



## **Service levels**

### **NetApp Keystone**

Ciaran McNamara, David Peterson  
October 29, 2020

# Table of Contents

Service levels ..... 1

# Service levels

Use the methods listed in the following table to retrieve, create, modify, and delete service levels.

HTTP Method	Path	Description
GET	<code>/v2.1/servicelevels</code>	Retrieve all service levels.
GET	<code>/v2.1/servicelevels/{id}</code>	Retrieve a service level by ID.
POST	<code>/v2.1/servicelevels</code>	Create a new service level.
PUT	<code>/v2.1/servicelevels/{id}</code>	Modify service level details by ID.
DELETE	<code>/v2.1/servicelevels/{id}</code>	Delete a service level.

## Service level attributes

The following table lists the service level attributes.

Attribute	Type	Description
<code>id</code>	String	The unique identifier for the service level.
<code>name</code>	String	The service level name.
<code>description</code>	String	The description of the service level.
<code>policy_name</code>	String	Service level quality of service (QoS) name. Allowed values: <code>nse_value</code> , <code>nse_performance</code> , and <code>nse_extreme</code> .
<code>available</code>	Boolean	Indicates whether the service level is available for use.
<code>grandfathered</code>	Boolean	Indicates whether the service level has been retired.
<code>peak_iops_per_tb</code>	Integer	The maximum possible IOPS per TiB.
<code>expected_iops_per_tb</code>	Integer	The minimum expected IOPS per TiB.
<code>absolute_min_iops</code>	Integer	The absolute minimum IOPS which is used as an override when the expected IOPS is less than this value.
<code>peak_iops_allocation</code>	String	The peak IOPS allocation. Allowed values: <code>allocated_space</code> and <code>used_space</code> .
<code>io_block_size_kb</code>	Integer	The I/O block size (KiB).
<code>min_size_gb</code>	Integer	The minimum size (GiB).

Attribute	Type	Description
<code>max_size_gb</code>	Integer	The maximum size (GiB).
<code>max_peak_iops</code>	Integer	The maximum peak IOPS for the service level.
<code>max_expected_iops</code>	Integer	The maximum expected IOPS.
<code>autogrow_max_percent</code>	Integer	The autogrow maximum percent.
<code>ontap_aggregates</code>	—	<p>The list of ONTAP aggregates. An ONTAP aggregate consists of:</p> <ul style="list-style-type: none"> <li>• <code>cluster_UIID:</code> ONTAP cluster UUID</li> <li>• <code>aggr_name:</code> ONTAP aggregate name</li> <li>• <code>aggr_uuid:</code> ONTAP aggregate UUID</li> <li>• <code>node_name:</code> ONTAP cluster node name</li> </ul> <p>For example:</p> <pre> "ontap_aggregates": [   {     "cluster_uuid": "3fa85f64-5717-4562- b3fc-2c963f66afa6",     "aggr_name": "string",     "aggr_uuid": "3fa85f64-5717-4562- b3fc-2c963f66afa6",     "node_name": "node01"   } ] </pre>

Attribute	Type	Description
<code>primary_volume_defaults</code>	—	<ul style="list-style-type: none"> <li><code>snapshot_auto_delete_target_free_space</code> (integer): This option specifies the free space percentage at which the automatic deletion of Snapshot copies must stop.</li> <li><code>auto_size_mode</code> (string): The autosize mode for the volume. Allowed values: <code>off</code>, <code>grow</code>, <code>grow_shrink</code> For example: <div data-bbox="1047 617 1487 957" style="border: 1px solid #ccc; padding: 10px; margin-top: 10px;"> <pre>"primary_volume_defaults": {   "snapshot_auto_delete_target_free_space":   3,   "auto_size_mode":   "grow_shrink"</pre> </div> </li> </ul>

## Retrieve service levels

Use the method listed in the following table to retrieve all service levels.

HTTP Method	Path	Description	Parameters
<code>GET</code>	<code>/v2.1/servicelevels</code>	Retrieve all service levels.	None

Required request body attributes: `none`

### Request body example:

```
none
```

### Response body example:

```
{
  "status": {
    "user_message": "Okay. Returned 3 records.",
    "verbose_message": "",
    "code": 200
  },
  "result": {
```

```
"total_records": 3,
"records": [
  {
    "name": "standard",
    "description": "Best suited for general purpose workloads",
    "slo": "1000IOPS/TB",
    "min_size": 137438953472,
    "io_block_size_kb": 32,
    "min_size_gb": 10,
    "max_size_gb": 40960,
    "min_iops": 100,
    "peak_iops_per_tb": 1000,
    "expected_iops_per_tb": 700,
    "max_peak_iops": 40000,
    "max_expected_iops": 28000,
    "max_peak_throughput": 1250,
    "max_expected_throughput": 875
  },
  {
    "name": "extreme",
    "description": "Best suited for performance-critical workloads",
    "slo": "12000IOPS/TB",
    "min_size": 91625968981,
    "io_block_size_kb": 32,
    "min_size_gb": 10,
    "max_size_gb": 10240,
    "min_iops": 500,
    "peak_iops_per_tb": 12000,
    "expected_iops_per_tb": 8000,
    "max_peak_iops": 120000,
    "max_expected_iops": 60000,
    "max_peak_throughput": 3750,
    "max_expected_throughput": 1875
  },
  {
    "name": "premium",
    "description": "Best suited for databases and high performance
workloads",
    "slo": "4000IOPS/TB",
    "min_size": 137438953472,
    "io_block_size_kb": 32,
    "min_size_gb": 10,
    "max_size_gb": 10240,
    "min_iops": 300,
    "peak_iops_per_tb": 4000,
    "expected_iops_per_tb": 3000,
```

```
    "max_peak_iops": 40000,  
    "max_expected_iops": 30000,  
    "max_peak_throughput": 1250,  
    "max_expected_throughput": 937  
  }  
]  
}  
}
```

## Retrieve service levels by name

Use the method listed in the following table to retrieve service levels by name.

HTTP Method	Path	Description	Parameters
GET	<code>/v2.1/servicelevels/{name}</code>	Retrieve a service level by name.	<code>name (string)</code> : The name of the service level.

Required request body attributes: `none`

### Request body example:

```
none
```

### Response body example:

```

{
  "status": {
    "user_message": "Okay. Returned 1 record.",
    "verbose_message": "",
    "code": 200
  },
  "result": {
    "returned_records": 1,
    "records": [
      {
        "name": "premium",
        "description": "Best suited for databases and high performance
workloads",
        "slo": "4096IOPS/TB",
        "min_size": 137438953472,
        "io_block_size_kb": 32,
        "min_size_gb": 10,
        "max_size_gb": 10240,
        "min_iops": 300,
        "peak_iops_per_tb": 4096,
        "expected_iops_per_tb": 3000,
        "max_peak_iops": 40000,
        "max_expected_iops": 30000,
        "max_peak_throughput": 1250,
        "max_expected_throughput": 937
      }
    ]
  }
}

```

## Create a service level

Use the method listed in the following table to create a service level.

HTTP Method	Path	Description	Parameters
POST	<a href="/v2.1/servicelevels">/v2.1/servicelevels</a>	Create a service level.	None

Required request body attributes: [name](#), [policy\\_name](#)

### Request body example:



```
{
  "name": "MyServiceLevelName",
  "description": "My new service level description",
  "policy_name": "nse_value",
  "available": true,
  "grandfathered": false,
  "peak_iops_per_tb": 1000,
  "expected_iops_per_tb": 700,
  "absolute_min_iops": 100,
  "peak_iops_allocation": "allocated_space",
  "io_block_size_kb": 32,
  "min_size_gb": 10,
  "max_size_gb": 40960,
  "max_peak_iops": 20000,
  "max_expected_iops": 5000,
  "autogrow_max_percent": 3,
  "ontap_aggregates": [
    {
      "cluster_uuid": "3fa85f64-5717-4562-b3fc-2c963f66afa6",
      "aggr_name": "string",
      "aggr_uuid": "3fa85f64-5717-4562-b3fc-2c963f66afa6",
      "node_name": "node01"
    }
  ],
  "primary_volume_defaults": {
    "snapshot_auto_delete_target_free_space": 3,
    "auto_size_mode": "grow_shrink"
  }
}
```

**Response body example:**

```

{
  "status": {
    "user_message": "Okay. New resource created.",
    "verbose_message": "",
    "code": 201
  },
  "result": {
    "total_records": 1,
    "records": [
      {
        "name": "MyServiceLevelName",
        "description": "My new service level description",
        "slo": "1000IOPS/TB",
        "min_size": 0,
        "io_block_size_kb": 32,
        "min_size_gb": 10,
        "max_size_gb": 40960,
        "min_iops": 100,
        "peak_iops_per_tb": 1000,
        "expected_iops_per_tb": 700,
        "max_peak_iops": 20000,
        "max_expected_iops": 5000,
        "max_peak_throughput": 625,
        "max_expected_throughput": 156
      }
    ]
  }
}

```

## Modify a service level

Use the method listed in the following table to modify a service level.

HTTP Method	Path	Description	Parameters
PUT	/v2.1/servicelevels /{name}	Modify the details of a service level.	<code>name (string)</code> : The name of the service level.

Required request body attributes: `none`

**Request body example:**

```

{
  "name": "MyNewServiceLevelName",
  "description": "Service level description",
  "policy_name": "nse_value",
  "available": false,
  "grandfathered": false,
  "peak_iops_per_tb": 1000,
  "expected_iops_per_tb": 700,
  "absolute_min_iops": 100,
  "peak_iops_allocation": "allocated_space",
  "io_block_size_kb": 32,
  "min_size_gb": 10,
  "max_size_gb": 40960,
  "max_peak_iops": 20000,
  "max_expected_iops": 5000,
  "autogrow_max_percent": 3,
  "ontap_aggregates": [
    {
      "cluster_uuid": "3fa85f64-5717-4562-b3fc-2c963f66afa6",
      "aggr_name": "string",
      "aggr_uuid": "3fa85f64-5717-4562-b3fc-2c963f66afa6",
      "node_name": "node01"
    }
  ],
  "primary_volume_defaults": {
    "snapshot_auto_delete_target_free_space": 3,
    "auto_size_mode": "grow_shrink"
  }
}

```

### Response body example:

TBA

## Delete service level by ID

Use the method listed in the following table to delete a service level by ID.

HTTP Method	Path	Description	Parameters
DELETE	/v2.1/servicelevels /{name}	Delete the service level identified by ID.	name (string): The name of the service level.

### Request body example:

none

**Response body example:**

No content for succesful delete

## Copyright Information

Copyright © 2021 NetApp, Inc. All rights reserved. Printed in the U.S. No part of this document covered by copyright may be reproduced in any form or by any means-graphic, electronic, or mechanical, including photocopying, recording, taping, or storage in an electronic retrieval system-without prior written permission of the copyright owner.

Software derived from copyrighted NetApp material is subject to the following license and disclaimer:

THIS SOFTWARE IS PROVIDED BY NETAPP "AS IS" AND WITHOUT ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, WHICH ARE HEREBY DISCLAIMED. IN NO EVENT SHALL NETAPP BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

NetApp reserves the right to change any products described herein at any time, and without notice. NetApp assumes no responsibility or liability arising from the use of products described herein, except as expressly agreed to in writing by NetApp. The use or purchase of this product does not convey a license under any patent rights, trademark rights, or any other intellectual property rights of NetApp.

The product described in this manual may be protected by one or more U.S. patents, foreign patents, or pending applications.

RESTRICTED RIGHTS LEGEND: Use, duplication, or disclosure by the government is subject to restrictions as set forth in subparagraph (c)(1)(ii) of the Rights in Technical Data and Computer Software clause at DFARS 252.277-7103 (October 1988) and FAR 52-227-19 (June 1987).

## Trademark Information

NETAPP, the NETAPP logo, and the marks listed at <http://www.netapp.com/TM> are trademarks of NetApp, Inc. Other company and product names may be trademarks of their respective owners.