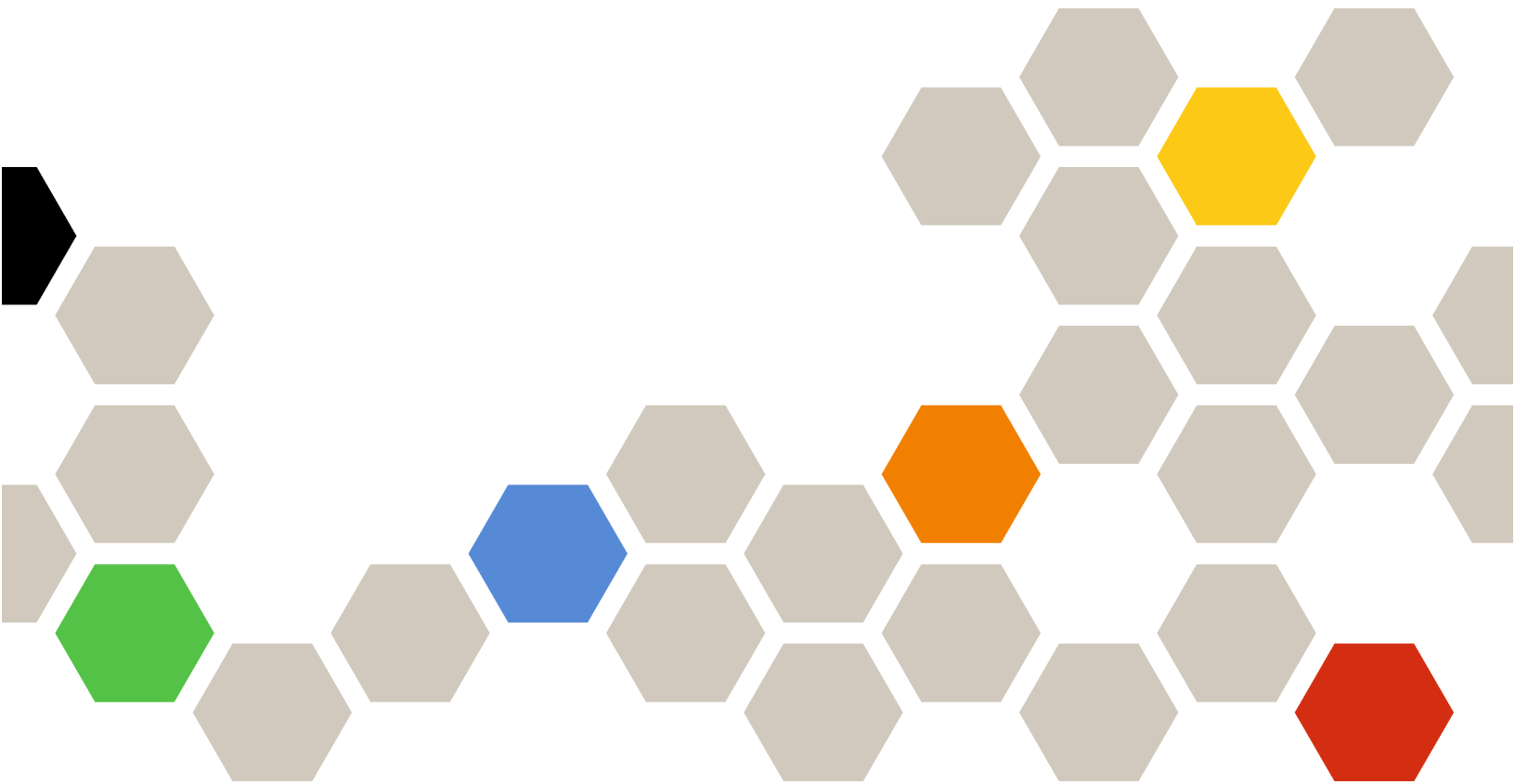# Lenovo XClarity Orchestrator REST API Guide

Version 1.1.0

Note

Before using this information and the product it supports, read the [general and legal notices in the XClarity Orchestrator online documentation](#).

Contents

Chapter 1. Using this REST API

Review this information to learn about how to use the Lenovo XClarity Orchestrator REST API, including authentication requirements, response codes and error handling, and filtering and sorting.

Authorization and authentication

When programming with the Lenovo XClarity Orchestrator REST APIs, you must authenticate using a user ID and password. The user ID must have the correct authorization to perform the intended task.

You can use XClarity Orchestrator web interface to configure the authorizations that provide access to XClarity Orchestrator tasks and resources (see [Creating a user](#) in the XClarity Orchestrator online documentation).

Note: If you encounter a temporary HTTP connection error, attempt to log in to XClarity Orchestrator again.

Paginating, filtering, scoping, and sorting responses

You can use query parameters to limit the number of returned objects and to include, exclude, filter, and sort data in the response body.

Paginating data

If a request returns all resource instances in the response body, you can use query parameters to limit the number of objects that are returned at one time. This is especially useful for the user interface when only a limited number of rows are displayed in a table.

You can use the **limit** query parameter to identify the number of elements to return at one time. The default limit is `10`.

You can use the **offset** query parameter to it identify the offset. The default offset is `0`.

The following example returns the first 20 users.
`/api/v1/auth/users`

The following example returns the next 20 users.
`/api/v1/auth/users?limit=20&offset=20`

The following example returns the all users without pagination.
`/api/v1/auth/users?limit=0&offset=0`

Scoping data

If a request returns multiple resource instances in the response body, you use the **resourceUUID** query parameter to set the scope of the response to only instances that are associated with devices that are managed by a specific resource manager.

`?resourceUUID=<resource_manager_UUID>`

Where *<resource_manager_UUID>* is the UUID of a single resource manager.

The following example scopes the returned data to devices that are managed by a specific resource manager.

```
?resourceUUID=AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
```

Including data

You can use the **includeAttributes** query parameter to include specific attributes in the response body. If this query parameter is present, only the specified attributes are returned. If it is missing, all attributes are returned by default.

```
?includeAttributes=<attributes_list>
```

Where *<attributes_list>* is one or more attributes that are listed in the response body, separated by a comma.

The following example returns data for only two attributes (name and severity) in the response body.

```
?includeAttributes=name,severity
```

Notes:

- To specify child attributes, use a JSON path separated by a period (for example, drives.capacity).
- When the **includeAttributes** query parameter is specified, the **excludeAttributes** query parameter is ignored.
- *Base attributes* are essential attributes that are always returned in the response body, even if they are not specified for this query parameter.

Excluding data

You can use the **excludeAttributes** query parameter to exclude specific attributes from the response body. If this query parameter is present, the specified attributes are not returned. If it is missing, all attributes are returned by default.

```
?excludeAttributes=<attributes_list>
```

Where *<attributes_list>* is one or more attributes that are listed in the response body, separated by a comma.

The following example does not return data for two attributes (name and severity). Data for all other attributes are returned in the response body.

```
?excludeAttributes=name,severity
```

Note: To specify child attributes, use a JSON path separated by a period (for example, drives.capacity).

Filtering resources

If a request returns all resource instances in the response body, you can use the filter query parameters to return data for only those resources that match all the specified criteria.

A single filter query contains two keys-value pairs, separated by an ampersand (&): one pair to specify the response attribute and another pair set to specify the value for that attribute. You can also use an ampersand to separate multiple filter queries in the same URI. If you specify multiple filter queries, data is returned only if it matches all filter queries individually.

You can use the following filter query parameters, based on the type of filter that you want to perform.

- **filterContains[]**. Returns data that contains a specific pattern. Within the same filter query, data matches the query if the value of any one of the specified attributes contains any one of the specified patterns.
  ```
  ?filterContains[<index>][attributes]=<attribute_list>
  &filterContains[<index>][values]=<pattern_list>
  ```

- **filterNotContains[]**. Returns data that does not contain a specific pattern. Within the same filter query, data matches the query if the value of any one of the specified attributes does not contain any of the specified patterns.
  `?filterNotContains[<index>][attributes]=<attribute_list>`
  `&filterNotContains[<index>][values]=<pattern_list>`

  Note: If you specify **filterContains[]** and **filterNotContains[]** with the same attributes and values, the result is an empty array.

- **filterEquals[]**. Returns data that exactly matches a specific pattern. Within the same filter query, data matches the query if the value of any one of the specified attributes exactly matches any one of the specified patterns.
  `?filterEquals[<index>][attributes]=<attribute>`
  `&filterEquals[<index>][values]=<pattern_list>`

- **filterNotEquals[]**. Returns data that does not exactly match a specific pattern. Within the same filter query, data matches the query if the value of any one of the specified attributes does not exactly match any of the specified patterns.
  `?filterNotEquals[<index>][attributes]=<attribute>`
  `&filterNotEquals[<index>][values]=<pattern_list>`

  Note: If you specify **filterEquals[]** and **filterNotEquals[]** with the same attributes and values, the result is an empty array.

- **filterRange[]**. Returns data that exactly matches a pattern in a specific range. Within the same filter query, data matches the query if the value of any one of the specified attributes exactly matches a pattern in any one of the specified ranges.
  `?filterRange[<index>][attributes]=<attribute_list>`
  `&filterRange[<index>][values]=<pattern_list>`

Where:

- *<index>*. Index number for the filter query. This number must be the same for the attribute and value filters. If there is only one filter query of specific type in the URI, the index number is not required.

- *<attribute_list>*. Zero or more attributes that are associated with the resource, separated by a comma. If an attribute name is not provided, all attributes are evaluated.

  You *can* specify:
  – Attributes that are associated with the resource, regardless of the whether the attributes are included in the response for the REST API.

    If you choose an attribute that is not in the base response, you can add it to the response by using the **includeAttributes** query parameter.
  – Attributes at the any level. To specify child attributes, use a JSON path separated by a period (for example, drives.capacity).
  – Attributes that contain string values for **filterContains[]**, **filterNotContains[]**, **filterEquals[]**, and **filterNotEquals[]** queries.
  – Attributes that contain timestamp (string) or numerical values for **filterRange[]**queries.

- *<pattern_list>*. One or more patterns, separated by a comma. Patterns are not case sensitive.

  For **filterRange[]** queries:

  – Each pattern can be a range of timestamps or numbers.

  – Each range contains the start and end values in the range, separated by a comma. Multiple ranges are also separated by a comma.

  – If the first value in the range is later than second value, the values are swapped during processing.

  – A timestamp must be specified using ISO-8601 format (for example, 2019-05-02T19:28:14.000Z). For information about ISO-8601 format, see the [W3C Date and Time Formats webpage](#).

The following example returns data about all servers that have "Device_" in the name, are located in the US, and are either powered off or booting up.
```
?filterContains[0][attributes]=serverName
&filterContains[0][values]=Device_
&filterContains[1][attributes]=location.location
&filterContains[1][values]=USA
&filterEquals[2][attributes]=powerState
&filterEquals[2][values]=off,booting
```

The following example returns data about all devices that are managed by a specific resource manager and are not powered on.
```
?filterEquals[0][attributes]=lxcaUUID
&filterEquals[0][values]=AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
&filterNotEquals[1][attributes]=powerState
&filterNotEquals[1][values]=on
```

The following example returns all firmware-update jobs that completed with warnings or error during May 1 – 15, 2019.
```
?filterEquals[0][attributes]=jobCategory
&filterEquals[0][values]=Firmware
&filterEquals[1][attributes]=status
&filterEquals[1][values]=CompleteWithWarnings,CompleteWithErrors
&filterRange[][attributes]=start
&filterRange[][values]=2019-05-01,2019-05-15
```

The following example returns data about all active user accounts that have passwords that will expire in the next 10 days.
```
?filterEquals[][attributes]=state
&filterEquals[][values]=active
&filterRange[][attributes]=timeBeforeExpirationInDays
&filterRange[][values]=0,10
```

Sorting data

If a request returns all resource instances in the response body, you can use the **sort[]** query parameter to sort the returned data. If this query parameter is present, the data is sorted in the order specified. If it is missing, the data is sorted using the default sorting order for the base attributes. The default sorting order varies depending on the resource, and can be determined from the metadata response attribute (see Metadata).

`?sort[<sort_priority>]=<attribute>,<sort_order>`

Where:
- *<sort_priority>*. Sort priority. This can be an integer, where the lowest number is sorted first. If a number is not specified, the priority defaults to the order of the **sort[]** query parameter.
- *<attribute>*. Response attribute name to sort by.
- *<sort_order>*. Sort order. This can be **asc** (ascending) or **desc** (descending).

  Dates and numbers are sorted in descending order by default. Other strings are sorted in ascending order by default.

The following example sorts data first by name in ascending order and then by severity in descending order.

`?sort[]=name,asc&sort[]=severity,desc`

The following example sorts data first by severity in descending order and then by name in ascending order.

`?sort[1]=severity,desc&sort[0]=name,asc`

Response codes

The Lenovo XClarity Orchestrator REST APIs use the HTTP protocol for sending and retrieving data. Client code using the REST APIs makes an HTTP request to the XClarity Orchestrator server and processes the HTTP response accordingly. Included with the HTTP response data is the HTTP status code. The status code provides some indication as to the success of the HTTP request and can provide information about how to handle the included response data.

The following table lists some of the most common response codes.

Code	Description	Comments
200	OK	The request completed successfully. If a single query parameter is specified and the value of that parameter has no matches, the response body returns default values. If a list of query parameters is specified and the value of at least one parameter has no matches, the response body returns only what matches.
201	Created	One or more new resources were successfully created.
204	No Content	The request complete successfully, but no response content is returned (for example, a successful DELETE request).
206	Partial Content	Partial content was returned for a multi-part response. The response header includes a content-range header field indicating the range that is included in the response body for each part.
400	Bad Request	A query parameter or request attribute is missing or not valid, or the operation is not supported. A descriptive error message is returned in the response body.
401	Unauthorized	The user cannot be authenticated. Authentication has not been provided or has failed. A descriptive error message is returned in the response body.
403	Forbidden	The orchestrator server was prevented from fulfilling the request. A descriptive error message is returned in the response body.
404	Not found	A specified resource cannot be found. A descriptive error message is returned in the response body.
405	Method Not Allowed	A specified resource is invalid. A descriptive error message is returned in the response body.
408	Request Timeout	The orchestrator server did not receive a required request in a specific amount of time. A descriptive error message is returned in the response body.
409	Conflict	There is a conflict with the current state of the resource. A descriptive error message is returned in the response body.
413	Request Entity Too Large	Clients might impose limitations on the length of the request URI, and the request URI is too long to be handled. A descriptive error message is returned in the response body.
500	Internal Server Error	An internal error occurred. A descriptive error message is returned in the response body.

Links

Each GET request returns information about the URIs for the resource or resource instance.

Requests that can return only a single resource or a single instance of a resource

Attributes	Type	Description
_links	Object	Information about the URI
rel	String	Relationship. This value is always "self."
uri	String	URI for the current resource

In the following example, the request can return information about only a single resource. This object identifies the URI for that resource.

```
{
    "_links": {
        "rel": "self",
        "uri": "/api/v1/data/devices/AAAAAAAAAAAAAAAAAAAA"
    }
}
```

Requests that can return multiple instances of a resource

Attributes	Type	Description
_metadata	Object	Information about the request, including the request URI, base attributes, sorting, and filtering for the specified query For information about other metadata attributes, see Metadata.
_links	Object or Array of objects	Information about the URI
rel	String	Relationship. This can be one of the following values. • **prev** Link information for the previous set of members. • **self** Link information for the current set of members. • **next**. Link information for the next set of members.
uri	String	URI for the current resource

In the following example, pagination is used to return information for multiple devices in chunks of 20. The **_links** attribute is an array of objects. The first object in the array identifies information about the URI for the current response body, with the first 20 devices. The first object in the array identifies information about the URI for the next response body, with next 20 devices

```
{
    "_links": [{
        "rel": " self ",
        "uri": "/api/v1/data/devices?offset=0&limit=20"
    },
    {
        "rel": " next ",
        "uri": "/api/v1/data/devices?offset=20&limit=20"
    }]
}
```

In the following example, all devices are returned in the current response body. (Pagination is not used).

```
{
    "_links": [{
        "rel": "self",
        "uri": "/api/v1/data/devices?offset=0&limit=0"
    }]
}
```

Metadata

If a GET request returns multiple instances of a resource type, the response body returns the **_metadata** attribute. The _metadata attribute contains information that describes the returned data, including the request URL, total number of resources instances, pagination information, and the common query parameters that are supported by the request. If common query parameters are not specified, default values are returned.

Note: If a GET request returns a single resource or a single instance of a resource, the **_metadata** attribute is not returned.

The following table describes the attributes that can be returned in the **_metadata** attribute.

For more information about common query parameters, see Paginating, filtering, scoping, and sorting responses.

Attributes	Type	Description
_metadata	Object	Information about the request, including the request URL, base attributes, sorting, and filtering for the specified query
limit	Integer	Number of resource instances that can be returned on the page (for pagination) If set to 0, all instances are returned.
offset	Integer	Offset at which to start the set of resource instances to be returned (for pagination)
total	Integer	Total number of resource instances that are available (for pagination)
baseAttributes	Array of objects	Information about essential (default) attributes that are returned in the response body
name	String	Name of the base attribute
sortOrder	String	Default sort order for the attribute. This can be one of the following values. • **asc**. Ascending order • **desc**. (default) Descending order
excludeAttributes	String	List of attributes, separated by a comma, that are excluded in the response body This attribute is returned only when the **excludeAttributes** query parameter is supported. **Note:** When both **excludeAttributes** and **includeAttributes** query parameters are specified, the **excludeAttributes** query is ignored; in this case, the value of the **excludeAttributes** attribute is empty.
includeAttributes	String	List of attributes, separated by a comma, that are included in the response body **Note:** If the **excludeAttributes** query parameter is specified, the **includeAttributes** attribute is empty.
filterOptions	Array of objects	List of criteria that is used to limit the resources that are returned in the response body when a filter query parameter is specified **Note:** If filter query parameters are not specified, the **filterOptions** attribute is empty.

Attributes			Type	Description
	filterContains		Array of objects	Information about filter queries that search for data that *contains* a specific value Within the same filter query, data matches the query if the value of any one of the specified attributes contains any one of the specified patterns
		attributes	String	List of zero or more attribute names in the filter query, separated by a comma If an attribute name is not provided, all attributes are evaluated.
		values	String	List of one or more patterns, separated by a comma
	filterNotContains		Array of objects	Information about filter queries that search for data that *exactly matches* a specific value Within the same filter query, data matches the query if the value of any one of the specified attributes contains any one of the specified patterns
		attributes	String	List of zero or more attribute names in the filter query, separated by a comma If an attribute name is not provided, all attributes are evaluated.
		values	String	List of one or more patterns, separated by a comma
	filterEquals		Array of objects	Information about filter queries that search for data that *exactly matches* a specific value Within the same filter query, data matches the query if the value of any one of the specified attributes contains any one of the specified patterns
		attributes	String	List of zero or more attribute names in the filter query, separated by a comma If an attribute name is not provided, all attributes are evaluated.
		values	String	List of one or more patterns, separated by a comma
	filterNotEquals		Array of objects	Information about filter queries that search for data that *exactly matches* a specific value Within the same filter query, data matches the query if the value of any one of the specified attributes contains any one of the specified patterns
		attributes	String	List of zero or more attribute names in the filter query, separated by a comma If an attribute name is not provided, all attributes are evaluated.
		values	String	List of one or more patterns, separated by a comma
	filterRange		Array of objects	Information about filter queries that search for data that matches a value in a specific range Within the same filter query, data matches the query if the value of any one of the specified attributes contains any one of the specified patterns
		attributes	String	List of zero or more attribute names in the filter query, separated by a comma If an attribute name is not provided, all attributes are evaluated.

Attributes			Type	Description
		values	String	List of one or more patterns, separated by a comma Each range contains the start and end values in the range, separated by a comma. Multiple ranges are also separated by a comma. This timestamp is specified using ISO-8601 format (for example, 2019-05-02T19:28:14.000Z). For information about ISO-8601 format, see the W3C Date and Time Formats webpage.
	sortOptions		Array of objects	List of criteria that is used to sort the resources that are returned in the response body when the **sort** query parameter is specified **Tip:** The order of the returned attributes identifies the sort order of the attributes.
		name	String	Name of the attribute to sort by
		order	String	Sort order. This can be one of the following values. • **asc**. Ascending order • **desc**. (default) Descending order
	_links		Object or Array of objects	Request URL (see Links)

The following example returns metadata for a specific request when no query parameters are specified.

```
{
    "metadata": {
        "offset": 0,
        "limit": 0,
        "total": 2,
        "baseAttributes": [{
            "name": "msg"
        },
        {
            "name": "service"
        },
        {
            "name": "severity"
        },
        {
            "name": "systemName "
        },
        {
            "name": "systemType "
        },
        {
            "name": "timeStamp",
            "sortOrder": "asc"
        }],
        "excludeAttributes": [],
        "includeAttributes": [
            "msg",
            "service",
            "severity",
            "systemName",
            "systemType",
            "timeStamp"
        ],
        "filterOptions": {},
        "sortOptions": [{
```

```
        "name": "timeStamp",
        "order": "asc"
    }],
    "_links": {
        "rel": "self",
        "uri": "/api/v1/inbound/events?offset=0&limit=0"
    }
  }
}
```

Status messages

The status message attributes identify the success or failure of an REST API operation.

POST, PUT, PATCH, and DELETE requests include status-message attributes in the response body to describe the success or failure of the request, using the following JSON structure.

GET requests that are successful (2xx response code) *do not* include a status-message attributes. GET requests that fail (response codes other than 2xx) include status-message attributes in the response body to describe the failure of the request, using the following JSON structure.

Notes:

- If the server returns a single message for the request, the top-level attributes *except the* **messages** *attribute* are returned.
- If the server returns multiple messages for a single request, the top-level attributes are used to describe the overall status of the request, and each message is returned in the **messages** array.

Attributes		Type	Description
status		String	Overall status of the request. This can be one of the following values. • **Informational**. The request completed successfully. • **Warning**. The request completed with warnings. • **Critical**. The request failed. In case there are messages in the **messages** array, then this will be the most severe from all the messages.
code		String	Message code (see in the XClarity Orchestrator online documentation)
text		String	Message text that is associated with the message ID
description		String	Additional information to clarify the reason for the message
userAction		String	User actions that can be taken to recover from the error
recoveryUrl		String	Link to more information or recovery actions, if available
messages		Array of objects	Information about multiple messages
	status	String	Status of the request. This can be one of the following values. • **Informational**. The request completed successfully. • **Warning**. The request completed with warnings. • **Critical**. The request failed. In case there are messages in the **messages** array, then this will be the most severe from all the messages.
	code	String	Message ID (see in the XClarity Orchestrator online documentation)
	text	String	Message text that is associated with the message ID

Attributes		Type	Description
	description	String	Additional information to clarify the reason for the message
	userAction	String	User actions that can be taken to recover from the error
	recoveryUrl	String	Link to more information or recovery actions, if available

The following example is returned for a single-message response.

```
{
    "status": "Informational",
    "code": "FQXXOSE0001I",
    "text": "The request completed successfully.",
    "description": "",
    "userAction": "Information only; no action is required.",
}
```

The following example is returned for a multi-message response.

```
{
    "status": "Critical",
    "code": "",
    "text": " There was an error parsing the input.",
    "description": "",
    "userAction": "",
    "recoveryURL": "",
    "messages": [{
        "status": "Critical",
        "code": "FQXDM0558G",
        "text": " A specified attribute is not compatible with the value of another attribute.",
        "description": "The field {1} is not allowed when field {2} has value {3}.",
        "userAction": "Correct the values, and attempt the request again.",
        "recoveryURL": ""
    },
    {
        "status": "Critical",
        "code": "FQXDM0557G",
        "text": "Incompatible fields were specified.",
        "description": "The field {1} is not allowed when field {2} is specified.",
        "userAction": " Correct the values, and attempt the request again.",
        "recoveryURL": ""
    }]
}
```

Chapter 2. Security

The following REST APIs are available for managing security of resources.

/api/v1/maintenance/certificate

Use this REST API to retrieve, export, or regenerate the XClarity Orchestrator server certificate.

HTTP methods

GET, DELETE

GET /api/v1/maintenance/certificate

Use this method to retrieve or export the XClarity Orchestrator server certificate.

Important: You must have supervisor privileges to perform this action.

Authentication

Authentication with user name and password is required.

Resource URI

GET `https://<orchestrator_server_IP>/api/v1/maintenance/certificate`

Query parameters

Parameters	Re-quired / Optional	Description
format=*<type>*	Optional	Response format. This can be one of the following values. • **pem**. Exports the server certificate as a file in PEM format • **json**. (default) Returns the server certificate in the response body in JSON format

The following example retrieves the server certificate in JSON format.
GET `https://192.0.2.0/api/v1/communications/certificates/7633531801c5688f7d3b830d57cdea73`

The following example exports the server certificate as a file in PEM format.
GET `https://192.0.2.0/api/v1/communications/certificates/7633531801c5688f7d3b830d57cdea73?format=pem`

Request body

None

Response codes

Code	Description	Comments
200	OK	The request completed successfully. If a query parameter is specified and the value of that parameter has no matches, the response body returns default values.
500	Internal Server Error	An internal error occurred. A descriptive error message is returned in the response body.

Response body

If **format=pem** is specified, the response body is returned only when the request generates an error (see Status messages).

If **format=json** is specified, the following attributes are returned in the response body.

Attributes	Type	Description
pem	String	Server certificate, in PEM format
_links	Object	Server certificate URI (see Links)
<message_attributes>	*varies*	Status messages (see Status messages)

The following example is returned if the request is successful.

```
{
  "pem": "-----BEGIN CERTIFICATE-----\n
          BQAwbzELMAkGA1UEBhMCVVMxFzAVBgNVBAgMDk5vcnRoIENhcm9saW5hMRAwDgYD\n
          VQQHDAdSYWxlaWdoMQ8wDQYDVQQKDAZMZW5vdm8xDDAKBgNVBAsMA0VCRzEWMBQG\n
          A1UEAwwNMTAuMjQxLjU0LjIwNzAeFw0xOTExMDcxNTU3MjRaFw0yOTA4MDYxNTU3\n
          MjRaMG8xCzAJBgNVBAYTAlVTMRcwFQYDVQQIDA5Ob3J0aCBDYXJvbGluYTEQMA4G\n
          A1UEBwwHUmFsZWlnaDEPMA0GA1UECgwGTGVub3ZvMQwwCgYDVQQLDANFQkcxFjAU\n
          BgNVBAMMDTEwLjI0MS41NC4yMDcwggEiMA0GCSqGSIb3DQEBAQUAA4IBDwAwggEK\n
          AoIBAQDIOOC5WhjlejcOy9hb/mqQQkEQxtWjIvViixN382xtz9ie5XtZNL9GLJzY\n
          pXleGRjqp7c/VqIyTc7ks1MeS1nam6iBuAw9KfviDX1bwhP5uvgD4klvTbO+8Gha\n
          Pe/PbOWvzqvmO7RYEzcJs3wz7B/pQpAZyNTusfZdpSfTW1MCqXE8jQilVEDEOaoF\n
          hMJ4aglxDKIBb/xPd8ScI6fvSZ3qbHlbT/YzURoAOx8kg8SLGTuUiiYyDjuRvqYS\n
          WVoI1nEFdKxdYByG29cLcmgJTagJEeGfvblrVu/n2DvW2r18l4JODVgD/+I9eQCs\n
          wIQmg6nwah7nSz+rrx7Ks+nZmEX5AgMBAAGjUzBRMB0GA1UdDgQWBBQ3DZZnk9KO\n
          pAI1/lDGmeKchbSrmjAfBgNVHSMEGDAWgBQ3DZZnk9KOpAI1/lDGmeKchbSrmjAP\n
          BgNVHRMBAf8EBTADAQH/MA0GCSqGSIb3DQEBCwUAA4IBAQCDDl7NvFHu1L6G7rGa\n
          OQS69RGg7Pz7NZ8uI/1BWABckTPYf9DWAdnaaVvuy3P1DGlOZggpdxP+8lbascEj\n
          T1xbW9l7JPJodIO/O8qOr8AEpgJ98aHMoL4FzivNZHKA/xC9GSj463Sim5Ann3ln\n
          ry9TOPEQs4fNugJytUTj2tBf3sSaDiow4mIa9l9qHuGIerkcBgtBVKq3AvxiU+Zz\n
          iJKyt5zgQEpMC//PHEOHD+SoiK9TdFxs7/bqRolrObdDFWyMHYKCoF8wNRiqJQRm\n
          Q2MUj1F3wZhD1jPAWkAjEsBU9XtOgrPP2DJxCRIIZJDXUEUqXJs1tCpBHDEBbixl\n
          aLhK\n
          -----END CERTIFICATE-----\n",
  "_links": {
      "rel": "self",
      "uri": "api/v1/maintenance/certificate"
  }
}
```

DELETE /api/v1/maintenance/certificate

Use this method to delete and regenerate the Lenovo XClarity Orchestrator server certificate.

Important: You must have supervisor privileges to perform this action.

Authentication

Authentication with user name and password is required.

Resource URI

DELETE https://*<orchestrator_server_IP>*/api/v1/maintenance/certificate

Query parameters

None

Request body

None

Response codes

Code	Description	Comments
200	OK	The request completed successfully.
500	Internal Server Error	An internal error occurred. A descriptive error message is returned in the response body.

Response body

Attributes	Type	Description
<message_attributes>	*varies*	Status messages (see Status messages)

/api/v1/maintenance/certificateSettings

Use this REST API to retrieve and modify the XClarity Orchestrator server certificate settings.

HTTP methods

GET, PUT

GET /api/v1/maintenance/certificateSettings

Use this method to retrieve and modify the XClarity Orchestrator server certificate settings.

Note: You can retrieve setting using this GET request only after you first modify the settings using PUT /api/v1/maintenance/certificateSettings.

Important: You must have supervisor privileges to perform this action.

Authentication

Authentication with user name and password is required.

Resource URI

GET `https://<orchestrator_server_IP>/api/v1/maintenance/certificateSettings`

Query parameters

None

Request body

None

Response codes

Code	Description	Comments
200	OK	The request completed successfully.
500	Internal Server Error	An internal error occurred. A descriptive error message is returned in the response body.

Response body

Attributes	Type	Description
commonName	String	Name of the certificate owner Typically, this is the fully-qualified domain name (FQDN) or IP address of the server that is using the certificate (for example, `www.domainname.com` or `10.15.23.99`).
country	String	Two-letter ISO 3166 code for the country or region of origin associated with the certificate organization (for example, `US` for the United States) To retrieve the country or region codes, use GET /api/v1/service/countryCodes.
notAfter	String	Timestamp before which the created certificate is not valid This timestamp is specified using ISO-8601 format (for example, 2019-05-02T19:28:14.000Z). For information about ISO-8601 format, see the W3C Date and Time Formats webpage.
notBefore	String	Timestamp after which the created certificate is not valid This timestamp is specified using ISO-8601 format (for example, 2019-05-02T19:28:14.000Z). For information about ISO-8601 format, see the W3C Date and Time Formats webpage.
organization	String	Organization (company) that owns the certificate. Typically, this is the legal incorporate name of a company. It should include any suffixes, such as Ltd., Inc., or Corp.
organizationUnit	String	Organizational unit that owns the certificate
stateLocality	String	Full name of the locality (city) to be associated with the certificate
stateProvince	String	Full name of the state or province to be associated with the certificate
_links	Object	Server certificate URI (see Links)
<message_attributes>	*varies*	Status messages (see Status messages)

The following example is returned if the request is successful.

```
{
    "commonName": "Generated by Lenovo System Management Software",
    "country": "US",
    "notAfter": "2069-12-31T23:59:59Z",
    "notBefore": "1970-01-01T00:00:00Z",
    "organization": "Lenovo",
    "organizationUnit": "EBG",
    "stateLocality": "Raleigh",
    "stateProvince": "North Carolina",
    "_links": {
        "rel": "self",
        "uri": "api/v1/maintenance/certificateSettings"
    }
}
```

PUT /api/v1/maintenance/certificateSettings

Use this method to modify the Lenovo XClarity Orchestrator server certificate settings.

Important: You must have supervisor privileges to perform this action.

Authentication

Authentication with user name and password is required.

Resource URI

PUT https://*<orchestrator_server_IP>*/api/v1/maintenance/certificateSettings

Query parameters

None

Request body

This PUT request updates the entire resource. To clear a value, set the attribute to null (if applicable). If an optional attribute is not specified, that attribute is not changed. If an idempotent (unchangeable) attribute is specified, an error is thrown.

Attributes	Re- quired / Optional	Type	Description
commonName	Optional	String	Name of the certificate owner Typically, this is the fully-qualified domain name (FQDN) or IP address of the server that is using the certificate (for example, www.domainname.com or 10.15.23.99). The length of this value cannot exceed 63 characters.
country	Optional	String	Two-letter ISO 3166 code for the country or region of origin associated with the certificate organization (for example, US for the United States) To retrieve the country or region codes, use GET /api/v1/ service/countryCodes.
notAfter	Optional	String	Timestamp before which the created certificate is not valid This timestamp is specified using ISO-8601 format (for example, 2019-05-02T19:28:14.000Z). For information about ISO-8601 format, see the [W3C Date and Time Formats webpage](#).
notBefore	Optional	String	Timestamp after which the created certificate is not valid This timestamp is specified using ISO-8601 format (for example, 2019-05-02T19:28:14.000Z). For information about ISO-8601 format, see the [W3C Date and Time Formats webpage](#).
organization	Optional	String	Organization (company) that owns the certificate. Typically, this is the legal incorporate name of a company. It should include any suffixes, such as Ltd., Inc., or Corp. The length of this value cannot exceed 60 characters.
organizationUnit	Optional	String	Organizational unit that owns the certificate The length of this value cannot exceed 60 characters.

Attributes	Required / Optional	Type	Description
stateLocality	Optional	String	Full name of the locality (city) to be associated with the certificate The length of this value cannot exceed 50 characters.
stateProvince	Optional	String	Full name of the state or province to be associated with the certificate

The following example modifies the server certificate settings.

```
{
    "commonName": "Generated by Lenovo System Management Software",
    "country": "US",
    "notAfter": "2069-12-31T23:59:59Z",
    "notBefore": "1970-01-01T00:00:00Z",
    "organization": "Lenovo",
    "organizationUnit": "EBG",
    "stateLocality": "Raleigh",
    "stateProvince": "North Carolina"
}
```

Response codes

Code	Description	Comments
200	OK	The request completed successfully.
400	Bad Request	A query parameter or request attribute is missing or not valid, or the operation is not supported. A descriptive error message is returned in the response body.
500	Internal Server Error	An internal error occurred. A descriptive error message is returned in the response body.

Response body

Attributes	Type	Description
<message_attributes>	varies	Status messages (see Status messages)

/api/v1/maintenance/certificateSigningRequest

Use this REST API to retrieve the current Certificate Signing Request (CSR) or generate a new CSR.

HTTP methods

GET, POST

GET /api/v1/maintenance/certificateSigningRequest

Use this method to retrieve the current Certificate Signing Request (CSR).

Important: You must have supervisor privileges to perform this action.

Authentication

Authentication with user name and password is required.

Resource URI

GET https://*<orchestrator_server_IP>*/api/v1/maintenance/certificateSigningRequest

Query parameters

Parameters	Re-quired / Optional	Description
format=*<type>*	Optional	Response format. This can be one of the following values. • **pem**. Exports the CSR as a file in PEM format • **json**. (default) Returns the CSR in the response body in JSON format

The following example retrieves the current CSR in JSON format.
GET https://192.0.2.0/api/v1/maintenance/certificateSigningRequest

The following example exports the current CSR as a file in PEM format.
GET https://192.0.2.0/api/v1/maintenance/certificateSigningRequest?format=pem

Request body

None

Response codes

Code	Description	Comments
200	OK	The request completed successfully. If a query parameter is specified and the value of that parameter has no matches, the response body returns default values.
500	Internal Server Error	An internal error occurred. A descriptive error message is returned in the response body.

Response body

If **format=pem** is specified, the response body is returned only when the request generates an error (see Status messages).

If **format=json** is specified, the following attributes are returned in the response body.

Attributes	Type	Description
pem	String	CSR, in PEM format
_links	Object	CSR URI (see Links)
<message_attributes>	*varies*	Status messages (see Status messages)

The certificate signing request is returned if the request is successful, for example:
```
{
    "pem": "-----BEGIN CERTIFICATE REQUEST-----
          MIIDjDCCAnQCAQAwgYoxCzAJBgNVBAYTAlVTMRcwFQYDVQQIEw5Ob3J0aCBDYXJv
          bGluYTEQMA4GA1UEBxMHUmFsZWlnaDElMCMGA1UEChMcR2VuZXhhdGVkIGJ5IENl
          cnZlciBGaXJtd2FyZTEaMBgGA1UECxMRT3JnYW5pemF0aW9uIHVuaXQxDTALBgNV
          BAMTBExYQOEwggEiMA0GCSqGSIb3DQEBAQUAA4IBDwAwggEKAoIBAQCMwy8q5PrW
          hHtLv1cOOdVJiXTHK3JNcQXicWXzL3/+vhGkgfd8rqqCvvxjTg7N2hYaFlQghEFT
          EWDhMmxvMFZtAhQfBnzcdiWj23I3MSRqDWBa8NsqHWffxyqcOEqhoGiOMCjHW9zd
          kSkJOfZvFJ5RTPmhY+Xnt92lZgSGwmnTcGq9dxNvV6ixMvnHzWE9+MguTxsfGMSR
          ZJ4Rf+d35X9ovQHEge1jMaqOcoBuqVMK9TkWsb1O1GJ2tggDR5tp8YHws7wakp1i
```

```
         sXc4AtDDIzrKfhxvxqTHqsAppREQD79srzsG+jNsOYvg7Jd7bm2/zP9gxMwVFUYO
         m7DYg8HF6mZ9AgMBAAGggbswgbgGCSqGSIb3DQEJDjGBqjCBpzCBpAYDVRORBIGc
         MIGZhxD+gAAAAAAAAoAJ//+zQ6Dgh5mZTgwOjA6MDowOmEwMDoyN2ZmOmZlY2Q6
         ZTgzJTKHBArxieCCIGlwMTAtMjQxLTEzNyOyMjQubGFicy5sZW5vdm8uY29thxAA
         AAAAAAAAAAAAAAAAAAABgglsb2NhbGhvc3SHBH8AAAGCCWxvY2FsaG9zdIIJbG9j
         YWxob3N0NOggRMWENBMAOGCSqGSIb3DQEBCwUAA4IBAQACBKc6nxzo/8NBQOxuRe+w
         OMNzrAg9cIyh7cFCcTbSVmamOxAauRHvVIsgE/x/xQP3tQFvfJOqYr4eyJvEqHIN
         Y71ZgQjIunMVX9Oqf5MEdbYEsQE7g/2WzVXIDZ6p1qewjW85YeunHVS3fgWfD3jX
         Z66BXZyEB4l7xRtOr85E6bCkhlymj3O6OLHCdmeCewT/rOaOKnR9trSBB2zSkqTP
         SaxJQXB+6rKS+DGu+lSCNHYLr8cKYloLaGO8GaRZF4kedPQ1JSoz4jXOdgkPzqAX
         JlOJVWPUEkKLpGUomBBBUK5PwBN1OkuB8c/wXhB9+ki3CpcolGXoBpJk+fM6ij/8
         -----END CERTIFICATE REQUEST-----",
   "_links": {
      "rel": "self",
      "uri": "/api/v1/maintenance/certificateSigningRequest"
   }
}
```

POST /api/v1/maintenance/certificateSigningRequest

Use this method to generate a Certificate Signing Request (CSR) using specific server-certificate settings or regenerate the CSR using the current settings. The existing CSR is overwritten with the new CSR.

Important: You must have supervisor privileges to perform this action.

Authentication

Authentication with user name and password is required.

Resource URI

POST https://*<orchestrator_server_IP>*/api/v1/maintenance/certificateSigningRequest

Query parameters

None

Request body

Attributes		Re-quired / Optional	Type	Description
altNames		Optional	Array of objects	Information about the Subject Alternative Names to be included in Certificate Signing Request
	name	Required	String	Subject Alternative Name
	type	Required	String	RFC 5280 GeneralName type of this Subject Alternative Name
commonName		Optional	String	Name of the certificate owner. Typically, this is the fully-qualified domain name (FQDN) or IP address of the server that is using the certificate (for example, www.domainname.com or 10.15.23.99) The length of this value cannot exceed 63 characters. The default is LXCO.

Attributes	Required / Optional	Type	Description
country	Optional	String	Two-letter ISO 3166 code for the country or region of origin associated with the certificate organization (for example, US for the United States) To retrieve the country or region codes, use GET /api/v1/ service/countryCodes. The default is US.
organization	Optional	String	Organization (company) that is to own the certificate. Typically, this is the legal incorporate name of a company. It should include any suffixes, such as Ltd., Inc., or Corp (for example, ACME International Ltd.) The length of this value cannot exceed 60 characters. The default is generated by the server firmware.
organizationUnit	Optional	String	Organizational unit that will own the certificate (for example, ABC Division) The length of this value cannot exceed 60 characters. The default is None.
stateLocality	Optional	String	Full name of the locality (city) to be associated with the certificate (for example, San Jose) The length of the value cannot exceed 50 characters. The default is Raleigh.
stateProvince	Optional	String	Full name of the state or province to be associated with the certificate (for example, California or New Brunswick)

The following example generates the certificate signing request using the specified server certificate settings

```
{
    "altNames": [{
        "name": "bar.example.org",
        "type": "DNS"
    },
    {
        "name": "foo.example.org",
        "type": "DNS"
    },
    {
        "name": "10.241.54.111",
        "type": "IP"
    },
    {
        "name": "test@test.com",
        "type": "email"
    }],
    "commonName": "10.241.54.169",
    "country": "US",
    "organization": "Lenovo",
    "organizationUnit": "LXCO",
    "stateLocality": "Raleigh",
    "stateProvince": "North Carolina"
}
```

Response codes

Code	Description	Comments
200	OK	The request completed successfully.
400	Bad Request	A query parameter or request attribute is missing or not valid, or the operation is not supported. A descriptive error message is returned in the response body.
401	Unauthorized	The user cannot be authenticated. Authentication has not been provided or has failed. A descriptive error message is returned in the response body.
403	Forbidden	The orchestrator server was prevented from fulfilling the request. A descriptive error message is returned in the response body.
404	Not found	A specified resource cannot be found. A descriptive error message is returned in the response body.
408	Request Timeout	The orchestrator server did not receive a required request in a specific amount of time. A descriptive error message is returned in the response body.
409	Conflict	There is a conflict with the current state of the resource. A descriptive error message is returned in the response body.
500	Internal Server Error	An internal error occurred. A descriptive error message is returned in the response body.

Response body

Attributes	Type	Description
<message_attributes>	*varies*	Status messages (see Status messages)

/api/v1/maintenance/signedCertificate

Use this REST API to upload a new signed Lenovo XClarity Orchestrator server certificate that was generated using a certificate signing request.

HTTP methods

POST

POST /api/v1/maintenance/signedCertificate

Use this method to update the signed Lenovo XClarity Orchestrator server certificate that was generated using a certificate signing request.

Important: You must have supervisor privileges to perform this action.

Authentication

Authentication with user name and password is required.

Resource URI

POST https://*<orchestrator_server_IP>*/api/v1/maintenance/signedCertificate

Query parameters

None

Request body

Provide the server certificate, in PEM format, that was created from the certificate signing request using the GET /api/v1/maintenance/certificateSigningRequest or downloaded from the XClarity Orchestrator user interface. The following example is provided in the request body

```
-----BEGIN CERTIFICATE REQUEST-----
MIIDjDCCAnQCAQAwgYoxCzAJBgNVBAYTAlVTMRcwFQYDVQQIEw5Ob3J0aCBDYXJv
bGluYTEQMA4GA1UEBxMHUmFsZWlnaDElMCMGA1UEChMcR2VuZXJhdGVkIGJ5IFNl
cnZlciBGaXJtd2FyZTEaMBgGA1UECxMRT3JnYW5pemF0aW9uIHVuaXQxDTALBgNV
BAMTBExYQ0EwggEiMA0GCSqGSIb3DQEBAQUAA4IBDwAwggEKAoIBAQCMwy8q5PrW
hHtLv1cOOdVJiXTHK3JNcQXicWXzL3/+vhGkgfd8rqqCvvxjTg7N2hYaFlQghEFT
EWDhMmxvMFZtAhQfBnzcdiWj23I3MSRqDWBa8NsqHWffxyqcOEqhoGiOMCjHW9zd
kSkJOfZvFJ5RTPmhY+Xnt92lZgSGwmnTcGq9dxNvV6ixMvnHzWE9+MguTxsfGMSR
ZJ4Rf+d35X9ovQHEge1jMaqOcoBuqVMK9TkWsb101GJ2tggDR5tp8YHws7wakp1i
sXc4AtDDIzrKfhxvxqTHqsAppREQD79srzsG+jNsOYvg7Jd7bm2/zP9gxMwVFUYO
m7DYg8HF6mZ9AgMBAAGggbswgbGCSqGSIb3DQEJDjGBqjCBpzCBpAYDVRORBIGc
MIGZhxD+gAAAAAAAAAoAJ//+zQ6Dgh5mZTgwOjA6MDowOmEwMDoyN2ZmOmZlY2Q6
ZTgzJTKHBArxieCCIGlwMTAtMjQxLTEzNyOyMjQubGFicy5zZW5vdm8uY29tthxAA
AAAAAAAAAAAAAAAAABgglsb2NhbGhvc3SHBH8AAAGCCWxvY2FsaG9zdIIJbG9j
YWxob3N0oggRMWENBMA0GCSqGSIb3DQEBCwUAA4IBAQACBKc6nxzo/8NBQOxuRe+w
OMNzrAg9cIyh7cFCcTbSVmamOxAauRHvVIsgE/x/xQP3tQFvfJOqYr4eyJvEqHIN
Y71ZgQjIunMVX9Oqf5MEdbYEsQE7g/2WzVXIDZ6p1qewjW85YeunHVS3fgWfD3jX
Z66BXZyEB4l7xRtOr85E6bCkhlymj3O6OLHCdmeCewT/rOaOKnR9trSBB2zSkqTP
SaxJQXB+6rKS+DGu+lSCNHYLr8cKYloLaGO8GaRZF4kedPQ1JSoz4jXOdgkPzqAX
JlOJVWPUEkKLpGUomBBBUK5PwBN1OkuB8c/wXhB9+ki3CpcolGXoBpJk+fM6ij/8
-----END CERTIFICATE REQUEST-----
```

Response codes

Code	Description	Comments
200	OK	The request completed successfully.
400	Bad Request	A query parameter or request attribute is missing or not valid, or the operation is not supported. A descriptive error message is returned in the response body.
500	Internal Server Error	An internal error occurred. A descriptive error message is returned in the response body.

Response body

Attributes	Type	Description
<message_attributes>	*varies*	Status messages (see Status messages)

/api/v1/service/countryCodes

Use this REST API to retrieve a list of country and region codes.

HTTP methods

GET

GET /api/v1/service/countryCodes

Use this method to retrieve a list of country and region codes.

Important: You must have supervisor privileges to perform this action.

Authentication

Authentication with user name and password is required.

Resource URI

GET `https://<orchestrator_server_IP>/api/v1/service/countryCodes`

Query parameters

None

Request body

None

Response codes

Code	Description	Comments
200	OK	The request completed successfully.

Response body

Attributes		Type	Description
results		Array of objects	Information about the country or region
	abbreviation	String	Two-letter ISO 3166 code for the country or region
	name	String	Country or region name
_links		Object	Resource URI (see Links)

The following example is returned if the request is successful.

```
{
    "result": [{
        "abbreviation": "AF",
        "name": "Afghanistan"
    },
    {
        "abbreviation": "AL",
        "name": "Albania"
    },
    ...,
    {
        "abbreviation": "ZM",
        "name": "Zambia"
    },
    {
        "abbreviation": "ZW",
        "name": "Zimbabwe"
    }],
    "_links": {
        "rel": "self",
        "uri": "api/v1/service/countryCodes"
    }
}
```

Chapter 3.   Resource managers

The following REST APIs are available for working with resource managers, including connecting to the resource managers and viewing statistics and data.

/api/v1/connector/managers

Use this REST API to retrieve a list of all resources managers, or connect, disconnect or update credentials for one or more resource managers.

HTTP methods

GET, POST, PUT, DELETE

GET /api/v1/connector/managers

Use this method to retrieve a list of all resource managers.

Authentication

Authentication with user name and password is required.

Resource URI

GET https://*<orchestrator_server_IP>*/api/v1/connector/managers

Query parameters

This REST API supports query parameters for pagination, sorting, filtering, and including or excluding response attributes. For more information, see Paginating, filtering, scoping, and sorting responses.

Request body

None

Response codes

Code	Description	Comments
200	OK	The request completed successfully. If a single query parameter is specified and the value of that parameter has no matches, the response body returns default values. If a list of query parameters is specified and the value of at least one parameter has no matches, the response body returns only what matches.
206	Partial Content	Partial content was returned for a multi-part response. The response header includes a content-range header field indicating the range that is included in the response body for each part.
408	Request Timeout	The orchestrator server did not receive a required request in a specific amount of time. A descriptive error message is returned in the response body.

Response body

Attributes		Type	Description
results		Array of objects	Information about each resource manager
	build	String	Build number

Attributes	Type	Description
connectTimestamp	String	Timestamp when the resource manager was registered with XClarity Orchestrator This timestamp is specified using ISO-8601 format (for example, 2019-05-02T19:28:14.000Z). For information about ISO-8601 format, see the W3C Date and Time Formats webpage.
healthState	String	Health summary that corresponds to the highest event severity of all power supplies in the device. This can be one of the following values. • **Normal** • **Non-Critical** • **Warning** • **Minor-Failure** • **Major-Failure** • **Non-Recoverable** • **Critical** • **Unknown**
id	String	Resource manager ID
ipAddress	String	IP address of the resource manager
issues	Array of strings	Reason for an unhealthy status If **healthState** is "Normal," this attribute is empty array. If **healthState** is not "Normal," this attribute can be one of the following values. • **InvalidCredentials** • **ConnectionProblems**
name	String	Resource manager name
networkSettings	Object	Information about network settings for the resource manager
domainName	String	Domain name
hostname	String	Host name
ipv4Addresses	Array of strings	List of IPv4 addresses
ipv6Addresses	Array of strings	List of IPv6 addresses
type	String	Type of resource manager. This can be one of the following values. • XClarity Administrator • **ecostruxture**
userName	String	User that is used to authenticate to the resource manager
uuid	String	Resource manager UUID
version	String	Version number
_links	String	Resource manager URI (see Links)
_metadata	Object	Request metadata (see Metadata)
<message_attributes>	*varies*	Status messages (see Status messages)

The following example is returned if the request is successful.

```
{
    "result": [{
        "build": "56",
        "connectTimestamp": "2019-10-17T17:02:21.907Z",
        "healthState": "Normal",
        "id": "7A51405F442F493D87E8B105C9CC1509",
```

```
        "ipAddress": "192.0.2.0",
        "issues": [],
        "networkSettings": {
            "domainName": "",
            "hostname": "localhost",
            "ipv4Addresses": ["10.241.54.99"],
            "ipv6Addresses": ["fd64:30d9:58db:5bbc:0:0:0:13d0","fe80:0:0:0:250:56ff:fea2:6e89"]
        },
        "type": "XClarity Administrator",
        "userName": "ADMIN",
        "uuid": "7A51405F442F493D87E8B105C9CC1509",
        "version": "2.6.0",
        "_links": {
            "rel": "self",
            "uri": "/api/v1/connector/managers/C7199530FEDE4FE09540DFC3D75FC56C"
        }
    }],
    "_metadata": {...}
}
```

POST /api/v1/connector/managers

Use this method to connect (register) one or more resource managers.

Important: You must have supervisor privileges to perform this action.

Authentication

Authentication with user name and password is required.

Resource URI

POST https://*<orchestrator_server_IP>*/api/v1/connector/managers

Query parameters

None

Request body

Attributes	Required / Optional	Type	Description
managers	Required	Array of objects	Information needed to connect to each resource manager
ipAddress	Required	String	IP address
password	Required	String	User password
userName	Required	String	User account used to log in to the resource manager
type	Required	String	Type of resource manager. This can be one of the following values. • **lxca**. XClarity Administrator • **ecostruxture**

The following example connects to a single resource manager.
```
{
    "managers": [{
        "ipAddress": "192.0.2.0",
```

```
        "password": "password",
        "userName": "lxca_admin"
        "type": "lxca"
    }]
}
```

Response codes

Code	Description	Comments
200	OK	The request completed successfully.
400	Bad Request	A query parameter or request attribute is missing or not valid, or the operation is not supported. A descriptive error message is returned in the response body.

Response body

Attributes	Type	Description
<message_attributes>	*varies*	Status messages (see Status messages)

DELETE /api/v1/connector/managers

Use this method to disconnect (remove) one or more resource managers.

Important: You must have supervisor privileges to perform this action.

Authentication

Authentication with user name and password is required.

Resource URI

DELETE https://*<orchestrator_server_IP>*/api/v1/connector/managers

Query parameters

Parameters	Required / Optional	Description
managers=*<ID_list>*	Required	Deletes one or more resource managers, specified by ID and separated by a comma To obtain the resource manager IDs, use GET /api/v1/connector/managers.

The following example disconnects two resource managers.
```
DELETE https://192.0.2.0/ api/v1/connector/managers
managers=C7199530FEDE4FE09540DFC3D75FC56C,B8740530FEDE4FE09540DFC3D75B6598
```

Request body

None

Response codes

Code	Description	Comments
200	OK	The request completed successfully.
400	Bad Request	A query parameter or request attribute is missing or not valid, or the operation is not supported. A descriptive error message is returned in the response body.
404	Not found	A specified resource cannot be found. A descriptive error message is returned in the response body.

Response body

Attributes	Type	Description
<message_attributes>	*varies*	Status messages (see Status messages)

/api/v1/connector/managers/*<id>*

Use this REST API to retrieve information about a specific resources manager.

HTTP methods

GET

GET /api/v1/connector/managers/*<id>*

Use this method to retrieve information about a specific resource manager.

Authentication

Authentication with user name and password is required.

Resource URI

GET `https://`*<orchestrator_server_IP>*`/api/v1/connector/managers/`*<id>*

where *<id>* is the ID of the resource manager. To obtain the resource manager IDs, use GET /api/v1/ connector/managers.

Query parameters

None

Request body

None

Response codes

Code	Description	Comments
200	OK	The request completed successfully.
404	Not found	A specified resource cannot be found. A descriptive error message is returned in the response body.
408	Request Timeout	The orchestrator server did not receive a required request in a specific amount of time. A descriptive error message is returned in the response body.

Response body

Attributes	Type	Description
build	String	Build number
certificateID	String	Certificate ID
connectTimestamp	String	Timestamp when the resource manager was registered with XClarity Orchestrator This timestamp is specified using ISO-8601 format (for example, 2019-05-02T19:28:14.000Z). For information about ISO-8601 format, see the <u>W3C Date and Time Formats webpage</u>.
groups	Array of object	Information about each group in which this resource manager is a member
id	String	Group ID
name	String	Group name
type	String	Group type. This value is always "ManagerGroup."
uri	String	Group URI
healthState	String	Health summary that corresponds to the highest event severity of all device that are managed by this resource manager. This can be one of the following values. • **Normal** • **Non-Critical** • **Warning** • **Minor-Failure** • **Major-Failure** • **Non-Recoverable** • **Critical** • **Unknown**
id	String	Resource manager ID
ipAddress	String	IP address of the resource manager
issues	Array of strings	Reason for an unhealthy status If **healthState** is "Normal," this attribute is empty array. If **healthState** is not "Normal," this attribute can be one of the following values. • **InvalidCredentials** • **ConnectionProblems**
name	String	Resource manager name
networkSettings	Object	Information about network settings for the resource manager
domainName	String	Domain name
hostname	String	Host name
ipv4Addresses	Array of strings	List of IPv4 addresses
ipv6Addresses	Array of strings	List of IPv6 addresses
passwordKey	String	Password key
type	String	Type of resource manager. This can be one of the following values. • **lxca**. XClarity Administrator • **ecostruxture**

Attributes	Type	Description
userName	String	User that is used to authenticate to the resource manager
uuid	String	Resource manager UUID
version	String	Resource manager version number
_links	Object	Resource manager URI (see Links)
<message_attributes>	*varies*	Status messages (see Status messages)

The following example is returned if the request is successful.

```
{
    "build": "32",
    "certificateId": "7169f0828e4e0f6812ca0afd300ea3d5fb4ddab6489e40449e99d308add6888ainternal",
    "connectTimestamp": "2020-04-02T07:40:32.088Z",
    "groups": [],
    "healthState": "Normal",
    "id": "C7199530FEDE4FE09540DFC3D75FC56C",
    "ipAddress": "192.0.2.0",
    "issues": [],
    "lastSyncDate": "2020-04-02T17:26:22.514Z",
    "name": "localhost.",
    "networkSettings": {
        "domainName": "",
        "hostname": "localhost",
        "ipv4Addresses": ["10.241.54.99"],
        "ipv6Addresses": ["fd64:30d9:58db:5bbc:0:0:0:13d0","fe80:0:0:0:250:56ff:fea2:6e89"]
    },
    "passwordKey": "LXCA_C7199530FEDE4FE09540DFC3D75FC56C_PWD",
    "type": "XClarity Administrator",
    "userName": "USERID",
    "uuid": "C7199530FEDE4FE09540DFC3D75FC56C",
    "version": "2.8.0",
    "_links": {
        "rel": "self",
        "uri": "/api/v1/connector/managers/C7199530FEDE4FE09540DFC3D75FC56C"
    }
}
```

Chapter 4. Devices

The following REST APIs are available for managing devices, including viewing statistics and data.

/api/v1/data/deviceInfo

Use this REST API to retrieve general information about a specific device.

HTTP methods

GET

GET /api/v1/data/deviceInfo?deviceID= *<id>*

Use this method to retrieve general information about a specific device.

Authentication

Authentication with user name and password is required.

Resource URI

GET `https://`*<orchestrator_server_IP>*`/api/v1/data/`deviceInfo?deviceID= *<id>*

Query parameters

Parameters	Re-quired / Optional	Description
deviceID=*<id>*	Required	Returns inventory statistics for a device, specified by the ID To obtain the device IDs, use GET /api/v1/data/devices

The following example returns general information about a specific device.
GET `https://192.0.2.0/api/v1/data/deviceInfo?`deviceInfo=
3015DE7E2B6011E881940A94EF5F5B65-C7199530FEDE4FE09540DFC3D75FC56C

Request body

None

Response codes

Code	Description	Comments
200	OK	The request completed successfully. If a query parameter is specified and the value of that parameter has no matches, the response body returns default values.
400	Bad Request	A query parameter or request attribute is missing or not valid, or the operation is not supported. A descriptive error message is returned in the response body.
404	Not found	A specified resource cannot be found. A descriptive error message is returned in the response body.

Response body

Attributes	Type	Description
domainName	String	Domain name
groupNames	Array of strings	List of names of the groups to which the device belongs
healthStatus	String	Health state of the device (translated). This can be one of the following values. • **Healthy** • **Warning** • **Critical**
healthStatus	String	Health state key. This can be one of the following values. • **Healthy** • **Warning** • **Critical**
hostname	String	Hostname
ipv4Addresses	Array of strings	List of IPv4 addresses
ipv6Addresses	Array of strings	List of IPv6 addresses
location	Object	Information about the location of the device
location	String	Location description
lowestRackUnit	String	Lowest rack unit
rack	String	Rack name
room	String	Room name
machineType	String	Device machine type
manager	Object	Information about the resource manager that manages this device
domainName	String	Fully qualified domain name
hostname	String	Host name
inContextHref	String	In contenxt URI
ipv4Addresses	Array of strings	IPv4 addresses
ipv6Addresses	Array of strings	IPv6 addresses
model	String	Device model
powerStatus	String	Power status (translated). This can be one of the following values. • **Off** • **On** • **Standby** • **Unknown**
powerStatusKey	String	Power status key. This can be one of the following values. • **Off** • **On** • **Standby** • **Unknown**

Attributes	Type	Description
productName	String	Device product name
serialNumber	String	Device serial number
userDefinedName	String	User-defined name for the device
uuid	String	Device UUID
_links	Object	Device URI (see Links)
<message_attributes>	*varies*	Status messages (see Status messages)

The following example is returned if the request is successful.

```
{
    "domainName": "labs.lenovo.com",
    "groupNames": [],
    "healthStatus": "Warning",
    "healthStatusKey": "Warning",
    "hostname": "XCC-7Y02-0123456789",
    "ipv4Addresses": ["10.243.0.235","169.254.95.118"],
    "ipv6Addresses": ["fd55:faaf:e1ab:2021:a94:efff:fe4f:5635","fe80::a94:efff:fe4f:5635"],
    "location": {
        "location": "elephante",
        "lowestRackUnit": 33,
        "rack": "Snufflaluffagus",
        "room": "pacaderm"
    },
    "machineType": "7Y02",
    "manager": {
        "domainName": "",
        "hostname": "localhost",
        "inContextHref": "/ui/index.html#/compDetails/Rack-Tower  Server/8151C5148B4411E791329DD935F1CD89/",
        "ipv4Addresses": ["10.243.17.164"],
        "ipv6Addresses": ["0::0","fe80:0:0:0:215:5dff:fe0c:d156"]
    },
    "model": "RCZ000",
    "powerStatus": "On",
    "powerStatusKey": "On",
    "productName": "ThinkSystem SR570",
    "serialNumber": "0123456789",
    "userDefinedName": "",
    "uuid": "8151C5148B4411E791329DD935F1CD89",
    "_links": {
        "rel": "self",
        "uri": "/api/v1/data/devices/C7199530FEDE4FE09540DFC3D75FC56C"
    }
}
```

/api/v1/data/devices

Use this REST API to retrieve a list of all managed devices.

HTTP methods

GET

GET /api/v1/data/devices

Use this method to retrieve a list of all managed devices.

Authentication

Authentication with user name and password is required.

Resource URI

GET https://*<orchestrator_server_IP>*/api/v1/data/devices

Query parameters

This REST API supports query parameters for pagination, sorting, filtering, and including or excluding response attributes. For more information, see Paginating, filtering, scoping, and sorting responses.

The following example returns a list of all managed devices.
```
GET https://192.0.2.0/api/v1/data/devices
```

The following example returns a list of all devices that are managed by a specific resource manager.
```
GET https://192.0.2.0/api/v1/data/devices
?filterEquals[][attributes]=lxcaUUID&filterEquals[][values]=AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
```

The following example returns a list of all managed IBM servers and includes the manufacturer in the response.
```
GET https://192.0.2.0/api/v1/data/devices
?filterContains[0][attributes]=type&filterContains[0][values]=server
?filterEquals[1][attributes]=manufacturer&filterEquals[1][values]=IBM
&includeAttributes=manufacturer
```

The following example returns a list of all managed ThinkSystem servers.
```
GET https://192.0.2.0/api/v1/data/devices
?filterContains[0][attributes]=type&filterContains[0][values]=server
&filterContains[1][attributes]=productName&filterContains[1][values]=ThinkSystem
```

The following example returns a list of all managed chassis.
```
GET https://192.0.2.0/api/v1/data/devices
?filterContains[][attributes]=type&filterContains[][values]=chassis
```

The following example returns a list of all managed storage devices.
```
GET https://192.0.2.0/api/v1/data/devices
?filterContains[][attributes]=type&filterContains[][values]=storage
```

The following example returns a list of all managed switches.
```
GET https://192.0.2.0/api/v1/data/devices
?filterContains[][attributes]=type&filterContains[][values]=switch
```

Request body

None

Response codes

Code	Description	Comments
200	OK	The request completed successfully. If a single query parameter is specified and the value of that parameter has no matches, the response body returns default values. If a list of query parameters is specified and the value of at least one parameter has no matches, the response body returns only what matches.
206	Partial Content	Partial content was returned for a multi-part response. The response header includes a content-range header field indicating the range that is included in the response body for each part.

Code	Description	Comments
400	Bad Request	A query parameter or request attribute is missing or not valid, or the operation is not supported. A descriptive error message is returned in the response body.
408	Request Timeout	The orchestrator server did not receive a required request in a specific amount of time. A descriptive error message is returned in the response body.

Response body

Attributes		Type	Description
results		Array of objects	Information about each managed device
	id	String	Device ID **Tip:** The device ID includes the UUID of the device and the UUID of the resource manager that manages the device, separated by a dash (*deviceUUID–managerUUID*).
	ipv4Addresses	Array of strings	List of IPv4 addresses
	ipv6Addresses	Array of strings	List of IPV6 addresses
	lxcaUUID	String	Resource manager UUID
	name	String	Name that is displayed in the user interface for this device
	overallHealthState	String	Highest severity of all alerts. This can be one of the following values. • **Normal** • **Non-Critical** • **Warning** • **Minor-Failure** • **Major-Failure** • **Non-Recoverable** • **Critical** • **Unknown**
	powerStatus	String	Power status. This can be one of the following values. • **Off** • **On** • **Standby** • **Unknown**
	productName	String	Product name
	_links	String	Device URI (see Links)
_metadata		Object	Request metadata (see Metadata)
<message_attributes>		*varies*	Status messages (see Status messages)

The following example is returned if the request is successful.

```
{
    "results": [{
        "id": "58202ACC34B540F6A99D3CE1A1D03632-03AE50C644F1402FBE227542D391696A",
        "ipv4Addresses": [
            "10.241.54.47",
            "169.254.95.118"
        ],
        "ipv6Addresses": [
            "fe80::3ee1:a1ff:fed0:3636"
```

```
        "fe80::3ee1:a1ff:fed0:3637"
    ],
    "lxcaUUID": "03AE50C644F1402FBE227542D391696A",
    "name": "10.241.54.47",
    "overallHealthState": "Warning",
    "productName": "Hodaka Planner (2143IT CPU)",
    "powerStatus": "Off",
    "_links": {
        "rel": "self",
        "uri": "/api/v1/data/devices/C7199530FEDE4FE09540DFC3D75FC56C"
    }
}],
    "_metadata": {...}
}
```

/api/v1/data/devices/*<id>*

Use this REST API to retrieve information about a specific managed device.

HTTP methods

GET

GET /api/v1/data/devices/*<id>*

Use this method to retrieve information about a specific managed device.

Authentication

Authentication with user name and password is required.

Resource URI

GET `https://`*<orchestrator_server_IP>*`/api/v1/data/devices/`*<id>*

where *<id>* is the UUID or _id of the device. To obtain the device IDs, use GET /api/v1/data/devices .

Query parameters

None

Request body

None

Response codes

Code	Description	Comments
200	OK	The request completed successfully.
400	Bad Request	A query parameter or request attribute is missing or not valid, or the operation is not supported. A descriptive error message is returned in the response body.
404	Not found	A specified resource cannot be found. A descriptive error message is returned in the response body.
408	Request Timeout	The orchestrator server did not receive a required request in a specific amount of time. A descriptive error message is returned in the response body.

Response body

Attributes	Type	Description
accessState	String	Access state of the device (translated). This can be one of the following values. • **Online** • **Offline** • **Partial** • **Pending** • **Unknown**
accessStateKey	String	Access state of the server key. This can be one of the following values. • **Online** • **Offline** • **Partial** • **Pending** • **Unknown**
accurateHealth	Boolean	Indicates whether the health status is accurate. This can be one of the following values. • **true**. The **accessState** is Online or partial. • **false**. The **acccessState** is Offline, Pending, or Unknown.
activationKeys	Array of objects	List of installed Feature On Demand (FoD) keys
description	String	FoD key description
keyExpirationDate	String	Date when the FoD key expires
keyFeatureType	Integer	FoD feature type
keyIdentiferList	Array of objects	FoD associative identifier list
keyIdentifier	String	Identifier key value
keyIdentifierType	String	Identifier key type. This can be one of the following values. • **ASIC**. • **MAC**. MAC address • **MT**. Machine type • **UNKNOWN**
keyStatus	String	Status of the FoD key. This can be one of the following values. • **UNKNOWN** • **OTHER** • **VALID** • **INVALID** • **INPROCESS** • **EXPIRED** • **LIMIT_REACHED** • **NEED_VALID_ELSEWHERE** • **KEY_NOT_FOUND**
keyUseCount	Integer	Key usage count
keyUseLimit	Integer	Key usage limit
uuid	String	Unique identifier for the FoD key

Attributes	Type	Description
addinCards	Array of objects	Information about add-in cards **Note:** Multiple instances of the same adapter card with different data (such as the pciFunctionNumber) might be returned in this response. In the UI, only one instance of each adapter card (only the first function number) is listed.
class	String	
firmware	Array of objects	Information about add-in card firmware
build	String	Firmware build
classifications	Array of integers	Firmware type codes
date	String	Firmware date
name	String	Firmware name
revision	String	Firmware revision
role	String	Firmware role. This can be one of the following values. • **Primary** • **Backup** • **Temporary** • **Permanent**
softwareID		Firmware ID
status	String	Firmware status. This can be one of the following values. • **Active** • **Inactive** • **Pending**
type	String	Firmware type, such as UEFI, MP, or DSA
version	String	Firmware version
fodUniqueID	String	FoD unique ID
FRU	String	Add-in card FRU part number
fruSerialNumber	String	
isAddOnCard	Boolean	Identifies whether the device is an add-in card. This can be one of the following values. • **true**. The device is an add-on card • **false**. The device is not an add-on card
isAgentless	Boolean	Identifies whether the device is agentless. This can be one of the following values. • **true**. The device is agentless. • **false**. The device is not agentless. **Note:** If **isAgentless** is false, some inventory values might be empty.
isPLDMUpdateSupported	Boolean	Identifies whether the Platform Level Data Model updates are supported. This can be one of the following values. • **true**. PLDM update is supported. • **false**. PLDM update is not supported.
manufacturer	String	Add-in card manufacturer
name	String	Add-in card description

Attributes				Type	Description
partNumber				String	Add-in card part number
pciBusNumber				String	PCI bus number
pciDeviceNumber				String	PCI device number
pciFunctionNumber				String	PCI function number
pciRevision				String	PCI revision number
pciSubID				String	PCI subsystem ID
pciSubVendorID				String	PCI sub-vendor ID
portInfo				Object	Information about the port
	physicalPorts			Array of objects	Information about the physical port
		portType		String	Physical port type. This can be one of the following values. • **ATM** • **ETHERNET** • **FC** • **FDDI** • **FRAMERELAY** • **IB** • **OTHER** • **TOKENRING** • **UNKNOWN**
		portNumber		Integer	Number of the physical port
		logicalPorts		Array of objects	List of associated logical ports
			logicalPortIndex	Integer	Number of logical ports
			portType	String	Logical port type. This can be one of the following values. • **ATM** • **BLUETOOTH** • **ETHERNET** • **FC** • **FDDI** • **FRAMERELAY** • **IB** • **INFRARED** • **OTHER** • **TOKENRING** • **UNKNOWN** • **WIRELESSLAN**
			portNumber	Integer	Number of the logical port
			addresses	String	Assigned addresses
			vnicMode	Boolean	Identifies whether this is a vNIC port. This can be one of the following values. • **true**. This is a vNIC port. • **false**. This is not a vNIC port.
		peerBay		Integer	Peer I/O Module bay
		physicalPortIndex		Integer	Number of physical ports

Attributes	Type	Description
posID	String	Device ID
productName	String	Product name
slotName	String	Name for add-in card slot
slotNumber	String	Number for add-in card slot
slotSupportsHotPlug	Boolean	Indicates whether the add-in card supports hot plug. This can be one of the following values. • **true**. Hot plug is supported. • **false**. Hot plug is not supported.
uuid	String	
vpdID	String	VPD ID
addinCardSlots	Integer	Slot number for the add-in card
arch	String	Architecture. This can be one of the following values. • **ia64** • **ppc** • **ppc64** • **x86** • **x86_64** • **Unknown**
bladeState	Integer	State of the server. This can be one of the following values. • **0**. Initializing • **1**. Active • **2**. Discovering • **3**. Provisioning • **4**. Provision passed • **5**. Provision failed • **6**. Provisioning failed with isolate • **7**. Pre initialization • **8**. SDR load • **9**. POST initialization • **10**. Communications error • **11**. Init failed • **12**. Kernel mode • **13**. Maintenance mode • **14**. Fire hose dump mode • **15**. Flashing • **16**. No power • **17**. Unknown
contact	String	Contact
configCompliance	Array of objects	Information about the server-configuration compliance
addressPresent	Boolean	Identifies whether address pools are used. This can be one of the following values. • **true**. Address pools are used. • **false**. Address pools are not used.
complianceStatus	String	Compliance status. This can be one of the following values. • **valid** : Server settings are compliant with the profile • **invalid** : Server settings are Non-compliant with the profile • **none** : Compliance has not been calculated because pattern is still activated, pending or inactive

Attributes	Type	Description
managementPatternPresent	Boolean	Identifies whether a management-interface pattern is used. This can be one of the following values. • **true**. A management-interface pattern is used. • **false**. A management-interface pattern is not used.
profileName	String	Name of the server profile
profileStatus	String	Current status of the profile. This can be one of the following values. • **ASSIGNED**. The profile is assigned to the server. • **UNASSIGNED**. The profile in not assigned to any server. • **PENDING_ACTIVATION**. The profile is created and targeted to a server but has not been activated yet. • **ACTIVATING**. The profile is currently being activated on the targeted server • **ERROR_ACTIVATING**. There was an error while activating the profile on the targeted server.
templateId	String	ID of the server pattern that was used to create the profile
type	String	Internal use only
dataHandle	Long	Time stamp of the last status update
description	String	Description that was provided by the CMM
deviceInfo	Object	Information about the device
domainName	String	Domain name
groupNames	Array of strings	List of IDs for groups that include this device
healthStatus	String	Highest severity of all alerts (translated). This can be one of the following values. • **Healthy** • **Warning** • **Critical**
hostname	String	Hostname
ipv4Addresses	Array of strings	List of IPv4 addresses
ipv6Addresses	Array of strings	List of IPV6 addresses
location	Object	Information about the location of the server or Flex System storage device
location	String	Location
lowestRackUnit	Integer	Lowest rack unit
rack	String	Rack
room	String	Room
machineType	String	Machine type
manager	Object	Information about the resource manager that manages this device
domainName	String	Fully qualified domain name

Attributes					Type	Description
	hostname				String	Host name
		inContextHref			String	In contenxt URI
			ipv4Addresses		Array of strings	IPv4 addresses
			ipv6Addresses		Array of strings	IPv6 addresses
	model				String	Device model
	powerStatus				String	Power status (translated). This can be one of the following values. • **Off** • **On** • **Standby** • **Unknown**
	powerStatusKey				String	Power status key. This can be one of the following values. • **Off** • **On** • **Standby** • **Unknown**
	productName				String	Product name
	serialNumber				String	Device serial number
	userDefinedName				String	User-defined name for the device
	uuid				String	Device UUID
deviceName					String	Device name
deviceType					String	Device type. This can be one of the following values. • **ITE**. Flex System server • **DenseChassis**. • **Edge Server**. ThinkSystem SE server • **NeXtScale**. NeXtScale server • **Rack-Tower Server**. Converged, System x, ThinkAgile or ThinkSystem SD, SR, or ST server
discoveryTimestamp					String	Timestamp when the device was discovered This timestamp is specified using ISO-8601 format (for example, 2019-05-02T19:28:14.000Z). For information about ISO-8601 format, see the [W3C Date and Time Formats webpage]().
domainName					String	Domain name
driveBays					Integer	Number of drive bays
drives					Array of objects	Drive details
	bay				Integer	Drive bay
	blockSize				Integer	Block size
	capacity				Long	Drive capacity
	description				String	Description
	diskState				String	Disk-drive state

Attributes		Type	Description
firmware		Array of objects	Information about add-in card firmware
	build	String	Firmware build
	classifications	Array of integers	Firmware type codes
	date	String	Firmware date
	name	String	Firmware name
	revision	String	Firmware revision
	role	String	Firmware role. This can be one of the following values. • **Primary** • **Backup** • **Temporary** • **Permanent**
	softwareID		Firmware ID
	status	String	Firmware status. This can be one of the following values. • **Active** • **Inactive** • **Pending**
	type	String	Firmware type, such as UEFI, MP, or DSA
	version	String	Firmware version
FRU		String	FRU
healthState		String	Health state (translated) that corresponds to the highest event severity of all disk drives in the device. This can be one of the following values. • **Normal** • **Non-Critical** • **Warning** • **Minor-Failure** • **Major-Failure** • **Non-Recoverable** • **Critical** • **Unknown**
healthStateKey		String	Health state key that corresponds to the highest event severity of all disk drives in the device. This can be one of the following values. • **Normal** • **Non-Critical** • **Warning** • **Minor-Failure** • **Major-Failure** • **Non-Recoverable** • **Critical** • **Unknown**
interfaceType		String	(ThinkServer servers only) Drive interface type
largestAvailableSize		Integer	
m2Location		String	(M.2 drives only) Location of M.2 drive and bay
manufacturer		String	Manufacturer

Attributes	Type	Description
mediaType	String	Media type
model	String	Model
name	String	Drive name
numberOfBlocks	Integer	Number of blocks
partNumber	String	Part number
remainingLife	Integer	Indicate the amount of life that remains for a solid-state drive (SSD). This can be one of the following values. • **0 - 100**. The percent of remaining life • **-1**. Unknown (default) • **-2**. Information is not available • **-3**. The drive is not an SSD
serialNumber	String	Serial number
temperature	String	Device temperature
uuid	String	Storage device UUID
encapsulation	Object	Information about encapsulation
encapsulationMode	String	Encapsulation (firewall settings) mode. This can be one of the following values. • **notSupported**. Encapsulation is not supported for this device. • **normal**. Encapsulation is disabled for this device.The global encapsulation setting is disabled by default. When disabled, the device encapsulation mode is set to "normal" and the firewall rules are not changed as part of the management process. • **encapsulationLite**. Encapsulation is enabled for this device.When the global encapsulation setting is enabled and the device supports encapsulation, XClarity Administrator communicates with the device during the management process to change the device encapsulation mode to "encapsulationLite" and to change the firewall rules on the device to limit incoming requests to those only from XClarity Administrator.
expansionCards	Array of objects	Information about expansion cards
fodUniqueID	String	Feature on demand (FoD) unique ID
isAddOnCard	Boolean	Identifies whether the device is an add-on card. This can be one of the following values. • **true**. The device is an add-on card • **false**. The device is not an add-on card
isAgentless	Boolean	Identifies whether the device is agentless. This can be one of the following values. • **true**. The device is agentless. • **false**. The device is not agentless.
name	String	Description
pciBusNumber	String	PCI bus number

Attributes					Type	Description
pciDeviceNumber					String	PCI device number
pciFunctionNumber					String	PCI function number
pciSubID					String	PCI subsystem ID
pciSubVendorID					String	PCI sub-vendor ID
portInfo					Object	Information about the ports
	physicalPorts				Array of objects	Information about the physical ports
		logicalPorts			Array of objects	List of associated logical ports
			addresses		String	Assigned addresses
			logicalPortIndex		Integer	Number of logical ports
			portNumber		Integer	Number of the logical port
			portType		String	Logical port type. This can be one of the following values. • **ATM** • **BLUETOOTH** • **ETHERNET** • **FC** • **FDDI** • **FRAMERELAY** • **IB** • **INFRARED** • **OTHER** • **TOKENRING** • **UNKNOWN** • **WIRELESSLAN**
			vnicMode		Boolean	Identifies whether this is a vNIC port. This can be one of the following values. • **true**. This is a vNIC port. • **false**. This is not a vNIC port.
		physicalPortIndex			Integer	Number of physical ports
		portType			String	Pysical port type. This can be one of the following values. • **ATM** • **ETHERNET** • **FC** • **FDDI** • **FRAMERELAY** • **IB** • **OTHER** • **TOKENRING** • **UNKNOWN**
		portNumber			Integer	Number of the physical port
		peerBay			Integer	Peer I/O Module bay
	posID				String	Device ID
	vpdID				String	VPD ID
expansionCardSlots					Integer	Expansion card slots

Attributes	Type	Description
expansionProducts	Array of strings	(Servers with blade expanders installed only) List of expansion hardware. This can be one or more of the following values. • **expansionProducts** • **expansionCards** • **addinCards** • **pciExpressCards**
expansionProductType	String	Expansion product type. This can be one of the following values. • **SEN**. StorageExpansionNode • **PEN**. PciExpansionNode • **Expansion card** • **Addin Card** • **PCI Express Card** • **Unknown**
fans	Array of objects	Information about each fan in the device
description	String	Fan description
healthState	String	Fan health state (translated). This can be one of the following values. • **Normal** • **Non-Critical** • **Warning** • **Minor-Failure** • **Major-Failure** • **Non-Recoverable** • **Critical** • **Unknown**
healthStateKey	String	Fan health state key. This can be one of the following values. • **Normal** • **Non-Critical** • **Warning** • **Minor-Failure** • **Major-Failure** • **Non-Recoverable** • **Critical** • **Unknown**
name	String	Fan name
slots	Integer	Fan slot
speed	Integer	Fan speed
status	String	Fan status
firmware	Array of objects	Information about each firmware
build	String	Firmware build
classifications	Array	Firmware type codes
date	String	Firmware date
name	String	Firmware name
revision	String	Firmware revision

Attributes	Type	Description
role	String	Firmware role. This can be one of the following values. • **Primary** • **Backup** • **Temporary** • **Permanent**
status	String	Firmware status. This can be one of the following values. • **Active** • **Inactive** • **Pending**
type	String	Firmware type, such as UEFI, MP, or DSA
version	String	Firmware version
firmwareCompliance	Object	Information about the firmware compliance
status	String	Compliance status. This can be one of the following values. • **compliant**. The device is compliant with their server profile. • **notCompliant**. The device is not compliant with their server profile. • **noPolicyAssigned**. The device is not assigned a server profile. • **unsupportedCompliance**. Configuration is not supported for the device.
flashStorage	Array of objects	Information about flash storage
defaultBlockSize	Long	Flash storage device block size
description	String	Flash storage description
serialNumber	String	Flash storage serial number
firmware	Array of objects	Flash storage firmware properties
build	String	Firmware build
classifications	Array of integers	Firmware type codes
date	String	Firmware date
name	String	Firmware name
role	String	Firmware role. This can be one of the following values. • **Primary** • **Backup** • **Temporary** • **Permanent**
softwareID	String	Firmware identifier
status	String	Firmware status. This can be one of the following values. • **Active** • **Inactive** • **Pending**
type	String	Firmware type, such as UEFI, MP, or DSA
version	String	Firmware version
manufacturer	String	Flash storage manufacturer

Attributes	Type	Description
maxMediaSize	Long	Flash storage device media size
name	String	Flash storage description
partNumber	String	Flash storage part number
slotNumber	Integer	Flash storage slot number
uuid	String	Flash storage UUID
FQDN	String	Fully qualified domain name
groups	Array of objects	Information about each group in which this device is a member
id	String	Group ID
name	String	Group name
type	String	Group type. This value is always "DeviceGroup."
uri	String	Group URI
hasOS	String	Identifies whether an operating system is installed. This can be one of the following values. • **true**. Operating system is installed. • **false**. Operating system is not installed.
height	Integer	(Rack Server only) Height of the server
hostname	String	Hostname
id	String	Device ID **Tip:** The device ID is made up of the UUID of the device and the UUID of the resource manager that manages the device, separated by a dash.
ipInterfaces	Array of objects	Information about each IP interface
IPv4assignments	Array of objects	Information about each IPv4 assignment
address	String	IPv4 address
gateway	String	IPv4 gateway
id	Integer	IPv4 assignment ID
subnet	String	IPv4 subnet mask
type	String	Type of the IPv4 assignment. This can be one of the following values. • **INUSE** • **CONFIGURED** • **ALIAS** • **UNKNOWN**
IPv4DHCPmode	String	IP address assignment method. This can be one of the following values. • **STATIC_ONLY** • **DHCP_ONLY** • **DHCP_THEN_STATIC** • **UNKNOWN**

Attributes			Type	Description
IPv4enabled			Boolean	Identifies whether IPv4 is enabled. This can be one of the following values. • **true**. IPv4 is enabled. • **false**. IPv4 is disabled.
IPv6assignments			Array of objects	Information about each IPv6 assignment
	address		String	IPv6 address
	gateway		String	IPv6 gateway
	id		Integer	IPv6 assignment ID
	prefix		Integer	IPv6 prefix
	scope		String	Scope of the IPv6 assignment. This can be one of the following values. • **Global** • **LinkLocal** • **Unknown**
	source		String	Source of the IPv6 assignment. This can be one of the following values. • **DHCP** • **Statelesss** • **Static** • **Other** • **Unknown**
	type		String	Type of the IPv6 assignment. This can be one of the following values. • **INUSE** • **CONFIGURED** • **ALIAS** • **UNKNOWN**
IPv6DHCPenabled			Boolean	Identifies whether IPv6 DHCP is enabled. This can be one of the following values. • **true**. IPv6 DHCP is enabled. • **false**. IPv6 DHCP is disabled.
IPv6enabled			Boolean	Identifies whether IPv6 is enabled. This can be one of the following values. • **true**. IPv6 is enabled • **false**. IPv6 is disabled
IPv6statelessEnabled			Boolean	Identifies whether IPv6 stateless is enabled. This can be one of the following values. • **true**. IPv6 stateless is enabled. • **false**. IPv6 stateless is disabled.
IPv6staticEnabled			Boolean	Identifies whether IPv6 static is enabled. This can be one of the following values. • **true**. IPv6 static is enabled. • **false**. IPv6 static is disabled.
label			String	Label
name			String	Name
ipv4Addresses			Array of strings	List of IPv4 addresses

Attributes	Type	Description
ipv6Addresses	Array of strings	List of IPV6 addresses
isEmbedded	Boolean	
isITME	Boolean	Indicates whether the server is a Flex System compute node. This can be one of the following values. • **true**. The node is a compute node. • **false**. The node is not a compute node.
isRemotePresenceEnabled	Boolean	Indicates whether remote presence is enabled. This can be one of the following values. • **true**. Remote presence is enabled • **false**. Remote presence is disabled
isScalable	Boolean	This can be one of the following values. • **true** • **false**
lanOverUsb	String	Identifies whether LAN over USB is enabled. This can be one of the following values. • **enabled**. LAN over USB is enabled. • **disabled**. LAN over USB is disabled.
lanOverUsbPortForwardingModes	Array of objects	Ethernet over USB port forwarding mode
externalIPAddress	String	IP address of the port
state	String	Identifies whether the Ethernet-over-USB port forwarding mode is enabled or disabled. This can be one of the following values. • **enable** • **disable**
type	String	Type of LAN over USB port. This can be one of the following values. • **DSA** • **OSDeploy**
leds	Array of objects	Information about server LEDs
color	String	LED color. This can be one of the following values. • **Red** • **Amber** • **Yellow** • **Green** • **Blue** • **Unknown**
location	String	LED location. This can be one of the following values. • **Front panel** • **Lightpath Card** • **Planar** • **FRU** • **Rear Panel** • **Unknown**
name	String	LED name.

Attributes	Type	Description
state	String	LED state. This can be one of the following values. • **Off** • **On** • **Blinking** • **Unknown**
location	Object	Information about the location of the server or Flex System storage device
location	String	Location
lowestRackUnit	Integer	Lowest rack unit
rack	String	Rack
room	String	Room
lxcaOverallHealthState	String	Resource manager health state. This can be one of the following values. • **Normal** • **Non-Critical** • **Warning** • **Minor-Failure** • **Major-Failure** • **Non-Recoverable** • **Critical** • **Unknown**
lxcaUUID	String	Resource manager UUID
m2Presence	Boolean	Indicates whether the node contains M.2 storage. This can be one of the following values. • **true**. M.2 storage is present • **false**. M.2 storage is not present.
machineType	String	Server machine type
manager	Object	Information about the resource manager that manages this device
domainName	String	Fully qualified domain name
hostname	String	Host name
inContextHref	String	In context URI
ipv4Addresses	Array of strings	IPv4 addresses
ipv6Addresses	Array of strings	IPv6 addresses
manufacturer	String	Manufacturer
manufacturerID	String	Manufacturer ID
memoryModules	Array of objects	Information about memory modules
capacity	Long	Capacity
displayName	String	Display name
manufacturer	String	Manufacturer

Attributes			Type	Description
	model		String	Model
	partNumber		String	Part number
	serialNumber		String	Serial number
	slot		Integer	Slot
	speed		Long	Number of data-transfer operations that occur in each second, in MT/s (megatransfers per second)
	speedMBs		Long	Amount of data that is transferred in each second, in MB/s (megabytes per second)
	type		String	Type
mgmtProcIPaddress			String	IP address used by XClarity Orchestrator to manage this resource.
mgmtProcType			String	Type of management controller. This can be one of the following values. • **FSP** • **IMM2** • **IMM3v1** • **UNKNOWN**
model			String	Server model
mtm			String	Machine type and model, separate by a forward slash (for example, 8387/AC1)
name			String	Name that is displayed in the user interface for this device
onboardPciDevices			Array	Information about on-board PCI devices
	class		String	Class
	firmware		Array of objects	Flash storage firmware properties
		build	String	Firmware build
		classifications	Array of integers	Firmware type codes
		date	String	Firmware date
		name	String	Firmware name
		revision	String	Firmware revision
		role	String	Firmware role. This can be one of the following values. • **Primary** • **Backup** • **Temporary** • **Permanent**
		softwareID	String	Firmware ID
		status	String	Firmware status. This can be one of the following values. • **Active** • **Inactive** • **Pending**
		type	String	Firmware type, such as UEFI, MP, or DSA

Attributes				Type	Description
		version		String	Firmware version
	fodUniqueID			String	FoD unique ID
	isAddOnCard			Boolean	Identifies whether the device is an add-on card. This can be one of the following values. • **true**. The device is an add-on card • **false**. The device is not an add-on card
	isAgentless			Boolean	Identifies whether the device is agentless. This can be one of the following values. • **true**. The device is agentless. • **false**. The device is not agentless.
	isPLDMUpdateSupported			Boolean	Identifies whether the Platform Level Data Model updates are supported. This can be one of the following values. • **true**. PLDM update is supported. • **false**. PLDM update is not supported.
	name			String	Description
	pciBusNumber			String	PCI bus number
	pciDeviceNumber			String	PCI device number
	pciFunctionNumber			String	PCI function number
	pciRevision			String	PCI revision
	pciSubID			String	PCI subsystem ID
	pciSubVendorID			String	PCI sub-vendor ID
	portInfo			Object	Information about the ports
		physicalPorts		Array of objects	Information about the physical ports
			logicalPorts	Array of objects	List of associated logical ports
			addresses	String	Assigned addresses
			logicalPortIndex	Integer	Number of logical ports
			portType	String	Logical port type. This can be one of the following values. • **ATM** • **BLUETOOTH** • **ETHERNET** • **FC** • **FDDI** • **FRAMERELAY** • **IB** • **INFRARED** • **OTHER** • **TOKENRING** • **UNKNOWN** • **WIRELESSLAN**
			portNumber	Integer	Number of the logical port
			vnicMode	Boolean	Identifies whether this is a vNIC port. This can be one of the following values. • **true**. This is a vNIC port. • **false**. This is not a vNIC port.

Attributes			Type	Description
		peerBay	Integer	Peer I/O Module bay
		physicalPortIndex	Integer	Number of physical ports
		portNumber	Integer	Number of the physical port
		portType	String	Physical port type. This can be one of the following values. • **ATM** • **ETHERNET** • **FC** • **FDDI** • **FRAMERELAY** • **IB** • **OTHER** • **TOKENRING** • **UNKNOWN**
	posID		String	Device ID
	vpdID		String	VPD ID
overallHealthState			String	Highest severity of all devices (translated). This can be one of the following values. • **Healthy** • **Warning** • **Critical**
overallHealthStateKey			String	Highest severity key. This can be one of the following values. • **Healthy** • **Warning** • **Critical**
parent			Object	Information about the parent of the server or Flex System storage device, if applicable
	uri		String	Parent URI
	uuid		String	Parent UUID
partNumber			String	Part number
pciDevices			Array of objects	Information about PCI devices

Attributes			Type	Description
class			String	Class (basic function) of the PCI device. This can be one of the following values. • **Bridge** • **Communication** controller • **Coprocessor** • **Display** controller • **Docking** station • **Encryption controller** • **Generic system peripheral** • **Input device controller** • **Intelligent controller** • **Mass storage controller** • **Memory controller** • **Multimedia controller** • **Network controller** • **Non-Essential Instrumentation** • **Processing accelerators** • **Processor** • **Satellite communications controller** • **Serial bus controller** • **Signal processing controller** • **Unassigned class** • **Unclassified device** • **Unknown device** • **Wireless controller**
firmware			Array of objects	Flash storage firmware properties
	build		String	Firmware build
	classifications		Array of integers	Firmware type codes
	date		String	Firmware date
	name		String	Firmware name
	revision		String	Firmware revision
	role		String	Firmware role. This can be one of the following values. • **Primary** • **Backup** • **Temporary** • **Permanent**
	softwareID		String	Firmware ID
	status		String	Firmware status. This can be one of the following values. • **Active** • **Inactive** • **Pending**
	type		String	Firmware type, such as UEFI, MP, or DSA
	version		String	Firmware version
fodUniqueID			String	FoD unique ID
isAddOnCard			Boolean	Identifies whether the device is an add-on card. This can be one of the following values. • **true**. The device is an add-on card • **false**. The device is not an add-on card

Attributes					Type	Description
isAgentless					Boolean	Identifies whether the device is agentless. This can be one of the following values. • **true**. The device is agentless. • **false**. The device is not agentless.
isPLDMUpdateSupported					Boolean	Identifies whether the Platform Level Data Model updates are supported. This can be one of the following values. • **true**. PLDM update is supported. • **false**. PLDM update is not supported.
name					String	Description
pciBusNumber					String	PCI bus number
pciDeviceNumber					String	PCI device number
pciFunctionNumber					String	PCI function number
pciRevision					String	PCI revision
pciSubID					String	PCI subsystem ID
pciSubVendorID					String	PCI sub-vendor ID
portInfo					Object	Information about the ports
	physicalPorts				Array of objects	Information about the physical ports
		logicalPorts			Array of objects	List of associated logical ports
			addresses		String	Assigned addresses
			logicalPortIndex		Integer	Number of logical ports
			portNumber		Integer	Number of the logical port
			portType		String	Logical port type. This can be one of the following values. • **ATM** • **BLUETOOTH** • **ETHERNET** • **FC** • **FDDI** • **FRAMERELAY** • **IB** • **INFRARED** • **OTHER** • **TOKENRING** • **UNKNOWN** • **WIRELESSLAN**
			vnicMode		Boolean	Identifies whether this is a vNIC port. This can be one of the following values. • **true**. This is a vNIC port. • **false**. This is not a vNIC port.
		peerBay			Integer	Peer Flex switch bay
		physicalPortIndex			Integer	Number of physical ports
		portNumber			Integer	Number of the physical port

Attributes			Type	Description
		portType	String	Physical port type. This can be one of the following values. • **ATM** • **ETHERNET** • **FC** • **FDDI** • **FRAMERELAY** • **IB** • **OTHER** • **TOKENRING** • **UNKNOWN**
		speed	Long	Link speed, in Gbps (for example, 2.5)
		status	String	Link status. This can be one of the following values. • **up** • **down** • **unknown**
	posID		String	Device ID
	vpdID		String	VPD ID
ports			Array of objects	Port information
	ioModuleBay		Integer	Attached IO module bay number
	portNumber		Integer	Port number
powerAllocation			Object	Information about power allocation.
	maximumAllocatedPower		Long	Maximum power allocated to the server
	minimumAllocatedPower		Long	Minimum power allocated to the server
powerCappingPolicy			Object	(Rack Server only)
	cappingACorDCMode		String	Capping AC or DC mode. This can be one of the following values. • **AC** • **DC** • **Unknown**
	cappingPolicy		String	Capping policy. This can be one of the following values. • **OFF** • **STATIC** • **UNKNOWN**
	currentPowerCap		Long	Current power cap
	maxPowerCap		Long	Maximum power capping level
	maximumPowerCappingHotPlugLevel		Long	Maximum power capping hot plug level
	minimumHardCapLevel		Long	Minimum hard capping level
	minimumPowerCappingHotPlugLevel		Long	Minimum power capping hot plug level
	minPowerCap		Long	Minimum power capping level
	powerCappingAllocUnit		String	Power capping allocation unit

Attributes	Type	Description
powerStatus	String	Power status (translated). This can be one of the following values. • **Off** • **On** • **Standby** • **Unknown**
powerStatusKey	String	Power status key. This can be one of the following values. • **Off** • **On** • **Standby** • **Unknown**
powerSupplies	Array of objects	(Rack servers only) Information about power supplies
cmmDisplayName	String	Assigned component name
cmmHealthState	String	Health state (translated). This can be one of the following values. • **Normal** • **Non-Critical** • **Warning** • **Minor-Failure** • **Major-Failure** • **Non-Recoverable** • **Critical** • **Unknown**
dataHandle	Long	Time stamp of the last status update
description	String	Assigned component description
excludedHealthState		
firmware	Array of objects	Information about firmware
build	String	Firmware build
classifications	Array of integers	Firmware type codes
date	String	Firmware date
name	String	Firmware name
revision	String	Firmware revision
role	String	Firmware role. This can be one of the following values. • **Primary** • **Backup** • **Temporary** • **Permanent**
softwareID	String	Firmware ID
status	String	Firmware status. This can be one of the following values. • **Active** • **Inactive** • **Pending**
type	String	Firmware type, such as UEFI, MP, or DSA.
version	String	Firmware version

Attributes	Type	Description
FRU	String	FRU part number
fruSerialNumber	String	FRU serial number
hardwareRevision	String	Hardware revision
healthState	String	Health state (translated). This can be one of the following values. • **Normal** • **Non-Critical** • **Warning** • **Minor-Failure** • **Major-Failure** • **Non-Recoverable** • **Critical** • **Unknown**
healthStateKey	String	Health state key. This can be one of the following values. • **Normal** • **Non-Critical** • **Warning** • **Minor-Failure** • **Major-Failure** • **Non-Recoverable** • **Critical** • **Unknown**
inputVoltageIsAC	Boolean	Identifies whether the input voltage is ac or dc. This can be one of the following values. The value is valid only if **inputVoltageMin** and **inputVoltageMax** are valid. • **true**. ac • **false**. dc
inputVoltageMax	Integer	Maximum input voltage. A value of -1 mean it has not been set yet.
inputVoltageMin	Integer	Minimum input voltage. A value of -1 means it has not been set yet.
leds	Array of objects	Information about power-supply LEDs.
color	String	LED color. This can be one of the following values. • **Red** • **Amber** • **Yellow** • **Green** • **Blue** • **Unknown**
location	String	LED location. This can be one of the following values. • **Front panel** • **Lightpath Card** • **Planar** • **FRU** • **Rear Panel** • **Unknown**
name	String	LED name

Attributes	Type	Description
state	String	LED state. This can be one of the following values. • **Off** • **On** • **Blinking** • **Unknown**
machineType	String	Machine type
manufactureDate	String	Manufacture date
manufacturer	String	Manufacturer name
manufacturerId	String	Manufacturer ID
model	String	Power-supply model
name	String	User-defined name, if available. Otherwise, this is one of the following values. • component name • serial number • UUID
overallHealthState		Highest severity of all power supplies(translated). This can be one of the following values. • **Healthy** • **Warning** • **Critical**
overallHealthStateKey		Highest severity key. This can be one of the following values. • **Healthy** • **Warning** • **Critical**
parent	Object	Information about the parent device, if applicable
uri	String	Parent URI
uuid	String	Parent UUID
partNumber	String	Part number
posID	String	Position ID
powerAllocation	Object	Information about the power allocation
totalInputPower	Long	Total input power
totalOutputPower	Long	Total output power
powerState	String	Current power state of the power supply. This can be one of the following values. • **Off** • **On** • **ShuttingDown** • **Standby** • **Hibernate** • **Unknown**
powerStatus	String	Power status (translated). This can be one of the following values. • **Off** • **On** • **Standby** • **Unknown**

Attributes	Type	Description
powerStatusKey	String	Power status key. This can be one of the following values. • **Off** • **On** • **Standby** • **Unknown**
productId	String	Product ID
productName	String	Product name
serialNumber	String	Serial number
slots	Array	Power-supply primary slot
type	String	Resource type. This value is always "PowerSupply."
uri	String	URI
userDescription	String	User description
uuid	String	UUID
vpdID	String	VPD ID
primary	Boolean	
processors	Array of objects	Information about processors
cores	Integer	Number of cores
displayName	String	Display name
family	String	Family
manufacturer	String	Manufacturer
productVersion	String	Product version
slot	Integer	Slot
socket	String	Socket information. For servers, this is the socket number (for example, "Socket 1"). For scalable complexes, this is the node and socket number (for example, "Node 1 Socket 1").
speed	Double (float)	Speed
processorSlots	Integer	Number of processor slots
productId	String	
productName	String	Product name
raidSettings	Array	Information about RAID devices
batteryData	Array	
description	String	RAID devices description
diskDrives	Array of objects	Information about disk drives
bay	Integer	Bay or slot number
blockSize	Long	Block size

Attributes			Type	Description
	capacity		Integer	(M.2 drives only) Storage capacity, in KB
	description		String	Description
	diskState		String	Disk-drive state
	firmware		Array of objects	(M.2 and NVM3 drives only) Information about firmware
		build	String	Firmware build.
		classifications	Array of integers	Firmware type codes
		date	String	Firmware date.
		name	String	Firmware name.
		revision	String	Firmware revision
		role	String	Firmware role. This can be one of the following values. • **Primary** • **Backup** • **Temporary** • **Permanent**
		softwareID	String	Firmware ID
		status	String	Firmware status. This can be one of the following values. • **Active** • **Inactive** • **Pending**
		type	String	Firmware type, such as UEFI, MP, or DSA
		version	String	Firmware version.
	FRU		String	FRU
	healthState		String	Health state (translated). This can be one of the following values. • **Normal** • **Non-Critical** • **Warning** • **Minor-Failure** • **Major-Failure** • **Non-Recoverable** • **Critical** • **Unknown**
	healthStateKey		String	Health state key. This can be one of the following values. • **Normal** • **Non-Critical** • **Warning** • **Minor-Failure** • **Major-Failure** • **Non-Recoverable** • **Critical** • **Unknown**
	interfaceType		String	Interface type
	largestAvailableSize		Integer	Largest available size
	m2Location		String	(M.2 drives only) Location of M.2 drive and bay

Attributes			Type	Description
		manufacturer	String	Manufacturer
		mediaType	String	Media type
		model	String	Model
		name	String	Drive name
		numberOfBlocks	Long	Number of blocks
		partNumber	String	Part number
		remainingLife	Integer	Indicate the amount of life that remains for a solid-state drive (SSD). This can be one of the following values. • **0 - 100**. The percent of remaining life • **-1**. Unknown (default) • **-2**. Information is not available • **-3**. The drive is not an SSD
		serialNumber	String	Serial number
		temperature	Integer	Device temperature
		uuid	String	UUID
	firmware		Array of objects	Information about firmware
		build	String	Firmware build
		classifications	Array of integers	Firmware type codes
		date	String	Firmware date
		name	String	Firmware name
		revision		Firmware revision
		role	String	Firmware role. This can be one of the following values. • **Primary** • **Backup** • **Temporary** • **Permanent**
		softwareID		Firmware ID
		status	String	Firmware status. This can be one of the following values. • **Active** • **Inactive** • **Pending**
		type	String	Firmware type, such as UEFI, MP, or DSA
		version	String	Firmware version
	isAddOnCard		Boolean	Identifies whether the RAID adapter is an add-on card. This can be one of the following values. • **true**. The RAID adapter is an add-on adapter. • **false**. The RAID adapter is an on-board adapter.
	name		String	RAID devices name
	slotNumber		String	RAID adapter slot number If the RAID adapter is an on-board adapter, this value is null.

Attributes					Type	Description
storagePools					Array of objects	Information about each storage pool
	arrayUid				String	Storage array ID
	arrayStatus				String	Storage array status
	combinedRaidLevel				String	Combined RAID level. This can be one of the following values. • **0**. Striping • **1**. Mirroring • **5**. Distributed dual-parity • **6**. Striping with-parity • **10**. Disk mirroring and disk striping (1+0) • **50**. Distributed parity and disk striping (5+0) • **60**. Distributed dual-parity and disk striping (6+0) • **00**. **Note:** RAID level 0, 1, or 5 are supported on all serves. RAID level 6, 10, 50, 60, and 00 are supported only on ThinkSystem servers with XCC version 2.1 and later. (ThinkSystem SR950 requires XCC version 1.4 or later).
	diskDrives				Array of objects	Information about each disk drive in the storage pool
		bay			Integer	Bay
		blockSize			Integer	Block size
		capacity			Long	Storage capacity
		description			String	Drive description
		diskState			String	Drive state
		firmware			Array of objects	Information about disk-drive firmware
			build		String	Firmware build
			classifications		Array of integers	Firmware type codes
			date		String	Firmware date
			name		String	Firmware name
			revision		String	Firmware revision
			role		String	Firmware role. This can be one of the following values. • **Primary** • **Backup** • **Temporary** • **Permanent**
			softwareID		String	Firmware ID
			status		String	Firmware status. This can be one of the following values. • **Active** • **Inactive** • **Pending**
			type		String	Firmware type, such as UEFI, MP, or DSA
			version		String	Firmware version

Attributes			Type	Description
		FRU	String	Drive FRU
		healthState	String	Drive health status
		interfaceType	String	Drive interface type
		largestAvailableSize	Integer	Largest available size
		m2Location	String	M.2 location
		manufacturer	String	Drive manufacturer
		mediaType	String	Media type
		model	String	Drive model
		name	String	Drive name
		numberOfBlocks	Long	Number of blocks
		remainingLife	Integer	Indicate the amount of life that remains for a solid-state drive (SSD). This can be one of the following values. • **0 - 100**. The percent of remaining life • **-1**. Unknown (default) • **-2**. Information is not available • **-3**. The drive is not an SSD
		partNumber	String	Drive part number
		serialNumber	String	Drive serial number
		uuid	String	Drive UUID
	description		String	Storage description
	name		String	Storage name
	raidLevel		Integer	RAID level
	remainingSpace		Integer	Remaining space
	storageVolumes		Array of objects	Information about each storage volume
		accessPermission	String	
		blockSize	Integer	
		bootable	Boolean	
		description	String	
		driveIndex	Integer	
		health	String	
		isSDRAID	String	
		LUN	Integer	
		name	String	
		numberOfBlocks	Long	
		primaryPartition	Integer	
		removable	Boolean	

Attributes				Type	Description
			stripeSize	Integer	
			targetType	String	
			volumeID	String	
			volumeStatus	String	
			volumeType	String	
			volumeOwner	String	
			volumeUID	String	
		totalManagedSpace		Long	
	uuid			String	RAID device UUID
serialNumber				String	Server serial number
slots				Array of integers	List of occupied slots
subSlots				Array of integers	List of occupied sub-slots
subType				String	Sub-type
systemBoard				Object	Information about the system board
	machineType			String	Device machine type
	model			String	Device model
	productName			String	Product name
	serialNumber			String	Device serial number
	uuid			String	Device UUID
type				String	Resource type. This can be one of the following values. • **chassis** • **server** • **storage** • **switch**
userDefinedName				String	User-defined name for the device
userDescription				String	User description
uuid				String	UUID
vnicMode				String	VNIC mode. This can be one of the following values. • **enabled** • **disabled**
_links				Object	Device URI (see Links)
<message_attributes>				*varies*	Status messages (see Status messages)

The following example is returned if the request is successful.

```
{
    "accessState": "Online",
    "accessStateKey": "Online",
    "accurateHealth": true,
    "activationKeys": [{
```

```
        "description": "Lenovo XClarity Controller Advanced Upgrade",
        "keyExpirationDate": "",
        "keyFeatureType": 52,
        "keyIdentiferList": [{
            "keyIdentifier": "7X08S4ADN708",
            "keyIdentifierType": "MT"
        }],
        "keyStatus": "VALID",
        "keyUseCount": 0,
        "keyUseLimit": 0,
        "uuid": "d97e8a0e8b439d02"
    }],
    "addinCards": [{
        "class": "Mass storage controller",
        "firmware": [{
            "build": "0",
            "classifications": [13],
            "date": "2019-09-11T00:00:00Z",
            "name": "MegaRAID Firmware Package",
            "revision": "0",
            "role": "Primary",
            "softwareID": "1D490601",
            "status": "Active",
            "type": "Software Bundle",
            "version": "51.10.0-2837"
        }],
        "fodUniqueID": "N/A",
        "FRU": "01KN507",
        "fruSerialNumber": "L2ST7CNS232",
        "isAddOnCard": true,
        "isAgentless": true,
        "isPLDMUpdateSupported": true,
        "manufacturer": "Lenovo",
        "name": "ThinkSystem RAID 930-8i 2GB Flash PCIe 12Gb Adapter",
        "partNumber": "SR17A18204",
        "pciBusNumber": "8",
        "pciDeviceNumber": "0",
        "pciFunctionNumber": "0",
        "pciRevision": "1",
        "pciSubID": "601",
        "pciSubVendorID": "1d49",
        "portInfo": {},
        "posID": "16",
        "productName": "ThinkSystem RAID 930-8i 2GB Flash PCIe 12Gb Adapter",
        "slotName": "SlotDesig3_Slot 1",
        "slotNumber": "1",
        "slotSupportsHotPlug": "false",
        "uuid": "8F11F34874604BA891D5E0A7B280CB25",
        "vpdID": "1000"
    }],
    "addinCardSlots": 0,
    "arch": "x86",
    "bladeState": 255,
    "contact": "cion@lenovo.com",
    "configCompliance": [{
        "addressPresent": null,
        "complianceStatus": null,
        "managementPatternPresent": null,
        "profileName": null,
        "profileStatus": "UNASSIGNED",
        "templateId": null,
```

```
        "type": null
    }],
    "dataHandle": 1586481205158,
    "description": "Chassis",
    "deviceInfo": {
        "domainName": "",
        "groupNames": [],
        "hostname": "XCC-sub54-SR530",
        "ipv4Addresses": ["10.241.54.30","169.254.95.118"],
        "ipv6Addresses": ["fe80::a94:efff:fe5f:5b63","fe80::a94:efff:fe5f:5b64"],
        "location": {
            "location": "Loc-31",
            "lowestRackUnit": 0,
            "rack": "",
            "room": "Room-31"
        },
        "healthStatus": "Critical",
        "machineType": "7X08",
        "manager": {
            "domainName": "",
            "hostname": "localhost",
            "inContextHref": "/ui/index.html#/compDetails/Rack-Tower Server/3015DE7E2B6011E881940A94EF5F5B65/",
            "ipv4Addresses": ["10.241.54.99"],
            "ipv6Addresses": ["fd64:30d9:58db:5bbc:0:0:0:13d0","fe80:0:0:0:250:56ff:fea2:6e89"]
        },
        "model": "CTO1WW",
        "powerStatus": "On",
        "powerStatusKey": "On",
        "productName": "ThinkSystem SR530",
        "serialNumber": "S4ADN708",
        "userDefinedName": "SR530",
        "uuid": "3015DE7E2B6011E881940A94EF5F5B65"
    },
    "deviceName": "SR530",
    "deviceType": "Rack-Tower Server",
    "discoveryTimestamp": "2020-04-09T13:28:32.725Z",
    "domainName": "",
    "driveBays": 11,
    "drives": [{
        "bay": 0,
        "blockSize": 512,
        "capacity": 900185481000,
        "description": "ST900MM0006",
        "diskState": "JBOD",
        "firmware": [{
            "build": "0",
            "classifications": [10],
            "date": "",
            "name": "Drive",
            "role": "Primary",
            "revision": "0",
            "softwareID": "ST900MM0006",
            "status": "Active",
            "type": "Firmware",
            "version": "L56R"
        }],
        "FRU": "00AJ072",
        "healthState": "Normal",
        "healthStateKey": "Normal",
        "interfaceType": "SAS",
        "largestAvailableSize": 512,
```

```json
        "m2Location": "",
        "manufacturer": "LENOVO-X",
        "mediaType": "Rotational",
        "model": "ST900MM0006",
        "name": "Disk 0_a",
        "numberOfBlocks": 1758174768,
        "partNumber": "00AJ075",
        "remainingLife": 100,
        "serialNumber": "S0N4SAFC",
        "temperature": 26,
        "uuid": ""
    }],
    "encapsulation": {
        "encapsulationMode": "normal"
    },
    "expansionCards": [],
    "expansionCardSlots": 0,
    "expansionProducts": [],
    "expansionProductType": "",
    "fans": [{
        "description": "Logical Device for fan / cooling device 4",
        "healthState": "Normal",
        "healthStateKey": "Normal",
        "name": "Fan 4",
        "slots": 4,
        "speed": 1568,
        "status": "OK"
    }],
    "firmware": [{
        "build": "PDL122H",
        "classifications": [],
        "date": "2019-09-21T00:00:00Z",
        "name": "Firmware:LXPM",
        "revision": "1.70",
        "role": "Primary",
        "status": "Active",
        "type": "LXPM",
        "version": "1.70"
    }],
    "firmwareCompliance": {
        "status": "noPolicyAssigned"
    },
    "flashStorage": [],
    "FQDN": "10.241.54.30",
    "groups": [],
    "hasOS": false,
    "height": 1,
    "hostname": "XCC-sub54-SR530",
    "_id": "5e8f23027c85957cf9ded221",
    "id": "3015DE7E2B6011E881940A94EF5F5B65-C7199530FEDE4FE09540DFC3D75FC56C",
    "ipv4Addresses": ["10.241.54.30","169.254.95.118"],
    "ipv6Addresses": ["fe80::a94:efff:fe5f:5b63","fe80::a94:efff:fe5f:5b64"],
    "isEmbedded": false,
    "ipInterfaces": [{
        "IPv4assignments": [{
            "address": "10.241.54.30",
            "gateway": "10.241.54.1",
            "id": 0,
            "subnet": "255.255.255.0",
            "type": "INUSE"
        }],
```

```
        "IPv4DHCPmode": "STATIC_ONLY",
        "IPv4enabled": true,
        "IPv6assignments": [{
            "address": "fe80:0:0:0:a94:efff:fe5f:5b63",
            "gateway": "0:0:0:0:0:0:0:0",
            "id": 0,
            "prefix": 64,
            "scope": "Global",
            "source": "Static",
            "type": "INUSE"
        }],
        "IPv6DHCPenabled": false,
        "IPv6enabled": true,
        "IPv6statelessEnabled": false,
        "IPv6staticEnabled": true,
        "label": "unknown",
        "name": "Manager Ethernet Interface"
    }],
    "isITME": false,
    "isRemotePresenceEnabled": true,
    "isScalable": false,
    "lanOverUsb": "enabled",
    "lanOverUsbPortForwardingModes": [{
        "externalIPAddress": "",
        "state": "disabled",
        "type": "OSDeploy"
    }],
    "leds": [{
        "color": "Green",
        "location": "Planar",
        "name": "BMC Heartbeat",
        "state": "Blinking"
    }],
    "location": {
        "location": "Loc-31",
        "lowestRackUnit": 0,
        "rack": "",
        "room": "Room-31"
    },
    "lxcaOverallHealthState": "Critical",
    "lxcaUUID": "C7199530FEDE4FE09540DFC3D75FC56C",
    "m2Presence": false,
    "machineType": "7X08",
    "manager": {
        "domainName": "",
        "hostname": "localhost",
        "inContextHref": "/ui/index.html#/compDetails/Rack-Tower Server/3015DE7E2B6011E881940A94EF5F5B65/",
        "ipv4Addresses": ["10.241.54.99"],
        "ipv6Addresses": ["fd64:30d9:58db:5bbc:0:0:0:13d0","fe80:0:0:0:250:56ff:fea2:6e89"]
    },
    "mgmtProcIPaddress": "10.241.54.30",
    "mgmtProcType": "IMM3v1",
    "manufacturer": "LENOVO(WIST)",
    "manufacturerId": "LENOVO(WIST)",
    "memoryModules": [{
        "capacity": 16,
        "displayName": "This resource is used to represent a memory for a Redfish implementation.",
        "manufacturer": "SK Hynix",
        "model": "DDR4",
        "partNumber": "HMA82GR7AFR4N-VK",
        "serialNumber": "92272C75",
```

```
        "slot": 4,
        "speed": 2666,
        "speedMBs": 0,
        "type": "DDR4"
    }],
    "model": "CTO1WW",
    "mtm": "7X08/CTO1WW",
    "name": "SR530",
    "onboardPciDevices": [{
        "class": "Display controller",
        "firmware": [{
            "build": "0",
            "classifications": [0],
            "date": "",
            "name": "PCIFirmware",
            "revision": "0",
            "role": "Primary",
            "softwareID": "19a2:101",
            "status": "Active",
            "type": "",
            "version": ""
        }],
        "fodUniqueID": "",
        "isAddOnCard": false,
        "isAgentless": false,
        "isPLDMUpdateSupported": false,
        "name": "",
        "pciBusNumber": "2",
        "pciDeviceNumber": "0",
        "pciFunctionNumber": "0",
        "pciRevision": "42",
        "pciSubID": "101",
        "pciSubVendorID": "19a2",
        "portInfo": {},
        "posID": "522",
        "vpdID": "102b"
    }],
    "overallHealthState": "Critical",
    "overallHealthStateKey": "Critical"
    "parent": {
        "uri": "cabinet/",
        "uuid": ""
    },
    "partNumber": "SB27A18555   ",
    "pciDevices": [{
        "class": "Network controller",
        "firmware": [{
            "build": "0",
            "classifications": [32773],
            "date": "",
            "type": "Boot ROM",
            "revision": "0",
            "role": "Primary",
            "softwareID": "17AA4020",
            "status": "Active",
            "name": "Combined Option ROM Image",
            "version": "1.1824.0"
        }],
        "fodUniqueID": "N/A",
        "isAddOnCard": false,
        "isAgentless": true,
```

```
        "isPLDMUpdateSupported": false,
        "name": "Intel X722 LOM",
        "pciBusNumber": "176",
        "pciDeviceNumber": "0",
        "pciFunctionNumber": "2",
        "pciRevision": "9",
        "pciSubID": "4020",
        "pciSubVendorID": "17aa",
        "portInfo": {
            "physicalPorts": [{
                "logicalPorts": [{
                    "addresses": "0894EF5F6014",
                    "logicalPortIndex": 1,
                    "portNumber": 1,
                    "portType": "ETHERNET",
                    "vnicMode": false
                }],
                "peerBay": 0,
                "physicalPortIndex": 3,
                "portNumber": 1,
                "portType": "ETHERNET",
                "speed": 1,
                "status": "Up"
            }]
        },
        "posID": "37d1",
        "vpdID": "8086",
    }],
    "ports": [{
        "ioModuleBay": 0,
        "portNumber": 1
    },
    {
        "ioModuleBay": 0,
        "portNumber": 2
    }],
    "powerAllocation": {
        "maximumAllocatedPower": 1100,
        "minimumAllocatedPower": 0
    },
    "powerCappingPolicy": {
        "cappingACorDCMode": "AC",
        "cappingPolicy": "OFF",
        "currentPowerCap": 0,
        "maxPowerCap": 1100000,
        "maximumPowerCappingHotPlugLevel": -1,
        "minimumHardCapLevel": 125000,
        "minimumPowerCappingHotPlugLevel": -1,
        "minPowerCap": 0,
        "powerCappingAllocUnit": "watts*10^-3"
    },
    "powerStatus": "On",
    "powerStatusKey": "On",
    "powerSupplies": [{
        "cmmDisplayName": "Power Supply 1",
        "cmmHealthState": "Unknown",
        "dataHandle": 0,
        "description": "",
        "excludedHealthState": "Normal",
        "firmware": [{
            "build": "0",
```

```
        "classifications": [10],
        "date": "",
        "name": "ACBE Firmware",
        "revision": "0",
        "role": "Primary",
        "softwareID": "PSUACBE6600",
        "status": "Active",
        "type": "Firmware",
        "version": "4.51"
    }],
    "FRU": "",
    "fruSerialNumber": "",
    "hardwareRevision": "",
    "healthState": "Normal",
    "healthStateKey": "Normal",
    "inputVoltageIsAC": true,
    "inputVoltageMax": -1,
    "inputVoltageMin": -1,
    "leds": [],
    "machineType": "",
    "manufactureDate": "",
    "manufacturer": "ACBE",
    "manufacturerId": "",
    "model": "",
    "name": "Power Supply 1",
    "overallHealthState": "Normal",
    "overallHealthStateKey": "Normal",
        "parent": {
        "uri": "chassis/",
        "uuid": ""
    },
    "partNumber": "SP57A02023",
    "posID": "",
    "powerAllocation": {
        "totalInputPower": 0,
        "totalOutputPower": 1100
    },
    "powerState": "Unknown",
    "productId": "",
    "productName": "",
    "serialNumber": "A3DB7CD11KV",
    "slots": [1],
    "type": "PowerSupply",
    "uri": "powerSupply/",
    "userDescription": "",
    "uuid": "",
    "vpdID": "",
}],
"processors": [{
    "cores": 12,
    "displayName": "Intel(R) Xeon(R) Silver 4116 CPU @ 2.10GHz",
    "family": "INTEL_R_XEON_TM",
    "manufacturer": "Intel(R) Corporation",
    "productVersion": "Intel(R) Xeon(R) Silver 4116 CPU @ 2.10GHz",
    "slot": 1,
    "socket": "",
    "speed": 2.1
}],
"processorSlots": 1,
"productName": "ThinkSystem SR530",
"primary": false,
```

```
    "productId": "664A00",
    "raidSettings": [{
        "batteryData": []
        "description": "ThinkSystem RAID 930-8i 2GB Flash PCIe 12Gb Adapter",
        "diskDrives": [{
            "bay": 0,
            "blockSize": 512,
            "capacity": 900185481000,
            "description": "ST900MM0006",
            "diskState": "JBOD",
            "firmware": [{
                "build": "0",
                "classifications": [10],
                "date": "",
                "name": "Drive",
                "revision": "0",
                "role": "Primary",
                "softwareID": "ST900MM0006",
                "status": "Active",
                "type": "Firmware",
                "version": "L56R",
            }],
            "FRU": "00AJ072",
            "healthState": "Normal",
            "healthStateKey": "Normal"
            "interfaceType": "SAS",
            "largestAvailableSize": 512,
            "m2Location": "",
            "manufacturer": "LENOVO-X",
            "mediaType": "Rotational",
            "model": "ST900MM0006",
            "name": "Disk 0_a",
            "numberOfBlocks": 1758174768,
            "partNumber": "00AJ075",
            "remainingLife": 100,
            "serialNumber": "S0N4SAFC",
            "temperature": 26,
            "uuid": "",
        }],
        "firmware": [{
            "build": "0",
            "classifications": [13],
            "date": "2019-09-11T00:00:00Z",
            "name": "MegaRAID Firmware Package",
            "revision": "0",
            "role": "Primary",
            "softwareID": "1D490601",
            "status": "Active",
            "type": "Software Bundle",
            "version": "51.10.0-2837"
        }],
        "isAddOnCard": true,
        "name": "ThinkSystem RAID 930-8i 2GB Flash PCIe 12Gb Adapter",
        "slotNumber": "1",
        "storagePools": [],
        "uuid": "8F11F34874604BA891D5E0A7B280CB25",
    }],
    "serialNumber": "S4ADN708",
    "slots": [1],
    "subSlots": [],
    "systemBoard": {
```

```
    "machineType": "7X08",
    "model": "CTO1WW",
    "productName": "ThinkSystem SR530",
    "serialNumber": "S4ADN708",
    "uuid": "3015DE7E2B6011E881940A94EF5F5B65"
},
"type": "server",
"userDefinedName": "SR530",
"userDescription": "",
"uuid": "3015DE7E2B6011E881940A94EF5F5B65",
"vnicMode": "disabled",
"_links": {
    "rel": "self",
    "uri": "/api/v1/data/devices/C7199530FEDE4FE09540DFC3D75FC56C"
}
}
```

/api/v1/data/devices/*<id>*/fans

Use this REST API to retrieve fan information for a specific device.

HTTP methods

GET

GET /api/v1/data/devices/*<id>*/fans

Use this method to retrieve fan information for a specific device.

Authentication

Authentication with user name and password is required.

Resource URI

GET https://*<orchestrator_server_IP>*/api/v1/data/devices/*<id>*/fans

where *<id>* is the ID of the device. To obtain the device IDs, use GET /api/v1/data/devices .

Query parameters

None

Request body

None

Response codes

Code	Description	Comments
200	OK	The request completed successfully.
404	Not found	A specified resource cannot be found. A descriptive error message is returned in the response body.

Response body

Attributes	Type	Description
fans	Array of objects	Information about each fan in the device

description	String	Fan description
healthState	String	Fan health state (translated). This can be one of the following values. • **Normal** • **Non-Critical** • **Warning** • **Minor-Failure** • **Major-Failure** • **Non-Recoverable** • **Critical** • **Unknown**
healthStateKey	String	Fan health state key. This can be one of the following values. • **Normal** • **Non-Critical** • **Warning** • **Minor-Failure** • **Major-Failure** • **Non-Recoverable** • **Critical** • **Unknown**
name	String	Fan name
slots	Integer	Fan slot
speed	Integer	Fan speed
status	String	Fan status
_links	Object	Device URI (see Links)
<message_attributes>	*varies*	Status messages (see Status messages)

The following example is returned if the request is successful.

```
{
    "fans": [{
        "description": "Logical Device for fan / cooling device 1",
        "healthState": "Normal",
        "healthStateKey": "Normal",
        "name": "Fan 1",
        "slots": 1,
        "speed": 0,
        "status": "OK"
    },
    ...,
    {
        "description": "Logical Device for fan / cooling device 7",
        "healthState": "Normal",
        "healthStateKey": "Normal",
        "name": "Fan 7",
        "slots": 7,
        "speed": 0,
        "status": "OK"
    }],
    "_links": {
        "rel": "self",
        "uri": "/api/v1/data/devices/C7199530FEDE4FE09540DFC3D75FC56C/fans"
    }
}
```

/api/v1/data/devices/*<id>*/memoryModules

Use this REST API to retrieve memory information about a specific device.

HTTP methods

GET

GET /api/v1/data/devices/*<id>*/memoryModules

Use this method to retrieve memory-module information about a specific device.

Authentication

Authentication with user name and password is required.

Resource URI

GET `https://<orchestrator_server_IP>/api/v1/data/devices/<id>/`memoryModules

where *<id>* is the ID of the device. To obtain the device IDs, use GET /api/v1/data/devices .

Query parameters

None

Request body

None

Response codes

Code	Description	Comments
200	OK	The request completed successfully.
404	Not found	A specified resource cannot be found. A descriptive error message is returned in the response body.

Response body

Attributes		Type	Description
memoryModules		Array of objects	Information about each memory module in the device
	capacity	Integer	Capacity
	displayName	String	Display name
	manufacturer	String	Manufacturer
	model	String	Model
	partNumber	String	Part number
	serialNumber	String	Serial number
	slot	Integer	Slot
	speed	Integer	Number of data-transfer operations that occur in each second, in MT/s (megatransfers per second)

Attributes		Type	Description
	speedMBs	Integer	Amount of data that is transferred in each second, in MB/s (megabytes per second)
	type	String	Type
_links		Object	Device URI (see Links)
<message_attributes>		*varies*	Status messages (see Status messages)

The following example is returned if the request is successful.

```
{
    "memoryModules": [{
        "capacity": 2,
        "displayName": "DIMM 21",
        "manufacturer": "Micron Technology",
        "model": "DDR3",
        "partNumber": "9KSF25672PZ-1G4M1",
        "serialNumber": "377B770D",
        "slot": 21,
        "speed": 1333,
        "speedMBs": 0,
        "type": "DDR3"
    },
    ...,
    {
        "capacity": 2,
        "displayName": "DIMM 20",
        "manufacturer": "Micron Technology",
        "model": "DDR3",
        "partNumber": "9KSF25672PZ-1G4M1",
        "serialNumber": "377B7719",
        "slot": 20,
        "speed": 1333,
        "speedMBs": 0,
        "type": "DDR3"
    }],
    "_links": {
        "rel": "self",
        "uri": "/api/v1/data/devices/C7199530FEDE4FE09540DFC3D75FC56C/memoryModules"
    }
}
```

/api/v1/data/devices/*<id>*/pciDevices

Use this REST API to retrieve PCI-device information for a specific device.

HTTP methods

GET

GET /api/v1/data/devices/*<id>*/pciDevices

Use this method to retrieve PCI-device information for a specific device.

Authentication

Authentication with user name and password is required.

Resource URI

GET `https://<orchestrator_server_IP>/api/v1/data/devices/<id>/pciDevices`

where *<id>* is the ID of the device. To obtain the device IDs, use GET /api/v1/data/devices .

Query parameters

None

Request body

None

Response codes

Code	Description	Comments
200	OK	The request completed successfully.
404	Not found	A specified resource cannot be found. A descriptive error message is returned in the response body.

Response body

Attributes				Type	Description
pciDevices				Array of objects	Information about each PCI device
	class			String	Class (basic function) of the PCI device. This can be one of the following values. • **Bridge** • **Communication** controller • **Coprocessor** • **Display** controller • **Docking** station • **Encryption controller** • **Generic system peripheral** • **Input device controller** • **Intelligent controller** • **Mass storage controller** • **Memory controller** • **Multimedia controller** • **Network controller** • **Non-Essential Instrumentation** • **Processing accelerators** • **Processor** • **Satellite communications controller** • **Serial bus controller** • **Signal processing controller** • **Unassigned class** • **Unclassified device** • **Unknown device** • **Wireless controller**
	firmware			Array of objects	Flash storage firmware properties
			build	String	Firmware build
			classifications	Array of integers	Firmware type codes

Attributes				Type	Description
			date	String	Firmware date
			name	String	Firmware name
			revision	String	Firmware revision
			role	String	Firmware role. This can be one of the following values. • **Primary** • **Backup** • **Temporary** • **Permanent**
			softwareID	String	Firmware ID
			status	String	Firmware status. This can be one of the following values. • **Active** • **Inactive** • **Pending**
			type	String	Firmware type, such as UEFI, MP, or DSA
			version	String	Firmware version
	fodUniqueID			String	FoD unique ID
	isAddOnCard			Boolean	Identifies whether the device is an add-on card. This can be one of the following values. • **true**. The device is an add-on card • **false**. The device is not an add-on card
	isAgentless			Boolean	Identifies whether the device is agentless. This can be one of the following values. • **true**. The device is agentless. • **false**. The device is not agentless.
	isPLDMUpdateSupported			Boolean	Identifies whether the Platform Level Data Model updates are supported. This can be one of the following values. • **true**. PLDM update is supported. • **false**. PLDM update is not supported.
name				String	Description
pciBusNumber				String	PCI bus number
pciDeviceNumber				String	PCI device number
pciFunctionNumber				String	PCI function number
pciRevision				String	PCI revision
pciSubID				String	PCI subsystem ID
pciSubVendorID				String	PCI sub-vendor ID
portInfo				Object	Information about the ports
	physicalPorts			Array of objects	Information about the physical ports
		logicalPorts		Array of objects	List of associated logical ports
			addresses	String	Assigned addresses
			logicalPortIndex	Integer	Number of logical ports

Attributes				Type	Description
			portNumber	Integer	Number of the logical port
			portType	String	Logical port type. This can be one of the following values. • **ATM** • **BLUETOOTH** • **ETHERNET** • **FC** • **FDDI** • **FRAMERELAY** • **IB** • **INFRARED** • **OTHER** • **TOKENRING** • **UNKNOWN** • **WIRELESSLAN**
			vnicMode	Boolean	Identifies whether this is a vNIC port. This can be one of the following values. • **true**. This is a vNIC port. • **false**. This is not a vNIC port.
		peerBay		Integer	Peer Flex switch bay
		physicalPortIndex		Integer	Number of physical ports
		portNumber		Integer	Number of the physical port
		portType		String	Physical port type. This can be one of the following values. • **ATM** • **ETHERNET** • **FC** • **FDDI** • **FRAMERELAY** • **IB** • **OTHER** • **TOKENRING** • **UNKNOWN**
		speed		Long	Link speed, in Gbps (for example, 2.5)
		status		String	Link status. This can be one of the following values. • **up** • **down** • **unknown**
	posID			String	Device ID
	vpdID			String	VPD ID
_links				Object	Device URI (see Links)
<message_attributes>				*varies*	Status messages (see Status messages)

The following example is returned if the request is successful.

```
{
    "pciDevices": [{
        "class": "Network controller",
        "firmware": [{
            "build": "0",
            "classifications": [32773],
            "date": "",
            "name": "Combined Option ROM Image",
```

```
                    "revision": "0",
                    "role": "Primary",
                    "softwareID": "8086000A",
                    "status": "Active",
                    "type": "Boot ROM",
                    "version": "1.1638.0"
                }],
                "fodUniqueID": "N/A",
                "isAddOnCard": true,
                "isAgentless": true,
                "isPLDMUpdateSupported": false
                "name": "Intel X710 2x10GbE SFP+ Adapter",
                "pciBusNumber": "91",
                "pciDeviceNumber": "0",
                "pciFunctionNumber": "1",
                "pciRevision": "1",
                "pciSubID": "0",
                "pciSubVendorID": "8086",
                "portInfo": {
                    "physicalPorts": [{
                        "logicalPorts": [{
                            "addresses": "6805CA7F5AE3",
                            "logicalPortIndex": 1,
                            "portNumber": 1,
                            "portType": "ETHERNET",
                            "vnicMode": false
                        }],
                        "peerBay": 0,
                        "physicalPortIndex": 2,
                        "portNumber": 74,
                        "portType": "ETHERNET",
                        "speed": 0,
                        "status": ""
                    }]
                },
                "posID": "1572",
                "vpdID": "8086"
            }],
        "_links": {
            "rel": "self",
            "uri": "/api/v1/data/devices/C7199530FEDE4FE09540DFC3D75FC56C/pciDevices"
        }
}
```

/api/v1/data/devices/*<id>*/processors

Use this REST API to retrieve processor information for a specific device.

HTTP methods

GET

GET /api/v1/data/devices/*<id>*/processors

Use this method to retrieve processor information for a specific device.

Authentication

Authentication with user name and password is required.

Resource URI

GET `https://<orchestrator_server_IP>/api/v1/data/devices/<id>/processors`

where *<id>* is the ID of the device. To obtain the device IDs, use GET /api/v1/data/devices .

Query parameters

None

Request body

None

Response codes

Code	Description	Comments
200	OK	The request completed successfully.
404	Not found	A specified resource cannot be found. A descriptive error message is returned in the response body.

Response body

Attributes		Type	Description
processors		Array of objects	Information about each processor in the device
	cores	Integer	Number of cores
	displayName	String	Display name
	family	String	Family
	manufacturer	String	Manufacturer
	productVersion	String	Product version
	slot	Integer	Slot
	socket	String	Socket information For servers, this is the socket number (for example, "Socket 1"). For scalable complexes, this is the node and socket number (for example, "Node 1 Socket 1").
	speed	String	Speed
_links		Object	Device URI (see Links)
<message_attributes>		*varies*	Status messages (see Status messages)

The following example is returned if the request is successful.

```
{
    "processors": [{
        "cores": 6,
        "displayName": "Intel(R) Xeon(R) CPU E5-2630L 0 @ 2.00GHz",
        "family": "INTEL_R_XEON_TM",
        "manufacturer": "Intel(R) Corporation",
        "productVersion": "Intel(R) Xeon(R) CPU E5-2630L 0 @ 2.00GHz",
        "slot": 1,
        "socket": "",
        "speed": 2,
    },
```

```
{
    "cores": 6,
    "displayName": "Intel(R) Xeon(R) CPU E5-2630L 0 @ 2.00GHz",
    "family": "INTEL_R_XEON_TM",
    "manufacturer": "Intel(R) Corporation",
    "productVersion": "Intel(R) Xeon(R) CPU E5-2630L 0 @ 2.00GHz",
    "slot": 2,
    "socket": "",
    "speed": 2,
}],
"_links": {
    "rel": "self",
    "uri": "/api/v1/data/devices/C7199530FEDE4FE09540DFC3D75FC56C/processors"
}

}
```

/api/v1/data/devices/*<id>*/powerSupplies

Use this REST API to retrieve power-supply information about a specific device.

HTTP methods

GET

GET /api/v1/data/devices/*<id>*/powerSupplies

Use this method to retrieve power-supply information about a specific device.

Authentication

Authentication with user name and password is required.

Resource URI

GET https://*<orchestrator_server_IP>*/api/v1/data/devices/*<id>*/powerSupplies

where *<id>* is the ID of the device. To obtain the device IDs, use GET /api/v1/data/devices .

Query parameters

None

Request body

None

Response codes

Code	Description	Comments
200	OK	The request completed successfully.
404	Not found	A specified resource cannot be found. A descriptive error message is returned in the response body.

Response body

Attributes			Type	Description
powerSupplies			Array of objects	(Rack servers only) Information about power supplies
	cmmDisplayName		String	Assigned component name
	cmmHealthState		String	Health state (translated). This can be one of the following values. • **Normal** • **Non-Critical** • **Warning** • **Minor-Failure** • **Major-Failure** • **Non-Recoverable** • **Critical** • **Unknown**
	dataHandle		Long	Time stamp of the last status update
	description		String	Assigned component description
	excludedHealthState		String	
	firmware		Array of objects	Power-supply firmware details
		build	String	Firmware build
		classifications	String	Firmware type codes
		date	String	Firmware date
		name	String	Firmware name
		revision	String	Firmware revision
		role	String	Firmware role
		softwareID	String	Firmware ID
		status	String	Firmware status
		type	String	Firmware type
		version	String	Firmware version
	FRU		String	FRU part number
	fruSerialNumber		String	FRU serial number
	hardwareRevision		String	Hardware revision
	healthState		String	Health state (translated). This can be one of the following values. • **Normal** • **Non-Critical** • **Warning** • **Minor-Failure** • **Major-Failure** • **Non-Recoverable** • **Critical** • **Unknown**

Attributes			Type	Description
healthStateKey			String	Health state key. This can be one of the following values. • **Normal** • **Non-Critical** • **Warning** • **Minor-Failure** • **Major-Failure** • **Non-Recoverable** • **Critical** • **Unknown**
inputVoltageIsAC			Boolean	Identifies whether the input voltage is AC or DC. This can be one of the following values. The value is valid only if **inputVoltageMin** and **inputVoltageMax** are valid. • **true**. AC • **false**. DC
inputVoltageMax			Long	Maximum input voltage. A value of **-1** mean it has not been set yet.
inputVoltageMin			Long	Minimum input voltage. A value of **-1** means it has not been set yet.
leds			Array of objects	Information about power-supply LEDs
	color		String	LED color. This can be one of the following values. • **Red** • **Amber** • **Yellow** • **Green** • **Blue** • **Unknown**
	location		String	LED location. This can be one of the following values. • **Front panel** • **Lightpath Card** • **Planar** • **FRU** • **Rear Panel** • **Unknown**
	name		String	LED name
	state		String	LED state This can be one of the following values. • **Off** • **On** • **Blinking** • **Unknown**
machineType			String	Machine type
manufacturer			String	Manufacture name
manufactureDate			String	Manufacture date
manufacturerId			String	Manufacturer ID
model			String	Power-supply model
name			String	Name that is displayed in the user interface for this device
overallHealthState			String	Highest severity of all power supplies(translated). This can be one of the following values. • **Healthy** • **Warning** • **Critical**

Attributes	Type	Description
overallHealthStateKey	String	Highest severity key. This can be one of the following values. • **Healthy** • **Warning** • **Critical**
parent	Object	Information about the parent device
uri	String	Parent URI
uuid	String	Parent UUID
posID	String	Position ID
powerAllocation	Object	Information about power allocation
totalInputPower	Long	Total input power
totalOutputPower	Long	Total output power
powerStatus	String	Power status (translated). This can be one of the following values. • **Off** • **On** • **Standby** • **Unknown**
powerStatusKey	String	Power status key. This can be one of the following values. • **Off** • **On** • **Standby** • **Unknown**
productId	String	Product ID
productName	String	Product name
serialNumber	String	Serial number
slots	Integer	Power-supply primary slot
type	String	Resource type. This value is always "PowerSupplies."
uri	String	Power supply URI
userDescription	String	User description
uuid	String	UUID
vpdID	String	VPD ID
_links	Object	Device URI (see Links)
<message_attributes>	*varies*	Status messages (see Status messages)

The following example is returned if the request is successful.

```
{
   "powerSupplies": [{
      "cmmDisplayName": "Power Supply 1",
      "cmmHealthState": "Unknown",
      "dataHandle": 0,
      "description": "",
      "excludedHealthState": "Normal",
      "firmware": [{
         "build": "0",
         "classifications": [10],
         "date": "",
```

```
            "name": "DETA Firmware",
            "revision": "0",
            "role": "Primary",
            "softwareID": "PSUDETA6500",
            "status": "Active",
            "type": "Firmware",
            "version": "3.50"
        }],
        "FRU": "",
        "fruSerialNumber": "",
        "hardwareRevision": "",
        "healthState": "Normal",
        "healthStateKey": "Normal",
        "inputVoltageIsAC": true,
        "inputVoltageMax": -1,
        "inputVoltageMin": -1,
        "leds": [],
        "machineType": "",
        "manufacturer": "DETA",
        "manufactureDate": "",
        "manufacturerId": "",
        "model": "",
        "name": "Power Supply 1",
        "overallHealthState": "Normal",
        "overallHealthStateKey": "Normal",
        "parent": {
            "uri": "chassis/",
            "uuid": ""
        },
        "partNumber": "SP50L09198",
        "posID": "",
        "powerAllocation": {
            "totalInputPower": 0,
            "totalOutputPower": 750
        },
        "powerState": "Unknown",
        "powerStatus": "Unknown",
        "powerStatusKey": "Unknown"
        "productId": "",
        "productName": "",
        "serialNumber": "D1DG6CG009B",
        "slots": [1],
        "type": "PowerSupply",
        "uri": "powerSupply/",
        "userDescription": "",
        "uuid": "",
        "vpdID": "",
    }],
    "_links": {
        "rel": "self",
        "uri": "/api/v1/data/devices/C7199530FEDE4FE09540DFC3D75FC56C/powerSupplies"
    }
}
```

/api/v1/data/devices/<id>/storage

Use this REST API to storage information for a specific device.

HTTP methods

GET

GET /api/v1/data/devices/*<id>*/storage

Use this method to storage information for a specific device.

Authentication

Authentication with user name and password is required.

Resource URI

GET `https://<orchestrator_server_IP>/api/v1/data/devices/<id>/storage`

where *<id>* is the ID of the device. To obtain the device IDs, use GET /api/v1/data/devices .

Query parameters

None

Request body

None

Response codes

Code	Description	Comments
200	OK	The request completed successfully.
404	Not found	A specified resource cannot be found. A descriptive error message is returned in the response body.

Response body

Attributes	Type	Description
bay	String	Bay or slot number
blockSize	Integer	Block size
capacity	Integer	(M.2 drives only) Storage capacity, in KB
description	String	Description
diskState	String	Disk-drive state
FRU	String	FRU
healthState	String	Health summary that corresponds to the highest event severity of all disk drives in the device. This can be one of the following values. • **Normal** • **Non-Critical** • **Warning** • **Minor-Failure** • **Major-Failure** • **Non-Recoverable** • **Critical** • **Unknown**
interfaceType	String	Interface type
largestAvailableSize	Integer	
m2Location	String	(M.2 drives only) Location of M.2 drive and bay
manufacturer	String	Manufacturer

Attributes	Type	Description
mediaType	String	Media type
model	String	Model
name	String	Drive name
numberOfBlocks	Integer	Number of blocks
partNumber	String	Part number
remainingLife	Integer	Indicate the amount of life that remains for a solid-state drive (SSD). This can be one of the following values. • **0 - 100**. The percent of remaining life • **-1**. Unknown (default) • **-2**. Information is not available • **-3**. The drive is not an SSD
serialNumber	String	Serial number
temperature	Integer	Device temperature
uuid	String	Storage device UUID
_links	Object	Device URI (see Links)
<message_attributes>	*varies*	Status messages (see Status messages)

The following example is returned if the request is successful.

```
[{
    "bay": 0,
    "blockSize": 512,
    "capacity": 900185481000,
    "description": "",
    "diskState": "JBOD",
    "FRU": "",
    "healthState": "Normal",
    "interfaceType": "SAS",
    "largestAvailableSize": 512,
    "m2Location": "",
    "manufacturer": "",
    "mediaType": "Rotational",
    "model": "",
    "name": "Disk 0_a",
    "partNumber": "",
    "remainingLife": 100,
    "numberOfBlocks": 1758174768,
    "serialNumber": "",
    "temperature": 29,
    "uuid": "",
    "_links": {
        "rel": "self",
        "uri": "/api/v1/data/devices/C7199530FEDE4FE09540DFC3D75FC56C/storage"
    }
}]
```

/api/v1/data/devices/*<id>*/systemBoard

Use this REST API to retrieve system-board information for a specific device.

HTTP methods

GET

GET /api/v1/data/devices/*<id>*/systemBoard

Use this method to retrieve system-board information for a specific device.

Authentication

Authentication with user name and password is required.

Resource URI

GET `https://<orchestrator_server_IP>/api/v1/data/devices/<id>/systemBoard`

where *<id>* is the ID of the device. To obtain the device IDs, use GET /api/v1/data/devices .

Query parameters

None

Request body

None

Response codes

Code	Description	Comments
200	OK	The request completed successfully.
404	Not found	A specified resource cannot be found. A descriptive error message is returned in the response body.

Response body

Attributes	Type	Description
machineType	String	Device machine type
model	String	Device model
productName	String	Device product name
serialNumber	String	Device serial number
uuid	String	Device UUID
_links	Object	Device URI (see Links)
<message_attributes>	*varies*	Status messages (see Status messages)

The following example is returned if the request is successful.

```
{
    "machineType": "8737",
    "model": "AC1",
    "productName": "Flex System x240 Compute Node with embedded 10Gb Virtual Fabric",
    "serialNumber": "00008X7162",
    "uuid": "8E9768E2A8143660A24E01542802FEE7",
    "_links": {
        "rel": "self",
        "uri": "/api/v1/data/devices/C7199530FEDE4FE09540DFC3D75FC56C/systemBoard"
    }
```

```
}
```

/api/v1/data/deviceStatus

Use this REST API to retrieve status information for a specific device.

HTTP methods

GET

GET /api/v1/data/deviceStatus?deviceID=<id>

Use this method to retrieve status information for a specific device.

Authentication

Authentication with user name and password is required.

Resource URI

GET `https://<orchestrator_server_IP>/api/v1/data/deviceStatus?deviceID=<id>`

Query parameters

Parameters	Re-quired / Optional	Description
deviceID=<id>	Required	Returns status for a device, specified by the ID To obtain the device IDs, use GET /api/v1/data/devices

The following example returns status information for a specific device.
```
GET https://192.0.2.0/api/v1/data/deviceStatus?deviceID=
3015DE7E2B6011E881940A94EF5F5B65-C7199530FEDE4FE09540DFC3D75FC56C
```

Request body

None

Response codes

Code	Description	Comments
200	OK	The request completed successfully. If a query parameter is specified and the value of that parameter has no matches, the response body returns default values.
400	Bad Request	A query parameter or request attribute is missing or not valid, or the operation is not supported. A descriptive error message is returned in the response body.
404	Not found	A specified resource cannot be found. A descriptive error message is returned in the response body.

Response body

Attributes	Type	Description
criticalAlerts	Integer	Number of critical alerts
faultLedStatus	String	Number of informational alerts

Attributes	Type	Description
identityLedStatus	String	Fault LED status. This can be one of the following values. • **Off**. The LED is off. • **On**. The LED is on.
informationalAlerts	Integer	Identity LED status. This can be one of the following values. • **Off**. The LED is off. • **On**. The LED is on.
powerStatus	String	Power status. This can be one of the following values. • **Off** • **On** • **Standby** • **Unknown**
warningAlerts	Integer	Number of warning alerts
_links	Object	Device URI (see Links)
<message_attributes>	*varies*	Status messages (see Status messages)

The following example is returned if the request is successful.

```
{
    "criticalAlerts": 0,
    "faultLedStatus": "Off",
    "identityLedStatus": "Off",
    "informationalAlerts": 0,
    "powerStatus": "Off",
    "warningAlerts": 1,
    "_links": {
        "rel": "self",
        "uri": "/api/v1/data/devices/C7199530FEDE4FE09540DFC3D75FC56C"
    }
}
```

Index