**[开源SDN控制器]**

**北向接口文档**



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**文档修订记录**

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| --- | --- | --- | --- | --- | --- | --- |
| **版本编号或者更改记录编号** | **修订原因** | **简要说明**  **（变更内容和变更范围）** | **日期** | **变更人** | **批准日期** | **批准人** |
| V1.0 | 创建 | 首次创建 | 2014-04-13 | 薛秋宝 |  |  |
| V1.1 | 增加 | 增加角色配置、meter表、group表等内容 | 2014-07-20 | 薛秋宝 |  |  |
| V1.2 | 增加 | 增加与openstack对接的接口 | 2014-09-17 | 薛秋宝 |  |  |
| V1.3.6 | 增加 | 增加静态流表下发接口  Group表下发增加多个bucket,支持PUT消息进行修改 | 2014-11-12 | 薛秋宝 |  |  |
| V1.3.7 | 增加 | 增加多租户接口  增加静态流表修改接口  增加静态流表删除接口 | 2014-11-24 | 邓超 |  |  |
| V2.0.0 | 重构 | GNFlush代码重构 | 2015-2-28 | 邓超 |  |  |
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|  |  |  |  |  |  |  |

**修订原因：**创建；增加；修改；删除

**文档审批信息**

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| **序号** | **审批人** | **角色** | **审批日期** | **签字** | **备注** |
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**北向接口说明：**

接口方式： Restful接口

数据格式：JSON格式（暂不支持XML格式）

通信协议： HTTP

请求方法： GET、POST、PUT、DELETE

通信端口: 8080（默认为8080，控制器支持可配置）

例如：[GET] <http://10.8.1.168:8080/gn/switchinfo/json>

# 交换机信息

## 交换机信息查询

|  |  |
| --- | --- |
| URI | /gn/switchinfo/json |
| 请求方式 | GET |
| 请求报文 | N/A |
| 响应报文 | {  "switchInfo": [  {  "DPID": "交换机Datapath ID",  "inetAddr": "交换机连接地址",  "mfrDesc": "厂商信息",  "hwDesc": "硬件信息",  "swDesc": "软件信息",  "serialNum": "序列号",  "dpDesc": "datapath描述",  "buffers": "buffer个数",  "ports": [  {  "name": "名称",  "state": "状态",  "hwAddr": "硬件地址",  "portNo": "端口号",  "config": "端口配置bitmap",  "currentFeature": "Current features",  "advertisedFeatrues": "Features being advertised by the port",  "supportedFeatures": "Features supported by the port",  "peerFeatures": "Features advertised by peer"  }  ],  "openflow": "OpenFlow版本号",  "connectedSince": "连接建立时间"  }  ],  "retCode": "返回码",  "retMsg": "返回消息"  } |

# 拓扑管理

## 交换机拓扑查询

|  |  |
| --- | --- |
| URI | /gn/topo/links/json |
| 请求方式 | GET |
| 请求报文 | N/A |
| 响应报文 | {  "linkTopo": [  {  "srcDPID": "源交换机DPID",  "neighbors": [  {  "srcPort": "源交换机端口",  "dstDPID": "目的交换机DPID",  "dstPort": "目的交换机端口"  }  ]  }  ] ,  "retCode": "返回码",  "retMsg": "返回消息"  } |

## 主机拓扑查询

|  |  |
| --- | --- |
| URI | /gn/topo/hosts/json |
| 请求方式 | GET |
| 请求报文 | N/A |
| 响应报文 | {  "hostTopo": [  {  "srcDPID": "源端DPID",  "ports": [  {  "portNo": "端口号",  "hosts": [  {  "hwAddr": "MAC地址",  "ipv4Addr": "IPv4地址",  "ipv6Addr": "IPv6地址"  }  ]  }  ],  "total": "总用户数"  }  ] ,  "retCode": "返回码",  "retMsg": "返回消息"  } |

# Meter表管理

参数取值说明：

|  |  |  |
| --- | --- | --- |
| **参数** | **参数说明** | **取值说明** |
| Flags | 限速类型 | Kbps、Kbps、Burst、Stats |
| Type | 限速方式 | Drop、Dscp |
|  |  |  |
|  |  |  |
|  |  |  |

## 查询所有Meter表

|  |  |
| --- | --- |
| URI | /gn/meters/json |
| 请求方式 | GET |
| 请求报文 | {  } |
| 响应报文 | {  "switchMeters": [  {  "DPID": "交换机DPID",  "meters": [  {  "meterId": "计量表ID",  "flags": "限速类型",  "type": "限速方式",  "precLevel": "优先级",  "rate": "限速速率",  "burstSize": "突发值"  }  ]  }  ] ,  "retCode": "返回码",  "retMsg": "返回消息"  } |

## 删除所有Meter表

|  |  |
| --- | --- |
| URI | /gn/meters/json |
| 请求方式 | GET |
| 请求报文 | {  "DPID": "交换机DPID"  } |
| 响应报文 | {,  "retCode": "返回码",  "retMsg": "返回消息"  } |

## 新增Meter表

|  |  |
| --- | --- |
| URI | /gn/meter/json |
| 请求方式 | POST |
| 请求报文 | {  "DPID": "交换机DPID",  "meterId": "计量表ID",  "flags": "限速类型",  "type": "限速方式",  "precLevel": "优先级",  "rate": "限速速率",  "burstSize": "突发值"  } |
| 响应报文 | {,  "retCode": "返回码",  "retMsg": "返回消息"  } |

## 修改Meter表

|  |  |
| --- | --- |
| URI | /gn/meter/json |
| 请求方式 | PUT |
| 请求报文 | {  {  "DPID": "交换机DPID",  "meterEntries": [  {  "meterId": "计量表ID",  "flags": "限速类型",  "type": "限速方式",  "precLevel": "优先级",  "rate": "限速速率",  "burstSize": "突发值"  }  ]  }  } |
| 响应报文 | {,  "retCode": "返回码",  "retMsg": "返回消息"  } |

## 删除Meter表

|  |  |
| --- | --- |
| URI | /gn/meter/json |
| 请求方式 | DELETE |
| 请求报文 | {  "DPID": "交换机DPID",  "meterId": "计量表ID"  } |
| 响应报文 | {,  "retCode": "返回码",  "retMsg": "返回消息"  } |

# Group表管理

参数取值说明：

|  |  |  |
| --- | --- | --- |
| **参数** | **参数说明** | **取值说明** |
| type | Group类型 | All, Select, Indirect, FF |
| ethType | 以太网类型 | ARP, IPV4, IPV6, MPLS, VLAN, |
| ipProto | IP协议类型 | TCP, UDP, ICMP |
| arpOp | ARP协议类型 | Request, Reply |
|  |  |  |

## 查询所有Group表

|  |  |
| --- | --- |
| URI | /gn/groups/json |
| 请求方式 | GET |
| 请求报文 | {  } |
| 响应报文 | {  "switchGroups": [  {  "DPID": "交换机DPID",  "groups": [  {  "type": "组表类型",  "groupId": "组表ID",  "buckets": [  {  "weight": "权重",  "watchPort": "监控端口",  "watchGroup": "监控组",  "actions": {  "output": "转出端口",  "pushVlan": "加VLAN标签",  "popVlan": "去VLAN标签",  "pushMpls": "加MPLS标签",  "popMpls": "去MPLS标签",  "group": "Group表ID",  "setField": {  "inport": "入口",  "ethDst": "以太网目的MAC",  "ethSrc": "以太网源MAC",  "ethType": "以太网类型",  "vlanId": "VLAN ID",  "vlanPcp": "VLAN优先级",  "ipDscp": "DSCP",  "ipEcn": "ECN",  "ipProto": "IP协议类型",  "ipv4Src": "ipv4源IP",  "ipv4Dst": "ipv4目的IP",  "tcpSrc": "TCP源端口",  "tcpDst": "TCP目的端口",  "udpSrc": "UDP源端口",  "udpDst": "UDP目的端口",  "arpOp": "ARP协议类型",  "arpSpa": "ARP发送方IP",  "arpTpa": "ARP发送方MAC",  "arpSha": "ARP目的IP",  "arpTha": "ARP目的MAC",  "mplsLabel": "MPLS标签"  }  }  }  ]  }  ]  }  ] ,  "retCode": "返回码",  "retMsg": "返回消息"  } |

## 删除所有Group表

|  |  |
| --- | --- |
| URI | /gn/ groups /json |
| 请求方式 | DELETE |
| 请求报文 | {  "DPID": "交换机DPID"  } |
| 响应报文 | {,  "retCode": "返回码",  "retMsg": "返回消息"  } |

## 新增Group表

|  |  |
| --- | --- |
| URI | /gn/group/json |
| 请求方式 | POST |
| 请求报文 | {  "DPID": "交换机DPID",  "type": "组表类型",  "groupId": "组表ID",  "buckets": [  {  "weight": "权重",  "watchPort": "监控端口",  "watchGroup": "监控组",  "actions": {  "output": "转出端口",  "pushVlan": "加VLAN标签",  "popVlan": "去VLAN标签",  "pushMpls": "加MPLS标签",  "popMpls": "去MPLS标签",  "group": "Group表ID",  "setField": {  "inport": "入口",  "ethDst": "以太网目的MAC",  "ethSrc": "以太网源MAC",  "ethType": "以太网类型",  "vlanId": "VLAN ID",  "vlanPcp": "VLAN优先级",  "ipDscp": "DSCP",  "ipEcn": "ECN",  "ipProto": "IP协议类型",  "ipv4Src": "ipv4源IP",  "ipv4Dst": "ipv4目的IP",  "tcpSrc": "TCP源端口",  "tcpDst": "TCP目的端口",  "udpSrc": "UDP源端口",  "udpDst": "UDP目的端口",  "arpOp": "ARP协议类型",  "arpSpa": "ARP发送方IP",  "arpTpa": "ARP发送方MAC",  "arpSha": "ARP目的IP",  "arpTha": "ARP目的MAC",  "mplsLabel": "MPLS标签"  }  }  }  ]  } |
| 响应报文 | {,  "retCode": "返回码",  "retMsg": "返回消息"  } |

## 修改Group表

|  |  |
| --- | --- |
| URI | /gn/group/json |
| 请求方式 | PUT |
| 请求报文 | {  "DPID": "交换机DPID",  "type": "组表类型",  "groupId": "组表ID",  "buckets": [  {  "weight": "权重",  "watchPort": "监控端口",  "watchGroup": "监控组",  "actions": {  "output": "转出端口",  "pushVlan": "加VLAN标签",  "popVlan": "去VLAN标签",  "pushMpls": "加MPLS标签",  "popMpls": "去MPLS标签",  "group": "Group表ID",  "setField": {  "inport": "入口",  "ethDst": "以太网目的MAC",  "ethSrc": "以太网源MAC",  "ethType": "以太网类型",  "vlanId": "VLAN ID",  "vlanPcp": "VLAN优先级",  "ipDscp": "DSCP",  "ipEcn": "ECN",  "ipProto": "IP协议类型",  "ipv4Src": "ipv4源IP",  "ipv4Dst": "ipv4目的IP",  "tcpSrc": "TCP源端口",  "tcpDst": "TCP目的端口",  "udpSrc": "UDP源端口",  "udpDst": "UDP目的端口",  "arpOp": "ARP协议类型",  "arpSpa": "ARP发送方IP",  "arpTpa": "ARP发送方MAC",  "arpSha": "ARP目的IP",  "arpTha": "ARP目的MAC",  "mplsLabel": "MPLS标签"  }  }  }  ]  } |
| 响应报文 | {  "retCode": "返回码",  "retMsg": "返回消息"  } |

## 删除Group表

|  |  |
| --- | --- |
| URI | /gn/group/json |
| 请求方式 | DELETE |
| 请求报文 | {  "DPID": "交换机DPID",  "groupId": "组表ID"  } |
| 响应报文 | {  "retCode": "返回码",  "retMsg": "返回消息"  } |

# Flow表管理

参数取值说明：

|  |  |  |
| --- | --- | --- |
| **参数** | **参数说明** | **取值说明** |
| type | Group类型 | All, Select, Indirect, FF |
| ethType | 以太网类型 | ARP, IPV4, IPV6, MPLS, VLAN, |
| ipProto | IP协议类型 | TCP, UDP, ICMP |
| arpOp | ARP协议类型 | Request, Reply |
|  |  |  |

## 查询所有流表

|  |  |
| --- | --- |
| URI | /gn/flows/all/json |
| 请求方式 | GET |
| 请求报文 | {  } |
| 响应报文 | {  " switchFlowEntries ": [  {  "DPID": "交换机Datapath ID",  "flowEntries": [  {  "uuid": "流表唯一标识",  "creater": "创建者",  "createTime": "创建时间",  "tableId": "表号[Default: 0]",  "idleTimeout": "空闲超时时间[Default: 200]",  "hardTimeout": "硬性超时时间[Default: 200]",  "priority": "优先级",  "match": {  "inport": "入口",  "ethDst": "以太网目的MAC",  "ethSrc": "以太网源MAC",  "ethType": "以太网类型",  "vlanId": "VLAN ID",  "vlanPcp": "VLAN优先级",  "ipDscp": "DSCP",  "ipEcn": "ECN",  "ipProto": "IP协议类型",  "ipv4Src": "ipv4源IP",  "ipv4Dst": "ipv4目的IP",  "tcpSrc": "TCP源端口",  "tcpDst": "TCP目的端口",  "udpSrc": "UDP源端口",  "udpDst": "UDP目的端口",  "arpOp": "ARP协议类型",  "arpSpa": "ARP发送方IP",  "arpTpa": " ARP目的IP",  "arpSha": " ARP发送方MAC ",  "arpTha": "ARP目的MAC",  "mplsLabel": "MPLS标签"  },  "instruction": {  "applyAction": {  "output": "转出端口",  "pushVlan": "加VLAN标签",  "popVlan": "去VLAN标签",  "pushMpls": "加MPLS标签",  "popMpls": "去MPLS标签",  "group": "Group表ID",  "setField": {  "inport": "入口",  "ethDst": "以太网目的MAC",  "ethSrc": "以太网源MAC",  "ethType": "以太网类型",  "vlanId": "VLAN ID",  "vlanPcp": "VLAN优先级",  "ipDscp": "DSCP",  "ipEcn": "ECN",  "ipProto": "IP协议类型",  "ipv4Src": "ipv4源IP",  "ipv4Dst": "ipv4目的IP",  "tcpSrc": "TCP源端口",  "tcpDst": "TCP目的端口",  "udpSrc": "UDP源端口",  "udpDst": "UDP目的端口",  "arpOp": "ARP协议类型",  "arpSpa": "ARP发送方IP",  "arpTpa": "ARP发送方MAC",  "arpSha": "ARP目的IP",  "arpTha": "ARP目的MAC",  "mplsLabel": "MPLS标签"  }  },  "writeAction": {  "output": "转出端口",  "pushVlan": "加VLAN标签",  "popVlan": "去VLAN标签",  "pushMpls": "加MPLS标签",  "popMpls": "去MPLS标签",  "group": "Group表ID",  "setField": {  "inport": "入口",  "ethDst": "以太网目的MAC",  "ethSrc": "以太网源MAC",  "ethType": "以太网类型",  "vlanId": "VLAN ID",  "vlanPcp": "VLAN优先级",  "ipDscp": "DSCP",  "ipEcn": "ECN",  "ipProto": "IP协议类型",  "ipv4Src": "ipv4源IP",  "ipv4Dst": "ipv4目的IP",  "tcpSrc": "TCP源端口",  "tcpDst": "TCP目的端口",  "udpSrc": "UDP源端口",  "udpDst": "UDP目的端口",  "arpOp": "ARP协议类型",  "arpSpa": "ARP发送方IP",  "arpTpa": "ARP发送方MAC",  "arpSha": "ARP目的IP",  "arpTha": "ARP目的MAC",  "mplsLabel": "MPLS标签"  }  },  "clearAction": "表示清空所有Action[无需赋值]",  "gotoTable": "table ID",  "meter": "计量表ID"  }  }  ]  }  ]  "retCode": "返回码",  "retMsg": "返回消息"  } |

## 删除所有流表

|  |  |
| --- | --- |
| URI | /gn/flows/all/json |
| 请求方式 | DELETE |
| 请求报文 | {  "DPID": "交换机Datapath ID"  } |
| 响应报文 | {  "retCode": "返回码",  "retMsg": "返回消息"  } |

## 新增流表

|  |  |
| --- | --- |
| URI | /gn/flow/json |
| 请求方式 | POST |
| 请求报文 | {  "DPID": "交换机Datapath ID",  "tableId": "表号[Default: 0]",  "idleTimeout": "空闲超时时间[Default: 200]",  "hardTimeout": "硬性超时时间[Default: 200]",  "priority": "优先级",  "match": {  "inport": "入口",  "ethDst": "以太网目的MAC",  "ethSrc": "以太网源MAC",  "ethType": "以太网类型",  "vlanId": "VLAN ID",  "vlanPcp": "VLAN优先级",  "ipDscp": "DSCP",  "ipEcn": "ECN",  "ipProto": "IP协议类型",  "ipv4Src": "ipv4源IP",  "ipv4Dst": "ipv4目的IP",  "tcpSrc": "TCP源端口",  "tcpDst": "TCP目的端口",  "udpSrc": "UDP源端口",  "udpDst": "UDP目的端口",  "arpOp": "ARP协议类型",  "arpSpa": "ARP发送方IP",  "arpTpa": "ARP发送方MAC",  "arpSha": "ARP目的IP",  "arpTha": "ARP目的MAC",  "mplsLabel": "MPLS标签"  },  "instruction": {  "applyAction": {  "output": "转出端口",  "pushVlan": "加VLAN标签",  "popVlan": "去VLAN标签",  "pushMpls": "加MPLS标签",  "popMpls": "去MPLS标签",  "group": "Group表ID",  "setField": {  "inport": "入口",  "ethDst": "以太网目的MAC",  "ethSrc": "以太网源MAC",  "ethType": "以太网类型",  "vlanId": "VLAN ID",  "vlanPcp": "VLAN优先级",  "ipDscp": "DSCP",  "ipEcn": "ECN",  "ipProto": "IP协议类型",  "ipv4Src": "ipv4源IP",  "ipv4Dst": "ipv4目的IP",  "tcpSrc": "TCP源端口",  "tcpDst": "TCP目的端口",  "udpSrc": "UDP源端口",  "udpDst": "UDP目的端口",  "arpOp": "ARP协议类型",  "arpSpa": "ARP发送方IP",  "arpTpa": "ARP发送方MAC",  "arpSha": "ARP目的IP",  "arpTha": "ARP目的MAC",  "mplsLabel": "MPLS标签"  }  },  "writeAction": {  "output": "转出端口",  "pushVlan": "加VLAN标签",  "popVlan": "去VLAN标签",  "pushMpls": "加MPLS标签",  "popMpls": "去MPLS标签",  "group": "Group表ID",  "setField": {  "inport": "入口",  "ethDst": "以太网目的MAC",  "ethSrc": "以太网源MAC",  "ethType": "以太网类型",  "vlanId": "VLAN ID",  "vlanPcp": "VLAN优先级",  "ipDscp": "DSCP",  "ipEcn": "ECN",  "ipProto": "IP协议类型",  "ipv4Src": "ipv4源IP",  "ipv4Dst": "ipv4目的IP",  "tcpSrc": "TCP源端口",  "tcpDst": "TCP目的端口",  "udpSrc": "UDP源端口",  "udpDst": "UDP目的端口",  "arpOp": "ARP协议类型",  "arpSpa": "ARP发送方IP",  "arpTpa": "ARP发送方MAC",  "arpSha": "ARP目的IP",  "arpTha": "ARP目的MAC",  "mplsLabel": "MPLS标签"  }  },  "clearAction": "表示清空所有Action[无需赋值]",  "gotoTable": "table ID",  "meter": "计量表ID"  }  } |
| 响应报文 | {  "retCode": "返回码",  "retMsg": "返回消息"  } |

## 修改流表

|  |  |
| --- | --- |
| URI | /gn/flow/json |
| 请求方式 | PUT |
| 请求报文 | {  "DPID": "交换机Datapath ID",  "uuid": "流表唯一标识",  "instruction": {  "applyAction": {  "output": "转出端口",  "pushVlan": "加VLAN标签",  "popVlan": "去VLAN标签",  "pushMpls": "加MPLS标签",  "popMpls": "去MPLS标签",  "group": "Group表ID",  "setField": {  "inport": "入口",  "ethDst": "以太网目的MAC",  "ethSrc": "以太网源MAC",  "ethType": "以太网类型",  "vlanId": "VLAN ID",  "vlanPcp": "VLAN优先级",  "ipDscp": "DSCP",  "ipEcn": "ECN",  "ipProto": "IP协议类型",  "ipv4Src": "ipv4源IP",  "ipv4Dst": "ipv4目的IP",  "tcpSrc": "TCP源端口",  "tcpDst": "TCP目的端口",  "udpSrc": "UDP源端口",  "udpDst": "UDP目的端口",  "arpOp": "ARP协议类型",  "arpSpa": "ARP发送方IP",  "arpTpa": "ARP发送方MAC",  "arpSha": "ARP目的IP",  "arpTha": "ARP目的MAC",  "mplsLabel": "MPLS标签"  }  },  "writeAction": {  "output": "转出端口",  "pushVlan": "加VLAN标签",  "popVlan": "去VLAN标签",  "pushMpls": "加MPLS标签",  "popMpls": "去MPLS标签",  "group": "Group表ID",  "setField": {  "inport": "入口",  "ethDst": "以太网目的MAC",  "ethSrc": "以太网源MAC",  "ethType": "以太网类型",  "vlanId": "VLAN ID",  "vlanPcp": "VLAN优先级",  "ipDscp": "DSCP",  "ipEcn": "ECN",  "ipProto": "IP协议类型",  "ipv4Src": "ipv4源IP",  "ipv4Dst": "ipv4目的IP",  "tcpSrc": "TCP源端口",  "tcpDst": "TCP目的端口",  "udpSrc": "UDP源端口",  "udpDst": "UDP目的端口",  "arpOp": "ARP协议类型",  "arpSpa": "ARP发送方IP",  "arpTpa": "ARP发送方MAC",  "arpSha": "ARP目的IP",  "arpTha": "ARP目的MAC",  "mplsLabel": "MPLS标签"  }  },  "clearAction": "表示清空所有Action[无需赋值]",  "gotoTable": "table ID",  "meter": "计量表ID"  }  } |
| 响应报文 | {  "retCode": "返回码",  "retMsg": "返回消息"  } |

## 删除流表

|  |  |
| --- | --- |
| URI | /gn/flow/json |
| 请求方式 | DELETE |
| 请求报文 | {  "DPID": "交换机Datapath ID",  "uuid": "流表唯一标识"  } |
| 响应报文 | {  "retCode": "返回码",  "retMsg": "返回消息"  } |

# L3子网管理

## 查询L3虚拟子网

|  |  |
| --- | --- |
| URI | /gn/subnet/json |
| 请求方式 | GET |
| 请求报文 | N/A |
| 响应报文 | {  "subnets": [  {  "name": "子网名称",  "subnet": "子网IP/子网掩码"  }  ]  "retCode": "返回码",  "retMsg": "返回消息"  } |

## 新增L3虚拟子网

|  |  |
| --- | --- |
| URI | /gn/subnet/json |
| 请求方式 | POST |
| 请求报文 | {  "name": "子网名称",  "subnet": "子网IP/子网掩码"  } |
| 响应报文 | {  "retCode": "返回码",  "retMsg": "返回消息"  } |

## 删除L3虚拟子网

|  |  |
| --- | --- |
| URI | /gn/subnet/json |
| 请求方式 | DELETE |
| 请求报文 | {  "name": "子网名称",  "subnet": "子网IP/子网掩码"  } |
| 响应报文 | {  "retCode": "返回码",  "retMsg": "返回消息"  } |

# 租户管理

## 查询租户

|  |  |
| --- | --- |
| URI | /gn/tenant/json |
| 请求方式 | GET |
| 请求报文 | {  } |
| 响应报文 | {  "tenants": [  {  "tenantId": "租户ID",  "tenantName": "租户名称"  }  ],  "retCode": "返回码",  "retMsg": "返回消息"  } |

## 新增租户

|  |  |
| --- | --- |
| URI | /gn/tenant/json |
| 请求方式 | POST |
| 请求报文 | {  "tenantName": "租户名称"  } |
| 响应报文 | {  "retCode": "返回码",  "retMsg": "返回消息"  } |

## 删除租户

|  |  |
| --- | --- |
| URI | /gn/tenant/json |
| 请求方式 | DELETE |
| 请求报文 | {  "tenantId": "租户ID"  } |
| 响应报文 | {  "retCode": "返回码",  "retMsg": "返回消息"  } |

## 查询租户成员

|  |  |
| --- | --- |
| URI | /gn/tenant/member/json |
| 请求方式 | GET |
| 请求报文 | {  "tenantId": "租户ID"  }  GET方式拼接到URL后面：?tenant-id=租户ID |
| 响应报文 | {  "tenantId": "租户ID",  "tenantName": "租户名称",  "members": [  {  "mac": "成员MAC地址"  }  ],  "retCode": "返回码",  "retMsg": "返回消息"  } |

## 新增租户成员

|  |  |
| --- | --- |
| URI | /gn/tenant/member/json |
| 请求方式 | POST |
| 请求报文 | {  "tenantId": "租户ID",  "mac": "租户成员MAC"  } |
| 响应报文 | {  "retCode": "返回码",  "retMsg": "返回消息"  } |

## 删除租户成员

|  |  |
| --- | --- |
| URI | /gn/tenant/member/json |
| 请求方式 | DELETE |
| 请求报文 | {  "tenantId": "租户ID",  "mac": "租户成员MAC"  } |
| 响应报文 | {  "retCode": "返回码",  "retMsg": "返回消息"  } |

# 防火墙管理

# 流量统计

## 查询指定路径统计信息

|  |  |
| --- | --- |
| URI | /gn/path/stats/json |
| 请求方式 | GET |
| 请求报文 | {  "srcDPID":"源端DPID",  "dstDPID":"目的DPID"  }  GET方式拼接到URL后面：&srcDPID=源端DPID&dstDPID=目的DPID |
| 响应报文 | {  "rxUsedRate":"上行链路带宽使用率",  "txUsedRate":"下行链路带宽使用率",  "rxUsedStatus":"上行链路带宽使用情况",  "txUsedStatus":"下行链路带宽使用情况",  "rxKbps":"收包速率(Kbps)",  "txKbps":"发包速率(Kbps)",  "rxKpps":"收包速率(Kpps)",  "txKpps":"发包速率(Kpps)",  "rxPackets":"接收总包数",  "txPackets":"发送总包数",  "rxBytes":"接收总字节数",  "txBytes":"发送总字节数",  "maxSpeed":"最大速率(bps)",  "durationSec":"运行时间"  "retCode": "返回码",  "retMsg": "返回消息"  } |

## 查询所有路径状态信息

|  |  |
| --- | --- |
| URI | /gn/path/status/json |
| 请求方式 | GET |
| 请求报文 | {  } |
| 响应报文 | {  "pathStatus": [  {  "srcDPID": "源端DPID",  "dstDPID": "目的DPID",  "status": "链路带宽使用情况"  }  ]  "retCode": "返回码",  "retMsg": "返回消息"  } |