

Installing KumoScale Software for Appliance Mode: Single Node Deployment

This section explains how to install KumoScale software for Appliance mode on a single node deployment; where there is one master node and no worker nodes.

The KumoScale storage software is installed by booting from an install media. Using a virtual DVD ROM device is the best way to install the KumoScale software. You should mount the install image as a virtual DVD ROM device using a remote console session. Then proceed to boot the server using the virtual DVD ROM device.

Step 1. Prepare the Installation Files

The ISO image file is named **kumoscale-3.22-xxxxx.iso** where xxxxx is the version number. For example, **kumoscale-3.22-15757.iso**. It is available at <https://flex1717.flexnetoperations.com/flexnet/operationsportal/startPage.do>. Attach the ISO to the virtual CD-ROM device of the server.

Step 2. Configure the Boot Order

Note: In AMD server-based systems, the IOMMU needs to be disabled. This is done by setting Virtual Technology to Disable. Specifically, in the certified Quanta Cloud Technology (QCT) systems, this BIOS setting is found under:

AMD CBS > NBIO Common Options > NB Configuration > IOMMU (default = Auto).

Change this value to **Disabled**.

You will need to configure the BIOS to boot from the correct location. For details on how to configure the BIOS, refer to your platform's user manual or vendor.

Complete the steps below to configure the boot order:

1. **Set the UEFI.** Booting from the UEFI instead of legacy BIOS requires choosing the UEFI boot setting in the BIOS menu.
2. **Set the following boot order**
 - Local hard drive
 - Virtual CDROM
3. **Disable Hyper-Threading.** Hyper-threading must be disabled (or verify it is disabled).
4. **Configure Serial Port Redirection.** To install via serial port, configure the BIOS for serial port redirection with the first device (COM0 or COM1).

Step 3. Start the Installation

Mount or attach the ISO image from either one of the IPMI, iLO or iDRAC of the deployed appliance. You will be presented with the installation menu. Respond to the questions with the appropriate values as explained in [Step 1 for All Nodes: Determine Installation Settings](#).

Installation will take a few minutes; the exact time depends on your environment. You may observe multiple reboots, and even be prompted for a login before installation has completed. You must wait until you get a confirmation that the Installation has completed successfully before logging in as instructed in the next step.

Step 4. Verify Installation Success

At the end of a successful installation, you should receive a message similar to:

```
KS DEPLOYMENT COMPLETED SUCCESSFULLY

KumoScale Software 3.22-15757 running

name-of-node login:
```

Step 5. Configure the KumoScale Storage Cluster from a Remote Administrative Host

Refer to [Installation Requirements](#) to review the requirements for a remote administrative host with **kubectl**.

1. From your remote host enter:

```
ssh admin_cli@<VIP for the Master>.
```

2. When asked for a password, enter:

```
admin
```

3. You will be prompted for a new password for **admin_cli**. Set the password according to operating system requirements.

4. Confirm the new password.

5. You will get a message about re-opening the session. The above interaction is shown below.

```
$ssh admin_cli@192.168.1.250
The authenticity of host '192.168.1.250 (192.168.1.250)' can't be established.
ECDSA key fingerprint is SHA256:Nu3uROz5PH5VYKN80JD1ZvH3NsgwLp0a9dPLd5gQjLc.
Are you sure you want to continue connecting (yes/no/[fingerprint])? yes
Warning: Permanently added '192.168.1.250' (ECDSA) to the list of known hosts.
admin_cli@192.168.1.250's password:
Last login: Mon May  3 19:58:58 2021
User admin_cli Ip 192.168.1.234
Enter new password:
Re-enter new password to confirm:
You have changed the password and must re-open the CLI session
Connection to 192.168.1.250 closed.
$
```

6. Log back in using the new password. You are now ready to set up your remote host to access the KumoScale storage cluster.

```
$ssh admin_cli@192.168.1.250
admin_cli@192.168.1.250's password:
Last failed login: Tue May  4 00:59:11 UTC 2021 from 192.168.1.234 on ssh:notty
There were 2 failed login attempts since the last successful login.
Last login: Tue May  4 00:56:51 2021 from 192.168.1.234
User admin_cli Ip 192.168.1.234
CLI>
```

7. In a single-node environment, the KumoScale Set Up Wizard may be used to expedite configuration and deployment in a PoC or test environment. At the CLI> prompt enter the command:

```
CLI> setup-wizard
```

8. The following screen will be displayed. Enter and then confirm the RBAC password. This is the administrative password for your KumoScale cluster.

```

  This script will assist you to configure your first master storage node.
  This set up procedure has several steps that will require your response.
  If an error is detected, you will see a message indicating the reason.
  You will also have an unlimited number of attempts to re-enter your input.
  You may interrupt the configuration process anytime by pressing Ctrl + C.
  In that case, your inputs will be lost and the CLI session will be terminated.
  Once you reach the final configuration step, the wizard will display the desired
  configuration, based on your inputs, and ask you to confirm it.


Role Based Access Control (RBAC) Password
In this section, you will be asked to enter and confirm a secured
administrator password. This password will be used to access the storage node
via REST API. A valid password is a text string of length six or more and:
- At least 1 uppercase (capital) letter. Examples: A, E, R
- At least 1 Lowercase (small) letter. Examples: a, e, r
- At least 1 Digit. Examples: 2, 6, 7
- At least 1 special characters. Examples: '!', '@', '#', '$', '%', '^', '&', '*', '(', ')', '[', ']''.

Enter the RBAC password:
```

9. (OPTIONAL) Specify the license key provided to you by KIOXIA. KumoScale comes packaged with a license key that is valid for up to three (3) months and five (5) storage nodes. You can skip this step if your current deployment can support these restrictions and deploy the production license at a later date.

```

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- At least 1 Digit. Examples: 2, 6, 7
- At least 1 special characters. Examples: '!', '@', '#', '$', '%', '^', '&', '*', '(', ')', '[', ']''.

Enter the RBAC password:
Re-enter the RBAC password to confirm:


License Key
In this section, you will be asked to enter the License Key.
The License Key value you must copy from your license (field
License Key) and paste into the question field.

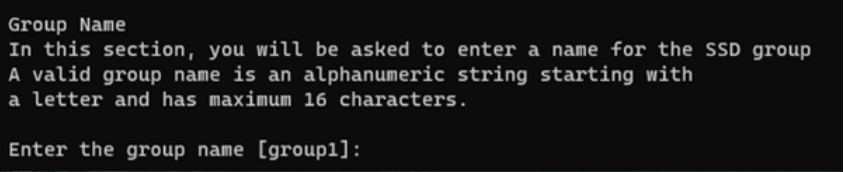
Enter the license key:
```

10. Provide a name for your node.

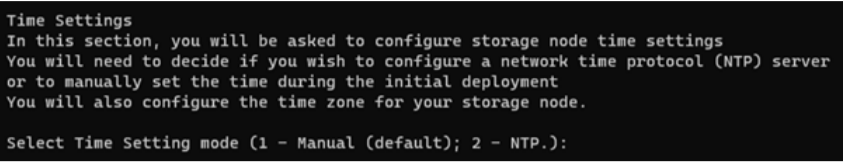
```
Storage Node Name
In this section, you will be asked to enter a storage node name.
This name will be used to access this storage node.
A valid name is a string that contain only lowercase alphanumeric characters, '-' or '.'
that starts and ends with alphanumeric character, and contain no more then 253 characters.

Enter the storage node name [ks-node1-5254002c4478]:
```

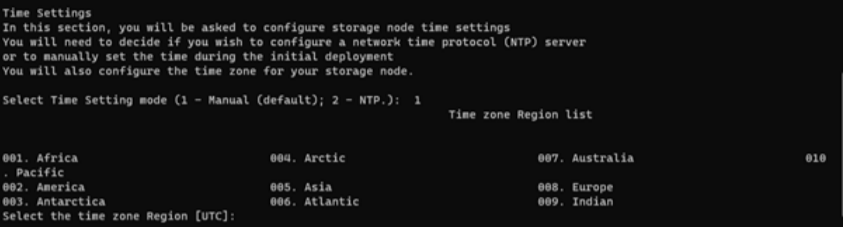
11. KumoScale gathers the NVMe SSDs in your node in a group. Provide a name for this group on the next screen.



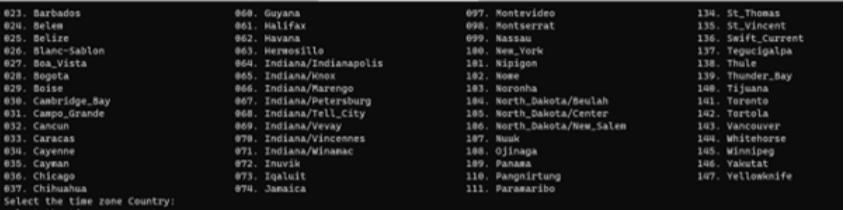
12. On the next screen, pick option 1 (Manual Time Settings).



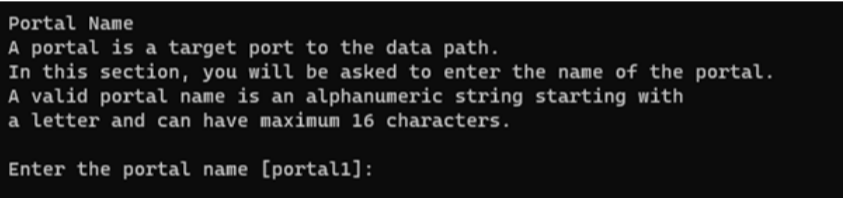
13. Then select the time zone region.



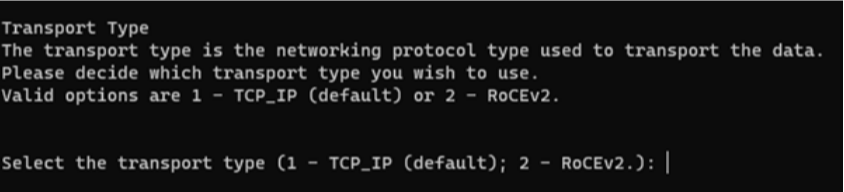
14. After that, select the city closest to you in your time zone.



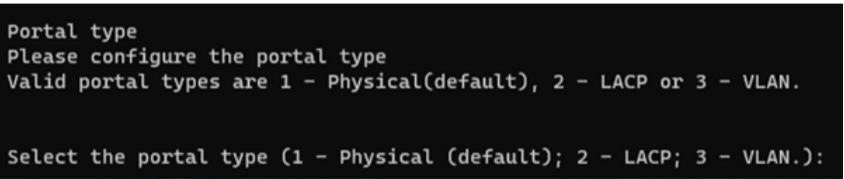
15. Next you will be answering questions about the data path connection to your node. First pick a name for the connection, portal.



16. Next identify the transport type. TCP IP is a safe choice here as all NICs support it. If you are doing a performance-focussed installation, you may want to choose the RoCEv2 option. Please consult the KumoScale [Hardware Compatibility List \(HCL\)](#) to ascertain whether your NIC supports RoCEv2.



17. Next pick the type of connection. Option 1 (Physical) is a safe choice here which allows you to connect a single physical port on your NIC to the data path. Both LACP and VLAN connections require support from the network switch connected to your node.



18. On the next screen you will pick the physical port(s) on your NIC you will be using for the data path. If you picked a physical connection in the previous step, then you will be asked to pick exactly one port. Please make sure that you know which port on the NIC you have connected your network cable and the MAC address of that port. Look for that MAC address in the list provided on your screen and pick the corresponding interface.

19. Finally, you will be asked to provide an IP address, subnet mask and port number for the data connection. This IP address is assigned statically. So please make sure that it falls outside the range of addresses that that your DHCP server (if you have one in your network) assigns from.

20. On the next screen, you will see all the information you have provided so far (except the RBAC password). Note that the license key has been blacked out in the screenshot below. Please read it carefully. Type **Yes** if you want to go ahead with these configurations.



21. If you enter No on the previous screen, you will be asked if you want to reset the node to factory settings. Please answer Yes. The node will then perform a factory reset during which you will lose your network connection. When the node finished boot back up, you can retry

the procedure in this section to configure the node starting at Configure the KumoScale Storage Cluster from a Remote Administrative Host.

22. Please refer to [Step 8. Install Internal Components on the KumoScale Storage Cluster](#) to install additional software components on your KumoScale node.
