| **application\_class** | The requested by the application Qos class | Yes | Up to 32 characters including alpanumerics and underscores |
| **average\_bandwidth** | The requested by the application average bandwidth | Yes | Positive Decimal Number |
| **min\_bandwidth** | The minimum bandwidth of the session | No | Positive Decimal Number |
| **max\_bandwidth** | The maximum bandwidth of the session | No | Positive Decimal Number |

Description of Elements in Response Body

|  |  |  |  |
| --- | --- | --- | --- |
| **Element** | **Description** | **Required** | **Valid Values** |
| **media\_type** | Media Type (e.g video,audio) | Yes | video, audio, conference |
| **age\_out\_timer** | Specifies when the media element expires | no | Positive Decimal Number |
| **ip\_type** | IP address version (valid values: ipv4,ipv6) | Yes | Ipv4, ipv6 |
| **transport** | Transport Protocol of the Media (valid values: udp, tcp) | Yes | udp , tcp |
| **source\_ip\_address** | Source IP Address | Yes | IPv4 dot-separated format / prefix (Example: 192.168.1.1/24) |
| **Source\_ip\_port** | Source IP Port | Yes | Decimal number (0 to 65535) |
| **destination\_ip\_address** | Destination IP Address | Yes | IPv4 dot-separated format / prefix(Example: 192.168.1.1/24) |
| **destination\_ip\_port** | Destination IP Port | yes | Decimal number (0 to 65535) |
| **flow\_id** | Flow Identifier | yes | ------ |
| **actual\_class** | Qos Class that has been assigned to the session | No | Up to 32 characters including alpanumerics and underscores |
| **dscp** | DSCP value that has been assigned to the session | No | Decimal number (1 to 63) |
| **actual\_bandwidth** | Actual Bandwidth of the session | No | Positive Decimal Number |
| **application\_class** | The requested by the application Qos class | Yes | Up to 32 characters including alpanumerics and underscores |
| **average\_bandwidth** | The requested by the application average bandwidth | Yes | Positive Decimal Number |
| **min\_bandwidth** | The minimum bandwidth of the session | No | Positive Decimal Number |
| **max\_bandwidth** | The maximum bandwidth of the session | No | Positive Decimal Number |

HTTP status code for response

* On Success

200 (OK)

* On Failure

400, 500

patch api/v1.0/sessions/{**session\_id**}/media/{**media\_type**}

**Description:** This operation updates an existing media element. The user can specify any attributes. Can’t update flow Elements and media Type. This is a design choice.

|  |
| --- |
| **REQUEST** |
| PATCH /api/v1.0/sessions/{**session\_id**}/media/{**media\_type**}  Accept: application/json  {  “mediaElement”: {  "grantedQos" : {  "actualBandwidth" : "**actual\_bandwidth**",  "actualClass" : "**actual\_class**",  "dscp" : "**dscp**"  }  }  } |
| **RESPONSE** |
| 200  Content-Type: application/json  {  "mediaElement" : {  "ageOutTimer": "**age\_out\_timer**",  "flowElement": {  "destinationIpAddress" : "**destination\_ip\_address**",  "destinationIpPort" : "**destination\_ip\_port**",  "flowId" : "**flow\_id**",  "ipAddressType": "**ip\_address\_type**",  "sourceIpAddress" : "**source\_ip\_address**",  "sourceIpPort" : "**source\_ip\_port**",  "transportType" : "**transport\_type**"  },  "grantedQos" : {  "actualBandwidth" : "**actual\_bandwidth**",  "actualClass" : "**actual\_class**",  "dscp" : "**dscp**"  },  "mediaType": "**media\_type**",  "requestedQos" : {  "applicationClass" : "**application\_class**",  "averageBandwidth" : "**average\_bandwidth**",  "maxBandwidth" : "**max\_bandwidth**",  "minBandwidth" : "**min\_bandwidth**"  }  }  } |

Description of Elements in Request URI

|  |  |  |
| --- | --- | --- |
| **Element** | **Description** | **Valid Value** |
| **session\_id** | Session Identifier | Up to 32 characters including alpanumerics and underscores |
| **media\_type** | Type of media element | video,audio, conference |

Description of Request Elements in Request Body

|  |  |  |  |
| --- | --- | --- | --- |
| **Element** | **Description** | **Required** | **Valid Values** |
| **age\_out\_timer** | Specifies when the media element expires | no | Positive Decimal Number |
| **actual\_class** | Qos Class that has been assigned to the session | No | Up to 32 characters including alpanumerics and underscores |
| **dscp** | DSCP value that has been assigned to the session | No | Decimal number (1 to 63) |
| **actual\_bandwidth** | Actual Bandwidth of the session | No | Positive Decimal Number |
| **application\_class** | The requested by the application Qos class | No | Up to 32 characters including alpanumerics and underscores |
| **average\_bandwidth** | The requested by the application average bandwidth | No | Positive Decimal Number |
| **min\_bandwidth** | The minimum bandwidth of the session | No | Positive Decimal Number |
| **max\_bandwidth** | The maximum bandwidth of the session | No | Positive Decimal Number |

Description of Elements in Response Body

|  |  |  |  |
| --- | --- | --- | --- |
| **Element** | **Description** | **Required** | **Valid Values** |
| **media\_type** | Media Type (e.g video,audio) | Yes | video, audio, conference |
| **age\_out\_timer** | Specifies when the media element expires | no | Positive Decimal Number |
| **ip\_type** | IP address version (valid values: ipv4,ipv6) | Yes | Ipv4, ipv6 |
| **transport** | Transport Protocol of the Media (valid values: udp, tcp) | Yes | udp , tcp |
| **source\_ip\_address** | Source IP Address | Yes | IPv4 dot-separated format / prefix (Example: 192.168.1.1/24) |
| **Source\_ip\_port** | Source IP Port | Yes | Decimal number (0 to 65535) |
| **destination\_ip\_address** | Destination IP Address | Yes | IPv4 dot-separated format / prefix(Example: 192.168.1.1/24) |
| **destination\_ip\_port** | Destination IP Port | yes | Decimal number (0 to 65535) |
| **flow\_id** | Flow Identifier | yes | ------ |
| **actual\_class** | Qos Class that has been assigned to the session | No | Up to 32 characters including alpanumerics and underscores |
| **dscp** | DSCP value that has been assigned to the session | No | Decimal number (1 to 63) |
| **actual\_bandwidth** | Actual Bandwidth of the session | No | Positive Decimal Number |
| **application\_class** | The requested by the application Qos class | Yes | Up to 32 characters including alpanumerics and underscores |
| **average\_bandwidth** | The requested by the application average bandwidth | Yes | Positive Decimal Number |
| **min\_bandwidth** | The minimum bandwidth of the session | No | Positive Decimal Number |
| **max\_bandwidth** | The maximum bandwidth of the session | No | Positive Decimal Number |

HTTP status code for response

* On Success

200 (OK)

* On Failure

400, 500

# Policy Operations

GET api/v1.0/policies/

**Description**: This operation returns all the policy elements

|  |
| --- |
| **REQUEST** |
| GET /api/v1.0/policies/  Accept: application/json |
| **RESPONSE** |
| 200  Content-Type: application/json  {  "json\_list": [  {  "policyElement" : {  "flowSpecElement" : {  "destinationIpAddressRange" : "**destination\_ip\_address\_range**",  "destinationIpPortRange" : "**destination\_ip\_port\_range**",  "ipAddressType" : "**destination\_ip\_address\_type**",  "sourceIpAddressRange" : "**source\_ip\_address\_range**",  "sourceIpPortRange" : "**source\_ip\_port\_range**",  "transportType" : "**transport\_type**"  },  "grantedQos" : {  "actualBandwidth": "**actual\_bandwidth**",  "actualClass" : "**actual\_class**",  "dscp" : "**dscp**"  },  "policyId" : “**policy\_id**”,  "requestedQos" : {  "applicationClass" : "**application\_class**",  "averageBandwidth" : "**average\_bandwidth**",  "maxBandwidth" : "**max\_bandwidth**",  "minBandwidth" : "**min\_bandwidth**"  }  }  },  {  "policyElement" : {  "flowSpecElement" : {  "destinationIpAddressRange" : "**destination\_ip\_address\_range**",  "destinationIpPortRange" : "**destination\_ip\_port\_range**",  "ipAddressType" : "**destination\_ip\_address\_type**",  "sourceIpAddressRange" : "**source\_ip\_address\_range**",  "sourceIpPortRange" : "**source\_ip\_port\_range**",  "transportType" : "**transport\_type**"  },  "grantedQos" : {  "actualBandwidth": "**actual\_bandwidth**",  "actualClass" : "**actual\_class**",  "dscp" : "**dscp**"  },  "policyId" : “**policy\_id**”,  "requestedQos" : {  "applicationClass" : "**application\_class**",  "averageBandwidth" : "**average\_bandwidth**",  "maxBandwidth" : "**max\_bandwidth**",  "minBandwidth" : "**min\_bandwidth**"  }  }  }  ]  } |

Description of Elements in Response Body

|  |  |  |  |
| --- | --- | --- | --- |
| **Element** | **Description** | **Required** | **Valid Values** |
| **policy\_id** | Policy Identifier | Yes | Up to 32 characters including alpanumerics and underscores |
| **Ip\_address\_type** | IP address version | Yes | ipv4,ipv6 |
| **transport\_type** | Transport Protocol | Yes | udp, tcp |
| **source\_ip\_address\_range** | Range of Source Ip Addresses | Yes | IPv4 dot-separated format / prefix (Example: 192.168.1.1/24) |
| **source\_ip\_port\_range** | Range of Source Ip Ports | Yes | startPort - endPort Format. startPort and end Port between 0-65535 |
| **destination\_ip\_address\_range** | Range of Destination Ip Addresses | Yes | IPv4 dot-separated format / prefix (Example: 192.168.1.1/24) |
| **destination\_ip\_port\_range** | Range of Destination Ip Ports | Yes | startPort - endPort Format. startPort and end Port between 0-65535 |
| **actual\_class** | Qos Class that has been assigned to the policy | No | Up to 32 characters including alpanumerics and underscores |
| **dscp** | DSCP value that has been assigned to the policy | No | Decimal number (1 to 63) |
| **actual\_bandwidth** | Actual Bandwidth of the policy | No | Positive Decimal Number |
| **application\_class** | The requested by the application Qos class | Yes | Up to 32 characters including alpanumerics and underscores |
| **average\_bandwidth** | The requested by the application average bandwidth | Yes | Positive Decimal Number |
| **min\_bandwidth** | The minimum bandwidth of the policy | No | Positive Decimal Number |
| **max\_bandwidth** | The maximum bandwidth of the policy | No | Positive Decimal Number |

HTTP status code for response

* On Success

200 (OK)

* On Failure

400, 500

GET api/v1.0/policies/{**policy\_id**}

**Description:** This operation returns a specific policy element information.

|  |
| --- |
| **REQUEST** |
| GET /api/v1.0/policies/**{policy\_id}**  Accept: application/json |
| **RESPONSE** |
| 200  Content-Type: application/json  {  "policyElement" : {  "flowSpecElement" : {  "destinationIpAddressRange" : "**destination\_ip\_address\_range**",  "destinationIpPortRange" : "**destination\_ip\_port\_range**",  "ipAddressType" : "**destination\_ip\_address\_type**",  "sourceIpAddressRange" : "**source\_ip\_address\_range**",  "sourceIpPortRange" : "**source\_ip\_port\_range**",  "transportType" : "**transport\_type**"  },  "grantedQos" : {  "actualBandwidth": "**actual\_bandwidth**",  "actualClass" : "**actual\_class**",  "dscp" : "**dscp**"  },  "policyId" : “**policy\_id**”,  "requestedQos" : {  "applicationClass" : "**application\_class**",  "averageBandwidth" : "**average\_bandwidth**",  "maxBandwidth" : "**max\_bandwidth**",  "minBandwidth" : "**min\_bandwidth**"  }  }  } |

Description of Elements in Request URI

|  |  |  |
| --- | --- | --- |
| **Element** | **Description** | **Valid Value** |
| **policy\_id** | Policy Identifier | Up to 32 characters including alpanumerics and underscores |

Description of Elements in Response Body

|  |  |  |  |
| --- | --- | --- | --- |
| **Element** | **Description** | **Required** | **Valid Values** |
| **policy\_id** | Policy Identifier | Yes | Up to 32 characters including alpanumerics and underscores |
| **Ip\_address\_type** | IP address version | Yes | ipv4,ipv6 |
| **transport\_type** | Transport Protocol | Yes | udp, tcp |
| **source\_ip\_address\_range** | Range of Source Ip Addresses | Yes | IPv4 dot-separated format / prefix (Example: 192.168.1.1/24) |
| **source\_ip\_port\_range** | Range of Source Ip Ports | Yes | startPort - endPort Format. startPort and end Port between 0-65535 |
| **destination\_ip\_address\_range** | Range of Destination Ip Addresses | Yes | IPv4 dot-separated format / prefix (Example: 192.168.1.1/24) |
| **destination\_ip\_port\_range** | Range of Destination Ip Ports | Yes | startPort - endPort Format. startPort and end Port between 0-65535 |
| **actual\_class** | Qos Class that has been assigned to the policy | No | Up to 32 characters including alpanumerics and underscores |
| **dscp** | DSCP value that has been assigned to the policy | No | Decimal number (1 to 63) |
| **actual\_bandwidth** | Actual Bandwidth of the policy | No | Positive Decimal Number |
| **application\_class** | The requested by the application Qos class | Yes | Up to 32 characters including alpanumerics and underscores |
| **average\_bandwidth** | The requested by the application average bandwidth | Yes | Positive Decimal Number |
| **min\_bandwidth** | The minimum bandwidth of the policy | No | Positive Decimal Number |
| **max\_bandwidth** | The maximum bandwidth of the policy | No | Positive Decimal Number |

HTTP status code for response

* On Success

200 (OK)

* On Failure

400, 500

POST api/v1.0/policies/

**Description**: Creates a new policy element

|  |
| --- |
| **REQUEST** |
| POST /api/v1.0/policies/  Accept: application/json  {  "policyElement" : {  "flowSpecElement" : {  "ipAddressType" : "**ip\_address\_type**",  "transportType" : "**transport\_type**",  "sourceIpAddressRange" : "**source\_ip\_address\_range**",  "sourceIpPortRange" : ”**source\_port\_range**",  "destinationIpAddressRange" : "**destination\_ip\_address\_range**",  "destinationIpPortRange" : "**destination\_ip\_port\_range**"  },  "grantedQos" : {  "actualClass" : "**actual\_class**",  "dscp" : "**dscp**",  "actualBandwidth" : "**actual\_bandwidth**"  },  "requestedQos" : {  "applicationClass" : "**application\_class**",  "averageBandwidth" : "**average\_bandwidth**",  "minBandwidth" : "**min\_bandwidth**",  "maxBandwidth" : "**max\_bandwidth**"  }  }  } |
| **RESPONSE** |
| 201 Created  Content-Type: application/json  {  "policyElement" : {  "flowSpecElement" : {  "ipAddressType" : "**ip\_address\_type**",  "transportType" : "**transport\_type**",  "sourceIpAddressRange" : "**source\_ip\_address\_range**",  "sourceIpPortRange" : ”**source\_port\_range**",  "destinationIpAddressRange" : "**destination\_ip\_address\_range**",  "destinationIpPortRange" : "**destination\_ip\_port\_range**"  },  "grantedQos" : {  "actualClass" : "**actual\_class**",  "dscp" : "**dscp**",  "actualBandwidth" : "**actual\_bandwidth**"  },  "requestedQos" : {  "applicationClass" : "**application\_class**",  "averageBandwidth" : "**average\_bandwidth**",  "minBandwidth" : "**min\_bandwidth**",  "maxBandwidth" : "**max\_bandwidth**"  }  }  } |

Description of Request Elements in Request Body

|  |  |  |  |
| --- | --- | --- | --- |
| **Element** | **Description** | **Required** | **Valid Values** |
| **Ip\_address\_type** | IP address version | Yes | ipv4,ipv6 |
| **transport\_type** | Transport Protocol | Yes | udp, tcp |
| **source\_ip\_address\_range** | Range of Source Ip Addresses | Yes | IPv4 dot-separated format / prefix (Example: 192.168.1.1/24) |
| **source\_ip\_port\_range** | Range of Source Ip Ports | Yes | startPort - endPort Format. startPort and end Port between 0-65535 |
| **destination\_ip\_address\_range** | Range of Destination Ip Addresses | Yes | IPv4 dot-separated format / prefix (Example: 192.168.1.1/24) |
| **destination\_ip\_port\_range** | Range of Destination Ip Ports | Yes | startPort - endPort Format. startPort and end Port between 0-65535 |
| **actual\_class** | Qos Class that has been assigned to the policy | No | Up to 32 characters including alpanumerics and underscores |
| **dscp** | DSCP value that has been assigned to the policy | No | Decimal number (1 to 63) |
| **actual\_bandwidth** | Actual Bandwidth of the policy | No | Positive Decimal Number |
| **application\_class** | The requested by the application Qos class | Yes | Up to 32 characters including alpanumerics and underscores |
| **average\_bandwidth** | The requested by the application average bandwidth | Yes | Positive Decimal Number |
| **min\_bandwidth** | The minimum bandwidth of the policy | No | Positive Decimal Number |
| **max\_bandwidth** | The maximum bandwidth of the policy | No | Positive Decimal Number |

HTTP status code for response

* On Success

200 (OK)

* On Failure

400, 500

Delete api/v1.0/policies/{**policy\_id**}

**Description**: Deletes an existing policy element.

|  |
| --- |
| **REQUEST** |
| DELETE /api/v1.0/policies/{**policy\_id**}  Accept: application/json |
| **RESPONSE** |
| 200 No content |

Description of Elements in Request URI

|  |  |  |
| --- | --- | --- |
| **Element** | **Description** | **Valid Value** |
| **policy\_id** | Policy Identifier | Up to 32 characters including alpanumerics and underscores |

HTTP status code for response

* On Success

200 (OK)

* On Failure

400, 500

PUT api/v1.0/policies/{**policy\_id**}

**Description:** This operation updates an existing policy element. The user must specify all the attributes of the policy element.

|  |
| --- |
| **REQUEST** |
| PUT /api/v1.0/policies/{**policy\_id}**  Accept: application/json  {  "policyElement" : {  "flowSpecElement" : {  "ipAddressType" : "**ip\_address\_type**",  "transportType" : "**transport\_type**",  "sourceIpAddressRange" : "**source\_ip\_address\_range**",  "sourceIpPortRange" : ”**source\_port\_range**",  "destinationIpAddressRange" : "**destination\_ip\_address\_range**",  "destinationIpPortRange" : "**destination\_ip\_port\_range**"  },  "grantedQos" : {  "actualClass" : "**actual\_class**",  "dscp" : "**dscp**",  "actualBandwidth" : "**actual\_bandwidth**"  },  "requestedQos" : {  "applicationClass" : "**application\_class**",  "averageBandwidth" : "**average\_bandwidth**",  "minBandwidth" : "**min\_bandwidth**",  "maxBandwidth" : "**max\_bandwidth**"  }  }  } |
| **RESPONSE** |
| 200 No content |

Description of Elements in Request URI

|  |  |  |
| --- | --- | --- |
| **Element** | **Description** | **Valid Value** |
| **policy\_id** | Policy Identifier | Up to 32 characters including alpanumerics and underscores |

Description of Request Elements in Request Body

|  |  |  |  |
| --- | --- | --- | --- |
| **Element** | **Description** | **Required** | **Valid Values** |
| **Ip\_address\_type** | IP address version | Yes | ipv4,ipv6 |
| **transport\_type** | Transport Protocol | Yes | udp, tcp |
| **source\_ip\_address\_range** | Range of Source Ip Addresses | Yes | IPv4 dot-separated format / prefix (Example: 192.168.1.1/24) |
| **source\_ip\_port\_range** | Range of Source Ip Ports | Yes | startPort - endPort Format. startPort and end Port between 0-65535 |
| **destination\_ip\_address\_range** | Range of Destination Ip Addresses | Yes | IPv4 dot-separated format / prefix (Example: 192.168.1.1/24) |
| **destination\_ip\_port\_range** | Range of Destination Ip Ports | Yes | startPort - endPort Format. startPort and end Port between 0-65535 |
| **actual\_class** | Qos Class that has been assigned to the policy | No | Up to 32 characters including alpanumerics and underscores |
| **dscp** | DSCP value that has been assigned to the policy | No | Decimal number (1 to 63) |
| **actual\_bandwidth** | Actual Bandwidth of the policy | No | Positive Decimal Number |
| **application\_class** | The requested by the application Qos class | Yes | Up to 32 characters including alpanumerics and underscores |
| **average\_bandwidth** | The requested by the application average bandwidth | Yes | Positive Decimal Number |
| **min\_bandwidth** | The minimum bandwidth of the policy | No | Positive Decimal Number |
| **max\_bandwidth** | The maximum bandwidth of the policy | No | Positive Decimal Number |

HTTP status code for response

* On Success

200 (OK)

* On Failure

400, 500

patch api/v1.0/policies/{**policy\_id**}

**Description:** This operation updates an existing policy element. The user can specify any attributes.

|  |
| --- |
| **REQUEST** |
| PATCH /api/v1.0/policies/{**policy\_id**}  Accept: application/json  {  “policyElement” : {  "grantedQos" : {  "actualBandwidth" : "**actual\_bandwidth**",  "actualClass" : "**actual\_class**",  "dscp" : "**dscp**"  }  }  } |
| **RESPONSE** |
| 200 No content |

Description of Elements in Request URI

|  |  |  |
| --- | --- | --- |
| **Element** | **Description** | **Valid Value** |
| **policy\_id** | Policy Identifier | Up to 32 characters including alpanumerics and underscores |

Description of Request Elements in Request Body

|  |  |  |  |
| --- | --- | --- | --- |
| **Element** | **Description** | **Required** | **Valid Values** |
| **Ip\_address\_type** | IP address version | Yes | ipv4,ipv6 |
| **transport\_type** | Transport Protocol | Yes | udp, tcp |
| **source\_ip\_address\_range** | Range of Source Ip Addresses | Yes | IPv4 dot-separated format / prefix (Example: 192.168.1.1/24) |
| **source\_ip\_port\_range** | Range of Source Ip Ports | Yes | startPort - endPort Format. startPort and end Port between 0-65535 |
| **destination\_ip\_address\_range** | Range of Destination Ip Addresses | Yes | IPv4 dot-separated format / prefix (Example: 192.168.1.1/24) |
| **destination\_ip\_port\_range** | Range of Destination Ip Ports | Yes | startPort - endPort Format. startPort and end Port between 0-65535 |
| **actual\_class** | Qos Class that has been assigned to the policy | No | Up to 32 characters including alpanumerics and underscores |
| **dscp** | DSCP value that has been assigned to the policy | No | Decimal number (1 to 63) |
| **actual\_bandwidth** | Actual Bandwidth of the policy | No | Positive Decimal Number |
| **application\_class** | The requested by the application Qos class | Yes | Up to 32 characters including alpanumerics and underscores |
| **average\_bandwidth** | The requested by the application average bandwidth | Yes | Positive Decimal Number |
| **min\_bandwidth** | The minimum bandwidth of the policy | No | Positive Decimal Number |
| **max\_bandwidth** | The maximum bandwidth of the policy | No | Positive Decimal Number |

HTTP status code for response

* On Success

200 (OK)

* On Failure

400, 500

# DSCP Mapping Operations

GET api/v1.0/dscpmappings/

**Description:** Returns all the dscp mappings.

|  |
| --- |
| **REQUEST** |
| GET /api/v1.0/dscpmappings/  Accept: application/json |
| **RESPONSE** |
| 200  Content-Type: application/json  {  "json\_list": [  {  "dscpMapping": {  "applicationClass": "**application\_class**",  "dscp": "**dscp**",  "priority": "**priority**"  }  },  {  "dscpMapping": {  "applicationClass": "**application\_class**",  "dscp": "**dscp**",  "priority": "**priority**"  }  },  {  "dscpMapping": {  "applicationClass": "**application\_class**",  "dscp": "**dscp**",  "priority": "**priority**"  }  }  ]  } |
|  |

Description of Elements in Response Body

|  |  |  |  |
| --- | --- | --- | --- |
| **Element** | **Description** | **Required** | **Valid Values** |
| **application\_class** | Application Class | Yes | Up to 32 characters including alpanumerics and underscores |
| **dscp** | DSCP value | Yes | Decimal number (1 to 63) |
| **priority** | Vlan Priority value | Yes | Decimal number (0 to 7) |

HTTP status code for response

* On Success

200 (OK)

* On Failure

400, 500

GET api/v1.0/dscpmappings/{**application\_class**}

**Description:** This operation returns a specific dscp mapping.

|  |
| --- |
| **REQUEST** |
| GET /api/v1.0/dscpmappings/{**application\_class**}  Accept: application/json |
| **RESPONSE** |
| 200  Content-Type: application/json  {  "dscpMapping": {  "applicationClass": "**application\_class**",  "dscp": "**dscp**",  "priority": "**priority**"  } |

Description of Elements in Request URI

|  |  |  |
| --- | --- | --- |
| **Element** | **Description** | **Valid Value** |
| **application\_class** | Application Class | Up to 32 characters including alpanumerics and underscores |

Description of Elements in Response Body

|  |  |  |  |
| --- | --- | --- | --- |
| **Element** | **Description** | **Required** | **Valid Values** |
| **application\_class** | Application Class | Yes | Up to 32 characters including alpanumerics and underscores |
| **dscp** | DSCP value | Yes | Decimal number (1 to 63) |
| **priority** | Vlan Priority value | Yes | Decimal number (0 to 7) |

HTTP status code for response

* On Success

200 (OK)

* On Failure

400, 50

POST api/v1.0/dscpmappings/

**Description**: Creates a new dscp mapping

|  |
| --- |
| **REQUEST** |
| POST /api/v1.0/dscpmappings/  Accept: application/json  {  "dscpMapping": {  "applicationClass": "**application\_class**",  "dscp": "**dscp**",  "priority": "**priority**"  } |
| **RESPONSE** |
| 201 Created  Content-Type: application/json  {  "dscpMapping": {  "applicationClass": "**application\_class**",  "dscp": "**dscp**",  "priority": "**priority**"  } |

Description of Elements in Request Body

|  |  |  |  |
| --- | --- | --- | --- |
| **Element** | **Description** | **Required** | **Valid Values** |
| **application\_class** | Application Class | Yes | Up to 32 characters including alpanumerics and underscores |
| **dscp** | DSCP value | Yes | Decimal number (1 to 63) |
| **priority** | Vlan Priority value | Yes | Decimal number (0 to 7) |

HTTP status code for response

* On Success

200 (OK)

* On Failure

400, 500

Delete api/v1.0/dscpmappings/{**application\_class**}

**Description**: Deletes an existing dscp mapping.

|  |
| --- |
| **REQUEST** |
| DELETE /api/v1.0/dscp\_mappings/{**application\_class**}  Accept: application/json |
| **RESPONSE** |
| 200 No content |

Description of Elements in Request URI

|  |  |  |
| --- | --- | --- |
| **Element** | **Description** | **Valid Value** |
| **application\_class** | Application Class | Up to 32 characters including alpanumerics and underscores |

HTTP status code for response

* On Success

200 (OK)

* On Failure

400, 500

PUT api/v1.0/dscpmappings/{**application\_class**}

**Description**: This operation updates a dscp mapping.

|  |
| --- |
| **REQUEST** |
| PUT /api/v1.0/dscpmappings/{**application\_class**}  Accept: application/json  {  "dscpMapping": {  "applicationClass": "**application\_class**",  "dscp": "**dscp**",  "priority": "**priority**"  } |
| **RESPONSE** |
| 200 No content |

Description of Elements in Request Body

|  |  |  |  |
| --- | --- | --- | --- |
| **Element** | **Description** | **Required** | **Valid Values** |
| **application\_class** | Application Class | Yes | Up to 32 characters including alpanumerics and underscores |
| **dscp** | DSCP value | Yes | Decimal number (1 to 63) |
| **priority** | Vlan Priority value | Yes | Decimal number (0 to 7) |

HTTP status code for response

* On Success

200 (OK)

* On Failure

400, 500