OCAPI Reference
Resource Manager Data Center Edition

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Revision History

Date	Revision	Comment
February 2024	01	Initial release for software version 1.0.0

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Overview

In This Chapter:

1.1 OCAPI Overview

The purpose of the Open Composable Application Programming Interface (OCAPI) is to provide data center provisioning capabilities across all Western Digital and non-WD device technologies using a "normalized" API. The goal of the OCAPI is to configure and manage storage devices via the "control path", while the "data path" delivers data to and from the consuming host systems.

1.2 Industry Standards

The topics in this section describe some of the industry standard modeling and protocols used in the OCAPI.

1.2.1 Common Information Model

The OCAPI follows the industry standard conventions from the Common Information Model (CIM) provided by the Distributed Management Task Force body (dmtf.org). The resource naming conventions and resource attributes follow the CIM model for managed elements. The OCAPI simplifies the CIM model by "flattening" or "compressing" in the following ways.

Collections

Collections are rolled into the Resources as a "plural" of the resource type:

- GET /Volumes returns the list of Volume Resources
- GET /Volumes/{id} returns the specific Volume instance

Services

Services are rolled into the Resources themselves. For example, CIM requires an element called a StorageService to provide creating a new volume. The OCAPI collapses this notion into the resource itself, so that creating a new volume only requires telling the "resource type" (volumes in this case) to create a new volume. Any other manipulation of an existing resource is done directly to the resource. Some examples:

- POST /Volumes (params) creates a new Volume Resource
- PUT /Volumes/{id}?params modifies an existing Volume Resource
- DELETE /Volumes/{id} deletes an existing Volume Resource

Associations

Associations are provided "inherently" with Resource. This means retrieving a particular Resource may also give "navigation links" to other associated resources. This eliminates the need to traverse Association Classes in the CIM Model by providing readily available URIs to Collections and Instances of other resources that are related to this Resource.

Some examples:

- Media contains links to Storage Pools
- Storage Pools contain links to Media that makes up the Pool; contains links to Volumes exported by the Pool

- Volumes contain links to Storage Pools that make up the Volume; contains the links to Storage Endpoints exposing the Volume
- Storage Endpoints contain links to attached Volumes; contains links to Paths to remote/consuming Hosts
- Paths contain links to Storage Endpoints; contains links to Host Endpoints

1.2.2 JSON Data Format Model

The OCAPI uses the standard Javascript Object Notation (JSON) to describe the managed CIM-based elements and their CIM and/or Vendor-Unique-based attributes. The API responses are in a well-formed JSON format as well as request body entries to create or modify a resource. The JSON data format intrinsically determines the data type simply by indicating the "value" within a pair of double-quotations for string types and non-quoted numerical values for number types. No other format descriptions are needed to keep the API as simple as possible.

1.2.3 Protocols

The OCAPI follows strict interpretation of the Representational State Transfer (REST) architectural style put forth by the IETF and the Hypertext Transport Protocol (HTTP) specifications. This requires all API "actions or verbs" be rendered only with HTTP Methods that work directly with the resources.

This API supports the HTTP methods of GET, POST, PUT, DELETE, HEAD, and OPTIONS. This dictates that all Uniform Resource Identifiers (URIs) must be formed as "nouns" or "resources" upon which the methods are applied. No actions or verbs shall be rendered in the URI patterns or within the JSON request body.

1.2.4 HTTP Conditionals and CORS

The OCAPI uses HTTP Conditionals to provide concurrency capabilities among multiple web clients. This "optimistic concurrency" uses the "ETag Header" (entity tag) to provide a resource hash value (32 hexadecimal characters) of the current state of the resource. This ETag value can be used to lower the network traffic when used with HTTP GET requests, and is also used to properly modify or delete a specific resource such that concurrency among web clients is established. The next two subsections describe the API support for GET and PUT/DELETE usage of conditionals.

HTTP GET Conditional

A web client may use the ETag value returned from a GET response to use in the next GET request to the same resource. However, it is not a requirement. And not all resources provide ETags. This is usually the case for resources that change on their own often (e.g., the System Clock, Performance, or other time-based or automatically changing resources). If the web client chooses to use an ETag for a GET request, the "If-None-Match" conditional is used. The web client will understand from the "304 Not Modified" response that the resource or list of resources has not changed since the last time it retrieved the information.

Using Conditional GET significantly reduces network traffic by eliminating unneeded transfer of data if it has not changed over time. This works well with web clients that need to "poll" for status frequently. This means that GET responses are either fully verbose or fully silent if the web client uses the ETag with "If-None-Match" conditional request header.

HTTP PUT & DELETE Conditional

Another form of HTTP conditional allows web clients to take advantage of the HTTP Conditional PUT and DELETE processes. This includes an ETag returned in most GET Request response headers. When used with the HTTP PUT or DELETE method, the web client can determine if the resource has changed since the last GET response before a PUT (modify) or DELETE is requested. This is called "optimistic concurrency". It is the opposite of implementing explicit locking mechanisms to handle multiple web clients ("pessimistic concurrency").

The web client will receive an ETag as part of the GET response header which can be used to pass the "If-Match" conditional to the web service to determine if the resource has changed just before the PUT or DELETE Request.

If the "If-Match" conditional is not sent along with the PUT or DELETE request, the API will return a "428 Precondition Required" to prompt the web client to use the API's HTTP conditional capabilities. This prevents accidental or rogue changes and deletions and makes sure there is an orderly process when two or more web clients work on the same resource at or near the same time.

HTTP Cross-Origin Resource Sharing (CORS)

The OCAPI supports Cross-Origin Resource Sharing (CORS) operations. This is typically needed for web clients that connect to one particular web service which then tells the web client to connect to a different web service, usually in the executing Javascript, for example. The connection focus goes from "same-origin" or "same authority" to a "cross-origin" or different authority. Web clients that support this capability are required to send an OPTIONS method to the remote web service location (cross-origin) with the "Origin" header filled in with the local web service IP address or hostname with the scheme prefix (http or https) to determine of the remote web server will allow a connection from the web client while the focus is still on the local web server. If the remote web service disallows the connection, the OPTIONS response will return a "preflight connection failure" back to the web client indicating no further communication is allowed. If the remote web server allows the connection, it will return headers in the OPTIONS response to indicate what kind of connection, methods, etc., are allowed to the remote web server. The web client can then execute the original HTTP method to the remote web server to complete the transaction. Most modern web browsers support CORS.

1.2.5 HTTPS/SSL/TLS Connections

The OCAPI provides the user the ability to upload their own self-generated SSL/TLS Certificate and Key Pairs.

The OCAPI does provide its own self-signed Certificate and Key Pair, which is just enough to allow a browser to ask the user to proceed with the self-signed but unsecure connection. The user will need to do the following in order to successfully create secure connections between the browser and devices:

1. Create a user-generated Root Authority Certificate and Private Key pair
   - There are several SSL generators available (e.g. OpenSSL)

2. Create a user-generated Leaf Certificate and Key Pair signed by the Root CA Key (from the previous step)
   - The Leaf (or Device) Certificate/Key Pair must have the IP and/or DNS name as part of the Certificate that is within the user's network environment

3. Upload the Leaf Certificate and Key Pair to the Device via the OCAPI – see POST Files/TLSCertandKey in **/Compute/Devices/{id}/Files/{id}/** *(page 88)*

- The successful upload will automatically restart the API service for the HTTPS listener to use the new Certificate

1.3 Resource Oriented Architecture

The OCAPI implements "Resource-Oriented Architecture" (ROA) which dictates the API to have the following attributes:

- Addressability - Resources have explicit URIs for direct addressing
- Stateless - Resources do not require previous or next state processing; all operations are atomic
- Linkability - Resources can be reached via "Self" links from other associated Resources; provides navigation among related Resources
- Uniform Interface - Resources respond to supported HTTP Methods

1.4 Modeling Device Resources

The OCAPI architecture requires the control path management scheme to be "resource-oriented". Any device and its components are all considered resources. For example, a device is a resource as well as its power supply. The management of the device and the power supply have separate resource addressing so that a management client can manage any component resource directly. There are physical resources, logical resources, and virtual resources. The physical resources typically already exist and cannot be created or deleted. However, logical and virtual resources can be created, modified, and deleted. The Compute Proxy Device modeling includes both physical and logical/virtual resources.

Physical Resource Model

The physical resource model includes the overall Compute Proxy Device. These physical resources are represented in .

Figure 1: Physical Resource Model
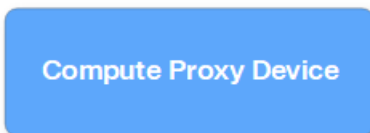
Logical & Virtual Resources Model

The logical and virtual resources model include those resources that are logical or virtual in nature. These include Accounts, SystemClock, and Files. These are modeled in .

Figure 2: Logical & Virtual Resources Model
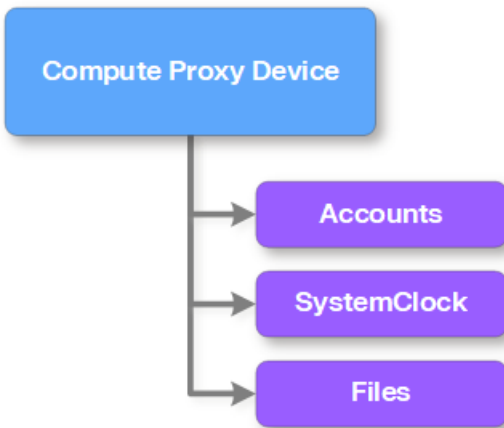
1.5 curl

Curl is a free, open-source command line tool and library for transferring data using various network protocols. It can be used to access the OCAPI to request resource information, modify attributes, and create or delete resources using HTTP methods. Example curl commands are provided throughout this API reference; the following are the most commonly used commands and options. For more information on curl usage and syntax, visit **https://curl.haxx.se/**.

Commonly Used Command Options

- `-i`   Requests HTTP response headers to be included in the output
- `-u` *user:password*   Specifies the user name and password for server authentication
- `-X` *method*   Specifies a custom request method to use when communicating with the HTTP server. Options are GET, POST, PUT, DELETE, HEAD, and OPTIONS
- `-H` *header*   Specifies an extra header to include in the request, such as Content-Type, If-Match, etc.
- `-d` *data*   Specifies the body data for a POST or PUT request
- `-F` *fieldname=@filename*   Specifies a file to upload by emulating the submission of a filled-in form
- `-k` Allows for HTTPS requests

GET

A GET request is the first step in interacting with a resource. The GET curl command provides authentication credentials and the URL of the resource:

```
curl -i -u authentication -X GET resourceURL
```

The response header will include an ETag, which is used in subsequent PUT or DELETE requests to modify or delete the resource.

PUT

A PUT request modifies the resource. The PUT curl command provides authentication credentials, headers (such as Content-Type and If-Match), request body data, and the URL of the resource:

```
curl -i -u authentication -H header -X PUT -d 'data' resourceURL
```

The If-Match conditional in the PUT command requires the ETag from the GET response header in order to modify the resource.

POST

A POST request to a collection creates a resource within that collection. The POST curl command provides authentication credentials, headers (such as Content-Type), request body data, and the URL of the resource:

```
curl -i -u authentication -H header -X POST -d 'data' resourceURL
```

DELETE

A DELETE request deletes a resource. The DELETE curl command provides authentication credentials, headers (such as If-Match), and the URL of the resource:

```
curl -i -u authentication -H header -X DELETE resourceURL
```

The If-Match conditional in the DELETE command requires the ETag from the GET response header in order to delete the resource.

Discovery

In This Chapter:

2.1 Discovery Overview

The OCAPI uses a generic doorbell type of URI that queries a particular host and port to determine what kind of device or component is available as a resource. There is also a mechanism to have an OCAPI-based Device do a discovery of all other participating OCAPI-based Devices to generate a dynamic system list of Devices that can be managed through a single OCAPI-based Device as a single-point-of-management.

- **/Query/** - Returns a Summary of the Collection of Devices at this location (IP Address) - see *[/Query/](page 11)*
- **/System/Query/** - Returns all the "Summary Query" responses from all discovered Collection of Devices across the network - see *[/System/Query/](page 25)*

2.2 REST-Based API

This API is based on the true REST architectural style, meaning that all actions/verbs will be handled exclusively by the existing HTTP Methods (GET, POST, PUT, DELETE, HEAD, OPTIONS) along with all URI patterns containing only fully qualified collections of resources and resource instantiations (nouns only, no action verbs permitted in the URI).

URI Patterns

Uniform Resource Identifiers (URI) are built with the following pattern:

- *scheme, host, domain, resources, resourceID*

For example:

- `http://ip:port/domain/resources/resourceID[/resource/resourceID]...`

Where:

- *scheme* can be http or https
- *domain* can be "storage", "compute", "network", or "system"
- *resources* can be "devices" "volumes", "hosts", "switches", "servers", etc.
- *resourceID* can be an index, GUID, UUID, or any type of identifier for the instance of a resource that is unique to at least the local device

The following is a real world example of a particular storage resource:

- `http://localhost:8080/Storage/Devices/12345`

All entries are plural-based so that a URI without an ending GUID or other resource identifier would return the collection or list of a particular element. For example, `http://ip:port/Storage/Devices/12345/Volumes` would return a list of volumes instead of a particular one.

URI representations of physical components and devices must include the fully qualified URI path.

Physical Components:

`http://ip:port/Storage/Devices/id/Adapters/id` is the address of a specific adapter in a specific storage device.

Logical/Virtual Components:

`http://ip:port/Storage/Devices/id/Volumes/id` is the address to a specific volume.

Resource URIs

There are several "management domains" that can be used to describe and manipulate devices. For converged or composed systems, these domains are "compute", "network", and "storage". These typically describe management at the device or component level. The "system" domain entry is used to aggregate the 3 other domains into an all-encompassing management layer to help describe the usage and connectivity of the devices and components as a physical or virtual system. The system-level management typically allows aggregation lists of all participating devices and also any user-defined groupings of the devices and components that make up the system or sub-systems.

The base URI format is as follows:

- /Query – Doorbell URI
- /Storage/Devices – Storage-based device collection URI
- /System/Query – System-based device query aggregation URI
    - Contains all the discovered Query responses for all participating Device within the System

2.3 /Query/

The /Query/ resource (Doorbell) returns the device type and perhaps its higher level system membership and/or any other device(s) managed by this device via proxy, if any.

HTTP Methods: GET   HEAD   OPTIONS

Table 2: Resource Attributes

Attribute	Data Type	Mandatory or Optional	User Config-urable	Possible Values	Description
Self	String	Mandatory	No	Free-Form URI Format 256 Chars	Describes the fully qualified URI link
SystemQuery	String	Mandatory	No	Free-Form URI Format with IP plus "/System/Query"	Link to ask this Device to discover other devices
InformationStructure.Self	String	Mandatory	No	Free-Form URI Format 256 Chars	Link to use to display or modify the InformationStructure
InformationStructure.Name	String	Mandatory	No	Free-Form 64 Chars	The API name
InformationStructure.HttpPort	Number	Mandatory	Yes	80, or 1024 - 65535 range	Port number for HTTP listener; default = 80
InformationStructure.HttpsPort	Number	Mandatory	Yes	443, or 1024 - 65535 range	Port number for HTTPS listener; default = 443
InformationStructure.ID	String	Mandatory	No	Free-Form 256 Chars	The query identifier represents the main device ID
InformationStrucuture.AuthenticationType.ID	Number	Mandatory	Yes	0 = Basic; 1 = Digest	The current authentication type ID
InformationStrucuture.AuthenticationType.Name	String	Mandatory	No	Basic or Digest	The current authentication type Name
InformationStructure.StructureDescription	String	Mandatory	No	Free-Form 256 Chars	The API Schema Description
InformationStructure.OwningOrganization	String	Mandatory	No	Free-Form 64 Chars	The API Schema Owner
InformationStructure.Status	String	Mandatory	No	Free-Form 64 Chars	The API Schema Version Release Status

Attribute	Data Type	Mandatory or Optional	User Config- urable	Possible Values	Description
InformationStructure. URI	String	Mandatory	No	Free-Form URI Format	The API Schema URI starting point
InformationStructure. Version	String	Mandatory	No	Major.Minor.Release Format	The API Schema Version Number
InformationStructure. ClientFilter	String	Optional	Yes	Default: All Clients if empty; REGEX of IP Address ranges with "|" delimiter	Creates a "white list filter" of allowed Clients based on REGEX pattern of IP Addresses. Multiple entries with "|" delimiter.
InformationStructure. MaximumThreads	Number	Optional	Yes	Default: 5	Throttles the total number of web client connections. Returns a 429 Too Many Requests if maximum number reached. Try again.
Devices. Self	String	Mandatory	No	Free-Form URI Format 256 Chars	Describes the fully qualified URI link
Devices. Members	String Array	Optional	No	One or more / Devices bodies	Collection of Device Summaries

GET /Query/

GET /Query/ returns the query information along with the "links" for further management navigation into this Device.

Example GET curl Command

```
curl http://10.20.30.40/Query/
```

Note: User authentication is not required, since the GET /Query/ is the "doorbell" to initiate first contact with the Device. The JSON response includes URI links to go further into the Device, which will require user authentication.

Example GET Response Body

```
{
    "Self": "http://10.20.30.40/Query/",
    "SystemQuery": "http://10.20.30.40/System/Query/",
    "SystemGroups": "http://10.20.30.40/System/Groups/",
    "SystemJobs": "http://10.20.30.40/System/Jobs/",
    "InformationStructure": {
        "Self": "http://10.20.30.40/Query/InformationStructure/",
        "AuthenticationType": {
            "ID": 0,
            "Name": "Basic"
```

```
            },
            "HTTPPort": 80,
            "HTTPSPort": 443,
            "LogLevel": "info",
            "MaximumThreads": 50,
            "Name": "Open Composable API",
            "OwningOrganization": "Copyright 2020-2022 Western Digital Corporation or its
affiliates. All rights reserved.",
            "Status": "Preliminary Proof-of-Concept",
            "StructureDescription": "REST-based API for Device Management. Use HTTP OPTIONS
with header {\"Documentation\": \"Schema\"} to get resource schema information based
on URI. Use HTTP OPTIONS with header {\"Documentation\": \"Info\"} to get general
information based on URI. ",
            "URI": "/Query/",
            "TimeoutMultiplier": 1,
            "Discovery": {
                "DiscoveryCycleTime": 60,
                "DiscoveryTimeout": 5,
                "QueryTimeout": 20,
                "Threads": 128,
                "Netmasks": []
            },
            "Orchestration": {
                "Enabled": false
            },
            "Version": "RMDC-1.4.4-224",
            "LDAPSettings": {}
        },
        "Devices": {
            "Self": "http://10.20.30.40/Devices/",
            "Members": [
                {
                    "Self": "http://10.20.30.40/Compute/Devices/4C4C4544-004E-5410-8035-
B5C04F374733/",
                    "SystemType": {
                        "ID": 1,
                        "Name": "Compute"
                    },
                    "Name": "5NT57G3",
                    "ID": "4C4C4544-004E-5410-8035-B5C04F374733",
                    "OperatingSystem": {
                        "Self": "http://10.20.30.40/Compute/Devices/4C4C4544-004E-5410-8035-
B5C04F374733/OperatingSystem/",
                        "Name": "Resource Manager Data Center",
                        "OSType": {
                            "ID": 18,
                            "Name": "Winnt"
                        },
                        "Version": "0.4.224"
                    },
                    "SerialNumber": "0000",
                    "Model": "Resource Manager Data Center",
                    "Manufacturer": "WDC",
                    "Capabilities": {
                        "Members": [
                            {
                                "ID": 9,
                                "Name": "Access Server",
```

```
                        "CapabilityDescription": "This device is a server providing
access to resources directly attached or in a network."
                    },
                    {
                        "ID": 14,
                        "Name": "Management",
                        "CapabilityDescription": "This device provides software
system management capabilities."
                    }
                ]
            },
            "Status": {
                "State": {
                    "ID": 16,
                    "Name": "In service"
                },
                "Health": [
                    {
                        "ID": 5,
                        "Name": "OK"
                    }
                ],
                "Details": [
                    "None"
                ]
            },
            "IPAddresses": {
                "Members": [
                    {
                        "IPAddress": "10.20.30.40"
                    }
                ]
            }
        }
    ]
    }
}
```

Table 3: GET Response Codes

Response Code	Name	Description
200	OK	OK & Support resource information in the response body
304	Not Modified	If-None-Match Etag value matched, therefore no Response Body will be returned
404	Not Found	Resource does not exist; this IP Address is running an HTTP service, but does not recognize this resource

HEAD /Query/

The HEAD /Query/ pings the Query resource.

Table 4: HEAD Response Codes

Response Code	Name	Description
200	OK	OK with no response body + Header "Server: OpenFlex API" to help determine that the IP address response to the doorbell request
404	Not Found	Resource does not exist; this IP Address is running an HTTP service, but does not recognize this resource

OPTIONS /Query/

The OPTIONS /Query/ returns the allowable HTTP Methods list for this resource.

Table 5: OPTIONS Request Headers

Request Header	Mandatory or Optional	Description
(None)	N/A	Returns the full resource schema as Content-Type application/json
Documentation	Optional	Info - Returns documentation information in the form of plain text
Documentation	Optional	Schema - Returns the schema information in "pretty" JSON text as plain text
If-None-Match	Optional	Etag - The request is conditionally processed only if the current ETag for the resource does not match the ETag passed in this header

Table 6: OPTIONS Response Codes

Response Code	Name	Description
200	OK	OK with no response body + Header "Server: OpenFlex API" to help determine that the IP address response to the doorbell request
404	Not Found	Resource does not exist; this IP Address is running an HTTP service, but does not recognize this resource

2.3.1 /Query/InformationStructure/

The /Query/InformationStructure/ resource provides detailed information about the API.

HTTP Methods: GET   PUT   HEAD   OPTIONS

Table 7: Resource Attributes

Attribute	Type	Mandatory or Optional	User Config- urable	Possible Values	Description
Self	String	Mandatory	No	Free-Form URI Format 256 Chars	Describes the fully qualified URI link
SystemQuery	String	Mandatory	No	Free-Form URI Format with IP plus "/ System/Query"	Link to ask this Device to discover other devices
InformationStructure. Self	String	Mandatory	No	Free-Form URI Format 256 Chars	Link to use to display or modify the InformationStructure
InformationStructure. Name	String	Mandatory	No	Free-Form 64 Chars	The API name
InformationStructure. HTTPPort	Number	Mandatory	Yes	80, or 1024 - 65535 range	Port number for HTTP listener; default = 80
InformationStructure. HTTPSPort	Number	Mandatory	Yes	443, or 1024 - 65535 range	Port number for HTTPS listener; default = 443
InformationStructure. ID	String	Mandatory	No	Free-Form 256 Chars	The query identifier represents the main device ID
InformationStrucuture. AuthenticationType.ID	Number	Mandatory	Yes	0 = Basic; 1 = Digest	The current authentication type ID
InformationStrucuture. AuthenticationType. Name	String	Mandatory	No	Basic or Digest	The current authentication type Name
InformationStructure. StructureDescription	String	Mandatory	No	Free-Form 256 Chars	The API Schema Description
InformationStructure. OwningOrganization	String	Mandatory	No	Free-Form 64 Chars	The API Schema Owner
InformationStructure. Status	String	Mandatory	No	Free-Form 64 Chars	The API Schema Version Release Status
InformationStructure. URI	String	Mandatory	No	Free-Form URI Format	The API Schema URI starting point

Attribute	Type	Mandatory or Optional	User Config- urable	Possible Values	Description
InformationStructure. Version	String	Mandatory	No	Major.Minor.Release Format	The API Schema Version Number
InformationStructure. ClientFilter	String	Optional	Yes	Default: All Clients if empty; REGEX of IP Address ranges with "|" delimiter	Creates a "white list filter" of allowed Clients based on REGEX pattern of IP Addresses. Multiple entries with "|" delimiter.
InformationStructure. MaximumThreads	Number	Optional	Yes	Default: 5	Throttles the total number of web client connections. Returns a 429 Too Many Requests if maximum number reached. Try again.
RestartAPI	Boolean	WriteOnly	Yes	true	Directs the device to restart the API service
LogLevel	String	Optional	Yes	"debug" | "info" | "warn" | "error"	The log level setting for writing into /var/ log/vstore.log
TimeoutMultiplier	Number	Optional	Yes	1 - n	The timeout multiplier value to increase the API timeout values
Discovery. DiscoveryCycleTime	Number	Optional	Yes		
Discovery. DiscoveryTimeout	Number	Optional	Yes	1 to n; default = 5	The time in seconds to wait for HEAD / Query responses from remote devices during background GET /System/Query scans
Discovery. QueryTimeout	Number	Optional	Yes	1 to n; default = 20	The time in seconds to wait for GET / Query responses from remote devices during background GET /System/Query scans

Attribute	Type	Mandatory or Optional	User Config- urable	Possible Values	Description
Discovery. Threads	Number	Optional	Yes	1 to n; default = 128	The number of concurrent HEAD or GET /Query requests at once
Discovery. Netmasks[]. Netmask	String	Optional	Yes	IPv4 IP Address format with CIDR Netmask value. nnn.nnn.nnn.nnn/mm where: nnn = 0 to 255 (IPv4 Address octet value) mm = 0 to 32 (CIDR subnet mask value)	The IPv4 IP Address/ CIDR netmask range for a given scan entry in the Netmasks[] Object Array. Default entry if the Netmasks[] object array is empty = "this RMDC server's IP Address and subnet"
Discovery. Netmasks[]. Enabled	Boolean	Optional	Yes	true | false	Indicates if the Netmask value is enabled for the scan range list of Netmasks
Discovery. DiscoveryInvFrequency	Number	Optional	Yes	2 to 10 minutes	Background Discovery interval in minutes
Discovery. DiscoveryFullInvMultiple	Number	Optional	Yes	1 to n multiplier to DiscoveryInvFrequency Minimum allowed is 10 minutes	Background Discovery interval multiplier value
Discovery. PolicyESReadInv Frequency	Number	Optional	Yes	1 to n minutes	Background Policy DB interval update check
Discovery. PolicyESReadFullInv Frequency	Number	Optional	Yes	1 to n minutes	Background Policy DB interval for Full data update check
Orchestration. Enabled	Boolean	Optional	No	true | false	Indicates if the overall Orchestration capability is "Enabled" if all the subsequent "applications" are successfully installed and available

Attribute	Type	Mandatory or Optional	User Config- urable	Possible Values	Description
Orchestration. ApplicationsInstalled. Ansible	Boolean	Optional	No	true | false	Indicates if the "Ansible" application is enabled by being successfully installed and available
Orchestration. ApplicationsInstalled. Python3	Boolean	Optional	No	true | false	Indicates if the "Python3" application is enabled by being successfully installed and available
Orchestration. ApplicationsInstalled. WDCModuleInfo	Boolean	Optional	No	true | false	Indicates if the "WDCModuleInfo" for the Ansible application is enabled by being successfully installed and available
Orchestration. ApplicationsInstalled. WDCModuleCommand	Boolean	Optional	No	true | false	Indicates if the "WDCModuleCommand" for the Ansible application is enabled by being successfully installed and available
Orchestration. ApplicationsInstalled. Nslookup	Boolean	Optional	No	true | false	Indicates if the "nslookup" application is enabled by being successfully installed and available
Version	String	Optional	No	maj.min.patch-build format	The current OCAPI version running on this system
LDAPSettings	Object	Optional	Yes		Remote Account LDAP/AD settings

GET /Query/InformationStructure/

GET /Query/InformationStructure/ retrieves the Information Structure information.

Table 8: GET Request Headers

Header	Mandatory or Optional	Description
Authorization	Mandatory	The request requires either Basic or Digest authorization.

Header	Mandatory or Optional	Description
If-None-Match	Optional	The request is conditionally processed only if the current ETag for the resource does not match the ETag passed in this header.

Example GET curl Command

```
curl
    -i
    -u admin:admin
    -X GET http://10.20.30.40/Query/InformationStructure/
```

Example GET Response Body

```
{
    "Self": "http://10.20.30.40/Query/InformationStructure/",
    "AuthenticationType": {
        "ID": 0,
        "Name": "Basic"
    },
    "HTTPPort": 80,
    "HTTPSPort": 443,
    "LogLevel": "debug",
    "MaximumThreads": 50,
    "Name": "Open Composable API",
    "OwningOrganization": "Copyright 2020-2023 Western Digital Corporation or its
affiliates. All rights reserved.",
    "Status": "Released",
    "StructureDescription": "REST-based API for Device Management. Use HTTP OPTIONS
with header {\"Documentation\": \"Schema\"} to get resource schema information based
on URI. Use HTTP OPTIONS with header {\"Documentation\": \"Info\"} to get general
information based on URI. ",
    "URI": "/Query/",
    "TimeoutMultiplier": 1,
    "Discovery": {
        "DiscoveryCycleTime": 60,
        "DiscoveryTimeout": 5,
        "QueryTimeout": 20,
        "Threads": 128,
        "Netmasks": [
            {
                "Netmask": "10.202.239.0/24",
                "Enabled": true
            },
            {
                "Netmask": "10.203.111.0/22",
                "Enabled": true
            },
            {
                "Netmask": "10.206.137.0/24",
                "Enabled": true
            },
            {
                "Netmask": "10.206.136.0/24",
                "Enabled": true
            },
            {
                "Netmask": "10.206.111.0/22",
```

```
            "Enabled": true
        },
        {
            "Netmask": "10.202.237.0/24",
            "Enabled": true
        }
    ],
    "DiscoveryInvFrequency": 5,
    "DiscoveryFullInvMultiple": 2,
    "PolicyESReadInvFrequency": 10,
    "PolicyESReadFullInvFrequency": 60
},
"Orchestration": {
    "Enabled": true,
    "ApplicationsInstalled": {
        "Ansible": true,
        "Python3": true,
        "WDCModuleInfo": true,
        "WDCModuleCommand": true,
        "Nslookup": true
    }
},
"Version": "1.5.8-103",
"LDAPSettings": {}
}
```

Table 9: GET Response Codes

Response Code	Name	Definition
200	OK	OK & Support resource information in the response body
304	Not Modified	If-None-Match Etag value matched, therefore no Response Body will be returned
401	Unauthorized	Unauthorized; credential entry failed or missing
403	Forbidden	ClientFilter is preventing access and resource is not allowed to retrieved
404	Not Found	Resource does not exist; this IP Address is running an HTTP service, but does not recognize this resource
429	Too Many Requests	Indicates API service is busy, client should try again later

PUT /Query/InformationStructure/

PUT /Query/InformationStructure/ modifies an attribute of the Information Structure.

Table 10: PUT Request Headers

Header	Mandatory or Optional	Description
Authorization	Mandatory	The request requires either Basic or Digest authorization.

Header	Mandatory or Optional	Description
If-Match	Mandatory	The request is conditionally processed only if the current ETag for the resource matches the ETag passed in this header.

Example PUT curl Command

```
curl
    -i
    -u admin:admin
    -H "Content-Type: application/json"
    -H "If-Match: 3677651d2011428f32120a029b015e81"
    -X PUT http://10.20.30.40/Query/InformationStructure/
    --data '{
        "LogLevel": "info"
    }'
```

Note: The `If-Match` conditional in this command requires the **ETag** from the GET Response Header.

Example PUT Request Body

```
{
    "HTTPPort": number,
    "HTTPSPort": number,
    "AuthenticationType": {
        "ID" : 0 | 1 | 2
    },
    "ClientFilter" : REGEX,
    "MaximumThreads": number,
    "RestartAPI": true,
    "LogLevel": "debug"|"info"|"warn"|"error",
    "TimeoutMultiplier": 1 - n (default: 1),
    "Discovery": {
        "DiscoveryCycleTime": 60,
        "DiscoveryTimeout": 5,
        "QueryTimeout": 20,
        "Threads": 128,
        "Netmasks": [
            {
                "Netmask": "10.202.239.0/24",
                "Enabled": true
            }, {
                "Netmask": "10.203.111.0/22",
                "Enabled": true
            }
        ],
        "DiscoveryInvFrequency": 5,
        "DiscoveryFullInvMultiple": 2,
        "PolicyESReadInvFrequency": 10,
        "PolicyESReadFullInvFrequency": 60
    }
}
```

Table 11: PUT Response Codes

Response Code	Name	Definition
200	OK	OK & Volume information in the response body + ETag Header
301	Moved Permanently	URI Address has moved to a new location if the Port Number(s) are changed; provides new URI in "Location" header in the response
400	Bad Request	Bad Request (typically a faulty parameter)
401	Unauthorized	Unauthorized; credential entry failed or missing
412	Precondition Failed	Indicates the "If-Match" Etag check failed
428	Precondition Required	Indicates the need for an "If-Match" conditional with an Etag value in the Request Header
429	Too Many Requests	Indicates API service is Busy; client should try again later
500	Internal Server Error	System could not process the request

HEAD /Query/InformationStructure/

HEAD /Query/InformationStructure/ pings the Information Structure resource.

Table 12: HEAD Response Codes

Response Code	Name	Definition
200	OK	OK with no response body + Header "Server: OpenFlex API" to help determine that the IP address response to the doorbell request
401	Unauthorized	Unauthorized; credential entry failed or missing
404	Not Found	Resource does not exist; this IP Address is running an HTTP service but does not recognize this resource
429	Too Many Requests	Indicates API service is busy; client should try again later

OPTIONS /Query/InformationStructure/

OPTIONS /Query/InformationStructure/ returns the allowable HTTP Methods list for this resource.

Table 13: OPTIONS Request Headers

Header	Mandatory or Optional	Description
None	N/A	Returns the full resource schema as Content-Type application/json
Documentation	Optional	Info - Returns documentation information in the form of plain tex

Header	Mandatory or Optional	Description
Documentation	Optional	Schema - Returns the schema information in formatted JSON text as plain text
If-None-Match	Optional	Etag - The request is conditionally processed only if the current ETag for the resource does not match the ETag passed in this header

Table 14: OPTIONS Response Codes

Response Code	Name	Definition
200	OK	OK & the "Allow" list of methods in the response header. The response body provides the JSON Schema for this resource
304	Not Modified	If-None-Match Etag value matched, therefore no Response Body will be returned
404	Not Found	Resource does not exist; this IP Address is running an HTTP service but does not recognize this resource
429	Too Many Requests	Indicates API service is busy; client should try again later

2.4 /System/Query/

The /System/Query/ resource returns the dynamically-discovered list of device Query Doorbell responses in a single response body, to provide a single-point-of-management entry point.

HTTP Methods: GET   HEAD   OPTIONS

Table 15: Resource Attributes

Attribute	Type	Mandatory or Optional	User Config- urable	Possible Values	Description
Self	String	Mandatory	No	Free-Form URI Format 256 Chars	Describes the fully qualified URI link
Members	String Array	Optional	No	One or more discovered / Query bodies	Collection of discovered / Query doorbell resources

GET /System/Query/

GET /System/Query/ returns the information of the System Query resource.

Table 16: GET Request Headers

Header	Mandatory or Optional	Description
Authorization	Mandatory	The request requires either Basic or Digest authorization

Table 17: GET Query Parameters

Parameter	Description
Netmask = {ip_address/cidr}	The IP address and CIDR code range for the sweep/scan process. Default sweep is system IP Address subnet (current IP subnet 10.20.30.xx, CIDR = 24). Note: CIDR determines "ip mask" range to scan; 0 - 32, smaller the number, the wider the scan range.
DiscoveryTimeout = {1-n}	The timeout value in seconds for the discovery process. Default = 5 seconds. 3 or more recommended.
QueryTimeout = {1-n}	The timeout value in seconds for the query process. Default = 20 seconds. 8 or more recommended.
Threads = {1-n}	The number of parallel /Query doorbell requests based on the number of IP Address/CIDR to send to the network (multi-threaded unicast). Default = 128. 1024 or less recommended.

Example GET curl Command

```
curl
    -i
    -u admin:admin
    -X GET http://10.20.30.40/System/Query/
```

Example GET Response Body

```
{
    "Self": "http://10.20.30.40/System/Query/",
    "Members": [
        {
            "Self": "http://10.20.30.40/Query/",
            "SystemQuery": "http://10.20.30.40/System/Query/",
            "InformationStructure": {
                "Self": "http://10.20.30.40:80/Query/InformationStructure/",
                "AuthenticationType": {
                    "ID": 0,
                    "Name": "Basic"
                },
                "Name": "OpenFlex API",
                "HTTPPort": 80,
                "HTTPSPort": 443,
                "ID": "0123456789",
                "StructureDescription": "REST-based API for Device or System Management.
 Use HTTP OPTIONS to get resource schema information based on URI.",
                "OwningOrganization": "WDC",
                "Status": "Preliminary",
                "URI": "/Query/",
                "Version": "0.9.11"
            },
            "Devices": {
                "Self": "http://10.20.30.40/Devices/",
                "Members": [
                    {
                        "Self": "http://10.20.30.40/Storage/Devices/0123456789/",
                        "SystemType": {
                            "ID": 2,
                            Name": "Storage"
                        },
                        "Name": "opnflx-6789",
                        "ID": "blade_uuid_0123456789",
                        "OperatingSystem": {
                            "Self": "http://10.20.30.40/Storage/Devicess/0123456789/
OperatingSystem/",
                            "Name": "Vendor Firmware",
                            "OSType": {
                                "ID": 0,
                                "Name": "Unknown"
                            },
                            "Version": "blade-FW-Rev0"
                        },
                        "SerialNumber": "blade-SN-0123456789",
                        "Model": "blade-MN-0123456789",
                        "Manufacturer": "WDC",
                        "Capabilities": {
                            "Members":[
                                {
                                    "ID": 3,
                                    "Name": "Storage",
                                    "CapabilityDescription": "This device is a storage
 provider."
                                },
                                {
                                    "ID": 15,
```

```
                                "Name": "Block Server",
                                "CapabilityDescription": "This device provides block
storage."
                            },
                            {
                                "ID": 28,
                                "Name": "Management Controller",
                                "CapabilityDescription": "This device provides
specialized hardware dedicated to systems management."
                            },
                            {
                                "ID": 40,
                                "Name": "Blade",
                                "CapabilityDescription": "This device is a blade
device."
                            }
                        ]
                    },
                    "Status": {
                        "State": {
                            "ID": 16,
                            "Name": "In service"
                        },
                        "Health": [
                            {
                                "ID": 5,
                                "Name": "OK"
                            }
                        ],
                        "Details": [
                            "None"
                        ]
                    },
                    "IPAddresses": {
                        "Members": [
                            {
                                "IPAddress": "10.20.30.40"
                            },
                            {
                                "IPAddress": "192.168.0.9"
                            }
                        ]
                    }
                }
            ]
        }
    }
    ]
}
```

Example GET curl Command Across Disparate Subnets

Note: This example scans 10.20.30.0 thru 10.20.30.255 (1 subnet) and 10.202.236.0 thru 10.202.239.255 (4 subnets). The user can also enter a Netmask that does not include the Device doing the GET /System/Query. In that case, the response will not include that Device, but all other discovered Devices in the scan.

```
curl
    -i
    -u admin:admin
    -X GET http://10.20.30.40/System/Query/?
Netmask=10.20.30.40/24&Netmask=10.202.236.0/22
```

Table 18: GET Response Codes

Response Code	Name	Definition
200	OK	OK & System Query resource information in the response body
304	Not Modified	If-None-Match Etag value matched, therefore no Response Body will be returned. **Note**: for /System/Query, the order of devices coming back may be different, so it is rare to get a 304.
401	Unauthorized	Unauthorized; credential entry failed or missing
404	Not Found	Resource does not exist; this IP Address is running an HTTP service but does not recognize this resource
429	Too Many Requests	Indicates API service is busy; client should try again later

HEAD /System/Query/

HEAD /System/Query/ pings the System Query resource.

Table 19: HEAD Request Headers

Header	Mandatory or Optional	Description
Authorization	Mandatory	

Table 20: HEAD Response Codes

Response Code	Name	Definition
200	OK	OK with no response body
401	Unauthorized	Unauthorized; credential entry failed or missing
404	Not Found	Resource does not exist; this IP Address is running an HTTP service but does not recognize this resource

Response Code	Name	Definition
429	Too Many Requests	Indicates API service is busy; client should try again later

OPTIONS /System/Query/

OPTIONS /System/Query/ returns the allowable HTTP Methods list for this resource.

Table 21: OPTIONS Request Headers

Header	Mandatory or Optional	Description
(None)	N/A	Returns the full resource schema as Content-Type application/json
Documentation	Optional	Info - Returns documentation information in the form of plain text
Documentation	Optional	Schema - Returns the schema information in "pretty" JSON text as plain text
If-None-Match	Optional	Etag - The request is conditionally processed only if the current ETag for the resource does not match the ETag passed in this header

Table 22: OPTIONS Response Codes

Response Code	Name	Definition
200	OK	OK & the "Allow" list of methods in the response header. The response body provides the JSON Schema for this resource
304	Not Modified	If-None-Match Etag value matched, therefore no Response Body will be returned. **Note**: for /System/Query, the order of devices coming back may be different, so it is rare to get a 304.
404	Not Found	Resource does not exist; this IP Address is running an HTTP service, but does not recognize this resource
429	Too Many Requests	Indicates API service is busy; client should try again later

System Level Resources

In This Chapter:

3.1 System Level Resources Overview

The OCAPI incorporates "system-level" resources to provide multiple "device resource" activities and operations such as FW Update, Reboot, etc. This requires the concept of "grouping device resource" into a new virtual resource called "System Groups" to allow the system to apply certain operations across multiple device resources at the same time. The System Jobs resource describes the current and completed "Jobs" that were enacted on a System Group.

- **/System/Groups/** - Returns the collection of System Groups - see **/System/Groups/** *(page 32)*
- **/System/Jobs/** - Returns the collection of System Jobs - see **/System/Jobs/** *(page 43)*

3.2 /System/Groups/

The Device-level methods and attributes of /System/Groups/ return information about the System Group(s) collection and enable management operations.

HTTP Methods: GET POST HEAD OPTIONS

Table 23: Resource Attributes

Attribute	Type	Mandatory or Optional	User Config-urable	Possible Values	Description
Self	URI String	Mandatory	No	Free-Form URI Format 256 Chars	Describes the fully qualified URI link
Members	String Array	Mandatory	No	Resource Collection (1 - n entries)	The array of Resource Instances. See /System/Groups/{Id}/ *(page 36)* for Instance Attribute details

GET /System/Groups/

GET /System/Groups/ returns the Collection of System Groups.

Table 24: GET Request Headers

Header	Mandatory or Optional	Description
Authorization	Mandatory	The request requires either Basic or Digest authorization
If-None-Match	Optional	The request is conditionally processed only if the current ETag for the resource does not match the ETag passed in this header

Example GET curl Command

```
curl
    -i
    -u admin:admin
    -X GET http://10.20.30.40/System/Groups/
```

Table 25: GET Response Codes

Response Code	Name	Definition
200	OK	OK & List of System Groups + ETag Header
304	Not Modified	If-None-Match Etag value matched, therefore no Response Body will be returned
401	Unauthorized	Unauthorized; credential entry failed or missing

Response Code	Name	Definition
404	Not Found	Resource Collection does not exist; this IP Address is running an HTTP service but does not recognize this resource
429	Too Many Requests	Indicates API service is busy; client should try again later

POST /System/Groups/

POST /System/Groups/ creates a new system group.

Example POST Request Body

```
{
    "Name": "name",
    "Description": "description",
    "Resources": [
        {
            "Self": "uri1"
        },
        {
            "Self": "uriN"
        }
    ]
}
```

Example POST curl Command

```
curl
    -i
    -u admin:admin
    -H "Content-Type: application/json"
    -X POST http://10.20.30.40/System/Groups/
    --data '{
        "Name":"Data102 Group",
        "Description":"Data102 Group for Bulk FW Update"
        "Resources": [
            {
                "Self": "https://10.20.30.40/Storage/Devices/0123456789/?
IPAddress=10.20.30.50"
            },
            {
                "Self": "https://10.20.30.40/Storage/Devices/012345678912/?
IPAddress=10.20.30.51"
            },
            {
                "Self": "https://10.20.30.40/Storage/Devices/012345678933/?
IPAddress=10.20.30.52"
            }
        ],
    }'
```

Table 26: POST Response Codes

Response Code	Name	Definition
201	Created	Created & System Group information in the response body + ETag Header + new URI in Location Header
400	Bad Request	Bad Request (typically a faulty parameter)
401	Unauthorized	Unauthorized; credential entry failed or missing
409	Conflict	A new parameter value already exists (e.g., Name)
429	Too Many Requests	Indicates API service is busy; client should try again later

HEAD /System/Groups/

HEAD /System/Groups/ pings the System Groups Collection.

Table 27: HEAD Request Headers

Header	Mandatory or Optional	Description
Authorization	Mandatory	The request requires either Basic or Digest authorization

Table 28: HEAD Response Codes

Response Code	Name	Definition
200	OK	OK with no response body
401	Unauthorized	Unauthorized; credential entry failed or missing
404	Not Found	Resource does not exist; this IP Address is running an HTTP service but does not recognize this resource
429	Too Many Requests	Indicates API service is busy; client should try again later

OPTIONS /System/Groups/

OPTIONS /System/Groups/ returns the allowable HTTP Methods list for this resource.

Table 29: OPTIONS Request Headers

Header	Mandatory or Optional	Description
(None)	N/A	Returns the full resource schema as Content-Type application/json
Documentation	Optional	Info - Returns documentation information in the form of plain text
Documentation	Optional	Schema - Returns the schema information in "pretty" JSON text as plain text

Header	Mandatory or Optional	Description
If-None-Match	Optional	Etag - The request is conditionally processed only if the current ETag for the resource does not match the ETag passed in this header

Table 30: OPTIONS Response Codes

Response Code	Name	Definition
200	OK	OK & the "Allow" list of methods in the response header. The response body provides the JSON Schema for this resource
304	Not Modified	If-None-Match Etag value matched, therefore no Response Body will be returned.
404	Not Found	Resource does not exist; this IP Address is running an HTTP service, but does not recognize this resource
429	Too Many Requests	Indicates API service is busy; client should try again later

3.2.1 /System/Groups/{Id}/

The Device-level methods and attributes of /System/Groups/{Id}/ return information about a specific System Group, based on the {id} in the URI string, and enable management operations.

HTTP Methods: GET   PUT   DELETE   HEAD   OPTIONS

Table 31: Resource Attributes

Attribute	Type	Mandatory or Optional	User Config- urable	Possible Values	Description
Self	URI String	Mandatory	No	Free-Form URI Format 256 Chars	Describes the fully qualified URI link
ID	String	Mandatory	No	UUID Format	The Identifier this particular System Group
Name	String	Mandatory	Yes	Free-Form 64 Characters	Name of the Group
Description	String	Optional	Yes	Free-Form 256 Characters	Description of the Group
CreateDate	Datetime	Mandatory	No	"23-Feb-2022 09:35:47"	Creation datetime auto-generated upon POST /System/ Groups
LastModified	Datetime	Mandatory	No	"23-Feb-2022 09:35:47"	LastModified datetime auto-generated upon POST /System/ Groups or PUT / System/Groups/{id}
MixedResourceTypes	Boolean	Mandatory	No	true | false	Indicates if there are members of the group that have differing "Model" and/or "OOB Interface" types
Resources[x]. Self	URI String	Mandatory	Yes	Free-Form URI Format 256 Chars	Describes the fully qualified URI link
Resources[x]. IPAddress	String	Mandatory	No	Free-Form 128 Characters	IP Address that is provided from the Self URI repeated here (auto-generated)

Attribute	Type	Mandatory or Optional	User Config-urable	Possible Values	Description
Resources[x].Hostname	String	Optional	Yes	Free-Form 128 Characters	Hostname based on the DNS lookup of the IP Address provided in the Self URI (auto-generated) or sent by web client as an option

GET /System/Groups/{Id}/

GET /System/Groups/{Id}/ returns information regarding a specific System Group based on the {id} in the URI address string.

Table 32: GET Request Headers

Header	Mandatory or Optional	Description
Authorization	Mandatory	The request requires either Basic or Digest authorization
If-None-Match	Optional	The request is conditionally processed only if the current ETag for the resource does not match the ETag passed in this header

Example GET curl Command

```
curl
    -i
    -u admin:admin
    -X GET http://10.20.30.40/System/Groups/087d9191-9cd0-7107-b24a-0afd619ef10f
```

Example GET Response Body

```
{
    "Self": "http://10.20.30.40/System/Groups/087d9191-9cd0-7107-b24a-0afd619ef10f/",
    "ID": "087d9191-9cd0-7107-b24a-0afd619ef10f",
    "Name": "Data102 Group",
    "Description": "",
    "CreateDate": "20-Jul-2022 22:55:42",
    "LastModified": "20-Jul-2022 22:55:42",
    "MixedResourceTypes": false,
    "Resources": [
        {
            "Self": "http://10.20.30.40/Storage/Devices/THCLS00220EA0045-A/?
IPAddress=10.202.239.228",
            "IPAddress": "10.202.239.228",
            "Hostname": "oobm-00-0c-ca-07-0a-e3.hgst.com."
        },
        {
            "Self": "http://10.20.30.40/Storage/Devices/USCSJ04217EA0004/?
IPAddress=10.202.239.176",
            "IPAddress": "10.202.239.176",
            "Hostname": "oobm-00-0c-ca-04-00-28.hgst.com."
        },
```

```
        {
            "Self": "http://10.20.30.40/Storage/Devices/USWSJ01119EZ002C/?
IPAddress=10.202.239.246",
            "IPAddress": "10.202.239.246",
            "Hostname": "oobm-00-0c-ca-08-1d-e8.hgst.com."
        }
    ]
}
```

Table 33: GET Response Codes

Response Code	Name	Definition
200	OK	OK & System Group information in the response body + ETag Header
304	Not Modified	If-None-Match Etag value matched, therefore no Response Body will be returned
401	Unauthorized	Unauthorized; credential entry failed or missing
404	Not Found	Resource does not exist; this IP Address is running an HTTP service but does not recognize this resource
429	Too Many Requests	Indicates API service is busy; client should try again later

PUT /System/Groups/{Id}/

PUT /System/Groups/{Id}/ modifies an attribute or executes an operation for this Group.

Table 34: PUT Request Headers

Header	Mandatory or Optional	Description
Authorization	Mandatory	The request requires either Basic or Digest authorization
If-Match	Optional	The request is conditionally processed only if the current ETag for the resource matches the ETag passed in this header

Example PUT curl Command

> **Note:** The `If-Match` conditional in this command requires the **ETag** from the GET Response Header.

```
curl
    -i
    -u admin:admin
    -H 'If-Match: 3677651d2011428f32120a029b015e81'
    -H 'Content-Type: application/json'
    -X PUT http://10.20.30.40/System/Groups/
    --data '{
        "Resources": [
            {
```

```
                "Self": "https://10.20.30.40/Storage/Devices/0123456789/?
IPAddress=10.20.30.50"
            },
            {
                "Self": "https://10.20.30.40/Storage/Devices/012345678912/?
IPAddress=10.20.30.51"
            },
            {
                "Self": "https://10.20.30.40/Storage/Devices/012345678933/?
IPAddress=10.20.30.52"
            },
            {
                "Self": "https://10.20.30.40/Storage/Devices/012345678933/?
IPAddress=10.20.30.53"
            }
        ],
        "Description": "Updated Data102 Group for Bulk FW Update"
    }'
```

Example PUT Request Body

```
{
    "Name": "name",
    "Description": "description",
    "Resources": [
        {
            "Self": "uri1",
        },
        {
            "Self": "uriN",
        }
    ],
}
```

Table 35: PUT Response Codes

Response Code	Name	Definition
200	OK	OK & Account information in the response body + ETag Header
400	Bad Request	Bad Request (typically a faulty parameter)
401	Unauthorized	Unauthorized; credential entry failed or missing
404	Not Found	The Resource doesn't exist
412	Precondition Failed	Indicates the "If-Match" Etag check failed
428	Precondition Required	Indicates the need for an "If-Match" conditional with an Etag value in the Request Header
429	Too Many Requests	Indicates API service is busy; client should try again later

DELETE /System/Groups/{Id}/

DELETE /System/Groups/{Id}/ deletes this System Group.

Table 36: DELETE Request Headers

Header	Mandatory or Optional	Description
Authorization	Mandatory	The request requires either Basic or Digest authorization
If-Match	Mandatory	The request is conditionally processed only if the current ETag for the resource matches the ETag passed in this header

Example DELETE curl Command

Note: The `If-Match` conditional in this command requires the **ETag** from the GET Response Header.

```
curl
    -i
    -u admin:admin
    -H "If-Match: 3677651d2011428f32120a029b015e81"
    -X DELETE http://10.20.30.40/System/Groups/12345
```

Table 37: DELETE Response Codes

Response Code	Name	Definition
204	No Content	Delete successful, no content in the response body
401	Unauthorized	Unauthorized; credential entry failed or missing
404	Not Found	The Resource doesn't exist
412	Precondition Failed	Indicates the "If-Match" Etag check failed
428	Precondition Required	Indicates the need for an "If-Match" conditional with an Etag value in the Request Header
429	Too Many Requests	Indicates API service is busy; client should try again later

HEAD /System/Groups/{Id}/

HEAD /System/Groups/{Id}/ pings this System Group.

Table 38: HEAD Request Headers

Header	Mandatory or Optional	Description
Authorization	Mandatory	The request requires either Basic or Digest authorization

Table 39: HEAD Response Codes

Response Code	Name	Definition
200	OK	OK with no response body
401	Unauthorized	Unauthorized; credential entry failed or missing

Response Code	Name	Definition
404	Not Found	Resource does not exist; this IP Address is running an HTTP service but does not recognize this resource
429	Too Many Requests	Indicates API service is busy; client should try again later

OPTIONS /System/Groups/{Id}/

OPTIONS /System/Groups/{Id}/ returns the allowable HTTP Methods list for this resource.

Table 40: OPTIONS Request Headers

Header	Mandatory or Optional	Description
(None)	N/A	Returns the full resource schema as Content-Type application/json
Documentation	Optional	Info - Returns documentation information in the form of plain text
Documentation	Optional	Schema - Returns the schema information in "pretty" JSON text as plain text
If-None-Match	Optional	Etag - The request is conditionally processed only if the current ETag for the resource does not match the ETag passed in this header

Table 41: OPTIONS Response Codes

Response Code	Name	Definition
200	OK	OK & the "Allow" list of methods in the response header. The response body provides the JSON Schema for this resource
304	Not Modified	If-None-Match Etag value matched, therefore no Response Body will be returned.
404	Not Found	Resource does not exist; this IP Address is running an HTTP service, but does not recognize this resource
429	Too Many Requests	Indicates API service is busy; client should try again later

3.2.2 Bulk Operations for a Resource Group

The following are example curl commands to perform bulk operations on a resource group.

Bulk Firmware Update

```
curl
    -i
    -u admin:admin
    -H "Content-Type: application/json"
    -X POST http://10.20.30.40/System/Groups/0123456/OperatingSystem/
    --data '{
        "FirmwareFile": "http://location/of/file"
    }'
```

Bulk Reboot

```
curl
    -i
    -u admin:admin
    -H "Content-Type: application/json"
    -X POST http://10.20.30.40/System/Groups/0123456/Reboot/
    --data '{
        "Reboot": true
    }'
```

Bulk Power State Change

```
curl
    -i
    -u admin:admin
    -H "Content-Type: application/json"
    -X POST http://10.20.30.40/System/Groups/0123456/PowerState/
    --data '{
        "ID": 4
    }'
```

> **Note:** ID=2 is "PowerOn", ID=4 is "Sleep".

Bulk Locate LED Toggle

```
curl
    -i
    -u admin:admin
    -H "Content-Type: application/json"
    -X POST http://10.20.30.40/System/Groups/0123456/IndicatorLED/
    --data '{
        "ID": 2
    }'
```

> **Note:** ID=2 is "Lit", ID=4 is "Off".

3.3 /System/Jobs/

The Device-level methods and attributes of /System/Jobs/ return information about the System Job(s) collection and enable management operations.

HTTP Methods: GET   HEAD   OPTIONS

Table 42: Resource Attributes

Attribute	Type	Mandatory or Optional	User Config- urable	Possible Values	Description
Self	URI String	Mandatory	No	Free-Form URI Format 256 Chars	Describes the fully qualified URI link for the Collection
Members	String Array	Mandatory	No	Resource Collection (1 - n entries)	The array of Resource Instances. See */System/ Jobs/{id}/ (page 46)* for Instance Attribute details

GET /System/Jobs/

GET /System/Jobs/ returns the Collection of System Jobs.

Table 43: GET Request Headers

Header	Mandatory or Optional	Description
Authorization	Mandatory	The request requires either Basic or Digest authorization
If-None-Match	Optional	The request is conditionally processed only if the current ETag for the resource does not match the ETag passed in this header

Example GET curl Command

```
curl
    -i
    -u admin:admin
    -X GET http://10.20.30.40/System/Jobs/
```

Table 44: GET Response Codes

Response Code	Name	Definition
200	OK	OK & List of System Jobs + ETag Header
304	Not Modified	If-None-Match Etag value matched, therefore no Response Body will be returned
401	Unauthorized	Unauthorized; credential entry failed or missing

Response Code	Name	Definition
404	Not Found	Resource Collection does not exist; this IP Address is running an HTTP service but does not recognize this resource
429	Too Many Requests	Indicates API service is busy; client should try again later

HEAD /System/Jobs/

HEAD /System/Jobs/ pings the System Jobs collection.

Table 45: HEAD Request Headers

Header	Mandatory or Optional	Description
Authorization	Mandatory	The request requires either Basic or Digest authorization

Table 46: HEAD Response Codes

Response Code	Name	Definition
200	OK	OK with no response body
401	Unauthorized	Unauthorized; credential entry failed or missing
404	Not Found	Resource does not exist; this IP Address is running an HTTP service but does not recognize this resource
429	Too Many Requests	Indicates API service is busy; client should try again later

OPTIONS /System/Jobs/

OPTIONS /System/Jobs/ returns the allowable HTTP Methods list for this resource.

Table 47: OPTIONS Request Headers

Header	Mandatory or Optional	Description
(None)	N/A	Returns the full resource schema as Content-Type application/json
Documentation	Optional	Info - Returns documentation information in the form of plain text
Documentation	Optional	Schema - Returns the schema information in "pretty" JSON text as plain text
If-None-Match	Optional	Etag - The request is conditionally processed only if the current ETag for the resource does not match the ETag passed in this header

Table 48: OPTIONS Response Codes

Response Code	Name	Definition
200	OK	OK & the "Allow" list of methods in the response header. The response body provides the JSON Schema for this resource
304	Not Modified	If-None-Match Etag value matched, therefore no Response Body will be returned.
404	Not Found	Resource does not exist; this IP Address is running an HTTP service, but does not recognize this resource
429	Too Many Requests	Indicates API service is busy; client should try again later

3.3.1 /System/Jobs/{id}/

The Device-level methods and attributes of /System/Jobs/{id}/ return information about the a specific System Job, based on the {id} in the URI string, and enable management operations.

HTTP Methods: GET   DELETE   HEAD   OPTIONS

Table 49: Resource Attributes

Attribute	Type	Mandatory or Optional	User Config- urable	Possible Values	Description
Self	URI String	Mandatory	No	Free-Form URI Format 256 Chars	Describes the fully qualified URI link
ID	String	Mandatory	No	Free-Form 64 Chars UUID Format	The Identifier this particular System Job. This ID is based on the prefix "GroupOperation" with a suffix of UNIX Epoch Time for uniqueness
StartTime	String	Mandatory	No	23-Feb-2022 09:35:47	The job start timestamp
ElapsedTime	String	Mandatory	No	23-Feb-2022 09:46:04	The job elapsed timestamp; updates during process; displays "end time" when job completed
Owner	URI String	Mandatory	No	Free-Form URI Format 256 Chars	The System Group URI used for this System Job
PercentComplete	Number	Mandatory	No	0 - 100	The percent complete status of the System Job

Attribute	Type	Mandatory or Optional	User Config-urable	Possible Values	Description
Status. State. Name	String	Mandatory	No	"Unknown" | "Not available" | "Servicing" | "Starting" | "Stopping" | "Stopped" | "Aborted" | "Dormant" | "Completed" | "Migrating" | "Emigrating" | "Immigrating" | "Snapshotting" | "Shutting down" | "In test" | "Transitioning" | "In service" | "Inoperative" | "Write Protected" | "Reboot Needed" | "Activate Needed" | "Activate with reboot needed" | "Activate invalidated by reboot"	The current state value of this Resource
Status. State. ID	Number	Mandatory	No	0 - 16 | 65537 - 65542	The current state value map of this Resource
Status. Health[]. Name	String (1..*)	Mandatory	No	"Unknown" | "OK" | "Degraded/Warning" | "Minor failure" | "Major failure" | "Critical failure" | "Non-recoverable error" | "Not installed" | "Not available" | "No access allowed"	The current health value of this Resource. There can be 1 or more Name entries.
Status. Health[]. ID	Number (1..*)	Mandatory	No	0 | 5 | 10 | 15 | 20 | 25 | 30 | 65537 - 65541	The current health value map of this Resource. There can be 1 or more Id entries.

Attribute	Type	Mandatory or Optional	User Config- urable	Possible Values	Description
Status. Details[]	String Array	Mandatory	No	Free-Form Array entry. If no entry, then "None"	The current Health Details of the Resource. For System Jobs, the following Details may be rendered: • 1st entry describes Operation Type • 2nd to Nth entry describes each of the System Group entries status/progress

GET /System/Jobs/{id}/

GET /System/Jobs/{id}/ returns information regarding a specific System Job based on the {id} in the URI address string.

Table 50: GET Request Headers

Header	Mandatory or Optional	Description
Authorization	Mandatory	The request requires either Basic or Digest authorization
If-None-Match	Optional	The request is conditionally processed only if the current ETag for the resource does not match the ETag passed in this header

Example GET curl Command

```
curl
    -i
    -u admin:admin
    -X GET http://10.20.30.40/System/Jobs/GroupOperation1812345
```

Example GET Response Body

```
{
    "Self": "http://10.20.30.40/System/Jobs/GroupOperation1812345",
    "ID": "GroupOperation1812345",
    "StartTime": "23-Feb-2022 09:35:47",
    "ElapsedTime": "23-Feb-2022 09:46:04",
    "Owner": "http://10.20.30.40/System/Groups/12345",
    "PercentComplete": 100,
    "Status": {
        "State": {
            "ID": 8,
            "Name": "Completed"
```

```
        },
        "Health": [
            {
                "ID": 5,
                "Name": "OK"
            }
        ],
        "Details": [
            "OPERATION: System Group OS Update: http://fileserver/users/bob/
bundle4_0_13.tar.gz",
            "SUCCESS: Resource:oobm-00-0c-ca-08-1d-e8, Message:Action was successful,
 StatusCode:0",
            "SUCCESS: Resource:oobm-00-0c-ca-07-09-20, Message:Action was successful,
 StatusCode:0",
            "SUCCESS: Resource:oobm-00-0c-ca-07-09-02, Message:Action was successful,
 StatusCode:0"
        ]
    }
}
```

Table 51: GET Response Codes

Response Code	Name	Definition
200	OK	OK & System Job information in the response body + ETag Header
304	Not Modified	If-None-Match Etag value matched, therefore no Response Body will be returned
401	Unauthorized	Unauthorized; credential entry failed or missing
404	Not Found	Resource does not exist; this IP Address is running an HTTP service but does not recognize this resource
429	Too Many Requests	Indicates API service is busy; client should try again later

DELETE /System/Jobs/{id}/

DELETE /System/Jobs/{id}/ deletes this System Job.

Table 52: DELETE Request Headers

Header	Mandatory or Optional	Description
Authorization	Mandatory	The request requires either Basic or Digest authorization
If-Match	Mandatory	The request is conditionally processed only if the current ETag for the resource matches the ETag passed in this header

Example DELETE curl Command

Note: The `If-Match` conditional in this command requires the **ETag** from the GET Response Header.

```
curl
    -i
    -u admin:admin
    -H "If-Match: 3677651d2011428f32120a029b015e81"
    -X DELETE http://10.20.30.40/System/Jobs/GroupOperation1812345
```

Note: System Jobs cannot be deleted when in-progress (Percent Complete is less than 100%).

Note: System Jobs are automatically created with unique IDs when a System Group is used in a Group Operation (e.g. FW Update, Reboot, Power State, or Locate LED).

Table 53: DELETE Response Codes

Response Code	Name	Definition
204	No Content	Delete successful, no content in the response body
401	Unauthorized	Unauthorized; credential entry failed or missing
404	Not Found	The Resource doesn't exist
412	Precondition Failed	Indicates the "If-Match" Etag check failed
428	Precondition Required	Indicates the need for an "If-Match" conditional with an Etag value in the Request Header
429	Too Many Requests	Indicates API service is busy; client should try again later

HEAD /System/Jobs/{id}/

HEAD /System/Jobs/{id}/ pings this System Job.

Table 54: HEAD Request Headers

Header	Mandatory or Optional	Description
Authorization	Mandatory	The request requires either Basic or Digest authorization

Table 55: HEAD Response Codes

Response Code	Name	Definition
200	OK	OK with no response body
401	Unauthorized	Unauthorized; credential entry failed or missing
404	Not Found	Resource does not exist; this IP Address is running an HTTP service but does not recognize this resource

Response Code	Name	Definition
429	Too Many Requests	Indicates API service is busy; client should try again later

OPTIONS /System/Jobs/{id}/

OPTIONS /System/Jobs/{id}/ returns the allowable HTTP Methods list for this resource.

Table 56: OPTIONS Request Headers

Header	Mandatory or Optional	Description
(None)	N/A	Returns the full resource schema as Content-Type application/json
Documentation	Optional	Info - Returns documentation information in the form of plain text
Documentation	Optional	Schema - Returns the schema information in "pretty" JSON text as plain text
If-None-Match	Optional	Etag - The request is conditionally processed only if the current ETag for the resource does not match the ETag passed in this header

Table 57: OPTIONS Response Codes

Response Code	Name	Definition
200	OK	OK & the "Allow" list of methods in the response header. The response body provides the JSON Schema for this resource
304	Not Modified	If-None-Match Etag value matched, therefore no Response Body will be returned.
404	Not Found	Resource does not exist; this IP Address is running an HTTP service but does not recognize this resource
429	Too Many Requests	Indicates API service is busy; client should try again later

Physical Devices

In This Chapter:

4.1 Physical Devices Overview

The OCAPI's physical resource model includes the overall Compute Proxy Device. The topics in this section provide information for accessing and managing the features of this physical resource.

4.2 /Compute/Devices/

The Device-level methods and attributes of /Compute/Devices/ return information about the Devices collection and enable management operations.

HTTP Methods: GET   HEAD   OPTIONS

Table 58: Resource Attributes

Attribute	Type	Mandatory or Optional	User Config-urable	Possible Values	Description
Self	URI String	Mandatory	No	Free-Form URI Format 256 Chars	Describes the fully qualified URI link for the Collection
Members	String Array	Mandatory	No	Resource Collection (0 - n entries)	The array of Resource Instances. See /Compute/Devices/{id}/ (page 57) for Instance Attribute details

GET /Compute/Devices/

GET /Compute/Devices/ returns the Collection of Devices.

Table 59: GET Request Headers

Header	Mandatory or Optional	Description
Authorization	Mandatory	The request requires either Basic or Digest authorization
If-None-Match	Optional	The request is conditionally processed only if the current ETag for the resource does not match the ETag passed in this header

Example GET curl Command

```
curl
    -i
    -u admin:admin
    -X GET http://10.20.30.40/Compute/Devices/
```

Table 60: GET Response Codes

Response Code	Name	Definition
200	OK	OK & List of Devices + ETag Header
304	Not Modified	If-None-Match Etag value matched, therefore no Response Body will be returned
401	Unauthorized	Unauthorized; credential entry failed or missing

Response Code	Name	Definition
404	Not Found	Resource Collection does not exist; this IP Address is running an HTTP service but does not recognize this resource
429	Too Many Requests	Indicates API service is busy; client should try again later

HEAD /Compute/Devices/

HEAD /Compute/Devices/ pings the Devices collection.

Table 61: HEAD Request Headers

Header	Mandatory or Optional	Description
Authorization	Mandatory	The request requires either Basic or Digest authorization

Table 62: HEAD Response Codes

Response Code	Name	Definition
200	OK	OK with no response body
401	Unauthorized	Unauthorized; credential entry failed or missing
404	Not Found	Resource Collection does not exist; this IP Address is running an HTTP service but does not recognize this resource
429	Too Many Requests	Indicates API service is busy; client should try again later

OPTIONS /Compute/Devices/

OPTIONS /Compute/Devices/ returns the allowable HTTP Methods list for this resource.

Table 63: OPTIONS Request Headers

Header	Mandatory or Optional	Description
(None)	N/A	Returns the full resource schema as Content-Type application/json
Documentation	Optional	Info - Returns documentation information in the form of plain text
Documentation	Optional	Schema - Returns the schema information in "pretty" JSON text as plain text
If-None-Match	Optional	Etag - The request is conditionally processed only if the current ETag for the resource does not match the ETag passed in this header

Table 64: OPTIONS Response Codes

Response Code	Name	Definition
200	OK	OK & the "Allow" list of methods in the response header. The response body provides the JSON Schema for this resource
304	Not Modified	If-None-Match Etag value matched, therefore no Response Body will be returned.
404	Not Found	Resource does not exist; this IP Address is running an HTTP service, but does not recognize this resource
429	Too Many Requests	Indicates API service is busy; client should try again later

4.2.1 /Compute/Devices/{id}/

The Device-level methods and attributes of /Compute/Devices/{id}/ return information about a specific Device, based on the {id} in the URI string, and enable management operations.

HTTP Methods: GET   HEAD   OPTIONS

Table 65: Resource Attributes

Attribute	Type	Mandatory or Optional	User Config- urable	Possible Values	Description
Self	URI String	Mandatory	No	Free-Form URI Format 256 Chars	Describes the fully qualified URI link
SystemType. Name	String	Mandatory	No	"Compute"	The domain type string indicating the type of Device Resource
SystemType. ID	Number	Mandatory	No	1	The domain type number indicating the type of Device Resource
Name	String	Mandatory	Yes	Free-Form 256 Chars	The user-defined Friendly Name for this Resource
ID	String	Mandatory	No	Free-Form 256 Chars	The resource identifier that is unique in space and time
OperatingSystem. Self	String	Mandatory	No	Free-Form URI	Fully qualified link to the Operating System Resource
OperatingSystem. Name	String	Mandatory	No	Free-Form URI	Resource Manager Data Center Edition Application Name
OperatingSystem. OSType. Name	String	Mandatory	No	"Winnt" | "Linux"	Resource Manager Data Center Edition running on this OS Type string value
OperatingSystem. OSType. ID	Number	Mandatory	No	18 | 36	Resource Manager Data Center Edition running on this OS Type number value
OperatingSystem. Version	String	Mandatory	No	Free-Form URI	Resource Manager Data Center Edition Application Version

Attribute	Type	Mandatory or Optional	User Configurable	Possible Values	Description
Model	String	Mandatory	No	"Resource Manager Data Center"	Resource Manager Data Center Edition application model
Manufacturer	String	Mandatory	No	"WDC"	Resource Manager Data Center Edition manufacturer
Capabilities. Members[]. Name	String	Mandatory	No	"Access Server" | "Management"	The capabilities information value(s) regarding the Resource
Capabilities. Members[]. ID	Number	Mandatory	No	9 | 14	The capabilities information value map(s) regarding the Resource
Capabilities. Members[]. CapabilitiesDescription	String	Mandatory	No	Free-form characters	Entry describing the capability
Status. State. Name	String	Mandatory	No	"Unknown" | "Not available" | "Servicing" | "Starting" | "Stopping" | "Stopped" | "Aborted" | "Dormant" | "Completed" | "Migrating" | "Emigrating" | "Immigrating" | "Snapshotting" | "Shutting down" | "In test" | "Transitioning" | "In service"	The current state value of this Resource
Status. State. ID	Number	Mandatory	No	0 - 16	The current state value map of this Resource
Status. Health[]. Name	String (1..*)	Mandatory	No	"Unknown" | "OK" | "Degraded/Warning" | "Minor failure" | "Major failure" | "Critical failure" | "Non-recoverable error" | "Not installed" | "Not available" | "No access allowed"	The current health value of this Resource. There can be 1 or more Name entries.

Attribute	Type	Mandatory or Optional	User Config- urable	Possible Values	Description
Status. Health[]. ID	Number (1..*)	Mandatory	No	0 | 5 | 10 | 15 | 20 | 25 | 30 | 65536 - 65538	The current health value map of this Resource. There can be 1 or more Id entries
Status. Details[]	String Array	Optional	No	Free-Form Array entry. If no entry, then "None"	The current Health Details of the Device
IPAddresses. Members[]. IPAddress	String Array	Mandatory	Yes	IPv4 or IPv6 pattern	The IP Address list for this Resource
InformationStructure. Self	String	Mandatory	No	Free-Form URI	Fully qualified link to the Information Structure Resource
ApplicationSettings. Self	String	Mandatory	No	Free-Form URI	Fully qualified link to the Application Settings Resource
Location. Self	String	Mandatory	No	Free-Form URI	Fully qualified link to the Location Resource
Accounts. Self	String	Mandatory	No	Free-Form URI	Fully qualified link to the Accounts Resource
Files. Self	String	Mandatory	No	Free-Form URI	Fully qualified link to the Files Resource
Jobs. Self	String	Mandatory	No	Free-Form URI	Fully qualified link to the Jobs Resource
SystemClock. Self	String	Mandatory	No	Free-Form URI	Fully qualified link to the System Clock Resource
Assets. Self	String	Mandatory	No	Free-Form URI	Fully qualified link to the Assets Resource Collection
Notifications. Self	String	Mandatory	No	Free-Form URI	Fully qualified link to the Notifications Resource
Policies. Self	String	Mandatory	No	Free-Form URI	Fully qualified link to the Policies Resource

GET /Compute/Devices/{id}/

GET /Compute/Devices/{id}/ returns information regarding a specific Device based on the {id} in the URI address string.

Table 66: GET Request Headers

Header	Mandatory or Optional	Description
Authorization	Mandatory	The request requires either Basic or Digest authorization
If-None-Match	Optional	The request is conditionally processed only if the current ETag for the resource does not match the ETag passed in this header

Example GET curl Command

```
curl
    -i
    -u admin:admin
    -X GET http://10.20.30.40/Compute/Devices/0123456789
```

Example GET Response Body

```
{
    "Self": "http://10.20.30.40/Compute/Devices/0123456789/",
    "SystemType": {
        "ID": 1,
        "Name": "Compute"
    },
    "Name": "rmdc-server",
    "ID": "0123456789",
    "OperatingSystem": {
        "Self": "http://10.20.30.40/Compute/Devices/0123456789/OperatingSystem/",
        "Name": "Resource Manager Data Center",
        "OSType": {
            "ID": 36,
            "Name": "Linux"
        },
        "Version": "1.0.0"
    },
    "Model": "Resource Manager Data Center",
    "Manufacturer": "WDC",
    "Capabilities": {
        "Members": [
            {
                "ID": 9,
                "Name": "Access Server",
                "CapabilityDescription": "This device is a server providing access to
resources directly attached or in a network."
            },
            {
                "ID": 14,
                "Name": "Management",
                "CapabilityDescription": "This device provides software system
management capabilities."
            }
        ]
```

```
    },
    "Status": {
        "State": {
            "ID": 16,
            "Name": "In service"
        },
        "Health": [
            {
                "ID": 5,
                "Name": "OK"
            }
        ],
        "Details": [
            "None"
        ]
    },
    "IPAddresses": {
        "Members": [
            {
                "IPAddress": "10.20.30.40"
            },
            {
                "IPAddress": "192.168.0.6"
            }
        ]
    },
    "InformationStructure": {
        "Self": "http://10.20.30.40/Compute/Devices/0123456789/InformationStructure/"
    },
    "ApplicationSettings": {
        "Self": "http://10.20.30.40/Compute/Devices/0123456789/ApplicationSettings/"
    },
    "Location": {
        "Self": "http://10.20.30.40/Compute/Devices/0123456789/Location/"
    },
    "Accounts": {
        "Self": "http://10.20.30.40/Compute/Devices/0123456789/Accounts/"
    },
    "Files": {
        "Self": "http://10.20.30.40/Compute/Devices/0123456789/Files/"
    },
    "Jobs": {
        "Self": "http://10.20.30.40/Compute/Devices/0123456789/Jobs/"
    },
    "SystemClock": {
        "Self": "http://10.20.30.40/Compute/Devices/0123456789/SystemClock/"
    },
    "Assets": {
        "Self": "http://10.20.30.40/Compute/Devices/0123456789/Assets/"
    },
    "Notifications": {
        "Self": "http://10.20.30.40/Compute/Devices/0123456789/Notifications/"
    },
    "Policies": {
        "Self": "http://10.20.30.40/Compute/Devices/0123456789/Policies/"
    }
}
```

Table 67: GET Response Codes

Response Code	Name	Definition
200	OK	OK & Device information in the response body + ETag Header
304	Not Modified	If-None-Match Etag value matched, therefore no Response Body will be returned
401	Unauthorized	Unauthorized; credential entry failed or missing
404	Not Found	Resource does not exist; this IP Address is running an HTTP service but does not recognize this resource
429	Too Many Requests	Indicates API service is busy; client should try again later

HEAD /Compute/Devices/{id}/

HEAD /Compute/Devices/{id}/ pings this Storage Device.

Table 68: HEAD Request Headers

Header	Mandatory or Optional	Description
Authorization	Mandatory	The request requires either Basic or Digest authorization

Table 69: HEAD Response Codes

Response Code	Name	Definition
200	OK	OK with no response body
401	Unauthorized	Unauthorized; credential entry failed or missing
404	Not Found	Resource does not exist; this IP Address is running an HTTP service but does not recognize this resource
429	Too Many Requests	Indicates API service is busy; client should try again later

OPTIONS /Compute/Devices/{id}/

OPTIONS /Compute/Devices/{id}/ returns the allowable HTTP Methods list for this resource.

Table 70: OPTIONS Request Headers

Header	Mandatory or Optional	Description
(None)	N/A	Returns the full resource schema as Content-Type application/json
Documentation	Optional	Info - Returns documentation information in the form of plain text

Header	Mandatory or Optional	Description
Documentation	Optional	Schema - Returns the schema information in "pretty" JSON text as plain text
If-None-Match	Optional	Etag - The request is conditionally processed only if the current ETag for the resource does not match the ETag passed in this header

Table 71: OPTIONS Response Codes

Response Code	Name	Definition
200	OK	OK & the "Allow" list of methods in the response header. The response body provides the JSON Schema for this resource
304	Not Modified	If-None-Match Etag value matched, therefore no Response Body will be returned.
404	Not Found	Resource does not exist; this IP Address is running an HTTP service but does not recognize this resource
429	Too Many Requests	Indicates API service is busy; client should try again later

Logical Devices

In This Chapter:

5.1 Logical Devices Overview

The OCAPI's logical and virtual resources model include those resources that are logical or virtual in nature. The topics in this section provide information for accessing and managing the features of these logical and virtual resources.

5.2 /Compute/Devices/{id}/Accounts/

The Device-level methods and attributes of /Compute/Devices/{id}/Accounts/ return information about the Accounts collection and enable management operations.

HTTP Methods: GET POST HEAD OPTIONS

Table 72: Resource Attributes

Attribute	Type	Mandatory or Optional	User Config-urable	Possible Values	Description
Self	URI String	Mandatory	No	Free-Form URI Format 256 Chars	Describes the fully qualified URI link for the Collection
Members	String Array	Mandatory	No	Resource Collection (1 - n entries)	The array of Resource Instances. See */Compute/Devices/{id}/Accounts/{id}/ (page 70)* for Instance Attribute details

GET /Compute/Devices/{id}/Accounts/

GET /Compute/Devices/{id}/Accounts/ returns the Collection of Accounts.

Table 73: GET Request Headers

Header	Mandatory or Optional	Description
Authorization	Mandatory	The request requires either Basic or Digest authorization
If-None-Match	Optional	The request is conditionally processed only if the current ETag for the resource does not match the ETag passed in this header

Example GET curl Command

```
curl
    -i
    -u admin:admin
    -X GET http://10.20.30.40/ComputeDevices/0123456789/Accounts/
```

Table 74: GET Response Codes

Response Code	Name	Definition
200	OK	OK & List of Accounts + ETag Header
304	Not Modified	If-None-Match Etag value matched, therefore no Response Body will be returned

Response Code	Name	Definition
401	Unauthorized	Unauthorized; credential entry failed or missing
404	Not Found	Resource Collection does not exist; this IP Address is running an HTTP service but does not recognize this resource
429	Too Many Requests	Indicates API service is busy; client should try again later

POST /Compute/Devices/{id}/Accounts/

POST /Compute/Devices/{id}/Accounts/ creates a new Account.

Table 75: POST Request Headers

Header	Mandatory or Optional	Description
Authorization	Mandatory	The request requires either Basic or Digest authorization

Example POST curl Command

```
curl
    -i
    -u admin:admin
    -H "Content-Type: application/json"
    -X POST http://10.20.30.40/Compute/Devices/01234567890/Accounts/
    --data '{
        "UserID":"new_username",
        "BasicAuthentication": {
            "UserPassword":"password"
        },
        "Role": {
            "ID": 0
        }
    }'
```

Example POST Request Body

```
{
    "UserID": "user_id",
    "BasicAuthentication": {
        "UserPassword": "password"
    },
    "DigestAuthentication": {
        "UserPassword": "password"
    },
    "JWTAuthentication": {
        "UserPassword": "password"
    },
    "Role": {
        "ID": 0 | 1
    }
}
```

Table 76: POST Response Codes

Response Code	Name	Definition
201	Created	Created & Account information in the response body + ETag Header + new URI in Location Header
400	Bad Request	Bad Request (typically a faulty parameter)
401	Unauthorized	Unauthorized; credential entry failed or missing
409	Conflict	A new parameter value already exists (e.g., Name)
429	Too Many Requests	Indicates API service is busy; client should try again later

HEAD /Compute/Devices/{id}/Accounts/

HEAD /Compute/Devices/{id}/Accounts/ pings the Accounts collection.

Table 77: HEAD Request Headers

Header	Mandatory or Optional	Description
Authorization	Mandatory	The request requires either Basic or Digest authorization

Table 78: HEAD Response Codes

Response Code	Name	Definition
200	OK	OK with no response body
401	Unauthorized	Unauthorized; credential entry failed or missing
404	Not Found	Resource Collection does not exist; this IP Address is running an HTTP service but does not recognize this resource
429	Too Many Requests	Indicates API service is busy; client should try again later

OPTIONS /Compute/Devices/{id}/Accounts/

OPTIONS /Compute/Devices/{id}/Accounts/ returns the allowable HTTP Methods list for this resource.

Table 79: OPTIONS Request Headers

Header	Mandatory or Optional	Description
(None)	N/A	Returns the full resource schema as Content-Type application/json
Documentation	Optional	Info - Returns documentation information in the form of plain text
Documentation	Optional	Schema - Returns the schema information in "pretty" JSON text as plain text

Header	Mandatory or Optional	Description
If-None-Match	Optional	Etag - The request is conditionally processed only if the current ETag for the resource does not match the ETag passed in this header

Table 80: OPTIONS Response Codes

Response Code	Name	Definition
200	OK	OK & the "Allow" list of methods in the response header. The response body provides the JSON Schema for this resource
304	Not Modified	If-None-Match Etag value matched, therefore no Response Body will be returned.
404	Not Found	Resource does not exist; this IP Address is running an HTTP service, but does not recognize this resource
429	Too Many Requests	Indicates API service is busy; client should try again later

5.2.1 /Compute/Devices/{id}/Accounts/{id}/

The Device-level methods and attributes of /Compute/Devices/{id}/Accounts/{id}/ return information about a specific Account, based on the {id} in the URI string, and enable management operations.

HTTP Methods: GET   PUT   DELETE   HEAD   OPTIONS

Table 81: Resource Attributes

Attribute	Type	Mandatory or Optional	User Config- urable	Possible Values	Description
Self	URI String	Mandatory	No	Free-Form URI Format 256 Chars	Describes the fully qualified URI link
ID	String	Mandatory	No	Free-Form 64 Chars Valid characters include: "a-z A-Z 0-9 _ - "	The Identifier this particular Account
BasicAuthentication. UserPassword SHA1Checksum	String	Mandatory	No	Free-Form 128 Characters	The basic authentication checksum
BasicAuthentication. UserPassword	String	Optional	Yes	Free-Form 128 Characters	The user password used to create the checksum (not shown in the GET response)
DigestAuthentication. UserPassword MD5Checksum	String	Mandatory	No	Free-Form 128 Characters	The digest authentication checksum
DigestAuthentication. UserPassword	String	Optional	Yes	Free-Form 128 Characters	The user password used to create the checksum (not shown in the GET response)
DigestAuthentication. Realm	String	Optional	No	Free-Form 128 Characters	The digest authentication realm
Role. Name	String	Mandatory	No	"Admin"	The Role type string for this Account
Role. ID	Number	Mandatory	No	0	The Role type value for this Account
UserID	String	Mandatory	Yes	Free-Form 64 Chars	The user identifier for this Account

GET /Compute/Devices/{id}/Accounts/{id}/

GET /Compute/Devices/{id}/Accounts/{id}/ returns information regarding a specific Account based on the {id} in the URI address string.

Table 82: GET Request Headers

Header	Mandatory or Optional	Description
Authorization	Mandatory	The request requires either Basic or Digest authorization
If-None-Match	Optional	The request is conditionally processed only if the current ETag for the resource does not match the ETag passed in this header

Example GET curl Command

```
curl
    -i
    -u admin:admin
    -X GET http://10.20.30.40/Compute/Devices/0123456789/Accounts/admin
```

Example GET Response Body

```
{
    "Self": "http://10.20.30.40/Compute/Devices/0123456789/Accounts/admin/",
    "ID": "admin",
    "BasicAuthentication": {
        "UserPasswordSHA1Checksum": "{SHA}0DPiKuNIrrVmD8IUCuw1hQxNqZc="
    },
    "DigestAuthentication": {
        "UserPasswordMD5Checksum": "97ebad852d0dabfd6b71ae26fff61fa3",
        "Realm": "Western Digital Corporation"
    },
    "JWTAuthentication": {
        "UserPasswordMD5Checksum": "b80648545a30e0999892b517127c0e17"
    },
    "Role": {
        "ID": 0,
        "Name": "Admin"
    },
    "UserID": "admin"
}
```

Table 83: GET Response Codes

Response Code	Name	Definition
200	OK	OK & Account information in the response body + ETag Header
304	Not Modified	If-None-Match Etag value matched, therefore no Response Body will be returned
401	Unauthorized	Unauthorized; credential entry failed or missing

Response Code	Name	Definition
404	Not Found	Resource does not exist; this IP Address is running an HTTP service but does not recognize this resource
429	Too Many Requests	Indicates API service is busy; client should try again later

PUT /Compute/Devices/{id}/Accounts/{id}/

PUT /Compute/Devices/{id}/Accounts/{id}/ modifies an attribute or executes an operation for this Account.

Table 84: PUT Request Headers

Header	Mandatory or Optional	Description
Authorization	Mandatory	The request requires either Basic or Digest authorization
If-Match	Mandatory	The request is conditionally processed only if the current ETag for the resource matches the ETag passed in this header

Example PUT curl Command

Note: The `If-Match` conditional in this command requires the **ETag** from the GET Response Header.

```
curl
    -i
    -u admin:admin
    -H "Content-Type: application/json"
    -H "If-Match: 3677651d2011428f32120a029b015e81"
    -X PUT http://10.20.30.40/Compute/Devices/0123456789/Accounts/test
    --data '{
        "UserID": "test",
        "BasicAuthentication": {
            "UserPassword": "new_password"
        },
        "Role": {
            "ID": 1
        }
    }'
```

Example PUT Request Body

```
{
    "UserId": "userId",
    "BasicAuthentication": {
        "UserPassword":"new_password"
    },
    "DigestAuthentication": {
        "UserPassword":"new_password"
    },
    "JWTAuthentication": {
        "UserPassword":"new_password"
    },
    "Role": {
        "ID": 0 | 1
    }
}
```

Table 85: PUT Response Codes

Response Code	Name	Definition
200	OK	OK & Account information in the response body + ETag Header
400	Bad Request	Bad Request (typically a faulty parameter)
401	Unauthorized	Unauthorized; credential entry failed or missing
404	Not Found	The Resource doesn't exist
412	Precondition Failed	Indicates the "If-Match" Etag check failed
428	Precondition Required	Indicates the need for an "If-Match" conditional with an Etag value in the Request Header
429	Too Many Requests	Indicates API service is busy; client should try again later

DELETE /Compute/Devices/{id}/Accounts/{id}/

DELETE /Compute/Devices/{id}/Accounts/{id}/ deletes this account.

Table 86: DELETE Request Headers

Header	Mandatory or Optional	Description
Authorization	Mandatory	The request requires either Basic or Digest authorization
If-Match	Mandatory	The request is conditionally processed only if the current ETag for the resource matches the ETag passed in this header

Example DELETE curl Command

> 📄 **Note:** The `If-Match` conditional in this command requires the **ETag** from the GET Response Header.

```
curl
    -i
    -u admin:admin
    -H "If-Match: 3677651d2011428f32120a029b015e81"
    -X DELETE http://10.20.30.40/Compute/Devices/0123456789/Accounts/test
```

> 📄 **Note:** The last remaining "Admin" role account cannot be deleted to prevent loss of communication with the Device.

Table 87: DELETE Response Codes

Response Code	Name	Definition
204	No Content	Delete successful, no content in the response body
401	Unauthorized	Unauthorized; credential entry failed or missing
404	Not Found	The Resource doesn't exist
409	Conflict	In the case of only one account, that last one cannot be deleted
412	Precondition Failed	Indicates the "If-Match" Etag check failed
428	Precondition Required	Indicates the need for an "If-Match" conditional with an Etag value in the Request Header
429	Too Many Requests	Indicates API service is Busy, client should try again later

HEAD /Compute/Devices/{id}/Accounts/{id}/

HEAD /Compute/Devices/{id}/Accounts/{id}/ pings this Storage Account.

Table 88: HEAD Request Headers

Header	Mandatory or Optional	Description
Authorization	Mandatory	The request requires either Basic or Digest authorization

Table 89: HEAD Response Codes

Response Code	Name	Definition
200	OK	OK with no response body
401	Unauthorized	Unauthorized; credential entry failed or missing
404	Not Found	Resource does not exist; this IP Address is running an HTTP service but does not recognize this resource

Response Code	Name	Definition
429	Too Many Requests	Indicates API service is busy; client should try again later

OPTIONS /Compute/Devices/{id}/Accounts/{id}/

OPTIONS /Compute/Devices/{id}/Accounts/{id}/ returns the allowable HTTP Methods list for this resource.

Table 90: OPTIONS Request Headers

Header	Mandatory or Optional	Description
(None)	N/A	Returns the full resource schema as Content-Type application/json
Documentation	Optional	Info - Returns documentation information in the form of plain text
Documentation	Optional	Schema - Returns the schema information in "pretty" JSON text as plain text
If-None-Match	Optional	Etag - The request is conditionally processed only if the current ETag for the resource does not match the ETag passed in this header

Table 91: OPTIONS Response Codes

Response Code	Name	Definition
200	OK	OK & the "Allow" list of methods in the response header. The response body provides the JSON Schema for this resource
304	Not Modified	If-None-Match Etag value matched, therefore no Response Body will be returned.
404	Not Found	Resource does not exist; this IP Address is running an HTTP service but does not recognize this resource
429	Too Many Requests	Indicates API service is busy; client should try again later

5.3 /Compute/Devices/{id}/OperatingSystem/

The Device-level methods and attributes of /Compute/Devices/{id}/OperatingSystem/ return information about the Operating System (Application) and enable management operations.

HTTP Methods: GET   HEAD   OPTIONS

Table 92: Resource Attributes

Attribute	Type	Mandatory or Optional	User Config-urable	Possible Values	Description
Self	String	Mandatory	No	Free-Form URI Format 256 Chars	Describes the fully qualified URI link
Name	String	Mandatory	No	Free-Form 128 Chars	The Operating System or Firmware name
OSType. Name	String	Mandatory	No	"Winnt" | "Linux"	The Operating System Type value
OSType. ID	Number	Mandatory	No	18 | 36	The Operating System Type value map
Version	String	Mandatory	No	Free-Form 128 Chars	The Operating System or Application Version

GET /Compute/Devices/{id}/OperatingSystem/

GET /Compute/Devices/{id}/OperatingSystem/ returns the information of the Operating System resource.

Table 93: GET Request Headers

Header	Mandatory or Optional	Description
Authorization	Mandatory	The request requires either Basic or Digest authorization
If-None-Match	Optional	The request is conditionally processed only if the current ETag for the resource does not match the ETag passed in this header

Example GET curl Command

```
curl
    -i
    -u admin:admin
    -X GET http://10.20.30.40/Compute/Devices/0123456789/OperatingSystem/
```

Example GET Response Body

```
{
    "Self": "http://10.20.30.40/Compute/Devices/0123456789/OperatingSystem/",
    "Name": "Resource Manager Data Center",
    "OSType": {
        "ID": 36,
        "Name": "Linux"
    },
    "Version": "1.0.0"
}
```

Table 94: GET Response Codes

Response Code	Name	Definition
200	OK	OK & Operating System resource information in the response body
304	Not Modified	If-None-Match Etag value matched, therefore no Response Body will be returned
401	Unauthorized	Unauthorized; credential entry failed or missing
404	Not Found	Resource does not exist; this IP Address is running an HTTP service but does not recognize this resource
429	Too Many Requests	Indicates API service is busy; client should try again later

HEAD /Compute/Devices/{id}/OperatingSystem/

HEAD /Compute/Devices/{id}/OperatingSystem/ pings the Operating System resource.

Table 95: HEAD Request Headers

Header	Mandatory or Optional	Description
Authorization	Mandatory	The request requires either Basic or Digest authorization

Table 96: HEAD Response Codes

Response Code	Name	Definition
200	OK	OK with no response body
401	Unauthorized	Unauthorized; credential entry failed or missing
404	Not Found	Resource does not exist; this IP Address is running an HTTP service but does not recognize this resource
429	Too Many Requests	Indicates API service is busy; client should try again later

OPTIONS /Compute/Devices/{id}/OperatingSystem/

OPTIONS /Compute/Devices/{id}/OperatingSystem/ returns the allowable HTTP Methods list for this resource.

Table 97: OPTIONS Request Headers

Header	Mandatory or Optional	Description
(None)	N/A	Returns the full resource schema as Content-Type application/json
Documentation	Optional	Info - Returns documentation information in the form of plain text
Documentation	Optional	Schema - Returns the schema information in "pretty" JSON text as plain text
If-None-Match	Optional	Etag - The request is conditionally processed only if the current ETag for the resource does not match the ETag passed in this header

Table 98: OPTIONS Response Codes

Response Code	Name	Definition
200	OK	OK & the "Allow" list of methods in the response header. The response body provides the JSON Schema for this resource
304	Not Modified	If-None-Match Etag value matched, therefore no Response Body will be returned.
404	Not Found	Resource does not exist; this IP Address is running an HTTP service, but does not recognize this resource
429	Too Many Requests	Indicates API service is busy; client should try again later

5.4 /Compute/Devices/{id}/ApplicationSettings/

The Device-level methods and attributes of /Compute/Devices/{id}/ApplicationSettings/ return information about the Application Settings and enable management operations.

HTTP Methods: GET   PUT   HEAD   OPTIONS

Table 99: Resource Attributes

Attribute	Type	Mandatory or Optional	User Config-urable	Possible Values	Description
Self	String	Mandatory	No	Free-Form URI Format 256 Chars	Describes the fully qualified URI link for the Collection
Country	String	Optional	Yes	Free-Form 64 Chars	The Country name where this Device is located
Territory	String	Optional	Yes	Free-Form 64 Chars	The Territory name where this Device is located
State	String	Optional	Yes	Free-Form 64 Chars	The State name where this Device is located
City	String	Optional	Yes	Free-Form 64 Chars	The City name where this Device is located
Address1	String	Optional	Yes	Free-Form 64 Chars	The first Address information where this Device is located
Address2	String	Optional	Yes	Free-Form 64 Chars	The second Address information where this Device is located as needed
Address3	String	Optional	Yes	Free-Form 64 Chars	The third Address information where this Device is located as needed
PostalCode	String	Optional	Yes	Free-Form 32 Chars	The Postal or Zip Code name where this Device is located
SiteName	String	Optional	Yes	Free-Form 32 Chars	The friendly Site Name
Building	String	Optional	Yes	Free-Form 32 Chars	The Building name or number where this Device is located

Attribute	Type	Mandatory or Optional	User Config-urable	Possible Values	Description
Room	String	Optional	Yes	Free-Form 32 Chars	The Room name or number in the Building where this Device is located
Pod	String	Optional	Yes	Free-Form 32 Chars	The Pod name or number in the Room this Device is located as needed
Row	String	Optional	Yes	Free-Form 32 Chars	The Row name or number in the Room or Pod this Device is located
Rack	String	Optional	Yes	Free-Form 32 Chars	The Rack name or number in the Row this Device is located
Shelf	String	Optional	Yes	Free-Form 32 Chars	The Shelf name or number of the Rack this Device is located
Device	String	Optional	Yes	Free-Form 32 Chars	The Device name or number of the Rack this Device is located
Item	String	Optional	Yes	Free-Form 32 Chars	The Item name indicating the Shelf units or dimension for this Device
GPSCoords	String	Optional	Yes	Decimal Latitude, Decimal Longitude Format	The GPS coordinates of the location of this Device
OtherLocationInfo	String	Optional	Yes	Free-Form 64 Chars	A place-holder for other location information

GET /Compute/Devices/{id}/ApplicationSettings/

GET /Compute/Devices/{id}/ApplicationSettings/ returns the Application Settings information.

Table 100: GET Request Headers

Header	Mandatory or Optional	Description
Authorization	Mandatory	The request requires either Basic or Digest authorization

Header	Mandatory or Optional	Description
If-None-Match	Optional	The request is conditionally processed only if the current ETag for the resource does not match the ETag passed in this header

Example GET curl Command

```
curl
    -i
    -u admin:admin
    -X GET http://10.20.30.40/Compute/Devices/0123456789/ApplicationSettings/
```

Example GET Resonse Body

```
{
    "Self": "http://10.20.30.40/Compute/Devices/0123456789/ApplicationSettings/",
    "Name": "Resource Manager Data Center",
    "Version": "1.0.0",
    "ClusterSettings": {
        "Nodes": [
            {
                "IPAddress": "localhost",
                "Username": "elastic",
                "Password": "password"
            }
        ]
    }
}
```

Table 101: GET Response Codes

Response Code	Name	Definition
200	OK	OK & ApplicationSettings information in the response body
304	Not Modified	If-None-Match Etag value matched, therefore no Response Body will be returned
401	Unauthorized	Unauthorized; credential entry failed or missing
404	Not Found	Resource Collection does not exist; this IP Address is running an HTTP service but does not recognize this resource
429	Too Many Requests	Indicates API service is busy; client should try again later

PUT /Compute/Devices/{id}/ApplicationSettings/

PUT /Compute/Devices/{id}/ApplicationSettings/ modifies an attribute of the Application Settings.

Table 102: PUT Request Headers

Header	Mandatory or Optional	Description
Authorization	Mandatory	The request requires either Basic or Digest authorization

Header	Mandatory or Optional	Description
If-Match	Mandatory	The request is conditionally processed only if the current ETag for the resource matches the ETag passed in this header

Example PUT curl Command

> **Note:** The `If-Match` conditional in this command requires the **ETag** from the GET Response Header.

```
curl
    -i
    -u admin:admin
    -H "Content-Type: application/json"
    -H "If-Match: 3677651d2011428f32120a029b015e81"
    -X PUT http://10.20.30.40/Compute/Devices/0123456789/ApplicationSettings/
    --data '{
        "ClusterSettings": {
            "Nodes": [
                {
                    "IPAddress": "10.20.30.40",
                    "Username": "name",
                    "Password": "password"
                }
            ]
        }
    }'
```

Example PUT Request Body

```
{
    "ClusterSettings": {
        "Nodes": [
            {
                "IPAddress": "computer1",
                "Username": "elastic",
                "Password": "password"
            },
            {
                "IPAddress": "computer2",
                "Username": "elastic",
                "Password": "password"
            },
            {
                "IPAddress": "computer3",
                "Username": "elastic",
                "Password": "password"
            }
        ]
    }
}
```

Example PUT Response Body

```
{
    "Self": "http://10.202.237.60:80/Compute/Devices/0d1e357286a94bd083c1e3b89e7b7bd0/
ApplicationSettings/",
```

```
    "Name": "Resource Manager Data Center",
    "Version": "1.0.0",
    "ClusterSettings": {
        "Nodes": [
            {
                "IPAddress": "computer1",
                "Username": "elastic",
                "Password": "password"
            },
            {
                "IPAddress": "computer2",
                "Username": "elastic",
                "Password": "password"
            },
            {
                "IPAddress": "computer3",
                "Username": "elastic",
                "Password": "password"
            }
        ]
    }
}
```

Table 103: PUT Response Codes

Response Code	Name	Definition
200	OK	OK & ApplicationSettings information in the response body
400	Bad Request	Bad Request (typically a faulty parameter)
401	Unauthorized	Unauthorized; credential entry failed or missing
412	Precondition Failed	Indicates the "If-Match" Etag check failed
428	Precondition Required	Indicates the need for an "If-Match" conditional with an Etag value in the Request Header
429	Too Many Requests	Indicates API service is busy; client should try again later
500	Internal Server Error	Resource could not execute the request

HEAD /Compute/Devices/{id}/ApplicationSettings/

HEAD /Compute/Devices/{id}/ApplicationSettings/ pings the Application Settings.

Table 104: HEAD Request Headers

Header	Mandatory or Optional	Description
Authorization	Mandatory	The request requires either Basic or Digest authorization

Table 105: HEAD Response Codes

Response Code	Name	Definition
200	OK	OK with no response body

Response Code	Name	Definition
401	Unauthorized	Unauthorized; credential entry failed or missing
404	Not Found	Resource does not exist; this IP Address is running an HTTP service but does not recognize this resource
429	Too Many Requests	Indicates API service is busy; client should try again later

OPTIONS /Compute/Devices/{id}/ApplicationSettings/

OPTIONS /Compute/Devices/{id}/ApplicationSettings/ returns the allowable HTTP Methods list for this resource.

Table 106: OPTIONS Request Headers

Header	Mandatory or Optional	Description
(None)	N/A	Returns the full resource schema as Content-Type application/json
Documentation	Optional	Info - Returns documentation information in the form of plain text
Documentation	Optional	Schema - Returns the schema information in "pretty" JSON text as plain text
If-None-Match	Optional	Etag - The request is conditionally processed only if the current ETag for the resource does not match the ETag passed in this header

Table 107: OPTIONS Response Codes

Response Code	Name	Definition
200	OK	OK & the "Allow" list of methods in the response header. The response body provides the JSON Schema for this resource
304	Not Modified	If-None-Match Etag value matched, therefore no Response Body will be returned.
404	Not Found	Resource does not exist; this IP Address is running an HTTP service, but does not recognize this resource
429	Too Many Requests	Indicates API service is busy; client should try again later

5.5 /Compute/Devices/{id}/Files/

The Device-level methods and attributes of /Compute/Devices/{id}/Files/ return information about the Files collection and enable management operations.

HTTP Methods:　　GET　　　HEAD　　　OPTIONS

Table 108: Resource Attributes

Attribute	Type	Mandatory or Optional	User Config-urable	Possible Values	Description
Self	URI String	Mandatory	No	Free-Form URI Format 256 Chars	Describes the fully qualified URI link for the Collection
Members	String Array	Mandatory	No	Resource Collection (0 - n entries)	The array of Resource Instances. See **/Compute/Devices/{id}/Files/{id}/** *(page 88)* for Instance Attribute details

GET /Compute/Devices/{id}/Files/

GET /Compute/Devices/{id}/Files/ returns the Collection of Files.

Table 109: GET Request Headers

Header	Mandatory or Optional	Description
Authorization	Mandatory	The request requires either Basic or Digest authorization
If-None-Match	Optional	The request is conditionally processed only if the current ETag for the resource does not match the ETag passed in this header

Example GET curl Command

```
curl
    -i
    -u admin:admin
    -X GET http://10.20.30.40/Compute/Devices/0123456789/Files/
```

Example GET Response Body

```
{
    "Self": "http://10.20.30.40/Compute/Devices/0123456789/Files/",
    "Members": [
        {
            "Self": "http://10.20.30.40/Compute/Devices/0123456789/Files/auditlog/",
            "ID": "auditlog",
            "Description": "Audit log"
```

```
        },
        {
            "Self": "http://10.20.30.40/Compute/Devices/0123456789/Files/notices/",
            "ID": "notices",
            "Description": "Notices"
        },
        {
            "Self": "http://10.20.30.40/Compute/Devices/0123456789/Files/eula/",
            "ID": "eula",
            "Description": "EULA"
        },
        {
            "Self": "http://10.20.30.40/Compute/Devices/0123456789/Files/telemetry/",
            "ID": "telemetry",
            "Description": "Telemetry"
        }
    ],
    "TLSCertAndKey": {},
    "LDAPCert": {}
}
```

Table 110: GET Response Codes

Response Code	Name	Definition
200	OK	OK & List of Files + ETag Header
304	Not Modified	If-None-Match Etag value matched, therefore no Response Body will be returned
401	Unauthorized	Unauthorized; credential entry failed or missing
404	Not Found	Resource Collection does not exist; this IP Address is running an HTTP service but does not recognize this resource
429	Too Many Requests	Indicates API service is busy; client should try again later

HEAD /Compute/Devices/{id}/Files/

HEAD /Compute/Devices/{id}/Files/ pings this Files collection.

Table 111: HEAD Request Headers

Header	Mandatory or Optional	Description
Authorization	Mandatory	The request requires either Basic or Digest authorization

Table 112: HEAD Response Codes

Response Code	Name	Definition
200	OK	OK with no response body
401	Unauthorized	Unauthorized; credential entry failed or missing

Response Code	Name	Definition
404	Not Found	Resource Collection does not exist; this IP Address is running an HTTP service but does not recognize this resource
429	Too Many Requests	Indicates API service is busy; client should try again later

OPTIONS /Compute/Devices/{id}/Files/

OPTIONS /Compute/Devices/{id}/Files/ returns the allowable HTTP Methods list for this resource.

Table 113: OPTIONS Request Headers

Header	Mandatory or Optional	Description
(None)	N/A	Returns the full resource schema as Content-Type application/json
Documentation	Optional	Info - Returns documentation information in the form of plain text
Documentation	Optional	Schema - Returns the schema information in "pretty" JSON text as plain text
If-None-Match	Optional	Etag - The request is conditionally processed only if the current ETag for the resource does not match the ETag passed in this header

Table 114: OPTIONS Response Codes

Response Code	Name	Definition
200	OK	OK & the "Allow" list of methods in the response header. The response body provides the JSON Schema for this resource
304	Not Modified	If-None-Match Etag value matched, therefore no Response Body will be returned.
404	Not Found	Resource does not exist; this IP Address is running an HTTP service, but does not recognize this resource
429	Too Many Requests	Indicates API service is busy; client should try again later

5.5.1 /Compute/Devices/{id}/Files/{id}/

The Device-level methods and attributes of /Compute/Devices/{id}/Files/{id}/ return information about a specific File and enable management operations.

HTTP Methods: GET   POST   HEAD   OPTIONS

Table 115: Resource Attributes

Attribute	Type	Mandatory or Optional	User Config-urable	Possible Values	Description
Self	URI String	Mandatory	No	Free-Form URI Format 256 Chars	Describes the fully qualified URI link
ID	String	Mandatory	No	Free-Form 256 Chars	The resource identifier
Name	String	Mandatory	No	Free-Form 256 Chars	The name of the file

GET /Compute/Devices/{id}/Files/{id}/

GET /Compute/Devices/{id}/Files/{id}/ returns information regarding a specific File based on the {id} in the URI address string.

Table 116: GET Request Headers

Header	Mandatory or Optional	Description
Authorization	Mandatory	The request requires either Basic or Digest authorization
If-None-Match	Optional	The request is conditionally processed only if the current ETag for the resource does not match the ETag passed in this header

Example GET curl Command – Audit Log

```
curl
    -i
    -u admin:admin
    -X GET http://10.20.30.40/Compute/Devices/0123456789/Files/auditlog
```

Example GET Response Body – Audit Log

```
index:000001|
addr:[10.88.94.81:52974]|
type:Response|
statuscode:204|
user:admin|
path:/Compute/Devices/000af7957e01/Jobs/GroupOperation15798/
```

Table 117: Available Files

File Type	Description
auditlog	Returns the current audit log entries as text to the requestor (content-type: text/plain)
notices	Returns the 3rd Party open-source software entries and their licensing used in this application
eula	Returns the End-User License Agreement documentation
telemetry	Returns a downloaded compressed bundle file called "telemetry_Compute_<id>_<timestamp>.tgz" to the requestor containing instantaneous GET of all the device info
cert_pem (204 No Content or 200 OK)	If the User uploaded a custom Cert/Key pair, returns the current SSL certificate entry as text to the requestor (content-type: text/plain)
key_pem (405 Method Not Allowed)	If the User uploaded a custom Cert/Key pair, SSL key GET not allowed for security of the key (403 Forbidden response)

Table 118: GET Response Codes

Response Code	Name	Definition
200	OK	OK & File information in the response body + ETag Header
304	Not Modified	If-None-Match Etag value matched, therefore no Response Body will be returned
401	Unauthorized	Unauthorized; credential entry failed or missing
404	Not Found	Resource does not exist; this IP Address is running an HTTP service but does not recognize this resource
429	Too Many Requests	Indicates API service is busy; client should try again later

POST /Compute/Devices/{id}/Files/{id}/

POST /Compute/Devices/{id}/Files/{id}/ updates the specific file.

Table 119: POST Request Headers

Header	Mandatory or Optional	Description
Authorization	Mandatory	The request requires either Basic or Digest authorization
Content-Type: multipart/form-data	Mandatory	The FW image file is of content type "multipart/form-data"

Example POST curl Command – Adding an SSL Certificate & Key

```
curl
    -i
    -u admin:admin
    -X POST http://10.20.30.40/Compute/Devices/0123456789/Files/TLSCertAndKey/
    -H "Content-Type: multipart/form-data"
    -F "cert.pem=@cert.pem"
    -F "key.pem=@key.pem"
```

Example POST Request Body – Adding an SSL Certificate & Key

```
Content-Disposition: form-data; cert.pem="{file_name}"
{file body}
Content-Disposition: form-data; key.pem="{file_name}"
{file body}
```

Note: Both Certificate and Key files MUST be sent together in the same POST request.

Note: Once the Certificate and Key files are uploaded, the API will restart for the certificate/key to take effect. See PUT **/Query/InformationStructure/** *(page 16)* {"RestartAPI" : true}.

Note: The Certificate and Key files cannot be validated, therefore the user must make sure the files are valid before uploading. If they are invalid, the result is the HTTPS service will not operate.

Example POST curl Command – Adding an LDAP Client SSL Certificate

```
curl
    -i
    -u admin:admin
    -X POST http://10.20.30.40/Compute/Devices/0123456789/Files/LDAPCert/
    -H "Content-Type: multipart/form-data"
    -F "cert.pem=@ldapcert.pem"
```

Example POST Request Body – Adding an LDAP Client SSL Certificate

```
Content-Disposition: form-data; ldapcert.pem="{file_name}"
{file body}
```

Note: The Certificate file cannot be validated, therefore the user must make sure the files are valid before uploading. If they are invalid, the result is the LDAP service will not operate properly.

Table 120: POST Response Codes

Response Code	Name	Definition
201	Created	Created & File information in the response body + ETag Header + new URI in Location Header
400	Bad Request	Bad Request (typically a faulty parameter)
401	Unauthorized	Unauthorized; credential entry failed or missing

Response Code	Name	Definition
404	Not Found	Resource does not exist; this IP Address is running an HTTP service but does not recognize this resource
429	Too Many Requests	Indicates API service is busy; client should try again later

HEAD /Compute/Devices/{id}/Files/{id}/

HEAD /Compute/Devices/{id}/Files/{id}/ pings a specific Compute File.

Table 121: HEAD Request Headers

Header	Mandatory or Optional	Description
Authorization	Mandatory	The request requires either Basic or Digest authorization

Table 122: HEAD Response Codes

Response Code	Name	Definition
200	OK	OK with no response body
401	Unauthorized	Unauthorized; credential entry failed or missing
404	Not Found	Resource does not exist; this IP Address is running an HTTP service but does not recognize this resource
429	Too Many Requests	Indicates API service is busy; client should try again later

OPTIONS /Compute/Devices/{id}/Files/{id}/

OPTIONS /Compute/Devices/{id}/Files/{id}/ returns the allowable HTTP Methods list for this resource.

Table 123: OPTIONS Request Headers

Header	Mandatory or Optional	Description
(None)	N/A	Returns the full resource schema as Content-Type application/json
Documentation	Optional	Info - Returns documentation information in the form of plain text
Documentation	Optional	Schema - Returns the schema information in "pretty" JSON text as plain text
If-None-Match	Optional	Etag - The request is conditionally processed only if the current ETag for the resource does not match the ETag passed in this header

Table 124: OPTIONS Response Codes

Response Code	Name	Definition
200	OK	OK & the "Allow" list of methods in the response header. The response body provides the JSON Schema for this resource
204	No Content	No Content & "Allow" list of methods in the response header. Some files will return 204 No Content indicating that there is no entity body
304	Not Modified	If-None-Match Etag value matched, therefore no Response Body will be returned.
404	Not Found	Resource does not exist; this IP Address is running an HTTP service but does not recognize this resource
429	Too Many Requests	Indicates API service is busy; client should try again later

5.6 /Compute/Devices/{id}/Location/

The Device-level methods and attributes of /Compute/Devices/{id}/Location/ return information about the resource Location and enable management operations.

HTTP Methods: GET   PUT   DELETE   HEAD   OPTIONS

Table 125: Resource Attributes

Attribute	Type	Mandatory or Optional	User Config- urable	Possible Values	Description
Self	String	Mandatory	No	Free-Form URI Format 256 Chars	Describes the fully qualified URI link for the Collection
Country	String	Optional	Yes	Free-Form 64 Chars	The Country name where this Device is located
Territory	String	Optional	Yes	Free-Form 64 Chars	The Territory name where this Device is located
State	String	Optional	Yes	Free-Form 64 Chars	The State name where this Device is located
City	String	Optional	Yes	Free-Form 64 Chars	The City name where this Device is located
Address1	String	Optional	Yes	Free-Form 64 Chars	The first Address information where this Device is located
Address2	String	Optional	Yes	Free-Form 64 Chars	The second Address information where this Device is located as needed
Address3	String	Optional	Yes	Free-Form 64 Chars	The third Address information where this Device is located as needed
PostalCode	String	Optional	Yes	Free-Form 32 Chars	The Postal or Zip Code name where this Device is located
SiteName	String	Optional	Yes	Free-Form 32 Chars	The friendly Site Name
Building	String	Optional	Yes	Free-Form 32 Chars	The Building name or number where this Device is located

Attribute	Type	Mandatory or Optional	User Config-urable	Possible Values	Description
Room	String	Optional	Yes	Free-Form 32 Chars	The Room name or number in the Building where this Device is located
Pod	String	Optional	Yes	Free-Form 32 Chars	The Pod name or number in the Room this Device is located as needed
Row	String	Optional	Yes	Free-Form 32 Chars	The Row name or number in the Room or Pod this Device is located
Rack	String	Optional	Yes	Free-Form 32 Chars	The Rack name or number in the Row this Device is located
Shelf	String	Optional	Yes	Free-Form 32 Chars	The Shelf name or number of the Rack this Device is located
Device	String	Optional	Yes	Free-Form 32 Chars	The Device name or number of the Rack this Device is located
Item	String	Optional	Yes	Free-Form 32 Chars	The Item name indicating the Shelf units or dimension for this Device
GPSCoords	String	Optional	Yes	Decimal Latitude, Decimal Longitude Format	The GPS coordinates of the location of this Device
OtherLocationInfo	String	Optional	Yes	Free-Form 64 Chars	A place-holder for other location information

GET /Compute/Devices/{id}/Location/

GET /Compute/Devices/{id}/Location/ returns the Location information.

Table 126: GET Request Headers

Header	Mandatory or Optional	Description
Authorization	Mandatory	The request requires either Basic or Digest authorization

Header	Mandatory or Optional	Description
If-None-Match	Optional	The request is conditionally processed only if the current ETag for the resource does not match the ETag passed in this header

Example GET curl Command

```
curl
    -i
    -u admin:admin
    -X GET http://10.20.30.40/Compute/Devices/0123456789/Location/
```

Example GET Response Body

```
{
    "Self": "http://10.20.30.40/Compute/Devices/0123456789/Location/",
    "Country": "USA",
    "Territory": "",
    "State": "Colorado",
    "City": "Colorado Springs",
    "Address1": "9950 Federal Drive",
    "Address2": "Suite 100",
    "Address3":"",
    "PostalCode": "80921",
    "SiteName": "WD COS DataCenter 1",
    "Building": "9950",
    "Room": "159",
    "Pod": "p2",
    "Rack": "r02",
    "Shelf" : "30",
    "Device":"5",
    "Item": "Rack Units",
    "GPSCoords": "38.9838684,-104.8040493",
    "OtherLocationInfo": "This is other info"
}
```

Table 127: GET Response Codes

Response Code	Name	Definition
200	OK	OK & Location information + ETag Header
304	Not Modified	If-None-Match Etag value matched, therefore no Response Body will be returned
401	Unauthorized	Unauthorized; credential entry failed or missing
404	Not Found	Resource does not exist; this IP Address is running an HTTP service but does not recognize this resource
429	Too Many Requests	Indicates API service is busy; client should try again later

PUT /Compute/Devices/{id}/Location/

PUT /Compute/Devices/{id}/Location/ modifies an attribute of the Location.

Table 128: PUT Request Headers

Header	Mandatory or Optional	Description
Authorization	Mandatory	The request requires either Basic or Digest authorization
If-Match	Mandatory	The request is conditionally processed only if the current ETag for the resource matches the ETag passed in this header

Example PUT curl Command

> **Note:** The `If-Match` conditional in this command requires the **ETag** from the GET Response Header.

```
curl
    -i
    -u admin:admin
    -H "Content-Type: application/json"
    -H "If-Match: 3677651d2011428f32120a029b015e80"
    -X PUT http://10.20.30.40/Compute/Devices/0123456789/Location/
    --data '{
        "Address1": "9950 Federal Drive",
        "Address2": "Suite 100",
        "Address3": "North",
        "Building": "9950",
        "City": "Colorado Springs",
        "Country": "USA",
        "Device": "255",
        "GPSCoords": "38.9838643,-104.806244",
        "Item": "Rack Units",
        "OtherLocationInfo": "More Info",
        "Pod": "2",
        "PostalCode": "80921",
        "Rack": "2",
        "Room": "159",
        "Row": "2",
        "Shelf": "24",
        "SiteName": "WDC COS DataCenter",
        "State": "Colorado",
        "Territory": "El Paso"
}'
```

Example PUT Response Body

```
{
    "Self": "http://10.20.30.40/Compute/Devices/0123456789/Location/"
    "Address1": "9950 Federal Drive",
    "Address2": "Suite 100",
    "Address3": "North",
    "Building": "9950",
    "City": "Colorado Springs",
    "Country": "USA",
    "Device": "255",
    "GPSCoords": "38.9838643,-104.806244",
    "Item": "Rack Units",
    "OtherLocationInfo": "More Info",
```

```
    "Pod": "2",
    "PostalCode": "80921",
    "Rack": "2",
    "Room": "159",
    "Row": "2",
    "Shelf": "24",
    "SiteName": "WDC COS DataCenter",
    "State": "Colorado",
    "Territory": "El Paso"
}
```

Table 129: PUT Response Codes

Response Code	Name	Definition
200	OK	OK & Location information with no response body
400	Bad Request	Bad Request (typically a faulty parameter)
401	Unauthorized	Unauthorized; credential entry failed or missing
412	Precondition Failed	Indicates the "If-Match" Etag check failed
428	Precondition Required	Indicates the need for an "If-Match" conditional with an Etag value in the Request Header
429	Too Many Requests	Indicates API service is busy; client should try again later
500	Internal Server Error	Resource could not execute the request

DELETE /Compute/Devices/{id}/Location/

DELETE /Compute/Devices/{id}/Location/ deletes Location information.

Table 130: DELETE Request Headers

Header	Mandatory or Optional	Description
Authorization	Mandatory	The request requires either Basic or Digest authorization
If-Match	Mandatory	The request is conditionally processed only if the current ETag for the resource matches the ETag passed in this header

Example DELETE curl Command

> **Note:** The `If-Match` conditional in this command requires the **ETag** from the GET Response Header.

```
curl
    -i
    -u admin:admin
    -H "If-Match: 3677651d2011428f32120a029b015e81"
    -X DELETE http://10.20.30.40/Compute/Devices/0123456789/Location/
```

Table 131: DELETE Response Codes

Response Code	Name	Definition
204	No Content	Delete successful, no content in the response body
401	Unauthorized	Unauthorized; credential entry failed or missing
404	Not Found	The Resource doesn't exist
412	Precondition Failed	Indicates the "If-Match" Etag check failed
428	Precondition Required	Indicates the need for an "If-Match" conditional with an Etag value in the Request Header
429	Too Many Requests	Indicates API service is busy; client should try again later
500	Internal Server Error	System could not process the request

HEAD /Compute/Devices/{id}/Location/

HEAD /Compute/Devices/{id}/Location/ pings the Location resource.

Table 132: HEAD Request Headers

Header	Mandatory or Optional	Description
Authorization	Mandatory	The request requires either Basic or Digest authorization

Table 133: HEAD Response Codes

Response Code	Name	Definition
200	OK	OK with no response body
401	Unauthorized	Unauthorized; credential entry failed or missing
404	Not Found	Resource does not exist; this IP Address is running an HTTP service but does not recognize this resource
429	Too Many Requests	Indicates API service is busy; client should try again later

OPTIONS /Compute/Devices/{id}/Location/

OPTIONS /Compute/Devices/{id}/Location/ returns the allowable HTTP Methods list for this resource.

Table 134: OPTIONS Request Headers

Header	Mandatory or Optional	Description
(None)	N/A	Returns the full resource schema as Content-Type application/json
Documentation	Optional	Info - Returns documentation information in the form of plain text

Header	Mandatory or Optional	Description
Documentation	Optional	Schema - Returns the schema information in "pretty" JSON text as plain text
If-None-Match	Optional	Etag - The request is conditionally processed only if the current ETag for the resource does not match the ETag passed in this header

Table 135: OPTIONS Response Codes

Response Code	Name	Definition
200	OK	OK & the "Allow" list of methods in the response header. The response body provides the JSON Schema for this resource
304	Not Modified	If-None-Match Etag value matched, therefore no Response Body will be returned.
404	Not Found	Resource does not exist; this IP Address is running an HTTP service, but does not recognize this resource
429	Too Many Requests	Indicates API service is busy; client should try again later

5.7 /Compute/Devices/{id}/SystemClock/

The Device-level methods and attributes of /Compute/Devices/{id}/SystemClock/ return information about the System Clock and enable management operations.

HTTP Methods: GET   HEAD   OPTIONS

Table 136: Resource Attributes

Attribute	Type	Mandatory or Optional	User Config-urable	Possible Values	Description
Self	String	Mandatory	No	Free-Form URI Format 256 Chars	Describes the fully qualified URI link for the Collection
Uptime. Duration	String	Mandatory	No		The current uptime value in ISO 8601 format
Uptime. Days	Number	Mandatory	No	0 - n	The current uptime Days since boot
Uptime. Hours	Number	Mandatory	No	0 - 23	The current uptime Hours since boot
Uptime. Minutes	Number	Mandatory	No	0 - 59	The current uptime Minutes since boot
Uptime. Seconds	Number	Mandatory	No	0 - 59	The current uptime Seconds since boot

GET /Compute/Devices/{id}/SystemClock/

GET /Compute/Devices/{id}/SystemClock/ returns the System Clock information.

Table 137: GET Request Headers

Header	Mandatory or Optional	Description
Authorization	Mandatory	The request requires either Basic or Digest authorization
If-None-Match	Optional	The request is conditionally processed only if the current ETag for the resource does not match the ETag passed in this header

Example GET curl Command

```
curl
    -i
    -u admin:admin
    -X GET http://10.20.30.40/Compute/Devices/0123456789/SystemClock/
```

Example GET Response Body

```
{
    "Self": "http://10.20.30.40/Compute/Devices/0123456789/SystemClock/",
    "Date": "17-Aug-2022",
    "Time": "12:34:13",
    "TimeZone": "(UTC-6.00) MDT",
    "TimeZoneSetting": "MDT",
    "DST": "Enabled",
    "Uptime": {
        "Duration": "P82DT1H26M51S",
        "Days": 82,
        "Hours": 1,
        "Minutes": 26,
        "Seconds": 51
    }
}
```

Table 138: GET Response Codes

Response Code	Name	Definition
200	OK	OK & System Clock information + ETag Header
304	Not Modified	If-None-Match Etag value matched, therefore no Response Body will be returned. **Note**: Due to the time changing every second, catching a 304 response will be very rare
401	Unauthorized	Unauthorized; credential entry failed or missing
404	Not Found	Resource Collection does not exist; this IP Address is running an HTTP service but does not recognize this resource
429	Too Many Requests	Indicates API service is busy; client should try again later

HEAD /Compute/Devices/{id}/SystemClock/

HEAD /Compute/Devices/{id}/SystemClock/ pings the System Clock resource.

Table 139: HEAD Request Headers

Header	Mandatory or Optional	Description
Authorization	Mandatory	The request requires either Basic or Digest authorization

Table 140: HEAD Response Codes

Response Code	Name	Definition
200	OK	OK with no response body
401	Unauthorized	Unauthorized; credential entry failed or missing

Response Code	Name	Definition
404	Not Found	Resource does not exist; this IP Address is running an HTTP service but does not recognize this resource
429	Too Many Requests	Indicates API service is busy; client should try again later

OPTIONS /Compute/Devices/{id}/SystemClock/

OPTIONS /Compute/Devices/{id}/SystemClock/ returns the allowable HTTP Methods list for this resource.

Table 141: OPTIONS Request Headers

Header	Mandatory or Optional	Description
(None)	N/A	Returns the full resource schema as Content-Type application/json
Documentation	Optional	Info - Returns documentation information in the form of plain text
Documentation	Optional	Schema - Returns the schema information in "pretty" JSON text as plain text
If-None-Match	Optional	Etag - The request is conditionally processed only if the current ETag for the resource does not match the ETag passed in this header

Table 142: OPTIONS Response Codes

Response Code	Name	Definition
200	OK	OK & the "Allow" list of methods in the response header. The response body provides the JSON Schema for this resource
304	Not Modified	If-None-Match Etag value matched, therefore no Response Body will be returned.
404	Not Found	Resource does not exist; this IP Address is running an HTTP service, but does not recognize this resource
429	Too Many Requests	Indicates API service is busy; client should try again later

5.8 /Compute/Devices/{id}/Jobs/

The Device-level methods and attributes of /Compute/Devices/{id}/Jobs/ return information about the Jobs collection and enable management operations.

HTTP Methods: GET   HEAD   OPTIONS

Table 143: Resource Attributes

Attribute	Type	Mandatory or Optional	User Config-urable	Possible Values	Description
Self	URI String	Mandatory	No	Free-Form URI Format 256 Chars	Describes the fully qualified URI link for the Collection
Members	String Array	Optional	No	Resource Collection (1 - n entries)	The array of Resource Instances. See */Compute/Devices/{id}/Jobs/{id}/ (page 106)* for Instance Attribute details

GET /Compute/Devices/{id}/Jobs/

GET /Compute/Devices/{id}/Jobs/ returns the Collection of Jobs.

Table 144: GET Request Headers

Header	Mandatory or Optional	Description
Authorization	Mandatory	The request requires either Basic or Digest authorization
If-None-Match	Optional	The request is conditionally processed only if the current ETag for the resource does not match the ETag passed in this header

Example GET curl Command

```
curl
    -i
    -u admin:admin
    -X GET http://10.20.30.40/Compute/Devices/0123456789/Jobs/
```

Table 145: GET Response Codes

Response Code	Name	Definition
200	OK	OK & List of Jobs + ETag Header
304	Not Modified	If-None-Match Etag value matched, therefore no Response Body will be returned

Response Code	Name	Definition
401	Unauthorized	Unauthorized; credential entry failed or missing
404	Not Found	Resource Collection does not exist; this IP Address is running an HTTP service but does not recognize this resource
429	Too Many Requests	Indicates API service is busy; client should try again later

HEAD /Compute/Devices/{id}/Jobs/

HEAD /Compute/Devices/{id}/Jobs/ pings the Jobs collection.

Table 146: HEAD Request Headers

Header	Mandatory or Optional	Description
Authorization	Mandatory	The request requires either Basic or Digest authorization

Table 147: HEAD Response Codes

Response Code	Name	Definition
200	OK	OK with no response body
401	Unauthorized	Unauthorized; credential entry failed or missing
404	Not Found	Resource Collection does not exist; this IP Address is running an HTTP service but does not recognize this resource
429	Too Many Requests	Indicates API service is busy; client should try again later

OPTIONS /Compute/Devices/{id}/Jobs/

OPTIONS /Compute/Devices/{id}/Jobs/ returns the allowable HTTP Methods list for this resource.

Table 148: OPTIONS Request Headers

Header	Mandatory or Optional	Description
(None)	N/A	Returns the full resource schema as Content-Type application/json
Documentation	Optional	Info - Returns documentation information in the form of plain text
Documentation	Optional	Schema - Returns the schema information in "pretty" JSON text as plain text
If-None-Match	Optional	Etag - The request is conditionally processed only if the current ETag for the resource does not match the ETag passed in this header

Table 149: OPTIONS Response Codes

Response Code	Name	Definition
200	OK	OK & the "Allow" list of methods in the response header. The response body provides the JSON Schema for this resource
304	Not Modified	If-None-Match Etag value matched, therefore no Response Body will be returned.
404	Not Found	Resource collection does not exist; this IP Address is running an HTTP service, but does not recognize this resource
429	Too Many Requests	Indicates API service is busy; client should try again later

5.8.1 /Compute/Devices/{id}/Jobs/{id}/

The Device-level methods and attributes of /Compute/Devices/{id}/Jobs/{id}/ return information about a specific Job, based on the {id} in the URI string, and enable management operations.

HTTP Methods: GET   DELETE   HEAD   OPTIONS

Table 150: Resource Attributes

Attribute	Type	Mandatory or Optional	User Config-urable	Possible Values	Description
Self	URI String	Mandatory	No	Free-Form URI Format 256 Chars	Describes the fully qualified URI link
ID	String	Mandatory	No	"FactoryReset"	The Name of this particular Job
Status. State. Name	String	Mandatory	No	"Unknown" | "Not available" | "Servicing" | "Starting" | "Stopping" | "Stopped" | "Aborted" | "Dormant" | "Completed" | "Migrating" | "Emigrating" | "Immigrating" | "Snapshotting" | "Shutting down" | "In test" | "Transitioning" | "In service" | "Inoperative" | "Write Protected" | "Reboot Needed" | "Activate Needed" | "Activate with reboot needed" | "Activate invalidated by reboot"	The current state value of this Resource
Status. State. ID	Number	Mandatory	No	0-16 | 65537-65542	The current state value map of this Resource

Attribute	Type	Mandatory or Optional	User Config- urable	Possible Values	Description
Status. Health[]. Name	String (1..*)	Mandatory	No	"Unknown" | "OK" | "Degraded/Warning" | "Minor failure" | "Major failure" | "Critical failure" | "Non-recoverable error" | "Not installed" | "Not available" | "No access allowed"	The current health value of this Resource. There can be 1 or more Name entries
Status. Health[]. ID	Number (1..*)	Mandatory	No	0 | 5 | 10 | 15 | 20 | 25 | 30 | 65536-65538	The current health value map of this Resource. There can be 1 or more Id entries
Status. Details[]	String Array	Optional	No	Free-Form Array entry. If no entry, then "None"	The current Health Details of the Device
PercentComplete	Number	Mandatory	No	0-100	The percent complete status of the Job

GET /Compute/Devices/{id}/Jobs/{id}/

GET /Compute/Devices/{id}/Jobs/{id}/ returns information regarding a specific Job based on the {id} in the URI address string.

Table 151: GET Request Headers

Header	Mandatory or Optional	Description
Authorization	Mandatory	The request requires either Basic or Digest authorization
If-None-Match	Optional	The request is conditionally processed only if the current ETag for the resource does not match the ETag passed in this header

Example GET curl Command

```
curl
    -i
    -u admin:admin
    -X GET http://10.20.30.40/Compute/Devices/0123456789/Jobs/FactoryReset_0123456789/
```

Example GET Response Body

```
{
    "Self": "http://10.20.30.40/Compute/Devices/0123456789/Jobs/
FactoryReset_0123456789/",
    "ID": "FactoryReset_0123456789",
    "StartTime": "02-Oct-2023 16:49:07",
    "ElapsedTime": "02-Oct-2023 16:49:22",
    "Owner": "http://10.20.30.40/Compute/Devices/0123456789/",
```

```
    "PercentComplete": 100,
    "Status": {
        "State": {
            "ID": 8,
            "Name": "Completed"
        },
        "Health": [
            {
                "ID": 5,
                "Name": "OK"
            }
        ]
    }
}
```

Table 152: GET Response Codes

Response Code	Name	Definition
200	OK	OK & Job information in the response body + ETag Header
304	Not Modified	If-None-Match Etag value matched, therefore no Response Body will be returned
401	Unauthorized	Unauthorized; credential entry failed or missing
404	Not Found	Resource does not exist; this IP Address is running an HTTP service but does not recognize this resource
429	Too Many Requests	Indicates API service is busy; client should try again later

DELETE /Compute/Devices/{id}/Jobs/{id}/

DELETE /Compute/Devices/{id}/Jobs/{id}/ deletes a specific Job.

> **Note: NOTE**: When deleting firmware-related jobs, the recommended order is to delete FirmwareUpdate before FirmwareActivate.

> **Note:** Jobs cannot be deleted when in-progress (i.e. when PercentComplete is less than 100%).

Table 153: DELETE Request Headers

Header	Mandatory or Optional	Description
Authorization	Mandatory	The request requires either Basic or Digest authorization
If-Match	Mandatory	The request is conditionally processed only if the current ETag for the resource matches the ETag passed in this header

Example DELETE curl Command

📄 **Note:** The `If-Match` conditional in this command requires the **ETag** from the GET Response Header.

```
curl
    -i
    -u admin:admin
    -H "If-Match: 3677651d2011428f32120a029b015e81"
    -X DELETE http://10.20.30.40/Storage/Devices/0123456789/Jobs/
FactoryReset_0123456789
```

Table 154: DELETE Response Codes

Response Code	Name	Definition
204	No Content	Delete successful; no content in the response body
401	Unauthorized	Unauthorized; credential entry failed or missing
404	Not Found	The Resource doesn't exist
409	Conflict	If job is still in progress
412	Precondition Failed	Indicates the "If-Match" Etag check failed
428	Precondition Required	Indicates the need for an "If-Match" conditional with an Etag value in the Request Header
429	Too Many Requests	Indicates API service is busy; client should try again later

HEAD /Compute/Devices/{id}/Jobs/{id}/

HEAD /Compute/Devices/{id}/Jobs/{id}/ pings this specific Job.

Table 155: HEAD Request Headers

Header	Mandatory or Optional	Description
Authorization	Mandatory	The request requires either Basic or Digest authorization

Table 156: HEAD Response Codes

Response Code	Name	Definition
200	OK	OK with no response body
401	Unauthorized	Unauthorized; credential entry failed or missing
404	Not Found	Resource does not exist; this IP Address is running an HTTP service but does not recognize this resource
429	Too Many Requests	Indicates API service is busy; client should try again later

OPTIONS /Compute/Devices/{id}/Jobs/{id}/

OPTIONS /Compute/Devices/{id}/Jobs/{id}/ returns the allowable HTTP Methods list for this resource.

Table 157: OPTIONS Request Headers

Header	Mandatory or Optional	Description
(None)	N/A	Returns the full resource schema as Content-Type application/json
Documentation	Optional	Info - Returns documentation information in the form of plain text
Documentation	Optional	Schema - Returns the schema information in "pretty" JSON text as plain text
If-None-Match	Optional	Etag - The request is conditionally processed only if the current ETag for the resource does not match the ETag passed in this header

Table 158: OPTIONS Response Codes

Response Code	Name	Definition
200	OK	OK & the "Allow" list of methods in the response header. The response body provides the JSON Schema for this resource
304	Not Modified	If-None-Match Etag value matched, therefore no Response Body will be returned.
404	Not Found	Resource does not exist; this IP Address is running an HTTP service but does not recognize this resource
429	Too Many Requests	Indicates API service is busy; client should try again later

5.9 /Compute/Devices/{id}/Assets/

The Device-level methods and attributes of /Compute/Devices/{id}/Assets/ return information about the Asset(s) collection and enable management operations.

HTTP Methods: GET HEAD OPTIONS

Table 159: Resource Attributes

Attribute	Type	Mandatory or Optional	User Config- urable	Possible Values	Description
Self	URI String	Mandatory	No	Free-Form URI Format 256 Chars	Describes the fully qualified URI link for the Collection
Members	String Array	Mandatory	No	Resource Collection (1 - n entries)	The array of Resource Instances. See */Compute/Devices/{id}/Assets/{id}/ (page 114)* for Instance Attribute details

GET /Compute/Devices/{id}/Assets/

GET /Compute/Devices/{id}/Assets/ returns the Collection of Assets.

Table 160: GET Request Headers

Header	Mandatory or Optional	Description
Authorization	Mandatory	The request requires either Basic or Digest authorization
If-None-Match	Optional	The request is conditionally processed only if the current ETag for the resource does not match the ETag passed in this header

Example GET curl Command

```
curl
    -i
    -u admin:admin
    -X GET http://10.20.30.40/Compute/Devices/0123456789/Assets/
```

Table 161: GET Response Codes

Response Code	Name	Definition
200	OK	OK & List of Assets + ETag Header
304	Not Modified	If-None-Match Etag value matched, therefore no Response Body will be returned

Response Code	Name	Definition
401	Unauthorized	Unauthorized; credential entry failed or missing
404	Not Found	Resource Collection does not exist; this IP Address is running an HTTP service but does not recognize this resource
429	Too Many Requests	Indicates API service is busy; client should try again later

HEAD /Compute/Devices/{id}/Assets/

HEAD /Compute/Devices/{id}/Assets/ pings the Assets Collection.

Table 162: HEAD Request Headers

Header	Mandatory or Optional	Description
Authorization	Mandatory	The request requires either Basic or Digest authorization

Table 163: HEAD Response Codes

Response Code	Name	Definition
200	OK	OK with no response body
401	Unauthorized	Unauthorized; credential entry failed or missing
404	Not Found	Resource Collection does not exist; this IP Address is running an HTTP service but does not recognize this resource
429	Too Many Requests	Indicates API service is busy; client should try again later

OPTIONS /Compute/Devices/{id}/Assets/

OPTIONS /Compute/Devices/{id}/Assets/ returns the allowable HTTP Methods list for this resource.

Table 164: OPTIONS Request Headers

Header	Mandatory or Optional	Description
(None)	N/A	Returns the full resource schema as Content-Type application/json
Documentation	Optional	Info - Returns documentation information in the form of plain text
Documentation	Optional	Schema - Returns the schema information in "pretty" JSON text as plain text
If-None-Match	Optional	Etag - The request is conditionally processed only if the current ETag for the resource does not match the ETag passed in this header

Table 165: OPTIONS Response Codes

Response Code	Name	Definition
200	OK	OK & the "Allow" list of methods in the response header. The response body provides the JSON Schema for this resource
304	Not Modified	If-None-Match Etag value matched, therefore no Response Body will be returned.
404	Not Found	Resource does not exist; this IP Address is running an HTTP service, but does not recognize this resource
429	Too Many Requests	Indicates API service is busy; client should try again later

5.9.1 /Compute/Devices/{id}/Assets/{id}/

The Device-level methods and attributes of /Compute/Devices/{id}/Assets/{id}/ return information about a specific Asset, based on the {id} in the URI string, and enable management operations.

HTTP Methods: GET   PUT   HEAD   OPTIONS

Table 166: Resource Attributes

Attribute	Type	Mandatory or Optional	User Config- urable	Possible Values	Description
Self	URI String	Mandatory	No	Free-Form URI Format 256 Chars	Describes the fully qualified URI link
ID	String	Mandatory	No	UUID Format	The Identifier this particular Asset
Name	String	Mandatory	No	Free-Form 256 Chars	The name of the Asset. Must be unique to this Asset Collection
Description	String	Optional	No	Free-Form 256 Characters	The description of this Asset
Type. ID	Number	Mandatory	No		
Type. Name	String	Mandatory	No		
Accounts	Object Array	Optional	Yes	BasicAuthentication: {"UserPassword": "<password>"}, "UserID": "<username>"}	Provides a username and password pair to tell Resource Manager Data Center Edition how to connect to a remote/proxied Device (typically the Redfish-based Devices)
SubType. ID	Number	Mandatory	No		
SubType. Name	String	Mandatory	No		
AssetInformation	Object	Mandatory	No	Device GET Full information	Contains one or more discovered Devices' GET /Full information

GET /Compute/Devices/{id}/Assets/{id}/

GET /Compute/Devices/{id}/Assets/{id}/ returns information regarding a specific Asset based on the {id} in the URI address string.

Table 167: GET Request Headers

Header	Mandatory or Optional	Description
Authorization	Mandatory	The request requires either Basic or Digest authorization
If-None-Match	Optional	The request is conditionally processed only if the current ETag for the resource does not match the ETag passed in this header

Example GET curl Command

```
curl
    -i
    -u admin:admin
    -X GET http://10.20.30.40/Compute/Devices/0123456789/Assets/5000ccab0410a180/
```

Example GET Response Body

```
{
    "Self": "http://10.20.30.40/Compute/Devices/0123456789/Assets/5000ccab0410a180/",
    "ID": "5000ccab0410a180",
    "Name": "5000ccab0410a180",
    "Accounts": [
        {
            "BasicAuthentication": {
                "UserPassword": " ******* "
            },
            "UserID": "admin"
        }
    ],
    "Description": "Full Device Asset Information",
    "Type": {
        "ID": 2,
        "Name": "Storage"
    },
    "SubType": {
        "ID": 1,
        "Name": "Enclosure"
    },
    "AssetInformation": {
        "Accounts": {...},
        "Adapters": {...},
        "Capabilities": {...},
        "ChassisPackageType": {...},
        "Connectors": {...},
        "Controllers": {...},
        "DurableName": "5000CCAB0410A180",
        "Expanders": {...},
        "Fans": {...},
        "Files": {...},
        "Format": {...},
        "Hostname": "oobm-00-0c-ca-08-39-3c",
```

```
        "ID": "5000ccab0410a180",
        "IPAddresses": {...},
        "IndicatorLED": {...},
        "InformationStructure": {...},
        "Jobs": {...},
        "Location": {...},
        "Manufacturer": "HGST",
        "Media": {...},
        "Model": "H4102-J",
        "Name": "5000ccab0410a180",
        "OperatingSystem": {...},
        "Ports": {...},
        "PowerState": {...},
        "Sanitize": {...},
        "Self": "http://10.20.30.40:80/Storage/Devices/5000ccab0410a180/?
IPAddress=10.20.30.40",
        "Sensors": {...},
        "SerialNumber": "THCLS00220EA0059",
        "SlotNumber": 2,
        "Status": {...},
        "SystemType": {...},
        "TotalCapacity": 150012470231040,
        "ZoneSets": {...},
    }
}
```

Table 168: GET Response Codes

Response Code	Name	Definition
200	OK	OK & Asset information in the response body + ETag Header
304	Not Modified	If-None-Match Etag value matched, therefore no Response Body will be returned
401	Unauthorized	Unauthorized; credential entry failed or missing
404	Not Found	Resource does not exist; this IP Address is running an HTTP service but does not recognize this resource
429	Too Many Requests	Indicates API service is busy; client should try again later

PUT /Compute/Devices/{id}/Assets/{id}/

PUT /Compute/Devices/{id}/Assets/{id}/ modifies an attribute or executes an operation for this Asset.

Table 169: PUT Request Headers

Header	Mandatory or Optional	Description
Authorization	Mandatory	The request requires either Basic or Digest authorization

Header	Mandatory or Optional	Description
If-Match	Mandatory	The request is conditionally processed only if the current ETag for the resource matches the ETag passed in this header

Example PUT curl Command

Note: The `If-Match` conditional in this command requires the **ETag** from the GET Response Header.

```
curl
    -i
    -u admin:admin
    -H "Content-Type: application/json"
    -H "If-Match: 3677651d2011428f32120a029b015e81"
    -X PUT http://10.20.30.40/Compute/Devices/0123456789/Assets/123456
    --data '{
        "Accounts": [
            {
                "BasicAuthentication": {
                    "UserID": "name",
                    "UserPassword": "password"
                }
            }
        ]
    }'
```

Example PUT Request Body

```
{
    "Accounts": [
        {
            "BasicAuthentication": {
                "UserPassword": "password"
            },
            "UserID": "username"
        }
    ]
}
```

Table 170: PUT Response Codes

Response Code	Name	Definition
200	OK	OK & Asset information in the response body + ETag Header
400	Bad Request	Bad Request (typically a faulty parameter)
401	Unauthorized	Unauthorized; credential entry failed or missing
404	Not Found	The Resource doesn't exist
412	Precondition Failed	Indicates the "If-Match" Etag check failed
428	Precondition Required	Indicates the need for an "If-Match" conditional with an Etag value in the Request Header

Response Code	Name	Definition
429	Too Many Requests	Indicates API service is busy; client should try again later

HEAD /Compute/Devices/{id}/Assets/{id}/

HEAD /Compute/Devices/{id}/Assets/{id}/ pings this Asset.

Table 171: HEAD Request Headers

Header	Mandatory or Optional	Description
Authorization	Mandatory	The request requires either Basic or Digest authorization

Table 172: HEAD Response Codes

Response Code	Name	Definition
200	OK	OK with no response body
401	Unauthorized	Unauthorized; credential entry failed or missing
404	Not Found	Resource does not exist; this IP Address is running an HTTP service but does not recognize this resource
429	Too Many Requests	Indicates API service is busy; client should try again later

OPTIONS /Compute/Devices/{id}/Assets/{id}/

OPTIONS /Compute/Devices/{id}/Assets/{id}/ returns the allowable HTTP Methods list for this resource.

Table 173: OPTIONS Request Headers

Header	Mandatory or Optional	Description
(None)	N/A	Returns the full resource schema as Content-Type application/json
Documentation	Optional	Info - Returns documentation information in the form of plain text
Documentation	Optional	Schema - Returns the schema information in "pretty" JSON text as plain text
If-None-Match	Optional	Etag - The request is conditionally processed only if the current ETag for the resource does not match the ETag passed in this header

Table 174: OPTIONS Response Codes

Response Code	Name	Definition
200	OK	OK & the "Allow" list of methods in the response header. The response body provides the JSON Schema for this resource

Response Code	Name	Definition
304	Not Modified	If-None-Match Etag value matched, therefore no Response Body will be returned.
404	Not Found	Resource does not exist; this IP Address is running an HTTP service but does not recognize this resource
429	Too Many Requests	Indicates API service is busy; client should try again later

5.10 /Compute/Devices/{id}/Policies/

The Device-level methods and attributes of /Compute/Devices/{id}/Policies/ return information about the Policies collection and enable management operations.

HTTP Methods: GET   POST   HEAD   OPTIONS

Table 175: Resource Attributes

Attribute	Type	Mandatory or Optional	User Config-urable	Possible Values	Description
Self	URI String	Mandatory	No	Free-Form URI Format 256 Chars	Describes the fully qualified URI link for the Collection
Members	String Array	Mandatory	No	Resource Collection (1 - n entries)	The array of Resource Instances. See */Compute/Devices/{id}/Policies/{id}/ (page 125)* for Instance Attribute details

GET /Compute/Devices/{id}/Policies/

GET /Compute/Devices/{id}/Policies/ returns the Collection of Policies.

Table 176: GET Request Headers

Header	Mandatory or Optional	Description
Authorization	Mandatory	The request requires either Basic or Digest authorization
If-None-Match	Optional	The request is conditionally processed only if the current ETag for the resource does not match the ETag passed in this header

Example GET curl Command

```
curl
    -i
    -u admin:admin
    -X GET http://10.20.30.40/Compute/Devices/0123456789/Policies/
```

Table 177: GET Response Codes

Response Code	Name	Definition
200	OK	OK & List of Policies + ETag Header
304	Not Modified	If-None-Match Etag value matched, therefore no Response Body will be returned

Response Code	Name	Definition
401	Unauthorized	Unauthorized; credential entry failed or missing
404	Not Found	Resource Collection does not exist; this IP Address is running an HTTP service but does not recognize this resource
429	Too Many Requests	Indicates API service is busy; client should try again later

POST /Compute/Devices/{id}/Policies/

POST /Compute/Devices/{id}/Policies/ creates a new Policy.

Table 178: POST Request Headers

Header	Mandatory or Optional	Description
Authorization	Mandatory	The request requires either Basic or Digest authorization

Example POST curl Command

```
curl
    -i
    -u admin:admin
    -H "Content-Type: application/json"
    -X POST http://10.20.30.40/Compute/Devices/01234567890/Policies/
    --data '{
        "Name": "Policy 1",
        "Description": "This is a Policy",
        "Enabled": true,
        "Rules": [
            {
                "Name": "Rule1",
                "Log": "Triggered Check Health not OK on Device ID 0123456789",
                "Description": "Check Health not OK on Device ID 0123456789",
                "Salience": 1,
                "Conditions": [
                    {
                        "Member": "Health_ID",
                        "Operator": "!=",
                        "ValueInt": 5,
                        "IsEnd": false
                    },
                    {
                        "Member": "ID",
                        "Operator": "==",
                        "ValueString": "0123456789",
                        "IsEnd": true
                    }
                ],
                "ActionMethods": [
                    {
                        "Name": "SendMail"
                    }
                ],
                "ConditionsOperator": [
```

```
                            "&&"
                    ]
                }
            ]
        }'
```

Example POST Request Body

```
{
    "Name": "Policy3",
    "Description": "Policy to track inventory",
    "Enabled": true|false,
    "Rules": [
        {
            "Name": "CheckHealth",
            "Description": "Check the Health values",
            "Salience": 0 - 100,
            "Conditions": [
                {
                    "Member": "Health_ID",
                    "Operator": "!=",
                    "ValueInt": 5,
                    "ValueString": "",
                    "ValueBool": true|false,
                    "IsEnd": true|false
                }
            ],
            "ConditionsOperator": [
                "=="
            ],
            "ActionMethods": [
                {
                    "Name": "SendMail",
                }
            ],
            "Log": "CheckHealth is performed"
        }
    ]
}
```

Table 179: POST Response Codes

Response Code	Name	Definition
201	Created	Created & Account information in the response body + ETag Header + new URI in Location Header
400	Bad Request	Bad Request (typically a faulty parameter)
401	Unauthorized	Unauthorized; credential entry failed or missing
409	Conflict	A new parameter value already exists (e.g., Name)
429	Too Many Requests	Indicates API service is busy; client should try again later

HEAD /Compute/Devices/{id}/Policies/

HEAD /Compute/Devices/{id}/Policies/ pings this Policies Collection.

Table 180: HEAD Request Headers

Header	Mandatory or Optional	Description
Authorization	Mandatory	The request requires either Basic or Digest authorization

Table 181: HEAD Response Codes

Response Code	Name	Definition
200	OK	OK with no response body
401	Unauthorized	Unauthorized; credential entry failed or missing
404	Not Found	Resource Collection does not exist; this IP Address is running an HTTP service but does not recognize this resource
429	Too Many Requests	Indicates API service is busy; client should try again later

OPTIONS /Compute/Devices/{id}/Policies/

OPTIONS /Compute/Devices/{id}/Policies/ returns the allowable HTTP Methods list for this resource.

Table 182: OPTIONS Request Headers

Header	Mandatory or Optional	Description
(None)	N/A	Returns the full resource schema as Content-Type application/json
Documentation	Optional	Info - Returns documentation information in the form of plain text
Documentation	Optional	Schema - Returns the schema information in "pretty" JSON text as plain text
If-None-Match	Optional	Etag - The request is conditionally processed only if the current ETag for the resource does not match the ETag passed in this header

Table 183: OPTIONS Response Codes

Response Code	Name	Definition
200	OK	OK & the "Allow" list of methods in the response header. The response body provides the JSON Schema for this resource
304	Not Modified	If-None-Match Etag value matched, therefore no Response Body will be returned.

Response Code	Name	Definition
404	Not Found	Resource does not exist; this IP Address is running an HTTP service, but does not recognize this resource
429	Too Many Requests	Indicates API service is busy; client should try again later

5.10.1 /Compute/Devices/{id}/Policies/{id}/

The Device-level methods and attributes of /Compute/Devices/{id}/Policies/{id}/ return information about a specific Policy, based on the {id} in the URI string, and enable management operations.

HTTP Methods: GET   PUT   DELETE   HEAD   OPTIONS

Table 184: Resource Attributes

Attribute	Type	Mandatory or Optional	User Config-urable	Possible Values	Description
Self	URI String	Mandatory	No	Free-Form URI Format 256 Chars	Describes the fully qualified URI link
ID	String	Mandatory	No	UUID Format	The identifier for this particular Policy
Name	String	Mandatory	Yes	The name of the Policy. Must be unique to this Policy Collection	The user-defined Friendly Name for this Resource
Description	String	Optional	Yes	Free-Form 256 Characters	The description of this Policy
CreateDate	String	Mandatory	No	datetime	Displays when this Policy was created
LastModified	String	Mandatory	No	datetime	Displays when this Policy was last modified
Type. ID	Number	Mandatory	No	0 | 1	Type of Policy: User-Defined = 0 System-Defined=1 Default = 0. Only "User-Defined" will be returned when Users create new Policies.
Type. Name	String	Mandatory	No	"User-Defined" | "System-Defined"	Type of Policy: User-Defined = 0 System-Defined=1 Default = 0. Only "User-Defined" will be returned when Users create new Policies.

Attribute	Type	Mandatory or Optional	User Config-urable	Possible Values	Description
Enabled	Boolean	Mandatory	Yes	true | false	Indicates or Sets the Policy as enabled or disabled
Rules[].Name	String	Mandatory	Yes	Free-Form 256 Characters	The name of this Rule.#Must be unique to this collection of Rules
Rules[].Description	String	Mandatory	Yes	Free-Form 256 Characters	Description for this Rule
Rules[].Salience	Number	Mandatory	Yes	0 - 100	Salience determines how focused this rule is to be considered
Rules[].Conditions[].Member	String	Mandatory	Yes	Free-Form 256 Characters	Condition Member name or alias
Rules[].Conditions[].Operator	String	Mandatory	Yes	"==" | "!=" | ">=" | "<=" | ">" | "<"	Operator type for the Condition of this Rule
Rules[].Conditions[].ValueInt	Number	Mandatory or Optional	Yes	-n to n	Indicates an "integer" value to test against **Note**: At least one Rules[].Conditions is required
Rules[].Conditions[].ValueString	String	Mandatory or Optional	Yes	Free-Form 256 Characters	Indicates a "string" value to test against **Note**: At least one Rules[].Conditions is required
Rules[].Conditions[].ValueBool	Boolean	Mandatory or Optional	Yes	true | false	Indicates a "boolean" value to test against **Note**: At least one Rules[].Conditions is required
Rules[].Conditions[].IsEnd	Boolean	Mandatory or Optional	Yes	true | false	Indicates if there are more Conditions after this one
Rules[].ConditionsOperator	String	Mandatory	Yes	"&&" | "||"	Indicates the overall type of operator for this Rule between each Rule Conditions Member entry

Attribute	Type	Mandatory or Optional	User Config-urable	Possible Values	Description
Rules[].ActionsMethods[].Name	String Array	Mandatory	Yes	"SendMail" | "SendTrap"	Name of the Action; can be one or the other or both as separate "Name" entries
Rules[].Log	String	Optional	Yes	Free-Form 256 Characters	Log information for this Rule
Notifications	String	Mandatory	No	Free-Form URI pattern	Link to any Notifications associations. This link is automatically generated

GET /Compute/Devices/{id}/Policies/{id}/

GET /Compute/Devices/{id}/Policies/{id}/ returns information regarding a specific Policy based on the {id} in the URI address string.

Table 185: GET Request Headers

Header	Mandatory or Optional	Description
Authorization	Mandatory	The request requires either Basic or Digest authorization
If-None-Match	Optional	The request is conditionally processed only if the current ETag for the resource does not match the ETag passed in this header

Example GET curl Command

```
curl
    -i
    -u admin:admin
    -X GET http://10.20.30.40/Compute/Devices/0123456789/
Policies/9285b6f7-42b6-2a53-9c2e-37767e1b7300
```

Example GET Response Body

```
{
    "Self": "http://10.20.30.40/Compute/Devices/0123456789/
Policies/9285b6f7-42b6-2a53-9c2e-37767e1b7300/",
    "ID": "9285b6f7-42b6-2a53-9c2e-37767e1b7300",
    "Name": "Policy3",
    "Description": "Policy to track inventory",
    "CreateDate": "12-Feb-2023 22:23:33",
    "LastModified": "17-Feb-2023 06:43:56",
    "Enabled": true,
    "Priority": 0,
    "TimePeriod": "202302120T222333/THISANDFUTURE",
    "Type": {
        "ID": 0,
```

```
            "Name": "User-Defined"
        },
        "DecisionStrategy": {
            "ID": 0,
            "Name": "Unknown"
        },
        "Rules": [
            {
                "Name": "CheckHealth",
                "Description": "Check the Health values",
                "Salience": 10,
                "Conditions": [
                    {
                        "Member": "Health_ID",
                        "Operator": "!=",
                        "ValueInt": 5,
                        "IsEnd": false
                    },
                    {
                        "Member": "Health_Name",
                        "Operator": "!=",
                        "ValueString": "OK",
                        "IsEnd": true
                    }
                ],
                "ConditionsOperator": [
                    "&&"
                ],
                "ActionMethods": [
                    {
                        "Name": "SendMail"
                    }
                ],
                "Log": "CheckHealth is performed"
            },
            {
                "Name": "CheckMedia",
                "Description": "Description dummy rule2",
                "Salience": 99,
                "Conditions": [
                    {
                        "Member": "PowerState_Name",
                        "Operator": "==",
                        "ValueString": "Off",
                        "IsEnd": false
                    },
                    {
                        "Member": "IndicatorLED_Name",
                        "Operator": "==",
                        "ValueString": "On",
                        "IsEnd": true
                    }
                ],
                "ConditionsOperator": [
                    "||"
                ],
                "ActionMethods": [
                    {
                        "Name": "SendTrap"
```

```
            }
        ],
        "Log": "CheckMedia is performed"
    }
    ],
    "Notifications": "http://10.20.30.40/Compute/Devices/0123456789/Notifications/?
Policies=9285b6f7-42b6-2a53-9c2e-37767e1b7300"
}
```

Table 186: GET Response Codes

Response Code	Name	Definition
200	OK	OK & Policy information in the response body + ETag Header
304	Not Modified	If-None-Match Etag value matched, therefore no Response Body will be returned
401	Unauthorized	Unauthorized; credential entry failed or missing
404	Not Found	Resource does not exist; this IP Address is running an HTTP service but does not recognize this resource
429	Too Many Requests	Indicates API service is busy; client should try again later

PUT /Compute/Devices/{id}/Policies/{id}/

PUT /Compute/Devices/{id}/Policies/{id}/ modifies an attribute or executes an operation for this Policy.

Table 187: PUT Request Headers

Header	Mandatory or Optional	Description
Authorization	Mandatory	The request requires either Basic or Digest authorization
If-Match	Mandatory	The request is conditionally processed only if the current ETag for the resource matches the ETag passed in this header

Example PUT curl Command

Note: The `If-Match` conditional in this command requires the **ETag** from the GET Response Header.

```
curl
    -i
    -u admin:admin
    -H "Content-Type: application/json"
    -H "If-Match: 3677651d2011428f32120a029b015e81"
    -X PUT http://10.20.30.40/Compute/Devices/0123456789/Policies/123456
    --data '{
        "Name": "Policy 123",
        "Description": "Add new rule to this is a Policy",
        "Enabled": true,
```

```
    "Rules": [
        {
            "Name": "Rule1",
            "Description": "Check Health not OK on Device ID 0123456789",
            "Salience": 1,
            "Conditions": [
                {
                    "Member": "Health_ID",
                    "Operator": "!=",
                    "ValueInt": 5,
                    "IsEnd": false
                },
                {
                    "Member": "ID",
                    "Operator": "==",
                    "ValueString": "0123456789",
                    "IsEnd": true
                }
            ],
            "ConditionsOperator": [
                "&&"
            ],
            "ActionMethods": [
                {
                    "Name": "SendMail"
                }
            ],
            "Log": "Triggered Check Health not OK on Device ID 0123456789"
        },
        {
            "Name": "Rule2",
            "Description": "Check Sensor Temperature",
            "Salience": 1,
            "Conditions": [
                {
                    "Member": "Type",
                    "Operator": "==",
                    "ValueString": "Sensor",
                    "IsEnd": false
                },
                {
                    "Member": "SensorType_ID",
                    "Operator": "==",
                    "ValueInt": 2,
                    "IsEnd": false
                },
                {
                    "Member": "CurrentReading",
                    "Operator": ">",
                    "ValueInt": 60,
                    "IsEnd": true
                }
            ],
            "ActionMethods": [
                {
                    "Name": "SendTrap"
                }
            ],
            "Log": "Triggered Check Sensor Temperature above 60 C",
```

```
                    "ConditionsOperator": [
                        "&&",
                        "&&"
                    ]
                }
            ]
    }'
```

Example PUT Request Body

```
{
    "Name": "Policy_newname",
    "Description": "Policy to track inventory",
    "Enabled": true|false,
    "Rules": [
        {
            "Name": "CheckHealth",
            "Description": "Check the Health values",
            "Salience": 0 - 100,
            "Conditions": [
                {
                    "Member": "Health_ID",
                    "Operator": "!=",
                    "ValueInt": 5,
                    "IsEnd": true|false
                }
            ],
            "ConditionsOperator": [
                "=="
            ],
            "ActionMethods": [
                {
                    "Name": "SendMail"
                }
            ],
            "Log": "CheckHealth is performed"
        }
    ]
}
```

Table 188: PUT Response Codes

Response Code	Name	Definition
200	OK	OK & Policy information in the response body + ETag Header
400	Bad Request	Bad Request (typically a faulty parameter)
401	Unauthorized	Unauthorized; credential entry failed or missing
404	Not Found	The Resource doesn't exist
412	Precondition Failed	Indicates the "If-Match" Etag check failed
428	Precondition Required	Indicates the need for an "If-Match" conditional with an Etag value in the Request Header
429	Too Many Requests	Indicates API service is busy; client should try again later

DELETE /Compute/Devices/{id}/Policies/{id}/

DELETE /Compute/Devices/{id}/Policies/{id}/ deletes a specific Policy.

Table 189: DELETE Request Headers

Header	Mandatory or Optional	Description
Authorization	Mandatory	The request requires either Basic or Digest authorization
If-Match	Mandatory	The request is conditionally processed only if the current ETag for the resource matches the ETag passed in this header

Example DELETE curl Command

Note: The `If-Match` conditional in this command requires the **ETag** from the GET Response Header.

```
curl
    -i
    -u admin:admin
    -H "If-Match: 3677651d2011428f32120a029b015e81"
    -X DELETE http://10.20.30.40/Compute/Devices/0123456789/Policies/123456
```

Table 190: DELETE Response Codes

Response Code	Name	Definition
204	No Content	Delete successful; no content in the response body
401	Unauthorized	Unauthorized; credential entry failed or missing
404	Not Found	The Resource doesn't exist
409	Conflict	If job is still in progress
412	Precondition Failed	Indicates the "If-Match" Etag check failed
428	Precondition Required	Indicates the need for an "If-Match" conditional with an Etag value in the Request Header
429	Too Many Requests	Indicates API service is busy; client should try again later

HEAD /Compute/Devices/{id}/Policies/{id}/

HEAD /Compute/Devices/{id}/Policies/{id}/ pings this Policy.

Table 191: HEAD Request Headers

Header	Mandatory or Optional	Description
Authorization	Mandatory	The request requires either Basic or Digest authorization

Table 192: HEAD Response Codes

Response Code	Name	Definition
200	OK	OK with no response body
401	Unauthorized	Unauthorized; credential entry failed or missing
404	Not Found	Resource does not exist; this IP Address is running an HTTP service but does not recognize this resource
429	Too Many Requests	Indicates API service is busy; client should try again later

OPTIONS /Compute/Devices/{id}/Policies/{id}/

OPTIONS /Compute/Devices/{id}/Policies/{id}/ returns the allowable HTTP Methods list for this resource.

Table 193: OPTIONS Request Headers

Header	Mandatory or Optional	Description
(None)	N/A	Returns the full resource schema as Content-Type application/json
Documentation	Optional	Info - Returns documentation information in the form of plain text
Documentation	Optional	Schema - Returns the schema information in "pretty" JSON text as plain text
If-None-Match	Optional	Etag - The request is conditionally processed only if the current ETag for the resource does not match the ETag passed in this header

Table 194: OPTIONS Response Codes

Response Code	Name	Definition
200	OK	OK & the "Allow" list of methods in the response header. The response body provides the JSON Schema for this resource
304	Not Modified	If-None-Match Etag value matched, therefore no Response Body will be returned.
404	Not Found	Resource does not exist; this IP Address is running an HTTP service but does not recognize this resource
429	Too Many Requests	Indicates API service is busy; client should try again later

5.11 /Compute/Devices/{id}/Notifications/

The Device-level methods and attributes of /Compute/Devices/{id}/Notifications/ return information about the Notification(s) collection and enable management operations.

HTTP Methods: GET POST HEAD OPTIONS

Table 195: Resource Attributes

Attribute	Type	Mandatory or Optional	User Config-urable	Possible Values	Description
Self	URI String	Mandatory	No	Free-Form URI Format 256 Chars	Describes the fully qualified URI link for the Collection
Members	String Array	Mandatory	No	Resource Collection (1 - n entries)	The array of Resource Instances. See */Compute/Devices/{id}/Notifications/{id}/ (page 139)* for Instance Attribute details

GET /Compute/Devices/{id}/Notifications/

GET /Compute/Devices/{id}/Notifications/ returns the Collection of Notifications.

Table 196: GET Request Headers

Header	Mandatory or Optional	Description
Authorization	Mandatory	The request requires either Basic or Digest authorization
If-None-Match	Optional	The request is conditionally processed only if the current ETag for the resource does not match the ETag passed in this header

Example GET curl Command

```
curl
    -i
    -u admin:admin
    -X GET http://10.20.30.40/Compute/Devices/0123456789/Notifications/
```

Table 197: GET Response Codes

Response Code	Name	Definition
200	OK	OK & List of Notifications + ETag Header
304	Not Modified	If-None-Match Etag value matched, therefore no Response Body will be returned

Response Code	Name	Definition
401	Unauthorized	Unauthorized; credential entry failed or missing
404	Not Found	Resource Collection does not exist; this IP Address is running an HTTP service but does not recognize this resource
429	Too Many Requests	Indicates API service is busy; client should try again later

POST /Compute/Devices/{id}/Notifications/

POST /Compute/Devices/{id}/Notifications/ creates a new Notification.

Table 198: POST Request Headers

Header	Mandatory or Optional	Description
Authorization	Mandatory	The request requires either Basic or Digest authorization

Example POST curl Command

```
curl
    -i
    -u admin:admin
    -H "Content-Type: application/json"
    -X POST http://10.20.30.40/Compute/Devices/01234567890/Notifications/
    --data '{
        "Name": "Notification1",
        "Type": {
            "ID": 1,
            "Name": "SMTPAlert"
        },
        "Description": "This is an email notification",
        "SMTPSettings": {
            "Server": "mail-server.com",
            "Subject": "This is a Notification",
            "Port": 25,
            "Username": "admin",
            "Password": "password",
            "From": "This Device"
        },
        "Distributions": [
            {
                "Name": "Admin",
                "Recipients": [
                    "admin@test.com"
                ]
            }
        ]
    }'
```

Example POST Request Body – SMTPAlert

```
{
    "Name": "notification_name",
    "Description": "description",
```

```
    "Type": {
        "ID": 1
    },
    "SMTPSettings": {
        "Server": "email_server",
        "Subject": "email_subjectline",
        "Port": 25,
        "Username": "user",
        "Password": "password",
        "From": "From this Device"
    },
    "Distributions" : [
        {
            "Name": "Admin" | "Operator",
            "Recipients": [
                {
                    "recip1",
                    "recip2",
                    ...
                    "recipN"
                }
            ]
        }
    ],
}
```

Example POST Request Body – SNMP Trap

```
{
    "Name": "notification_name"
    "Description": "description",
    "Type": {
        "ID": 2
    },
    "SNMPSettings": {
        "TargetIP": "10.20.30.40",
        "TargetPort": 162,
        "Version": "Version1 | Version2c | Version3",
        "Community": "public"(,)
        (Selecting Version3 additional below)
        "UserName": "user",
        "EngineID": 1234,
        "AuthenticationProtocol": "SHA",
        "AuthenticationPassphrase": "password",
        "PrivacyProtocol": "DES",
        "PrivacyPassphrase": "password"
    }
}
```

Table 199: POST Response Codes

Response Code	Name	Definition
201	Created	Created & Notification information in the response body + ETag Header + new URI in Location Header
400	Bad Request	Bad Request (typically a faulty parameter)

Response Code	Name	Definition
401	Unauthorized	Unauthorized; credential entry failed or missing
409	Conflict	A new parameter value already exists (e.g., Name)
429	Too Many Requests	Indicates API service is busy; client should try again later

HEAD /Compute/Devices/{id}/Notifications/

HEAD /Compute/Devices/{id}/Notifications/ pings the Notifications collection.

Table 200: HEAD Request Headers

Header	Mandatory or Optional	Description
Authorization	Mandatory	The request requires either Basic or Digest authorization

Table 201: HEAD Response Codes

Response Code	Name	Definition
200	OK	OK with no response body
401	Unauthorized	Unauthorized; credential entry failed or missing
404	Not Found	Resource Collection does not exist; this IP Address is running an HTTP service but does not recognize this resource
429	Too Many Requests	Indicates API service is busy; client should try again later

OPTIONS /Compute/Devices/{id}/Notifications/

OPTIONS /Compute/Devices/{id}/Notifications/ returns the allowable HTTP Methods list for this resource.

Table 202: OPTIONS Request Headers

Header	Mandatory or Optional	Description
(None)	N/A	Returns the full resource schema as Content-Type application/json
Documentation	Optional	Info - Returns documentation information in the form of plain text
Documentation	Optional	Schema - Returns the schema information in "pretty" JSON text as plain text
If-None-Match	Optional	Etag - The request is conditionally processed only if the current ETag for the resource does not match the ETag passed in this header

Table 203: OPTIONS Response Codes

Response Code	Name	Definition
200	OK	OK & the "Allow" list of methods in the response header. The response body provides the JSON Schema for this resource
304	Not Modified	If-None-Match Etag value matched, therefore no Response Body will be returned.
404	Not Found	Resource does not exist; this IP Address is running an HTTP service, but does not recognize this resource
429	Too Many Requests	Indicates API service is busy; client should try again later

5.11.1 /Compute/Devices/{id}/Notifications/{id}/

The Device-level methods and attributes of /Compute/Devices/{id}/Notifications/{id}/ return information about a specific Notification, based on the {id} in the URI string, and enable management operations.

HTTP Methods: GET   PUT   DELETE   HEAD   OPTIONS

Table 204: General Resource Attributes

Attribute	Type	Mandatory or Optional	User Config- urable	Possible Values	Description
Self	URI String	Mandatory	No	Free-Form URI Format 256 Chars	Describes the fully qualified URI link
ID	String	Mandatory	No	UUID Format	The Identifier for this particular Notification
Name	String	Mandatory	Yes	Free-Form 256 Chars	The name of the Notification. Must be unique to this Notifications Collection
Description	String	Optional	Yes	Free-Form 256 Characters	The description of this Notification
CreateDate	String	Mandatory	No	datetime	Displays when the Notification was created
LastModified	String	Mandatory	No	datetime	Displays when the Notification was last modified
Type. ID	Number	Mandatory	Yes	1	2	Type of Notification: SMTPAlert = 1 SNMPTrap = 2
Type. Name	String	Mandatory	No	"SMTPAlert"	"SNMPTrap"	Type of Notification SMTPAlert = 1 SNMPTrap = 2

Table 205: SMTP Resource Attributes

Attribute	Type	Mandatory or Optional	User Config- urable	Possible Values	Description
SMTPSettings. Server	String	Mandatory	Yes	Free-Form 256 Characters of an IP Address or Hostname	Indicates the current Email Target Server IP Address or Hostname location. Use if Type is SMTPAlert
SMTPSettings. Subject	String	Optional	Yes	Free-Form 256 Characters	The "subject line" for any outgoing email alerts or reports
SMTPSettings. Port	Number	Optional	Yes	Integer value; Default = 25	This is the target email server SMTP Port Number where 25 is the IANA default
SMTPSettings. Username	String	Mandatory	Yes	Username string value	This is the Username entry for the target email server
SMTPSettings. Password	String	Mandatory	Yes	Password format (displays "*******")	This is the Password entry for the target email server
SMTPSettings. From	String	Optional	Yes	Free-Form 64 Characters	This is the "From" entry for the email to be sent
Distributions[]. Name	String Array	Mandatory	Yes	"Admin" | "Operator"	The name of this Distribution List. #There are two choices, either "Admin" or "Operator" distribution list names
Distributions[]. Recipients[]	String Array	Mandatory	Yes	Email Format entries	The Recipients array for this "Name". Format is either IP Addresses, Email Address, or Hostnames depending on the Type

Table 206: SNMP Resource Attributes

Attribute	Type	Mandatory or Optional	User Config-urable	Possible Values	Description
SNMPSettings.TargetIP	String	Mandatory	Yes	IPv4 Formatted entry or Hostname formatted entry	This is the target or destination server IP Address or Hostname to send the trap
SNMPSettings.TargetPort	Number	Mandatory	Yes	Integer Port number; Default is IANA Port 162	This is the target or destination server Port Number to send the trap
SNMPSettings.Version	String	Mandatory	Yes	Version1, Version2c, Version3	This is the SNMP Version to send the trap. Version 3 requires more attribute entries
SNMPSettings.Community	String	Mandatory	Yes	"public" (default)	This is the "Community" for the SNMP Trap information

Table 207: Additional SNMP Resource Attributes (Version 3)

Attribute	Type	Mandatory or Optional	User Config-urable	Possible Values	Description
SNMPSettings.UserName	String	Mandatory	Yes	Username value	Username for the secure SNMP v3 entry
SNMPSettings.EngineID	Number	Mandatory	Yes	Integer number	Engine identifier located at the target or destination SNMP Listener server
SNMPSettings.Authentication Protocol	String	Mandatory	Yes	"SHA" (default)	Authentication protocol type for the SNMP v3 transfer
SNMPSettings.Authentication Passphrase	String	Mandatory	Yes	Password format (displays "*******")	Authentication passphrase for the SNMP v3 transfer
SNMPSettings.PrivacyProtocol	String	Mandatory	Yes	"DES" (default)	Privacy protocol type for the SNMP v3 transfer

Attribute	Type	Mandatory or Optional	User Config- urable	Possible Values	Description
SNMPSettings. PrivacyPassphrase	String	Mandatory	Yes	Password format (displays "*******")	Privacy passphrase for the SNMP v3 transfer

GET /Compute/Devices/{id}/Notifications/{id}/

GET /Compute/Devices/{id}/Notifications/{id}/ returns information regarding a specific Notification based on the {id} in the URI address string.

Table 208: GET Request Headers

Header	Mandatory or Optional	Description
Authorization	Mandatory	The request requires either Basic or Digest authorization
If-None-Match	Optional	The request is conditionally processed only if the current ETag for the resource does not match the ETag passed in this header

Example GET curl Command

```
curl
    -i
    -u admin:admin
    -X GET http://10.20.30.40/Compute/Devices/0123456789/Notifications/6202d750
```

Example GET Response Body

```
{
    "Self": "http://10.20.30.40/Compute/Devices/0123456789/Notifications/6202d750/",
    "ID": "6202d750-fefc-dff5-68ec-d8cc7fc9fb79",
    "Name": "Email Alert 1",
    "Description": "Test",
    "CreateDate": "07-Sep-2023 12:49:08",
    "LastModified": "07-Sep-2023 19:09:56",
    "Type": {
        "ID": 1,
        "Name": "SMTPAlert"
    },
    "SMTPSettings": {
        "Server": "mail@server.com",
        "Subject": "This is an Email Alert",
        "Port": 25,
        "Username": "admin",
        "Password": "*******",
        "From": "Device 12345"
    },
    "SNMPSettings": {},
    "Distributions": [
        {
            "Name": "Admin",
            "Recipients": [
                "bill@wdc.com"
```

```
            ]
        },
        {
            "Name": "Operator",
            "Recipients": [
                "ted@wd.com"
            ]
        }
    ]
}
```

Table 209: GET Response Codes

Response Code	Name	Definition
200	OK	OK & Notification information in the response body + ETag Header
304	Not Modified	If-None-Match Etag value matched, therefore no Response Body will be returned
401	Unauthorized	Unauthorized; credential entry failed or missing
404	Not Found	Resource does not exist; this IP Address is running an HTTP service but does not recognize this resource
429	Too Many Requests	Indicates API service is busy; client should try again later

PUT /Compute/Devices/{id}/Notifications/{id}/

PUT /Compute/Devices/{id}/Notifications/{id}/ modifies an attribute or executes an operation for this Notification.

Table 210: PUT Request Headers

Header	Mandatory or Optional	Description
Authorization	Mandatory	The request requires either Basic or Digest authorization
If-Match	Mandatory	The request is conditionally processed only if the current ETag for the resource matches the ETag passed in this header

Example PUT curl Command

Note: The `If-Match` conditional in this command requires the **ETag** from the GET Response Header.

```
curl
    -i
    -u admin:admin
    -H "Content-Type: application/json"
    -H "If-Match: 3677651d2011428f32120a029b015e81"
    -X PUT http://10.20.30.40/Compute/Devices/0123456789/Notifications/123456
    --data '{
        "Description": "This is an email notification with updated distribution list",
        "Distributions": [
            {
                "Name": "Admin",
                "Recipients": [
                    "another@test.com",
                    "admin@test.com"
                ]
            }
        ]
    }'
```

Example PUT Request Body – SMTPAlert

```
{
    "Name": "notification_name"
    "Description": "description",
    "SMTPSettings": {
        "Server": "email_server",
        "Subject": "email_subjectline",
        "Port": 25,
        "Username": "user",
        "Password": "password",
        "From": "From this Device"
    }
    "Distributions" : [
        {
            "Name": "Admin" | "Operator",
            "Recipients": [
                {
                    "recip1",
                    "recip2",
                    ...
                    "recipN"
                }
            ]
        }
    ]
}
```

Example PUT Request Body – SNMPTrap

```
{
    "Name": "notification_name"
    "Description": "description",
    "SNMPSettings": {
```

```
        "TargetIP": "10.20.30.40",
        "TargetPort": 162,
        "Version": "Version1 | Version2c | Version3",
        "Community": "public"(,)
        (Selecting Version3 additional below)
        "UserName": "user",
        "EngineID": 1234,
        "AuthenticationProtocol": "SHA",
        "AuthenticationPassphrase": "password",
        "PrivacyProtocol": "DES",
        "PrivacyPassphrase": "password"
    }
}
```

Table 211: PUT Response Codes

Response Code	Name	Definition
200	OK	OK & Notification information in the response body + ETag Header
400	Bad Request	Bad Request (typically a faulty parameter)
401	Unauthorized	Unauthorized; credential entry failed or missing
404	Not Found	The Resource doesn't exist
412	Precondition Failed	Indicates the "If-Match" Etag check failed
428	Precondition Required	Indicates the need for an "If-Match" conditional with an Etag value in the Request Header
429	Too Many Requests	Indicates API service is busy; client should try again later

DELETE /Compute/Devices/{id}/Notifications/{id}/

DELETE /Compute/Devices/{id}/Notifications/{id}/ deletes a specific Notification.

Table 212: DELETE Request Headers

Header	Mandatory or Optional	Description
Authorization	Mandatory	The request requires either Basic or Digest authorization
If-Match	Mandatory	The request is conditionally processed only if the current ETag for the resource matches the ETag passed in this header

Example DELETE curl Command

> **Note:** The `If-Match` conditional in this command requires the **ETag** from the GET Response Header.

```
curl
    -i
    -u admin:admin
    -H "If-Match: 3677651d2011428f32120a029b015e81"
    -X DELETE http://10.20.30.40/Compute/Devices/0123456789/Notifications/123456
```

Table 213: DELETE Response Codes

Response Code	Name	Definition
204	No Content	Delete successful; no content in the response body
401	Unauthorized	Unauthorized; credential entry failed or missing
404	Not Found	The Resource doesn't exist
409	Conflict	In the case of only one notification, that last one cannot be deleted
412	Precondition Failed	Indicates the "If-Match" Etag check failed
428	Precondition Required	Indicates the need for an "If-Match" conditional with an Etag value in the Request Header
429	Too Many Requests	Indicates API service is busy; client should try again later

HEAD /Compute/Devices/{id}/Notifications/{id}/

HEAD /Compute/Devices/{id}/Notifications/{id}/ pings this Notification.

Table 214: HEAD Request Headers

Header	Mandatory or Optional	Description
Authorization	Mandatory	The request requires either Basic or Digest authorization

Table 215: HEAD Response Codes

Response Code	Name	Definition
200	OK	OK with no response body
401	Unauthorized	Unauthorized; credential entry failed or missing
404	Not Found	Resource does not exist; this IP Address is running an HTTP service but does not recognize this resource
429	Too Many Requests	Indicates API service is busy; client should try again later

OPTIONS /Compute/Devices/{id}/Notifications/{id}/

OPTIONS /Compute/Devices/{id}/Notifications/{id}/ returns the allowable HTTP Methods list for this resource.

Table 216: OPTIONS Request Headers

Header	Mandatory or Optional	Description
(None)	N/A	Returns the full resource schema as Content-Type application/json
Documentation	Optional	Info - Returns documentation information in the form of plain text
Documentation	Optional	Schema - Returns the schema information in "pretty" JSON text as plain text
If-None-Match	Optional	Etag - The request is conditionally processed only if the current ETag for the resource does not match the ETag passed in this header

Table 217: OPTIONS Response Codes

Response Code	Name	Definition
200	OK	OK & the "Allow" list of methods in the response header. The response body provides the JSON Schema for this resource
304	Not Modified	If-None-Match Etag value matched, therefore no Response Body will be returned.
404	Not Found	Resource does not exist; this IP Address is running an HTTP service but does not recognize this resource
429	Too Many Requests	Indicates API service is busy; client should try again later

Appendices

In This Chapter:

6.1 References

- IETF RFC3986, Uniform Resource Identifier (URI) General Syntax
- IETF RFC4627, The application/json Media Type for JavaScript Object Notation (JSON)
- IETF RFC5988, Web Linking
- IETF RFC6901, JavaScript Object Notation (JSON) Pointer
- IETF RFC6906, Link Relation Type
- IETF RFC6749, OAuth 2.0 Authorization Framework; Token Format and Usage
- IETF RFC7230, Hypertext Transfer Protocol (HTTP/1.1): Message Syntax and Routing
- IETF RFC7231, Hypertext Transfer Protocol (HTTP/1.1): Semantics and Content
- IETF RFC7232, Hypertext Transfer Protocol (HTTP/1.1): Conditional Requests
- IETF RFC7235, Hypertext Transfer Protocol (HTTP/1.1): Authentication
- ISO 8601, Data elements and interchange formats -- Representation of dates and times
- DMTF CIM_2.50.0, Common Information Model Schema
- DMTF DSP0266_1.2.0, Redfish API Specification
- SNIA Swordfish_1.0.3, Swordfish API Specification