Intel Accelerated Storage Manager

RSTe Plugin REST API

INTEL CONFIDENTIAL

September 2017
Document Revision 1.3

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1. Introduction

This document is a reference for Intel RSTe REST API. Scope of this API covers access to RSTe plugin resources on host machine where agent is installed.

2. URI structure

Access to resources is provided via URI paths. Client applications should send requests over the HTTP protocol using standard GET, POST and DELETE methods.

Intel Agent URI structure:

```
[protocol]://[host]:[port]/v1/rste/[resource name]
```

Where:

[protocol]	Communication protocol – http/https.
[host]	Host machine IP address or name where agent is installed.
[port]	Port number on which agent service is listening.
v1	Stands for first version of API definition.
[rste]	Namespace for all resources related to RSTe plugin.
[resource name]	Name for resource to be returned.

3. OAuth parameters

To get access to RSTe Plugin resources the OAuth scope parameter must contain value "rste" *(scope="rste")*.

4. Response handling

REST API returns responses in wrapper format presented below.

Response format			

data	{Object} or {Array}	Contains resource response as described in this documentation. Can contain either an array or an object.	Error response.
			{
			"data": null,
			"status": {
			"errorId": "RSTe_OFFLINE",
			"errorMessage": "Error while communicationg with RSTe.",
			"errorDescription": "RSTe product is unavailable.",
			"success": false
			}
			}

status	{Object}	Contains the request status object. If request failed, additional error information are attached.	

status.errorId	{String}	Identifier of thrown error.	Example for succeeded request:
			{
			"data": {
			"agentVersion": "1.1",

status.errorMessage (Optional)	{String}	General error message.	

status.errorDescription (Optional)	{String}	Extended error description.
status.success	{Boolean}	Request status, True if requests succeed, otherwise false.

```
  "pluginVersion": "1.0"
 },
 "status": {
  "success": true
 }
}
```

5. Resources

Below is a list of all available resources for RSTe plugin.

5.1 RSTe state

[GET] /v1/rste/state

Returns RSTe product state and list of currently running actions.
Example:
curl http://127.0.0.1/v1/rste/state

Response {Object}

inProgress	{Array}	Array of currently running actions. Empty array when no action is currently running. [REBUILDING, VERIFYING, VERYFING_AND_FIX, MIGRATION, INITIALIZING, BUSY].
[].action	{String}	Name of action.
[].objectID	{String}	ID of volume or array, on which action is currently running.
[].objectType	{String}	Type of the object on which action is performed. One of [VOLUME, ARRAY].
[].objectName	{String}	Name of the object on which action is performed.
state	{String}	RSTe product state (NORMAL, WARNING, FAILED).

```
{
  "data": {
    "inProgress": [
      {
        "action": "INITIALIZING",
        "objectID": "22",
        "objectType": "VOLUME",
        "objectName": "Volume001",
      }
    ],
    "state": "NORMAL"
  },
  "status": {
    "success": true
  }
}
```

Available Error IDs

RSTe_OFFLINE	RSTe product not found.
RSTe_NOT_INITIALIZED	Indicates that system is not initialized.
INTERNAL_ERROR	Unknown internal error occurred.

5.2 Version information

[GET] /v1/rste/version

Returns version of installed RSTe product, plugin version and Standard Storage Interface system information.
Example:
curl http://127.0.0.1/v1/rste/version

Response {Object}

productVersion	{String}	RSTe product version.
pluginVersion	{String}	RSTe plugin version.
ssiInterfaceVersion	{String}	Version of interface used by SSI API library.
ssiVersion	{String}	SSI API library version.
volSetSizeSupport	{Boolean}	Determines if library supports setting volume cache size.
passThroughSupport	{Boolean}	Determines if this version of library supports pass through command.
trial (Optional)	{Object}	Trial information (only available if VMD controller is present)
{}.state	{String}	Trial state [NOT_SUPPORTED | NOT_STARTED | STARTED | EXPIRED]
{}.remainingDays	{Number}	Indicates number of days trial is active (only valid for STARTED trial state)


```
{
 "data": {
  "passThroughSupport": false,
  "pluginVersion": "0.0.1.0",
  "productVersion": "0.1.0.1",
  "ssiInterfaceVersion": "1.0.0.0",
  "ssiVersion": "0.1.0.1",
  "volSetSizeSupport": false
  "trial": {
    "state": "STARTED",
    "remainingDays": 29
  }
 },
 "status": {
  "success": true
 }
}
```


Available Error IDs

RSTe_OFFLINE	RSTe product not found.
RSTe_NOT_INITIALIZED	Indicates that system is not initialized.
INTERNAL_ERROR	Unknown internal error occurred.

5.3 List of RAIDs

[GET] /v1/rste/raids/:raidId?type=[raidLevel]&range=[raidRange]

Returns list of all supported RAID information structures.

Example:

```
curl http://127.0.0.1/v1/rste/raids
curl http://127.0.0.1/v1/rste/raids?range=level
curl http://127.0.0.1/v1/rste/raids?range=info
curl http://127.0.0.1/v1/rste/raids/1234
curl http://127.0.0.1/v1/rste/raids/1234?range=level
curl http://127.0.0.1/v1/rste/raids/1234?range=info
curl http://127.0.0.1/v1/rste/raids/1234?range=level&type=RAID_0
```

Parameters

:raidId	{Number}	RAID identifier.
:raidRange	{String}	Scope of information details. One of [info, level]. If range is not defined both information will be returned.
:raidLevel	{String}	Name of the RAID level, one of values: [RAID_0, RAID_1, RAID_10, RAID_5].

Response {Array}

raidId	{String}	RAID identifier.
maxDisksPerArray	{Number}	The maximum number of disks allowed in an array.
maxRaidDisksSupported	{Number}	The maximum number of disks that are allowed to be used as array members.
maxVolumesPerArray	{Number}	The maximum number of volumes that can be created on an array.
maxVolumesPerHba	{Number}	The maximum number of volumes that can be created per controller
raidEnabled	{Boolean}	True if the controller supports RAID, false if not.
globalSpareSupport	{Boolean}	Spare disks can be created that are not associated with a specific array.
dedicatedSpareSupport	{Boolean}	Spare disks can be created that will only rebuild a specific volume.
createFromExistingSupport	{Boolean}	Determines if new volume can be created where the partitioned data on one of the member disks is preserved.
emptyArraysSupport	{Boolean}	Indicates that this controller supports empty arrays.
raidLevelInfo	{Array}	List of RAID level information.
[].raidLevel	{String}	Name of the RAID level, one of values: [RAID_0, RAID_1, RAID_10, RAID_5].
[].minDisks	{Number}	The minimum number of disks supported by this RAID level.
[].maxDisks	{Number}	The maximum number of disks supported by this RAID level.
[].defaultStripSize (Optional)	{String}	The default strip size to be used for this RAID level, one of [SIZE_UNKNOWN, SIZE_16KB, SIZE_32KB, SIZE_64KB, SIZE_128KB]. If this field is present, **defaultStripSizes** is not.
[].defaultStripSizes (Optional)	{Object}	The object of default strip sizes depending on a number of disks to be used for creating or migrating a volume in RAID 5 with VMD drives only. If this field is present, **defaultStripSize** is not.
[]{}.{numberOfDisks}	{String}	For each number of disks between minimum (e.g. 3) and maximum (e.g. 24), there is one default strip size which can be one of [SIZE_8KB, SIZE_16KB, SIZE_32KB, SIZE_64KB, SIZE_128KB].
[].migrSupport	{Array}	Indicates all of the different RAID levels that a user can migrate to from this RAID level.
[].[].raidLevel	{String}	Name of the RAID level, one of [RAID_0, RAID_1, RAID_10, RAID_5].
[].[].requiresDisk	{Boolean}	Indicates which RAID levels would require a disk addition to perform a migration.
[].evenDiskCount	{Boolean}	Indicates that this RAID level requires an even number of disks.
[].oddDiskCount	{Boolean}	Indicates that this RAID level requires an odd number of disks.

[]\.stripSizesSupported (Optional)	{Array}	Indicates the strip sizes supported by this RAID level. This is a list containing values from range: [SIZE_UNKNOWN, SIZE_4KB, SIZE_8KB, SIZE_16KB, SIZE_32KB, SIZE_64KB, SIZE_128KB].
[]\.created	{Boolean}	Indicates that there's at least one volume created with this RAID level.

Available Error IDs	
RSTe_OFFLINE	RSTe product not found.
RSTe_NOT_INITIALIZED	Indicates that system is not initialized.
OBJECT_NOT_FOUND	Object with given ID was not found.
RSTe_UNSUPPORTED_RAID_LEVEL	Requested RAID level is unsupported.
INVALID_PARAMETER	One of provided parameter is invalid or is missing.
INTERNAL_ERROR	Unknown internal error occurred.

5.3.1 List of selected RAID info and RAID level information

curl http://127.0.0.1/v1/rste/raids/4353


```
{
  "data": {
    "raidId": "4353",
    "maxDisksPerArray": 8,
    "maxRaidDisksSupported": 8,
    "maxVolumesPerArray": 2,
    "maxVolumesPerHba": 4,
    "raidEnabled": true,
    "globalSpareSupport": true,
    "dedicatedSpaceSupport": false,
    "createFromExistingSupport": true,
    "emptyArraysSupport": true,
    "raidLevelInfo": [
    {
      "raidLevel": "RAID_0",
      "defaultStripSize": "SIZE_128KB",
      "evenDiskCount": false,
      "maxDisks": 8,
      "migrSupport": [
      {
        "raidLevel": "RAID_0",
        "requiresDisk": false
      },
      {
        "raidLevel": "RAID_10",
        "requiresDisk": true
      },
      {
        "raidLevel": "RAID_5",
        "requiresDisk": true
      }],
      "minDisks": 1,
      "oddDiskCount": false,
      "created": false,
      "stripSizesSupported": [
        "SIZE_4KB",
        "SIZE_8KB",
        "SIZE_16KB",
        "SIZE_32KB",
        "SIZE_64KB",
        "SIZE_128KB"]
    },
    {
      "raidLevel": "RAID_1",
      "defaultStripSize": "SIZE_64KB",
      "evenDiskCount": true,
      "maxDisks": 2,
      "migrSupport": [
      {
        "raidLevel": "RAID_0",
        "requiresDisk": false
      }],
      "minDisks": 2,
      "oddDiskCount": false,
      "created": false,
      "stripSizesSupported": null
    },
    {
      "raidLevel": "RAID_10",
       "defaultStripSize": "SIZE_64KB",
      "evenDiskCount": true,
      "maxDisks": 4,
      "migrSupport": [
      "raidLevel": "RAID_0",
        "requiresDisk": false
      },
      {
        "raidLevel": "RAID_5",
        "requiresDisk": false
      }],
      "minDisks": 4,
      "oddDiskCount": false,
      "created": true,
      "stripSizesSupported": [
        "SIZE_4KB",
        "SIZE_8KB",
        "SIZE_16KB",
        "SIZE_32KB",
        "SIZE_64KB",
```

```
        "SIZE_128KB"]
      },
      {
        "raidLevel": "RAID_5",
        "defaultStripSizes": {
          "3": "SIZE_64KB",
          "4": "SIZE_32KB",
          "5": "SIZE_128KB",
          "6": "SIZE_64KB",
          "7": "SIZE_128KB",
          "8": "SIZE_16KB",
          "9": "SIZE_128KB",
          "10": "SIZE_64KB",
          "11": "SIZE_128KB",
          "12": "SIZE_32KB",
          "13": "SIZE_128KB",
          "14": "SIZE_64KB",
          "15": "SIZE_128KB",
          "16": "SIZE_8KB",
          "17": "SIZE_128KB",
          "18": "SIZE_64KB",
          "19": "SIZE_128KB",
          "20": "SIZE_32KB",
          "21": "SIZE_128KB",
          "22": "SIZE_64KB",
          "23": "SIZE_128KB",
          "24": "SIZE_16KB"
        },
        "evenDiskCount": false,
        "maxDisks": 24,
        "migrSupport": [{
          "raidLevel": "RAID_0",
          "requiresDisk": false
        },
        {
          "raidLevel": "RAID_5",
          "requiresDisk": false
        }],
        "minDisks": 3,
        "oddDiskCount": false,
        "created": false,
        "stripSizesSupported": [
          "SIZE_4KB",
          "SIZE_8KB",
          "SIZE_16KB",
          "SIZE_32KB",
          "SIZE_64KB",
          "SIZE_128KB"]
      }]
    },
    "status": {
        "success": true
    }
}
```


5.3.2 List of selected RAID info without RAID level

curl http://127.0.0.1/v1/rste/raids/1234?range=info


```
{
  "data": [{
    "raidId": "1234",
    "maxDisksPerArray": 8,
    "maxRaidDisksSupported": 8,
    "maxVolumesPerArray": 2,
    "maxVolumesPerHba": 4,
    "raidEnabled": true,
    "globalSpareSupport": true,
    "dedicatedSpaceSupport": false,
    "createFromExistingSupport": true,
    "emptyArraysSupport": true
  }
  "status": {
    "success": true
  }
}
```


5.3.3 List of selected RAID level information without RAID info with specified RAID type

curl http://127.0.0.1/v1/rste/raids/1?range=level&type=RAID_0


```
{
  "data": {
    "raidId": "1234",
    "raidLevelInfo": [
    {
      "raidLevel": "RAID_0",
      "defaultStripSize": "SIZE_64KB",
      "evenDiskCount": false,
      "maxDisks": 8,
      "migrSupport": [
      {
        "raidLevel": "RAID_0",
        "requiresDisk": false
      },
      {
        "raidLevel": "RAID_10",
        "requiresDisk": true
      },
      {
        "raidLevel": "RAID_5",
        "requiresDisk": true
      }],
      "minDisks": 1,
      "oddDiskCount": false,
      "created": true,
      "stripSizesSupported": [
        "SIZE_4KB",
        "SIZE_8KB",
        "SIZE_16KB",
        "SIZE_32KB",
        "SIZE_64KB",
        "SIZE_128KB"
      ]
    }]
  },
  "status": {
    "success": true
  }
}
```


5.3.4 List of all RAID level information without RAID info

curl http://127.0.0.1/v1/rste/raids?range=level


```
{
  "data": [
```

```
  {
    "raidId": "1234",
    "raidLevelInfo": [ ... ]
  },
  {
    "raidId": "1235",
    "raidLevelInfo": [ ... ]
  }],
  "status": {
    "success": true
}
```

5.3.5 List of selected RAID level information without RAID info

curl http://127.0.0.1/v1/rste/raids/1234?range=level

```
{
  "data":
  {
    "raidId": "1234",
    "raidLevelInfo": [ ... ]
  },
  "status": {
    "success": true
}
```

5.3.6 List of all RAID info without RAID level

List of selected RAID info without RAID level

curl http://127.0.0.1/v1/rste/raids/1234?range=info

```
{
  "data": [
  {
    "raidId": "1234",
    "maxDisksPerArray": 8,
    "maxRaidDisksSupported": 8,
    "maxVolumesPerArray": 2,
    "maxVolumesPerHba": 4,
    "raidEnabled": true,
    "globalSpareSupport": true,
    "dedicatedSpaceSupport": false,
    "createFromExistingSupport": true,
    "emptyArraysSupport": true
  }
],
  "status": {
    "success": true
  }
}
```

curl http://127.0.0.1/v1/rste/raids?range=info

```
{
  "data": [
  {
    "raidId": "1234",
    "maxDisksPerArray": 8,
    "maxRaidDisksSupported": 8,
    "maxVolumesPerArray": 2,
    "maxVolumesPerHba": 4,
    "raidEnabled": true,
    "globalSpareSupport": true,
    "dedicatedSpaceSupport": false,
    "createFromExistingSupport": true,
    "emptyArraysSupport": true
  },
  {
    "raidId": "1235",
    "maxDisksPerArray": 8,
    "maxRaidDisksSupported": 8,
    "maxVolumesPerArray": 2,
    "maxVolumesPerHba": 4,
    "raidEnabled": true,
    "globalSpareSupport": true,
    "dedicatedSpaceSupport": false,
    "createFromExistingSupport": true,
    "emptyArraysSupport": true
  }],
  "status": {
    "success": true
  }
}
```

5.4 List of controllers associated with RAID

```
[GET] /v1/rste/raids/:raidId/controllers
```

List of all available controllers associated with raid.
Example:
curl http://127.0.0.1/v1/rste/raids/5641321/controllers

Parameters

:raidId	{Number}	Raid identifier.

Response {Array}

id	{String}	Controller Identifier.
raidId	{String}	Id of RAID that this controller supports.
name	{String}	Controller name.
type	{String}	Controller type [UNKNOWN | AHCI | SATA | NVME | VMD].
address (Optional)	{String}	Controller address (only for Linux)
version	{String}	Version of the driver component. Null-terminated, non-localized, screen-printable ASCII string.
vendorId	{String}	Vendor identifier.
deviceId	{Number}	Device ID as reported by PCI enumeration
subSystemId	{Number}	Subsystem ID as reported by PCI enumeration.
hardwareRevisionId	{Number}	Revision ID of the device, as reported by PCI enumeration.
hardwareKey (Optional)	{String}	Installed hardware key [UNKNOWN | 3_STORY | VROC_STANDARD | VROC_PREMIUM] (VMD only)
supportsTPV (Optional)	{Boolean}	If true, disks from third party vendors are supported (VMD only)
subClassCode	{Number}	Subclass Code of the device, as reported by PCI enumeration.
subVendorId	{String}	Sub vendor ID of the device, as reported by PCI enumeration.
mode	{String}	Controller mode [AHCI | RAID | UNKNOWN].
availableDisks	{Number}	Number of available disks.
availableDevices	{Number}	Number of available devices.
disableESataSpanning	{Boolean}	If true, arrays may not be created with a mix of internal/external disks.
preboot	{Object}	Preboot options.


```
{
"data": [
{
  "availableDisks": 7,
  "availableDevices": 7,
  "deviceId": 7530,
  "disableESataSpanning": true,
  "hardwareKey": "VROC_PREMIUM",
  "hardwareRevisionId": 6,
  "id": "2684354562",
  "mode": "RAID",
  "name": "ISCI at 0000:03:00.0",
  "nvsramSupported": false,
  "preboot": {
    "loaded": true,
    "managerVersion": "3.8.0.1029",
    "twoTbDiskSupport": true,
    "twoTbVolumeSupport": true
 },
  "raidId": "2415919105",
  "readPatrol": {
    "enabled": true,
    "supported": true
  },
  "rohi": {
    "enabled": false,
    "supported": false
  },
  "subClassCode": 7,
  "subSystemId": 13719,
  "subVendorId": "8086",
  "supportedFunctions": {
    "addDisksToArray": true,
    "arrayCreate": true,
    "markAsNormal": false,
    "markAsSpare": true,
    "portLocate": true,
    "volumeCancelVerify": true,
    "volumeDelete": true,
    "volumeModify": true,
    "volumeRename": true,
    "volumeSetCachePolicy": false
  },
  "supportsTPV": true,
  "type": "VMD",
  "vendorId": "8086",
  "version": "1.1.0.0",
  "xor": {
    "enabled": false,
    "supported": false
  }
}],
"status": {
  "success": true
}
}
```

{}.managerVersion	{String}	Version of the option ROM or EFI driver associated with this controller.
{}.loaded	{Boolean}	If true, OROM/EFI has been loaded.
{}.twoTbVolumeSupport	{Boolean}	If true, OROM supports system volumes greater than 2 TB.
{}.twoTbDiskSupport	{Boolean}	If true, OROM supports system disks greater than 2TB.
xor	{Boolean}	XOR Acceleration options.
{}.supported	{Boolean}	If true, controller is using H/W XOR acceleration.
{}.enabled	{Boolean}	If true, controller has enabled H/W XOR acceleration.
rohi	{Boolean}	Rebuild on hot insert options.
{}.supported	{Boolean}	If true, controller is supporting rebuild on hot insert.
{}.enabled	{Boolean}	If true, controller has enabled rebuild on hot insert.
nvsramSupported	{Boolean}	If true, controller is using NVSRAM.
supportedFunctions	{Object}	List of supported options for this controller.
{}.portLocate	{Boolean}	True if the port locate function is supported for ports attached to this controller.
{}.markAsNormal	{Boolean}	True if the "mark as normal" action is supported for devices attached to this controller.
{}.volumeDelete	{Boolean}	True if the "volume delete" action is supported for volumes attached to this controller.
{}.arrayCreate	{Boolean}	True if the "array create" action is supported for volumes attached to this controller.

{}.volumeModify	{Boolean}	True if the "volume modify" action is supported for volumes attached to this controller.
{}.volumeRename	{Boolean}	True if the "volume rename" action is supported for volumes attached to this controller.
{}.addDisksToArray	{Boolean}	True if the "add disks to array" action is supported for volumes attached to this controller.
{}.volumeSetCachePolicy	{Boolean}	True if the "volume set cache policy" action is supported for volumes attached to this controller.
{}.volumeCancelVerify	{Boolean}	True if the "volume cancel verify" action is supported for volumes attached to this controller.
{}.markAsSpare	{Boolean}	True if the "mark as spare" action is supported for devices attached to this controller.
readPatrol	{Object}	Read patrol information object.
{}.supported	{Boolean}	Determines if this controller supports read patrol.
{}.enabled	{Boolean}	Determines if this controller currently has read patrol enabled.

Available Error IDs	
RSTe_OFFLINE	RSTe product not found.
RSTe_NOT_INITIALIZED	Indicates that system is not initialized.
OBJECT_NOT_FOUND	Object with given ID was not found.
INTERNAL_ERROR	Unknown internal error occurred.

5.5 Controllers information

```
[GET] /v1/rste/controllers
```

List of all available controllers.
Example:
curl http://127.0.0.1/v1/rste/controllers

Response {Array}

id	{String}	Controller Identifier.
raidId	{String}	Id of RAID that this controller supports.
name	{String}	Controller name.
type	{String}	Controller type [UNKNOWN | AHCI | SATA | NVME | VMD].
address (Optional)	{String}	Controller address (only for Linux)
version	{String}	Version of the driver component. Null-terminated, non-localized, screen-printable ASCII string.
vendorId	{String}	Vendor identifier.
deviceId	{Number}	Device ID of the device, as reported by PCI enumeration
subSystemId	{Number}	Subsystem ID of the device, as reported by PCI enumeration.
hardwareRevisionId	{Number}	Revision ID of the device, as reported by PCI enumeration.
hardwareKey (Optional)	{String}	Installed hardware key [UNKNOWN | VROC_PASS_THRU | VROC_STANDARD | VROC_PREMIUM | VROC_INTEL_ONLY_SKU] (VMD only)
supportsTPV (Optional)	{Boolean}	If true, disks from third party vendors are supported (VMD only)
subClassCode	{Number}	Subclass Code of the device, as reported by PCI enumeration.
subVendorId	{String}	Sub vendor ID of the device, as reported by PCI enumeration.
mode	{String}	Controller mode [AHCI | RAID | IDE | UNKNOWN].


```
{
 "data": [
 {
  "availableDisks": 7,
  "availableDevices": 7,
  "deviceId": 7530,
  "disableESataSpanning": true,
  "hardwareKey": "VROC_PREMIUM",
  "hardwareRevisionId": 6,
  "id": "2684354562",
  "mode": "RAID",
  "name": "ISCI at 0000:03:00.0",
  "nvsramSupported": false,
  "preboot": {
    "loaded": true,
    "managerVersion": "3.8.0.1029",
    "twoTbDiskSupport": true,
    "twoTbVolumeSupport": true
   },
   "raidId": "2415919105",
   "readPatrol": {
     "enabled": true,
     "supported": true
   },
  "rohi": {
     "enabled": true,
     "supported": true
   },
   "subClassCode": 7,
   "subSystemId": 13719,
   "subVendorId": "8086",
   "supportedFunctions": {
    "addDisksToArray": true,
    "arrayCreate": true,
    "markAsNormal": false,
    "markAsSpare": true,
    "portLocate": true,
    "volumeCancelVerify": true,
    "volumeDelete": true,
    "volumeModify": true,
    "volumeRename": true,
    "volumeSetCachePolicy": false
   },
   "supportsTPV": true,
   "type": "VMD",
   "vendorId": "8086",
   "version": "1.1.0.0",
   "xor": {
     "enabled": false,
     "supported": false
   }
 }],
 "status": {
   "success": true
 }
```

availableDisks	{Number}	Number of available disks. }
availableDevices	{Number}	Number of available devices.
disableESataSpanning	{Boolean}	If true, arrays may not be created with a mix of internal/external disks.
preboot	{Object}	Preboot options.
{}.managerVersion	{String}	Version of the option ROM or EFI driver associated with this controller.
{}.loaded	{Boolean}	If true, OROM/EFI has been loaded.
{}.twoTbVolumeSupport	{Boolean}	If true, OROM supports system volumes greater than 2 TB.
{}.twoTbDiskSupport	{Boolean}	If true, OROM supports system disks greater than 2TB.
xor	{Boolean}	XOR Acceleration options.
{}.supported	{Boolean}	If true, controller is supporting H/W XOR acceleration.
{}.enabled	{Boolean}	If true, controller has enabled H/W XOR acceleration.
nvsramSupported	{Boolean}	If true, controller is using NVSRAM.
supportedFunctions	{Object}	List of supported options for this controller.
{}.portLocate	{Boolean}	True if the port locate function is supported for ports attached to this controller.
{}.markAsNormal	{Boolean}	True if the mark as normal function is supported for devices attached to this controller.
{}.volumeDelete	{Boolean}	True if the volume delete function is supported for volumes attached to this controller.
{}.arrayCreate	{Boolean}	True if the array create function is supported for volumes attached to this controller.
{}.volumeModify	{Boolean}	True if the volume modify function is supported for volumes attached to this controller.

{}.volumeRename	{Boolean}	True if the volume rename function is supported for volumes attached to this controller.
{}.addDisksToArray	{Boolean}	True if the add disks to array function is supported for volumes attached to this controller.
{}.volumeSetCachePolicy	{Boolean}	True if the volume set cache policy function is supported for volumes attached to this controller.
{}.volumeCancelVerify	{Boolean}	True if the volume cancel verify function is supported for volumes attached to this controller.
{}.markAsSpare	{Boolean}	True if the mark as spare function is supported for devices attached to this controller.
readPatrol	{Object}	Read patrol information object.
{}.supported	{Boolean}	True if this controller supports read patrol.
{}.enabled	{Boolean}	True if this controller has read patrol enabled.
rohi	{Boolean}	Rebuild on hot insert options.
{}.supported	{Boolean}	If true, controller is supporting rebuild on hot insert.
{}.enabled	{Boolean}	If true, controller has enabled rebuild on hot insert.

Available Error IDs

RSTe_OFFLINE	RSTe product not found.
RSTe_NOT_INITIALIZED	Indicates that system is not initialized.
INTERNAL_ERROR	Unknown internal error occurred.

5.6 End device information associated with controller

[GET] /v1/rste/controllers/:controllerId/enddevices

Get an array of possible end devices associated with given controller.
Example:
curl http://127.0.0.1/v1/rste/controllers/5648654/enddevices

Parameters

:controllerId	{Number}	Id of controller associated with end device.

Response {Array}		
id	{String}	End device identifier.
controllerId	{String}	Controller id to which device is connected.
raidId	{String}	Raid identifier.
arrayId	{String}	Associated array id, if any (null if no array).
address	{String}	Address of the end device.
deviceType	{String}	Device type [UNKNOWN | DISK | NON_DISK_STORAGE | NON_STORAGE]
serialNumber	{String}	String representing the serial number reported by the device.
model	{String}	String representing the model number of the device.
firmware	{String}	String representing the firmware revision of the device.
type	{String}	Disk type [UNKNOWN | SATA | ~~SAS~~ | NVME | VMD]
state	{String}	Disk state [UNKNOWN | OFFLINE | MISSING | FAILED | SMART_EVENT_TRIGGERED | CONFIG_IS_UPREV | NORMAL | LOCKED | UNSUPPORTED | INCOMPATIBLE]
usage	{String}	Disk usage [UNKNOWN | ARRAY_MEMBER | PASS_THROUGH | OFFLINE_ARRAY | SPARE | ARRAY_MEMBER_READONLY_MOUNT | PASS_THRU_READONLY_MOUNT | JOURNALING_DRIVE]
totalSize (Optional)	{String}	Size of the storage device, in Bytes.
sectorSize (Optional)	{Object}	Sizes of logical and physical sectors.
{}.logical	{String}	Size of logical sector in Bytes.
{}.physical	{String}	Size of physical sector in Bytes.
freeSize (Optional)	{String}	Total free blocks in the storage device.
writeCachePolicy (Optional)	{String}	Write cache policy, one of [UNKNOWN | OFF | ON | NOT_SUPPORTED]


```
{
  "data": [{
    "address": "2-0-0-0",
    "arrayId": null,
    "sectorSize": {
      "logical": "512",
      "physical": "512"
    },
    "freeSize": "0",
    "controllerId": "0",
    "deviceType": "DISK",
    "firmware": "045C8820",
    "id": "536870913",
    "isIntelNVMe": true,
    "managedHotplug": true,
    "model": "INTEL
SSDSA2MH080G1HP",
    "negotiatedLinkSpeed":
"UNKNOWN",
    "raidId": "0",
    "serialNumber":
"CVEM911000FA080DGN",
    "state": "NORMAL",
    "systemDisk": true,
    "totalSize": "80026361856",
    "type": "VMD",
    "usage": "PASS_THROUGH",
    "writeCachePolicy": "ON",
    "x8Disk": "X8_A",
    "vendorId": "8086",
    "vmdDomain": 1
  }],
  "status": {
    "success": true
  }
}
```

systemDisk (Optional)	{Boolean}	If true, this disk contains files that the system requires to boot. This may include operating system files, page files, hibernate files, dump files, etc.
negotiatedLinkSpeed	{String}	Link speed.
x8Disk (Optional)	{String}	Determines if disk is a first or second dual controller NVMe drive. One of [X8_A | X8_B].
vendorId (Optional)	{String}	Device's vendor ID. Available for VMD attached NVMe devices.
vmdDomain (Optional)	{Number}	Determines to which VMD domain this device is attached.
isIntelNVMe (Optional)	{Boolean}	If true, device is Intel NVMe device (VMD only)
managedHotplug	{Boolean}	If true, device can be removed with managed hotplug.

Available Error IDs

RSTe_OFFLINE	RSTe product not found.
RSTe_NOT_INITIALIZED	Indicates that system is not initialized.
OBJECT_NOT_FOUND	Object with given ID was not found.
INTERNAL_ERROR	Unknown internal error occurred.

5.7 List of arrays associated with controller

[GET] /v1/rste/controllers/:controllerId/arrays

Get a list of possible arrays in given controller.
Example:
curl http://127.0.0.1/v1/rste/controllers/65431/arrays

Parameters

:controllerId	{Number}	Id of controller associated with end device.

Response {Array}

id	{String}	Array identifier.
controllerIds	{Array}	Controller ids to which device is connected.
name	{String}	String representing the array. Array names should be unique across arrays


```
{
    "data": [
    {
        "controllerIds": [
            "2684354562"
        ],
        "freeSize": "0",
        "id": "805306372",
```

		within the same controller family.
state	{String}	Array state, one of [UNKNOWN | NORMAL | STATE_BUSY].
totalSize	{String}	Total size in Bytes.
freeSize	{String}	Free size in Bytes
writeCachePolicy	{String}	Write cache policy [UNKNOWN | OFF | ON | NOT_SUPPORTED]
numDisks	{Number}	Number of disks in the array.
numVolumes	{Number}	Number of volumes in the array.


```
            "name": "ism0",
            "numDisks": 2,
            "numVolumes": 1,
            "state": "NORMAL",
            "totalSize": "160052723712",
            "writeCachePolicy": "ON"
        }
        ],
        "status": {
            "success": true
        }
    }
```


Available Error IDs

RSTe_OFFLINE	RSTe product not found.
RSTe_NOT_INITIALIZED	Indicates that system is not initialized.
OBJECT_NOT_FOUND	Object with given ID was not found.
INTERNAL_ERROR	Unknown internal error occurred.

5.8 Ports information associated with controller

[GET] /v1/rste/controllers/:controllerId/ports

List of available ports associated with specified controller.
Example:
curl http://127.0.0.1/v1/rste/controllers/654316851/ports

Parameters

:controllerId	{Number}	Id of controller associated with end device.

Response {Array}

id	{String}	Port identifier.
address	{String}	Port address.
numPhys	{Number}	The width of the port defined by the number of Phys - x1, x2 or x4.
localDeviceType	{String}	Local device type, one of [CONTROLLER, END_DEVICE, ROUTING_DEVICE, UNKNOWN].
localDeviceId	{String}	Local device Id.
connectedPortId	{String}	Id of port that is connected to (on the remote device).


```
{
    "data": [
    {
        "address": "2-0-0-0",
        "connectedPortId": "1879048194",
        "id": "1879048193",
        "localDeviceId": "536870913",
        "localDeviceType": "CONTROLLER",
        "numPhys": 1
        }
    ],
    "status": {
        "success": true
    }
}
```


Available Error IDs

RSTe_OFFLINE	RSTe product not found.
RSTe_NOT_INITIALIZED	Indicates that system is not initialized.
OBJECT_NOT_FOUND	Object with given ID was not found.
INTERNAL_ERROR	Unknown internal error occurred.

5.9 List of volumes associated with controller

[GET] /v1/rste/controllers/:controllerId/volumes

Get a list of possible volumes.
Example:
curl http://127.0.0.1/v1/rste/controllers/6543216/volumes

Parameters

:controllerId	{Number}	Id of controller associated with end device.

Response {Array}

id	{String}	Volume identifier.
arrayId	{String}	Associated array identifier.
arrayOrdinal	{Number}	The number of the volume in the array.
name	{String}	Volume name. Contains no more than 16 ASCII characters with values from 32 to 126 (inclusive), except for backslash character (ASCII code 92) and spaces at the beginning. All other characters are invalid.
state	{String}	Volume state, one of [UNKNOWN, NORMAL, DEGRADED, FAILED, INITIALIZING, REBUILDING, VERIFYING, VERIFYING_AND_FIXING, GENERAL_MIGRATION, LOCKED, NON_REDUNDANT_VOLUME_FAILED_DISK].
raidLevel	{String}	Name of the RAID level, one of [RAID_0, RAID_1, RAID_10, RAID_5, RAID_INVALID, RAID_UNKNOWN].
totalSize	{String}	Total size in Bytes.
stripSize	{String}	Size of the strips in this volume, one of: [SIZE_UNKNOWN, SIZE_4KB, SIZE_8KB, SIZE_16KB, SIZE_32KB, SIZE_64KB, SIZE_128KB].
numDisks	{Number}	Number of disks used by the volume.


```
.{
    "data": [
    {
        "arrayId": "805306372",
        "arrayOrdinal": 0,
        "cachePolicy": "OFF",
        "id": "1610612739",
        "initialized": true,
        "migrProgress": 0,
        "migration": false,
        "name": "Vol1",
        "numDisks": 2,
        "raidLevel": "RAID_5",
        "rwhPolicy": "RWH_OFF",
        "sectorSize": {
            "logical": "512",
            "physical": "512"
        },
        "state": "NORMAL",
        "stripSize": "SIZE_64KB",
        "systemVolume": false,
        "totalSize": "80023126016",
        "verify": {
            "badBlocks": 0,
            "errors": 0
        }
    }
    ],
    "status": {
        "success": true
    }
}
```

migrProgress	{Number}	This value shall indicate the percentage progress complete for a long running operation such as a migration, capacity expansion, or verify operation.
cachePolicy	{String}	Volume cache policy, one of [UNKNOWN, OFF, WRITE_THROUGH, WRITE_BACK, NOT_SUPPORTED]. For Linux this is always NOT_SUPPORTED.
systemVolume	{Boolean}	The volume contains files that the system requires to boot. This may include operating system files, page files, hibernate files, dump files, etc.
migration	{Boolean}	The volume is currently migrating and migrProgress contains meaningful data.
initialized	{Boolean}	Determines if parity (or similar redundancy) has been initialized on the volume.
verify	{Object}	Last verify and/or repair operation status.
{}.errors	{Number}	The number of parity errors found.
{}.badBlocks	{Number}	The number of bad blocks found.
sectorSize	{Object}	Sector size object.
{}.logical	{String}	The logical sector size of the specified volume.
{}.physical	{String}	The physical sector size of the specified volume.
rwhPolicy (Optional)	{String}	Volume RAID Write Hole policy for RAID_5. One of [RWH_OFF, RWH_DISTRIBUTED, RWH_JOURNALING_DRIVE]. For Linux RWH_JOURNALING_DRIVE is not supported.
journalingDriveId (Optional)	{String}	Identifier of journaling drive associated to RAID5 volume with rwhPolicy set to journaling mode.

Available Error IDs	
RSTe_OFFLINE	RSTe product not found.
RSTe_NOT_INITIALIZED	Indicates that system is not initialized.
OBJECT_NOT_FOUND	Object with given ID was not found.
INTERNAL_ERROR	Unknown internal error occurred.

5.10 Ports information

```
[GET] /v1/rste/ports
```

List of all available ports.
Example:
curl http://127.0.0.1/v1/rste/ports

Response {Array}

id	{String}	Port identifier.
address	{String}	Port address.
numPhys	{Number}	The width of the port defined by the number of Phys - x1, x2 or x4.
localDeviceType	{String}	Local device type, one of [CONTROLLER, END_DEVICE, ROUTING_DEVICE, UNKNOWN].
localDeviceId	{String}	Local device Id.
connectedPortId	{String}	Id of port that is connected to (on the remote device).


```
{
    "data": [
    {
        "address": "2-0-0-0",
        "connectedPortId": "1879048194",
        "id": "1879048193",
        "localDeviceId": "536870913",
        "localDeviceType": "CONTROLLER",
        "numPhys": 1
        }
    ],
    "status": {
        "success": true
    }
}
```


Available Error IDs

RSTe_OFFLINE	RSTe product not found.
RSTe_NOT_INITIALIZED	Indicates that system is not initialized.
INTERNAL_ERROR	Unknown internal error occurred.

5.11 End device information

```
[GET] /v1/rste/enddevices
```

Get an array of all possible disks, or single disk.
Example:
curl http://127.0.0.1/v1/rste/enddevices

Response {Array}

id	{String}	End device identifier.
controllerId	{String}	Controller id to which device is connected.
raidId	{String}	RAID identifier.
arrayId	{String}	Associated array id, if any (null if no array).
address	{String}	Address of the end device.
deviceType	{String}	Device type [UNKNOWN | DISK | NON_DISK_STORAGE | NON_STORAGE]


```
{
    "data": [
     {
       "address": "2-0-0-0",
       "arrayId": null,
       "sectorSize": {
         "logical": "512",
         "physical": "512"
       },
       "freeSize": "0",
       "controllerId": "0",
       "deviceType": "DISK",
       "firmware": "045C8820",
       "id": "536870913",
       "isIntelNVMe": true,
       "managedHotplug": true,
```

serialNumber	{String}	String representing the serial number reported by the device.
model	{String}	String representing the model number of the device.
firmware	{String}	String representing the firmware revision of the device.
type	{String}	Disk type [UNKNOWN | SATA | SAS | NVME | VMD]
state	{String}	Disk state [UNKNOWN | OFFLINE | MISSING | FAILED | SMART_EVENT_TRIGGERED | CONFIG_IS_UPREV | NORMAL | LOCKED | UNSUPPORTED | INCOMPATIBLE]
usage	{String}	Disk usage [UNKNOWN | ARRAY_MEMBER | PASS_THROUGH | OFFLINE_ARRAY | SPARE | ARRAY_MEMBER_READONLY_MOUNT | PASS_THRU_READONLY_MOUNT | JOURNALING_DRIVE]
totalSize (Optional)	{String}	Size of the storage device, in Bytes.
sectorSize (Optional)	{Object}	Sizes of logical and physical sectors.
{}.logical	{String}	Size of logical sector in Bytes.
{}.physical	{String}	Size of physical sector in Bytes.
freeSize (Optional)	{String}	Total free blocks in the storage device.
writeCachePolicy (Optional)	{String}	Write cache policy [UNKNOWN | OFF | ON | NOT_SUPPORTED]
systemDisk (Optional)	{Boolean}	If true, this disk contains files that the system requires to boot. This may include operating system files, page files, hibernate files, dump files, etc.
negotiatedLinkSpeed	{String}	Link speed.
x8Disk (Optional)	{String}	Determines if disk is a first or second dual controller NVMe drive. One of [X8_A | X8_B].
vendorId (Optional)	{String}	Device’s vendor ID.


```
      "model": "INTEL SSDSA2MH080G1HP",
      "negotiatedLinkSpeed": "UNKNOWN",
      "raidId": "0",
      "serialNumber":
       "CVEM911000FA080DGN",
      "state": "NORMAL",
      "systemDisk": true,
      "totalSize": "80026361856",
      "type": "VMD",
      "usage": "PASS_THROUGH",
      "writeCachePolicy": "ON",
      "x8Disk": "X8_A",
      "vendorId": "8086",
      "vmdDomain": 1
    }
  ],
  "status": {
    "success": true
  }
}
```

		Available for VMD attached NVMe devices.
vmdDomain (Optional)	{Number}	Determines to which VMD domain this device is attached.
isIntelNVMe (Optional)	{Boolean}	If true, device is Intel NVMe device (VMD only)
managedHotplug	{Boolean}	If true, device can be removed with managed hotplug.

Available Error IDs

RSTe_OFFLINE	RSTe product not found.
RSTe_NOT_INITIALIZED	Indicates that system is not initialized.
INTERNAL_ERROR	Unknown internal error occurred.

5.12 List of all arrays

[GET] /v1/rste/arrays

Get a list of possible arrays.
Example:
curl http://127.0.0.1/v1/rste/arrays

Response {Array}

controllerIds	{Array}	List of controllers associated with array.
id	{String}	Array identifier.
name	{String}	String representing the array. Array names should be unique across arrays within the same controller family.
state	{String}	Array state, one of [UNKNOWN | NORMAL | STATE_BUSY].
totalSize	{String}	Total size in Bytes.
freeSize	{String}	Free size in Bytes
writeCachePolicy	{String}	Write cache policy [UNKNOWN | OFF | ON]
numDisks	{Number}	Number of disks in the array.
numVolumes	{Number}	Number of volumes in the array.


```
{
    "data": [
    {
        "controllerIds": [
            "2684354562"
        ],
        "freeSize": "0",
        "id": "805306372",
        "name": "ism0",
        "numDisks": 2,
        "numVolumes": 1,
        "state": "NORMAL",
        "totalSize":
         "160052723712",
        "writeCachePolicy": "ON"
        }
    ],
    "status": {
        "success": true
    }
}
```


Available Error IDs

RSTe_OFFLINE	RSTe product not found.
RSTe_NOT_INITIALIZED	Indicates that system is not initialized.

INTERNAL_ERROR	Unknown internal error occurred.

5.13 End device information associated with array

[GET] /v1/rste/arrays/:arrayId/enddevices

Get an array of possible and devices associated with given array.
Example:
curl http://127.0.0.1/v1/rste/arrays/5648654/enddevices

Parameters

:arrayId	{Number}	Id of array associated with end devices.

Response {Array}

id	{String}	End device identifier.
controllerId	{String}	Controller id to which device is connected.
raidId	{String}	Raid identifier.
arrayId	{String}	Associated array id, if any (null if no array).
address	{String}	Address of the end device.
deviceType	{String}	Device type [UNKNOWN | DISK | NON_DISK_STORAGE | NON_STORAGE]
serialNumber	{String}	String representing the serial number reported by the device.
model	{String}	String representing the model number of the device.
firmware	{String}	String representing the firmware revision of the device.
type	{String}	Disk type [UNKNOWN | SATA | SAS | NVME | VMD]
state	{String}	Disk state [UNKNOWN | OFFLINE | MISSING | FAILED | SMART_EVENT_TRIGGERED | CONFIG_IS_UPREV | NORMAL | LOCKED | UNSUPPORTED | INCOMPATIBLE]
usage	{String}	Disk usage [UNKNOWN | ARRAY_MEMBER | PASS_THROUGH | OFFLINE_ARRAY | SPARE | ARRAY_MEMBER_READONLY_MOUNT | PASS_THRU_READONLY_MOUNT | JOURNALING_DRIVE]
totalSize (Optional)	{String}	Size of the storage device, in Bytes.
sectorSize (Optional)	{Object}	Sizes of logical and physical sectors.


```
{
  "data": [{
    "address": "2-0-0-0",
    "arrayId": null,
    "sectorSize": {
      "logical": "512",
      "physical": "512"
    },
    "freeSize": "0",
    "controllerId": "0",
    "deviceType": "DISK",
    "firmware": "045C8820",
    "id": "536870913",
    "managedHotplug": false,
    "model":
     "INTEL SSDSA2MH080G1HP",
    "negotiatedLinkSpeed":
     "UNKNOWN",
    "raidId": "0",
    "serialNumber":
      "CVEM911000FA080DGN",
    "state": "NORMAL",
    "systemDisk": true,
    "totalSize": "80026361856",
    "type": "SATA",
    "usage": "PASS_THROUGH",
    "writeCachePolicy": "ON"
  }],
  "status": {
    "success": true
  }
}
```

{}.logical	{String}	Size of logical sector in Bytes.
{}.physical	{String}	Size of physical sector in Bytes.
freeSize (Optional)	{String}	Total free blocks in the storage device.
writeCachePolicy (Optional)	{String}	Write cache policy [UNKNOWN | OFF | ON]
systemDisk (Optional)	{Boolean}	If true, this disk contains files that the system requires to boot. This may include operating system files, page files, hibernate files, dump files, etc.
negotiatedLinkSpeed	{String}	Link speed.
x8Disk (Optional)	{String}	Determines if disk is a first or second dual controller NVMe drive. One of [X8_A | X8_B].
vendorId (Optional)	{String}	Device's vendor ID. Available for VMD attached NVMe devices.
vmdDomain (Optional)	{Number}	Determines to which VMD domain this device is attached.
isIntelNVMe (Optional)	{Boolean}	If true, device is Intel NVMe device (VMD only)
managedHotplug	{Boolean}	If true, device can be removed with managed hotplug.

Available Error IDs

RSTe_OFFLINE	RSTe product not found.
RSTe_NOT_INITIALIZED	Indicates that system is not initialized.
OBJECT_NOT_FOUND	Object with given ID was not found.
INTERNAL_ERROR	Unknown internal error occurred.

5.14 List of volumes associated with array

[GET] /v1/rste/arrays/:arrayId/volumes

Get list of possible volumes.
Example:
curl http://127.0.0.1/v1/rste/arrays/6543216/volumes

Parameters

:arrayId	{Number}	Id of array associated with end device.

Response {Array}		
id	{String}	Volume identifier.
arrayId	{String}	Associated array identifier.
arrayOrdinal	{Number}	The number of the volume in the array.
name	{String}	Volume name. Contains no more than 16 ASCII characters with values from 32 to 126 (inclusive), except for backslash character (ASCII code 92) and spaces at the beginning. All other characters are invalid.
state	{String}	Volume state, one of [UNKNOWN, NORMAL, DEGRADED, FAILED, INITIALIZING, REBUILDING, VERIFYING, VERIFYING_AND_FIXING, GENERAL_MIGRATION, LOCKED, NON_REDUNDANT_VOLUME_FAILED_DISK].
raidLevel	{String}	Name of the RAID level, one of [RAID_0, RAID_1, RAID_10, RAID_5, RAID_INVALID, RAID_UNKNOWN].
totalSize	{String}	Total size in Bytes.
stripSize	{String}	Size of the strips in this volume, one of: [SIZE_UNKNOWN, SIZE_4KB, SIZE_8KB, SIZE_16KB, SIZE_32KB, SIZE_64KB, SIZE_128KB]. For RAID level RAID_1 parameter is not present.
numDisks	{Number}	Number of disks used by the volume.
migrProgress	{Number}	This value shall indicate the percentage progress complete for a long running operation such as a migration, capacity expansion, or verify operation.
cachePolicy	{String}	Volume cache policy, one of [UNKNOWN, OFF, WRITE_THROUGH, WRITE_BACK]. For Linux this is always NOT_SUPPORTED.
systemVolume	{Boolean}	The volume contains files that the system requires to boot. This may include operating system files, page files, hibernate files, dump files, etc.
migration	{Boolean}	The volume is currently migrating and migrProgress contains meaningful data.
initialized	{Boolean}	Parity (or similar redundancy) has been initialized on the volume.
verify	{Object}	Last verify/verify and repair operation status.


```
{
  "data": [
  {
    "arrayId": "805306372",
    "arrayOrdinal": 0,
    "cachePolicy": "OFF",
    "id": "1610612739",
    "initialized": true,
    "migrProgress": 0,
    "migration": false,
    "name": "Vol1",
    "numDisks": 2,
    "raidLevel": "RAID_5,
    "rwhPolicy": "RWH_OFF",
    "sectorSize": {
      "logical": "512",
      "physical": "512"
    },
    "state": "NORMAL",
    "stripSize":
     "SIZE_64KB",
    "systemVolume": false,
    "totalSize":
     "80023126016",
    "verify": {
      "badBlocks": 0,
      "errors": 0
    }
  }],
  "status": {
    "success": true
  }
}
```

{}.errors	{String}	The number of parity errors found.
{}.badBlocks	{String}	The number of bad blocks found.
sectorSize	{Object}	Sector size object.
{}.logical	{String}	The logical sector size of the specified volume.
{}.physical	{String}	The physical sector size of the specified volume.
rwhPolicy (Optional)	{String}	Volume RAID Write Hole policy for RAID_5. One of [RWH_OFF, RWH_DISTRIBUTED, RWH_JOURNALING_DRIVE]. For Linux RWH_JOURNALING_DRIVE is not supported.
journalingDriveId (Optional)	{String}	Identifier of journaling drive associated with RAID5 volume with rwhPolicy set to journaling mode.

Available Error IDs

RSTe_OFFLINE	RSTe product not found.
RSTe_NOT_INITIALIZED	Indicates that system is not initialized.
OBJECT_NOT_FOUND	Object with given ID was not found.
INTERNAL_ERROR	Unknown internal error occurred.

5.15 List of all volumes

[GET] /v1/rste/volumes

Get a list of possible volumes.
Example:
curl http://127.0.0.1/v1/rste/volumes

Response {Array}

id	{String}	Volume identifier.
arrayId	{String}	Associated array identifier.
arrayOrdinal	{Number}	The number of the volume in the array.
name	{String}	Volume name. Contains no more than 16 ASCII characters with values from 32 to 126 (inclusive), except for backslash character (ASCII code 92) and spaces at the beginning. All other characters are invalid.
state	{String}	Volume state, one of [UNKNOWN, NORMAL, DEGRADED, FAILED, INITIALIZING, REBUILDING, VERIFYING, VERIFYING_AND_FIXING, GENERAL_MIGRATION, LOCKED, NON_REDUNDANT_VOLUME_FAILED_DISK].


```
{
  "data": [
  {
    "arrayId": "805306372",
    "arrayOrdinal": 0,
    "cachePolicy": "OFF",
    "id": "1610612739",
    "initialized": true,
    "migrProgress": 0,
    "migration": false,
    "name": "Vol1",
    "numDisks": 2,
    "raidLevel": "RAID_5",
    "rwhPolicy": "RWH_OFF",
    "sectorSize": {
      "logical": "512",
      "physical": "512"
    },
    "state": "NORMAL",
    "stripSize": "SIZE_64KB",
```

raidLevel	{String}	Name of the RAID level, one of [RAID_0, RAID_1, RAID_10, RAID_5, RAID_INVALID, RAID_UNKNOWN].
totalSize	{String}	Total size in Bytes.
stripSize	{String}	Size of the strips in this volume, one of: [SIZE_UNKNOWN, SIZE_4KB, SIZE_8KB, SIZE_16KB, SIZE_32KB, SIZE_64KB, SIZE_128KB]. For RAID level RAID_1 parameter is not present.
numDisks	{Number}	Number of disks used by the volume.
migrProgress	{Number}	This value shall indicate the percentage progress complete for a long running operation such as a migration, capacity expansion, or verify operation.
cachePolicy	{String}	Volume cache policy, one of [UNKNOWN, OFF, WRITE_THROUGH, WRITE_BACK]. For Linux this is always NOT_SUPPORTED.
systemVolume	{Boolean}	The volume contains files that the system requires to boot. This may include operating system files, page files, hibernate files, dump files, etc.
migration	{Boolean}	The volume is currently migrating and migrProgress contains meaningful data.
initialized	{Boolean}	Parity (or similar redundancy) has been initialized on the volume.
verify	{Object}	Last verify/verify and repair operation status.
{}.errors	{Number}	The number of parity errors found.
{}.badBlocks	{Number}	The number of bad blocks found.
sectorSize	{Object}	Sector size object.
{}.logical	{String}	The logical sector size of the specified volume.
{}.physical	{String}	The physical sector size of the specified volume.
rwhPolicy (Optional)	{String}	Volume RAID Write Hole policy for RAID_5. One of [RWH_OFF, RWH_DISTRIBUTED, RWH_JOURNALING_DRIVE]. For Linux RWH_JOURNALING_DRIVE is not supported.
journalingDriveId (Optional)	{Number}	Identifier of journaling drive associated to RAID5 volume with rwhPolicy set to journaling mode.


```
    "systemVolume": false,
    "totalSize": "80023126016",
    "verify": {
      "badBlocks": 0,
      "errors": 0
    }
  }],
  "status": {
    "success": true
  }
}
```

Available Error IDs	
RSTe_OFFLINE	RSTe product not found.
RSTe_NOT_INITIALIZED	Indicates that system is not initialized.
INTERNAL_ERROR	Unknown internal error occurred.

5.16 Events information

[GET] /v1/rste/events?time=[time]

Returns events that happened in specified time.
Example:
curl http://127.0.0.1:8080/v1/rste/events?time=3600

Parameters		
:time	{Number}	Time of events' occurrence in seconds.

Response {Object}		
creation_time	{String}	Date of event's occurrence
event_source	{String}	Source that causes the event. For now possible values are [DISK, VOLUME].
event_source_name	{String}	Name of object that sends an event.
event_type	{String}	Type and name of event.
description	{String}	Description of event that contains some information.
severity	{String}	Category of event. One of [NONE, INFO, WARNING, ERROR].


```
{
 "data": [{
  "creation_time": "12 Oct 2015  14:51:09",
  "event_source": "DISK",
  "event_source_name" : "Disk_Name",
  "event_type": "DISK_MISSING",
  "description":
          "Disk number Z2AEG0LH:1 is missing",
  "severity": "INFO"
 }],
 "status": {
  "success": "true"
 }
}
```


Available Event Types.	
VOLUME_ADDED	Volume was added.
VOLUME_REBUILD_STARTED	Volume rebuild has been started.
VOLUME_REBUILD_COMPLETED	Volume rebuild has been completed.
VOLUME_VERIFY_STARTED	Volume verify has been started.
VOLUME_VERIFY_COMPLETED	Volume verify has been completed.
VOLUME_VERIFY_CANCELLED	Volume verify has been cancelled by user.
VOLUME_VERIFY_AND_FIX_STARTED	Volume verify and fix has been started.
VOLUME_VERIFY_AND_FIX_COMPLETED	Volume verify fix and stop has been completed.

VOLUME_VERIFY_AND_FIX_CANCELLED	Volume verify fix and stop has been cancelled by user.
VOLUME_MIGRATION_STARTED	Volume migration has been started.
VOLUME_MIGRATION_COMPLETED	Volume migration has been completed.
VOLUME_INITIALIZE_STARTED	Volume initialization has been started.
VOLUME_INITIALIZE_COMPLETED	Volume initialization has been completed.
VOLUME_DEGRADED	Volume has been degraded!
VOLUME_FAILED	Volume failed!
VOLUME_UNLOCKED	Volume has been unlocked.
VOLUME_DELETED	Volume has been deleted.
VOLUME_SYNCING_STARTED	Volume syncing has been started.
VOLUME_SYNCING_COMPLETED	Volume syncing has been completed.
VOLUME_RECOVERY_DISK_DATA_INVALID	Volume data invalid on recovery disc!
VOLUME_MASTER_DISK_DATA_INVALID	Volume data invalid on master disk!
VOLUME_MASTER_DISK_FAILED	Volume master disk failed!
VOLUME_RECOVERY_DISK_FAILED	Volume recovery disk failed!
VOLUME_REVERSE_SYNC_STARTED	Volume reverse sync has been started.
VOLUME_REVERSE_SYNC_COMPLETED	Volume reverse sync has been completed.
VOLUME_NORMAL	Volume has been changed to normal state.
DISK_SMART	Disk has reported smart event!
DISK_FAILED	Disk failed!
DISK_UNLOCKED	Disk was unlocked!
DISK_ADDED	Disk was added!
DISK_REMOVED	Disk was removed!
DISK_MISSING	Disk missing!
Available Error IDs	
RSTe_OFFLINE	RSTe product not found.
RSTe_NOT_INITIALIZED	Indicates that system is not initialized.
INVALID_PARAMETER	One of provided parameter is invalid or is missing.
INTERNAL_ERROR	Unknown internal error occurred.

6. Actions

6.1 Clear metadata

```
[PUT] /v1/rste/disks/:diskId/clear
```

Clears the metadata off of a disk.
Example:
curl –X PUT http://127.0.0.1/v1/rste/disks/56465/clear

Parameters

:diskId	{Number}	Identifier of disk.

Response

diskId	{String}	Identifier of disk.
usage	{String}	Disk usage [PASS_THROUGH].

HTTP response code 200 on success, otherwise JSON error object.

```
{
    "data": {
      "diskId": "1",
      "usage": "PASS_THROUGH"
    },
    "status": {
      "success": true
    }
}
```

Available Error IDs

RSTe_OFFLINE	RSTe product not found.
RSTe_NOT_INITIALIZED	Indicates that system is not initialized.
OBJECT_NOT_FOUND	Object with given ID was not found.
RSTe_OPERATION_FAILED	Operation failed to complete successfully.
RSTe_DISK_INVALID_STATE	The disk is not in state where its metadata can be cleared.
INTERNAL_ERROR	Unknown internal error occurred.

6.2 Mark/unmark disk as spare

```
[PUT] /v1/rste/disks/:diskId/spare
```

Marks or unmarks disk as spare.
Example:
curl -H "Content-Type: application/json" -d '{"action": "MARK"}'
http://127.0.0.1/v1/rste/disks/656465/spare

Parameters

:diskId	{Number}	Identifier of disk.

Request {Object}

action	{String}	Action to be taken on disk, one of [MARK, UNMARK]. - "MARK": This will set a disk to be a spare.

```
{
  "action": "MARK"
}
```

- "UNMARK": This will reset a spare disk to no longer be used as a spare.

Response

diskId	{String}	Identifier of disk.
usage	{String}	Disk usage [PASS_THROUGH, SPARE].

HTTP response code 200 on success, otherwise JSON error object.


```
{
    "data": {
      "diskId": "1",
      "usage": "SPARE"
    },
    "status": {
      "success": true
    }
}
```


Available Error IDs

RSTe_OFFLINE	RSTe product not found.
RSTe_NOT_INITIALIZED	Indicates that system is not initialized.
OBJECT_NOT_FOUND	Object with given ID was not found.
INVALID_PARAMETER	One of provided parameter is invalid or is missing.
RSTe_OPERATION_FAILED	Operation failed to complete successfully.
RSTe_DISK_INVALID_STATE	The disk is not in valid state.
NOT_SUPPORTED	Operation is not supported.
INTERNAL_ERROR	Unknown internal error occurred.

6.3 Mark disk as normal

[PUT] /v1/rste/disks/:diskId/marknormal

Marks a failed disk as being healthy. It is only valid to call this on a failed disk. (Not supported on Linux)
Example:
curl –X PUT http://127.0.0.1/v1/rste/disks/656465/marknormal

Parameters

:diskId	{Number}	Identifier of disk.

Response

diskId	{String}	Identifier of disk.
state	{String}	Disk state [NORMAL].

HTTP response code 200 on success, otherwise JSON error object.


```
{
    "data": {
      "diskId": "1",
      "state": "NORMAL"
    },
    "status": {
      "success": true
    }
}
```


Available Error IDs

RSTe_OFFLINE	RSTe product not found.

RSTe_NOT_INITIALIZED	Indicates that system is not initialized.
OBJECT_NOT_FOUND	Object with given ID was not found.
RSTe_OPERATION_FAILED	Operation failed to complete successfully.
RSTe_DISK_INVALID_STATE	The disk is not in a valid state for this operation.
NOT_SUPPORTED	Operation is not supported.
INTERNAL_ERROR	Unknown internal error occurred.

6.4 Reset disk SMART event

```
[PUT] /v1/rste/disks/:diskId/resetsmart
```

Resets SMART event on a disk. It is only valid to call this on a disk with SMART event. (Not supported on Linux)
Example:
curl –X PUT http://127.0.0.1/v1/rste/disks/656465/resetsmart

Parameters

:diskId	{Number}	Identifier of disk.

Response

diskId	{String}	Identifier of disk.
state	{String}	Disk state [NORMAL].

HTTP response code 200 on success, otherwise JSON error object.

```
{
    "data": {
      "diskId": "1",
      "state": "NORMAL"
    },
    "status": {
      "success": true
    }
}
```

Available Error IDs

RSTe_OFFLINE	RSTe product not found.
RSTe_NOT_INITIALIZED	Indicates that system is not initialized.
OBJECT_NOT_FOUND	Object with given ID was not found.
RSTe_OPERATION_FAILED	Operation failed to complete successfully.
RSTe_DISK_INVALID_STATE	The disk is not in a valid state for this operation.
NOT_SUPPORTED	Operation is not supported.
INTERNAL_ERROR	Unknown internal error occurred.

6.5 Managed Hotplug

```
[DELETE] /v1/rste/disks/:diskId
```

Triggers hardware-specific illumination to locate the given disk and prepares it to be safely removed when OS is still running. It's only available for disks inside VMD controllers. There's no restriction for non-system disks and volumes. System

disks cannot be removed. For system volumes, only 1 disk can be removed when status is normal (except RAID0 where all disks are not removable).
Example:
curl –X DELETE http://127.0.0.1/v1/rste/disks/656465

Parameters

:diskId	{Number}	Identifier of disk.

Response

HTTP response code 200 on success, otherwise JSON error object.

```
{
    "data": null,
    "status": {
      "success": true
    }
}
```

Available Error IDs

RSTe_OFFLINE	RSTe product not found.
RSTe_NOT_INITIALIZED	Indicates that system is not initialized.
OBJECT_NOT_FOUND	Object with given ID was not found.
RSTe_OPERATION_FAILED	Operation failed to complete successfully.
RSTe_DISK_INVALID_STATE	The disk is not in a valid state for this operation.
NOT_SUPPORTED	Operation is not supported.
INTERNAL_ERROR	Unknown internal error occurred.

6.6 Mark volume as normal

[PUT] /v1/rste/volumes/:volumeId/marknormal

Marks a failed volume as being healthy. It is only valid to call this on a failed volume. (Not supported on Linux)
Example:
curl –X PUT http://127.0.0.1/v1/rste/volumes/656465/marknormal

Parameters

:volumeId	{Number}	Identifier of volume.

Response

volumeId	{String}	Identifier of volume.
state	{String}	Volume state [REBUILDING].

HTTP response code 200 on success, otherwise JSON error object.

```
{
    "data": {
      "volumeId": "1",
      "state": "REBUILDING"
    },
    "status": {
      "success": true
    }
}
```

Available Error IDs

RSTe_OFFLINE	RSTe product not found.

RSTe_NOT_INITIALIZED	Indicates that system is not initialized.
OBJECT_NOT_FOUND	Object with given ID was not found.
RSTe_OPERATION_FAILED	Operation failed to complete successfully.
RSTe_VOLUME_INVALID_STATE	Either the volume is not failed or the disks are not all present and normal.
NOT_SUPPORTED	Operation is not supported.
INTERNAL_ERROR	Unknown internal error occurred.

6.7 Rebuild volume

[PUT] /v1/rste/volumes/:volumeId/rebuild

Rebuilds a degraded volume using the specified disk.
Example:

```
curl -H "Content-Type: application/json" -d '{"diskId": "654684654"}'
http://127.0.0.1/v1/rste/volumes/656465/rebuild
```

Parameters

:volumeId	{Number}	Identifier of volume.

Request {Object}

diskId	{String}	Identifier of the disk to use for the rebuild.

```
{
    "diskId": "1"
}
```

Response

volumeId	{String}	Identifier of volume.
state	{String}	Volume state [REBUILDING].

HTTP response code 200 on success, otherwise JSON error object.

```
{
    "data": {
      "volumeId": "1",
      "state": "REBUILDING"
    },
    "status": {
      "success": true
    }
}
```

Available Error IDs

RSTe_OFFLINE	RSTe product not found.
RSTe_NOT_INITIALIZED	Indicates that system is not initialized.
OBJECT_NOT_FOUND	Object with given ID was not found.
INVALID_PARAMETER	One of provided parameter is invalid or is missing. Detailed information wil be provided in error description.
RSTe_OPERATION_FAILED	Operation failed to complete successfully.
RSTe_VOLUME_INVALID_STATE	Either the volume is not degraded or the disk is not in a normal state as a passthrough.
NOT_SUPPORTED	Operation is not supported.

INTERNAL_ERROR	Unknown internal error occurred.

6.8 Delete volume

[DELETE] /v1/rste/volumes/:volumeId

Deletes volume.
Example:

```
curl –X DELETE http://127.0.0.1/v1/rste/volumes/656465
```

Parameters

:volumeId	{Number}	Identifier of volume.

Response

HTTP response code 200 on success, otherwise JSON error object.

```
{
    "data": null,
    "status": {
      "success": true
    }
}
```

Available Error IDs

RSTe_OFFLINE	RSTe product not found.
RSTe_NOT_INITIALIZED	Indicates that system is not initialized.
OBJECT_NOT_FOUND	Object with given ID was not found.
RSTe_OPERATION_FAILED	Operation failed to complete successfully.
RSTe_VOLUME_INVALID_STATE	The volume cannot be deleted because it is a system volume or it is a locked volume.
NOT_SUPPORTED	Operation is not supported.
INTERNAL_ERROR	Unknown internal error occurred.

6.9 Create volume

[POST] /v1/rste/volumes

Creates volume from disk or array.
Example:

```
curl –X POST -H "Content-Type: application/json" -d '{"source": "DISK",
      "disks": ["65465", "65465"], "name": "imsm0", "stripSize": "SIZE_32KB", "raidLevel": "RAID_10",
      "size": "372465137654"}' http://127.0.0.1/v1/rste/volumes
```

Request {Object}

source	{String}	Determines from what source volume should be created, one of [DISK, ARRAY].	Create volume. Data shall not be migrated from any of disks.
arrayId (Optional)	{String}	If source is “ARRAY”, contains identifier of the array on which to create the new volume, otherwise omit that field.	

```
{
    "source": "DISK",
    "disks": [
        "65465",
```

disks (Optional)	{Array}	If source is "DISK", array of disks identifiers to be used to create the volume.
diskId (Optional)	{String}	If source is “DISK” and if the data shall be migrated from one of disks, this field shall contain the identifier of that disk. Otherwise this field should be omitted. For Linux it is not supported.
name	{String}	Volume name. Contains no more than 16 ASCII characters with values from 32 to 126 (inclusive), except for backslash character (ASCII code 92) and spaces at the beginning. All other characters are invalid.
stripSize (Optional)	{String}	The strip size to use for the volume, one of: [SIZE_4KB, SIZE_8KB, SIZE_16KB, SIZE_32KB, SIZE_64KB, SIZE_128KB]. For RAID level RAID_1 parameter is not supported.
raidLevel	{String}	Name of the RAID level, one of [RAID_0, RAID_1, RAID_10, RAID_5].
size	{String}	The size, in bytes, of the volume to create. For the second volume in the array, size must be always equal 0 because it must be maximum size available. To create volume of maximal size, this parameter should be set to 0.
rwhPolicy (Optional)	{String}	Volume RAID Write Hole policy for RAID_5. One of [RWH_OFF, RWH_DISTRIBUTED, RWH_JOURNALING_DRIVE]. For Linux RWH_JOURNALING_DRIVE is not supported.
journalingDriveId (Optional)	{String}	Identifier of journaling drive associated with RAID5 volume with rwhPolicy set to journaling mode.

```
        "65465",
        "98765"
    ],
    "name": "imsm0",
    "stripSize":
"SIZE_32KB",
    "raidLevel": "RAID_5",
    "size": "372465137654"
}
```

Create volume. Data shall be migrated from one of disks.

```
{
    "source": "DISK",
    "disks": [
        "65465",
        "65465",
        "98765"
    ],
    "diskId": "65465",
    "name": "imsm0",
    "stripSize":
"SIZE_32KB",
    "raidLevel": "RAID_5",
    "size": "372465137654"
}
```

Create volume in already existing array.

```
{
    "source": "ARRAY",
    "arrayId": "15",
    "name": "imsm0",
    "stripSize":
"SIZE_32KB",
    "raidLevel": "RAID_5",
    "size": "0"
}
```

Create RAID5 volume with RAID Write Hole Policy.

```
{
    "source": "DISK",
    "disks": [
        "65465",
        "65465",
        "98765"
    ],
    "name": "imsm0",
    "stripSize":
"SIZE_32KB",
    "raidLevel": "RAID_5",
    "size": "372465137654",
    "rwhPolicy":
"RWH_JOURNALING_DRIVE",
    "journalingDriveId": "3"
}
```

Response

id	{Number}	Volume identifier.
arrayId	{String}	Associated array identifier.
arrayOrdinal	{Number}	The number of the volume in the array.

```
{
  "data":
  {
    "arrayId": "805306372",
    "arrayOrdinal": 0,
    "cachePolicy": "OFF",
```

name	{String}	Volume name. Contains no more than 16 ASCII characters with values from 32 to 126 (inclusive), except for backslash character (ASCII code 92) and spaces at the beginning. All other characters are invalid.
state	{String}	Volume state, one of [UNKNOWN, NORMAL, DEGRADED, FAILED, INITIALIZING, REBUILDING, VERIFYING, VERIFYING_AND_FIXING, GENERAL_MIGRATION, LOCKED, NON_REDUNDANT_VOLUME_FAILED_DISK].
raidLevel	{String}	Name of the RAID level, one of [RAID_0, RAID_1, RAID_10, RAID_5, RAID_INVALID, RAID_UNKNOWN].
totalSize	{String}	Total size in Bytes.
stripSize	{String}	Size of the strips in this volume, one of: [SIZE_UNKNOWN, SIZE_2KB, SIZE_4KB, SIZE_8KB, SIZE_16KB, SIZE_32KB, SIZE_64KB, SIZE_128KB, SIZE_256KB, SIZE_512KB, SIZE_1MB, SIZE_2MB, SIZE_4MB, SIZE_8MB, SIZE_16MB, SIZE_32MB, SIZE_64MB]. For RAID level RAID_1 parameter is not present.
numDisks	{Number}	Number of disks used by the volume.
migrProgress	{Number}	This value shall indicate the percentage progress complete for a long running operation such as a migration, capacity expansion, or verify operation.
cachePolicy	{String}	Volume cache policy, one of [UNKNOWN, OFF, WRITE_THROUGH, WRITE_BACK]. For Linux this is always NOT_SUPPORTED.
systemVolume	{Boolean}	The volume contains files that the system requires to boot. This may include operating system files, page files, hibernate files, dump files, etc.
migration	{Boolean}	The volume is currently migrating and migrProgress contains meaningful data.
initialized	{Boolean}	Parity (or similar redundancy) has been initialized on the volume.
verify	{Object}	Last verify/verify and repair operation status.
{}.errors	{Number}	The number of parity errors found.
{}.badBlocks	{Number}	The number of bad blocks found.
sectorSize	{Object}	Sector size object.
{}.logical	{String}	The logical sector size of the specified volume.


```
    "id": "1610612739",
    "initialized": true,
    "migrProgress": 0,
    "migration": false,
    "name": "Vol1",
    "numDisks": 2,
    "raidLevel": "RAID_1",
    "rwhPolicy": "RWH_OFF",
    "sectorSize": {
      "logical": "512",
      "physical": "512"
    },
    "state": "NORMAL",
    "stripSize":
     "SIZE_64KB",
    "systemVolume": false,
    "totalSize":
     "80023126016",
    "verify": {
      "badBlocks": 0,
      "errors": 0
    }
  },
  "status": {
    "success": true
  }
}
```

{}.physical	{String}	The physical sector size of the specified volume.
rwhPolicy	{String}	Volume RAID Write Hole policy for RAID_5. One of [RWH_OFF, RWH_DISTRIBUTED, RWH_JOURNALING_DRIVE]. For Linux RWH_JOURNALING_DRIVE is not supported.
journalingDriveId (Optional)	{Number}	Identifier of journaling drive associated to RAID5 volume with rwhPolicy set to journaling mode.

HTTP response code 201 on success, otherwise JSON error object.

Available Error IDs

NOT_SUPPORTED	Operation is not supported.
RSTe_OFFLINE	RSTe product not found.
RSTe_NOT_INITIALIZED	Indicates that system is not initialized.
INVALID_PARAMETER	One of provided parameter is invalid or is missing.
RSTe_OPERATION_FAILED	Operation failed to complete successfully.
INTERNAL_ERROR	Unknown internal error occurred.
RSTe_INVALID_RAID_LEVEL	Selected RAID level is invalid.
RSTe_DISABLING_CACHE_FAILED	Unable to disable on-device volatile cache for RAID 5 level while creating RAID Write Hole.

6.10 Modify volume name

[PUT] /v1/rste/volumes/:volumeId/name

This function changes volume name.
Example:

```
curl -H "Content-Type: application/json" -d '{"name": "imsm1"}'
http://127.0.0.1/v1/rste/volumes/656465/name
```

Parameters

:volumeId	{Number}	Identifier of volume.

Request {Object}

name	{String}	Volume name. Contains no more than 16 ASCII characters with values from 32 to 126 (inclusive), except for backslash character (ASCII code 92). All other characters are invalid.

```
{
    "name": "imsm1"
}
```

Response

volumeId	{String}	Identifier of volume.
name	{String}	New volume name.

```
{
    "data": {
      "volumeId": "1",
```

HTTP response code 200 on success, otherwise JSON error object.

```
    "name": "imsm1"
  },
  "status": {
    "success": true
  }
}
```

Available Error IDs	
RSTe_OFFLINE	RSTe product not found.
RSTe_NOT_INITIALIZED	Indicates that system is not initialized.
OBJECT_NOT_FOUND	Object with given ID was not found.
INVALID_PARAMETER	One of provided parameter is invalid, missing or no parameters entered.
RSTe_OPERATION_FAILED	Operation failed to complete successfully.
INTERNAL_ERROR	Unknown internal error occurred.

6.11 Modify volume size

[PUT] /v1/rste/volumes/:volumeId/size

This function changes volume size. For raid level RAID_0 modify volume size is not supported only on Linux, on Windows for all raidlevels size can be modified only to max.

Example:

```
curl -H "Content-Type: application/json" -d '{"size": "372465"}'
http://127.0.0.1/v1/rste/volumes/656465/size
```

Parameters

:volumeId	{Number}	Identifier of volume.

Request {Object}

size	{String}	The new size, in megabytes, of the volume. If empty, this parameter will not be changed. For Windows only accepted value is 0 – expanding to maximum size. For Linux only expanding volume is allowed.

```
{
  "size": "355256"
}
```

Response

volumeId	{String}	Identifier of volume.
size	{String}	New volume size, in megabytes.

HTTP response code 200 on success, otherwise JSON error object.

```
{
  "data": {
    "volumeId": "1",
    "size": "366256"
  },
  "status": {
    "success": true
  }
}
```

Available Error IDs	
RSTe_OFFLINE	RSTe product not found.
RSTe_NOT_INITIALIZED	Indicates that system is not initialized.

OBJECT_NOT_FOUND	Object with given ID was not found.
INVALID_PARAMETER	One of provided parameter is invalid, missing or no parameters entered.
RSTe_OPERATION_FAILED	Operation failed to complete successfully.
INTERNAL_ERROR	Unknown internal error occurred.

6.12 Modify volume cache policy

[PUT] /v1/rste/volumes/:volumeId/cachepolicy

This function changes volume cache policy. (Not supported on Linux).
Example:

```
curl -H "Content-Type: application/json" -d '{"cachePolicy": "WRIGHT_BACK"}'
http://127.0.0.1/v1/rste/volumes/656465/cachepolicy
```

Parameters

:volumeId	{Number}	Identifier of volume.

Request {Object}

cachePolicy	{String}	Volume cache policy. For Linux parameter is not supported. For Windows one of: [OFF, WRITE_BACK]. If empty, this parameter will not be changed.

```
{
    "cachePolicy": "OFF"
}
```

Response

volumeId	{String}	Identifier of volume.
cachePolicy	{String}	Volume cache policy. For Linux parameter is not supported. For Windows one of: [OFF, WRITE_BACK]. If empty, this parameter will not be changed.

HTTP response code 200 on success, otherwise JSON error object.

```
{
    "data": {
      "volumeId": "1",
      "cachePolicy": "OFF"
    },
    "status": {
      "success": true
    }
}
```

Available Error IDs

RSTe_OFFLINE	RSTe product not found.
RSTe_NOT_INITIALIZED	Indicates that system is not initialized.
OBJECT_NOT_FOUND	Object with given ID was not found.
INVALID_PARAMETER	One of provided parameter is invalid, missing or no parameters entered.
RSTe_OPERATION_FAILED	Operation failed to complete successfully.
INTERNAL_ERROR	Unknown internal error occurred.

6.13 Modify volume RAID level

[PUT] /v1/rste/volumes/:volumeId/level

This function is used for modifying the raid level of a volume.

Example:

```
curl -H "Content-Type: application/json" -d '{"stripSize": "SIZE_32KB", "raidLevel": "RAID_10",
"disks": ["65465", "65465", "98765"]}' http://127.0.0.1/v1/rste/volumes/656465/level
```

Parameters

:volumeId	{Number}	Identifier of volume.

Request {Object}

raidLevel	{String}	Name of the RAID level, one of [RAID_0, RAID_1, RAID_10, RAID_5].
stripSize (Optional)	{String}	The strip size to use for the volume, one of [SIZE_4KB, SIZE_8KB, SIZE_16KB, SIZE_32KB, SIZE_64KB, SIZE_128KB]. For RAID_1 stripSize parameter is not supported.
disks (Optional)	{Array}	Array of disks identifiers to be used to create the volume. This parameter is required when migrating to raids that consists of more devices than raid volume will be migrated from.

```
{
  "stripSize": "SIZE_32KB",
  "raidLevel": "RAID_10",
  "disks": [
    "65465",
    "65465",
    "98765"
  ]
}
```

Response

volumeId	{String}	Identifier of volume.
stripSize (Optional)	{String}	The strip size to use for the volume, one of: [SIZE_UNKNOWN, SIZE_4KB, SIZE_8KB, SIZE_16KB, SIZE_32KB, SIZE_64KB, SIZE_128KB].
raidLevel (Optional)	{String}	Name of the RAID level, one of [RAID_0, RAID_1, RAID_10, RAID_5].
disks (Optional)	{Array}	Array of disks identifiers to be used to create the volume. This parameter is required when migrating to raids that consists of more devices than raid volume will be migrated from.

```
{
  "data": {
    "volumeId": "1",
    "stripSize": "SIZE_4KB",
    "raidLevel": "RAID_0",
    "disks": [
      "65465",
      "65465",
      "98765"
    ]
  },
  "status": {
    "success": true
  }
}
```

HTTP response code 200 on success, otherwise JSON error object.

Available Error IDs

RSTe_OFFLINE	RSTe product not found.
RSTe_NOT_INITIALIZED	Indicates that system is not initialized.
OBJECT_NOT_FOUND	Object with given ID was not found.
INVALID_PARAMETER	One of provided parameter is invalid or is missing.
RSTe_OPERATION_FAILED	Operation failed to complete successfully.
INTERNAL_ERROR	Unknown internal error occurred.
RSTe_INVALID_RAID_LEVEL	Invalid RAID level for operation.
RSTe_DISABLING_CACHE_FAILED	Unable to disable on-device volatile cache for RAID 5 level while creating RAID Write Hole.

NOT_SUPPORTED	Operation is not supported.

6.14 Modify volume RAID Write Hole

[PUT] /v1/rste/volumes/:volumeId/rwh

This function changes RAID5 Write Hole policy and set journaling drive. Journaling drive is supported only for Windows.
Example:

```
curl -H "Content-Type: application/json" -d '{"rwhPolicy": "RWH_JOURNALING_DRIVE",
"journalingDriveId": "3"}' http://127.0.0.1/v1/rste/volumes/656465/rwh
```

Parameters

:volumeId	{Number}	Identifier of volume.

Request {Object}

rwhPolicy	{String}	Volume RAID Write Hole policy for RAID_5. One of [RWH_OFF, RWH_DISTRIBUTED, RWH_JOURNALING_DRIVE]. For Linux RWH_JOURNALING_DRIVE is not supported.	
journalingDriveId (Optional)	{String}	Identifier of journaling drive associated with RAID5 volume with rwhPolicy set to journaling mode.	

```
{
    "rwhPolicy": "RWH_JOURNALING_DRIVE",
    "journalingDriveId": "3"
}
```

Response

volumeId	{String}	Identifier of volume.
rwhPolicy	{String}	Volume RAID Write Hole policy for RAID_5. One of [RWH_OFF, RWH_DISTRIBUTED, RWH_JOURNALING_DRIVE]. For Linux RWH_JOURNALING_DRIVE is not supported.
journalingDriveId (Optional)	{String}	Identifier of journaling drive associated with RAID5 volume with rwhPolicy set to journaling mode.

```
{
    "data": {
      "volumeId": "1",
      "rwhPolicy": "RWH_JOURNALING_DRIVE",
      "journalingDriveId": "3"
    },
    "status": {
      "success": true
    }
}
```

HTTP response code 200 on success, otherwise JSON error object.

Available Error IDs

RSTe_OFFLINE	RSTe product not found.
RSTe_NOT_INITIALIZED	Indicates that system is not initialized.
INVALID_PARAMETER	One of provided parameter is invalid, missing or no parameters entered.
NOT_SUPPORTED	Operation is not supported.
RSTe_DISABLING_CACHE_FAILED	Unable to disable on-device volatile cache when creating RAID 5 volume with RWH policy.
INTERNAL_ERROR	Unknown internal error occurred.

6.15 Initialize volume

[PUT] /v1/rste/volumes/:volumeId/init

Initializes the redundant data on a volume (parity or mirroring). (unsupported on Linux)
Example:

```
curl -X PUT http://127.0.0.1/v1/rste/volumes/656465/init
```

Parameters

:volumeId	{Number}	Identifier of volume.

Response

volumeId	{String}	Identifier of volume.
state	{String}	Volume state [INITIALIZING].

HTTP response code 200 on success, otherwise JSON error object.

```
{
    "data": {
      "volumeId": "1",
      "state": "INITIALIZING"
    },
    "status": {
      "success": true
    }
}
```

Available Error IDs

RSTe_OFFLINE	RSTe product not found.
RSTe_NOT_INITIALIZED	Indicates that system is not initialized.
OBJECT_NOT_FOUND	Object with given ID was not found.
RSTe_OPERATION_FAILED	Operation failed to complete successfully.
RSTe_VOLUME_INVALID_STATE	This operation cannot be completed because the volume is not in a normal and uninitialized state.
NOT_SUPPORTED	Operation is not supported.
INTERNAL_ERROR	Unknown internal error occurred.

6.16 Start/Cancel volume verification

[PUT] /v1/rste/volumes/:volumeId/verify

Starts or cancels a volume verify operation. Volume verification is not supported for RAID0 on Linux. Volume verification and fix is not supported for RAID0 on Windows.
Example:

```
curl -H "Content-Type: application/json" -d '{"action": "START", "repair": true}'
http://127.0.0.1/v1/rste/volumes/656465/verify
```

Parameters

:volumeId	{Number}	Identifier of volume.

Request {Object}

action	{String}	Desired verification action, one of [START, CANCEL].
repair (Optional)	{Boolean}	Determines if on redundant volumes conflicts should be resolved. Parameter is required only for start action. Parameter repair can be

Start volume verification:

```
{
  "action": "START",
  "repair": true
}
```

Cancel volume verification:

```
{
```

		triggered even if cancel operation was started.

```
"action": "CANCEL"
}
```

Response

volumeId	{String}	Identifier of volume.
state	{String}	Volume state, one of [NORMAL, VERIFYING, VERIFYING_AND_FIXING].

HTTP response code 200 on success, otherwise JSON error object.

```
{
    "data": {
      "volumeId": "1",
      "state": "VERIFYING"
    },
    "status": {
      "success": true
    }
}
```

Available Error IDs

RSTe_OFFLINE	RSTe product not found.
RSTe_NOT_INITIALIZED	Indicates that system is not initialized.
OBJECT_NOT_FOUND	Object with given ID was not found.
INVALID_PARAMETER	One of provided parameter is invalid or is missing.
RSTe_OPERATION_FAILED	Operation failed to complete successfully.
RSTe_VOLUME_INVALID_STATE	This operation cannot be completed because the volume is not in a normal state or if called with "START" parameter, volume is not in a verifying or verify and reparing state.
INTERNAL_ERROR	Unknown internal error occurred.

6.17 Add disks to array

[PUT] /v1/rste/arrays/:arrayId

This function is used to add one or more disks to an existing array. It's not possible to add disks to RAID1 and RAID10.
Example:

```
curl -H "Content-Type: application/json" -d '{"disks": ["654321", "987564"]}'
http://127.0.0.1/v1/rste/arrays/656465
```

Parameters

:arrayId	{Number}	Identifier of array.

Request {Object}

disks	{Array}	Array of disks identifiers to be used to create the volume.

```
{
  "disks": [
    "65465",
    "65465",
    "98765"
  ]
}
```

Response

arrayId	{String}	Identifier of array.
disks	{Array}	Array of disks identifiers used to create the volume.

HTTP response code 200 on success, otherwise JSON error object.

```
{
    "data": {
      "arrayId": "1",
      "disks": [
        "65465",
        "65465",
```

```
        "98765"
      ]
    },
    "status": {
      "success": true
    }
}
```

Available Error IDs	
RSTe_OFFLINE	RSTe product not found.
RSTe_NOT_INITIALIZED	Indicates that system is not initialized.
OBJECT_NOT_FOUND	Object with given ID was not found.
INVALID_PARAMETER	One of provided parameter is invalid or is missing.
RSTe_OPERATION_FAILED	Operation failed to complete successfully.
INTERNAL_ERROR	Unknown internal error occurred.
NOT_SUPPORTED	Operation is not supported.

6.18 Set array write cache state

[PUT] /v1/rste/arrays/:arrayId/writecache

Sets the write cache state for all disks associated with the given array. (Not supported on Linux)
Example:

```
curl -H "Content-Type: application/json" -d '{"state": "ENABLED"}'
http://127.0.0.1/v1/rste/arrays/656465/writecache
```

Parameters

:arrayId	{Number}	Identifier of array.

Request {Object}

state	{String}	Enables/disables disk cache for all disks in the array, values from [ENABLED | DISABLED].

```
{
  "state": "ENABLED"
}
```

Response

arrayId	{String}	Identifier of array.
writeCachePolicy	{String}	Write cache policy [ON | OFF]

HTTP response code 200 on success, otherwise JSON error object.

```
{
    "data": {
      "arrayId": "1",
      "writeCachePolicy": "ON"
    },
    "status": {
      "success": true
    }
}
```

Available Error IDs	
RSTe_OFFLINE	RSTe product not found.
RSTe_NOT_INITIALIZED	Indicates that system is not initialized.
OBJECT_NOT_FOUND	Object with given ID was not found.

INVALID_PARAMETER	One of provided parameter is invalid or is missing.
RSTe_OPERATION_FAILED	Operation failed to complete successfully.
RSTe_ARRAY_INVALID_STATE	This operation cannot be completed because the array is not in a normal state.
INTERNAL_ERROR	Unknown internal error occurred.

6.19 Port locate

[PUT] /v1/rste/ports/:portId/locate

Triggers hardware-specific illumination to locate the given port.
Example:

```
curl -X PUT -H "Content-Type: application/json" -d '{"state": "ENABLED"}'
http://127.0.0.1/v1/rste/ports/656465/locate
```

Parameters

:portId	{Number}	Identifier of port.

Request {Object}

state	{String}	Mode of operation [ENABLED, DISABLED]. If true, the illumination is asserted. If false, the illumination is de-asserted. On Windows de-asserting is not supported, illumination lasts only for specific period of time.	`{ "state": "ENABLED" }`

Response

HTTP response code 200 on success, otherwise JSON error object.

```
{
    "data": null,
    "status": {
      "success": true
    }
}
```

Available Error IDs

RSTe_OFFLINE	RSTe product not found.
RSTe_NOT_INITIALIZED	Indicates that system is not initialized.
OBJECT_NOT_FOUND	Object with given ID was not found.
INVALID_PARAMETER	One of provided parameter is invalid or is missing.
RSTe_OPERATION_FAILED	Operation failed to complete successfully.
NOT_SUPPORTED	Operation is not supported.
INTERNAL_ERROR	Unknown internal error occurred.

6.20 Rescan for hardware changes

[POST] /v1/rste/rescan

Forces the driver and/or system to scan for hardware changes. (Not supported on Linux).
Example:
curl http://127.0.0.1/v1/rste/rescan

Response

HTTP response code 200 on success, otherwise JSON error object.

```
{
    "data": null,
    "status": {
      "success": true
    }
}
```

Available Error IDs

RSTe_OFFLINE	RSTe product not found.
RSTe_NOT_INITIALIZED	Indicates that system is not initialized.
RSTe_OPERATION_FAILED	Operation failed to complete successfully.
NOT_SUPPORTED	Operation is not supported.
INTERNAL_ERROR	Unknown internal error occurred.

6.21 Read patrol

[PUT] /v1/rste/controllers/:controllerId/readpatrol/

Sets the read patrol state on the given controller. (Not supported on Linux).
Example:
Curl -X PUT -H "Content-Type: application/json" -d '{"state": "ENABLED"}'
http://127.0.0.1/v1/rste/controllers/6549816/readpatrol

Parameters

:controllerId	{Number}	Identifier of controller.

Request {Object}

state	{String}	Enables/disables controller read patrol state, on of [ENABLED | DISABLED].

```
{
  "state": "ENABLED"
}
```

Response

controllerId	{String}	Identifier of controller.
state	{String}	Determines if controller read patrol is enabled, on of [ENABLED | DISABLED].

HTTP response code 200 on success, otherwise JSON error object.

```
{
    "data": {
      "controllerId": "1",
      "state": "ENABLED"
    },
    "status": {
      "success": true
    }
}
```

Available Error IDs

RSTe_OFFLINE	RSTe product not found.
RSTe_NOT_INITIALIZED	Indicates that system is not initialized.

INVALID_PARAMETER	One of provided parameter is invalid or is missing.
RSTe_OPERATION_FAILED	Operation failed to complete successfully.
NOT_SUPPORTED	Operation is not supported.
INTERNAL_ERROR	Unknown internal error occurred.

6.22 Rebuild on hot insert

[PUT] /v1/rste/controllers/:controllerId/rohi/

Sets the rebuild on hot insert state on the given controller. (Not supported on Linux).
Example:

```
Curl -X PUT -H "Content-Type: application/json" -d '{"state": "ENABLED"}'
http://127.0.0.1/v1/rste/controllers/6549816/rohi
```

Parameters

:controllerId	{Number}	Identifier of controller.

Request {Object}

state	{String}	Enables/disables controller rebuild on hot insert.

```
{
  "state": "ENABLED"
}
```

Response

controllerId	{String}	Identifier of controller.
state	{String}	Determines if controller rebuild on hot insert is enabled.

HTTP response code 200 on success, otherwise JSON error object.

```
{
    "data": {
      "controllerId": "1",
      "state": "ENABLED"
    },
    "status": {
      "success": true
    }
}
```

Available Error IDs

RSTe_OFFLINE	RSTe product not found.
RSTe_NOT_INITIALIZED	Indicates that system is not initialized.
INVALID_PARAMETER	One of provided parameter is invalid or is missing.
RSTe_OPERATION_FAILED	Operation failed to complete successfully.
NOT_SUPPORTED	Operation is not supported.
INTERNAL_ERROR	Unknown internal error occurred.