

vSnap REST API

for IBM Spectrum Protect Plus 10.1.1

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1. General

API requests should be in the form <https://server:8900/api/endpoint>. For example: <https://vsnap-dev-appliance:8900/api/system>.

API requests and responses are in JSON format.

The API does not support session handling at present. Every API request header must specify the username and password using HTTP basic authentication. For example:

```
Authorization: Basic QWxhZGRpbjpPcGVuU2VzYW1l
```

For successful calls, the API returns status code **200**. In case of an error, it returns an appropriate status code e.g. **401** (invalid credentials), **403** (permission denied), or **500** (internal error). For each of these errors, the response body contains an **error** object which has a **type** and a **message**.

Sample error response:

```
{
  "error": {
    "message": "Disk UUID 12345 is not a valid candidate for a pool",
    "type": "InvalidCandidateError"
  }
}
```

2. System

2.1. Get system info

Returns basic system information.

Request

```
GET /api/system
```

Response

```
{
  "fqdn": "sid-vsnap-dev",
  "hostname": "sid-vsnap-dev",
  "id": "69813aef15146b54092deac8564e1249",
  "init_status": "Not Initialized",
  "api_version": "1.0",
  "nfs_version": "1.3.0-0.33.el7_3",
  "nginx_version": "1.10.2-1.el7",
  "os_name": "CentOS Linux",
  "os_version": "7.3.1611",
  "samba_version": "4.4.4-13.el7_3",
  "uwsgi_version": "2.0.14-6.el7",
  "vsnap_version": "1.0.0-19",
  "zfs_version": "0.6.5.10-1.el7.centos"
}
```

2.2. Initialize system

Request

Parameters:

- **action**: Must be set to **init**.
- **async**: Boolean. If set to **true**, the call returns immediately without waiting for init to complete. Init status can then be monitored using **GET /api/system**. Default: **false**.
- **skip_pool**: Boolean. If set to **true**, all other init steps are performed but pool creation is skipped. Default: **false**.

```
POST /api/system
{
  "action": "init",
  "async": true,
  "multipool": false,
  "skip_pool": false
}
```

Response

```
{
  "fqdn": "sid-vsnap-dev",
  "hostname": "sid-vsnap-dev",
  "id": "69813aef15146b54092deac8564e1249",
  "init_status": "Initializing",
  "multipool": false,
  "nfs_version": "1.3.0-0.33.el7_3",
  "nginx_version": "1.10.2-1.el7",
  "os_name": "CentOS Linux",
  "os_version": "7.3.1611",
  "samba_version": "4.4.4-13.el7_3",
  "uwsgi_version": "2.0.14-6.el7",
  "vsnap_version": "1.0.0-19",
  "zfs_version": "0.6.5.10-1.el7.centos"
}
```

3. Networks

3.1. Get network interfaces

Returns information about network interfaces.

Request

```
GET /api/network
```

Response

```
{
  "networks": [
    {
      "id": "005056b45302",
      "name": "ens192",
      "hw_addr": "005056b45302",
      "ip4_addrs": ["172.20.46.61"],
      "ip6_addrs": ["fe80::250:56ff:feb4:5302"],
      "services": ["mgmt", "nfs", "smb"]
    }
  ],
  "total": 1
}
```

3.2. Set network interface services

Modifies the services associated with a network interface.

Request

Parameters:

- **services**: List (array) of services associated with this interface. Valid values: **all**, **mgmt**, **nfs**, **smb**, **iscsi**. If **all** is specified, other values in the array are ignored and all available services are used.

```
PUT /api/network/<id>
{
  "services": ["nfs", "smb"]
}
```

```
PUT /api/network/<id>
{
  "services": ["all"]
}
```

Response

The response shows details about the modified interface.

```
{
  "id": "005056b45302",
  "name": "ens192",
  "hw_addr": "005056b45302",
  "ip4_addrs": ["172.20.46.61"],
  "ip6_addrs": ["fe80::250:56ff:feb4:5302"],
  "services": ["nfs", "smb", "iscsi"]
}
```

4. Targets

4.1. Get target ports

Returns list of target ports.

Request

```
GET /api/target
```

Response

```
{
  "targets": [
    {
      "type": "iqn",
      "wwn": "iqn.1994-05.com.redhat:vsnap.5058a20323b943ed925fd92f88f1b926"
    }
  ],
  "total": 1
}
```

5. Disks

5.1. Get unused disks

Returns all unformatted and unpartitioned disks that are available for creating or adding to a pool.

Request

```
GET /api/disk?used_as=unused
```

Response

```
{
  "disks": [
    {
      "model": "Virtual disk",
      "name": "/dev/sdd",
      "size": "4194304",
      "type": "SCSI",
      "uuid": "36000c298311c49a6b3df90fc0e4082f4",
      "vendor": "VMware",
      "used_as": "unused"
    },
    {
      "model": "Virtual disk",
      "name": "/dev/sdc",
      "size": "4194304",
      "type": "SCSI",
      "uuid": "36000c2926edea86a7ca731e360ecb878",
      "vendor": "VMware",
      "used_as": "unused"
    }
  ],
  "total": 2
}
```

5.2. Rescan disks

Rescans the SCSI bus to detect disk additions or removals.

Request

```
POST /api/disk
{
  "action": "rescan"
}
```

Response

```
{}
```


6. Pools

6.1. Create pool

Creates a new pool using a set of candidate disks.

Request

Parameters:

- **name**: Pool name. 256 chars max.
- **disk_list**: List of **uuid** values of disks to be added to the pool. Optional. If not specified, all available eligible disks are used.
- **pool_type**: Possible values: **raid0**, **raid5**, or **raid6**. Required.
- **compression**: Boolean. Optional. Default is **true**.
- **deduplication**: Boolean. Optional. Default is **false**.

```
POST /api/pool
{
  "name": "demo1",
  "disk_list": [],
  "pool_type": "raid6",
  "compression": true,
  "deduplication": true
}
```

Response

The response shows detailed information about the newly created pool.

```

{
  "compression": true,
  "compression_ratio": "1.00x",
  "deduplication": true,
  "deduplication_ratio": "1.00x",
  "diskgroup_size": "8",
  "disks": {
    "raid6_group1": [
      "/dev/disk/by-id/scsi-36000c2907913236e99b5ac26e6d344cb",
      "/dev/disk/by-id/scsi-36000c296b2cf9bb3713f26969facf4eb",
      "/dev/disk/by-id/scsi-36000c29c5530671e23bc54f329662140",
      "/dev/disk/by-id/scsi-36000c293febb97ec85d65aeefd519f2a",
      "/dev/disk/by-id/scsi-36000c29654ce70661e2d360c9ae73e83",
      "/dev/disk/by-id/scsi-36000c293478228096f1c50f355f738b8",
      "/dev/disk/by-id/scsi-36000c298311c49a6b3df90fc0e4082f4",
      "/dev/disk/by-id/scsi-36000c29011b0fd065435a3ccf94a8890"
    ],
    "raid6_group2": [
      "/dev/disk/by-id/scsi-36000c29fdd069485029d31123b9a993f",
      "/dev/disk/by-id/scsi-36000c2936c9a9811b73e7840d3eca311",
      "/dev/disk/by-id/scsi-36000c29397c718dedb3474f7308176e1",
      "/dev/disk/by-id/scsi-36000c29aa4ce736c6e7bd1c480a64dc4",
      "/dev/disk/by-id/scsi-36000c29662a1e5715c18e0939be1e49f",
      "/dev/disk/by-id/scsi-36000c2926edea86a7ca731e360ecb878",
      "/dev/disk/by-id/scsi-36000c29cc6f4e6c6184cb3319f55c3ae"
    ]
  },
  "id": "1",
  "name": "demo1",
  "pool_type": "raid6",
  "size_before_compression": "2668643328",
  "size_before_deduplication": "904680960",
  "size_total": "22613000803",
  "size_free": "22613000803",
  "size_used": "155037",
  "status": "ONLINE",
  "health": "100",
  "time_created": "1497365131",
  "time_updated": "1497365131"
}

```

6.2. List pools

Lists all pools.

Request

```
GET /api/pool
```

Response

```
{
  "pools": [
    {
      "id": "1",
      "name": "demo1",
      "pool_type": "raid6",
      "size_total": "22613000803",
      "size_free": "22613000803",
      "size_used": "155037",
      "status": "ONLINE",
      "health": "100",
      "time_created": "1497365131",
      "time_updated": "1497365131"
    }
  ],
  "total": 1
}
```

6.3. Get pool details

Shows detailed information about the specified pool.

Request

```
GET /api/pool/<id>
GET /api/pool?id=<id>
GET /api/pool?name=<name>
```

Response

```

{
  "compression": true,
  "compression_ratio": "1.00x",
  "deduplication": true,
  "deduplication_ratio": "1.00x",
  "diskgroup_size": "8",
  "disks": {
    "raid6_group1": [
      "/dev/disk/by-id/scsi-36000c2907913236e99b5ac26e6d344cb",
      "/dev/disk/by-id/scsi-36000c296b2cf9bb3713f26969facf4eb",
      "/dev/disk/by-id/scsi-36000c29c5530671e23bc54f329662140",
      "/dev/disk/by-id/scsi-36000c293febb97ec85d65aeefd519f2a",
      "/dev/disk/by-id/scsi-36000c29654ce70661e2d360c9ae73e83",
      "/dev/disk/by-id/scsi-36000c293478228096f1c50f355f738b8",
      "/dev/disk/by-id/scsi-36000c298311c49a6b3df90fc0e4082f4",
      "/dev/disk/by-id/scsi-36000c29011b0fd065435a3ccf94a8890"
    ],
    "raid6_group2": [
      "/dev/disk/by-id/scsi-36000c29fdd069485029d31123b9a993f",
      "/dev/disk/by-id/scsi-36000c2936c9a9811b73e7840d3eca311",
      "/dev/disk/by-id/scsi-36000c29397c718dedb3474f7308176e1",
      "/dev/disk/by-id/scsi-36000c29aa4ce736c6e7bd1c480a64dc4",
      "/dev/disk/by-id/scsi-36000c29662a1e5715c18e0939be1e49f",
      "/dev/disk/by-id/scsi-36000c2926edea86a7ca731e360ecb878",
      "/dev/disk/by-id/scsi-36000c29cc6f4e6c6184cb3319f55c3ae"
    ]
  },
  "id": "1",
  "name": "demo1",
  "pool_type": "raid6",
  "size_before_compression": "2668643328",
  "size_before_deduplication": "904680960",
  "size_total": "22613000803",
  "size_free": "22613000803",
  "size_used": "155037",
  "status": "ONLINE",
  "health": "100",
  "time_created": "1497365131",
  "time_updated": "1497365131"
}

```

6.4. Update pool

The following operations are available for modifying a pool.

6.4.1. Modify pool properties

Updates a pool properties like its name and enables or disables compression and deduplication.

Request

Parameters:

- **name**: Pool name. If not specified, the existing name is retained.
- **compression**: Boolean. If not specified, the existing setting is retained.
- **deduplication**: Boolean. If not specified, the existing setting is retained.

```
PUT /api/pool/<id>
{
  "name": "newName",
  "compression": false,
  "deduplication": true
}
```

The **Response** returns the pool details, similar to the response from **GET /api/pool/<id>**.

6.4.2. Expand pool capacity

Adds disks to expand the pool capacity.

Request

Parameters:

- **action**: Must be set to **expand**.
- **disk_list**: List of **uuid** values of disks to be added to the pool. Optional. If not specified, all available eligible disks are used.

```
POST /api/pool/<id>
{
  "action": "expand",
  "disk_list": []
}
```

The **Response** returns the pool details, similar to the response from **GET /api/pool/<id>**.

6.4.3. Add or remove log disk

Adds or removes separate disks for use as the ZFS Intent Log. Optional. By default, the ZIL is allocated

from blocks within the main pool. However, it might be possible to get better performance using separate ZIL devices such as a dedicated SSD. If multiple disks are specified, the ZIL is mirrored across them for redundancy.

Request

Parameters:

- **action**: Must be set to **addlog** or **removelog**.
- **disk_list**: Required if **action** is **addlog**. Specify list of **uuid** values of disks to add. If multiple disks are specified, the log is mirrored across them. This parameter is ignored when **action** is **removelog**.

```
POST /api/pool/<id>
{
  "action": "addlog",
  "disk_list": ["36000c29cc6f4e6c6184cb3319f55c3ae",
"36000c29cc6f4e6c6184cb3319f55c3af"]
}
```

```
POST /api/pool/<id>
{
  "action": "removelog"
}
```

The **Response** returns the pool details, similar to the response from **GET /api/pool/<id>**.

6.4.4. Add or remove cache disk

Adds or removes a disk for use as the cache. Optional. For read-heavy workloads where the working set size is much larger than what can be cached in main memory, using a cache device allow much more of this working set to be served from low latency media.

Request

Parameters:

- **action**: Must be set to **addcache** or **removecache**.
- **disk**: Required if **action** is **addcache**. Specify the **uuid** value of the the disk to add. This parameter is ignored when **action** is **removecache**.

```
POST /api/pool/<id>
{
  "action": "addcache",
  "disk": "36000c29cc6f4e6c6184cb3319f55c3ae"
}
```

```
POST /api/pool/<id>
{
  "action": "removecache"
}
```

The **Response** returns the pool details, similar to the response from [GET /api/pool/<id>](#).

6.4.5. Add or remove spare disk

Adds or removes hot spare disks. Optional. These devices are not actively used in the pool, but when an active device fails, it is automatically replaced by a hot spare if available.

Request

Parameters:

- **action**: Must be set to **addspare** or **removespare**.
- **disk_list**: Specify list of **uuid** values of disks to add or remove from the spares list.

```
POST /api/pool/<id>
{
  "action": "addspare",
  "disk_list": ["36000c29cc6f4e6c6184cb3319f55c3ae",
"36000c29cc6f4e6c6184cb3319f55c3af"]
}
```

```
POST /api/pool/<id>
{
  "action": "removespare",
  "disk_list": ["36000c29cc6f4e6c6184cb3319f55c3ae"]
}
```

The **Response** returns the pool details, similar to the response from [GET /api/pool/<id>](#).

6.5. Delete pool

Deletes the specified pool. Deleting a pool also deletes all other objects associated with it i.e. volumes, snapshots, clones, shares.

Request

```
DELETE /api/pool/<id>
```

Response

```
{}
```

7. Partners

7.1. Add partner system

Establishes a replication partnership with a remote vSnap system.

Request

Parameters:

- **remote_addr**: The management address of the remote vSnap system to add as a partner.
- **remote_user**: Username for the remote vSnap system.
- **remote_pass**: Password for the remote vSnap system.
- **local_addr**: Optional. The management address of the local vSnap system. The remote system will be automatically configured to access the local system using this address. If not specified, the local system automatically detects its own management IP address and configures the partner to use it.
- **local_api_port**: Optional. The API port of the local vSnap system. If not specified: 8900.
- **remote_api_port**: Optional. The API port of the remote vSnap system. If not specified: 8900.
- **local_ssh_port**: Optional: The SSH port of the local vSnap system. If not specified: 22.
- **remote_ssh_port**: Optional: The SSH port of the remote vSnap system. If not specified: 22.


```
POST /api/partner
{
  "remote_addr": "vsnap-secondary.ad.example.com",
  "remote_user": "vsuser",
  "remote_pass": "p@ssw0rd",
  "local_addr": "vsnap-primary.ad.example.com",
  "local_api_port": null,
  "remote_api_port": null,
  "local_ssh_port": null,
  "remote_ssh_port": null
}
```

Response

```
{
  "id": "5058a20323b943ed925fd92f88f1b926",
  "address": "vsnap-secondary.ad.example.com",
  "api_port": "8900",
  "ssh_port": "22",
  "time_created": "1513856343",
  "time_updated": "1513856344",
}
```

7.2. Get list of partners

Returns a list of partner vSnap systems.

Request

```
GET /api/partner
```

Response

```
{
  "partners": [
    {
      "address": "vsnap-secondary.ad.example.com",
      "id": "5058a20323b943ed925fd92f88f1b926",
      "api_port": "8900",
      "ssh_port": "22",
      "time_created": "1513856343",
      "time_updated": "1513856344"
    },
    {
      "address": "vsnap-tertiary.ad.example.com",
      "id": "c87c9cee768f4cabb04abd5e215be851",
      "api_port": "8900",
      "ssh_port": "22",
      "time_created": "1513856352",
      "time_updated": "1513856352"
    }
  ],
  "total": 2
}
```

7.3. Get partner details

Get details for a specific partner system.

Request

```
GET /api/partner/<partner_id>
```

Response

```
{
  "id": "5058a20323b943ed925fd92f88f1b926",
  "address": "vsnap-secondary.ad.example.com",
  "api_port": "8900",
  "ssh_port": "22",
  "time_created": "1513856343",
  "time_updated": "1513856344",
}
```

7.4. Remove partner system

Remove partnership with a remote vSnap system.

Request

```
DELETE /api/partner/<partner_id>
```

Response

```
{}
```