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Operator Workstation Requirements

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Overview

This page lists the recommended hardware for the workstations operators use to monitor video in GCXONE. It is written for 24x7 monitoring centers, where an operator may watch live video, handle alarms, investigate incidents, review recordings and use maps and dashboards at the same time.

Hardware Profiles

There are two hardware profiles:

- Minimum: suitable for standard video monitoring operations.
- Recommended: the preferred configuration for production monitoring centers and multi-monitor operator environments.

Component Minimum Recommended Processor Intel® Core™ i7-12700 or equivalent Intel® Core™ Ultra 7 265K / Core™ i7-14700 or better CPU 12 Cores / 20 Threads 16+ Cores / 24+ Threads Memory 32 GB RAM 32 GB DDR5 RAM Graphics NVIDIA® RTX-class GPU with ≥8 GB VRAM NVIDIA® RTX 5060 Ti 16 GB or better Video Decoding Hardware H.264/H.265 decoding Hardware H.264/H.265/AV1 decoding- GPU Outputs Minimum 3 digital display outputs Minimum 4 digital display outputs Displays Up to 2 × 1920×1080 / 2560×1440 3 to 4 × 1920×1080 / 2560×1440; or 2 to 4 × 4K Operating System Windows 11 Pro 64-bit Windows 11 Pro/Enterprise 64-bit System Storage 512 GB NVMe SSD 1 TB NVMe SSD- Network 1 GbE Ethernet 1 GbE minimum; 2.5 GbE preferred Power Supply Business-class PSU 80+ Gold or better TPM TPM 2.0 TPM 2.0 with Secure Boot UPS Recommended Required Operating Profile Business-class desktop/workstation Professional workstation suitable for 24×7 operation Warranty Minimum 3 years 3–5 years; preferably onsite / next business day

For new monitoring centers, use the recommended profile. It gives headroom for live video monitoring, alarm handling, playback, investigation and normal business applications running at the same time.

Sizing by Operator Workload

The right profile depends on how much video each operator handles. Use the following as a starting point:

Workload	Typical Usage	Suggested Configuration
Light	Up to ~16 simultaneous streams; 1 to 2 displays- Minimum	Standard
Standard	~16 to 36 simultaneous streams; 2 to 4 displays; alarms and playback	Recommended
Heavy	36+ simultaneous streams; multiple high-resolution streams; extensive playback and investigation-	Higher-performance workstation

These figures are guidelines, not fixed limits. Actual capacity depends on video resolution, codec, bitrate, frame rate, browser and application workload, display configuration and the other applications running on the workstation. For large monitoring centers, validate the sizing against the expected workload.

The workstation profile does not limit the number of cameras you can connect to GCXONE. The number of cameras in an environment and the number of cameras one operator views at the same time are separate considerations. Size the workstation by:

- Simultaneous video streams
- Video resolution, codec and frame rate
- Number of displays
- Playback and investigation workload

Deployments with very high video density, multiple high-resolution streams, large video walls or local video-processing/AI workloads may need a higher-performance workstation.

Component Requirements

Displays

Choose the number and resolution of displays to match the monitoring center's workflow.

- Minimum: 2 × Full HD (1920×1080) displays. Suitable for live video monitoring, alarm handling, basic playback and standard operator workflows.
- Recommended: 3 to 4 × 1920×1080 or 2560×1440 displays.

A typical four-display arrangement:

Display	Typical Usage	Display 1	Live video monitoring	Display 2	Live video / camera views	Display 3	Alarm
	queue; maps and events	Display 4	Investigation; playback and supporting applications				

Graphics and Video Decoding

Video monitoring puts a significant load on the workstation's graphics. The workstation should support hardware-accelerated decoding for:

- H.264

- H.265 / HEVC
- AV1, where applicable

A discrete NVIDIA GPU is recommended for production operator workstations, especially with multiple simultaneous streams and multiple displays. The GPU performance needed increases with:

- Number of simultaneous video streams
- Video resolution, frame rate and codec
- Number of displays
- Number of primary-profile camera streams
- Live view and playback usage
- Video investigation and export activity

Network

A wired Ethernet connection is recommended. A dedicated wired connection gives more predictable performance than Wi-Fi and is preferred for mission-critical monitoring.

The bandwidth needed depends on the video being viewed. It increases with higher camera resolution, frame rate and bitrate, the number of simultaneous streams, and playback and investigation activity.

Connect the workstation to a network that can carry the expected video workload.

Local Storage

The workstation does not store long-term video recordings. Recording is handled by the recording infrastructure, the cloud platform or the NVR/VMS environment.

The workstation's local storage is used for:

- The operating system and system components
- The Local Mode component

- Web browsers and other VMS client applications used by the monitoring center
- VMS administration, camera configuration, diagnostic and troubleshooting tools
- Remote support and IT management tools, where applicable
- Security and endpoint protection software
- Application data, logs, configuration files, cache and temporary files
- Local video clips, snapshots and exported evidence, where applicable

512 GB is the minimum. Choose 1 TB or larger where operators use several VMS clients, device-management and diagnostic tools, or export video locally.

If operators regularly export video evidence to the workstation, they may need more storage, depending on the number of exports, video resolution and bitrate, export duration, how long exports are kept locally and the evidence management procedures. Where large amounts of evidence are kept locally, use a dedicated secondary SSD or centralized evidence storage rather than the operating system drive.

Operating System and Security

Use Windows 11 Pro 64-bit at minimum, or Windows 11 Pro or Enterprise 64-bit for the recommended profile. The workstation should also have:

- TPM 2.0 enabled
- Secure Boot enabled
- Current operating system security updates
- Current GPU drivers
- Endpoint protection according to your organization's IT security policy

Check operating system and driver updates on your production setup before deploying them to all workstations.

24×7 Operation, Power and Environment

Monitoring workstations usually run continuously. For monitoring centers operating 24×7, the workstation should be:

- Business-class or professional-grade, designed for sustained operation
- Properly ventilated and kept within the manufacturer's specified temperature range
- Connected to UPS-backed power
- Maintained according to the manufacturer's service recommendations

Consumer-grade systems may be used where appropriate, but business-class or professional systems are recommended for mission-critical monitoring.

UPS: UPS protection is recommended for all operator workstations and should be considered a requirement for mission-critical monitoring centers. Size the UPS for the workstation, the displays and any required networking equipment, based on their actual power consumption. The UPS protects against short power interruptions, voltage fluctuations, unexpected shutdowns and power restoration events.

Environment: Install the workstation in a clean, temperature-controlled room with:

- Adequate airflow and ventilation
- Minimal dust
- A stable power supply
- Appropriate cable management
- Secure physical installation

In dedicated control rooms, leave enough clearance around the workstation to prevent thermal throttling.

Deployment Checklist

Before deploying an operator workstation, check that it has:

- Intel Core i7-class CPU or equivalent
- 32 GB RAM or more
- NVIDIA RTX-class discrete GPU with at least 8 GB VRAM
- 512 GB or larger NVMe SSD
- 1 GbE Ethernet
- Windows 11 Pro 64-bit
- TPM 2.0 and Secure Boot enabled
- The required number of display outputs and monitors
- The latest GPU driver and Windows updates
- UPS protection
- Adequate ventilation
- An enterprise/business warranty