

IBM Cloud Object Storage System™
Version 3.13.6

Device API Developer Guide



This edition applies to IBM Cloud Object Storage System and is valid until replaced by new editions.

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Intended purpose and audience

The Device APIs provide health and statistics data for IBM Cloud Object Storage System™ devices.

Device API reference

Overview

The device API can be used by tool sets for processing state and statistic information. Data is returned as JSON.

To use this feature, it must be enabled via the **editSystemDeviceLevelAPIConfiguration** API or via the Administration tab on the IBM Cloud Object Storage Manager™ user interface. See the *Manager Administration Guide*.

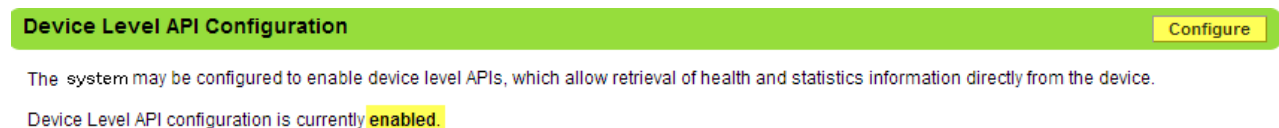


Figure 1. Device Level API enabled in the Manager UI

After the feature is enabled, it might take a few minutes for the API to become available.

State

The state API gives an overall view of the current device state. It displays more generic information for SNMP status, process status, drive health/temperature, fan health, CPU temperature, voltage levels, and so on.

Request

HTTP method

```
GET /state HTTP/1.1
Host:{device.ip}:8192
```

Curl method

```
curl -k "http://{device.ip}:8192/state"
```

Parameters

None

Response

JSON formatted response

```
{
  "filesystem":{
    "/":{
      "used":"OK"
    },
    "/lib/live/mount/medium":{
      "used":"OK"
    }
  },
  "cli":{
    "global":{
      "status":"OK"
    }
  },
  "snmp":{
    "global":{
```

```

        "status":"OK"
    },
    "consistency":{
        "global":{
            "status":"OK"
        }
    },
    "ldapConnectivity":"idle",
    "process":{
        "cron":{
            "status":"OK"
        },
        "dbus":{
            "status":"OK"
        },
        "dsnet-core":{
            "status":"OK"
        },
        "dsnet-manager":{
            "status":"OK"
        },
        "dsnet-md":{
            "status":"OK"
        },
        "mon":{
            "status":"OK"
        },
        "mysql":{
            "status":"OK"
        },
        "ntp":{
            "status":"OK"
        },
        "rsyslog":{
            "status":"OK"
        },
        "snmpd":{
            "status":"OK"
        },
        "d1m":{
            "status":"OK"
        },
        "ssh":{
            "status":"OK"
        }
    },
    "ntpSync":{
        "global":{
            "status":"OK"
        }
    },
    "internalErrorState":{
        "global":{
            "status":"OK"
        }
    },
    "cpu":{
        "1":{
            "temperature":"OK"
        }
    },
    "volt":{
        "CPU Vcore":{
            "voltage":"OK"
        },
        "+3.3VCC":{

```

```

        "voltage": "OK"
    },
    "+12 V": {
        "voltage": "OK"
    },
    "CPU DIMM": {
        "voltage": "OK"
    },
    "+5 V": {
        "voltage": "OK"
    },
    "-12 V": {
        "voltage": "OK"
    },
    "VBAT": {
        "voltage": "OK"
    },
    "+3.3VSB": {
        "voltage": "OK"
    },
    "AVCC": {
        "voltage": "OK"
    }
},
"notificationService": {
    "c1260273-769d-4d9f-a8c1-c7e6b650fdd8": {
        "initializationStatus": "OK",
        "status": "ERR"
    }
},
"fan": {
    "1": {
        "speed": "OK"
    },
    "2": {
        "speed": "OK"
    },
    "3": {
        "speed": "OK"
    }
},
"psu": {
    "Power Supply": {
        "status": "OK"
    }
},
"drive": {
    "6393b229-d0c4-42a4-9ec5-a813feb810f8:main:front:0": {
        "temperature": "OK"
    },
    "6393b229-d0c4-42a4-9ec5-a813feb810f8:main:front:1": {
        "temperature": "OK"
    }
},
"diskMissing": false,
"raid": {
    "6393b229-d0c4-42a4-9ec5-a813feb810f8": {
        "drives": {
            "6393b229-d0c4-42a4-9ec5-a813feb810f8:main:front:0": {
                "raidStatus": "ONLINE"
            },
            "6393b229-d0c4-42a4-9ec5-a813feb810f8:main:front:1": {
                "raidStatus": "ONLINE"
            }
        }
    }
},

```

```

    }
    "arrayHealth":"OPTIMAL"
  }
}

```

Parameters

Table 1. Response parameters for Device API state method

Parameter	Type	Description
+ filesystem	object	
--+ Path	object	
----- used	string	
+ cli	object	Internal platform appliance script.
--+ global	object	Only instance of CLI for the whole device.
----- status	string	Script is operating properly (OK) or not (ERR.)
+ snmp	object	
--+ global	object	
----- status	string	OK or ERR
+ consistency	object	Upgrade status check.
--+ global	object	Only instance of consistency for the whole device.
----- status	string	Upgrade post-check succeeded (OK) or failed (ERR). Post-check determines whether a difference is found after upgrade (disk that is failed during upgrade, data missing).
- ldapConnectivity	object	
+ process	object	
--+ cron	object	
----- status	string	OK or ERR
--+ dbus	object	
----- status	string	OK or ERR
--+ dsnet-core	object	
----- status	string	OK or ERR
--+ dsnet-md	object	
----- status	string	OK or ERR
--+ mon	object	
----- status	string	OK or ERR
--+ ntp	object	
----- status	string	OK or ERR
--+ ryslog	object	
----- status	string	OK or ERR
--+ ssh	object	
----- status	string	OK or ERR
--+ dlm	object	
----- status	string	OK or ERR
+ ntpSync	object	
--+ global	object	
----- status	string	OK or ERR
+ internalErrorState	object	
--+ global	object	
----- status	string	OK or ERR
+ fan	object	

Table 1. Response parameters for Device API state method (continued)

Parameter	Type	Description
--+ {x}	object	{x}=[1..n]. Object repeats for each fan number.
----- speed	string	OK
+ psu	object	
--+ Power supply {x}	object	{x}=[1..n]. Object repeats for each power supply number.
----- status	string	OK or ERR
+ cpu	object	
--+ {x}	object	{x}=[1..n]. Object repeats for each CPU number.
----- temperature	string	OK or ERR
+ volt		
--+ CPU1 Vcore	object	CPUs installed on device.
----- voltage	string	OK
--+ CPU2 Vcore	object	
----- voltage	string	OK
--+ VDIMM AB	object	
----- voltage	string	OK
--+ VDIMM CD	object	
----- voltage	string	OK
--+ VDIMM EF	object	
----- voltage	string	OK
--+ VDIMM GH	object	
----- voltage	string	OK
--+ VIT	object	
----- voltage	string	OK
--+ VBAT	object	
----- voltage	string	OK
--+ 1.5V	object	
----- voltage	string	OK
--+ +3.3VSB	object	
----- voltage	string	OK
--+ 3.3V	object	
----- voltage	string	OK
--+ 5V	object	
----- voltage	string	OK
--+ 12V	object	
----- voltage	string	OK
+ accesserRequest		
--+ GET	object	
----- 500	string	okay
--+ PATCH	object	
----- 500	string	okay
----- 503	string	okay
--+ PUT	object	
----- 500	string	okay
----- 503	string	okay
--+ DELETE	object	

Table 1. Response parameters for Device API state method (continued)

Parameter	Type	Description
----- 503	string	okay
----- 500	string	okay
--+ HEAD	object	
----- 500	string	okay
+ notificationService		
--+ {uuid}		
----- initializationStatus		OK or ERR
----- status		OK or ERR
- externalAgent		
		The following may be non-Accesser parameters
+ {cpuNumber}	object	Integer key identifying an individual CPU.
--- temperature	string	CPU temperature is within acceptable parameters (OK) or not (err).
+ drive	object	Drives installed on device.
--+ {uuid+bay}	object	The unique identifier for an individual drive. The bay identifier uses a triplet of chassisId , enclosureId and slotId concatenated together with a colon as a delimiter (for example, main:front:0).
----- health	string	Drive health is within acceptable parameters (OK) or not (err).
----- temperature	string	Drive temperature is within acceptable parameters (OK) or not (err).
----- diskMissing	boolean	For Manager device RAID configuration only; indicates missing half of disk pair.
+ fan	object	Fans that are installed on device.
--+ {fanNumber}	object	Integer key identifying an individual fan.
----- speed	string	Fan speed is within acceptable parameters (OK) or not (err).
+ filesystem	object	List of file systems that are monitored for space that is used.
--- {mountpoint}	string	Path of given mount point.
--- used	long	Amount of storage capacity that is used at the mount point.
+ internalErrorState	object	If the core software encounters a fatal problem, a DONT-START-DAEMON file is created and the software refuses to start until this file is removed.
--- global	object	Only instance of Internal error state for the whole device.
--- status	string	Error state is correct (OK) or incorrect (err).
- ldapConnectivity	string	Sync is correct (OK) or incorrect (err).
+ ntpSync	object	Network Time Protocol synchronization.
--- global	object	Only instance of NTP sync for the whole device.
--- status	string	Sync is correct (OK) or incorrect (err).
+ process	object	Active processes and their statuses.
--+ certtd	object	Secure Shell Certificate Validator.
----- status	string	Process is working normally (OK) or not (err).
--+ cron	object	Daemon to execute scheduled commands.
----- status	string	Process is working normally (OK) or not (err).
--+ dbus	object	Message bus daemon.
----- status	string	Process is working normally (OK) or not (err).
--+ dsnet-core	object	system core.
----- status	string	Process is working normally (OK) or not (err).
--+ dsnet-md	object	System Manager daemon.
----- status	string	Process is working normally (OK) or not (err).
--+ mon	object	Monitoring.

Table 1. Response parameters for Device API state method (continued)

Parameter	Type	Description
----- status	string	Process is working normally (OK) or not (err).
--+ ntp	object	Network Time Protocol.
----- status	string	Process is working normally (OK) or not (err).
--+ rsyslog	object	System logging process.
----- status	string	Process is working normally (OK) or not (err).
--+ snmp-publisher	object	SNMP publisher.
----- status	string	Process is working normally (OK) or not (err).
--+ snmpd	object	SNMP daemon to respond to request packets.
----- status	string	Process is working normally (OK) or not (err).
--+ ssh	object	Secure Shell process.
----- status	string	Process is working normally (OK) or not (err).
--+ snmp	object	SNMP process overall.
----- global	object	Only instance of SNMP for the whole device.
----- status	string	SNMP is operating properly (OK) or not (err).
- volt	string	Key (VCORE2 , VCORE1 , STBY 5V , PS 3.4V , PS 1.1V , PS 12V , PS 5V) identifying distinct voltage levels.
- {voltageLevel}V	string	Voltage is within acceptable parameters (OK) or not (err).
- voltage	long	Precise Voltage at given voltage level.
+ raid	object	Lists each array identified by its logical UUID as the identifier and shows the state of the individual drives
--+ {uuid}	object	UUID of RAID drives.
-----+ drives	object	List of drives in the same RAID.
-----+ {uuid+bay}	object	Unique identifier for a disk in the RAID. The bay identifier uses a triplet of chassisId , enclosureId and slotId concatenated together with a colon as a delimiter (for example, main:front:0).
----- raidStatus	string	Status of the disk within the RAID.
----- arrayHealth	string	The health of the RAID array (OPTIMAL, DEGRADED or UNKNOWN).

Statistic

The statistic API provides real-time snapshots of all statistics that are currently collected for a particular device. These include device model information, disk health, I/O statistics, vault rebuilding rates, and hardware-specific statistics (CPU temperature, fan speed, voltage levels).

Request

HTTP method

```
GET /statistic HTTP/1.1
Host:{device.ip}:8192
```

Curl method

```
curl -k "http://{device.ip}:8192/statistic"
```

Parameters

None

Response

JSON formatted response

```
{
  "accesserRtt":{
  },
  "applianceLayout":{
    "chassisRows":1,
    "chassisColumns":1
  },
  "applianceType":"physical",
  "bios":{
    "date":"10/24/2012",
    "vendor":"American Megatrends Inc.",
    "version":"1.0b-1"
  },
  "bmc":{
    "firmware":"1.89",
    "status":"OK"
  },
  "capabilities":{
    "bmcMonitoring":true,
    "diskLifecycleManagement":true,
    "enclosureVisualization":false,
    "fanMonitoring":true,
    "nicPhyMonitoring":true,
    "nicStatMonitoring":true,
    "physicalDriveLedNotification":false,
    "physicalDriveLocation":true,
    "psuMonitoring":true,
    "slotPhyControl":false,
    "voltageMonitoring":true
  },
  "chassis":[
    {
      "id":"main",
      "serial":"292814014001",
      "rackHeight":1,
      "rackWidth":1,
      "shared":false,
      "model":"Slicestor 2104",
      "enclosures":[
        {
          "id":"front_top",
          "description":"",
          "slots":[
            {
              "id":"0",
              "description":null,
              "phy":null,
              "slotLayout":null
            }
          ],
          "accessibleFromThisAppliance":true,
          "enclosureLayout":null
        },
        {
          "id":"front_bottom",
          "description":"",
          "slots":[
            {
              "id":"1",
              "description":null,
              "phy":null,
              "slotLayout":{
                "slotRow":0,
```

```

        "slotColumn":0
    }
},
{
    "id":"2",
    "description":null,
    "phy":null,
    "slotLayout":{
        "slotRow":0,
        "slotColumn":1
    }
},
{
    "id":"3",
    "description":null,
    "phy":null,
    "slotLayout":{
        "slotRow":0,
        "slotColumn":2
    }
},
{
    "id":"4",
    "description":null,
    "phy":null,
    "slotLayout":{
        "slotRow":0,
        "slotColumn":3
    }
}
],
"accessibleFromThisAppliance":true,
"enclosureLayout":{
    "viewDirection":"front",
    "slotAspectRatio":"landscape",
    "enclosureRow":0,
    "enclosureColumn":0,
    "slotRows":1,
    "slotColumns":4
}
}
],
"fans":[
    {
        "name":"FAN1",
        "speed":11475,
        "status":"OK",
        "unit":"rpm"
    },
    {
        "name":"FAN2",
        "speed":11700,
        "status":"OK",
        "unit":"rpm"
    },
    {
        "name":"FAN3",
        "speed":11100,
        "status":"OK",
        "unit":"rpm"
    },
    {
        "name":"FAN4",
        "speed":12150,
        "status":"OK",
        "unit":"rpm"
    }
],

```

```

    {
      "name": "FAN5",
      "speed": 12375,
      "status": "OK",
      "unit": "rpm"
    }
  ],
  "powerSupplies": [
    {
      "name": "Power Supply 1",
      "status": "OK"
    },
    {
      "name": "Power Supply 2",
      "status": "NOT_PRESENT"
    }
  ],
  "voltageSensors": [
    {
      "name": "VTT",
      "voltage": 1.04,
      "status": "OK"
    },
    {
      "name": "Vcore",
      "voltage": 0.752,
      "status": "OK"
    },
    {
      "name": "VDIMM AB",
      "voltage": 1.488,
      "status": "OK"
    },
    {
      "name": "+1.1 V",
      "voltage": 1.104,
      "status": "OK"
    },
    {
      "name": "+1.5 V",
      "voltage": 1.488,
      "status": "OK"
    },
    {
      "name": "3.3V",
      "voltage": 3.312,
      "status": "OK"
    },
    {
      "name": "+3.3VSB",
      "voltage": 3.36,
      "status": "OK"
    },
    {
      "name": "5V",
      "voltage": 5.056,
      "status": "OK"
    },
    {
      "name": "+5VSB",
      "voltage": 5.056,
      "status": "OK"
    },
    {
      "name": "12V",
      "voltage": 11.978,
      "status": "OK"
    }
  ]
}

```

```

        },
        {
            "name": "VBAT",
            "voltage": 3.216,
            "status": "OK"
        }
    ],
    "chassisLayout": {
        "chassisRow": 0,
        "chassisColumn": 0,
        "enclosureRows": 1,
        "enclosureColumns": 1
    }
},
"checkServiceSuccess": true,
"compressibleOverheadSize": "0",
"connectivityState": {
},
"core": {
    "memory": {
        "direct": {
            "percentUsed": 0.003198276710835227,
            "totalBytes": "16258568192",
            "usedBytes": "519994"
        },
        "memoryManager": {
            "percentUsed": 0,
            "totalBytes": "4046454784",
            "usedBytes": "0"
        },
        "offHeap": {
            "percentUsed": 46.89032253142326,
            "totalBytes": "1625292800",
            "usedBytes": "762105036"
        },
        "onHeap": {
            "percentUsed": 19.999999912522995,
            "totalBytes": "1143157555",
            "usedBytes": "228631510"
        },
        "system": {
            "percentUsed": 14.879866538250209,
            "totalBytes": "16258568192",
            "usedBytes": "2419253248"
        }
    },
    "cpu": {
        "0": {
            "cpuUser": 98747,
            "cpuNice": 0,
            "cpuSystem": 30654,
            "cpuIdle": 22387888,
            "cpuWait": 69465,
            "cpuIrq": 27,
            "cpuSoftIrq": 1440,
            "cpuSteal": 0
        },
        "1": {
            "cpuUser": 100155,
            "cpuNice": 0,
            "cpuSystem": 29676,
            "cpuIdle": 22429909,
            "cpuWait": 54643,
            "cpuIrq": 0,

```

```

        "cpuSoftIrq":67,
        "cpuSteal":0
    },
    "2":{
        "cpuUser":116483,
        "cpuNice":0,
        "cpuSystem":33682,
        "cpuIdle":22422578,
        "cpuWait":43836,
        "cpuIrq":0,
        "cpuSoftIrq":68,
        "cpuSteal":0
    },
    "3":{
        "cpuUser":109065,
        "cpuNice":0,
        "cpuSystem":30709,
        "cpuIdle":22442403,
        "cpuWait":34706,
        "cpuIrq":0,
        "cpuSoftIrq":66,
        "cpuSteal":0
    },
    "4":{
        "cpuUser":104329,
        "cpuNice":0,
        "cpuSystem":29955,
        "cpuIdle":22472023,
        "cpuWait":11003,
        "cpuIrq":0,
        "cpuSoftIrq":62,
        "cpuSteal":0
    },
    "5":{
        "cpuUser":99437,
        "cpuNice":0,
        "cpuSystem":27708,
        "cpuIdle":22483151,
        "cpuWait":3972,
        "cpuIrq":0,
        "cpuSoftIrq":66,
        "cpuSteal":0
    },
    "6":{
        "cpuUser":40732,
        "cpuNice":0,
        "cpuSystem":21029,
        "cpuIdle":22585062,
        "cpuWait":1557,
        "cpuIrq":0,
        "cpuSoftIrq":10,
        "cpuSteal":0
    },
    "7":{
        "cpuUser":42002,
        "cpuNice":0,
        "cpuSystem":21715,
        "cpuIdle":22583272,
        "cpuWait":1255,
        "cpuIrq":0,
        "cpuSoftIrq":17,
        "cpuSteal":0
    },
    "8":{
        "cpuUser":107008,
        "cpuNice":0,
        "cpuSystem":36268,

```

```

        "cpuIdle":22503797,
        "cpuWait":1015,
        "cpuIrq":0,
        "cpuSoftIrq":22,
        "cpuSteal":0
    },
    "9":{
        "cpuUser":80558,
        "cpuNice":0,
        "cpuSystem":30066,
        "cpuIdle":22536346,
        "cpuWait":1510,
        "cpuIrq":0,
        "cpuSoftIrq":21,
        "cpuSteal":0
    },
    "10":{
        "cpuUser":58549,
        "cpuNice":0,
        "cpuSystem":25667,
        "cpuIdle":22562886,
        "cpuWait":1119,
        "cpuIrq":0,
        "cpuSoftIrq":12,
        "cpuSteal":0
    },
    "11":{
        "cpuUser":48417,
        "cpuNice":0,
        "cpuSystem":22258,
        "cpuIdle":22575830,
        "cpuWait":1687,
        "cpuIrq":0,
        "cpuSoftIrq":16,
        "cpuSteal":0
    }
},
"cpuIdle":269985150,
"cpuIrq":27,
"cpuNice":0,
"cpuSoftIrq":1871,
"cpuSteal":0,
"cpuSystem":339393,
"cpuTemp":{
    "CPU 0":{
        "name":"CPU 0",
        "temperature":36,
        "status":"OK",
        "healthy":true,
        "index":1
    }
},
"cpuUser":1005487,
"cpuWait":225772,
"currentConnections":0,
"date":1522653246769,
"deviceConsistencyError":null,
"deviceReimageStatus":false,
"deviceType":"slicestor",
"diskHealth":{
    "5b179777-257b-4c91-86a3-f1f8444ff3c0":{
        "uuid":"5b179777-257b-4c91-86a3-f1f8444ff3c0",
        "deviceName":"sdb",
        "model":"ST3000NC002-1DY166",
        "serial":"Z1F4CHB1",
        "firmware":"CNC2",
        "temperature":26,

```

```

    "temperatureMax":60,
    "bay":"main:front_bottom:1",
    "size":3000592982016,
    "usableSize":2976815210496,
    "status":"ONLINE",
    "suspendReason":-1,
    "failedReason":-1,
    "noStorage":0,
    "chassisId":"main",
    "enclosureId":"front_bottom",
    "slotId":"1",
    "driveUsage":"data"
  },
  "7c784f3a-d2c3-4c1c-ad2b-42aab7ce79da":{
    "uuid":"7c784f3a-d2c3-4c1c-ad2b-42aab7ce79da",
    "deviceName":"sde",
    "model":"ST3000NC002-1DY166",
    "serial":"Z1F4CGML",
    "firmware":"CNC2",
    "temperature":26,
    "temperatureMax":60,
    "bay":"main:front_bottom:2",
    "size":3000592982016,
    "usableSize":2976815210496,
    "status":"ONLINE",
    "suspendReason":-1,
    "failedReason":-1,
    "noStorage":0,
    "chassisId":"main",
    "enclosureId":"front_bottom",
    "slotId":"2",
    "driveUsage":"data"
  },
  "805231ea-f6de-4b89-afe2-f65939ae3012":{
    "uuid":"805231ea-f6de-4b89-afe2-f65939ae3012",
    "deviceName":"sdd",
    "model":"ST3750640NS",
    "serial":"5QD1E3AA",
    "firmware":"3.AEK",
    "temperature":-1,
    "temperatureMax":60,
    "bay":"main:front_bottom:3",
    "size":750156374016,
    "usableSize":744109547520,
    "status":"DIAGNOSTIC",
    "suspendReason":4,
    "failedReason":-1,
    "noStorage":0,
    "chassisId":"main",
    "enclosureId":"front_bottom",
    "slotId":"3",
    "driveUsage":"data"
  },
  "e1493e23-a981-44f8-9b8d-7eac81506f9a":{
    "uuid":"e1493e23-a981-44f8-9b8d-7eac81506f9a",
    "deviceName":"sdc",
    "model":"Hitachi_HDS5C3030ALA630",
    "serial":"MJ1321YNG0NHZA",
    "firmware":"MEA0A580",
    "temperature":32,
    "temperatureMax":60,
    "bay":"main:front_bottom:4",
    "size":3000592982016,
    "usableSize":2976815210496,
    "status":"ONLINE",
    "suspendReason":-1,
    "failedReason":-1,

```

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        "noStorage":0,
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        "enclosureId":"front_bottom",
        "slotId":"4",
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        "uuid":"7be2474e-6aa8-4819-87ef-4c1297367ba6",
        "deviceName":"sda",
        "model":"ST500LM000-1EJ162",
        "serial":"W371SX95",
        "firmware":"SM15",
        "temperature":25,
        "temperatureMax":60,
        "bay":"main:front_top:0",
        "size":500107862016,
        "usableSize":0,
        "status":"ONLINE",
        "suspendReason":-1,
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        "noStorage":1,
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        "slotId":"0",
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},
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        "read_merge":6,
        "read_sect":397635,
        "read":203589120,
        "read_use":28099,
        "write_io":306508,
        "write_merge":349533,
        "write_sect":20820336,
        "write":10660012032,
        "write_use":850963,
        "running":0,
        "use":285935,
        "aveq":879000
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    "5b179777-257b-4c91-86a3-f1f8444ff3c0":{
        "read_io":5438,
        "read_merge":0,
        "read_sect":309804,
        "read":158619648,
        "read_use":3981,
        "write_io":47441,
        "write_merge":5715730,
        "write_sect":46106160,
        "write":23606353920,
        "write_use":5871566,
        "running":0,
        "use":162168,
        "aveq":5875438
    },
    "e1493e23-a981-44f8-9b8d-7eac81506f9a":{
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        "read_merge":1,
        "read_sect":255236,
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```

```

        "write":23606353920,
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        "read_use":4063,
        "write_io":47450,
        "write_merge":5715722,
        "write_sect":46106168,
        "write":23606358016,
        "write_use":5817195,
        "running":0,
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        "aveq":5821143
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        "read_use":14931,
        "write_io":11985,
        "write_merge":1454132,
        "write_sect":11728696,
        "write":6005092352,
        "write_use":13150576,
        "running":0,
        "use":298474,
        "aveq":13165486
    }
},
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    "SV40234988":{
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        "model":"SAS9207-8i",
        "serial":"SV40234988",
        "index":1
    }
},
"disksWithMultiplePillars":[
],
"driveThresholds":{
    "CACHE":{
        "error":0,
        "total":0,
        "warning":0
    },
    "DATA":{
        "error":2,
        "total":4,
        "warning":1
    },
    "DATABASE":{
        "error":0,
        "total":0,
        "warning":0
    },
    "OS":{
        "error":1,
        "total":1,

```

```

        "warning":1
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    "OS_SPARE":{
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        "total":0,
        "warning":0
    }
},
"evacuationStatus":null,
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    "/":{
        "errorAt":546287185,
        "clearAt":598314536,
        "free":8106430464
    },
    "/lib/live/mount/medium":{
        "errorAt":546287185,
        "clearAt":598314536,
        "free":466290548736
    }
},
"fipsState":0,
"general":{
    "general":{
        "deviceType":"Slicestor",
        "version":"3.13.0.f917-damascus-241",
        "majorVersion":"3",
        "minorVersion":"13",
        "modelName":"Slicestor 2104",
        "serial":"292814014001",
        "biosDate":"10/24/2012",
        "biosVersion":"1.0b-1",
        "bmcFirmware":"1.89"
    }
},
"incompressibleOverheadSize":"0",
"internalErrorStatePoisonData":null,
"load":4,
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    "average5":8,
    "processesRunning":1,
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},
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    "Active(anon)":3022295040,
    "Active(file)":543531008,
    "AnonHugePages":2759852032,
    "AnonPages":3003060224,
    "Bounce":0,
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    "Cached":562991104,
    "CommitLimit":8129282048,
    "Committed_AS":6365859840,
    "DirectMap1G":17179869184,
    "DirectMap2M":2090860544,
    "DirectMap4k":22994944,
    "Dirty":106496,
    "HugePages_Free":0,
    "HugePages_Rsvd":0,
    "HugePages_Surp":0,
    "HugePages_Total":0,
    "Hugepagesize":2097152,
    "Inactive":285986816,

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    "Inactive(anon)":4616192,
    "Inactive(file)":281370624,
    "KernelStack":8617984,
    "Mapped":49463296,
    "MemAvailable":12832169984,
    "MemFree":12161093632,
    "MemTotal":16258568192,
    "Mlocked":0,
    "NFS_Unstable":0,
    "PageTables":10465280,
    "SReclaimable":98721792,
    "SUnreclaim":37384192,
    "Shmem":23851008,
    "Slab":136105984,
    "SwapCached":0,
    "SwapFree":0,
    "SwapTotal":0,
    "Unevictable":0,
    "VmallocChunk":35183562584064,
    "VmallocTotal":35184372087808,
    "VmallocUsed":301580288,
    "Writeback":0,
    "WritebackTmp":0
  },
  "modelName":"Slicestor 2104",
  "netstat":{
    "IcmpInAddrMaskReps":0,
    "IcmpInAddrMasks":0,
    "IcmpInCsumErrors":0,
    "IcmpInDestUnreachs":2,
    "IcmpInEchoReps":3782,
    "IcmpInEchos":3,
    "IcmpInErrors":0,
    "IcmpInMsgs":3787,
    "IcmpInParmProbs":0,
    "IcmpInRedirects":0,
    "IcmpInSrcQuenchs":0,
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    "IcmpInTimestampReps":0,
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    "IcmpMsgOutType3":2,
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    "IcmpOutEchos":3782,
    "IcmpOutErrors":0,
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    "IcmpOutParmProbs":0,
    "IcmpOutRedirects":0,
    "IcmpOutSrcQuenchs":0,
    "IcmpOutTimeExcds":0,
    "IcmpOutTimestampReps":0,
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    "IpExtInBcastOctets":143072099,
    "IpExtInBcastPkts":291059,
    "IpExtInCEPkts":0,
    "IpExtInCsumErrors":0,
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    "IpExtInECT1Pkts":0,
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 "TcpExtTCPSpuriousRTOs":0,

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    "TcpInErrs":0,
    "TcpInSegs":577867,
    "TcpMaxConn":-1,
    "TcpOutRsts":38,
    "TcpOutSegs":585346,
    "TcpPassiveOpens":23830,
    "TcpRetransSegs":26,
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    "TcpRtoMin":200,
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    "UdpInErrors":0,
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    "UdpLiteInCsumErrors":0,
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    "UdpLiteNoPorts":0,
    "UdpLiteOutDatagrams":0,
    "UdpLiteRcvbufErrors":0,
    "UdpLiteSndbufErrors":0,
    "UdpNoPorts":2,
    "UdpOutDatagrams":64500,
    "UdpRcvbufErrors":0,
    "UdpSndbufErrors":0
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      "receive_fifo":0,
      "receive_frame":0,
      "receive_compressed":0,
      "receive_multicast":0,
      "out":267183093,
      "transmit_packets":628013,
      "transmit_errors":0,
      "transmit_drop":0,
      "transmit_fifo":0,
      "transmit_colls":0,
      "transmit_carrier":0,
      "transmit_compressed":0
    },
    "eth1":{
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      "receive_packets":0,
      "receive_errors":0,
      "receive_drop":0,
      "receive_fifo":0,
      "receive_frame":0,
      "receive_compressed":0,
      "receive_multicast":0,
      "out":0,

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        "transmit_packets":0,
        "transmit_errors":0,
        "transmit_drop":0,
        "transmit_fifo":0,
        "transmit_colls":0,
        "transmit_carrier":0,
        "transmit_compressed":0
    },
    "eth0":{
        "in":185209800,
        "receive_packets":825635,
        "receive_errors":0,
        "receive_drop":86,
        "receive_fifo":0,
        "receive_frame":0,
        "receive_compressed":0,
        "receive_multicast":723,
        "out":12016489,
        "transmit_packets":76140,
        "transmit_errors":0,
        "transmit_drop":0,
        "transmit_fifo":0,
        "transmit_colls":0,
        "transmit_carrier":0,
        "transmit_compressed":0
    }
},
"networkConfiguration":{
    "eth0":{
        "interfaceName":"eth0",
        "address":"00:25:90:d9:5e:74",
        "type":"ethernet",
        "mode":"",
        "xmitHashPolicy":""
    },
    "eth1":{
        "interfaceName":"eth1",
        "address":"00:25:90:d9:5e:75",
        "type":"ethernet",
        "mode":"",
        "xmitHashPolicy":""
    },
    "lo":{
        "interfaceName":"lo",
        "address":"00:00:00:00:00:00",
        "type":"loopback",
        "mode":"",
        "xmitHashPolicy":""
    }
},
"network_interfaces":{
    "eth0":{
        "firmware":"1.52.0",
        "model":"Intel Corporation I350 Gigabit Network Connection",
        "name":"eth0",
        "index":1
    },
    "eth1":{
        "firmware":"1.52.0",
        "model":"Intel Corporation I350 Gigabit Network Connection",
        "name":"eth1",
        "index":2
    }
},
"notificationService": {
    "c1260273-769d-4d9f-a8c1-c7e6b650fdd8": {
        "validKeystore": "true",

```

```

        "producerAllocated": "true",
        "sendFailures": "1",
        "averageSendLatency": 22.4,
        "sends": "5",
        "totalLatencyExceptions": "0",
        "avrageTotalNotificationSendTime": 1205.25
    },
    },
    "ntpSyncState": "syncingRemote",
    "ping": {
        "manager.dsnet": {
            "time": 358445
        }
    },
    },
    "pollableCLI": true,
    "pollableCoreMetrics": true,
    "process": {
        "1": {
            "index": "1",
            "name": "cron",
            "external": false,
            "status": "running"
        },
        "2": {
            "index": "2",
            "name": "dbus",
            "external": false,
            "status": "running"
        },
        "3": {
            "index": "3",
            "name": "dsnet-core",
            "external": false,
            "status": "running"
        },
        "4": {
            "index": "4",
            "name": "dsnet-md",
            "external": false,
            "status": "running"
        },
        "5": {
            "index": "5",
            "name": "mon",
            "external": false,
            "status": "running"
        },
        "6": {
            "index": "6",
            "name": "ntp",
            "external": false,
            "status": "running"
        },
        "7": {
            "index": "7",
            "name": "rsyslog",
            "external": false,
            "status": "running"
        },
        "8": {
            "index": "8",
            "name": "snmpd",
            "external": false,
            "status": "running"
        },
        "9": {
            "index": "9",

```

```

        "name":"dlm",
        "external":false,
        "status":"running"
    },
    "10":{
        "index":"10",
        "name":"ssh",
        "external":false,
        "status":"running"
    }
},
"raid":{

},
"rebuildBytesReceived":"0",
"rebuildBytesSent":"0",
"rebuildDeletesReceived":"0",
"rebuildDeletesSent":"0",
"rebuildScanningResets":"0",
"rebuildStripe":{

},
"rebuildWritesReceived":"0",
"rebuildWritesSent":"0",
"scanningSourcesScanned":"0",
"serial":"292814014001",
"service":{
    "rebuild-monitor":{
        "state":"SHUTDOWN",
        "timeInState":"226396697"
    }
},
"slicesStorageQuantity":"0",
"slicestorReallocation":{

},
"slicestorResponseCount":"0",
"slicestorResponseLatencyTime":"0",
"slicestorStorage":{

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"slicestorVault":{

},
"uptime":22650590,
"vaultMigration":{

},
"vaultMigrationObjectsScanned":"0",
"vaultMigrationRates":{

},
"version":"3.13.0.f917-damascus-241"
}

```

Parameters

In the table, below, the Devices are: A (Accesser), M (Manager), and S (Slicestor).

Table 2. Response parameters for Device API statistic method

Parameter	Device(s)	Type	Description / Values
+ accessorRequest	A	object	
--+ DELETE	A	object	
----- OBJECT	A		
----- VAULT	A		

Table 2. Response parameters for Device API statistic method (continued)

Parameter	Device(s)	Type	Description / Values
--+ GET	A	object	
----- OBJECT	A		
----- VAULT	A		
----- VAULT_UPLOADS	A		
----- VAULT_VERSION	A		
--+ HEAD	A	object	
----- OBJECT	A		
+ accessorRtt	A	object	Accesser device's message ack time to different devices (appears only on Accesser devices).
--+ [sliceStorIp]	A	string	IP address and port of a SliceStor device.
----- rtt	A	long	Message ack time (ms) to the SliceStor device from this one.
+ accessorVault	A	object	Object containing accessorVault statistic groups. Accesser device's information about vaults that are deployed to it.
--+ {vaultUuid}	A	object	Vault Universal Unique Identifier.
----- internalOut	A	long	Total number of bytes that have come from this Accesser device to SliceStor devices.
----- internalIn	A	long	Total number of bytes of data sent from SliceStor devices to this Accesser.
----- externalIn	A	long	Total number of bytes sent from a client to the Accesser device.
----- externalOut	A	long	Total number of bytes sent from the Accesser device to a client.
- applianceName	A, M, S		Appliance name
+ applianceLayout	A,M, S	object	
--- chassisRows	A,M, S	integer	Row coordinate of chassis
--- chassisColumns	A,M, S	integer	Column coordinate of chassis
- applianceType	A,M, S	string	physical, virtual, container, unknown
+ bios	A, M, S	object	Last known BIOS firmware information on this device.
--- vendor	M	string	Example: American Megatrends Inc.
--- date	A	date	The date as
--- version	A, M	string	BIOS version.
--- status	M	string	OK, DISABLED, CRITICAL, UNKNOWN, or NOT_PRESENT
+ bmc	A, M, S	object	State of the baseboard management controller.
--- firmwareVersion	M		Example: 1.05
--- firmware	A	string	Current disk firmware.
--- status	M	string	OK, DISABLED, CRITICAL, UNKNOWN, or NOT_PRESENT
+ capabilities	A, M, S	object	
--- bmcMonitoring	A, M, S	boolean	Flag indicating if bmc component monitoring is enabled
--- diskLifecycleManagement	A, M, S	boolean	Flag indicating if DLM component monitoring is enabled
--- enclosureVisualization	A, M, S	boolean	Flag indicating if enclosure visualization component monitoring is enabled
--- fanMonitoring	A, M, S	boolean	Flag indicating if fan component monitoring is enabled
--- nicPhyMonitoring	A, M, S	boolean	Flag indicating if nic phy component monitoring is enabled
--- nicStatMonitoring	A, M, S	boolean	Flag indicating if nic stat component monitoring is enabled
--- physicalDriveNotification	A, M, S	boolean	Flag indicating if physical drive notification monitoring is enabled
--- physicalDriveLocation	A, M, S	boolean	Flag indicating if physical drive location monitoring is enabled

Table 2. Response parameters for Device API statistic method (continued)

Parameter	Device(s)	Type	Description / Values
--- psuMonitoring	M	boolean	Flag indicating if psu component monitoring is enabled
--- slotPhyControl	A, M, S	boolean	Flag indicating if slot phy control capability is enabled
--- voltageMonitoring	A, M, S	boolean	Flag indicating if voltage component monitoring is enabled
+ chassis[n]	A, M, S	object	Where n = chassis number (example: chassis[0] , chassis[1] , ...). Encapsulates all capabilities and components available in the hardware including information such as visualization data; fan, power supply, or voltage component statistics; drive configurations; and the metadata of the hardware (model name, serial number, rack height, and rack width).
--- id	A, M, S	string	Unique identifier of the chassis
--- serial	A, M, S	string	Serial of the chassis
--- rackHeight	M	float	Height of the chassis as it fits in the rack
--- rackWidth	M	float	Width of the chassis as it fits in the rack
--- shared	A, M, S	boolean	Flag that notes if the chassis have multiple chassis and enclosures configured that acts as a single device
--- model	A, M, S	string	Model of the chassis
--+ enclosures[n]	A, M, S	object	Encapsulation representing one or many physical compartments configured in the hardware. Where n =enclosure number (example: enclosures[0] , enclosures[1] , ...
----- id	A, M, S	string	Enclosure identifier
----- description	A, M, S	string	Enclosure description
-----+ slots[n]	A, M, S	array	List of drives configured inside the enclosure. Where n =slot number (example: slots[0] , slots[1] , ...)
----- id	A, M, S	string	Slot identifier
----- description	A, M, S	string	Slot description
----- phy	A, M, S	object	Describes the state of the phy. Typically null unless the device model supports the drive bay power control feature.
----- enabled	A, M, S	boolean	Indicates whether enabled or not.
-----+ slotLayout	A, M, S	object	Encapsulation for drive coordinates intended for visualization purpose.
----- slotRow	A, M, S	integer	Row coordinate of the drive. Intended for visualization purpose.
----- slotColumn	A, M, S	integer	Column coordinate of the drive. Intended for visualization purpose.
----- accessibleFromThisAppliance	A, M, S	boolean	Describes whether this grouping of drives is associated with this device (true) or with a different device (false). Typically true.
-----+ enclosureLayout	A, M, S	object	Visualization information
----- viewDirection	A, M, S	string	Direction of orientation for enclosure visualization
----- slotAspectRatio	A, M, S	float	Aspect ratio for drive visualization
----- enclosureRow	A, M, S	integer	Row coordinate of enclosure
----- enclosureColumn	A, M, S	integer	Column coordinate of enclosure
----- slotRows	A, M, S	integer	Number of rows for drives configured in the enclosure
----- slotColumns	A, M, S	integer	Number of columns for drives configured in the enclosure
--+ fans	A, M, S	array	List of fans in the chassis
----- name	A, M, S	string	Name of a fan
----- speed	A, M, S	float	Current fan speed
----- status	A, M, S	string	Status of the fan
----- unit	A, M, S	string	Units for fan speed

Table 2. Response parameters for Device API statistic method (continued)

Parameter	Device(s)	Type	Description / Values
--+ powerSupplies	A, M, S	array	List of power supplies in the chassis
----- name	A, M, S	string	Name of a power supply
----- status	A, M, S	string	Status of the power supply
--+ voltageSensors	A, M, S	array	List of voltage sensors in the chassis
----- name	A, M, S	string	Name of voltage sensor
----- status	A, M, S	string	Status of voltage sensor
----- voltage	A, M, S	float	Voltage reading of the sensor
--+ chassisLayout	A, M, S	object	Description of chassis layout
----- chassisRow	A, M, S	integer	Row coordinate of chassis
----- chassisColumn	A, M, S	integer	Column coordinate of chassis
----- enclosureRows	A, M, S	integer	Number of rows for configured enclosures in the chassis
----- enclosureColumns	A, M, S	integer	Number of columns for configured enclosures in the chassis
- checkServiceSuccess	A, M	boolean	dsnet-core process is responding to dsnet-md .
- compressOverheadSize	M		
+ connectivityState	A	object	
--+ { }	A	object	
----- state	A	string	UNKNOWN , OPTIMAL , RUNNING , or SHUTDOWN
----- status	A	string	OK , DISABLED , CRITICAL , UNKNOWN , or NOT_PRESENT
+ core	A, M	object	Object containing statistics that are reported from Core process.
--+ http	A	object	
----- connectionsCurrent	A		
----- connectionsMax	A		
----- permitsReaders	A		
----- permitsWriters	A		
--+ memory	A, M	object	Object containing memory statistic groups (direct , memoryManager , onHeap , offHeap , and system).
-----+ direct	A, M	object	Object containing statistics for JVM (Java core and 3rd-party libs) memory usage.
----- percentUsed	A, M	double	Percentage of direct memory allocated.
----- totalBytes	A, M	long	Maximum number of bytes of direct memory that can be allocated.
----- usedBytes	A, M	long	Allocated bytes of direct memory.
-----+ memoryManager	A, M	object	Object containing statistics for memory manager memory usage.
----- percentUsed	A, M	double	Percentage of memory manager memory allocated.
----- totalBytes	A, M	long	Maximum number of bytes of memory manager memory that can be allocated.
----- usedBytes	A, M	long	Allocated bytes of memory manager memory.
-----+ offHeap	A, M	object	Object containing statistics for off heap memory usage.
----- percentUsed	A, M	double	Percentage of off heap memory allocated.
----- totalBytes	A, M	long	Maximum number of bytes of off heapmemory that can be allocated.
----- usedBytes	A, M	long	Allocated bytes of off heap memory.
-----+ onHeap	A, M	object	Object containing statistics for on heap memory usage.
----- percentUsed	A, M	double	Percentage of on heap memory allocated.

Table 2. Response parameters for Device API statistic method (continued)

Parameter	Device(s)	Type	Description / Values
----- totalBytes	A, M	long	Maximum number of bytes of on heap memory that can be allocated.
----- usedBytes	A, M	long	Allocated bytes of on heap memory.
-----+ system	A, M	object	Object containing statistics for total system memory usage.
----- percentUsed	A, M	double	Percentage of total system memory allocated.
----- totalBytes	A, M	long	Maximum number of bytes of total system memory that can be allocated.
----- usedBytes	A, M	long	Allocated bytes of total system memory.
+ cpu	A, M	object	
--+ {x}	A, M	object	Where {x}=[0..n] CPU numbers. This object repeats for each CPU.
----- cpuUser	A, M		How many CPU resources are spent on user applications.
----- cpuNice	A, M	long	How many CPU resources are spent on processes with the nice priority.
----- cpuSystem	A, M		How many CPU resources are spent on operating system.
----- cpuIdle	A, M	long	Counter value for how many CPU resources are spent on idle processes.
----- cpuWait	A, M		How many CPU resources are spent on wait processes.
----- cpuIrq	A	integer	CPU Hardware interrupts.
----- cpuSoftIrq	A, M	integer	CPU Software interrupts.
----- cpuSteal	A, M	long	How many CPU resources are spent in a state of involuntary wait . It is the time for which the kernel cannot otherwise account in one of the traditional classifications like user, system, or idle. It is time that went missing, from the perspective of the kernel. It is usually when host environments of virtual machines where each VM gets a portion of the CPU time and the other machines need to wait. It accounts for that wait.
- cpuIdle	A, M		
- cpuIrq	A, M		
- cpuNice	A, M		
- cpuSoftIrq	A, M		
- cpuSteal	A, M		
- cpuSystem	A, M		
+ cpuTemp	A, M	object	
--+ CPU {x}	A, M	object	Where {x}=[0..n] CPU numbers. This object repeats for each CPU.
----- temperature	A, M		
----- healthy	A		
----- name	A, M		
----- index	A, M		
----- status	M	string	OK, DISABLED, CRITICAL, UNKNOWN, or NOT_PRESENT
- cpuUser	A, M		
- cpuWait	A, M		
- currentConnections	M		
- date	A, M	long	UNIX time in number of milliseconds since 01 Jan 1970.
- deviceConsistencyError	A		
- deviceReimageStatus	A, M		
- deviceType	A, M, S	string	Device type: Slicestor, Manager, or Accesser .

Table 2. Response parameters for Device API statistic method (continued)

Parameter	Device(s)	Type	Description / Values
+ diskHealth	A, M, S	object	
--+ { }	A, M	object	
----- uuid	A, M	string	
----- deviceName	A, M	string	
----- model	A, M	string	
----- serial	A, M	string	
----- firmware	A, M	string	
----- temperature	A, M		
----- temperatureMax	A, M		
----- bay	A, M	string	Example: main:left:1
----- size	A, M	long	
----- usableSize	A, M	long	
----- status	A, M	string	ONLINE
----- suspendReason	A, M		
----- failedReason	A, M		
----- noStorage	A, M		
----- chassisId	M	string	Example: main
----- enclosureId	M	string	Example: left
----- slotId	M		
----- usage	M	string	Example: data, os, osSpare, cache, database
+ diskIO	A	object	
--+ { }	A	object	
----- read_io	A, M	long	
----- read_merge	A, M	long	
----- read_sect	A, M	long	
----- read	A, M	long	
----- read_use	A, M	long	
----- write_io	A, M	long	
----- write_merge	A, M	long	
----- write_sect	A, M	long	
----- write	A, M	long	
----- write_use	A, M	long	
----- running	A, M	long	
----- use	A, M	long	
----- aveq	A, M	long	
+ disk_controllers	M		
--+ {n}	M	string	Where {n}= 1 or serialNumber
----- serial	M	string	
----- model	M	string	
----- version	M	string	
----- index			
- disksWithMultiplePillars		object	
+ driveThresholds	A, M, S	object	
--+ cache	A, M, S	object	
----- error	A, M, S	integer	Threshold error count for cache drive type

Table 2. Response parameters for Device API statistic method (continued)

Parameter	Device(s)	Type	Description / Values
----- warning	A, M, S	integer	Threshold warning count for cache drive type
----- total	A, M, S	integer	Threshold total count for cache drive type
--+ data	S	object	
----- error	S	integer	Threshold error count for data drive type
----- warning	S	integer	Threshold warning count for data drive type
----- total	S	integer	Threshold total count for data drive type
--+ database	A, M, S	object	
----- error	A, M, S	integer	Threshold error count for database drive type
----- warning	A, M, S	integer	Threshold warning count for database drive type
----- total	A, M, S	integer	Threshold total count for database drive type
--+ os	A, M, S	object	
----- error	A, M, S	integer	Threshold error count for os drive type
----- warning	A, M, S	integer	Threshold warning count for os drive type
----- total	A, M, S	integer	Threshold total count for os drive type
--+ osSpare	A, M, S	object	
----- error	A, M, S	integer	Threshold error count for osSpare drive type
----- warning	A, M, S	integer	Threshold warning count for osSpare drive type
----- total	A, M, S	integer	Threshold total count for osSpare drive type
- evacuationStatus	A		
+ filesystem	A, M	object	
--+ {Path}	A, M	object	Object(s) containing a group for a path. Path points to root or medium. This object may repeat for additional paths.
----- errorAt	A, M	long	
----- clearAt	A, M	long	
----- free	A, M	long	
- fipsState			
+ general	A, M, S	object	
--+ general	A, M	object	Object containing a group.
----- serial	M	string	
----- deviceType	A, M	string	Device type: Slicestor , Manager , or Accesser .
----- version	A		
----- majorVersion	A, M		
----- minorVersion	A, M		
----- modelName	A		
----- biosDate	A		
----- biosVersion	A		
----- bmcFirmware	A		
- incompressibleOverheadSize	A	string	
- internalErrorStatePoisonData	A	string	
- load	A	integer	One-minute system load average.
+ loadX	A	object	Collection of system load averages (1, 5, 15 minutes), process count, and processes running.
--- average1	A		
--- average15	A		
--- average5	A		

Table 2. Response parameters for Device API statistic method (continued)

Parameter	Device(s)	Type	Description / Values
--- processesRunning	A		
--- processesTotal	A		
+ maxConnections	A	object	
+ memory	A	object	
--- Active	A		
--- Active(anon)	A		
--- Active(file)	A		
--- AnonHugePages	A		
--- AnonPages	A		
--- Bounce	A		
--- Buffers	A		
--- Cached	A		
--- CommitLimit	A		
--- Committed_AS	A		
--- DirectMap2M	A		
--- DirectMap4k	A		
--- Dirty	A		
--- HugePages_Free	A		
--- HugePages_Rsvd	A		
--- HugePages_Surp	A		
--- HugePages_Total	A		
--- Hugepagesize	A		
--- Inactive	A		
--- Inactive(anon)	A		
--- Inactive(file)	A		
--- KernelStack	A		
--- Mapped	A		
--- MemAvailable	A		
--- MemFree	A		
--- MemTotal	A		
--- Mlocked	A		
--- NFS_Unstable	A		
--- PageTables	A		
--- SReclaimable	A		
--- SUnreclaim	A		
--- Shmem	A		
--- Slab	A		
--- SwapCached	A		
--- SwapFree	A		
--- SwapTotal	A		
--- Unevictable	A		
--- VmallocChunk	A		
--- VmallocTotal	A		
--- VmallocUsed	A		
--- Writeback	A		

Table 2. Response parameters for Device API statistic method (continued)

Parameter	Device(s)	Type	Description / Values
--- WritebackTmp	A		
- modelName	A	string	Device model name (e.g. "Accesser 2100")
+ netstat	A	object	Counter value of miscellaneous network statistics that are generated by net stat.
--- IcmpInAddrMaskReps	A	long	Number of ICMP Address Mask Reply messages received. (IP-MIB 1.3.6.1.2.1.5.13). Note: This object is depreciated, as a new IP version-neutral table is added. It is loosely replaced by a column in the icmpMsgStatsTable .
--- IcmpInAddrMasks	A	long	Number of ICMP Address Mask Request messages received. (IP-MIB 1.3.6.1.2.1.5.12). Note: This object is depreciated, as a new IP version-neutral table is added. It is loosely replaced by a column in the icmpMsgStatsTable .
--- IcmpInCsumErrors	A	long	Number of ICMP messages which the entity received but determined as having bad ICMP checksums.
--- IcmpInDestUnreachs	A	long	Number of ICMP Destination Unreachable messages received. (IP-MIB 1.3.6.1.2.1.5.3). Note: This object is depreciated, as a new IP version-neutral table is added. It is loosely replaced by a column in the icmpMsgStatsTable .
--- IcmpInEchoReps	A	long	Number of ICMP Echo Reply messages received. (IP-MIB, 1.3.6.1.2.1.5.9). Note: This object is depreciated, as a new IP version-neutral table is added. It is loosely replaced by a column in the icmpMsgStatsTable .
--- IcmpInEchos	A	long	Number of ICMP Echo (request) messages received. (IP-MIB 1.3.6.1.2.1.5.8). Note: This object is depreciated, as a new IP version-neutral table is added. It is loosely replaced by a column in the icmpMsgStatsTable .
--- IcmpInErrors	A	long	Number of ICMP messages which the entity received but determined as having ICMP-specific errors (bad ICMP checksums, bad length, and so on). (IP-MIB 1.3.6.1.2.1.5.2). Note: This object is depreciated, as a new IP version-neutral table is added. It is loosely replaced by a column in the icmpStatsInErrors .
--- IcmpInMsgs	A	long	Total number of ICMP messages, which the entity received. (IP-MIB 1.3.6.1.2.1.5.1). Note: This object is depreciated, as a new IP version-neutral table is added. It is loosely replaced by a column in the icmpStatsInMsgs .
--- IcmpInParmProbs	A	long	Number of ICMP Parameter Problem messages received. (IP-MIB 1.3.6.1.2.1.5.5). Note: This object is depreciated, as a new IP version-neutral table is added. It is loosely replaced by a column in the icmpMsgStatsTable .
--- IcmpInRedirects	A	long	Number of ICMP Redirect messages received. (IP-MIB 1.3.6.1.2.1.5.7). Note: This object is depreciated, as a new IP version-neutral table is added. It is loosely replaced by a column in the icmpMsgStatsTable .
--- IcmpInSrcQuenches	A	long	Number of ICMP Source Quench messages received. (IP-MIB 1.3.6.1.2.1.5.6). Note: This object is depreciated, as a new IP version-neutral table is added. It is loosely replaced by a column in the icmpMsgStatsTable .

Table 2. Response parameters for Device API statistic method (continued)

Parameter	Device(s)	Type	Description / Values
--- IcmpInTimeExcds	A	long	Number of ICMP Time Exceeded messages received. (IP-MIB 1.3.6.1.2.1.5.4). Note: This object is deprecated, as a new IP version-neutral table is added. It is loosely replaced by a column in the icmpMsgStatsTable .
--- IcmpInTimestampReps	A	long	Number of ICMP Timestamp Reply messages received. (IP-MIB 1.3.6.1.2.1.5.11). Note: This object is deprecated, as a new IP version-neutral table is added. It is loosely replaced by a column in the icmpMsgStatsTable .
--- IcmpInTimestamps	A	long	Number of ICMP Timestamp (request) messages received. (IP-MIB 1.3.6.1.2.1.5.10). Note: This object is deprecated, as a new IP version-neutral table is added. It is loosely replaced by a column in the icmpMsgStatsTable .
--- IcmpMsgInType0	A	long	Number of inbound ICMP Echo Reply messages.
--- IcmpMsgInType3	A	long	Number of inbound ICMP Destination Unreachable messages.
--- IcmpMsgInType8	A	long	Number of inbound ICMP Echo Request messages.
--- IcmpMsgOutType0	A	long	Number of outbound ICMP Echo Reply messages.
--- IcmpMsgOutType3	A	long	Number of outbound ICMP Destination Unreachable messages.
--- IcmpMsgOutType8	A	long	Number of outbound ICMP Echo Request messages.
--- IcmpOutAddrMaskReps	A	long	Number of ICMP Address Mask Reply messages sent. (IP-MIB 1.3.6.1.2.1.5.26). Note: This object is deprecated, as a new IP version-neutral table is added. It is loosely replaced by a column in the icmpMsgStatsTable .
--- IcmpOutAddrMasks	A	long	Number of ICMP Address Mask Request messages sent. (IP-MIB 1.3.6.1.2.1.5.25). Note: This object is deprecated, as a new IP version-neutral table is added. It is loosely replaced by a column in the icmpMsgStatsTable .
--- IcmpOutDestUnreachs	A	long	Number of ICMP Destination Unreachable messages sent. (IP-MIB 1.3.6.1.2.1.5.16). Note: This object is deprecated, as a new IP version-neutral table is added. It is loosely replaced by a column in the icmpMsgStatsTable .
--- IcmpOutEchoReps	A	long	Number of ICMP Echo Reply messages sent. (IP-MIB 1.3.6.1.2.1.5.22). Note: This object is deprecated, as a new IP version-neutral table is added. It is loosely replaced by a column in the icmpMsgStatsTable .
--- IcmpOutEchos	A	long	Number of ICMP Echo (request) messages sent. (IP-MIB 1.3.6.1.2.1.5.21). Note: This object is deprecated, as a new IP version-neutral table is added. It is loosely replaced by a column in the icmpMsgStatsTable .
--- IcmpOutErrors	A	long	Number of ICMP messages that this entity did not send due to problems discovered within ICMP, such as a lack of buffers. This value should not include errors that are discovered outside the ICMP layer, such as the inability of IP to route the resultant datagram. In some implementations, there might be no types of error that contribute to this counter's value. (IP-MIB 1.3.6.1.2.1.5.15). Note: This object is deprecated, as a new IP version-neutral table is added. It is loosely replaced by a column in the icmpStatsOutErrors .

Table 2. Response parameters for Device API statistic method (continued)

Parameter	Device(s)	Type	Description / Values
--- IcmpOutMsgs	A	long	Total number of ICMP messages that this entity attempted to send. (IP-MIB 1.3.6.1.2.1.5.14). Note: This counter includes all messages that are counted by icmpOutErrors. Note: This object is depreciated, as a new IP version-neutral table is added. It is loosely replaced by a column in the icmpStatsOutMsgs .
--- IcmpOutParmProbs	A	long	Number of ICMP Parameter Problem messages sent. (IP-MIB 1.3.6.1.2.1.5.18). Note: This object is depreciated, as a new IP version-neutral table is added. It is loosely replaced by a column in the icmpMsgStatsTable .
--- IcmpOutRedirects	A	long	Number of ICMP Redirect messages sent. For a host, this object is always zero, since hosts do not send redirects. (IP-MIB 1.3.6.1.2.1.5.20). Note: This object is depreciated, as a new IP version-neutral table is added. It is loosely replaced by a column in the icmpMsgStatsTable .
--- IcmpOutSrcQuenchs	A	long	Number of ICMP Source Quench messages sent. (IP-MIB 1.3.6.1.2.1.5.19). Note: This object is depreciated, as a new IP version-neutral table is added. It is loosely replaced by a column in the icmpMsgStatsTable .
--- IcmpOutTimeExcds	A	long	Number of ICMP Time Exceeded messages sent. (IP-MIB 1.3.6.1.2.1.5.17). Note: This object is depreciated, as a new IP version-neutral table is added. It is loosely replaced by a column in the icmpMsgStatsTable .
--- IcmpOutTimestampReps	A	long	Number of ICMP Timestamp Reply messages sent. (IP-MIB 1.3.6.1.2.1.5.24). Note: This object is depreciated, as a new IP version-neutral table is added. It is loosely replaced by a column in the icmpMsgStatsTable .
--- IcmpOutTimestamps	A	long	Number of ICMP Timestamp (request) messages sent. (IP-MIB 1.3.6.1.2.1.5.23). Note: This object is depreciated, as a new IP version-neutral table is added. It is loosely replaced by a column in the icmpMsgStatsTable .
--- IpDefaultTTL	A	long	Default value that is inserted into the Time-To-Live field of the IPv4 header of datagrams that are originated at this entity, whenever a TTL value is not supplied by the transport layer protocol. When this object is written, the entity should save the change to non-volatile storage and restore the object from non-volatile storage upon reinitialization of the system. (IP-MIB 1.3.6.1.2.1.4.2). A stronger requirement is not used because this object was previously defined.
--- IpExtInBcastOctets	A	long	Number of inbound broadcast octets.
--- IpExtInBcastPkts	A	long	Number of inbound broadcast packets.
--- IpExtInCEPkts	A	long	Number of incoming packets that are transmitted between devices by using Explicit Congestion Notification Capable Transport encountering network congestion.
--- IpExtInCsumErrors	A	long	Number of inbound checksum errors.
--- IpExtInECT0Pkts	A	long	Number of incoming packets that are transmitted between devices by using Explicit Congestion Notification Capable Transport to notify of network congestion.

Table 2. Response parameters for Device API statistic method (continued)

Parameter	Device(s)	Type	Description / Values
--- IpExtInECT1Pkts	A	long	Number of incoming packets that are transmitted between devices by using Explicit Congestion Notification Capable Transport to notify of network congestion.
--- IpExtInMcastOctets	A	long	Number of inbound multicast octets.
--- IpExtInMcastPkts	A	long	Number of inbound multicast packets.
--- IpExtInNoECTPkts	A	long	Number of incoming packets that are transmitted between devices unable to use Explicit Congestion Notification Capable Transport to notify of network congestion.
--- IpExtInNoRoutes	A	long	Number of inbound IP datagrams that are discarded because no route could be found to transmit them to their destination.
--- IpExtInOctets	A	long	Number of inbound total octets.
--- IpExtInTruncatedPkts	A	long	Number of inbound packets that were truncated.
--- IpExtOutBcastOctets	A	long	Number of outbound broadcast octets.
--- IpExtOutBcastPkts	A	long	Number of outbound broadcast packets.
--- IpExtOutMcastOctets	A	long	Number of outbound multicast octets.
--- IpExtOutMcastPkts	A	long	Number of outbound multicast packets.
--- IpExtOutOctets	A	long	Number of outbound total octets.
--- IpForwDatagrams	A	long	Number of input datagrams for which this entity was not their final IPv4 destination, as a result of which an attempt was made to find a route to forward them to that final destination. In entities that do not act as IPv4 routers, this counter includes only those packets that were Source-Routed via this entity, and the Source-Route option processing was successful. (IP-MIB 1.3.6.1.2.1.4.6). Note: This object is deprecated, as a new IP version-neutral table is added. It is loosely replaced by ipSystemStatsInForwDatagrams.
--- IpForwarding	A	long	The indication of whether this entity is acting as an IPv4 router in respect to the forwarding of datagrams that are received by, but not addressed to, this entity. IPv4 routers forward datagrams. IPv4 hosts do not (except those source-routed via the host). When this object is written, the entity should save the change to non-volatile storage and restore the object from non-volatile storage upon reinitialization of the system. (IP-MIB 1.3.6.1.2.1.4.1). A stronger requirement is not used because this object was previously defined.
--- IpFragCreates	A	long	Number of IPv4 datagram fragments that are generated as a result of fragmentation at this entity. (IP-MIB 1.3.6.1.2.1.4.19). This object is deprecated, as a new IP version-neutral table is added. It is loosely replaced by ipSystemStatsOutFragCreates.
--- IpFragFails	A	long	Number of IPv4 datagrams that have been discarded because they needed to be fragmented at this entity but could not be, for example, because their Don't Fragment flag was set. (IP-MIB 1.3.6.1.2.1.4.18). Note: This object is deprecated, as a new IP version-neutral table is added. It is loosely replaced by ipSystemStatsOutFragFails.

Table 2. Response parameters for Device API statistic method (continued)

Parameter	Device(s)	Type	Description / Values
--- IpFragOKs	A	long	Number of IPv4 datagrams that are successfully fragmented at this entity. (IP-MIB 1.3.6.1.2.1.4.17). Note: This object is depreciated, as a new IP version-neutral table is added. It is loosely replaced by ipSystemStatsOutFragOKs .
--- IpInAddrErrors	A	long	Number of input datagrams that are discarded because the IPv4 address in their IPv4 header's destination field was not a valid address to be received at this entity. This count includes invalid addresses (for example, 0.0.0.0) and addresses of unsupported Classes (for example, Class E). For entities that are not IPv4 routers, and therefore do not forward datagrams, this counter includes datagrams that are discarded because the destination address was not a local address. (IP-MIB 1.3.6.1.2.1.4.5). Note: This object is depreciated, as a new IP version-neutral table is added. It is loosely replaced by ipSystemStatsInAddrErrors .
--- IpInDelivers	A	long	Total number of input datagrams that are successfully delivered to IPv4 user-protocols (including ICMP). (IP-MIB 1.3.6.1.2.1.4.9). Note: This object is depreciated, as a new IP version-neutral table is added. It is loosely replaced by ipSystemStatsInDelivers .
--- IpInDiscards	A	long	Number of input IPv4 datagrams for which no problems were encountered to prevent their continued processing, but were discarded (for example, for lack of buffer space). (IP-MIB 1.3.6.1.2.1.4.8). This counter does not include any datagrams that are discarded while awaiting reassembly. Note: This object is depreciated, as a new IP version-neutral table is added. It is loosely replaced by ipSystemStatsInDiscards .
--- IpInHdrErrors	A	long	Number of input datagrams discarded due to errors in their IPv4 headers, including bad checksums, version number mismatch, other format errors, time-to-live exceeded, errors that are discovered in processing their IPv4 options, etc. (IP-MIB 1.3.6.1.2.1.4.4). Note: This object is depreciated, as a new IP version-neutral table is added. It is loosely replaced by ipSystemStatsInHdrErrors .
--- IpInReceives	A	long	Total number of input datagrams that are received from interfaces, including those received in error. (IP-MIB 1.3.6.1.2.1.4.3). Note: This object is depreciated, as a new IP version-neutral table is added. It is loosely replaced by ipSystemStatsInRecieves .
--- IpInUnknownProtos	A	long	Number of locally addressed datagrams received successfully but discarded because of an unknown or unsupported protocol. (IP-MIB 1.3.6.1.2.1.4.7). Note: This object is depreciated, as a new IP version-neutral table is added. It is loosely replaced by ipSystemStatsInUnknownProtos .

Table 2. Response parameters for Device API statistic method (continued)

Parameter	Device(s)	Type	Description / Values
--- IpOutDiscards	A	long	Number of output IPv4 datagrams for which no problem was encountered to prevent their transmission to their destination, but which were discarded (e.g., for lack of buffer space). (IP-MIB 1.3.6.1.2.1.4.11). This counter would include datagrams that are counted in ipForwDatagrams if any such packets met this (discretionary) discard criterion. Note: This object is depreciated, as a new IP version-neutral table is added. It is loosely replaced by ipSystemStatsOutDiscards.
--- IpOutNoRoutes	A	long	Number of IP datagrams that are discarded because no route could be found to transmit them to their destination. (IP-MIB 1.3.6.1.2.1.4.12). This counter includes any packets that are counted in ipForwDatagrams which meet this no-route criterion and any datagrams that a host cannot route because all of its default routers are down.
--- IpOutRequests	A	long	Total number of IPv4 datagrams which local IPv4 user protocols (including ICMP) supplied to IPv4 in requests for transmission. (IP-MIB 1.3.6.1.2.1.4.10). This counter does not include any datagrams that are counted in ipForwDatagrams. Note: This object is depreciated, as a new IP version-neutral table is added. It is loosely replaced by ipSystemStatsOutRequests.
--- IpReasmFails	A	long	Number of failures that are detected by the IPv4 reassembly algorithm (for whatever reason: timed out, errors, and so on). (IP-MIB 1.3.6.1.2.1.4.16). It is not necessarily a count of discarded IPv4 fragments since some algorithms (notably the algorithm in RFC 815) can lose track of the number of fragments by combining them as they are received. Note: This object is depreciated, as a new IP version-neutral table is added. It is loosely replaced by ipSystemStatsReasmFails.
--- IpReasmOKs	A	long	Number of IPv4 datagrams successfully reassembled. (IP-MIB 1.3.6.1.2.1.4.15). Note: This object is depreciated, as a new IP version-neutral table is added. It is loosely replaced by ipSystemStatsReasmOKs.
--- IpReasmReqds	A	long	Number of IPv4 fragments received which needed to be reassembled at this entity. (IP-MIB 1.3.6.1.2.1.4.14). Note: This object is depreciated, as a new IP version-neutral table is added. It is loosely replaced by ipSystemStatsReasmReqds.
--- IpReasmTimeout	A	long	Maximum number of seconds that received fragments are held while they are awaiting reassembly at this entity. (IP-MIB 1.3.6.1.2.1.4.13).
--- TcpActiveOpens	A	long	Number of times that TCP connections made a direct transition to the SYN-SENT state from the CLOSED state. (TCP-MIB 1.3.6.1.2.1.6.5). Discontinuities in the value of this counter are indicated via discontinuities in the value of sysUpTime.

Table 2. Response parameters for Device API statistic method (continued)

Parameter	Device(s)	Type	Description / Values
--- TcpAttemptFails	A	long	Number of times that TCP connections made a direct transition to the CLOSED state from either the SYN-SENT state or the SYN-RCVD state, plus the number of times that TCP connections made a direct transition to the LISTEN state from the SYN-RCVD state. (TCP-MIB 1.3.6.1.2.1.6.7). Discontinuities in the value of this counter are indicated via discontinuities in the value of sysUpTime .
--- TcpCurrEstab	A	long	Number of TCP connections for which the current state is either ESTABLISHED or CLOSE-WAIT . (TCP-MIB 1.3.6.1.2.1.6.9).
--- TcpEstabResets	A	long	The number of times that TCP connections made a direct transition to the CLOSED state from either the ESTABLISHED state or the CLOSE-WAIT state. (TCP-MIB 1.3.6.1.2.1.6.8). Discontinuities in the value of this counter are indicated via discontinuities in the value of sysUpTime .
--- TcpExtArpFilter	A	long	Number of Address Resolution Protocol messages not sent because they were meant for the recipient device.
--- TcpExtBusyPoll RxPackets	A	long	
--- TcpExtDelayedACKLocked	A	long	Number of delayed ACK counters that were blocked because the socket was in use.
--- TcpExtDelayedACKLost	A	long	Number of delayed ACK counters lost during transmission.
--- TcpExtDelayedACKs	A	long	Number of delayed ACK counters sent.
--- TcpExtEmbryonicRsts	A	long	Number of TCP connections that reset before the connection is accepted.
--- TcpExtIPReverse PathFilter	A	long	
--- TcpExtListenDrops	A	long	Number of TCP connections dropped because of a resource shortage.
--- TcpExtListenOverflows	A	long	Number of times that the three-way TCP handshake was completed, but enough space was not available in the listen queue.
--- TcpExtLockDroppedIcmps	A	long	Number of ICMP packets that hit a locked (busy) socket and were dropped.
--- TcpExtOfoPruned	A	long	Number of times that the packet was dropped from the out-of-order queue.
--- TcpExtOutOfWindowIcmps	A	long	Number of ICMP packets that were outside the TCP window and dropped.
--- TcpExtPAWSActive	A	long	Number of active connections that were made with Protection Against Wrapped Sequence (PAWS) enabled. PAWS uses the same TCP time stamps as the round-trip time measurement mechanism and assumes that every received TCP segment (including the data and ACK segments) contains a time stamp SEG.TSval that has values that are monotone and non-decreasing in time. A segment can be discarded as an old duplicate if it is received with a time stamp SEG.TSval less than some time stamp recently received on this connection.
--- TcpExtPAWSEstab	A	long	Number of passive connections that were made with PAWS numbers enabled. PAWS operates within a single TCP connection by using a state that is saved in the connection control block.
--- TcpExtPAWSPassive	A	long	TCP extension Protection Against Wrapped Sequence passive.
--- TcpExtPruneCalled	A	long	Number of calls made to the function that tries to reduce the number of received but not acknowledged packets.
--- TcpExtRcvPruned	A	long	Number of packets that the TCP drops from the receive queue (usually because of low memory).

Table 2. Response parameters for Device API statistic method (continued)

Parameter	Device(s)	Type	Description / Values
--- TcpExtSyncookiesFailed	A	long	Number of SYN cookies rejected. The SYN cookies feature attempts to protect a socket from a SYN flood attack. This feature is a violation of TCP and conflicts with other areas of TCP such as TCP extensions. It can cause problems for clients and relays. Do not use this feature as a tuning mechanism for heavily loaded servers to help with overloaded or misconfigured conditions.
--- TcpExtSyncookiesRecv	A	long	Number of synchronized cookies received. The entire process of establishing the connection is performed by the acknowledgment packet that is sent by the client, making the connection process independent of the preceding SYN and SYN.ACK packets. This type of connection establishment opens the possibility of acknowledgment flooding, in the hope that the client has the correct value to establish a connection. This method also allows you to bypass firewalls that normally only filter packets with synchronized bit set.
--- TcpExtSyncookiesSent	A	long	Number of synchronized cookies sent. TCP requires unacknowledged data to be retransmitted. The server is supposed to retransmit the SYN.ACK packet before giving up and dropping the connection. When SYN.ACK arrives at the client but the acknowledgment gets lost, there is a disparity about the establishment state between the client and server. Typically, this problem can be solved by the server's retransmission. But when a synchronized cookie, there is no state kept on the server and retransmission is impossible.
--- TcpExtTCPACKSkippedChallenge	A		
--- TcpExtTCPACKSkippedFinWait2	A		
--- TcpExtTCPACKSkippedPAWS	A		
--- TcpExtTCPACKSkippedSeq	A		
--- TcpExtTCPACKSkippedSynRecv	A		
--- TcpExtTCPACKSkippedTimeWait	A		
--- TcpExtTCPAbortFailed	A	long	Number of times that the TCP connection ran out of memory, transmits failed, or peer TCP Reset (RST) could not be sent.
--- TcpExtTCPAbortOnClose	A	long	Number of times that the connection that is aborted with pending data.
--- TcpExtTCPAbortOnData	A	long	Number of times that the connection closed after reading the data.
--- TcpExtTCPAbortOnLinger	A	long	Number of times that the TCP connection ran out of memory, transmits failed, or peer TCP Reset (RST) could not be sent.
--- TcpExtTCPAbortOnMemory	A	long	Number of times that memory was not available for graceful closing of the connection resulting in the connection being aborted immediately.
--- TcpExtTCPAbortOnTimeout	A	long	Number of times that the connection that is timed out.
--- TcpExtTCPAutoCorking	A	long	Unknown. Not documented by net stat.
--- TcpExtTCPBacklogDrop	A	long	Unknown. Not documented by net stat.
--- TcpExtTCPChallengeACK	A	long	Unknown. Not documented by net stat.
--- TcpExtTCPDSACKIgnoredNoUndo	A	long	Unknown. Not documented by net stat.
--- TcpExtTCPDSACKIgnoredOld	A	long	Unknown. Not documented by net stat.
--- TcpExtTCPDSACK0foRecv	A	long	Number of out-of-order Duplicate Selective Acknowledgment (D-SACK) packets received.

Table 2. Response parameters for Device API statistic method (continued)

Parameter	Device(s)	Type	Description / Values
--- TcpExtTCPDSACK0foSent	A	long	Number of out-of-order Duplicate Selective Acknowledgment (D-SACK) packets sent. A D-SACK block is used only to report a duplicate contiguous sequence of data that is received by the receiver in the most recent packet. Each duplicate contiguous sequence of data that is received is reported in at most one D-SACK block. (The receiver sends two identical D-SACK blocks in subsequent packets only if the receiver receives two duplicate segments). If the D-SACK block reports a duplicate contiguous sequence from a (possibly larger) block of data in the receiver's data queue above the cumulative acknowledgment, then the second Selective Acknowledgment (SACK) block in that SACK option should specify that (possibly larger) block of data.
--- TcpExtTCPDSACK0ldSent	A	long	Unknown. Not documented by net stat.
--- TcpExtTCPDSACKRecv	A	long	Unknown. Not documented by net stat.
--- TcpExtTCPDSACKUndo	A	long	Unknown. Not documented by net stat.
--- TcpExtTCPDeferAcceptDrop	A	long	Unknown. Not documented by net stat.
--- TcpExtTCPDirectCopyFromBacklog		long	Unknown. Not documented by net stat.
--- TcpExtTCPDirectCopyFromPrequeue	A	long	Unknown. Not documented by net stat.
--- TcpExtTCPFACKReorder	A	long	Number of Forward Acknowledgment (FACK) packets that were out of sequence order. The FACK algorithm makes it possible to treat congestion control during recovery in the same manner as during other parts of the TCP state space. The FACK algorithm is based on first principles of congestion control and is used with the proposed TCP SACK option. By decoupling congestion control from other algorithms, such as data recovery, it attains more precise control over the data flow in the network. FACK takes advantage of the SACK option; it takes into account which segments have been SACKed. It also uses the receipt of a SACK that leaves at least 3*MSS bytes unacknowledged as a trigger for Fast Retransmit.
--- TcpExtTCPFastOpenActive	A	long	Number of datagrams that are transmitted when TCP fast open is active.
--- TcpExtTCPFastOpenActiveFail	A		
--- TcpExtTCPFastOpenCookieReqd	A	long	Unknown. Not documented by net stat.
--- TcpExtTCPFastOpenListenOverflow	A	long	Unknown. Not documented by net stat.
--- TcpExtTCPFastOpenPassive	A	long	Number of datagrams that are transmitted when TCP fast open is passive.
--- TcpExtTCPFastOpenPassiveFail	A	long	Number of datagrams failed to transmit when TCP fast open is active.
--- TcpExtTCPFastRetrans	A	long	Unknown. Not documented by net stat.
--- TcpExtTCPForwardRetrans	A	long	Unknown. Not documented by net stat.
--- TcpExtTCPFromZeroWindowAdv	A		
--- TcpExtTCPFullUndo	A	long	Unknown. Not documented by net stat.
--- TcpExtTCPHPAcks	A	long	Unknown. Not documented by net stat.
--- TcpExtTCPHPHits	A	long	Unknown. Not documented by net stat.
--- TcpExtTCPHPHitsToUser	A	long	Unknown. Not documented by net stat.
--- TcpExtTCPHystartDelayCwnd			
--- TcpExtTCPHystartDelayDetect			
--- TcpExtTCPHystartTrainCwnd			
--- TcpExtTCPHystartTrainDetect			
--- TcpExtTCPLOSSFailures	A	long	Unknown. Not documented by net stat.

Table 2. Response parameters for Device API statistic method (continued)

Parameter	Device(s)	Type	Description / Values
--- TcpExtTCPLossProbeRecovery	A	long	Unknown. Not documented by net stat.
--- TcpExtTCPLossProbes	A	long	Unknown. Not documented by net stat.
--- TcpExtTCPLossUndo	A	long	Unknown. Not documented by net stat.
--- TcpExtTCPLostRetransmit	A	long	Unknown. Not documented by net stat.
--- TcpExtTCPMD5NotFound	A	long	Unknown. Not documented by net stat.
--- TcpExtTCPMD5Unexpected	A	long	Unknown. Not documented by net stat.
--- TcpExtTCPMemoryPressures	A	long	Unknown. Not documented by net stat.
--- TcpExtTCPMinTTLDrop	A	long	Unknown. Not documented by net stat.
--- TcpExtTCP0F0Drop	A	long	Unknown. Not documented by net stat.
--- TcpExtTCP0F0Merge	A	long	Unknown. Not documented by net stat.
--- TcpExtTCP0F0Queue	A	long	Unknown. Not documented by net stat.
--- TcpExtTCP0rigDataSent	A		
--- TcpExtTCPPartialUndo	A	long	Unknown. Not documented by net stat.
--- TcpExtTCPPrequeueDropped	A	long	Unknown. Not documented by net stat.
--- TcpExtTCPPrequeued	A	long	Unknown. Not documented by net stat.
--- TcpExtTCPPureAcks	A	long	Unknown. Not documented by net stat.
--- TcpExtTCPRcvCoalesce	A	long	Unknown. Not documented by net stat.
--- TcpExtTCPRcvCollapsed	A	long	Unknown. Not documented by net stat.
--- TcpExtTCPRenoFailures	A	long	Number of times that the congestion window (cwnd) failed because the TCP fast recovery algorithm failed to recover from a packet loss. The congestion avoidance mechanism, which is adopted by TCP Reno, causes the window size to vary. This situation causes a change in the round-trip delay of the packets, larger delay jitter, and an inefficient use of the available bandwidth because of many retransmissions of the same packets after the packet drops occur. The rate at which each connection updates its window size depends on the round-trip delay of the connection. The connections with shorter delays can update their window sizes faster than other connections with longer delays.
--- TcpExtTCPRenoRecovery	A	long	Number of times that the TCP fast recovery algorithm recovered a packet loss. TCP Reno induces packet losses to estimate the available bandwidth in the network. When there are no packet losses, TCP Reno continues to increase its window size by one during each round trip. When it experiences a packet loss, it reduces its window size to one half of the current window size. This feature is called additive increase and multiplicative decrease. TCP Reno, however, does not fairly allocate bandwidth because TCP is not a synchronized rate-based control scheme, which is necessary for the convergence.
--- TcpExtTCPRenoRecoveryFail	A	long	Number of times that the TCP fast recovery algorithm failed to recover from a packet loss. In TCP Reno, the maximum number of recoverable packet losses in a congestion window without timeout is limited to one or two packets. No more than six losses can be recovered with a maximum window size of 128 packets. This failure of recovery is because TCP Reno cuts the congestion window by half for each recovered loss.
--- TcpExtTCPRenoReorder	A	long	Number of TCP Renos that were out of sequence order.
--- TcpExtTCPReqQFullDoCookies	A	long	Unknown. Not documented by net stat.
--- TcpExtTCPReqQFullDrop	A	long	Unknown. Not documented by net stat.
--- TcpExtTCPRetransFail	A	long	Unknown. Not documented by net stat.
--- TcpExtTCPSACKDiscard	A	long	Unknown. Not documented by net stat.

Table 2. Response parameters for Device API statistic method (continued)

Parameter	Device(s)	Type	Description / Values
--- TcpExtTCPSACKReneging	A	long	Number of times that the device refused to accept packets that have not been acknowledged to the data sender, even if the data has already been reported in a SACK option. Such discarding of SACK packets is discouraged but can be used if the receiver runs out of buffer space. The data receiver can choose not to keep data that it has reported in a SACK option. Because the data receiver can later discard data that is reported in a SACK option, the sender must not discard data before it is acknowledged by the Acknowledgment Number field in the TCP header.
--- TcpExtTCPSACKReorder	A	long	Number of SACK packets that were out of sequence order.
--- TcpExtTCPSYNChallenge	A	long	Unknown. Not documented by net stat.
--- TcpExtTCPSackFailures	A	long	Number of times that the congestion window that is shrunk because the device failed to recover from a SACK packet loss. The selective acknowledgment extension uses two TCP options. The first is an enabling option, SACK-permitted, which can be sent in a SYN segment to indicate that the SACK option can be used once the connection is established. The other is the SACK option, which can be sent over an established connection once permission is given by the SACK-permitted option.
--- TcpExtTCPSackMerged	A	long	Unknown. Not documented by net stat.
--- TcpExtTCPSackRecovery	A	long	Number of times that the device recovered from a SACK packet loss. If the data receiver has received a SACK-permitted option on the SYN for this connection, the data receiver can choose to generate SACK options. If the data receiver generates SACK options under any circumstance, it should generate them under all permitted circumstances. If the data receiver has not received a SACK-permitted option for a connection, it must not send SACK options on that connection.
--- TcpExtTCPSackRecoveryFail	A	long	Number of times that the device failed to recover from a SACK packet loss. When receiving an ACK containing a SACK option, the data sender should record the selective acknowledgment for future reference. The data sender is assumed to have a retransmission queue that contains the segments that are sent but not yet acknowledged in sequence number order. If the data sender performs repacketization before retransmission, the block boundaries in a SACK option that it receives might not fall within the boundaries of segments in the retransmission queue.
--- TcpExtTCPSackShiftFallback	A	long	Unknown. Not documented by net stat.
--- TcpExtTCPSackShifted	A	long	Unknown. Not documented by net stat.
--- TcpExtTCPSchedulerFailed	A	long	Unknown. Not documented by net stat.
--- TcpExtTCPSlowStartRetrans	A	long	Unknown. Not documented by net stat.
--- TcpExtTCPspuriousRTOs	A	long	Unknown. Not documented by net stat.
--- TcpExtTCPspuriousRtxHostQueues	A	long	Unknown. Not documented by net stat.
--- TcpExtTCPSynRetrans	A		
--- TcpExtTCPTSReorder	A	long	Unknown. Not documented by net stat.
--- TcpExtTCPTIMEwait0overflow	A	long	Unknown. Not documented by net stat.
--- TcpExtTCPTimeouts	A	long	Unknown. Not documented by net stat.
--- TcpExtTCPToZeroWindowAdv	A		
--- TcpExtTCPWantZeroWindowAdv	A		
--- TcpExtTW	A	long	Unknown. Not documented by net stat.

Table 2. Response parameters for Device API statistic method (continued)

Parameter	Device(s)	Type	Description / Values
--- TcpExtTWKilled	A	long	Unknown. Not documented by net stat.
--- TcpExtTWRecycled	A	long	Unknown. Not documented by net stat.
--- TcpInCsumErrors	A	long	Total number of segments that are received as bad TCP checksum errors.
--- TcpInErrs	A	long	Total number of segments that are received in error (for example, bad TCP checksums). (TCP-MIB 1.3.6.1.2.1.6.14). Discontinuities in the value of this counter are indicated via discontinuities in the value of sysUpTime .
--- TcpInSegs	A	long	Total number of segments received, including ones received in error. This count includes segments that are received on currently established connections. (TCP-MIB 1.3.6.1.2.1.6.10). Discontinuities in the value of this counter are indicated via discontinuities in the value of sysUpTime .
--- TcpMaxConn	A	long	Limit on the total number of TCP connections the entity can support. In entities where the maximum number of connections is dynamic, this object should contain the value -1. (TCP-MIB 1.3.6.1.2.1.6.4).
--- TcpOutRsts	A	long	Number of TCP segments sent containing the RST flag. (TCP-MIB 1.3.6.1.2.1.6.15). Discontinuities in the value of this counter are indicated via discontinuities in the value of sysUpTime .
--- TcpOutSegs	A	long	Total number of segments sent, including ones on current connections but excluding those containing only retransmitted octets. (TCP-MIB 1.3.6.1.2.1.6.11). Discontinuities in the value of this counter are indicated via discontinuities in the value of sysUpTime .
--- TcpPassiveOpens	A	long	Number of times TCP connections made a direct transition to the SYN-RCVD state from the LISTEN state. (TCP-MIB 1.3.6.1.2.1.6.6). Discontinuities in the value of this counter are indicated via discontinuities in the value of sysUpTime .
--- TcpRetransSegs	A	long	Total number of segments retransmitted; that is, the number of TCP segments transmitted containing one or more previously transmitted octets. (TCP-MIB 1.3.6.1.2.1.6.12). Discontinuities in the value of this counter are indicated via discontinuities in the value of sysUpTime .
--- TcpRtoAlgorithm	A	integer	Algorithm that is used to determine the timeout value that is used for retransmitting unacknowledged octets. (TCP-MIB 1.3.6.1.2.1.6.1).
--- TcpRtoMax	A	integer	Maximum value that is permitted by a TCP implementation for the retransmission timeout, which is measured in milliseconds. More refined semantics for objects of this type depend on the algorithm that is used to determine the retransmission timeout; in particular, the IETF standard algorithm rfc2988(5) provides an upper bound (as part of an adaptive backoff algorithm). (TCP-MIB 1.3.6.1.2.1.6.3).
--- TcpRtoMin	A	integer	Minimum value that is permitted by a TCP implementation for the retransmission timeout, which is measured in milliseconds. More refined semantics for objects of this type depend on the algorithm that is used to determine the retransmission timeout; in particular, the IETF standard algorithm rfc2988(5) provides a minimum value. (TCP-MIB 1.3.6.1.2.1.6.2).
--- UdpIgnoredMulti	A		

Table 2. Response parameters for Device API statistic method (continued)

Parameter	Device(s)	Type	Description / Values
--- UdpInCsumErrors	A	long	Number of UDP datagram Checksum errors.
--- UdpInDatagrams	A	long	Total number of UDP datagrams that are delivered to UDP users. (UDP-MIB 1.3.6.1.2.1.7.1). Discontinuities in the value of this counter can occur at reinitialization of the management system, and at other times as indicated by discontinuities in the value of sysUpTime .
--- UdpInErrors	A	long	Number of received UDP datagrams that could not be delivered for reasons other than the lack of an application at the destination port. (UDP-MIB 1.3.6.1.2.1.7.3). Discontinuities in the value of this counter can occur at reinitialization of the management system, and at other times as indicated by discontinuities in the value of sysUpTime .
--- UdpIgnoredMulti	A		
--- UdpLiteInCsumErrors	A	long	Number of incoming UDP-Lite datagram Checksum errors.
--- UdpLiteInDatagrams	A	long	Number of received UDP-Lite datagrams that could not be delivered for reasons other than the lack of an application at the destination port.
--- UdpLiteInErrors	A	long	Total number of incoming UDP-Lite datagram errors.
--- UdpLiteRcvbufErrors	A		
--- UdpLiteSndbufErrors	A		
--- UdpLiteNoPorts	A	long	Total number of received UDP-Lite datagrams for which there is no application at the destination port.
--- UdpLiteOutDatagrams	A	long	Number of outgoing UDP-Lite data grams.
--- UdpLiteRcvufErrors	A	long	Number of UDP-Lite buffer receive errors.
--- UdpLiteSndbufErrors	A	long	Number of UDP-Lite buffer send errors.
--- UdpNoPorts	A	long	Total number of received UDP datagrams for which there is no application at the destination port. (UDP-MIB 1.3.6.1.2.1.7.2). Discontinuities in the value of this counter can occur at reinitialization of the management system, and at other times as indicated by discontinuities in the value of sysUpTime .
--- UdpOutDatagrams	A	long	Total number of UDP datagrams sent from this entity. (UDP-MIB 1.3.6.1.2.1.7.4). Discontinuities in the value of this counter can occur at reinitialization of the management system, and at other times as indicated by discontinuities in the value of sysUpTime .
--- UdpRcvbufErrors	A	long	Number of UDP buffer receive errors.
--- UdpSndbufErrors	A	long	Number of UDP buffer send errors.
+ network	A	object	
--+ lo	A	object	Object containing group for lo
----- in	A		
----- receive_packets	A		
----- receive_errors	A		
----- receive_drop	A		
----- receive_fifo	A		
----- receive_frame	A		
----- receive_compressed	A		
----- receive_multicast	A		
----- out	A		

Table 2. Response parameters for Device API statistic method (continued)

Parameter	Device(s)	Type	Description / Values
----- transmit_packets	A		
----- transmit_errors	A		
----- transmit_drop	A		
----- transmit_fifo	A		
----- transmit_colls	A		
----- transmit_carrier	A		
----- transmit_compressed	A		
--+ eth{x}	A	object	{x}=[1..n] eth numbers (e.g. eth1 , eth2 , eth3 ...
----- in	A		
----- receive_packets	A		
----- receive_errors	A		
----- receive_drop	A		
----- receive_fifo	A		
----- receive_frame	A		
----- receive_compressed	A		
----- receive_multicast	A		
----- out	A		
----- transmit_packets	A		
----- transmit_errors	A		
----- transmit_drop	A		
----- transmit_fifo	A		
----- transmit_colls	A		
----- transmit_carrier	A		
----- transmit_compressed	A		
+ networkConfiguration	A	object	
--+ eth{x}	A	object	{x}=[1..n] eth numbers (e.g. eth1 , eth2 , eth3 ...
----- interfaceName	A		
----- address	A		
----- type	A		
----- mode	A		
----- xmitHashPolicy	A		
--+ lo	A	object	Object containing group for lo
----- interfaceName	A		
----- address	A		IPv6 address
----- type	A	String	"ethernet"
----- mode	A		
----- xmitHashPolicy	A		
+ network_interfaces	A	object	
--+ eth{x}	A	object	{x}=[1..n] eth numbers (e.g. eth1 , eth2 , eth3 ...
----- firmware	A		
----- name	A		
----- index	A		
+ notificationService	A		
--+ {uuid}	A		
----- validKeystore	A		

Table 2. Response parameters for Device API statistic method (continued)

Parameter	Device(s)	Type	Description / Values
----- producerAllocated	A		
----- sendFailures	A		
----- averageSendLatency	A		
----- sends	A		
----- totalLatencyExceptions	A		
----- averageTotalNotificationSendTime	A		
- ntpSyncState	A	string	State of Network Time Protocol synchronization with NTP management daemon.
+ ping	A	object	Shows ping time between the Manager appliance and device in nanoseconds.
--+ manager.dsnet	A	string	IP address of Manager device.
----- time	A	integer	Device ping time.
- pollableCLI	A		
- pollableCoreMetrics	A		
+ process	A		
--+ {x}	A		Object containing group, where {x} is the process number. Object may repeat for each process.
----- index	A		
----- name	A		
----- external	A	boolean	
----- status	A	String	running
+ raid	A	object	Lists each array identified by its logical UUID as the identifier and shows the state of the individual drives
--+ {uuid}	A	object	UUID of RAID drives.
----- arrayHealth	A	string	Health of the RAIDed array drives. (OPTIMAL, DEGRADED or UNKNOWN).
+ rebuildVault	A	object	Slicestor devices only; shows rebuilding statistics for each system vault.
--+ {vaultId}	A	object	Key is vault UUID.
----- writesReceived	A	long	Slices recovered on device for a vault since start up.
----- deletesReceived	A	long	Slices that are deleted on device for a vault since start up.
----- writesSent	A	long	Slices that are sent to another device to be rebuilt.
----- bytesReceived	A	long	Bytes rebuilt on a device for a vault since start up.
----- rebuildMailboxIn	A	long	Bytes rebuilt since start up.
----- sliceMailboxIn	A	long	Bytes on slice since start up.
----- sourcesScannedSinceReset	A	long	Bytes scanned for possible rebuilding since last reset.
----- sourcesScanned	A	long	Bytes scanned for possible rebuilding.
----- deletesSent	A	long	Slices that are sent to another device to be deleted.
----- serial	A	string	Device serial number.
----- slicestorResponseCount	A	long	Number of times Slicestor device has responded.
----- slicestorResponseLatencyTime	A	long	Length of time in ms Slicestor device takes to respond.
+ slicestorVault	A	object	Slicestor devices only; shows space used statistics for each vault on device.
--+ {vaultUuid}	A	object	Vault UUID.
----- logicalUsed	A	long	Logical view of space that is used in bytes by vault.
----- physicalUsed	A	long	Actual physical space that is used in bytes by vault.
----- slices	A	long	Number of slices that are used by vault.

Table 2. Response parameters for Device API statistic method (continued)

Parameter	Device(s)	Type	Description / Values
----- file	A	long	Amount of metadata (in bytes) in file storage.
----- packed	A	long	Amount of metadata (in bytes) in packed storage.
----- storageSize	A	long	Device total storage size, in bytes.
- uptime	A	long	Centiseconds since device start up.
- version	A	string	ClevOS Software version.

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