



Open Composable API Reference

OpenFlex™ Data24

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Revision History

Date	Revision	Comment
November 2020	1.0	Initial Release

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Email:

support@wdc.com

Website:

<https://portal.wdc.com/Support/s/>

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Overview

The Open Composable API is a REST-based application programming interface (API) that is accessible on Western Digital's OpenFlex line of composable architecture devices. The API can be used to perform management functions on compatible fabric devices.

This document provides details related to the use and available features of the API. It includes a reference section that provides specifications and useful information about each resource available in the API.

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1.1 Accessing the API

The API is accessible on every fabric device connected to the fabric network. The simplest way to access the API is to find the IP address of the management port on the rear of the Chassis Device that contains all of the other devices. This is set to DHCP by default. Navigating to that IP address from a browser with `/Query/` added to the end of the IP address will return top level status information.

The IP addresses/API targets listed in this response body will help in navigating the resources available on this device, as well as provide links and contextual information related to other devices connected on the fabric.

1.2 Common Information Model

The Open Composable API follows the industry standard conventions from the Common Information Model (CIM) provided by the Distributed Management Task Force (DMTF). The resource naming conventions and resource attributes follow the CIM model for managed elements. The Open Composable API simplifies the CIM model by "flattening" or "compressing" in 3 ways.

Collections

A collection refers to the collection of physical or logical resources that are rolled into resource groups 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 create a new storage volume. The Open Composable API 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); Create a new Volume Resource
- **PUT** `/Volumes/{id}?params`; Modify an existing Volume Resource
- **DELETE** `/Volumes/{id}`; Delete an existing Volume Resource

Associations

Associations are provided "inherently" with each 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.

- A Ports resource contains a link to either an Adapter or Controller resource
- Adapter and Controller resources contain a link to a Ports resource

1.3 Supported Network Protocols

The Open Composable API follows a 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.

1.4 HTTP Conditionals and CORS

The Open Composable API uses HTTP Conditionals to provide concurrency capabilities among multiple web clients. This **optimistic concurrency** uses the Entity Tag (ETag) header to provide a resource hash value (32 hexadecimal characters) of the current state of the resource and stores this in the header of that resource. The result of this hashing process is to produce a small character string to query in order to determine if the resource body has changed or not. This ETag value can be used to lower the network traffic when used with HTTP GET requests, because instead of returning the whole response body and comparing it to the existing one, it just compares the hash response, and it 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 Open Composable API 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 if 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.

1.5 HTTPS/SSL/TLS Connections

The Open Composable API provides the user the ability to upload their own self-generated SSL/TLS Certificate and Key Pairs. These are required if the user wishes to take advantage of the HTTPS capabilities of the OpenFlex Storage Devices.

The Open Composable API 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 unsecured 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 Step 1 ([page 4](#)))
 - 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 OpenFlex API (see POST Files/TLSCertandKey)
 - The successful upload will automatically restart the API service for the HTTPS listener to use the new Certificate

1.6 RESTful 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).

1.6.1 Discovery

The Open Composable API 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 a device do a discovery of all other participating devices to generate a dynamic system list of devices that can be managed through a single device as a single-point-of-management.

- **/Query/** - Returns a summary of the Collection of Devices at this location (IP Address)
- **/System/Query/** - Returns all the "Summary Query" responses from all discovered Collection of Devices across multiple systems

1.7 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 Open Composable API 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.

1.8 Downloading Firmware from the Support Portal



Note: The product must be registered in order to download firmware updates.

Step 1: Open a web browser and go to: <https://portal.wdc.com/Support/s/>.

The **Western Digital Enterprise Support Center** will appear.

Step 2: Log in to the **Western Digital Enterprise Support Center** using a valid email address and password:

Sign in to
SUPPORT PORTAL

LOGIN

Several support options will appear on the page.

Step 3: Click the **Downloads** option:



Downloads

The Western Digital downloads page will appear.

Step 4: From the **Identify Product** section, select the **Product**, **OS / Type**, and **Release Version**:

1. Identify Product

2. Select Files for Download

3. Review & Download Files

Pick Product Options:
① Select Product...
② Select OS / Type
③ Release Version

Available Downloads:
Please select your options on the left.
[Expand All](#)

Custom Download List:
Files: 0 Total Size: 0b

The **Select Files for Download** section updates with the applicable options:

1. Identify Product

2. Select Files for Download

3. Review & Download Files

Pick Product Options:
① Select Product...
② Select OS / Type
③ Release Version

Available Downloads:

☒ Documentation

☒ Firmware

[Expand All](#)

Custom Download List:
Files: 0 Total Size: 0b

Step 5: From the **Select Files for Download** section, expand the **Firmware** option and select the checkbox for the appropriate firmware file(s):

2. Select Files for Download

Available Downloads: [Expand All](#)

☒ Documentation

☒ Firmware

<input type="checkbox"/> File Name	Size	Released	
<input checked="" type="checkbox"/> Firmware_File	1.96MB	11 Oct 2018	
<input checked="" type="checkbox"/> Firmware_File	843.7KB	22 Oct 2018	



Note: Filenames will vary, depending on the options chosen in the **Identify Product** section.

Step 6: In the **Review & Download Files** section, review the selected files to ensure that all intended files are included in the list.

3. Review & Download Files

Custom Download List:

Firmware_File	1.96MB	X
Firmware_File	843.7KB	X

Files: 2 Total Size: 2.79MB

☒ Zip ☐ Tar

RESET DOWNLOAD FILES

Step 7: If needed, remove an unwanted file by clicking its red X.

Step 8: Select the appropriate archive file format by clicking either **Zip** or **Tar**.

Step 9: Click the **Download Files** button to download the selected files.

Step 10: If needed, unzip/extract the file to the desired location.

1.9 Enclosure Firmware Update

This section provides instructions for updating enclosure firmware on the OpenFlex Data24 using the OCAPI.

Before you begin:

- The following cURL commands must be run from a Linux host.
- The variable portions of the commands are enclosed in angle-brackets (i.e. <filename>) and should be replaced by information specific to the user's system.
- The top level /Storage/Devices/{id}/ resource in this example is one of the two IOMs.

Step 1: Follow the instructions in [Downloading Firmware from the Support Portal \(page 6\)](#) to download the firmware file to an appropriate location on the host.

Step 2: From a command line, issue a POST request to the /Storage/Devices/{id}/OperatingSystem/ resource to upload the firmware file:

```
curl -v -i -X POST -u <username>:<password> -F FirmwareFile=@<filepath>/<filename> http://10.20.30.40/Storage/Devices/0123456789/OperatingSystem/
```

A successful upload will result in a 201 response.

Step 3: Issue a GET request to the top level /Storage/Devices/{id}/ resource and note the Etag returned in the header:

```
curl -v -i -X GET -u <username>:<password> http://10.20.30.40/Storage/Devices/0123456789/
```

```
HTTP/1.1 200 OK
Content-Type: application/json
Etag: 783e532540dc6b3e4978604a2f3e0353
Date: Thu, 24 Sep 2020 21:28:38 GMT
```

```
Transfer-Encoding: chunked
```

Step 4: Using the Etag from the GET request, issue a PUT request to the same resource, passing the key/value pair of `"FirmwareUpdate":true` to update the firmware:

```
curl -v -u <username>:<password> -X PUT -H "If-Match:783e532540dc6b3e4978604a2f3e0353" -H "Content-Type: application/json" -d '{"FirmwareUpdate":true}' http://10.20.30.40/Storage/Devices/0123456789/
```

A successful PUT request will result in a 202 response:

```
HTTP/1.1 202 Accepted
Content-Type: application/json
Location: http://10.20.30.40:80/Storage/Devices/0123456789/Jobs/FirmwareUpdate/
Date: Thu, 24 Sep 2020 21:53:41 GMT
Content-Length: 166
```

Step 5: To verify a successful update, issue a GET request to the listed `FirmwareUpdate` jobs resource:

```
curl -i -u admin:admin -X GET http://10.20.30.40:80/Storage/Devices/0123456789/Jobs/FirmwareUpdate/
```

If the update was successful, the GET response body will show a completed status:

```
{
  "Self": "http://10.20.30.40:80/Storage/Devices/0123456789/Jobs/FirmwareUpdate/",
  "ID": "FirmwareUpdate",
  "PercentComplete": 100,
  ...
}
```

Step 6: Using the Etag again, issue another PUT request, passing the key/value pair of `"FirmwareActivate":true` to activate the firmware:

```
curl -v -u <username>:<password> -X PUT -H "If-Match:783e532540dc6b3e4978604a2f3e0353" -H "Content-Type: application/json" -d '{"FirmwareActivate":true}' http://10.20.30.40/Storage/Devices/0123456789/
```

A successful PUT request will result in a 202 response:

```
HTTP/1.1 202 Accepted
Content-Type: application/json
Location: http://10.20.30.40:80/Storage/Devices/0123456789/Jobs/FirmwareActivate/
Date: Thu, 24 Sep 2020 22:04:07 GMT
Content-Length: 166
```

Step 7: To verify a successful activation, issue a GET request to the listed `FirmwareActivate` jobs resource:

```
curl -i -u admin:admin -X GET http://10.20.30.40:80/Storage/Devices/0123456789/Jobs/FirmwareActivate/
```

If the activation was successful, the GET response body will show a completed status:

```
{
```

```
"Self": "http://10.202.249.35:80/Storage/Devices/openflex-data24-  
usalp03020qb0003-ioma/Jobs/FirmwareActivate/",  
  "ID": "FirmwareActivate",  
  "PercentComplete": 100,  
  ...  
}
```

Step 8: Repeat these steps to update firmware for the second IO Module (IOM).



Note: For high availability, it is recommended to update one IO Module (IOM) at a time. Verify host access before updating the second IO Module (IOM).

1.10 Remote Debug

The OpenFlex Data24 supports remote debugging. If this service is needed, please contact Western Digital Datacenter Platforms technical support by email, or by submitting a service ticket through the support portal. A support professional will guide you through the process of unlocking your platform's SSH service to allow for remote servicing. Please be prepared to provide the part number (P/N) and serial number (S/N) of your OpenFlex Data24.

Email:

support@wdc.com

Website:

<https://portal.wdc.com/Support/s/>

1.11 API Resources and Physical Components

The Open Composable API uses "resources" to represent both logical and physical aspects of the OpenFlex Data24. The following is a description of the resources that allow management of physical components.

New API Resources

The Open Composable API introduces two new resources for the OpenFlex Data24, which correspond to physical components inside the enclosure.

The `/Storage/Devices/{id}/Controllers/` collection represents the two IO Modules (IOMs):

- Controller 1 = IO Module A
- Controller 2 = IO Module B

The `/Storage/Devices/{id}/CoolingDevices/` collection represents the five System Fans:

- Cooling Device 1 = System Fan A
- Cooling Device 2 = System Fan B
- Cooling Device 3 = System Fan C
- Cooling Device 4 = System Fan D
- Cooling Device 5 = System Fan E

Resources For Other Physical Components

The `/Storage/Devices/{id}/Adapters/` collection represents the six add-in-cards (AICs), three inside each IO Module (IOM):

- Adapter 1 = AIC A inside IOM A
- Adapter 2 = AIC B inside IOM A
- Adapter 3 = AIC C inside IOM A
- Adapter 4 = AIC A inside IOM B
- Adapter 5 = AIC B inside IOM B
- Adapter 6 = AIC C inside IOM B

The `/Storage/Devices/{id}/Ports/` collection represents the eight IO ports at the rear of the OpenFlex Data24. Each IO Module (IOM) contains one RJ45 management port and three QSFP28 ports for its internal add-in-cards (AICs). The last key of the key/value pairs in the `/Storage/Devices/{id}/Ports/` resource is either "Controllers" or "Adapters", indicating which type of port it is:

- Controller = IO Module port (RJ45)
- Adapter = AIC port (QSFP28)

1.12 State Name and ID Definitions

The following table provides definitions to the values stored in resources to represent the operational state of the queried resource.

Table 1: State Names and ID Descriptions

ID	ID Name
0	"Unknown"
1	"Not available"
2	"Servicing"
3	"Starting"
4	"Stopping"
5	"Stopped"
6	"Aborted"
7	"Dormant"
8	"Completed"
9	"Migrating"
10	"Emigrating"
11	"Immigrating"
12	"Snapshotting"
13	"Shutting down"
14	"In test"
15	"Transitioning"
16	"In service"
32768	"DMTF reserved"
65536	"Vendor reserved"
65537	"Inoperative"

ID	ID Name
65538	"Write Protected"
65539	"Reboot Needed"
65540	"Activate Needed"
65541	"Activate with reboot needed"
65542	"Activate invalidated by reboot"

1.13 Health Name and ID Definitions

The following table provides definitions to the values stored in resources to represent health status of the resource.

Table 2: Health Name and ID Definitions

ID	Name
0	"Unknown"
5	"OK"
10	"Degraded/Warning"
15	"Minor failure"
20	"Major failure"
25	"Critical failure"
30	"Non-recoverable error"
32768	"DMTF reserved"
65535	"Vendor specific"
65536	"Not installed"
65537	"Not available"
65538	"No access allowed"
65539	"Slot disabled"

1.14 Network Type Name and ID Definitions

The following table provides details and definition to the values presented in response bodies of fabric devices that contain network capabilities.

Table 3: Network Type Name and ID Definitions

ID	Name
0	"LAN"
1	"WLAN"
2	"WAN"
3	"MAN"

ID	Name
4	"SAN"
5	"VLAN"
6	"Ethernet Network"
7	"IP Network"
8	"IPv4 Network"
9	"IPv6 Network"

1.15 /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

Table 4: Attributes

Attribute	Possible Values	Description	Type	Mandatory or Optional	User Configurable
Self	Free-Form URI Format 256 Chars	Describes the fully qualified URI link	String	☑	⊗
SystemQuery	Free-Form URI Format with IP plus "/System/Query"	Link to ask this Device to discover other devices	String	☑	⊗
InformationStructure	See /Query/InformationStructure/ (page 16)				
Devices.Self	Free-Form URI Format 256 Chars	Describes the fully qualified URI link	String	☑	⊗
Devices.Members	One or more / Devices bodies	Collection of Device Summaries	String Array	⊗	⊗

GET /Query/

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://10.20.30.40:80/System/Query/",
"InformationStructure": {
  "Self": "http://10.20.30.40/Query/InformationStructure/",
  "AuthenticationType": {
    "ID": 0,
    "Name": "Basic"
  },
  "ClientFilter": ".*",
  "HTTPPort": 80,
  "HTTPSPort": 443,
  "LogLevel": "debug",
  "MaximumThreads": 5,
  "Name": "OpenFlex API",
  "OwningOrganization": "WDC",
  "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,
  "Version": "1.2.0-233"
},
"Devices": {
  "Self": "http://10.20.30.40:80/Devices/",
  "Members": [
    {
      "Self": "http://10.20.30.40:80/Storage/Devices/0123456789/",
      "SystemType": {
        "ID": 2,
        "Name": "Storage"
      },
      "Name": "0123456789-ioma",
      "ID": "0123456789",
      "OperatingSystem": {
        "Self": "http://10.20.30.40:80/Storage/Devices/0123456789/
OperatingSystem/",
        "Name": "Vendor Firmware",
        "OSType": {
          "ID": 59,
          "Name": "Dedicated"
        },
        "Version": "0.1.0"
      },
      "SerialNumber": "USALP02120Q00022",
      "Model": "OpenFlex Data24",
      "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": 29,
        "Name": "Chassis Manager",
        "CapabilityDescription": "This is an aggregation point for
management and may rely on subordinate management controllers for the management of
constituent parts."
    },
    {
        "ID": 31,
        "Name": "Storage Device Enclosure",
        "CapabilityDescription": "This device is a storage-based
enclosure type."
    },
    {
        "ID": 47201,
        "Name": "Flash Media Device",
        "CapabilityDescription": "This device provides flash-based
storage volumes."
    }
]
},
"Status": {
    "State": {
        "ID": 16,
        "Name": "In service"
    },
    "Health": [
        {
            "ID": 25,
            "Name": "Critical failure"
        }
    ],
    "Details": [
        "None"
    ]
},
"IPAddresses": {
    "Members": [
        {
            "IPAddress": "10.20.30.40"
        }
    ]
}
}
]
}
}

```

Table 5: GET Response Codes

Response Code	Name	Definition
200	OK	OK and 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
500	Internal Server Error	System could not process the request

1.15.1 /Query/InformationStructure/

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

HTTP Methods:

GET

PUT

Table 6: Attributes

Attribute	Possible Values	Description	Type	Mandatory or Optional	User Configurable
Self	Free-Form URI Format 256 Chars	Describes the fully qualified URI link, used to display or modify the InformationStructur	String	✓	✗
AuthenticationType.ID	0 = Basic; 1 = Digest	The current authentication type ID	Number	✓	✓
AuthenticationType.Name	Basic or Digest	The current authentication type Name	String	✓	✗
HTTPPort	80, or 1024 - 65535 range	Port number for HTTP listener; default = 80	Number	✓	✓
HTTPSPort	443, or 1024 - 65535 range	Port number for HTTPS listener; default = 443	Number	✓	✓

Attribute	Possible Values	Description	Type	Mandatory or Optional	User Configurable
LogLevel	"debug" "info" "warn" "error"	The log level setting for writing into /var/log/vstore.log	String	⊗	✓
MaximumThreads	Default: 5	Throttles the total number of web client connections. Returns a 429 Too Many Requests if maximum number reached. Try again.	Number	⊗	✓
Name	Free-Form 64 Chars	The API name	String	✓	⊗
OwningOrganization	Free-Form 64 Chars	The API Schema Owner	String	✓	⊗
Status	Free-Form 64 Chars	The API Schema Version Release Status	String	✓	⊗
StructureDescription	Free-Form 256 Chars	The API Schema Description	String	✓	⊗
URI	Free-Form URI Format	The API Schema URI starting point	String	✓	⊗
TimeoutMultiplier	1 - n (default: 1)	The timeout multiplier value to increase the API timeout values	Number	⊗	✓
Version	Major.Minor. Release Format	The API Schema Version Number	String	✓	⊗

GET /Query/InformationStructure/**Table 7:** 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://10.20.30.40:80/Query/InformationStructure/",
  "AuthenticationType": {
    "ID": 0,
    "Name": "Basic"
  },
  "HTTPPort": 80,
  "HTTPSPort": 443,
  "LogLevel": "debug",
  "MaximumThreads": 5,
  "Name": "OpenFlex API",
  "OwningOrganization": "WDC",
  "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,
  "Version": "0.9.11"
}
```

Table 8: GET Response Codes

Response Code	Name	Definition
200	OK	OK and 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
500	Internal Server Error	System could not process the request

PUT /Query/InformationStructure/

Table 9: 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 does not match 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 --data '{"LogLevel":"info"}' http://10.20.30.40/Query/InformationStructure/
```



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

Example PUT Request Body

```
{
  "HTTPPort": number,
  "HTTPSPort": number,
  "AuthenticationType": { "ID" : 0 | 1 },
  "ClientFilter" : "REGEX values",
  "MaximumThreads": number,
  "RestartAPI": true
  "LogLevel": "debug"|"info"|"warn"|"error",
  "TimeoutMultiplier": 1 - n (default: 1)
}
```

Table 10: 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

1.16 /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

Table 11: Attributes

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

GET /System/Query/

Table 12: 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/Query/
```

Example GET Response Body

```
{
  "Self": "http://1020.30.40:80/System/Query/",
  "Members": [
    {
      "Self": "http://10.20.30.40:80/Query/",
      "SystemQuery": "http://10.202.239.212:80/System/Query/",
      "InformationStructure": {
        "Self": "http://10.202.239.212:80/Query/InformationStructure/",
        "AuthenticationType": {
          "ID": 0,
          "Name": "Basic"
        },
        "ClientFilter": ".*",
        "HTTPPort": 80,
        "HTTPSPort": 443,
        "LogLevel": "info",
      }
    }
  ]
}
```

```

        "MaximumThreads": 5,
        "Name": "OpenFlex API",
        "OwningOrganization": "WDC",
        "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,
        "Version": "1.1.0-65"
    },
    "Devices": {
        "Self": "http://10.20.30.40:80/Devices/",
        "Members": [
            {
                "Self": "http://10.202.239.212:80/Compute/
Devices/00000000-0000-0000-0000-0CC47A6BB00C/",
                "SystemType": {
                    "ID": 1,
                    "Name": "Compute"
                },
                "Name": "cos-thebe",
                "ID": "00000000-0000-0000-0000-0CC47A6BB00C",
                "OperatingSystem": {
                    "Self": "http://10.202.239.212:80/Compute/
Devices/00000000-0000-0000-0000-0CC47A6BB00C/OperatingSystem/",
                    "Name": "Linux",
                    "OSType": {
                        "ID": 36,
                        "Name": "Linux"
                    },
                    "Version": "18.04 LTS (Bionic Beaver) 4.15.0-20-generic"
                },
                "Model": "SSG-5028R-E1CR12L-CE010",
                "Manufacturer": "Supermicro",
                "Capabilities": {
                    "Members": [
                        {
                            "ID": 14,
                            "Name": "Management",
                            "CapabilityDescription": "This device provides
software system management capabilities."
                        },
                        {
                            "ID": 16,
                            "Name": "File Server",
                            "CapabilityDescription": "This device is a file
server."
                        },
                        {
                            "ID": 39,
                            "Name": "Server",
                            "CapabilityDescription": "This device is a compute
server."
                        }
                    ]
                },
                "Status": {

```

```

        "State": {
            "ID": 16,
            "Name": "In service"
        },
        "Health": [
            {
                "ID": 5,
                "Name": "OK"
            }
        ],
        "Details": [
            "None"
        ]
    },
    "IPAddresses": {
        "Members": [
            {
                "IPAddress": "127.0.0.1"
            },
            {
                "IPAddress": "::1"
            },
            {
                "IPAddress": "10.202.239.212"
            },
            {
                "IPAddress": "fe80::ec4:7aff:fe6b:b00c"
            },
            {
                "IPAddress": "192.168.0.27"
            },
            {
                "IPAddress": "fdf4:cfad:91f3:6060::28"
            },
            {
                "IPAddress": "fe80::ee0d:9aff:fe83:215e"
            }
        ]
    }
},
{
    "Self": "http://10.202.239.203:80/Query/",
    "Devices": {
        "Members": [
            {
                "Self": "http://10.202.239.203:80/Query/",
                "SystemType": {
                    "ID": 0,
                    "Name": "Unknown"
                },
                "Name": "Unknown",
                "ID": "10.202.239.203:80",
                "OperatingSystem": {
                    "Self": "",
                    "Name": "",
                    "OSType": {

```



```

        "ID": 0,
        "Name": "Unknown"
    },
    "Version": "Unknown"
},
"SerialNumber": "Unknown",
"Model": "Unknown",
"Manufacturer": "Unknown",
"Capabilities": {
    "Members": [
        {
            "ID": 1,
            "Name": "Unknown",
            "CapabilityDescription": "Unknown"
        }
    ]
},
"Status": {
    "State": {
        "ID": 0,
        "Name": "Unknown"
    },
    "Health": [
        {
            "ID": 0,
            "Name": "Unknown"
        }
    ],
    "Details": [
        "Get http://10.202.239.203:80/Query/DataAndSchema/: net/
http: request canceled (Client.Timeout exceeded while awaiting headers)"
    ]
},
"IPAddresses": {
    "Members": [
        {
            "IPAddress": "10.202.239.203:80"
        }
    ]
},
"Sanitize": {},
"Format": {
    "BlockSize": {},
    "SecureErase": {}
}
}
]
}
{
...
}
]
```

Table 13: GET Response Codes

Response Code	Name	Definition
200	OK	OK and 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
500	Internal Server Error	System could not process the request

1.16.1 /System/Query/ Modifiers

GET requests made to the `/System/Query/` resource can be modified to alter the response. The following table lists the possible modifiers and describes how these modifiers affect the request.

Table 14: Query Modifiers

Modifier	Result
Netmask = {ip_address/cidr}	Modifies the IP address and CIDR code range for the sweep/scan process that discovers OCAPI compatible devices on the network. The default sweep only targets the system IP address' subnet
DiscoveryTimeout = {1-n}	The timeout value in seconds for the discovery scan/sweep process; The default is 5 seconds.
QueryTimeout = {1-n}	The timeout value in seconds for the query process; default = 20 seconds
Threads = {1-n}	The number of parallel /Query requests based on the number of IP Address/CIDR to send to the network (multi-threaded unicast)

Storage Device API Reference

In This Chapter:

- /Storage/Devices/{id}/ 26
- /Storage/Devices/{id}/Controllers/ 34
- /Storage/Devices/{id}/Adapters/ 38
- /Storage/Devices/{id}/Ports/ 43
- /Storage/Devices/{id}/
PowerSupplies/ 49
- /Storage/Devices/{id}/
CoolingDevices/ 52
- /Storage/Devices/{id}/Sensors/ 56
- /Storage/Devices/{id}/Media/ 61
- /Storage/Devices/{id}/
OperatingSystem/ 66
- /Storage/Devices/{id}/Accounts/ 68
- /Storage/Devices/{id}/Location/ 75
- /Storage/Devices/{id}/SystemClock/ 80
- /Storage/Devices/{id}/Support/ 85
- /Storage/Devices/{id}/Jobs/ 86
- /Storage/Devices/{id}/Files/ 91

2.1 /Storage/Devices/{id}/

HTTP Methods:

GET

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Table 15: Attributes

Attribute	Possible Values	Description	Type	Mandatory or Optional	User Configurable
Self	Free-Form URI Format 256 Chars	Describes the fully qualified URI link	URI String	✓	✗
SystemType.ID	2	The domain type number indicating the type of Device Resource. ID corresponds to Name	Number	✓	✗
SystemType.Name	"Storage"	The domain type string indicating the type of Device Resource. Name corresponds to ID	String	✓	✗
Name	Free-Form 48 Chars	The user-defined Friendly Name for this Resource	String	✓	✓
ID	Free-Form 256 Chars	The resource identifier that is unique in space and time	String	✓	✗
OperatingSystem.Self	Free-Form URI 256 Chars	Describes the fully qualified URI link	URI String	✓	✗
OperatingSystem.Name	Free-Form 128 Chars	The Operating System or Firmware Name	String	✗	✗
OperatingSystem.OSType.ID	59	Indicates dedicated software. ID corresponds to Name	Number	✓	✗
OperatingSystem.OSType.Name	Dedicated	Indicates dedicated software value. Name corresponds to ID	String	✓	✗

Attribute	Possible Values	Description	Type	Mandatory or Optional	User Configurable
OperatingSystem.Version	Free-Form 128 Chars	The Operating System or Firmware Version	String	☑	☒
SerialNumber	Free-Form 64 Chars	The serial number for this Resource	String	☑	☒
Model	Free-Form 64 Chars	The model name or number for this Resource	String	☑	☒
Capabilities.Members[].ID	3, 15, 28, 40, 47201	The capabilities information value map(s) regarding the Resource. ID corresponds to Name: Storage, Block Server, Management Controller, Blade, Flash Media Device	Number	☑	☒
Capabilities.Members[].Name	"CapabilityID", "ID", "Name"	The capabilities information value(s) regarding the Resource. Name corresponds to ID	String	☑	☒
Capabilities.Members[].Capability	Free-Form 64 Characters	Entry describing the capability	String	☑	☒
Status.State.ID	See State Name and ID Definitions (page 11)	The current state value map of this Resource. ID corresponds to Name	Number	☑	☒
Status.State.Name	See State Name and ID Definitions (page 11)	The current state value of this Resource. Name corresponds to ID	String	☑	☒
Status.Health[].ID	See Health Name and ID Definitions (page 12)	The current health value map of this Resource. There can be 1 or more Id entries. ID corresponds to Name	Number (1..*)	☑	☒

Attribute	Possible Values	Description	Type	Mandatory or Optional	User Configurable
Status.Health[].Name	See Health Name and ID Definitions (page 12)	The current health value of this Resource. There can be 1 or more Name entries. Name corresponds to ID	String (1..*)	☑	☒
Status.Details[]	Free-Form 32 Characters per Array entry. If no entry, then "None".	The current Health Details of the Device	String Array	☒	☒
IPAddresses.Members[].IP	IPv4pattern	The IP Address list for this Resource	String	☑	☑
PowerState.ID	0, 2, 4, 6 Note: 0 & 6 are not user-configurable	The current power state of the Device. ID corresponds to Name	Number	☑	☑
PowerState.Name	"Unknown", "On", "Sleep", "Off" Note: Selecting "Off" returns an error since this Device does not support Shutdown.	The current power state value of the Device. Name corresponds to ID	String	☑	☑
TotalCapacity	Integer Bytes	The total number of raw bytes for this device	Number	☑	☒
IndicatorLED.ID	4, 2	The current state value map of the Indicator LED for this Resource. ID corresponds to Name	Number	☑	☑

Attribute	Possible Values	Description	Type	Mandatory or Optional	User Configurable
IndicatorLED.Name	"Off", "Lit"	The current state value of the Indicator LED for this Resource. Name corresponds to ID	String	☑	☑
Location.Self	Free-Form URI	Fully qualified link to the Location resource	String	☑	⊗
Accounts.Self	Free-Form URI	Fully qualified link to the Accounts resource	String	☑	⊗
Adapters.Self	Free-Form URI	Fully qualified link to the Adapters resource	String	☑	⊗
Controllers.Self	Free-Form URI	Fully qualified link to the Controllers resource	String	☑	⊗
CoolingDevices.Self	Free-Form URI	Fully qualified link to the CoolingDevices resource	String	☑	⊗
Files.Self	Free-Form URI	Fully qualified link to the Files resource	String	☑	⊗
Jobs.Self	Free-Form URI	Fully qualified link to the Jobs resource	String	☑	⊗
Media.Self	Free-Form URI	Fully qualified link to the Media resource	String	☑	⊗
Ports.Self	Free-Form URI	Fully qualified link to the Ports resource	String	☑	⊗
PowerSupplies.Self	Free-Form URI	Fully qualified link to the PowerSupplies resource	String	☑	⊗
Sensors.Self	Free-Form URI	Fully qualified link to Sensors resource	String	☑	⊗
Support.Self	Free-Form URI	Fully qualified link to the Support resource	String	☑	⊗

Attribute	Possible Values	Description	Type	Mandatory or Optional	User Configurable
SystemClock.Self	Free-Form URI	Fully qualified link to the SystemClock resource	String	☑	☒

GET /Storage/Devices/{id}/**Table 16:** 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/Storage/Devices/0123456789/
```

Example GET Response Body

```
{
  "Self": "http://10.20.30.40:80/Storage/Devices/0123456789/",
  "SystemType": {
    "ID": 2,
    "Name": "Storage"
  },
  "Name": "0123456789-iomb",
  "ID": "0123456789",
  "OperatingSystem": {
    "Self": "http://10.20.30.40:80/Storage/Devices/0123456789/OperatingSystem/",
    "Name": "Vendor Firmware",
    "OSType": {
      "ID": 59,
      "Name": "Dedicated"
    },
    "Version": "0.1.0"
  },
  "SerialNumber": "ABCDEFGHijklmnop",
  "Model": "OpenFlex Data24",
  "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": 29,
        "Name": "Chassis Manager",
        "CapabilityDescription": "This is an aggregation point for management
and may rely on subordinate management controllers for the management of constituent
parts."
    },
    {
        "ID": 31,
        "Name": "Storage Device Enclosure",
        "CapabilityDescription": "This device is a storage-based enclosure
type."
    },
    {
        "ID": 47201,
        "Name": "Flash Media Device",
        "CapabilityDescription": "This device provides flash-based storage
volumes."
    }
]
},
"Status": {
    "State": {
        "ID": 16,
        "Name": "In service"
    },
    "Health": [
        {
            "ID": 25,
            "Name": "Critical failure"
        }
    ],
    "Details": [
        "None"
    ]
},
"IPAddresses": {
    "Members": [
        {
            "IPAddress": "10.20.30.40"
        }
    ]
},
"PowerState": {
    "ID": 2,
    "Name": "On"
},
"TotalCapacity": 80655875629056,
"IndicatorLED": {
    "ID": 4,
    "Name": "Off"
}

```

```

    },
    "Location": {
      "Self": "http://10.20.30.40:80/Storage/Devices/0123456789/Location/"
    },
    "Accounts": {
      "Self": "http://10.20.30.40:80/Storage/Devices/0123456789/Accounts/"
    },
    "Adapters": {
      "Self": "http://10.20.30.40:80/Storage/Devices/0123456789/Adapters/"
    },
    "Controllers": {
      "Self": "http://10.20.30.40:80/Storage/Devices/0123456789/Controllers/"
    },
    "CoolingDevices": {
      "Self": "http://10.20.30.40:80/Storage/Devices/0123456789/CoolingDevices/"
    },
    "Files": {
      "Self": "http://10.20.30.40:80/Storage/Devices/0123456789/Files/"
    },
    "Jobs": {
      "Self": "http://10.20.30.40:80/Storage/Devices/0123456789/Jobs/"
    },
    "Media": {
      "Self": "http://10.20.30.40:80/Storage/Devices/0123456789/Media/"
    },
    "Ports": {
      "Self": "http://10.20.30.40:80/Storage/Devices/0123456789/Ports/"
    },
    "PowerSupplies": {
      "Self": "http://10.20.30.40:80/Storage/Devices/0123456789/PowerSupplies/"
    },
    "Sensors": {
      "Self": "http://10.20.30.40:80/Storage/Devices/0123456789/Sensors/"
    },
    "Support": {
      "Self": "http://10.20.30.40:80/Storage/Devices/0123456789/Support/"
    },
    "SystemClock": {
      "Self": "http://10.20.30.40:80/Storage/Devices/0123456789/SystemClock/"
    }
  }
}

```

Table 17: GET Response Codes

Response Code	Name	Definition
200	OK	OK and 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

Response Code	Name	Definition
429	Too Many Requests	Indicates API service is busy, client should try again later
500	Internal Server Error	System could not process the request

PUT /Storage/Devices/{id}/**Table 18:** 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

Table 19: PUT Data Options

Syntax	Description
"IndicatorLED": {"ID": 4 2}	Toggles the Indicator LED on the Device; default "Off = 4"; "Lit = 2"
"Name": "new_name"	Specify a new name
"Description": "desc"	Modify the description; required to be sent by itself (no other attributes should be sent with this change)
"Reboot": true	true = Reboot the Resource (WriteOnly)
"FactoryReset": true	true = Return Device to factory settings
"PowerState": {"ID": 2 4}	2 = "On" 4 = "Sleep"

Example PUT curl Command

```
curl -i -u admin:admin -H "Content-Type: application/json" -H "If-Match: 3677651d2011428f32120a029b015e80" -X PUT --data '{"Name": "new_name"}' http://10.20.30.40/Storage/Devices/0123456789/
```



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

Table 20: PUT Response Codes

Response Code	Name	Definition
200	OK	OK and 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

Response Code	Name	Definition
404	Not Found	The resource doesn't exist
409	Conflict	A new parameter value already exists (e.g., Name)
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	Resource does not exist; this IP Address is running an HTTP service, but does not recognize this resource indicates API service is busy, client should try again later
500	Internal Server Error	System could not process the request

2.2 /Storage/Devices/{id}/Controllers/

The /Storage/Devices/{id}/Controllers/ resource is a collection of two controllers, each corresponding to an IO Module (IOM) of the OpenFlex Data24. Controller 1 represents IOM A, and controller 2 represents IOM B.

HTTP Methods:

GET

PUT

Table 21: Collection Attributes

Attribute	Possible Values	Description	Type	Mandatory or Optional	User Configurable
Self	Free-Form URI Format 256 Chars	Describes the fully qualified URI link	URI String	☑	☒
Members	Resource Collection (0 - n entries)	The array of resource instances. See Table 22: Instance Attributes (page 34)	String Array	☑	☒

Table 22: Instance Attributes

Attribute	Possible Values	Description	Type	Mandatory or Optional	User Configurable
Self	Free-Form URI Format 256 Chars	Describes the fully qualified URI link	URI String	Mandatory	No
ID	Free-Form 256 Chars	The resource identifier that is unique in space and time	String	Mandatory	No

Attribute	Possible Values	Description	Type	Mandatory or Optional	User Configurable
Name	Free-Form 256 Chars	The user-defined Friendly Name for this Resource	String	Mandatory	Yes
Status.State.ID	See State Name and ID Definitions (page 11)	The current state value map of this Resource. ID corresponds to Name	Number	Mandatory	No
Status.State.Name	See State Name and ID Definitions (page 11)	The current state value of this Resource. ID corresponds to Name	String	Mandatory	No
Status.Health[].ID	See Health Name and ID Definitions (page 12)	The current health value map of this Resource. There can be 1 or more ID entries. ID corresponds to Name	Number (1..*)	Mandatory	No
Status.Health[].Name	See Health Name and ID Definitions (page 12)	The current health value of this Resource. There can be 1 or more Name entries. Name corresponds to ID	String (1..*)	Mandatory	No
Rebootable	true, false	Indicates if the Controller is currently in a state that allows a reboot	Boolean	Mandatory	No
HostName	User-defined host name used as a Network Name assigned to the IP Address for this Controller's "Port" assignment	Host name used as a Network Name assigned to the IP Address for this Controller's "Port" assignment. Default value is the Device ID + Controller short name, e.g, ioma or iomb.	String	Mandatory	Yes
Ports	Free-Form URI with query string to "this" Controller's Ports instance(s)	Fully qualified link to the associated Ports Resource	String	Mandatory	No

GET /Storage/Devices/{id}/Controllers/ and /Storage/Devices/{id}/Controllers/{id}/**Table 23:** 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 (Collection)

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

Example GET Response Body (Collection)

```
{
  "Self": "http://10.20.30.40:80/Storage/Devices/0123456789/Controllers/",
  "Members": [
    {
      "Self": "http://10.20.30.40:80/Storage/Devices/0123456789/Controllers/1/",
      "ID": "1",
      "Name": "IO MODULE A",
      "Status": {
        "State": {
          "ID": 16,
          "Name": "In service"
        },
        "Health": [
          {
            "ID": 5,
            "Name": "OK"
          }
        ]
      },
      "Rebootable": true,
      "HostName": "0123456789-ioma",
      "Ports": "http://10.20.30.40:80/Storage/Devices/0123456789/Ports/?controllerid=1"
    },
    {
      "Self": "http://10.20.30.40:80/Storage/Devices/0123456789/Controllers/2/",
      "ID": "2",
      "Name": "IO MODULE B",
      "Status": {
        "State": {
          "ID": 16,
          "Name": "In service"
        },
        "Health": [
          {
            "ID": 5,
            "Name": "OK"
          }
        ]
      }
    }
  ]
}
```

```
    },
    "Rebootable": true,
    "HostName": "0123456789-iomb",
    "Ports": "http://10.20.30.40:80/Storage/Devices/0123456789/Ports/?
controllerid=2"
  }
]
}
```

Example GET curl Command (Single Resource)

```
curl -i -u admin:admin -X GET http://10.20.30.40/Storage/Devices/0123456789/
Controllers/1/
```

Example GET Response Body (Single Resource)

```
{
  "Self": "http://10.20.30.40/Storage/Devices/0123456789/Controllers/1/",
  "ID": "1",
  "Name": "IO MODULE A",
  "Status": {
    "State": {
      "ID": 16,
      "Name": "In service"
    },
    "Health": [
      {
        "ID": 5,
        "Name": "OK"
      }
    ]
  },
  "Rebootable": true,
  "HostName": "0123456789-ioma",
  "Ports": "http://10.20.30.40:80/Storage/Devices/0123456789/Ports/?controllerid=1"
}
```

Table 24: GET Response Codes

Response Code	Name	Definition
200	OK	OK & Controller 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
500	Internal Server Error	System could not process the request

PUT /Storage/Devices/{id}/Controllers/{id}/**Table 25:** 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

```
curl -i -u admin:admin -H "Content-Type: application/json" -H "If-Match: 3677651d2011428f32120a029b015e80" -X PUT --data '{"Name": "new_name"}' http://10.20.30.40/Storage/Devices/0123456789/Controllers/1/
```



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

Table 26: PUT Response Codes

Response Code	Name	Definition
200	OK	OK and 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
409	Conflict	A new parameter value already exists (e.g., Name)
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	Resource does not exist; this IP Address is running an HTTP service, but does not recognize this resource indicates API service is busy, client should try again later
500	Internal Server Error	System could not process the request

2.3 /Storage/Devices/{id}/Adapters/

The /Storage/Devices/{id}/Adapters/ resource is a collection of six adapters, each corresponding to an add-in-card (AIC) inside an IO Module (IOM) of the OpenFlex Data24. Adapters 1-3 represent the AICs inside IOM A; adapters 4-6 represent the AICs inside IOM B.

HTTP Methods:

GET

PUT

Table 27: Collection Attributes

Attribute	Possible Values	Description	Type	Mandatory or Optional	User Configurable
Self	Free-Form URI Format 256 Chars	Describes the fully qualified URI link	URI String	☑	☒
Members	Resource Collection (0 - n entries)	The array of resource instances. See Table 28: Instance Attributes (page 39)	String Array	☒	☒

Table 28: Instance Attributes

Attribute	Possible Values	Description	Type	Mandatory or Optional	User Configurable
Self	Free-Form URI Format 256 Chars	Describes the fully qualified URI link	URI String	Mandatory	No
ID	Free-Form 256 Chars	The resource identifier that is unique in space and time	String	Mandatory	No
Name	Free-Form 256 Chars	Adapter name that indicates which Controller (IOM) and the Adapter "add-in-card" (AIC) position/slot within the Controller enclosure	String	Mandatory	No
Status.State.ID	See State Name and ID Definitions (page 11)	The current state value map of this Resource. ID corresponds to Name	Number	Mandatory	No
Status.State.Name	See State Name and ID Definitions (page 11)	The current state value of this Resource. ID corresponds to Name	String	Mandatory	No
Status.Health[.ID	See Health Name and ID Definitions (page 12)	The current health value map of this Resource. There can be 1 or more Identries. ID corresponds to Name	Number (1..*)	Mandatory	No

Attribute	Possible Values	Description	Type	Mandatory or Optional	User Configurable
Status.Health[].Name	See Health Name and ID Definitions (page 12)	The current health value of this Resource. There can be 1 or more Name entries. Name corresponds to ID	String (1..*)	Mandatory	No
Ports	Free-Form URI with query string to "this" Adapter's Ports instance(s)	Fully qualified link to the associated Ports Resource	String	Mandatory	No

GET /Storage/Devices/{id}/Adapters/ and /Storage/Devices/{id}/Adapters/{id}/

Table 29: 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 (Collection)

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

Example GET Response Body (Collection)

```
{
  "Self": "http://10.20.30.40:80/Storage/Devices/0123456789/Adapters/",
  "Members": [
    {
      "Self": "http://10.20.30.40:80/Storage/Devices/0123456789/Adapters/1/",
      "ID": "1",
      "Name": "IOM-A-AIC-A",
      "Status": {
        "State": {
          "ID": 16,
          "Name": "In service"
        },
        "Health": [
          {
            "ID": 5,
            "Name": "OK"
          }
        ]
      },
      "Ports": "http://10.20.30.40:80/Storage/Devices/0123456789/Ports/?adapterid=1"
    }
  ]
}
```

```
    },
    {
      "Self": "http://10.20.30.40:80/Storage/Devices/0123456789/Adapters/2/",
      "ID": "2",
      "Name": "IOM-A-AIC-B",
      "Status": {
        "State": {
          "ID": 16,
          "Name": "In service"
        },
        "Health": [
          {
            "ID": 5,
            "Name": "OK"
          }
        ]
      },
      "Ports": "http://10.20.30.40:80/Storage/Devices/0123456789/Ports/?
adapterid=2"
    },
    {
      "Self": "http://10.20.30.40:80/Storage/Devices/0123456789/Adapters/
Adapters/3/",
      "ID": "3",
      "Name": "IOM-A-AIC-C",
      "Status": {
        "State": {
          "ID": 16,
          "Name": "In service"
        },
        "Health": [
          {
            "ID": 5,
            "Name": "OK"
          }
        ]
      },
      "Ports": "http://10.20.30.40:80/Storage/Devices/0123456789/Ports/?
adapterid=3"
    },
    {
      "Self": "http://10.20.30.40:80/Storage/Devices/0123456789/Adapters/4/",
      "ID": "4",
      "Name": "IOM-B-AIC-A",
      "Status": {
        "State": {
          "ID": 16,
          "Name": "In service"
        },
        "Health": [
          {
            "ID": 5,
            "Name": "OK"
          }
        ]
      },
      "Ports": "http://10.20.30.40:80/Storage/Devices/0123456789/Ports/?
adapterid=4"
    },
  ],
}
```



```
{
  "Self": "http://10.20.30.40:80/Storage/Devices/0123456789/Adapters/5/",
  "ID": "5",
  "Name": "IOM-B-AIC-B",
  "Status": {
    "State": {
      "ID": 16,
      "Name": "In service"
    },
    "Health": [
      {
        "ID": 5,
        "Name": "OK"
      }
    ]
  },
  "Ports": "http://10.20.30.40:80/Storage/Devices/0123456789/Ports/?
adapterid=5"
},
{
  "Self": "http://10.20.30.40:80/Storage/Devices/0123456789/Adapters/6/",
  "ID": "6",
  "Name": "IOM-B-AIC-C",
  "Status": {
    "State": {
      "ID": 16,
      "Name": "In service"
    },
    "Health": [
      {
        "ID": 5,
        "Name": "OK"
      }
    ]
  },
  "Ports": "http://10.20.30.40:80/Storage/Devices/0123456789/Ports/?
adapterid=6"
}
]
```

Example GET curl Command (Single Resource)

```
curl -i -u admin:admin -X GET http://10.20.30.40/Storage/Devices/0123456789/Adapters/1/
```

Example GET Response Body (Single Resource)

```
{
  "Self": "http://10.20.30.40:80/Storage/Devices/0123456789/Adapters/1/",
  "ID": "1",
  "Name": "IOM-A-AIC-A",
  "Status": {
    "State": {
      "ID": 16,
      "Name": "In service"
    },
    "Health": [
      {

```

```
      "ID": 5,
      "Name": "OK"
    }
  ],
  "Ports": "http://10.20.30.40:80/Storage/Devices/0123456789/Ports/?adapterid=1"
}
```

Table 30: GET Response Codes

Response Code	Name	Definition
200	OK	OK and 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	Resource does not exist; this IP Address is running an HTTP service, but does not recognize this resource indicates API service is busy, client should try again later
500	Internal Server Error	

2.4 /Storage/Devices/{id}/Ports/

The /Storage/Devices/{id}/Ports/ resource is a collection of eight ports, each corresponding to a port on the rear of an IO Module (IOM) of the OpenFlex Data24. Each IO Module (IOM) contains three SAS ports for its internal add-in-cards (AICs) and one Ethernet management port.

HTTP Methods: GET PUT

Table 31: Collection Attributes

Attribute	Possible Values	Description	Type	Mandatory or Optional	User Configurable
Self	Free-Form URI Format 256 Chars	Describes the fully qualified URI link	URI String	Mandatory	No
Members	Resource Collection (0 - n entries)	The array of resource instances. See Table 32: Instance Attributes (page 43)	String Array	Optional	No

Table 32: Instance Attributes

Attribute	Possible Values	Description	Type	Mandatory or Optional	User Configurable
Self	Free-Form URI Format 256 Chars	Describes the fully qualified URI link	URI String	Mandatory	No
ID	Free-Form 256 Chars	The resource identifier that is unique in space and time	String	Mandatory	No
Status.State.ID	See State Name and ID Definitions (page 11)	The current state value map of this Resource . ID corresponds to Name	Number	Mandatory	No
Status.State.Name	See State Name and ID Definitions (page 11)	The current state value of this Resource. Name corresponds to ID	String	Mandatory	No
Status.Health[].ID	See Health Name and ID Definitions (page 12)	The current health value map of this Resource. There can be 1 or more Id entries. ID corresponds to Name	Number (1..*)	Mandatory	No
Status.Health[].Name	See Health Name and ID Definitions (page 12)	The current health value of this Resource. There can be 1 or more Name entries. Name corresponds to ID	String (1..*)	Mandatory	No
AddressOrigin.ID	0, 1, 2, 3, 4, 5, 6, 7, 10, 65536	Information value map as to where the address is supplied. ID corresponds to Name	Number	Mandatory	Yes
AddressOrigin.Name	"UNKNOWN", "OTHER", "NOT APPLICABLE", "STATIC", "DHCP", "BOOTP", "IPv4 Link Local", "DHCPv6", "Link Local",	Information value as to where the address is supplied. Name corresponds to ID	String	Mandatory	Yes

Attribute	Possible Values	Description	Type	Mandatory or Optional	User Configurable
	"DHCPv4",				
IPv4Address	IPv4 4-Octet pattern + CIDR mask	The Network IP Address for this Device; IPv4 type	String	Mandatory	Yes
IPv4Gateway	IPv4 4-Octet pattern	The Network IP Gateway address setting	String	Optional	Yes
MACAddress	6-hex digit HW address	The Network IP Gateway address setting	String	Mandatory	No
NetworkType.ID	See Network Type Name and ID Definitions (page 12)	The network type value map. ID corresponds to Name	Number	Mandatory	No
NetworkType.Name	See Network Type Name and ID Definitions (page 12)	The network type value. Name corresponds to ID	String	Mandatory	No
MTUBytes	Range: 1500 - 5000 (management port default: 1500, data port default: 2200)	The current Maximum Transfer Bytes value (Max: 5000)	Number	Mandatory	Yes
Adapters	Free-Form URI Format 256 Chars	Link to get the Adapter information hosting this Port	String	Mandatory	No
Controllers	Free-Form URI Format 256 Chars	Link to get the Controller information hosting this Port	String	Mandatory	No

GET /Storage/Devices/{id}/Ports/ and /Storage/Devices/{id}/Ports/{id}/

Table 33: 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 (Collection)

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

Example GET Response Body (Collection)

```
{
  "Self": "http://10.20.30.40:80/Storage/Devices/0123456789/Ports/",
  "Members": [
    {
      "Self": "http://10.20.30.40:80/Storage/Devices/0123456789/Ports/70_b3_d5_76_88_fd_192_168_0_51_24/",
      "ID": "70_b3_d5_76_88_fd_192_168_0_51_24",
      "Status": {
        "State": {
          "ID": 16,
          "Name": "In service"
        },
        "Health": [
          {
            "ID": 5,
            "Name": "OK"
          }
        ]
      },
      "AddressOrigin": {
        "ID": 65536,
        "Name": "DHCPv4"
      },
      "IPv4Address": "192.168.0.51/24",
      "IPv4Gateway": "192.168.0.1",
      "MACAddress": "70:b3:d5:76:88:fd",
      "NetworkType": {
        "ID": 8,
        "Name": "IPv4 Network"
      },
      "MTUBytes": 2200,
      "Adapters": "http://10.20.30.40:80/Storage/Devices/0123456789/Adapters/?portid=70_b3_d5_76_88_fd_192_168_0_51_24"
    },
    {
      ...
    }
  ]
}
```

Example GET curl Command (Single-Resource)

```
curl -i -u admin:admin -X GET http://10.20.30.40/Storage/Devices/0123456789/Ports/70_b3_d5_76_88_fd_192_168_0_51_24/
```

Example GET Response Body (Single-Resource)

```
{
  "Self": "http://10.202.239.38:80/Storage/Devices/0123456789/Ports/70_b3_d5_76_88_fd_192_168_0_51_24/",
  "ID": "70_b3_d5_76_88_fd_192_168_0_51_24",
  "Status": {
    "State": {
      "ID": 16,
      "Name": "In service"
    },
    "Health": [
      {
        "ID": 5,
        "Name": "OK"
      }
    ]
  },
  "AddressOrigin": {
    "ID": 65536,
    "Name": "DHCPv4"
  },
  "IPv4Address": "192.168.0.51/24",
  "IPv4Gateway": "192.168.0.1",
  "MACAddress": "70:b3:d5:76:88:fd",
  "NetworkType": {
    "ID": 8,
    "Name": "IPv4 Network"
  },
  "MTUBytes": 2200,
  "Adapters": "http://10.202.239.38:80/Storage/Devices/0123456789/Adapters/?portid=70_b3_d5_76_88_fd_192_168_0_51_24"
}
```

Table 34: GET Response Codes

Response Code	Name	Definition
200	OK	OK and 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	Resource does not exist; this IP Address is running an HTTP service, but does not recognize this resource indicates API service is busy, client should try again later
500	Internal Server Error	System could not process the request

PUT /Storage/Devices/{id}/Ports/

Table 35: 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

Table 36: PUT Data Options

Syntax	Description
"AddressOrigin": {"ID":number}	Address Origin - where the IP Address comes from. Origin Type ID (65536 3) (DHCPv4 STATIC)
"IPv4Address": "ipv4_address/cidr"	IPv4 Address and CIDR mask value
"IPv4Gateway": "ipv4_gateway"	IPv4 Gateway Address
"MTUBytes": 1500	Maximum Transfer Unit in bytes (range: 1500 - 5000)

Example PUT curl Command

```
curl -i -u admin:admin -H "Content-Type: application/json" -H "If-Match: 3677651d2011428f32120a029b015e80" -X PUT --data '{"AddressOrigin": {"ID": 65536}}' http://10.20.30.40/Storage/Devices/0123456789/Ports/70_b3_d5_76_88_fd_192_168_0_51_24/
```



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

Table 37: PUT Response Codes

Response Code	Name	Definition
200	OK	OK and 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
409	Conflict	A new parameter value already exists (e.g., Name)
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	Resource does not exist; this IP Address is running an HTTP service, but does not recognize this resource indicates API service is busy, client should try again later

Response Code	Name	Definition
500	Internal Server Error	System could not process the request

2.5 /Storage/Devices/{id}/PowerSupplies/

HTTP Methods: GET

Table 38: Collection Attributes

Attribute	Possible Values	Description	Type	Mandatory or Optional	User Configurable
Self	Free-Form URI Format 256 Chars	Describes the fully qualified URI link	URI String	Mandatory	No
Members	Resource Collection (0 - n entries)	The array of resource instances. See Table 39: Instance Attributes (page 49)	String Array	Mandatory	No

Table 39: Instance Attributes

Attribute	Possible Values	Description	Type	Mandatory or Optional	User Configurable
Self	Free-Form URI Format 256 Chars	Describes the fully qualified URI link	URI String	☑	☒
ID	Free-Form 256 Chars	The resource identifier that is unique in space and time	String	☑	☒
Name	Free-Form 256 Chars	The user-defined Friendly Name for this Resource.	String	☑	☑
Status.State.ID	See State Name and ID Definitions (page 11)	The current state value map of this Resource. ID corresponds to Name	Number	☑	☒
Status.State.Name	See State Name and ID Definitions (page 11)	The current state value of this Resource. Name corresponds to ID	String	☑	☒

Attribute	Possible Values	Description	Type	Mandatory or Optional	User Configurable
Status.Health[].ID	See Health Name and ID Definitions (page 12)	The current health value map of this Resource. There can be 1 or more Id entries. ID corresponds to Name	Number (1..*)	☑	☒
Status.Health[].Name	See Health Name and ID Definitions (page 12)	The current health value of this Resource. There can be 1 or more Name entries. Name corresponds to ID	String (1..*)	☑	☒
PartNumber	Free-Form 256 Chars	The Part Number for this Power Supply	String	☑	☒
SerialNumber	Free-Form 256 Chars	The Serial Number for this Power Supply	String	☑	☒

GET /Storage/Devices/{id}/PowerSupplies/ and /Storage/Devices/{id}/PowerSupplies/{id}/

Table 40: 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 (Collection)

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

Example GET Response Body (Collection)

```
{
  "Self": "http://10.20.30.40:80/Storage/Devices/0123456789/PowerSupplies/",
  "Members": [
    {
      "Self": "http://10.20.30.40:80/Storage/Devices/0123456789/PowerSupplies/1/",
      "ID": "1",

```

```
    "Name": "POWER SUPPLY A",
    "Status": {
      "State": {
        "ID": 16,
        "Name": "In service"
      },
      "Health": [
        {
          "ID": 5,
          "Name": "OK"
        }
      ]
    },
    "PartNumber": "DPS-2000AB-2 D",
    "SerialNumber": "JEUD2016000063"
  },
  {
    "Self": "http://10.20.30.40:80/Storage/Devices/0123456789/PowerSupplies/2/",
    "ID": "2",
    "Name": "POWER SUPPLY B",
    "Status": {
      "State": {
        "ID": 16,
        "Name": "In service"
      },
      "Health": [
        {
          "ID": 5,
          "Name": "OK"
        }
      ]
    },
    "PartNumber": "DPS-2000AB-2 D",
    "SerialNumber": "JEUD2016000057"
  }
]
```

Example GET curl Command (Single Resource)

```
curl -i -u admin:admin -X GET http://10.20.30.40/Storage/Devices/0123456789/PowerSupplies/1/
```

Example GET Response Body (Single Resource)

```
{
  "Self": "http://10.20.30.40:80/Storage/Devices/0123456789/PowerSupplies/1/",
  "ID": "1",
  "Name": "POWER SUPPLY A",
  "Status": {
    "State": {
      "ID": 16,
      "Name": "In service"
    },
    "Health": [
      {
        "ID": 5,
        "Name": "OK"
      }
    ]
  }
}
```

```
    ],
    "PartNumber": "DPS-2000AB-2 D",
    "SerialNumber": "JEUD2016000063"
  }
}
```

Table 41: GET Response Codes

Response Code	Name	Definition
200	OK	OK and 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
500	Internal Server Error	System could not process the request

2.6 /Storage/Devices/{id}/CoolingDevices/

The /Storage/Devices/{id}/CoolingDevices/ resource is a collection of five cooling devices, each corresponding to a System Fan inside the OpenFlex Data24. Cooling device 1 represents system fan A, cooling device 2 represents system fan B, and so on.

HTTP Methods: GET

Table 42: Collection Attributes

Attribute	Possible Values	Description	Type	Mandatory or Optional	User Configurable
Self	Free-Form URI Format 256 Chars	Describes the fully qualified URI link	URI String	Mandatory	No
Members	Resource Collection (0 - n entries)	The array of resource instances. See Table 43: Instance Attributes (page 52)	String Array	Mandatory	No

Table 43: Instance Attributes

Attribute	Possible Values	Description	Type	Mandatory or Optional	User Configurable
Self	Free-Form URI Format 256 Chars	Describes the fully qualified URI link	URI String	☑	☒

Attribute	Possible Values	Description	Type	Mandatory or Optional	User Configurable
ID	Free-Form 256 Chars	The resource identifier that is unique in space and time.	String	☑	☒
Name	Free-Form 256 Chars	The user-defined Friendly Name for this Resource.	String	☑	☑
Status.State.ID	See State Name and ID Definitions (page 11)	The current state value map of this Resource. ID corresponds to Name	Number	☑	☒
Status.State.Name	See State Name and ID Definitions (page 11)	The current state value of this Resource. Name corresponds to ID	String	☑	☒
Status.Health[].ID	See Health Name and ID Definitions (page 12)	The current health value map of this Resource. There can be 1 or more Id entries. ID corresponds to Name	Number (1..*)	☑	☒
Status.Health[].Name	See Health Name and ID Definitions (page 12)	The current health value of this Resource. There can be 1 or more Name entries. Name corresponds to ID	String (1..*)	☑	☒

GET /Storage/Devices/{id}/CoolingDevices/ and /Storage/Devices/{id}/CoolingDevices/{id}/

Table 44: 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 (Collection)

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

Example GET Response Body (Collection)

```
{  
  "Self": "http://10.20.30.40:80/Storage/Devices/0123456789/CoolingDevices/",  
  "Members": [  
    {  
      "Self": "http://10.20.30.40:80/Storage/Devices/0123456789/  
CoolingDevices/1/",  
      "ID": "1",  
      "Name": "COOLING FRU A",  
      "Status": {  
        "State": {  
          "ID": 16,  
          "Name": "In service"  
        },  
        "Health": [  
          {  
            "ID": 5,  
            "Name": "OK"  
          }  
        ]  
      },  
    },  
    {  
      "Self": "http://10.20.30.40:80/Storage/Devices/0123456789/  
CoolingDevices/2/",  
      "ID": "2",  
      "Name": "COOLING FRU B",  
      "Status": {  
        "State": {  
          "ID": 16,  
          "Name": "In service"  
        },  
        "Health": [  
          {  
            "ID": 5,  
            "Name": "OK"  
          }  
        ]  
      },  
    },  
    {  
      "Self": "http://10.20.30.40:80/Storage/Devices/0123456789/  
CoolingDevices/3/",  
      "ID": "3",  
      "Name": "COOLING FRU C",  
      "Status": {  
        "State": {  

```

```
        "ID": 16,  
        "Name": "In service"  
    },  
    "Health": [  
        {  
            "ID": 5,  
            "Name": "OK"  
        }  
    ]  
},  
{  
    "Self": "http://10.20.30.40:80/Storage/Devices/0123456789/  
CoolingDevices/4/",  
    "ID": "4",  
    "Name": "COOLING FRU D",  
    "Status": {  
        "State": {  
            "ID": 16,  
            "Name": "In service"  
        },  
        "Health": [  
            {  
                "ID": 5,  
                "Name": "OK"  
            }  
        ]  
    }  
},  
{  
    "Self": "http://10.20.30.40:80/Storage/Devices/0123456789/  
CoolingDevices/5/",  
    "ID": "5",  
    "Name": "COOLING FRU E",  
    "Status": {  
        "State": {  
            "ID": 16,  
            "Name": "In service"  
        },  
        "Health": [  
            {  
                "ID": 5,  
                "Name": "OK"  
            }  
        ]  
    }  
}  
]  
}
```

Example GET curl Command (Single Resource)

```
curl -i -u admin:admin -X GET http://10.20.30.40/Storage/Devices/0123456789/  
CoolingDevices/1/
```

Example GET Response Body (Single Resource)

```
{  
    "Self": "http://10.20.30.40:80/Storage/Devices/0123456789/CoolingDevices/1/",
```



```
"ID": "1",
"Name": "COOLING FRU A",
"Status": {
  "State": {
    "ID": 16,
    "Name": "In service"
  },
  "Health": [
    {
      "ID": 5,
      "Name": "OK"
    }
  ]
}
```

Table 45: GET Response Codes

Response Code	Name	Definition
200	OK	OK and 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
500	Internal Server Error	

2.7 /Storage/Devices/{id}/Sensors/

HTTP Methods: GET

Table 46: Collection Attributes

Attribute	Possible Values	Description	Type	Mandatory or Optional	User Configurable
Self	Free-Form URI Format 256 Chars	Describes the fully qualified URI link	URI String	Mandatory	No
Members	Resource Collection (0 - n entries)	The array of resource instances. See Table 47: Instance Attributes (page 56)	String Array	Mandatory	No

Table 47: Instance Attributes

Attribute	Possible Values	Description	Type	Mandatory or Optional	User Configurable
Self	Free-Form URI Format 256 Chars	Describes the fully qualified URI link	URI String	☑	☒
ID	Free-Form 256 Chars	The resource identifier that is unique in space and time	String	☑	☒
Name	Free-Form 256 Chars	The user-defined Friendly Name for this Resource.	String	☑	☑
Status.State.ID	See State Name and ID Definitions (page 11)	The current state value map of this Resource. ID corresponds to Name	Number	☑	☒
Status.State.Name	See State Name and ID Definitions (page 11)	The current state value of this Resource. Name corresponds to ID	String	☑	☒
Status.Health[].ID	See Health Name and ID Definitions (page 12)	The current health value map of this Resource. There can be 1 or more Id entries. ID corresponds to Name	Number (1..*)	☑	☒
Status.Health[].Name	See Health Name and ID Definitions (page 12)	The current health value of this Resource. There can be 1 or more Name entries. Name corresponds to ID	String (1..*)	☑	☒
SensorType.ID	2, 4, 5	The sensor type value map. ID corresponds to Name	Number	☑	☒
SensorType.Name	"Temperature", "Current", "Voltage"	The sensor type value. Name corresponds to ID	String	☑	☒
CurrentReading	Signed Integer	The current reading value for the sensor	Number	☑	☒

Attribute	Possible Values	Description	Type	Mandatory or Optional	User Configurable
BaseUnits.ID	2, 3	The base units value map for the sensor current reading. ID corresponds to Name	Number	☑	☒
BaseUnits.Name	"Degrees C", "Degrees F"	The base units value for the sensor current reading. Name corresponds to ID	String	☑	☒
RateUnits.ID	0	The rate units value map for the sensor current reading. ID corresponds to Name	Number	☑	☒
RateUnits.Name	"None"	The rate units value for the sensor current reading. Name corresponds to ID	String	☑	☒
UnitModifier	Signed Integer	The unit modifier for the sensor current reading	Number	☑	☒
Media	Free-Form URI Format 256 Chars	In the case of a Sensor for a Media resource, the Media link association is presented	URI String	☑	☒

GET /Storage/Devices/{id}/Sensors/ and /Storage/Devices/{id}/Sensors/{id}/**Table 48:** 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 (Collection)

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

Example GET Response Body (Collection)

```
{
  "Self": "http://10.20.30.40:80/Storage/Devices/0123456789/Sensors/",

```

```
"Members": [
  {
    "Self": "http://10.20.30.40:80/Storage/Devices/0123456789/Sensors/
TEMP_DRIVE_01_2_1/",
    "ID": "TEMP_DRIVE_01_2_1",
    "Name": "TEMP DRIVE 01",
    "Status": {
      "State": {
        "ID": 16,
        "Name": "In service"
      },
      "Health": [
        {
          "ID": 5,
          "Name": "OK"
        }
      ]
    },
    "SensorType": {
      "ID": 2,
      "Name": "Temperature"
    },
    "CurrentReading": 29,
    "BaseUnits": {
      "ID": 2,
      "Name": "Degrees C"
    },
    "RateUnits": {
      "ID": 0,
      "Name": "None"
    },
    "UnitModifier": 0,
    "Media": "http://10.20.30.40:80/Storage/Devices/0123456789/Media/?
sensorid=TEMP_DRIVE_01_2_1"
  },
  {
    "Self": "http://10.20.30.40:80/Storage/Devices/0123456789/Sensors/
TEMP_DRIVE_02_2_2/",
    "ID": "TEMP_DRIVE_02_2_2",
    "Name": "TEMP DRIVE 02",
    "Status": {
      "State": {
        "ID": 16,
        "Name": "In service"
      },
      "Health": [
        {
          "ID": 5,
          "Name": "OK"
        }
      ]
    },
    "SensorType": {
      "ID": 2,
      "Name": "Temperature"
    },
    "CurrentReading": 29,
    "BaseUnits": {
      "ID": 2,
```

```
        "Name": "Degrees C"
      },
      "RateUnits": {
        "ID": 0,
        "Name": "None"
      },
      "UnitModifier": 0,
      "Media": "http://10.20.30.40:80/Storage/Devices/0123456789/Media/?
sensorid=TEMP_DRIVE_02_2_2"
    },
    {
      ...
    }
  ]
}
```

Example GET curl Command (Single Resource)

```
curl -i -u admin:admin -X GET http://10.20.30.40/Storage/Devices/0123456789/Sensors/
TEMP_DRIVE_01_2_1/
```

Example GET Response Body (Single Resource)

```
{
  "Self": "http://10.20.30.40:80/Storage/Devices/0123456789/Sensors/
TEMP_DRIVE_01_2_1/",
  "ID": "TEMP_DRIVE_01_2_1",
  "Name": "TEMP DRIVE 01",
  "Status": {
    "State": {
      "ID": 16,
      "Name": "In service"
    },
    "Health": [
      {
        "ID": 5,
        "Name": "OK"
      }
    ]
  },
  "SensorType": {
    "ID": 2,
    "Name": "Temperature"
  },
  "CurrentReading": 30,
  "BaseUnits": {
    "ID": 2,
    "Name": "Degrees C"
  },
  "RateUnits": {
    "ID": 0,
    "Name": "None"
  },
  "UnitModifier": 0,
  "Media": "http://10.20.30.40:80/Storage/Devices/0123456789/Media/?
sensorid=TEMP_DRIVE_01_2_1"
}
```

Table 49: GET Response Codes

Response Code	Name	Definition
200	OK	OK and 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	Resource does not exist; this IP Address is running an HTTP service, but does not recognize this resource indicates API service is busy, client should try again later
500	Internal Server Error	System could not process the request

2.8 /Storage/Devices/{id}/Media/

HTTP Methods:

GET

PUT

Table 50: Collection Attributes

Attribute	Possible Values	Description	Type	Mandatory or Optional	User Configurable
Self	Free-Form URI Format 256 Chars	Describes the fully qualified URI link	URI String	✓	✗
Members	Resource Collection (0 - n entries)	The array of resource instances. See Table 51: Instance Attributes (page 61)	String Array	✗	✗

Table 51: Instance Attributes

Attribute	Possible Values	Description	Type	Mandatory or Optional	User Configurable
Self	Free-Form URI Format 256 Chars	Describes the fully qualified URI link	URI String	Mandatory	No
ID	Free-Form 256 Chars	The resource identifier that is unique in space and time	String	Mandatory	No

Attribute	Possible Values	Description	Type	Mandatory or Optional	User Configurable
Name	Free-Form 256 Chars	The user-defined Friendly Name for this Resource.	String	Mandatory	Yes
PowerState.ID	2, 6	Displays the current power state of the Media instance. Also, used to change the power state of the resource. ID corresponds to Name.	Number	Mandatory	Yes
PowerState.Name	"On", "Off"	Displays the current power state of the Media instance. Name corresponds to ID.	String	Mandatory	No
Status.State.ID	See State Name and ID Definitions (page 11)	The current state value map of this Resource. ID corresponds to Name	Number	Mandatory	No
Status.State.Name	See State Name and ID Definitions (page 11)	The current state value of this Resource. ID corresponds to Name	String	Mandatory	No
Status.Health[].ID	See Health Name and ID Definitions (page 12)	The current health value map of this Resource. There can be 1 or more ID entries. ID corresponds to Name	Number (1..*)	Mandatory	No
Status.Health[].Name	See Health Name and ID Definitions (page 12)	The current health value of this Resource. There can be 1 or more Name entries. Name corresponds to ID	String (1..*)	Mandatory	No
Capacity	Integer value in "bytes"	Displays total capacity of the Media instance in bytes	Number	Mandatory	No
Manufacturer	Free-Form 64 Chars	The vendor name for this Resource	String	Mandatory	No
Protocol.ID	65537	The Media instance protocol type. ID corresponds to Name	Number	Mandatory	No
Protocol.Name	"NVMe"	The Media instance protocol type. Name corresponds to ID	String	Mandatory	No

Attribute	Possible Values	Description	Type	Mandatory or Optional	User Configurable
Sensors	Free-Form URI Format 256 Chars with query string for this Media instance	Sensor link association for this Media instance	URI String	Mandatory	No

GET /Storage/Devices/{id}/Media/ and /Storage/Devices/{id}/Media/{id}/**Table 52:** 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 (Collection)

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

Example GET Response Body (Collection)

```
{
  "Self": "http://10.20.30.40:80/Storage/Devices/0123456789/Media/",
  "Members": [
    {
      "Self": "http://10.20.30.40:80/Storage/Devices/0123456789/Media/1/",
      "ID": "1",
      "Name": "DEVICE 1",
      "PowerState": {
        "ID": 2,
        "Name": "On"
      },
      "Status": {
        "State": {
          "ID": 16,
          "Name": "In service"
        },
        "Health": [
          {
            "ID": 5,
            "Name": "OK"
          }
        ]
      },
      "Capacity": 3840755982336,
      "Manufacturer": "WestDigi",
      "Protocol": {
        "ID": 65537,
```

```
        "Name": "NVMe"
      },
      "Sensors": "http://10.20.30.40:80/Storage/Devices/0123456789/Sensors/?
mediumid=1"
    },
    {
      "Self": "http://10.20.30.40:80/Storage/Devices/0123456789/Media/2/",
      "ID": "2",
      "Name": "DEVICE 2",
      "PowerState": {
        "ID": 2,
        "Name": "On"
      },
      "Status": {
        "State": {
          "ID": 16,
          "Name": "In service"
        },
        "Health": [
          {
            "ID": 5,
            "Name": "OK"
          }
        ]
      },
      "Capacity": 3840755982336,
      "Manufacturer": "WestDigi",
      "Protocol": {
        "ID": 65537,
        "Name": "NVMe"
      },
      "Sensors": "http://10.20.30.40:80/Storage/Devices/0123456789/Sensors/?
mediumid=2"
    },
    {
      ...
    }
  ]
}
```

Example GET curl Command (Single Resource)

```
curl -i -u admin:admin -X GET http://10.20.30.40/Storage/Devices/0123456789/Media/1/
```

Example GET Response Body (Single Resource)

```
{
  "Self": "http://10.20.30.40:80/Storage/Devices/0123456789/Media/1/",
  "ID": "1",
  "Name": "DEVICE 1",
  "PowerState": {
    "ID": 2,
    "Name": "On"
  },
  "Status": {
    "State": {
      "ID": 16,
      "Name": "In service"
    }
  },
}
```

```
{
  "Health": [
    {
      "ID": 5,
      "Name": "OK"
    }
  ],
  "Capacity": 3840755982336,
  "Manufacturer": "WestDigi",
  "Protocol": {
    "ID": 65537,
    "Name": "NVMe"
  },
  "Sensors": "http://10.20.30.40:80/Storage/Devices/0123456789/Sensors/?mediumid=1"
}
```

Table 53: GET Response Codes

Response Code	Name	Definition
200	OK	OK & Media 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
500	Internal Server Error	System could not process the request

PUT /Storage/Devices/{id}/Media/{id}/**Table 54:** 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

Table 55: PUT Data Options

Syntax	Description
"Name": "new_name"	Specify a new name
"PowerState": {"ID": 2 6}	2 = "On" 6 = "Off"

Example PUT curl Command

```
curl -i -u admin:admin -H "Content-Type: application/json" -H "If-Match: 3677651d2011428f32120a029b015e80" -X PUT --data '{"Name": "new_name"}' http://10.20.30.40/Storage/Devices/0123456789/Media/1/
```



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

Table 56: PUT Response Codes

Response Code	Name	Definition
200	OK	OK and 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
409	Conflict	A new parameter value already exists (e.g., Name)
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	Resource does not exist; this IP Address is running an HTTP service, but does not recognize this resource indicates API service is busy, client should try again later
500	Internal Server Error	System could not process the request

2.9 /Storage/Devices/{id}/OperatingSystem/

HTTP Methods:

GET

POST

Table 57: Attributes

Attribute	Possible Values	Description	Type	Mandatory or Optional	User Configurable
Self	Free-Form URI Format 256 Chars	Describes the fully qualified URI link	String	☑	☒
Name	Free-Form 128 Chars	The Operating System or Firmware name	String	☑	☒
OSType.ID	Depends on Operating System Type	The Operating System Type value map. ID corresponds to Name	Number	☑	☒

Attribute	Possible Values	Description	Type	Mandatory or Optional	User Configurable
OSType.Name	Depends on Operating System Type	The Operating System Type value. Name corresponds to ID	String	☑	☒
Version	Free-Form 128 Chars	The Operating System or Firmware Version	String	☑	☒

GET /Storage/Devices/{id}/OperatingSystem/

Table 58: 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/Storage/Devices/0123456789/  
OperatingSystem/
```

Example GET Response Body

```
{  
  "Self": "http://10.20.30.40:80/Storage/Devices/0123456789/OperatingSystem/",  
  "Name": "Vendor Firmware",  
  "OSType": {  
    "ID": 59,  
    "Name": "Dedicated"  
  },  
  "Version": "0.1.0"  
}
```

Table 59: GET Response Codes

Response Code	Name	Definition
200	OK	OK and 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

Response Code	Name	Definition
429	Too Many Requests	Resource does not exist; this IP Address is running an HTTP service, but does not recognize this resource indicates API service is busy, client should try again later
500	Internal Server Error	System could not process the request

POST /Storage/Devices/{id}/OperatingSystem/

Table 60: POST 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 POST curl Command

```
curl -i -u admin:admin -X POST -H "Content-Type: multipart/form-data" -F  
"FirmwareFile=@firmware.tar" http://10.20.30.40/Storage/Devices/0123456789/  
OperatingSystem/
```

Table 61: 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	Resource does not exist; this IP Address is running an HTTP service, but does not recognize this resource indicates API service is busy, client should try again later
500	Internal Server Error	System could not process the request

2.10 /Storage/Devices/{id}/Accounts/

HTTP Methods:

[GET](#)[PUT](#)[POST](#)[DELETE](#)

Table 62: Collection Attributes

Attribute	Possible Values	Description	Type	Mandatory or Optional	User Configurable
Self	Free-Form URI Format 256 Chars	Describes the fully qualified URI link	URI String	Mandatory	No
PasswordValidations.Metadata	Free-Form Chars	User-defined description of the associated regular expression entry in "Pattern". Description corresponds to Pattern.	String	Mandatory	Yes
PasswordValidations.Metadata	Regex Format Pattern - see default patterns	User-defined regular expression pattern for the Password entry to comply. Defaults include the following requirements: - 8 or more characters ("^[\\S]{8,32}\$") - 1 or more lower case characters ("[a-z]") - 1 or more upper case characters ("[A-Z]") - 1 or more special chars ("[!#\$%&'()*+,-.\\ \\/:;=?@\\[\\]^_`{ }~]") - 1 or more numbers ("[0-9]") Pattern corresponds to Description.	String	Mandatory	Yes
Members	Resource Collection (0 - n entries)	The array of resource instances. See Table 63: Instance Attributes (page 69)	String Array	Optional	No

Table 63: Instance Attributes

Attribute	Possible Values	Description	Type	Mandatory or Optional	User Configurable
Self	Free-Form URI Format 256 Chars	Describes the fully qualified URI link	URI String	☑	☒
ID	Free-Form 64 Chars	The Identifier this particular Account	String	☑	☒

Attribute	Possible Values	Description	Type	Mandatory or Optional	User Configurable
BasicAuthentication.Use	Free-Form 128 Characters	The basic authentication checksum	String	☑	☑
DigestAuthentication.U	Free-Form 128 Characters	The digest authentication checksum	String	☑	☑
DigestAuthentication.R	Free-Form 128 Characters	The digest authentication realm	String	☒	☒
JWTAuthentication.Use	Free-Form 128 Chars	The JSON Web Token (JWT) authentication checksum	String	☑	☑
Role.ID	0, 1	The Role type value for this Account. ID corresponds to Name	Number	☑	☒
Role.Name	"Admin", "ReadOnly"	The Role type string for this Account. Name corresponds to ID	String	☑	☒
UserId	Free-Form 64 Chars	The user identifier for this Account	String	☑	☑

GET /Storage/Devices/{id}/Accounts/ and /Storage/Devices/{id}/Accounts/{id}/**Table 64:** 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 (Collection)

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

Example GET Response Body (Collection)

```
{
  "Self": "http://10.20.30.40:80/Storage/Devices/0123456789/Accounts/",
  "PasswordValidations": {
    "Members": [
      {

```

```

        "Description": "8 or more characters, but not more than 32",
        "Pattern": "^[\\S]{8,32}$"
    },
    {
        "Description": "one lower case letter required",
        "Pattern": "[a-z]"
    },
    {
        "Description": "one upper case letter required",
        "Pattern": "[A-Z]"
    },
    {
        "Description": "one special character required",
        "Pattern": "[!#$%&'()*+,-.\\\\\\\\/;=?@\\[\\]^_`{|}~]"
    },
    {
        "Description": "one number required",
        "Pattern": "[0-9]"
    }
]
},
"Members": [
    {
        "Self": "http://10.20.30.40:80/Storage/Devices/0123456789/admin/",
        "ID": "admin",
        "BasicAuthentication": {
            "UserPasswordSHA1Checksum": "{SHA}0DPiKuNIrrVmD8IUCuw1hQxNqZc="
        },
        "DigestAuthentication": {
            "UserPasswordMD5Checksum": "97ebad852d0dabfd6b71ae26fff61fa3",
            "Realm": "Western Digital Corporation"
        },
        "JWTAuthentication": {
            "UserPasswordMD5Checksum": "b80648545a30e0999892b517127c0e17"
        },
        "Role": {
            "ID": 0,
            "Name": "Admin"
        },
        "UserID": "admin"
    }
]
}

```

Example GET curl Command (Single Resource)

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

Example GET Response Body (Single Resource)

```

{
  "Self": "http://10.20.30.40:80/Storage/Devices/0123456789/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 65: GET Response Codes

Response Code	Name	Definition
200	OK	OK and 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	Resource does not exist; this IP Address is running an HTTP service, but does not recognize this resource indicates API service is busy, client should try again later
500	Internal Server Error	System could not process the request

PUT /Storage/Devices/{id}/Accounts/{id}/**Table 66:** 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

Table 67: PUT Data Options

Syntax	Description
"UserID": "userid"	User ID is required as a fail-safe that the client verifies this is the correct account to change
"BasicAuthentication": { "UserPassword": "new_password" }	Basic Authentication structure (when the API service is started with Basic Auth - default) and passphrase

Syntax	Description
"DigestAuthentication": { "UserPassword": "new_password" }	Digest Authentication structure (when the API service is started with Digest Auth) and passphrase
"JWTAuthentication": { "UserPassword": "new_password" }	JSON Web Token Authentication structure (when the API service is started with JWT Auth) and passphrase
"Role": { "ID": 0 1 }	The role type value for this account.

Example PUT curl Command

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



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

Table 68: PUT Response Codes

Response Code	Name	Definition
200	OK	OK and 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
409	Conflict	A new parameter value already exists (e.g., Name)
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
500	Internal Server Error	System could not process the request

POST /Storage/Devices/{id}/Accounts/



Note: POST requests should be sent to the collection object of the resource being created. To make a POST request to the collection of this object, remove the {ID} value at the end of the address.

Table 69: POST 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 POST curl Command (Collection)

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

Table 70: 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	Resource does not exist; this IP Address is running an HTTP service, but does not recognize this resource indicates API service is busy, client should try again later
500	Internal Server Error	System could not process the request

DELETE /Storage/Devices/{id}/Accounts/{id}/**Table 71:** DELETE Request Headers

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
Authorization	Mandatory	The request requires either Basic or Digest authorization

Example DELETE curl Command

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



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



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

Table 72: 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	Resource does not exist; this IP Address is running an HTTP service, but does not recognize this resource indicates API service is busy, client should try again later
500	Internal Server Error	System could not process the request

2.11 /Storage/Devices/{id}/Location/

HTTP Methods:

GET

PUT

DELETE

Table 73: Attributes

Attribute	Possible Values	Description	Type	Mandatory or Optional	User Configurable
Self	Free-Form URI Format 256 Chars	Describes the fully qualified URI link	String	✓	✗
Country	Free-Form 64 Chars	The Country name where this Device is located	String	✗	✓
Territory	Free-Form 64 Chars	The Territory name where this Device is located	String	✗	✓
State	Free-Form 64 Chars	The State name where this Device is located	String	✗	✓

Attribute	Possible Values	Description	Type	Mandatory or Optional	User Configurable
City	Free-Form 64 Chars	The City name where this Device is located	String	⊗	✓
Address1	Free-Form 64 Chars	The first Address information where this Device is located	String	⊗	✓
Address2	Free-Form 64 Chars	The second Address information where this Device is located as needed	String	⊗	✓
Address3	Free-Form 64 Chars	The third Address information where this Device is located as needed	String	⊗	✓
PostalCode	Free-Form 32 Chars	The Postal or Zip Code name where this Device is located	String	⊗	✓
SiteName	Free-Form 32 Chars	The friendly Site Name	String	⊗	✓
Building	Free-Form 32 Chars	The Building name or number where this Device is located	String	⊗	✓
Room	Free-Form 32 Chars	The Room name or number in the Building where this Device is located	String	⊗	✓
Pod	Free-Form 32 Chars	The Pod name or number in the Room this Device is located as needed	String	⊗	✓
Row	Free-Form 32 Chars	The Row name or number in the Room or Pod this Device is located	String	⊗	✓
Rack	Free-Form 32 Chars	The Rack name or number in the Row this Device is located	String	⊗	✓

Attribute	Possible Values	Description	Type	Mandatory or Optional	User Configurable
Shelf	Free-Form 32 Chars	The Shelf name or number of the Rack this Device is located	String	⊗	☑
Device	Free-Form 32 Chars	The Device name or number of the Rack this Device is located	String	⊗	☑
Item	Free-Form 32 Chars	The Item name indicating the Shelf units or dimension for this Device	String	⊗	☑
GPSCoords	Decimal Latitude, Decimal Longitude Format	The GPS coordinates of the location of this Device	String	⊗	☑
OtherLocationInfo	Free-Form 64 Chars	A place-holder for other location information	String	⊗	☑

GET /Storage/Devices/{id}/Location/**Table 74:** 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/Storage/Devices/0123456789/Location/
```

Example GET Response Body

```
{
  "Self": "http://10.20.30.40/Storage/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": "100",
  "Room": "1",
  "Pod": "p2",
  "Rack": "r02",
  "Shelf": "30",
  "Device": "5",
  "Item": "Rack Units",
  "GPSCoords": "38.9838684,-104.8040493",
  "OtherLocationInfo": "This is other info"
}
```

Table 75: GET Response Codes

Response Code	Name	Definition
200	OK	OK and 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	Resource does not exist; this IP Address is running an HTTP service, but does not recognize this resource indicates API service is busy, client should try again later
500	Internal Server Error	System could not process the request

PUT /Storage/Devices/{id}/Location/**Table 76:** 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

Table 77: PUT Data Options

Syntax	Description
"Country": "new_country"	Change the Country
"Territory": "new_territory"	Change the Territory
"State": "new_state"	Change the State
"City": "new_city"	Change the City

Syntax	Description
"Address1": "new_addr1"	Change the Address1
"Address2": "new_addr2"	Change the Address2
"Address3": "new_addr3"	Change the Address3
"PostalCode": "new_zip"	Change the Postal Code
"SiteName": "new_name"	Change the SiteName
"Building": "new_bldg"	Change the Building number or name
"Room": "new_room"	Change the Room number or name
"Pod": "new_pod"	Change the Pod number or name
"Rack": "new_row"	Change the Row number or name
"Shelf": "new_shelf"	Change the Shelf number or name
"Device": "new_device"	Change the Device number or name
"Item": "new_item"	Change the Item
"GPSCoords": "new_coords"	Change the GPS coordinates
"OtherLocationInfo": "new_info"	Change the other location information

Example PUT curl Command

```
curl -i -u admin:admin -H "Content-Type: application/json" -H "If-Match: 3677651d2011428f32120a029b015e80" -X PUT --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"}' http://10.20.30.40/Storage/Devices/0123456789/Location/
```



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

Table 78: PUT Response Codes

Response Code	Name	Definition
200	OK	OK and 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
409	Conflict	A new parameter value already exists (e.g., Name)
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
500	Internal Server Error	System could not process the request

DELETE /Storage/Devices/{id}/Location/

Table 79: DELETE Request Headers

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
Authorization	Mandatory	The request requires either Basic or Digest authorization

Example DELETE curl Command

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



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

Table 80: 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
500	Internal Server Error	System could not process the request

2.12 /Storage/Devices/{id}/SystemClock/

HTTP Methods:

GET

PUT

Table 81: Attributes

Attribute	Possible Values	Description	Type	Mandatory or Optional	User Configurable
Self	Free-Form URI Format 256 Chars	Describes the fully qualified URI link	String	☑	☒
Date	M* date format (dd-mm-yyyy)	Provides current Day with leading zeros, Month abbreviation, and 4-digit Year. This is displayed only when the NTP service is enabled and providing the current date and time.	String	☑	☑
Time	24-hour time	Provides current time in 24-hour format. This is displayed only when the NTP service is enabled and providing the current date and time.	String	☑	☑
TimeZone	Time Zone Local: UTC	Provides current timezone locale value. This is displayed only when the NTP service is enabled and providing the current date and time.	String	☑	☑
TimeZoneSetting	UTC	Provides current timezone value setting; based on UTC. This is displayed only when the NTP service is enabled and providing the current date and time.	String	☑	☒

Attribute	Possible Values	Description	Type	Mandatory or Optional	User Configurable
DST	"Unknown", "Enabled", "Disabled"	Provides current daylight saving time setting. This is displayed only when the NTP service is enabled and providing the current date and time.	String	⊗	⊗
NTP.Enabled	true, false	The current NTP service setting. Use this to enable or disable the use of the external NTP service.	Boolean	☑	☑
NTP.Entity.ID	0, 1	The current NTP entity setting to determine the network path the NTP service is acquired. ID corresponds to Name.	Number	☑	☑
NTP.Entity.Name	"Unknown", "Management"	The current NTP entity setting indicating the network path the NTP service is acquired. Name corresponds to ID.	String	☑	⊗
NTP.Servers[]	Array of URI Strings	Array of NTP server URIs that provide the time service	String (0..*)	☑	☑
Uptime.Duration		The current uptime value in ISO 8601 format	String	☑	⊗
Uptime.Days	0-n	The current uptime Days since boot	Number	☑	⊗
Uptime.Hours	0-23	The current uptime Hours since boot	Number	☑	⊗
Uptime.Minutes	0-59	The current uptime Minutes since boot	Number	☑	⊗
Uptime.Seconds	0-59	The current uptime Seconds since boot	Number	☑	⊗

GET /Storage/Devices/{id}/SystemClock/**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/Storage/Devices/0123456789/SystemClock/
```

Example GET Response Body

```
{
  "Self": "http://10.20.30.40:80/Storage/Devices/0123456789/SystemClock/",
  "Date": "31-Aug-2020",
  "Time": "16:47:14",
  "TimeZone": "(UTC0.00) UTC",
  "TimeZoneSetting": "UTC",
  "DST": "Unknown",
  "NTP": {
    "Enabled": true,
    "Entity": {
      "ID": 1,
      "Name": "Management"
    },
    "Servers": [
      "0.pool.ntp.org",
      "1.pool.ntp.org",
      "2.pool.ntp.org",
      "3.pool.ntp.org"
    ]
  },
  "Uptime": {
    "Duration": "P5DT18H46M40S",
    "Days": 5,
    "Hours": 18,
    "Minutes": 46,
    "Seconds": 40
  }
}
```

Table 83: GET Response Codes

Response Code	Name	Definition
200	OK	OK and Device information in the response body + 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 does not exist; this IP Address is running an HTTP service, but does not recognize this resource
429	Too Many Requests	Resource does not exist; this IP Address is running an HTTP service, but does not recognize this resource indicates API service is busy, client should try again later
500	Internal Server Error	System could not process the request

PUT /Storage/Devices/{id}/SystemClock/**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

Table 85: PUT Data Options

Syntax	Description
"Date" : "new_date"	Change the date
"Time" : "new_time"	Change the time
"TimeZone" : "new_timezone"	Change the time zone
"DST" : "Enabled Disabled"	Enable/disable the daylight savings time setting

Example PUT curl Command

```
curl -i -u admin:admin -H "Content-Type: application/json" -H "If-Match: 3677651d2011428f32120a029b015e80" -X PUT --data '{"NTP": {"Enabled": true, "Servers": "0.pool.ntp.org", "1.pool.ntp.org", "2.pool.ntp.org", "3.pool.ntp.org"}}' http://10.20.30.40/Storage/Devices/0123456789/SystemClock/
```



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

Table 86: PUT Response Codes

Response Code	Name	Definition
200	OK	OK and Account information in the response body + ETag Header
400	Bad Request	Bad Request (typically a faulty parameter)

Response Code	Name	Definition
401	Unauthorized	Unauthorized; credential entry failed or missing
404	Not Found	The resource doesn't exist
409	Conflict	A new parameter value already exists (e.g., Name)
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
500	Internal Server Error	System could not process the request

2.13 /Storage/Devices/{id}/Support/

The /Storage/Devices/{id}/Support/ resource returns the current `RemoteDebug` setting. If set to `true`, the response includes a PGP key for use by the WDC Support Team to unlock the device's SSH service for further support operations.

HTTP Methods:

GET

Table 87: Attributes

Attribute	Possible Values	Description	Type	Mandatory or Optional	User Configurable
Self	Free-Form URI Format 256 Chars	Describes the fully qualified URI link	String	☑	☒
RemoteDebug	true, false	Setting to enable or disable this feature (if set to true, response is a key in text/plain media; if set to false, no response body is sent)	Boolean	☑	☑

GET /Storage/Devices/{id}/Support/

Table 88: 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/Storage/Devices/0123456789/Support/
```

Example GET Response Body

```
{
  "Self": "http://10.20.30.40/Storage/Devices/0123456789/Support/",
  "RemoteDebug": true
}
```

Table 89: GET Response Codes

Response Code	Name	Definition
200	OK	OK and 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	Resource does not exist; this IP Address is running an HTTP service, but does not recognize this resource indicates API service is busy, client should try again later
500	Internal Server Error	System could not process the request

Toggling the RemoteDebug Attribute

The following example GET requests use a query string to set the RemoteDebug attribute to the value on the right side of the "=". The use of a GET request to set the attribute value enables the user to toggle the support setting without the need of a special web client that can send a PUT request, which would be the normal method for modifying a resource.

To set the RemoteDebug attribute to true, issue the following command:

```
curl -i -u admin:admin -X GET http://10.20.30.40/Storage/Devices/0123456789/Support/?RemoteDebug=true
```

To set the RemoteDebug attribute to false, issue the following command:

```
curl -i -u admin:admin -X GET http://10.20.30.40/Storage/Devices/0123456789/Support/?RemoteDebug=false
```

2.14 /Storage/Devices/{id}/Jobs/

HTTP Methods:

GET

DELETE

Table 90: Collection Attributes

Attribute	Possible Values	Description	Type	Mandatory or Optional	User Configurable
Self	Free-Form URI Format 256 Chars	Describes the fully qualified URI link	URI String	☑	⊗
Members	Resource Collection (0 - n entries)	The array of resource instances. See Table 91: Instance Attributes (page 87)	String Array	⊗	⊗

Table 91: Instance Attributes

Attribute	Possible Values	Description	Type	Mandatory or Optional	User Configurable
Self	Free-Form URI Format 256 Chars	Describes the fully qualified URI link	URI String	Mandatory	No
ID	"FirmwareUpdate", "FactoryReset", "Reboot", "FirmwareActivate"	The Name of this particular Job.	String	Mandatory	No
PercentComplete	0 -100	The percent complete status of the Job	Number	Mandatory	No
Status.State.ID	See State Name and ID Definitions (page 11)	The current state value map of this Resource. ID corresponds to Name	Number	Mandatory	No
Status.State.Name	See State Name and ID Definitions (page 11)	The current state value of this Resource. Name corresponds to ID	String	Mandatory	No
Status.Health[.ID	See Health Name and ID Definitions (page 12)	The current health value map of this Resource. There can be 1 or more Id entries. ID corresponds to Name	Number (1..*)	Mandatory	No

Attribute	Possible Values	Description	Type	Mandatory or Optional	User Configurable
Status.Health[].Name	See Health Name and ID Definitions (page 12)	The current health value of this Resource. There can be 1 or more Name entries. Name corresponds to ID	String (1..*)	Mandatory	No
Status.Details[]	Free-Form Array entry. If no entry, then "None".	The current Health Details of the Device	String Array	Optional	No

GET /Storage/Devices/{id}/Jobs/ and /Storage/Devices/{id}/Jobs/{id}/

Table 92: 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 (Collection)

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

Example GET Response Body (Collection)

```
{
  "Self": "http://10.20.30.40:80/Storage/Devices/0123456789/Jobs/",
  "Members": [
    {
      "Self": "http://10.20.30.40:80/Storage/Devices/0123456789/Jobs/FirmwareActivate/",
      "ID": "FirmwareActivate",
      "PercentComplete": 100,
      "Status": {
        "State": {
          "ID": 8,
          "Name": "Completed"
        },
        "Health": [
          {
            "ID": 5,
            "Name": "OK"
          }
        ],
        "Details": [
          "Completed."
        ]
      }
    }
  ]
}
```

```
{
  },
  {
    "Self": "http://10.20.30.40:80/Storage/Devices/0123456789/Jobs/
FirmwareUpdate/",
    "ID": "FirmwareUpdate",
    "PercentComplete": 100,
    "Status": {
      "State": {
        "ID": 65541,
        "Name": "Activate with reboot needed"
      },
      "Health": [
        {
          "ID": 25,
          "Name": "Critical failure"
        }
      ],
      "Details": [
        "Completed.",
        " ERROR: Timeout waiting for EMI"
      ]
    }
  },
  {
    "Self": "http://10.20.30.40:80/Storage/Devices/0123456789/Jobs/Reboot/",
    "ID": "Reboot",
    "PercentComplete": 100,
    "Status": {
      "State": {
        "ID": 8,
        "Name": "Completed"
      },
      "Health": [
        {
          "ID": 5,
          "Name": "OK"
        }
      ]
    }
  }
]
```

Example GET curl Command (Single Resource)

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

Example GET Response Body (Single Resource)

```
{
  "Self": "http://10.20.30.40:80/Storage/Devices/0123456789/Jobs/FirmwareUpdate/",
  "ID": "FirmwareUpdate",
  "PercentComplete": 100,
  "Status": {
    "State": {
      "ID": 65541,
      "Name": "Activate with reboot needed"
    },
    "Health": [
```

```
{
  "ID": 25,
  "Name": "Critical failure"
},
"Details": [
  "Completed.",
  " ERROR: Timeout waiting for EMI"
]
}
```

Table 93: GET Response Codes

Response Code	Name	Definition
200	OK	OK and 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	Resource does not exist; this IP Address is running an HTTP service, but does not recognize this resource indicates API service is busy, client should try again later
500	Internal Server Error	System could not process the request

DELETE /Storage/Devices/{id}/Jobs/{id}/**Table 94:** 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

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



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



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

Table 95: DELETE Response Codes

Response Code		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
500	Internal Server Error	System could not process the request

2.15 /Storage/Devices/{id}/Files/

HTTP Methods:

GET

POST

Table 96: Collection Attributes

Attribute	Possible Values	Description	Type	Mandatory or Optional	User Configurable
Self	Free-Form URI Format 256 Chars	Describes the fully qualified URI link	URI String	Mandatory	No
Members	Resource Collection (0 - n entries)	The array of resource instances. See Table 97: Instance Attributes (page 92)	String Array	Optional	No
TLSCertAndKey	"cert.pem" and "key.pem"	This resource is used with a POST to upload the user-defined TLS Certificate and Key to the Device in order to provide secure	PEM files	Mandatory	Yes

Attribute	Possible Values	Description	Type	Mandatory or Optional	User Configurable
		SSL connections. It is required that both CERT and KEY files are uploaded in the same POST method call.			

Table 97: Instance Attributes

Attribute	Possible Values	Description	Type	Mandatory or Optional	User Configurable
Self	Free-Form URI Format 256 Chars	Describes the fully qualified URI link	URI String	☑	☒
ID	Free-Form 256 Chars	The resource identifier	String	☑	☒
Description	Free-Form Chars	Provides the description of file associated with the ID	String	☑	☒

Table 98: Available File Types

Name	Definition	Type
auditlog	Returns the current audit log entries as text to the requestor	Text/Plain
customerlog	Returns the customer-facing log	Text/Plain
telemetry	Returns a downloaded compressed bundle file called "telemetry.tgz" to the requester	Compressed file bundle of several system files
cert_pem	Returns the current SSL certificate entry as text to the requestor	Text/Plain
key_pem	SSL key GET not allowed for security of the key	SSL Cert File

GET /Storage/Devices/{id}/Files/ and /Storage/Devices/{id}/Files/{id}/

Table 99: 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 (Collection)

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

Example GET Response Body (Collection)

```
{
  "Self": "http://10.202.30.40:80/Storage/Devices/0123456789/Files/",
  "Members": [
    {
      "Self": "http://10.202.30.40:80/Storage/Devices/0123456789/Files/auditlog/",
      "ID": "auditlog",
      "Description": "Audit log"
    },
    {
      "Self": "http://10.202.30.40:80/Storage/Devices/0123456789/Files/customerlog/",
      "ID": "customerlog",
      "Description": "Customer log"
    },
    {
      "Self": "http://10.202.30.40:80/Storage/Devices/0123456789/Files/buildinfo/",
      "ID": "buildinfo",
      "Description": "Build info"
    },
    {
      "Self": "http://10.202.30.40:80/Storage/Devices/0123456789/Files/telemetry/",
      "ID": "telemetry",
      "Description": "Telemetry"
    },
    {
      "Self": "http://10.202.30.40:80/Storage/Devices/0123456789/Files/cert_pem/",
      "ID": "cert_pem",
      "Description": "cert.pem"
    },
    {
      "Self": "http://10.202.30.40:80/Storage/Devices/0123456789/Files/key_pem/",
      "ID": "key_pem",
      "Description": "key.pem"
    }
  ]
}
```

Example GET curl Command (Single Resource)

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

Example GET Response Body (Single Resource)

```
index:000001|client:[10.20.30.40:54966]|type:Request|action:POST|user:admin|path:/Storage/Devices/0123456789/OperatingSystem/|input:
index:000002|client:[10.20.30.40:54966]|type:Response|status code:201|user:admin|path:/Storage/Devices/0123456789/OperatingSystem/
index:000003|client:[10.20.30.40:54966]|type:Request|action:POST|user:admin|path:/Storage/Devices/0123456789/OperatingSystem/|input:
index:000004|client:[10.20.30.40:54966]|type:Response|status code:0|user:admin|path:/Storage/Devices/0123456789/OperatingSystem/
index:000005|client:[10.20.30.40:54970]|type:Request|action:PUT|user:admin|path:/Storage/Devices/0123456789/|input:{"FirmwareUpdate": true}
index:000006|client:[10.20.30.40:54970]|type:Response|status code:202|user:admin|path:/Storage/Devices/0123456789/
index:000007|client:[10.20.30.40:54982]|type:Request|action:PUT|user:admin|path:/Storage/Devices/0123456789/|input:{"FirmwareActivate": true}
index:000008|client:[10.20.30.40:54982]|type:Response|status code:412|user:admin|path:/Storage/Devices/0123456789/
index:000009|client:[10.20.30.40:37040]|type:Request|action:POST|user:admin|path:/Storage/Devices/0123456789/OperatingSystem/|input:
index:000010|client:[10.20.30.40:37040]|type:Response|status code:201|user:admin|path:/Storage/Devices/0123456789/OperatingSystem/
index:000011|client:[10.20.30.40:37040]|type:Request|action:POST|user:admin|path:/Storage/Devices/0123456789/OperatingSystem/|input:
index:000012|client:[10.20.30.40:37040]|type:Response|status code:0|user:admin|path:/Storage/Devices/0123456789/OperatingSystem/
index:000013|client:[10.20.30.40:37042]|type:Request|action:PUT|user:admin|path:/Storage/Devices/0123456789/|input:{"FirmwareUpdate": true}
index:000014|client:[10.20.30.40:37042]|type:Response|status code:202|user:admin|path:/Storage/Devices/0123456789/
index:000015|client:[10.20.30.40:47172]|type:Request|action:DELETE|user:admin|path:/Storage/Devices/0123456789/Jobs/FirmwareUpdate/|input:
index:000016|client:[10.20.30.40:47172]|type:Response|status code:204|user:admin|path:/Storage/Devices/0123456789/Jobs/FirmwareUpdate/
index:000017|client:[10.20.30.40:47174]|type:Request|action:PUT|user:admin|path:/Storage/Devices/0123456789/|input:{"FirmwareActivate": true }
index:000018|client:[10.20.30.40:47174]|type:Response|status code:202|user:admin|path:/Storage/Devices/0123456789/
```

Table 100: GET Response Codes

Response Code	Name	Definition
200	OK	OK and 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

Response Code	Name	Definition
429	Too Many Requests	Resource does not exist; this IP Address is running an HTTP service, but does not recognize this resource indicates API service is busy, client should try again later
500	Internal Server Error	System could not process the request

POST /Storage/Devices/{id}/Files/

Table 101: 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

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



Note: Both the Certificate and Key files must be sent in the same POST operation, otherwise, the method will be rejected.

Table 102: 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
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	Resource does not exist; this IP Address is running an HTTP service, but does not recognize this resource indicates API service is busy, client should try again later
500	Internal Server Error	System could not process the request