QSAN Official Document

MinIO Setup Guide

Application Note

July 2026

ANNOUNCEMENT

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FIGURES

Figure 1-1 MinIO for Object Storage..... 1

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PREFACE

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- Via the Web: https://www.qsan.com/technical_support
- Via Telephone: +886-2-77206355
- (Service hours: 09:30 - 18:00, Monday - Friday, UTC+8)
- Via Skype Chat, Skype ID: qsan.support
- (Service hours: 09:30 - 02:00, Monday - Friday, UTC+8, Summer time: 09:30 - 01:00)
- Via Email: support@qsan.com

Information, Tip, and Caution

This document uses the following symbols to draw attention to important safety and operational information.



INFORMATION

INFORMATION provides useful knowledge, definition, or terminology for reference.



TIP

TIP provides helpful suggestions for performing tasks more effectively.

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CAUTION

CAUTION indicates that failure to take a specified action could result in damage to the system.

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1. INTRODUCTION TO MINIO

This guide helps KSM users deploy a MinIO object storage microservice by mounting two XCubeNXT storage systems via NFS shares, building a private S3-compatible object storage solution.

1.1. MinIO for Object Storage

MinIO is a high-performance, open-source object storage solution designed to deliver Amazon S3 API compatibility. It is optimized to handle large volumes of unstructured data and provides enterprises with a flexible and scalable platform to meet diverse data storage and access needs.



Figure 1-1 MinIO for Object Storage

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2. CONFIGURATION SETTINGS

In this case scenario, we will demonstrate a simple procedure to deploy a MinIO Tenant on a KSM cluster using XCubeNXT NFS shares as backend storage. This configuration ensures scalability and reliability by distributing data with erasure coding, while providing seamless S3 API compatibility for enterprise applications. The deployment process secures data integrity and enables efficient access, offering a flexible and high-performance object storage solution for modern workloads.

2.1. Environment and Topology

Demonstration Environment

- Server
  - Model: KS2204-8C x 4 (1 x Master Node + 3 x Worker Nodes)
    CPU: 8 cores
    Memory: 16 GB
    Local Capacity: ≥ 100GB per node
    OS: KSM 1.0.0
- Storage
  - Model: XN8124D x 2
    Memory: 16 GB per controller
    IP: 192.168.195.1
    OS: KSM 1.0.0

Demonstration Topology

The connections are very simple, here are the connections in brief and any topology will work if the logical connection is pingable.

2.2. Verifying S3 Access and Client Integration

1. Install MinIO Client (mc).

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2. Configure connection (mc alias set).
3. Create/delete buckets.
4. Upload/download files.
5. Integrate with AWS SDK or S3 tools.
6. Monitor performance via MinIO Console.
7. Enable versioning & lifecycle policies.
8. Test fault tolerance (simulate NFS or node outage).
9. Configure IAM policies for users/groups.
10. Clean up environment (delete PVC/Tenant/Operator).

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3. CONCLUSION

The MinIO + KSM + XCubeNXT NFS solution delivers a flexible, secure, and high-performance S3-compatible object storage platform. With the KSM, deployment and management are simplified, while NFS combined with erasure coding ensures durability and resilience. Enhanced protection is further achieved through KSM's snapshot and backup features, making this solution well-suited for SMBs and departmental applications. By balancing cost efficiency with enterprise-class performance, it provides organizations with a reliable foundation for modern object storage.

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4. APPENDIX

4.1. Apply To

- KSM firmware 1.0.0 and later

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