nexenta®

Supermicro Unified Storage Appliance powered by Nexenta

Quick Start Guide

About this Document

The Supermicro Unified Storage Appliance powered by Nexenta is a full featured storage appliance providing high-performance block and file services. The main chassis contains two storage controllers running NexentaStor 5 software-defined storage configured for high-availability and up to 24 devices (SSDs or HDDs depending on the specific configuration ordered).

For more information on NexentaStor 5, please visit:
https://nexenta.com/products/nexentastor

This document will walk you through:
- Hardware installation (power and cabling) of the Supermicro Unified Storage Appliance
- Configuration of the management network interfaces for NexentaStor software
- Online activation of your NexentaStor software licenses
- Opening a Supermicro USA Installation Service case with Nexenta

To complete the initial installation, you will need:
- A laptop that can be connected directly to the appliance nodes to perform basic configuration
- Two standard 10GBASE-T cables connected to the onboard management interface on each storage node
- IP configuration information (address, netmask, default route, DNS, NTP) for your management network
- Internet access from the management network to complete online activation of your NexentaStor software
- Your NexentaStor 5 Activation Token that was sent over email by Nexenta
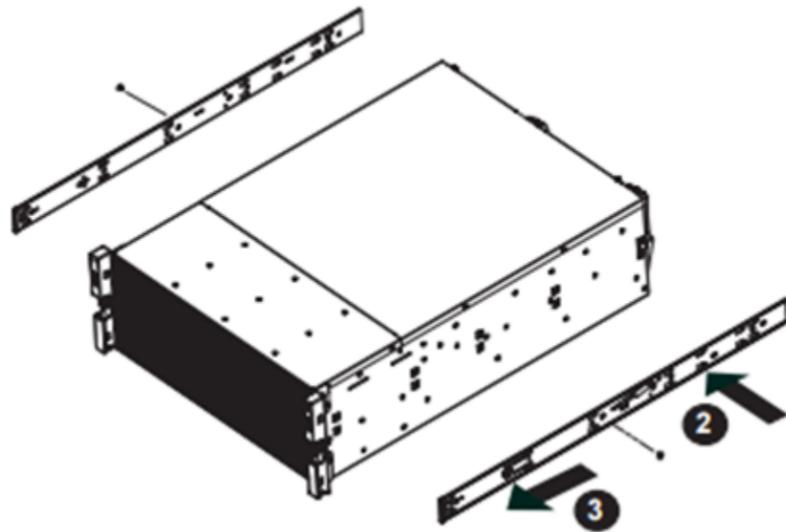
All-Flash

Hybrid & All-Disk

Supermicro Unified Storage Appliance Installation

The following links describe the steps to physically install the 2U appliance into a rack.

2U Unified Storage Appliance:
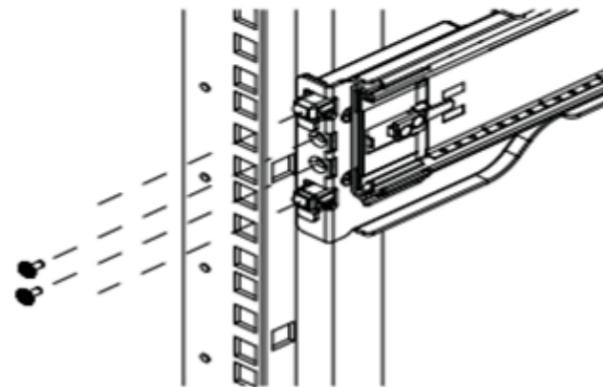https://www.supermicro.com/products/system/2U/2028/SSG-2028R-DE2CR24L.cfm
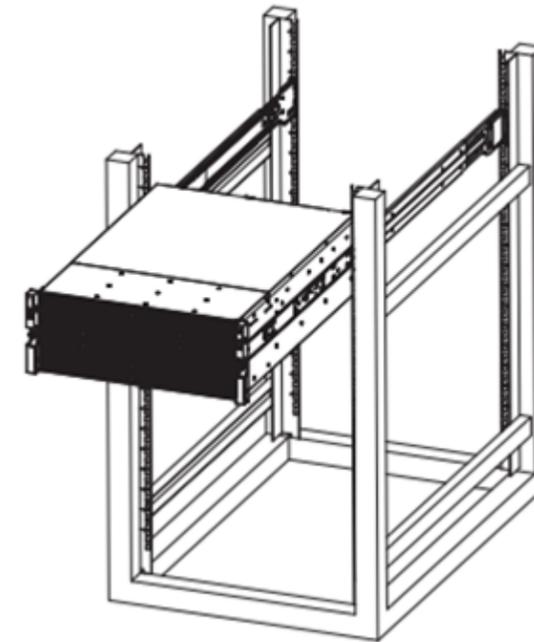
Fig. 1: Installing the Inner Rack Rails

Fig. 2: Outer Rack Rails

Fig. 3: Installing the Outer Rack Rails

Fig. 4: Installing the Chassis into Rack Rails

Cabling Diagram of Unified Storage Appliance

The following diagram covers the details listed here:

- How to connect the management interfaces to the identified management ports.
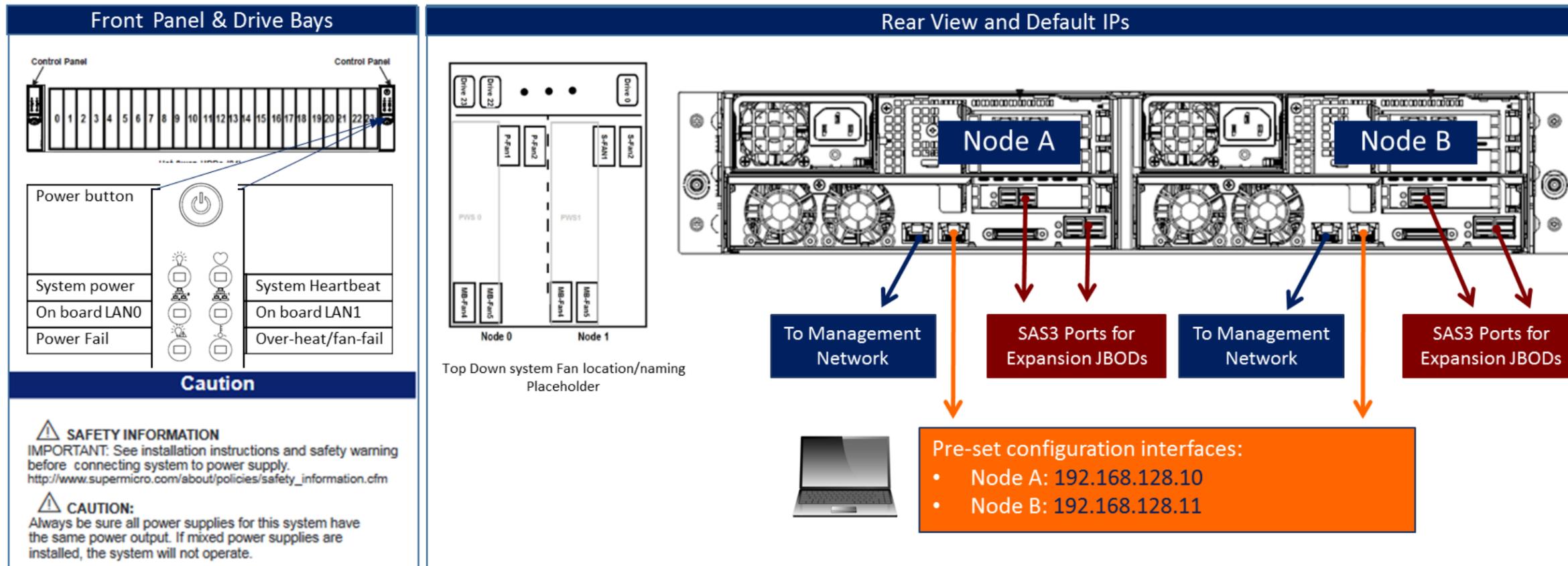- How to connect JBODs including the IPMI interfaces using the built-in SAS ports.

2U Unified Storage Appliance with 2x SC216
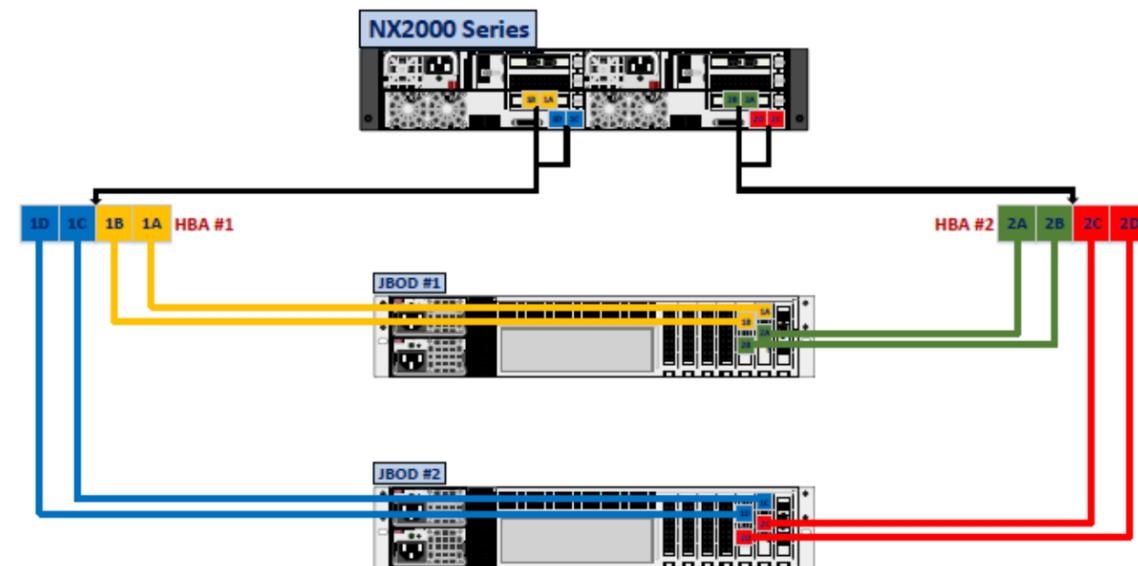
Note: Ensure the IPMI-enabled JBODs are configured with **unique static IP addresses**. You will need these IP addresses to configure JBOD connectivity.

2U Unified Storage Appliance Overview

- Connect the left side on-board ports to your management network
- Configure your laptop with a static IP: 192.168.128.1 / netmask:255.255.255.0
- Connect your laptop to the right side port on Node A and ssh to 192.168.128.10 **(user: admin; password: Nexent@123)**
- Run through the configuration steps outlined in the following pages with the Node A Management IP
- Connect your laptop to the right side port on Node B and ssh to 192.168.128.11 **(user: admin; password: Nexent@123)**
- Repeat through the configuration steps with the Node B Management IP

Front Panel & Drive Bays

Control Panel   Control Panel

0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23

Hot Swap HDDs (0-23)

Power button		
System power		System Heartbeat
On board LAN0		On board LAN1
Power Fail		Over-heat/fan-fail

Caution

⚠ **SAFETY INFORMATION**
IMPORTANT: See installation instructions and safety warning before connecting system to power supply.
http://www.supermicro.com/about/policies/safety_information.cfm

⚠ **CAUTION:**
Always be sure all power supplies for this system have the same power output. If mixed power supplies are installed, the system will not operate.

Rear View and Default IPs

Drive 23 ... Drive 0

P-Fan1 P-Fan2   S-Fan1 S-Fan2

PWS 0   PWS1

MB-Fan1 MB-Fan2   MB-Fan1

Node 0   Node 1

Top Down system Fan location/naming Placeholder

Node A   **Node B**

To Management Network	SAS3 Ports for Expansion JBODs	To Management Network	SAS3 Ports for Expansion JBODs

Pre-set configuration interfaces:
- Node A: 192.168.128.10
- Node B: 192.168.128.11

Pre-Configuration Checklist/ Network Firewall Settings

The Supermicro Unified Storage Appliance ships with NexentaStor 5 pre-installed. Before you proceed, you must have:

- Your desired hostnames for NodeA and NodeB
- IP address and Netmask for NodeA management interface
- IP address and Netmask for NodeB management interface
- Default gateway information to provide internet access from each node
- Domain Name Server (DNS) information
- Network Time Protocol (NTP) server information
- NexentaStor 5 license Activation Token

Depending on the features and services used on the NexentaStor 5.0 software, your network firewall will need to have the ports listed below open.

Interfaces and Services	Protocol and Ports Used
Management Interface	TCP ports 22 (SSH), 6557, 5557, 8443 (REST API)
	HA heartbeats: UDP and TCP port 1195
	SNMP (UDP 161, 162), DNS (53 UDP/TCP) , NTP (UDP 123), ICAP (port 1344)
	https://licensingservice.nexenta.com/ (443) (ssl) https://logcollector.nexenta.com (443/20/21/7000-8000) (ssl/ftp) https://prodpkg.nexenta.com (443) (ssl)
	Support Bundles : TCP port 21 (FTP)
	Mail server: TCP port 25 or 587 for relay only (SMTP)
Data interfaces for High Performance Replication	TCP port 6000 (default) , configurable.
Front-end iSCSI Target interfaces	TCP port 3260
Front-end SMB interfaces	UDP ports: 137, 138, TCP ports 137, 139
Front-end CIFS interfaces	UDP and TCP port 445
Front-end NFSv3 interfaces	UDP ports: 111, 2049, 4045, 32768:65535 TCP ports: 111, 2049, 4045, 32768:65535
Front-end NFSv4 interfaces	TCP port: 2049

Configure Host Name and Date

Execute the following steps on each node

- Configure your laptop with a static IP address 192.168.128.1 / netmask 255.255.255.0

- Start with Node A (the left side node)
    1. Connect the bottom left 10GbE port to your Management network
    2. Connect your laptop to the bottom right 10GbE IPMI port
    3. Login to Node A using ssh to 192.168.128.10 **(user: admin; password: Nexent@123)**
    4. Update NodeA's hostname (replace nodeA with your desired new hostname):

        `CLI@nodeA>config set system.hostName=<newnameA>`

    5. Set the timezone for your appliance as an offset to GMT (GMT+1, GMT+2, etc.). For example:

        `CLI@nodeA>config set system.timeZone=Etc/GMT-8`

        NOTE - In order to conform to the POSIX style, those zone names beginning with "Etc/GMT" have their sign reversed from the standard ISO 8601 convention. In the "Etc" area, zones west of GMT have a positive sign and the east has a negative sign in their name (e.g "Etc/GMT-14" is 14 hours ahead/east of GMT.)

    6. Reboot NodeA to apply the timezone change

        `CLI@nodeA>reboot`

    7. Log back into Node A using ssh to 192.168.128.10 **(user: admin; password: Nexent@123)**
    8. Set the date as mm/day/year hr:min:sec. For example:

        `CLI@newnameA>config set system.date=2/15/2017 22:00:00`
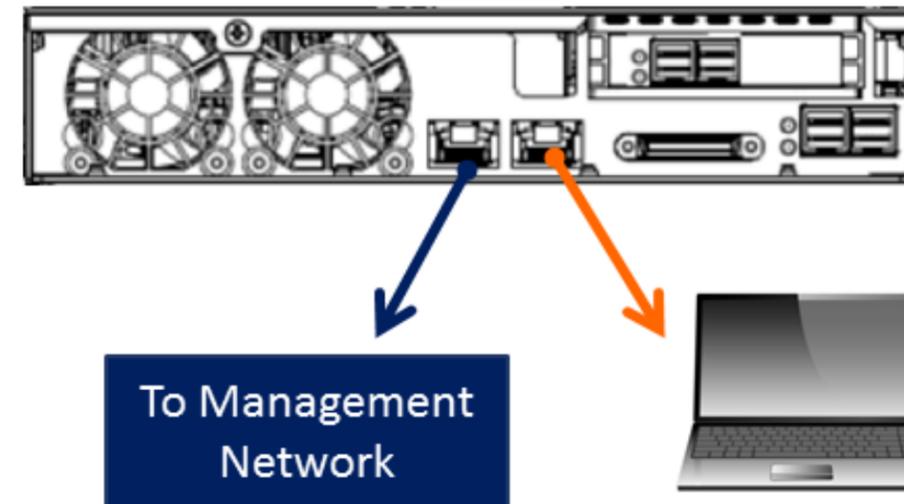
To Management Network

Pre-set configuration interfaces:
- Node A: 192.168.128.10
- Node B: 192.168.128.11

Log in credentials:
user: admin; password: Nexent@123

Configure Management IP Interface

Execute the following steps on each node

- Complete configuration of NodeA
    9. Verify that the lan0 link is up (this is the link to your management network

       ```
       CLI@newnameA>link list

       NAME      CLASS    STATE     OVER     MTU    SPEED

       lan0      phys     up        lan0     1500   10000
       ```

    10. Create a static management IP interface lan0/mgmt on NodeA lan0 (replace a.b.c.d/24 below with your IP address and netmask)

        ```
        CLI@newnameA>ip create static lan0/mgmt a.b.c.d/24
        ```

    11. Add a default gateway (replace a.b.c.d below with your gateway IP)

        ```
        CLI@newnameA>route create default a.b.c.d
        ```

    12. Add a DNS server (replace a.b.c.d with your DNS IP address)

        ```
        CLI@newnameA>net create dns a.b.c.d
        ```
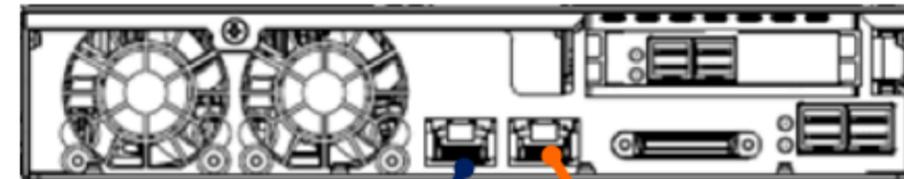
    13. Verify that you can access the Internet:

        ```
        CLI@newnameA>ping 8.8.8.8

        8.8.8.8 is alive
        ```

    14. Activate your NexentaStor software license as described on the license activation page (below)
- Repeat steps 1 through 14 above on NodeB, using 192.168.128.11 as the default IP

To Management Network

Pre-set configuration interfaces:
- Node A: 192.168.128.10
- Node B: 192.168.128.11

Log in credentials:
user: admin; password: Nexent@123

Activate NexentaStor Software License

License activation is an online process that requires an activation token that you should have received from Nexenta. The activation token has the following format: XXXXXXXX-XXXX-XXXX-XXXX-XXXXXXXXXXXX. Note: only one activation token is issued for a 2 node appliance. That token must be used to activate the NexentaStor software on each node.

- Activate the product license using your activation token. You will be asked to click through the EULA and accept it.

```
CLI@newname#> license activate XXXXXXXX-XXXX-XXXX-XXXX-XXXXXXXXXXXX
```

- Verify that your NexentaStor software was successfully activated

```
CLI@newname#> license show

PROPERTY       VALUE

  guid         3d39ef85-a209-4436-960c-ac9e985893fe (example only)

  valid        yes

  status       ok

  type         ENTERPRISE

  product      NexentaStor

  version      5.x (example only)

  licensee     john@acme.com (example only)

  serial       SR-DEV-NS-201727883

  features     <list of features>

  issued       Fri Mar 20 08:00:00 yyyy (example only)

  expires      Tue Mar 20 08:00:00 yyyy (example only)

  capacity     xxx T

  maintenance  Mon Mar 13 08:00:00 yyyy - Tue Mar 27 08:00:00 yyyy (valid)
```

- Once your software is activated, you should be able to update the admin password:

```
CLI@newname#>user passwd –p newpass admin
```

Note: Passwords should be at least 9 characters long and contain at least 3 of the following classes of characters: lowercase, uppercase, numeric, and special (for example, !, @, `CLI@nexenta>`,$, %, ^).

Note: The system responses shown here by executing the command `CLI@newname#> license show` are merely examples.

Note: If you do not have the activation token, do the following:

- Login to your account at https://portal.nexenta.com
- Navigate to "Support" -> "Cases"
- Click on "Add New Case"
- Type " Request for Activation Token" in the Subject line
- Follow the prompts on the screen to complete the case entry and open a case with Nexenta Tech Support

Complete Installation

After the initial configuration, to receive support for remote configuration, do the following:

1. Login to your account at https://portal.nexenta.com
   If you do not have an account, you can request for an account at
   https://portal.nexenta.com/UserRegistration
2. Navigate to "Support" -> "Cases"
3. Click on "Add New Case"
4. Type " Supermicro Appliance Remote Configuration" in the Subject line
5. Follow the prompts on the screen to complete the case entry and open a case with Nexenta Tech Support

Before setting up a remote configuration session with Nexenta Support team, deploy NexentaFusion OVA in a virtual environment.

NexentaFusion is a graphical user interface that provides centralized management of multiple NexentaStor appliances. For information on the prerequisites and instructions on how to download and deploy NexentaFusion refer to "NexentaStor and NexentaFusion Installation 1.0 QuickStart" listed in https://nexenta.com/products/documentation.

Prerequisites for Remote Configuration

For Nexenta Support team to remotely configure your appliance, you must ensure that you have the following setup.

1. For High Availability (HA) configurations, you must have a stable and reachable NTP system for the cluster to function properly. The hosts should be able to reach the NTP servers on the management network. It should ideally be a physical host or at a minimum a VM that is NOT hosted on NexentaStor provided Supermicro Unified Storage Appliance. IP address(es) for NTP server(s) should be provided.
2. For any Ethernet based services such as NFS, SMB and iSCSI, you must have a DNS server. It should ideally be a physical host or at a minimum a VM that is NOT hosted on NexentaStor provided Supermicro Unified Storage Appliance.

To facilitate the remote configuration process, ensure that your appliance has remote access.

Needed Information

Based on your configuration needs, provide the following information when you open a request for remote configuration support.

For Supermicro Unified Storage Appliance Cluster Configuration
1. Provide the static IP address you configured on each node.
2. Provide the hostname of each node, if you reconfigured them as explained in the section "Configure Host Name and Date".
3. A valid e-mail address and SMTP server information (hostname, login ….) for alerts

For FC installations
1. A SAN fabric map, including zoning information for the NexentaStor, FC switches and FC clients (servers).
2. Client OS type and versions as well as any multi-pathing driver types and versions.

For Ethernet based services (NFS, SMB and iSCSI)
1. Specify whether the connections will utilize port trunking or single ports. If port trunking, ensure the switches support LACP and the number of allowable ports in each trunk.
2. A static IP (or IPs) as well as hostnames for each service. Also ensure that the IP subnet is not the same as the management network subnet.

For Any Shares
1. Identify if quotas will be required. If quotas will be needed, document quotas per share as necessary.

For SMB services
1. Identify whether the configuration will be in workgroup or AD.
2. For AD, provide a proper domain admin account to perform the join.
3. Specify the desired share names.
4. Further configuration of share permissions must be done from a Windows hosts using domain admin account privileges.

For NFS services
1. Identify whether services will be provided with v3 or v4.
2. For v4 services, specify any special ACL configurations (permissions) that may be required.
3. Specify if any special NFS service settings may be required, for e.g., no_root_squash.

For iSCSI services

1. Identify the client OS type and versions and multi-pathing driver.
2. Provide a network map between the NexentaStor appliance and the iSCSI clients (servers).
3. Identify any special requirements for group mapping names.
4. Details on the desired number of LUNs, size, thin or thick. Also designate which LUN should be LUN0.

For SNMP

1. Indicate any specific configuration requirements.

For SMTP

SMTP must be configured and verified prior to production deployment.

1. A valid email address is required for alerting and notifications. Nexenta suggests an alias such as nexentasupport@company.name which would include all storage admin team members at the company.
2. SMTP addresses and port information (if non-standard).
3. SMTP email alias.

For LDAP or NIS services

1. Specify if any particular requirements are needed. Provide domain and account information for those services.

Access Product Documentation

https://nexenta.com/products/documentation