

VMware Pulse IoT Center API Reference Guide

VMware Pulse IoT Center 2.0.0



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VMware, Inc.
3401 Hillview Ave.
Palo Alto, CA 94304
www.vmware.com

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About the VMware Pulse IoT Center API Reference Guide

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This guide provides information about the Pulse IoT Center REST APIs for Server and Agent.

Intended Audience

This guide is intended for developers who want to set up their environment to program applications with the VMware Pulse IoT Center APIs.

VMware Developer Publications

To view the other VMware API and SDK public documentation, go to <http://www.vmware.com/support/developer>.

VMware Technical Publications Glossary

VMware Technical Publications provides a glossary of terms that might be unfamiliar to you. For definitions of terms as they are used in VMware technical documentation, go to <http://www.vmware.com/support/pubs>.

Introduction to the API

The VMware Pulse IoT Center API offers a way for third-party systems to interact with VMware Pulse IoT Center.

VMware Pulse IoT Center provides programmable REST APIs to integrate with your existing enterprise solution. With the VMware Pulse IoT Center APIs, you can create, view, edit, and delete various VMware Pulse IoT Center entities such as Devices, Campaigns, Alerts, Notifications, Groups, and Users, programmatically. All the core features of the VMware Pulse IoT Center provide REST APIs.

Terminology

This document uses the following terms.

API	API is an acronym for Application Programming Interface. It is a name used to refer to a special framework some web applications or services provide which allows a user to connect to the system and perform some number of discrete actions such as running functions, requesting data, or updating information.
Call	A call is another name for a request or a communication sent by a user to the API, in the form of a URL string, which invokes a specific action on one particular endpoint, and can also include additional parameters or values.
HTTP	HTTP is an acronym for Hyper-Text Transport Protocol. It is one of the key architectural components behind how web-based content on the Internet is accessed through web browsers.
JSON	JSON is an acronym for JavaScript Object Notation. It is a format for information, based on the JavaScript language, that is intended for consumption by a programmed function.
Method	HTTP provides support for four methods which each describe a type of result a user might want to achieve through a given communication with a web server or API. The four methods are: GET (for retrieving data), PUT (for inserting data), POST (for updating data), and DELETE (for removing data).
GET	GET is one of the four HTTP methods used for retrieving or querying records from a system.

PUT	PUT is one of the four HTTP methods used for inserting or creating records into a system.
POST	POST is one of the four HTTP methods used for updating existing records in a system.
DELETE	DELETE is one of the four HTTP methods used for removing records from a system.
REST	REST is an acronym for Representational State Transfer. It is a form of software architecture that is primarily used for designing a web service.

Note The required permissions that are listed for each API are for invoking the API operation. Some APIs require additional permissions to complete the operation.

This chapter includes the following topics:

- [User Authentication](#)
- [Device Authentication](#)
- [HTTP Response Codes](#)
- [API Headers](#)

User Authentication

Use the following APIs to create and issue an authentication token for a user.

Create a Token for the User

API	/api/tokens
Method	GET
Required Parameters	None

Response

```
{
  "accessToken": "string",
  "expiresInSecs": "1543317540",
  "accessTokenExpiresAt": "1543317540",
  "refreshToken": "string",
  "refreshTokenExpiresAt": "1544519940"
}
```


Issue Access Token Using Refresh Token

API /api/tokens/refresh

Method GET

Required Parameters None

Response

```
{
  "accessToken": "string",
  "accessTokenExpiresAt": "1543317540"
  "expiresInSecs": 0,
  "refreshToken": null
}
```

Device Authentication

Use the following APIs to issue device token and device credentials.

Create Device Credential

Required Permissions You must have the Create Device Credential permission to perform this operation.

API api/device-credentials/{id}

Method POST

Input Example JWT_NATIVE

```
{}
```

PROPERTY_NATIVE

```
{"requestParams":{"DeviceKey":"1234"}}
```

TPM_NATIVE

```
{"requestParams":{"tpm_ek":"123456"}}
```

Response

```
{
  "credentials": "string"
}
```

Get Device Token

Required Permissions You must have the Get Device Token permission to perform this operation.

API /api/device-tokens

Header x-device-auth

Enter the device credential that you created in the **Create Device Credential** API.

Method GET

Required Parameters

Name	Description
id <i>string</i>	Device ID.

Response

```
{
  "deviceId": "string",
  "accessToken": "string"
}
```

HTTP Response Codes

The following table lists the response codes used by VMware Pulse IoT Center.

The response codes adhere to the standard HTTP and REST conventions.

Table 2-1. HTTP Status Codes

Status Code	Error Message
200	Success.
401	Unauthorized.
403	Permission denied.
404	Not found.

API Headers

APIs must include the following headers:

API Version

```
Content-Type: application/json
Accept: application/json;api-version=<api-version>
```

To get the current API version, use the following API:

API `/api/versions`

Method `GET`

Sample Response

```
{
  "supportedApiVersions": [
    "0.1
0.2
"
  ],
  "currentApiVersion": "0.2"
}
```

User Access Token

You require a user access token to perform API operations.

```
Authorization : {UserAccessToken}
```

For information about generating user access tokens, see the [User Authentication](#) section.

Server APIs

This chapter includes the following topics:

- [Device Management APIs](#)
- [Campaign Management APIs](#)
- [Alerts APIs](#)
- [Identity and Access Management \(IAM\) APIs](#)
- [Notification APIs](#)
- [Advanced Search APIs](#)
- [Metric APIs](#)
- [Audit APIs](#)

Device Management APIs

This section lists the APIs for performing operations on devices, device templates, device authentication, device commands, and files.

Enroll Device

Header

```
Authorization : {{DeviceAccessToken}}
```

Required Permissions

You must have the Enroll Device permission to perform this operation.

API

```
/api/devices/{id}/enroll
```

Method

GET

Required Parameters

Name	Description
id	Device identifier.
<i>string</i>	

Response

```
{
  "id": "string"
}
```

Get a Device

Required Permissions You must have the View Device permission to perform this operation.

API /api/devices/{id}

Method GET

Required Parameters

Name	Description
id	Device identifier.
<i>string</i>	

Response

```
{
  "id": "8d33b386-154e-46fd-9d19-b1452fb9da30",
  "name": "Gateway3",
  "templateName": "Gateway",
  "deviceType": "GATEWAY",
  "templateId": "492debf2-735e-4ddf-9440-d5542adf1770",
  "systemProperties": [
    {
      "name": "os-sysname",
      "value": "Linux"
    }
  ],
  "customProperties": [
    {
      "name": "a",
      "value": "a"
    }
  ],
  "enrollmentState": "ENROLLED",
  "parentGatewayId": "8d33b386-154e-46fd-9d19-b1452fb9da30",
  "orgId": "1a813d5d-da81-410b-b252-b8ec9a91e069",
  "createdTime": 1564983544640,
  "lastUpdatedTime": 1565071895936,
  "updateVersion": 15
}
```

List All Devices

Required Permissions You must have the View Device permission to perform this operation.

API /api/devices

Method GET

Optional Parameters

Name	Description
parentId <i>string</i>	Parent device ID.
name <i>string</i>	Device name.
deviceType <i>string</i>	Device type: <ul style="list-style-type: none"> ■ GATEWAY ■ THING
id <i>string</i>	Device ID.
enrollmentState <i>string</i>	Device states: <ul style="list-style-type: none"> ■ REGISTERED ■ ENROLLED ■ UNENROLLED ■ DELETED
templateId <i>string</i>	Template ID.
page.number <i>int32</i>	Page number.
page.size <i>string</i>	Page size.

Response

```

{
  "pageInfo": {
    "totalPages": "string",
    "totalElements": "string",
    "page": 0,
    "pageSize": 0
  },
  "devices": [
    {
      "name": "string",
      "templateName": "string",
      "systemProperties": [
        {
          "name": "string",
          "value": "string"
        }
      ],
      "templateId": "string",
      "updateVersion": "string",
      "createdTime": "string",
      "deviceType": "GATEWAY",
      "customProperties": [
        {
          "name": "string",

```

```

        "value": "string"
      }
    ],
    "parentId": "string",
    "enrollmentState": "ENROLLED",
    "orgId": "string",
    "id": "string",
    "lastUpdatedTime": "string"
  }
]
}

```

Register a Device

Required Permissions You must have the Create Device permission to perform this operation.

API /api/devices

Method POST

Parameters

Name	Description
parentId <i>string</i>	Parent ID for the relationship. (This is an optional parameter.)
name <i>string</i>	Device name.
templateName <i>string</i>	Device template name.

Input Example

```

{
  "parentId": "string",
  "name": "string",
  "templateName": "string"
}

```

Response

```

{
  "id": "string"
}

```

Unenroll a Device

Required Permissions You must have the Unenroll Device permission to perform this operation.

API /api/devices/{id}/unenroll

Method DELETE

Required Parameters

Name	Description
id	Device identifier.
<i>string</i>	

Response

```
{}
```

Delete a Device

Required Permissions You must have the Delete Device permission to perform this operation.

API /api/devices/{id}

Method DELETE

Required Parameters

Name	Description
id	Device identifier.
<i>string</i>	

Response

```
{}
```

Update Device System Properties

Header

```
Authorization : {{DeviceAccessToken}}
```

Required Permissions You must have the Edit System Properties permission to perform this operation.

API /api/devices/{id}/system-properties

Method POST

Required Parameters

Name	Description
remove <i>string</i>	System property names to be removed.
upsert <i>string</i>	System property names to be inserted or updated. <ul style="list-style-type: none"> ■ name ■ value

Input Example

```
{
  "upsert": [
    {
      "name": "os-machine",
      "value": "Windows"
    },
    {
      "name": "version",
      "value": "123"
    }
  ],
  "remove": [
    "model",
    "make"
  ]
}
```

Response

```
{}
```

Update Device Custom Properties

Required Permissions

You must have the Edit Custom Properties permission to perform this operation.

API

/api/devices/{id}/custom-properties

Method

POST

Required Parameters

Name	Description
remove <i>string</i>	Custom property names to be removed.
upsert <i>string</i>	Custom property names to be inserted or updated. <ul style="list-style-type: none"> ■ name ■ value

Input Example

```
{
  "upsert": [
    {
      "name": "os-machine",
```

```

    "value":"Windows"
  },
  {
    "name":"version",
    "value":"123"
  }
],
"remove":[
  "model",
  "make"
]
}

```

Response

```
{}
```

Update Agent

Required Permissions

You must have the Update Agent permission to perform this operation.

API

/api/devices/{id}/update-agent

Method

PUT

Input Example

```
{}
```

Response

```
{}
```

Create a Device Template

Required Permissions

You must have the Create Device Template permission to perform this operation.

API

/api/device-templates

Method

POST

Parameters

Name	Description
name <i>string</i>	Template name. Must be unique for the tenant. (Required)
deviceType <i>string</i>	Device type for which the template is created (Required): <ul style="list-style-type: none"> ■ GATEWAY ■ THING
systemProperties <i>array</i>	name: Property name key.

Name	Description
customProperties <i>array</i>	<ul style="list-style-type: none"> ■ name: Property name key. ■ value: Default value.
allowedMetrics <i>array</i>	<ul style="list-style-type: none"> ■ name: Metric name key. ■ value: Metric value type. <ul style="list-style-type: none"> ■ INT64 ■ DOUBLE ■ STRING ■ BOOLEAN ■ unit: Unit of metric that is collected from the IoT Agent.
allowedCommands <i>array</i>	<p>Allowed commands.</p> <ul style="list-style-type: none"> ■ command: The supported command types are: <ul style="list-style-type: none"> ■ SSH ■ REBOOT ■ FILE_UPLOAD ■ EXECUTE ■ CLIENT_EXECUTE - Supported on both gateway and Thing templates. ■ name: Name of the command. ■ asroot: The command is run as root. ■ argument: The required arguments to run the command. ■ execPath: The executable path required for custom commands. ■ clientId: The client ID required for client commands.
childTemplates <i>array</i>	<p>Allowed templates.</p>

Name	Description
enrollmentProvider <i>string</i> Available only on gateway templates.	The enrollment provider (Required): <ul style="list-style-type: none"> providerConfig: Enrollment provider property configuration. type: Enrollment provider type. <ul style="list-style-type: none"> JWT_NATIVE <pre>"enrollmentProvider": {"type":"JWT_NATIVE","providerConfig":{"\ "expiryTime\":"57600}"</pre> PROPERTY_NATIVE <pre>"enrollmentProvider": {"type": "PROPERTY_NATIVE", "providerConfig": {"\identityKey\":"DeviceKey\}"</pre> TPM_NATIVE <pre>"enrollmentProvider": {"type":"TPM_NATIVE","providerConfig":{"\ "}</pre> The property configuration changes according to the property type.
settings <i>array</i> Available only on gateway templates.	Device template settings: <ul style="list-style-type: none"> commandFetchIntervalSeconds: The interval to fetch commands in seconds. The maximum value for the command fetch interval is 43200 seconds. The minimum value is 10 seconds and the default value for the command fetch interval is 30 seconds. If the time interval is not in the minimum value range, an error message is displayed. maxNumberOfClients: The maximum number of clients allowed. agentLogLevel: The log level to collect VMware Pulse IoT Agent logs. metricsIntervalSeconds: The interval to collect metrics in seconds. The minimum value for the metrics interval is 60 seconds and the default value for the metric interval is 300 seconds. If the time interval is not in the minimum value range, an error message is displayed. grpcEnabled: Whether GPRC is enabled or not.

Input Example

Gateway Template Request

```
{
  "name": "Gateway_01",
  "deviceType": "GATEWAY",
  "systemProperties": [
    {
      "name": "os-sysname"
    }
  ],
}
```

```

{
  "name": "os-machine"
},
{
  "name": "os-release"
},
{
  "name": "ssh"
},
{
  "name": "bus-size"
}
],
"customProperties": [
  {
    "name": "location",
    "value": "KM"
  }
],
"allowedMetrics": [
  {
    "name": "CPU-Usage",
    "displayName": "CPU-Usage",
    "valueType": "DOUBLE",
    "displayUnit": "%"
  },
  {
    "name": "Memory-Usage",
    "displayName": "Memory-Usage",
    "valueType": "DOUBLE",
    "displayUnit": "%"
  },
  {
    "name": "Disk-Usage",
    "displayName": "Disk-Usage",
    "valueType": "DOUBLE",
    "displayUnit": "%"
  }
],
"allowedCommands": [
  {
    "command": "EXECUTE",
    "name": "CREATE_NEW_FILE_NON_ROOT",
    "arguments": [
      {
        "name": "test123",
        "value": [
          "/opt/vmware/iotc-agent/NewFile_NonRoot"
        ],
        "type": "STRING"
      }
    ]
  },
  {
    "asRoot": false,
    "execPath": "/bin/touch"
  }
]

```

```

},
{
  "command": "SSH",
  "name": "SSH",
  "arguments": [
    {
      "name": "arg0",
      "value": [
        "enable"
      ],
      "type": "STRING"
    }
  ],
  "asRoot": true
},
{
  "command": "REBOOT",
  "name": "REBOOT",
  "asRoot": true
},
{
  "command": "FILE_UPLOAD",
  "name": "File_single",
  "arguments": [
    {
      "name": "arg0",
      "value": [
        "/root/10MB_syslog"
      ],
      "type": "STRING"
    }
  ],
  "asRoot": true
},
{
  "name": "ints",
  "command": "CLIENT_EXECUTE",
  "arguments": [
    {
      "name": "ints",
      "value": [
        1234
      ],
      "type": "INT64"
    }
  ],
  "execPath": "/usr/bin/touch",
  "clientId": "com.vmware.client.default"
}
],
"enrollmentProvider": {
  "type": "JWT_NATIVE",
  "providerConfig": "{\"expiryTime\":30}"
},

```

```

"settings":[
  {
    "category":"iotc-agent",
    "settings":{
      "commandFetchIntervalSeconds":30,
      "maxNumberOfClients":6,
      "agentLogLevel":6,
      "metricsIntervalSeconds":60,
      "grpcEnabled":1
    }
  }
],
"childTemplates":[
  "1234",
  "4567"
]
}

```

Thing Template Request

```

{
  "name":"Thing_03",
  "deviceType":"THING",
  "systemProperties":[
    {
      "name":"os-sysname"
    }
  ],
  "customProperties":[
    {
      "name":"location",
      "value":"KM"
    }
  ],
  "allowedMetrics":[
    {
      "name":"CPU",
      "displayName":"CPU",
      "valueType":"INT64",
      "displayUnit":"%"
    }
  ],
  "allowedCommands":[
    {
      "name":"ints",
      "command":"CLIENT_EXECUTE",
      "arguments":[
        {
          "name":"ints",
          "value":[
            1234
          ],
          "type":"INT64"
        }
      ]
    }
  ]
}

```

```

        }
      ],
      "execPath": "/usr/bin/touch",
      "clientId": "com.vmware.client.default"
    }
  ],
  "childTemplates": [
    "1234",
    "4567"
  ]
}

```

Response

```

{
  "id": "string"
}

```

Update a Device Template

Required Permissions You must have the Edit Device Template permission to perform this operation.

API /api/device-templates/{id}

Method PUT

Parameters	Name	Description
	name <i>string</i>	Template name. Must be unique for the tenant. (Required)
	deviceType <i>string</i>	Device type for which the template is created (Required): <ul style="list-style-type: none"> ■ GATEWAY ■ THING
	systemProperties <i>array</i>	name: Property name key.
	customProperties <i>array</i>	<ul style="list-style-type: none"> ■ name: Property name key. ■ value: Default value.
	allowedMetrics <i>array</i>	<ul style="list-style-type: none"> ■ name: Metric name key. ■ value: Metric value type. <ul style="list-style-type: none"> ■ INT64 ■ DOUBLE ■ STRING ■ BOOLEAN ■ unit: Unit of metric that is collected from the IoT Agent.

Name	Description
allowedCommands <i>array</i>	Allowed commands. <ul style="list-style-type: none">■ <code>command</code>: The supported command types are:<ul style="list-style-type: none">■ SSH■ REBOOT■ FILE_UPLOAD■ EXECUTE■ CLIENT_EXECUTE - Supported on both gateway and Thing templates.■ <code>name</code>: Name of the command.■ <code>asroot</code>: The command is run as root.■ <code>argument</code>: The required arguments to run the command.■ <code>execPath</code>: The executable path required for custom commands.■ <code>clientId</code>: The client ID required for client commands.
childTemplates <i>array</i>	Allowed templates.

Name	Description
enrollmentProvider <i>string</i> Available only on gateway templates.	<p>The enrollment provider (Required):</p> <ul style="list-style-type: none"> providerConfig: Enrollment provider property configuration. type: Enrollment provider type. <ul style="list-style-type: none"> JWT_NATIVE <pre>"enrollmentProvider": {"type":"JWT_NATIVE","providerConfig":{"\ "expiryTime\":"57600}"</pre> PROPERTY_NATIVE <pre>"enrollmentProvider": {"type": "PROPERTY_NATIVE", "providerConfig": {"\identityKey\":"DeviceKey\}"</pre> TPM_NATIVE <pre>"enrollmentProvider": {"type":"TPM_NATIVE","providerConfig":{"\ "}</pre> <p>The property configuration changes according to the property type.</p>
settings <i>array</i> Available only on gateway templates.	<p>Device template settings:</p> <ul style="list-style-type: none"> commandFetchIntervalSeconds: The interval to fetch commands in seconds. The maximum value for the command fetch interval is 43200 seconds. The minimum value is 10 seconds and the default value for the command fetch interval is 30 seconds. If the time interval is not in the minimum value range, an error message is displayed. maxNumberOfClients: The maximum number of clients allowed. agentLogLevel: The log level to collect VMware Pulse IoT Agent logs. metricsIntervalSeconds: The interval to collect metrics in seconds. The minimum value for the metrics interval is 60 seconds and the default value for the metric interval is 300 seconds. If the time interval is not in the minimum value range, an error message is displayed. grpcEnabled: Whether GPRC is enabled or not.

Input Example

Gateway Template Request

```
{
  "systemProperties":[
    {
      "name":"os-sysname"
    },
    {
      "name":"os-machine"
    }
  ]
}
```

```

    },
    {
      "name": "os-release"
    },
    {
      "name": "ssh"
    },
    {
      "name": "bus-size"
    }
  ],
  "customProperties": [
    {
      "name": "location",
      "value": "KM"
    }
  ],
  "allowedMetrics": [
    {
      "name": "CPU-Usage",
      "displayName": "CPU-Usage",
      "valueType": "DOUBLE",
      "displayUnit": "%"
    },
    {
      "name": "Memory-Usage",
      "displayName": "Memory-Usage",
      "valueType": "DOUBLE",
      "displayUnit": "%"
    },
    {
      "name": "Disk-Usage",
      "displayName": "Disk-Usage",
      "valueType": "DOUBLE",
      "displayUnit": "%"
    }
  ],
  "allowedCommands": [
    {
      "command": "EXECUTE",
      "name": "CREATE_NEW_FILE_NON_ROOT",
      "arguments": [
        {
          "name": "test123",
          "value": [
            "/opt/vmware/iotc-agent/NewFile_NonRoot"
          ],
          "type": "STRING"
        }
      ]
    },
    {
      "asRoot": false,
      "execPath": "/bin/touch"
    }
  ]
}

```

```

    "command": "SSH",
    "name": "SSH",
    "arguments": [
      {
        "name": "arg0",
        "value": [
          "enable"
        ],
        "type": "STRING"
      }
    ],
    "asRoot": true
  },
  {
    "command": "REBOOT",
    "name": "REBOOT",
    "asRoot": true
  },
  {
    "command": "FILE_UPLOAD",
    "name": "File_single",
    "arguments": [
      {
        "name": "arg0",
        "value": [
          "/root/10MB_syslog"
        ],
        "type": "STRING"
      }
    ],
    "asRoot": true
  },
  {
    "name": "ints",
    "command": "CLIENT_EXECUTE",
    "arguments": [
      {
        "name": "ints",
        "value": [
          1234
        ],
        "type": "INT64"
      }
    ],
    "execPath": "/usr/bin/touch",
    "clientId": "com.vmware.client.default"
  }
],
"enrollmentProvider": {
  "type": "JWT_NATIVE",
  "providerConfig": "{\"expiryTime\":30}"
},
"settings": [
  {

```

```

    "category": "iotc-agent",
    "settings": {
      "commandFetchIntervalSeconds": 30,
      "maxNumberOfClients": 6,
      "agentLogLevel": 6,
      "metricsIntervalSeconds": 60,
      "grpcEnabled": 1
    }
  ],
  "childTemplates": [
    "1234",
    "4567"
  ]
}

```

Thing Template Request

```

{
  "systemProperties": [
    {
      "name": "os-sysname"
    }
  ],
  "customProperties": [
    {
      "name": "location",
      "value": "KM"
    }
  ],
  "allowedMetrics": [
    {
      "name": "CPU",
      "displayName": "CPU",
      "valueType": "INT64",
      "displayUnit": "%"
    }
  ],
  "allowedCommands": [
    {
      "name": "ints",
      "command": "CLIENT_EXECUTE",
      "arguments": [
        {
          "name": "ints",
          "value": [
            1234
          ],
          "type": "INT64"
        }
      ]
    }
  ],
  "execPath": "/usr/bin/touch",
  "clientId": "com.vmware.client.default"
}

```

```

    }
  ],
  "childTemplates": [
    "1234",
    "4567"
  ]
}

```

Response

```

{
  "id": "string"
}

```

Get a Device Template by ID

Required Permissions You must have the View Device Template permission to perform this operation.

API `/api/device-templates/{id}`

Method GET

Required Parameters

Name	Description
id	Device template ID.
<i>string</i>	

Response

```

{
  "imageDetails": [{
    "imageUrl": "string",
    "id": "string",
    "sourceType": "string"
  }],
  "name": "string",
  "systemProperties": [{
    "name": "string"
  }],
  "allowedMetrics": [{
    "displayUnit": "string",
    "displayName": "string",
    "name": "string",
    "valueType": "UNKNOWN_VALUE_TYPE"
  }],
  "updateVersion": 0,
  "enrollmentProvider": {
    "providerConfig": "string",
    "type": "string"
  },
  "deviceType": "UNKNOWN_TYPE",
  "allowedCommands": [{
    "command": "string",

```

```

    "name": "string",
    "arguments": [{
      "name": "string",
      "value": [
        "string"
      ],
      "type": "string"
    }],
    "asRoot": true,
    "execPath": "string"
  }],
  "customProperties": [{
    "name": "string",
    "value": "string"
  }],
  "settings": [{
    "category": "string",
    "settings": {
      "commandFetchIntervalSeconds": long,
      "maxNumberOfClients": long,
      "agentLogLevel": long,
      "metricsIntervalSeconds": long,
      "grpcEnabled": long
    },
    "finalSettings": {}
  }],
  "lastUpdatedTime": "string",
  "createdTime": "string",
  "orgId": "string",
  "id": "string",
  "childTemplates": [
    "string"
  ]
}

```

Delete a Device Template by ID

Required Permissions You must have the Delete Device Template permission to perform this operation.

API `/api/device-templates/{id}`

Method DELETE

Required Parameters

Name	Description
<code>id</code>	Device template ID.
<i>string</i>	

Response

```
{}
```

List Device Templates

Required Permissions You must have the View Device Template permission to perform this operation.

API /api/device-templates

Method GET

Optional Parameters

Name	Description
id <i>array</i>	List of device template IDs.
name <i>string</i>	Template name.
deviceType <i>string</i>	Device type: <ul style="list-style-type: none"> ■ GATEWAY ■ THING
page.number <i>int32</i>	Page number.
page.size <i>string</i>	Page size.
exactName <i>string</i>	Exact name of the search.

Response

```
{
  "templates": [
    {
      "imageDetails": [
        {
          "imageUrl": "string",
          "id": "string",
          "sourceType": "string"
        }
      ],
      "name": "string",
      "systemProperties": [
        {
          "name": "string"
        }
      ],
      "allowedMetrics": [
        {
          "timeInterval": "string",
          "displayUnit": "string",
          "displayName": "string",
          "name": "string",
          "valueType": "UNKNOWN_VALUE_TYPE",
          "factor": 0,

```



```

        "batchSize": "string"
    }
],
"updateVersion": 0,
"enrollmentProvider": {
    "providerConfig": "string",
    "type": "string"
},
"deviceType": "UNKNOWN_TYPE",
"allowedCommands": [
    {
        "command": "string",
        "name": "string",
        "asRoot": true,
        "arguments": [
            "string"
        ]
    }
],
"customProperties": [
    {
        "name": "string",
        "value": "string"
    }
],
"lastUpdatedTime": "string",
"createdTime": "string",
"orgId": "string",
"id": "string",
"childTemplates": [
    "string"
]
}
],
"pageInfo": {
    "totalPages": "string",
    "totalElements": "string",
    "page": 0,
    "pageSize": 0
}
}

```

Get Pending Commands

Required Permissions

You must have the Get Device Command permission to perform this operation.

API

/api/devices/{device_id}/commands

Method

GET

Required Parameters

Name	Description
deviceId	Device ID.
<i>string</i>	

Response

```
{
  "commandMessage": [{
    "lastUpdatedTime": "string",
    "asRoot": true,
    "command": "string",
    "arguments": [{
      "name": "string",
      "value": [
        "string"
      ],
      "type": "string"
    }],
    "createdTime": "string",
    "commandId": "string",
    "deviceId": "string",
    "name": "string"
  }]
}
```

Invoke Device Command

Required Permissions

You must have the Send Device Command permission to perform this operation.

API

/api/devices/{device_id}/commands

Method

POST

Required Parameters

Name	Description
deviceId	Device ID.
<i>string</i>	

Invoke Command Examples

SSH

```
{"name": "SSH_EN", "command": "SSH", "arguments": [{"name": "args", "type": "STRING", "value": ["enable"]}]}
```

REBOOT

```
{"name": "REBOOT", "command": "REBOOT", "arguments": []}
```

FILE_UPLOAD

```
{
  "name": "UploadFile",
  "command": "FILE_UPLOAD",
  "arguments": [
    {
      "name": "test",
      "type": "STRING",
      "value": ["/root/test.log"]
    }
  ]
}
```

EXECUTE

```
{
  "name": "create_file",
  "command": "EXECUTE",
  "arguments": [
    {
      "name": "test",
      "type": "STRING",
      "value": ["/root/test.txt"]
    }
  ]
}
```

CLIENT_EXECUTE

```
{
  "name": "ExecuteClientCmd",
  "command": "CLIENT_EXECUTE",
  "arguments": [
    {
      "name": "ints",
      "type": "STRING",
      "value": ["1234"]
    }
  ]
}
```

Response

```
{
  "commandId": "string"
}
```

Update Device Command Status

Required Permissions

You must have the Edit Device Command permission to perform this operation.

API

/api/devices/{device_id}/commands

Method

PUT

Required Parameters

None

Input Example

```
{
  "commandResponse": [
    {
      "commandId": "string",
      "status": "EXECUTED/FAILED",
      "response": "string"
    }
  ]
}
```

Response

```
{
  "commandIds": [
    "string"
  ]
}
```

List Device Commands

Required Permissions You must have the Get Device Command permission to perform this operation.

API /api/devices/commands

Method GET

Optional Parameters

Name	Description
deviceId <i>string</i>	Device ID.
page.number <i>int32</i>	Page number.
page.size <i>string</i>	Page size.
commandName <i>string</i>	Command name.
commandStatus <i>string</i>	Command status.
commandType <i>string</i>	Command type.
commandId <i>string</i>	Command ID

Response

```
{
  "commands": [
    {
      "status": "string",
      "name": "string",
      "lastUpdatedTime": "string",
      "asRoot": true,
      "response": "string",
      "command": "string",
      "arguments": [
        "string"
      ],
      "createdTime": "string",
      "commandId": "string",
      "deviceId": "string"
    }
  ],
  "pageInfo": {
    "totalPages": "string",
    "totalElements": "string",
  }
}
```

```

    "page": 0,
    "pageSize": 0
  }
}

```

Create Device Credential

Required Permissions You must have the Create Device Credential permission to perform this operation.

API `api/device-credentials/{id}`

Method POST

Input Example JWT_NATIVE

```
{}
```

PROPERTY_NATIVE

```
{"requestParams":{"DeviceKey\\":"1234\\"}}}
```

TPM_NATIVE

```
{"requestParams":{"tpm_ek\\":"123456\\"}}}
```

Response

```

{
  "credentials": "string"
}

```

Get Device Token

Required Permissions You must have the Get Device Token permission to perform this operation.

API `/api/device-tokens`

Header `x-device-auth`

Enter the device credential that you created in the **Create Device Credential** API.

Method GET

Required Parameters

Name	Description
id <i>string</i>	Device ID.

Response

```
{
  "deviceId": "string",
  "accessToken": "string"
}
```

File Upload**API**

api/devices/files

Header

```
Authorization: {{DeviceAccessToken}}
Content-Type: application/octet-stream
```

Or

```
Authorization: {{DeviceAccessToken}}
Content-Type: multipart/form-data
```

Method

POST

Parameters

Name	Description
filename <i>string</i>	File name (required).
description <i>string</i>	File description (optional).
deviceId <i>string</i>	Device ID (optional).

Response

```
{
  "id": "string"
}
```

File Download

Download a file that is stored in MongoDB.

API

api/devices/files/{fileId}

Header

```
Accept: application/octet-stream
```

Method	GET
Response	Content of the file.

Get File Info

Get the file information.

API `api/devices/files/{fileId}/file-info`

Method GET

Response

```
{
  "deviceIds": [
    "string"
  ],
  "fsId": "string",
  "name": "string",
  "size": long,
  "path": "string",
  "parentDirectory": "string",
  "isDirectory": false,
  "orgId": "string",
  "createdTime": long,
  "lastUpdatedTime": long,
  "updateVersion": int,
  "createdBy": "string",
  "lastUpdatedBy": "string",
  "expireAt": long,
  "id": "string"
}
```

Advanced Filter

Use the advanced filter API to search for devices based on certain property values.

API `/api/devices/advanced-filter`

Method POST

Input Example

```
{
  "property": [
    {
      "name": "color",
      "operatorValue": [
        {
          "operator": "EQUAL_TO",
          "value": "red"
        }
      ]
    }
  ],
}
```

```

        "type": "CUSTOM_PROPERTY"
      }
    ]
  }

```

Response

Returns the list of devices that satisfy the property filter criteria.

```

{
  "devices": [
    {
      "name": "device3",
      "templateName": "Default Gateway Template",
      "deviceType": "GATEWAY",
      "templateId": "870bbefe-4796-448a-a92a-0c83989b480c",
      "systemProperties": [
        {
          "name": "os-sysname",
          "value": ""
        },
        {
          "name": "os-machine",
          "value": ""
        },
        {
          "name": "os-release",
          "value": ""
        },
        {
          "name": "ssh",
          "value": ""
        },
        {
          "name": "iotc-agent-version",
          "value": ""
        }
      ],
      "customProperties": [
        {
          "name": "color",
          "value": "red"
        },
        {
          "name": "qr-code",
          "value": "qr-code-value"
        }
      ],
      "enrollmentState": "REGISTERED",
      "parentGatewayId": "cf37abdf-6352-424e-ae31-117173077d1e",
      "orgId": "a085e01b-b561-4239-89f1-802df460405a",
      "createdTime": 1566539088764,
      "lastUpdatedTime": 1566539088764,
      "updateVersion": 1,
      "id": "cf37abdf-6352-424e-ae31-117173077d1e"
    }
  ]
}

```



```

},
{
  "name":"device2",
  "templateName":"Default Gateway Template",
  "deviceType":"GATEWAY",
  "templateId":"870bbefe-4796-448a-a92a-0c83989b480c",
  "systemProperties":[
    {
      "name":"os-sysname",
      "value":""
    },
    {
      "name":"os-machine",
      "value":""
    },
    {
      "name":"os-release",
      "value":""
    },
    {
      "name":"ssh",
      "value":""
    },
    {
      "name":"iotc-agent-version",
      "value":""
    }
  ],
  "customProperties":[
    {
      "name":"color",
      "value":"red"
    },
    {
      "name":"qr-code",
      "value":"qr-code-value"
    }
  ],
  "enrollmentState":"REGISTERED",
  "parentGatewayId":"1599653f-9c03-4eaa-b608-c66e32f84b1d",
  "orgId":"a085e01b-b561-4239-89f1-802df460405a",
  "createdTime":1566539081748,
  "lastUpdatedTime":1566539081748,
  "updateVersion":1,
  "id":"1599653f-9c03-4eaa-b608-c66e32f84b1d"
},
{
  "name":"device1",
  "templateName":"Default Gateway Template",
  "deviceType":"GATEWAY",
  "templateId":"870bbefe-4796-448a-a92a-0c83989b480c",
  "systemProperties":[
    {
      "name":"iotc-agent-version",

```

```

        "value":""
      },
      {
        "name":"ssh",
        "value":""
      },
      {
        "name":"os-release",
        "value":""
      },
      {
        "name":"os-machine",
        "value":""
      },
      {
        "name":"os-sysname",
        "value":""
      }
    ],
    "customProperties":[
      {
        "name":"color",
        "value":"red"
      }
    ],
    "enrollmentState":"REGISTERED",
    "parentGatewayId":"05cf8b0b-b3ae-486c-87d3-80f67868668a",
    "orgId":"a085e01b-b561-4239-89f1-802df460405a",
    "createdTime":1566538985229,
    "lastUpdatedTime":1566539073281,
    "updateVersion":2,
    "id":"05cf8b0b-b3ae-486c-87d3-80f67868668a"
  }
],
"pageInfo":{
  "totalPages":1,
  "page":1,
  "pageSize":10,
  "totalElements":3
}
}

```

Campaign Management APIs

Use the following APIs to manage Campaigns.

Create Campaign

Required Permissions You must have the Create Campaign permission to perform this operation.

API /api/campaigns

Method POST

Required Parameters

Name	Description
name <i>string</i>	Name of the campaign.

Input Example

```
{
  "name": "string",
  "description": "string",
  "packages": [
    "string"
  ],
  "campaignSettings": {
    "settings": {
      "additionalProp1": "string",
      "additionalProp2": "string",
      "additionalProp3": "string"
    }
  }
}
```

Response

```
{
  "uuid": "string"
}
```

Edit Campaign

Required Permissions You must have the Edit Campaign permission to perform this operation.

API /api/campaigns/{campaign_id}

Method PUT

Required Parameters

Name	Description
name <i>string</i>	Name of the campaign.
description <i>string</i>	Campaign description.
packages <i>string</i>	Update packages for the campaign.

Name	Description
campaignSettings	Campaign setting specifications.
<i>string</i>	
campaignId	ID for the campaign.
<i>string</i>	

Input Example

```
{
  "updateSpec": {
    "name": "string",
    "description": "string",
    "packages": [
      "string"
    ],
  },
  "campaignSettings": {
    "settings": {
      "additionalProp1": "string",
      "additionalProp2": "string",
      "additionalProp3": "string"
    }
  }
},
"campaignId": "string"
}
```

Response

```
{
  "uuid": "string"
}
```

Delete Campaign

Required Permissions You must have the Delete Campaign permission to perform this operation.

API /api/campaigns/{campaign_id}

Method DELETE

Required Parameters

Name	Description
campaignId	ID of the campaign.
<i>string</i>	

Response

```
{}
```

Get Campaign

Required Permissions You must have the View Campaign permission to perform this operation.

API /api/campaigns/{campaign_id}

Method GET

Required Parameters

Name	Description
campaignId <i>string</i>	ID of the campaign.

Response

```
{
  "status": "string",
  "name": "string",
  "creationTime": "string",
  "packages": {
    "packages": [
      "string"
    ]
  },
  "id": "string",
  "description": "string"
}
```

Start Campaign by ID

Required Permissions You must have the Start Campaign permission to perform this operation.

API /api/campaigns/{campaign_id}/start

Method PUT

Required Parameters

Name	Description
campaignId <i>string</i>	ID of the campaign.

Input Example

```
{
  "campaignId": "string"
}
```

Response

```
{}
```

Stop Campaign by ID

Required Permissions You must have the Stop Campaign permission to perform this operation.

API `/api/campaigns/{campaign_id}/stop`

Method PUT

Required Parameters	Name	Description
	campaignId	ID of the campaign.
	<i>string</i>	

Input Example

```
{
  "campaignId": "string"
}
```

Response

```
{}
```

Approve Campaign by ID

Required Permissions You must have the Approve Campaign permission to perform this operation.

API `/api/campaigns/{campaign_id}/approve`

Method PUT

Required Parameters	Name	Description
	campaignId	ID of the campaign.
	<i>string</i>	

Input Example

```
{
  "campaignId": "string"
}
```

Response

```
{}
```

Register Completed Callback

Required Permissions You must have the Edit Campaign permission to perform this operation.

Description Register a completed callback. The callback runs after the OTA process ends for the campaign, and after adding every gateway to the campaign.

API `/api/campaigns/{campaign_id}/callbacks/completed`

Method PUT

Required Parameters

Name	Description
notificationDestinationId	callback destination.
<i>string</i>	
campaignId	ID of the campaign.
<i>string</i>	

Input Example

```
{
  "notificationDestinationId": "string",
  "campaignId": "string"
}
```

Response

```
{}
```

Register Wake Up Callback

Required Permissions You must have the Edit Campaign permission to perform this operation.

Description Register a wake up callback. The callback is triggered whenever the server components need to notify a gateway about running a command. The gateway receives the notification and poll for commands.

API `/api/campaigns/{campaign_id}/callbacks/wake-up`

Method PUT

Required Parameters

Name	Description
notificationDestinationId	callback destination.
<i>string</i>	
campaignId	ID of the campaign.
<i>string</i>	

Input Example

```
{
  "notificationDestinationId": "string",
  "campaignId": "string"
}
```

Response

```
{}
```

Notify Gateway

Required Permissions You must have the Edit Campaign permission to perform this operation.

Description Notify a gateway in the campaign to request or get tasks.

API `/api/campaigns/{campaign_id}/devices/{gateway_id}/notify`

Method PUT

Required Parameters

Name	Description
gatewayId <i>string</i>	ID of the gateway.
campaignId <i>string</i>	ID of the campaign.

Input Example

```
{
  "gatewayId": "string",
  "campaignId": "string"
}
```

Response

```
{}
```

Assign Update Packages for the Target Gateway

Required Permissions You must have the Edit Campaign permission to perform this operation.

Description Assign Update Packages for a specific gateway to run packages for.

Note This API will override the globally assigned default campaign packages.

API `/api/campaigns/{campaign_id}/devices/{gateway_id}/packages`

Method

PUT

Required Parameters

Name	Description
gatewayId <i>string</i>	ID of the gateway.
packages <i>string</i>	Update package IDs to be assigned.
campaignId <i>string</i>	ID of the campaign.

Input Example

```
{
  "gatewayId": "string",
  "packages": [
    "string"
  ],
  "campaignId": "string"
}
```

Response

```
{}
```

Get Updated Package Information for the Gateway in the Campaign

Required Permissions

You must have the View Campaign permission to perform this operation.

API

/api/campaigns/{campaign_id}/devices/{gateway_id}/packages

Method

GET

Required Parameters

Name	Description
gatewayId <i>string</i>	ID of the gateway.
campaignId <i>string</i>	ID of the campaign.

Response

```
{
  "packages": [
    "string"
  ]
}
```

Get Gateways Added to the Campaign

Required Permissions You must have the View Campaign permission to perform this operation.

API /api/campaigns/{campaign_id}/devices

Method GET

Required Parameters

Name	Description
campaignId <i>string</i>	ID of the campaign.

Response

```
{
  "pageResponse": {
    "totalPages": "string",
    "totalElements": "string",
    "page": 0,
    "pageSize": 0
  },
  "gateways": [
    {
      "gatewayId": "string",
      "state": "string",
      "closed": true
    }
  ]
}
```

List Campaigns

Required Permissions You must have the View Campaign permission to perform this operation.

API /api/campaigns

Method GET

Optional Parameters

Name	Description
id <i>string</i>	Campaign ID.
name <i>string</i>	Name of the campaign.
status <i>string</i>	Status of the campaign: <ul style="list-style-type: none"> ■ STARTED ■ CREATED ■ STOPPED ■ APPROVAL_NEEDED ■ APPROVED

Name	Description
preDeliveryCallback <i>string</i>	Pre-delivery callback for the campaign.
postDeliveryCallback <i>string</i>	Post-delivery callback of the campaign.
description <i>string</i>	Description of the campaign.
creationTime <i>int64</i>	Campaign creation time.
packages <i>string</i>	Package IDs used for campaign updates.

Response

```
"name" - name-of-the-campaign;
"status"-status-of-campaign (STARTED|CREATED|STOPPED);
"page" - {
  "number" : int32,
  "size" :int32,
  "sort": "sort-direction"
}
```

Add Gateways to a Campaign

Required Permissions You must have the Edit Campaign permission to perform this operation.

API /api/campaigns/{campaign_id}/devices

Method POST

Required Parameters

Name	Description
gatewayId <i>string</i>	List of gateway IDs.
campaignId <i>string</i>	ID of the campaign.

Input Example

```
{
  "gatewayIds": [
    "string"
  ],
  "campaignId": "string"
}
```

Response

```
{}
```

Remove Gateways in a Campaign

Required Permissions You must have the Edit Campaign permission to perform this operation.

API `/api/campaigns/{campaign_id}/devices`

Method PUT

Required Parameters	Name	Description
	gatewayIds <i>string</i>	List of gateway IDs.
	campaignId <i>string</i>	ID of the campaign.

Input Example

```
{
  "gatewayIds": [
    "string"
  ],
  "campaignId": "string"
}
```

Response

```
{}
```

Set Campaign Distribution List

Required Permissions You must have the Edit Campaign permission to perform this operation.

API `/api/campaigns/{campaign_id}/distribution-list`

Method

PUT

Required Parameters

Name	Description
distributionListId <i>string</i>	Distribution list ID.
reevaluationIntervalSeconds <i>string</i>	Re-evaluation interval in seconds for the distribution list.
campaignId <i>string</i>	ID of the campaign.

Input Example

```
{
  "distributionListId": "string",
  "reevaluationIntervalSeconds": "string",
  "campaignId": "string"
}
```

Response

```
{}
```

Get Campaign Distribution List

Required Permissions

You must have the View Campaign permission to perform this operation.

API

/api/campaigns/{campaign_id}/distribution-list

Method

GET

Required Parameters

Name	Description
campaignId <i>string</i>	ID of the campaign.

Response

```
{
  "distributionListId": "string",
  "reevaluationIntervalSeconds": "string",
  "campaignId": "string"
}
```

Schedule Download

Required Permissions

You must have the Schedule Campaign permission to perform this operation.

Description

Schedule a download of the update packages for a gateway in the campaign.

API `/api/campaigns/{campaign_id}/devices/{gateway_id}/scheduled-download`

Method PUT

Required Parameters

Name	Description
<ul style="list-style-type: none"> ■ begin ■ end <i>string</i>	Represents a fixed slice of time where begin and end are seconds. (UNIX Epoc time with millisecond precision.) <ul style="list-style-type: none"> ■ begin: start of the time period. ■ end: End of the time period.
gatewayId <i>string</i>	ID of the gateway.
campaignId <i>string</i>	ID of the campaign.

Input Example

```
{
  "begin": "string",
  "end": "string"
}
```

Response

```
{}
```

Schedule Activation

Required Permissions You must have the Schedule Campaign permission to perform this operation.

Description Schedule activation of the update packages for the gateway in a campaign.

API `/api/campaigns/{campaign_id}/devices/{gateway_id}/scheduled-activation`

Method

PUT

Required Parameters

Name	Description
<ul style="list-style-type: none"> ■ begin ■ end <i>string</i>	Represents a fixed slice of time where begin and end are seconds. (UNIX Epoc time with millisecond precision.) <ul style="list-style-type: none"> ■ begin: start of the time period. ■ end: End of the time period.
gatewayId <i>string</i>	ID of the gateway.
campaignId <i>string</i>	ID of the campaign.

Input Example

```
{
  "begin": "string",
  "end": "string"
}
```

Response

```
{}
```

Schedule Execution**Required Permissions**

You must have the Schedule Campaign permission to perform this operation.

Description

Schedule execution of the update packages for the gateway in a campaign.

API

api/campaigns/{campaign_id}/devices/{gateway_id}/scheduled-execution

Method

PUT

Required Parameters

Name	Description
<ul style="list-style-type: none"> ■ begin ■ end <i>string</i>	Represents a fixed slice of time where begin and end are seconds. (UNIX Epoc time with millisecond precision.) <ul style="list-style-type: none"> ■ begin: start of the time period. ■ end: End of the time period.
gatewayId <i>string</i>	ID of the gateway.
campaignId <i>string</i>	ID of the campaign.

Input Example

```
{
  "begin": "string",
  "end": "string"
}
```

Response

```
{}
```

Close Campaign for a Gateway

Required Permissions

You must have the Edit Campaign permission to perform this operation.

API

/api/campaigns/{campaign_id}/devices/{gateway_id}/close

Method

PUT

Required Parameters

Name	Description
gatewayId <i>string</i>	ID of the gateway.
campaignId <i>string</i>	ID of the campaign.

Input Example

```
{
  "gatewayId": "string",
  "campaignId": "string"
}
```

Response

```
{}
```


Get Campaign State

Required Permissions You must have the View Campaign permission to perform this operation.

Description Get the state of a specific gateway in the campaign.

API `/api/campaigns/{campaign_id}/devices/{gateway_id}/state`

Method GET

Required Parameters

Name	Description
gatewayId <i>string</i>	ID of the gateway.
campaignId <i>string</i>	ID of the campaign.

Response

```
{
  "state": "string"
}
```

Register State Change Callback

Required Permissions You must have the Edit Campaign permission to perform this operation.

Description Register a state change callback. The callback runs when there is a change in the state of the gateway in the campaign.

API `/api/campaigns/{campaign_id}/callbacks/state-change`

Method PUT

Required Parameters

Name	Description
notificationDestinationId	Notification destination ID.
campaignId	Campaign ID.

Input Example

```
{
  "notificationDestinationId": "string",
  "trackedStates": [
    "string"
  ],
  "campaignId": "string"
}
```

Response

```
{}
```

Register Execution Progress Callback

Required Permissions You must have the Edit Campaign permission to perform this operation.

Description Register an execution progress callback. The callback runs when the execution progress is set.

API `/api/campaigns/{campaign_id}/callbacks/execution-progress`

Method PUT

Required Parameters

Name	Description
notificationDestinationId	Notification destination ID.
campaignId	Campaign ID.

Input Example

```
{
  "notificationDestinationId": "string",
  "campaignId": "string"
}
```

Response

```
{}
```

Register Download Progress Callback

Required Permissions You must have the Edit Campaign permission to perform this operation.

Description Register a download progress callback. The callback runs when the download progress is set.

API `/api/campaigns/{campaign_id}/callbacks/download-progress`

Method PUT

Required Parameters

Name	Description
notificationDestinationId	Notification destination ID.
campaignId	Campaign ID.

Input Example

```
{
  "notificationDestinationId": "string",
  "campaignId": "string"
}
```

Response

```
{}
```

Get Execution Progress

Required Permissions You must have the View Campaign permission to perform this operation.

API `api/campaigns/{campaign_id}/devices/{gateway_id}/progress/execution`

Method GET

Required Parameters

Name	Description
<code>gatewayId</code> <i>string</i>	ID of the gateway.
<code>campaignId</code> <i>string</i>	ID of the campaign.

Response

```
{
  "progress": [
    "string"
  ]
}
```

Get Download Progress

Required Permissions You must have the View Campaign permission to perform this operation.

API `/api/campaigns/{campaign_id}/devices/{gateway_id}/progress/download`

Method GET

Required Parameters

Name	Description
<code>gatewayId</code> <i>string</i>	ID of the gateway.
<code>campaignId</code> <i>string</i>	ID of the campaign.

Response

```
{
  "packagesProgress": [
    {
      "progress": "string",
      "total": "string",
      "id": "string"
    }
  ]
}
```

Get Active Campaigns for a Gateway

Required Permissions You must have the View Campaign permission to perform this operation.

API `/api/devices/{gateway_id}/active-campaigns`

Method GET

Required Parameters

Name	Description
gatewayId	ID of the gateway.
<i>string</i>	

Response

```
{
  "campaignId": [
    "string"
  ]
}
```

Get Overall Campaign Status

Required Permissions You must have the View Campaign permission to perform this operation.

API `/api/campaigns/{campaign_id}/status`

Method GET

Required Parameters

Name	Description
campaignId	ID of the campaign.
<i>string</i>	

Response

```
{
  "status": "string",
  "name": "string",
  "campaignId": "string",
  "numberOfGatewaysInActivationCompleteState": "string",
  "numberOfGatewaysInExecutionCompleteState": "string",
  "creationTime": "string",
  "modificationTime": "string",
  "totalNumberOfGateways": "string",
  "totalNumberOfPackages": "string",
  "numberOfGatewaysInDownloadCompleteState": "string",
  "description": "string"
}
```

Get Campaign Status Per Gateway

Required Permissions You must have the View Campaign permission to perform this operation.

API `/api/campaigns/{campaign_id}/devices/{gateway_id}/status`

Method GET

Required Parameters

Name	Description
gatewayId <i>string</i>	ID of the gateway.
campaignId <i>string</i>	ID of the campaign.

Response

```
{
  "campaignId": "string",
  "campaignState": {
    "state": "string"
  },
  "timestamp": "string",
  "downloadProgress": {
    "packagesProgress": [
      {
        "progress": "string",
        "total": "string",
        "id": "string"
      }
    ]
  },
  "executionProgress": [
    "string"
  ],
  "gatewayId": "string"
}
```

Get Campaign Count by Status

Required Permissions You must have the View Campaign permission to perform this operation.

API `/api/campaign-status/campaigns`

Method GET

Required Parameters None

Response

```
{
  "approvedNotStartedCount": "string",
  "startedCount": "string",
  "stoppedCount": "string",
  "waitingApprovalCount": "string",
  "noApprovalNeededReadyToStartCount": "string"
}
```

Get Package Information

Required Permissions You must have the View Package permission to perform this operation.

Description This API provides information about the package.

API /api/programs/{uuid}/file-info

Method GET

Required Parameters

Name	Description
uuid <i>string</i>	IoT ID.

Response

```
{
  "description": "string",
  "id": "string",
  "createdBy": "string",
  "createdOn": "string",
  "name": "string"
}
```

List Packages

Required Permissions You must have the View Package permission to perform this operation.

API /api/programs

Method GET

Optional Parameters

Name	Description
name <i>string</i>	Name of the program.
page <i>string</i>	<ul style="list-style-type: none"> ■ number ■ size ■ sort

Response

```
{
  "description": "string",
  "id": "string",
  "createdBy": "string",
  "createdOn": "string",
  "name": "string"
}
```

Delete a Package

Required Permissions You must have the Delete Package permission to perform this operation.

API /api/programs/{uuid}

Method DELETE

Required Parameters

Name	Description
uuid <i>string</i>	IoT ID to delete.

Response

```
{}
```

Upload Package Multipart

Required Permissions You must have the Create Package permission to perform this operation.

Description Use this API to upload a reprogramming package. The request size is limited to 1 GB. This API consumes only multipart requests.

API /api/programs/

Method POST

Required Parameters

Name	Description
file <i>file</i>	The file that is being uploaded.

Optional Parameters

Name	Description
description <i>string</i>	Description of the uploaded file. Maximum length of characters is 128.

Input Example

```
Accept "application/zip"
{
  "description": "A"
}
```

The request is not multipart and its body contains the file.

Response

```
{
  "uuid": "string"
}
```

Upload Package Streaming**Required Permissions**

You must have the Create Package permission to perform this operation.

Description

Use this API to upload a reprogramming package. The request size is unlimited.

API

/api/programs/

Method

POST

Required Parameters

Name	Description
file <i>file</i>	The file that is being uploaded.

Optional Parameters

Name	Description
description <i>string</i>	Description of the uploaded file. Maximum length of characters is 128.

Input Example

```
Accept "application/zip"
{
  "description": "A"
}
```

The request is not multipart and its body contains the file.

Response

```
{
  "uuid": "string"
}
```


Alerts APIs

Use the following APIs to get, create, update, and delete alerts and alert definitions.

Create an Alert Definition

Required Permissions You must have the Create Alert Definition permission to perform this operation.

Description Create an alert definition. Send a JSON request that includes the AlertDefinition fields. You will receive a response with the alert definition ID.

Headers

```
Authorization: Bearer <JWT Token>
Accept: application/json;api-version=0.8
```

API

/api/alert-definitions

Method

POST

Required Parameters

Name	Description
name <i>string</i>	Name of the alert definition.
description <i>string</i>	Alert definition description.
deviceTemplateIds	List of device template IDs.
properties	Property value based on which the alert is triggered.
metrics <i>string</i>	List of metrics the alert definition depends on.
triggerCount <i>integer</i>	Number of times metric must exceed threshold to trigger.
recommendation <i>string</i>	Recommended actions when alerts are triggered.
lambda <i>string</i>	Threshold lambda function.
alertSeverity <i>string</i>	Alert severity: <ul style="list-style-type: none"> ■ CRITICAL ■ WARNING ■ INFO
alertTemplate <i>string</i>	Alert template: <ul style="list-style-type: none"> ■ THRESHOLD
notificationDefinitionId <i>string</i>	Notification definition ID.

Input Example

```
{
  "name": "Gateway OS Version Mismatch",
  "description": "Gateway OS Version Mismatch",
  "deviceTemplateIds": [ "76b94eac-1232-4ab9-8b8a-1f0ee8b37709" ],
  "properties": [ "os-release" ],
  "triggerCount": 1,
  "recommendation": "Kick off a Campaign",
  "duration": 1,
  "lambda": "\"os-release\" != '1.2.3'",
  "alertSeverity": "CRITICAL",
  "alertTemplate": "THRESHOLD",
  "notificationDefinitionId": "76b94eac-1232-4ab9-8b8a-1f0ee8b37709"
}
```

Response Example

```
{
  "alertDefId": "0f70d96a-36b3-47c3-ab34-339bd3f697bd"
}
```

Get Details of an Alert Definition

Required Permissions

You must have the View Alert Definition permission to perform this operation.

Description

Get the details of an alert definition.

API

/api/alert-definitions/{alert_def_id}

Method

GET

Required Parameters

Name	Description
alert_def_id	Alert definition ID created by the service.
<i>string</i>	

Response

```
{
  "lastUpdatedTime": "string",
  "alertDef": {
    "name": "string",
    "lambda": "string",
    "triggerCount": 0,
    "alertSeverity": "UNKNOWN_SEVERITY",
    "metrics": [
      "string"
    ],
  },
  "notificationId": "string",
  "recommendation": "string",
  "alertTemplate": "UNKNOWN_TEMPLATE",
  "deviceTemplateId": "string",
  "description": "string"
}
```

```

    },
    "lastUpdatedBy": "string",
    "updateVersion": 0,
    "createdBy": "string",
    "createdTime": "string",
    "alertDefId": "string"
  }

```

Update an Alert Definition

Required Permissions

You must have the `Edit Alert Definition` permission to perform this operation.

Description

Update the fields of an alert definition. Send a JSON request that includes all the fields of `AlertDefinition`, including non-updated fields. Missing fields will overwrite the existing values with default values. You will get a response with the alert definition ID.

API

`/api/alert-definitions/{alert_def_id}`

Method

PUT

Required Parameters

Name	Description
<code>name</code> <i>string</i>	Name of the alert definition.
<code>description</code> <i>string</i>	Alert definition description.
<code>deviceTemplateId</code>	Device template ID.
<code>metrics</code> <i>string</i>	List of metrics the alert definition depends on.
<code>triggerCount</code> <i>integer</i>	Number of times metric must exceed threshold to trigger.
<code>recommendation</code> <i>string</i>	Recommended actions when alerts are triggered.
<code>lambda</code> <i>string</i>	Threshold lambda function.
<code>alertSeverity</code> <i>string</i>	Alert severity: <ul style="list-style-type: none"> ■ CRITICAL ■ WARNING ■ INFO
<code>alertTemplate</code> <i>string</i>	Alert template: <ul style="list-style-type: none"> ■ THRESHOLD ■ OFFLINE

Input Example

```
{
  "name": "ABC Alert",
  "lambda": "\"CPU\" > 90",
  "triggerCount": 0,
  "alertSeverity": "INFO",
  "metrics": [
    "string"
  ],
  "notificationId": "12",
  "recommendation": "Offload some processes from this machine",
  "alertTemplate": "THRESHOLD",
  "deviceTemplateId": "string",
  "description": "High CPU Alert"
}
```

Response

```
{
  "alertDefId": "string"
}
```

Delete an Alert Definition

Required Permissions

You must have the Delete Alert Definition permission to perform this operation.

Description

Delete an alert definition. The system cancels all active alerts that use this definition.

API

/api/alert-definitions/{alert_def_id}

Method

DELETE

Required Parameters

Name	Description
alert_def_id	Alert definition ID created by the service.
<i>string</i>	

Response

```
{}
```

Get a List of Alert Definitions

Required Permissions You must have the View Alert Definition permission to perform this operation.

Description Get a list of alert definitions that satisfies the optional search parameters.

API `/api/alert-definitions`

Method GET

Optional Parameters

Name	Description
<code>name</code> <i>string</i>	Name of the alert definition.
<code>deviceTemplateId</code> <i>string</i>	Device template ID.
<code>deviceId</code> <i>string</i>	Device ID.
<code>alertSeverity</code> <i>string</i>	Alert severity: <ul style="list-style-type: none"> ■ CRITICAL ■ WARNING ■ INFO
<code>alertTemplate</code> <i>string</i>	Alert template: <ul style="list-style-type: none"> ■ THRESHOLD ■ OFFLINE
<code>page.number</code> <i>int32</i>	Page number.
<code>page.size</code> <i>int32</i>	Page size.

Response

```
{
  "alertDefInfos": [
    {
      "lastUpdatedTime": "string",
      "alertDef": {
        "name": "string",
        "lambda": "string",
        "triggerCount": 0,
        "alertSeverity": "UNKNOWN_SEVERITY",
        "metrics": [
          "string"
        ],
      },
      "notificationId": "string",
      "recommendation": "string",
      "alertTemplate": "UNKNOWN_TEMPLATE",
      "deviceTemplateId": "string",
      "description": "string"
    }
  ]
}
```

```

    },
    "lastUpdatedBy": "string",
    "updateVersion": 0,
    "createdBy": "string",
    "createdTime": "string",
    "alertDefId": "string"
  }
],
"page": {
  "totalPages": "string",
  "totalElements": "string",
  "page": 0,
  "pageSize": 0
}
}

```

Get Alert Details

Required Permissions You must have the View Alert permission to perform this operation.

Description Get details of an alert.

API /api/alerts/{alert_id}

Method GET

Required Parameters

Name	Description
alert_id	Alert ID created by the service.
<i>string</i>	

Response

```

{
  "lastUpdatedTime": "string",
  "alertId": "string",
  "triggers": [
    {
      "valueInt64": "0",
      "timeMs": "string",
      "metric": "string",
      "valueDouble": 0.0
    }
  ],
  "alertSeverity": "UNKNOWN_SEVERITY",
  "state": "UNKNOWN_ALERTSTATE",
  "lastUpdatedBy": "string",
  "updateVersion": 0,
  "createdBy": "string",
  "createdTime": "string",

```

```

"userAcknowledged": "string",
>alertDefId": "string",
>alertDefName": "string"
}

```

Changing the Alert State

Required Permissions You must have the `Edit Alert` permission to perform this operation.

Description Update the alert state from **Active** to **Acknowledged**.

Note You cannot revert an alert from **Acknowledged** state to **Active** state.

API `/api/alerts/{alert_id}`

Method PUT

Required Parameters

Name	Description
<code>alert_id</code> <i>string</i>	Alert ID created by the service.
<code>state</code> <i>string</i>	The alert state: <ul style="list-style-type: none"> ■ ACTIVE ■ ACKNOWLEDGED

Input Example

```

{
  "state": "ACTIVE"
}

```

Response

```

{
  "alertId": "string"
}

```

Get a List of Alerts

Required Permissions You must have the View Alert permission to perform this operation.

Description Get a list of alerts that satisfy certain search parameters.

API /api/alerts

Method GET

Optional Parameters

Name	Description
alert_def_id <i>string</i>	Alert definition ID.
alert_def_name <i>string</i>	Alert definition name.
last_updated_time_start_ms <i>int64</i>	Last updated start time (UNIX Epoc time with millisecond precision).
last_updated_time_end_ms <i>int64</i>	Last updated end time.
severity	Alert severity. <ul style="list-style-type: none"> ■ CRITICAL ■ WARNING ■ INFO
state <i>string</i>	The alert state: <ul style="list-style-type: none"> ■ ACTIVE ■ ACKNOWLEDGED
page.number <i>int32</i>	Page number.
page.size <i>int32</i>	Page size.

Response

```
{
  "page": {
    "totalPages": "string",
    "totalElements": "string",
    "page": 0,
    "pageSize": 0
  },
  "alertInfos": [
    {
      "lastUpdatedTime": "string",
      "alertId": "string",
      "triggers": [
        {
          "valueInt64": "string",

```



```

        "timeMs": "string",
        "metric": "string",
        "valueBoolean": true,
        "valueString": "string",
        "valueDouble": 0
    }
],
"alertSeverity": "UNKNOWN_SEVERITY",
"state": "UNKNOWN_ALERTSTATE",
"lastUpdatedBy": "string",
"updateVersion": 0,
"createdBy": "string",
"createdTime": "string",
"userAcknowledged": "string",
"alertDefId": "string",
"alertDefName": "string"
}
]

```

Get Alert Trigger History

Required Permissions You must have the View Alert permission to perform this operation.

Description Get a list of alert trigger/cancel/acknowledge history of a device for an alert definition.

API `/api/alerts/{alert_id}/trigger-history`

Method GET

Required Parameters

Name	Description
alert_id	Alert ID.
string	

Response

```

message AlertTriggerHistory {
    // the detailed alert triggered/cancelled/acknowledged record
    repeated Trigger triggers = 1;
}
// trigger details
message Trigger {
    // metric name
    string metric = 1;
    // timestamp in milliseconds
    int64 time_ms = 2;
    // metric value (four data types) when the alert is triggered:
    string, int64, double or boolean
    oneof value {

```

```

string value_string = 3;
int64 value_int64 = 4;
double value_double = 5;
bool value_boolean = 6;
}
AlertState state = 7;
// the username who creates the trigger record
string userName = 8;
};

```

Identity and Access Management (IAM) APIs

Use the following APIs to perform tenant management, role management, user management, and group management operations.

Organization Management APIs

Use the following APIs to create, view, update, and delete an organization.

Create an Organization

Required Permissions You must have the Create Organization permission to perform this operation.

API /api/organizations

Method POST

Required Parameters

Name	Description
name <i>string</i>	Organization name.
parentId <i>string</i>	Immediate parent in the organization hierarchy.
status <i>string</i>	<ul style="list-style-type: none"> ■ INACTIVE ■ ACTIVE

Input Example

```
{
  "name": "",
  "parentId": "",
  "status": ""
}
```

Response

```
{
  "id": "string"
}
```

Get a List of Organizations

Required Permissions You must have the View Organization permission to perform this operation.

API /api/organizations

Method GET

Required Parameters None.

Response

```
{
  "tenants": [
    {
      "id": "",
      "name": "",
      "parentId": "",
      "status": "",
      "createdTime": "",
      "lastUpdatedTime": "",
      "updateVersion": 1
    }
  ],
  "pageInfo": {
    "page": 1,
    "pageSize": 10,
    "totalElements": "11",
    "totalPages": "2"
  }
}
```

Get an Organization by ID

Required Permissions You must have the View Organization permission to perform this operation.

API /api/organizations/{id}

Method GET

Required Parameters	Name	Description
	id	Organization ID.
	<i>string</i>	

Response

```
{
  "id": "",
  "name": "",
  "parentId": "",
  "status": "",
  "createdTime": "",
  "lastUpdatedTime": "",
  "updateVersion": 1,
  "orgId": "",
  "createdBy": "",
  "lastUpdatedBy": ""
}
```

Update an Organization

Required Permissions You must have the Edit Organization permission to perform this operation.

API /api/organizations/{id}

Method PUT

Required Parameters	Name	Description
	name	Organization name.
	<i>string</i>	
	parentId	Immediate parent in the organization hierarchy.
	<i>string</i>	
	status	<ul style="list-style-type: none"> ■ INACTIVE ■ ACTIVE
	<i>string</i>	

Input Example

```
{
  "name": "",
  "parentId": "",
  "status": "",
  "updateVersion": 1,
}
```

Response

```
{
  "id": "string"
}
```

Delete a Organization

Required Permissions You must have the Delete Organization permission to perform this operation.

API /api/organizations/{id}

Method DELETE

Required Parameters

Name	Description
id	Organization ID.
<i>string</i>	

Response

```
{}
```

User Management APIs

Use the following APIs to create, fetch, update, and delete users.

Create a User

Required Permissions You must have the Create User permission to perform this operation.

API /api/users

Method POST

Required Parameters

Name	Description
userName	User name.
<i>string</i>	
displayName	User display name.
<i>string</i>	

Name	Description
password <i>string</i>	The password for the user.
status <i>string</i>	Status of the user: <ul style="list-style-type: none"> ■ INACTIVE: The user is inactive. ■ ACTIVE: The user is active.
email <i>string</i>	Email address of the user.
roles <i>string</i>	Array of role Ids.
group <i>string</i>	Array of group Ids.

Input Example

```
{
  "userName": "",
  "displayName": "",
  "password": "",
  "status": "",
  "email": "",
  "roles": [
  ],
  "groups": [
  ],
}
```

Response

```
{
  "id": "string"
}
```

Get a User by ID

Required Permissions

You must have the View User permission to perform this operation.

API

/api/users/{id}

Method

GET

Required Parameters

Name	Type	Description
id	<i>string</i>	User ID.

Response

```
{
  "id": "",
  "userName": "",
  "displayName": "",
  "tenantId": "",
}
```

```

    "status": "",
    "email": "",
    "accessToken": "",
    "refreshToken": "",
    "roles": [//Array of role details object],
    "groups": [//Array of role details object],
    "createdTime": "",
    "lastUpdatedTime": "",
    "updateVersion": 1
  }

```

Get a List of Users

Required Permissions

You must have the View User permission to perform this operation.

API

/api/users

Method

GET

Parameters

None

Response

```

{
  "users": [
    {
      "id": "",
      "userName": "",
      "displayName": "",
      "tenantId": "",
      "status": "",
      "email": "",
      "accessToken": "",
      "refreshToken": "",
      "roles": [],
      "groups": [],
      "createdTime": "",
      "lastUpdatedTime": "",
      "updateVersion": 1
    }
  ],
  "pageInfo": {
    "page": 1,
    "pageSize": 10,
    "totalElements": "4",
    "totalPages": "1"
  }
}

```

Update a User

Required Permissions You must have the Edit User permission to perform this operation.

API /api/users/{id}

Method PUT

Required Parameters

Name	Description
userName <i>string</i>	User name.
displayName <i>string</i>	User display name.
password <i>string</i>	The password for the user.
status <i>string</i>	Status of the user: <ul style="list-style-type: none"> ■ INACTIVE: The user is inactive. ■ ACTIVE: The user is active.
email <i>string</i>	Email address of the user.
roles <i>string</i>	Array of role Ids.
group <i>string</i>	Array of group Ids.

Input Example

```
{
  "userName": "",
  "displayName": "",
  "password": "VMware1!",
  "status": "",
  "email": "",
  "roles": [],
  "groups": [],
  "updateVersion": 1
}
```

Response

```
{
  "id": "string"
}
```


Delete a User

Required Permissions You must have the Delete User permission to perform this operation.

API /api/users/{id}

Method DELETE

Required Parameters	Name	Description
	id	User ID.
	<i>string</i>	

Response

```
{}
```

Get User Details

Required Permissions You must have the View User permission to perform this operation.

API /api/me

Method GET

Required Parameters None

Response

```
{
  "userName": "sysadmin@vmware.com",
  "displayName": "sysadmin",
  "tenantId": "5bc2126a69eac734fe16e9b1",
  "permissions": [
    "CREATE_TENANT",
    "VIEW_TENANT",
    "EDIT_TENANT",
    "EDIT_TENANT_SETTINGS",
    "DELETE_TENANT"
  ]
}
```

Role Management APIs

Use the following APIs to create, fetch, update, and delete roles.

Create a Role

Required Permissions You must have the Create Role permission to perform this operation.

API /api/roles

Method POST

Required Parameters

Name	Description
name <i>string</i>	Role name.
description <i>string</i>	Description of the role.
permissions ■ Permission number <i>integer</i>	Permission numbers.

Input Example

```
{
  "name": "",
  "description": "",
  "permissions": [
    // Integer array of permission numbers
  ]
}
```

Response

```
{
  "id": "string"
}
```

Get a Role by ID

Required Permissions You must have the View Role permission to perform this operation.

API /api/roles/{id}

Method GET

Required Parameters

Name	Description
id <i>string</i>	Role ID.

Response

```
{
  "id": "",
  "name": "",
  "description": "",
  "isDefault": false,
}
```

```

"permissions": [
  {
    "permissionNumber":1,
    "name": "",
    "description": ""
  },
  {
    "permissionNumber":2,
    "name": "",
    "description": ""
  }
],
"createdTime":"","
"lastUpdatedTime":"","
"updateVersion":1
}

```

Get a List of Roles

Required Permissions

You must have the View Role permission to perform this operation.

API

/api/roles

Method

GET

Parameters

None

Response

```

{
  "roles": [
    {
      "id": "",
      "name": "",
      "isDefault": false,
      "description":"","
      "createdTime": "",
      "lastUpdatedTime": "",
      "updateVersion":1
    }
  ],
  "pageInfo": {
    "page": 1,
    "pageSize": 10,
    "totalElements": "4",
    "totalPages": "1"
  }
}

```

Update a Role

Required Permissions You must have the Edit Role permission to perform this operation.

API /api/roles/{id}

Method PUT

Required Parameters

Name	Description
name <i>string</i>	Role name.
description <i>string</i>	Description of the role.
permissions <ul style="list-style-type: none"> ■ Permission number <i>integer</i> ■ name <i>string</i> ■ description <i>string</i> 	Permission number, name, and description of the role.
updateVersion <i>string</i>	Version of the update.

Input Example

```
{
  "name": "",
  "description": "",
  "permissions": [],
  "updateVersion": 1
}
```

Response

```
{
  "id": "string"
}
```

Delete a Role

Required Permissions You must have the Delete Role permission to perform this operation.

API /api/roles/{id}

Method DELETE

Required Parameters

Name	Description
id	Role ID.
<i>string</i>	

Response

```
{}
```

List Users for Role

Required Permissions You must have the View Role permission to perform this operation.

API /api/console-roles/{id}/users?page.number=1&page.size=10

Method GET

Required Parameters None

Response

```
{
  "users": [
    {
      "id": "",
      "userName": "",
      "displayName": "",
      "status": "",
      "orgId": "",
      "createdTime": "",
      "lastUpdatedTime": "",
      "updateVersion": 5,
      "createdBy": "s",
      "lastUpdatedBy": ""
    }
  ],
  "pageInfo": {
    "page": 1,
    "pageSize": 10,
    "totalElements": "1",
    "totalPages": "1"
  }
}
```

Group Management APIs

Use the following APIs to create, fetch, update, and delete user groups.

Create a Group

Required Permissions You must have the Create Group permission to perform this operation.

API /api/groups

Method POST

Required Parameters	Name	Description
	name <i>string</i>	Group name.
	description <i>string</i>	Description of the group.
	roles <i>string</i>	The roles assigned to the group.

Input Example

```
{
  "name": "",
  "description": "",
  "roles": [//Array of role ids]
}
```

Response

```
{
  "id": "string"
}
```

Get a Group by ID

Required Permissions You must have the View Group permission to perform this operation.

API /api/groups/{id}

Method GET

Required Parameters	Name	Description
	id <i>string</i>	The group's identifier.

Response

```
{
  "id": "",
  "name": "",
  "description": "",
  "isDefault": false,
  "roles": [
    {
      "name": ""
    }
  ]
}
```

```

    },
    {
      "name": ""
    }
  ],
  "createdTime": "",
  "lastUpdatedTime": "",
  "updateVersion": 1,
  "createdBy": "",
  "lastUpdatedBy": ""
}

```

Get a List of Groups

Required Permissions You must have the View Group permission to perform this operation.

API /api/groups

Method GET

Required Parameters None

Response

```

{
  "groups": [
    {
      "id": "",
      "name": "",
      "description": "",
      "isDefault": false,
      "createdTime": "",
      "lastUpdatedTime": "",
      "createdBy": "",
      "lastUpdatedBy": "",
      "updateVersion": 1
    }
  ],
  "pageInfo": {
    "page": 1,
    "pageSize": 10,
    "totalElements": "4",
    "totalPages": "1"
  }
}

```

Update a Group

Required Permissions You must have the Edit Group permission to perform this operation.

API /api/groups/{id}

Method PUT

Required Parameters

Name	Description
name <i>string</i>	Name of the role.
description <i>string</i>	Description of the role.
roles <i>string</i>	The roles assigned to the group.
updateVersion <i>integer</i>	The update version of the role.

Input Example

```
{
  "name": "",
  "description": "",
  "roles": [//Array of role ids],
  "updateVersion": 1
}
```

Response

```
{
  "id": "string"
}
```

Delete a Group

Required Permissions You must have the Delete Group permission to perform this operation.

API /api/groups/{id}

Method DELETE

Required Parameters

Name	Description
id <i>string</i>	The group's identifier.

Response

```
{}
```


List Users for Group

Required Permissions You must have the View Group permission to perform this operation.

API /api/console-groups/{id}/users?page.number=1&page.size=10

Method GET

Required Parameters None

Response

```
{
  "users": [
    {
      "id": "",
      "userName": "",
      "displayName": "",
      "status": "",
      "orgId": "",
      "createdTime": "",
      "lastUpdatedTime": "",
      "updateVersion": 5,
      "createdBy": "s",
      "lastUpdatedBy": ""
    }
  ],
  "pageInfo": {
    "page": 1,
    "pageSize": 10,
    "totalElements": "1",
    "totalPages": "1"
  }
}
```

Permission Management APIs

Use the following API to fetch permissions.

Get a List of Permissions

API /api/permissions

Method GET

Parameters None

Response

```
{
  "permissions": [
    {
      "permissionNumber": 1,
      "name": "",
      "description": "",
      "updateVersion": 1
    }
  ]
}
```

```

    },
    {
      "permissionNumber":2,
      "name": "",
      "description": "",
      "updateVersion":1
    }
  ]
}

```

Organization Settings APIs

Use the following APIs to view and update your organization settings.

Update Organization Settings

Required Permissions You must have the Edit Organization Settings permission to perform this operation.

API `/api/organizations/{id}/settings`

Method PUT

Parameters	Name	Description
	<code>category</code> <i>string</i>	Enter categories such as metric, campaign, identity, and notifications. A system namespace is available by default.
	<code>settings</code> <i>string</i>	Enter the settings for the organization.

Input Example

```

[[{
  "category" : "campaign",
  "settings" : {
    "campaign-approval-needed": "false"
  }
}]

```

Response

```

{
  "id": ""
}

```

Get Organization Settings for a Category

Required Permissions You must have the View Organization Settings permission to perform this operation.

API `/api/organizations/{id}/settings?category=<category>`

Method GET

Required Parameters	Name	Description
	<code>category</code> <i>string</i>	Enter categories such as metric, campaign, identity, and notifications. A system namespace is available by default.

Response

```
{
  "category" : "iam",
  "settings" : {
    "delete-ttl-days" : 20
  },
}
```

Get Organization Settings

Required Permissions You must have the View Organization Settings permission to perform this operation.

API `/api/organizations/{id}/settings`

Method GET

Required Parameters None

Response

```
[{
  "category" : "campaign",
  "settings" : {
    "campaign-approval-needed" : "false"
  }
}]
```

Password Management APIs

Use the following APIs to generate a password recovery link and reset the password.

Forgot Password

API `/api/users/forgot-password`

Description This API takes the user name as input and generates a password recovery link. If the user name is valid, an email with the password recovery link is sent to the user. The link is valid for 15 minutes.

Method POST

Required Parameters

Name	Description
username	User name.
<i>string</i>	

Input Example

```
{
  "username":""
}
```

Response

```
{ }
```

Reset Password

API `/api/users/reset-password`

Description This API resets the password for the given user name.

Method POST

Required Parameters

Name	Description
password	New password.
<i>string</i>	

Input Example

```
{
  "password":""
}
```

Response

```
{ }
```

Token Management APIs

Use the following APIs to generate access and refresh tokens.

Create a Token for the User

API /api/tokens

Method GET

Required Parameters None

Response

```
{
  "accessToken": "string",
  "expiresInSecs": "1543317540",
  "accessTokenExpiresAt": "1543317540",
  "refreshToken": "string",
  "refreshTokenExpiresAt": "1544519940"
}
```

Generate Access Token Using Refresh Token

API /api/tokens/refresh

Method GET

Required Parameters None

Response

```
{
  "accessToken": "string",
  "accessTokenExpiresAt": "1543317540"
  "expiresInSecs": 0,
  "refreshToken": null
}
```

Notification APIs

This section lists the APIs for Notification Destinations, Notification Definitions, and Notification Instances.

Notification Destination APIs

Use the following APIs to create, update, get, and delete notification destinations.

Create a Notification Destination

Required Permissions You must have the Create Notification Destination permission to perform this operation.

API /api/notification-destinations

Method POST

Required Parameters

Name	Description
name <i>string</i>	Name of the notification destination. (Mandatory)
description <i>string</i>	Brief description about the notification destination. (Optional)
protocol <i>string</i>	<ul style="list-style-type: none"> ■ HTTP (Mandatory) Use the HTTP protocol to notify to an HTTP destination.
sslTlsVersion <i>string</i>	<ul style="list-style-type: none"> ■ NO_CERT: Use this option if the destination is non-TLS. ■ TLS1_2: Use this option if the destination is TLS. (Mandatory)
certificate <i>string</i>	Certificate of the destination. Mandatory if sslTlsVersion is other than NO_CERT.
host <i>string</i>	Hostname or IP address of the destination. (Mandatory)
port <i>string</i>	Port number of the destination. (Mandatory)
authenticationType <i>string</i>	<ul style="list-style-type: none"> ■ NO_AUTH: Use this option if the destination does not require any authentication. ■ BASIC: Use this option if the destination requires basic authentication. (Mandatory)
username <i>string</i>	User name. User name is mandatory if authenticationType is BASIC.
password <i>string</i>	Password. Password is mandatory if authenticationType is BASIC.

Input Example for HTTP Create Notification Destination

```
{
  "name": "SampleHttpNotificationDestination",
  "description": "This is a sample Http Notification Destination",
  "protocol": "HTTP",
  "sslTlsVersion": "NO_CERT",
```

```
"host": "10.10.10.10",
"port": 8080,
"authenticationType": "NO_AUTH"
}
```

**Sample HTTP
Response for Create
Notification Destination**

```
{
  "id": "5bf29d8178d80c88c25ed713"
}
```

Get Notification Destination

Required Permissions You must have the View Notification Destination permission to perform this operation.

API `/api/notification-destinations/{id}`

Method GET

Required Parameters

Name	Description
id	Notification Destination ID.
<i>string</i>	

**Sample HTTP
Response for Get
Notification Destination**

```
{
  "id": "5bf29d8178d80c88c25ed713",
  "name": "SampleHttpNotificationDestination",
  "description": "This is a sample notification destination",
  "protocol": "HTTP",
  "sslTlsVersion": "NO_CERT",
  "host": "10.10.10.10",
  "port": 8080,
  "authenticationType": "NO_AUTH",
  "tenantId": "5beaa559a40a82f457340c4d",
  "createdTime": "1542622479525",
  "lastUpdatedTime": "1542622479525",
  "createdBy": "sysadmin@vmware.com",
  "lastUpdatedBy": "sysadmin@vmware.com",
  "updateVersion": 1
}
```

Update Notification Destination

Required Permissions You must have the Edit Notification Destination permission to perform this operation.

API `/api/notification-destinations/{id}`

Method PUT

Required Parameters

Name	Description
<code>id</code> <i>string</i>	Notification destination ID. (Mandatory)
<code>name</code> <i>string</i>	Name of the notification destination. (Optional)
<code>description</code> <i>string</i>	Brief description about the notification destination. (Optional)
<code>sslTlsVersion</code> <i>string</i>	<ul style="list-style-type: none"> ■ NO_CERT: Use this option if the destination is non-TLS. ■ TLS1_2: Use this option if the destination is TLS. (Mandatory)
<code>certificate</code> <i>string</i>	Certificate of the destination. Mandatory if <code>sslTlsVersion</code> is other than NO_CERT.
<code>host</code> <i>string</i>	Hostname or IP address of the destination. (Optional)
<code>port</code> <i>string</i>	Port number of the destination. (Optional)
<code>authenticationType</code> <i>string</i>	<ul style="list-style-type: none"> ■ NO_AUTH: Use this option if the destination does not require any authentication. ■ BASIC: Use this option if the destination requires basic authentication. (Optional)
<code>username</code> <i>string</i>	User name. User name is mandatory if <code>authenticationType</code> is BASIC.
<code>password</code> <i>string</i>	Password. Password is mandatory if <code>authenticationType</code> is BASIC.

Input Example for HTTP Update Notification Destination

```
{
  "id" : "5bf29d8178d80c88c25ed713",
  "name": "SampleHttpNotificationDestination",
  "description": "This is updated sample Http Notification Destination"
}
```

Response

```
{
  "id": "string"
}
```


Delete Notification Destination

Required Permissions You must have the Delete Notification Destination permission to perform this operation.

API `/api/notification-destinations/{id}`

Method DELETE

Required Parameters

Name	Description
id	Notification destination ID. (Mandatory)
<i>string</i>	

Response

```
{}
```

List All Notification Destinations

Required Permissions You must have the View Notification Destination permission to perform this operation.

API `/api/notification-destinations`

Method GET

Required Parameters None

Sample HTTP Response for List All Notification Destinations

```
{
  "notificationDestinations": [
    {
      "id": "5bf29d8178d80c88c25ed713",
      "name": "SampleHttpNotificationDestination",
      "description": "This is a sample notification destination",
      "protocol": "HTTP",
      "sslTlsVersion": "NO_CERT",
      "host": "10.10.10.10",
      "port": 8080,
      "authenticationType": "NO_AUTH",
      "tenantId": "5beaa559a40a82f457340c4d",
      "createdTime": "1542622479525",
      "lastUpdatedTime": "1542622479525",
      "createdBy": "sysadmin@vmware.com",
      "lastUpdatedBy": "sysadmin@vmware.com",
      "updateVersion": 1
    },
    {
      "id": "9as29d8178d91c88c25sx670",
      "name": "SampleSmtNotificationDestination",
      "protocol": "SMTP",
      "tenantId": "5beaa559a40a82f457340c4d",
      "createdTime": "1542303267549",
```

```

    "lastUpdatedTime": "1542303380545",
    "createdBy": "sysadmin@vmware.com",
    "lastUpdatedBy": "sysadmin@vmware.com",
    "updateVersion": 2
  }
],
"pageInfo": {
  "page": 1,
  "pageSize": 10,
  "totalElements": "2",
  "totalPages": "1"
}
}

```

Notification Definition APIs

Use the following APIs to create, update, get, and delete notification definitions.

Create a Notification Definition

Required Permissions You must have the Create Notification Definition permission to perform this operation.

API `/api/notification-definitions`

Method POST

Required Parameters

Name	Description
<code>name</code> <i>string</i>	Name of the notification definition. (Mandatory)
<code>description</code> <i>string</i>	Description of the notification definition. (Optional)
<code>notificationDestinationId</code> <i>string</i>	Notification destination ID. Mandatory for HTTP endpoints.

Name	Description
<p><code>httpParameters</code></p> <p><i>json</i></p> <p>It is mandatory to include one of the following options, but not both:</p> <ul style="list-style-type: none"> ■ <code>http_parameters</code> ■ <code>email_parameters</code> 	<p>If the notification definition's protocol is HTTP, then <code>httpParameters</code> is mandatory.</p> <p>It includes the following fields:</p> <ul style="list-style-type: none"> ■ <code>relativePath</code> <p><i>string</i>: The relative API endpoint where the notifications are to be delivered.</p> ■ <code>headers</code> <p><i>json</i>: The list of headers that is expected by the API endpoint.</p> <ul style="list-style-type: none"> ■ <code>key</code> <p><i>string</i>: Header key.</p> ■ <code>value</code> <p><i>string</i>: Header value.</p> ■ <code>payloadTemplate</code> <p><i>string</i>: The custom REST template for receiving notifications.</p>
<p><code>emailParameters</code></p> <p><i>json</i></p> <p>It is mandatory to include one of the following options, but not both:</p> <ul style="list-style-type: none"> ■ <code>http_parameters</code> ■ <code>email_parameters</code> 	<p><code>emailParameters</code> is mandatory for sending email notifications.</p> <p>It consists of the following fields:</p> <ul style="list-style-type: none"> ■ <code>emailRecipients</code>: Consists of a list of email recipients. It is mandatory to enter at least one recipient. ■ <code>emailSubjectTemplate</code>: Consists of the email subject. You can derive the keys from the Create Default Template API. ■ <code>emailBodyTemplate</code>: Consists of the email body. ■ <code>senderEmailAddress</code>: Consists of the sender's email address. ■ <code>senderName</code>: Consists of the sender's name.

Input Example for HTTP Notification Definition

```
{
  "name": "SampleSmtpNotificationDefinition",
  "description": "This is a sample Smtp Notification Definition",
  "emailParameters": {
    "emailRecipients": [
      "user1@gmail.com",
      "user2@gmail.com"
    ],
    "senderEmailAddress": "user3@gmail.com",
    "senderName": "User 3",
    "emailSubjectTemplate": "Notification for Alert ${alertState}",
    "emailBodyTemplate": "<html lang=\"en\"> Notification for alert ${alertDefinitionId} </html>"
  }
}
```

Input Example for SMTP Notification Definition

```
{
  "name": "SampleSmtpNotificationDefinition",
  "description": "This is a sample Smtp Notification Definition",
  "emailParameters": {
    "emailRecipients": [
      "user1@gmail.com",
      "user2@gmail.com"
    ]
  }
}
```

Response

```
{
  "id": "5bf29d8178d80c88c89df352"
}
```

Get Notification Definition

Required Permissions	You must have the View Notification Definition permission to perform this operation.
API	/api/notification-definitions/{id}
Method	GET
Required Parameters	None

Sample Response

```
{
  "id": "5bf29d8178d80c88c89df352",
  "name": "SampleHttpNotificationDefinition",
  "description": "This is a sample notification definition",
  "notificationDestinationId": "5bf29d8178d80c88c25ed713",
  "httpParameters": {
    "relativePath": "/callback",
    "headers": [
      {
        "key": "Content-Type",
        "value": "application/json"
      }
    ]
  },
  "retryCount": 2,
  "tenantId": "5beaa559a40a82f457340c4d",
  "createdTime": "1542470980533",
  "lastUpdatedTime": "1542470980533",
  "createdBy": "sysadmin@vmware.com",
  "lastUpdatedBy": "sysadmin@vmware.com",
  "updateVersion": 1
  "payloadTemplate": "{ \"description\" : \"${description}"}"
```

```

{"deviceTemplateId": "${deviceTemplateId}","deviceId": "${
deviceId}","triggerCount": "${triggerCount}"
}
}

```

Update Notification Definition

Required Permissions You must have the Edit Notification Definition permission to perform this operation.

API `/api/notification-definitions/{id}`

Method PUT

Required Parameters

Name	Description
id <i>string</i>	Notification definition ID. (Mandatory)
name <i>string</i>	Name of the notification definition. (Optional)
description <i>string</i>	Description of the notification definition. (Optional)
notificationDestinationId <i>string</i>	Notification destination ID. (Optional)

Name	Description
<p>httpParameters</p> <p><i>json</i></p>	<p>If the notification definition's protocol is HTTP, then httpParameters is mandatory.</p> <p>You cannot edit the protocol type.</p> <p>It includes the following fields:</p> <ul style="list-style-type: none"> ■ relativePath <ul style="list-style-type: none"> <i>string</i>: The relative API endpoint where the notifications are to be delivered. ■ headers <ul style="list-style-type: none"> <i>json</i>: The list of headers that is expected by the API endpoint. ■ key <ul style="list-style-type: none"> <i>string</i>: Header key. ■ value <ul style="list-style-type: none"> <i>string</i>: Header value. ■ payloadTemplate <ul style="list-style-type: none"> <i>string</i>: The custom REST template for receiving notifications.
<p>emailParameters</p> <p><i>json</i></p>	<p>You cannot edit the protocol type.</p> <p>emailParameters is mandatory for sending email notifications.</p> <p>It consists of the following fields:</p> <ul style="list-style-type: none"> ■ emailRecipients: Consists of a list of email recipients. It is mandatory to enter at least one recipient. ■ emailSubjectTemplate: Consists of the email subject. You can derive the keys from the Create Default Template API. ■ emailBodyTemplate: Consists of the email body. ■ senderEmailAddress: Consists of the sender's email address. ■ senderName: Consists of the sender's name.

Input Example for HTTP Update Notification Definition

```
{
  "id": "5bf29d8178d80c88c89df352",
  "description": "This is an updated sample HTTP Notification Definition",
  "notificationDestinationId": "5bf29d8178d80c88c25ed713",
  "retryCount": 2
}
```

Input Example for SMTP Update Notification Definition

```
{
  "id": "5bf29d8243d80c88c25an910",
  "description": "This is an updated sample Smtplib Notification Definition",
  "notificationDestinationId": "9as29d8178d91c88c25sx670",
}
```

Response

```
{
  "id": "5bf29d8178d80c88c89df352"
}
```

Delete Notification Definition

Required Permissions You must have the Delete Notification Definition permission to perform this operation.

API /api/notification-definitions/{id}

Method DELETE

Required Parameters

Name	Description
id	Notification definition ID.
<i>string</i>	

Response

```
{}
```

List All Notification Definitions

Required Permissions You must have the View Notification Definition permission to perform this operation.

API /api/notification-definitions

Method GET

Required Parameters None

Response

```
{
  "notificationDefinitions": [
    {
      "id": "5bf29d8243d80c88c25an910",
      "name": "SampleSmtplibNotificationDefinition",
      "description": "This is a sample notification definition",
      "notificationDestinationId": "9as29d8178d91c88c25sx670",
      "emailParameters": {
        "emailRecipients": [
```

```

        "user1@gmail.com",
        "user2@gmail.com"
    ],
    "senderEmailAddress": "user3@gmail.com",
    "senderName": "User 3",
    "emailSubjectTemplate": "Notification for Alert ${alertState}",
    "emailBodyTemplate": "<html lang=en> Notification for alert
${alertDefinitionId} </html>"
    },
    "tenantId": "5beaa559a40a82f457340c4d",
    "createdTime": "1542626689123",
    "lastUpdatedTime": "1542626689123",
    "createdBy": "sysadmin@vmware.com",
    "lastUpdatedBy": "sysadmin@vmware.com",
    "updateVersion": 1
    },
    {
        "id": "5bf29d8178d80c88c89df352",
        "name": "SampleHttpNotificationDefinition",
        "description": "This is a sample notification definition",
        "notificationDestinationId": "5bf29d8178d80c88c25ed713",
        "httpParameters": {
            "relativePath": "/callback",
            "headers": [
                {
                    "key": "Content-Type",
                    "value": "application/json"
                }
            ]
        },
        "payloadTemplate": "{\"description\" : \"${description}
\", \"deviceTemplateId\" : \"${deviceTemplateId}\", \"deviceId\" :
\\\"$
{deviceId}\", \"triggerCount\" : \"${triggerCount}\"}"
    },
    "retryCount": 1,
    "tenantId": "5beaa559a40a82f457340c4d",
    "createdTime": "1542622551030",
    "lastUpdatedTime": "1542622551030",
    "createdBy": "sysadmin@vmware.com",
    "lastUpdatedBy": "sysadmin@vmware.com",
    "updateVersion": 1
    }
    ],
    "pageInfo": {
        "page": 1,
        "pageSize": 10,
        "totalElements": "2",
        "totalPages": "1"
    }
}

```


Get Template

API /api/notification-templates

Method GET

Required Parameters type. For example, /api/notification-templates?type=default

Response

```
{
  "templateKeys": [
    {
      "key": "entityType",
      "description": "Entity type like Alert, campaign for which
notification is generated"
    },
    {
      "key": "alertSeverity",
      "description": "Alert severity defined in the alert
definition."
    },
    {
      "key": "triggersMetricName",
      "description": "Metric name for which alert was triggered"
    },
    {
      "key": "description",
      "description": "Description of alert"
    },
    {
      "key": "recommendation",
      "description": "Defined in alert definition who takes
remediation steps for user"
    },
    {
      "key": "entityId",
      "description": "Id of the generated alert"
    },
    {
      "key": "alertTemplate",
      "description": "Alert template selected by user"
    },
    {
      "key": "notificationInstanceId",
      "description": "Id of notification instance created for this
alert"
    },
    {
      "key": "deviceId",
      "description": "Device Id for which alert is generated"
    },
    {
      "key": "triggersTimeMs",
      "description": "Time for which alert was triggered"
    },
  ],
}
```

```

{
  "key": "triggerCount",
  "description": "No of times metric exceeded the threshold
which results in triggering alert"
},
{
  "key": "duration",
  "description": "Duration (in sec) of absence of metrics from
offline alert triggering device"
},
{
  "key": "lambda",
  "description": "Threshold value for triggering alert"
},
{
  "key": "cancelCount",
  "description": "Count of consecutive ingestion on which the
alert cancellation will take place"
},
{
  "key": "entityState",
  "description": "Present state of the entity like active,
user_acknowledged etc"
},
{
  "key": "entityName",
  "description": "Entity name for which notification is
generated"
},
{
  "key": "deviceTemplateId",
  "description": "ID of device template"
},
{
  "key": "createdTime",
  "description": "Time at which alert was created"
},
{
  "key": "lastUpdatedTime",
  "description": "Last time when alert was updated"
},
{
  "key": "metrics",
  "description": "List of metrics on a threshold alert symptom"
},
{
  "key": "alertDefinitionId",
  "description": "alert definition id"
},
{
  "key": "triggersValue",
  "description": "The value which caused the triggering of alert"
},
{

```

```

        "key": "userAcknowledged",
        "description": "User who acknowledged the alert"
    }
],
"subject": "${entityType} ${entityState} Notification for $
${entityType} ${entityName}(${entityId})",
"default.alert.body.template": "<html lang='en'> <head> <meta
charset='UTF-8'> <meta name='viewport' content='width=device-
width, initial-scale=1.0'> <meta http-equiv='Content-Type' content=
'text/html'> <link rel='stylesheet' href='https://unpkg.com/
clarity-ui@0.9.8/clarity-ui.min.css'> </head> <body style='word-
wrap:break-word;-webkit-nspace-mode:space;color:rgb(0,0,0)'> <div xmlns=
'http://www.w3.org/1999/xhtml' lang='en'> <style type='text/css'
media='all'> @font-face { font-family: 'subjectFont'; src:
url('https://console.cloud.vmware.com/csp/gateway/portal/assets/fonts/
Metropolis/Metropolis-Light.otf') format('opentype'); src: url('https://
console.cloud.vmware.com/csp/gateway/portal/assets/fonts/Metropolis/
Metropolis-Light.ttf') format('truetype'); src: url('https://
console.cloud.vmware.com/csp/gateway/portal/assets/fonts/Metropolis/
Metropolis-Light.woff') format('woff'); src: url('https://
console.cloud.vmware.com/csp/gateway/portal/assets/fonts/Metropolis/
Metropolis-Light.woff2') format('woff2'); font-weight: normal; font-
style: normal; } @font-face { font-family: 'bodyFont'; src:
url('https://console.cloud.vmware.com/csp/gateway/portal/assets/fonts/
Metropolis/Metropolis-Regular.otf') format('opentype'); src:
url('https://console.cloud.vmware.com/csp/gateway/portal/assets/fonts/
Metropolis/Metropolis-Regular.ttf') format('truetype'); src:
url('https://console.cloud.vmware.com/csp/gateway/portal/assets/fonts/
Metropolis/Metropolis-Regular.woff') format('woff'); src: url('https://
console.cloud.vmware.com/csp/gateway/portal/assets/fonts/Metropolis/
Metropolis-Regular.woff2') format('woff2'); font-weight: normal; font-
style: normal; } .wrapper-container { overflow-wrap: normal; background-
color: #fafafa; /*gray color*/ } .container { max-width: 600px; margin:
0 auto; background-color: #ffffff; /*white color*/ } .csp-header { font-
family: 'subjectFont', Helvetica, Arial, sans-serif; font-size: 23px;
padding: 24px

```

Notification Instances APIs

Use the following APIs to retrieve notification instances.

Get Notification Instance by ID

Required Permissions	You must have the View Notification Instance permission to perform this operation.
API	/api/notification-instances/{id}
Method	GET

Required Parameters

Name	Description
id	Notification instance ID. (Mandatory)
string	

Response

```
{
  "id": "5bf29d8178d80c88c32sq819",
  "notificationDefinitionId": "5bf29d8178d80c88c89df352",
  "entityState": "ENTITY_CREATED",
  "entityId": "1234567890abcef1234567890abcef",
  "entityName": "TestEntity-001",
  "entityType": "TestEntity",
  "additionalDetails": [
    {
      "key": "temperature",
      "valueInt64": 20
    }
  ],
  "responseStatus": 500,
  "responseBody": "Internal Server Error",
  "status": "FAILED",
  "tenantId": "5beaa559a40a82f457340c4d",
  "createdTime": "1542626737552",
  "lastUpdatedTime": "1542626737566",
  "createdBy": "sysadmin@vmware.com",
  "lastUpdatedBy": "sysadmin@vmware.com",
  "updateVersion": 2
}
```

List All Notification Instances**Required Permissions**

You must have the View Notification Instance permission to perform this operation.

API

/api/notification-instances

Method

GET

Required Parameters

None

Response

```
{
  "notificationInstances": [
    {
      "id": "5bf29d8178d80c88c32sq819",
      "notificationDefinitionId": "5bf29d8178d80c88c89df352",
      "entityState": "ENTITY_CREATED",
      "entityId": "1234567890abcef1234567890abcef",
      "entityName": "TestEntity-002",
      "entityType": "TestEntity",
      "additionalDetails": [
        {

```

```

        "key": "temperature",
        "valueInt64": 20
    }
],
"status": "FAILED",
"responseStatus": 500,
"responseBody": "Internal Server Error",
"tenantId": "5beaa559a40a82f457340c4d",
"createdTime": "1542626737552",
"lastUpdatedTime": "1542626737566",
"createdBy": "sysadmin@vmware.com",
"lastUpdatedBy": "sysadmin@vmware.com",
"updateVersion": 2
},
{
    "id": "6dc29d9378d80c88c25ed317",
    "notificationDefinitionId": "5bf29d8243d80c88c25an910",
    "entityState": "ENTITY_CREATED",
    "entityId": "1234567890abcef1234567890abcef",
    "entityName": "TestEntity-003",
    "entityType": "TestEntity",
    "additionalDetails": [
        {
            "key": "CPU",
            "valueInt64": 100
        }
    ],
    "status": "NOTIFIED",
    "tenantId": "5beaa559a40a82f457340c4d",
    "createdTime": "1542622648733",
    "lastUpdatedTime": "1542622648744",
    "createdBy": "sysadmin@vmware.com",
    "lastUpdatedBy": "sysadmin@vmware.com",
    "updateVersion": 2
}
],
"pageInfo": {
    "page": 1,
    "pageSize": 10,
    "totalElements": "2",
    "totalPages": "1"
}
}

```

System Notification APIs

Use the following APIs to view system notifications. System notifications are generated when there is a system downtime. The notifications are sent to the users through email or displayed on the UI.

Required Permissions

You must have the View System Notification Instance permission to perform these operations.

Get System Notification Instances

Description Get a list of system notification instances.

API /api/system-notification-instances

Method GET

Required Parameters None

Response Example

```
{
  "systemNotificationInstances": [
    {
      "title": "System downtime",
      "content": "System downtime on 1st Feb between 1 AM to 3AM",
      "startTime": 1549279788621,
      "endTime": 1549279788621,
      "status": "INSTANTIATED",
      "tenantId": "7df0d3ad-01c9-4d16-a39c-96ca8c0e0625",
      "createdTime": 1549367946749,
      "lastUpdatedTime": 1549368052222,
      "updateVersion": 2,
      "createdBy": "nodemanagement@iotc-system",
      "lastUpdatedBy": "nodemanagement@iotc-system",
      "expireAt": 1551959946749,
      "id": "4bfa3f84-e67d-4cea-85bb-2e5d923b2fc0"
    }
  ],
  "pageInfo": {
    "totalPages": 12,
    "page": 1,
    "pageSize": 1,
    "totalElements": 12
  }
}
```

Get a System Notification Instance by ID

Description Get a system notification instance by ID.

API /api/system-notification-instances/{id}

Method GET

Required Parameters

Name	Description
id	System notification ID.
<i>string</i>	

Response Example

```
{
  "title": "System downtime",
  "content": "System downtime on 1st Feb between 1 AM to 3AM",
  "startTime": 1549279788621,
  "endTime": 1549279788621,
  "status": "INSTANTIATED",
  "tenantId": "7df0d3ad-01c9-4d16-a39c-96ca8c0e0625",
  "createdTime": 1549367946749,
  "lastUpdatedTime": 1549368052222,
  "updateVersion": 2,
  "createdBy": "nodemanagement@iotc-system",
  "lastUpdatedBy": "nodemanagement@iotc-system",
  "expireAt": 1551959946749,
  "id": "4bfa3f84-e67d-4cea-85bb-2e5d923b2fc0"
}
```

Advanced Search APIs

Use the following APIs to create, get, update, and delete a filtered device list.

Required Permissions

You must be a Monitoring Administrator or a Device Administrator to perform these operations.

Create a Filtered Device List

Required Permissions You must have the Create Filter Definition permission to perform this operation.

Description Create a filtered device list based on a user-defined filter definition and return the ID of the list. Use the id to make a GET call of the filtered device list to view the list of devices.

API /api/filter-results/

Deprecated: /api/filters

Method

POST

Required Parameters

Name	Description
projection	<ul style="list-style-type: none"> <li data-bbox="810 367 991 443">■ keyQualifier <i>string</i> <li data-bbox="844 464 1374 520">Key qualifier to specify the location of the key when the key is in a nested document. <li data-bbox="810 531 967 606">■ dataSource <i>string</i> <li data-bbox="844 617 1350 674">■ DEVICEMGMT_SERVICE: Device management micro service. <li data-bbox="844 684 1361 741">■ CAMPAIGN_SERVICE: Campaign management micro service. <li data-bbox="844 751 1307 779">■ METRIC_SERVICE: Metric query micro service. <li data-bbox="810 789 884 863">■ key <i>string</i>
startTimeMs <i>int64</i>	Start time for metric filters
retentionTimeSec <i>string</i>	Retention time of a filtered device list. The list is automatically deleted after the retention time unless the user reads it. This parameter is deprecated from version 0.7 onwards.

Name	Description
filter <i>string</i>	<p>Filters are always ANDed. A filter consists of a key and multiple operator-value pairs. Only the OR operation is allowed between the operator-value pairs.</p> <p>oredOperatorValuePair</p> <ul style="list-style-type: none"> ■ operator <ul style="list-style-type: none"> <i>string</i> ■ EQUAL_TO ■ NOT_EQUAL_TO ■ GREATER_THAN ■ GREATER_THAN_EQUAL_TO ■ LESS_THAN ■ LESS_THAN_EQUAL_TO ■ CONTAINS <p>Enter one of the following values:</p> <ul style="list-style-type: none"> ■ valueInt64 <ul style="list-style-type: none"> <i>int64</i> ■ valueString <ul style="list-style-type: none"> <i>string</i> ■ valueBoolean <ul style="list-style-type: none"> <i>boolean</i> ■ valueDouble <ul style="list-style-type: none"> <i>double</i> <p>keyObj</p> <ul style="list-style-type: none"> ■ valueType <ul style="list-style-type: none"> <i>string</i> ■ INT64 ■ DOUBLE ■ STRING ■ BOOLEAN ■ dataSource <ul style="list-style-type: none"> <i>string</i> ■ DEVICEMGMT_SERVICE: Device management micro service. ■ CAMPAIGN_SERVICE: Campaign management micro service. ■ METRIC_SERVICE: Metric query micro service. ■ key <ul style="list-style-type: none"> <i>string</i> ■ keyQualifier <ul style="list-style-type: none"> <i>string</i> <p>Key qualifier to specify the location of the key when the key is in a nested document.</p>

Name	Description
	<ul style="list-style-type: none"> isPeriodRequired <i>string</i> Whether or not the key requires a period. For example, metric filter keys require a period (start/end time). keyType <ul style="list-style-type: none"> PROJECTABLE FILTERABLE BOTH display_unit The unit of value if the key is a metric key. factor The conversion factor to convert from the reported unit of metric to the display unit of metric. This parameter is deprecated from version 0.7 onwards. display_name The display name of the filter.
endTimeMs <i>int64</i>	End time for metric filters.
offsetMs <i>int64</i>	A time amount to be subtracted from the current time, for the start time of a relative time-ranged query. Note You must specify either the <code>startTimeMs</code> and <code>endTimeMs</code> parameters or the <code>offsetMs</code> parameter.
limit <i>int32</i>	The maximum number of results.
isRelative <i>boolean</i>	Indicate whether the time range is relative or not.
templateId <i>string</i>	Device template Ids.

Input Example

```
{
  "filter": [
    {
      "keyObj": {
        "dataSource": "DEVICEMGMT_SERVICE",
        "key": "id",
        "keyQualifier": "device",
        "valueType": "STRING",
        "keyType": "BOTH"
      },
      "oredOperationValuePair": [
        {
          "operator": "2",
          "valueString": "1"
        }
      ]
    }
  ]
}
```

```

}
]
},
"projection": [
{
"dataSource": "DEVICEMGMT_SERVICE",
"key": "name",
"keyQualifier": "device"
}
],
"templateId": [
"2c18410f-fe2e-48e6-ae13-8b040704916e"
],
"limit": 2
}

```

Response

```

{
  "id": "string"
}

```

Get a Filtered Device List

Required Permissions

You must have the View Filter Definition permission to perform this operation.

API

/api/filter-results/{id}

Deprecated: /api/filters/{id}

Method

GET

Required Parameters

Name	Description
id	ID of the filtered device list.
<i>string</i>	

Response

```

{
  "filteredDevice": [
    {
      "keyValuePair": [
        {
          "valueString": "string",
          "key": "string",
        }
      ],
      "id": "string"
    }
  ],
  "aggregationTaskStatus": "STARTED",
  "pageInfo": {

```

```

    "totalPages": 2,
    "totalElements": 2",
    "page": 1,
    "pageSize": 1
  }
}

```

Delete a Filtered Device List

Required Permissions You must have the Delete Filter Definition permission to perform this operation.

API `/api/filter-results/{id}`
 Deprecated: `/api/filters/{id}`

Method DELETE

Required Parameters	Name	Description
	<code>id</code>	ID of the filtered device list.
	<i>string</i>	

Response

```
{}
```

Get all Keys for Filters and Projections

Required Permissions You must have the View Filter Definition permission to perform this operation.

API `/api/filter-keys`
 Deprecated: `/api/filters/filter-keys`

Method GET

Required Parameters None

Response

```

{
  "keyObjs": [
    {
      "valueType": "BOOLEAN",
      "keyQualifier": "string",
      "isPeriodRequired": false,
      "dataSource": "CAMPAIGN_SERVICE",
      "key": "string"
      "keyType": "BOTH"
    },
    {

```

```

    "valueType": "INT64",
    "keyQualifier": "string",
    "isPeriodRequired": true,
    "dataSource": "METRIC_SERVICE",
    "key": "string",
    "keyType": "FILTERABLE",
    "displayUnit": "%",
    "factor": 1
  }
]
}

```

Save a Filter Definition

Required Permissions You must have the Edit Filter Definition permission to perform this operation.

API /api/filter-definitions
 Deprecated: /api/filters/definitions

Method POST

Required Parameters

Name	Description
projection	<ul style="list-style-type: none"> keyQualifier <i>string</i> Key qualifier to specify the location of the key when the key is in a nested document. dataSource <i>string</i> <ul style="list-style-type: none"> DEVICEMGMT_SERVICE: Device management micro service. CAMPAIGN_SERVICE: Campaign management micro service. METRIC_SERVICE: Metric query micro service. key <i>string</i>
startTimeMs <i>int64</i>	Start time for metric filters.
retentionTimeSec <i>string</i>	Retention time of a filtered device list. The list is automatically deleted after the retention time unless the user reads it.

Name	Description
filter <i>string</i>	<p>Filters are always ANDed. A filter consists of a key and multiple operator-value pairs. Only the OR operation is allowed between the operator-value pairs.</p> <p>oredOperatorValuePair</p> <ul style="list-style-type: none"> ■ operator <ul style="list-style-type: none"> <i>string</i> ■ EQUAL_TO ■ NOT_EQUAL_TO ■ GREATER_THAN ■ GREATER_THAN_EQUAL_TO ■ LESS_THAN ■ LESS_THAN_EQUAL_TO ■ CONTAINS <p>Enter one of the following values:</p> <ul style="list-style-type: none"> ■ valueInt64 <ul style="list-style-type: none"> <i>int64</i> ■ valueString <ul style="list-style-type: none"> <i>string</i> ■ valueBoolean <ul style="list-style-type: none"> <i>boolean</i> ■ valueDouble <ul style="list-style-type: none"> <i>double</i> <p>keyObj</p> <ul style="list-style-type: none"> ■ valueType <ul style="list-style-type: none"> <i>string</i> ■ INT64 ■ DOUBLE ■ STRING ■ BOOLEAN ■ dataSource <ul style="list-style-type: none"> <i>string</i> ■ DEVICEMGMT_SERVICE: Device management micro service. ■ CAMPAIGN_SERVICE: Campaign management micro service. ■ METRIC_SERVICE: Metric query micro service. ■ key <ul style="list-style-type: none"> <i>string</i> ■ keyQualifier <ul style="list-style-type: none"> <i>string</i> <p>Key qualifier to specify the location of the key when the key is in a nested document.</p>

Name	Description
	<ul style="list-style-type: none"> ■ isPeriodRequired <i>string</i> Whether or not the key requires a period. For example, metric filter keys require a period (start/end time). ■ keyType <ul style="list-style-type: none"> ■ PROJECTABLE ■ FILTERABLE ■ BOTH ■ display_unit The unit of value if the key is a metric key. ■ factor The conversion factor to convert from the reported unit of metric to the display unit of metric.
endTimeMs <i>int64</i>	End time for metric filters.
isRelative <i>boolean</i>	Indicate whether the time range is relative or not.
templateId <i>string</i>	Device template Ids.

Input Example

```
{
  name: "string",
  template_id: ["string", "string"],
  filter: [
    key_obj: {
      data_source: "DEVICEMGMT_SERVICE",
      key: "string",
      key_qualifier: "string",
      value_type: "STRING",
      is_period_required: false,
      key_type: "BOTH"
    },
    ored_operation_value_pair: [
      {
        operator: "EQUAL_TO",
        value_string: "blue"
      },
      {
        operator: "EQUAL_TO",
        value_string: "red"
      }
    ]
  ],
  {
    key_obj: {
      data_source: "CAMPAIGN_SERVICE",
```

```

    key: "string",
    key_qualifier: "",
    value_type: "STRING",
    is_period_required: false,
    key_type: "BOTH"
  },
  ordered_operation_value_pair: [
    {
      operator: "EQUAL_TO",
      value_string: "INITIALIZED"
    }
  ]
},
{
  key_obj: {
    "dataSource": "METRIC_SERVICE",
    "key": "string",
    "keyType": "FILTERABLE",
    "valueType": "INT64",
    "keyQualifier": "string",
    "isPeriodRequired": true,
    "displayUnit" :"%",
    "factor": 1
  }
},
  ordered_operation_value_pair: [
    {
      operator: "GREATER_THAN",
      value_int64: 90
    }
  ]
}
],
projection: [
  {
    "data_source": "CAMPAIGN_SERVICE",
    "key": "string",
    "key_qualifier": ""
  }
],
start_time_ms: 1500000001000,
end_time_ms: 1500000002000
}

```

Response

```

{
  "id": "string"
}

```


Update a Filter Definition

Required Permissions You must have the Edit Filter Definition permission to perform this operation.

API `/api/filter-definitions/{id}`
 Deprecated: `/api/filters/definitions/{id}`

Method PUT

Required Parameters

Name	Description
projection	<ul style="list-style-type: none"> ■ <code>keyQualifier</code> <i>string</i> Key qualifier to specify the location of the key when the key is in a nested document. ■ <code>dataSource</code> <i>string</i> <ul style="list-style-type: none"> ■ <code>DEVICEMGMT_SERVICE</code>: Device management micro service. ■ <code>CAMPAIGN_SERVICE</code>: Campaign management micro service. ■ <code>METRIC_SERVICE</code>: Metric query micro service. ■ <code>key</code> <i>string</i>
<code>startTimeMs</code> <i>int64</i>	Start time for metric filters.
<code>retentionTimeSec</code> <i>string</i>	Retention time of a filtered device list.

Name	Description
filter <i>string</i>	<p>Filters are always ANDed. A filter consists of a key and multiple operator-value pairs. Only the OR operation is allowed between the operator-value pairs.</p> <p>oredOperatorValuePair</p> <ul style="list-style-type: none"> ■ operator <ul style="list-style-type: none"> <i>string</i> ■ EQUAL_TO ■ NOT_EQUAL_TO ■ GREATER_THAN ■ GREATER_THAN_EQUAL_TO ■ LESS_THAN ■ LESS_THAN_EQUAL_TO ■ CONTAINS <p>Enter one of the following values:</p> <ul style="list-style-type: none"> ■ valueInt64 <ul style="list-style-type: none"> <i>int64</i> ■ valueString <ul style="list-style-type: none"> <i>string</i> ■ valueBoolean <ul style="list-style-type: none"> <i>boolean</i> ■ valueDouble <ul style="list-style-type: none"> <i>double</i> <p>keyObj</p> <ul style="list-style-type: none"> ■ valueType <ul style="list-style-type: none"> <i>string</i> ■ INT64 ■ DOUBLE ■ STRING ■ BOOLEAN ■ dataSource <ul style="list-style-type: none"> <i>string</i> ■ DEVICEMGMT_SERVICE: Device management micro service. ■ CAMPAIGN_SERVICE: Campaign management micro service. ■ METRIC_SERVICE: Metric query micro service. ■ key <ul style="list-style-type: none"> <i>string</i> ■ keyQualifier <ul style="list-style-type: none"> <i>string</i> <p>Key qualifier to specify the location of the key when the key is in a nested document.</p>

Name	Description
	<ul style="list-style-type: none"> ■ <code>isPeriodRequired</code> <i>string</i> Whether or not the key requires a period-like metric key. ■ <code>keyType</code> <ul style="list-style-type: none"> ■ PROJECTABLE ■ FILTERABLE ■ BOTH ■ <code>display_unit</code> The unit of value if the key is a metric key. ■ <code>factor</code> The conversion factor to convert from the reported unit of metric to the display unit of metric.
<code>endTimeMs</code> <i>int64</i>	End time for metric filters.
<code>offsetMs</code> <i>int64</i>	A time amount to be subtracted from the current time, for the start time of a relative time-ranged query. Note You must specify either the <code>startTimeMs</code> and <code>endTimeMs</code> parameters or the <code>offsetMs</code> parameter.
<code>isRelative</code> <i>boolean</i>	Indicate whether the time range is relative or not.
<code>templateId</code> <i>string</i>	Device template Ids.

Input Example

```
{
  name: "string",
  template_id: ["string", "string"],
  filter: [
    key_obj: {
      data_source: "DEVICEMGMT_SERVICE",
      key: "string",
      key_qualifier: "string",
      value_type: "STRING",
      is_period_required: false,
      key_type: "BOTH"
    },
    ored_operation_value_pair: [
      {
        operator: "EQUAL_TO",
        value_string: "blue"
      },
      {
        operator: "EQUAL_TO",
        value_string: "red"
      }
    ]
  ]
}
```

```

    ]
  },
  {
    key_obj: {
      data_source: "CAMPAIGN_SERVICE",
      key: "string",
      key_qualifier: "",
      value_type: "STRING",
      is_period_required: false,
      key_type: "BOTH"
    },
    ordered_operation_value_pair: [
      {
        operator: "EQUAL_TO",
        value_string: "INITIALIZED"
      }
    ]
  },
  {
    key_obj: {
      data_source: "METRIC_SERVICE",
      key: "string",
      key_qualifier: "",
      value_type: "NUMBER",
      is_period_required: true,
      key_type: "FILTERABLE"
    },
    ordered_operation_value_pair: [
      {
        operator: "GREATER_THAN",
        value_int64: 90
      }
    ]
  }
],
projection: [
  {
    "data_source": "CAMPAIGN_SERVICE",
    "key": "string",
    "key_qualifier": ""
  }
],
start_time_ms: 1500000001000,
end_time_ms: 1500000002000
}

```

Response

```

{
  "id": "string"
}

```

Get a Filter Definition by ID

Required Permissions You must have the View Filter Definition permission to perform this operation.

API `/api/filter-definitions/{id}`
 Deprecated: `/api/filters/definitions/{id}`

Method GET

Required Parameters	Name	Description
	id	ID of the filter definition.
	string	

Response

```
{
  "id": "string",
  "name": "string",
  "templateId": ["string", "string"],
  "filter": [
    {
      "keyObj": {
        "dataSource": "DEVICEMGMT_SERVICE",
        "key": "type",
        "keyQualifier": "device",
        "valueType": "STRING"
      }
    }
  ],
  "projection": [
    {
      "dataSource": "CAMPAIGN_SERVICE",
      "key": "string"
    },
    {
      "dataSource": "DEVICEMGMT_SERVICE",
      "key": "string",
      "keyQualifier": "string"
    }
  ],
  "startTimeMs": 1500000000000,
  "endTimeMs": 1500000001000,
  "tenantId": "string",
  "createdTime": 1500000002000,
  "lastUpdatedTime": 1500000003000,
  "createdBy": "string",
  "lastUpdatedBy": "string",
  "updateVersion": 2
}
```

Delete a Filter Definition by ID

Required Permissions You must have the Delete Filter Definition permission to perform this operation.

API `/api/filter-definitions/{id}`
 Deprecated: `/api/filters/definitions/{id}`

Method DELETE

Required Parameters	Name	Description
	id	ID of the filter definition.
	string	

Response

```
{}
```

Get a Filter Definition List

Required Permissions You must have the View Filter Definition permission to perform this operation.

API `/api/filter-definitions`
 Deprecated: `/api/filters/definitions`

Method GET

Required Parameters None

Response

```
{
  "filterDefinitionObjIdName": [
    {
      "id": "string",
      "name": "string"
    }
  ],
  "pageInfo": {
    "page": 1,
    "pageSize": 10,
    "totalElements": "1",
    "totalPages": "1"
  }
}
```

Advanced Search APIs Sample Use Case

In this use case, we use the Advanced Search APIs to find devices.

Prerequisites

Create an Advanced Search filter using the VMware Pulse IoT Center console. For information about creating an Advanced Search filter, see the *VMware Pulse IoT Center User Guide*.

Procedure

- 1 Retrieve the Filter ID of the Advanced Search filter that you created. - GET /api/filter-definitions.

```
curl -X GET https://iotc123-pulse.xyz.com/api/filter-definitions?page.number=1&page.size=1000
```

```
{
  "filterDefinitionObjIdName": [{
    "id": "0cb97d04-60e3-46da-b46d-6ca7c2bfceab",
    "name": "G-RPI-AJ-01"
  }, {
    "id": "12dde5c4-0c96-493c-906b-a59b85ec936f",
    "name": "XYZ Test"
  }, {
    "id": "16a5dd . . . .
```

- 2 Using the Filter ID, retrieve the filter query parameters - GET /api/filter-definitions/<<filterID>>.

```
curl -X GET https://iotc123-pulse.xyz.com/api/filter-definitions/0cb97d04-60e3-46da-b46d-6ca7c2bfceab
```

```
{
  "id": "0cb97d04-60e3-46da-b46d-6ca7c2bfceab",
  "name": "G-RPI-AJ-01",
  "templateId": [
    "7b275cba-4403-4951-91e9-ec6fad73506d"
  ],
  "filter": [
    {
      "keyObj": {
        "dataSource": "DEVICEMGMT_SERVICE",
        "key": "net-mac-eth0",
        "keyQualifier": "systemProperties",
        "valueType": "STRING",
        "keyType": "BOTH"
      },
      "oredOperationValuePair": [
        {
          "operator": "EQUAL_TO",
          "valueString": "b8:27:eb:c0:69:c6"
        }
      ]
    }
  ],
  "projection": [
    {
      "dataSource": "DEVICEMGMT_SERVICE",
      "key": "name",
      "keyQualifier": "device"
```

```

    },
    {
      "dataSource": "DEVICEMGMT_SERVICE",
      "key": "net-mac-eth0",
      "keyQualifier": "systemProperties"
    }
  ],
  "orgId": "d5c67393-cc8a-4c44-b320-15a4f1be46f9",
  "createdTime": "1560534152934",
  "lastUpdatedTime": "1565710386040",
  "createdBy": "ajoiner@vmware.com",
  "lastUpdatedBy": "ajoiner@vmware.com",
  "updateVersion": 2
}

```

- 3 Start the search process and get the Filter Results ID - POST `/api/filter-results/` .

From the result body, copy the `templateId` field and the full body of the `filter` field. Use these JSON fields to construct a device search callback. Update the `valueString` field in the filter with the device that you are interested in. Perform a call to start the search. You can also specify a projection if you want to retrieve other fields for the device in the final result set:

Note Ensure that you make a POST call.

```

curl -X POST https://iotc123-pulse.xyz.com/api/filter-results/
-d '{
  "templateId": [
    7      b275cba-4403-4951-91e9-ec6fad73506d
  ],
  "filter": [
    {
      "keyObj": {
        "dataSource": "DEVICEMGMT_SERVICE",
        "key": "net-mac-eth0",
        "keyQualifier": "systemProperties",
        "valueType": "STRING",
        "keyType": "BOTH"
      },
      "oredOperationValuePair": [
        {
          "operator": "EQUAL_TO",
          "valueString": "b8:27:eb:c0:69:c6"
        }
      ]
    }
  ]
}'

```

This call returns a filtered device list ID. Use this ID to retrieve the results.

4 Get the result set - GET /api/filter-results/<filterResultsID>>

Wait for a few seconds for the search to complete before retrieving the results. If you try to call too early, a warning message is displayed.

```
curl -X GET https://iotc123-pulse.xyz.com/api/filter-results/761a5e65-7253-4fda-8c35-53a44a58772d
```

```
{
  "aggregationTaskStatus": "FINISHED",
  "filteredDevice": [
    {
      "id": "16292df1-b095-4de7-bd26-2f446a09996e"
    },
    {
      "id": "13fe6eb3-135a-402d-99ac-087ac8ecaeff"
    }
  ],
  "pageInfo": {
    "page": 1,
    "pageSize": 10,
    "totalElements": "2",
    "totalPages": "1"
  }
}
```

Metric APIs

Use the following APIs to query metrics.

Get Device Time Series Metric Data by Device ID and Metric Name

Required Permissions You must have the View Metrics permission to perform this operation.

Description Get the device time series metric data by device ID, time range, and metric name. In response, you will get a list timestamp and value pairs for the specified time range with one of the following values:

- valueInt64
- valueString
- valueBoolean
- valueDouble

API /api/metrics/{device_id}/{metric_name}

Method GET

Required Parameters

Name	Description
deviceId <i>string</i>	Unique identification of the device entity in the Pulse IoT Center.
metricName <i>string</i>	Metric name for the time series data for a particular metric.
start_time_ms <i>int64</i>	Start time in milliseconds, in the request time range for the time series value.
end_time_ms <i>int64</i>	End time in milliseconds, in the request time range for the time series value.

Response

```
{
  "deviceId": "string",
  "metricData": {
    "tsData": [
      {
        "timeMs": "string",
        "valueInt64": "string",
        "valueString": "string",
        "valueBoolean": true,
        "valueDouble": 0
      }
    ],
    "name": "string"
  }
}
```

Audit APIs

Use the following APIs to get audit logs, get audit types, and get entity types.

Required Permissions

You must have the `View Audit Logs` permission to perform these operations.

Get Audit Logs

API `/api/audit-logs`

Method GET

Required Parameters None

Sample Response

```
{
  "audits": [
    {
      "id": "5bbdecdc07c1c851a0a73491",
      "entityId": "1234567890abcef1234567890abcef",
    }
  ]
}
```

```

        "entityType": "DEVICE",
        "auditType": "ENTITY_CREATED",
        "auditInformation": "Entity created with some
information",
        "createdTime": 1541843929120,
        "deviceId": "5be5845cd7c65c0001e48c90"
    },
    {
        "id": "5bbdec07c1c851a0a73492",
        "entityId": "1234567890abcef1234567890abcef",
        "entityType": "DEVICE",
        "auditType": "ENTITY_DELETED",
        "createdTime": 1541867890431,
        "deviceId": "5be5845cd7c65c0001e48c90"
    }
],
"page": {
"number": 1,
"size": 10,
"totalElements": "2",
"totalPages": "1"
}
}

```

Get Audit Types

API /api/audit/audit-types

Method GET

Required Parameters None

Sample Response

```

{
  "auditTypes": [
    "ENTITY_CREATED",
    "ENTITY_DELETED",
    "ENTITY_UPDATED",
    "ENTITY_ENROLLED",
    "ENTITY_UNENROLLED",
    "AGENT_CLIENT_CONNECTED",
    "AGENT_CLIENT_DISCONNECTED"
  ]
}

```

Get Entity Types

API /api/entity-types

Method GET

Required Parameters None

Sample Response

```
{
  "entityTypes": [
    "ALERT",
    "ALERT_DEFINITION",
    "CALLBACK",
    "DEVICE",
    "DEVICE_TEMPLATE",
    "FILTER_DEFINITION",
    "GREETING",
    "GROUP",
    "NOTIFICATION_DESTINATION",
    "NOTIFICATION_DEFINITION",
    "NOTIFICATION_INSTANCE",
    "ROLE",
    "TENANT",
    "USER",
    "CAMPAIGN"
  ]
}
```

Export Audit Logs in CSV Format

API /api/audit-logs/export

Method GET

Headers

```
Content-Type: application/json
Accept: text/csv;api-version=<api-version>
```

Optional Parameters

Name	Description
startTime	Start time in epoch format in milliseconds. For example: 1557930540000
endTime	End time in epoch format in milliseconds.

Sample Response

```
traceId,nodeName,lastUpdatedBy,instanceName,updateVersion,entityType,entityId,auditType,expireAt,deviceId,userId,orgId,createdBy,createdTime,lastUpdatedTime,id,auditInformation
bd45a6664f5ecaf5dab3d91cc0ca2ca9,iotc-node-1,5a906597-4c18-4d7a-ac1d-4e13c49757c3,default,1,DEVICE,5a906597-4c18-4d7a-ac1d-4e13c49757c3,ENTITY_UPDATED,1561538879315,5a906597-4c18-4d7a-ac1d-4e13c49757c3,5a906597-4c18-4d7a-ac1d-4e13c49757c3,e3f0187b-a435-4236-a61f-11a515ae95a3,5a906597-4c18-4d7a-ac1d-4e13c49757c3,1558946879315,1558946879315,4e0499a4-9486-4af5-8996-dc5566dc8b04,System property updated.
87277e6db5952709955dc0f31d4226fb,iotc-node-1,5a906597-4c18-4d7a-ac1d-4e13c49757c3,default,1,DEVICE,5a906597-4c18-4d7a-ac1d-4e13c49757c3,ENTITY_ENROLLED,1561538876023,5a906597-4c18-4d7a-
```

```
ac1d-4e13c49757c3,5a906597-4c18-4d7a-ac1d-4e13c49757c3,e3f0187b-  
a435-4236-a61f-11a515ae95a3,5a906597-4c18-4d7a-  
ac1d-4e13c49757c3,1558946876023,1558946876023,319b1dc1-6619-4ce8-967d-1d  
47609c3345,Agent_x86 GATEWAY device enrolled.
```

Agent APIs

This chapter includes the following topics:

- [Data Structures](#)
- [Functions](#)
- [Macro Definitions](#)
- [Enumeration Types](#)

Data Structures

IotcApplicationId

IotcApplicationId represents the application identifier.

Application identifier is any string with a maximum length of `IOTC_APP_ID_SIZE - 1`. It is used to identify an application uniquely during an exchange of data between the client side application and the server side application. Use the reverse domain name notation, such as `com.vmware.iotc.agent`.

Header `#include <iotcAgent.h>`

Data Fields `char id [IOTC_APP_ID_SIZE]`

Field Description

Field	Description
<code>char IotcApplicationId::id[IOTC_APP_ID_SIZE]</code>	Holds the actual characters of the identifiers.

IotcBooleanValue

IotcBooleanValue represents the boolean type metric data point.

Header `#include <iotcAgent.h>`

Data Fields

- `time_t ts`
- `unsigned char value`

IotcCampaignCallbacks

IotcCampaignCallbacks represents a collection of campaign callback functions.

Header

```
#include <iotcAgent.h>
```

Data Fields

- IotcUpdateInventoryInfoCb * inventoryInfoCb
- IotcCampaignPreDownloadCb * preDownloadCb
- IotcCampaignPreExecutionCb * preExecutionCb
- IotcCampaignExecuteCb * executeCb
- IotcCampaignPreActivationCb * preActivationCb
- IotcCampaignActivateCb * activateCb
- IotcCampaignDownloadProgressCb * downloadProgressCb
- IotcCampaignStateChangeCb * stateChangeCb

Field Description

Field	Description
IotcUpdateInventoryInfoCb* IotcCampaignCallbacks::inventoryInfoCb	An update inventory info callback function.
IotcCampaignPreDownloadCb* IotcCampaignCallbacks::preDownloadCb	A pre-download callback function.
IotcCampaignPreExecutionCb* IotcCampaignCallbacks::preExecutionCb	A pre-execution callback function.
IotcCampaignExecuteCb* IotcCampaignCallbacks::executeCb	An execute callback function.
IotcCampaignPreActivationCb* IotcCampaignCallbacks::preActivationCb	A pre-activate callback function.
IotcCampaignActivateCb* IotcCampaignCallbacks::activateCb	An activate callback function.
IotcCampaignDownloadProgressCb* IotcCampaignCallbacks::downloadProgressCb	A Download progress callback function.
IotcCampaignStateChangeCb* IotcCampaignCallbacks::stateChangeCb	A state change callback function.

IotcCampaignId

IotcCampaignId represents the campaign identifier.

Campaign identifier is any string with a maximum length of `IOTC_UUID_SIZE - 1`. It is provided by the VMware server as a response to an agent API or server API, or through campaign callbacks. A campaign identifier could be in the GUID format such as `123e4567-e89b-12d3-a456-426655440000`, or any string such as `5b1656704cedfd000626bcaa`.

Header `#include <iotcAgent.h>`

Data Fields

- `char id [IOTC_UUID_SIZE]`

Field Description

Field	Description
<code>char id [IOTC_UUID_SIZE]</code>	Holds the actual characters of the identifiers.

IotcCampaignScheduleTimeWindow

`IotcCampaignScheduleTimeWindow` represents the campaign time window.

Contains the begin and end date and time for scheduling in the timestamp format expressed in epoch time. For example,

```
beginTime - Stamp : 1534855979, endTimeStamp : 1534856979
```

Header `#include <iotcAgent.h>`

Data Fields

- `time_t beginTimeStamp`
- `time_t endTimeStamp`

Field Description

Field	Description
<code>time_t IotcCampaignScheduleTimeWindow::beginTimeSt amp</code>	Beginning timestamp for the time window
<code>time_t IotcCampaignScheduleTimeWindow::endTimeStam p</code>	Ending timestamp for the time window.

IotcClientConfig

`IotcClientConfig` represents client configuration SDKs.

Contains the begin and end date and time for scheduling in the timestamp format expressed in epoch time. For example,

```
beginTime - Stamp : 1534855979, endTimeStamp : 1534856979
```

Header `#include <iotcAgent.h>`

Data Fields

- `IotcApplicationId appId`
- `IotcClientLogLevel logLevel`

IotcCommand

Command structure to hold details about a command message received from the server.

Header `#include <iotcAgent.h>`

Data Fields

- `char IotcCommand::name[IOTC_NAME_MAX_SIZE]`
- `char IotcCommand::id[IOTC_UUID_SIZE]`
- `IotcDeviceId IotcCommand::deviceId`
- `char IotcCommand::execPath[IOTC_PATH_MAX]`
- `size_t IotcCommand::numArgs`
- `IotcCommandArg * args`

Field Description

Field	Description
<code>char IotcCommand::name[IOTC_NAME_MAX_SIZE]</code>	Friendly name of the command.
<code>char IotcCommand::id[IOTC_UUID_SIZE]</code>	Command identifier generated by the server.
<code>IotcDeviceId IotcCommand::deviceId</code>	Device identifier for the targeted device. This is an optional field.
<code>char IotcCommand::execPath[IOTC_PATH_MAX]</code>	Absolute path to the executable. This is an optional field.
<code>size_t IotcCommand::numArgs</code>	Number of command arguments.
<code>IotcCommandArg * args</code>	List of arguments for the command.

IotcCommandArg

Command argument structure.

Header `#include <iotcAgent.h>`

Data Fields

- `IotcCommandArgValueType IotcCommandArg::type`
- `char IotcCommandArg::name[IOTC_NAME_MAX_SIZE]`

- `size_t IotcCommandArg::numValues`

- ```
union {
 int64_t * intValues
 double * doubleValues
 char ** strValues
};
```

## Field Description

| Field                                                                                         | Description                                                           |
|-----------------------------------------------------------------------------------------------|-----------------------------------------------------------------------|
| <code>IotcCommandArgValueType</code><br><code>IotcCommandArg::type</code>                     | The value type.                                                       |
| <code>char</code><br><code>IotcCommandArg::name[IOTC_NAME_MAX_SIZE]</code>                    | Name of the argument.                                                 |
| <code>IotcDeviceId IotcCommand::deviceId</code>                                               | Device identifier for the targeted device. This is an optional field. |
| <code>size_t IotcCommandArg::numValues</code>                                                 | Number of items in the value array.                                   |
| <pre>union {     int64_t * intValues     double * doubleValues     char ** strValues };</pre> | Value array of the argument.                                          |

## IotcCommandResponse

Command response to hold the response received for a command.

**Header** `#include <iotcAgent.h>`

**Data Fields**

- `char message [IOTC_PAYLOAD_MAX_SIZE]`

## Field Description

| Field                                                                                 | Description                                 |
|---------------------------------------------------------------------------------------|---------------------------------------------|
| <code>char</code><br><code>IotcCommandResponse::message[IOTC_PAYLOAD_MAX_SIZE]</code> | The error message to be sent to the server. |

## IotcDeviceDetails

`IotcDeviceDetails` represents the device details.

**Header** `#include <iotcAgent.h>`

**Data Fields**

- `char name [IOTC_NAME_MAX_SIZE]`

- char deviceTemplate [IOTC\_NAME\_MAX\_SIZE]

### Field Description

| Field                                                         | Description                  |
|---------------------------------------------------------------|------------------------------|
| char<br>IotcDeviceDetails::name[IOTC_NAME_MAX_SIZE]           | Name of the device.          |
| char<br>IotcDeviceDetails::deviceTemplate[IOTC_NAME_MAX_SIZE] | Name of the device template. |

## IotcDeviceId

IotcDeviceId represents the device identifier.

**Header** `#include <iotcAgent.h>`

**Data Fields**

- char id [IOTC\_UUID\_SIZE]

## IotcDoubleValue

IotcDoubleValue represents the float type metric data point.

**Header** `#include <iotcAgent.h>`

**Data Fields**

- time\_t ts
- double value

## IotcEnrollmentCredentials

IotcEnrollmentCredentials represents the enrollment credentials.

**Header** `#include <iotcAgent.h>`

**Data Fields**

- char authToken [IOTC\_PAYLOAD\_MAX\_SIZE]

### Field Description

| Field                                                               | Description                                                             |
|---------------------------------------------------------------------|-------------------------------------------------------------------------|
| char<br>IotcEnrollmentCredentials::authToken[IOTC_PAYLOAD_MAX_SIZE] | authToken contains the credentials required by the enrollment provider. |

## IotcEnrollmentData

IotcEnrollmentData represents the enrollment data.

Enrollment data contains the type of enrollment and the required data for the enrollment.

**Header** `#include <iotcAgent.h>`

**Data Fields**

- `IotcEnrollmentType` type
- `IotcDeviceId` `parentId`
- ```
union {
    IotcDeviceId deviceId
    IotcDeviceDetails deviceDetails
};
```

Field Description

Field	Description
<code>IotcDeviceId IotcEnrollmentData::parentId</code>	<code>parentId</code> is the device ID of the gateway device that the device connects to. For the root gateway device, the parent ID must be empty.
<code>IotcDeviceId IotcEnrollmentData::deviceId</code>	<code>deviceId</code> must be set for the <code>IOTC_PRE_REGISTERED</code> type.
<code>IotcDeviceDetails IotcEnrollmentData::deviceDetails</code>	<code>deviceDetails</code> must be set for the <code>IOTC_NOT_REGISTERED</code> type.

IotcEnrollmentRequest

`IotcEnrollmentRequest` represents the enrollment request structure.

Header `#include <iotcAgent.h>`

Data Fields

- `IotcEnrollmentData` `data`
- ```
union {
 IotcEnrollmentCredentials enrollmentCredentials
 IotcUserCredentials userCredentials
};
```

### Field Description

| Field                                                                               | Description                                                                                   |
|-------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------|
| <code>IotcEnrollmentData IotcEnrollmentRequest::data</code>                         | <code>Data</code> contains the required enrollment data.                                      |
| <code>IotcEnrollmentCredentials IotcEnrollmentRequest::enrollmentCredentials</code> | <code>enrollmentCredentials</code> must be set for the <code>IOTC_PRE_REGISTERED</code> type. |
| <code>IotcUserCredentials IotcEnrollmentRequest::userCredentials</code>             | <code>userCredentials</code> must be set for the <code>IOTC_NOT_REGISTERED</code> type.       |

## IotcEnrollmentResponse

IotcEnrollmentResponse represents the enrollment response.

**Header** `#include <iotcAgent.h>`

**Data Fields**

- IotcDeviceId deviceId
- IotcDeviceId parentId

## IotcGetResponse

IotcGetResponse represents the GetResponse sent from the agent to the SDK.

**Header** `#include <iotcAgent.h>`

**Data Fields**

- uint64\_t messageId
- IotcGetResponseMsgType type
- void \* response

## IotcInt64Value

IotcInt64Value represents the integer type metric data point.

**Header** `#include <iotcAgent.h>`

**Data Fields**

- time\_t ts
- int64\_t value

## IotcKeyValue

IotcKeyValue represents a key value pair.

**Header** `#include <iotcAgent.h>`

**Data Fields**

- char key [IOTC\_NAME\_MAX\_SIZE]
- char value [IOTC\_VALUE\_MAX\_SIZE]

## IotcMetric

IotcMetric represents the metric data point to be sent to the agent.

**Header** `#include <iotcAgent.h>`

**Data Fields**

- IotcMetricType type

- IotcDeviceId deviceId
- char name [IOTC\_METRIC\_NAME\_SIZE]
- ```
union {
    struct IotcStringValue strings [0]
    struct IotcIntegerValue integers [0]
    struct IotcFloatValue floats [0]
    struct IotcBooleanValue bools [0]
};
```

IotcMetricResponse

IotcMetricResponse represents the metric response.

Header `#include <iotcAgent.h>`

- Data Fields**
- IotcMetricResponseStatus status
 - IotcMetric metric [0]

Field Description

Field	Description
IotcMetricResponseStatus	Metric status of type.
metric	Metric information that is received from agent.

IotcNotificationDefinitionId

IotcNotificationDefinitionId represents the notification definition identifier.

Header `#include <iotcAgent.h>`

Field Description

Field	Description
char	Holds the actual characters of the identifiers.
IotcNotificationDefinitionId::id[IOTC_UUID_SIZE]	

IotcNotificationResponse

IotcMetricIntvlResponse represents the notification response sent from the server to the client.

Header `#include <iotcAgent.h>`

- Data Fields**
- int status
 - IotcNotificationDefinitionId definitionId
 - IotcNotificationId notificationId

- char payload [IOTC_PAYLOAD_MAX_SIZE]

Field Description

Field	Description
IotcNotificationDefinitionId IotcNotificationResponse::definitionId	Notification definition identifier.
IotcNotificationId IotcNotificationResponse::notificationId	Notification instance identifier.
char IotcNotificationResponse::payload[IOTC_PAYLOAD_MAX_SIZE]	The payload byte size.
int IotcNotificationResponse::status	Status flag.

IotcPackageId

IotcPackageId represents the package identifier string.

The package identifier is a string with a maximum length of IOTC_UUID_SIZE – 1. It is in the GUID format such as, 98732222–1234–12d3–a456–426655440000.

Header `#include <iotcAgent.h>`

Data Fields ■ char id [IOTC_UUID_SIZE]

Field Description

Field	Description
char IotcPackageId::id[IOTC_UUID_SIZE]	Holds the actual characters of the identifiers.

IotcPropertySet

IotcPropertySet represents information about the properties that are currently set.

Header `#include <iotcAgent.h>`

Data Fields

- IotcProperty * property
- size_t used
- size_t size

Field Description

Field	Description
IotcDeviceId deviceId	Contains an array of devices used.
IotcProperty * property	Contains an array of properties used.
size_t used	Represents the number properties currently set.
size_t size	Represents the capacity of the property set.

IotcSendNotificationRequest

IotcSendNotificationRequest represents the send notification request sent from the client to the server.

Header `#include <iotcAgent.h>`

Data Fields

- IotcNotificationDefinitionId definitionId
- IotcApplicationId entityId
- size_t numKeyValues
- IotcKeyValue * keyValues

Field Description

Field	Description
IotcNotificationDefinitionId IotcSendNotificationRequest::definitionId	Notification definition identifier.
IotcApplicationId IotcSendNotificationRequest::entityId	Source of the request.
IotcKeyValue* IotcSendNotificationRequest::keyValues	Array of key value pairs.
size_t IotcSendNotificationRequest::numKeyValues	Number of key value pairs.

IotcStringValue

IotcStringValue represents the string type metric data point.

Header `#include <iotcAgent.h>`

Data Fields

- time_t ts
- char value [IOTC_METRIC_STRING_VALUE_SIZE]

IotcUploadFileRequest

IotcUploadFileRequest represents the Upload File request sent from the agent to the server.

Header `#include <iotcAgent.h>`

Data Fields

- char srcFilePath [PATH_MAX]

- `char dstFilePath [PATH_MAX]`

Field Description

Field	Description
<code>char IotcUploadFileRequest::srcFilePath[PATH_MAX]</code>	File path at the local system to be uploaded.
<code>char IotcUploadFileRequest::dstFilePath[PATH_MAX]</code>	Path with the destination file name appended at end of the URL to upload the file.

IotcUserCredentials

`IotcUserCredentials` represents basic user credentials.

Header

```
#include <iotcAgent.h>
```

Data Fields

- `char username [IOTC_NAME_MAX_SIZE]`
- `char password [IOTC_NAME_MAX_SIZE]`

Functions

Iotc_AddMetricData

Adds metric data point in the metric data set.

API

```
int Iotc_AddMetricData ( struct IotcMetricDataSet * metricDataSet,
IotcMetric * metric )
```

Description

Sort the list based on device IDs. This ensures that all the metrics belonging to the same device are inserted from the device list when you fetch a device node.

Parameters

<code>metricDataSet[IN,0 UT]</code>	Is the pointer to the metric data set.
<code>metric</code>	Is the metric data to be sent to Agent.

Returns

0 on success. -1 on failure.

Iotc_AllocatePropertySet

Allocates memory for the property set to hold the size and the number of properties.

API

```
int Iotc_AllocatePropertySet ( IotcPropertySet * properties, size_t
size )
```

Parameters

in, out	properties	Pointer to the property set.
in	size	Capacity of the property set in terms of number of properties.

Returns 0 on success and -1 on failure.

Iotc_AllocMetricDataSet

Allocates memory for metric data set to hold metrics data points

API

```
struct IotcMetricDataSet* Iotc_AllocMetricDataSet ( void )
```

Returns Pointer to allocated metric data set structure on success, and NULL on failure.

Iotc_CampaignScheduleActivation

Schedules the campaign for activation.

API

```
int Iotc_CampaignScheduleActivation ( IotcSession * session,
IotcCampaignId * campaignId, IotcCampaignScheduleTimeWindow *
timeWindow )
```

Description

Sends a request to the Server to schedule the campaign for activation. If the time window is empty, it indicates that client is ready to activate the campaign. Otherwise, the supplied time window is used by the server to schedule the campaign to activate for this gateway.

Parameters

in	session	Is the connected session returned as part of Iotc_Init call.
in	campaignId	Is the campaign ID of the campaign that is scheduled for activation.
in	timeWindow	Is the schedule time window for the campaign to activate.

Returns 0 on success.

Iotc_CampaignScheduleDownload

Schedules the campaign for download.

API

```
int Iotc_CampaignScheduleDownload ( IotcSession * session,
IotcCampaignId * campaignId, IotcCampaignScheduleTimeWindow *
timeWindow )
```

Description

Sends a request to the server to schedule the campaign for download. If the time window is empty, it indicates that the client is ready for downloading the campaign. Otherwise, the supplied time window is used by the server to schedule download of the campaign for this gateway.

Parameters

in	session	Is the connected session returned as part of Iotc_Init call.
in	campaignId	Is the campaign ID of the campaign that is scheduled for download.
in	timeWindow	Is the schedule time window for the campaign to download.

Returns

0 on success.

Iotc_CampaignScheduleExecution

Schedules the campaign for execution.

API

```
int Iotc_CampaignScheduleExecution ( IotcSession * session,
IotcCampaignId * campaignId, IotcCampaignScheduleTimeWindow *
timeWindow )
```

Description

Sends a request to the Server to schedule the campaign for running. If the time window is empty, it indicates that client is ready to run the campaign. Otherwise, the supplied time window is used by the server to schedule the campaign to run for this gateway.

Parameters

in	session	Is the connected session returned as part of Iotc_Init call.
in	campaignId	Is the campaign ID of the campaign that is scheduled for running.
in	timeWindow	Is the schedule time window for the campaign to run.

Returns

0 on success.

Iotc_CampaignSetExecutionProgress

Updates the execution progress of the campaign.

API

```
int Iotc_CampaignSetExecutionProgress ( IotcSession * session,
IotcCampaignId * campaignId, const char * progress )
```

Description Sends a request to the server to update the execution progress of the campaign.

Parameters		
in	session	Is the connected session returned as part of Iotc_Init call.
in	campaignId	Is the campaign identifier.
in	progress	Is progress string to be sent to the server.

Returns 0 on success.

IotcCommandCb

The command callback function type.

API

```
typedef int IotcCommandCb(const IotcCommand *command,
IotcCommandResponse *response, void *context)
```

Parameters		
in	command	is the command received from the server.
out	response	is the response data to be sent to the server for the command.
in	context	is the opaque context data that is supplied by the client during command callback registration.

Returns 0 on success. -1 on error.

Iotc_Close

Closes the communication channel with the IoT Agent.

API

```
void Iotc_Close ( IotcSession * session )
```

Parameters		
in	session	Is the connected session returned as part of Iotc_Init call.

Iotc_DeletePropertySet

Frees the memory used by the property set.

API `void Iotc_DeletePropertySet (IotcPropertySet * properties)`

Parameters

in, out	properties	Pointer to the property set.
---------	------------	------------------------------

Iotc_Enroll

Enrolls the gateway and generates a Gateway Identifier.

API `int Iotc_Enroll (IotcSession * iotcSession, IotcEnrollmentRequest * enrollmentRequest)`

Parameters

in	session	Is the connected session returned as part of Iotc_Init call.
in	requestData	Is the pointer to the enroll request object.
out	responseData	Contains the enroll response received for the request.

Returns 0 on success.

Iotc_EnrollConnectedDevice

Enrolls a connected device to the gateway.

API `int Iotc_EnrollConnectedDevice (IotcSession * iotcSession, IotcEnrollmentData * enrollmentData)`

Parameters

in	session	Is the connected session returned as part of Iotc_Init call.
in	requestData	Is the pointer to the enroll request object.

Returns 0 on success.

Iotc_FreeMetricDataSet

Frees the metric data points in the metric data set. Mandatory if Iotc_AllocMetricDataSet() is called.

API

```
void Iotc_FreeMetricDataSet ( struct IotcMetricDataSet *
metricDataSet )
```

Parameters

metricDataSet[IN]	Is the pointer to the metric data set.
-------------------	--

Returns 0 on success. -1 on failure.

Iotc_GetCommands

Gets commands available for this gateway device from the Server.

API

```
int Iotc_GetData ( IotcSession * session, IotcGetDataRequest *
requestData )
```

Description

Sends a request to the server to check if there are any commands available for this gateway. If the retrieved command data is for the agent, then the agent processes it. Any command data that is not for the agent is returned to the client as response data.

Parameters

in session	Is the connected session returned as part of Iotc_Init call.
------------	--

Returns 0 on success and -1 on failure.

Iotc_GetCustomProperties

Retrieves the custom properties of the gateway device.

API

```
int Iotc_GetCustomProperties ( IotcSession * iotcSession,
IotcDeviceId * deviceId )
```

Parameters

in iotcSession	Is the connected session returned as part of Iotc_Init call.
in deviceId	Is the device identifier.

Returns 0 on success and -1 on failure.

Iotc_FreeGetResponse

A general function to free internal resources used in a IotcGetResponse message.

API `void Iotc_FreeGetResponse (IotcGetResponse * getResponse)`

Parameters

getResponse	pointer of the IotcGetResponse message.
-------------	---

Iotc_GetResponseByType

Processes response messages and returns only the desired message based on the message type provided.

API `int Iotc_GetResponseByType (IotcSession * session, IotcGetResponseMsgType requestedType, int timeout, IotcGetResponse * getResponse)`

Parameters

in	session	The current IotcSession to be used.
in	requestedType	The desired type of response message to be obtained.
in	timeout	The duration to wait for a response from the agent, in milliseconds.
out	getResponse	IotcGetResponse pointer for holding the result.

Returns

Returns -1 on failure. This value comes from the status of the response message or from a communication error. To handle differences between these failures, check the returned message type.

Iotc_Sync

This function synchronizes device related information such as default properties with the server.

API `int Iotc_Sync (IotcSession * iotcSession)`

Iotc_GetDevices

This function retrieves all the connected devices for a device using the ID and type.

API `int Iotc_GetDevices (IotcSession * iotcSession, IotcDeviceId * parentId)`

Description The devices would be returned with a pointer to IotcDeviceSet in the IotcGetResponse with IOTC_GET_DEVICES as the response message type.

Parameters	
iotcSession	The current IotcSession to be used.
parentId	Device ID for which the connected device IDs must be retrieved.

Iotc_GetMessageId

Returns the `messageId` corresponding to the latest API invoked by the client. Invoke `Iotc_GetMessageId` before calling the next API.

API `uint64_t Iotc_GetMessageId (IotcSession * iotcSession)`

Parameters		
in	iotcSession	Is the connected session returned as part of Iotc_Init call.

Iotc_GetResponse

Gets response from the agent.

API `int Iotc_GetResponse (IotcSession * iotcSession, IotcGetResponse * response)`

Description Returns GetData response to the Client. If the retrieved command data is for the agent, then agent processes it. Any command data that is not for the agent is returned to the client as response data.

Parameters		
in	session	Is the connected session returned as part of Iotc_Init call.
out	responseData	Contains the response data received for the request.

Returns 0 on success and -1 on failure.

Iotc_GetSessionSockfd

Returns sockfd to the client.

API `int Iotc_GetSessionSockfd (IotcSession * iotcSession)`

Parameters

in	iotcSession	Is the connected session returned as part of Iotc_Init call.
----	-------------	--

Iotc_GetSystemProperties

Retrieves the system properties of the gateway device.

API `int Iotc_GetSystemProperties (IotcSession * iotcSession,
IotcDeviceId * deviceId)`

Parameters

in	iotcSession	Is the connected session returned as part of Iotc_Init call.
in	deviceId	Is the device identifier.

Returns 0 on success and -1 on failure.

IotcSession* Iotc_Init

Initializes the communication channel with the IoT Agent.

API `IotcSession* Iotc_Init (IotcApplicationId * applicationId)`

Parameters

in	applicationId	Is the application identifier of the invoking client.
----	---------------	---

Returns Pointer to the session object on success or NULL on failure.

IotcSession*Iotc_InitWithConfig

Initializes a communication channel with the IoT Agent using the supplied configuration.

API `IotcSession*Iotc_InitWithConfig (IotcClientConfig * config)`

Parameters

in	config	Is a pointer to the client configuration object.
----	--------	--

Returns Pointer to the session object on success or NULL on failure.

Iotc_InsertProperty

Adds a property to the property set.

API

```
int Iotc_InsertProperty ( IotcPropertySet * properties,
                        IotcProperty * property )
```

Parameters

in, out	properties	Pointer to the property set.
in	property	Pointer to the property to be added.

Returns 0 on success and -1 on failure.

Iotc_RegisterCampaignCallbacks

Registers campaign callback functions.

API

```
int Iotc_RegisterCampaignCallbacks ( IotcSession * session,
                                    IotcCampaignCallbacks * cbs, void * userData )
```

Parameters

in	session	Is the connected session returned as part of Iotc_Init call.
in	cbs	Is the campaign callback functions collection that is invoked by the IoT Agent during state change, download progress, download, and so on.
in	userData	Is any user context data that is returned when invoking callback functions.

Returns 0 on success.

Iotc_RegisterCommandCallback

The command callback registration function.

API

```
int Iotc_RegisterCommandCallback ( IotcSession * iotcSession,
                                   IotcCommandCb * cb, void * context )
```

Parameters

in	IotcSession	The current IoTSession to be used.
in	cb	The command callback function.
in	context	The pointer to any context data that must be supplied when cb is called.

Returns 0 on success. -1 on error.

Iotc_SendMetric

Requests the agent to send a metric to the server.

API

```
int Iotc_SendMetric ( IotcSession * iotcSession, IotcMetric *
requestData )
```

Parameters

in	iotcSession	Is the connected session returned as part of Iotc_Init call.
in	requestData	Is the pointer to the send metric request data.

Iotc_SendMetricSet

Sends multiple metrics to the Agent to be sent to the server.

API

```
int Iotc_SendMetricSet ( IotcSession * iotcSession, struct
IotcMetricDataSet * metricDataSet )
```

Description

Use following helper functions to add metrics data:

```
Iotc_MetricDataSet
*Iotc_AllocMetricDataSet(void);Iotc_AddMetricData(IotcMetricDataSet
*metricDataSet, IotcMetric *metric);
```

Iotc_SendNotification

Sends the notification request to the server.

API

```
IotcSession * session, IotcSendNotificationRequest * requestData
```

Parameters

in	session	Is the connected session returned from Iotc_Init call.
in	requestData	Is the pointer to the notification request object.

Returns 0 on success.

Iotc_SendPropertySet

Sends the property set to the server.

API

```
int Iotc_SendPropertySet ( IotcSession * iotcSession,
                          IotcPropertySet * properties )
```

Parameters

in	iotcSession	Is the connected session returned from Iotc_Init call.
in	properties	Pointer to the property set.

Returns 0 on success and -1 on failure.

Iotc_UnEnroll

Requests to un-enroll a device.

API

```
int Iotc_UnEnroll ( IotcSession * iotcSession, IotcDeviceId *
                    deviceId )
```

Description

Sends a request to the Server to un-enroll the device specified by deviceId. If the deviceId is empty, then the root gateway device is un-enrolled.

Parameters

in	session	Is the connected session returned as part of Iotc_Init call.
in	deviceId	Pointer to the device identifier of the device.

Iotc_UploadFile

Uploads the specified file to the server.

API

```
int Iotc_UploadFile ( IotcSession * session, IotcUploadFileRequest
                      * requestData )
```

Parameters

in	session	Is the connected session returned as part of Iotc_Init call.
in	requestData	Is the pointer to the post data request object.

Returns 0 on success.

Macro Definitions

This section lists the macros and their definitions for the Agent APIs.

Table 4-1. Macro Definitions

Macro	Definition
<code>#define IOTC_UUID_SIZE 37</code>	The maximum size of the UUID.
<code>#define IOTC_NAME_MAX_SIZE 256</code>	The maximum size for a name string. Used in device names and in device property name-value pairs.
<code>#define IOTC_VALUE_MAX_SIZE 512</code>	The maximum size for a value string. Used in device property name-value pairs.
<code>#define IOTC_APP_ID_SIZE 65</code>	The maximum size of an application identifier.
<code>#define IOTC_PAYLOAD_MAX_SIZE 4096</code>	The maximum size for the payloads.
<code>#define IOTC_METRIC_NAME_SIZE 64</code>	The maximum size of the metric name.
<code>#define IOTC_METRIC_STRING_VALUE_SIZE 32</code>	The maximum size of the metric string data point.

Enumeration Types

This section lists the enumeration types and their definitions for the Agent APIs.

Table 4-2. Enumeration Types

Enumeration	Type	Definition
<code>enum IotcValType</code>	{ BOOLEAN, FLOAT, STRING, INTEGER }	Denotes the metric unit type.
<code>enum IotcCampaignState</code>	{ IOTC_CAMPAIGN_INITIALIZED, IOTC_CAMPAIGN_INSTANTIATED, IOTC_CAMPAIGN_INVENTORY_UP_TO_DATE, IOTC_CAMPAIGN_INVENTORY_UPDATE_FAILURE, IOTC_CAMPAIGN_WAITING_FOR_DOWNLOAD_APPROVAL, IOTC_CAMPAIGN_SCHEDULED_DOWNLOAD, IOTC_CAMPAIGN_WAITING_FOR_DOWNLOAD, IOTC_CAMPAIGN_DOWNLOADING, IOTC_CAMPAIGN_DOWNLOAD_COMPLETE, IOTC_CAMPAIGN_DOWNLOAD_FAILED, IOTC_CAMPAIGN_WAITING_FOR_EXECUTION_APPROVAL, IOTC_CAMPAIGN_SCHEDULED_EXECUTION, IOTC_CAMPAIGN_WAITING_TO_EXECUTE, IOTC_CAMPAIGN_EXECUTING, IOTC_CAMPAIGN_EXECUTION_COMPLETE, IOTC_CAMPAIGN_EXECUTION_FAILED, IOTC_CAMPAIGN_WAITING_FOR_ACTIVATION_APPROVAL, IOTC_CAMPAIGN_SCHEDULED_ACTIVATION, IOTC_CAMPAIGN_WAITING_TO_ACTIVATE, IOTC_CAMPAIGN_ACTIVATING, IOTC_CAMPAIGN_ACTIVATION_COMPLETE, IOTC_CAMPAIGN_ACTIVATION_FAILED }	Denotes the supported campaign states.

Table 4-2. Enumeration Types (continued)

Enumeration	Type	Definition
enum IotcGetResponseMsgType	{ IOTC_GET_DATA_RESPONSE, IOTC_POST_DATA_RESPONSE, IOTC_ENROLL_RESPONSE, IOTC_UNENROLL_RESPONSE, IOTC_CAMPAIGN_STATE_CHANGE, IOTC_SCHEDULE_RESPONSE, IOTC_SET_PROGRESS, IOTC_SEND_METRIC, IOTC_SET_METRIC_INTVL, IOTC_UPLOAD_FILE, IOTC_GET_DATA, IOTC_REGISTER_CB, IOTC_SEND_PROPERTIES, IOTC_NO_RESPONSE }	Denotes the supported response message types.
enum IotcEnrollmentType	{ IOTC_PRE_REGISTERED, IOTC_NOT_REGISTERED }	Denotes the supported enrollment types.
enum boolean	{ FALSE, TRUE }	Denotes the boolean state.
enum IotcMetricType	{ IOTC_METRIC_ERROR, IOTC_METRIC_STRING, IOTC_METRIC_INTEGER, IOTC_METRIC_FLOAT, IOTC_METRIC_BOOLEAN, IOTC_METRIC_UNKNOWN }	Denotes the metric unit type.
enum IotcMetricResponseStatus	{ IOTC_METRIC_SUCCESS, IOTC_METRIC_STORED, IOTC_METRIC_NOT_ALLOWED, IOTC_METRIC_FAILED }	<p>Status of the metric response sent from the Agent SDK.</p> <ul style="list-style-type: none"> ■ IOTC_METRIC_FAILED: Metric failed to be stored at the agent or sent to the server. ■ IOTC_METRIC_NOT_ALLOWED: The metric is not in the allowed list. ■ IOTC_METRIC_STORED: The metric is successfully stored in the agent. ■ IOTC_METRIC_SUCCESS: The metric is successfully sent to the server.
IotcClientLogLevel	{ IOTC_LOG_EMERG = 0, IOTC_LOG_ALERT = 1, IOTC_LOG_CRIT = 2, IOTC_LOG_ERROR = 3, IOTC_LOG_WARN = 4, IOTC_LOG_NOTICE = 5, IOTC_LOG_INFO = 6, IOTC_LOG_DEBUG = 7 }	Denotes the SDK client log levels.