QSAN Official Document

RESTful API

Software Manual

March 2023

ANNOUNCEMENT

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Announcement
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PREFACE

About This Manual

This manual provides technical guidance for designing and implementing QSAN storage system, and it is intended for use by system administrators, storage designers, storage consultants, or anyone who has purchased these products and is familiar with servers and computer networks, network administration, storage system installation and configuration, storage area network management, and relevant protocols.

Related Documents

There are related documents which can be downloaded from the website.

- QIG (Quick Installation Guide)
- Hardware Manual
- Software Manual
- Compatibility Matrix
- White Papers
- Application Notes

Technical Support

Do you have any questions or need help trouble-shooting a problem? Please contact QSAN Support, we will reply to you as soon as possible.

- Via the Web: https://www.qsan.com/technical_support
- Via Telephone: +886-2-77206355
- (Service hours: 09:30 - 18:00, Monday - Friday, UTC+8)
- Via Skype Chat, Skype ID: qsan.support

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- (Service hours: 09:30 - 02:00, Monday - Friday, UTC+8, Summer time: 09:30 - 01:00)
- Via Email: support@qsan.com

Information, Tip, and Caution

This manual uses the following symbols to draw attention to important safety and operational information.



INFORMATION

INFORMATION provides useful knowledge, definition, or terminology for reference.



TIP

TIP provides helpful suggestions for performing tasks more effectively.



CAUTION

CAUTION indicates that failure to take a specified action could result in damage to the system.

Conventions

The following table describes the typographic conventions used in this manual.

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CONVENTIONS	DESCRIPTION
Bold	Indicates text on a window, other than the window title, including menus, menu options, buttons, fields, and labels. Example: Click the **OK** button.
<Italic>	Indicates a variable, which is a placeholder for actual text provided by the user or system. Example: copy *<source-file> <target-file>*.
[ ] square brackets	Indicates optional values. Example: [a | b] indicates that you can choose a, b, or nothing.
{ } braces	Indicates required or expected values. Example: { a | b } indicates that you must choose either a or b.
| vertical bar	Indicates that you have a choice between two or more options or arguments.
/ Slash	Indicates all options or arguments.
underline	Indicates the default value. Example: [a | b]

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1. RESTful API Overview

QSAN meets the trend of the times and supports the RESTful API which is becoming the most popular API design specification.

1.1. What is RESTful API

A RESTful API is based on REST (REpresentational State Transfer) technology, an architectural style and approach to communications often used in web services development. A RESTful API is an API (Application Program Interface) that uses HTTP requests to GET, POST, PUT, and DELETE data.

RESTful API design is designed to take advantage of existing protocols. It usually takes advantage of HTTP when used for Web APIs. This means that developers do not need to install libraries or additional software in order to take advantage of a REST API design. REST API is notable for its incredible layer of flexibility and leverages less bandwidth, making it more suitable for internet usage. Since data is not tied to methods and resources, REST can handle multiple types of calls, return different data formats and even change structurally with the correct implementation of hypermedia.

1.2. How RESTful API Work

A RESTful API breaks down a transaction to create a series of small modules. Each module addresses a particular underlying part of the transaction. This modularity provides developers with a lot of flexibility, but it can be challenging for developers to design from scratch.

A RESTful API explicitly takes advantage of HTTP methodologies. They use GET to retrieve a resource; PUT to change the state of or update a resource, which can be an object, file or block; POST to create that resource; and DELETE to remove it.

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2. GETTING STARTED

There are some useful API tools to test before developing an application using the RESTful API. API testing is a software testing type which focuses on the determination if the developed APIs meet expectations regarding the functionality, reliability, performance, and security of the application. The following provides some API testing tools that testing teams can select to suit your needs.

Postman

Website: https://www.getpostman.com/

Postman is an easy-to-use REST client and rich interface which makes it easy to use.

SoapUI

Website: https://www.soapui.org/

SoapUI is a headless functional testing tool dedicated to API testing, allowing users to test REST and SOAP APIs and Web Services easily.

Katalon Studio

Website: https://www.katalon.com

Katalon Studio is a free test automation tool for API, Web and Mobile applications.

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3. RESTful API Sets

This chapter is to help you find an API by name. Each API topic includes one or more of the following sections:

Description The API purpose and note about usage

Path The API command path

Request Body The request body of the API

Response The response of the API

The usage of each API is described in the following.

3.1. HTTP Status Code

Http status will change according to the state of RESTful API. Please refer to the following instructions.

Reference

https://developer.mozilla.org/en-US/docs/Web/HTTP/Status

Successful Responses

- 200 OK
- 201 Created
- 202 Accepted
- 204 No Content
- 205 Reset Content

Client Error Responses

- 400 Bad Request (e.g.: parameter error)
- 401 Unauthorized (e.g.: no access token entered, token expired, token invalid)
- 403 Forbidden (e.g.: user is not authorized to perform the operation)

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- 404 Not Found (e.g.: no such API)
- 408 Request Timeout

Server Error Responses

- 500 Internal Server Error
- 501 Not Implement
- 502 Bad Gateway
- 503 Service Unavailable

3.1.1. Error

When the RESTful API returns an error, return http status code (e.g. 404, 500) according to the error type. The format of Error Response is as follows.

```
{
        "error": {
                "message": "Invalid argument.",       // error message
                "code": 15341                         // Customize error code
        }
}
```

3.2. Authentication

To access a resource using RESTful API, you must provide an access token in the request header, for example:

Header

Authorization: $accessToken

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The access token is obtained through the '/auth/get' API. The token will expire after 60 minutes of the expiration. After the expiration, please re-use the API to obtain a new access token, or use the offline access mode to update the access token.

Offline Access

After starting the offline access with the '/auth/get' API and the parameter offline access: true, the API will provide a set of refresh tokens to request new access tokens. The offline access mode is provided for long-term resource access by the user. The refresh token will have a longer effective time than the access token. However, the refresh token will still be forced to fail under the following conditions.

1. The user manually removes the token
2. User change password
3. Refresh token exceeds its lifetime (180 days) Refresh token
4. Exceeding the user limit (10 per user), after the limit is exceeded, the oldest refresh token starts to rotate

3.2.1. Auth: Get

Description

Get access token by user name and password.

Path

POST http://*{deviceip}*/auth/get

Request Body

```
{
        "user": "admin",
        "password": "1234",
        "offlineAccess": true
}
```


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Table 3-1 Auth: Get Request Body Description

PROPERTY NAME	VALUE	DESCRIPTION
user	string	User's name
password	string	User’s password
offlineAccess	boolean	Enable offline access or not. If true, refresh key will be provided in response for accessToken refresh.

Response

```
{
        "accessToken": "FCBF8A5F-E86E-4369-90CE-684BDF269E97",
        "expireTime": 1564651542,
        "refreshToken": "3092F94A-9EB1-4535-80A7-EF3AB87F708F"
}
```

Table 3-2 Auth: Get Response Description

PROPERTY NAME	VALUE	DESCRIPTION
accessToken	string	A unique token used to access other API.
expireTime	int	An unix timestamp to show which time the access token expired.
refreshToken	string	A unique token used to get a new access token. Only provided when offlineAccess is true.

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3.2.2. Auth: Refresh

Description

Get new access token by your refresh token if you requested the offlineAccess.

Path

POST http://*{deviceip}*/auth/refresh

Request Body

```
{
        "refreshToken": "3092F94A-9EB1-4535-80A7-EF3AB87F708F"
}
```

Table 3-3 Auth: Refresh Request Body Description

PROPERTY NAME	VALUE	DESCRIPTION
refreshToken	string	Refresh token you get from previous operation.

Response

```
{
        "accessToken": "F521637B-E702-462D-95EC-04AA9C0630ED",
        "expireTime": 1564651542
}
```


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Table 3-4 Auth: Refresh Response Description

PROPERTY NAME	VALUE	DESCRIPTION
accessToken	string	A unique token used to access other API.
expireTime	int	An unix timestamp to show which time the access token expired.

3.2.3. Auth: Revoke

Description

Clear your authentication.

Path

POST http://*{deviceip}*/auth/revoke

Request Body

```
{
        "refreshToken": "3092F94A-9EB1-4535-80A7-EF3AB87F708F"
}
```

Table 3-5 Auth: Revoke Body Description

PROPERTY NAME	VALUE	DESCRIPTION
refreshToken	string	Refresh token you get from previous operation.

Response

None.

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3.3. Storage

3.3.1. Storage: Pool List

Description

Get pool information list in the device.

Path

GET http://{*deviceip*}/rest/v1/storage/pool/list

Parameters

None.

Response


```
{
        "pools": [
                {
                        "name": "Pool_12345",
                        "id": "12053495323456430498",
                        "totalSize": 10240,
                        "usedSize": 5120,
                        "isThin": false,
                        "isSED": false,
                        "poolEncrypt": "disable",
                        "health": "good",
                        "status": "ONLINE",
                        "ctrlID": "CTR 1",
                        "isCacheEnable": true,
                        "cacheInfo": {
                                "readCache": true,
```


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```
                        "readCapacity": 0,
                        "writeCache": true,
                        "writeCapacity": 0,
                        "readWriteCache": true,
                        "readWriteCapacity": 0
                },
                "raidsets": [
                        {
                                "id": "0",
                                "totalSize": 1906688,
                                "usedSize": 1024,
                                "raidLevel": "RAID 1",
                                "eeSpareNum": 0,
                                "spare": [],
                                "status": "ONLINE",
                                "health": "good",
                                "disks": [
                                        "e0d3",
                                        "e0d4"
                                ]
                        }
                ],
                "autoTier": true,
                "performance": {
                        "throughput_read": 0,
                        "throughput_write": 0,
                        "throughput": 0,
                        "iops_read": 0,
                        "iops_write": 0,
                        "iops": 0
                }
        }
    ]
}
```


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Table 3-6 Storage: Pool List Response Description

PROPERTY NAME	VALUE	DESCRIPTION
pools		
name	string	The name of the pool set at the time of creating
id	string	Pool unique identifier
totalSize	int	Total space (unit: MB)
usedSize	int	Total used space (unit: MB)
isThin	boolean	Whether to enable the thin provisioning function
isSED	boolean	Is it an SED pool?
health	string	Pool health status
status	string	Pool status
ctrlID	string	Which controller is currently (e.g.: CTR 1) Only for FAS and SAN
isCacheEnable	boolean	Whether to enable SSD cache
cacheInfo	object	Refer to the cacheInfo below, not displayed if the pool has no cache
raidSets	object array	Array with raidsets info, refer to the raidsets below
autoTier	boolean	Whether to enable the auto tiering function
pools -> cacheInfo		
readCache	boolean	Whether to enable read cache

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readCapacity	int	Read cache capacity (unit: MB)
writeCache	boolean	Whether to enable write cache
writeCapacity	int	Write cache capacity (unit: MB)
readWriteCache	boolean	Whether to enable read-write cache
readWriteCapacity	int	Read-write cache capacity (unit: MB)
pools -> raidsets		
id	string	Disk group identification code
totalSize	integer	Total space (unit: MB) NAS is always 0
usedSize	integer	Used space (unit: MB) NAS is always 0
raidLevel	string	Used RAID type
eeSpareNum	integer	Raid EE spare amount NAS is always 0
spare	string array	Dedicated spare id Only for NAS
status	string	Disk group status
health	string	Disk group health status
disks	string array	Disk id array
pools -> performance (only for NAS)		
throughput	int	Current pool throughput (unit: KB)

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Throughput_read	int	Current pool throughput read (unit: KB)
Throughput_write	int	Current pool throughput write (unit: KB)
iops	int	Current pool IOPS (unit: IO times per second)
Iops_read	int	Current pool IOPS Read (unit: IO times per second)
Iops_write	int	Current pool IOPS Write (unit: IO times per second)

3.3.2. Storage: Pool Delete

Description

Delete pool from the device.

Path

GET http://*{deviceip}*/rest/v1/storage/pool/*{poolid}*

Parameters

None.

Response

None.

3.3.3. Storage: Disk List

Description

Get disk information list in the device.

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Path

GET http://{*deviceip*}/rest/v1/storage/disk/list

Parameters

None.

Response


```
[
        {
                "id": "e0d0",
                "slot": 5,
                "encId":  "0",
                "encName": "Local host",
                "size": 1024000,
                "status": "Online",
                "health": "Good",
                "usage": "RAID",
                "isSSD": true,
                "isSED": false,
                "poolName": "Pool_12345",
                "poolID": "2976963663",
                "vendor": "WDC",
                "serial": "9AA6AAAA00001234CA9C",
                "model": "SB32555111AA",
                "firmware": "0009",
                "busType": "SATA",
                "type": "HDD",
                "rate": 6.0,
                "writeCache":  true,
                "spinRate": 32,
                "standby":  true,
                "readahead":  true,
```


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```
                "cmdQueue":  true,
                "ssdLifeRemain": 0,
                "totalWrittenByte": 0,
                "temperature": 38,
                "performance": {
                        "throughput_read": 0,
                        "throughput_write": 584,
                        "throughput": 584,
                        "iops_read": 0,
                        "iops_write": 35,
                        "iops": 35,
                        "latency_read": 0,
                        "latency_write": 1,
                        "latency": 1
                }
        }
}
```


Table 3-7 Storage: Disk List Response Description

PROPERTY NAME	VALUE	DESCRIPTION
disks		
id	string	String and int are accepted
slot	int	The hard disk is in the slot on the host
encId	string	Enclosure id
encName	string	Enclosure name Only for NAS
size	int	Disk total capacity (unit: MB)
status	string	Disk status

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health	string	Disk health
usage	string	Disk usage ▪ [Free | RAID | %s SPARE | SSD Cache]
isSSD	boolean	Whether it is an SSD
isSED	boolean	Whether to support SED function
poolName	string	The name of the pool being used, if it is not owned, it is empty
poolID	string	The unique identifier of the pool used, if it is not owned, it is empty
vendor	string	Disk manufacturer
serial	string	Disk serial number
model	string	Disk model
firmware	string	Firmware version
bustype	string	Front side bus interface ▪ [SATA | SAS | PCIE | NL-SAS]
type	string	Disk type ▪ [HDD | SSD | NVMe]
rate	int	Disk transfer rate (unit: Gbps)
writeCache	boolean	Whether to enable the write cache function
spinRate	int	Disk spin rate, SSD is always 0
standby	boolean	Whether to enable the standby function
readahead	boolean	Whether to enable the read-ahead function
cmdQueue	boolean	Whether to enable the command queuing function

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ssdLifeRemain	int	Percentage used endurance indicator or 0 (no data) NAS is always 0
totalWrittenByte	long long	Total bytes written or 0 (no data) NAS is always 0
temperature	int	Temperature or 0 (no data)
performance	object	NAS not supported
disks -> performance		
throughput	int	Current disk throughput (unit: KB)
throughput_read	int	Current disk throughput of read (unit: KB) Only for NAS
throughput_write	int	Current disk throughput of write (unit: KB) Only for NAS
iops	int	Input / Output Per Second
Iops_read	int	Read IOPS
Iops_write	int	Write IOPS
latency	int	Current disk response time (unit: millisecond)
Latency_read	int	Current disk response time of read (unit: millisecond) Only for NAS
Latency_write	int	Current disk response time of write (unit: millisecond) Only for NAS

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3.3.4. Storage: Volume List

Description

Get volume information list in the device.

Path

GET http:///*{deviceip}*/rest/v1/storage/volume/list

Parameters

None.

Response


```
{
        "volumes": [
                {
                        "id": "15216921968880455680",
                        "name": "volume_name",
                        "status": "ONLINE",
                        "health": "good",
                        "provision": "Thick",
                        "type": "Generic",
                        "poolID": "6198362716431415521",
                        "totalSize": 434176,
                        "usedSize": 1024,
                        "compression": "disable",
                        "stripeSize": 0,
                        "cacheMode": "none",
                        "priority": "none",
                        "bgPriority": "none",
                        "videoEditingMode": false,
                        "tierPolicy": "none",
                        "isQosEnable": true,
```


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```
                        "isLunMap": true,
                        "qosInfo": {
                                "method": "maximum",
                                "setting": {
                                        "priority": "Middle",
                                        "targetResponseTime": 0,
                                        "maxIOPS": 0,
                                        "maxThroughput": 0
                                }
                        },
                        "lunInfo": {
                                "iscsi": [
                                        {
                                                "host": "iqn.2004-
08.com.qsan:xn8004t-000ff15f0:target1",
                                                "targetID": "1",
                                                "targetName": "ttt",
                                                "lun": "0",
                                                "naaID": 1012849324",
                                                "permission": "Read-write"
                                        }
                                ],
                                "fc": []
                        },
                        "shareFolder": [
                                {
                                        "name": "share_folder_name",
                                        "location": "volume_name",
                                        "totalSize": "512G",
                                        "usedSize": "988K",
                                        "worm": "none"
                                }
                        ],
                        "performance": {
```


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```
                                "throughput": 1868,
                                "throughput_read": 1000,
                                "throughput_write": 868,
                                "latency": 0,
                                "iops": 29
                            }
                        }
                ]
}
```


Table 3-8 Storage: Volume List Response Description

PROPERTY NAME	VALUE	DESCRIPTION
	volumes	
id	string	Volume unique identifier
name	string	Volume name set at build time
status	string	Volume status
health	string	Volume health
provision	string	Volume Provision
type	string	SAN and FAS: [RAID | BACKUP | READ_ONLY] NAS: [Generic | Media streaming | Database]
poolID	string	Pool unique identifier
totalSize	int	Total space (unit: MB)
usedSize	int	Used space (unit: MB) Only for NAS
compression	string	ZFS Compression

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		▪ [enable | gen_zero | zero_reclaim | disable] Only for NAS
stripeSize	int	Read / Write cmd length (unit: KB) NAS is always 0
cacheMode	string	Cache Mode NAS is always "none"
priority	string	I/O priority ▪ [High | Medium | Low] NAS is always "none"
bgPriority	string	Background I/O priority ▪ [High | Medium | Low] NAS is always "none"
videoEditingMode	boolean	Video edit switch NAS is always "false"
tierPolicy	string	Auto tiering method FAS is hidden NAS is always "none"
isQosEnable	boolean	QoS function switch NAS is always "false"
isLunMap	boolean	Is it a LUN map
qosInfo	object	Only show when isQosEnable true Only for SAN and FAS
lunInfo	object array	Only show when isLunMap true Only for SAN and FAS

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volumes -> qosinfo		
method	string	QoS method ▪ [priority | maximum]
setting	object	QoS settings
volumes -> qosinfo -> qos setting		
priority	string	Only for method is priority [High | Medium | Low]
targetResponseTime	int	Only for method is priority (unit: MB), 0 = unlimited
maxIOPS	int	Only for method = maximum, 0 = unlimited
maxThroughput	int	Only for method = maximum (unit: KBps), 0 = unlimited
volumes -> luninfo		
iscsi	object array	ISCSI LUN info
fc	object array	Fiber channel LUN info
volumes -> luninfo -> iscsi		
host	string	Allow host name
targetID	string	LUN mapping target id
targetName	string	LUN mapping target name Only for NAS
lun	string	LUN ID
naaID	string	naa ID

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		Only for NAS
permission	string	Permission status
volumes -> sharefolder		
name	string	Share folder name Only for NAS
location	string	The volume which share folder is Only for NAS
totalSize	int	Share folder total space (unit: MB) Only for NAS
usedSize	int	Share folder used space (unit: MB) Only for NAS
worm	string	Worm protecting days Only for NAS
volumes -> performance		
throughput	int	Current volume throughput (unit: KB) Only for SAN and FAS
throughput_read	int	Current volume throughput read (unit: KB) Only for SAN and FAS
throughput_write	int	Current volume throughput write (unit: KB) Only for SAN and FAS
latency	int	Current volume response time (unit: millisecond) Only for SAN and FAS
iops	int	Current volume IOPS (unit: IO times per second) Only for SAN and FAS

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3.4. Hardware

3.4.1. Hardware: Info

Description

Get current device hardware enclosure information.

Path

GET http://*{deviceip}*/rest/v1/hardware/info

Parameters

None.

Response

```
{
        "enclosureNumbers": [
                0,
                1,
                3
        ]
}
```


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Table 3-9 Hardware: Info Parameter Description

PROPERTY NAME	VALUE	DESCRIPTION
enclosureNumbers	int array	Enclosure number of online device

3.4.2. Hardware: Enclosure Info

Description

Get current device hardware information.

Path

GET http://*{deviceip}*/rest/v1/hardware/all/info

GET http://*{deviceip}*/rest/v1/hardware/*{enc id}*/info

Table 3-10 Hardware: Enclosure Info Parameter Description

PROPERTY NAME	VALUE	DESCRIPTION
{enc_id}	int	Enclosure ID of the device

Parameters

```
{
        "moreInfo": true
}
```


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Table 3-11 Hardware: Enclosure Info Parameter Description

PROPERTY NAME	VALUE	DESCRIPTION
moreInfo	boolean	Whether to view hardware information Default: false

Response


```
[
        {
                "encId": 0,
                "info": {
                        "sysHealth": "Good",
                        "cpuInfo": "Intel® Celeron® CPU 1.10GHz Quad-Core
Processor",
                        "cpuUsage": 50.2,
                        "memoryInfo": [
                                "Samsung 32768MB",
                                "",
                                "",
                                ""
                        ],
                        "memTotal": 8192,
                        "memUsed": 3156,
                        "masterController": 0,
                        "controllerNum": 1,
                        "backplaneID": "QW316",
                        "backplaneSerialNumber": "0013781xxxxxx",
                        "mcuVersion": "1.2.1",
                        "systemUptime": 680775,
                        "serialNumber": "001378xxxxxx",
                        "modelName": "XN8008R",
                        "moreInfo": {
```


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```
                "voltage": [
                        {
                                "name": "Onboard +3.3V",
                                "value": 3,
                                "status": "Good"
                        }
                ],
                "cacheToFlash": [
                        {
                                "name": "Power Module
Status",
                                "value": "absent",
                                "status": "Good"

                        }
                ],
                "temperature": [
                        {
                                "name": "CPU",
                                "value": 61,
                                "status": "Good"
                        },
                ],
                "fanSpeed": [
                        {
                                "name": "FAN1",
                                "value": "1225",
                                "status": "Good"
                        }
                ],
                "psuStatus": [
                        {
                                "name": "1",
                                "status": "Good"
```


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```
                                                    }
                                                ]
                                            }
                                        }
                                    }
}
```


Table 3-12 Hardware: Enclosure Info Response Description

PROPERTY NAME	VALUE	DESCRIPTION
enclosure info		
encId	int	Encolsure ID
info	object array	For the hardware information of the selected chassis, see the table below
enclosure info -> info (local)		
sysHealth	string	System health, e.g.: Good, abnormal, failed
cpuInfo	string	CPU model
cpuUsage	float	CPU usage (unit : %)
memoryInfo	string array	Memory Information, a total of four data, corresponding to four memory slots
memTotal	int	Memory total space (unit: MB)
memUsed	int	Memory used space (unit: MB)
controllerNum	int	Quantity of Controller
backplaneID	string	Backplane ID (Unique Identifier)
backplaneSerialNumbe	string	Backplane serial number

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mcuVersion	string	MCU version
systemUptime	int	Total time of boot system (unit: second)
modelName	string	Model name
serialNumber	string	Serial number
moreInfo	object	For more details, please see the table **moreInfo** below
enclosure info -> info (expansion / JBOD)		
serialNumber	string	Serial number
backplaneID	string	Backplane ID (Unique Identifier)
modelName	string	Model name
wwn	string	World Wide Name
vendor	string	Disk manufacturer
moreInfo	object	For more details, please see the table **moreInfo** below
enclosure info -> info -> moreInfo		
voltage	object array	Voltage information
cacheToFlash	object array	Cache to flash information Only local for SAN and FAS
temperature	object array	Temperature information
fanSpeed	object array	Fan information

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psuStatus	object array	PSU status
enclosure info -> info -> moreInfo -> voltage / temperature / fanSpeed		
name	string	Element name
value	int	voltage (unit: V) temperature (unit: °C) fanSpeed (unit: rpm)
status	string	Element Status, e.g.: Good, Warning, Failed
enclosure info -> info -> moreInfo -> cacheToFlash / psuStatus		
name	string	Element name
status	string	Element status

3.4.3. Hardware: Get Ident LED State

Description

Get Ident LED state.

Path

GET http:///*{deviceip}*/rest/v1/hardware/identLed

Parameters

None.

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Response

```
{
        "ledState": "Off"
}
```

Table 3-13 Get Ident LED State Response Description

PROPERTY NAME	VALUE	DESCRIPTION
ledState	string	Returns the current status of the light ▪ [On | Off]

3.4.4. Hardware: Set Ident LED

Description

Change Ident LED state, turn on or turn off.

Path

PATCH http:///*{deviceip}*/rest/v1/hardware/identLed

Parameters

```
{
        "state": 0
}
```


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Table 3-14 Set Ident LED Parameter Description

PROPERTY NAME	VALUE	DESCRIPTION
state	string	Switch light ▪ Light on: 1 ▪ Light off: 0

Response

```
{
        "ledState": "Off"
}
```

Table 3-15 Set Ident LED State Response Description

PROPERTY NAME	VALUE	DESCRIPTION
ledState	string	Returns the current status of the light ▪ [On | Off]

3.5. Network

3.5.1. Interface

Description

Get device network interface information.

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Path

GET http://*{deviceip}*/rest/v1/interface

Parameters

None.

Response


```
{
        "management": {
                "isDualPort": true,
                "addresses": [
                        {
                                "address": "192.168.1.101"
                        }
                ]
        },
        "netwrok": [
                {
                        "ctrlID": 0,
                        "portals": [
                                {
                                        "id": "0",
                                        "name": "LAN1",
                                        "isLinkAgg": true,
                                        "mtu": 4000,
                                        "mac": "00:13:78:xx:xx:xx",
                                        "status": "10 Gb/s",
                                        "vlanID": "N/A",
                                        "speed": 10,
                                        "location": "Onboard",
                                        "protocal": "STATIC",
                                        "ipV4": {
```


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```
                                        "ip": "192.168.1.1",
                                        "netmask": "255.255.255.0",
                                        "gateway": "192.168.1.254"
                                },
                                "isDefaultGateway": false,
                                "linkAggInfo": {
                                        "id": "0",
                                        "type": "Trunking"
                                },
                                "performance": {
                                        "tx_rate": 0,
                                        "rx_rate": 0
                                }
                        }
                ]
        }
]
}
```


Table 3-16 Interface Response Description

PROPERTY NAME	VALUE	DESCRIPTION
interface		
management	object array	Provide information to access to the UI
network	object array	Provide IP information for data port
interface -> management		
isDualPort	boolean	Whether to enable the dual management port function

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addresses	object array	IP information
interface -> management -> addresses		
address	string	IP Address
interface -> network		
ctrlID	int	Current controller ID
portals	object array	Portal informaion
interface -> network -> portals		
id	string	iSCSI port index
name	string	iSCSI port name
isLinkAgg	boolean	Is link aggregation active
linkAggInfo	object	Only show when isLinkAgg true
mtu	int	Maximum Transmission Unit [0 | *{frame size}*]
mac	string	MAC Address
status	string	Link status, e.g.: Down, 1 Gb/s
vlanID	string	N/A or vlanID
speed	integer	Network speed (unit: MB)
location	string	Port location, e.g.: Onboard, slot 1 Only for SAN and FAS
protocol	string	Communications protocol, e.g.: DHCP, BOOTP, or

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		STATIC
ipV4	object	IP version 4
isDefaultGateway	boolean	Whether to set the default gateway
interface -> network -> portals -> ipV4		
ip	string	IP format
netmask	string	Subnet Mask
gateway	string	Gateway
interface -> network -> portals -> linkAggInfo		
id	string	Link Aggregation ID
type	int	Link Aggregation type, e.g.: No, Trunking , LACP
interface -> network -> portals -> performance		
tx_rate	int	Transmission rate (unit: MBps)
rx_rate	int	Receive rate (unit: MBps)

3.5.2. ISCSI: Target List

Description

Get device iSCSI information.

Path

GET http:///*{deviceip}*/rest/v1/iscsi/target/list

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Parameters

None.

Response


```
{
        "iscsi": [
                {
                        "ctrlID": 0,
                        "port": "3260",
                        "targets": [
                                {
                                        "id": "0",
                                        "name": "iqn.2004-
08.com.qsan:xs5216-000xxxxxx:dev0.ctr1",
                                        "auth": "CHAP",
                                        "alias": "tgt1",
                                        "portals": [
                                                [
                                                        "eth0",
                                                        "eth1"
                                                ]
                                        ],
                                        "freeLuns": [
                                                0,
                                                1,
                                                2,
                                                3
                                        ]
                                }
                        ]
                },
                {
                        "ctrlID": 1,
```


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```
                        "port": "3260",
                        "targets": [
                                {
                                        "id": "0",
                                        "name": "iqn.2004-
08.com.qsan:xs5216-000xxxxxx:dev0.ctr2",
                                        "auth": "CHAP",
                                        "alias": "tgt2",
                                        "portals": [
                                                [
                                                        "eth0",
                                                        "eth1"
                                                ]
                                        ],
                                        "freeLuns": [
                                                0,
                                                1,
                                                2,
                                                3
                                        ]
                                }
                        ]
                }
        ]
}
```


Table 3-17 iSCSI: Target List Response Description

PROPERTY NAME	VALUE	DESCRIPTION
iscsi target list		
iscsi	object	ISCSI target and LUN info
iscsi target list -> iscsi		

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ctrlID	int	Current controller ID
port	string	iSCSI service port
targets	object array	iSCSI targets
iscsi target list -> iscsi -> targets		
id	string	Target ID
name	string	Target name
auth	string	Authentication type ▪ [CHAP | None]
alias	string	Alias name
portals	string array	Enable portal ID
freeLuns	int array	LUN ID

3.5.3. ISCSI: Session List

Description

Get device iSCSI session information.

Path

GET http://*{deviceip}*/rest/v1/iscsi/session/list

Parameters

None.

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Response


```
{
        "ctrlID": 0,
        "sessions": []
}
```


Table 3-18 iSCSI: Session List Response Description

PROPERTY NAME	VALUE	DESCRIPTION
iscsi session list		
status	object array	iSCSI connection status
ctrlID	int	Current controller ID
sessions	object array	iSCSI sessions
iscsi session list -> sessions		
id	string	Session ID Only for SAN and FAS
TSIH	string	TSIH (Target Session Identifying Handle) is used for this active session. Only for SAN and FAS
initiatorName	string	iSCSI initiator name
targetID	string	iSCSI Target ID Only for SAN and FAS
targetName	string	iSCSI target name
initialR2T	boolean	initialR2T (Initial Ready to Transfer) is used to turn off

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		either the use of a unidirectional R2T command or the output part of a bidirectional command. The default value is true. Only for SAN and FAS
immedData	boolean	immedData (Immediate Data) sets the support for immediate data between the initiator and the target. Both must be set to the same setting. The default value is true. Only for SAN and FAS
maxOutR2T	string	maxOutR2T (Maximum Data Outstanding Ready to Transfer) determines the maximum number of outstanding ready to transfer per task. The default value is 1. Only for SAN and FAS
maxDataBurstLen	int	maxDataBurstLen (Maximum Data Burst Length) determines the maximum SCSI data payload. The default value is 256kb. Only for SAN and FAS
dataSeqInOrder	boolean	dataSeqInOrder (Data Sequence in Order) determines if the PDU (Protocol Data Units) are transferred in continuously non-decreasing sequence offsets. The default value is true. Only for SAN and FAS
dataPDUInOrder	boolean	dataPDUInOrder (Data PDU in Order) determines if the data PDUs within sequences are to be in order and overlays forbidden. The Host Configuration 109 default value is true. Only for SAN and FAS
clientIP	string	Client IP address Only for NAS

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clientPort	int	Client network port Only for NAS
clientName	string	Client host name Only for NAS
loginTime	int	Session creates timestamp Only for NAS

3.6. Others

3.6.1. About

Description

Get basic device information without auth.

Path

POST http://*{deviceip}*/rest/v1/about

Request Body

```
{
        "showOS": true
}
```


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Table 3-19 About Request Body Description

PROPERTY NAME	VALUE	DESCRIPTION
showOS	-	Display storage OS information.

Response


```
{
        "addresses": [
                {
                        "address": "192.168.1.101"
                },
                {
                        "address": "192.168.1.102",
                        "online": true
                },
                {
                        "address": "192.168.1.103",
                        "online": true
                }
        ],
        "systemName": "XCubeNAS-xxxxxx",
        "firmwareVer": "3.1.6",
        "modelName": "XN8008R",
        "modelType": "NXT",
        "serialNumber": "001378D82734",
        "wwn": "5001378000D32F10",
        "os": "XEVO"
}
```


Table 3-20 About Response Description

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PROPERTY NAME	VALUE	DESCRIPTION
addresses	object array	Address information of this device (not include 169.254.x.x)
address	string	Ipv4 address
online	boolean	The ethernet interface is online or offline (not include cluster)
systemName	string	System name
firmwareVer	string	System firmware version
modelName	string	Model name
modelType	string	Model type
serialNumber	string	Serial number
wwn	string	World Wide Name
os	string	Storage OS type ▪ [XEVO | SANOS | QSM]

3.6.2. Task: List

Description

Get device's schedule tasks. Task type is snapshot, clone, replication and cloud. San and fas not support cloud task.

Path

GET http://*{deviceip}*/rest/v1/backup/*{backup type}*/list

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Table 3-21 Task: List Description

PROPERTY NAME	VALUE	DESCRIPTION
{backup type}	string	Task types, each model has the following types: ▪ snapshot (SAN, FAS, and NAS) ▪ clone (SAN and FAS) ▪ replication (SAN、FAS、NAS) ▪ cloud (NAS)

Parameters

None.

Response


```
{
        [
                {
                        "id": "Pool_2/Target1_lun0",
                        "usedSize": 0,
                        "totalSize": 10240,
                        "destination": {
                                "no": 1,
                                "name": "target",
                                "ip": "192.168.1.111"
                        },
                        "schedule": {
                                "minute": [],
                                "hour": [],
                                "day": [],
                                "week": [
                                        1
```


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```
                                    ],
                                    "month": [
                                            1,
                                            2,
                                            3,
                                            4,
                                            5,
                                            6,
                                            7,
                                            8,
                                            9,
                                            10,
                                            11,
                                            12
                                    ],
                                    "startTime": {
                                            "hour": 0,
                                            "minute": 10
                                    },
                                    "stopTime": {
                                            "hour": 12,
                                            "minute": 10
                                    }
                            }
                    }
            ]
}
```


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Table 3-22 Task: List Response Description

PROPERTY NAME	VALUE	DESCRIPTION
tasks		
tasks	array	Return the Tasks of all the specified categories on the machine. Task info refer to the following information
task (snapshot) info		
id	string	This is the basis for setting the task
usedSize	int	Snapshot space used space (Unit: MB)
totalSize	int	Snapshot space total space (Unit: MB)
schedule	array	Schedule Info, refer to the definition below
task (clone) info		
id	string	This is the basis for setting the task
destination	string	Clone destination id
schedule	array	Schedule base on crontab
task (replication) info		
id	string	This is the basis for setting the task
source	string	Remote replication source
status	string	Task current status
shaping	string	Shaping rule group name Only for SAN and FAS
rate	int	Replication rate Only for SAN and FAS

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createTime	string	Task create time
destination	object	Divided into two versions 1. SAN and FAS 2. NAS
schedule	array	schedule base on crontab
task (replication) -> destination info for SAN and FAS		
no	int	Connection number SAN: A path can support up to four connections
sourcePort	string	Source NIC name
ip	String	Address information of this task
targetName	String	Target name
lun	String	LUN ID
status	String	Replication status
task (replication) -> destination info for NAS		
no	int	Task Index
name	string	Destination target volume
ip	string	Address information of this task
task (clone) info for NAS		
id	string	This is the basis for setting the task
provider	string	Cloud space provider
action	string	Task action
source	string	Task source path

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destination	int	Task destination path
schedule	array	Schedule base on crontab
schedule info		
minute	int array	Corresponds to the minute field in the crontab, (0 ~ 59)
hour	int array	Corresponds to the hour field in crontab, (0 ~ 23)
day	int array	Corresponds to the day field in crontab, (1 ~ 31)
month	int array	Corresponds to the month field in crontab, (1 ~ 12)
week	int array	Corresponds to the week field in crontab, (0 ~ 6)
weekOfMouth	int array	Number of weeks in the month Only for SAN
startTime	object	Task start time, to get the task execution time, it must be calculated with crontab Only for NAS
EndTime	object	Task end time Only for NAS

3.6.3. Log: List

Description

Get device logs.

Path

GET http://*{deviceip}*/rest/v1/log/list

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Parameters

```
{
        "startTime": 155273525,
        "type": [
                "access"
        ],
        "pageNumber": 1,
        "pageSize": 500
}
```

Table 3-23 Log: List Parameter Description

PROPERTY NAME	VALUE	DESCRIPTION
startTime	int	It is a timestamp, list all logs after startTime.
type	string array	If this parameter is set, the API will return the log of the specified category, and if it is empty, it will return all. ▪ [all | info | warning | error]
pageNumber	int	Current page to return (Default: 1)
pageSize	int	The maximum number of logs to return per page. (Default: 1,000)

Response

```
{
        "logs": [
                {
                        "type": "info",
                        "timestamp": 155284325,
```


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```
                        "message": "User 'admin' is login."
                    }
            ],
            "total": 1000,
            "haveNextPage": true
}
```


Table 3-24 Log: List Response Description

PROPERTY NAME	VALUE	DESCRIPTION
logs		
logs	array	All logs in this page. Log info refer to the information below
total	string	Total logs after filter
haveNextPage	boolean	Return true if next page exists
log info		
type	string	Type of log (include: access, info, warning, error)
timestamp	int	Timestamp when the log is sent
message	string	log description, English only

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4. SUPPORT AND OTHER RESOURCES

4.1. Getting Technical Support

After installing your device, locate the serial number on the sticker located on the side of the chassis or from the XEVO -> **System** -> **Maintenance** > **System Information** and use it to register your product at https://www.qsan.com/business_partnership. We recommend registering your product in QSAN partner website for firmware updates, document download, and latest news in eDM. To contact QSAN Support, please use the following information.

- Via the Web: https://www.qsan.com/technical_support
- Via Telephone: +886-2-77206355
- (Service hours: 09:30 - 18:00, Monday - Friday, UTC+8)
- Via Skype Chat, Skype ID: qsan.support
- (Service hours: 09:30 - 02:00, Monday - Friday, UTC+8, Summer time: 09:30 - 01:00)
- Via Email: support@qsan.com

Information to Collect

- Product name, model or version, and serial number
- Operating system name and version
- Firmware version
- Error messages or capture screenshots
- Product-specific reports and logs
- Add-on products or components installed
- Third-party products or components installed

Information for Technical Support

If the technical support requests you to download the Service Package, please navigate in the XEVO -> **System** -> **Maintenance** > **System Information**, and then click the **Download Service**

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Package button to download. Then the system will automatically generate a zip file the default download location of your web browser.

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