



# Keystone dashboard

## Keystone

NetApp  
June 28, 2024

# Table of Contents

- Keystone dashboard ..... 1
  - View Keystone dashboard on Digital Advisor..... 1
  - Use Keystone dashboard and reporting ..... 2
  - Subscriptions tab ..... 5
  - Current Usage tab ..... 6
  - Capacity Trend tab ..... 7
  - Volumes & Objects tab ..... 13
  - Performance tab ..... 16
  - Assets tab ..... 19
- Learn about Keystone and BlueXP ..... 19

# Keystone dashboard

## View Keystone dashboard on Digital Advisor

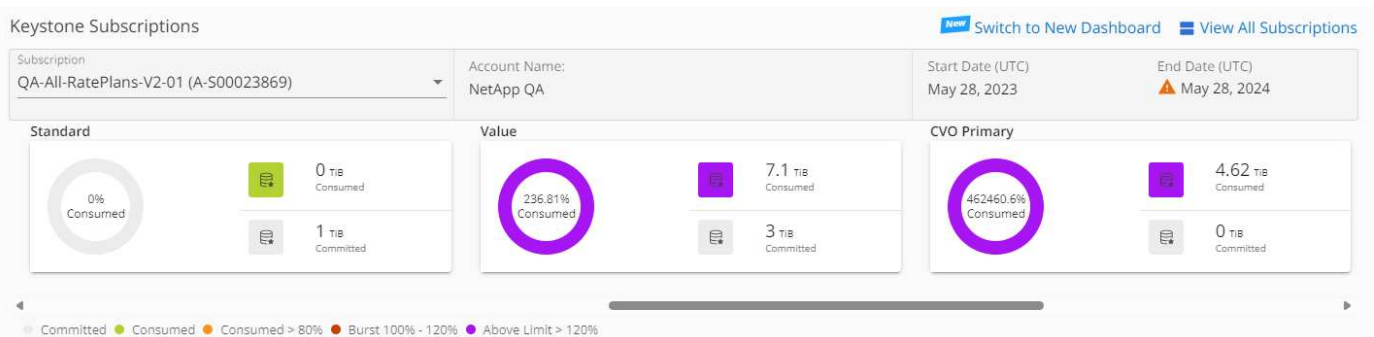
If you have subscribed to NetApp Keystone STaaS services, you get an overview of your subscriptions on the **Keystone Subscriptions** widget of the Active IQ Digital Advisor (also known as Digital Advisor) dashboard.

You can search for Keystone subscription by entering the first three characters of a customer or watchlist name, or the Keystone subscription number. For information about how to search Keystone STaaS subscriptions by watchlists, see [Search by using Keystone watchlists](#).

Digital Advisor offers a unified dashboard that gives insights into various levels of your subscription data and usage information through the **Switch to old/new dashboard** button.

### Default (old) dashboard

You can see your customer name and subscription number, account name, start and end dates of the subscription, and the capacity usage graphs as per your subscribed service levels. You can see the collection timestamp of the consumption data in UTC time.



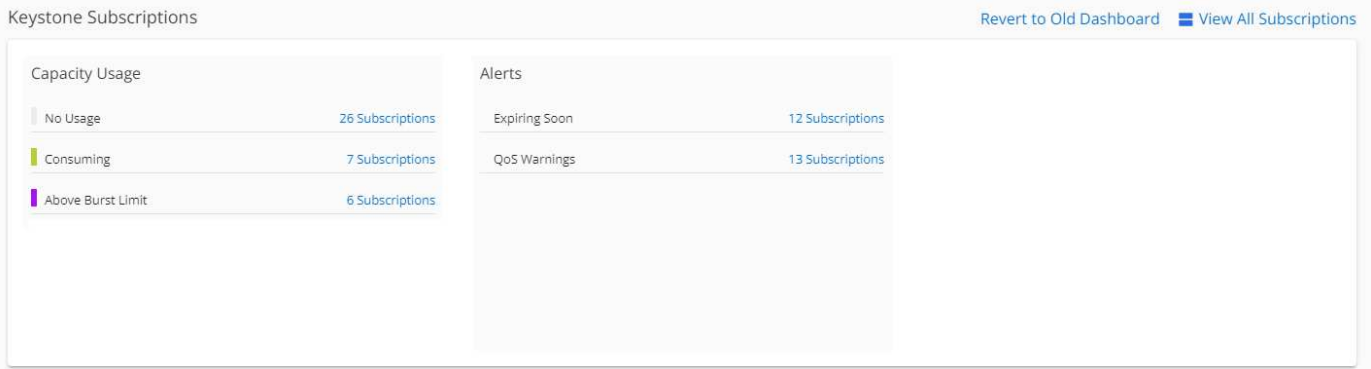
### Alternative (new) dashboard

You can see the breakup of the capacity usage as per your subscriptions, and warnings and alerts that require immediate attention or action. The information appears selectively, depending on your subscriptions and the status of your usage. You can view this information:

- **Capacity usage:** Consumption data such as:
  - No usage.
  - Consumption exceeding 80% of the committed capacity.
  - Burst usage.
  - Consumptions above the burst capacity.
- **Alerts:** You see alerts for various scenarios if they are applicable to you.
  - **Expiring soon:** In case your subscriptions expire within 90 days.
  - **QoS Warnings:** You have volumes without AQoS policies assigned.



Click the **Subscriptions** link to view the list of filtered subscriptions in the **Subscriptions** tab.



For more information about Digital Advisor dashboard widget for Keystone, see [Digital Advisor documentation](#).

For more information about Keystone dashboard and reporting, see [Keystone Subscription dashboard and reporting](#).

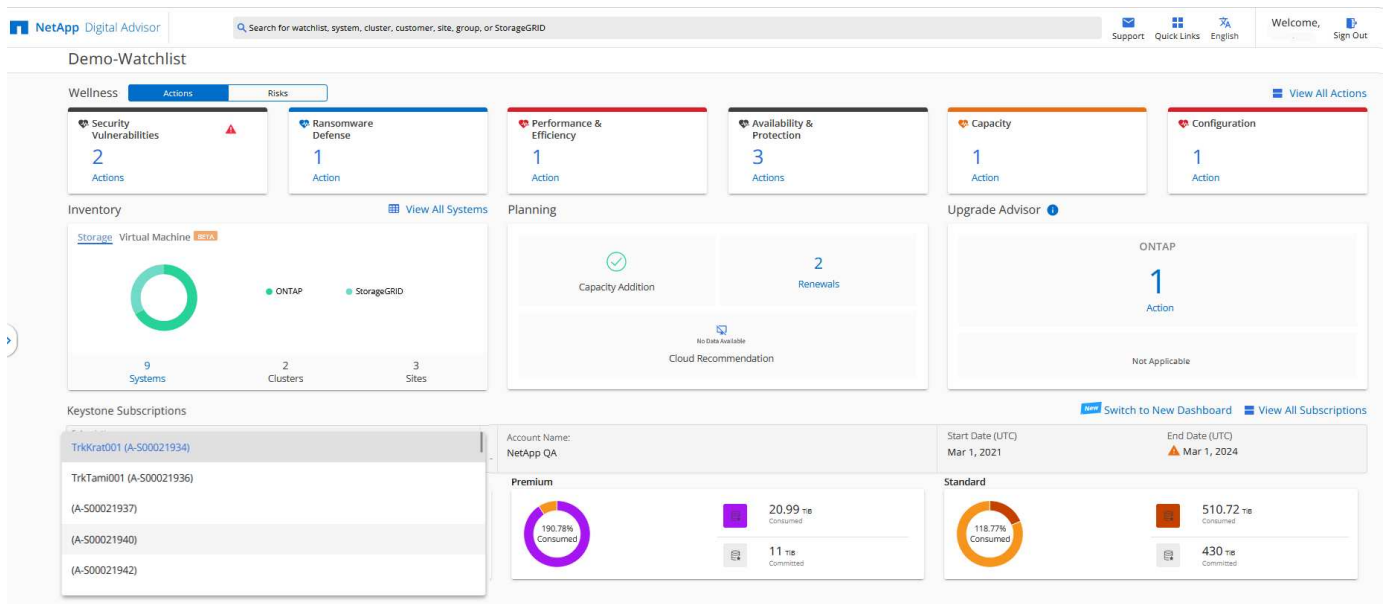
## Search by Keystone watchlists

Watchlist is a feature Digital Advisor. For information, see [Understand watchlist](#). For information about creating watchlists, see [Create a watchlist](#).

For Keystone STaaS, you can create watchlists for customers or subscription numbers. You can search by the watchlist name on the Digital Advisor screen. On searching by a watchlist, you can view the customers and their subscriptions in the **Subscription** drop-down list on the **Keystone Subscriptions** widget.



A search by watchlists retrieves the list of subscriptions on the old dashboard. If a watchlist consists of subscription numbers, only the **Keystone Subscriptions** widget is displayed on the Digital Advisor dashboard.



## Use Keystone dashboard and reporting

You use the Digital Advisor dashboard to view the details of your Keystone subscriptions, to monitor capacity usage, and generate reports.

On subscribing to Keystone services, you can view the details of your subscription and usage on the **Keystone Subscriptions** widget on the Digital Advisor dashboard.



The information here applies to both ONTAP and StorageGRID. Exceptions have been pointed out in the relevant sections.

For information about the Keystone Digital Advisor widget, see [View capacity utilization with NetApp Keystone Subscription](#).

To view your Keystone subscription and usage details, perform the following steps:

### Steps

1. Log in to Digital Advisor. You can see the **Keystone Subscriptions** widget that summarizes the capacity usage against your purchased Keystone services.
2. On the **Keystone Subscriptions** widget, click **View All Subscriptions** to view the usage details and alerts on your volumes on the **Keystone Subscriptions** page. Alternately, from the left navigation pane, go to **GENERAL > Keystone Subscriptions**.  
The details of the subscriptions, usage charts for each service level, and volume details are displayed in the different tabs on the **Keystone Subscriptions** screen.



Capacity consumption in Keystone subscriptions is displayed in TiBs on the dashboards and reports, and is rounded off to two decimal places. If the usage is less than 0.01 TiB, then the value is shown as 0 or No Usage. The data on these screens is displayed in UTC time (server timezone). When you enter a date for query, it is automatically considered to be in UTC time.

For information about usage metrics, see [Metrics measurement](#). For information about different capacities used in Keystone, see [Supported storage capacities](#).

The following links provide more information about each of these tabs:

- [Subscriptions](#)
- [Current Usage](#)
- [Capacity Trend](#)
- [Volumes & Objects](#)
- [Performance](#)
- [Assets](#)

## Generate reports

You can generate and view reports for your Keystone data. Each tab on the **Keystone Subscriptions** page enables you to generate reports for your subscriptions, historical usage and burst usage, performance, assets,

and volumes and objects by clicking the download button:



The details are generated in CSV format that you can save for future use and comparison.

A sample report for the **Capacity Trend** tab, where the graphical data is converted:

	A	B	C	D	E	F	G	H	I
1	Subscription Number	Account Name	Service Level	Timestamp (UTC)	Committed (TiB)	Consumed (TiB)	Burst (TiB)	Accrued Burst (TiB)	
2	xxxxxxxxx	xxxxx	Premium	01-04-2024 00:00	200	189.3899	0	0	
3	xxxxxxxxx	xxxxx	Premium	01-04-2024 23:00	200	189.3899	0	0	
4	xxxxxxxxx	xxxxx	Premium	02-04-2024 22:00	200	189.3899	0	0	
5	xxxxxxxxx	xxxxx	Premium	03-04-2024 21:00	200	189.3899	0	0	
6	xxxxxxxxx	xxxxx	Premium	04-04-2024 20:00	200	189.3899	0	0	
7	xxxxxxxxx	xxxxx	Premium	05-04-2024 19:00	200	189.3899	0	0	
8	xxxxxxxxx	xxxxx	Premium	06-04-2024 18:00	200	172.3899	0	0	
9	xxxxxxxxx	xxxxx	Premium	07-04-2024 17:00	200	172.3899	0	0	
10	xxxxxxxxx	xxxxx	Premium	08-04-2024 16:00	200	172.3899	0	0	
11	xxxxxxxxx	xxxxx	Premium	09-04-2024 15:00	200	172.3899	0	0	
12	xxxxxxxxx	xxxxx	Premium	10-04-2024 14:00	200	172.3899	0	0	
13	xxxxxxxxx	xxxxx	Premium	11-04-2024 13:00	200	172.3899	0	0	
14	xxxxxxxxx	xxxxx	Premium	12-04-2024 12:00	200	172.3899	0	0	
15	xxxxxxxxx	xxxxx	Premium	13-04-2024 11:00	200	172.3899	0	0	
16	xxxxxxxxx	xxxxx	Premium	14-04-2024 10:00	200	172.3899	0	0	
17	xxxxxxxxx	xxxxx	Premium	15-04-2024 09:00	200	172.3899	0	0	

## View alerts

The dashboard provides alert notifications that enable you to understand the issues occurring in your storage environment. These notifications may appear as informational alerts or warnings. For example, if there are volumes within your managed clusters that do not have adaptive QoS (AQoS) policies attached, you can see a warning message. You can click the link on the warning message to see the list of the non-compliant volumes in the **Volumes & Objects** tab.



If you have subscribed to a single service level or rate plan, you won't be able to see the alert for non-compliant volumes.

Subscriptions
Current Usage
SLA Details
Capacity Trend
Volumes & Objects
Performance
Assets

Subscription

QA-All-RatePlans-V2-01 (A-S00023869)

Start Date (UTC)

May 28, 2023

End Date (UTC)

▲ May 28, 2024

Billing Period

Month

▲ **Warning:** [31 volumes do not comply with this subscription's QoS policies.](#)

**Current Usage per Service Level**

● No Usage
 ● Consuming
 ● Consuming > 80%
 ● Using Burst 100% - 120%
 ● Above Burst Limit > 120%

Service Level	Committed	Consumed	Current Burst	Available	Available W/th Burst	Act
Data Tiering	2 TiB	0 TiB	0 TiB	2 TiB	2.4 TiB	0
Extreme	1 TiB	23 TiB	22 TiB	0 TiB	0 TiB	0
Performance	0.5 TiB	0 TiB	0 TiB	0.5 TiB	0.6 TiB	0
Premium	1 TiB	0 TiB	0 TiB	1 TiB	1.2 TiB	0
Standard	1 TiB	0 TiB	0 TiB	1 TiB	1.2 TiB	0
Value	3 TiB	7.1 TiB	4.1 TiB	0 TiB	0 TiB	0
CVO Primary	0 TiB	4.62 TiB	4.62 TiB	0 TiB	0 TiB	0
CVO Secondary	0 TiB	2 TiB	2 TiB	0 TiB	0 TiB	0

For information about AQoS policies, see [Adaptive QoS](#).

Contact NetApp support for more information on these messages. For information about raising service requests, see [Generating service requests](#).

# Subscriptions tab

You can view a list of all your subscriptions in the **Subscriptions** tab.

To view this tab, from the left navigation pane, go to **GENERAL > Keystone Subscriptions > Subscriptions**. All your subscriptions are listed.

Subscriptions	Current Usage	SLA Details	Capacity Trend	Volumes & Objects	Performance	Assets
<div style="display: flex; justify-content: space-between;"><span>Clear Filters</span><span>View Usage Indicators</span><span>Download CSV</span></div>						
<input type="checkbox"/> Subscription Number	Linked Subscriptions	Tracking ID	Usage Type	Billing Period	Star	
<input type="checkbox"/> A-S00023870		QA-All-RatePlans-V2-02	Physical (v2)	Month	M	
<input type="checkbox"/> A-S00024530		QA-All-RatePlans-V2-03	Provisioned (v2)	Annual	Ar	
<input type="checkbox"/> A-S00024531		QA-All-RatePlans-V2-04	Provisioned (v2)	Annual	Ar	
<input type="checkbox"/> A-S00023803		QA-Auto-STaaS-1	Provisioned (v1)	Annual	M	
<input type="checkbox"/> A-S00026932		QA-CVO-v1-combo1		Month	M	
<input type="checkbox"/> A-S00026933		QA-CVO-v1-combo2		Month	M	
<input type="checkbox"/> A-S00026927		qa-cvo-v2-combo1	Logical (v2),CVO (v2)	Month	M	
<input type="checkbox"/> A-S00026928		qa-cvo-v2-combo2	Logical (v2),CVO (v2)	Month	M	



You can filter the selection by clicking the hamburger icon for a column, or view all the subscriptions by clicking the **Clear Filters** button. For certain fields and columns, you might see information or warning icons and tooltips that provide you with additional information about the data.

- **Subscription Number:** The subscription number of the Keystone subscription assigned by NetApp.
- **Tracking ID:** The tracking ID assigned at the time of subscription activation. This is a unique ID for each subscription and site, used for tracking the subscription.



If you have subscribed to advanced data protection add-on service, then you can click the tooltip against your subscription number to view the tracking ID of the partner subscription in a MetroCluster setup. To know how to view detailed consumption by partner subscriptions in a MetroCluster configuration, see [Reference charts for advanced data protection](#).

- **Usage Type:** You might have subscribed to multiple Keystone (version 1) or Keystone STaaS (version 2) subscriptions. The rate plan rules for the service levels might vary for the two subscription types. By looking at the value in this column, you know whether the usage type is billed as per the provisioned, physical, or logical usage for either v1 or v2. For more information about Keystone Subscriptions version 1, see [Documentation for NetApp Keystone](#).
- **Billing Period:** The billing period of the subscription, such as monthly, quarterly, or yearly.
- **Start Date:** The start date of the subscription.
- **End Date:** The end date of the subscription. If you have a monthly-billable subscription that renews automatically every month, you see `Month-on-month` instead of the end date. Based on this date, you might see notifications for subscriptions that are about to end or have auto-renewal policies attached.

- **Usage Status:** Displays the usage indicator to indicate whether the consumption is within or exceeding the subscription limit. You can sort the list by this column if you want to view the highest consumption records.
- : Clicking this icon for a subscription opens the **Current Usage** tab with the usage details of that subscription.
- : Clicking this icon opens the **Capacity Trend** tab where you can see the historical usage data for each service level included in this subscription.

You can refer to the following usage indicators to check the usage status of each subscription:

- No Usage 0%
- Consuming 0% - 80%
- Consuming Above 80%
- Within Burst Limit
- Above Burst Limit

#### Index

- : No capacity usage recorded against the committed capacity of the service level
- : The consumption is normal, within 80% of the committed capacity
- : Maximum consumption, that is the usage is about to reach 100% or more of the committed capacity. The **Consumed** column displays this indicator for any consumption above 80% of the committed capacity
- : The consumption is within the burst limit. The burst consumption is the consumption that tops the 100% committed capacity of a service level, and is within the agreed-upon burst usage limit, such as 120%
- : Indicates consumption above the stipulated burst limit

#### Related information

- [Use Keystone dashboard and reporting](#)
- [Current Usage](#)
- [Capacity Trend](#)
- [Volumes & Objects](#)
- [Performance](#)
- [Assets](#)

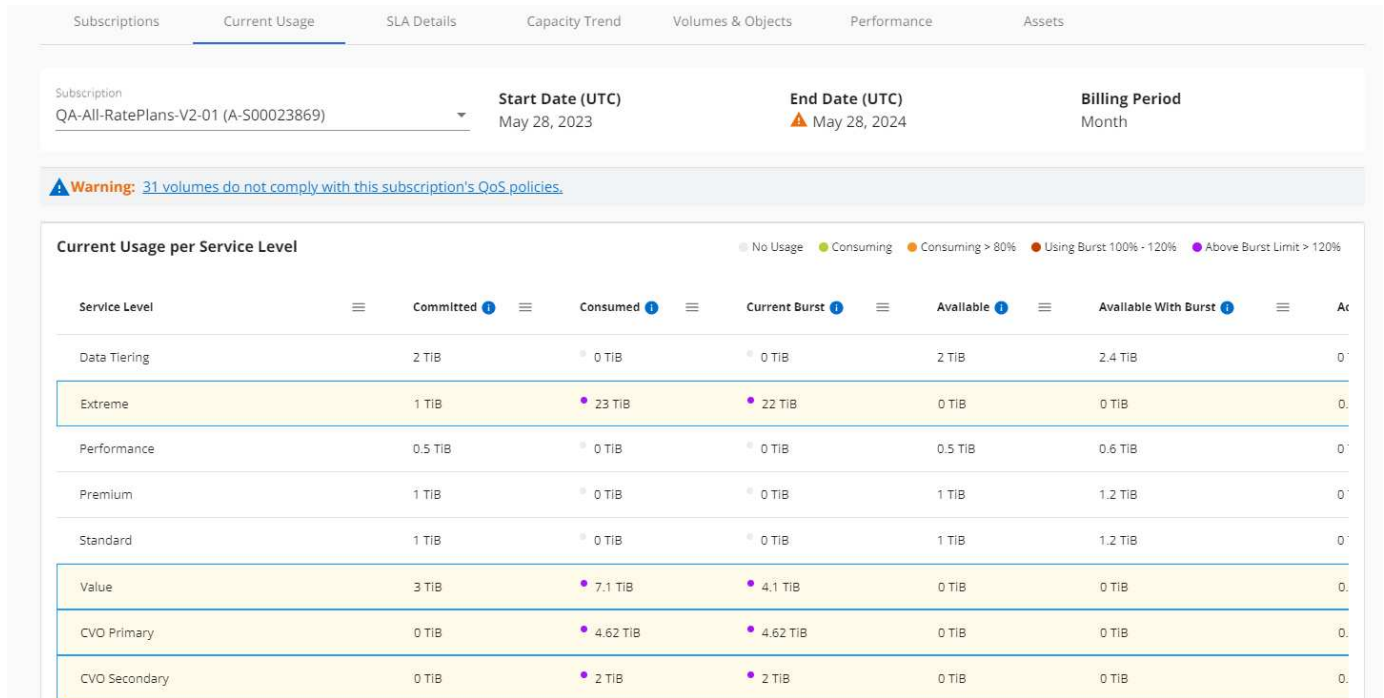
## Current Usage tab

The **Current Usage** tab displays the usage details of your subscriptions.

To view this tab, from the left navigation pane, go to **GENERAL > Keystone Subscriptions > Current Usage**,



and select the required subscription number.



Subscriptions   Current Usage   SLA Details   Capacity Trend   Volumes & Objects   Performance   Assets

Subscription: QA-All-RatePlans-V2-01 (A-S00023869)   Start Date (UTC): May 28, 2023   End Date (UTC): May 28, 2024   Billing Period: Month

**Warning:** 31 volumes do not comply with this subscription's QoS policies.

### Current Usage per Service Level

Service Level	Committed	Consumed	Current Burst	Available	Available With Burst	Ac
Data Tiering	2 TiB	0 TiB	0 TiB	2 TiB	2.4 TiB	0
Extreme	1 TiB	23 TiB	22 TiB	0 TiB	0 TiB	0
Performance	0.5 TiB	0 TiB	0 TiB	0.5 TiB	0.6 TiB	0
Premium	1 TiB	0 TiB	0 TiB	1 TiB	1.2 TiB	0
Standard	1 TiB	0 TiB	0 TiB	1 TiB	1.2 TiB	0
Value	3 TiB	7.1 TiB	4.1 TiB	0 TiB	0 TiB	0
CVO Primary	0 TiB	4.62 TiB	4.62 TiB	0 TiB	0 TiB	0
CVO Secondary	0 TiB	2 TiB	2 TiB	0 TiB	0 TiB	0

For the selected subscription, you can view details, such as the start and end dates of the subscription, and the billing period, such as monthly or annual. As a part of the subscription usage, you can view the service level name, committed, consumed, available capacities, and current and accrued burst usage (in TiB).



The **i** icon next to each column provides comprehensive information about that column. Specific service levels that record higher consumption are highlighted. You can also view warnings and alerts generated for your volumes.

For information about your Keystone storage services and the relevant service levels, see [Service Levels in Keystone](#).

Coupled with the current usage, you might want to view the historical usage data for comparison. Click the **View Historical Data** button to navigate to the **Capacity Trend** tab to view the historical data for the same subscription.

### Related information

- [Use Keystone dashboard and reporting](#)
- [Subscriptions](#)
- [Capacity Trend](#)
- [Volumes & Objects](#)
- [Performance](#)
- [Assets tab](#)

## Capacity Trend tab

The **Capacity Trend** tab displays historical data of your Keystone subscriptions for a

specific period.

The vertical graphs display the usage details for the selected time range with appropriate indicators for you to compare and generate reports.

### Steps

1. Click **GENERAL > Keystone Subscriptions > Capacity Trend**.
2. Select the required subscription for which you want to view the details. The first subscription in your account name is selected by default.
3. Select **Capacity Trend** if you want to view the historical data and analyze the capacity usage trend. Select **Invoiced Accrued Burst** if you want to view the historical burst usage data, for which invoices have been generated. You can use this data to analyze the billed usage as per your invoice.

## View capacity trend

If you have selected the **Capacity Trend** option, follow these steps:

### Steps

1. Select the time range from the calendar icons in the **From Date** and **To Date** fields. Select the date range for the query. The date range can be the beginning of the month or the subscription start date to the current date or the subscription end date. You cannot select a future date.

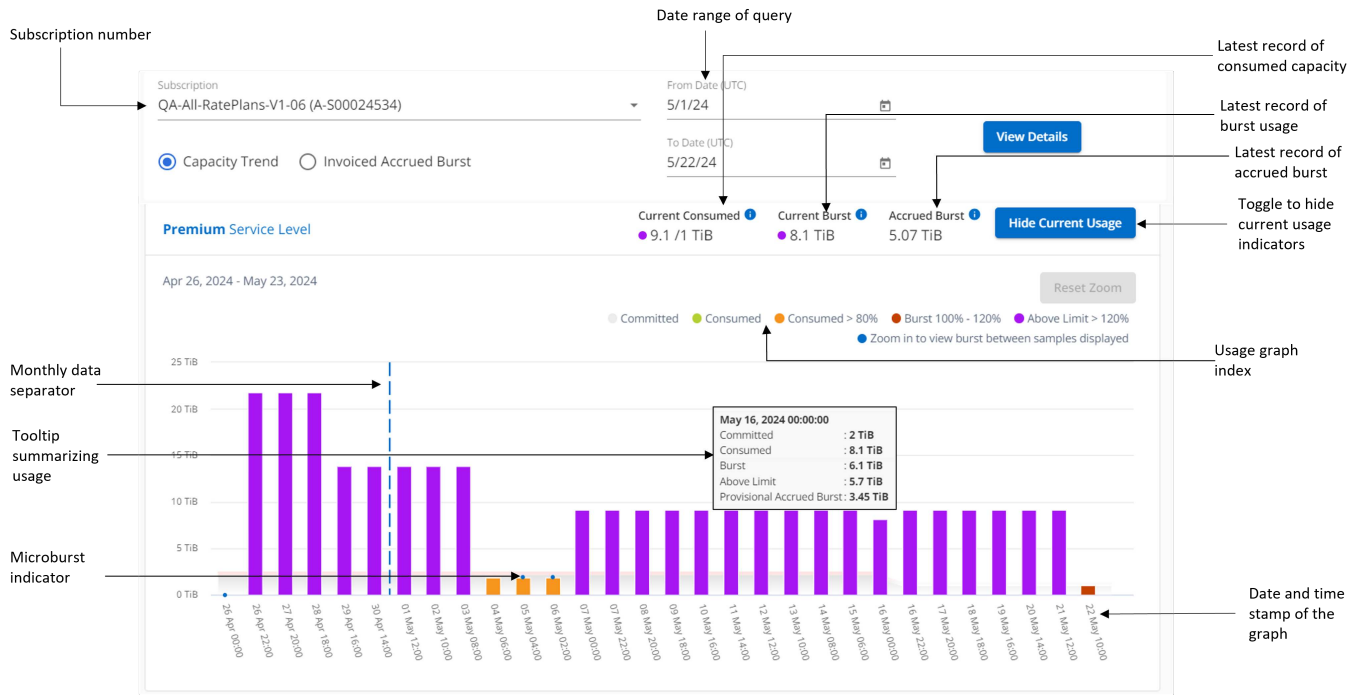


For optimal performance and user experience, limit the date range of your query to three months.

2. Click **View Details**. The historical consumption data of the subscription for each service level is displayed based on the selected time range.

The bar charts display the service level name and the capacity consumed against that service level for the date range. The date and time of the collection are displayed at the bottom of the chart. Based on the date range of your query, the usage charts are displayed in a range of 30 data collection points. You can hover your mouse cursor over the charts to view the usage breakdown in terms of committed, consumed, burst, and above the burst limit data at that data collection point.

You can view short-term surges in the usage charts, known as microbursts, by using the zoom-in feature. When a microburst is present, it is indicated by a blue dot on the corresponding bar or directly on the x-axis if no data is consumed. To view the details, click and hold on the bar or the x-axis where the blue dot appears, then drag the cursor across the chart to select the desired time interval, and release to confirm your selection. This action zooms into the data, providing a detailed view of the capacity used at that service level for the selected interval. You can zoom in further to view details down to a 2-minute interval. You can click the **Reset Zoom** button to return to the original chart view.



The following colors in the bar charts indicate the consumed capacity as defined within the service level. Monthly data across the charts is separated by a vertical line.

- Green: Within 80%.
- Amber: 80% - 100%.
- Red: Burst usage (100% of the committed capacity to the agreed burst limit)
- Purple: Above the burst limit or Above Limit.



A blank chart indicates that there was no data available in your environment at that data collection point.

You can click the toggle button **Show Current Usage** to view the consumption, burst usage, and accrued burst data for the current billing period. These details are not based on the date range of the query.

- **Current Consumed:** Indicator for the consumed capacity (in TiB) defined for the service level. This field uses specific colors:
  - No color: Burst or above burst usage.
  - Grey: No usage.
  - Green: Within 80% of the committed capacity.
  - Amber: 80% of the committed to the burst capacity.
- **Current Burst:** Indicator for the consumed capacity within or above the defined burst limit. Any usage within the burst limit for your subscription, for example, 20% above the committed capacity is within the burst limit. Further usage is considered as usage above the burst limit. This field displays specific colors:
  - No color: No burst usage.
  - Red: Burst usage.
  - Purple: Above the burst limit.
- **Accrued Burst:** Indicator for the accrued burst usage or consumed capacity calculated per month for the

current billing period. The accrued burst usage is calculated based on the committed and consumed capacity for a service level:  $(\text{consumed} - \text{committed}) / 365.25 / 12$ .

## View invoiced accrued burst

If you have selected the **Invoiced Accrued Burst** option, by default, you can see the monthly accrued burst usage data for the last 12 months that has been billed. You can query by the date range of up to past 30 months. Bar charts are displayed for invoiced data, and if the usage has not yet been billed, you see *Pending* for that month.



The invoiced accrued burst usage is calculated per billing period, based on the committed and consumed capacity for a service level.



This functionality is available in a preview-only mode. Contact your KSM to learn more about this feature.

## Reference charts for advanced data protection

If you have subscribed to the advanced data protection add-on service, you can view the breakup of the consumption data for the MetroCluster partner sites on the **Capacity Trend** tab.

For information about advanced data protection add-on service, see [Advanced data protection](#).

If the clusters in your ONTAP storage environment are configured in a MetroCluster setup, the consumption data of your Keystone subscription is split in the same historical data chart to display the consumption at the primary and mirror sites for the base service levels.



The consumption bar charts are split for only the base service levels. For advanced data protection add-on service, that is the *Advanced Data-Protect* service level, this demarcation does not appear.

### Advanced data protection service level

For the *Advanced Data-Protect* service level, the total consumption is split between the partner sites, and the usage at each partner site is reflected and billed in a separate subscription; one subscription for the primary site, and another for the mirror site. That is the reason why, when you select the subscription number for the primary site on the **Capacity Trend** tab, the consumption charts for the advanced data protection add-on

service display the discrete consumption details of only the primary site. Because each partner site in a MetroCluster configuration acts both as a source and mirror, the total consumption at each site includes the source and the mirror volumes created at that site.



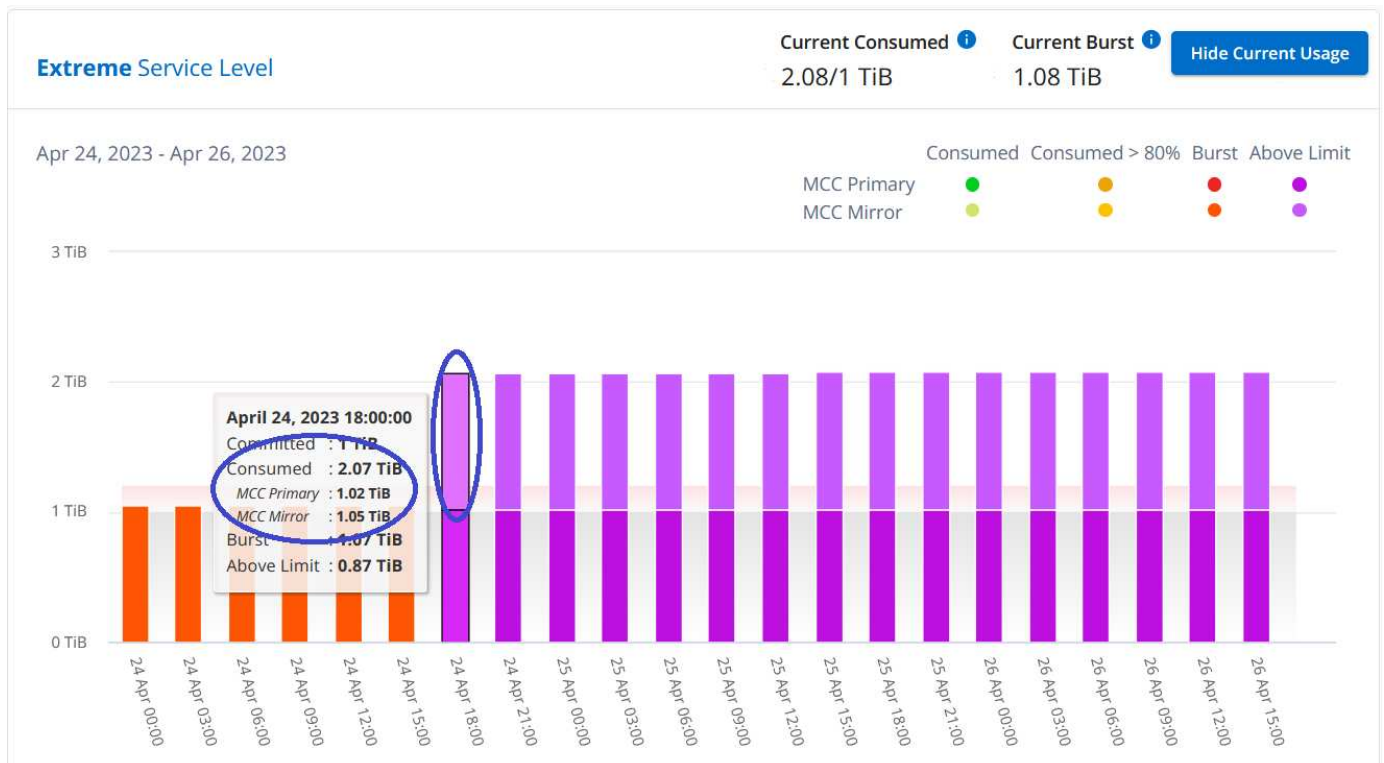
The tooltip next to the tracking ID of your subscription in the **Current Usage** tab helps you identify the partner subscription in the MetroCluster setup.

### Base service levels

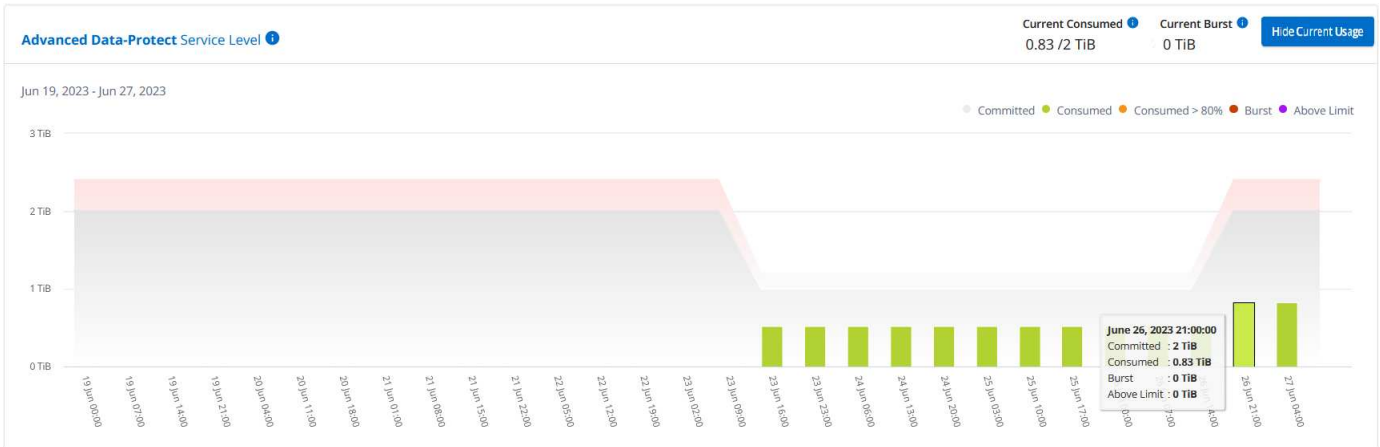
For the base service levels, each volume is charged as provisioned at the primary and mirror sites, and hence the same bar chart is split according to the consumption at the primary and mirror sites.

### What you can see for the primary subscription

The following image displays the charts for the *Extreme* service level (base service level) and a primary subscription number. The same historical data chart also indicates the mirror site consumption in a lighter shade of the same color code used for the primary site. The tooltip on mouse hover displays the consumption breakup (in TiB) for the primary and mirror sites, 1.02 TiB and 1.05 TiB respectively.

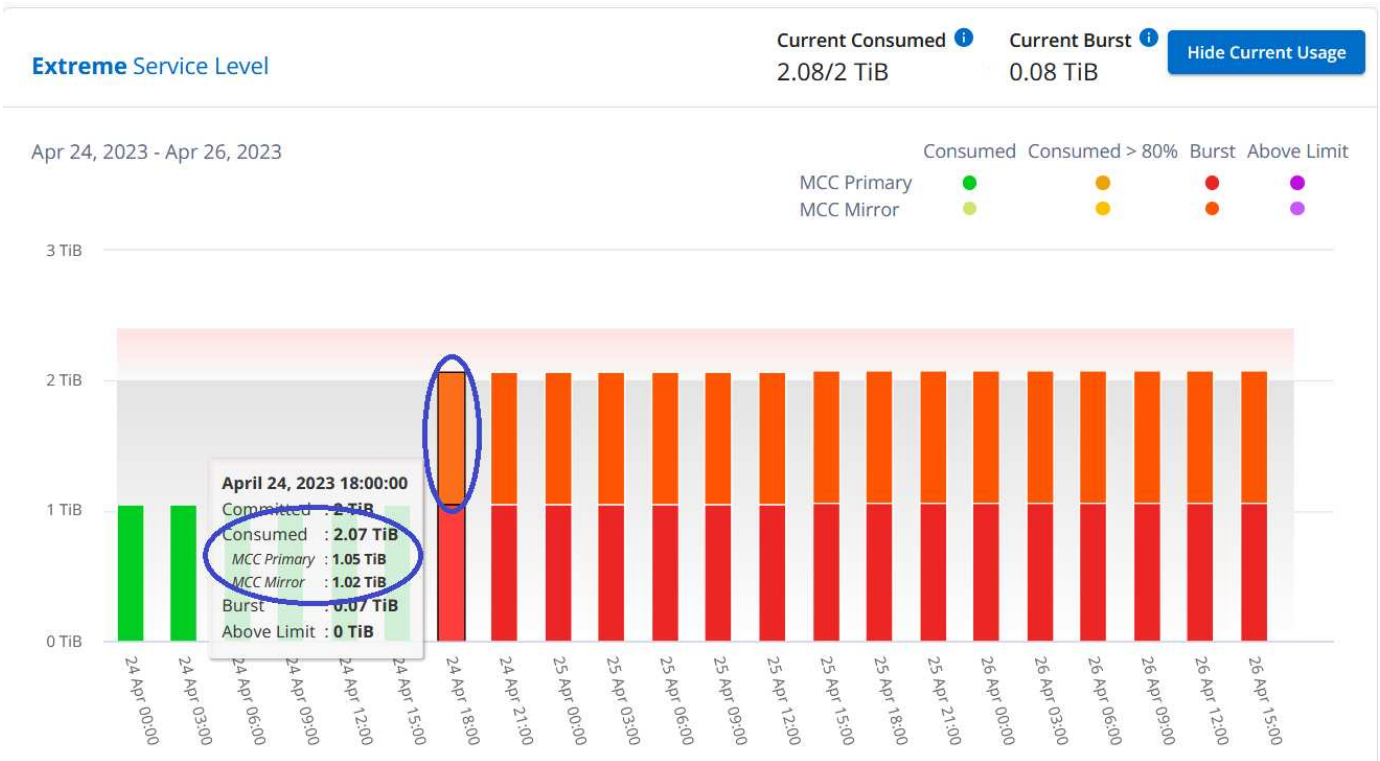


For the *Advanced Data-Protect* service level, the charts appear like this:

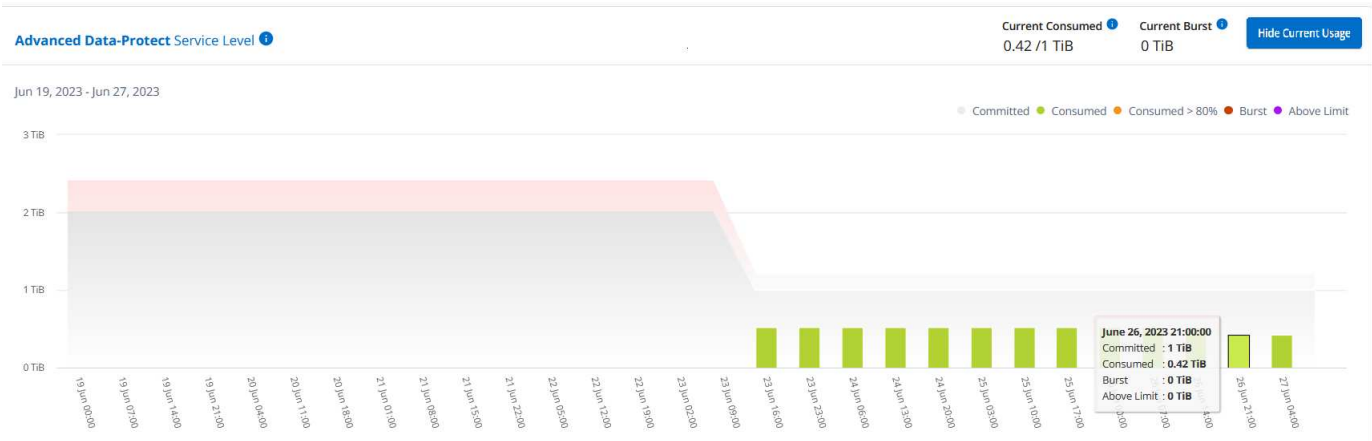


### What you can see for the secondary (mirror site) subscription

When you check the secondary subscription, you can see that the bar chart for the *Extreme* service level (base service level) at the same data collection point as the partner site is reversed, and the consumption breakup at the primary and mirror sites is 1.05 TiB and 1.02 TiB respectively.



For the *Advanced Data-Protect* service level, the chart appears like this for the same collection point as at the partner site:



For information about how MetroCluster protects your data, see [Understanding MetroCluster data protection and disaster recovery](#).

**Related information**

- [Use Keystone dashboard and reporting](#)
- [Subscriptions](#)
- [Current Usage](#)
- [Volumes & Objects](#)
- [Performance](#)
- [Assets](#)

# Volumes & Objects tab

Use the **Volumes & Objects** tab to view the summary information and details of your ONTAP volumes. For StorageGRID, you can use this tab to read the usage by the individual nodes in your object storage environment.



The title of this tab varies with the nature of deployment at your site. If you have both ONTAP and object storage, the title of the tab appears as **Volumes & Objects**. For only ONTAP, the name appears **Volumes**. For StorageGRID object storage, you can see the **Objects** tab.

## View ONTAP volume summary and details

The Volumes tab offers different levels of details on your ONTAP system volumes. There are two tabs, one each for the summary and details view of your ONTAP volumes. The **Volume Summary** tab provides an overall count of the volumes mapped to the subscribed service levels. The corresponding volumes are again listed in the **Volume Details** tab with their particulars.

## Volume Summary

1. Click **GENERAL > Keystone Subscriptions > Volumes & Objects > Volume Summary**.
2. Select the subscription number. By default, the first available subscription number is selected.

For the selected Keystone STaaS subscription, you can see the total number of volumes, their AQoS compliance status, count of protected volumes, and the total committed, consumed, and available capacity in all those volumes. If you click the number of non-compliant or protected volumes, it takes you to the **Volume Details** tab, where you can view a filtered list showing either the non-compliant volumes or the protected volumes, based on your selection.

Subscription	Start Date (UTC)	End Date (UTC)	Billing Period
QA-All-RatePlans-V1-02 (A-500023865)	May 28, 2023	May 28, 2024	Annual

Service Level	Volumes	AQoS Compliant	AQoS Non Compliant	Protected	Committed
Extreme	48	9	39	17	1 TIB
Premium	15	15	0	0	2 TIB
Standard	8	8	0	2	1 TIB
Value	42	42	0	5	1 TIB

## Volume Details

1. Click **GENERAL > Keystone Subscriptions > Volumes > Volume Details**.
2. Select the subscription number. By default, the first available subscription number is selected.

You can see the tabular listing of the volumes, such as capacity usage, volume type, cluster, aggregate, and the assigned Keystone service levels. You can scroll across the columns and learn more about them by hovering your mouse on the information icons beside the column headings. You can sort by the columns and filter the lists to view specific information.



For advanced data protection add-on service, an additional column appears to indicate whether the volume is a primary or mirror volume in the MetroCluster configuration. You can copy individual node serial numbers by clicking the **Copy Node Serials** button.



For subscriptions that cover service levels for both file and object, you can view the object storage details by clicking the **Object Storage Details** button.



Subscriptions   Current Usage   SLA Details   Capacity Trend   **Volumes & Objects**   Performance   Assets

Volume Summary   Volume Details   [Download CSV](#)

Subscription  
QA-All-RatePlans-V1-06 (A-S0002453... [Object Storage Details](#) [Copy Node Serials](#)

**⚠️ QoS non-compliance can impact performance**

Clear Filters

Volume Name	Compliant	QoS Policy Type	Cluster Name	Host Name	Aggregate Name	SVM
data_vol02	⚠️ Not set	Not Available	ks-qa-ots-01	ks-qa-ots-01-01	SSD01	vaughan
fg_vol_extreme_0001	Compliant	AQoS	ks-qa-ots-01	ks-qa-ots-01-01	SSD01	fg_server_extreme
fg_vol_premium_0001	Compliant	AQoS	ks-qa-ots-01	ks-qa-ots-01-01	SSD01	fg_vserver_premium
fg_vol_value_0001	Compliant	AQoS	ks-qa-ots-01	ks-qa-ots-01-01	SSD01	fg_vserver_value

## View StorageGRID nodes and consumption

For StorageGRID, this tab displays the physical usage for the nodes for object storage.

### Steps

1. Click **GENERAL > Keystone Subscriptions > Objects**.
2. Select the subscription number. By default, the first available subscription number is selected. On selecting the subscription number, the link for object storage details is enabled.

Subscription  
Trac. 002 (S00021959) [Object Storage Details](#)

3. Click the link to view the node names and physical usage details for each node.

Object Storage	
Node Name	Physical Used
sgsn02	0.1 TiB
sgsn01	0.13 TiB
sgsn03	0.12 TiB

### Related information

- [Use Keystone dashboard and reporting](#)
- [Subscriptions](#)
- [Current Usage](#)

- [Capacity Trend](#)
- [Performance](#)
- [Assets](#)

## Performance tab

The **Performance** tab enables you to view the performance metrics of the ONTAP volumes managed by your Keystone subscriptions.



This tab is optionally available to you. Contact support for viewing this tab.

### Steps

1. Click **GENERAL > Keystone Subscriptions > Performance**.
2. Select the subscription number. By default, the first subscription number is selected.
3. Select the required volume name from the list.



Alternately, you can click the  icon against an ONTAP volume in the **Volumes** tab to navigate to this tab.

4. Select the date range for the query. The date range can be the beginning of the month or the subscription start date to the current date or the subscription end date. You cannot select a future date.

The retrieved details are based on the service level objective for each service level. For example, the peak IOPS, maximum throughput, target latency, and other metrics are determined by the individual settings for the service level. For more information about the settings, see [Service levels in Keystone](#).



If you select the **SLO Reference Line** check box, the IOPS, throughput, and latency graphs are rendered based on the service level objective for the service level. Else, they are displayed in actual numbers.

The performance data displayed on the horizontal graph is an average at every five-minute interval, and arranged as per the date range of the query. You can scroll across the graphs and hover your mouse over specific data points to drill further down into the collected data.

You can view and compare the performance metrics in the following sections based on the combination of the subscription number, volume name, and the date range selected. The details are displayed as per service level assigned to the volume. You can see the cluster name and volume type, that is, the read and write permissions assigned to the volume. Any warning message associated with the volume is also displayed.

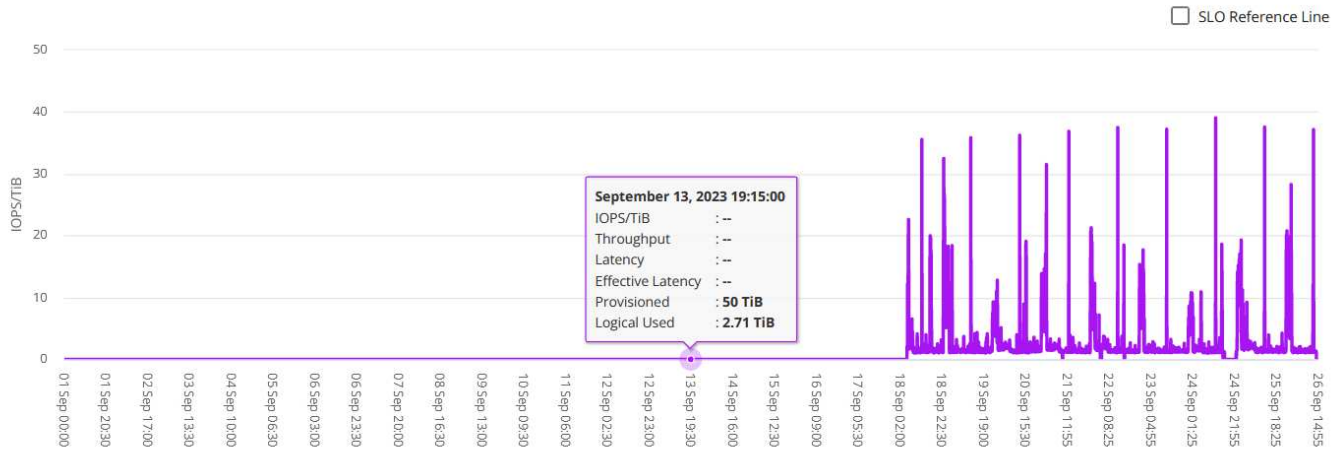
### IOPS/TiB

This section displays the input-output graphs for the workloads in the volume based on the date range of the query. The peak IOPS for the service level and the current IOPS (in the last five minutes, not based on the date range of the query) are displayed, along with the minimum, maximum, and average IOPS for the time range, in IOPS/TiB.

## IOPS/TiB

Sep 1, 2023 - Sep 26, 2023

4096 IOPS/TiB SLO ⓘ 1.18 IOPS/TiB Current ⓘ 0 IOPS/TiB Minimum ⓘ 39.07 IOPS/TiB Maximum ⓘ 2.78 IOPS/TiB Average ⓘ



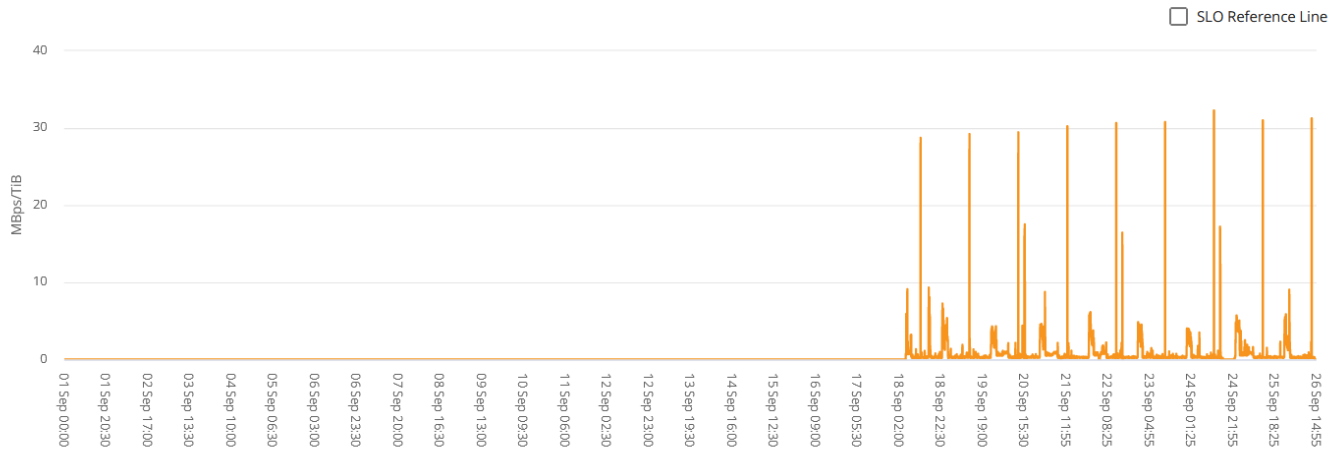
## Throughput (MBps/TiB)

This section displays the throughput graphs for the workloads in the volume based on the date range of the query. The maximum throughput for the service level (SLO Max), and current throughput (in the last five minutes, not based on the date range of the query) are displayed, along with the minimum, maximum, and average throughput for the time range, in MBps/TiB.

### Throughput (MBps/TiB)

Sep 1, 2023 - Sep 26, 2023

128 MBps/TiB SLO ⓘ 0.23 MBps/TiB Current ⓘ 0 MBps/TiB Minimum ⓘ 32.29 MBps/TiB Maximum ⓘ 0.91 MBps/TiB Average ⓘ



## Latency (ms)

This section displays the latency graphs for the workloads in the volume based on the date range of the query. The maximum latency for service level (SLO Target), and current latency (in the last five minutes, not based on the date range of the query) are displayed, along with the minimum, maximum, and average latency for the time range, in milliseconds.

This graph has the following colors:

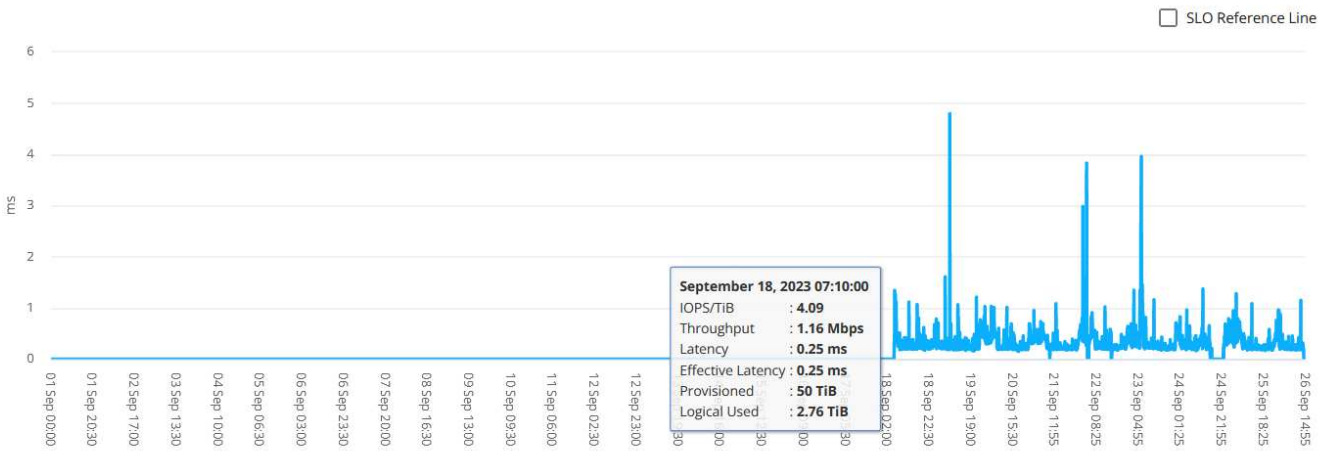
- Light blue: *Latency*. This is the actual latency that includes any latency other than your Keystone service. This might include additional latency, such as the latency occurring between your network and client.

- Dark blue: *Effective latency*. Effective latency is the latency applicable only to your Keystone service with respect to your SLA.

### Latency (ms)

Sep 1, 2023 - Sep 26, 2023

2 ms SLO  
0.19 ms Current  
0 ms Minimum  
4.8 ms Maximum  
0.32 ms Average



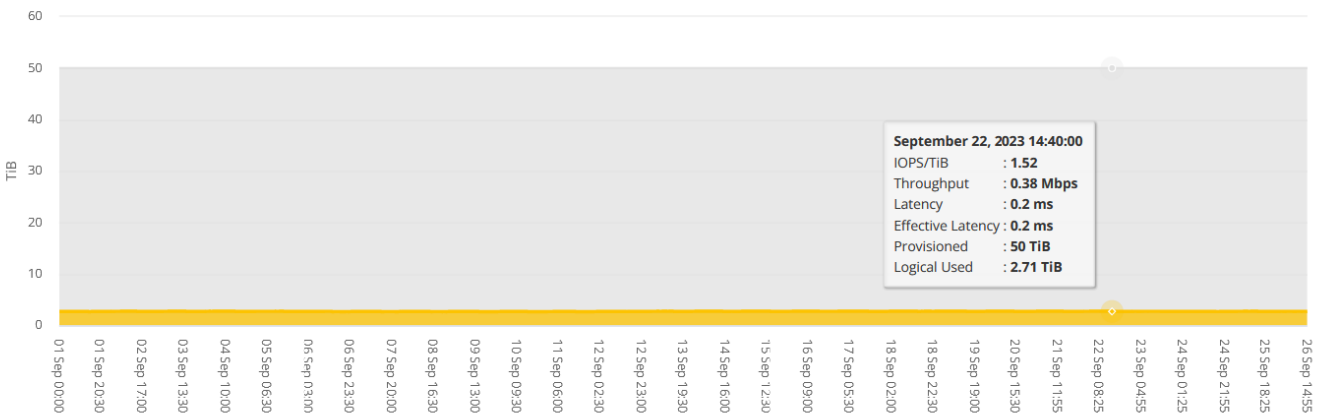
## Logical Used (TiB)

This section displays the provisioned and the logical used capacities of the volume. The current logical used capacity (in the last five minutes, not based on the date range of the query), along with the minimum, maximum, and average usage for the time range are displayed in TiBs. On this graph, the grey area represents the committed capacity, and the yellow graph indicates the logical use.

### Logical Used (TiB)

Sep 1, 2023 - Sep 26, 2023

2.7/50 TiB Current  
2.65 TiB Minimum  
2.77 TiB Maximum  
2.72 TiB Average



## Related information

- [Use Keystone dashboard and reporting](#)
- [Subscriptions](#)
- [Current Usage](#)
- [Capacity Trend](#)
- [Volumes & Objects](#)

- [Assets](#)

## Assets tab

Use the **Assets** tab to gather perspectives on your cluster and nodes managed by your Keystone subscriptions.

Digital Advisor provides a comprehensive inventory-level information of your deployments. The **Assets** tab of the Keystone dashboard, on the other hand, accumulates the cluster-level information on the basis of your subscriptions, and segregates and presents it with the accurate level of details.

### Steps

1. Click **GENERAL > Keystone Subscriptions > Assets**.
2. Select the subscription number for which you want to view the clusters.

You see the cluster details, broken down by storage efficiency settings, platform type, and capacity details. Clicking on one of the clusters takes you to the **Clusters** widget on the Digital Advisor screen, where you get additional information for that cluster.

Subscription	Start Date (UTC)	End Date (UTC)	Billing Period
QA-Sust-AFF (A-S00024086)	June 21, 2023	June 21, 2024	Annual

Cluster Name	SE Ratio	ONTAP Version	Platform	Node Serial	Total Raw Capacity	Total Usable Capacity
KSDevAFF	2.75:1	9.13.1P4	AFF-A300	451704000173	209.12 TiB	147.46 TiB
KSDevAFF	2.75:1	9.13.1P4	AFF-A300	451704000174	209.58 TiB	147.46 TiB

### Related information

- [Use Keystone dashboard and reporting](#)
- [Subscriptions](#)
- [Current Usage](#)
- [Volumes & Objects](#)
- [Capacity Trend](#)
- [Performance](#)

## Learn about Keystone and BlueXP

NetApp BlueXP is a single control plane to build, protect, and govern data across your on-premises and cloud environments. If you purchase a cloud service on your NetApp Keystone subscription, you can access and manage those services through BlueXP.

The BlueXP Digital Advisor dashboard provides you with a graphical view and drill-down capabilities to monitor

your Keystone subscription usage and generate reports. For more information about Digital Advisor dashboard and Keystone, see [Keystone Subscription dashboard and reporting](#).

As a Keystone customer, if you have Cloud Volumes ONTAP subscription, you can use Keystone services to charge your Cloud Volumes ONTAP usage and view your billing and consumption details through BlueXP.

For this, you should create one or more BlueXP accounts and link them with your Keystone account. While you purchase a cloud service through Keystone, you need to provide the details of your BlueXP accounts to your Keystone Success Manager (KSM). This enables proper metering and charging of your cloud service usage through your Keystone subscription.

For more information about Keystone and BlueXP, see the following links in the BlueXP documents:

- [Keystone Subscription](#)
- [Manage Keystone Subscriptions](#)

## Copyright information

Copyright © 2024 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.

LIMITED RIGHTS LEGEND: Use, duplication, or disclosure by the government is subject to restrictions as set forth in subparagraph (b)(3) of the Rights in Technical Data -Noncommercial Items at DFARS 252.227-7013 (FEB 2014) and FAR 52.227-19 (DEC 2007).

Data contained herein pertains to a commercial product and/or commercial service (as defined in FAR 2.101) and is proprietary to NetApp, Inc. All NetApp technical data and computer software provided under this Agreement is commercial in nature and developed solely at private expense. The U.S. Government has a non-exclusive, non-transferrable, nonsublicensable, worldwide, limited irrevocable license to use the Data only in connection with and in support of the U.S. Government contract under which the Data was delivered. Except as provided herein, the Data may not be used, disclosed, reproduced, modified, performed, or displayed without the prior written approval of NetApp, Inc. United States Government license rights for the Department of Defense are limited to those rights identified in DFARS clause 252.227-7015(b) (FEB 2014).

## 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.