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Version 2.6

REST API Reference Guide

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DELL EMC

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Preface

As part of an effort to improve its product lines, Dell EMC periodically releases revisions of its software and hardware. Therefore, some functions described in this document might not be supported by all versions of the software or hardware currently in use. The product release notes provide the most up-to-date information on product features.

Contact your Dell EMC technical support professional if a product does not function properly or does not function as described in this document.

Note

This document was accurate at publication time. Go to Dell EMC Online Support (https://support.emc.com) to ensure that you are using the latest version of this document.

Previous versions of Dell EMC VxFlex OS were marketed under the name Dell EMC ScaleIO.

Similarly, previous versions of Dell EMC VxFlex Ready Node were marketed under the name Dell EMC ScaleIO Ready Node.

References to the old names in the product, documentation, or software, etc. will change over time.

Note

Software and technical aspects apply equally, regardless of the branding of the product.

Related documentation

The release notes for your version includes the latest information for your product.

The following Dell EMC publication sets provide information about your VxFlex OS or VxFlex Ready Node product:

- VxFlex OS software (downloadable as VxFlex OS Software <version> Documentation set)
- VxFlex Ready Node with AMS (downloadable as VxFlex Ready Node with AMS Documentation set)
- VxFlex Ready Node no AMS (downloadable as VxFlex Ready Node no AMS Documentation set)
- VxRack Node 100 Series (downloadable as VxRack Node 100 Series Documentation set)

You can download the release notes, the document sets, and other related documentation from Dell EMC Online Support.

Typographical conventions

Dell EMC uses the following type style conventions in this document:

Bold	Used for names of interface elements, such as names of windows, dialog boxes, buttons, fields, tab names, key names, and menu paths (what the user specifically selects or clicks)

Italic	Used for full titles of publications referenced in text
`Monospace`	Used for: • System code • System output, such as an error message or script • Pathnames, filenames, prompts, and syntax • Commands and options
Monospace italic	Used for variables
`Monospace bold`	Used for user input
[ ]	Square brackets enclose optional values
|	Vertical bar indicates alternate selections - the bar means “or”
{ }	Braces enclose content that the user must specify, such as x or y or z
...	Ellipses indicate nonessential information omitted from the example

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Your comments

Your suggestions will help us continue to improve the accuracy, organization, and overall quality of the user publications. Send your opinions of this document to techpubcomments@emc.com.

CHAPTER 1

Introduction to the REST API

This section provides an overview of the REST API exposed by VxFlex OS.

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Before you begin

The API is available as part of the VxFlex Ready Node AMS package. The AMS REST API is served from the VxFlex Ready Node AMS and allows querying information and performing actions related to the VxFlex Ready Node software and hardware components. Access to the API requires a login with the AMS username and password. The login returns a token in the response that is used for later authentications for other requests. The responses returned by the VxFlex Ready Node AMS are formatted in JSON format.

Logs

Logs for REST activity are saved in the following locations on the VxFlex OS AMS:

Windows:

`C:\Program Files\EMC\ScaleIO\AMS\logs\api_operations.log`

Linux:

`/opt/emc/scaleio/ams/logs/api_operations.log`

CHAPTER 2

General Information

This section contains general information about the REST API.

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REST API version

The REST API version should be added to the `Accept` parameter in the header field. For example: `Accept: application/json;version=1.0`.

If no `Accept` header field is present, it is assumed that the client accepts all media types and versions.

HTTP authentication

To perform authentication, invoke the HTTP GET request, with the URI: `/api/login`, with `AMS user\password` passes in HTTP Basic authentication. A token is returned.

For example:

```
https://10.76.60.190:443/api/login
```

RESPONSE

200 OK

HEADERS form

Cache-Control:	no-cache
Cache-Control:	no-store
Content-Encoding:	gzip
Content-Type:	application/json;charset=UTF-8
Date:	2014 Aug 21 14:18:38
Expires:	1970 Jan 1 02:00:00 -44 years
Pragma:	no-cache
Server:	Apache-Coyote/1.1
Transfer-Encoding:	chunked
Vary:	Accept-Encoding

BODY

"YWRtaW46MTQwODY0ODcxODYwMTpmYzRmZDg1MTFmYmNiOGU5YzQ5ZTFmOGZjNTIxOTcxYw"

download

This token is valid for 8 hours from the time it was created, unless there has been no activity for 10 minutes, or if the client has sent a logout request.

HTTP token invalidation (logout)

The invalidation is achieved by invoking the HTTP GET request, with the URI: `/api/logout`.

The token mentioned above is the password in the HTTP Basic authentication. (The user is ignored and can be empty.)

For every REST API request that does not require the `gatewayAdminPassword`, the authentication is done by passing the token mentioned above as the password in the HTTP Basic authentication. (The user is ignored and can be empty.)

Response fields

The order of the fields in the responses may change. More fields may be added in the future.

URIs

General URIs

POST (create) / GET all objects for a given type
`/api/types/{type}/instances`

GET by ID
`/api/instances/{type::id}`

POST a special action on an object
`/api/instances/{type::id}/action/{actionName}`

POST a special action on a given type
`/api/types/{type}/instances/action/{actionName}`

Get current API version
`/api/version`

GET all instances
`/api/instances/`

Response

- Every row in the object's Parent table appears as a link in the response of a GET object:

  `/api/instances/{type::id}`

- Every row in the object's Relationships table appears as a link in the response of a GET object:

  `/api/instances/{type::id}/relationships/{Relationship name}`

Table 1 Responses

Property	Type	Note
sessionTag	Long	
isDirty	Boolean	The version on some objects changed while the MDM created the response.
System	List of System objects. See the System objects table.	
lastSystemVersion	Long	
protectionDomainList	List of Protection Domain objects. See the Protection Domain objects table.	
lastProtectionDomainVersion	Long	
sdsList	List of SDS objects. See the SDS objects table.	
lastSdsVersion	Long	

Table 1 Responses (continued)

Property	Type	Note
storagePoolList	List of Storage Pool objects. See the Storage Pool objects table.	
lastStoragePoolVersion	Long	
deviceList	List of Device objects. Device objects	
lastDeviceVersion	Long	
volumeList	List of Volume objects. See the Volume objects table.	
lastVolumeVersion	Long	
vTreeList	List of V-Tree objects. See the V-Tree objects table.	
lastVTreeVersion	Long	
sdcList	List of SDC objects. See the SDC Objects table.	
lastSdcVersion	Long	
faultSetList	List of Fault Set objects. See the Fault Set objects table.	
lastFaultSetVersion	Long	
rfcacheDeviceList	List of RFcache Device objects. RFcache Device objects	
rfcacheDeviceVersion	Long	

Query selected statistics (POST)

`/api/instances/querySelectedStatistics`

Request

- Required parameters:
  `selectedStatisticsList` – list of objects containing:
  - `type` – object type (System, ProtectionDomain, Sds, StoragePool, Device, Volume, VTree, Sdc, FaultSet, RfcacheDevice)
  - `properties` – list of properties to fetch
- The following parameters are not relevant to the System type and can be omitted:

  `ids` – list of objects ids

  or

  `allIds` – with empty value

Response

- The response contains a list of all requested types, the IDs, and properties, according to the request parameters.
- The System type does not contain an ID.
- Types for which the requested IDs do not exist in the cluster will appear with an empty {}. (See `FaultSet` in the example below.)
- Any ID (from the IDs parameters in the request) that does not exist in the cluster will not appear in the response. The following will appear in the `scaleio.log` file: `Got no statistics for <type>::<id>.`

Example
In the following example, `Sds::022beb2300000004` does not exist in the cluster, so it does not appear in the response. Instead, this will appear in the `scaleio.log` file:

```
POST https://localhost:8443/api/instances/querySelectedStatistics
```

Body:

```
{"selectedStatisticsList":[{"type":"Sds","ids":
["df4bd899000000aa"],"properties":
["capacityInUseInKb","rfcachePoolNumOfDriverTheads","snapCapacityInU
seInKb","thickCapacityInUseInKb","numOfDevices"]}]}
```

Response:

```
{
"Sds":{
"62b2b5c700000002":{
"snapCapacityInUseInKb": 1048576,
"rfcachePoolNumOfDriverTheads": 80,
"thickCapacityInUseInKb": 5595136,
"capacityInUseInKb": 5595136,
"numOfDevices": 1
}
}
}
```

Get MDM's or LIA's certificate (GET)

```
/api/getHostCertificate/{Mdm|Lia}?host={host ip}
```

The request can be sent for either MDM or LIA.

Example

```
/api/getHostCertificate/Mdm?host=10.76.60.10
```

Response
The host certificate in PEM encoding.

Note

The whole certificate should be saved into a `cer` file for the `trustHostCertificate` request.

For example:


```
-----BEGIN CERTIFICATE-----
MIIDcTCCAlmgAwIBAAIBATANBgkqhkiG9w0BAQUFADB8MQwwCgYDVQQqEwNNRE0xFzAVBg
NVBAMTDmNlbnRvcy02LTQtYWRpMRIwEAYDVQQHEwlIb3BraW50b24xFjAUBgNVBAgTDU1h
c3NhY2h1c2V0dHMxCzAJBgNVBAYTAlVTMQwwCgYDVQQKEwNFTUMxDDAKBgNVBAsTA0FTRD
AeFw0xNTEyMTkwNzI4MTVaFw0yNTEyMTcwODI4MTVaMHwxDDAKBgNVBCoTA01ETTEXMBUG
A1UEAxMOY2VudG9zLTYtNC1hZGkxEjAQBgNVBAcTCUhvcGtpbnRvbjEWMBQGA1UECBMNTW
Fzc2FjaHVzZXR0czELMAkGA1UEBhMCVVMxDDAKBgNVBAoTA0VNQzEMMAoGA1UECxMDQVNE
MIIBIjANBgkqhkiG9w0BAQEFAAOCAQ8AMIIBCgKCAQEA4SMybaAEZjfBX9wLglr3wxYHOv
ID5Pe1Z26Pv8oIR/MTOVa1Bw4A9px1MHHSIfkAfgRlLC24uebZXhbh0snBq+OL
+SJPwEfbOVbif/saXL8RJFwm/VNg8KHUwjuq/sJkKDjx9uSf0U+/9FzwvKVuM87xDj/
rVvJgBYh6pH34q/XD5l8am/iEQr/EnGZmIsa+VkCL0IeYKbkA3ZINfI4YsjSJ+qeu5e/
KMsNlHEvmhk1DdJbLayn9QkiS5Q9e8A40jjkb2e1Q71awoOlb6+8XXWWkpBhxAnRa9P8Pb
1BfcNyUfXtrKuy+fRjw4Gp
+rw2MdoIDuMbO1+1sQaRvVPTYxwIDAQABMA0GCSqGSIb3DQEBBQUAA4IBAQCu1e/
jBz63ZFDS+pFvZ3XI/VMdn9NArM
+8Cjn7Luar8oEVAYI6jqYYcZCk2jQyfuI1HP2jXqPTJo8CNyNT5S6rZ5ryHOiRjn/
K2pVC6kT497LY5lc3LjhXUdLjpWnW2jsGfM93cCkkrxu8wmkh9oo8WizOiRAyKmz02uTEu
Eok7GJBS/DR6csnLo2YLUV6ZqeBN9jdzZbIY7SoFWya1K4xZmqhkAtnj1ynP3uoxTkd
+wfDRmYeDv8l5eciLj2BXNuV8zXYWSCyABZC//jvajNtSEXgUura3uh0YBIfbO/
AZ980zUMwJBMBr06yw4tHnHRRYgfI3tnZOD4byaJOdHuq
-----END CERTIFICATE-----
```


Trust an MDM's or LIA's certificate (POST)

```
/api/trustHostCertificate/{Mdm|Lia}
```

For example:

```
/api/trustHostCertificate/Mdm
```

Request

- Content-type: multipart/form-data.
- The body should contain a part named "file" and the file containing the certificate to be trusted.

Object names

Define object names according to the following rules:

1. Contains fewer than 32 characters
2. Contains only alphanumeric and punctuation characters
3. Is unique within the object type

VxFlex OS objects are assigned a unique ID that can be used to identify the object in CLI commands. You can retrieve the ID via a query or through the object's property sheet in the VxFlex OS GUI.

It is recommended that you give each object a meaningful name associated with its operational role.

Note

Because the system is a single object, its name is automatically unique.

CHAPTER 3

System

This section contains information about System operations.

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System

System objects

Properties	Type
id	String
name	String
systemVersionName	String
mdmManagementPort	Integer
capacityAlertHighThresholdPercent	Default value for newly created storage pool.
capacityAlertCriticalThresholdPercent	Default value for newly created storage pool.
installId	String
swid	String
daysInstalled	Long
maxCapacityInGb	String
capacityTimeLeftInDays	String
enterpriseFeaturesEnabled	Boolean
defaultIsVolumeObfuscated	Boolean
isInitialLicense	Boolean
mdmCluster	MdmCluster
upgradeState	`NoUpgrade`, `MdmUpgradeInProgress` or `UpgradeInProgress`
perfProfile	`Default`, `HighPerformance` or `Custom`
cliPasswordAllowed	Boolean
managementClientSecureCommunicationEnabled	Boolean
tlsVersion	String
showGuid	Boolean
authenticationMethod	`Native`, `Ldap` or `NativeAndLdap`
mdmToSdsPolicy	`None` or `Authentication`
sdcMdmNetworkDisconnectionsCounterParameters	OscillatingCounterParameters
sdcSdsNetworkDisconnectionsCounterParameters	OscillatingCounterParameters
sdcMemoryAllocationFailuresCounterParameters	OscillatingCounterParameters
sdcSocketAllocationFailuresCounterParameter	OscillatingCounterParameters

Properties	Type
sdcLongOperationsCounterParameters	OscillatingCounterParameters
restrictedSdcModeEnabled	Boolean
remoteReadOnlyLimitState	Boolean

Relationships

Name	Type	Note
ProtectionDomain	List of ProtectionDomain objects. See the Protection Domain objects table.	
SDC	List of SDC objects. See the SDC Objects table.	
User	List of User objects. See the User objects table.	
Statistics	System Statistics objects. See the System Statistics objects table.	

MDM cluster

MdmCluster objects

Properties	Type
id	String
name	String
clusterMode	`Invalid`, `OneNode`, `ThreeNodes`, or `FiveNodes`
master	MdmClusterMember
slaves	List of MdmClusterMember objects
tieBreakers	List of MdmClusterMember objects
standbyMDMs	List of MdmClusterMember objects
clusterState	`Invalid`, `ClusteredNormal`, or `ClusteredDegraded`
goodNodesNum	Integer
goodReplicasNum	Integer
virtualIps	List of Strings

MdmClusterMember

Properties	Type
id	String
name	String

Properties	Type
port	Integer
ips	List of Strings
managementIPs	List of Strings
role	`Invalid`, `Manager`, or `TieBreaker`
status	`Invalid`, `Normal`, `Error`, `Disconnected`, or `OutOfSync`
versionInfo	String
virtualInterfaces	List of Strings
opensslVersion	String

OscillatingCounterParameters

Properties	Type
shortWindow	OscillatingCounterWindowParameters
mediumWindow	OscillatingCounterWindowParameters
longWindow	OscillatingCounterWindowParameters

OscillatingCounterWindowParameters

Properties	Type
threshold	Integer
windowSizeInSec	Integer

System Statistics

System Statistics objects

Properties	Type	Note
capacityLimitInKb	Long	
maxCapacityInKb	Long	
capacityInUseInKb	Long	
thickCapacityInUseInKb	Long	
thinCapacityInUseInKb	Long	
snapCapacityInUseInKb	Long	
unreachableUnusedCapacityInKb	Long	
unusedCapacityInKb	Long	
snapCapacityInUseOccupiedInKb	Long	
thinCapacityAllocatedInKb	Long	
rmPendingAllocatedInKb	Long	

Properties	Type	Note
spareCapacityInKb	Long	
capacityAvailableForVolumeAllocationInKb	Long	
protectedCapacityInKb	Long	
degradedHealthyCapacityInKb	Long	
degradedFailedCapacityInKb	Long	
failedCapacityInKb	Long	
semiProtectedCapacityInKb	Long	
inMaintenanceCapacityInKb	Long	
protectedVacInKb	Long	
degradedHealthyVacInKb	Long	
degradedFailedVacInKb	Long	
failedVacInKb	Long	
semiProtectedVacInKb	Long	
inMaintenanceVacInKb	Long	
movingCapacityInKb	Long	
activeMovingCapacityInKb	Long	
pendingMovingCapacityInKb	Long	
fwdRebuildCapacityInKb	Long	
activeFwdRebuildCapacityInKb	Long	
pendingFwdRebuildCapacityInKb	Long	
bckRebuildCapacityInKb	Long	
activeBckRebuildCapacityInKb	Long	
pendingBckRebuildCapacityInKb	Long	
rebalanceCapacityInKb	Long	
activeRebalanceCapacityInKb	Long	
pendingRebalanceCapacityInKb	Long	
atRestCapacityInKb	Long	
normRebuildCapacityInKb	Long	
activeNormRebuildCapacityInKb	Long	

Properties	Type	Note
pendingNormRebuildCapacityInKb	Long	
activeMovingInFwdRebuildJobs	Long	
activeMovingInBckRebuildJobs	Long	
activeMovingInRebalanceJobs	Long	
activeMovingOutFwdRebuildJobs	Long	
activeMovingOutBckRebuildJobs	Long	
activeMovingRebalanceJobs	Long	
pendingMovingInFwdRebuildJobs	Long	
pendingMovingInBckRebuildJobs	Long	
pendingMovingInRebalanceJobs	Long	
pendingMovingOutFwdRebuildJobs	Long	
pendingMovingOutBckRebuildJobs	Long	
pendingMovingRebalanceJobs	Long	
activeMovingInNormRebuildJobs	Long	
activeMovingOutNormRebuildJobs	Long	
pendingMovingInNormRebuildJobs	Long	
pendingMovingOutNormrebuildJobs	Long	
inUseVacInKb	Long	
primaryVacInKb	Long	"primary" represents Master MDMs in versions v2.0 and above.
secondaryVacInKb	Long	"secondary" represents Slave MDMs in versions v2.0 and above.
rebuildWaitSendQLength	Long	
rebalanceWaitSendQLength	Long	

Properties	Type	Note
rebuildPerReceiveJobNetThrottlingInKbps	Long	
rebalancePerReceiveJobNetThrottlingInKbps	Long	
fixedReadErrorCount	Long	
BackgroundScanCompareCount	Long	
BackgroundScannedInMB	Long	
primaryReadBwc	Bwc object	"primary" represents Master MDMs in versions v2.0 and above.
primaryReadFromDevBwc	Bwc object	"primary" represents Master MDMs in versions v2.0 and above.
primaryWriteBwc	Bwc object	"primary" represents Master MDMs in versions v2.0 and above.
secondaryReadBwc	Bwc object	"secondary" represents Slave MDMs in versions v2.0 and above.
secondaryReadFromDevBwc	Bwc object	"secondary" represents Slave MDMs in versions v2.0 and above.
secondaryWriteBwc	Bwc object	"secondary" represents Slave MDMs in versions v2.0 and above.
fwdRebuildReadBwc	Bwc object	
fwdRebuildWriteBwc	Bwc object	
bckRebuildReadBwc	Bwc object	
bckRebuildWriteBwc	Bwc object	
rebalanceReadBwc	Bwc object	
rebalanceWriteBwc	Bwc object	
totalReadBwc	Bwc object	
totalWriteBwc	Bwc object	
primaryReadFromRmcacheBwc	Bwc object	"primary" represents Master MDMs in versions v2.0 and above.
secondaryReadFromRmcacheBwc	Bwc object	"secondary" represents Slave MDMs in versions v2.0 and above.
normRebuildReadBwc	Bwc object	
normRebuildWriteBwc	Bwc object	
rmcacheSizeInKb	Long	
rmcacheSizeInUseInKb	Long	
rmcacheEntryEvictionSizeCountInKb	Long	

Properties	Type	Note
rmcacheBigBlockEvictionSizeCountInKb	Long	
rmcacheCurrNumOf4kbEntries	Long	
rmcacheCurrNumOf8kbEntries	Long	
rmcacheCurrNumOf16kbEntries	Long	
rmcacheCurrNumOf32kbEntries	Long	
rmcacheCurrNumOf64kbEntries	Long	
rmcacheCurrNumOf128kbEntries	Long	
rmcache4kbEntryCount	Long	
rmcache8kbEntryCount	Long	
rmcache16kbEntryCount	Long	
rmcache32kbEntryCount	Long	
rmcache64kbEntryCount	Long	
rmcache128kbEntryCount	Long	
rmcacheEntryEvictionCount	Long	
rmcacheBigBlockEvictionCount	Long	
rmcacheNoEvictionCount	Long	
rmcacheSkipCountLargeIo	Long	
rmcacheSkipCountUnaligned4kbIo	Long	
rmcacheSkipCountCacheAllBusy	Long	
numOfUnmappedVolumes	Long	
numOfMappedToAllVolumes	Long	
numOfThickBaseVolumes	Long	
numOfThinBaseVolumes	Long	
numOfSnapshots	Long	
numOfVolumesInDeletion	Long	
numOfDevices	Long	
numOfSds	Long	
numOfStoragePools	Long	

Properties	Type	Note
numOfVolumes	Long	
numOfVtrees	Long	
scsiInitiatorIds	List of String	
numOfScsiInitiators	Long	
protectionDomainIds	List of String	
numOfProtectionDomains	Long	
sdcIds	List of String	
numOfSdc	Long	
numOfFaultSets	Long	
numOfRfcacheDevices	Long	
rfcacheReadsReceived	Long	
rfcacheWritesReceived	Long	
rfcacheAvgReadTime	Long	
rfcacheAvgWriteTime	Long	
rfcacheSourceDeviceReads	Long	
rfcacheSourceDeviceWrites	Long	
rfacheReadHit	Long	
rfcacheReadMiss	Long	
rfacheWriteHit	Long	
rfcacheWriteMiss	Long	
rfcacheIosSkipped	Long	
rfcacheReadsSkipped	Long	
rfcacheReadsSkippedAlignedSizeTooLarge	Long	
rfcacheReadsSkippedMaxIoSize	Long	
rfcacheReadsSkippedHeavyLoad	Long	
rfcacheReadsSkippedStuckIo	Long	
rfcacheReadsSkippedLowResources	Long	
rfcacheReadsSkippedInternalError	Long	
rfcacheReadsSkippedLockIos	Long	
rfcacheWritesSkippedMaxIoSize	Long	

Properties	Type	Note
rfcacheWritesSkippedHeavyLoad	Long	
rfcacheWritesSkippedStucklo	Long	
rfcacheWritesSkippedLowResources	Long	
rfcacheWritesSkippedInternalError	Long	
rfcacheWritesSkippedCacheMiss	Long	
rfcacheSkippedUnlinedWrite	Long	
rfcacheIoErrors	Long	
rfcacheReadsFromCache	Long	
rfcacheIosOutstanding	Long	
rfcacheReadsPending	Long	
rfcacheWritePending	Long	
rfcacheFdReadsReceived	Long	
rfcacheFdWritesReceived	Long	
rfcacheFdInlightReads	Long	
rfcacheFdInlightWrites	Long	
rfcacheFdReadTimeGreater500Millis	Long	
rfcacheFdReadTimeGreater1Sec	Long	
rfcacheFdReadTimeGreater5Sec	Long	
rfcacheFdReadTimeGreater1Min	Long	
rfcacheFdWriteTimeGreater500Millis	Long	
rfcacheFdWriteTimeGreater1Sec	Long	
rfcacheFdWriteTimeGreater5Sec	Long	
rfcacheFdWriteTimeGreater1Min	Long	
rfcacheFdAvgReadTime	Long	
rfcacheFdAvgWriteTime	Long	
rfcacheFdIoErrors	Long	
rfcacheFdCacheOverloaded	Long	

Properties	Type	Note
rfcacheFdMonitorErrorStuckIo	Long	
rfcachePoolNumSrcDevs	Long	
rfcachePoolNumCacheDevs	Long	
rfcachePoolSize	Long	
rfcachePoolReadHit	Long	
rfcachePoolReadMiss	Long	
rfcachePoolWriteHit	Long	
rfcachePoolWriteMiss	Long	
rfcachePoolCachePages	Long	
rfcachePoolPagesInuse	Long	
rfcachePoolEvictions	Long	
rfcachePoolInLowMemoryCondition	Long	
rfcachePoolIoTimeGreater1Min	Long	
rfcachePoolLockTimeGreater1Sec	Long	
rfcachePoolSuspendedIos	Long	
rfcachePoolLowResourcesInitiatedPassthroughMode	Long	
rfcachePoolosOutstanding	Long	
rfcachePoolReadsPending	Long	
rfcachePoolWritePending	Long	
rfcachePoolSuspendedPequestsRedundantSearchs	Long	
rfcachePoolReadPendingG1Sec	Long	
rfcachePoolReadPendingG10Millis	Long	
rfcachePoolReadPendingG1Millis	Long	
rfcachePoolReadPendingG500Micro	Long	
rfcachePoolWritePendingG1Sec	Long	
rfcachePoolWritePendingG10Millis	Long	

Properties	Type	Note
rfcachePoolWritePendingG1Millis	Long	
rfcachePoolWritePendingG500Micro	Long	
rfcachePoolSourceIdMismatch	Long	

Bwc

Properties	Type
totalWeightInKb	Long
numOccured	Long
numSeconds	Long

System delta

Property	Type	Notes
sessionTag	Long	The session in which communication with the MDM regarding the delta is done. It is echoed back to the MDM in the next call within this session. Use 0 for the initial call.
isDirty	Boolean	`TRUE` indicates that changes to the data queried occurred during the processing of the request. These changes may or may not be reflected in the response. Depending on the use case, sending an additional query to check for missed changes may be advisable.
lastProtectionDomainVersion	Long	Identifier within the session to be used in the next call. Use 0 in the initial call.
protectionDomainIsPartial	Boolean	`TRUE` indicates that only partial data was sent due to the response size passing the threshold defined in MDM. The remaining data should be retrieved using another query with the sessionTag + lastProtectionDomainVersion values returned by this query.
protectionDomainList	List of Protection Domain objects	List of added or modified ProtectionDomain objects since the last query. In case of a full response (deletedProtectionDomainIdList = null), this list contains all the ProtectionDomains that currently exist (unless protectionDomainIsPartial = true, in which case this list is a subset of all currently existing ProtectionDomains).
deletedProtectionDomainIdList	List of ids	List of IDs of deleted ProtectionDomains since the last query. If the list is null (unlike an empty list), it means that the response contains all instances of ProtectionDomain;

Property	Type	Notes
		any ProtectionDomains not included in this response should be considered as deleted. **Note** This attribute may be set in conjunction with the protectionDomainIsPartial attribute, in which case only ProtectionDomains that are not present in this response and any of the subsequent responses until a non-partial response was received were actually deleted. If your use-case is sensitive to bursts of delete-and-re-create events, this should be taken into account.
lastSdsVersion	Long	Identifier within the session to be used in the next call. Use 0 in the initial call.
sdsIsPartial	Boolean	`TRUE` indicates that only partial data was sent due to the response size passing the threshold defined in MDM. The remaining data should be retrieved using another query with the sessionTag + lastSdsVersion values returned by this query.
sdsList	List of SDS objects	List of added or modified SDS objects since the last query. In case of a full response (deletedSdsIdList = null), this list contains all the SDS objects that currently exist (unless sdsIsPartial = true, in which case this list is a subset of all currently existing SDS objects).
deletedSdsIdList	List of ids	List of IDs of deleted SDS objects since the last query. If the list is null (unlike an empty list), it means that the response contains all instances of SDS objects; any SDS objects not included in this response should be considered as deleted. **Note** This attribute may be set in conjunction with the sdsIsPartial attribute, in which case only SDS objects that are not present in this response and any of the subsequent responses until a non-partial response was received were actually deleted. If your use-case is sensitive to bursts of delete-and-re-create events, this should be taken into account.
lastStoragePoolVersion	Long	Identifier within the session to be used in the next call. Use 0 in the initial call.
storagePoolIsPartial	Boolean	`TRUE` indicates that only partial data was sent due to the response size passing the threshold

Property	Type	Notes
		defined in MDM. The remaining data should be retrieved using another query with the sessionTag + lastStoragePoolVersion values returned by this query.
storagePoolList	List of StoragePool objects	List of added or modified StoragePool objects since the last query. In case of a full response (deletedStoragePoolIdList = null), this list contains all the StoragePool objects that currently exist (unless storagePoolIsPartial = true, in which case this list is a subset of all currently existing StoragePool objects).
deletedStoragePoolId List	List of IDs	List of IDs of deleted StoragePool objects since the last query. If the list is null (unlike an empty list), it means that the response contains all instances of StoragePool objects; any StoragePool objects not included in this response should be considered as deleted. **Note** This attribute may be set in conjunction with the storagePoolIsPartial attribute, in which case only StoragePool objects that are not present in this response and any of the subsequent responses until a non-partial response was received were actually deleted. If your use-case is sensitive to bursts of delete-and-re-create events, this should be taken into account.
lastDeviceVersion	Long	Identifier within the session to be used in the next call. Use 0 in the initial call.
deviceIsPartial	Boolean	`TRUE` indicates that only partial data was sent due to the response size passing the threshold defined in MDM. The remaining data should be retrieved using another query with the sessionTag + lastDeviceVersion values returned by this query.
deviceList	List of Device objects	List of added or modified Device objects since the last query. In case of a full response (deletedDeviceIdList = null), this list contains all the Device objects that currently exist (unless deviceIsPartial = true, in which case this list is a subset of all currently existing Device objects).
deletedDeviceIdList	List of IDs	List of IDs of deleted Device objects since the last query. If the list is null (unlike an empty list), it means that the response contains all instances of Device objects; any Device objects not included in this response should be considered as deleted.

Property	Type	Notes
		Note This attribute may be set in conjunction with the deviceIsPartial attribute, in which case only Device objects that are not present in this response and any of the subsequent responses until a non-partial response was received were actually deleted. If your use-case is sensitive to bursts of delete-and-re-create events, this should be taken into account.
lastVolumeVersion	Long	Identifier within the session to be used in the next call. Use 0 in the initial call.
volumeIsPartial	Boolean	`TRUE` indicates that only partial data was sent due to the response size passing the threshold defined in MDM. The remaining data should be retrieved using another query with the sessionTag + lastVolumeVersion values returned by this query.
volumeList	List of Volume objects	List of added or modified Volume objects since the last query. In case of a full response (deletedVolumeIdList = null), this list contains all the Volume objects that currently exist (unless volumeIsPartial = true, in which case this list is a subset of all currently existing Volume objects).
deletedVolumeIdList	List of IDs	List of IDs of deleted Volume objects since the last query. If the list is null (unlike an empty list), it means that the response contains all instances of Volume objects; any Volume objects not included in this response should be considered as deleted. **Note** This attribute may be set in conjunction with the volumeIsPartial attribute, in which case only Volume objects that are not present in this response and any of the subsequent responses until a non-partial response was received were actually deleted. If your use-case is sensitive to bursts of delete-and-re-create events, this should be taken into account.
lastVTreeVersion	Long	Identifier within the session to be used in the next call. Use 0 in the initial call.
vTreeIsPartial	Boolean	`TRUE` indicates that only partial data was sent due to the response size passing the threshold defined in MDM. The remaining data should be retrieved using another query with the

Property	Type	Notes
		sessionTag + lastVTreeVersion values returned by this query.
vTreeList	List of VTree objects	List of added or modified VTree objects since the last query. In case of a full response (deletedVTreeIdList = null), this list contains all the VTree objects that currently exist (unless vTreeIsPartial = true, in which case this list is a subset of all currently existing VTree objects).
deletedVTreeIdList	List of IDs	List of IDs of deleted VTree objects since the last query. If the list is null (unlike an empty list), it means that the response contains all instances of VTree objects; any VTree objects not included in this response should be considered as deleted. **Note** This attribute may be set in conjunction with the vTreeIsPartial attribute, in which case only VTree objects that are not present in this response and any of the subsequent responses until a non-partial response was received were actually deleted. If your use-case is sensitive to bursts of delete-and-re-create events, this should be taken into account.
lastSdcVersion	Long	Identifier within the session to be used in the next call. Use 0 in the initial call.
sdcIsPartial	Boolean	`TRUE` indicates that only partial data was sent due to the response size passing the threshold defined in MDM. The remaining data should be retrieved using another query with the sessionTag + lastSdcVersion values returned by this query.
sdcList	List of SDC objects	List of added or modified SDC objects since the last query. In case of a full response (deletedSdcIdList = null), this list contains all the SDC objects that currently exist (unless sdcIsPartial = true, in which case this list is a subset of all currently existing SDC objects).
deletedSdcIdList	List of IDs	List of IDs of deleted SDC objects since the last query. If the list is null (unlike an empty list), it means that the response contains all instances of SDC objects; any SDC objects not included in this response should be considered as deleted.

Property	Type	Notes
		Note This attribute may be set in conjunction with the sdcIsPartial attribute, in which case only SDC objects that are not present in this response and any of the subsequent responses until a non-partial response was received were actually deleted. If your use-case is sensitive to bursts of delete-and-re-create events, this should be taken into account.
lastFaultSetVersion	Long	Identifier within the session to be used in the next call. Use 0 in the initial call.
faultSetIsPartial	Boolean	`TRUE` indicates that only partial data was sent due to the response size passing the threshold defined in MDM. The remaining data should be retrieved using another query with the sessionTag + lastFaultSetVersion values returned by this query.
faultSetList	List of FaultSet objects	List of added or modified FaultSet objects since the last query. In case of a full response (deletedFaultSetIdList = null), this list contains all the FaultSet objects that currently exist (unless faultSetIsPartial = true, in which case this list is a subset of all currently existing FaultSet objects).
deletedFaultSetIdList	List of IDs	List of IDs of deleted FaultSet objects since the last query. If the list is null (unlike an empty list), it means that the response contains all instances of FaultSet objects; any FaultSet objects not included in this response should be considered as deleted. **Note** This attribute may be set in conjunction with the faultSetIsPartial attribute, in which case only FaultSet objects that are not present in this response and any of the subsequent responses until a non-partial response was received were actually deleted. If your use-case is sensitive to bursts of delete-and-re-create events, this should be taken into account.
lastRfcacheDeviceVersion	Long	Identifier within the session to be used in the next call. Use 0 in the initial call.
rfcacheDeviceIsPartial	Boolean	`TRUE` indicates that only partial data was sent due to the response size passing the threshold defined in MDM. The remaining data should be retrieved using another query with the

Property	Type	Notes
		sessionTag + lastRfcacheDeviceVersion values returned by this query.
rfcacheDeviceList	List of FaultSet objects	List of added or modified RfcacheDevice objects since the last query. In case of a full response (deletedRfcacheDeviceIdList = null), this list contains all the RfcacheDevice objects that currently exist (unless rfcacheDeviceIsPartial = true, in which case this list is a subset of all currently existing RfcacheDevice objects).
deletedRfcacheDeviceIdList	List of IDs	List of IDs of deleted RfcacheDevice objects since the last query. If the list is null (unlike an empty list), it means that the response contains all instances of RfcacheDevice objects; any RfcacheDevice objects not included in this response should be considered as deleted. **Note** This attribute may be set in conjunction with the rfcacheDeviceIsPartial attribute, in which case only RfcacheDevice objects that are not present in this response and any of the subsequent responses until a non-partial response was received were actually deleted. If your use-case is sensitive to bursts of delete-and-re-create events, this should be taken into account.

Property	Type	Notes
sessionTag	Long	**Common field for all objects** - Session in which communication with the MDM regarding the delta is done. It is 'echoed' back to the MDM in the next call within this session. Use 0 for the initial call.
isDirty	boolean	**Common field for all objects** - "true" means that changes to the data queried occurred during the processing of the request. These changes may or may not be reflected in the response. Depending on the use-case, sending an additional query to check for 'missed' changes may be advisable.
lastProtectionDomainVersion	Long	Identifier within the session to be used in the next call. Use 0 in the initial call
protectionDomainIsPartial	boolean	"true" means only partial data was sent, due to the response size passing the threshold defined in MDM, and the remaining data should be fetched by another query using the

Property	Type	Notes
		sessionTag + lastProtectionDomainVersion values returned by this query.
protectionDomainList	List of ProtectionDomain objects	List of added / modified ProtectionDomain objects since the last query. In case of a full response (deletedProtecionDomainIdList = null) this list contains all the ProtectionDomains that currently exist (unless protectionDoimainIsPartial = true, in which case this list is a subset of all currently existing ProtecionDomains)
deletedProtectionDomainIdList	List of ids	List of Ids of deleted ProtectionDomains since the last query. If the list is null (unlike an empty list) that means response contains **all** instances of ProtectionDomain, and not the delta data, meaning any ProtectionDomains not included in this response should be considered as deleted. Please note that this attribute may be set in conjunction with the protectionDomainIsPartial attribute, in which case only ProtectionDomains that are not present in this response and any of the subsequent responses until a non-partial response was received were actually deleted. If your use-case is sensitive to bursts of delete-and-re-create events this should be taken into account.
lastSdsVersion	Long	See matching ProtectionDomain field
sdsIsPartial	boolean	See matching ProtectionDomain field
sdsList	List of SDS objects	See matching ProtectionDomain field
deletedSdsIdList	List of ids	See matching ProtectionDomain field
lastStoragePoolVersion	Long	See matching ProtectionDomain field
storagePoolIsPartial	boolean	See matching ProtectionDomain field
storagePoolList	List of StoragePool objects	See matching ProtectionDomain field
deletedStoragePoolIdList	List of ids	See matching ProtectionDomain field
lastDeviceVersion	Long	See matching ProtectionDomain field
deviceIsPartial	boolean	See matching ProtectionDomain field
deviceList	List of Device objects	See matching ProtectionDomain field
deletedDeviceIdList	List of ids	See matching ProtectionDomain field
lastVolumeVersion	Long	See matching ProtectionDomain field
volumeIsPartial	boolean	See matching ProtectionDomain field

Property	Type	Notes
volumeList	List of Volume objects	See matching ProtectionDomain field
deletedVolumeIdList	List of ids	See matching ProtectionDomain field
lastVTreeVersion	Long	See matching ProtectionDomain field
vTreeIsPartial	boolean	See matching ProtectionDomain field
vTreeList	List of VTree objects	See matching ProtectionDomain field
deletedVTreeIdList	List of ids	See matching ProtectionDomain field
lastSdcVersion	Long	See matching ProtectionDomain field
sdcIsPartial	boolean	See matching ProtectionDomain field
sdcList	List of SDC objects	See matching ProtectionDomain field
deletedSdcIdList	List of ids	See matching ProtectionDomain field
lastFaultSetVersion	Long	See matching ProtectionDomain field
faultSetIsPartial	boolean	See matching ProtectionDomain field
faultSetList	List of FaultSet objects	See matching ProtectionDomain field
deletedFaultSetIdList	List of ids	See matching ProtectionDomain field
lastRfcacheDeviceVersion	Long	See matching ProtectionDomain field
rfcacheDeviceIsPartial	boolean	See matching ProtectionDomain field
rfcacheDeviceList	List of RfcacheDevice objects	See matching ProtectionDomain field
deletedRfcacheDeviceIdList	List of ids	See matching ProtectionDomain field

ComponentNetworkState

Properties	Type
componentId	TypedKey object
peerInfo	List of PeerConnection objects

TypedKey

Properties	Type
objectType	`SYSTEM_TYPE`, `PROTECTION_DOMAIN_TYPE`, `STORAGE_POOL_TYPE`, `SDS_TYPE`, `SDC_TYPE`, `VOLUME_TYPE`, `DEVICE_TYPE`, `VTREE_TYPE`, `SCSI_INITIATOR_TYPE`, `FAULT_SET_TYPE`, `CONSISTENCY_GROUP_TYPE`, `RFCACHE_DEVICE_TYPE`, `MDM_TYPE`
Id	String

PeerConnection

Properties	Type
peerId	TypedKey object
networkCounters	List of IpConnectionHistory objects

IpConnectionHistory

Properties	Type
remoteIp	String
networkDisconnectionsCounter	OscillatingCounter object
networkFailuresCounter	OscillatingCounter object
longOperationsCounter	OscillatingCounter object
receiveKeepaliveCausedDisconnectionsCounter	OscillatingCounter object
sendKeepaliveCausedDisconnectionsCounter	OscillatingCounter object
highLatencyCounter	OscillatingCounter object
criticalLatencyCounter	OscillatingCounter object

OscillatingCounter

Properties	Type
shortWindow	OscillatingCounter_Window object
mediumWindow	OscillatingCounter_Window object
longWindow	OscillatingCounter_Window object

OscillatingCounter_Window

Properties	Type
threshold	Integer
windowSizeInSec	Integer
lastOscillationCount	Integer
lastOscillationTime	Long
maxFailuresCount	Integer
maxFailuresTime	Long

Query System instances

Retrieve a list of System objects

Resource path

`/api/types/System/instances`

Method

`GET`

Required parameters
None.

Optional parameters
None.

Returns
List of all System objects.

CLI command
`--query_all`

Example

```
HTTPS://<server>:<port>/api/types/System/instances
GET
{}
```

Sample output

Query System object

Retrieve the object associated with the System ID.

Resource path
`/api/types/System/System::{id}`

Method
`GET`

Required parameters
None.

Optional parameters
None.

Returns
System object

CLI command
`--query_all`

Example

```
HTTPS://<server>:<port>/api/types/System/System::459865f0774b81e6
GET
{}
```

Sample output

Query System's Protection Domains

Retrieve a list of Protection Domains in the specified system.

Resource path
`/api/instances/System::{id}/relationships/ProtectionDomain`

Method
`GET`

Required parameters
None.

Optional parameters
None.

Returns
List of Protection Domain objects.

CLI command
`--query_all`

Example

```
HTTPS://<server>:<port>/api/instances/System::459865f0774b81e6/
relationships/ProtectionDomain
GET
{}
```

Sample output

Query System's SDCs

Retrieve a list of SDC objects in the specified system.

Resource path
`/api/instances/System::{id}/relationships/Sdc`

Method
`GET`

Required parameters
None.

Optional parameters
None.

Returns
List of SDC objects.

CLI command
`--query_all_sdc`

Example

```
HTTPS://<server>:<port>/api/instances/System::459865f0774b81e6/
relationships/Sdc
GET
{}
```

Sample output

Query System's Users

Retrieve a list of User objects in the specified System.

Resource path
`/api/instances/System::{id}/relationships/User`

Method
`GET`

Required parameters
None.

Optional parameters
None.

Returns
List of User objects.

CLI command
`--query_users`

Example

```
HTTPS://<server>:<port>/api/instances/System::459865f0774b81e6/
relationships/User
GET
{}
```

Sample output

Query System statistics

Retrieve statistics for the specified System.

Resource path
`/api/instances/System::{id}/relationships/Statistics`

Method
`GET`

Required parameters
None.

Optional parameters
None.

Returns
List of Statistics for the System.

Example

```
HTTPS://<server>:<port>/api/instances/System::459865f0774b81e6/
relationships/Statistics
GET
{}
```

Query selected System statistics

Return a list of properties for the System.

Resource path
`/api/types/System/instances/action/querySelectedStatistics`

Method
`POST`

Required parameters

`properties`	List of properties to return. See the System Statistics object for possible properties.

Optional parameters
None.

Returns
All selected properties

CLI command

Example

```
HTTPS://<server>:<port>/api/types/System/instances/action/
querySelectedStatistics
POST
{"properties":["maxCapacityInKb", "capacityInUseInKb",
"thinCapacityInUseInKb"]}
```

Sample output

```
{"459865f0774b81e6": {"maxCapacityInKb":"201326592",
"capacityInUseInKb":"41943040", "thinCapacityInUseInKb":"41943040"}}
```

Query System ID by key

Retrieve the System ID.

Resource path
`/api/types/System/instances/action/queryIdByKey`

Method
`POST`

Required parameters
None.

Optional parameters
None.

Returns
ID

Example

```
HTTPS://<server>:<port>/api/types/System/instances/action/
queryIdByKey
POST
{}
```

Set capacity alert thresholds

Set the threshold for triggering capacity usage alerts.

Resource path
`/api/instances/System::{id}/action/setCapacityAlertThresholds`

Method
`POST`

Required parameters

`capacityAlertHighThresholdPercent` and/or `capacityAlertCriticalThresholdPercent`	Threshold of the non-spare capacity of the System that will trigger a high-priority alert, expressed as a percentage. This value must be lower than the `capacityAlertCriticalThresholdPercent` value. Threshold of the non-spare capacity of the System that will trigger a critical-priority alert, expressed as a percentage.
`allStoragePools` and/or `systemDefault`	`allStoragePools` indicates whether the capacity alert trigger should be set for all Storage Pools in the system. `systemDefault` indicates whether the capacity alert threshold should be used as a default for all newly created Storage Pools. At least one of these two parameters must have a value of `TRUE`. `TRUE` or `FALSE`

Optional parameters
None.

Returns

CLI command
`--set_capacity_alerts_threshold`

Example

```
HTTPS://<server>:<port>/api/instances/System::459865f0774b81e6/
action/setCapacityAlertThresholds
POST
{"capacityAlertHighThresholdPercent":"85",
"allStoragePools":"TRUE", "systemDefault":"TRUE"}
```

Sample output

Remove standby MDM

Remove a standby MDM that is not part of the cluster from the system.

Resource path

`/api/instances/System/action/removeStandbyMdm`

Method

`POST`

Required parameters

`id`	ID of the MDM to remove

Optional parameters

None.

Returns

CLI command

`--remove_standby_mdm`

Example

```
HTTPS://<server>:<port>/api/instances/System/action/removeStandbyMdm
POST
{"id":"57f23694176ca721"}
```

Sample output

Set Management IPs

Modify an MDM node's management IP addresses.

Resource path

`/api/instances/System/action/setManagementIps`

Method

`POST`

Required parameters

`id`	MDM ID

clearAll	Clear all management IP addresses: TRUE or FALSE
mdmManagementIpList	List of IP address to be used to manage the MDM.

Optional parameters

allowDuplicate	Allow duplicate management IP addresses. If the value is set to TRUE, the command will not fail if there are duplicate IP addresses in other MDMs.

Returns

CLI command
`--modify_management_ip`

Example

```
HTTPS://<server>:<port>/api/instances/System/action/setManagementIps
POST
{"id":"7b4d606b71a97db0", "clearAll":"FALSE",
"mdmManagementIpList":"192.168.1.200"}
```

Sample output

Change MDM ownership

Change MDM cluster ownership from the current Master MDM to a different MDM.

Resource path
`/api/instances/System/action/changeMdmOwnership`

Method
`POST`

Required parameters

id	MDM ID. Must be an MDM with manager role.

Optional parameters
None.

Returns

CLI command
`--switch_mdm_ownership`

Example

```
HTTPS://<server>:<port>/api/instances/System/action/
changeMdmOwnership
POST
{"id":"4ab69e163ae176b2"}
```

Sample output

Switch cluster mode

Switch the MDM cluster from one operating mode or configuration to another.

Resource path

`/api/instances/System/action/switchClusterMode`

Method

`POST`

Required parameters

`mode`	New cluster mode: `OneNode`, `ThreeNodes`, or `FiveNodes`
`addSlaveMdmIdList`	List of Slave MDM IDs that will be part of the cluster. A maximum of two IDs are allowed.
`addTBIdList`	List of Slave IDs to remove from the cluster.
or	
`removeSlaveMdmIdList`	List of TieBreaker IDs to remove from the cluster.
`removeTBIdList`	List of TieBreaker IDs to remove from cluster.

If the cluster is expanded, Slave and TieBreaker nodes will be added according to the expanded size.

If the cluster size is reduced, Slave and TieBreaker nodes will be removed.

Optional parameters

`allowLeaveFailed`	Allow leaving currently failed MDMs in the cluster: `TRUE` or `FALSE`

Returns

CLI command

`--switch_cluster_mode`

Example

```
HTTPS://<server>:<port>/api/instances/System/action/
switchClusterMode
POST
{"mode":"ThreeNodes","addSlaveMdmIdList":
["10cd944b0b97e8a2"],"addTBIdList":["7668a15e17800391"]}
```

Replace cluster MDM

Replace members of the MDM cluster. Up to half (rounded down) of the cluster members can be replaced at one time.

Resource path

`/api/instances/System/action/replaceClusterMdm`

Method
POST

Required parameters

addSlaveMdmIdList	A list of Slave MDM IDs that will be part of the cluster. A maximum of two IDs are allowed.
removeSlaveMdmIdList	A list of Slave MDM IDs that will be removed from the cluster. A maximum of two IDs are allowed.
Or	
(addTBIdList	A list of Tie-Breaker IDs that will be part of the cluster. A maximum of two IDs are allowed.
removeTBIdList	A list of Tie-Breaker IDs that will be removed from the cluster. A maximum of two IDs are allowed.

Optional parameters

allowLeaveFailed	Allow leaving currently failed MDMs in the cluster: TRUE or FALSE

Returns

CLI command
--replace_cluster_mdm

Example

```
HTTPS://<server>:<port>/api/instances/System/action/
replaceClusterMdm
POST
{"addSlaveMdmIdList":["7b4d606b71a97db0"], "removeSlaveMdmIdList":
["57f23694176ca721"]}
```

Sample output

Start upgrade

Start the upgrade process.

Resource path
/api/instances/System/action/startUpgrade

Method
POST

Required parameters
None.

Optional parameters
None.

Returns

CLI command
`--start_upgrade`

Example

```
HTTPS://<server>:<port>/api/instances/System/action/startUpgrade
POST
{}
```

Sample output

Abort upgrade

Stop an upgrade that is in progress.

Resource path
`/api/instances/System/action/abortUpgrade`

Method
`POST`

Required parameters
None.

Optional parameters
None.

Returns

CLI command
`--abort_upgrade`

Example

```
HTTPS://<server>:<port>/api/instances/System/action/abortUpgrade
POST
{}
```

Sample output

Finalize upgrade

Finalize the upgrade progress.

Resource path
`/api/instances/System/action/finalizeUpgrade`

Method
`POST`

Required parameters
None.

Optional parameters
None.

Returns

CLI command
`--finalize_upgrade`

Example

```
HTTPS://<server>:<port>/api/instances/System/action/finalizeUpgrade
POST
{}
```

Sample output

Allow commands during upgrade

Allow cluster commands to be sent during a session upgrade.

Resource path
`/api/instances/System/action/allowCommandsDuringUpgrade`

Method
`POST`

Required parameters
None.

Optional parameters
None.

Returns

CLI command
`--allow_commands_during_upgrade`

Example

```
HTTPS://<server>:<port>/api/instances/System/action/
allowCommandsDuringUpgrade
POST
{}
```

Sample output

Enter maintenance mode

Place one or more SDSs in maintenance mode.

Resource path
`/api/instances/System/action/enterMaintenanceMode`

Method
`POST`

Required parameters

sdsId	SDS ID
Or	
fsId	Fault set ID

Optional parameters

forceInsufficientSpace	Allow entry into maintenance mode, even without enough available capacity: TRUE or FALSE
Or	
forceDegradedOrFailed	Allow entry into maintenance mode, even with degraded or failed data: TRUE or FALSE

Returns

List of SDS IDs with command result message.

CLI command

--enter_maintenance_mode

Example

```
HTTPS://<server>:<port>/api/instances/System/action/
enterMaintenanceMode
POST
{"sdsId":"24adba4500000001", "forceInsufficientSpace":"FALSE"}
```

Sample output

```
{"sdsMMResults":
[{"message":"TGT_ALREADY_IN_MM","resultCode":"425","sdsId":"2046c61700
000002"}]}
```

Exit maintenance mode

Cancel maintenance mode for one or more SDSs.

Resource path

/api/instances/System/action/exitMaintenanceMode

Method

POST

Required parameters

sdsId	SDS ID
Or	
fsId	Fault set ID

Optional parameters

forceFailedSds	Allow exit from maintenance mode, even when an SDS is down: TRUE or FALSE

forceFailedDevIds	Allow exit from maintenance mode, even when the specified devices are in an error state: list of SDS IDs

Returns
List of SDS IDs with command result message.

CLI command
`--exit_maintenance_mode`

Example

```
HTTPS://<server>:<port>/api/instances/System/action/
exitMaintenanceMode
POST
{"sdsId":"24adba4500000001", "forceFailedSds":TRUE"}
```

Sample output

```
{"sdsMMResults":
[{"message":"TGT_ALREADY_IN_MM","resultCode":"425","sdsId":"2046c61700
000002"}]}
```

Set CLI password acceptance

Resource path
`/api/instances/System/action/setCliPasswordAcceptance`

Method
`POST`

Required parameters

cliPasswordAllowed	TRUE or FALSE

Optional parameters
None.

Returns

CLI command

Example

```
HTTPS://<server>:<port>/api/instances/System/action/
setCliPasswordAcceptance
POST
{}
```

Sample output

Set GUID display mode

Set whether GUIDs should be displayed.

Resource path
`/api/instances/System/action/SetGuidDisplayMode`

Method
`POST`

Required parameters

`showGuid`	`TRUE` or `FALSE`

Optional parameters
None.

Returns

CLI command

Example

```
HTTPS://<server>:<port>/api/instances/System/action/
SetGuidDisplayMode
POST
{"showGuid":"TRUE"}
```

Sample output

Set authentication method

Set the user authentication method for the system.

Resource path
`/api/instances/System/action/setAuthenticationMethod`

Method
`POST`

Required parameters

`authenticationMethod`	Select whether to use LDAP-based authentication, where users are managed in an LDAP-compliant server, Native authentication where users are managed locally in the system, or a hybrid authentication method where both LDAP and Native users may log in to the system after it is set: `Native`, `Ldap`, or `NativeAndLdap`

Optional parameters
None.

Returns

CLI command
`--set_user_authentication_method`

Example

```
HTTPS://<server>:<port>/api/instances/System/action/
setAuthenticationMethod
POST
{"authenticationMethod":"NativeAndLdap"}
```

Sample output

Generate MDM CSR file

Create a Certificate Signing Request (CSR) file for the specified MDM.

Resource path
`/api/instances/System/action/generateMdmCsrFile`

Method
`POST`

Required parameters

`id`	ID of the MDM for which the certificate and private key are required

Optional parameters

`commonName`	Common name to appear in the CSR. The default is the machine's hostname.
`country`	Country to appear in the CSR. Max length two characters.
`state`	State to appear in the CSR.
`location`	Location to appear in the CSR.
`organization`	Organization to appear in the CSR.
`organizationalUnit`	Organizational Unit to appear in the CSR.
`emailAddress`	Email Address to appear in the CSR.

The CSR file is used to obtain security certificates from a Certificate Authority and is saved in the specified MDM's directory:

- Linux: `/opt/emc/scaleio/mdm/cfg`
- Windows: `C:\Program Files\emc\scaleio\mdm\cfg`

Returns

CLI command
`--generate_mdm_csr_file`

Example

```
HTTPS://<server>:<port>/api/instances/System/action/
generateMdmCsrFile
POST
{"id":"57f23694176ca721"}
```

Sample output

Generate MDM certificate

Create a new self-signed certificate and private key for the specfied MDM.

Resource path
`/api/instances/System/action/generateMdmCertificate`

Method
`POST`

Required parameters

id	ID of the MDM for which the certificate and private key are required

Optional parameters
None.

Returns

CLI command
`--generate_mdm_certificate`

Example

```
HTTPS://<server>:<port>/api/instances/System/action/
generateMdmCertificate
POST
{"id":"57f23694176ca721"}
```

Sample output

Replace MDM security files

Replace the MDM's security certificate and key. The replacement certificate can be either a self-generated and self-signed certificate, or a certificate generated and signed by an external Certificate Authority.

Resource path
`/api/instances/System/action/replaceMdmSecurityFiles`

Method
`POST`

Required parameters

`id`	MDM ID

Note

Running the command on the Master MDM causes the MDM to restart. It may also cause a brief, single point of failure period due to an MDM switch over. For more information on externally signed security certificates, see the *VxFlex OS User Guide*.

Optional parameters
None.

Returns

CLI command
`--replace_mdm_security_files`

Example

```
HTTPS://<server>:<port>/api/instances/System/action/
replaceMdmSecurityFiles
POST
{"id":"57f23694176ca721"}
```

Sample output

Refresh MDM cluster capabilities

Refresh the exposed cluster node capabilities. This command is usually used to instruct the cluster nodes to check whether LDAP and SSL libraries are installed.

Resource path
`/api/instances/System/action/refreshMdmClusterCapabilities`

Method
`POST`

Required parameters
None.

Optional parameters
None.

Returns

CLI command
`--refresh_mdm_cluster_capabilities`

Example

```
HTTPS://<server>:<port>/api/instances/System/action/
refreshMdmClusterCapabilities
POST
{}
```

Sample output

Set connection security policy

Enable or disable authentication between system components.

Resource path

`/api/instances/System/action/setConnectionSecurityPolicy`

Method

`POST`

Required parameters

`mdmToSdsPolicy`	`None` or `Authentication`

Optional parameters

None.

Returns

CLI command

`--set_component_authentication_properties`

Example

```
HTTPS://<server>:<port>/api/instances/System/action/
setConnectionSecurityPolicy
POST
{"mdmToSdsPolicy":"Authentication"}
```

Sample output

Set license

Set the VxFlex OS license. Setting the license is a precondition for all other configuration commands. To set the system license, you must first obtain a license from Dell EMC.

Resource path

`/api/instances/System::{id}/action/setLicense`

Method

`POST`

Required parameters

`files`	Path to the file containing the license key value supplied by Dell EMC

Optional parameters

None.

Returns

CLI command
`--set_license`

Example

```
HTTPS://<server>:<port>/api/instances/System::459865f0774b81e6/
action/setLicense
POST
{"files":"C:\temp\license"}
```

Sample output

Remove consistency group snapshots

Remove all snapshots that belong to a specific consistency group.

Resource path
`/api/instances/System::{id}/action/removeConsistencyGroupSnapshots`

Method
`POST`

Required parameters

`snapGroupId`	ID of the consistency group. The consistency group ID is displayed when you create the consistency group. To find this ID at a later time, use the `/api/types/Volume/instances` resource.

Optional parameters

`allowOnExtManagedVol`	Execute this command even if the volumes are managed externally

Returns
`numberOfVolumes`, the number of volumes that were removed because of this operation.

CLI command
`--remove_consistency_group_snapshots`

Example

```
HTTPS://<server>:<port>/api/instances/System::459865f0774b81e6/
action/removeConsistencyGroupSnapshots
POST
{"snapGroupId":"8b5f3f5f00000002"}
```

Sample output

Snapshot volumes

Creates a snapshot of one or more volumes. When you specify more than one volume, a consistency group is generated and the ID associated with it is returned. The snapshots under the consistency group are taken simultaneously for all listed volumes, thus ensuring their consistency.

Resource path
`/api/instances/System::{id}/action/snapshotVolumes`

Method
`POST`

Required parameters

`snapshotDefs`	List of combinations of `volumeId` (volume ID) and optional `snapshotName` (name for the snapshot).

Optional parameters

`allowOnExtManagedVol`	Execute this command even if the volume is managed externally: `TRUE` or `FALSE`

Returns
`volumeIdList` (a list of volume IDs) and `snapshotGroupId` (snapshot ID)

CLI command
`--snapshot_volume`

Example

```
HTTPS://<server>:<port>/api/instances/System::459865f0774b81e6/
action/snapshotVolumes
POST
{"snapshotDefs":[{"volumeId":"a4b5862000000000",
"snapshotName":"vol1_snap1"}, {"volumeID":"022beb2500000006",
"snapshotName":"vol2_snap1"}, {"volumeID":"022beb2300000004"},
"allowOnExtManagedVol":"TRUE"}
```

Sample output

Get delta

Retrieve the delta for the system.

Resource path
`/api/instances/System::{id}/action/getDelta`

Method
`POST`

Required parameters

`sessionTag`	

`deltaDefs`	List of combinations of `type` and `lastVersion`. Options for `type`: `System`, `ProtectionDomain`, `Sds`, `StoragePool`, `Device`, `Volume`, `VTree`, `Sdc`, `Faultset`, or `RfcacheDevice` When `lastVersion` is "0", all the data is retrieved for the correlated type.

Optional parameters
None.

Returns
Returns changes of each object type specified in `deltaDefs` since the last call of this query.

To begin querying deltas, use sessionTag=0 and lastVersion=0. For subsequent queries, use values returned by the previous query.

Example

```
HTTPS://<server>:<port>/api/instances/System::459865f0774b81e6/
action/getDelta
POST
{"sessionTag":"1", "deltaDefs":[{"type":"Sds", "lastVersion":"10"},
{"type":"Volume", "lastVersion":"1"}}
```

Set DRL mode

Set the dirty-region-logging mode used by SDSs in the system.

Resource path
`/api/instances/System::{id}/action/setDrlMode`

Method
`POST`

Required parameters

`drlMode`	`Volatile` (dirty-region-logging information will be stored in memory only) or `NonVolatile` (dirty-region-logging information will be stored both in memory and on disk).

Optional parameters
None.

Returns

CLI command
`--set_drl_properties`

Example

```
HTTPS://<server>:<port>/api/instances/System::459865f0774b81e6/
action/setDrlMode
```

```
POST
{"drlMode":"NonVolatile"}
```

Sample output

Set system name

Name or rename the system.

Resource path
`/api/instances/System::{id}/action/setSystemName`

Method
`POST`

Required parameters

`newName`	New name to be associated with the system.

Optional parameters
None.

Returns

CLI command
`--rename_system`

Example

```
HTTPS://<server>:<port>/api/instances/System::459865f0774b81e6/
action/setSystemName
POST
{"newName":"TA_system1"}
```

Sample output

Start remote syslog

Start posting events to a remote syslog server.

Resource path
`/api/instances/System::{id}/action/startRemoteSyslog`

Method
`POST`

Required parameters

`hostIp`	(String) Comma-separated list of IP addresses of syslog servers.

Optional parameters

`hostPort`	Syslog server port. Default is 1468.

facility	Control the facility field of the event. Default is 16.
attachEventCode	Add the posted event code to the event message: TRUE or FALSE

Returns

CLI command
`--start_remote_syslog`

Example

```
HTTPS://<server>:<port>/api/instances/System::459865f0774b81e6/
action/startRemoteSyslog
POST
{"hostIp":"192.168.1.201"}
```

Sample output

Set syslog facility

Set the facility field of the syslog events. Legal values are 0 to 23.

Resource path
`/api/instances/System::{id}/action/setSyslogFacility`

Method
`POST`

Required parameters

facility	Control the facility field of the event. Default is 16.
hostIp	(String) Comma-separated list of IP addresses of syslog servers.

Optional parameters
None.

Returns

CLI command
`--set_syslog_facility`

Example

```
HTTPS://<server>:<port>/api/instances/System::459865f0774b81e6/
action/setSyslogFacility
POST
{"facility":"12", "hostIp":"192.168.1.201"}
```

Sample output

Stop remote syslog

Stop posting events to a remote syslog server.

Resource path
`/api/instances/System::{id}/action/stopRemoteSyslog`

Method
`POST`

Required parameters

`hostIp`	(String) Comma-separated list of IP addresses of syslog servers.

Optional parameters
None.

Returns

CLI command
`--stop_remote_syslog`

Example

```
HTTPS://<server>:<port>/api/instances/System::459865f0774b81e6/
action/stopRemoteSyslog
POST
{"hostIp":"192.168.1.201"}
```

Sample output

Query MDM cluster

Retrieve MDM cluster information. Username and password are not required.

Resource path
`/api/instances/System/queryMdmCluster`

Method
`POST`

Required parameters
None.

Optional parameters
None.

Returns

CLI command
`--query_cluster`

Example

```
HTTPS://<server>:<port>/api/instances/System/queryMdmCluster
POST
{}
```

Sample output

Enable management client secure communication

Enable secure communications between the MDM and the management client.

Resource path
`/api/instances/System/action/enableManagementClientSecureCommunication`

Method
`POST`

Required parameters
None.

Optional parameters
None.

Returns

CLI command
`--set_management_client_communication`

Example

```
HTTPS://<server>:<port>/api/instances/System/action/
enableManagementClientSecureCommunication
POST
{}
```

Sample output

Set SDS performance parameters

Apply performance profiles to system SDSs.

Resource path
`/api/instances/System/action/setSdsPerformanceParameters`

Method
`POST`

Required parameters

`perfProfile`	Define the performance profile as `Default` or `HighPerformance`. The high performance profile configures a predefined set of

	parameters for very high performance use cases.

Optional parameters
None.

Returns

CLI command
`--set_performance_parameters`

Example

```
HTTPS://<server>:<port>/api/instances/System/action/
setSdsPerformanceParameters
POST
{"perfProfile":"HighPerformance"}
```

Sample output

Set SDC performance parameters

Apply performance profiles to system SDCs.

Resource path
`/api/instances/System/action/setSdcPerformanceParameters`

Method
`POST`

Required parameters

`perfProfile`	Define the performance profile as `Default` or `HighPerformance`. The high performance profile configures a predefined set of parameters for very high performance use cases.

Optional parameters
None.

Returns

CLI command
`--set_performance_parameters`

Example

```
HTTPS://<server>:<port>/api/instances/System/action/
setSdcPerformanceParameters
POST
{"perfProfile":"HighPerformance"}
```

Sample output

Set MDM performance parameters

Apply performance profiles to system MDMs.

Resource path
`/api/instances/System/action/setMdmPerformanceParameters`

Method
`POST`

Required parameters

`perfProfile`	Define the performance profile as `Default` or `HighPerformance`. The high performance profile configures a predefined set of parameters for very high performance use cases.

Optional parameters
None.

Returns

CLI command
`--set_performance_parameters`

Example

```
HTTPS://<server>:<port>/api/instances/System/action/
setMdmPerformanceParameters
POST
{"perfProfile":"HighPerformance"}
```

Sample output

Reset SDS oscillating counter

Reset the SDS oscillating failure counters to zero. This command is useful when you have fixed a problem and want to ensure that an alert is no longer active in the system.

Resource path
`/api/instances/System/action/resetSdsOscillatingCounter`

Method
`POST`

Required parameters

`allCounters`	Reset all counters to zero: `TRUE` or `FALSE`
Or	
`failureCounter`	Select one of the following SDS counters to set to zero: `MdmSdsNetworkDisconnections`,

	SdsSdsNetworkDisconnections, SdsDecoupled, SdsConfigurationFailures, or SdsReceiveBufferAllocationFailures

Optional parameters
None.

Returns

CLI command
`--reset_oscillating_failure_counters`

Example

```
HTTPS://<server>:<port>/api/instances/System/action/
resetSdsOscillatingCounter
POST
{"failureCounter":"SdsConfigurationFailures"}
```

Sample output

Set SDS oscillating counter parameters

Modify oscillating counter parameters for all SDSs in the system. Use this command to configure the time interval associated with each window type and the number of failures allowed before reporting commences for each window type, per counter.

Resource path
`/api/instances/System/action/setSdsOscillatingCounterParameters`

Method
`POST`

Required parameters

failureCounter	Select one of the following SDS counters to set to zero: MdmSdsNetworkDisconnections, SdsSdsNetworkDisconnections, SdsDecoupled, SdsConfigurationFailures, or SdsReceiveBufferAllocationFailures
windowType	Window type to be modified: Short, Medium, or Long
windowInterval	New window time interval in seconds. The valid interval range is 1-86400. If the interval is set to 0, the window type is disabled.
failuresThreshold	Maximum number of failures per window type to be ignored before error reporting begins.

Optional parameters
None.

Returns

CLI command
`--set_oscillating_failure_counter_parameters`

Example

```
HTTPS://<server>:<port>/api/....
POST
{"failureCounter":"SdsConfigurationFailures",
"windowType":"Medium", "windowInterval":"2000",
"failuresThreshold":"2"}
```

Sample output

Reset SDC oscillating counter

Reset the specified SDC oscillating counters to zero. This command is useful when you have fixed a problem and want to ensure that an alert is no longer active in the system.

Resource path
`/api/instances/System/action/resetSdcOscillatingCounter`

Method
`POST`

Required parameters

`allCounters`	Reset all SDC counters to zero: `TRUE` or `FALSE`
Or	
`failureCounter`	Select one of the following SDS counters to set to zero: `SdcSdsNetworkDisconnections`, `SdcMdmNetworkDisconnections`, `SdcMemoryAllocationFailures`, `SdcSocketAllocationFailures`, or `SdcLongOperations`

Optional parameters
None.

Returns

CLI command
`--reset_oscillating_failure_counters`

Example

```
HTTPS://<server>:<port>/api/instances/System/action/
resetSdcOscillatingCounter
POST
{"allCounters":"TRUE"}
```

Sample output

Set SDC oscillating counter parameters

Modify SDC oscillating counter parameters. You can use this command to configure the time interval associated with each window type and the number of failures allowed before reporting commences for each window type, per counter.

Resource path

`/api/instances/System/action/setSdcOscillatingCounterParameters`

Method

`POST`

Required parameters

`failureCounter`	Select one of the following SDS counters to set to zero: `SdcSdsNetworkDisconnections`, `SdcMdmNetworkDisconnections`, `SdcMemoryAllocationFailures`, `SdcSocketAllocationFailures`, or `SdcLongOperations`
`windowType`	Window type to be modified: `Short`, `Medium`, or `Long`
`windowInterval`	New window time interval in seconds. The valid interval range is 1-86400. If the interval is set to 0, the window type is disabled.
`failuresThreshold`	Maximum number of failures per window type to be ignored before error reporting begins.

Optional parameters

None.

Returns

CLI command

`--set_oscillating_failure_counter_parameters`

Example

```
HTTPS://<server>:<port>/api/instances/System/action/
setSdcOscillatingCounterParameters
POST
{"failureCounter":"SdcSdsNetworkDisconnections",
```

```
"windowType":"Medium", "windowInterval":"2000",
"failuresThreshold":"10"}
```

Sample output

Reset device oscillating counter

Reset the specified SDS device oscillating counters to zero. This command is useful when you have fixed a problem and want to ensure that an alert is no longer active in the system.

Resource path
`/api/instances/System/action/resetDeviceOscillatingCounter`

Method
`POST`

Required parameters

`allCounters`	Reset all SDS device counters to zero: **Note** TRUE or `FALSE`
Or	
`failureCounter`	`DevLongSuccessfulIos`

Optional parameters
None.

Returns

CLI command
`--reset_oscillating_failure_counters`

Example

```
HTTPS://<server>:<port>/api/instances/System/action/
resetDeviceOscillatingCounter
POST
{"allCounters":"TRUE"}
```

Sample output

Set device oscillating counter parameters

Modify SDS device oscillating counter parameters. You can use this command to configure the time interval associated with each window type and the number of failures allowed before reporting commences for each window type, per counter.

Resource path
`/api/instances/System/action/setDeviceOscillatingCounterParameters`

Method
`POST`

Required parameters

`failureCounter`	`DevLongSuccessfulIos`
`windowType`	Window type to be modified: `Short`, `Medium`, or `Long`
`windowInterval`	New window time interval in seconds. The valid interval range is 1-86400. If the interval is set to 0, the window type is disabled.
`failuresThreshold`	Maximum number of failures per window type to be ignored before error reporting begins.

Optional parameters
None.

Returns

CLI command
`--set_oscillating_failure_counter_parameters`

Example

```
HTTPS://<server>:<port>/api/instances/System/action/
setDeviceOscillatingCounterParameters
POST
{"failureCounter":"DevLongSuccessfulIos", "windowType":"Medium",
"windowInterval":"2000", "failuresThreshold":"3"}
```

Sample output

Add LDAP service

Add an LDAP service to the system.

Resource path
`/api/instances/System/action/addLdapService`

Method
`POST`

Required parameters

`ldapServiceURI`	URI of the LDAP service in the following format: *<LDAP_SCHEMA>:// <LDAP_HOSTNAME>:<PORT_NUMBER>* Where: • *<LDAP_SCHEMA>* defines the connection protocol: ▪ `LDAPS` – secure LDAP connection (recommended) or ▪ `LDAP` – non-secured TCP LDAP connection • *<LDAP _HOSTNAME> is the LDAP hostname* • *<PORT_NUMBER>* is the LDAP service port (optional). Default: 636.
`ldapBaseDn`	Base Distinguished Name (DN) of users in the domain. Must be a valid DN containing the DC substring. For example, if a user corporate login is johnd@ecme.corp.com, the DC string would be DC=ecme, DC=corp, DC=com.

Optional parameters

`ldapServiceName`	Name of the LDAP service
`ldapObjectClassAttr`	The object class attribute used to identify a user. It is used in the search filter. Default: user.
`ldapUserIdAttrName`	The attribute name that defines the user ID and is used in the search filter. Default: sAMAccountName.
`ldapMemberOfAttrName`	The attribute name that defines the contained group and is used in the search filter. Default: memberOf.
`disable_recursive_search`	Disable recursive search: `TRUE` or `FALSE`

Returns

LDAP Service ID

CLI command

`--add_ldap_service`

Example

```
HTTPS://<server>:<port>/api/instances/System/action/addLdapService
POST
{"ldapServiceURI":"ldaps://domain.name.ldaps.local",
"ldapBaseDn":"OU=SIO_OU_1,DC=ldaps,DC=local"}
```

Sample output

Assign role to LDAP group

Assign a role to an LDAP group

Resource path
`/api/instances/System/action/assignRoleToLdapGroup`

Method
`POST`

Required parameters

`ldapServiceId`	ID of the LDAP service
`roleToGroupAssignment`	List of pairs of `role` and `groupDN`. Possible roles are: `Monitor`, `Configure`, `Administrator`, `Security`, `FrontendConfig`, or `BackendConfig`
`bOverwrite`	`TRUE` or `FALSE`

Optional parameters
None.

Returns

CLI command
`--assign_ldap_groups_to_roles`

Example

```
HTTPS://<server>:<port>/api/instances/System/action/
assignRoleToLdapGroup
POST
{"ldapServiceId": "cfc9463400000000","roleToGroupAssignment":
[{"role":"Administrator","groupDn":
"CN=SIO_GRP_1,OU=SIO_OU_1,DC=ldaps,DC=local"}],"bOverwrite": "TRUE"}
```

Sample output

Delete LDAP service

Remove an LDAP service from the system.

Resource path
`/api/instances/System/action/deleteLdapService`

Method
`POST`

Required parameters

`ldapServiceId`	ID of the LDAP service
Or	

`allLdapServices`	To remove all LDAP services, use this parameter with an empty value.

Optional parameters
None.

Returns

CLI command
`--remove_ldap_service`

Example

```
HTTPS://<server>:<port>/api/instances/System/action/
deleteLdapService
POST
{"allLdapServices":""}
```

Sample output

Query LDAP

Retrieve information about LDAP services configured in the system.

Resource path
`/api/instances/System/action/queryLdap`

Method
`POST`

Required parameters
None.

Optional parameters
None.

Returns
List of maps of service properties: `ldapServiceURI`, `ldapBaseDn`, `ldapserviceId`, `ldapSearchFilter`, `ldapGroupsMappingList` .

CLI command
`--query_user_authentication_properties`

Example

```
HTTPS://<server>:<port>/api/instances/System/action/queryLdap
POST
{}
```

Sample output

```
{"ldapServicesList":[{"ldapServiceURI":"ldaps://win12r2-
dc.ldaps.local","ldapGroupsMappingList":"[{role=Administrator,
groupDn=CN=SIO_GRP_1,OU=SIO_OU_1,DC=ldaps,DC=local}]","ldapServiceId":
"beb848ff00000000","ldapSearchFilter":"(&(objectClass=posixAccount)
(uid=Administrator)
```

```
(memberOf=SIO_GRP_1))","ldapBaseDn":"ou=sio_ou_1,dc=lda
ps,dc=local"}>
```

Rename LDAP service

Assigns a name to, or rename, an LDAP service.

Resource path
`/api/instances/System/action/renameLdapService`

Method
`POST`

Required parameters

`ldapServiceId`	ID of the LDAP service
`newName`	New name to be assigned to the LDAP service

Optional parameters
None.

Returns

CLI command
`--rename_ldap_service`

Example

```
HTTPS://<server>:<port>/api/instances/System/action/
renameLdapService
POST
{"ldapServiceId":"cfc9463400000000","newName":"TestService"}
```

Sample output

Remove LDAP group

Remove LDAP groups from system roles assignments.

Resource path
`/api/instances/System/action/removeLdapGroup`

Method
`POST`

Required parameters

`ldapServiceId`	ID of the LDAP service
`roleList`	List of user roles. Possible roles are: `Monitor`, `Configure`, `Administrator`, `Security`, `FrontendConfig`, or `BackendConfig`

Optional parameters
None.

Returns

CLI command
`--remove_ldap_group_from_role_assignment`

Example

```
HTTPS://<server>:<port>/api/instances/System/action/removeLdapGroup
POST
{"ldapServiceId":"cfc9463400000000", "role":"FrontendConfig"}
```

Sample output

Query SDS oscillating network counters

Retrieve detailed information on SDS oscillating network counters.

Resource path
`/api/instances/System/action/querySdsOscillatingNetworkCounters`

Method
`POST`

Required parameters
None.

Optional parameters
None.

Returns
ServerTime (Long) and networkStateList (list of ComponentNetworkState objects)

CLI command

Example

```
HTTPS://<server>:<port>/api/instances/System/action/
querySdsOscillatingNetworkCounters
POST
{}
```

Sample output

Query SDC oscillating network counters

Retrieve detailed information on SDC oscillating network counters.

Resource path
`/api/instances/System/action/querySdcOscillatingNetworkCounters`

Method
`POST`

Required parameters
None.

Optional parameters
None.

Returns
ServerTime (Long) and networkStateList (list of ComponentNetworkState objects)

CLI command
`--query_sdc`

Example

```
HTTPS://<server>:<port>/api/instances/System/action/
querySdcOscillatingNetworkCounters
POST
{}
```

Sample output

Disable admin

Disables the default Super User. The Super User is the default user for setting up the system, and has all the privileges of all user roles. In some cases you may need to disable the Super User in order to ensure that all users are associated with specific people.

Resource path
`/api/instances/System/action/disableAdmin`

Method
`POST`

Required parameters
None.

Optional parameters
None.

Returns

CLI command
`--disable_admin`

Example

```
HTTPS://<server>:<port>/api/instances/System/action/disableAdmin
POST
{}
```

Sample output

Rename MDM

Rename an MDM Cluster node.

Resource path
`/api/instances/System/action/renameMdm`

Method
`POST`

Required parameters

`id`	MDM ID
`newName`	New MDM name. The MDM name must be unique. If a new name is not provided, the old name will be deleted.

Optional parameters
None.

Returns

CLI command
`--rename_mdm`

Example

```
HTTPS://<server>:<port>/api/instances/System/action/renameMdm
POST
{"id":"57f23694176ca721", "newName":"mdm3_new"}
```

Sample output

Modify virtual IP interfaces

Set the virtual IP interfaces of a node in the MDM cluster.

Resource path
`/api/instances/System/action/modifyVirtualIpInterfaces`

Method
`POST`

Required parameters

`Id`	MDM ID
And one of the following:	
`virtIpIntfs`	List of interface names to be used for the MDM virtual IPs. The order of interfaces must match the order of virtual IPs assigned to the cluster.
Or	

clear	Clear all virtual IP interfaces: TRUE or FALSE

Optional parameters
None.

Returns

CLI command
--modify_virtual_ip_interfaces

Example

```
HTTPS://<server>:<port>/api/instances/System/action/
modifyVirtualIpInterfaces
POST
{"Id":"57f23694176ca721", "clear":"TRUE"}
```

Sample output

Modify cluster virtual IPs

Set or modify the virtual IP address of an MDM cluster. Note that after changing or adding a virtual IP address, you are required to update the SDC with the new virtual IP address.

Resource path
/api/instances/System/action/modifyClusterVirtualIPs

Method
POST

Required parameters

virtIPs	List of virtual IP addresses to be configured for the system.
Or	
clear	Clear all virtual IP addresses: TRUE or FALSE

Optional parameters
None.

Returns

CLI command
--modify_cluster_virtual_ips

Example

```
HTTPS://<server>:<port>/api/instances/System/action/
modifyClusterVirtualIPs
POST
{"virtIPs":{"192.168.100.152","192.168.100.153"}}
```

Sample output

Query system limits

Retrieve information about the system limits.

Resource path
`/api/instances/System/action/querySystemLimits`

Method
`POST`

Required parameters
None.

Optional parameters
None.

Returns
List of maps of global system limits. Map fields are `type`, `description`, `minVal`, and `maxVal`.

Possible types are: `protectionDomains`, `storagePools`, `faultSets`, `sdss`, `sdcs`, `vtrees`, `volumes`, `snapshots`, `users`, `ldapEntries`, `sessions`, `rsyslogClients`, `storagePoolsPerProtectionDomain`, `sdssPerProtectionDomain`, `faultSetsPerProtectionDomain`, `sdssPerFaultSet`, `devicesPerSds`, `rfcacheDevicePerSds`, `devicePerStoragePool`, `volumePerVtree`, `volumesPerProtectionDomain`, `snapshotsPerVtree`, `volumesPerSdc`, `ldapGroupsPerLdapEntry`, `ipPerMdm`, `ipPerHost`, `volumeSizeGb`, `allVolumesSizeGb`, `allVolumesInSpSizeGb`

CLI command
`--query_system_limits`

Example

```
HTTPS://<server>:<port>/api/instances/System/action/
querySystemLimits
POST
{}
```

Sample output

```
{"maxVal":"1048576","minVal":"8","type":"volumeSizeGb","description":"
Volume size in GB"}
```

Approve SDC

Enable an SDC to access the MDM while the SDC is in restricted access mode.

Resource path
`/api/instances/System::{id}/action/approveSdc`

Method
`POST`

Required parameters

sdcIp	SDC IP address
Or	
sdcGuid	SDC GUID

Optional parameters

name	Name to assign to the SDC

Returns
ID of the SDC

CLI command
`--add_sdc`

Example

```
HTTPS://<server>:<port>/api/instances/System::459865f0774b81e6/
action/approveSdc
POST
{"sdcIp":"10.125.120.53", "name":"sdc53"}
```

Sample output

Set restricted SDC mode

Enable or disable restricted SDC mode. When enabled, SDCs must be approved (by GUID or IP address) before volumes can be mapped to them.

Resource path
`/api/instances/System::{id}/action/setRestrictedSdcMode`

Method
`POST`

Required parameters

restrictedSdcMode	None, Guid, or ApprovedIP

Optional parameters
None.

Returns

CLI command
`--set_restricted_sdc_mode`

Example

```
HTTPS://<server>:<port>/api/instances/System::12fff4341e42cda/
action/setRestrictedSdcMode
POST
{"restrictedSdcMode":"Guid"}
```

Set approved SDC IPs

Add the IP addresses of SDCs that may connect to the MDM cluster while the system's restricted SDC mode is set to `Approved IPs`.

Resource path
`/api/instances/System::{id}/action/setApprovedSdcIps`

Method
`POST`

Required parameters

`sdcId`	ID of the SDC that will be approved
`sdcApprovedIps`	List of allowed IP addresses for this SDC

Optional parameters
None.

Returns

CLI command
`--set_approved_sdc_ips`

Example

```
HTTPS://<server>:<port>/api/instances/System::12fff4341e42cda/
action/setApprovedSdcIps
POST
{"sdcId":"255a877400000001","sdcApprovedIps":"192.168.1.152"}
```

Sample output

Start log collection

Start log collection.

Resource path
`/api/instances/System/action/startLogCollection`

Method
`POST`

Required parameters

`nodeToCollectLogsFrom`	List of nodes
`collectLogsFromAllnodes`	`TRUE` or `FALSE`

Optional parameters

`collectExceptionOnly`	`TRUE` or `FALSE`
`liteVersion`	`TRUE` or `FALSE`
`copyBinaries`	`TRUE` or `FALSE`

collectSoftwareLogs	TRUE or FALSE
collectBmcLogs	TRUE or FALSE

Example

```
HTTPS://<server>:<port>/api/instances/System/action/
startLogCollection
POST
{
  "copyRepositories" : true,
  "collectExceptionOnly" : false,
  "liteVersion" : false,
  "copyBinaries" : true,
  "collectSoftwareLogs" : true,
  "collectBmcLogs" : true,
  "nodesToCollectLogsFrom" : [ "nodeId1", "nodeId2" ],
  "collectLogsFromAllNodes" : false
}
```

Start log download to AMS

Start log download to AMS

Resource path
/api/instances/System/action/startLogDownloadToAms

Method
POST

Required parameters

collectLogBatchId	String
nodesToCollect	List of nodes
collectFromAllNodes	TRUE or FALSE

Optional parameters
None.

Example

```
HTTPS://<server>:<port>/api/instances/System/action/
startLogCollection
POST
{
  "collectLogBatchId" : "255a877400000001",
  "nodesToCollect" : [ "nodeId1", "nodeId2" ],
  "collectFromAllNodes" : "false"
}
```

Get current log collection

Get current log collection from AMS

Resource path
/api/instances/System/action/getCurrentLogCollection

Method
GET

Required parameters
None.

Optional parameters
None.

Example

```
HTTPS://<server>:<port>/api/instances/System/action/
getCurrentLogCollection
GET
{}
```

Download collected logs

Download to collect AMS logs.

Resource path
/api/instances/System/action/downloadCollectedLogs

Method
GET

Required parameters
None.

Optional parameters
None.

Returns
Zip file as text is returned. Convert file to zip.

Example

```
HTTPS://<server>:<port>/api/instances/System/action/
startLogCollection
GET
{}
```

CHAPTER 4

Protection Domain

This section contains information about Protection Domain operations.

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Protection Domain

Protection Domain objects

Properties	Type	Required\Optional for POST
id	Name	
name	Name	Required
protectionDomainState	`Active`, `ActivePending`, `Inactive` or `InactivePending`	-
rebuildNetworkThrottlingEnabled	Boolean	-
rebalanceNetworkThrottlingEnabled	Boolean	-
overallIoNetworkThrottlingEnabled	Boolean	-
rebuildNetworkThrottlingInKbps	Integer	-
rebalanceNetworkThrottlingInKbps	Integer	-
overallIoNetworkThrottlingInKbps	Integer	-
systemId	String	-
sdsDecoupledCounterParameters	OscillatingCounterParameters	
sdsConfigurationFailureCounterParameters	OscillatingCounterParameters	
mdmSdsNetworkDisconnectionsCounterParameters	OscillatingCounterParameters	
sdsSdsNetworkDisconnectionsCounterParameters	OscillatingCounterParameters	
sdsReceiveBufferAllocationFailuresCounterParameters	OscillatingCounterParameters	
rfcacheEnabled	Boolean	
rfcachePageSizeKb	Integer	
rfcacheMaxIoSizeKb	Integer	
rfcacheOpertionalMode	`Read`, `Write`, `ReadAndWrite`, `WriteMiss`	

ProtectionDomain parent

Name	Type	Note
System	See the System objects table.	

ProtectionDomain relationships

Name	Type	Note
SDS	List of SDS objects	
StoragePool	List of Storage Pool objects	
FaultSet	List of Fault Set objects	
Statistics	List of Protection Domain statistics.	

Protection Domain Statistics

Protection Domain Statistics Objects

Properties	Type	Note
capacityLimitInKb	Long	"Capacity" represents physical capacity
maxCapacityInKb	Long	"Capacity" represents physical capacity
capacityInUseInKb	Long	"Capacity" represents physical capacity
thickCapacityInUseInKb	Long	"Capacity" represents physical capacity
thinCapacityInUseInKb	Long	"Capacity" represents physical capacity
snapCapacityInUseInKb	Long	"Capacity" represents physical capacity
unreachableUnusedCapacityInKb	Long	"Capacity" represents physical capacity
unusedCapacityInKb	Long	"Capacity" represents physical capacity
snapCapacityInUseOccupiedInKb	Long	
thinCapacityAllocatedInKb	Long	
rmPendingAllocatedInKb	Long	
checksumCapacityInKb	Long	"Capacity" represents physical capacity
spareCapacityInKb	Long	"Capacity" represents physical capacity
capacityAvailableForVolumeAllocationInKb	Long	
protectedCapacityInKb	Long	"Capacity" represents physical capacity
degradedHealthyCapacityInKb	Long	"Capacity" represents physical capacity

Properties	Type	Note
degradedFailedCapacityInKb	Long	"Capacity" represents physical capacity
failedCapacityInKb	Long	"Capacity" represents physical capacity
semiProtectedCapacityInKb	Long	"Capacity" represents physical capacity
inMaintenanceCapacityInKb	Long	"Capacity" represents physical capacity
tempCapacityInKb	Long	"Capacity" represents physical capacity
protectedVacInKb	Long	"Vac" represents allocated capacity
degradedHealthyVacInKb	Long	"Vac" represents allocated capacity
degradedFailedVacInKb	Long	"Vac" represents allocated capacity
failedVacInKb	Long	"Vac" represents allocated capacity
semiProtectedVacInKb	Long	"Vac" represents allocated capacity
inMaintenanceVacInKb	Long	"Vac" represents allocated capacity
tempCapacityVacInKb	Long	"Vac" represents allocated capacity
movingCapacityInKb	Long	"Capacity" represents physical capacity
activeMovingCapacityInKb	Long	"Capacity" represents physical capacity
pendingMovingCapacityInKb	Long	"Capacity" represents physical capacity
fwdRebuildCapacityInKb	Long	"Capacity" represents physical capacity
activeFwdRebuildCapacityInKb	Long	"Capacity" represents physical capacity
pendingFwdRebuildCapacityInKb	Long	"Capacity" represents physical capacity
bckRebuildCapacityInKb	Long	"Capacity" represents physical capacity
activeBckRebuildCapacityInKb	Long	"Capacity" represents physical capacity
pendingBckRebuildCapacityInKb	Long	"Capacity" represents physical capacity
rebalanceCapacityInKb	Long	"Capacity" represents physical capacity
activeRebalanceCapacityInKb	Long	"Capacity" represents physical capacity
pendingRebalanceCapacityInKb	Long	"Capacity" represents physical capacity

Properties	Type	Note
atRestCapacityInKb	Long	"Capacity" represents physical capacity
normRebuildCapacityInKb	Long	"Capacity" represents physical capacity
activeNormRebuildCapacityInKb	Long	"Capacity" represents physical capacity
pendingNormRebuildCapacityInKb	Long	"Capacity" represents physical capacity
activeMovingInFwdRebuildJobs	Long	
activeMovingInBckRebuildJobs	Long	
activeMovingInRebalanceJobs	Long	
activeMovingOutFwdRebuildJobs	Long	
activeMovingOutBckRebuildJobs	Long	
activeMovingRebalanceJobs	Long	
pendingMovingInFwdRebuildJobs	Long	
pendingMovingInBckRebuildJobs	Long	
pendingMovingInRebalanceJobs	Long	
pendingMovingOutFwdRebuildJobs	Long	
pendingMovingOutBckRebuildJobs	Long	
pendingMovingRebalanceJobs	Long	
activeMovingInNormRebuildJobs	Long	
activeMovingOutNormRebuildJobs	Long	
pendingMovingInNormRebuildJobs	Long	
pendingMovingOutNormrebuildJobs	Long	
inUseVacInKb	Long	"Vac" represents allocated capacity
primaryVacInKb	Long	"primary" represents the Master MDM in version 2.0 and higher. "Vac" represents allocated capacity.
secondaryVacInKb	Long	"secondary" represents the Slave MDM in version 2.0 and higher. "Vac" represents allocated capacity.
rebuildWaitSendQLength	Long	
rebalanceWaitSendQLength	Long	
rebuildPerReceiveJobNetThrottlingInKbps	Long	
rebalancePerReceiveJobNetThrottlingInKbps	Long	
fixedReadErrorCount	Long	

Properties	Type	Note
BackgroundScanCompareCount	Long	
BackgroundScannedInMB	Long	
primaryReadBwc	Bwc object	"primary" represents the Master MDM in version 2.0 and higher
primaryReadFromDevBwc	Bwc object	"primary" represents the Master MDM in version 2.0 and higher
primaryWriteBwc	Bwc object	"primary" represents the Master MDM in version 2.0 and higher
secondaryReadBwc	Bwc object	"secondary" represents the Slave MDM in version 2.0 and higher
secondaryReadFromDevBwc	Bwc object	"secondary" represents the Slave MDM in version 2.0 and higher
secondaryWriteBwc	Bwc object	"secondary" represents the Slave MDM in version 2.0 and higher
fwdRebuildReadBwc	Bwc object	
fwdRebuildWriteBwc	Bwc object	
bckRebuildReadBwc	Bwc object	
bckRebuildWriteBwc	Bwc object	
rebalanceReadBwc	Bwc object	
rebalanceWriteBwc	Bwc object	
totalReadBwc	Bwc object	
totalWriteBwc	Bwc object	
primaryReadFromRmcacheBwc	Bwc object	"primary" represents the Master MDM in version 2.0 and higher
secondaryReadFromRmcacheBwc	Bwc object	"secondary" represents the Slave MDM in version 2.0 and higher
normRebuildReadBwc	Bwc object	
normRebuildWriteBwc	Bwc object	
volMigrationReadBwc	Bwc object	
volMigrationWriteBwc	Bwc object	
userDataReadBwc	Bwc object	
userDataWriteBwc	Bwc object	
userDataTrimBwc	Bwc object	
rmcacheSizeInKb	Long	
rmcacheSizeInUseInKb	Long	
rmcacheEntryEvictionSizeCountInKb	Long	

Properties	Type	Note
rmcacheBigBlockEvictionSizeCountInKb	Long	
rmcacheCurrNumOf4kbEntries	Long	
rmcacheCurrNumOf8kbEntries	Long	
rmcacheCurrNumOf16kbEntries	Long	
rmcacheCurrNumOf32kbEntries	Long	
rmcacheCurrNumOf64kbEntries	Long	
rmcacheCurrNumOf128kbEntries	Long	
rmcache4kbEntryCount	Long	
rmcache8kbEntryCount	Long	
rmcache16kbEntryCount	Long	
rmcache32kbEntryCount	Long	
rmcache64kbEntryCount	Long	
rmcache128kbEntryCount	Long	
rmcacheEntryEvictionCount	Long	
rmcacheBigBlockEvictionCount	Long	
rmcacheNoEvictionCount	Long	
rmcacheSkipCountLargeIo	Long	
rmcacheSkipCountUnaligned4kbIo	Long	
rmcacheSkipCountCacheAllBusy	Long	
numOfUnmappedVolumes	Long	
numOfMappedToAllVolumes	Long	
numOfThickBaseVolumes	Long	
numOfThinBaseVolumes	Long	
numOfSnapshots	Long	
numOfVolumesInDeletion	Long	
sdsIds	List of String	
numOfSds	Long	
storagePoolIds	List of String	
numOfStoragePools	Long	
numOfFaultSets	Long	
faultSetIds	List of String	
accelerationPoolIds	List of String	
numOfAccelerationPools	Long	
numOfVtreeMigrationsInPd	Long	

Properties	Type	Note
compressionRatio	Float	
rfcacheReadsReceived	Long	
rfcacheWritesReceived	Long	
rfcacheAvgReadTime	Long	
rfcacheAvgWriteTime	Long	
rfcacheSourceDeviceReads	Long	
rfcacheSourceDeviceWrites	Long	
rfacheReadHit	Long	
rfcacheReadMiss	Long	
rfacheWriteHit	Long	
rfcacheWriteMiss	Long	
rfcacheIosSkipped	Long	
rfcacheReadsSkipped	Long	
rfcacheReadsSkippedAlignedSizeTooLarge	Long	
rfcacheReadsSkippedMaxIoSize	Long	
rfcacheReadsSkippedHeavyLoad	Long	
rfcacheReadsSkippedStuckIo	Long	
rfcacheReadsSkippedLowResources	Long	
rfcacheReadsSkippedInternalError	Long	
rfcacheReadsSkippedLockIos	Long	
rfcacheWritesSkippedMaxIoSize	Long	
rfcacheWritesSkippedHeavyLoad	Long	
rfcacheWritesSkippedStuckIo	Long	
rfcacheWritesSkippedLowResources	Long	
rfcacheWritesSkippedInternalError	Long	
rfcacheWritesSkippedCacheMiss	Long	
rfcacheSkippedUnlinedWrite	Long	
rfcacheIoErrors	Long	
rfcacheReadsFromCache	Long	
rfcacheIosOutstanding	Long	
rfcacheReadsPending	Long	
rfcacheWritePending	Long	
rfcacheFdReadsReceived	Long	

Properties	Type	Note
rfcacheFdWritesReceived	Long	
rfcacheFdInlightReads	Long	
rfcacheFdInlightWrites	Long	
rfcacheFdReadTimeGreater500Millis	Long	
rfcacheFdReadTimeGreater1Sec	Long	
rfcacheFdReadTimeGreater5Sec	Long	
rfcacheFdReadTimeGreater1Min	Long	
rfcacheFdWriteTimeGreater500Millis	Long	
rfcacheFdWriteTimeGreater1Sec	Long	
rfcacheFdWriteTimeGreater5Sec	Long	
rfcacheFdWriteTimeGreater1Min	Long	
rfcacheFdAvgReadTime	Long	
rfcacheFdAvgWriteTime	Long	
rfcacheFdIoErrors	Long	
rfcacheFdCacheOverloaded	Long	
rfcacheFdMonitorErrorStucklo	Long	
rfcachePoolNumSrcDevs	Long	
rfcachePoolNumCacheDevs	Long	
rfcachePoolSize	Long	
rfcachePoolReadHit	Long	
rfcachePoolReadMiss	Long	
rfcachePoolWriteHit	Long	
rfcachePoolWriteMiss	Long	
rfcachePoolCachePages	Long	
rfcachePoolPagesInuse	Long	
rfcachePoolEvictions	Long	
rfcachePoolInLowMemoryCondition	Long	
rfcachePoolIoTimeGreater1Min	Long	
rfcachePoolLockTimeGreater1Sec	Long	
rfcachePoolSuspendedIos	Long	
rfcachePoolLowResourcesInitiatedPassthroughMode	Long	
rfcachePoolosOutstanding	Long	
rfcachePoolReadsPending	Long	

Properties	Type	Note
rfcachePoolWritePending	Long	
rfcachePoolSuspendedPequestsRedundantSearchs	Long	
rfcachePoolReadPendingG1Sec	Long	
rfcachePoolReadPendingG10Millis	Long	
rfcachePoolReadPendingG1Millis	Long	
rfcachePoolReadPendingG500Micro	Long	
rfcachePoolWritePendingG1Sec	Long	
rfcachePoolWritePendingG10Millis	Long	
rfcachePoolWritePendingG1Millis	Long	
rfcachePoolWritePendingG500Micro	Long	
rfcachePoolSourceIdMismatch	Long	
vtreeMigrationWaitSendQLength	Long	
vtreeMigrationPerReceiveJobNetThrottlingInKbps	Long	
logWrittenBlocksInKb	Long	
fglUncompressedDataSizeInKb	Long	
fglCompressedDataSizeInKb	Long	
userDataCapacityInKb	Long	"Capacity" represents physical capacity
snapshotCapacityInKb	Long	"Capacity" represents physical capacity
trimmedUserDataCapacityInKb	Long	"Capacity" represents physical capacity
provisionedAddressesInKb	Long	
usedMetadataCapacityInKb	Long	"Capacity" represents physical capacity
maxMetadataCapacityInKb	Long	"Capacity" represents physical capacity
volumeAddressSpaceInKb	Long	
vtreeAddresSpaceInKb	Long	
fglSparesInKb	Long	
metadataOverheadInKb	Long	
zeroBlocksDetectedRatio	Float	
netFglSparesInKb	Long	
netMetadataOverheadInKb	Long	

Properties	Type	Note
netCapacityInUseNoOverheadInKb	Long	
netUserDataCapacityInKb	Long	"Capacity" represents physical capacity
netSnapshotCapacityInKb	Long	"Capacity" represents physical capacity
netTrimmedUserDataCapacityInKb	Long	"Capacity" represents physical capacity
netProvisionedAddressesInKb	Long	
netUnusedCapacityInKb	Long	"Capacity" represents physical capacity
thinProvisioningRatio	Float	
thinAndSnapshotRatio	Float	
overallUsageRatio	Float	
baseOverallUsageRatio	Float	
netCapacityInUseInKb	Long	
aggregateCompressionLevel	AggregateCompressionLevel	`Uncompressed`, `Mixed`, `Compressed`
numBackgroundScannerDataErrors	Long	
numBackgroundScannerIoErrors	Long	
scanDurationInSec	Long	
scannedCapacityInKb	Long	"Capacity" represents physical capacity
volumeAllocationLimitInKb	Long	

ProtectionDomain Delta

Property	Type	Notes
sessionTag	Long	The session in which communication with the MDM regarding the delta is done. It is echoed back to the MDM in the next call within this session. Use 0 for the initial call.
lastProtectionDomainVersion	Long	Identifier within the session to be used in the next call. Use 0 in the initial call.
isDirty	Boolean	`TRUE` indicates that changes to the data queried occurred during the processing of the request. These changes may or may not be reflected in the response. Depending on the use case, sending an additional query to check for missed changes may be advisable.
protectionDomainIsPartial	Boolean	`TRUE` indicates that only partial data was sent due to the response size passing the threshold defined in MDM. The remaining data should

Property	Type	Notes
		be retrieved using another query with the sessionTag + lastProtectionDomainVersion values returned by this query.
protectionDomainList	List of ProtectionDomain objects	List of added or modified ProtectionDomain objects since the last query. In case of a full response (deletedProtectionDomainIdList = null), this list contains all the ProtectionDomains that currently exist (unless protectionDomainIsPartial = true, in which case this list is a subset of all currently existing ProtectionDomains).
deletedProtectionDomainIdList	List of ids	List of IDs of deleted ProtectionDomains since the last query. If the list is null (unlike an empty list), it means that the response contains all instances of ProtectionDomain; any ProtectionDomains not included in this response should be considered as deleted. **Note** This attribute may be set in conjunction with the protectionDomainIsPartial attribute, in which case only ProtectionDomains that are not present in this response and any of the subsequent responses until a non-partial response was received were actually deleted. If your use-case is sensitive to bursts of delete-and-re-create events, this should be taken into account.

SdsConnectionState

Properties	Type
sdsId	String
peerConnectionStates	List of SdsPeerConnectionState objects

SdsPeerConnectionState

Properties	Type
peerSdsId	String
connections	List of SingleConnectionState objects

SingleConnectionState

Properties	Type
peerHostname	String
isConnected	Boolean
connectionCount	Integer

DeviceTestResults

Properties	Type
deviceId	String
deviceTestResults	List of DeviceTestResult objects

DeviceTestResult

Properties	Type
testTime	Long
totalIOInKb	Long
numOfIos	Integer
millis	Integer
testNum	Integer
pattern	`PATTERN_NONE`, `PATTERN_WRITE_SEQ`, `PATTERN_WRITE_RAND`, `PATTERN_READ_SEQ`, `PATTERN_READ_RAND`, or `PATTERN_LAST`
rc	Integer

Query Protection Domain instances

Retrieve a list of objects for the Protection Domain

Resource path
`/api/types/ProtectionDomain/instances`

Method
`GET`

Required parameters
None.

Optional parameters
None.

Returns
List of all Protection Domain objects. See the Protection Domain objects table.

CLI command
--query_all

Example

```
HTTPS://<server>:<port>/api/types/ProtectionDomain/instances
GET
{}
```

Sample output

Query Protection Domain delta

Retrieve changes in ProtectionDomain objects since the last call of this query.

Resource path
`/api/types/ProtectionDomain/instances?systemId={system id}&sessionTag={session tag}&lastVersion={last version}`

Method
`GET`

Required parameters
None.

Optional parameters
None.

Returns
ProtectionDomain Delta object.

Returns changes in ProtectionDomain objects since the last call of this query.

To begin querying deltas, use sessionTag=0 and lastVersion=0. For subsequent queries, use values returned by the previous query.

Example

```
HTTPS://<server>:<port>/api/types/ProtectionDomain/instances?
systemId=459865f0774b81e6&sessionTag=0&lastVersion=0
GET
{}
```

Query Protection Domain object

Retrieve the object associated with the Protection Domain ID.

Resource path
`/api/instances/ProtectionDomain::{id}`

Method
`GET`

Required parameters
None.

Optional parameters
None.

Returns
Protection Domain object.

CLI command
`--query_protection_domain`

Example

```
HTTPS://<server>:<port>/api/instances/ProtectionDomain::
2c3071a200000001
GET
{}
```

Sample output

Query SDSs

Retrieve a list of SDSs connected to the Protection Domain.

Resource path
`/api/instances/ProtectionDomain::{id}/relationships/Sds`

Method
`GET`

Required parameters
None.

Optional parameters
None.

Returns
List of SDS objects connected to the Protection Domain

CLI command
`--query_protection_domain`

Example

```
HTTPS://<server>:<port>/api/instances/ProtectionDomain::
2c3071a200000001/relationships/Sds
GET
{}
```

Sample output

Query Storage Pools

Retrieve a list of Storage Pools connected to the Protection Domain.

Resource path
`/api/instances/ProtectionDomain::{id}/relationships/StoragePool`

Method
`GET`

Required parameters
None.

Optional parameters
None.

Returns
List of Storage Pool objects connected to the Protection Domain

CLI command
`--query_protection_domain`

Example

```
HTTPS://<server>:<port>/api/instances/ProtectionDomain::
2c3071a200000001/relationships/StoragePool
GET
{}
```

Sample output

Query Fault Sets

Retrieve a list of Fault Sets connected to the Protection Domain.

Resource path
`/api/instances/ProtectionDomain::{id}/relationships/FaultSet`

Method
`GET`

Required parameters
None.

Optional parameters
None.

Returns
List of Fault Set objects connected to the Protection Domain

CLI command
`--query_protection_domain`

Example

```
HTTPS://<server>:<port>/api/instances/ProtectionDomain::
2c3071a200000001/relationships/FaultSet
GET
{}
```

Sample output

Query Protection Domain statistics

Retrieve the statistics for the specified Protection Domain.

Resource path
`/api/instances/ProtectionDomain::{id}/relationships/Statistics`

Method
`GET`

Required parameters
None.

Optional parameters
None.

Returns
List of statistics for the Protection Domain

CLI command
`--query_protection_domain`

Example

```
HTTPS://<server>:<port>/api/instances/ProtectionDomain::
1caf743100000000/relationships/Statistics
GET
{}
```

Query selected Protection Domain statistics

Return a list of properties for the specified Protection Domain or all Protection Domains.

Resource path
`/api/types/ProtectionDomain/instances/action/querySelectedStatistics`

Method
`POST`

Required parameters

`ids`	List of Protection Domain object IDs
Or	
`allIds`	Leave value empty. When this parameter is used, the IDs list is ignored and a list of selected properties is returned for every Protection Domain.
`properties`	List of properties to fetch. (To view available properties, see the Statistics table.)

Optional parameters
None.

Returns
List of Protection Domain IDs and their selected properties

Example

```
HTTPS://<server>:<port>/api/types/ProtectionDomain/instances/action/
querySelectedStatistics
POST
{"allIds":"","properties":["capacityInUseInKb"]}
```

Sample output

```
{
    ""ce475c1800000001":{
     "capacityInUseInKb":0
    },
    ""ce475c1700000000":{
     "capacityInUseInKb":33554432
    }
    }
```

Query Protection Domain ID by key

Retrieve the specified Protection Domain's ID.

Resource path
`/api/types/ProtectionDomain/instances/action/queryIdByKey`

Method
`POST`

Required parameters

`name`	Name of the Protection Domain

Optional parameters
None.

Returns
Protection Domain ID

Example

```
HTTPS://<server>:<port>/api/types/ProtectionDomain/instances/action/
queryIdByKey
POST
{"name":"PD_1"}
```

Query by selected Protection Domain ID

Retrieve information for the specified Protection Domains.

Resource path
`/api/types/ProtectionDomain/instances/action/queryBySelectedIds`

Method
`POST`

Required parameters

`ids`	List of Protection Domain IDs

Optional parameters
None.

Returns
List of ProtectionDomain objects matching the IDs.

CLI command

`--query_protection_domain`

Example

```
HTTPS://<server>:<port>/api/types/ProtectionDomain/instances/action/
queryBySelectedIds
POST
{"ids":["2c3071a200000001"]}
```

Sample output

```
[
{
"name":"Lab2",
"systemId":"57b89a5b22b0bc80",
"protectionDomainState":"Active",
"rebuildNetworkThrottlingInKbps":null,
"rebalanceNetworkThrottlingInKbps":null,
"overallIoNetworkThrottlingInKbps":null,
"rebuildNetworkThrottlingEnabled":false,
"rebalanceNetworkThrottlingEnabled":false,
"overallIoNetworkThrottlingEnabled":false,
"id":"2c3071a200000001",
"links":[
{
"rel":"self",
"href":"/api/instances/ProtectionDomain::2c3071a200000001"
},
{
"rel":"/api/ProtectionDomain/relationship/Statistics",
"href":"/api/instances/ProtectionDomain::2c3071a200000001/
relationships/Statistics"
},
{
"rel":"/api/ProtectionDomain/relationship/FaultSet",
"href":"/api/instances/ProtectionDomain::2c3071a200000001/
relationships/FaultSet"
},
{
"rel":"/api/ProtectionDomain/relationship/StoragePool",
"href":"/api/instances/ProtectionDomain::2c3071a200000001/
relationships/StoragePool"
},
{
"rel":"/api/ProtectionDomain/relationship/Sds",
"href":"/api/instances/ProtectionDomain::2c3071a200000001/
relationships/Sds"
},
{
"rel":"/api/parent/relationship/systemId",
"href":"/api/instances/System::57b89a5b22b0bc80"
}
]
}
]
```

Remove Protection Domain

Remove a Protection Domain from the VxFlex OS system.

Resource path

`/api/instances/ProtectionDomain::{id}/action/removeProtectionDomain`

Method
POST

Required parameters
None.

Optional parameters
None.

Returns

CLI command
--remove_protection_domain

Example

```
HTTPS://<server>:<port>/api/instances/ProtectionDomain::
2c3071a200000001/action/removeProtectionDomain
POST
{}
```

Add Protection Domain

Add a Protection Domain.

Resource path
/api/types/ProtectionDomain/instances

Method
POST

Required parameters
None.

Optional parameters
None.

Returns
ID

CLI command
--add_protection_domain

Example

```
HTTPS://<server>:<port>/api//types/ProtectionDomain/instances
POST
{"name":"new_pd"}
```

Sample output

Set Protection Domain name

Assign a new name to the Protection Domain.

Resource path
`/api/instances/ProtectionDomain::{id}/action/setProtectionDomainName`

Method
`POST`

Required parameters

`name`	New name to assign the Protection Domain.

Optional parameters
None.

Returns

CLI command
`--rename_protection_domain`

Example

```
HTTPS://<server>:<port>/api/instances/ProtectionDomain::
2c3071a200000001/action/setProtectionDomainName
POST
{ "name":"new_pd_name"}
```

Sample output

Activate Protection Domain

Activate a Protection Domain

Protection Domains are activated by default. Use this request¡ to activate a Protection Domain that was inactivated.

Resource path
`/api/instances/ProtectionDomain::{id}/action/activateProtectionDomain`

Method
`POST`

Required parameters

`forceActivate`	Activate the Protection Domain, ignoring current system errors.

Optional parameters
None.

Returns

CLI command
`--activate_protection_domain`

Example

```
HTTPS://<server>:<port>/api/instances/ProtectionDomain::
2c3071a200000001/action/activateProtectionDomain
POST
{forceActivate}
```

Sample output

Inactivate Protection Domain

Inactivate the specified Protection Domain. This request is a much more effective way to shut down nodes and is preferable to shutting them down manually.

Resource path
`/api/instances/ProtectionDomain::{id}/action/inactivateProtectionDomain`

Method
`POST`

Required parameters

`forceShutdown`	Inactivate the Protection Domain, ignoring current system errors. TRUE/FALSE.

Optional parameters
None.

Returns

CLI command
`--inactivate_protection_domain`

Example

```
HTTPS://<server>:<port>/api/instances/ProtectionDomain::
2c3071a200000001/action/inactivateProtectionDomain
POST
{"forceShutdown":"TRUE"}
```

Sample output

Start device test in a Protection Domain

Starts testing the devices in the specified Protection Domain.

Note

Performing device tests may cause application I/O failure.

Resource path
`/api/instances/ProtectionDomain::{id}/action/startDevicesTest`

Method
`POST`

Required parameters
None.

Optional parameters

`pattern`	`writeSeq`, `writeRand`, `readSeq`, or `readRand` Default: readRand
`ioSizeKB`	A number between 4 and 512 specifying the single I/O size in KB. Default: 8
`totalIoSizeMB`	A number between 1 and 32768 specifying the total I/O size in MB. Default: 128
`limitInSeconds`	Default: 10

Returns

CLI command
`--start_device_test`

Example

```
HTTPS://<server>:<port>/api/instances/ProtectionDomain::
2c3071a200000001/action/startDevicesTest
POST
{"pattern":"readSeq","ioSizeKB":"512","totalIoSizeMB":"128","limitIn
Seconds":"10"}
```

Query device test results

Retrieve the device test results for the SDSs in the specified Protection Domain. Every SDS saves results for the last two tests per device.

Resource path
`/api/instances/ProtectionDomain::{id}/action/queryDevicesTestResults`

Method
`POST`

Required parameters
None.

Optional parameters
None.

Returns
List of device test results. See the #unique_90/unique_90_Connect_42_GUID-0729C219-3E3C-461F-97A8-C8CD5C11D0F0 on page 105 table.

CLI command
`--query_device_test`

Example

```
HTTPS://<server>:<port>/api/instances/ProtectionDomain::
2c3071a200000001/action/queryDevicesTestResults
POST
{}
```

Set SDS network limits

Limit the network bandwidth used by all SDSs in the specified Protection Domain for various traffic types.

Resource path
`/api/instances/ProtectionDomain::{id}/action/setSdsNetworkLimits`

Method
`POST`

Required parameters

`rebuildLimitInKbps`	Limit the network bandwidth for rebuild in KB/s. 0 indicates unlimited bandwidth.
AND/OR	
`rebalanceLimitInKbps`	Limit the network bandwidth for rebalance in KB/s. 0 indicates unlimited bandwidth.
AND/OR	
`overallLimitInKbps`	Limit the overall network bandwidth in KB/s. This includes the rebuild, rebalance, and application IO bandwidth. 0 indicates unlimited bandwidth.

Note

The overall limit must be higher than the rebuild and rebalance limits. Each limit must be more than 5 MB.

Optional parameters
None.

Returns

CLI command
`--set_sds_network_limits`

Example

```
HTTPS://<server>:<port>/api/instances/ProtectionDomain::
1caf743100000000/action/setSdsNetworkLimits
POST
```

```
{"rebuildLimitInKbps":"10240", "rebalanceLimitInKbps":"10240",
"overallLimitInKbps":"20480"}
```

Sample output

Query Protection Domain network

Query the Protection Domain network.

Resource path
`/api/instances/ProtectionDomain::{id}/action/queryProtectionDomainNetwork`

Method
`POST`

Required parameters
None.

Optional parameters
None.

Returns
List of SDS connection peers.

CLI command

Example

```
HTTPS://<server>:<port>/api/instances/ProtectionDomain::
2c3071a200000001/action/queryProtectionDomainNetwork
POST
{}
```

Sample output

Enable SDS Read RAM Cache

Enable the Read RAM Cache of the SDS devices in the specified Protection Domain.

Resource path
`/api/instances/ProtectionDomain::{id}/action/setSdsRmcacheEnabled`

Method
`POST`

Required parameters

`rmcacheEnabled`	`TRUE` or `FALSE`

Optional parameters
None.

Returns

CLI command
`--enable_sds_rmcache`

Example

```
HTTPS://<server>:<port>/api/instances/ProtectionDomain::
2c3071a200000001/action/setSdsRmcacheEnabled
POST
{"rmcacheEnabled":"TRUE"}
```

Set SDS Read RAM Cache size

Set the Read RAM Cache size for the SDSs in the Protection Domain.

Resource path
`/api/instances/ProtectionDomain::{id}/action/setSdsRmcacheSize`

Method
`POST`

Required parameters

`rmcacheSizeInMB`	New size of Read RAM Cache in MB. Range: 128 MB-300 GB.

Optional parameters
None.

Returns

CLI command
`--set_sds_rmcache_size`

Example

```
HTTPS://<server>:<port>/api/instances/ProtectionDomain::
2c3071a200000001/action/setSdsRmcacheSize
POST
{"rmcacheSizeInMB":"256"}
```

Sample output

Set RFcache parameters

Set RFcache parameters for the specified Protection Domain.

Resource path
`/api/instances/ProtectionDomain::{id}/action/setRfcacheParameters`

Method
`POST`

Required parameters

`pageSizeKb`	Cache page size in KB. Valid range: 4-64.
AND/OR	
`maxIOSizeKb`	Cache maximum I/O size in KB. Valid range: 32-256.
AND/OR	
`rfcacheOperationMode`	Pass-through mode. One of: `None`, `Read`, `Write`, `ReadAndWrite`, or `WriteMiss`

Optional parameters
None.

Returns

CLI command
`--set_rfcache_parameters`

Example

```
HTTPS://<server>:<port>/api/instances/ProtectionDomain::
2c3071a200000001/action/setRfcacheParameters
POST
{"pageSizeKb":"32","maxIOSizeKb":
128","rfcacheOperationMode":"Write"}
```

Sample output

Enable SDS RFcache

Enable RFcache in the Protection Domain.

Resource path
`/api/instances/ProtectionDomain::{id}/action/enableSdsRfcache`

Method
`POST`

Required parameters
None.

Optional parameters
None.

Returns

CLI command
`--enable_sds_rfcache`

Example

```
HTTPS://<server>:<port>/api/instances/ProtectionDomain::
2c3071a200000001/action/enableSdsRfcache
```

```
POST
{}
```

Sample output

Disable SDS RFcache

Disable RFcache in the Protection Domain.

Resource path
`/api/instances/ProtectionDomain::{id}/action/disableSdsRfcache`

Method
`POST`

Required parameters
None.

Optional parameters
None.

Returns

CLI command
`--disable_sds_rfcache`

Example

```
HTTPS://<server>:<port>/api/instances/ProtectionDomain::
2c3071a200000001/action/disableSdsRfcache
POST
{}
```

Sample output

Set SDS performance parameters

Set the performance profile for the SDSs in a Protection Domain.

Resource path
`/api/instances/ProtectionDomain::{id}/action/setSdsPerformanceParameters`

Method
`POST`

Required parameters

`perfProfile`	`Default` or `HighPerformance`

Optional parameters
None.

Returns

CLI command
`--set_performance_parameters`

Example

```
HTTPS://<server>:<port>/api/instances/ProtectionDomain::
1caf743100000000/action/setSdsPerformanceParameters
POST
{"perfProfile":"Default"}
```

Sample output

Reset SDS oscillating counter

Reset an oscillating counter for SDSs in the Protection Domain.

Resource path
`/api/instances/ProtectionDomain::{id}/action/resetSdsOscillatingCounter`

Method
`POST`

Required parameters

`allCounters`	Reset all counters. `TRUE` or `FALSE`.
Or	
`failureCounter`	One of the following: • `MdmSdsNetworkDisconnections` • `SdsSdsNetworkDisconnections` • `SdsDecoupled` • `SdsConfigurationFailures` • `SdsReceiveBufferAllocationFailures`

Optional parameters
None.

Returns

Example

```
HTTPS://<server>:<port>/api/instances/ProtectionDomain::
1caf743100000000/action/resetSdsOscillatingCounter

POST
{"failureCounter":"SdsDecoupled"}
```

Set SDS oscillating counter parameters

Set the oscillating counter parameters for the SDSs in a Protection Domain.

Resource path

`/api/instances/ProtectionDomain::{id}/action/setSdsOscillatingCounterParameters`

Method

`POST`

Required parameters

`failureCounter`	One of the following: • `MdmSdsNetworkDisconnections` • `SdsSdsNetworkDisconnections` • `SdsDecoupled` • `SdsConfigurationFailures` • `SdsReceiveBufferAllocationFailures`
`windowType`	`Short`, `Medium`, or `Long`
`windowInterval`	Number between 1 and 86400.
`failuresThreshold`	The failure threshold

Optional parameters

None.

Returns

CLI command

`--set_oscillating_failure_counter_parameters`

Example

```
HTTPS://<server>:<port>/api/instances/ProtectionDomain::
1caf743100000000/action/setSdsOscillatingCounterParameters
POST
{"failureCounter":"SdsDecoupled","windowType":"Short","windowInterva
l":5200"}
```

CHAPTER 5

SDS

This section contains information about SDS operations.

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SDS

SDS objects

Properties	Type	Required\Optional for POST
id	String	-
name	String	Optional
ipList	List of SdsIp objects	Required (name of the property for POST: sdsIpList)
sdsPort	Integer	Optional
sdsState	`Normal` or `RemovePending`	-
membershipState	`JoinPending`, `Joined`, or `Decoupled`	-
mdmConnectionState	`Connected` or `Disconnected`	-
drlMode	`Volatile` or `NonVolatile`	Optional
rmcacheEnabled	Boolean	Optional
rmcacheSizeInKb	Integer Indicates the size of Read RAM Cache on the specified SDS.	Optional
rmcacheFrozen	Boolean Indicates whether the Read RAM Cache is currently temporarily not in use.	Optional
protectionDomainId	String	Required
onVmWare	Boolean	-
faultSetId	String	Optional
numOfIoBuffers	Integer	Optional
RmcacheMemoryAllocationState	`RmcacheMemoryAllocationStateInvalid`, `AllocationPending`, `AllocationSuccessful`, `AllocationFailed`, or `RmcacheDisabled` Indicates the state of the memory allocation process (in progress/done)	-
perfProfile	`Default`, `HighPerformance` or `Custom`	
maintenanceState	`NoMaintenance`, `SetMaintenanceInProgress`,	

Properties	Type	Required\Optional for POST
	`InMaintenance` or `ExitMaintenanceInProgress`	
softwareVersionInfo	String	
rfcacheEnabled	Boolean	
rfcacheErrorDeviceDoesNotExis	Boolean	
rfcacheErrorLowResources	Boolean	
rfcacheErrorApiVersionMismatch	Boolean	
rfcacheErrorInconsistentCacheConfiguration	Boolean Indicates whether there is an error in the Read Flash Cache configuration.	
rfcacheErrorInconsistentSourceConfiguration	Boolean Indicates whether there is an error on the Read Flash Cache source device.	
rfcacheErrorInvalidDriverPath	Boolean	
certificateInfo	CertificateInfo object	
authenticationError	`None`, `General`, `ErrorLoadingOpenssl`, `ErrorLoadingCertificate`, `VerificationError`, `ErrorLoadingAuthenticationInMdm`,`OpensslVerionTooLong`	Optional
sdsDecoupled	OscillatingCounter object Indicates whether the SDS is currently in decoupled state.	
sdsConfigurationFailure	OscillatingCounter object	
sdsReceiveBufferAllocationFailures	OscillatingCounter object A counter of buffer allocation failures on the specified SDS. This information can be used to identify performance degradation issues.	
raid_controllers	List of RaidController objects	
inflightRequestsFlowControlDisabled	Boolean	
inflightBandwidthFlowControlDisabled	Boolean	

SDS parents

Name	Type	Note
ProtectionDomain	ProtectionDomain object	
FaultSet	FaultSet object	

SDS relationships

Name	Type	Note
Device	List of Device objects	
SpSds	List of SpSds objects	
Statistics	See the SDS Statistics table.	

SdsIp

Properties	Type
ip	String
role	`sdsOnly`, `sdcOnly`, or `all`

SdsRfcacheDeviceInfo

Properties	Type
path	String
name	String

CertificateInfo

Properties	Type
subject	String
issuer	String
validFrom	String
validTo	String
thumbprint	String
validFromAsn1Format	String
validToAsn1Format	String

RaidController

Properties	Type
serialNumber	String
modelName	String
vendorName	String
firmwareVersion	String
driverVersion	String
driverName	String

Properties	Type
pciAddress	String
status	String
batteryStatus	String

SDS Statistics

SDS Statistics objects

Properties	Type	Note
capacityLimitInKb	Long	
maxCapacityInKb	Long	"Capacity" represents physical capacity
capacityInUseInKb	Long	
thickCapacityInUseInKb	Long	
thinCapacityInUseInKb	Long	
snapCapacityInUseInKb	Long	
unreachableUnusedCapacityInKb	Long	"Capacity" represents physical capacity
unusedCapacityInKb	Long	"Capacity" represents physical capacity
snapCapacityInUseOccupiedInKb	Long	
thinCapacityAllocatedInKb	Long	Thin allocated capacity in kilobytes
rmPendingAllocatedInKb	Long	Capacity that is marked for removal (for example, during a remove device/SDS operation)
checksumCapacityInKb	Long	"Capacity" represents physical capacity
protectedVacInKb	Long	"Vac" represents allocated capacity
degradedHealthyVacInKb	Long	"Vac" represents allocated capacity
degradedFailedVacInKb	Long	"Vac" represents allocated capacity
failedVacInKb	Long	"Vac" represents allocated capacity
semiProtectedVacInKb	Long	The capacity of the other copy of the data stored on the SDS which is currently in

Properties	Type	Note
		maintenance mode. "Vac" represents allocated capacity.
inMaintenanceVacInKb	Long	Capacity that is currently in maintenance (on the SDS that is currently in maintenance mode). "Vac" represents allocated capacity.
tempCapacityVacInKb	Long	"Vac" represents allocated capacity
activeMovingInFwdRebuildJobs	Long	
activeMovingInBckRebuildJobs	Long	
activeMovingInRebalanceJobs	Long	
activeMovingOutFwdRebuildJobs	Long	
activeMovingOutBckRebuildJobs	Long	
activeMovingRebalanceJobs	Long	
pendingMovingInFwdRebuildJobs	Long	
pendingMovingInBckRebuildJobs	Long	
pendingMovingInRebalanceJobs	Long	
pendingMovingOutFwdRebuildJobs	Long	
pendingMovingOutBckRebuildJobs	Long	
pendingMovingRebalanceJobs	Long	
activeMovingInNormRebuildJobs	Long	A counter that presents a backward rebuild that was triggered from the normal-need-rebuild state. The counter represents the number of combs that are currently being moved in the target SDS.
activeMovingOutNormRebuildJobs	Long	A counter that presents a backward rebuild that was triggered from the normal-need-rebuild state.

Properties	Type	Note
pendingMovingInNormRebuildJobs	Long	Combs that should be rebuilt, but are currently waiting in the queue
pendingMovingOutNormrebuildJobs	Long	Combs that should be rebuilt, but are currently waiting in the queue
inUseVacInKb	Long	"Vac" represents allocated capacity
primaryVacInKb	Long	"primary" represents Master MDM in versions 2.0 and higher. "Vac" represents allocated capacity.
secondaryVacInKb	Long	"secondary" represents Slave MDM in versions 2.0 and higher. "Vac" represents allocated capacity.
rebuildWaitSendQLength	Long	
rebalanceWaitSendQLength	Long	
rebuildPerReceiveJobNetThrottlingInKbps	Long	
rebalancePerReceiveJobNetThrottlingInKbps	Long	
fixedReadErrorCount	Long	
BackgroundScanCompareCount	Long	
BackgroundScannedInMB	Long	
primaryReadBwc	Bwc object	"primary" represents Master MDM in versions 2.0 and higher
primaryReadFromDevBwc	Bwc object	"primary" represents Master MDM in versions 2.0 and higher
primaryWriteBwc	Bwc object	"primary" represents Master MDM in versions 2.0 and higher
secondaryReadBwc	Bwc object	"secondary" represents Slave MDM in versions 2.0 and higher
secondaryReadFromDevBwc	Bwc object	"secondary" represents Slave MDM in versions 2.0 and higher
secondaryWriteBwc	Bwc object	"secondary" represents Slave MDM in versions 2.0 and higher

Properties	Type	Note
fwdRebuildReadBwc	Bwc object	
fwdRebuildWriteBwc	Bwc object	
bckRebuildReadBwc	Bwc object	
bckRebuildWriteBwc	Bwc object	
rebalanceReadBwc	Bwc object	
rebalanceWriteBwc	Bwc object	
totalReadBwc	Bwc object	
totalWriteBwc	Bwc object	
primaryReadFromRmcacheBwc	Bwc object	"primary" represents Master MDM in versions 2.0 and higher
secondaryReadFromRmcacheBwc	Bwc object	"secondary" represents Slave MDM in versions 2.0 and higher
normRebuildReadBwc	Bwc object	Bandwidth of reads as part of "rebuild from normal" state
normRebuildWriteBwc	Bwc object	Bandwidth of writes as part of "rebuild from normal" state
volMigrationReadBwc	Bwc object	
volMigrationWriteBwc	Bwc object	
rmcacheSizeInKb	Long	
rmcacheSizeInUseInKb	Long	
rmcacheEntryEvictionSizeCountInKb	Long	
rmcacheBigBlockEvictionSizeCountInKb	Long	
rmcacheCurrNumOf4kbEntries	Long	
rmcacheCurrNumOf8kbEntries	Long	
rmcacheCurrNumOf16kbEntries	Long	
rmcacheCurrNumOf32kbEntries	Long	
rmcacheCurrNumOf64kbEntries	Long	
rmcacheCurrNumOf128kbEntries	Long	
rmcache4kbEntryCount	Long	

Properties	Type	Note
rmcache8kbEntryCount	Long	
rmcache16kbEntryCount	Long	
rmcache32kbEntryCount	Long	
rmcache64kbEntryCount	Long	
rmcache128kbEntryCount	Long	
rmcacheEntryEvictionCount	Long	
rmcacheBigBlockEvictionCount	Long	
rmcacheNoEvictionCount	Long	
rmcacheSkipCountLargeIo	Long	
rmcacheSkipCountUnaligned4kbIo	Long	
rmcacheSkipCountCacheAllBusy	Long	
deviceIds	List of String	
numOfDevices	Long	
rfcacheDeviceIds	List of String	
numOfRfcacheDevices	Long	
accelerationDeviceIds	List of String	
spSdsIds	List of String	
compressionRatio	Float	
avgCompressionLatencyCompressedBlockInMicroseconds	Long	
avgCompressionLatencyUncompressedBlockInMicroseconds	Long	
avgDecompressionLatencyInMicroseconds	Long	
rfcacheReadsReceived	Long	
rfcacheWritesReceived	Long	
rfcacheAvgReadTime	Long	
rfcacheAvgWriteTime	Long	
rfcacheSourceDeviceReads	Long	
rfcacheSourceDeviceWrites	Long	
rfacheReadHit	Long	
rfcacheReadMiss	Long	
rfacheWriteHit	Long	

Properties	Type	Note
rfcacheWriteMiss	Long	
rfcacheIosSkipped	Long	
rfcacheReadsSkipped	Long	
rfcacheReadsSkippedAlignedSizeTooLarge	Long	
rfcacheReadsSkippedMaxIoSize	Long	
rfcacheReadsSkippedHeavyLoad	Long	
rfcacheReadsSkippedStuckIo	Long	
rfcacheReadsSkippedLowResources	Long	
rfcacheReadsSkippedInternalError	Long	
rfcacheReadsSkippedLockIos	Long	
rfcacheWritesSkippedMaxIoSize	Long	
rfcacheWritesSkippedHeavyLoad	Long	
rfcacheWritesSkippedStuckIo	Long	
rfcacheWritesSkippedLowResources	Long	
rfcacheWritesSkippedInternalError	Long	
rfcacheWritesSkippedCacheMiss	Long	
rfcacheSkippedUnlinedWrite	Long	
rfcacheIoErrors	Long	
rfcacheReadsFromCache	Long	
rfcacheIosOutstanding	Long	
rfcacheReadsPending	Long	
rfcacheWritePending	Long	
rfcacheFdReadsReceived	Long	
rfcacheFdWritesReceived	Long	
rfcacheFdInlightReads	Long	
rfcacheFdInlightWrites	Long	
rfcacheFdReadTimeGreater500Millis	Long	

Properties	Type	Note
rfcacheFdReadTimeGreater1Sec	Long	
rfcacheFdReadTimeGreater5Sec	Long	
rfcacheFdReadTimeGreater1Min	Long	
rfcacheFdWriteTimeGreater500Millis	Long	
rfcacheFdWriteTimeGreater1Sec	Long	
rfcacheFdWriteTimeGreater5Sec	Long	
rfcacheFdWriteTimeGreater1Min	Long	
rfcacheFdAvgReadTime	Long	
rfcacheFdAvgWriteTime	Long	
rfcacheFdIoErrors	Long	
rfcacheFdCacheOverloaded	Long	
rfcacheFdMonitorErrorStuckIo	Long	
rfcachePoolNumSrcDevs	Long	
rfcachePoolNumCacheDevs	Long	
rfcachePoolMaxIoSize	Long	
rfcachePoolPageSize	Long	
rfcachePoolOpmode	Long	
rfcachePoolSize	Long	
rfcachePoolReadHit	Long	
rfcachePoolReadMiss	Long	
rfcachePoolWriteHit	Long	
rfcachePoolWriteMiss	Long	
rfcachePoolCachePages	Long	
rfcachePoolPagesInuse	Long	
rfcachePoolEvictions	Long	
rfcachePoolInLowMemoryCondition	Long	
rfcachePoolIoTimeGreater1Min	Long	

Properties	Type	Note
rfcachePoolLockTimeGreater1Sec	Long	
rfcachePoolSuspendedIos	Long	
rfcachePoolSuspendedIosMax	Long	
rfcachePoolLowResourcesInitiatedPassthroughMode	Long	
rfcachePoolosOutstanding	Long	
rfcachePoolReadsPending	Long	
rfcachePoolWritePending	Long	
rfcachePoolContinuosMem	Long	
rfcachePoolNumOfDriverThreads	Long	
rfcachePoolSuspendedPequestsRedundantSearchs	Long	
rfcachePoolReadPendingG1Sec	Long	
rfcachePoolReadPendingG10Millis	Long	
rfcachePoolReadPendingG1Millis	Long	
rfcachePoolReadPendingG500Micro	Long	
rfcachePoolWritePendingG1Sec	Long	
rfcachePoolWritePendingG10Millis	Long	
rfcachePoolWritePendingG1Millis	Long	
rfcachePoolWritePendingG500Micro	Long	
rfcachePoolSourceIdMismatch	Long	
vtreeMigrationWaitSendQLength	Long	
vtreeMigrationPerReceiveJobNetThrottlingInKbps	Long	
logWrittenBlocksInKb	Long	
fglUncompressedDataSizeInKb	Long	
fglCompressedDataSizeInKb	Long	

Properties	Type	Note
userDataCapacityInKb	Long	"Capacity" represents physical capacity
snapshotCapacityInKb	Long	"Capacity" represents physical capacity
trimmedUserDataCapacityInKb	Long	"Capacity" represents physical capacity
provisionedAddressesInKb	Long	
usedMetadataCapacityInKb	Long	"Capacity" represents physical capacity
maxMetadataCapacityInKb	Long	"Capacity" represents physical capacity
fglSparesInKb	Long	
metadataOverheadInKb	Long	
zeroBlocksDetectedRatio	Float	
netFglSparesInKb	Long	
netMetadataOverheadInKb	Long	
netCapacityInUseNoOverheadInKb	Long	
netUserDataCapacityInKb	Long	"Capacity" represents physical capacity
netSnapshotCapacityInKb	Long	"Capacity" represents physical capacity
netTrimmedUserDataCapacityInKb	Long	"Capacity" represents physical capacity
netProvisionedAddressesInKb	Long	
netUnusedCapacityInKb	Long	"Capacity" represents physical capacity
netCapacityInUseInKb	Long	
numBackgroundScannerDataErrors	Long	
numBackgroundScannerIoErrors	Long	
scanDurationInSec	Long	
scannedCapacityInKb	Long	"Capacity" represents physical capacity

SDS delta

Property	Type	Notes
sessionTag	Long	The session in which communication with the MDM regarding the delta is done. It is echoed back to the MDM in the next call within this session. Use 0 for the initial call.
isDirty	Boolean	`TRUE` indicates that changes to the data queried occurred during the processing of the request. These changes may or may not be reflected in the response. Depending on the use case, sending an additional query to check for missed changes may be advisable.
lastSdsVersion	Long	Identifier within the session to be used in the next call. Use 0 in the initial call.
sdsIsPartial	Boolean	`TRUE` indicates that only partial data was sent due to the response size passing the threshold defined in MDM. The remaining data should be retrieved using another query with the sessionTag + lastSdsVersion values returned by this query.
sdsList	List of SDS objects	List of added or modified SDS objects since the last query. In case of a full response (deletedSdsIdList = null), this list contains all the SDS objects that currently exist (unless sdsIsPartial = true, in which case this list is a subset of all currently existing SDS objects).
deletedSdsIdList	List of ids	List of IDs of deleted SDS objects since the last query. If the list is null (unlike an empty list), it means that the response contains all instances of SDS objects; any SDS objects not included in this response should be considered as deleted. **Note** This attribute may be set in conjunction with the sdsIsPartial attribute, in which case only SDS objects that are not present in this response and any of the subsequent responses until a non-partial response was received were actually deleted. If your use-case is sensitive to bursts of delete-and-re-create events, this should be taken into account.

NetBwc

Properties	Type
sendSizeBwc	MosBwcQueryWindowSize object
sendLatencyBwc	MosBwcQueryWindowLatency object

Properties	Type
sdsId	Long
sdsIp	String

MosBwcQueryWindowSize

Properties	Type
numOccured	Long
totalWeightInKB	Long
numSeconds	Integer

MosBwcQueryWindowLatency

Properties	Type
numOccured	Long
totalWeightInMicroseconds	Long
numSeconds	Integer

DeviceMetadata

Properties	Type
temperature	SmartAttribute object
ssdEndOfLife	SmartAttribute object
raidVdiskStatus	String
raidVdiskType	String
raidVdiskCache	String
smartAttributes	List of SmartAttribute objects

SmartAttribute

Properties	Type
initialized	Boolean
index	Integer
smartValue	Integer
worstValue	Integer
threshold	Integer

Query SDS instances

Retrieve a list of all SDS objects.

Resource path

`/api/types/Sds/instances`

Method
GET

Required parameters
None.

Optional parameters
None.

Returns
List of all SDS objects. See the SDS objects table.

CLI command
--query_all_sds

Example

```
HTTPS://<server>:<port>/api//types/Sds/instances
GET
{}
```

Sample output

Query SDS delta

Retrieve the changes in SDS objects since the last call of this query.

Resource path
/api/types/Sds/instances?systemId={system id}&sessionTag={session tag}&lastVersion={last version}

Method
GET

Required parameters
None.

Optional parameters
None.

Returns
Sds Delta object.

Returns changes in Sds objects since the last call of this query.

To begin querying deltas, use sessionTag=0 and lastVersion=0. For subsequent queries, use values returned by the previous query.

CLI command
None.

Example

```
HTTPS://<server>:<port>/api/types/Sds/instances?
systemId=459865f0774b81e6&sessionTag=0}&lastVersion=0
GET
{}
```

Sample output

Query SDS object

Retrieve the object associated with the SDS ID.

Resource path
`/api/instances/Sds::{id}`

Method
`GET`

Required parameters
None.

Optional parameters
None.

Returns
SDS object. See the SDS objects table.

CLI command
`--query_sds`

Example

```
HTTPS://<server>:<port>/api/instances/Sds::24adba4500000001
GET
{}
```

Sample output

Query SDS device

Retrieve a list of devices connected to the SDS.

Resource path
`/api/instances/Sds::{id}/relationships/Device`

Method
`GET`

Required parameters
None.

Optional parameters
None.

Returns
List of devices connected to the SDS

CLI command
`--query_sds_device_info`

`--get_devices_per_sds`

Example

```
HTTPS://<server>:<port>/api/instances/Sds::{id}/relationships/Device
GET
{}
```

Sample output

Query SDS statistics

Retrieve a list of statistics for the specified SDS.

Resource path
`/api/instances/Sds::{id}/relationships/Statistics`

Method
`GET`

Required parameters
None.

Optional parameters
None.

Returns
List of statistics for the SDS.

Example

```
HTTPS://<server>:<port>/api/instances/Sds::24adba4500000001/
relationships/Statistics
GET
{}
```

Query selected SDS statistics

Return a list of properties for the specified SDS, or all SDSs.

Resource path
`/api/types/Sds/instances/action/querySelectedStatistics`

Method
`POST`

Required parameters

`ids`	List of object IDs
Or	
`allIds`	Leave value empty. When this parameter is used, the IDs list is ignored and a list of selected properties is returned for every SDS.
`properties`	List of properties to fetch. (To view available properties, see the Statistics table.)

Optional parameters
None.

Returns
List of SDS IDs and their selected properties

CLI command

Example

```
HTTPS://<server>:<port>/api/types/Sds/instances/action/
querySelectedStatistics
POST
{"ids":["ead4729d00000000","ead4729e00000001"],"properties":
["rmcacheSkipCountLargeIo","primaryReadFromDevBwc","degradedHealthyV
acInKb","snapCapacityInUseInKb"]}
```

Sample output

```
{
"ead4729d00000000":{
"primaryReadFromDevBwc":{
"numOccured":0,
"totalWeightInKb":0,
"numSeconds":0
},
"rmcacheSkipCountLargeIo":0,
"snapCapacityInUseInKb":2097152,
"degradedHealthyVacInKb":0
},
"ead4729e00000001":{
"primaryReadFromDevBwc":{
"numOccured":0,
"totalWeightInKb":0,
"numSeconds":0
},
"rmcacheSkipCountLargeIo":0,
"snapCapacityInUseInKb":1048576,
"degradedHealthyVacInKb":0
}
}
```

Query SDS ID by key

Retrieve the specified SDS's ID.

Resource path
`/api/types/Sds/instances/action/queryIdByKey`

Method
`POST`

Required parameters

`name`	Name of the SDS

Optional parameters
None.

Returns
SDS ID

Example

```
HTTPS://<server>:<port>/api/types/Sds/instances/action/queryIdByKey
POST
{"name":"sds_2"}
```

Query by selected IDs

Retrieve a list of SDSs for the specified IDs.

Resource path
`/api/types/Sds/instances/action/queryBySelectedIds`

Method
`POST`

Required parameters

`ids`	List of SDS IDs

Optional parameters
None.

Returns
List of SDC objects objects matching the IDs

CLI command
`--query_sds`

Example

```
HTTPS://<server>:<port>/api/types/Sds/instances/action/
queryBySelectedIds
POST
{"ids":["24adba4500000001"]}
```

Sample output

Generate certificate

Generate a new certificate and private key for the SDS. The certificate and key are signed by the system.

Resource path
`/api/instances/Sds::{id}/action/generateCertificate`

Method
`POST`

Required parameters
None.

Optional parameters
None.

Returns

CLI command
`--generate_certificate`

Example

```
HTTPS://<server>:<port>/api/instances/Sds::24adba4500000001/action/
generateCertificate
POST
{}
```

Sample output

Query oscillating network counters

Retrieve a list of oscillating network counters for the specified SDS.

Resource path
`/api/instances/Sds::{id}/action/queryOscillatingNetworkCounters`

Method
`POST`

Required parameters
None.

Optional parameters
None.

Returns
ServerTime (Long) and networkStateList (list of ComponentNetworkState objects)

CLI command
`--query_sds`

Example

```
HTTPS://<server>:<port>/api/instances/Sds::24adba4500000001/action/
queryOscillatingNetworkCounters
POST
{}
```

Sample output

Set SDS name

Assign a new name to the specified SDS.

Resource path
`/api/instances/Sds::{id}/action/setSdsName`

Method
`POST`

Required parameters

`name`	New name to assign the SDS.

Optional parameters

None.

Returns

CLI command

`--rename_sds`

Example

```
HTTPS://<server>:<port>/api/instances/Sds::24adba4500000001/action/
setSdsNamee
POST
{"name":"sds_new_name"}
```

Sample output

Set DRL mode

Set the properties of the Dirty Region Logging used by one or all SDSs.

Resource path

`/api/instances/Sds::{id}/action/setDrlMode`

Method

`POST`

Required parameters

`drlMode`	One of: • `Volatile`: DRL bits are stored in DRAM only. • `NonVolatile` : DRL bits are also backed up in non-volatile memory.

Optional parameters

None.

Returns

CLI command

`--set_drl_properties`

Example

```
HTTPS://<server>:<port>/api/instances/Sds::24adba4500000001/action/
setDrlMode
POST
{"drlMode":"NonVolatile"}
```

Sample output

Set SDS IP role

Set a new role for an existing IP address.

Resource path
`/api/instances/Sds::{id}/action/setSdsIpRole`

Method
`POST`

Required parameters

`sdsIpToSet`	IP address of the SDS whose role is being changed
`newRole`	New role to assigned to the SDS IP address: `sdsOnly`, `sdcOnly`, or `all`

Optional parameters

`forceRoleModification`	TRUE/FALSE

Returns

CLI command
`--modify_sds_ip_role`

Example

```
HTTPS://<server>:<port>/api/instances/Sds::24adba4500000001/action/
setSdsIpRole
POST
{"sdsIpToSet":"fd00::172:16:110:153","newRole":"all"}
```

Sample output

Start SDS network test

Initiate a network test between an SDS and all of its peers.

Resource path
`/api/instances/Sds::{id}/action/startSdsNetworkTest`

Method
`POST`

Required parameters
None.

Optional parameters

`numParallelMsgs`	Number of parallel messages sent during the test. Range is 1 - 16. Default: 4.

networkTestSizeInGb	Amount of data in GB sent between the tested SDS and every other SDS. Value should be less than 10. Default: 1 GB.
networkTestLengthInSecs	Maximum amount of time spent testing the SDS, regardless of the number of SDSs in the system. Default value: 0 (unlimited).

Returns

CLI command
`--start_sds_network_test`

Example

```
HTTPS://<server>:<port>/api/instances/Sds::24adba4500000001/action/
startSdsNetworkTest
POST
{"numParallelMsgs":"8","networkTestSizeInGb":"2","networkTestLengthI
nSecs":"120"}
```

Query SDS Network Test Results

Query results of SDS network tests.

Resource path
`/api/instances/Sds::{id}/action/querySdsNetworkTestResults`

Method
`POST`

Required parameters
None.

Optional parameters
None.

Returns
List of SDS network test results.

CLI command
`--query_sds_network_test_results`

Example

```
HTTPS://<server>:<port>/api/instances/Sds::{id}/action/
querySdsNetworkTestResults
POST
{}
```

Sample output

Clear devices error

Clear an error from all devices in an SDS.

Resource path
`/api/instances/Sds::{id}/action/clearDevicesError`

Method
`POST`

Required parameters
None.

Optional parameters
None.

Returns

CLI command
`--clear_sds_device_error`

Example

```
HTTPS://<server>:<port>/api/instances/Sds::24adba4500000001/action/
clearDevicesError
POST
{}
```

Sample output

Activate SDS devices

Activate all devices that completed their tests.

Resource path
`/api/instances/Sds::{id}/action/activateDevices`

Method
`POST`

Required parameters
None.

Optional parameters
None.

Returns

CLI command
`--activate_sds_devices`

Example

```
HTTPS://<server>:<port>/api/instances/Sds::24adba4500000001/action/
activateDevices
```

```
POST
{}
```

Sample output

Start devices test

Start a device test

WARNING

Performing device tests may cause application I/O failure.

Resource path
`/api/instances/Sds::{id}/action/startDevicesTest`

Method
`POST`

Required parameters
None.

Optional parameters

`pattern`	`writeSeq`, `writeRand`, `readSeq`, or `readRand`. Default: `readRand`.
`ioSizeKB`	The read or write I/O size in KB. Range is 4 - 512 KB. Default: 8.
`totalIoSizeMB`	The total I/O size in MB. Range is 1 - 32768 MB. Default: 128.
`limitInSeconds`	Maximum test run time in seconds. Default: 10.

Returns

CLI command
`--start_device_test`

Example

```
HTTPS://<server>:<port>/api/instances/Sds::24adba4500000001/action/
startDevicesTest
POST
{}
```

Query devices test results

Retrieve the test results for all devices in the SDS. Every SDS saves results for the last two tests per device.

Resource path
`/api/instances/Sds::{id}/action/queryDevicesTestResults`

Method
POST

Required parameters
None.

Optional parameters
None.

Returns
List of device test results.

CLI command
--query_device_test

Example

```
HTTPS://<server>:<port>/api/instances/Sds::24adba4500000001/action/
queryDevicesTestResults
POST
{}
```

Sample output

Set SDS Read RAM Cache

Enable or disable the Read RAM Cache of the devices in the specified SDS.

Resource path
/api/instances/Sds::{id}/action/setSdsRmcacheEnabled

Method
POST

Required parameters

rmcacheEnabled	TRUE/FALSE

Optional parameters
None.

Returns

CLI command
--enable_sds_rmcache

--disable_sds_rmcache

Example

```
HTTPS://<server>:<port>/api/instances/Sds::24adba4500000001/action/
setSdsRmcacheEnabled
POST
{"rmcacheEnabled":"TRUE"}
```

Set SDS Read RAM Cache size

Set the Read RAM Cache size of the specified SDS.

Resource path
`/api/instances/Sds::{id}/action/setSdsRmcacheSize`

Method
`POST`

Required parameters

`rmcacheSizeInMB`	Size of Read RAM Cache in MB. Range: 128 MB-300 GB.

Optional parameters
None.

Returns

CLI command
`--set_sds_rmcache_size`

Example

```
HTTPS://<server>:<port>/api/instances/Sds::24adba4500000001/action/
setSdsRmcacheSize
POST
{"rmcacheSizeInMB":"256"}
```

Purge Read RAM Cache

Empty the Read RAM Cache on the SDS.

Resource path
`/api/instances/Sds::{id}/action/purgeRmcache`

Method
`POST`

Required parameters
None.

Optional parameters
None.

Returns

CLI command
None.

Example

```
HTTPS://<server>:<port> /api/instances/Sds::24adba4500000001/action/
purgeRmcache
```

```
POST
{}
```

Sample output

Set Read RAM Cache frozen

Resource path
`/api/instances/Sds::{id}/action/setRmcacheFrozen`

Method
`POST`

Required parameters

`rmcacheFrozen`	TRUE/FALSE

Optional parameters
None.

Returns

CLI command
None.

Example

```
HTTPS://<server>:<port>/api/instances/Sds::24adba4500000001/action/
setRmcacheFrozen
POST
{"rmcacheFrozen":"TRUE"}
```

Sample output

Query SDS network latency meters

Retrieve the network latency meters for the specified SDS.

Resource path
`/api/instances/Sds::{id}/action/querySdsNetworkLatencyMeters`

Method
`POST`

Required parameters
None.

Optional parameters
None.

Returns
Network average I/O size and average latency.

CLI command
`--query_network_latency_meters`

Example

```
HTTPS://<server>:<port>/api/instances/Sds::24adba4500000001/action/
querySdsNetworkLatencyMeters
POST
{}
```

Sample output

Query disconnected SDSs

Retrieve a list of SDSs that are disconnected from the VxFlex OS system.

Resource path
`/api/instances/Sds/action/queryDisconnectedSdss`

Method
`POST`

Required parameters
None.

Optional parameters
None.

Returns
List of SDS objects that are disconnected. (Their MDM is disconnected or their membership state is not “joined.”)

CLI command
None.

Example

```
HTTPS://<server>:<port>/api/instances/Sds/action/
queryDisconnectedSdss
POST
{}
```

Sample output

Add SDS RFcache device

Add one or more RFcache devices to the specified SDS.

Resource path
`/api/instances/Sds::{id}/action/addSdsRfcacheDevice`

Method
`POST`

Required parameters

`rfcacheDeviceInfoList`	List of `devicePath` and `deviceName`

Optional parameters

`forceDeviceTakeover`	Force the add device operation, ignoring other SDSs holding the device. TRUE/FALSE.

Returns

CLI command

`--add_sds_rfcache_device`

Example

```
HTTPS://<server>:<port>/api/..../instances/Sds::24adba4500000001/
action/addSdsRfcacheDevice
POST
{"rfcacheDeviceInfoList":[{"devicePath":"/dev/
sdg","deviceName":"sdg"},{"devicePath":"/dev/
sdb","deviceName":"sdb"}]}
```

Sample output

Clear RFcache error

Clear RFcache errors on the specified SDS.

Resource path

`/api/instances/Sds::{id}/action/clearRfcacheError`

Method

`POST`

Required parameters

None.

Optional parameters

None.

Returns

CLI command

`--clear_sds_rfcache_error`

Example

```
HTTPS://<server>:<port>/api/instances/Sds::24adba4500000001/action/
clearRfcacheError
POST
{}
```

Sample output

Enable RFcache

Enable RFcache on the specified SDS.

Resource path
`/api/instances/Sds::{id}/action/enableRfcache`

Method
`POST`

Required parameters
None.

Optional parameters
None.

Returns

CLI command
`--enable_sds_rfcache`

Example

```
HTTPS://<server>:<port>/api/instances/Sds::24adba4500000001/action/
enableRfcache
POST
{}
```

Sample output

Disable RFcache

Disable RFcache on the specified SDS.

Resource path
`/api/instances/Sds::{id}/action/disableRfcache`

Method
`POST`

Required parameters
None.

Optional parameters
None.

Returns

CLI command
`--disable_sds_rfcache`

Example

```
HTTPS://<server>:<port>/api/instances/Sds::24adba4500000001/action/
disableRfcache
```

```
POST
{}
```

Sample output

Set SDS performance parameters

Apply performance parameters to the SDS.

Resource path
`/api/instances/Sds::{id}/action/setSdsPerformanceParameters`

Method
`POST`

Required parameters
None.

`perfProfile`	Performance profile to apply to the SDS: `Default` or `HighPerformance`. The `HighPerformance` profile configures a predefined set of parameters for very high performance use cases.

Optional parameters
None.

Returns

CLI command
`--set_performance_parameters`

Example

```
HTTPS://<server>:<port>/api/instances/Sds::24adba4500000001/action/
setSdsPerformanceParameters
POST
{"perfProfile":"HighPerformance"}
```

Sample output

CHAPTER 6

Storage Pool

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Storage Pool

Storage Pool Object

Properties	Type	Required\Optional for POST
id	String	-
name	String	Optional
sparePercentage	Integer	Optional
rebuildEnabled	Boolean	Optional
rebalanceEnabled	Boolean	Optional
rebuildIoPriorityPolicy	unlimited or limitNumOfConcurrentIos or favorAppIos or dynamicBwThrottling	-
rebalanceIoPriorityPolicy	-	
rebuildIoPriorityNumOfConcurrentIosPerDevice	Integer	-
rebalanceIoPriorityNumOfConcurrentIosPerDevice	Integer	-
rebuildIoPriorityBwLimitPerDeviceInKbps	Integer	-
rebalanceIoPriorityBwLimitPerDeviceInKbps	Integer	-
rebuildIoPriorityAppIopsPerDeviceThreshold	Integer	-
rebalanceIoPriorityAppIopsPerDeviceThreshold	Integer	-
rebuildIoPriorityAppBwPerDeviceThresholdInKbps	Integer	-
rebalanceIoPriorityAppBwPerDeviceThresholdInKbps	Integer	-
rebuildIoPriorityQuietPeriodInMsec	Integer	-
rebalanceIoPriorityQuietPeriodInMsec	Integer	-
numOfParallelRebuildRebalanceJobsPerDevice	Integer	-
protectionDomainId	String	Required
zeroPaddingEnabled	Boolean	Optional
useRmcache	Boolean	Optional
rmcacheWriteHandlingMode	Passthrough or Cached	Optional

Properties	Type	Required\Optional for POST
backgroundScannerMode	Disabled or DeviceOnly or DataComparison	-
backgroundScannerBWLimitKBps	Integer	-
checksumEnabled	Boolean	Optional
useRfcache	Boolean	Optional
capacityAlertHighThreshold	Integer	-
capacityAlertCriticalThreshold	Integer	-

Storage Pool Parent

Name	Type	Note
ProtectionDomain	ProtectionDomain object	

Storage Pool Relationships

Name	Type	Note
Device	Device objects. See the Device objects table.	
VTree	List of V-Tree objects. See the V-Tree objects table.	
Volume	List of Volume objects. See the Volume objects table.	
Statistics	See the Storage Pool statistics table.	

StoragePool Statistics

StoragePool Statistics Objects

Properties	Type	Note
capacityLimitInKb	Long	
maxCapacityInKb	Long	"Capacity" represents physical capacity
capacityInUseInKb	Long	
thickCapacityInUseInKb	Long	
thinCapacityInUseInKb	Long	
snapCapacityInUseInKb	Long	

Properties	Type	Note
unreachableUnusedCapacityInKb	Long	"Capacity" represents physical capacity
unusedCapacityInKb	Long	"Capacity" represents physical capacity
snapCapacityInUseOccupiedInKb	Long	
thinCapacityAllocatedInKb	Long	
rmPendingAllocatedInKb	Long	
checksumCapacityInKb	Long	"Capacity" represents physical capacity
spareCapacityInKb	Long	"Capacity" represents physical capacity
capacityAvailableForVolumeAllocationInKb	Long	
protectedCapacityInKb	Long	"Capacity" represents physical capacity
degradedHealthyCapacityInKb	Long	"Capacity" represents physical capacity
degradedFailedCapacityInKb	Long	"Capacity" represents physical capacity
failedCapacityInKb	Long	"Capacity" represents physical capacity
semiProtectedCapacityInKb	Long	"Capacity" represents physical capacity
inMaintenanceCapacityInKb	Long	"Capacity" represents physical capacity
tempCapacityInKb	Long	"Capacity" represents physical capacity
protectedVacInKb	Long	"Vac" represents allocated capacity
degradedHealthyVacInKb	Long	"Vac" represents allocated capacity
degradedFailedVacInKb	Long	"Vac" represents allocated capacity
failedVacInKb	Long	"Vac" represents allocated capacity
semiProtectedVacInKb	Long	"Vac" represents allocated capacity
inMaintenanceVacInKb	Long	"Vac" represents allocated capacity
tempCapacityVacInKb	Long	"Vac" represents allocated capacity
movingCapacityInKb	Long	"Capacity" represents physical capacity
activeMovingCapacityInKb	Long	"Capacity" represents physical capacity
pendingMovingCapacityInKb	Long	"Capacity" represents physical capacity

Properties	Type	Note
fwdRebuildCapacityInKb	Long	"Capacity" represents physical capacity
activeFwdRebuildCapacityInKb	Long	"Capacity" represents physical capacity
pendingFwdRebuildCapacityInKb	Long	"Capacity" represents physical capacity
bckRebuildCapacityInKb	Long	"Capacity" represents physical capacity
activeBckRebuildCapacityInKb	Long	"Capacity" represents physical capacity
pendingBckRebuildCapacityInKb	Long	"Capacity" represents physical capacity
rebalanceCapacityInKb	Long	"Capacity" represents physical capacity
activeRebalanceCapacityInKb	Long	"Capacity" represents physical capacity
pendingRebalanceCapacityInKb	Long	"Capacity" represents physical capacity
atRestCapacityInKb	Long	"Capacity" represents physical capacity
normRebuildCapacityInKb	Long	"Capacity" represents physical capacity
activeNormRebuildCapacityInKb	Long	"Capacity" represents physical capacity
pendingNormRebuildCapacityInKb	Long	"Capacity" represents physical capacity
activeMovingInFwdRebuildJobs	Long	
activeMovingInBckRebuildJobs	Long	
activeMovingInRebalanceJobs	Long	
activeMovingOutFwdRebuildJobs	Long	
activeMovingOutBckRebuildJobs	Long	
activeMovingRebalanceJobs	Long	
pendingMovingInFwdRebuildJobs	Long	
pendingMovingInBckRebuildJobs	Long	
pendingMovingInRebalanceJobs	Long	
pendingMovingOutFwdRebuildJobs	Long	
pendingMovingOutBckRebuildJobs	Long	
pendingMovingRebalanceJobs	Long	
activeMovingInNormRebuildJobs	Long	

Properties	Type	Note
activeMovingOutNormRebuildJobs	Long	
pendingMovingInNormRebuildJobs	Long	
pendingMovingOutNormrebuildJobs	Long	
inUseVacInKb	Long	"Vac" represents allocated capacity
primaryVacInKb	Long	“primary” represents Master MDM in version 2.0 and higher. "Vac" represents allocated capacity.
secondaryVacInKb	Long	“secondary” represents Slave MDM in version 2.0 and higher. "Vac" represents allocated capacity.
fixedReadErrorCount	Long	
BackgroundScanCompareCount	Long	
BackgroundScannedInMB	Long	
primaryReadBwc	Bwc object	“primary” represents Master MDM in version 2.0 and higher
primaryReadFromDevBwc	Bwc object	“primary” represents Master MDM in version 2.0 and higher
primaryWriteBwc	Bwc object	“primary” represents Master MDM in version 2.0 and higher
secondaryReadBwc	Bwc object	“secondary” represents Slave MDM in version 2.0 and higher
secondaryReadFromDevBwc	Bwc object	“secondary” represents Slave MDM in version 2.0 and higher
secondaryWriteBwc	Bwc object	“secondary” represents Slave MDM in version 2.0 and higher
fwdRebuildReadBwc	Bwc object	
fwdRebuildWriteBwc	Bwc object	
bckRebuildReadBwc	Bwc object	
bckRebuildWriteBwc	Bwc object	
rebalanceReadBwc	Bwc object	
rebalanceWriteBwc	Bwc object	
totalReadBwc	Bwc object	
totalWriteBwc	Bwc object	
primaryReadFromRmcacheBwc	Bwc object	“primary” represents Master MDM in version 2.0 and higher
secondaryReadFromRmcacheBwc	Bwc object	“secondary” represents Slave MDM in version 2.0 and higher
normRebuildReadBwc	Bwc object	
normRebuildWriteBwc	Bwc object	

Properties	Type	Note
volMigrationReadBwc	Bwc object	
volMigrationWriteBwc	Bwc object	
userDataReadBwc	Bwc object	
userDataWriteBwc	Bwc object	
userDataTrimBwc	Bwc object	
numOfUnmappedVolumes	Long	
numOfMappedToAllVolumes	Long	
numOfThickBaseVolumes	Long	
numOfThinBaseVolumes	Long	
numOfSnapshots	Long	
numOfVolumesInDeletion	Long	
deviceIds	List of String	
numOfDevices	Long	
volumeIds	List of String	
numOfVolumes	Long	
vtreeIds	List of String	
numOfVtrees	Long	
spSdsIds	List of String	
checksumMigrationCompletionPercent	Long	
checksumCalculationCompletionPercent	Long	
migratingVtreeIds	List of String	
numOfMigratingVtrees	Long	
migratingVolumeIds	List of String	
numOfMigratingVolumes	Long	
migrationReasonEventGroupIds	List of String	
numOfIncomingVtreeMigrations	Long	
numOfOutgoingMigrations	Long	
changelogDestageCompletionPercent	Long	
spefMigrationCompletionPercent	Long	
compressionRatio	Float	
rfcacheReadsReceived	Long	
rfcacheWritesReceived	Long	
rfcacheAvgReadTime	Long	

Properties	Type	Note
rfcacheAvgWriteTime	Long	
rfcacheSourceDeviceReads	Long	
rfcacheSourceDeviceWrites	Long	
rfacheReadHit	Long	
rfcacheReadMiss	Long	
rfacheWriteHit	Long	
rfcacheWriteMiss	Long	
rfcacheIosSkipped	Long	
rfcacheReadsSkipped	Long	
rfcacheReadsSkippedAlignedSizeTooLarge	Long	
rfcacheReadsSkippedMaxIoSize	Long	
rfcacheReadsSkippedHeavyLoad	Long	
rfcacheReadsSkippedStuckIo	Long	
rfcacheReadsSkippedLowResources	Long	
rfcacheReadsSkippedInternalError	Long	
rfcacheReadsSkippedLockIos	Long	
rfcacheWritesSkippedMaxIoSize	Long	
rfcacheWritesSkippedHeavyLoad	Long	
rfcacheWritesSkippedStuckIo	Long	
rfcacheWritesSkippedLowResources	Long	
rfcacheWritesSkippedInternalError	Long	
rfcacheWritesSkippedCacheMiss	Long	
rfcacheSkippedUnlinedWrite	Long	
rfcacheIoErrors	Long	
rfcacheReadsFromCache	Long	
rfcacheIosOutstanding	Long	
rfcacheReadsPending	Long	
rfcacheWritePending	Long	
currentChecksumProtectedCombsNum	Long	
totalChecksumProtectedCombsNum	Long	
currentChecksumMigrationSizeInKB	Long	
totalChecksumMigrationSizeInKB	Long	

Properties	Type	Note
currentSpefMigrationSizeInKb	Long	
totalSpefMigrationSizeInKb	Long	
numChangelogRecordsLeftToDestage	Long	
totalChangelogRecordsToDestage	Long	
logWrittenBlocksInKb	Long	
logWritesBwc	Bwc object	
fglUncompressedDataSizeInKb	Long	
fglCompressedDataSizeInKb	Long	
userDataCapacityInKb	Long	"Capacity" represents physical capacity
snapshotCapacityInKb	Long	"Capacity" represents physical capacity
trimmedUserDataCapacityInKb	Long	"Capacity" represents physical capacity
provisionedAddressesInKb	Long	
usedMetadataCapacityInKb	Long	"Capacity" represents physical capacity
maxMetadataCapacityInKb	Long	"Capacity" represents physical capacity
volumeAddressSpaceInKb	Long	
vtreeAddresSpaceInKb	Long	
totalMetaDataFullness	Long	
fglSparesInKb	Long	
metadataOverheadInKb	Long	
zeroBlocksDetectedRatio	Float	
netFglSparesInKb	Long	
netMetadataOverheadInKb	Long	
netCapacityInUseNoOverheadInKb	Long	
netUserDataCapacityInKb	Long	"Capacity" represents physical capacity
netSnapshotCapacityInKb	Long	"Capacity" represents physical capacity
netTrimmedUserDataCapacityInKb	Long	"Capacity" represents physical capacity
netProvisionedAddressesInKb	Long	
netUnusedCapacityInKb	Long	"Capacity" represents physical capacity

Properties	Type	Note
thinProvisioningRatio	Float	
thinAndSnapshotRatio	Float	
overallUsageRatio	Float	
baseOverallUsageRatio	Float	
netCapacityInUseInKb	Long	
totalDeviceFullness	Long	
totalMetaDataFullness	Long	
aggregateCompressionLevel	AggregateCompressionLevel	`Uncompressed`, `Mixed`, `Compressed`
numBackgroundScannerDataErrors	Long	
numBackgroundScannerIoErrors	Long	
scanDurationInSec	Long	
scannedCapacityInKb	Long	"Capacity" represents physical capacity
volumeAllocationLimitInKb	Long	

StoragePool Delta

Property	Type	Notes
sessionTag	Long	The session in which communication with the MDM regarding the delta is done. It is echoed back to the MDM in the next call within this session. Use 0 for the initial call.
isDirty	Boolean	`TRUE` indicates that changes to the data queried occurred during the processing of the request. These changes may or may not be reflected in the response. Depending on the use case, sending an additional query to check for missed changes may be advisable.
lastStoragePoolVersion	Long	Identifier within the session to be used in the next call. Use 0 in the initial call.
storagePoolIsPartial	Boolean	`TRUE` indicates that only partial data was sent due to the response size passing the threshold defined in MDM. The remaining data should be retrieved using another query with the sessionTag + lastStoragePoolVersion values returned by this query.
storagePoolList	List of StoragePool objects	List of added or modified StoragePool objects since the last query. In case of a full response (deletedStoragePoolIdList = null), this list contains all the StoragePool objects that currently exist (unless storagePoolIsPartial = true, in which case this list is a subset of all currently existing StoragePool objects).

Property	Type	Notes
deletedStoragePoolId List	List of IDs	List of IDs of deleted StoragePool objects since the last query. If the list is null (unlike an empty list), it means that the response contains all instances of StoragePool objects; any StoragePool objects not included in this response should be considered as deleted. **Note** This attribute may be set in conjunction with the storagePoolIsPartial attribute, in which case only StoragePool objects that are not present in this response and any of the subsequent responses until a non-partial response was received were actually deleted. If your use-case is sensitive to bursts of delete-and-re-create events, this should be taken into account.

Query Storage Pool instances

Retrieve a list of objects for the Storage Pool.

Resource path
`/api/types/StoragePool/instances`

Method
`GET`

Required parameters
None.

Optional parameters
None.

Returns
List of all Storage Pool objects. See the Storage Pool objects table.

CLI command
--query_all

Example

```
HTTPS://<server>:<port>/api/types/StoragePool/instances
GET
{}
```

Sample output

Query Storage Pool delta

Retrieve the changes in StoragePool objects since the last call of this query.

Resource path
`/api/types/StoragePool/instances?systemId={system id}&sessionTag={session tag}&lastVersion={last version}`

Method
`GET`

Required parameters
None.

Optional parameters
None.

Returns
StoragePool Delta object.

Returns changes in StoragePool objects since the last call of this query.

To begin querying deltas, use sessionTag=0 and lastVersion=0. For subsequent queries, use values returned by the previous query.

CLI command

Example

```
HTTPS://<server>:<port>/api/types/StoragePool/instances?
systemId=459865f0774b81e6&sessionTag=0&lastVersion=0
GET
{}
```

Sample output

Query Storage Pool object

Retrieve the object associated with the Storage Pool ID.

Resource path
`/api/instances/StoragePool::{id}`

Method
`GET`

Required parameters
None.

Optional parameters
None.

Returns
Storage Pool object. See the Storage Pool objects table.

CLI command
`--query_storage_pool`

Example

```
HTTPS://<server>:<port>/api/instances/StoragePool::f79d0f6f00000000
GET
{}
```

Sample output

Query Storage Pool devices

Retrieve a list of devices connected to the Storage Pool

Resource path
`/api/instances/StoragePool::{id}/relationships/Device`

Method
`GET`

Required parameters
None.

Optional parameters
None.

Returns
List of Device objects that are connected to the Storage Pool. See the Device objects table.

Example

```
HTTPS://<server>:<port>/api//instances/
StoragePool::f79d0f6f00000000/relationships/Device
GET
{}
```

Query V-Tree connections

Retrieve a list of V-Trees connected to the specified Storage Pool.

Resource path
`/api/instances/StoragePool::{id}/relationships/VTree`

Method
`GET`

Required parameters
None.

Optional parameters
None.

Returns
List of V-Tree objects connected to the Storage Pool. See the V-Tree objects table.

Example

```
HTTPS://<server>:<port> /api/instances/
StoragePool::f79d0f6f00000000/relationships/VTree
GET
{}
```

Query Volume connections

Retrieve a list of Volumes connected to the specified Storage Pool.

Resource path
`/api/instances/StoragePool::{id}/relationships/Volume`

Method
`GET`

Required parameters
None.

Optional parameters
None.

Returns
List of Volume objects connected to the Storage Pool. See the Volume objects table.

Example

```
HTTPS://<server>:<port> /api/instances/
StoragePool::f79d0f6f00000000/relationships/Volume
GET
{}
```

Query Storage Pool statistics

Retrieve the statistics for the specified Storage Pool.

Resource path
`/api/instances/StoragePool::{id}/relationships/Statistics`

Method
`GET`

Required parameters
None.

Optional parameters
None.

Returns
List of System Statistics objects for the Storage Pool. See the System Statistics objects table.

Example

```
HTTPS://<server>:<port>/api/instances/StoragePool::f79d0f6f00000000/
relationships/Statistics
GET
{}
```

Query selected Storage Pool statistics

Return a list of properties for the specified Storage Pool or all Storage Pools.

Resource path

`/api/types/StoragePool/instances/action/querySelectedStatistics`

Method

`POST`

Required parameters

`ids`	List of object IDs
Or	
`allIds`	Leave value empty. When this parameter is used, the IDs list is ignored and a list of selected properties is returned for every Storage Pool.
`properties`	List of properties to fetch. (To view available properties, see the Statistics table.)

Optional parameters

None.

Returns

List of Storage Pool IDs and their selected properties

Example

```
HTTPS://<server>:<port>/api/types/StoragePool/instances/action/
querySelectedStatistics
POST
{"ids":["a7e798d100000000"], "properties":
["thickCapacityInUseInKb","thinCapacityInUseInKb"]}
```

Sample output

```
{
""a7e798d100000000":{
o "thickCapacityInUseInKb":1,
o "thinCapacityInUseInKb":0
}
}
```

Query Storage Pool ID by key

Retrieve the specified Storage Pool's ID.

Resource path
`/api/types/StoragePool/instances/action/queryIdByKey`

Method
`POST`

Required parameters

`name`	Name of the Storage Pool
And	
`protectionDomainId`	ID of the Protection Domain to which the Storage Pool is connected.
Or	
`protectionDomainName`	Name of the Protection Domain to which the Storage Pool is connected.

Optional parameters
None.

Returns
Storage Pool ID

Example

```
HTTPS://<server>:<port>/api/types/StoragePool/instances/action/
queryIdByKey
POST
{"name":"sp_1.1_rack_1.1","protectionDomainId":"rack_1.1"}
```

Query by selected Storage Pool ID

Retrieve aggregated information about all objects in the specified Storage Pools.

Resource path
`/api/types/StoragePool/instances/action/queryBySelectedIds`

Method
`POST`

Required parameters

`ids`	List of Storage Pool IDs

Optional parameters
None.

Returns
List of Storage Pool objects matching the IDs. See the Storage Pool objects table.

CLI command
`--query_storage_pool`

Example

```
HTTPS://<server>:<port>/api/types/StoragePool/instances/action/
queryBySelectedIds
POST
{"ids":["f79d0f6f00000000","2e1fefd400000001"]}
```

Sample output

Remove Storage Pool

Remove a Storage Pool from a Protection Domain

Resource path
`/api/instances/StoragePool::{id}/action/removeStoragePool`

Method
`POST`

Required parameters
None.

Optional parameters
None.

Returns

CLI command
`--remove_storage_pool`

Example

```
HTTPS://<server>:<port>/api/instances/StoragePool::f79d0f6f00000000/
action/removeStoragePool
POST
{}
```

Add Storage Pool

Add a Storage Pool to a Protection Domain

Resource path
`/api/types/StoragePool/instances`

Method
`POST`

Required parameters

`protectionDomainId`	ID of the Protection Domain to which you are adding this Storage Pool

Optional parameters

`name`	Name to be associated with the new Storage Pool
`sparePercentage`	
`rebuildEnabled`	`TRUE` or `FALSE`
`rebalanceEnabled`	`TRUE` or `FALSE`
`zeroPaddingEnabled`	Zero padding must be configured before devices are added: `TRUE` or `FALSE`
`useRmcache`	Use Read RAM Cache on all SDSs in the Storage Pool: `TRUE` or `FALSE`
`rmcacheWriteHandlingMode`	Determines whether the system stores the data of this Storage Pool's writes in the SDS Read RAM Cache: `Passthrough` or `Cached`. The default is to store the write data in cache (cached).
`checksumEnabled`	`TRUE` or `FALSE`
`useRfcache`	`TRUE` or `FALSE`

Returns
Storage Pool ID

CLI command
`--add_storage_pool`

Example

```
HTTPS://<server>:<port>/api/types/StoragePool/instances
POST
{"protectionDomainId":"f72ab44500000000","name":"SSD_read","rebuildE
nabled":"FALSE","rebalanceEnabled":"FALSE",
"sparePercentage":"90","zeroPaddingEnabled":"FALSE","useRmcache":"FA
LSE","rmcacheWriteHandlingMode":"Cached","useRfcache":"FALSE"}
```

Set Storage Pool name

Name, or rename, a Storage Pool.

Resource path
`/api/instances/StoragePool::{id}/action/setStoragePoolName`

Method
`POST`

Required parameters

`name`	Name to assign the Storage Pool

Optional parameters
None.

Returns

CLI command
`--rename_storage_pool`

Example

```
HTTPS://<server>:<port>/instances/StoragePool::f79d0f6f00000000/
action/setStoragePoolName
POST
{"name":"sp_2.2_rack_1.1"}
```

Sample output

Set spare percentage

Modify the spare capacity reservation policy.

To ensure data protection during server failures, VxFlex OS reserves 10 percent of its capacity by default, instead of allowing this capacity to be used for volume allocation. To ensure full system protection in the event of a node failure, the spare capacity must be at least equal to the amount of capacity in the node containing the maximum capacity or the maximum Fault Set capacity.

If all nodes contain equal capacity, you should set the capacity value to at least 1/N of the total capacity (where N is the number of SDS nodes).

Resource path
`/api/instances/StoragePool::{id}/action/setSparePercentage`

Method
`POST`

Required parameters

`sparePercentage`	Percentage of the total capacity to be set aside as spare

Optional parameters
None.

Returns

CLI command
`--modify_spare_policy`

Example

```
HTTPS://<server>:<port>/api/instances/StoragePool::f79d0f6f00000000/
action/setSparePercentage
POST
{"sparePercentage":"15"}
```

Sample output

Start device test in a Storage Pool

Starts testing devices in a Storage Pool.

Note

Device testing may cause application I/O failure.

Resource path
`/api/instances/StoragePool::{id}/action/startDevicesTest`

Method
`POST`

Required parameters
None.

Optional parameters

`pattern`	`writeSeq`, `writeRand`, `readSeq`, or `readRand` Default: readRand
`ioSizeKB`	A number between 4 and 512 specifying the single I/O size in KB. Default: 8
`totalIoSizeMB`	A number between 1 and 32768 specifying the total I/O size in MB. Default: 128
`limitInSeconds`	Default: 10

Returns

Example

```
HTTPS://<server>:<port>/api/instances/StoragePool::f79d0f6f00000000/
action/startDevicesTest
POST
{}
```

Query devices test results

Retrieve the test results for the devices in the Storage Pool.

Resource path
`/api/instances/StoragePool::{id}/action/queryDevicesTestResults`

Method
`POST`

Required parameters
None.

Optional parameters
None.

Returns
List of Device Test Results. See DeviceTestResult table.

CLI command

Example

```
HTTPS://<server>:<port>/api/instances/StoragePool::f79d0f6f00000000/
action/queryDevicesTestResults
POST
{}
```

Sample output

Set zero padding policy

Modify the zero padding policy for the Storage Pool. Zero padding must be enabled before adding any devices to the Storage Policy.

Resource path

`/api/instances/StoragePool::{id}/action/setZeroPaddingPolicy`

Method

`POST`

Required parameters

`zeroPadEnabled`	TRUE/FALSE

Optional parameters

None.

Returns

CLI command

`--modify_zero_padding_policy`

Example

```
HTTPS://<server>:<port>/api/instances/StoragePool::f79d0f6f00000000/
action/setZeroPaddingPolicy
POST
{}
```

Sample output

Set Read RAM Cache usage

Control the use of Read RAM Cache in the specified Storage Pool.

Resource path

`/api/instances/StoragePool::{id}/action/setUseRmcache`

Method

`POST`

Required parameters

`useRmcache`	TRUE/FALSE. Default: FALSE.

Optional parameters

None.

Returns

CLI command

`--set_rmcache_usage`

Example

```
HTTPS://<server>:<port>/api/instances/StoragePool::f79d0f6f00000000/
action/setUseRmcache
POST
{}
```

Sample output

Set rebuild I/O priority policy

Set the rebuild I/O priority policy for a Storage Pool.

Note

This feature affects system performance and should only be modified by advanced users.

Resource path

`/api/instances/StoragePool::{id}/action/setRebuildIoPriorityPolicy`

Method

`POST`

Required parameters

`policy`	Policy to use for rebuild I/O priority. One of the following: • `unlimited`: Rebuild I/Os are not limited. • `limitNumOfConcurrentIos`: Limit the number of allowed concurrent rebuild I/Os to the value defined for `numOfConcurrentIosPerDevice`. (Default.) • `favorAppIos`: Limit the number of allowed concurrent rebuild I/Os to the value defined for `numOfConcurrentIosPerDevice`. If application I/Os are in progress, limit the bandwidth of rebuild I/Os to the value defined for `bwLimitPerDeviceInKbps`.

	• `dynamicBwThrottling`: Always limit the number of allowed concurrent rebuild I/Os to the value defined for `numOfConcurrentIosPerDevice`. In addition, limit rebuild I/O bandwidth to the value defined for `bwLimitPerDeviceInKbps` in cases where application I/Os have exceeded either the `appIopsPerDeviceThreshold` or `appBwPerDeviceThresholdInKbps` value during the period defined for `quietPeriodInMsec` .

Optional parameters

`numOfConcurrentIosPerDevice`	The maximum number of concurrent rebuild I/Os per device. Valid range: 1–20.
`bwLimitPerDeviceInKbps`	The maximum bandwidth of rebuild I/Os, in KB/s, per device. Valid range: 1024–1048576.
`appIopsPerDeviceThreshold`	The application IOPs threshold above which rebuild IO throttling will be applied. Valid range: 1–1024.
`appBwPerDeviceThresholdInKbps`	The application I/O bandwidth threshold, in KB/s, above which rebuild I/O throttling will be applied. Valid range: 1-102400.
`quietPeriodInMsec`	If the application I/Os are below the IOPs and bandwidth threshold during this period, no throttling will be applied to the rebuild I/Os. Valid range: 10-60000 ms.

Returns

CLI command

`--set_rebuild_policy`

Example

```
HTTPS://<server>:<port>/api/instances/StoragePool::f79d0f6f00000000/
action/setRebuildIoPriorityPolicy
POST
{"policy":"favorAppIos","bwLimitPerDeviceInKbps":"5120"}
```

Set rebalance I/O priority policy

Set the rebalance I/O priority policy for a Storage Pool.

Note

This feature affects system performance and should only be modified by advanced users.

Resource path

`/api/instances/StoragePool::{id}/action/setRebalanceIoPriorityPolicy`

Method

`POST`

Required parameters

`policy`	Policy to use for rebalance I/O priority. One of the following: • `unlimited`: Rebalance I/Os are not limited. • `limitNumOfConcurrentIos`: Limit the number of allowed concurrent rebalance I/Os. • `favorAppIos`: Limit the number and bandwidth of rebalance I/Os when application I/Os are in progress. (Default) • `dynamicBwThrottling`: Limit the number and bandwidth of rebalance I/Os when application I/Os are in progress or have been in a defined quiet period.

Optional parameters

`numOfConcurrentIosPerDevice`	The maximum number of concurrent rebalance I/Os per device. Valid range: 1–20.
`bwLimitPerDeviceInKbps`	The maximum bandwidth of rebalance I/Os, in KB/s, per device. Valid range: 1024–1048576.
`appIopsPerDeviceThreshold`	The application IOPs threshold above which rebalance IO throttling will be applied. Valid range: 1–1024.
`appBwPerDeviceThresholdInKbps`	The application I/O bandwidth threshold, in KB/s, above which rebalance I/O throttling will be applied. Valid range: 1-102400.
`quietPeriodInMsec`	If the application I/Os are below the IOPs and bandwidth threshold during this period, no throttling will be applied to the rebalance I/Os. Valid range: 10-60000 ms.

Returns

CLI command

`--set_rebalance_policy`

Example

```
HTTPS://<server>:<port>/api/instances/StoragePool::f79d0f6f00000000/
action/setRebalanceIoPriorityPolicy
POST
{"policy":"favorAppIos","bwLimitPerDeviceInKbps":"5120"}
```

Set RMcache write handling mode

Set the Read RAM Cache write handling mode of the specified Storage Pool.

Resource path
`/api/instances/StoragePool::{id}/action/setRmcacheWriteHandlingMode`

Method
`POST`

Required parameters

`rmcacheWriteHandlingMode`	One of the following: • `Passthrough`: Writes skip the cache and are stored in storage only. • `Cached`. Writes are stored in both cache and storage (the default). Caching is only performed for IOs whose size is a multiple of 4k bytes.

Optional parameters
None.

Returns

CLI command
`--set_rmcache_write_handling_mode`

Example

```
HTTPS://<server>:<port>/api/instances/StoragePool::f79d0f6f00000000/
action/setRmcacheWriteHandlingMode
POST
{"rmcacheWriteHandlingMode":"Passthrough"}
```

Sample output

Set rebuild enabled

Enable or disable rebuilds in the specified Storage Pool.

Resource path
`/api/instances/StoragePool::{id}/action/setRebuildEnabled`

Method
`POST`

Required parameters

`rebuildEnable`	Enable/disable rebuilds: TRUE/FALSE

Optional parameters
None.

Returns

CLI command
`--set_rebuild_mode`

Example

```
HTTPS://<server>:<port>/api/instances/StoragePool::f79d0f6f00000000/
action/setRebuildEnabled
POST
{"rebuildEnabled":"TRUE"}
```

Sample output

Set rebalance enabled

Enable or disable rebalancing in the specified Storage Pool.

Resource path
`/api/instances/StoragePool::{id}/action/setRebalanceEnabled`

Method
`POST`

Required parameters

`rebalanceEnabled`	Enable/disable rebalancing: TRUE/FALSE

Optional parameters
None.

Returns

CLI command
`--set_rebalance_mode`

Example

```
HTTPS://<server>:<port>/api/instances/StoragePool::f79d0f6f00000000/
action/setRebalanceEnabled
POST
{"rebalanceEnabled":"TRUE"}
```

Sample output

Set rebuild/rebalance parallelism

Set the maximum number of concurrent rebuild and rebalance activities on all SDSs within the specified Storage Pool.

Resource path
`/api/instances/StoragePool::{id}/action/setRebuildRebalanceParallelism`

Method
POST

Required parameters

limit	Maximum number of concurrent rebuild and rebalance activities on SDSs in the Storage Pool. Range is 1 - 10.

Optional parameters
None.

Returns

CLI command
-set_rebuild_rebalance_parallelism

Example

```
HTTPS://<server>:<port>/api/instances/StoragePool::f79d0f6f00000000/
action/setRebuildRebalanceParallelism
POST
{"limit":"10"}
```

Sample output

Enable background device scanner

Enable the background device scanner on the devices in the specified Storage Pool to check for errors.

Resource path
/api/instances/StoragePool::{id}/action/enableBackgroundDeviceScanner

Method
POST

Required parameters

scannerMode	One of the following: • DeviceOnly: Perform read operations. Fix from peer on errors. • DataComparison: Read and compare data content with peer.

Optional parameters

bandwidthLimitInKbpsPerDevice	

Returns

CLI command
--enable_background_device_scanner

Example

```
HTTPS://<server>:<port>/api/instances/StoragePool::f79d0f6f00000000/
action/enableBackgroundDeviceScanner
POST
{"scannerMode":"DataComparison","bandwidthLimitInKbpsPerDevice":"100
"}
```

Sample output

Disable background device scanner

Disable the background device scanner on the specified Storage Pool.

Resource path
`/api/instances/StoragePool::{id}/action/disableBackgroundDeviceScanner`

Method
`POST`

Required parameters
None.

Optional parameters
None.

Returns

CLI command
`--disable_background_device_scanner`

Example

```
HTTPS://<server>:<port>/api/instances/StoragePool::f79d0f6f00000000/
action/disableBackgroundDeviceScanner
POST
{}
```

Sample output

Reset background device scanner error counters

Reset background device scanner error counters for the specified Storage Pool. Use this action to reset counters for data comparison errors, corrected read errors, or both counter types.

Resource path
`/api/instances/StoragePool::{id}/action/resetBackgroundDeviceScannerErrorCounters`

Method
`POST`

Required parameters
None.

Optional parameters

`dataCompareErrorCounter`	Reset the data compare error counter. TRUE/FALSE. Default: FALSE.
`correctedReadErrorCounter`	Reset the corrected read error counter. TRUE/FALSE. Default: FALSE.

Returns

CLI command
`--reset_scanner_error_counters`

Example

```
HTTPS://<server>:<port>/api/instances/StoragePool::f79d0f6f00000000/
action/resetBackgroundDeviceScannerErrorCounters
POST
{"correctedReadErrorCounter":"TRUE"}
```

Sample output

Enable or disable checksum

Enable or disable the checksum feature for devices in the Storage Pool.

Resource path
`/api/instances/StoragePool::{id}/action/setChecksumEnabled`

Method
`POST`

Required parameters

`checksumEnabled`	`TRUE` or `FALSE`

Optional parameters
None.

Returns

CLI command
`--set_checksum_mode`

Example

```
HTTPS://<server>:<port>/api/instances/StoragePool::2e1fefd400000001/
action/setChecksumEnabled
POST
{"checksumEnabled":"TRUE"}
```

Enable RFcache

Enable RFcache on a specific Storage Pool.

Resource path
`/api/instances/StoragePool::{id}/action/enableRfcache`

Method
`POST`

Required parameters
None.

Optional parameters
None.

Returns

CLI command
`--set_rfcache_usage`

Example

```
HTTPS://<server>:<port>/api/instances/StoragePool::f79d0f6f00000000/
action/enableRfcache
POST
{}
```

Disable RFcache

Disable RFcache on a specific Storage Pool.

Resource path
`/api/instances/StoragePool::{id}/action/disableRfcache`

Method
`POST`

Required parameters
None.

Optional parameters
None.

Returns

CLI command
`--set_rfcache_usage`

Example

```
HTTPS://<server>:<port>/api/instances/StoragePool::f79d0f6f00000000/
action/disableRfcache
POST
{}
```

Set capacity alert thresholds

Set the threshold for triggering capacity usage alerts. Alerts thresholds are calculated from each Storage Pool capacity after deducting the defined amount of spare capacity.

Resource path
`/api/instances/StoragePool::{id}/action/setCapacityAlertThresholds`

Method
`POST`

Required parameters

`capacityAlertHighThresholdPercent`	Threshold of the non-spare capacity of the Storage Pool that will trigger a high-priority alert, expressed as a percentage. This value must be lower than the `capacityAlertCriticalThresholdPercent` value.
And/Or	
`capacityAlertCriticalThresholdPercent`	Threshold of the non-spare capacity of the Storage Pool that will trigger a critical-priority alert, expressed as a percentage

Optional parameters
None.

Returns

CLI command
`--set_capacity_alerts_threshold`

Example

```
HTTPS://<server>:<port>/api/instances/StoragePool::{id}/action/
setCapacityAlertThresholds
POST
{"capacityAlertCriticalThresholdPercent":"80";"capacityAlertCritical
ThresholdPercent":"90"}
```

Sample output

Reset device oscillating counter

Reset the specified oscillating failure counters to zero. This command is useful when you have fixed a problem and want to ensure that an alert is no longer active in the system.

Resource path
`/api/instances/StoragePool::{id}/action/resetDeviceOscillatingCounter`

Method
POST

Required parameters

allCounters	Reset all counters to zero: TRUE/FALSE
Or	
failureCounter	The oscillating failure counter to be reset to zero: DevLongSuccessfulIos

Optional parameters
None.

Returns

CLI command
--reset_oscillating_failure_counters

Example

```
HTTPS://<server>:<port>/api/instances/StoragePool::f79d0f6f00000000/
action/resetDeviceOscillatingCounter
POST
{"allCounters":"TRUE"}
```

Set device oscillating counter parameters

Modify oscillating failure counter parameters. Use this action to configure the time interval associated with each window type and the number of failures allowed before reporting commences for each window type, per counter.

Resource path
/api/instances/StoragePool::{id}/action/setDeviceOscillatingCounterParameters

Method
POST

Required parameters

failureCounter	The oscillating failure counter to be reset to zero: DevLongSuccessfulIos
windowType	Window type to be modified: short, medium, or long
windowInterval	New window time interval in seconds. The valid interval range is 1-86400. If the interval is set to 0, the window type is disabled.
failuresThreshold	Maximum number of failures per window type to be ignored before error reporting begins

Optional parameters
None.

Returns

CLI command

`--set_oscillating_failure_counter_parameters`

Example

```
HTTPS://<server>:<port>/api/instances/StoragePool::f79d0f6f00000000/
action/setDeviceOscillatingCounterParameters
POST
{"failureCounter":"DevLongSuccessfulIos","windowType":"short","windo
wInterval":"120","failuresThreshold":"10"}
```

CHAPTER 7

Device

This section contains information about Device operations.

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Device

Device Object

Properties	Type	Required\Optional for POST
id	String	-
name	String	Optional
deviceCurrentPathname	String	Required
deviceOriginalPathname	String	-
deviceState	`DeviceInit`, `DeviceRecovery`, `InitialTest`, `InitialTestDone`, `Normal` , `NormalTesting`, or `RemovePending`	-
errorState	`None` or `Error`	-
capacityLimitInKb	Long	Optional
maxCapacityInKb	Long "Capacity" represents physical capacity	-
storagePoolId	String	Required
longSuccessfulIos	OscillatingCounter object	Optional
rfcacheErrorDeviceDoesNotExist	Boolean	Optional
sdsId	String	Required
updateConfiguration	Boolean	Optional
AccelerationPoolId	String	Required
ledSetting	ON/OFF	-
spSdsIp	String	-
aggregatedState	`NeverFailed`, `FailedNow`, or `FailedPast`	-
temperatureState	`NeverFailed`, `FailedNow`, or `FailedPast`	-
ssdEndOfLifeState	`NeverFailed`, `FailedNow`, or `FailedPast`	-
modelName	String	-
serialNumber	String	-
deviceType	`Unknown`, `Scsi`, or `Ata`	-
mediaType	`HDD`, `SSD`, or `PCIFlash`	Optional
vendorName	String	-

Properties	Type	Required\Optional for POST
raidControllerSerialNumber	String	-
firmwareVersion	String	-
cacheLookAheadActive	Boolean	-
writeCacheActive	Boolean	-
ataSecurityActive	Boolean	-
capacity	Long	-
logicalSectorSizeInBytes	Long	-
physicalSectorSizeInBytes	Long	-
mediaFailing	Boolean	-
presetQueueDepthType	`Invalid`, `HDD`, `SSD`, `PCIFlash`, `Nvram`, `MediaType`, or `Custom`	-
queueDepth	Integer	-
autoDetectMediaType	`Invalid`, `HDD`, `SSD`, `PCIFlash`, or `Unknown`	-
externalAccelerationType	`Invalid`, `None`, `Read`, `Write`, or `ReadAndWrite`	Optional
storageProps	StorageDeviceProps object	-
accelerationProps	AccelerationDeviceProps object	-
rfcacheProps	RfcacheDeviceProps object	-

Device Parent

Name	Type	Note
StoragePool	StoragePool object	
AccelerationPool	AccelerationPool object	
SDS	SDS object	
SpSds	SpSDS object (SDS devices that belong to the same Storage Pool)	

Device Relationships

Name	Type	Note
Statistics	Device statistics	

OscillatingCounter

Name	Type	Note
shortWindow	OscillatingCounterWindow object	

Name	Type	Note
mediumWindow	OscillatingCounterWindow object	
longWindow	OscillatingCounterWindow object	

OscillatingCounterWindow

Name	Type	Note
threshold	Integer	
windowSizeInSec	Integer	
lastOscillationCount	Integer	
lastOscillationTime	Long	
maxFailuresCount	Integer	
maxFailuresTime	Long	

StorageDeviceProps

Properties	Type	Note
checksumMode	`Invalid`, `Disabled`, `Inflight`, `OnDevice`, or `OnAccDevice`	
destChecksumMode	`Invalid`, `Disabled`, `Inflight`, `OnDevice`, or `OnAccDevice`	
checksumAccDeviceId	String	
destChecksumAccDeviceId	String	
checksumSizeMb	Long	
isChecksumFullyCalculated	Boolean	
checksumChangelogAccDeviceId	String	
destChecksumChangelogAccDeviceId	String	
checksumChangelogSizeMb	Integer	
destChecksumChangelogSizeMb	Integer	
fineGranularityAccDeviceId	String	
destFineGranularityAccDeviceId	String	
FineGranularityNvramSizeMb	Integer	
destFineGranularityNvramSizeMb	Integer	

AccelerationDeviceProps

Properties	Type	Note
accUsedCapacityInKb	Long "Capacity" represents physical capacity	

RfcacheDeviceProps

Properties	Type	Note
deviceUuid	String	
rfcacheErrorStuckIo	Boolean	
rfcacheErrorHeavyLoadCacheSkip	Boolean	
rfcacheErrorCardIoError	Boolean	

Device Statistics

Note

If the background device scanner is enabled, read statistics are dramatically affected.

Device Statistics Object

Properties	Type	Note
fixedReadErrorCount	Long	
avgReadSizeInBytes	Long	
avgWriteSizeInBytes	Long	
avgReadLatencyInMicrosec	Long	
avgWriteLatencyInMicrosec	Long	
capacityLimitInKb	Long	
maxCapacityInKb	Long	"Capacity" represents physical capacity
capacityInUseInKb	Long	
thickCapacityInUseInKb	Long	
thinCapacityInUseInKb	Long	
snapCapacityInUseInKb	Long	
snapCapacityInUseOccupiedInKb	Long	
unreachableUnusedCapacityInKb	Long	"Capacity" represents physical capacity
protectedVacInKb	Long	"Vac" represents allocated capacity

Properties	Type	Note
degradedHealthyVacInKb	Long	"Vac" represents allocated capacity
degradedFailedVacInKb	Long	"Vac" represents allocated capacity
failedVacInKb	Long	"Vac" represents allocated capacity
inUseVacInKb	Long	"Vac" represents allocated capacity
activeMovingInFwdRebuildJobs	Long	
pendingMovingInFwdRebuildJobs	Long	
activeMovingOutFwdRebuildJobs	Long	
pendingMovingOutFwdRebuildJobs	Long	
activeMovingInBckRebuildJobs	Long	
pendingMovingInBckRebuildJobs	Long	
activeMovingOutBckRebuildJobs	Long	
pendingMovingOutBckRebuildJobs	Long	
activeMovingInRebalanceJobs	Long	
pendingMovingInRebalanceJobs	Long	
activeMovingRebalanceJobs	Long	
pendingMovingRebalanceJobs	Long	
primaryVacInKb	Long	“primary” represents the Master MDM in version 2.0 and higher. "Vac" represents allocated capacity.
secondaryVacInKb	Long	“secondary” represents the Slave MDM in version 2.0 and higher. "Vac" represents allocated capacity.
primaryReadBwc	Bwc object	“primary” represents the Master MDM in version 2.0 and higher

Properties	Type	Note
primaryReadFromDevBwc	Bwc object	“primary” represents the Master MDM in version 2.0 and higher
primaryWriteBwc	Bwc object	“primary” represents the Master MDM in version 2.0 and higher
secondaryReadBwc	Bwc object	“secondary” represents the Slave MDM in version 2.0 and higher
secondaryReadFromDevBwc	Bwc object	“secondary” represents the Slave MDM in version 2.0 and higher
secondaryWriteBwc	Bwc object	“secondary” represents the Slave MDM in version 2.0 and higher
totalReadBwc	Bwc object	
totalWriteBwc	Bwc object	
fwdRebuildReadBwc	Bwc object	
fwdRebuildWriteBwc	Bwc object	
bckRebuildReadBwc	Bwc object	
bckRebuildWriteBwc	Bwc object	
rebalanceReadBwc	Bwc object	
rebalanceWriteBwc	Bwc object	
BackgroundScanCompareCount	Long	
BackgroundScannedInMB	Long	
thinCapacityAllocatedInKb	Long	
rmPendingAllocatedInKb	Long	
semiProtectedVacInKb	Long	"Vac" represents allocated capacity
inMaintenanceVacInKb	Long	"Vac" represents allocated capacity
activeMovingInNormRebuildJobs	Long	
activeMovingOutNormRebuildJobs	Long	
pendingMovingInNormRebuildJobs	Long	
pendingMovingOutNormrebuildJobs	Long	

Properties	Type	Note
primaryReadFromRmcacheBwc	Bwc object	“primary” represents the Master MDM in version 2.0 and higher
secondaryReadFromRmcacheBwc	Bwc object	“secondary” represents the Slave MDM in version 2.0 and higher
normRebuildReadBwc	Bwc object	
normRebuildWriteBwc	Bwc	
rfcacheReadsReceived	Long	
rfcacheWritesReceived	Long	
rfcacheAvgReadTime	Long	
rfcacheAvgWriteTime	Long	
rfcacheSourceDeviceReads	Long	
rfcacheSourceDeviceWrites	Long	
rfacheReadHit	Long	
rfcacheReadMiss	Long	
rfcacheWriteMiss	Long	
rfcacheIosSkipped	Long	
rfcacheReadsSkipped	Long	
rfcacheReadsSkippedAlignedSizeTooLarge	Long	
rfcacheReadsSkippedMaxIoSize	Long	
rfcacheReadsSkippedHeavyLoad	Long	
rfcacheReadsSkippedStuckIo	Long	
rfcacheReadsSkippedLowResources	Long	
rfcacheReadsSkippedInternalError	Long	
rfcacheReadsSkippedLockIos	Long	
rfcacheWritesSkippedMaxIoSize	Long	
rfcacheWritesSkippedHeavyLoad	Long	
rfcacheWritesSkippedStuckIo	Long	
rfcacheWritesSkippedLowResources	Long	

Properties	Type	Note
rfcacheWritesSkippedInternalError	Long	
rfcacheWritesSkippedCacheMiss	Long	
rfcacheSkippedUnlinedWrite	Long	
rfcacheIoErrors	Long	
rfcacheReadsFromCache	Long	
rfcacheIosOutstanding	Long	
rfcacheReadsPending	Long	
rfcacheWritePending	Long	
checksumCapacityInKb	Long	"Capacity" represents physical capacity
tempCapacityVacInKb	Long	"Vac" represents allocated capacity
volMigrationReadBwc	Bwc object	
volMigrationWriteBwc	Bwc object	
logWrittenBlocksInKb	Long	
fglUncompressedDataSizeInKb	Long	
fglCompressedDataSizeInKb	Long	
userDataCapacityInKb	Long	"Capacity" represents physical capacity
snapshotCapacityInKb	Long	"Capacity" represents physical capacity
trimmedUserDataCapacityInKb	Long	"Capacity" represents physical capacity
logWritesBwc	Bwc object	
numChangelogRecordsLeftToDestage	Long	
totalChangelogRecordsToDestage	Long	
checksumMigrationCompletionPercent	Long	
checksumCalculationCompletionPercent	Long	
currentChecksumProtectedCombsNum	Long	
totalChecksumProtectedCombsNum	Long	

Properties	Type	Note
currentChecksumMigrationSizeInKB	Long	
totalChecksumMigrationSizeInKB	Long	
rfcacheFdReadsReceived	Long	
rfcacheFdWritesReceived	Long	
rfcacheFdInlightReads	Long	
rfcacheFdInlightWrites	Long	
rfcacheFdReadTimeGreater500Millis	Long	
rfcacheFdReadTimeGreater1Sec	Long	
rfcacheFdReadTimeGreater5Sec	Long	
rfcacheFdReadTimeGreater1Min	Long	
rfcacheFdWriteTimeGreater500Millis	Long	
rfcacheFdWriteTimeGreater1Sec	Long	
rfcacheFdWriteTimeGreater5Sec	Long	
rfcacheFdWriteTimeGreater1Min	Long	
rfcacheFdAvgReadTime	Long	
rfcacheFdAvgWriteTime	Long	
rfcacheFdIoErrors	Long	
rfcacheFdCacheOverloaded	Long	
rfcacheFdMonitorErrorStuckIo	Long	
fglSparesInKb	Long	
usedMetadataCapacityInKb	Long	"Capacity" represents physical capacity
maxMetadataCapacityInKb	Long	"Capacity" represents physical capacity
metadataOverheadInKb	Long	
zeroBlocksDetectedRatio	Float	
netFglSparesInKb	Long	
netMetadataOverheadInKb	Long	

Properties	Type	Note
netCapacityInUseNoOverheadInKb	Long	
compressionRatio	Float	
netUserDataCapacityInKb	Long	"Capacity" represents physical capacity
netSnapshotCapacityInKb	Long	"Capacity" represents physical capacity
netTrimmedUserDataCapacityInKb	Long	"Capacity" represents physical capacity
netProvisionedAddressesInKb	Long	
netUnusedCapacityInKb	Long	"Capacity" represents physical capacity
netCapacityInUseInKb	Long	
changelogDestageCompletionPercent	Long	
fglMigrationCompletionPercent	Long	
numBackgroundScannerDataErrors	Long	
numBackgroundScannerIoErrors	Long	
scanDurationInSec	Long	
scannedCapacityInKb	Long	"Capacity" represents physical capacity

Device Delta

Property	Type	Notes
sessionTag	Long	The session in which communication with the MDM regarding the delta is done. It is echoed back to the MDM in the next call within this session. Use 0 for the initial call.
isDirty	Boolean	`TRUE` indicates that changes to the data queried occurred during the processing of the request. These changes may or may not be reflected in the response. Depending on the use case, sending an additional query to check for missed changes may be advisable.

Property	Type	Notes
lastDeviceVersion	Long	Identifier within the session to be used in the next call. Use 0 in the initial call.
deviceIsPartial	Boolean	`TRUE` indicates that only partial data was sent due to the response size passing the threshold defined in MDM. The remaining data should be retrieved using another query with the sessionTag + lastDeviceVersion values returned by this query.
deviceList	List of Device objects	List of added or modified Device objects since the last query. In case of a full response (deletedDeviceIdList = null), this list contains all the Device objects that currently exist (unless deviceIsPartial = true, in which case this list is a subset of all currently existing Device objects).
deletedDeviceIdList	List of IDs	List of IDs of deleted Device objects since the last query. If the list is null (unlike an empty list), it means that the response contains all instances of Device objects; any Device objects not included in this response should be considered as deleted. **Note** This attribute may be set in conjunction with the deviceIsPartial attribute, in which case only Device objects that are not present in this response and any of the subsequent responses until a non-partial response was received were actually deleted. If your use-case is sensitive to bursts of delete-and-re-create events, this should be taken into account.

DeviceMetadata

Properties	Type
temperature	SmartAttribute object
ssdEndOfLife	SmartAttribute object
raidVdiskStatus	String
raidVdiskType	String
raidVdiskCache	String
smartAttributes	List of SmartAttribute objects

SmartAttribute

Properties	Type
initialized	Boolean
index	Integer
smartValue	Integer
worstValue	Integer
threshold	Integer

Query device instances (GET)

Retrieve a list of device objects

Resource path
`/api/types/Device/instances`

Method
`GET`

Required parameters
None.

Optional parameters
None.

Returns
List of all Device objects. See the Device objects table.

CLI command

Example

```
HTTPS://<server>:<port>/api/api/types/Device/instances
GET
{}
```

Sample output

Query a Device Delta

Retrieve the changes in Device objects since the last call of this query.

Resource path
`/api/types/Device/instances?systemId={system id}&sessionTag={session tag}&lastVersion={last version}`

Method
`GET`

Required parameters
None.

Optional parameters
None.

Returns
Device Delta.

Returns changes in Device objects since the last call of this query.

To begin querying deltas, use sessionTag=0 and lastVersion=0. For subsequent queries, use values returned by the previous query.

CLI command

Example

```
HTTPS://<server>:<port>/api/types/Device/instances?
systemId=459865f0774b81e6&sessionTag=0&lastVersion=0
GET
{}
```

Sample output

Query device object

Retrieve the object associated with the device ID.

Resource path
`/api/instances/Device::{id}`

Method
`GET`

Required parameters
None.

Optional parameters
None.

Returns
Device object.

CLI command

Example

```
HTTPS://<server>:<port>/api/instances/Device::fdbf557b00020000
GET
{}
```

Sample output

Query device statistics

Retrieve the statistics for the specified device.

Resource path
`/api/instances/Device::{id}/relationships/Statistics`

Method
`GET`

Required parameters
None.

Optional parameters
None.

Returns
List of statistics for the device.

CLI command

Example

```
HTTPS://<server>:<port>/api//instances/Device::fdbf557b00020000/
relationships/Statistics
GET
{}
```

Query selected device statistics

Retrieve a list of selected properties for every device.

Resource path
`/api/types/Device/instances/action/querySelectedStatistics`

Method
`POST`

Required parameters

`ids`	List of device object IDs
Or	

allIds	Leave value empty. When this parameter is used, the IDs list is ignored and a list of selected properties is returned for every device.
properties	List of properties to fetch. (To view available properties, see the *Device Statistics* table.)

Optional parameters
None.

Returns
List of device IDs and their selected properties.

Example

```
HTTPS://<server>:<port>/api/types/Device/instances/action/
querySelectedStatistics
POST
{"ids":["a7e798d100000000"],"properties":
["avgReadLatencyInMicrosec","avgWriteLatencyInMicrosec"]}
```

Sample output

```
{
""a7e798d100000000":{
o "avgReadLatencyInMicrosec":1,
o "avgWriteLatencyInMicrosec":0
}
}
```

Query device ID by key

Retrieve the specified SDS device's ID.

Resource path
`/api/types/Device/instances/action/queryIdByKey`

Method
`POST`

Required parameters

name	Name of the device
And one of:	
sdsId	ID of the SDS to which the device belongs
sdsName	Name of the SDS to which the device belongs

Optional parameters
None.

Returns
Device ID

Example

```
HTTPS://<server>:<port>/api/types/Device/instances/action/
queryIdByKey
POST
{"name":"Storage_1","sdsName":"SDS_153"}
```

Query by selected IDs

Retrieve a list of devices for the specified IDs.

Resource path
`/api/types/Device/instances/action/queryBySelectedIds`

Method
`POST`

Required parameters

`ids`	List of device IDs

Optional parameters
None.

Returns
List of devices objects matching the IDs.

Example

```
HTTPS://<server>:<port>/api/types/Device/instances/action/
queryBySelectedIds
POST
{"ids":["37cffc7800020001","fdbf557b00020000"]}
```

Remove device

Remove a device from the VxFlex OS system.

Resource path
`/api/instances/Device::{id}/action/removeDevice`

Method
`POST`

Required parameters
None.

Optional parameters
None.

Returns

CLI command
`--remove_sds_device`

Example

```
HTTPS://<server>:<port>/api/instances/Device::fdbf557b00020000/
action/removeDevice
POST
{}
```

Abort device removal

Attempt to abort the removal of a device.

Note

If performed at a late stage, the request may fail and the device will be removed.

Resource path
`/api/instances/Device::{id}/action/abortRemoveDevice`

Method
`POST`

Required parameters
None.

Optional parameters
None.

Returns

CLI command
`abort_remove_sds_device`

Example

```
HTTPS://<server>:<port>/api/instances/Device::fdbf557b00020000/
action/abortRemoveDevice
POST
{}
```

Add device

Add a storage device to an SDS.

Resource path
`/api/types/Device/instances`

Method
`POST`

Required parameters

`deviceCurrentPathname`	Full path of the device to be added. A device can be a disk, an unmounted partition, or a file that represents free space on a mounted device.
`storagePoolId`	Storage Pool ID

`sdsId`	ID of the SDS

Optional parameters

`name`	Name of the SDS
`capacityLimitInKb`	
`longSuccessfulIos`	
`rfcacheErrorDeviceDoesNotExist`	`TRUE` or `FALSE`
`updateConfiguration`	`TRUE` or `FALSE`
`testTimeSecs`	The maximal test run-time in seconds or 128 MB data. Default limit is 10 seconds. Not relevant for `noTest`.
`testMode`	One of: • `testOnly` - Devices will be tested but not used. Later issue `activateDevice` to start using their capacity. • `noTest` - Device's capacity will be used without any device testing. • `testAndActivate` - Devices will be tested and activated. **Note** If `testMode` is not part of the request body, read and write tests will be run on devices before their capacity is used.
`forceDeviceTakeover`	Force adding the device: `TRUE` or `FALSE`. **WARNING** **Use this flag with caution, because all data on the device will be destroyed.**

Note

If zero padding is required , you must enable it before adding any devices to the Storage Pool.

Returns

Device ID

CLI command

`--add_sds_device`

Example

```
HTTPS://<server>:<port>/api/types/Device/instances
POST
```

```
{"sdsId":"2cfd282c00000002","deviceCurrentPathname":"/dev/
sdd","forceDeviceTakeover":"TRUE"}
```

Sample output

Set device capacity limit

Set the capacity limit for a device.

Resource path
`/api/instances/Device::{id}/action/setDeviceCapacityLimit`

Method
`POST`

Required parameters

`capacityLimitInGB`	Maximum device capacity in GB that is made available to VxFlex OS

Optional parameters
None.

Returns

CLI command
`--modify_sds_device_capacity`

Example

```
HTTPS://<server>:<port>/api/instances/Device::fdbf557b00020000/
action/setDeviceCapacityLimit
POST
{"capacityLimitInGB":"800"}
```

Clear device error

Clear the device error state without checking whether the device error was fixed.

Resource path
`/api/instances/Device::{id}/action/setDeviceCapacityLimit`

Method
`POST`

Required parameters
None.

Optional parameters
None.

Returns

CLI command

Example

```
HTTPS://<server>:<port>/api/instances/Device::fdbf557b00020000/
action/setDeviceCapacityLimit
POST
{}
```

Sample output

Activate device

Activate a device that has completed its test. Devices created with a test mode of `testOnly` are not used by the system until activated using this request.

Resource path

`/api/instances/Device::{id}/action/activateDevice`

Method

`POST`

Required parameters

`sdsId`	ID of the SDS on which the device is located.

Optional parameters

None.

Returns

CLI command

`--activate_sds_device`

Example

```
HTTPS://<server>:<port>/api/instances/Device::fdbf557b00020000/
action/activateDevice
POST
{"sdsId":"942633cd00000002"}
```

Start device test

Starts testing devices.

Note

Device testing may cause application I/O failure.

Resource path

`/api/instances/Device::{id}/action/startDeviceTest`

Method

`POST`

Required parameters

None.

Optional parameters

`pattern`	`writeSeq`, `writeRand`, `readSeq`, or `readRand` Default: readRand
`ioSizeKB`	A number between 4 and 512 specifying the single I/O size in KB. Default: 8
`totalIoSizeMB`	A number between 1 and 32768 specifying the total I/O size in MB. Default: 128
`limitInSeconds`	Default: 10

Returns

CLI command
`--start_device_test`

Example

```
HTTPS://<server>:<port>/api/instances/Device::fdbf557b00020000/
action/startDeviceTest
POST
{"pattern":"writeSeq","ioSizeKB":"512","ioSizeKB":"200","limitInSeco
nds":"10"}
```

Query device test results

Retrieve the device test results. Every SDS saves results for the last two tests per device.

Resource path
`/api/instances/Device::{id}/action/queryDeviceTestResults`

Method
`POST`

Required parameters
None.

Optional parameters
None.

Returns
List of Device Test Results. See the Device Test Results table.

CLI command
`--query_device_test`

Example

```
HTTPS://<server>:<port>/api/instances/Device::fdbf557b00020000/
action/queryDeviceTestResults
POST
{}
```

Sample output
See the Device Test Results table.

Set device name

Assign the device a name.

Resource path
`/api/instances/Device::{id}/action/setDeviceName`

Method
`POST`

Required parameters

`newName`	Name to assign the device

Optional parameters
None.

Returns

CLI command
`--rename_device`

Example

```
HTTPS://<server>:<port>/api/instances/Device::fdbf557b00020000/
action/setDeviceName
POST
{"newName":"new_name"}
```

Sample output

Update device original pathways

Update the SDS object's deviceOriginalPathname property to the value of deviceCurrentPathname property. The device path on the SDS may have changed after a server restart. If the current device path is different from the original path created during SDS configuration, you may not be able to identify the device. You can still identify the device with its name or ID, or use this command to update the SDS configuration with the current SDS device path.

Resource path
`/api/instances/Device::{id}/action/updateDeviceOriginalPathname`

Method
`POST`

Required parameters
None.

Optional parameters
None.

Returns

CLI command
`--update_device_original_path`

Example

```
HTTPS://<server>:<port>/api/instances/Device::fdbf557b00020000/
action/updateDeviceOriginalPathname
POST
{}
```

Query failed devices

Retrieve a list of devices that are in a state of error.

Resource path
`/api/instances/Device/action/queryFailedDevices`

Method
`POST`

Required parameters
None.

Optional parameters
None.

Returns
List of Device objects that are in error state.

CLI command

Example

```
HTTPS://<server>:<port>/api/instances/Device/action/
queryFailedDevices
POST
{}
```

Sample output

CHAPTER 8

Volume

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Volume

Volume Objects

Properties	Type	Required\Optional for POST
id	String	-
name	String	Optional
volumeSizeInKb/ volumeSizeInGb (select one of the options)	Long	Required
isObfuscated	Deprecated in v2.0	Deprecated in v2.0
creationTime	Long	-
volumeType	`ThickProvisioned`, `ThinProvisioned`, or `Snapshot`	Optional (only `ThickProvisioned` and `ThinProvisioned`)
consistencyGroupId	String This identifier is assigned to all snapshots taken in a single command (the snapshots are consistent across the group).	-
mappingToAllSdcsEnabled	Boolean Indicates whether the volume is mapped to all SDCs	-
mappedSdcInfoList	List of SdcMappingInfo objects	-
ancestorVolumeId	String This is the volume ID of the root of the specified volume's V-Tree.	-
vtreeId	String	-
storagePoolId	String	Required
notGenuineSnapshot	Boolean	-
useRmcache	Boolean	Optional
managedBy	`ScaleIO`, `VMWare`, or `OpenStack`	-
snpIldOfAutoSnapshot	String	-
lockedAutoSnapshot	Boolean	-

Properties	Type	Required\Optional for POST
lockedAutoSnapshotMarkedForRemoval	Boolean	-
expectedDeleteTime	Long	-
autoSnapshotConsistencyGroupId	String	-
retentionLevels	List of Integer	-
snpIldOfSourceVolume	String	-
compressionMethod	`None` or `Normal`	Optional
dataLayout	`InvalidLayout`, `MediumGranularity`, or `FineGranularity`	-

Volume Parents

Name	Type	Note
VTree	See the V-Tree objects table.	
StoragePool	See the Storage Pool objects table.	
Volume	See the Volume objects table.	Ancestor volume

Volume Relationships

Name	Type	Note
Statistics	See the Volume Statistics table.	

Volume Statistics

Volume Statistics Object

Properties	Type	Note
userDataReadBwc	Bwc object	
userDataWriteBwc	Bwc object	
childVolumeIds	List of String	
numOfChildVolumes	Long	
descendantVolumeIds	List of String	
numOfDescendantVolumes	Long	
numOfMappedSdcs	Long	
numOfMappedScsiInitiators	Long	

Properties	Type	Note
mappedSdcIds	List of String	

SdcMappingInfo

Properties	Type	Note
sdcId	String	
sdcIp	String	
limitIops	Long	
limitBwInMbps	Long	

Volume Delta

Property	Type	Notes
sessionTag	Long	The session in which communication with the MDM regarding the delta is done. It is echoed back to the MDM in the next call within this session. Use 0 for the initial call.
isDirty	Boolean	`TRUE` indicates that changes to the data queried occurred during the processing of the request. These changes may or may not be reflected in the response. Depending on the use case, sending an additional query to check for missed changes may be advisable.
lastVolumeVersion	Long	Identifier within the session to be used in the next call. Use 0 in the initial call.
volumeIsPartial	Boolean	`TRUE` indicates that only partial data was sent due to the response size passing the threshold defined in MDM. The remaining data should be retrieved using another query with the sessionTag + lastVolumeVersion values returned by this query.
volumeList	List of Volume objects	List of added or modified Volume objects since the last query. In case of a full response (deletedVolumeIdList = null), this list contains all the Volume objects that currently

Property	Type	Notes
		exist (unless volumeIsPartial = true, in which case this list is a subset of all currently existing Volume objects).
deletedVolumeIdList	List of IDs	List of IDs of deleted Volume objects since the last query. If the list is null (unlike an empty list), it means that the response contains all instances of Volume objects; any Volume objects not included in this response should be considered as deleted. **Note** This attribute may be set in conjunction with the volumeIsPartial attribute, in which case only Volume objects that are not present in this response and any of the subsequent responses until a non-partial response was received were actually deleted. If your use-case is sensitive to bursts of delete-and-re-create events, this should be taken into account.

Query Volume instances

Retrieve a list of objects of type Volume.

Resource path
`/api/types/Volume/instances`

Method
`GET`

Required parameters
None.

Optional parameters
None.

Returns
List of all Volume objects.

CLI command
`--query_all_volumes`

Example

```
HTTPS://<server>:<port>/api/types/Volume/instances
GET
{}
```

Sample output

Query Volume delta

Retrieve the changes in Volume objects since the last call of this query.

Resource path
`/api/types/Volume/instances?systemId={system id}&sessionTag={session tag}&lastVersion={last version}`

Method
`GET`

Required parameters
None.

Optional parameters
None.

Returns
Volume Delta object.

Returns changes in Volume objects since the last call of this query.

To begin querying deltas, use sessionTag=0 and lastVersion=0. For subsequent queries, use values returned by the previous query.

Example

```
HTTPS://<server>:<port>/api/types/Volume/instances?
systemId=459865f0774b81e6&sessionTag=0&lastVersion=0
GET
{}
```

Query Volume object

Retrieve the object associated with the Volume ID.

Resource path
`/api/instances/Volume::{id}`

Method
`GET`

Required parameters
None.

Optional parameters
None.

Returns
Volume object.

CLI command
`--query_volume`

Example

```
HTTPS://<server>:<port>/api/instances/Volume::a4b5862000000000
GET
{}
```

Sample output

Query Volume Statistics

Retrieve a list of statistics for the Volume.

Resource path
`/api/instances/Volume::{id}/relationships/Statistics`

Method
`GET`

Required parameters
None.

Optional parameters
None.

Returns
List of Statistics for the Volume.

Example

```
HTTPS://<server>:<port>/api/instances/Volume::a4b5862000000000/
relationships/Statistics
GET
{}
```

Query selected Volume statistics

Query selected Volume statistics

Resource path
`/api/types/Volume/instances/action/querySelectedStatistics`

Method
`POST`

Required parameters

`ids`	List of *Volume* object IDs
Or	

allIds	Leave value empty. When this parameter is used, the IDs list is ignored and a list of selected properties is returned for every Volume.
properties	List of properties to fetch. (To view available properties, see the Volume Statistics table.)

Optional parameters
None.

Returns
List of Volume IDs and their selected properties.

CLI command
`--query_volume`

Example

```
HTTPS://<server>:<port>/api/types/Volume/instances/action/
querySelectedStatistics
POST
{"ids":["a7e798d100000000"], "properties":
["numOfMappedSdcs","numOfChildVolumes"}
```

Sample output

```
{
"a7e798d100000000":{"numOfMappedSdcs":1,"numOfChildVolumes":0}}
```

Query Volume ID by key

Retrieve a Volume ID.

Resource path
`/api/types/Volume/instances/action/queryIdByKey`

Method
`POST`

Required parameters

name	Volume name

Optional parameters
None.

Returns
Volume ID

Example

```
HTTPS://<server>:<port>/api/types/Volume/instances/action/
queryIdByKey
POST
{"name":"vol1"}
```

Sample output

```
{"id":"a7e798d100000000"}
```

Query Volume by selected IDs

Retrieve a list of Volume objects by selected Volume IDs.

Resource path
`/api/types/Volume/instances/action/queryBySelectedIds`

Method
`POST`

Required parameters

`ids`	List of Volume IDs

Optional parameters
None.

Returns
List of Volume objects associated with the IDs.

Example

```
HTTPS://<server>:<port>/api/types/Volume/instances/action/
queryBySelectedIds
POST
{"ids":["a4b5862000000000","022beb2500000006","022beb2300000004"]}
```

Remove a Volume

Remove a Volume object.

Resource path
`/api/instances/Volume::{id}/action/removeVolume`

Method
`POST`

Required parameters

`removeMode`	`ONLY_ME`, `INCLUDING_DESCENDANTS`, `DESCENDANTS_ONLY`, or `WHOLE_VTREE`

Optional parameters

`allowOnExtManagedVol`	Execute this command even if the Volume is managed externally.

Returns

CLI command
`--remove_volume`

Example

```
HTTPS://<server>:<port>/api/instances/Volume::a4b5862000000000/
action/removeVolume
POST
{"removeMode":"ONLY_ME"}
```

Sample output

Add a Volume

Add a Volume object to the system.

Resource path
`/api/types/Volume/instances`

Method
`POST`

Required parameters

`volumeSizeInKb/volumeSizeInGb`	Volume size, in KB or GB
`storagePoolId`	Storage Pool ID

Optional parameters

`name`	Name to be associated with the added volume
`volumeType`	`ThickProvisioned` or `ThinProvisioned`
`useRmcache`	`TRUE` or `FALSE`

Returns
ID of the created Volume

CLI command
`--add_volume`

Example

```
HTTPS://<server>:<port>/api/types/Volume/instances
POST
{"volumeSizeInKb":"83886080", "storagePoolId":"76f2b2fd00000000",
"name":"new_thin_vol", "volumeType":"ThinProvisioned",
"useRmcache":"TRUE"}
```

Sample output

```
{"id":"022beb2500000006"}
```

Set Volume size

Modify the capacity of a Volume.

Resource path
`/api/instances/Volume::{id}/action/setVolumeSize`

Method
POST

Required parameters

sizeInGB	New volume size in GB. Basic allocation granularity is 8 GB.

Optional parameters
None.

Returns

CLI command
--modify_volume_capacity

Example

```
HTTPS://<server>:<port>/api/instances/Volume::4a3a153e00000000/
action/setVolumeSize
POST
{"sizeInGB":"48"}
```

Sample output

Set Volume name

Change the name of a Volume.

Resource path
/api/instances/Volume::{id}/action/setVolumeName

Method
POST

Required parameters

newName	New name to assign to the Volume

Optional parameters

allowOnExtManagedVol	Execute this command even if volume is managed externally

Returns

CLI command
--rename_volume

Example

```
HTTPS://<server>:<port>/api/instances/Volume::4a3a153e00000000/
action/setVolumeName
POST
{"newName":"vol1_new_name"}
```

Sample output

Add mapped SDC

Map a Volume to one or all SDC nodes. This exposes the Volume to the specified SDC, effectively creating a block device on the SDC.

Resource path

`/api/instances/Volume::{id}/action/addMappedSdc`

Method

`POST`

Required parameters

`sdcId`	SDC ID
OR	
`Guid`	SDC GUID
OR	
`allSdcs`	Empty value

Optional parameters

`allowMultipleMappings`	`TRUE` or `FALSE`
`allowOnExtManagedVol`	`TRUE` or `FALSE` Execute this command even if the Volume is managed externally.

Returns

CLI command

`--map_volume_to_sdc`

Example

```
HTTPS://<server>:<port>/api/instances/Volume::a4b5862000000000/
action/addMappedSdc
POST
{"sdcId":"21b4653900000000","allowMultipleMappings":"TRUE"}
```

Sample output

Removed mapped SDC

Unmap a Volume from one or all SDCs.

Resource path

`/api/instances/Volume::{id}/action/removeMappedSdc`

Method

`POST`

Required parameters

sdcId	SDC ID
Or	
addSdcs	With empty value. When this parameter is used, the Volume is unmapped from all SDCs.

Optional parameters

ignoreScsiInitiators	TRUE or FALSE
skipApplianceValidation	TRUE or FALSE
allowOnExtManagedVol	TRUE or FALSE Execute this command even if the Volume is managed externally.

Returns

CLI command

`--unmap_volume_from_sdc`

Example

```
HTTPS://<server>:<port>/api/instances/Volume::a4b5862000000000/
action/removeMappedSdc
POST
{"sdcId":"21b4653900000000", "skipApplianceValidation":"TRUE"}
```

Set mapped SDC limits

Set limits to the IOPS and bandwidth that one SDC generates for the specified volume. This enables you to control the quality of service (QoS).

Resource path

`/api/instances/Volume::{id}/action/setMappedSdcLimits`

Method

`POST`

Required parameters

sdcId	SDC ID
Or	
guid	SDC GUID

Optional parameters

bandwidthLimitInKbps	Limit the volume network bandwidth. Value is a positive number in granularity of 1024 Kbps; 0 = unlimited.
iopsLimit	Limit the volume IOPS. The number of IOPS must be greater than 10; 0 = unlimited.

Returns

CLI command

`--set_sdc_volume_limits`

Example

```
HTTPS://<server>:<port>/api/instances/Volume::a4b5862000000000/
action/setMappedSdcLimits
POST
{"sdcId":"21b4653900000000", "bandwidthLimitInKbps":"10240",
"iopsLimit":"0"}
```

Sample output

Set the Volume to use RMcache

Control the use of Read RAM Cache in the specified volume. If you want to ensure that all I/O operations for this volume are cached, the relevant Storage Pool should be configured to use cache, and the relevant SDSs should all have caching enabled.

Resource path

`/api/instances/Volume::{id}/action/setVolumeUseRmcache`

Method

`POST`

Required parameters

`useRmcache`	`TRUE` or `FALSE`

Optional parameters

None.

Returns

CLI command

`--set_volume_rmcache_usage`

Example

```
HTTPS://<server>:<port>/api/instances/Volume::a4b5862000000000/
action/setVolumeUseRmcache
POST
{"useRmcache":"TRUE"}
```

Sample output

CHAPTER 9

VTree

This section contains information about VTree operations.

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VTree

VTree Objects

Properties	Type	Note
id	String	
name	String	
baseVolumeId	String	
storagePoolId	String	

VTree Parents

Name	Type	Note
Volume	See the Volume objects table.	Base volume
StoragePool	See the Storage Pool objects table.	

VTree Relationships

Name	Type	Note
Volume	List of Volume objects. See the Volume objects table.	
Statistics		

VTree Statistics

VTree Statistics Objects

Properties	Type	Note
netCapacityInUseInKb	Long	
baseNetCapacityInUseInKb	Long	
snapNetCapacityInUseInKb	Long	
trimmedCapacityInKb	Long	"Capacity" represents physical capacity
actualNetCapacityInUseInKb	Long	
volumeIds	List of String	
numOfVolumes	Long	
vtreeMigrationProgress	Long	
volumesInDeletion	List of VolumeInDeletion objects	

Properties	Type	Note
vtreeDeletionProgress	Long	
volumesTotalDeletionProgress	Long	
compressionRatio	Float	
netFglSparesInKb	Long	
netUserDataCapacityInKb	Long	"Capacity" represents physical capacity
netSnapshotCapacityInKb	Long	"Capacity" represents physical capacity
netTrimmedUserDataCapacityInKb	Long	"Capacity" represents physical capacity
netProvisionedAddressesInKb	Long	
netUnusedCapacityInKb	Long	"Capacity" represents physical capacity
volumeAddressSpaceInKb	Long	
vtreeAddresSpaceInKb	Long	
vtreeAddresSpaceInKb	Long	

VolumeInDeletion Object

Properties	Type
Id	String
name	String
deletionProgressPercentage	Integer
volumeReleasedCapacityInKb	Long "Capacity" represents physical capacity

VTree Delta

Property	Type	Notes
sessionTag	Long	The session in which communication with the MDM regarding the delta is done. It is echoed back to the MDM in the next call within this session. Use 0 for the initial call.
isDirty	Boolean	`TRUE` indicates that changes to the data queried occurred during the processing of the request. These changes may or may not be reflected in the response. Depending on the use case, sending an additional query to check for missed changes may be advisable.
lastVTreeVersion	Long	Identifier within the session to be used in the next call. Use 0 in the initial call.
vTreeIsPartial	Boolean	`TRUE` indicates that only partial data was sent due to the response size passing the threshold

Property	Type	Notes
		defined in MDM. The remaining data should be retrieved using another query with the sessionTag + lastVTreeVersion values returned by this query.
vTreeList	List of VTree objects	List of added or modified VTree objects since the last query. In case of a full response (deletedVTreeIdList = null), this list contains all the VTree objects that currently exist (unless vTreeIsPartial = true, in which case this list is a subset of all currently existing VTree objects).
deletedVTreeIdList	List of IDs	List of IDs of deleted VTree objects since the last query. If the list is null (unlike an empty list), it means that the response contains all instances of VTree objects; any VTree objects not included in this response should be considered as deleted. **Note** This attribute may be set in conjunction with the vTreeIsPartial attribute, in which case only VTree objects that are not present in this response and any of the subsequent responses until a non-partial response was received were actually deleted. If your use-case is sensitive to bursts of delete-and-re-create events, this should be taken into account.

Query VTree instances

Retrieve a list of all VTree objects in the system.

Resource path
`/api/types/VTree/instances`

Method
`GET`

Required parameters
None.

Optional parameters
None.

Returns
List of all Vtree objects.

CLI command
`--query_volume_tree`

Example

```
HTTPS://<server>:<port>/api/types/VTree/instances
GET
{}
```

Query VTree delta

Retrieve the changes in VTree objects since the last call of this query.

Resource path
`/api/types/VTree/instances?systemId={system id}&sessionTag={session tag}&lastVersion={last version}`

Method
`GET`

Required parameters
None.

Optional parameters
None.

Returns
VTree Delta object.

Returns changes in VTree objects since the last call of this query.

To begin querying deltas, use sessionTag=0 and lastVersion=0. For subsequent queries, use values returned by the previous query.

Example

```
HTTPS://<server>:<port>//api/types/VTree/instances?
systemId=459865f0774b81e6&sessionTag=0&lastVersion=0
GET
{}
```

Query VTree object

Retrieve the VTree object associated with the VTree ID.

Resource path
`/api/instances/VTree::{id}`

Method
`GET`

Required parameters
None.

Optional parameters
None.

Returns
VTree object

CLI command

Example

```
HTTPS://<server>:<port>/api/instances/VTree::042b5bb500000000
GET
{}
```

Sample output

Query Volumes in VTree

Retrieve all Volumes in the VTree.

Resource path
`/api/instances/VTree::{id}/relationships/Volume`

Method
`GET`

Required parameters
None.

Optional parameters
None.

Returns
List of Volume objects in the VTree.

CLI command
`--query_volume_tree`

Example

```
HTTPS://<server>:<port>/api/instances/VTree::042b5bb500000000/
relationships/Volume
GET
{}
```

Sample output

Query VTree statistics

Retrieve the statistics for the specified VTree.

Resource path
`/api/instances/VTree::{id}/relationships/Statistics`

Method
`GET`

Required parameters
None.

Optional parameters
None.

Returns
List of Statistics for the VTree object.

CLI command

Example

```
HTTPS://<server>:<port>/api/instances/VTree::042b5bb500000000/
relationships/Statistics
GET
{}
```

Sample output

```
{"numOfVolumes":"2", "netCapacityInUseInKb":"0",
"baseNetCapacityInUseInKb":"0", "snapNetCapacityInUseInKb":"0",
"trimmedCapacityInKb":"0", "volumeIds":["a4b5862000000000",
"042b5bb500000000"]}
```

Query selected VTree statistics

Query selected VTree statistics.

Resource path
`/api/types/VTree/instances/action/querySelectedStatistics`

Method
`POST`

Required parameters

`ids`	List of VTree object IDs
Or	
`allIds`	Leave value empty. When this parameter is used, the IDs list is ignored and a list of selected properties is returned for every VTree object.
`properties`	List of properties to fetch. (To view available properties, see the VTree object statistics table.)

Optional parameters
None.

Returns
ID and the selected properties.

CLI command
`--query_volume_tree`

Example

```
HTTPS://<server>:<port>/api/types/VTree/instances/action/
querySelectedStatistics
POST
```

```
{"ids":["a7e798d100000000"], "properties":
["netCapacityInUseInKb","numOfVolumes"]}
```

Sample output

```
{
"a7e798d100000000":{
"numOfVolumes":1,
"netCapacityInUseInKb":0
}
}
```

Query VTree by selected ID

Retrieve a list of VTrees for the selected IDs.

Resource path
`/api/types/VTree/instances/action/queryBySelectedIds`

Method
`POST`

Required parameters

`ids`	List of VTree object IDs

Optional parameters
None.

Returns
List of VTree objects matching the IDs.

CLI command
`--query_volume_tree`

Example

```
HTTPS://<server>:<port>/api/types/VTree/instances/action/
queryBySelectedIds
POST
{"ids":["a7e798d100000000"]}
```

Sample output

```
{"a7e798d100000000":{"numOfVolumes":"2", "netCapacityInUseInKb":"0",
"baseNetCapacityInUseInKb":"0", "snapNetCapacityInUseInKb":"0",
"trimmedCapacityInKb":"0", "volumeIds":["a4b5862000000000",
"042b5bb500000000"]]}}
```

CHAPTER 10

SDC

This section contains information about SDC operations.

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- Query by selected ID 245
- Remove SDC 245
- Set SDC name 246
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- Set SDC performance parameters 247

SDC

SDC Objects

Properties	Type	Required\Optional for POST
id	String	-
name	String	Optional
sdcIp	String	Required
sdcApprovedIps	List of Strings	
softwareVersionInfo	String	
installedSoftwareVersionInfo	String	
kernelVersion	String	
kernelBuildNumber	String	
osType	`Linux`, `Windows`, `Esx`, or `Aix`	
sdcGuid	String	-
onVmWare	Boolean	-
mdmConnectionState	`Connected` or `Disconnected`	-
systemId	String	-
sdcApproved	Boolean Indicates whether an SDC has approved access to the system.	-
versionInfo	String	-
perfProfile	`Default`, `HighPerformance`, or `Custom`	-
memoryAllocationFailure	OscillatingCounter object	-
socketAllocationFailure	OscillatingCounter object	-

SDC Parent

Name	Type	Note
System	See the System objects table.	

SDC Relationships

Name	Type	Note
Volume	List of Volume objects. See the Volume objects table.	Mapped volumes
Statistics	See the SDC Statistics table	

SDC Statistics

SDC Statistics Objects

Properties	Type	Note
userDataReadBwc	Bwc object	
userDataWriteBwc	Bwc object	
userDataTrimBwc	Bwc object	
volumeIds	List of String	
numOfMappedVolumes	Long	

SDC Delta

Property	Type	Notes
sessionTag	Long	The session in which communication with the MDM regarding the delta is done. It is echoed back to the MDM in the next call within this session. Use 0 for the initial call.
isDirty	Boolean	`TRUE` indicates that changes to the data queried occurred during the processing of the request. These changes may or may not be reflected in the response. Depending on the use case, sending an additional query to check for missed changes may be advisable.
lastSdcVersion	Long	Identifier within the session to be used in the next call. Use 0 in the initial call.
sdcIsPartial	Boolean	`TRUE` indicates that only partial data was sent due to the response size passing the threshold defined in MDM. The remaining data should be retrieved using another query with the sessionTag + lastSdcVersion values returned by this query.
sdcList	List of SDC objects	List of added or modified SDC objects since the last query. In case of a full response (deletedSdcIdList = null), this list contains all the SDC objects that currently exist (unless sdcIsPartial = true, in which case this list is a subset of all currently existing SDC objects).

Property	Type	Notes
deletedSdcIdList	List of IDs	List of IDs of deleted SDC objects since the last query. If the list is null (unlike an empty list), it means that the response contains all instances of SDC objects; any SDC objects not included in this response should be considered as deleted. **Note** This attribute may be set in conjunction with the sdcIsPartial attribute, in which case only SDC objects that are not present in this response and any of the subsequent responses until a non-partial response was received were actually deleted. If your use-case is sensitive to bursts of delete-and-re-create events, this should be taken into account.

Query SDC instances

Retrieve a list of all SDC objects.

Resource path
`/api/types/Sdc/instances`

Method
`GET`

Required parameters
None.

Optional parameters
None.

Returns
List of all SDC objects. See the SDC Objects table.

Note

Only one IP address is returned for each SDC in the `sdcIp` field, even if it has more than one IP address. The address that is returned is the one that is used to communicate with the MDM.

CLI command
`--query_all_sdc`

Example

```
HTTPS://<server>:<port>/api/types/Sdc/instances
GET
{}
```

Sample output

Query SDC delta

Retrieve the changes in SDC objects since the last call of this query.

Resource path
`/api/types/Sdc/instances?systemId={system id}&sessionTag={session tag}&lastVersion={last version}`

Method
`GET`

Required parameters
None.

Optional parameters
None.

Returns
SDC Delta object.

Returns changes in Sdc objects since the last call of this query.

To begin querying deltas, use sessionTag=0 and lastVersion=0. For subsequent queries, use values returned by the previous query.

Example

```
HTTPS://<server>:<port>/api/types/Sdc/instances?
systemId=459865f0774b81e6&sessionTag=0&lastVersion=0
GET
{}
```

Query SDC object

Retrieve the object associated with the SDC ID.

Resource path
`/api/instances/Sdc::{id}`

Method
`GET`

Required parameters
None.

Optional parameters
None.

Returns
SDC object

CLI command
`--query_sdc`

Example

```
HTTPS://<server>:<port>/api/instances/Sdc::21b4653900000000
GET
{}
```

Sample output

Query SDC volumes

Retrieve a list of volumes connected to the specified SDC.

Resource path
`/api/instances/Sdc::{id}/relationships/Volume`

Method
`GET`

Required parameters
None.

Optional parameters
None.

Returns
List of Volume objects connected to the SDC

CLI command

Example

```
HTTPS://<server>:<port>/api/instances/Sdc::21b4653900000000/
relationships/Volume
GET
{}
```

Sample output

Query SDC statistics

Retrieve a list of statistics for the specified SDC.

Resource path
`/api/instances/Sdc::{id}/relationships/Statistics`

Method
`GET`

Required parameters
None.

Optional parameters
None.

Returns

Example

```
HTTPS://<server>:<port>/api/instances/Sdc::21b4653900000000/
relationships/Statistics
GET
{}
```

Query selected SDC statistics

Return a list of properties for the specified SDC or all SDCs.

Resource path
`/api/types/Sdc/instances/action/querySelectedStatistics`

Method
`POST`

Required parameters

`ids`	List of object IDs
Or	
`allIds`	Leave value empty. When this parameter is used, the IDs list is ignored and a list of selected properties is returned for every SDC.
`properties`	List of properties to fetch. (To view available properties, see the Statistics table.)

Optional parameters
None.

Returns
List of SDC IDs and their selected properties

Example

```
HTTPS://<server>:<port>/api/types/Sdc/instances/action/
querySelectedStatistics
POST
{"ids":["a7e798d100000000"], "properties":["numOfMappedVolumes"]}
```

Sample output

```
{
""a7e798d100000000":{
o "numOfMappedVolumes":1}
}
```

Query all approved SDCs

Query the system when it is operating in restricted SDC mode for a list of all SDCs that have been approved by the system.

Note

This query is useful when restricted SDC mode is enabled and you want to determine which SDCs can be used for volume mapping.

Resource path
`/api/types/Sdc/instances/action/queryAllApprovedSdc`

Method
`POST`

Required parameters
None.

Optional parameters
None.

Returns
List of approved SDC objects. See the SDC Objects table.

CLI command
---query_all_approved_sdc

Example

```
HTTPS://<server>:<port>/api/types/Sdc/instances/action/
queryAllApprovedSdc
POST
{}
```

Sample output

Query SDC ID by key

Retrieve the specified SDC's ID.

Resource path
`/api/types/Sdc/instances/action/queryIdByKey`

Method
`POST`

Required parameters

`ip`	IP address of the SDC

Optional parameters
None.

Returns
SDC ID

Example

```
HTTPS://<server>:<port>/api/types/Sdc/instances/action/queryIdByKey
POST
{"ip":"192.168.2.25"}
```

Query by selected ID

Retrieve a list of SDCs for the specified IDs.

Resource path
`/api/types/Sdc/instances/action/queryBySelectedIds`

Method
`POST`

Required parameters

`ids`	List of SDC IDs

Optional parameters
None.

Returns
List of SDC objects objects matching the IDs

CLI command
`--query_sdc`

Example

```
HTTPS://<server>:<port>/api/types/Sdc/instances/action/
queryBySelectedIds
POST
{"ids":["21b4653900000000"]}
```

Sample output

Remove SDC

Remove an SDC from the VxFlex OS system.

Resource path
`/api/instances/Sdc::{id}/action/removeSdc`

Method
`POST`

Required parameters
None.

Optional parameters
None.

Returns

CLI command
`--remove_sdc`

Example

```
HTTPS://<server>:<port>/api/instances/Sdc::a7e798d100000000/action/
removeSdc
POST
{}
```

Sample output

Set SDC name

Assign a new name to the specified SDC.

Resource path
`/api/instances/Sdc::{id}/action/setSdcName`

Method
`POST`

Required parameters

`sdcName`	New name to assign the SDC.

Optional parameters
None.

Returns

CLI command
`--rename_sdc`

Example

```
HTTPS://<server>:<port>/api/instances/Sdc::a7e798d100000000/action/
setSdcName
POST
{"sdcName":"sdc-flash-21"}
```

Sample output

Query oscillating network counters

Retrieve oscillating network counters for the specified SDC.

Resource path
`/api/instances/Sdc::{id}/action/queryOscillatingNetworkCounters`

Method
`POST`

Required parameters
None.

Optional parameters
None.

Returns
ServerTime (Long) and networkStateList (list of ComponentNetworkState objects)

CLI command
`--query_sdc`

Example

```
HTTPS://<server>:<port>/api/instances/Sdc::a7e798d100000000/action/
queryOscillatingNetworkCounters
POST
{}
```

Sample output

Set SDC performance parameters

Apply a performance profile to the specified SDC.

Resource path
`/api/instances/Sdc::{id}/action/setSdcPerformanceParameters`

Method
`POST`

Required parameters

`perfProfile`	Performance profile to apply to the SDC: `Default` or `HighPerformance`

Optional parameters
None.

Returns

CLI command
`--set_performance_parameters`

Example

```
HTTPS://<server>:<port>/api/instances/Sdc::a7e798d100000000/action/
setSdcPerformanceParameters
POST
{"perfProfile":"HighPerformance}
```

Sample output

CHAPTER 11

User

This section contains information about User operations.

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- Query User object 251
- Remove User 251
- Create a new user 252
- Set User role 252
- Set password 253
- Reset a User's password 254

User Objects

User Objects

Properties	Type	Required\Optional for POST
id	String	-
name	String	Required
userRole	`Monitor`, `Configure`, `Administrator`, `Superuser`, `Security`, `FrontendConfig`, or `BackendConfig`	Required
passwordChangeRequired	Boolean	-
systemId	String	-

User Parent

Name	Type	Note
System	See the System objects table.	

Query User instances

Retrieve a list of User objects in the system.

Resource path
`/api/types/User/instances`

Method
`GET`

Required parameters
None.

Optional parameters
None.

Returns
List of all User objects.

CLI command
`--query_users`

Example

```
HTTPS://<server>:<port>/api/types/User/instances
GET
{}
```

Sample output

Query User object

Retrieve the User object associated with the User ID.

Resource path
`/api/instances/User::{id}`

Method
`GET`

Required parameters
None.

Optional parameters
None.

Returns
User object

CLI command

Example

```
HTTPS://<server>:<port>/api/instances/User::7dd7ae1a00000000
GET
{}
```

Sample output

Remove User

Remove a user from the system

Resource path
`/api/instances/User::{id}/action/removeUser`

Method
`POST`

Required parameters
None.

Optional parameters
None.

Returns

CLI command
`--delete_user`

Example

```
HTTPS://<server>:<port>/api/instances/User::7dd7ae1a00000000/action/
removeUser
```

```
POST
{}
```

Sample output

Create a new user

Create a new User object.

Resource path
`/api/types/User/instances`

Method
`POST`

Required parameters

`name`	User name
`userRole`	`Monitor`, `Configure`, `Administrator`, `Security`, `FrontendConfig`, `BackendConfig`

Optional parameters

`id`	
`passwordChangeRequired`	
`systemId`	

Returns

`id`	
`defaultPassword`	

CLI command
--add_user

Example

```
HTTPS://<server>:<port>/api/types/User/instances
POST
{"name":"smith2", "userRole":"Configure"}
```

Sample output

Set User role

Define a role for the specified User

Resource path
`/api/instances/User::{id}/action/setUserRole`

Method
POST

Required parameters

userRole	Monitor, Configure, Administrator, Security, FrontendConfig, BackendConfig

Optional parameters
None.

Returns

CLI command
--modify_user

Example

```
HTTPS://<server>:<port>/api/instances/User::7dd7ae1a00000000/action/
setUserRole
POST
{"userRole":"Administrator"}
```

Sample output

Set password

Change the password of the user currently logged into the system.

Resource path
/api/instances/User/action/setPassword

Method
POST

Required parameters

oldPassword	
newPassword	

Optional parameters
None.

Returns

CLI command
--set_password

Example

```
HTTPS://<server>:<port>/api/instances/User/action/setPassword
POST
{"oldPassword":"VxFlexOS123", "newPassword":"123VxFlexOS"}
```

Sample output

Reset a User's password

Generate a new password for the specified user. The user must change the password again after logging in with the generated password.

Resource path
`/api/instances/User::{id}/action/resetPassword`

Method
`POST`

Required parameters
None.

Optional parameters
None.

Returns
defaultPassword

CLI command
`--reset_password`

Example

```
HTTPS://<server>:<port>/api/instances/User::7dd7ae1a00000000/action/
resetPassword
POST
{}
```

Sample output

CHAPTER 12

Fault Set

This section contains information about Fault Set operations.

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- Query Fault Set delta 266
- Query Fault Set object 267
- Query SDSs 267
- Query Fault Set statistics 268
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- Query Fault Set ID by key 269
- Query by selected ID 270
- Remove Fault Set 270
- Add Fault Set 271
- Clear Fault Set 271
- Set Fault Set name 272
- Set SDS performance parameters 272

Fault Set

FaultSet Object

Properties	Type	Required/Optional for POST
id	String	-
name	String	Optional
protectionDomainId	String	Required

FaultSet Parent

Name	Type	Note
ProtectionDomain	Protection Domain objects See the Protection Domain objects table.	

FaultSet Relationships

Name	Type	Note
SDS	List of SDS objects. See the SDS objects table.	
Statistics	See the FaultSet Statistics table.	

FaultSet statistics

FaultSet Statistics Objects

Property	Type	Notes
capacityLimitInKb	Long	
maxCapacityInKb	Long	"Capacity" represents physical capacity
capacityInUseInKb	Long	
thickCapacityInUseInKb	Long	
thinCapacityInUseInKb	Long	
snapCapacityInUseInKb	Long	
unreachableUnusedCapacityInKb	Long	"Capacity" represents physical capacity
unusedCapacityInKb	Long	"Capacity" represents physical capacity
snapCapacityInUseOccupiedInKb	Long	

Property	Type	Notes
thinCapacityAllocatedInKb	Long	
rmPendingAllocatedInKb	Long	
checksumCapacityInKb	Long	"Capacity" represents physical capacity
protectedVacInKb	Long	"Vac" represents allocated capacity
degradedHealthyVacInKb	Long	"Vac" represents allocated capacity
degradedFailedVacInKb	Long	"Vac" represents allocated capacity
failedVacInKb	Long	"Vac" represents allocated capacity
semiProtectedVacInKb	Long	"Vac" represents allocated capacity
inMaintenanceVacInKb	Long	"Vac" represents allocated capacity
tempCapacityVacInKb	Long	"Vac" represents allocated capacity
activeMovingInFwdRebuildJobs	Long	
activeMovingInBckRebuildJobs	Long	
activeMovingInRebalanceJobs	Long	
activeMovingOutFwdRebuildJobs	Long	
activeMovingOutBckRebuildJobs	Long	
activeMovingRebalanceJobs	Long	
pendingMovingInFwdRebuildJobs	Long	
pendingMovingInBckRebuildJobs	Long	
pendingMovingInRebalanceJobs	Long	
pendingMovingOutFwdRebuildJobs	Long	
pendingMovingOutBckRebuildJobs	Long	
pendingMovingRebalanceJobs	Long	
activeMovingInNormRebuildJobs	Long	
activeMovingOutNormRebuildJobs	Long	

Property	Type	Notes
pendingMovingInNormRebuildJobs	Long	
pendingMovingOutNormrebuildJobs	Long	
inUseVacInKb	Long	"Vac" represents allocated capacity
primaryVacInKb	Long	"primary" represents Master MDM in version 2.0 and higher. "Vac" represents allocated capacity.
secondaryVacInKb	Long	"secondary" represents Slave MDM in version 2.0 and higher. "Vac" represents allocated capacity.
rebuildWaitSendQLength	Long	
rebalanceWaitSendQLength	Long	
rebuildPerReceiveJobNetThrottlingInKbps	Long	
rebalancePerReceiveJobNetThrottlingInKbps	Long	
fixedReadErrorCount	Long	
BackgroundScanCompareCount	Long	
BackgroundScannedInMB	Long	
primaryReadBwc	Bwc object	"primary" represents Master MDM in version 2.0 and higher
primaryReadFromDevBwc	Bwc object	"primary" represents Master MDM in version 2.0 and higher
primaryWriteBwc	Bwc object	"primary" represents Master MDM in version 2.0 and higher
secondaryReadBwc	Bwc object	"secondary" represents Slave MDM in version 2.0 and higher
secondaryReadFromDevBwc	Bwc object	"secondary" represents Slave MDM in version 2.0 and higher
secondaryWriteBwc	Bwc object	"secondary" represents Slave MDM in version 2.0 and higher
fwdRebuildReadBwc	Bwc object	
fwdRebuildWriteBwc	Bwc object	
bckRebuildReadBwc	Bwc object	
bckRebuildWriteBwc	Bwc object	
rebalanceReadBwc	Bwc object	
rebalanceWriteBwc	Bwc object	

Property	Type	Notes
totalReadBwc	Bwc object	
totalWriteBwc	Bwc object	
primaryReadFromRmcacheBwc	Bwc object	"primary" represents Master MDM in version 2.0 and higher
secondaryReadFromRmcacheBwc	Bwc object	"secondary" represents Slave MDM in version 2.0 and higher
normRebuildReadBwc	Bwc object	
normRebuildWriteBwc	Bwc object	
volMigrationReadBwc	Bwc object	
volMigrationWriteBwc	Bwc object	
rmcacheSizeInKb	Long	
rmcacheSizeInUseInKb	Long	
rmcacheEntryEvictionSizeCountInKb	Long	
rmcacheBigBlockEvictionSizeCountInKb	Long	
rmcacheCurrNumOf4kbEntries	Long	
rmcacheCurrNumOf8kbEntries	Long	
rmcacheCurrNumOf16kbEntries	Long	
rmcacheCurrNumOf32kbEntries	Long	
rmcacheCurrNumOf64kbEntries	Long	
rmcacheCurrNumOf128kbEntries	Long	
rmcache4kbEntryCount	Long	
rmcache8kbEntryCount	Long	
rmcache16kbEntryCount	Long	
rmcache32kbEntryCount	Long	
rmcache64kbEntryCount	Long	
rmcache128kbEntryCount	Long	
rmcacheEntryEvictionCount	Long	
rmcacheBigBlockEvictionCount	Long	

Property	Type	Notes
rmcacheNoEvictionCount	Long	
rmcacheSkipCountLargeIo	Long	
rmcacheSkipCountUnaligned4kbIo	Long	
rmcacheSkipCountCacheAllBusy	Long	
sdsIds	List of String	
numOfSds	Long	
compressionRatio	Float	
rfcacheReadsReceived	Long	
rfcacheWritesReceived	Long	
rfcacheAvgReadTime	Long	
rfcacheAvgWriteTime	Long	
rfcacheSourceDeviceReads	Long	
rfcacheSourceDeviceWrites	Long	
rfacheReadHit	Long	
rfcacheReadMiss	Long	
rfacheWriteHit	Long	
rfcacheWriteMiss	Long	
rfcacheIosSkipped	Long	
rfcacheReadsSkipped	Long	
rfcacheReadsSkippedAlignedSizeTooLarge	Long	
rfcacheReadsSkippedMaxIoSize	Long	
rfcacheReadsSkippedHeavyLoad	Long	
rfcacheReadsSkippedStuckIo	Long	
rfcacheReadsSkippedLowResources	Long	
rfcacheReadsSkippedInternalError	Long	
rfcacheReadsSkippedLockIos	Long	

Property	Type	Notes
rfcacheWritesSkippedMaxIoSize	Long	
rfcacheWritesSkippedHeavyLoad	Long	
rfcacheWritesSkippedStuckIo	Long	
rfcacheWritesSkippedLowResources	Long	
rfcacheWritesSkippedInternalError	Long	
rfcacheWritesSkippedCacheMiss	Long	
rfcacheSkippedUnlinedWrite	Long	
rfcacheIoErrors	Long	
rfcacheReadsFromCache	Long	
rfcacheIosOutstanding	Long	
rfcacheReadsPending	Long	
rfcacheWritePending	Long	
rfcacheFdReadsReceived	Long	
rfcacheFdWritesReceived	Long	
rfcacheFdInlightReads	Long	
rfcacheFdInlightWrites	Long	
rfcacheFdReadTimeGreater500Millis	Long	
rfcacheFdReadTimeGreater1Sec	Long	
rfcacheFdReadTimeGreater5Sec	Long	
rfcacheFdReadTimeGreater1Min	Long	
rfcacheFdWriteTimeGreater500Millis	Long	
rfcacheFdWriteTimeGreater1Sec	Long	
rfcacheFdWriteTimeGreater5Sec	Long	
rfcacheFdWriteTimeGreater1Min	Long	

Property	Type	Notes
rfcacheFdAvgReadTime	Long	
rfcacheFdAvgWriteTime	Long	
rfcacheFdIoErrors	Long	
rfcacheFdCacheOverloaded	Long	
rfcacheFdMonitorErrorStuckIo	Long	
rfcachePoolNumSrcDevs	Long	
rfcachePoolNumCacheDevs	Long	
rfcachePoolSize	Long	
rfcachePoolReadHit	Long	
rfcachePoolReadMiss	Long	
rfcachePoolWriteHit	Long	
rfcachePoolWriteMiss	Long	
rfcachePoolCachePages	Long	
rfcachePoolPagesInuse	Long	
rfcachePoolEvictions	Long	
rfcachePoolInLowMemoryCondition	Long	
rfcachePoolIoTimeGreater1Min	Long	
rfcachePoolLockTimeGreater1Sec	Long	
rfcachePoolSuspendedIos	Long	
rfcachePoolLowResourcesInitiatedPassthroughMode	Long	
rfcachePoolosOutstanding	Long	
rfcachePoolReadsPending	Long	
rfcachePoolWritePending	Long	
rfcachePoolSuspendedPequestsRedundantSearchs	Long	
rfcachePoolReadPendingG1Sec	Long	

Property	Type	Notes
rfcachePoolReadPendingG10Millis	Long	
rfcachePoolReadPendingG1Millis	Long	
rfcachePoolReadPendingG500Micro	Long	
rfcachePoolWritePendingG1Sec	Long	
rfcachePoolWritePendingG10Millis	Long	
rfcachePoolWritePendingG1Millis	Long	
rfcachePoolWritePendingG500Micro	Long	
rfcachePoolSourceIdMismatch	Long	
vtreeMigrationWaitSendQLength	Long	
vtreeMigrationPerReceiveJobNetThrottlingInKbps	Long	
logWrittenBlocksInKb	Long	
fglUncompressedDataSizeInKb	Long	
fglCompressedDataSizeInKb	Long	
userDataCapacityInKb	Long	"Capacity" represents physical capacity
snapshotCapacityInKb	Long	"Capacity" represents physical capacity
trimmedUserDataCapacityInKb	Long	"Capacity" represents physical capacity
provisionedAddressesInKb	Long	
usedMetadataCapacityInKb	Long	"Capacity" represents physical capacity
maxMetadataCapacityInKb	Long	"Capacity" represents physical capacity
fglSparesInKb	Long	
metadataOverheadInKb	Long	
zeroBlocksDetectedRatio	Float	
netFglSparesInKb	Long	

Property	Type	Notes
netMetadataOverheadInKb	Long	
netCapacityInUseNoOverheadInKb	Long	
netUserDataCapacityInKb	Long	"Capacity" represents physical capacity
netSnapshotCapacityInKb	Long	"Capacity" represents physical capacity
netTrimmedUserDataCapacityInKb	Long	"Capacity" represents physical capacity
netProvisionedAddressesInKb	Long	
netUnusedCapacityInKb	Long	"Capacity" represents physical capacity
netCapacityInUseInKb	Long	
numBackgroundScannerDataErrors	Long	
numBackgroundScannerIoErrors	Long	
scanDurationInSec	Long	
scannedCapacityInKb	Long	"Capacity" represents physical capacity

FaultSet Delta

Property	Type	Notes
sessionTag	Long	The session in which communication with the MDM regarding the delta is done. It is echoed back to the MDM in the next call within this session. Use 0 for the initial call.
isDirty	Boolean	`TRUE` indicates that changes to the data queried occurred during the processing of the request. These changes may or may not be reflected in the response. Depending on the use case, sending an additional query to check for missed changes may be advisable.
lastFaultSetVersion	Long	Identifier within the session to be used in the next call. Use 0 in the initial call.

Property	Type	Notes
faultSetIsPartial	Boolean	`TRUE` indicates that only partial data was sent due to the response size passing the threshold defined in MDM. The remaining data should be retrieved using another query with the sessionTag + lastFaultSetVersion values returned by this query.
faultSetList	List of FaultSet objects	List of added or modified FaultSet objects since the last query. In case of a full response (deletedFaultSetIdList = null), this list contains all the FaultSet objects that currently exist (unless faultSetIsPartial = true, in which case this list is a subset of all currently existing FaultSet objects).
deletedFaultSetIdList	List of IDs	List of IDs of deleted FaultSet objects since the last query. If the list is null (unlike an empty list), it means that the response contains all instances of FaultSet objects; any FaultSet objects not included in this response should be considered as deleted. **Note** This attribute may be set in conjunction with the faultSetIsPartial attribute, in which case only FaultSet objects that are not present in this response and any of the subsequent responses until a non-partial response was received were actually deleted. If your use-case is sensitive to bursts of delete-and-re-create events, this should be taken into account.

Query Fault Set instances

Retrieve a list of objects for the Fault Set.

Resource path
`/api/types/FaultSet/instances`

Method
`GET`

Required parameters
None.

Optional parameters
None.

Returns
List of all Fault Set objects.

CLI command
`--query_all_fault_sets`

Example

```
HTTPS://<server>:<port>/api/types/FaultSet/instances
GET
{}
```

Query Fault Set delta

Retrieve the changes in FaultSet objects since the last call of this query.

Resource path
`/api/types/FaultSet/instances?systemId={system id}&sessionTag={session tag}&lastVersion={last version}`

Method
`GET`

Required parameters
None.

Optional parameters
None.

Returns
FaultSet Delta.

Returns changes in FaultSet objects since the last call of this query.

To begin querying deltas, use sessionTag=0 and lastVersion=0. For subsequent queries, use values returned by the previous query.

Example

```
HTTPS://<server>:<port>/api/types/FaultSet/instances?
systemId=459865f0774b81e6&sessionTag=0&lastVersion=0
```

```
GET
{}
```

Query Fault Set object

Retrieve the object associated with the Fault Set ID.

Resource path
`/api/instances/FaultSet::{id}`

Method
`GET`

Required parameters
None.

Optional parameters
None.

Returns
Fault Set object.

CLI command
`--query_fault_set`

Example

```
HTTPS://<server>:<port>/api/instances/FaultSet::fba27fae00000001
GET
{}
```

Sample output

Query SDSs

Retrieve a list of SDSs connected to the Fault Set.

Resource path
`/api/instances/FaultSet::{id}/relationships/Sds`

Method
`GET`

Required parameters
None.

Optional parameters
None.

Returns
List of SDS objects connected to the Fault Set

CLI command
`--query_fault_set`

Example

```
HTTPS://<server>:<port>/api/instances/FaultSet::fba27fae00000001/
relationships/Sds
GET
{}
```

Sample output

Query Fault Set statistics

Retrieve the statistics for the specified Fault set.

Resource path
`/api/instances/FaultSet::{id}/relationships/Statistics`

Method
`GET`

Required parameters
None.

Optional parameters
None.

Returns
List of statistics for the Fault Set

Example

```
HTTPS://<server>:<port>/api/instances/FaultSet::fba27fae00000001/
relationships/Statistics
GET
{}
```

Query selected Fault Set statistics

Return a list of properties for the specified Fault Set or all Fault Sets.

Resource path
`/api/types/FaultSet/instances/action/querySelectedStatistics`

Method
`POST`

Required parameters

`ids`	List of Fault Set object IDs
Or	
`allIds`	Leave value empty. When this parameter is used, the IDs list is ignored and a list of selected properties is returned for every Fault Set.

properties	List of properties to fetch. (To view available properties, see the System Statistics objects table.)

Optional parameters
None.

Returns
List of Fault Set IDs and the selected properties

Example

```
HTTPS://<server>:<port>/api/types/FaultSet/instances/action/
querySelectedStatistics
POST
{"ids":["a7e798d100000000"],"properties":
["rfcachePoolReadHit","numOfVolumes"]}
```

Sample output

```
{
 ""a7e798d100000000":{
o "rfcachePoolReadHit":1,
o "rfcachePoolEvictions":0
}
}
```

Query Fault Set ID by key

Retrieve the specified Fault Set's ID.

Resource path
`/api/types/FaultSet/instances/action/queryIdByKey`

Method
`POST`

Required parameters

name	Name of the Fault Set
And one of:	
protectionDomainId	ID of the Protection Domain to which the Fault Set belongs
protectionDomainName	Name of the Protection Domain to which the Fault Set belongs

Optional parameters
None.

Returns
Fault Set ID

Example

```
HTTPS://<server>:<port>/api/types/FaultSet/instances/action/
queryIdByKey
POST
{"name":"FS_1","protectionDomainName":"new_pd"}
```

Query by selected ID

Retrieve a list of Fault Sets for the specified IDs.

Resource path

`/api/types/FaultSet/instances/action/queryBySelectedIds`

Method

`POST`

Required parameters

`ids`	List of Fault Set IDs

Optional parameters

None.

Returns

List of Fault Set objects matching the IDs.

Example

```
HTTPS://<server>:<port>/api/types/FaultSet/instances/action/
queryBySelectedIds
POST
{"ids":["fba27fae00000001","a7e798d100000000"]}
```

Remove Fault Set

Remove the specified Fault Set.

Note

Before executing this request, the Fault Set must be empty.

Resource path

`/api/instances/FaultSet::{id}/action/removeFaultSet`

Method

`POST`

Required parameters

None.

Optional parameters

None.

Returns

CLI command

`--remove_fault_set`

Example

```
HTTPS://<server>:<port>/api/instances/FaultSet::fba27fae00000001/
action/removeFaultSet
POST
{}
```

Sample output

Add Fault Set

Add a Fault Set to a Protection Domain

Resource path
`/api/types/FaultSet/instances`

Method
`POST`

Required parameters
protectionDomainId

Optional parameters
name

Returns
Fault Set ID

CLI command
`--add_fault_set`

Example

```
HTTPS://<server>:<port>/api/types/FaultSet/instances
POST
{"name":"sio-fs1","protectionDomainId":dc65bd9900000000"}
```

Sample output

Clear Fault Set

Clear SDSs from the specfied Fault Set

Resource path
`/api/instances/FaultSet::{id}/action/clearFaultSet`

Method
`POST`

Required parameters
None.

Optional parameters
None.

Returns

CLI command
`--clear_fault_set`

Example

```
HTTPS://<server>:<port>/api/instances/FaultSet::fba27fae00000001/
action/clearFaultSet
POST
{}
```

Sample output

Set Fault Set name

Rename the specified Fault Set.

Resource path
`/api/instances/FaultSet::{id}/action/setFaultSetName`

Method
`POST`

Required parameters

`newName`	New name to assign the Fault Set.

Optional parameters
None.

Returns

CLI command
`--rename_fault_set`

Example

```
HTTPS://<server>:<port>/api/instances/FaultSet::{fba27fae00000001}/
action/setFaultSetName
POST
{"newName":"new_name"}
```

Sample output

Set SDS performance parameters

Set the performance profile for the SDSs in a Fault Set.

Resource path
`/api/instances/FaultSet::{id}/action/setSdsPerformanceParameters`

Method
`POST`

Required parameters

`perfProfile`	`Default` or `HighPerformance`

Optional parameters

None.

Returns

CLI command

`--set_performance_parameters`

Example

```
HTTPS://<server>:<port>/api/nstances/FaultSet::fba27fae00000001/
action/setSdsPerformanceParameters
POST
{"perfProfile":"HighPerformance"}
```

Sample output

CHAPTER 13

RFcache Device

This section contains information about RFcache (Read Flash Cache) operations.

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- RFcache Device statistics 276
- Remove SDS RFcache device 277
- Update SDS RFcache device original path 277
- Rename SDS RFcache device 278
- Query RFcache device instances 279
- Query RFcache device object 279
- Query selected RFcache device statistics 280

RFcache Device objects

RFcache Device Objects

Properties	Type	Required/Optional for POST
id	String	-
name	String	Required
sdsId	Long	Required
serviceCurrentPathname	String	-
serviceOriginalPathname	String	-
rfcacheErrorDeviceDoesNotExist	Boolean	-
rfcacheErrorStackI	Boolean	-
rfcacheErrorHeavyLoadCacheSkip	Boolean	-
rfcacheErrorCardIoError	Boolean	-

RFcache Device Parent

Name	Type	Note
Sds	See the SDS objects table	

RFcache Device statistics

RFcache Device Statistics Objects

Properties	Type	Note
rfcacheFdReadsReceived	Long	
rfcacheFdWritesReceived	Long	
rfcacheFdInlightReads	Long	
rfcacheFdInlightWrites	Long	
rfcacheFdReadTimeGreater500Millis	Long	
rfcacheFdReadTimeGreater1Sec	Long	
rfcacheFdReadTimeGreater5Sec	Long	
rfcacheFdReadTimeGreater1Min	Long	
rfcacheFdWriteTimeGreater500Millis	Long	
rfcacheFdWriteTimeGreater1Sec	Long	
rfcacheFdWriteTimeGreater5Sec	Long	

Properties	Type	Note
rfcacheFdWriteTimeGreater1Min	Long	
rfcacheFdAvgReadTime	Long	
rfcacheFdAvgWriteTime	Long	
rfcacheFdIoErrors	Long	
rfcacheFdCacheOverloaded	Long	
rfcacheFdMonitorErrorStucklo	Long	

Remove SDS RFcache device

Remove an RFcache device from an SDS. Ensure that the RFcache feature is disabled before removing the device.

Resource path
`/api/instances/RfcacheDevice::{id}/action/removeSdsRfcacheDevice`

Method
`POST`

Required parameters
None.

Optional parameters
None.

Returns

CLI command
`--remove_sds_rfcache_device`

Example

```
HTTPS://<server>:<port>/api/instances/
RfcacheDevice::fdbf557b00020000/action/removeSdsRfcacheDevice
POST
{}
```

Sample output

Update SDS RFcache device original path

Restore the original path that was configured for the device. This operation may be required after a node restart in cases where different paths are assigned to devices when the node comes back on line

Resource path
`/api/instances/RfcacheDevice::{id}/action/updateSdsRfcacheDeviceOriginalPath`

Method
POST

Required parameters
None.

Optional parameters
None.

Returns

CLI command
--update_sds_rfcache_device_original_path

Example

```
HTTPS://<server>:<port>/api/instances/
RfcacheDevice::fdbf557b00020000/action/
updateSdsRfcacheDeviceOriginalPath
POST
{}
```

Sample output

Rename SDS RFcache device

Change the name assigned to an RFcache device.

Resource path
/api/instances/RfcacheDevice::{id}/action/
renameSdsRfcacheDevice

Method
POST

Required parameters

FnewName	New name to assign to the RFcache device

Optional parameters
None.

Returns

CLI command
--rename_sds_rfcache_device

Example

```
HTTPS://<server>:<port>/api/instances/
RfcacheDevice::fdbf557b00020000/action/renameSdsRfcacheDevice
POST
{"newName":"rfcache_newname"}
```

Sample output

Query RFcache device instances

Retrieve a list of all RFcache device objects

Resource path
`/api/types/RfcacheDevice/instances`

Method
`GET`

Required parameters
None.

Optional parameters
None.

Returns
List of all RFcache Device objects. See the RFcache Device objects table.

CLI command

Example

```
HTTPS://<server>:<port>/api/types/RfcacheDevice/instances
GET
{}
```

Sample output

Query RFcache device object

Retrieve the object associated with the RFcache cache device ID.

Resource path
`/api/instances/RfcacheDevice::{id}`

Method
`GET`

Required parameters
None.

Optional parameters
None.

Returns
RFcache device object

CLI command

Example

```
HTTPS://<server>:<port>/api/instances/
RfcacheDevice::fdbf557b00020000
GET
{}
```

Sample output

Query selected RFcache device statistics

Return a list of properties for the specified RFcache device or all RFcache devices.

Resource path

`api/types/RfcacheDevice/instances/action/querySelectedStatistics`

Method

`POST`

Required parameters

`ids`	List of object IDs
Or	
`allIds`	Leave value empty. When this parameter is used, the IDs list is ignored and a list of selected properties is returned for every device.
`properties`	List of properties to fetch. (To view available properties, see the System Statistics objects table.)

Optional parameters

None.

Returns

RFcache device ID and the selected properties

CLI command

Example

```
HTTPS://<server>:<port>/api/types/RfcacheDevice/instances/action/
querySelectedStatistics
POST
 {"ids":["a7e798d100000000"],"properties":
["rfcacheFdWritesReceived","rfcacheFdIoErrors"]}
```

Sample output

```
{
    "a7e798d100000000":{
    "rfcacheFdWritesReceived":1,
```

```
    "rfcacheFdIoErrors":0
    }
    }
```

CHAPTER 14

Alerts

This section contains information about Alerts.

- Alert objects 284
- Query Alert instances 287
- Query Alert object 288

Alert objects

Note

Lockbox configuration is required for viewing alerts using the REST API. For instructions on configuring Lockbox, see the reference section at the end of this publication.

Properties	Type	Required/ Optional
id	String	-
name	String	-
severity	ALERT LOW, ALERT MEDIUM, or ALERT HIGH	-
alertType	ALERT_TYPE_UNDEFINED FAILED_CONNECT DEVICE_FAILED SDC_DISCONNECTED MDM_NOT_CLUSTERED SDS_DISCONNECTED STORAGE_POOL_HAS_FAILED_CAPACITY STORAGE_POOL_HAS_DEGRADED_CAPACITY STORAGE_POOL_EXTREMELY_UNBALANCED STORAGE_POOL_UNBALANCED LICENSE_EXPIRED LICENSE_ABOUT_TO_EXPIRE FWD_REBUILD_STUCK BKWD_REBUILD_STUCK REBALANCE_STUCK SDS_DISCONNECTS_FREQUENTLY MDM_FAILS_OVER_FREQUENTLY DRL_MODE_NON_VOLATILE CAPACITY_UTILIZATION_ABOVE_CRITICAL_THRESHOLD CAPACITY_UTILIZATION_ABOVE_HIGH_THRESHOLD CONFIGURED_SPARE_CAPACITY_SMALLER_THAN_LARGEST_FAULT_UNIT PD_INACTIVE DEVICE_PENDING_ACTIVATION SDS_RMCACHE_MEMORY_ALLOCATION_FAILED NOT_ENOUGH_FAULT_UNITS_IN_SP SDC_MAX_COUNT	-

Properties	Type	Required/ Optional
	FAILURE_RECOVERY_CAPACITY_BELOW_THRESHOLD FIXED_READ_ERROR_COUNT_ABOVE_WARNING_THRESHOLD BACKGROUND_SCANNER_COMPARE_ERROR PHYSICAL_DRIVE_BAD_STATE PHYSICAL_DRIVE_HOT_SPARE PHYSICAL_DRIVE_NOT_IN_USE PHYSICAL_DRIVE_ENDURANCE_USED_ABOVE_THRESHOLD BOOT_DRIVE_INVALID_STATE LOGICAL_DISK_INVALID_READ_AHEAD_POLICY LOGICAL_DISK_INVALID_WRITE_BACK_POLICY LOGICAL_DISK_INVALID_ACCESS_MODE LOGICAL_DISK_INVALID_RAID_LEVEL MDM_NOT_CLUSTERED_MANUALLY LOGICAL_DISK_INVALID_CACHE_POLICY STORAGE_CONTROLLER_INVALID_STATE STORAGE_CONTROLLER_INVALID_TEMPERATURE NIC_PORT_DOWN NIC_PORT_AUTO_NEGOTIATE_SUPPORTED SOCKET_DISABLED SOCKET_NOT_ALL_CORES_ENABLED SOCKET_SPEED_IS_NOT_MAX_SPEED SOCKET_CACHE_DISABLED SOCKET_CACHE_SIZE_NOT_MAX_SIZE BATTERY_INVALID_STATE BATTERY_REPLACEMENT_REQUIRED BATTERY_INVALID_TEMPERATURE BATTERY_NOT_PRESENT ESRS_CONNECTIVITY_ERROR ESRS_CONFIGURATION BATTERY_INVALID_PACK_ENERGY CPU_SOCKET_INVALID_TEMPERATURE CPU_SOCKET_INVALID_VR_TEMPERATURE CPU_SOCKET_INVALID_VR_VOLTAGE RAM_INVALID_TEMPERATURE RAM_INVALID_VR_TEMPERATURE RAM_INVALID_VR_VOLTAGE PHYSICAL_DRIVE_INVALID_TEMPERATURE	

Properties	Type	Required/ Optional
	FAN_INVALID_SPEED PSU_INVALID_INPUT ESRS_SYSLOG ESRS_NOT_REGISTERED ESRS__REACHED_CAPACITY_LIMIT NODE_INVALID_TEMPERATURE NODE_INVALID_VOLTAGE NODE_INVALID_AIRFLOW NODE_FAILED_TO_CONNECT_TO_BMC SNMP_DUMMY_TRAP STORAGE_CONTROLLER_CACHECADE_NOT_LICENSED NODE_WITH_NO_SDC NODE_FAILED_DEPLOYMENT FIXED_READ_ERROR_COUNT_ABOVE_CRITICAL_THRESHOLD TRIAL_LICENSE_USED MDM_CONNECTION_LOST NODE_FAILED_TO_CONNECT_TO_HOST NODE_FAILED_TO_CONNECT_TO_ESX PSU_POWER_LOST NODE_SERIAL_NUMBER_CHANGE PHYSICAL_DRIVE_INVALID_PD_CACHE_POLICY XTREMCACHE_INVALID_STATE NODE_FAILED_TO_CONNECT_TO_VCENTER LOGICAL_DISK_NO_LONGER_CACHED XTREM_CACHE_USAGE_IN_STORAGE_POOL_NOT_UNIFORM CACHECADE_USAGE_IN_STORAGE_POOL_NOT_UNIFORM STORAGE_CONTROLLER_NOT_ALL_SLOTS_FULL NODE_SVM_OS_DISK_USED_SPACE_HIGH CLUSTER_DEGRADED UPGRADE_IN_PROGRESS UNSTABLE_DATA_NETWORK CERTIFICATE_ABOUT_TO_EXPIRE UNTRUSTED_CERTIFICATE OBJECT_HAS_OSCILLATING_FAILURES OBJECT_HAS_OSCILLATING_NETWORK_FAILURES SDS_IN_MAINTENANCE RFCACHE_DEVICE_DOES_NOT_EXIST	

Properties	Type	Required/ Optional
	RFCACHE_API_ERROR_MISMACH RFCACHE_INCONSISTENT_CACHE_CONFIGURATION RFCACHE_INCONSISTENT_SOURCE_CONFIGURATION RFCACHE_INVALID_DRIVER_PATH RFCACHE_LOW_RESOURCES RFCACHE_IO_STACK_ERROR RFCACHE_CACHE_SKIP_DUE_TO_HEAVY_LOAD RFCACHE_CARD_IO_ERROR GW_CONFIGURATION_INVALID_MDM_CREDENTIALS MDM_CERTIFICATE_EXPIRED MDM_SECURE_CONNECTION_NOT_SUPPORTED GW_TOO_OLD MDM_SECURE_CONNECTION_DISABLED MDM_CA_SIGNED_CERTIFICATE_CA_NOT_TRUSTED MDM_SELF_SIGNED_CERTIFICATE_NOT_TRUSTED GW_USER_REQUIRES_PW_CHANGE or MDM_CERTIFICATE_NOT_YET_VALID MDM_CREDENTIALS_ARE_NOT_CONFIGURED	
startTime	Date in ISO 8601UTC	-
lastObserved	Date in ISO 8601UTC	-
uuid	String	-
affectedObject	Set of String describing the affected object - class name, object ID...	-
alertValues		-

Query Alert instances

Retrieve a list of objects of type Alert.

Note

In order to retrieve a list of Alerts, you must first configure a Lockbox. See "Create a Lockbox" in the *VxFlex OS User Guide*.

Resource path
`/api/types/Alert/instances`

Method
`GET`

Required parameters
None.

Optional parameters
None.

Returns
List of all Alert objects.

Example

```
HTTPS://<server>:<port>/api/types/Alert/instances
GET
{}
```

Query Alert object

Retrieve the Alert object associated with the Alert ID.

Resource path
`/api/instances/Alert::{id}`

Method
`GET`

Required parameters
None.

Optional parameters
None.

Returns
Alert object.

Example

```
HTTPS://<server>:<port>/api/instances/Alert::
44245eea-2f04-491b-8a60-441bd7d10e73
GET
{}
```

Sample output


```
{
"lastObserved": "2018-02-05T15:18:02.625Z",
"alertType": "SDC_NOT_APPROVED",
"severity": "ALERT_LOW",
"affectedObject":{
"type": "com.emc.ecs.api.model.gen.Sdc",
"id": "6926f2b100000000",
"objectId": "6926f2b100000000"
},
"uuid": "44245eea-2f04-491b-8a60-441bd7d10e73",
"alertValues":{},
"startTime": "2018-02-05T15:11:56.863Z",
"name": "44245eea-2f04-491b-8a60-441bd7d10e73",
"id": "44245eea-2f04-491b-8a60-441bd7d10e73",
"links":[
{
"rel": "self",
"href": "/api/instances/Alert::44245eea-2f04-491b-8a60-441bd7d10e73"
}
```

```
]
}
```

CHAPTER 15

ESRS Operations

This section contains information about ESRS operations.

- Register 292
- Unregister from the ESRS server 292
- Remove the certificate 293
- Check connection to ESRS gateway 293
- Start passing alerts to ESRS gateway 294
- Stop passing alerts to ESRS gateway 294

Register

Register on the ESRS server

Resource path
`/api/types/Esrs/actions/register`

Method
`POST`

Required parameters

`gateWayIp`	ESRS server IP
`siteUser`	User
`sitePassword`	Password

Optional parameters

`connectInI`	Special IP address that the user may give that allows remote connection to the customer site (IP address that is not blocked in FW for SSH or RDP).

Returns
None.

CLI command

Example

```
HTTPS://<server>:<port>/api/types/Esrs/actions/register
POST
{}
```

Unregister from the ESRS server

Unregister from the ESRS server.

Resource path
`/api/types/Esrs/actions/unregister`

Method
`POST`

Required parameters
None.

Optional parameters
None.

Returns

CLI command

Example

```
HTTPS://<server>:<port>/api/types/Esrs/actions/unregister
POST
{}
```

Sample output

Remove the certificate

Deregister from the ESRS server and remove the certificate.

Resource path
`/api/types/Esrs/actions/remove`

Method
`POST`

Required parameters

gateWayIp	

Optional parameters
None.

Returns

CLI command

Example

```
HTTPS://<server>:<port>/api/types/Esrs/actions/remove
POST
{}
```

Sample output

Check connection to ESRS gateway

Check the connection to an ESRS gateway.

Resource path
`/api/types/Esrs/actions/checkConnection`

Method
`POST`

Required parameters
None.

Optional parameters
None.

Returns
`"message" : "Esrs connected"`

CLI command

Example

```
HTTPS://<server>:<port>/api/types/Esrs/actions/checkConnection
POST
{}
```

Sample output

Start passing alerts to ESRS gateway

Start passing alerts to the ESRS gateway.

Resource path
`/api/types/Esrs/actions/start`

Method
`POST`

Required parameters
None.

Optional parameters
None.

Returns
`"message": "Esrs started"`

CLI command

Example

```
HTTPS://<server>:<port>/api/types/Esrs/actions/start
POST
{}
```

Sample output

Stop passing alerts to ESRS gateway

Stop passing alerts to the ESRS gateway.

Resource path
`/api/types/Esrs/actions/stop`

Method
`POST`

Required parameters
None.

Optional parameters
None.

Returns

```
"message": "Esrs stopped"
```

CLI command

Example

```
HTTPS://<server>:<port>/api/types/Esrs/actions/stop
POST
{}
```

Sample output

CHAPTER 16

Networking and Compute

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Query by type

Retrieve a list of objects for the specified object type.

Resource path
`/api/phoenix/types/<type>/instances`

Method
`GET`

Required parameters

`types`	One of the following types: • `Environment` • `ComputeEnvironment` • `StorageEnvironment` • `NetworkEnvironment` • `PhoenixIpPool` • `ComputeCluster` • `Host` • `VirtualMachine` • `Workload` • `FileSystem` • `DataCenter` • `HypervisorManager` • `PhysicalNic` • `VirtualSwitch` • `DistributedVirtualSwitch` • `DistributedPortGroup` • `VirtualNetworkSegment` • `VirtualNetworkSegmentUplink` • `DvsLag` • `DvsHostLag` • `DvsUplink` • `VmKernelNic` • `EnvironmentProfile` • `ComputeEnvProfile` • `NetworkEnvProfile`

Optional parameters
None.

Returns
List of entities matching the requested type. If no objects exist in the AMS for the networking and compute model, the query returns an empty list.

Example

```
HTTPS://<server>:<port>/api/phoenix/types/VirtualMachine/instances
GET
{}
```

Sample output

Query by type and ID

Retrieve an object for the specified object type and ID.

Resource path

`/api/phoenix/types/<type>::{id}`

Method

`GET`

Required parameters

`types`	One of the following types: • `Environment` • `ComputeEnvironment` • `StorageEnvironment` • `NetworkEnvironment` • `PhoenixIpPool` • `ComputeCluster` • `Host` • `VirtualMachine` • `Workload` • `FileSystem` • `DataCenter` • `HypervisorManager` (IP address of the HypervisorManager) • `PhysicalNic` • `VirtualSwitch` • `DistributedVirtualSwitch` • `DistributedPortGroup` • `VirtualNetworkSegment` • `VirtualNetworkSegmentUplink` • `DvsLag` • `DvsHostLag` • `DvsUplink` • `VmKernelNic` • `EnvironmentProfile`

	• `ComputeEnvProfile` • `NetworkEnvProfile`

Optional parameters
None.

Returns
The requested object, if found. If no objects exist in the model, the query returns an empty list.

Example

```
HTTPS://<server>:<port>/api/phoenix/types/HypervisorManager::
10.228.167.232
GET
{}
```

Sample output

Query by relationship

Retrieve a list of entities for the specified object type and ID according to relationship.

Resource path
`/api/phoenix/instances/<type>::{id}/relationships/<relationshipType>`

Method
`GET`

Required parameters

`types`	One of the following types: • `Environment` • `ComputeEnvironment` • `StorageEnvironment` • `NetworkEnvironment` • `PhoenixIpPool` • `ComputeCluster` • `Host` • `VirtualMachine` • `Workload` • `FileSystem` • `DataCenter` • `HypervisorManager` (IP address of the HypervisorManager) • `PhysicalNic` • `VirtualSwitch`

	• DistributedVirtualSwitch • DistributedPortGroup • VirtualNetworkSegment • VirtualNetworkSegmentUplink • DvsLag • DvsHostLag • DvsUplink • VmKernelNic • EnvironmentProfile • ComputeEnvProfile • NetworkEnvProfile

Optional parameters

None.

Returns

The requested objects, if found.

Example

```
https://localhost:8443/api/phoenix/instances/HypervisorManager::
10.228.167.232/relationships/Host
```

Sample output


```
[
    {
        "biosUuid": "4c4c4544-004a-4210-8036-c2c04f434832",
        "clusterId": null,
        "computeEnvironmentId": null,
        "connectionState": "CONNECTED",
        "cpuMhz": 2100,
        "datacenterId": "10.228.167.232_datacenter-15",
        "filesystemIdCount": 1,
        "filesystemIdList": [
            "10.228.167.232_datastore-32"
        ],
        "hostType": "HOST_TYPE_VMWARE_ESX",
        "hypervisorManagerId": "10.228.167.232",
        "inMaintenanceMode": false,
        "isManaged": true,
        "memoryMb": 65442,
        "mgmtIpAddress": "10.234.210.65",
        "name": "10.234.210.65",
        "networkEnvironmentId": null,
        "numCpuCores": 16,
        "numCpuThreads": 32,
        "numSockets": 2,
        "objectHandle": {
            "@class": "com.emc.ecs.api.model.PhoenixHandle",
            "objectId": "10.228.167.232_host-29",
            "type": "com.emc.ecs.api.model.phoenix.gen.Host"
        },
        "objectId": "10.228.167.232_host-29",
        "sdcGuid": "bde96bfc-0c95-437a-9707-cc3dbb89a965",
        "uuid": "10.228.167.232_host-29"
```

```
    },
    {
        "biosUuid": "4c4c4544-004a-4310-8038-c2c04f434832",
        "clusterId": null,
        "computeEnvironmentId": null,
        "connectionState": "CONNECTED",
        "cpuMhz": 2100,
        "datacenterId": "10.228.167.232_datacenter-15",
        "filesystemIdCount": 2,
        "filesystemIdList": [
            "10.228.167.232_datastore-31",
            "10.228.167.232_datastore-1858"
        ],
        "hostType": "HOST_TYPE_VMWARE_ESX",
        "hypervisorManagerId": "10.228.167.232",
        "inMaintenanceMode": false,
        "isManaged": true,
        "memoryMb": 65442,
        "mgmtIpAddress": "10.234.210.64",
        "name": "10.234.210.64",
        "networkEnvironmentId": null,
        "numCpuCores": 16,
        "numCpuThreads": 32,
        "numSockets": 2,
        "objectHandle": {
            "@class": "com.emc.ecs.api.model.PhoenixHandle",
            "objectId": "10.228.167.232_host-26",
            "type": "com.emc.ecs.api.model.phoenix.gen.Host"
        },
        "objectId": "10.228.167.232_host-26",
        "sdcGuid": "cd9f624d-ea90-4be9-9e2e-53b5741b9ea7",
        "uuid": "10.228.167.232_host-26"
    }
]
```


Query Environment instances

Retrieve a list of Environment instances

Resource path

`/api/phoenix/types/Environment/instances`

Method

`GET`

Required parameters

None.

Optional parameters

None.

Returns

List of Environment objects. If no objects exist in the model, the query returns an empty list.

Example

```
HTTPS://<server>:<port>/api/phoenix/types/Environment/instances
GET
{}
```

Sample output

```
[
    {
        "uuid": "06f7a0ec-f369-444f-ac04-4ef0b614f6e5",
        "name": "StorageEngine",
        "objectId": "06f7a0ec-f369-444f-ac04-4ef0b614f6e5",
        "objectHandle": {
            "@class": "com.emc.ecs.api.model.PhoenixHandle",
            "type": "com.emc.ecs.api.model.phoenix.gen.Environment",
            "objectId": "06f7a0ec-f369-444f-ac04-4ef0b614f6e5"
        }
    }
]
```

Query Environment object

Retrieve the Environment object associated with the given ID.

Resource path
`/api/phoenix/instances/Environment::{id}`

Method
`GET`

Required parameters
None.

Optional parameters
None.

Returns
The Environment object specified in the command. If no objects exist in the model, the query returns an empty list.

Example

```
HTTPS://<server>:<port>/api/phoenix/instances/Environment::
60e10901-356f-4607-8938-42e7029aa2dd
GET
{}
```

Sample output

Query compute environment instances

Retrieve a list of compute environment instances.

Resource path
`/api/phoenix/types/ComputeEnvironment/instances`

Method
`GET`

Required parameters
None.

Optional parameters

None.

Returns

List of ComputeEnvironment objects. If no objects exist in the model, the query returns an empty list.

Example

```
HTTPS://<server>:<port>/api/phoenix/types/ComputeEnvironment/
instances
GET
{}
```

Sample output

```
[
    {
        "uuid": "51f0fa66-7dc8-464c-93c5-d9eea9579327",
        "environmentId": "06f7a0ec-f369-444f-ac04-4ef0b614f6e5",
        "computeSpec": {
            "clusterNamePrefix": "Maya",
            "haEnabled": true,
            "drsMode": "DRS_MODE_AUTO",
            "overcommitSpec": {
                "overcommitEnabled": true,
                "cpuOvercommitRatio": 5,
                "ramOvercommitRatio": 2
            },
            "numSpareHostsPerCluster": 0,
            "maxHostsPerCluster": 2,
            "hypervisorManagerId": "10.234.215.231",
            "isDrsEnabled": true
        },
        "expectedClusterIdList": [
            "10.234.215.231_domain-c9008"
        ],
        "expectedHostIdList": [
            "4c4c4544-0037-3510-8034-b4c04f4a4832",
            "4c4c4544-0037-3510-8035-b4c04f4a4832"
        ],
        "expectedHostIdCount": 2,
        "expectedClusterIdCount": 1,
        "objectId": "51f0fa66-7dc8-464c-93c5-d9eea9579327",
        "objectHandle": {
            "@class": "com.emc.ecs.api.model.PhoenixHandle",
            "type":
"com.emc.ecs.api.model.phoenix.gen.ComputeEnvironment",
            "objectId": "51f0fa66-7dc8-464c-93c5-d9eea9579327"
        }
    }
]
```

Query compute environment by selected ID

Retrieve the object associated with the specified compute environment ID.

Resource path

`/api/phoenix/instances/ComputeEnvironment::{id}`

Method

`GET`

Required parameters
None.

Optional parameters
None.

Returns
The compute environment object specified in the command. If no objects exist in the model, the query returns an empty list.

Example

```
HTTPS://<server>:<port>/api/phoenix/instances/ComputeEnvironment::
2e5d63a0-bd72-4ded-9d5f-97adc668e1dd
GET
{}
```

Sample output


```
{
    "@class": "com.emc.ecs.api.model.phoenix.gen.ComputeEnvironment",
    "uuid": "51f0fa66-7dc8-464c-93c5-d9eea9579327",
    "environmentId": "06f7a0ec-f369-444f-ac04-4ef0b614f6e5",
    "computeSpec": {
        "clusterNamePrefix": "Maya",
        "haEnabled": true,
        "drsMode": "DRS_MODE_AUTO",
        "overcommitSpec": {
            "overcommitEnabled": true,
            "cpuOvercommitRatio": 5,
            "ramOvercommitRatio": 2
        },
        "numSpareHostsPerCluster": 0,
        "maxHostsPerCluster": 2,
        "hypervisorManagerId": "10.234.215.231",
        "isDrsEnabled": true
    },
    "expectedClusterIdList": [
        "10.234.215.231_domain-c9008"
    ],
    "expectedHostIdList": [
        "4c4c4544-0037-3510-8034-b4c04f4a4832",
        "4c4c4544-0037-3510-8035-b4c04f4a4832"
    ],
    "expectedHostIdCount": 2,
    "expectedClusterIdCount": 1,
    "objectId": "51f0fa66-7dc8-464c-93c5-d9eea9579327",
    "objectHandle": {
        "@class": "com.emc.ecs.api.model.PhoenixHandle",
        "type":
"com.emc.ecs.api.model.phoenix.gen.ComputeEnvironment",
        "objectId": "51f0fa66-7dc8-464c-93c5-d9eea9579327"
    }
}
```


Add environment instances

Create a new environment object with the specified name.

Resource path
`/api/phoenix/types/Environment/instances`

Method

POST

Required parameters

name	Name to assign the new environment

Optional parameters

None.

Returns

UUID of the environment object.

Example

```
HTTPS://<server>:<port>/api/phoenix/types/Environment/instances
POST
{"name":"env_ido"}
```

Sample output

```
{
    "uuid": "a0607d6f-9863-439f-a4c1-c28e82383543"
}
```

ComputeSpec parameters

The following parameters are required for the compute environment:

hypervisorManagerId	Pointer to the Hypervisor Manager that will contain the clusters and hosts
clusterNamePrefix	String prefix used to define cluster names. A numeric sequence number will be appended to the prefix name.
haEnabled	Specifies whether to enable high availability: TRUE/FALSE
isDrsEnabled	Specifies whether to enable VMware Distributed Resources: TRUE/FALSE
drsMode	VMware Distributed Resource Scheduler mode: • DRS_MODE_MANUAL - DRS cluster will make recommendations to the administrator, but no automated actions will occur. • DRS_MODE_PARTIAL - Automatically places VMs on an existing host based on performance and resource criteria. This change may trigger additional recommendations that will not occur automatically. • DRS_MODE_AUTO - The same as DRS_MODE_PARTIAL, except that it

	automatically makes any additional changes without administrator intervention.
`maxHostsPerCluster`	Maximum number of nodes per cluster. Default: 64.
`numSpareHostsPerCluster`	Number of hosts that can fail without impacting the VM load allocation (spare resources).
`overcommitSpec`	Set of parameters and values that will be applied for Overcommit settings: • `overcommitEnabled` - Enables Overcommit factoring: TRUE/FALSE • `cpuOvercommitRatio` - The ratio of virtual CPUs to physical CPUs (cores). 1.0 equals a 1:1 ratio. Valid range: 1.0 - 5.0 • `ramOvercommitRatio` - The ratio of virtual RAM to physical RAM. Valid range: 1.0 - 2.0.

Delete environment

Delete the specific environment instance, including the associated compute, storage, and network environments.

Resource path
`/api/phoenix/instances/Environment::{id}/action/DeleteEnvironment`

Method
`POST`

Required parameters
None.

Optional parameters
None.

Returns
A batch ID for asynchronous command process monitoring

Example

```
HTTPS://<server>:<port>/api/phoenix/instances/Environment::2e5d63a0-
bd72-4ded-9d5f-97adc668e1dd/action/DeleteEnvironment
POST
{}
```

Sample output

```
{
    "batchId": "DeleteEnvironment-1518108184255--851875402"
}
```

Add compute environment instances

Create a new compute environment instance.

Resource path

`/api/phoenix/types/ComputeEnvironment/instances`

Method

`POST`

Required parameters

`environmentId`	ID of the environment to which you are adding the compute parameters
`heartbeatStoragepool`	ID of the Storage Pool that will be used for heartbeat purposes **Note** The Storage Pool ID must be converted from hexadecimal to Java's long type in order to be valid.
`computeSpec`	Parameters required for the compute environment. See ComputeSpec parameters on page 306.
`networkSpec`	Specifications used to configure networking. Use the `spec` parameters described in `/api/phoenix/types/NetworkEnvironment/instances`.
`datacenterClusters`	Cluster or host groupings that identify the hosts to be added, and the target cluster: `datacenterId`: ID of the datacenter `clusterHosts`: `hosts` and `clusterName` `hosts`: Host IDs. The host IDs can be obtained by using the `query` command with the `Host` type. `clusterName`: Cluster name

Optional parameters

None.

Returns

Batch ID for asynchronous command process monitoring

Example

```
HTTPS://<server>:<port>/api/phoenix/types/ComputeEnvironment/
instances
POST
{
  "environmentId" : "bec98c85-df02-4335-b64c-6657da3c0a29",
  "heartbeatStoragepool" : 2958321981121888256,
  "computeSpec" : {
      "hypervisorManagerId" : "10.228.167.72",
      "clusterNamePrefix" : "foobar_cluster",
      "haEnabled" : true,
      "isDrsEnabled" : true,
      "drsMode" : "DRS_MODE_AUTO",
      "maxHostsPerCluster" : 64,
      "numSpareHostsPerCluster" : 0,
      "overcommitSpec" : {
        "overcommitEnabled" : true,
        "cpuOvercommitRatio" : 1.0,
        "ramOvercommitRatio" : 1.0
   }
  },
  "datacenterClusters" : [
      {
         "datacenterId" : "10.228.167.72_datacenter-32",
         "clusterHosts" : [
            {
               "hosts" : [
                   "10.228.167.72_host-2999",
                   "10.228.167.72_host-3007"
               ],
               "clusterName" : "Test_02"
            }
         ]
      }
    ]
}
```

Sample output

```
{
    "batchId": "CreateComputeEnvironment-1518108864012--1062972325",
    "orchestrationError": null,
    "datacenterClustersList": [
        {
            "datacenterId": "10.234.215.231_datacenter-3715",
            "clusterHostsCount": 1,
            "clusterHostsList": [
                {
                    "clusterName": "Maya",
                    "evaluation":
"COMPUTE_EVALUATION_RESPONSE_WARNING",
                    "evaluationDetail": "Detail List: 1. Cluster
contains multiple MDM/TB nodes",
                    "hostsList": [
                        {
                            "hostId": "10.234.215.231_host-4379",
                            "evaluation":
"COMPUTE_EVALUATION_REQUEST_VERIFY",
                            "evaluationDetail": "Input"
                        },
                        {
                            "hostId": "10.234.215.231_host-4376",
                            "evaluation":
"COMPUTE_EVALUATION_REQUEST_VERIFY",
                            "evaluationDetail": "Input"
```

```
                        },
                        {
                            "hostId": "10.234.215.231_host-4382",
                            "evaluation":
"COMPUTE_EVALUATION_REQUEST_VERIFY",
                            "evaluationDetail": "Input"
                        }
                    ],
                    "hostsCount": 3
                }
            ]
        }
    ],
    "datacenterClustersCount": 1
}
```


Verify compute environment

Evaluate and validate the specifications and associated hosts of a compute environment.

Resource path
`/api/phoenix/types/ComputeEnvironment/action/VerifyComputeEnvironment`

Method
`POST`

Required parameters
None.

Optional parameters

`minimumCpuTotal`	Minimum number of CPUs required. The number is typically determined based on a target workload.
`minimumRamTotalGb`	Minimum amount of RAM required. RAM size is typically determined based on a target workload.
`numClusters`	Desired number of clusters
`numHosts`	Desired number of hosts
`computeSpec`	Specifications used to configure the clusters. Use the `computeSpec` parameters described in `/api/phoenix/types/ComputeEnvironment/instances`.
`networkSpec`	Specifications used to validate network compatibility. Use the following parameters, which are described in `/api/phoenix/types/NetworkEnvironment/action/CreateNetworkEnvironment`: • `configuredByPhoenix` (configured using the VxFlex OS Network and Compute feature, also known as the Phoenix model) • `nicRoles`

	• teamType • switchType • activeNicRole • vmNetworkEnabled • vmNetworkSpec • vmotionEnabled • vmotionSpec
datacenterClusters	Recommended cluster or host groupings, which are used in conjunction with other requirements. This parameter is described in /api/phoenix/types/ComputeEnvironment/instances.
makeSuggestion	Indicates whether the server will select nodes that fulfill the compute environment requirements: TRUE/FALSE

Returns

Validation results

Example

```
HTTPS://<server>:<port>/api/phoenix/types/ComputeEnvironment/action/
VerifyComputeEnvironment
POST
{
   "makeSuggestion":false,
   "numClusters":1,
   "numHosts":2,
   "computeSpec":{
      "hypervisorManagerId":"10.234.216.222",
      "clusterNamePrefix":"reg_",
      "haEnabled":true,
      "isDrsEnabled":true,
      "drsMode":"DRS_MODE_AUTO",
      "maxHostsPerCluster":2,
      "numSpareHostsPerCluster":0,
      "overcommitSpec":{
         "overcommitEnabled":true,
         "cpuOvercommitRatio":5.0,
         "ramOvercommitRatio":2.0
      }
   },
   "networkSpec":{
      "nicTeamSpecs":[
         {
            "action":"ACTION_CREATE",
            "switchType":"SWITCH_TYPE_VMWARE_DISTRIBUTED",
            "teamType":"TEAM_TYPE_ACTIVE_ACTIVE",
            "testIpPoolId":null,
            "vswitchName":"Switch_IdoTest",
            "vswitchMtu":1500,
            "vmNetworks":[
               {
                  "vmNetworkName":"IdoTest_net1",
                  "vlanId":0
               }
            ],
```

```
            "physicalNicIds":[
               "10.234.216.222_host-328_key-vim.host.PhysicalNic-
vmnic1",
               "10.234.216.222_host-331_key-vim.host.PhysicalNic-
vmnic1",
               "10.234.216.222_host-328_key-vim.host.PhysicalNic-
vmnic4",
               "10.234.216.222_host-331_key-vim.host.PhysicalNic-
vmnic4"
            ],
            "vmotionEnabled":true,
            "vmotionSpec":{
               "mtu":1500,
               "vlanId":0,
               "useDhcp":false,
               "ipPoolId":"ca00b0b7-b765-4531-8802-05f27ddd7742"
            }
         }
      ],
      "sioNicsForVmotion":[]
   },
   "datacenterClusters":[
      {
         "datacenterId":"10.234.216.222_datacenter-77",
         "clusterHosts":[
            {
               "clusterName":"reg_1",
               "hosts":[
                  "10.234.216.222_host-328",
                  "10.234.216.222_host-331"
               ]
            }
         ]
      }
   ]
}
```


Sample output


```
{
    "evaluation": "COMPUTE_EVALUATION_RESPONSE_ERROR",
    "evaluationDetail": "Detail List: 1. Insufficient resources.
Unable to satisfy Compute Environment requirements 2. Insufficient
resources.  Unable to satisfy Compute Environment requirements",
    "totalPhysicalCpu": 0,
    "totalPhysicalRam": 0,
    "totalPhysicalCpuSpare": 0,
    "totalPhysicalRamSpare": 0,
    "totalOvercommitCpu": 0,
    "totalOvercommitRam": 0,
    "totalPhysicalThreads": 0,
    "totalPhysicalThreadsSpare": 0,
    "totalPhysicalSockets": 0,
    "totalPhysicalSocketsSpare": 0,
    "datacenterClustersList": null,
    "datacenterClustersCount": 0
}
```


Expand compute environment

Expand the compute environment.

Resource path

`/api/phoenix/instances/ComputeEnvironment::{id}/action/ExpandComputeEnvironment`

Method

POST

Required parameters

datacenterClusters	Cluster or host groupings that identify the hosts to be added, and the target cluster: datacenterId: ID of the datacenter clusterHosts: hosts and clusterName hosts: Host IDs. The host IDs can be obtained by using the query command with the Host type. clusterName: Cluster name
nicTeamSpecs	A list of nicTeamSpecs. For each spec, the physicalNicIds and vSwitchName must be specified. The other fields in NicTeamSpec are not used for this operation. This defines the physical NICs for the new hosts and is only required if the network environment already exists: • physicalNicIds - at least one physical NIC ID must be provided. • vswitchName

Optional parameters

None.

Returns

Batch ID for asynchronous command process monitoring

Example

```
HTTPS://<server>:<port>/api/phoenix/instances/ComputeEnvironment::
60e10901-356f-4607-8938-42e7029aa2dd
                  /action/ExpandComputeEnvironment
POST
{
  "datacenterClusters" : [
      {
         "datacenterId" : "10.228.167.72_datacenter-32",
         "clusterHosts" : [
            {
               "hosts" : [
                  "10.228.167.72_host-3012"
               ],
               "clusterName" : "Int_Test"
            }
         ]
      }
    ],
   "nicTeamSpecs" :
   [
     {
     "physicalNicIds" : [
         "10.228.167.72_host-3012_key-vim.host.PhysicalNic-vmnic1"
     ],
     "vswitchName" : "BBT4"
```

```
        }
    ]
}
```

Sample output

Delete compute environment

Delete the specified compute environment instance.

Resource path
`/api/phoenix/instances/ComputeEnvironment::{id}/action/DeleteComputeEnvironment`

Method
`POST`

Required parameters
None.

Optional parameters
None.

Returns
Batch ID for asynchronous command process monitoring

Example

```
HTTPS://<server>:<port>/api/phoenix/instances/ComputeEnvironment::
60e10901-356f-4607-8938-42e7029aa2dd
/action/DeleteComputeEnvironment
POST
{}
```

Sample output

```
{
    "batchId": "DeleteEnvironment-1518109006626--1337437343"
}
```

Shrink compute environment

Remove a node from an existing compute environment.

Resource path
`/api/phoenix/instances/ComputeEnvironment::{id}/action/ShrinkComputeEnvironment`

Method
`POST`

Required parameters

`datacenterClusters`	Cluster or host groupings that identify the hosts to be added, and the target cluster: `datacenterId`: ID of the datacenter

	`clusterHosts`: `hosts` and `clusterName` `hosts`: Host IDs. The host IDs can be obtained by using the `query` command with the `Host` type. `clusterName`: Cluster name

Optional parameters
None.

Returns
Batch ID for asynchronous command process monitoring

Example

```
HTTPS://<server>:<port>/api/phoenix/instances/ComputeEnvironment::
60e10901-356f-4607-8938-42e7029aa2dd/action/ShrinkComputeEnvironment
POST
{
  "datacenterClusters":[
      {
         "datacenterId":"10.228.167.72_datacenter-32",
         "clusterHosts":[
               "hosts":[
                  "10.234.215.231_host-4379"
               ],
               "clusterName":"Int_Test"
            }
         ]
      }
    ]
}
```

Sample output

```
{
    "batchId": "ShrinkComputeEnvironment-1518533349139--248429821",
    "datacenterClustersList": [
        {
            "datacenterId": "10.234.215.231_datacenter-3715",
            "clusterHostsCount": 1,
            "clusterHostsList": [
                {
                    "clusterName": "Maya",
                    "evaluation": "COMPUTE_EVALUATION_REQUEST_VERIFY",
                    "evaluationDetail": "Input",
                    "hostsList": [
                        {
                            "hostId": "10.234.215.231_host-4376",
                            "evaluation":
"COMPUTE_EVALUATION_REQUEST_VERIFY",
                            "evaluationDetail": "Input"
                        }
                    ],
                    "hostsCount": 1
                }
            ]
        }
    ],
    "datacenterClustersCount": 1
}
```

Add IP address pool

Create a new IP address pool. This pool contains one or more ranges of consecutive IP addresses, denoted by the `firstIpInRange` and `lastIpInRange` parameters.

Resource path
`/api/phoenix/types/PhoenixIpPool/instances`

Method
`POST`

Required parameters

`poolName`	Name of the IP address pool
`subnetMask`	Subnet mask of the IP addresses in the pool. The IP address ranges must be in the same subnet.
`ipRanges`	List of IP address ranges
`firstIpInRange`	First IP address in a range
`lastIpInRange`	Last IP address in a range

Optional parameters
None.

Returns
UUID of the IP address pool

Example

```
HTTPS://<server>:<port>/api/phoenix/types/PhoenixIpPool/instances
POST
{
   "poolName":"example",
   "subnetMask":"255.255.255.0",
   "ipRanges":[
      {
         "firstIpInRange":"1.1.1.1",
         "lastIpInRange":"1.1.1.10"
      },
      {
         "firstIpInRange":"1.1.1.101",
         "lastIpInRange":"1.1.1.110"
      }
   ]
}
```

Sample output

Delete IP address pool

Remove the specified IP address pool.

Resource path
`/api/phoenix/instances/PhoenixIpPool::{id}/action/DeleteIpPool`

Method
POST

Required parameters
None.

Optional parameters
None.

Returns
None.

Example

```
HTTPS://<server>:<port>/api/phoenix/instances/
PhoenixIpPool::e3cd4dcf-73d4-46e4-ab69-c25e820a9070/action/
DeleteIpPool
POST
{}
```

Sample output

Create network environment

Create a new network environment

Resource path
/api/phoenix/types/NetworkEnvironment/instances

Method
POST

Required parameters

ParentEnvironmentId	The ID of the parent environment with which to associate this network environment
hostIds	A list of IDs of the hosts that will belong to this network environment
spec	The set of parameters used to create the network environment. It contains the parameters for nicTeamSpecs and sioNicsForVmotion. (For details, see the following rows.) **Note** In at least one nicTeamSpecs, you must specify a vmotionSpec, or specify sioNicsForVmotion, but not both.
nicTeamSpecs	The set of parameters used to configure NIC teaming: action - One of the following: • ACTION_CREATE - create the switch

		• `ACTION_USE_EXISTING` - use customer-created switch `teamType` - The team type used by the NICs. One of the following: • `TEAM_TYPE_STAND_ALONE` - creates a NIC team containing one active NIC and no standby NICs • `TEAM_TYPE_ACTIVE_STANDBY` - creates a NIC team containing one active NIC and one standby NIC • `TEAM_TYPE_ACTIVE_ACTIVE` - for SWITCH_TYPE_VMWARE_DISTRIBUTED only; creates an LACP LAG using the given NICs `switchType` - The switch type to which the NICs are connected: • `SWITCH_TYPE_VMWARE_STANDARD` • `SWITCH_TYPE_VMWARE_DISTRIBUTED` `vswitchName` - the name of the virtual switch to be created `vswitchMTU` - MTU. Range is 1500-16000. `testIpPoolId` - IP address pool UUID used to test the networks. It is ignored if vMotion is enabled. When vMotion is enabled, the supplied IP address pool for VMkernel NICs is used to test the network. If vMotion is disabled and testIpPoolId is not provided, an existing pool with the case-insensitive name "test ips" is used. `physicalNicIds` - at least one physical NIC ID must be provided. `vmNetworks` - One or more VM networks are supported. At least one VM network must be specified, with the following parameters: • `vlanId` - VLAN ID. Range is 1-4094. 0 = No VLAN • `vmNetworkName` - VM network name. `vmotionEnabled` - TRUE/FALSE • TRUE: vMotion is used to move Virtual Machines between hosts without powering off the VMs. vMotion requires special network configurations, and therefore must be specified when creating a network environment. • FALSE: The AMS will configure temporary VMkernels (using the IP addresses from this pool). These

	VMkernels will be used to test connectivity between the nodes to ensure that the network is functioning properly. When FALSE is used, the vmotionSpec is ignored. `vmotionSpec` - The set of parameters used to configure vMotion: • `mtu` - MTU. Range is 1500-16000. `vswitchMTU` must be equal to or greater than this MTU for vMotion to work. • `vlanId` - VLAN ID. Range is 1-4094. 0 = No VLAN • `dhcpEnabled` - TRUE (enable DHCP)/ FALSE (disable DCHP) • `ipPoolId` - ID of the IP address pool
`networkName`	The name that will be assigned to the network
`sioNicsForVmotion`	A list of VxFlex OS NICs on which vMotion can be enabled. Valid options are: • `NIC_ROLE_MGMT1` • `NIC_ROLE_SIO_DATA1` • `NIC_ROLE_SIO_DATA2`

Optional parameters

None.

Returns

Batch ID for asynchronous command process monitoring

Example

```
HTTPS://<server>:<port>/api/phoenix/types/NetworkEnvironment/
instances
POST
{
    {
   "parentEnvironmentId":"ddc8b006-96ed-4d3d-992f-24f29524cfef",
   "hostIds":[
      "10.234.215.231_host-4376",
      "10.234.215.231_host-4382"
   ],
   "spec":{
      "nicTeamSpecs":[
         {
            "action":"ACTION_CREATE",
            "switchType":"SWITCH_TYPE_VMWARE_DISTRIBUTED",
            "teamType":"TEAM_TYPE_ACTIVE_ACTIVE",
            "testIpPoolId":null,
            "vswitchName":"Maya",
            "vswitchMtu":1500,
            "vmNetworks":[
               {
                  "vmNetworkName":"Maya_net",
                  "vlanId":0
               }
```

```
            ],
            "physicalNicIds":[
          "10.234.215.231_host-4382_key-vim.host.PhysicalNic-
vmnic4",
          "10.234.215.231_host-4382_key-vim.host.PhysicalNic-
vmnic5",
          "10.234.215.231_host-4376_key-vim.host.PhysicalNic-
vmnic4",
          "10.234.215.231_host-4376_key-vim.host.PhysicalNic-vmnic5"
            ],
            "vmotionEnabled":true,
            "vmotionSpec":{
               "mtu":1500,
               "vlanId":0,
               "useDhcp":false,
               "ipPoolId":"c700ec79-ea79-41a4-b4b7-c5bdb9dd38a6"
            }
         }
      ],
      "sioNicsForVmotion":[

      ]
   }
}
```


Sample output

Update IP address pool

Update the IP address pool with the given ID to be exactly as specified in the request. For example, if the pool's original range is 2.2.2.1 - 2.2.2.5 but you do not specify this range in the command body, it will no longer be part of the pool.

Resource path
`/api/phoenix/instances/PhoenixIpPool::{id}/action/UpdateIpPool`

Method
`POST`

Required parameters

`poolName`	The name of the IP address pool
`subnetMask`	The subnet mask of the IP addresses in the pool. The IP address ranges must be in the same subnet.
`ipRanges`	A list of IP address ranges
`firstIpInRange`	The first IP address in a range
`lastIpInRange`	The last IP address in a range

Optional parameters
None.

Returns
None.

Example

```
HTTPS://<server>:<port>/api/phoenix/instances/
PhoenixIpPool::e3cd4dcf-73d4-46e4-ab69-c25e820a9070/action/
UpdateIpPool
POST
{
   "poolName":"example",
   "subnetMask":"255.255.255.0",
   "ipRanges":[
      {
         "firstIpInRange":"1.1.1.1",
         "lastIpInRange":"1.1.1.10"
      },
      {
         "firstIpInRange":"1.1.1.101",
         "lastIpInRange":"1.1.1.110"
      }
   ]
}
```

Sample output

Delete network environment

Delete the specified network environment.

Resource path
`api/phoenix/instances/NetworkEnvironment::{id}/action/DeleteNetworkEnvironment`

Method
`POST`

Required parameters
None.

Optional parameters
None.

Returns
Batch ID for asynchronous command process monitoring

Example

```
HTTPS://<server>:<port>/api/phoenix/instances/NetworkEnvironment::
60e10901-356f-4607-8938-42e7029aa2dd/action/DeleteNetworkEnvironment
POST
{}
```

Sample output

Create file systems on volumes

Create one or more file systems with their given names on the specified volumes.

Resource path
`/api/phoenix/types/Volume/action/CreateFileSystem`

Method
`POST`

Required parameters

`fsNameForVolume`	Dictionary with a key-value, where the key is the file system name to be created and the value is the volume ID. The format includes curly braces that wrap the key-values.
`fileSystemType`	File system type. Only `FILESYSTEM_TYPE_VMWARE_VMFS5` is supported in this version.

Optional parameters
None.

Returns
Batch ID for asynchronous command process monitoring

Example

```
HTTPS://<server>:<port>/api/phoenix/types/Volume/action/
CreateFileSystem
POST
{
   "fsNameForVolume":{
        "test-1":737841322362142720,
        "test-2":737884250560266241,
        "test-3":737884254855233538
   },
   "fileSystemType": "FILESYSTEM_TYPE_VMWARE_VMFS5"
}
```

Note

Orchestration errors may be returned for individual file systems even though the overall status is Success.

Sample output

```
{
      "batchId": "CreateFileSystem-1518503284951--2010308386",
      "orchestrationErrorsList": null,
      "orchestrationErrorsCount": 0
   }
```

Remove file systems from volumes

Remove one or more file systems from the specified volumes.

Resource path
`/api/phoenix/types/Volume/action/DeleteFileSystem`

Method
`POST`

Required parameters

`fileSystemIds`	A list of file system IDs

Optional parameters
None.

Returns
Batch ID for asynchronous command process monitoring

Example

```
HTTPS://<server>:<port>/api/phoenix/types/Volume/action/
DeleteFileSystem
POST
{
   "fileSystemIds":[
        "591c1da5-c038392d-727d-a0369fdc9118",
        "591c1864-cd4f8116-1f3d-a0369fdaccc0",
        "591c1d9d-375d5aec-d4af-a0369fdc9054",
        "591c1cfc-cb2bfadb-4fb9-a0369fdc9054"
   ]
}
```

Note

Orchestration errors may be returned for individual file systems even though the overall status is Success.

Sample output

```
{
      "batchId": "DeleteFileSystem-1518503339218-120018759",
      "orchestrationErrorsList": null,
      "orchestrationErrorsCount": 0
   }
```

Create cluster file system

Create a cluster file system. This includes creating a volume from the specified Storage Pool, mapping it to all hosts in the specified cluster, and creating a file system on the volume.

Resource path
`/api/phoenix/types/ClusterFileSystem/instances`

Method
`POST`

Required parameters

`name`	Cluster file system name
`spec`	Group of parameters that will be applied to the new cluster file system
`storagePoolId`	ID of the Storage Pool that will be mapped to the cluster file system. Convert the The Storage Pool ID takes the long decimal representation of the hexadecimal value shown in the VxFlex OSGUI and CLI. Convert the hexadecimal ID to a long decimal ID. The ID can be either positive or negative.
`sizeInGb`	Cluster file system size in GB
`thin`	Volumes will be configured as either thin or thick: • TRUE- thin • FALSE - thick
`filesystemType`	Type of file system that will be applied to the cluster
`clusterKey`	Cluster name, using the format `"clusterKey":[{"name":"<NAME>"}]`

Optional parameters

None.

Returns

Batch ID for asynchronous command process monitoring

Example

```
/api/phoenix/types/ClusterFileSystem/instances
POST
{
   "name":"test-cfs",
   "spec":{
       "storagePoolId":"8313501997089161214",
       "sizeInGb":8,
       "thin":true,
       "filesystemType":"FILESYSTEM_TYPE_VMWARE_VMFS5",
       "clusterKey":[
           {"name":"test-cluster"}
        ]
   }
}
```

Sample output

```
{
   "batchId": "CreateClusterFileSystem-1518504602045-1489573387"
}
```

Map cluster file system to a host

Map cluster file system from the specified cluster to the specified host.

Resource path
`/api/phoenix/types/ClusterFileSystem/action/MapClusterFileSystem`

Method
`POST`

Required parameters

`hostId`	ID of the host to which volumes will be mapped
`clusterKey`	Name of the cluster, using the format `"clusterKey":{ "name":"<NAME>" }`

Optional parameters
None.

Returns

Example

```
HTTPS://<server>:<port> /api/phoenix/types/ClusterFileSystem/action/
MapClusterFileSystem
POST
{
   "hostId":"10.234.216.222_host-692",
   "clusterKey":{
        "name":"test-cluster"
   }
}
```

Sample output

Unmap cluster file system

Unmap all cluster file systems from the specified host.

Resource path
`/api/phoenix/types/ClusterFileSystem/action/UnmapClusterFileSystem`

Method
`POST`

Required parameters

`hostId`	ID of the host to which volumes will be mapped
`clusterKey`	Name of the cluster, using the format `"clusterKey":{"name":"<NAME>"}`

Optional parameters
None.

Returns

Example

```
HTTPS://<server>:<port> /api/phoenix/types/ClusterFileSystem/action/
UnmapClusterFileSystem
POST
{
   "hostId":"BJC7CH2"
   "clusterKey":{
        "name":"test-cluster"
   }
}
```

Sample output

Create storage environment

Create a storage environment.

Resource path
`/api/phoenix/types/StorageEnvironment/instances`

Method
`POST`

Required parameters

`environmentId`	Storage environment ID
`datastorenamePrefix`	Prefix that will be automatically added to datastore names
`fileSystemType`	Type of file system that will be applied to the storage environment
`allowOvercommit`	Allow overcommit of datastores: TRUE/FALSE
`overcommitPercentage`	Range: 100-200%. Default: 100%.
`storagePoolIds`	List of IDs of the Storage Pools to be mapped to the storage environment. The Storage Pool ID takes the long decimal representation of the hexadecimal value shown in the VxFlex OS GUI and CLI. Convert the hexadecimal ID to long decimal ID. The ID can be either positive or negative.

Optional parameters
None.

Returns
Storage environment ID

Example

```
HTTPS://<server>:<port>/api/phoenix/types/StorageEnvironment/
instances
POST
{

"environmentId":"60e10901-356f-4607-8938-42e7029aa2dd",
                     "datastorenamePrefix":"test-",

"fileSystemType":"FILESYSTEM_TYPE_VMWARE_VMFS5",
                     "allowOverwrite":false,
                     "overwritePercentage":0,
                     "storagePoolIds":["8313501997089161214"]
                     }
```

Sample output

Delete storage environment

Delete the specified storage environment.

Resource path
`/api/phoenix/instances/StorageEnvironment::{id}/action/DeleteStorageEnvironment`

Method
`POST`

Required parameters
None.

Optional parameters
None.

Returns

Example

```
HTTPS://<server>:<port>/api/phoenix/instances/StorageEnvironment::
60e10901-356f-4607-8938-42e7029aa2dd/action/DeleteStorageEnvironment
POST
{}
```

Sample output

Create compute profile

Create a compute profile by saving the configuration provided in the computeSpec. The compute profile can be used to simplify and streamline environment provisioning.

Resource path
`/api/phoenix/types/ComputeProfiles/instances`

Method
POST

Required parameters

name	Name that will be assigned to the compute profile
numberOfClusters	Desired number of clusters for the compute environment
computeSpec	Specifications used to configure clusters. See ComputeSpec parameters on page 306.

Optional parameters
None.

Returns

Example

```
HTTPS://<server>:<port>/api/phoenix/types/ComputeProfiles/instances
POST
 {
  "name" : "Marketing VDI Profile",
  "numberOfClusters" : 2,
  "computeSpec" : {
      "hypervisorManagerId" : "192.168.167.72",
      "clusterNamePrefix" : "marketVDI",
      "haEnabled" : true,
      "isDrsEnabled" : true,
      "drsMode" : "DRS_MODE_AUTO",
      "maxHostsPerCluster" : 64,
      "numSpareHostsPerCluster" : 0,
      "overcommitSpec" : {
        "overcommitEnabled" : true,
        "cpuOvercommitRatio" : 4.0,
        "ramOvercommitRatio" : 2.0
      }
   }
}
```

Sample output

Delete compute profile

Delete a compute profile.

Resource path
/api/phoenix/instances/ComputeProfiles::{id}/action/DeleteComputeProfile

Method
POST

Required parameters
None.

Optional parameters
None.

Returns

Example

```
HTTPS://<server>:<port>/api/phoenix/instances/
ComputeProfiles::cfcebb62-15a0-4f0d-8193-427b26197a2e/action/
DeleteComputeProfile
POST
{}
```

Sample output

Update compute profile

Update an entire compute profile according to the settings passed in the command.

Resource path

`/api/phoenix/types/ComputeProfiles::{id}/action/UpdateComputeProfile`

Method

`POST`

Required parameters

`name`	Name of the compute profile that you want to modify
`numberOfClusters`	Desired number of clusters for the compute environment
`computeSpec`	Set of parameters and values of which the profile is comprised. See ComputeSpec parameters on page 306.

Optional parameters

None.

Returns

Example

```
HTTPS://<server>:<port>/api/phoenix/types/ComputeProfiles::{id}/
action/UpdateComputeProfile
POST
{
  "name" : "Marketing VDI Profile",
  "numberOfClusters" : 2,
  "computeSpec" : {
      "hypervisorManagerId" : "192.168.167.72",
      "clusterNamePrefix" : "marketVDI",
      "haEnabled" : true,
      "isDrsEnabled" : true,
      "drsMode" : "DRS_MODE_AUTO",
      "maxHostsPerCluster" : 64,
      "numSpareHostsPerCluster" : 0,
      "overcommitSpec" : {
        "overcommitEnabled" : true,
        "cpuOvercommitRatio" : 4.0,
```

```
        "ramOvercommitRatio" : 2.0
      }
    }
}
```

Sample output

Create network profile

Creates a network profile, by saving the configuration provided in the network spec. The network profile can be used to simplify and streamline environment provisioning.

Resource path
`/api/phoenix/types/NetworkProfiles/instances`

Method
`POST`

Required parameters

`name`	Name of the network profile that you want to create
`networkSpec`	Set of parameters and values of which the profile is comprised. Use the `spec` parameters described in `/api/phoenix/types/NetworkEnvironment/instances`.

Optional parameters
None.

Returns

Example

```
HTTPS://<server>:<port>/api/phoenix/types/NetworkProfiles/instances
POST
{
  "name": "Maya",
  "networkSpec": {
    "nicTeamSpecs": [
      {
        "action": "ACTION_CREATE",
        "nicRoles": [
          "NIC_ROLE_CLIENT_DATA1",
          "NIC_ROLE_CLIENT_DATA2"
        ],
        "teamType": "TEAM_TYPE_ACTIVE_STANDBY",
        "switchType": "SWITCH_TYPE_VMWARE_STANDARD",
        "activeNicRole": "NIC_ROLE_CLIENT_DATA1",
        "vmNetworkEnabled": true,
        "vmNetworkSpec": {
          "mtu": 1500,
          "vlanId": 0
        },
        "vmotionEnabled": true,
        "vmotionSpec": {
          "mtu": 1500,
```

```
          "vlanId": 0,
          "useDhcp": false,
          "ipPoolId": "30491494-2003-4cc3-97ce-0bc6278aaee6"
        }
      }
    ],
    "sioNicsForVmotion": [
      "NIC_ROLE_SIO_DATA1",
      "NIC_ROLE_SIO_DATA2"
    ]
  }
}
```

Sample output

Delete network profile

Delete the specified network profile.

Resource path
`/api/phoenix/instances/NetworkProfiles::{id}/action/DeleteNetworkProfile`

Method
`POST`

Required parameters
None.

Optional parameters
None.

Returns

Example

```
HTTPS://<server>:<port>/api/phoenix/instances/
NetworkProfiles::cfcebb62-15a0-4f0d-8193-427b26197a2e/action/
DeleteNetworkProfile
POST
{}
```

Sample output

Update network profile

Update an entire network profile according to the settings passed in the command.

Resource path
`/api/phoenix/instances/NetworkProfiles::{id}/action/UpdateNetworkProfile`

Method
`POST`

Required parameters

`name`	Name of the network profile
`networkSpec`	Set of parameters and values of which the profile is comprised. Use the `spec` parameters described in `/api/phoenix/types/NetworkEnvironment/instances`.

Optional parameters
None.

Returns

Example

```
HTTPS://<server>:<port>/api/phoenix/instances/NetworkProfiles::{id}/
action/UpdateNetworkProfile
POST
{
  "name":"Marketing VDI Network",
  "networkSpec":{
      "nicTeamSpecs":[
       {
       "action":"ACTION_CREATE",
       "nicRoles":[
               "NIC_ROLE_CLIENT_DATA1",
               "NIC_ROLE_CLIENT_DATA2"
            ],
       "teamType":"TEAM_TYPE_ACTIVE_STANDBY",
       "switchType":"SWITCH_TYPE_VMWARE_STANDARD",
       "activeNicRole":"NIC_ROLE_CLIENT_DATA1",
       "vmNetworkEnabled":true,
           "vmNetworkSpec":{
             "mtu":1500,
             "vlanId":0
           },
       "vmotionEnabled":true,
       "vmotionSpec":{
          "mtu":1500,
          "vlanId":0,
          "useDhcp":false,
          "ipPoolId":"30491494-2003-4cc3-97ce-0bc6278aaee6"
       }
    }
   ],
  "sioNicsForVmotion":["NIC_ROLE_SIO_DATA1","NIC_ROLE_SIO_DATA2"]
  }
}
```

Sample output

Create environment profile

Create an environment profile. The environment profile only contains associations to a compute profile and a network profile. It does not contain any other settings.

Resource path
`/api/phoenix/types/EnvironmentProfiles/instances`

Method

POST

Required parameters

name	Name to assign to the environment profile

Optional parameters

None.

Returns

Example

```
HTTPS://<server>:<port>/api/phoenix/types/EnvironmentProfiles/
instances
POST
{"name":"test-ep"}
```

Sample output

Delete environment profile

Delete the specified environment profile.

Resource path

/api/phoenix/instances/EnvironmentProfiles::{id}/action/DeleteEnvironmentProfile

Method

POST

Required parameters

None.

Optional parameters

None.

Returns

Example

```
HTTPS://<server>:<port>/api/phoenix/instances/
EnvironmentProfiles::cfcebb62-15a0-4f0d-8193-427b26197a2e/action/
DeleteEnvironmentProfile
POST
{}
```

Sample output

Update environment profile

Assign a new name to an environment profile

Resource path
`/api/phoenix/instances/EnvironmentProfiles::{id}/action/UpdateEnvironmentProfile`

Method
`POST`

Required parameters

`name`	New name of the environment profile

Optional parameters
None.

Returns

Example

```
HTTPS://<server>:<port>/api/phoenix/instances/EnvironmentProfiles::
{id}/action/UpdateEnvironmentProfile
POST
{"name":"test-ep2"}
```

Sample output

Validate workload environment

Validate the environment and present the number of virtual machines that can be used for compute and storage.

Resource path
`/api/phoenix/types/Workload/action/ValidateWorkloadEnvironment`

Method
`POST`

Required parameters

`environmentId`	Environment ID
`numberOfCpusPerVm`	Number of CPUs per VM
`amountOfRamPerVmInMb`	Amount of RAM per VM, in MB
`amountOfStoragePerVmInGb`	Amount of storage per VM, in GB

Optional parameters
None.

Returns

Upon success, returns the following values:

```
"maxComputeVmCount":int,
"maxStorageVmCount":int
```

where:

- `maxComputeVmCount` is the number of VMs that can be deployed within the available compute environment.
- `maxStorageVmCount` is the number of VMs that can be deployed within the available storage environment.

The smaller value represents the maximum number of VMs that can be deployed.

Example

```
HTTPS://<server>:<port>/api/phoenix/types/Workload/action/
ValidateWorkloadEnvironment
POST
{
   "environmentId":"cfcebb62-15a0-4f0d-8193-427b26197a2e",
   "numberOfCpusPerVm":2,
   "amountOfRamPerVmInMb":64,
   "amountOfStoragePerVmInGb":16
}
```

Sample output

Add workload instance

Deploy a workload.

Resource path

`/api/phoenix/types/Workload/instances`

Method

`POST`

Required parameters

`environmentId`	Environment ID
`virtualMachineTemplateId`	ID of the VMware template that will be used to deploy virtual machines. This ID can be obtained using the query command with the `VirtualMachine` type.
`workloadName`	Name to assign to the workload
`numberOfVmsToDeploy`	Number of VMs to deploy in the workload
`numberOfCpus`	Number of CPU sockets to be assigned for every VM
`numberOfCoresPerCpu`	Number of cores per CPU socket
`amountOfRamPerVmInMb`	Amount of RAM in MB per VM

`storagePoolIds`	List of IDs belonging to Storage Pools that will be associated with the workload. Use only Storage Pool IDs supplied using the `create storage environment` command. Even though the command will succeed with any Storage Pool ID, the AMS does not support the configuration with other Storage Pools. The Storage Pool ID takes the long decimal representation of the hexadecimal value shown in the VxFlex OS GUI and CLI. Convert the hexadecimal ID to a long decimal ID. The ID can be either positive or negative.
`customizeIps`	Specifies whether to configure network settings on the workload VMs: TRUE/FALSE
`vmNetworkConfigs`	List of parameter sets used to configure the VM network, with one set of parameters for each NIC in the VM template: `ipRanges`: The range of IP addresses from which addresses can be automatically assigned to VMs. You can define multiple IP address ranges. • `firstIpInRange`- First IP address in the range • `lastIpInRange` - Last IP address in the range `subnetMask`: Subnet mask of the IP address ranges `networkName`: Name to be assigned to the VM networks (IP ranges) that you are adding to the workload `useDhcp`: Use DHCP for each VM network: TRUE/FALSE
`windowsLicenseKey`	If the VMs will run the Windows operating system, use this parameter to add the Windows license key to the Virtual Machines.

Optional parameters

None.

Returns

Batch ID for asynchronous command process monitoring

Example

```
HTTPS://<server>:<port>/api/phoenix/types/Workload/instances
POST
{
   "environmentId":"630ce83a-1379-4440-8b0f-427cf887c79f",
   "virtualMachineTemplateId":"10.76.59.100_vm-6780",
```

```
    "workloadName":"idowl",
    "numberOfVmsToDeploy":20,
    "numberOfCpus":1,
    "numberOfCoresPerCpu":2,
    "amountOfRamPerVmInMb":2048,
    "storagePoolIds":[
       "8313501997089161214"
    ],
    "customizeIps":true,
    "vmNetworkConfigs":[
       {
          "ipRanges":[
             {
                "firstIpInRange":"4.4.4.1",
                "lastIpInRange":"4.4.4.200"
             }
          ],
          "subnetMask":"255.255.255.0",
          "networkName":"env_idoall-1",
          "gatewayIp":"4.4.4.254",
          "useDhcp":false
       }
    ],
    "windowsLicenseKey":""
}
```

Sample output

Delete workload

Delete the specified workload.

Resource path
`/api/phoenix/instances/Workload::{id}/action/DeleteWorkload`

Method
`POST`

Required parameters
None.

Optional parameters

`force`	Force shutdown of VMs that are powered on: TRUE/FALSE

Returns
Batch ID for asynchronous command process monitoring

Example

```
https://<server>:<port>/api/phoenix/instances/Workload::
396e0da2-809c-4766-9790-4fc1d7edebb2/action/DeleteWorkload?
force=True
POST
{}
```

Sample output

Add virtual machines to a workload

Add VMs to an existing workload.

Resource path
`/api/phoenix/instances/Workload::{id}/action/ExtendWorkload`

Method
`POST`

Required parameters

`numberOfVmsToAdd`	Number of VMs to add to the workload
`customizeIps`	Specifies whether to configure network settings on the workload VMs: TRUE/FALSE
`vmNetworkConfigs`	List of parameter sets used to configure the VM network, with one set of parameters for each NIC in the VM template: `ipRanges`: The range of IP addresses from which addresses can be automatically assigned to VMs. You can define multiple IP address ranges. • `firstIpInRange`- First IP address in the range • `lastIpInRange` - Last IP address in the range `subnetMask`: Subnet mask of the IP address ranges `networkName`: Name to be assigned to the VM networks (IP ranges) that you are adding to the workload `useDhcp`: Use DHCP for each VM network: TRUE/FALSE
`storagePoolIds`	A list of IDs belonging to Storage Pools that will be associated with the workload. Use only Storage Pool IDs supplied using the `create storage environment` command. Even though the command will succeed with any Storage Pool ID, the AMS does not support the configuration with other Storage Pools. The Storage Pool ID takes the long decimal representation of the hexadecimal value shown in the VxFlex OS GUI and CLI. Convert the hexadecimal ID to a long decimal ID. The ID can be either positive or negative.

Optional parameters
None.

Returns
Batch ID for asynchronous command process monitoring

Example

```
HTTPS://<server>:<port>/api/phoenix/instances/Workload::
396e0da2-809c-4766-9790-4fc1d7edebb2/action/ExtendWorkload
POST
{
"workloadId":null,
"numberOfVmsToAdd":10,
"customizeIps":true,
"vmNetworkConfigs":[{
"ipRanges":[{
"firstIpInRange":"1.1.1.100",
"lastIpInRange":"1.1.1.200"
}],
"subnetMask":"255.255.255.0",
"networkName":"client network1",
"useDhcp":false
}],
"storagePoolIds":["8313501997089161214"]
}
```

Sample output

High-level deployment workflow

The following is a high-level overview of the procedures required to configure a networking and compute environment and deploy a workload using the VxFlex Ready Node REST API:

1. Create an environment.
2. Create an IP address pool.
3. In the environment created in Step 1, configure:
   a. a compute environment
   b. a storage environment
   c. network environment, using the IP address pool created in Step 2
4. Deploy a workload in the environment created in Step 1.

To check the execution status of a command in progress, use the `async` query command:

```
/api/phoenix/instances/AsyncProcess::<batch_id>/action/Query
GET
{}
```

A response with a detailed information regarding the async command status will be returned. Check the `executionState` field to ascertain whether the async command is still running.

Sample networking and compute workflow

The following is a sample workflow for configuring a networking and compute environment and deploying a workload using the VxFlex Ready Node REST API.

Procedure

1. Create the environment:

```
/api/phoenix/types/PhoenixIpPool/instances
```

For example:

```
HTTPS://<server>:<port>/api/phoenix/types/Environment/
instances
POST
{"name":"env_ido"}
```

The API returns the UUID of the newly created environment. For example:

```
{
      "uuid": "2e5d63a0-bd72-4ded-9d5f-97adc668e1dd"
}
```

2. Create the IP address pool:

```
/api/phoenix/types/PhoenixIpPool/instances
```

For example:

```
HTTPS://<server>:<port>/api/phoenix/types/PhoenixIpPool/
instances
POST
{
   "poolName":"example",
   "subnetMask":"255.255.255.0",
   "ipRanges":[
      {
         "firstIpInRange":"1.1.1.1",
         "lastIpInRange":"1.1.1.10"
      },
      {
         "firstIpInRange":"1.1.1.101",
         "lastIpInRange":"1.1.1.110"
      }
   ]
}
```

The API returns the UUID of the newly created IP address pool. For example:

```
{
    "uuid":"e3cd4dcf-73d4-46e4-ab69-c25e820a9070"
}
```

3. Create the compute environment:

```
/api/phoenix/types/ComputeEnvironment/instances
```

For example:

```
HTTPS://<server>:<port>/api/phoenix/types/ComputeEnvironment/
instances
POST
{

"environmentId":"60e10901-356f-4607-8938-42e7029aa2dd",
         "heartbeatStoragepool":"ed187ef600000001",
         "computeSpec":{
            "hypervisorManagerId":"10.76.59.100",
            "clusterNamePrefix":"clu_",
            "haEnabled":true,
            "drsMode":"DRS_MODE_AUTO",
            "maxHostsPerCluster":64,
            "numSpareHostsPerCluster":0,
            "overcommitSpec":{
               "overcommitEnabled":true,
               "cpuOvercommitRatio":2.0,
               "ramOvercommitRatio":2.0
            }
         },
         "datacenterClusters":[
            {
               "datacenterId":"10.76.59.100_datacenter-6944",
               "clusterHosts":[
                  {
                     "hosts":[
                        "10.76.59.100_host-7232",
                        "10.76.59.100_host-7193",
                        "10.76.59.100_host-7196"
                     ],
                     "clusterName":"clu_1"
                  }
               ]
            }
         ]
      }
```

The API returns a batch ID that allows you perform a query using the `async` query command. For example:

```
{
                        "batchId:
"CreateComputeEnvironment-1500208883813-1458518647",
                        "hasAsyncProcessToRun": true

}
{
      "batchId":
"CreateComputeEnvironment-1500208883813-1458518647",
      "datacenterClustersList": [
         {
            "datacenterId": "10.76.59.100/datacenter-5553",
            "clusterHostsList": [
               {
                  "clusterName": "clu_1",
                  "evaluation":
"COMPUTE_EVALUATION_RESPONSE_WARNING",
```

```
                   "evaluationDetail": "Detail List: 1.
Cluster contains multiple MDM/TB nodes",
                   "hostsList": [
                      {
                         "hostId": "10.76.59.100/host-7232",
                         "evaluation":
"COMPUTE_EVALUATION_REQUEST_VERIFY",
                         "evaluationDetail": "Input"
                      },
                      {
                         "hostId": "10.76.59.100/host-7193",
                         "evaluation":
"COMPUTE_EVALUATION_REQUEST_VERIFY",
                         "evaluationDetail": "Input"
                      },
                      {
                         "hostId": "10.76.59.100/host-7196",
                         "evaluation":
"COMPUTE_EVALUATION_REQUEST_VERIFY",
                         "evaluationDetail": "Input"
                      }
                   ],
                   "hostsCount": 3
                }
             ],
             "clusterHostsCount": 1
          }
       ],
       "datacenterClustersCount": 1
    }
```

4. Create the storage environment:

```
/api/phoenix/types/StorageEnvironment/instances
```

For example:

```
HTTPS://<server>:<port>/api/phoenix/types/StorageEnvironment/
instances
POST
{

"environmentId":"60e10901-356f-4607-8938-42e7029aa2dd",
                      "datastorenamePrefix":"test-",

"fileSystemType":"FILESYSTEM_TYPE_VMWARE_VMFS5",
                      "allowOverwrite":false,
                      "overwritePercentage":0,
                      "storagePoolIds":["8313501997089161214"]
                      }
```

The API returns the ID of the newly created storage environment. For example:

```
{
"storageEnvironmentId": "5624c9a9-d3d5-48e2-ad05-9e91054de670"
}
```

5. Create the network environment:

```
/api/phoenix/types/NetworkEnvironment/instances
```

For example:

```
HTTPS://<server>:<port>/api/phoenix/types/NetworkEnvironment/
instances
POST
{
     {

"parentEnvironmentId":"ddc8b006-96ed-4d3d-992f-24f29524cfef",
   "hostIds":[
      "10.234.215.231_host-4376",
      "10.234.215.231_host-4382"
   ],
   "spec":{
      "nicTeamSpecs":[
         {
            "action":"ACTION_CREATE",
            "switchType":"SWITCH_TYPE_VMWARE_DISTRIBUTED",
            "teamType":"TEAM_TYPE_ACTIVE_ACTIVE",
            "testIpPoolId":null,
            "vswitchName":"Maya",
            "vswitchMtu":1500,
            "vmNetworks":[
               {
                  "vmNetworkName":"Maya_net",
                  "vlanId":0
               }
            ],
            "physicalNicIds":[
          "10.234.215.231_host-4382_key-vim.host.PhysicalNic-
vmnic4",
          "10.234.215.231_host-4382_key-vim.host.PhysicalNic-
vmnic5",
          "10.234.215.231_host-4376_key-vim.host.PhysicalNic-
vmnic4",
          "10.234.215.231_host-4376_key-vim.host.PhysicalNic-
vmnic5"
            ],
            "vmotionEnabled":true,
            "vmotionSpec":{
               "mtu":1500,
               "vlanId":0,
               "useDhcp":false,
               "ipPoolId":"c700ec79-ea79-41a4-b4b7-
c5bdb9dd38a6"
            }
         }
      ],
      "sioNicsForVmotion":[

      ]
   }
```

The API returns a batch ID that allows you perform a query using the `async` query command.

6. Deploy the workload:

```
/api/phoenix/types/Workload/instances
```

For example:

```
HTTPS://<server>:<port>/api/phoenix/types/Workload/instances
POST
```

```
{
   "environmentId":"630ce83a-1379-4440-8b0f-427cf887c79f",
   "virtualMachineTemplateId":"10.76.59.100_vm-6780",
   "workloadName":"idowl",
   "numberOfVmsToDeploy":20,
   "numberOfCpus":1,
   "numberOfCoresPerCpu":2,
   "amountOfRamPerVmInMb":2048,
   "storagePoolIds":[
      "8313501997089161214"
   ],
   "customizeIps":true,
   "vmNetworkConfigs":[
      {
         "ipRanges":[
            {
               "firstIpInRange":"4.4.4.1",
               "lastIpInRange":"4.4.4.200"
            }
         ],
         "subnetMask":"255.255.255.0",
         "networkName":"env_idoall-1",
         "gatewayIp":"4.4.4.254",
         "useDhcp":false
      }
   ],
   "windowsLicenseKey":""
}
```

The API returns a batch ID that allows you perform a query using the `async` query command. For example:

```
{
     "batchId": "DeployWorkload-1501534447585--256943818",
        "hasAsyncProcessToRun": true
 }
{
   "batchId":"DeployWorkload-1501534447585--256943818",
   "orchestrationErrors":null
}
```

CHAPTER 17

Hardware

This section describes Hardware operations.

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Query hardware components by type

Retrieve a list of hardware components of the specified type.

Resource path
`/api/hardware/types/{type}/instances`

Method
`GET`

Required parameters

`types`	One of the following types: • `Chassis` • `Node` • `PhysicalDrive` • `Bmc` (baseboard management controllers) • `CpuSocket` • `Ram` • `Nic` • `StorageController` • `NicPort` • `Psu` (power supply units) • `Fan` • `Battery` • `BootDrive` • `CpuSocketCache`

Optional parameters
None.

Returns
List of objects of the specified type

CLI command

Example

```
HTTPS://<server>:<port>/api/hardware/types/Nic/instances
GET
{}
```

Sample output

Query hardware components by type and ID

Retrieve the hardware component instance for the specified type and ID.

Resource path
`/api/hardware/instances/{type}::{id}`

Method
`GET`

Required parameters

`types`	One of the following types: • `Chassis` • `Node` • `PhysicalDrive` • `Bmc` (baseboard management controllers) • `CpuSocket` • `Ram` • `Nic` • `StorageController` • `NicPort` • `Psu` (power supply units) • `Fan` • `Battery` • `BootDrive` • `CpuSocketCache`

Optional parameters
None.

Returns
List of objects of the specified type and ID

CLI command

Example

```
HTTPS://<server>:<port>/api/hardware/instances/
Chassis::QTFCKJ44500026
GET
{}
```

Sample output

Query component relationships

Retrieve the relationship between instances (child objects).

Resource path

`/api/hardware/instances/{type}::{id}/relationships/{relationship}`

Method

`GET`

Required parameters

`types`	One of the following types: • `Chassis` • `Node` • `PhysicalDrive` • `Bmc` (baseboard management controllers) • `CpuSocket` • `Ram` • `Nic` • `StorageController` • `NicPort` • `Psu` (power supply units) • `Fan` • `Battery` • `BootDrive` • `CpuSocketCache`

Optional parameters

None.

Returns

List of objects of the specified type and ID

CLI command

Example

```
HTTPS://<server>:<port>/api/hardware/instances/
Chassis::QTFCKJ44500026/relationships/{relationship}
GET
{"removeProcessBatchId": "",
"uuid": "CNFCP0074R00LR",
"chassisId": "GQLKHK2",
"productName": "R740xd ScaleIO Ready Node",
"biosVersion": "1.2.11",
"emptyMemorySlotsList": null,
"emptyMemorySlotsCount": 0,
"scaleioRole": "CLUSTER_ROLE_MDM",
```

```
"hostManagementIp": "9.20.3.1",
"svmManagementIp": "9.20.103.1",
"bmcIp": "10.234.176.211",
"hostPrimaryDataIp": "99.20.3.2",
"hostSecondaryDataIp": "99.20.103.2",
"svmPrimaryDataIp": "99.20.3.102",
"svmSecondaryDataIp": "99.20.103.102",
"installationState": "INSTALLATION_STATE_INSTALLATION_COMPLETE",
"removeState": "REMOVE_STATE_INVALID",
"svmOsType": "sles",
"svmOsVersion": "11.3",
"esxOsType": "ESX",
"esxOsVersion": "6.5.0 Update 1",
"serialNumber": "CNFCP0074R00LR",
"id": "CNFCP0074R00LR",
"transientProperties":{"PacketRxLostSd1":{"reading": 9,
"nonCriticalLowThreshold": null, "criticalLowThreshold": null,
"fatalLowThreshold": null,…},
"links":[{"rel": "self", "href": "/api/hardware/instances/
Node::CNFCP0074R00LR"…]
}
```

Query active alerts

Retrieve all alert instances.

Resource path
`/api/types/Alert/instances`

Method
`GET`

Required parameters
None.

Optional parameters
None.

Returns
List of all active alerts.

CLI command

Example

```
HTTPS://<server>:<port>/api/types/Alert/instances
GET
{}
```

Sample output

```
{
"severity": "ALERT_MEDIUM",
"affectedObject":{
"type": "com.emc.ecs.api.model.ams.hardware.gen.StorageController",
"objectId": "CNFCP0074R00LR:500056b3:1234abff"
},
"alertType": "STORAGE_CONTROLLER_NOT_ALL_SLOTS_FULL",
"alertValues":{},
```

```
"uuid": "8893f4d8-4ac9-4615-8fca-5acdbe4229d5",
"lastObserved": "2018-01-25T08:59:13.117Z",
"startTime": "2018-01-24T15:44:31.642Z",
"name": "8893f4d8-4ac9-4615-8fca-5acdbe4229d5",
"id": "8893f4d8-4ac9-4615-8fca-5acdbe4229d5",
"links":[
{
"rel": "self",
"href": "/api/instances/Alert::8893f4d8-4ac9-4615-8fca-5acdbe4229d5"
}
]
},
```

Query AMS Secure Mode

Resource path
`api/hardware/instances/System/action/GetAmsSecureMode`

Method
`GET`

Required parameters
None.

Optional parameters
None.

Returns

CLI command

Example

```
HTTPS://<server>:<port>/api/instances/System/action/GetAmsSecureMode
GET
{}
```

Sample output

```
"secureModeEnabled": false/true
```

Export AMS trusted SSH keys

Export all of the nodes' SSH keys to a file to be used by the recovery process.

Resource path
`api/hardware/instances/System/action/ExportAmsTrustedSshKeys`

Method
`GET`

Required parameters

Optional parameters
None.

Returns

CLI command
`--export_trusted_ssh_keys`

Example

```
HTTPS://<server>:<port>/api/instances/System/action/
ExportAmsTrustedSshKeys
GET
{}
```

Get AMS CA certificate request

Generate a certificate request to be signed by an external Certificate Authority (CA).

The default key size is 2048 bits.

Resource path
`/instances/System/action/GetAmsCaCertificateRequest`

Method
`GET`

Required parameters

`RequestParam`	value = "keySize" defaultValue = "2048"

Optional parameters
None.

Returns

CLI command
`--generate_certificate_request`

Example

```
HTTPS://<server>:<port>/api/hardware/instances/System/action/
GetAmsCaCertificateRequest
GET
{}
```

Add node device

Add a physical drive to a Storage Pool.

Resource path
`/api/hardware/instances/PhysicalDrive::{id}/action/addNodeDevice`

Method
`GET`

Required parameters

`storagePoolId`	Storage Pool ID to which to add the drive

Optional parameters
None.

Returns

CLI command

Example

```
HTTPS://<server>:<port>/api/hardware/instances/
PhysicalDrive::db5e9a90655b5d27/action/addNodeDevice
POST
{"storagePoolId":"f79d0f6f00000000"}
```

Sample output

Start using as cache

Add a cache device to the physical drive.

For caching to work at the device level, the same mode of caching (DAS Cache or RFcache) must be enabled in the Storage Pool to which the cached storage devices belong.

Resource path
`/api/hardware/instances/PhysicalDrive::{id}/action/startUsingAsCache`

Method
`POST`

Required parameters

`cacheProvider`	• `dascache` - use as DAS Cache • `rfcache` - use as RFcache

Optional parameters

`force`	Force usage if a virtual device already exists for this physical drive: true/false. Default: false.

Returns
Upon success, returns the "Accepted" (202) HTTP response code

CLI command
`--use_as_cache`

Example

```
HTTPS://<server>:<port>/api/hardware/instances/
PhysicalDrive::db5e9a90655b5d27/action/startUsingAsCache
POST
{"cacheProvider":"rfcache","force":"true"}
```

Sample output

Stop using as cache

Remove cache device from the physical drive.

Resource path
`/api/hardware/instances/PhysicalDrive::{id}/action/stopUsingAsCache`

Method
`POST`

Required parameters

`cacheProvider`	• `dascache` - use as DAS Cache • `rfcache` - use as RFcache

Optional parameters
None.

Returns
Upon success, returns the "Accepted" (202) HTTP response code

CLI command

Example

```
HTTPS://<server>:<port>/api/hardware/instances/
PhysicalDrive::db5e9a90655b5d27/action/stopUsingAsCache
POST
"cacheProvider":"rfcache"
```

Sample output

Perform node power operation

Perform a power operation on the node.

Resource path
`/api/hardware/instances/Node::{id}/action/powerOperation`

Method
`POST`

Required parameters

`action`	One of: • powerCycle • powerDown • powerUp • softPowerDown

	• softReset • hardReset

Optional parameters
None.

Returns
Upon success, returns the "Accepted" (202) HTTP response code

CLI command

Example

```
HTTPS://<server>:<port>/api/hardware/instances/Node::8FC1FB467/
action/powerOperation
POST
{"action":"powerDown"}
```

Sample output

Identify a node or disk

Turn a specific disk's identification LED on or off in order to visually identify the disk in a node.

Resource path
`/api/hardware/instances/{Node|PhysicalDisk}::{id}/action/identify`

Method
`GET`

Required parameters

`action`	on/off

Optional parameters
None.

Returns
Upon success, returns the "Accepted" (202) HTTP response code

CLI command
`--turn_disk_led`

Example

```
HTTPS://<server>:<port>/api/hardware/instances/Node::8FC1FB467/
action/identify
GET
{"action":"on"}
```

Set AMS secure mode

Enable or disable secure mode for the AMS.

Resource path
`/api/hardware/instances/System/action/SetAmsSecure`

Method
`GET`

Required parameters

`enableSecureMode`	Specifies whether to enable or disable secure mode on the AMS: true/false

Optional parameters
None.

Returns

CLI command
`--set_ams_secure_mode`

Example

```
HTTPS://<server>:<port>/api/hardware/instances/System/action/
SetAmsSecure
GET
{"enableSecureMode":"false"}
```

Set AMS CA certificate

Set the CA certificate on the AMS.

Resource path
`/api/hardware/instances/System/action/SetAmsCaCertificate`

Method
`POST`

Required parameters

`file`	CommonsMultipartFile certFile

Optional parameters
None.

Returns

CLI command
`--replace_ams_certificate`

Example

```
HTTPS://<server>:<port>/api/hardware/instances/System/action/
SetAmsCaCertificate
```

```
POST
{"file":"<file_name>"}
```

Replace node certificates

Replace the certificates for all nodes that require it, with a certificate signed by the AMS.

Resource path
`/api/hardware/instances/System/action/ReplaceNodesCertificates`

Method
`POST`

Required parameters
None.

Optional parameters
None.

Returns

CLI command
`--replace_nodes_certificates`

Example

```
HTTPS://<server>:<port>/api/hardware/instances/System/action/
ReplaceNodesCertificates
POST
{}
```

Abort replacing node certificates

Abort the process of replacing certificates for all of the nodes.

Resource path
`/api/hardware/instances/System/action/AbortReplacingNodesCertificates`

Method
`POST`

Required parameters

`processId`	ID of the process (string)

Optional parameters
None.

Returns

CLI command
`--abort_replace_nodes_certificates`

Example

```
HTTPS://<server>:<port>/api/hardware/instances/System/action/
AbortReplacingNodesCertificates
POST
{"processId":"<ID>"}
```

Remove virtual disk

Remove a virtual disk.

Resource path

`/api/hardware/instances/PhysicalDrive::{id}/action/removeVirtualDisk`

Method

`POST`

Required parameters

None.

Optional parameters

None.

Returns

CLI command

Example

```
HTTPS://<server>:<port>/api/hardware/instances/
PhysicalDrive::db5e9a90655b5d27/action/removeVirtualDisk
POST
{}
```

Sample output

Stop caching

Stop caching on an RF Cache or DAS Cache device.

Resource path

`/api/instances/StoragePool::{id}/action/stopCaching`

Method

`POST`

Required parameters

`cacheProvider`	• `dascache` • `rfcache`

Optional parameters

None.

Returns

CLI command
--cache_storage_pool

Example

```
HTTPS://<server>:<port>/api/instances/StoragePool::f79d0f6f00000000/
action/stopCaching
POST
{"cacheProvider":"rfcache"}
```

Sample output

Start caching

Start caching a Storage Pool

Resource path
`/api/instances/StoragePool::{id}/action/startCaching`

Method
`POST`

Required parameters

`cacheProvider`	• `dascache` • `rfcache`

Optional parameters
None.

Returns

CLI command
`--cache_storage_pool`

Example

```
HTTPS://<server>:<port>/api/instances/StoragePool::f79d0f6f00000000/
action/startCaching
POST
{"cacheProvider":"rfcache"}
```

Sample output

Start upgrade

Start the AMS upgrade process.

Resource path
`/api/hardware/instances/System/action/startUpgrade`

Method
POST

Required parameters

approveRebootForBareMetalNodes	Boolean
applyAllOptionalPackageGroups	Boolean

Note

By default, the host security patches (Spectre/Meltdown) are installed and enabled. To disable them, add the applyAllOptionalPackageGroups flag to this command.

Optional parameters

optIntPackageGroupsToApply	List of String
optOutPackageGroupsToSkip	List of String

Returns

CLI command
--upgrade_start

Example

```
HTTPS://<server>:<port>/api/hardware/instances/System/action/
startUpgrade
POST
{"approveRebootForBareMetalNodes": bool,
"applyAllOptionalPackageGroups": bool}
```

Recover AMS system

Recover an AMS server and all of its nodes, including nodes that are disconnected. vCenter and ESRS information are also recovered.

Resource path
/api/hardware/instances/System/action/RecoverAmsSystem

Method
POST

Required parameters
None.

Optional parameters

sshKeysFile	Filepath of the SSH keys file
customNodeCredentialsFile	File path of the custom node credentials file

Returns

CLI command
--recover_system

Example

```
HTTPS://<server>:<port>/api/hardware/instances/System/action/
RecoverAmsSystem
POST
{"customNodeCredentialsFile":"C:\system\node\credentials"
```

Sample output

Display AMS upgrade status

Display the status of the AMS upgrade process.

Resource path
`/api/hardware/instances/System/action/taskStatus`

Method
`POST`

Required parameters
None.

Optional parameters
None.

Returns

CLI command
`--upgrade_task_status`

Example

```
HTTPS://<server>:<port>/api/hardware/instances/System/action/
taskStatus
POST
{}
```

Sample output

Take ownership

Initiate the take ownership process from the AMS to enable management of nodes in a VxFlex Ready Nodesystem.

Resource path
`/api/hardware/instances/System/action/takeOwnership`

Method
`POST`

Required parameters

`mdmUserName`	MDM username
`mdmPassword`	MDM password

`ldapMonitorUsername`	LDAP monitor username if MDM works in an LDAP-only authentication mode (name changes if monitor user is used in non-LDAP cases)
`ldapMonitorPassword`	Ppassword for the provided LDAP monitor user (name changes if monitor user is used in non-LDAP cases)
`mdmIps`	Comma separated IPs of the primary MDM candidates
`customCredentialsFile`	CommonsMultipartFile is the CSV file with custom node credentials

Optional parameters
None.

Returns

`wasStartedSuccessfully`	`TRUE` or `FALSE`
`takeOwnershipStatus`	`TRUE` or `FALSE`
`processStatus`	`TRUE` or `FALSE`
<Error string>	Error message

CLI command
`--take_ownership`

Example

```
curl -H "files": {
    "customCredentialsFile": "10.234.210.4,root,VxFlex1234!\r\n"
  },
"form": {
    "ldapMonitorPassword": "bogus123",
    "ldapMonitorUsername": "fake@ldapUser",
    "mdmIps": "10.234.210.2,10.234.210.3,10.234.210.4",
    "mdmPassword": "VxFlex123",
    "mdmUsername": "admin"
  }
```

Take ownership progress update

Query the AMS for the current state of the take ownership process

Resource path
`/api/hardware/instances/System/action/takeOwnershipProgressUpdate`

Method
`GET`

Required parameters
None.

Optional parameters
None.

Returns

takeOwnershipStatus	TRUE or FALSE
processStatus	TRUE or FALSE
statusMessage	String
takeOwnershipNode	List of nodes
<Error>	Error message

CLI command
`--take_ownership`

Take ownership export nodes

Update the AMS to export the ownership and complete the process.

Note

Send this request following the `take ownership` and `take ownership progress update` requests

Resource path
`/api/hardware/instances/System/action/takeOwnershipExportNodes`

Method
`POST`

Required parameters
None.

Optional parameters
None.

Returns

exportWasStartedSuccessfully	TRUE or FALSE
takeOwnershipStatus	TRUE or FALSE
processStatus	TRUE or FALSE
<error>	Error message

CLI command
`--take_ownership`

Upload TAR

Upload TAR file used for the AMS upgrade.

Resource path
`/api/hardware/instances/System/action/uploadTar`

Method
POST

Required parameters
None.

Optional parameters
None.

CLI command
--upload_upgrade_tar

Example

```
HTTPS://<server>:<port>/api/hardware/instances/System/action/
uploadTar
POST
{xxx.tar}
```

Deploy the SVM OVA

Deploy the Storage VM (SVM) OVA file during the SVM replacement process.

Resource path
/api/hardware/instances/System/action/deployOvaStart

Method
POST

Required parameters
None.

Optional parameters
None.

CLI command
--replace_svm_deploy_ova

Example

```
https://AMS-IP/api/hardware/instances/System/action/deployOvaStart
POST
{}
```

Check SVM OVA deployment status

Check the status of the OVA file deployment during the Storage VM (SVM) replacement process.

Resource path
/api/hardware/instances/System/action/deployOvaStatus

Method
GET

Required parameters
None.

Optional parameters
None.

CLI command
`--replace_svm_deploy_ova_status`

Example

```
HTTPS://<server>:<port>/api/hardware/instances/System/action/
deployOvaStatus
GET
{}
```

Start SVM replacement

Start the Storage VM (SVM) replacement process.

Resource path
`/api/hardware/instances/System/action/startReplaceSvm`

Method
`POST`

Required parameters
None.

Optional parameters
None.

CLI command
`--replace_svm_start`

Example

```
HTTPS://<server>:<port>/api/hardware/instances/System/action/
startReplaceSvm
POST
{}
```

Check SVM replacement status

Check the status of the Storage VM (SVM) replacement process.

Resource path
`/api/hardware/instances/System/action/replaceSvmStatus`

Method
`GET`

Required parameters
None.

Optional parameters
None.

CLI command
`--replace_svm_task_status`

Example

```
HTTPS://<server>:<port>/api/hardware/instances/System/action/
replaceSvmStatus
GET
{}
```

CHAPTER 18

Responses

This section contains the expected responses for REST API operations.

- Output Content Format 368
- Return Codes 368

Output Content Format

The supported content format is JSON:

```
Content-Type: application/json
```

Return Codes

See http://en.wikipedia.org/wiki/List_of_HTTP_status_codes for standard HTTP status codes. In this interface, the following codes are used:

Table 2 Return codes

Status Code	Name	VxFlex OS usage
200	OK	Successful GET. Body contains requested resource.
201	Created	POST has created the specified resource. Body contains minimal representation of that resource - ID and self link. (Future: etag will be in header.)
202	Accepted	Not in use yet. Will be used to return async task resource for long-running jobs.
204	No Content	Successful action POST, no body content. (Future: For modify, new etag will be in header.)
400	Bad Request	Badly formed URI, parameters, headers, or body content. Essentially a request syntax error.
404	Not Found	Resource doesn't exist - either an invalid type name for instances list (GET, POST) or an invalid ID for a specific instance (GET, POST /action)
405	Method Not Allowed	This code will be returned if you try to use a method that is not documented as a supported method.
406	Not Acceptable	Accept headers do not meet requirements (for example, output format, version, language).
409	Conflict	The request could not be completed due to a conflict with the current state of the resource. This code is only allowed in situations where it is expected that the user might be able to resolve the conflict and resubmit the request. The response body SHOULD include enough information for the user to correct the issue.
422	Unprocessable Entity	Semantically invalid content on a POST, which could be a range error, inconsistent properties, or something similar
500	Internal Server Error	This code is returned for internal errors - file an AR. It also is returned in some platform management cases when PAPI cannot return a decent error. Best practice is to avoid filing an AR.

Table 2 Return codes (continued)

Status Code	Name	VxFlex OS usage
501	Not Implemented	Not currently used
503	Service Unavailable	This code should be returned under 2 conditions: • Apache is up but Tomcat is not, or • Apache and Tomcat are up, but Spring is not up Wait, and then try again.

For all 4xx and 5xx return codes, the body may contain an Error instance with more specifics about the failure.

CHAPTER 19

Reference Information

This section contains reference information for using the REST API.

- Command and parameter changes 372
- Deprecated alerts 373

Command and parameter changes

With the introduction of new features in version 2.5, changes have been made to REST API objects and methods. Any change that may require adjustments to code based on previous versions of the REST API are listed here.

Note

When working with clusters earlier than version 2.5, continue using code based on the appropriate version of the REST API.

Command	Change	Notes
POST /api/types/Sdc/instances	Replaced by: /api/instances/System::{id}/action/approveSdc	
/api/instances/Sds::{id}/action/enableSdsRfcache	Replaced by: /api/instances/Sds::{id}/action/enableRfcache	This change was only made for actions executed on SDS objects. The parameter was not changed for Protection Domain objects.
/api/instances/Sds::{id}/action/disableSdsRfcache	Replaced by: /api/instances/Sds::{id}/action/disableRfcache	This change was only made for actions executed on SDS objects. The parameter was not changed for Protection Domain objects.
/api/instances/StoragePool::{id}/action/setRfcacheUsage	This command is deprecated.	The following commands have been added instead: /api/instances/StoragePool::{id}/action/ enableRfcache /api/instances/StoragePool::{id}/action/ disableRfcache
/api/instances/System::{id}/action/setRestrictedSdcModeEnabled	/api/instances/System::{id}/action/setRestrictedSdcMode	The parameter name was changed to `restrictedSdcMode` and has new options.
/api/instances/Device::{id}/action/removeDevice	Removed `force` parameter.	
/api/instances/StoragePool::{id}/action/setRebuildIoPriorityPolicy	`bwLimitPerDeviceInKbp` parameter renamed to `bwLimitPerDeviceInKbps`	
/api/instances/StoragePool::{id}/action/setRebuildIoPriorityPolicy	`bwLimitPerDeviceInKbp` parameter renamed to `bwLimitPerDeviceInKbps`	
/api/instances/ProtectionDomain::{id}/action/setSdsNetworkLimits	`rebalanceLimitInKbp` parameter changed to `rebalanceLimitInKbps`	

Command	Change	Notes
/api/instances/Sds::{id}/action/startDevicesTest	`Last` is not a legal value for the parameter `pattern`	
/api/instances/Device::{id}/action/startDeviceTest	`Last` is not a legal value for the parameter `pattern`	
System, ProtectionDomain, Sds, StoragePool, and Device objects	A statistics property name for these objects has changed from `thinCapacityAllocatedInKm` to `thinCapacityAllocatedInKb`	
/api/phoenix/types/ComputeEnvironment/instances	`networkEnvSpec` is no longer specified for a compute environment	Use case: Compute environment is created before the network environment
/api/phoenix/types/NetworkEnvironment/instances	The following were removed from `nicTeamSpecs`: • `nicRoles` • `activeNicRole` • `vmNetworkEnabled` • `vmNetworkSpec` • `vmNetworkSpec` was replaced by `vmNetworks`,and allows for multiple networks. The following were removed from `NicRole`: • `MGMT2` • `CLIENT` The parameter `mtu` was removed from `VmNetworkSpec`, and was replaced by the `NicTeamSpecs` parameter `vSwitchMtu`.	The same changes apply in every scenario where network environments or profiles are configured/modified, and where `networkSpec` is used. See the documentation of each command for exact usage.
/api/phoenix/instances/ComputeEnvironment::{id}/action/ExpandComputeEnvironment	Only `nicTeamSpecs`: `physicalNicIds` and `vswitchName` are required. No other `nicTeamSpecs` parameters are required.	

Deprecated alerts

The following alerts are no longer being used as of v2.0.1:

- MDM_NOT_CLUSTERED_MANUALLY
- FAILED_CONNECT
- BACKGROUND_SCANNER_COMPARE_ERROR
- CACHECADE_USAGE_IN_STORAGE_POOL_NOT_UNIFORM
- DEVICE_SHOULD_USE_AS_CACHECADE_BUT_IT_IS_NOT
- NODE_INVALID_AIRFLOW
- NODE_SVM_OS_DISK_USED_SPACE_HIGH
- XTREM_CACHE_USAGE_IN_STORAGE_POOL_NOT_UNIFORM
- UNSTABLE_DATA_NETWORK
- STORAGE_POOL_EXTREMELY_UNBALANCED

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