

Ncore Software SAN

Getting Started Guide

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Turn your Linux server into a high-performance SAN

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Prerequisite

Ncore SAN Server Requirements

Component	Requirement
Operating System	64-bit Linux distribution
CPU	Multi-core x86-64 processor
Memory	Minimum 32 GB RAM
Storage	One or more local disks, RAID arrays, LVM volumes, or block devices to provision
Network	Ethernet connectivity, 10 GbE or faster recommended for production storage workloads
Container Runtime	Docker Engine with Docker Compose support
Management Port	TCP 5088 (default Ncore SAN web interface)
Browser	Latest Microsoft Edge, Google Chrome, or Mozilla Firefox

Client Requirements

iSCSI Clients

Component	Requirement
Operating System	Windows or Linux
Initiator	open-iscsi (Linux), Microsoft iSCSI Initiator (Windows)
Network Access	Connectivity to the configured iSCSI target IP and port (TCP 3260 by default)
Permissions	Administrator or root privileges to configure initiators and attached disks

NVMe-oF Clients

Component	Requirement
Transport	NVMe/TCP or NVMe/RDMA
Network Access	Connectivity to target listener IP and port
RDMA	RDMA-capable NICs required for NVMe/RDMA
Permissions	Administrator or root privileges

NFS Clients

Component	Requirement
NFS Support	NFSv4-compatible client
Network Access	Connectivity to NFS service (TCP 2049)
Permissions	Access permitted by NFS export policy

Optional Requirements

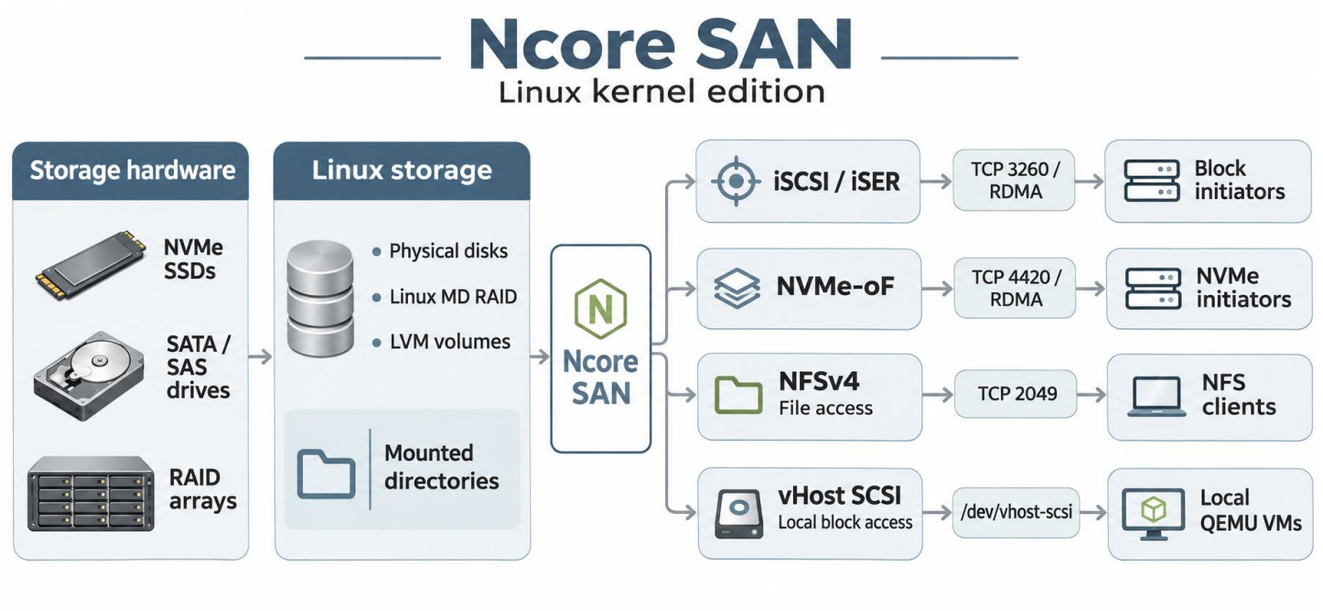
Feature	Additional Requirement
NVMe-oF RDMA	RDMA-capable network adapters
iSER	RDMA-capable network adapters
Virtual Host (vHost)	Supported virtualization platform and LIO target services

Welcome to Ncore SAN

Ncore SAN transforms any Linux server into a high-performance storage platform, allowing available disks and block devices to be discovered, provisioned, and exposed through industry-standard block-storage protocols.

With Ncore SAN, you can:

1. Expose available disks or block devices through ISCSI or ISCSI-ISER targets.
2. Expose available disks or block devices through NVMe-oF using TCP or RDMA.
3. Provide block-storage access to Linux, Windows, and enterprise applications.
4. Share any exposed directory with industry standard NFSv4.
5. Easily configure and manage RAID block devices with levels 1,0,5,6, or 10.
6. Manage disks, block devices, ISCSI targets, and NVMe-oF subsystems from one interface.



Getting Started

Download file: **wget https://ncoreblobstore.blob.core.windows.net/ncoresanui/deploy-ncore-san.sh**

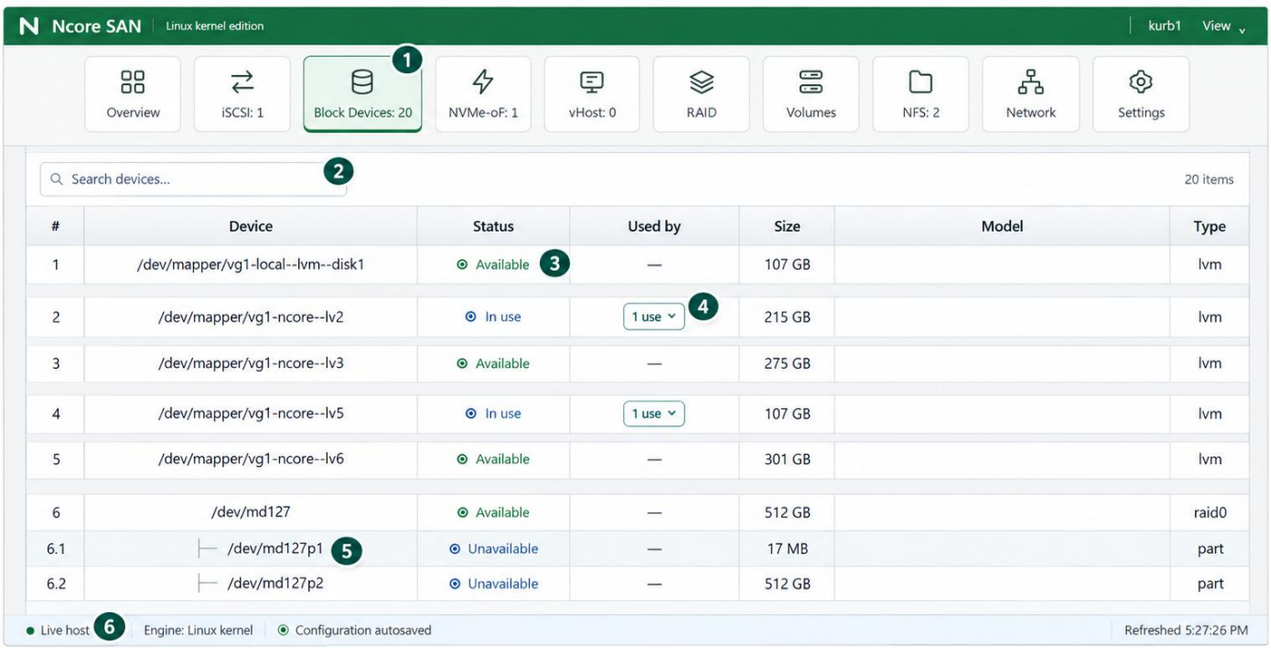
Run on linux host-→ **bash ./deploy-ncore-san.sh**

2. Open Ncore SAN Browse to https://192.168.10.12:5088. Replace the example IP with your SAN host address. The URL will open the following page below [**username**: Administrator, **password**: admin].

3. Go to settings →License to obtain trial license from Ncore software, see page 10 for illustrated steps.

Main screen overview

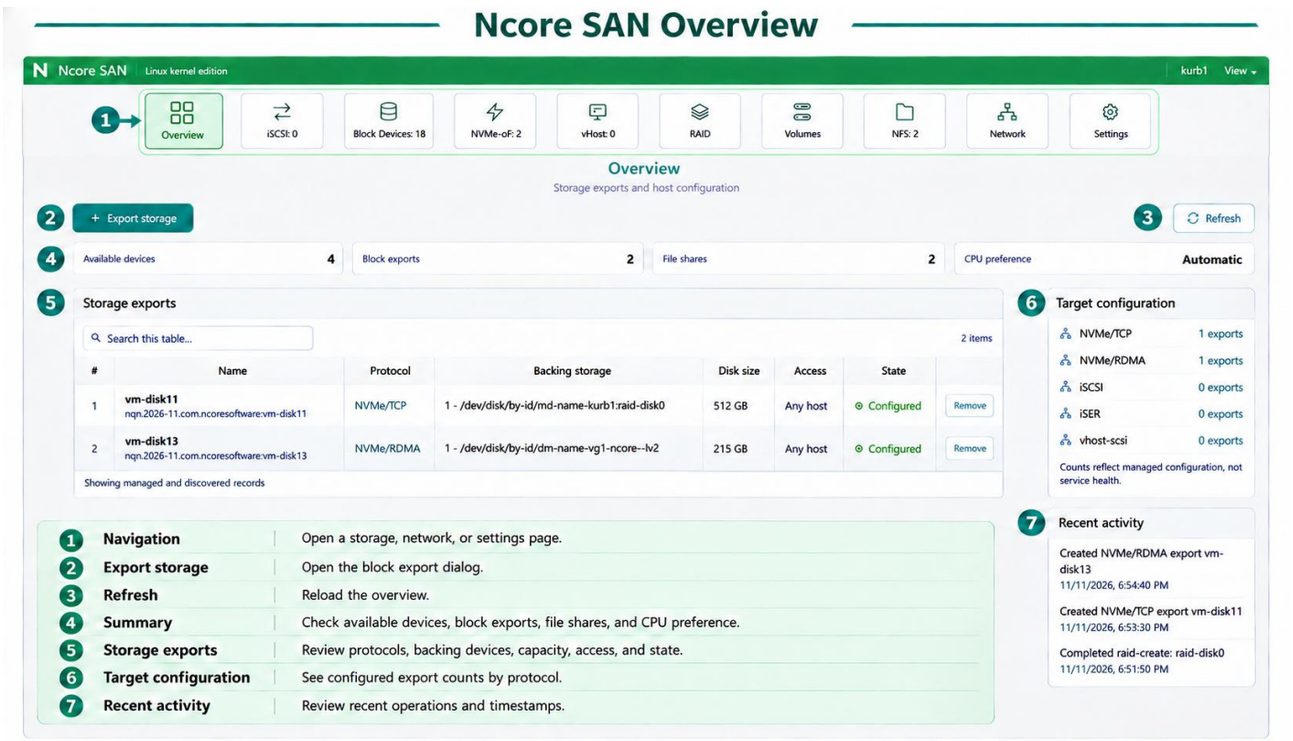
Ncore SAN's auto-scan feature discovers all block devices available on the host server. This page is for informational purposes only; administrators must verify the availability and suitability of each block device before use.



1. **Block Devices** — Open the device inventory.
2. **Search devices** — Filter the inventory.
3. **Status** — Check device availability.
4. **Used by** — Open the list of resources using a device.
5. **Partitions** — Indented rows belong to the device above.
6. **Status bar** — Check host mode and autosave.

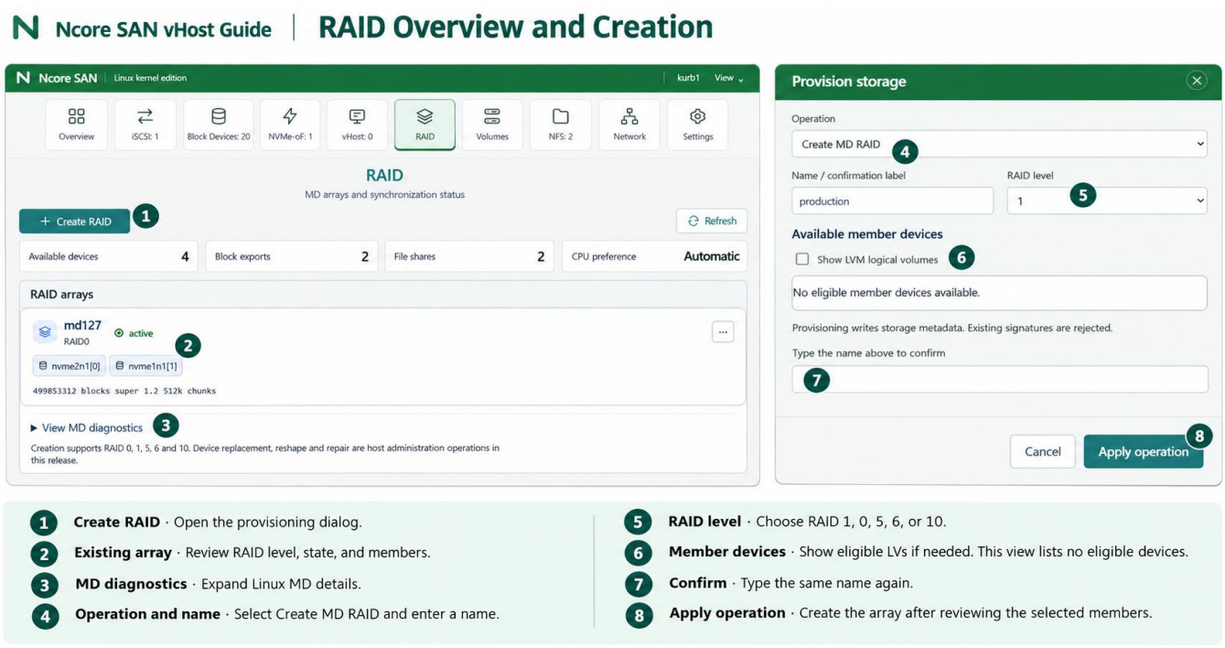
Provision a disk (block device)

The Overview page lists exported block devices. To provision a disk, select *Export Storage* from the Overview page or open the page for the desired transport type, such as NVMe-oF.



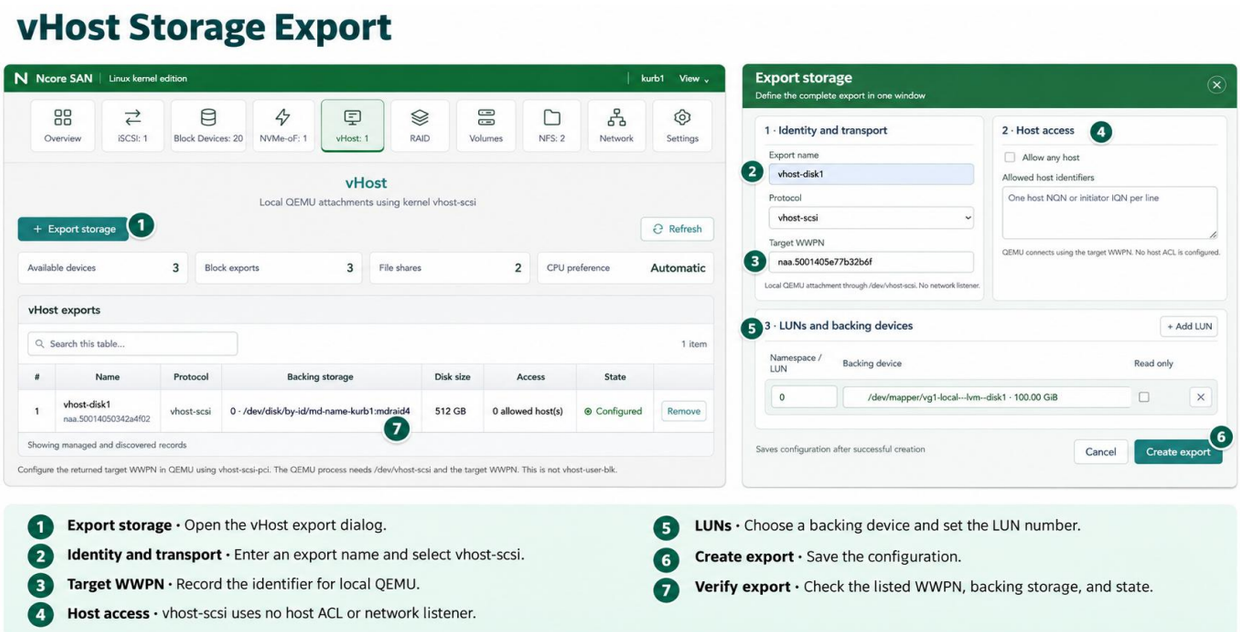
Provision and manage RAID disks

Easily configure and manage RAID arrays using RAID levels 0, 1, 5, 6, and 10. RAID devices can subsequently be exported through vHost, iSCSI, or NVMe-oF. Ncore SAN supports automatic rebuild and recovery operations using designated spare disks.



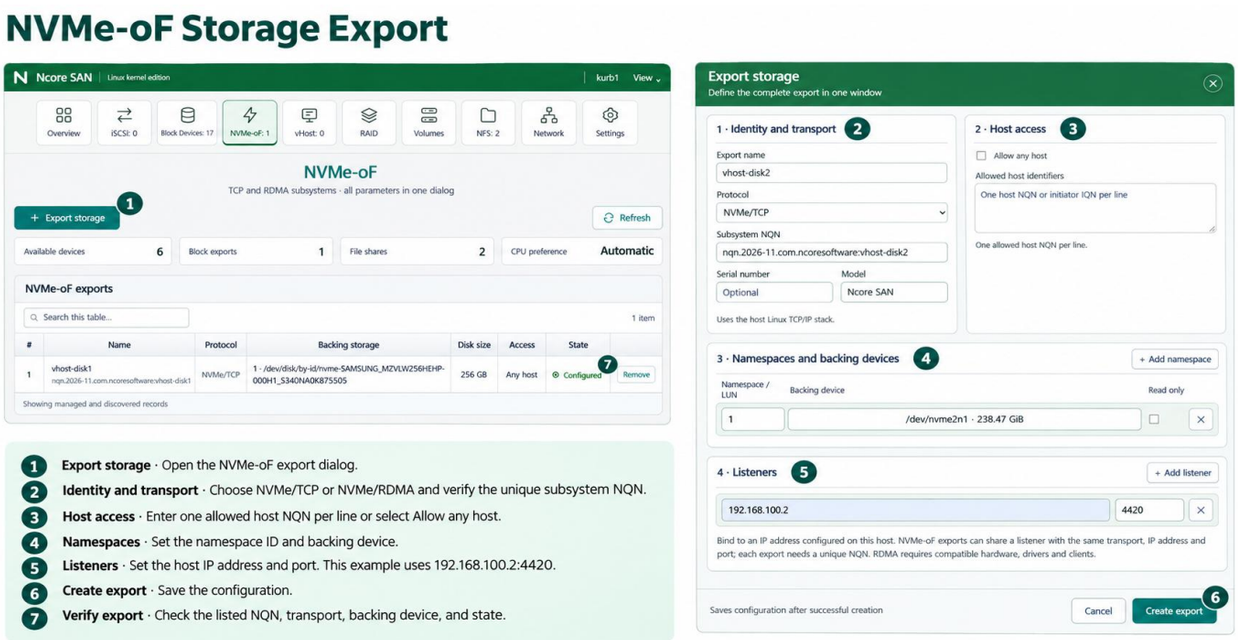
Create and manage virtual host disks

Ncore SAN supports virtual host block devices, allowing VMs to attach directly to local storage via LIO (Linux-IO target). This mode achieves native performance, with higher throughput and lower latency than traditional VirtIO block devices.



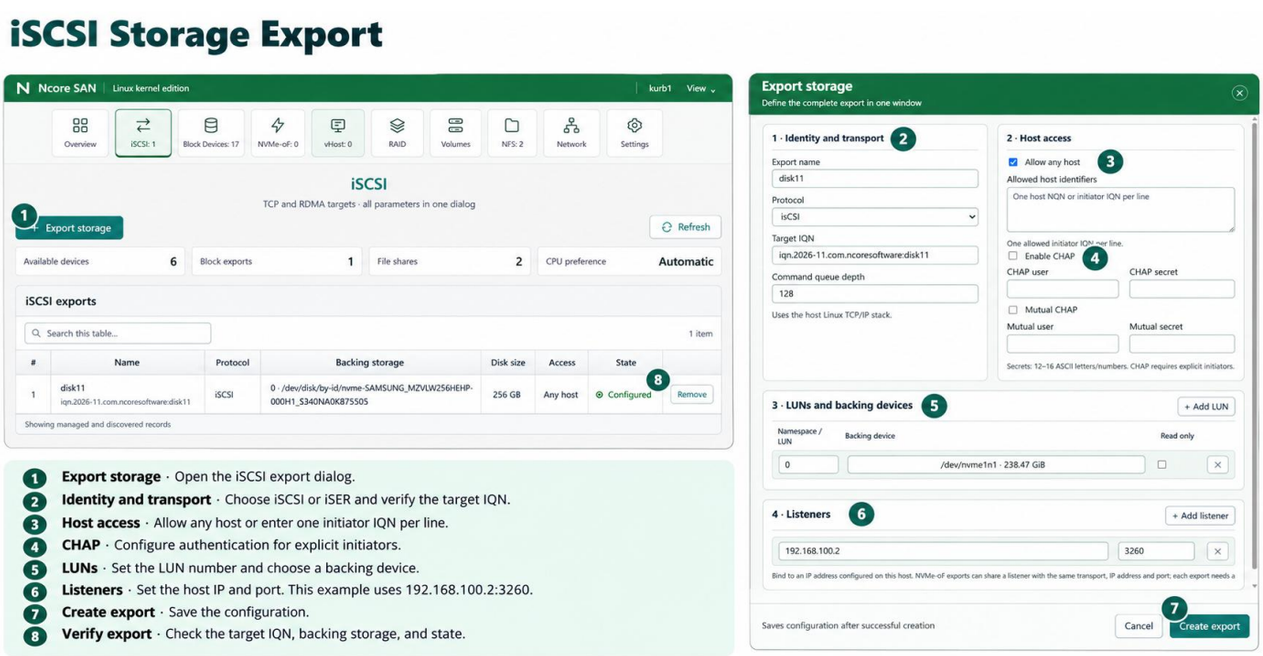
Create and manage NVMe-oF storage export

Ncore SAN offers two NVMe-oF transport features: one for NVMe-oF TCP and one for NVMe-oF RDMA. Use RDMA for higher throughput and lower latency. Compatible NIC hardware is required for NVMe-oF RDMA.



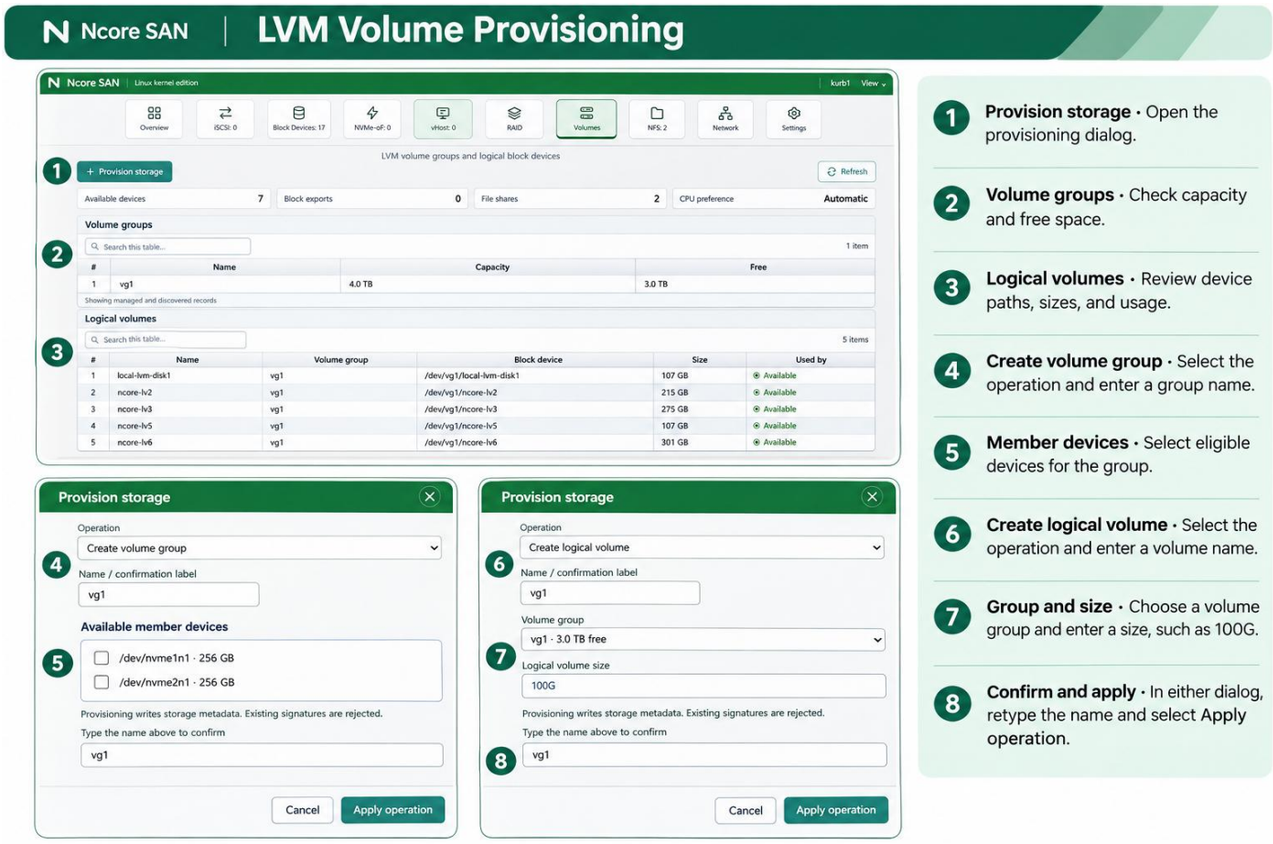
Create and manage ISCSI disks

Ncore SAN offers two ISCSI transport options, one for TCP and another for ISER RDMA. Use iSER when RDMA hardware is available and lower latency is required.

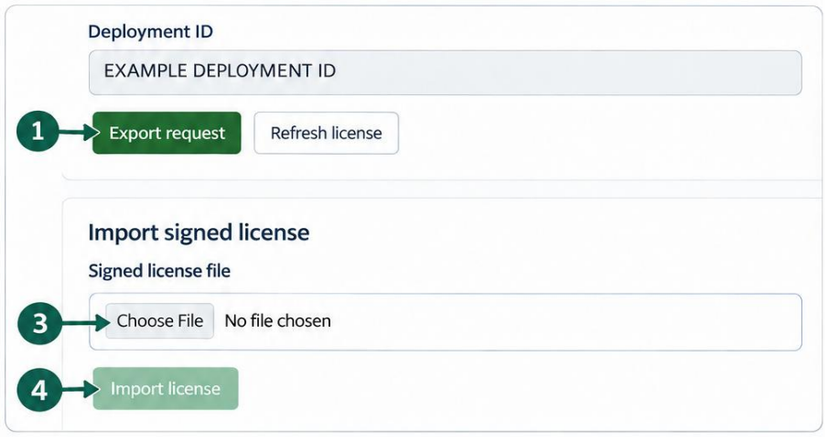


Create and manage LVMs

Easily create and manage logical volumes from Ncore SAN, which can later be exported via NVMe-oF, ISCSI, or Vhost



Request and install an Ncore SAN license



1 Export the request

On the License page, select **Export request** and save the downloaded file.

2 Send the request

Email the exported request file to **support@ncoresoftware.com**.

3 Select the signed license

When Ncore Software returns the signed license file, open the same deployment's License page and select **Choose File**.

4 Import and verify

Select **Import license**. Select **Refresh license** to verify the updated status.

Troubleshooting Ncore SAN Linux

1. **The web interface does not open.** Run docker ps -a --filter name=ncore-san-linux on the SAN host. If the container is stopped or restarting, review docker logs --tail 100 ncore-san-linux. If it is running, verify the management address and port. The default live deployment uses http://HOST:5088.
2. **A disk is unavailable or missing from a picker.** Open **Block Devices**, select **Refresh**, and check **Status** and **Used by**. A device may already be assigned to an export, mounted, or claimed by LVM or RAID. For a new volume group or RAID array, an existing storage signature can also make a device ineligible. For RAID provisioning, select **Show LVM logical volumes** if you intend to use eligible LVs.
3. **A RAID array is degraded or member actions are missing.** Open **RAID → View MD diagnostics**. Check the RAID level, member states, and rebuild progress. The available member actions depend on the array level and current state. RAID 0 has no redundancy or spare-based recovery.
4. **A new volume group or logical volume does not appear.** Refresh **Volumes** and check the host with sudo vgs and sudo lvs. If provisioning timed out, verify whether the operation completed before retrying. If a logical volume is missing after reboot, confirm that its volume group is active and the LV device path exists.
5. **An ISCSI or iSER client cannot connect.** Verify the target IQN, listener IP and port, and the initiator's access settings. If CHAP is enabled, check that the initiator IQN is explicitly allowed and that the credentials match. For iSER, verify that the client is using RDMA and that the listener address belongs to an active RDMA-capable interface.
6. **An NVMe-oF subsystem does not appear during discovery.** Confirm that the initiator uses the configured transport, **NVMe/TCP** or **NVMe/RDMA**, and the correct listener IP and port. Verify the subsystem NQN, the client's host NQN when access is restricted, and the namespace's backing device. For RDMA, check rdma link on both hosts.
7. **An NFS mount reports "access denied" or "No such file or directory."**. Check that the client's actual source IP matches an allowed IP or CIDR and that **NFS TCP readiness** shows a listener on port **2049**. If the mount succeeds but writes fail, check **Read only**, the server directory's permissions, and root squash.
8. **An export is missing after restart.** Confirm that RAID arrays are assembled, LVM volumes are active, share filesystems are mounted, and listener IPs are present before retrying.
9. **Collect details for support.** Record the Ncore SAN version, Linux kernel version, affected export or share, backing device, transport, and exact error. Include relevant container log lines and the time of the failure. Remove passwords, CHAP secrets, and keys before sharing.