



Kubernetes Explorer

Cloud Insights

NetApp
April 11, 2022

This PDF was generated from https://docs.netapp.com/us-en/cloudinsights/kubernetes_landing_page.html on April 11, 2022. Always check docs.netapp.com for the latest.

Table of Contents

- Kubernetes Explorer..... 1
 - Kubernetes Cluster Overview 1
 - Kubernetes Cluster Detail Page..... 5

Kubernetes Explorer

Kubernetes Cluster Overview

The Cloud Insights Kubernetes Explorer is a powerful tool for displaying the overall health and usage of your Kubernetes clusters and allows you to easily drill down into areas of investigation.

Clicking on **Dashboards > Kubernetes Explorer** opens the Kubernetes Cluster overview page. This overview page contains a wide variety of at-a-glance information.



Numbers displayed in blue in the various sections of this and subsequent Kubernetes Explorer pages (for example, node/pod status, namespace counts, etc.) are links to related query pages that show the details behind those numbers.



Cluster Usage overview



The cluster list displays the following usage information for each cluster in your environment:

- CPU: percentage of total CPU capacity in use
- Memory: percentage of total memory used
- Storage: percentage of total storage in use

You can sort the cluster list by any of the following factors:

- Node & Pod Alert Level (default)
- Cluster Name
- Number of Nodes
- Most Utilized by Compute
- Least Utilized by Compute
- Most Utilized by Storage
- Least Utilized by Storage

Clicking on a Cluster Name will open the [detail page](#) for that cluster

Node and Pod Status



Namespaces

To the right of the screen is a list of the top three namespaces utilized in each cluster. Click the **All** link to see all namespaces for the cluster.

Clicking on a namespace will open the Namespace Detail Page.

Top Namespaces

Common Namespaces	Pods
kube-system	194
oci	183
openshift-sdn	180
All (22)	

Common Namespaces	Pods
oci	47
flink-dev-0001	17
openshift-sdn	14
All (20)	

Common Namespaces	Pods
au	8
scaletest	5
kube-system	5
All (15)	

Click to see all
namespaces

Refining the Filter

When you are filtering, as you begin typing you are presented with the option to create a **wildcard filter** based on the current text. Selecting this option will return all results that match the wildcard expression. You can also create **expressions** using NOT or AND, or you can select the "None" option to filter for null values in the field.

Filter By namespace kube × +

- Create wildcard containing "kube"
- kube-public
- kube-system
- None

Filters based on wildcards or expressions (e.g. NOT, AND, "None", etc.) display in dark blue in the filter field. Items that you select directly from the list are displayed in light blue.

Filter By namespace *kube* × ci-clickhouse × × +

Kubernetes filters are contextual, meaning for example that if you are on a specific node page, the pod_name filter only lists pods related to that node. Moreover, if you apply a filter for a specific namespace, then the pod_name filter will list only pods on that node *and* in that namespace.

Note that Wildcard and Expression filtering works with text or lists but not with numerics, dates or booleans.

Kubernetes Cluster Detail Page

The Kubernetes cluster detail page displays detailed information about your Kubernetes cluster.

The detail page is comprised of three distinct but linked landing pages showing cluster, node, and pod information. The "Resource Usage" section changes to show the details of the selected item (cluster, node, or pod). You can see the current page type and name at the top of the screen. The current page is shown in the following heirarchy: *Site Name / Kubernetes / Cluster / Node / Pod*. You can click any part of this "breadcrumb" trail to go directly to that specific page.

My_Cl_Site / Kubernetes / * My_Cluster / ip-10-30-12-200 / ds-4dbmk

Cluster Overview

The cluster overview page provides useful information at a glance:



Node and Pod Counts

The Node/Pod counts at the top of the page show you the total number of nodes and pods in the cluster, as well as a breakdown of how many pods are currently alerting or pending.



It is possible that the three pod sub-counts (healthy, alerting, pending) can add up to more than the displayed total number of pods. This can happen because the *pending* count includes *all* pending pods, both unscheduled and scheduled (in other words, unattached and attached to nodes).

The Cluster "Wheel"



The Cluster "Wheel" section provides node and pod health at a glance, which you can drill into for more information. If your cluster contains more nodes than can be displayed in this area of the page, you will be able to turn the wheel using the buttons available.

Alerting pods or nodes are displayed in red. "Warning" areas are displayed in orange. Pods that are unscheduled (that is, unattached) will display in the lower corner of the Cluster "Wheel".

Hovering over a pod (circle) or Node (bar) will extend the view of the node.



Clicking on the pod or node in that view will zoom in to the expanded Node view.



From here, you can hover over an element to display details about that element. For example, hovering over the critical pod in this example displays details about that pod.



You can view Filesystem, Memory, and CPU information by hovering over the Node elements.



Detail Section

Each page of the Kubernetes Explorer displays a set of usage graphs that may include CPU, Memory, and Storage. Below these graphs are summaries and lists of the top objects in each category, with links to underlying details. For example, *Node* shows pods and containers, *Pod* shows PVCs and related objects and containers, etc. The following illustration shows an example of the detailed information on a *Node* page:

Labels

-

Node IP

10.30.23.207

CPU

2%
of allocatable2%
of capacity

Memory

23%
of allocatable23%
of capacity

Filesystem

6%
of capacity

Pods

Containers

Status ↑			Name	Healthy Containers	Namespace
❗ Critical	Pending		demo-pod2	1 of 2	k8wheel
● Healthy	Running		ci-exclusive-node-scheduler-6dc4dd96-s6h9t	2 of 2	kafka-lake-0001
● Healthy	Running		ci-service-apikey-7676fd5f7d-ptmh9	1 of 1	oci
● Healthy	Running		ci-service-notifications-7f594c4bbd-4p7hz	1 of 1	oci
● Healthy	Running		ci-service-webui-rest-5d454c8648-98llk	1 of 1	oci
● Healthy	Succeeded		job-odata-2c68d124-2af5-4b6b-864f-f04c04e77de5-75fnf	1 of 1	oci

Resources experiencing alerts will show at the top of the lists. Click on the affected resource to drill into it for more detail.

A note about the gauges

The Memory and CPU gauges show three colors, since they show *used* in relation to both *allocatable capacity* and *total capacity*. Storage gauges only show two colors because they only show a single pair of values: *used* in relation to *total*.

Keep the following in mind when reading the gauges.

The dark blue band shows the amount used.

- When viewed against the *light blue band*, the dark blue shows used as the % of allocatable amount. This

matches the "% of allocatable" value shown (81 in the example below).

- When viewed against the *white background*, the dark blue shows used as the % of total capacity. This matches the "% of capacity" value shown (63 in this example).



Copyright Information

Copyright © 2022 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.