



# **Manage data-entropy statistics**

## **REST API reference**

NetApp

February 06, 2026

This PDF was generated from [https://docs.netapp.com/us-en/ontap-restapi/security\\_anti-ransomware\\_volume\\_entropy-stats\\_endpoint\\_overview.html](https://docs.netapp.com/us-en/ontap-restapi/security_anti-ransomware_volume_entropy-stats_endpoint_overview.html) on February 06, 2026. Always check docs.netapp.com for the latest.

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# Manage data-entropy statistics

## Manage data-entropy statistics

### Overview

This API returns the percentage of data classified as encrypted using an entropy algorithm, measured at various time intervals at the volume level. If no volume UUID is specified, entropy statistics of all the volumes will be returned. The `entropy_stats_type` parameter can be used to retrieve statistics with `sub_hourly`, `hourly`, or `daily` granularity. Additionally, it can be used to identify intervals that exhibited high (`high_enc_pct`) percentages of encrypted data. If no type is specified, all types of entropy statistics will be returned for the volumes.

### Examples

#### Retrieving volume stats

In this example, the API returns the data-entropy statistics for the volumes.

```
# The API:
/security/anti-ransomware/volume/entropy-stats

# The call:
curl -X GET "https://<mgmt-ip>/api/security/anti-ransomware/volume/entropy-stats" -H "accept: application/json"

# The response:
{
  "records": [
    {
      "volume": {
        "uuid": "61edb8bb-b7d1-11ef-932d-005056bbaeff",
        "name": "v2"
      },
      "entropy_stats_type": "sub_hourly",
      "timestamp": "2024-12-13T03:36:24-05:00",
      "data_written_in_bytes": 13249687,
      "encryption_percentage": 51,
      "duration": "PT10M21S",
      "_links": {
        "self": {
          "href": "/api/security/anti-ransomware/volume/entropy-stats/61edb8bb-b7d1-11ef-932d-005056bbaeff/sub_hourly/2024-12-13T03%3A36%3A24-05%3A00"
        }
      }
    },
  ],
}
```

```

    "volume": {
      "uuid": "61edb8bb-b7d1-11ef-932d-005056bbaeff",
      "name": "v2"
    },
    "entropy_stats_type": "hourly",
    "timestamp": "2024-12-13T04:16:06-05:00",
    "data_written_in_bytes": 13249687,
    "encryption_percentage": 51,
    "duration": "PT1H2M36S",
    "_links": {
      "self": {
        "href": "/api/security/anti-ransomware/volume/entropy-
stats/61edb8bb-b7d1-11ef-932d-005056bbaeff/hourly/2024-12-13T04%3A16%3A06-
05%3A00"
      }
    }
  },
  "num_records": 20,
  "_links": {
    "self": {
      "href": "/api/security/anti-ransomware/volume/entropy-stats/61edb8bb-
b7d1-11ef-932d-005056bbaeff"
    }
  }
}

```

## Retrieve data-entropy statistics for volumes

GET /security/anti-ransomware/volume/entropy-stats

**Introduced In:** 9.17

Retrieves the data-entropy statistics for the volumes.

### Parameters

Name	Type	In	Required	Description
volume.name	string	query	False	Filter by volume.name
volume.uuid	string	query	False	Filter by volume.uuid
timestamp	string	query	False	Filter by timestamp

Name	Type	In	Required	Description
data_written_in_bytes	integer	query	False	Filter by data_written_in_bytes
encryption_percentage	integer	query	False	Filter by encryption_percentage
duration	string	query	False	Filter by duration
entropy_stats_type	string	query	False	Filter by entropy_stats_type
fields	array[string]	query	False	Specify the fields to return.
max_records	integer	query	False	Limit the number of records returned.
return_records	boolean	query	False	<p>The default is true for GET calls. When set to false, only the number of records is returned.</p> <ul style="list-style-type: none"> <li>• Default value: 1</li> </ul>
return_timeout	integer	query	False	<p>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.</p> <ul style="list-style-type: none"> <li>• Default value: 15</li> <li>• Max value: 120</li> <li>• Min value: 0</li> </ul>

Name	Type	In	Required	Description
order_by	array[string]	query	False	Order results by specified fields and optional [asc

## Response

Status: 200, Ok

Name	Type	Description
_links	<a href="#">_links</a>	
num_records	integer	Number of records
records	array[ <a href="#">records</a> ]	

## Example response

```
{
  "_links": {
    "next": {
      "href": "/api/resourcelink"
    },
    "self": {
      "href": "/api/resourcelink"
    }
  },
  "num_records": 1,
  "records": [
    {
      "_links": {
        "self": {
          "href": "/api/resourcelink"
        }
      },
      "data_written_in_bytes": 0,
      "duration": "PT15M",
      "encryption_percentage": 0,
      "entropy_stats_type": "string",
      "timestamp": "string",
      "volume": {
        "_links": {
          "self": {
            "href": "/api/resourcelink"
          }
        },
        "name": "volume1",
        "uuid": "028baa66-41bd-11e9-81d5-00a0986138f7"
      }
    }
  ]
}
```

## Error

Status: Default, Error

Name	Type	Description
error	<a href="#">returned_error</a>	

### Example error

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

### Definitions



## See Definitions

href

Name	Type	Description
href	string	

\_links

Name	Type	Description
next	<a href="#">href</a>	
self	<a href="#">href</a>	

\_links

Name	Type	Description
self	<a href="#">href</a>	

volume

Name	Type	Description
_links	<a href="#">_links</a>	
name	string	The name of the volume. This field cannot be specified in a PATCH method.
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. <ul style="list-style-type: none"><li>• example: 028baa66-41bd-11e9-81d5-00a0986138f7</li><li>• Introduced in: 9.6</li><li>• x-nullable: true</li></ul>

records

Volume data-entropy statistics derived from block analysis.

Name	Type	Description
_links	<a href="#">_links</a>	
data_written_in_bytes	integer	The amount of data written.

Name	Type	Description
duration	string	The duration of the interval associated with this statistic. The duration is represented in ISO-8601 standard format.
encryption_percentage	integer	The percentage of data that is encrypted.
entropy_stats_type	string	Volume metrics are retrieved based on this statistic type.
timestamp	string	Start time in date-time format.
volume	<a href="#">volume</a>	

#### error\_arguments

Name	Type	Description
code	string	Argument code
message	string	Message argument

#### returned\_error

Name	Type	Description
arguments	array[ <a href="#">error_arguments</a> ]	Message arguments
code	string	Error code
message	string	Error message
target	string	The target parameter that caused the error.

## Retrieve a data-entropy statistic for a volume

GET /security/anti-ransomware/volume/entropy-stats/{volume.uuid}/{entropy\_stats\_type}/{timestamp}

**Introduced In:** 9.17

Retrieves a data-entropy statistic for the volumes.

## Parameters

Name	Type	In	Required	Description
volume.uuid	string	path	True	The UUID of the volume.
entropy_stats_type	string	path	True	The type of entropy statistics. <ul style="list-style-type: none"><li>enum: ["sub_hourly", "hourly", "daily", "high_enc_pct"]</li></ul>
timestamp	string	path	True	The timestamp of the statistics. <ul style="list-style-type: none"><li>format: date-time</li></ul>
fields	array[string]	query	False	Specify the fields to return.

## Response

Status: 200, Ok

Name	Type	Description
_links	<a href="#">_links</a>	
data_written_in_bytes	integer	The amount of data written.
duration	string	The duration of the interval associated with this statistic. The duration is represented in ISO-8601 standard format.
encryption_percentage	integer	The percentage of data that is encrypted.
entropy_stats_type	string	Volume metrics are retrieved based on this statistic type.
timestamp	string	Start time in date-time format.
volume	<a href="#">volume</a>	

## Example response

```
{
  "_links": {
    "self": {
      "href": "/api/resourcelink"
    }
  },
  "data_written_in_bytes": 0,
  "duration": "PT15M",
  "encryption_percentage": 0,
  "entropy_stats_type": "string",
  "timestamp": "string",
  "volume": {
    "_links": {
      "self": {
        "href": "/api/resourcelink"
      }
    },
    "name": "volume1",
    "uuid": "028baa66-41bd-11e9-81d5-00a0986138f7"
  }
}
```

## Error

Status: Default, Error

Name	Type	Description
error	<a href="#">returned_error</a>	

### Example error

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

### Definitions

## See Definitions

href

Name	Type	Description
href	string	

\_links

Name	Type	Description
self	<a href="#">href</a>	

volume

Name	Type	Description
_links	<a href="#">_links</a>	
name	string	The name of the volume. This field cannot be specified in a PATCH method.
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. <ul style="list-style-type: none"><li>• example: 028baa66-41bd-11e9-81d5-00a0986138f7</li><li>• Introduced in: 9.6</li><li>• x-nullable: true</li></ul>

error\_arguments

Name	Type	Description
code	string	Argument code
message	string	Message argument

returned\_error

Name	Type	Description
arguments	array[ <a href="#">error_arguments</a> ]	Message arguments
code	string	Error code

Name	Type	Description
message	string	Error message
target	string	The target parameter that caused the error.

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