

Manage storage montiored files

ONTAP 9.9.1 REST API reference

NetApp May 09, 2024

This PDF was generated from https://docs.netapp.com/us-en/ontap-restapi-991/ontap/storage_monitored-files_endpoint_overview.html on May 09, 2024. Always check docs.netapp.com for the latest.

Table of Contents

V	lanage storage montiored files	1
	Storage monitored-files endpoint overview	1
	Retrieve all monitored files	2
	Create a monitored file	7

Manage storage montiored files

Storage monitored-files endpoint overview

Retrieving all monitored files

```
# The API:
GET /api/storage/monitored-files

# The call:
curl -X GET "https://<mgmt-ip>/api/storage/monitored-files"
```

Provisioning a monitored file

```
# The API:
POST /api/storage/monitored-files

# The call:
curl -d "@test_mfiles_post.txt" -X POST "https://<mgmt-
ip>/api/storage/monitored-files"
test_mfiles_post.txt(body):
{
    "svm": {
        "name": "vs0"
},
    "volume": {
        "name": "vol1"
},
    "path": "/a/b/c/file.txt"
}
```

Removing a file from the monitored files list

```
# The API:
DELETE /api/storage/monitored-files/{uuid}

# The call:
curl -X DELETE "https://<mgmt-ip>/api/storage/monitored-files/6f68c85b-
45e1-11e9-8fc7-005056bbc848"
```

Alternate method for removing files from the monitored files list

Monitored files can also be deleted via a combination of any of (uuid, svm.name, svm.uuid, volume.name, volume.uuid, path). For example, to remove all monitored-files from monitoring in a single svm named vs0, use the following

```
# The API:
DELETE /api/storage/monitored-files

# The call:
curl -X DELETE "https://<mgmt-ip>/api/storage/monitored-
files?svm.name=vs0"
```

Performance monitoring

Performance of the monitored file can be monitored by the metric.* and statistics.* properties. These fields show the performance of the monitored file in terms of IOPS, latency and throughput. The metric.* properties denote an average whereas statistics.* properties denote a real-time monotonically increasing value aggregated across all nodes.

Retrieve all monitored files

GET /storage/monitored-files

Introduced In: 9.8

Retrieves all monitored files.

Expensive properties

There is an added cost to retrieving values for these properties. They are not included by default in GET results and must be explicitly requested using the fields query parameter. See Requesting specific fields to learn more.

```
• statistics.*
```

• metric.*

Learn more

• DOC /storage/monitored-files

Parameters

Name	Туре	In	Required	Description
path	string	query	False	Filter by path

Name	Туре	In	Required	Description
statistics.iops_raw.to tal	integer	query	False	Filter by statistics.iops_raw.to tal
statistics.iops_raw.ot her	integer	query	False	Filter by statistics.iops_raw.ot her
statistics.iops_raw.re ad	integer	query	False	Filter by statistics.iops_raw.r ead
statistics.iops_raw.w rite	integer	query	False	Filter by statistics.iops_raw.w rite
statistics.timestamp	string	query	False	Filter by statistics.timestamp
statistics.throughput _raw.total	integer	query	False	Filter by statistics.throughput _raw.total
statistics.throughput _raw.other	integer	query	False	Filter by statistics.throughput _raw.other
statistics.throughput _raw.read	integer	query	False	Filter by statistics.throughput _raw.read
statistics.throughput _raw.write	integer	query	False	Filter by statistics.throughput _raw.write
statistics.status	string	query	False	Filter by statistics.status
statistics.latency_ra w.total	integer	query	False	Filter by statistics.latency_ra w.total
statistics.latency_ra w.other	integer	query	False	Filter by statistics.latency_ra w.other

Name	Туре	In	Required	Description
statistics.latency_ra w.read	integer	query	False	Filter by statistics.latency_ra w.read
statistics.latency_ra w.write	integer	query	False	Filter by statistics.latency_ra w.write
svm.uuid	string	query	False	Filter by svm.uuid
svm.name	string	query	False	Filter by svm.name
volume.name	string	query	False	Filter by volume.name
volume.uuid	string	query	False	Filter by volume.uuid
metric.timestamp	string	query	False	Filter by metric.timestamp
metric.throughput.tot al	integer	query	False	Filter by metric.throughput.tot al
metric.throughput.ot her	integer	query	False	Filter by metric.throughput.ot her
metric.throughput.re ad	integer	query	False	Filter by metric.throughput.re ad
metric.throughput.wri te	integer	query	False	Filter by metric.throughput.wr ite
metric.latency.total	integer	query	False	Filter by metric.latency.total
metric.latency.other	integer	query	False	Filter by metric.latency.other
metric.latency.read	integer	query	False	Filter by metric.latency.read

Name	Туре	In	Required	Description
metric.latency.write	integer	query	False	Filter by metric.latency.write
metric.iops.total	integer	query	False	Filter by metric.iops.total
metric.iops.other	integer	query	False	Filter by metric.iops.other
metric.iops.read	integer	query	False	Filter by metric.iops.read
metric.iops.write	integer	query	False	Filter by metric.iops.write
metric.duration	string	query	False	Filter by metric.duration
metric.status	string	query	False	Filter by metric.status
uuid	string	query	False	Filter by uuid
fields	array[string]	query	False	Specify the fields to return.
max_records	integer	query	False	Limit the number of records returned.
return_timeout	integer	query	False	The number of seconds to allow the call to execute before returning. When iterating over a collection, the default is 15 seconds. ONTAP returns earlier if either max records or the end of the collection is reached. • Default value: 1 • Max value: 120 • Min value: 0

Name	Туре	In	Required	Description
return_records	boolean	query	False	The default is true for GET calls. When set to false, only the number of records is returned. • Default value: 1
order_by	array[string]	query	False	Order results by specified fields and optional [asc

Response

Status: 200, Ok

Name	Туре	Description
_links	_links	
num_records	integer	Number of files provisioned for monitoring.
records	array[monitored_file]	

```
" links": {
  "next": {
   "href": "/api/resourcelink"
 },
 "self": {
   "href": "/api/resourcelink"
 }
},
"records": {
  " links": {
    "self": {
     "href": "/api/resourcelink"
   }
  },
  "metric": {
   " links": {
     "self": {
       "href": "/api/resourcelink"
     }
    },
    "duration": "PT15S",
    "iops": {
     "read": "200",
     "total": "1000",
     "write": "100"
    },
    "latency": {
     "read": "200",
     "total": "1000",
     "write": "100"
    },
    "status": "ok",
    "throughput": {
     "read": "200",
     "total": "1000",
     "write": "100"
    "timestamp": "2017-01-25T11:20:13Z"
  },
  "path": "/a/b/c/file.txt",
  "statistics": {
   "iops raw": {
      "read": "200",
```

```
"total": "1000",
        "write": "100"
      },
      "latency raw": {
       "read": "200",
       "total": "1000",
       "write": "100"
      },
      "status": "ok",
      "throughput raw": {
       "read": "200",
       "total": "1000",
       "write": "100"
     },
     "timestamp": "2017-01-25T11:20:13Z"
    },
    "svm": {
     " links": {
       "self": {
         "href": "/api/resourcelink"
       }
     },
     "name": "svm1",
     "uuid": "02c9e252-41be-11e9-81d5-00a0986138f7"
    },
    "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412",
    "volume": {
     " links": {
       "self": {
         "href": "/api/resourcelink"
       }
      },
      "name": "volume1",
     "uuid": "028baa66-41bd-11e9-81d5-00a0986138f7"
 }
}
```

Error

```
Status: Default, Error
```

Name	Туре	Description
error	error	

Example error

```
"error": {
    "arguments": {
        "code": "string",
        "message": "string"
    },
    "code": "4",
    "message": "entry doesn't exist",
    "target": "uuid"
    }
}
```

Definitions

See Definitions

href

Name	Туре	Description
href	string	

_links

Name	Туре	Description
next	href	
self	href	

_links

Name	Туре	Description
self	href	

iops

The rate of I/O operations observed at the storage object.

Name	Туре	Description
other	integer	Performance metric for other I/O operations. Other I/O operations can be metadata operations, such as directory lookups and so on.
read	integer	Performance metric for read I/O operations.
total	integer	Performance metric aggregated over all types of I/O operations.
write	integer	Peformance metric for write I/O operations.

latency

The round trip latency in microseconds observed at the storage object.

Name	Туре	Description
other	integer	Performance metric for other I/O operations. Other I/O operations can be metadata operations, such as directory lookups and so on.
read	integer	Performance metric for read I/O operations.
total	integer	Performance metric aggregated over all types of I/O operations.
write	integer	Peformance metric for write I/O operations.

throughput

The rate of throughput bytes per second observed at the storage object.

Name	Туре	Description
other	integer	Performance metric for other I/O operations. Other I/O operations can be metadata operations, such as directory lookups and so on.
read	integer	Performance metric for read I/O operations.
total	integer	Performance metric aggregated over all types of I/O operations.
write	integer	Peformance metric for write I/O operations.

performance_metric

Performance numbers, such as IOPS latency and throughput.

Name	Туре	Description
_links	_links	

Name	Туре	Description
duration	string	The duration over which this sample is calculated. The time durations are represented in the ISO-8601 standard format. Samples can be calculated over the following durations:
iops	iops	The rate of I/O operations observed at the storage object.
latency	latency	The round trip latency in microseconds observed at the storage object.
status	string	Errors associated with the sample. For example, if the aggregation of data over multiple nodes fails, then any partial errors might return "ok" on success or "error" on an internal uncategorized failure. Whenever a sample collection is missed but done at a later time, it is back filled to the previous 15 second timestamp and tagged with "backfilled_data". "Inconsistent_delta_time" is encountered when the time between two collections is not the same for all nodes. Therefore, the aggregated value might be over or under inflated. "Negative_delta" is returned when an expected monotonically increasing value has decreased in value. "Inconsistent_old_data" is returned when one or more nodes do not have the latest data.
throughput	throughput	The rate of throughput bytes per second observed at the storage object.
timestamp	string	The timestamp of the performance data.

iops_raw

The number of I/O operations observed at the storage object. This can be used along with delta time to calculate the rate of I/O operations per unit of time.

Name	Туре	Description
other	integer	Performance metric for other I/O operations. Other I/O operations can be metadata operations, such as directory lookups and so on.
read	integer	Performance metric for read I/O operations.
total	integer	Performance metric aggregated over all types of I/O operations.
write	integer	Peformance metric for write I/O operations.

latency_raw

The raw latency in microseconds observed at the storage object. This can be divided by the raw IOPS value to calculate the average latency per I/O operation.

Name	Туре	Description
other	integer	Performance metric for other I/O operations. Other I/O operations can be metadata operations, such as directory lookups and so on.
read	integer	Performance metric for read I/O operations.
total	integer	Performance metric aggregated over all types of I/O operations.
write	integer	Peformance metric for write I/O operations.

throughput_raw

Throughput bytes observed at the storage object. This can be used along with delta time to calculate the rate of throughput bytes per unit of time.

Name	Туре	Description
other	integer	Performance metric for other I/O operations. Other I/O operations can be metadata operations, such as directory lookups and so on.
read	integer	Performance metric for read I/O operations.
total	integer	Performance metric aggregated over all types of I/O operations.
write	integer	Peformance metric for write I/O operations.

performance_metric_raw_reference

These are raw performance numbers, such as IOPS latency and throughput. These numbers are aggregated across all nodes in the cluster and increase with the uptime of the cluster.

Name	Туре	Description
iops_raw	iops_raw	The number of I/O operations observed at the storage object. This can be used along with delta time to calculate the rate of I/O operations per unit of time.
latency_raw	latency_raw	The raw latency in microseconds observed at the storage object. This can be divided by the raw IOPS value to calculate the average latency per I/O operation.

Name	Туре	Description
status	string	Errors associated with the sample. For example, if the aggregation of data over multiple nodes fails, then any partial errors might return "ok" on success or "error" on an internal uncategorized failure. Whenever a sample collection is missed but done at a later time, it is back filled to the previous 15 second timestamp and tagged with "backfilled_data". "Inconsistent_delta_time" is encountered when the time between two collections is not the same for all nodes. Therefore, the aggregated value might be over or under inflated. "Negative_delta" is returned when an expected monotonically increasing value has decreased in value. "Inconsistent_old_data" is returned when one or more nodes do not have the latest data.
throughput_raw	throughput_raw	Throughput bytes observed at the storage object. This can be used along with delta time to calculate the rate of throughput bytes per unit of time.
timestamp	string	The timestamp of the performance data.

svm

Name	Туре	Description
_links	_links	
name	string	The name of the SVM.
uuid	string	The unique identifier of the SVM.

volume

Name	Туре	Description
_links	_links	

Name	Туре	Description
name	string	The name of the volume.
uuid	string	Unique identifier for the volume. This corresponds to the instance- uuid that is exposed in the CLI and ONTAPI. It does not change due to a volume move. • example: 028baa66-41bd- 11e9-81d5-00a0986138f7 • Introduced in: 9.6

monitored_file

Name	Туре	Description
_links	_links	
metric	performance_metric	Performance numbers, such as IOPS latency and throughput.
path	string	Path of the file to be monitored.
statistics	performance_metric_raw_referen ce	These are raw performance numbers, such as IOPS latency and throughput. These numbers are aggregated across all nodes in the cluster and increase with the uptime of the cluster.
svm	svm	
uuid	string	Unique identifier created for identifying the file that is monitored.
volume	volume	

error_arguments

Name	Туре	Description
code	string	Argument code
message	string	Message argument

error

Name	Туре	Description
arguments	array[error_arguments]	Message arguments
code	string	Error code
message	string	Error message
target	string	The target parameter that caused the error.

Create a monitored file

POST /storage/monitored-files

Introduced In: 9.8

Creates a monitored file.

Required properties

The required properties take the following options:

- path and volume.uuid or
- path and (svm.name or svm.uuid) and volume.name
- path Path to the file to be monitored.
- volume.uuid Volume where the file to be monitored exists
- svm.name or svm.uuid SVM where the file to be monitored exists
- volume.name Volume where the file to be monitored exists.

Learn more

• DOC /storage/monitored-files

Parameters

Name	Туре	In	Required	Description
return_records	boolean	query	False	The default is false. If set to true, the records are returned. • Default value:

Request Body

Name	Туре	Description
_links	_links	
metric	performance_metric	Performance numbers, such as IOPS latency and throughput.
path	string	Path of the file to be monitored.
statistics	performance_metric_raw_reference	These are raw performance numbers, such as IOPS latency and throughput. These numbers are aggregated across all nodes in the cluster and increase with the uptime of the cluster.
svm	svm	
uuid	string	Unique identifier created for identifying the file that is monitored.
volume	volume	

```
" links": {
 "self": {
   "href": "/api/resourcelink"
 }
} ,
"metric": {
 " links": {
   "self": {
     "href": "/api/resourcelink"
   }
  },
  "duration": "PT15S",
  "iops": {
   "read": "200",
   "total": "1000",
   "write": "100"
  },
  "latency": {
   "read": "200",
   "total": "1000",
   "write": "100"
  },
  "status": "ok",
  "throughput": {
   "read": "200",
   "total": "1000",
   "write": "100"
  },
  "timestamp": "2017-01-25T11:20:13Z"
"path": "/a/b/c/file.txt",
"statistics": {
  "iops raw": {
   "read": "200",
   "total": "1000",
   "write": "100"
  },
  "latency raw": {
   "read": "200",
   "total": "1000",
   "write": "100"
  },
  "status": "ok",
```

```
"throughput raw": {
     "read": "200",
     "total": "1000",
     "write": "100"
    "timestamp": "2017-01-25T11:20:13Z"
  },
  "svm": {
   " links": {
    "self": {
       "href": "/api/resourcelink"
     }
   },
    "name": "svm1",
   "uuid": "02c9e252-41be-11e9-81d5-00a0986138f7"
  "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412",
 "volume": {
   " links": {
     "self": {
       "href": "/api/resourcelink"
     }
    "name": "volume1",
   "uuid": "028baa66-41bd-11e9-81d5-00a0986138f7"
 }
}
```

Response

```
Status: 201, Created
```

Name	Туре	Description
_links	_links	
num_records	integer	Number of files provisioned for monitoring.
records	array[monitored_file]	

```
" links": {
  "next": {
   "href": "/api/resourcelink"
 },
 "self": {
  "href": "/api/resourcelink"
 }
},
"records": {
  " links": {
    "self": {
     "href": "/api/resourcelink"
   }
  },
  "metric": {
   " links": {
     "self": {
       "href": "/api/resourcelink"
     }
    },
    "duration": "PT15S",
    "iops": {
     "read": "200",
     "total": "1000",
     "write": "100"
    },
    "latency": {
     "read": "200",
     "total": "1000",
     "write": "100"
    },
    "status": "ok",
    "throughput": {
     "read": "200",
     "total": "1000",
     "write": "100"
    "timestamp": "2017-01-25T11:20:13Z"
  },
  "path": "/a/b/c/file.txt",
  "statistics": {
   "iops raw": {
      "read": "200",
```

```
"total": "1000",
        "write": "100"
      },
      "latency raw": {
       "read": "200",
       "total": "1000",
       "write": "100"
      },
      "status": "ok",
      "throughput raw": {
       "read": "200",
       "total": "1000",
       "write": "100"
     },
     "timestamp": "2017-01-25T11:20:13Z"
    },
    "svm": {
     " links": {
       "self": {
         "href": "/api/resourcelink"
       }
     },
     "name": "svm1",
     "uuid": "02c9e252-41be-11e9-81d5-00a0986138f7"
    },
    "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412",
    "volume": {
     " links": {
       "self": {
         "href": "/api/resourcelink"
       }
      },
      "name": "volume1",
     "uuid": "028baa66-41bd-11e9-81d5-00a0986138f7"
 }
}
```

Error

```
Status: Default, Error
```

Name	Туре	Description
error	error	

Example error

```
{
  "error": {
    "arguments": {
        "code": "string",
        "message": "string"
    },
    "code": "4",
    "message": "entry doesn't exist",
    "target": "uuid"
    }
}
```

Definitions

See Definitions

href

Name	Туре	Description
href	string	

_links

Name	Туре	Description
self	href	

iops

The rate of I/O operations observed at the storage object.

Name	Туре	Description
other	integer	Performance metric for other I/O operations. Other I/O operations can be metadata operations, such as directory lookups and so on.
read	integer	Performance metric for read I/O operations.
total	integer	Performance metric aggregated over all types of I/O operations.
write	integer	Peformance metric for write I/O operations.

latency

The round trip latency in microseconds observed at the storage object.

Name	Туре	Description
other	integer	Performance metric for other I/O operations. Other I/O operations can be metadata operations, such as directory lookups and so on.
read	integer	Performance metric for read I/O operations.

Name	Туре	Description
total	integer	Performance metric aggregated over all types of I/O operations.
write	integer	Peformance metric for write I/O operations.

throughput

The rate of throughput bytes per second observed at the storage object.

Name	Туре	Description
other	integer	Performance metric for other I/O operations. Other I/O operations can be metadata operations, such as directory lookups and so on.
read	integer	Performance metric for read I/O operations.
total	integer	Performance metric aggregated over all types of I/O operations.
write	integer	Peformance metric for write I/O operations.

performance_metric

Performance numbers, such as IOPS latency and throughput.

Name	Туре	Description
_links	_links	
duration	string	The duration over which this sample is calculated. The time durations are represented in the ISO-8601 standard format. Samples can be calculated over the following durations:
iops	iops	The rate of I/O operations observed at the storage object.
latency	latency	The round trip latency in microseconds observed at the storage object.

Name	Туре	Description
status	string	Errors associated with the sample. For example, if the aggregation of data over multiple nodes fails, then any partial errors might return "ok" on success or "error" on an internal uncategorized failure. Whenever a sample collection is missed but done at a later time, it is back filled to the previous 15 second timestamp and tagged with "backfilled_data". "Inconsistent_delta_time" is encountered when the time between two collections is not the same for all nodes. Therefore, the aggregated value might be over or under inflated. "Negative_delta" is returned when an expected monotonically increasing value has decreased in value. "Inconsistent_old_data" is returned when one or more nodes do not have the latest data.
throughput	throughput	The rate of throughput bytes per second observed at the storage object.
timestamp	string	The timestamp of the performance data.

iops_raw

The number of I/O operations observed at the storage object. This can be used along with delta time to calculate the rate of I/O operations per unit of time.

Name	Туре	Description
other	integer	Performance metric for other I/O operations. Other I/O operations can be metadata operations, such as directory lookups and so on.
read	integer	Performance metric for read I/O operations.

Name	Туре	Description
total	integer	Performance metric aggregated over all types of I/O operations.
write	integer	Peformance metric for write I/O operations.

latency_raw

The raw latency in microseconds observed at the storage object. This can be divided by the raw IOPS value to calculate the average latency per I/O operation.

Name	Туре	Description
other	integer	Performance metric for other I/O operations. Other I/O operations can be metadata operations, such as directory lookups and so on.
read	integer	Performance metric for read I/O operations.
total	integer	Performance metric aggregated over all types of I/O operations.
write	integer	Peformance metric for write I/O operations.

throughput_raw

Throughput bytes observed at the storage object. This can be used along with delta time to calculate the rate of throughput bytes per unit of time.

Name	Туре	Description
other	integer	Performance metric for other I/O operations. Other I/O operations can be metadata operations, such as directory lookups and so on.
read	integer	Performance metric for read I/O operations.
total	integer	Performance metric aggregated over all types of I/O operations.

Name	Туре	Description
write	integer	Peformance metric for write I/O operations.

performance_metric_raw_reference

These are raw performance numbers, such as IOPS latency and throughput. These numbers are aggregated across all nodes in the cluster and increase with the uptime of the cluster.

Name	Туре	Description
iops_raw	iops_raw	The number of I/O operations observed at the storage object. This can be used along with delta time to calculate the rate of I/O operations per unit of time.
latency_raw	latency_raw	The raw latency in microseconds observed at the storage object. This can be divided by the raw IOPS value to calculate the average latency per I/O operation.
status	string	Errors associated with the sample. For example, if the aggregation of data over multiple nodes fails, then any partial errors might return "ok" on success or "error" on an internal uncategorized failure. Whenever a sample collection is missed but done at a later time, it is back filled to the previous 15 second timestamp and tagged with "backfilled_data". "Inconsistent_delta_time" is encountered when the time between two collections is not the same for all nodes. Therefore, the aggregated value might be over or under inflated. "Negative_delta" is returned when an expected monotonically increasing value has decreased in value. "Inconsistent_old_data" is returned when one or more nodes do not have the latest data.

Name	Туре	Description
throughput_raw	throughput_raw	Throughput bytes observed at the storage object. This can be used along with delta time to calculate the rate of throughput bytes per unit of time.
timestamp	string	The timestamp of the performance data.

svm

Name	Туре	Description
_links	_links	
name	string	The name of the SVM.
uuid	string	The unique identifier of the SVM.

volume

Name	Туре	Description
_links	_links	
name	string	The name of the volume.
uuid	string	Unique identifier for the volume. This corresponds to the instance- uuid that is exposed in the CLI and ONTAPI. It does not change due to a volume move. • example: 028baa66-41bd- 11e9-81d5-00a0986138f7 • Introduced in: 9.6

monitored_file

Name	Туре	Description
_links	_links	
metric	performance_metric	Performance numbers, such as IOPS latency and throughput.
path	string	Path of the file to be monitored.

Name	Туре	Description
statistics	performance_metric_raw_referen ce	These are raw performance numbers, such as IOPS latency and throughput. These numbers are aggregated across all nodes in the cluster and increase with the uptime of the cluster.
svm	svm	
uuid	string	Unique identifier created for identifying the file that is monitored.
volume	volume	

_links

Name	Туре	Description
next	href	
self	href	

error_arguments

Name	Туре	Description
code	string	Argument code
message	string	Message argument

error

Name	Туре	Description
arguments	array[error_arguments]	Message arguments
code	string	Error code
message	string	Error message
target	string	The target parameter that caused the error.

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