QSAN Official Document

# Milestone Setup Guide

## Application Note

July 2026

# ANNOUNCEMENT

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# PREFACE

## Technical Support

Do you have any questions or need help trouble-shooting a problem? Please contact QSAN Support, we will reply to you as soon as possible.

- 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 MILESTONE

KSM Microservices Platform is a container orchestration environment designed by QSAN to simplify microservice management, lifecycle control, and scalability across edge and enterprise deployments.

## 1.1. Milesone Xprotect for VMS

KSM Microservices Platform is a lightweight container orchestration environment designed by QSAN to simplify microservice operations, service lifecycle management, and horizontal scalability across edge and enterprise deployments.
Unlike traditional orchestration systems, KSM is optimized for small-footprint environments where resources are limited. It delivers Kubernetes-like orchestration behavior without the overhead, making it ideal for edge scenarios in surveillance, retail, and industrial settings.




*Figure 1-1 Minestone XProtect for VMS*

## 1.2. Solution Overview

The integrated solution provides a unified platform where Milestone video services are deployed as microservices managed by KSM.

- **OS Foundation:** Ubuntu LTS, hardened for service workloads.
- **Container Platform:** KSM as the orchestration engine with integrated health monitoring via XInsight.
- **Storage Backend:** QSAN storage volumes configured for archives and metadata retention.


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- **Workflow Integration:** RTSP camera ingestion, Milestone recording service, and centralized QSAN archive storage.

This architecture enables organizations to scale surveillance environments easily, maintain high availability, and ensure smooth video ingestion and playback across multiple sites.


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# 2. CONFIGURATION SETTINGS

KSM provides a lightweight but powerful microservices orchestration platform that enables Milestone video services to run efficiently in both edge and centralized environments. By deploying Milestone components as containerized services on Ubuntu LTS and pairing them with QSAN's high-performance storage, organizations can achieve a modernized, flexible, and scalable surveillance architecture.

This chapter outlines the configuration steps required to set up the KSM platform, prepare the storage backend, and integrate Milestone services for end-to-end video ingest, archiving, and playback. It also highlights recommended practices to ensure reliable service operation, efficient resource utilization, and predictable performance across various deployment scales.

## 2.1. Environment and Topology

**Demonstration Environment**

- Server
  - Model: KS2204-8C
    CPU: 8 cores
    Memory: 16 GB
    OS: KSM 1.1.0

## 2.2. Deployment Steps

**Step 1. OS Foundation**

1. Install and configure Ubuntu LTS as the base operating system.
2. Ensure the OS is fully updated and hardened for service workloads.

**Step 2. Initialize KSM Platform**

1. Deploy KSM on Ubuntu.
2. Access XInsight to perform platform health verification.


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3. Enable API services for orchestration and monitoring.

**Step 3. Storage Preparation**

1. Create dedicated volumes for archive and metadata.
2. Define retention policies according to recording duration and capacity planning.

**Step 4. Service Registration**

1. Register Milestone services (recording, streaming, event handling) within KSM.
2. Assign CPU and memory quotas per container.
3. Configure persistent storage mapping for each service.

**Step 5. Workflow Configuration**

1. Use RTSP for camera ingestion into Milestone components.
2. Verify that all required ports are reachable (RTSP, HTTP, gRPC).
3. Connect Milestone's archive path to QSAN storage.
4. Confirm licensing and service registration in KSM for compliance.

**Step 6. Validation & Performance Check**

1. Perform a validation scenario:
2. Camera ingest → Milestone service → Archive path → Playback.

**Check List**

1. Live view stability
2. Recording continuity
3. Event playback reliability
4. CPU/RAM utilization, Disk I/O, and p95 playback start latency

## 2.3. Verification and KPI Evaluation

The following **KPIs** (**K**ey **P**erformance **I**ndicators) are recommended for acceptance testing:


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*Table 2-1 KPI Evaluation*

| METRIC | TARGET | DESCRIPTION |
|---|---|---|
| **Stream Stability** | ≥ 99.9% | Continuous live streaming without frame loss |
| **Playback Start Latency (p95)** | < 2 seconds | Time from request to playback initiation |
| **Storage Utilization** | Within planned capacity | Maintain efficiency and prevent overuse |
| **Service Uptime** | ≥ 99.99% | Sustained reliability of containerized Milestone services |


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# 3. CONCLUSION

By combining **KSM Microservices Platform**, **Milestone video services**, and **QSAN Unified Storage**, this solution demonstrates how containerized orchestration can streamline deployment and management of surveillance environments.

The architecture offers:

- **Edge-readiness** with minimal hardware requirements (2 vCPU / 4 GB RAM)
- **Elastic scalability** through KSM node expansion
- **Persistent and resilient storage** for video archives
- **Unified control and monitoring** via XInsight

This deployment guide enables partners and system integrators to confidently implement a reliable, scalable, and resource-efficient video management system using open technologies such as Ubuntu and KSM.


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# 4. APPENDIX

## 4.1. Apply To

- KSM firmware 1.1.0 and later


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