

# FIWARE-Netfloc Open Specification

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View in Apiary 

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## Abstract

This specification defines the FIWARE-Netfloc GE API. The APIs expose the network filtered per tenant. This includes retrieval of network graph, interfaces and network path - all filtered per tenant. It also includes APIs to define network flow patterns and perform CRUD operations on such flow patterns over the network paths.

## Status of this document

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# API Summary

- Default
  - Network Graph
    - GET - Get the Network Graph [/networkGraph]
  - Tenant filtered Network Graph
    - GET - Get the tenant filtered Network Graph [/networkGraph/{tenant}]
  - Tenants
    - GET - Get all tenants [/tenant]
  - Host Ports
    - GET - Get all Host Ports [/hostPort]
  - Network Path
    - GET - Get a Network Path between source and destination ports  
[/networkPath/{src}/{dst}]
  - Flow Patterns
    - GET - Get all flow patterns [/flowPattern]
    - POST - Create a new flow pattern [/flowPattern]
  - Flow Pattern
    - GET - Get flow pattern by id [/flowPattern/{id}]
    - PUT - Update flow pattern by id [/flowPattern/{id}]
    - DELETE - Delete flow pattern by id [/flowPattern/{id}]
  - Install and delete Flow Patterns on Network Paths
    - POST - Post a flow pattern onto a network path  
[/flowPattern/{id}/{src}/{dst}]
    - DELETE - Delete a flow pattern on a network path  
[/flowPattern/{id}/{src}/{dst}]

# Netfloc

Netfloc application API.

# API Specification

## Default

### Network Graph [/networkGraph]

#### Get the Network Graph

**GET** /networkGraph

**Response 200** (application/json)

[Go to example](#)

[View in Apiary \(http://docs.Netfloc.apiary.io/#reference/default/network-graph/get-the-network-graph\)](http://docs.Netfloc.apiary.io/#reference/default/network-graph/get-the-network-graph)

### Tenant filtered Network Graph [/networkGraph/{tenant}]

#### Parameters

**tenant** (Required, string)  
Name of the tenant

#### Get the tenant filtered Network Graph

**GET** /networkGraph/{tenant}

**Response 200** (application/json)

[Go to example](#)

[View in Apiary \(http://docs.Netfloc.apiary.io/#reference/default/tenant-filtered-network-graph/get-the-tenant-filtered-network-graph\)](http://docs.Netfloc.apiary.io/#reference/default/tenant-filtered-network-graph/get-the-tenant-filtered-network-graph)

## Tenants [/tenant]

*Get all tenants*

**GET** /tenant

**Response 200** (application/json)

[Go to example](#)

[View in Apiary \(http://docs.Netfloc.apiary.io/#reference/default/tenants/get-all-tenants\)](http://docs.Netfloc.apiary.io/#reference/default/tenants/get-all-tenants)

## Host Ports [/hostPort]

*Get all Host Ports*

**GET** /hostPort

**Response 200** (application/json)

[Go to example](#)

[View in Apiary \(http://docs.Netfloc.apiary.io/#reference/default/host-ports/get-all-host-ports\)](http://docs.Netfloc.apiary.io/#reference/default/host-ports/get-all-host-ports)

## Network Path [/networkPath/{src}/{dst}]

*Get a Network Path between source and destination ports*

**GET** /networkPath/{src}/{dst}

**Response 200** (application/json)

[Go to example](#)

[View in Apiary \(http://docs.Netfloc.apiary.io/#reference/default/network-path/get-a-network-path-between-source-and-destination-ports\)](http://docs.Netfloc.apiary.io/#reference/default/network-path/get-a-network-path-between-source-and-destination-ports)

## Flow Patterns [/flowPattern]

[Get all flow patterns](#)

**GET** /flowPattern

**Response 200** (application/json)

[Go to example](#)

View in Apiary (<http://docs.Netfloc.apiary.io/#reference/default/flow-patterns/get-all-flow-patterns>)

[Create a new flow pattern](#)

**POST** /flowPattern

**Request** (application/json)

**Response 201** (application/json)

**Response 400** (application/json)

[Go to example](#)

View in Apiary (<http://docs.Netfloc.apiary.io/#reference/default/flow-patterns/create-a-new-flow-pattern>)

## Flow Pattern [/flowPattern/{id}]

[Get flow pattern by id](#)

**GET** /flowPattern/{id}

**Response 200** (application/json)

**Response 404** (application/json)

**Response 410** (application/json)

[Go to example](#)

View in Apiary (<http://docs.Netfloc.apiary.io/#reference/default/flow-pattern/get-flow-pattern-by-id>)

#### Update flow pattern by id

**PUT /flowPattern/{id}**

**Request** (application/json)

**Response 200** (application/json)

**Response 400** (application/json)

**Response 404** (application/json)

**Response 410** (application/json)

[Go to example](#)

View in Apiary (<http://docs.Netfloc.apiary.io/#reference/default/flow-pattern/update-flow-pattern-by-id>)

#### Delete flow pattern by id

**DELETE /flowPattern/{id}**

**Response 200** (application/json)

**Response 409** (application/json)

**Response 404** (application/json)

[Go to example](#)

View in Apiary (<http://docs.Netfloc.apiary.io/#reference/default/flow-pattern/delete-flow-pattern-by-id>)



# Install and delete Flow Patterns on Network Paths

[/flowPattern/{id}/{src}/{dst}]

## Post a flow pattern onto a network path

**POST** /flowPattern/{id}/{src}/{dst}

**Response 400** (application/json)

**Response 201** (application/json)

**Response 404** (application/json)

**Response 410** (application/json)

**Response 409** (application/json)

[Go to example](#)

View in Apiary (<http://docs.Netfloc.apiary.io/#reference/default/install-and-delete-flow-patterns-on-network-paths/post-a-flow-pattern-onto-a-network-path>)

## Delete a flow pattern on a network path

**DELETE** /flowPattern/{id}/{src}/{dst}

**Response 200** (application/json)

**Response 404** (application/json)

**Response 404** (application/json)

**Response 410** (application/json)

[Go to example](#)

View in Apiary (<http://docs.Netfloc.apiary.io/#reference/default/install-and-delete-flow-patterns-on-network-paths/delete-a-flow-pattern-on-a-network-path>)

## Examples

## Default

### Network Graph

**[/networkGraph]**

Get the Network Graph **GET /networkGraph**

**Response 200** (application/json)

Headers

**Content-Type:** application/json

Body

```
{
  "status": "Network Graphs retrieved",
  "data": [
    {
      "linkPorts": [],
      "internalPorts": [],
      "hostPorts": []
    }
  ]
}
```

[Go to specification](#)

### Tenant filtered Network Graph

**[/networkGraph/{tenant}]**

Get the tenant filtered Network Graph **GET /networkGraph/{tenant}**

**Response 200** (application/json)

Headers

**Content-Type:** application/json

Body

```
{
  "status": "filtered Network Graph retrieved",
```

```
"data": [
  {
    "externalPorts": [
      { "link": ??? }
    ],
    "internalPorts": [],
    "hostPorts": [
      { "tenant": tenant }
    ]
  }
]
```

[Go to specification](#)

## Tenants

### [/tenant]

Get all tenants **GET /tenant**

**Response 200** (application/json)

Headers

**Content-Type:** application/json

Body

```
{
  "status": "tenant list retrieved",
  "data": [
    "tenant1", "tenant2", "tenant3"
  ]
}
```

[Go to specification](#)

## Host Ports

### [/hostPort]

Get all Host Ports **GET /hostPort**

**Response 200** (application/json)

## Headers

**Content-Type:** application/json

## Body

```
{
  "status": "all host ports retrieved",
  "data": [
    {
      "ofPort": 1,
      "tenant": "tenant1",
      "l2Address": "ff:ff:ff:ff:ff:ff",
      "l3Addresses": [
        "192.168.0.1"
      ]
    }
  ]
}
```

[Go to specification](#)

## Network Path

**[/networkPath/{src}/{dst}]**

Get a Network Path between source and destination ports **GET /networkPath/{src}/{dst}**

**Response 200** (application/json)

## Headers

**Content-Type:** application/json

## Body

```
{
  "status": "Network path retrieved",
  "data": {
    "flowPatterns" [],
    "path" :[
      {
        "srcHostPort": {
          "ofPort": 1,
          "tenant": "tenant1",
          "l2Address": "00:00:00:00:00:01",
          "l3Addresses": [
            "192.168.0.1"
          ]
        }
      }
    ]
  }
}
```

```

    ],
    "nextLinkPort": {
      "ofPort": 3
    }
  },
  {
    "previousLinkPort": {
      "ofPort": 1
    },
    "nextLinkPort": {
      "ofPort": 3
    }
  },
  {
    "previousLinkPort": {
      "ofPort": 3
    },
    "dstHostPort": {
      "ofPort": 1,
      "tenant": "tenant1",
      "l2Address": "00:00:00:00:00:02",
      "l3Addresses": [
        "192.168.0.2"
      ]
    }
  }
]
}

```

[Go to specification](#)

## Flow Patterns

### [/flowPattern]

Get all flow patterns **GET /flowPattern**

**Response 200** (application/json)

Headers

**Content-Type:** application/json

Body

```

{
  "status": "flow pattern retrieved",
  "data": [

```

```

{
  "srcBridge": [
    {
      "match": {
        "in_port": "srcHostPort",
        "hw_src": "srcMAC",
        "hw_dst": "dstMAC"
      },
      "actions": {
        "output": "nextLinkPort"
      }
    }
  ],
  "linkBridge": [
    {
      "match": {
        "hw_dst": "dstMAC"
      },
      "actions": {
        "output": "nextLinkPort"
      }
    }
  ],
  "dstBridge": [
    {
      "match": {
        "hw_dst": "dstMAC"
      },
      "actions": {
        "output": "dstHostPort"
      }
    }
  ]
}

```

[Go to specification](#)

Create a new flow pattern **POST /flowPattern**

**Request** (application/json)

Headers

**Content-Type:** application/json

Body

```

{
  "srcBridge": [

```

```

{
  "match": {
    "in_port": "srcHostPort",
    "hw_src": "srcMAC",
    "hw_dst": "dstMAC"
  },
  "actions": {
    "output": "nextLinkPort"
  }
},
],
"linkBridge": [
  {
    "match": {
      "hw_dst": "dstMAC"
    },
    "actions": {
      "output": "nextLinkPort"
    }
  }
],
"dstBridge": [
  {
    "match": {
      "hw_dst": "dstMAC"
    },
    "actions": {
      "output": "dstHostPort"
    }
  }
]
}

```

### **Response 201** (application/json)

#### Headers

**Content-Type:** application/json

#### Body

```

{
  "status": "flowPattern created",
  "id": 2
}

```

### **Response 400** (application/json)

#### Headers

**Content-Type:** application/json

## Body

```
{
  "status": "request malformed"
}
```

[Go to specification](#)

## Flow Pattern

**[/flowPattern/{id}]**

Get flow pattern by id **GET /flowPattern/{id}**

**Response 200** (application/json)

Headers

**Content-Type:** application/json

## Body

```
{
  "status": "flow pattern retrieved"
  "data": {
    "srcBridge": [
      {
        "match": {
          "in_port": "srcHostPort",
          "hw_src": "srcMAC",
          "hw_dst": "dstMAC"
        },
        "actions": {
          "output": "nextLinkPort"
        }
      }
    ],
    "linkBridge": [
      {
        "match": {
          "hw_dst": "dstMAC"
        },
        "actions": {
          "output": "nextLinkPort"
        }
      }
    ],
    "dstBridge": [
      {
```



```
        "match": {
          "hw_dst": "dstMAC"
        },
        "actions": {
          "output": "dstHostPort"
        }
      }
    ]
  }
}
```

#### **Response 404** (application/json)

##### Headers

**Content-Type:** application/json

##### Body

```
{
  "status": "flowPattern does not exist"
}
```

#### **Response 410** (application/json)

##### Headers

**Content-Type:** application/json

##### Body

```
{
  "status": "flowPattern is deleted permanently"
}
```

[Go to specification](#)

#### Update flow pattern by id **PUT** /flowPattern/{id}

#### **Request** (application/json)

##### Headers

**Content-Type:** application/json

##### Body

```

{
  "srcBridge": [
    {
      "match": {
        "in_port": "srcHostPort",
        "hw_src": "srcMAC",
        "hw_dst": "dstMAC"
      },
      "actions": {
        "output": "nextLinkPort"
      }
    }
  ],
  "linkBridge": [
    {
      "match": {
        "hw_dst": "dstMAC"
      },
      "actions": {
        "output": "nextLinkPort"
      }
    }
  ],
  "dstBridge": [
    {
      "match": {
        "hw_dst": "dstMAC"
      },
      "actions": {
        "output": "dstHostPort"
      }
    }
  ]
}

```

**Response 200** (application/json)

Headers

**Content-Type:** application/json

Body

```

{
  "status": "flowPattern updated"
}

```

**Response 400** (application/json)

Headers

**Content-Type:** application/json

Body

```
{
  "status": "request malformed"
}
```

**Response 404** (application/json)

Headers

**Content-Type:** application/json

Body

```
{
  "status": "flowPattern does not exist"
}
```

**Response 410** (application/json)

Headers

**Content-Type:** application/json

Body

```
{
  "status": "flowPattern has been deleted permanently"
}
```

[Go to specification](#)

Delete flow pattern by id **DELETE /flowPattern/{id}**

**Response 200** (application/json)

Headers

**Content-Type:** application/json

Body

```
{
  "status": "flowPattern is deleted successfully"
}
```

```
}
```

### **Response 409** (application/json)

#### Headers

**Content-Type:** application/json

#### Body

```
{
  "status": "transaction condition not met, flowPattern is installed on
networkPath(s)",
  "data": {
    "networkPaths": [
    ]
  }
}
```

### **Response 404** (application/json)

#### Headers

**Content-Type:** application/json

#### Body

```
{
  "status": "flowPattern does not exist"
}
```

[Go to specification](#)

## Install and delete Flow Patterns on Network Paths

**[/flowPattern/{id}/{src}/{dst}]**

Post a flow pattern onto a network path **POST /flowPattern/{id}/{src}/{dst}**

### **Response 400** (application/json)

#### Headers

**Content-Type:** application/json

Body

```
{
  "status": "request malformed"
}
```

**Response 201** (application/json)

Headers

**Content-Type:** application/json

Body

```
{
  "status": "flowPattern is posted onto networkPath"
}
```

**Response 404** (application/json)

Headers

**Content-Type:** application/json

Body

```
{
  "status": "flowPattern does not exist"
}
```

**Response 410** (application/json)

Headers

**Content-Type:** application/json

Body

```
{
  "status": "flowPattern has been deleted permanently"
}
```

**Response 409** (application/json)

Headers

**Content-Type:** application/json

## Body

```
{
  "status": "flowPattern is not allready installed"
}
```

[Go to specification](#)

Delete a flow pattern on a network path **DELETE** /flowPattern/{id}/{src}/{dst}

**Response 200** (application/json)

## Headers

**Content-Type:** application/json

## Body

```
{
  "status": "flowPattern successfully deleted from network path"
}
```

**Response 404** (application/json)

## Headers

**Content-Type:** application/json

## Body

```
{
  "status": "flowPattern not found on network path"
}
```

**Response 404** (application/json)

## Headers

**Content-Type:** application/json

## Body

```
{
  "status": "flowPattern does not exist"
}
```

```
}
```

**Response 410** (application/json)

Headers

**Content-Type:** application/json

Body

```
{  
  "status": "flowPattern already deleted on network path"  
}
```

[Go to specification](#)

# References

- [FIWARE Open Specification License](http://forge.fiware.org/plugins/mediawiki/wiki/fiware/index.php/FIWARE_Open_Specification_Legal_Notice_%28essential_patents_license%29)  
([http://forge.fiware.org/plugins/mediawiki/wiki/fiware/index.php/FI-WARE\\_Open\\_Specification\\_Legal\\_Notice\\_%28essential\\_patents\\_license%29](http://forge.fiware.org/plugins/mediawiki/wiki/fiware/index.php/FIWARE_Open_Specification_Legal_Notice_%28essential_patents_license%29))