

Hardware Recommendations

We recommend using the following specifications and prerequisites mentioned above to have a smooth user experience when using the Nx Desktop client with up to 64 devices in a layout.

Single Monitor Workstation:

Type	Requirement
CPU	Intel i5 8th gen or AMD Ryzen 5 3000 Quad-Core or better
RAM	8 GB DDR3 1600 MHz or better
Network Interface	100 Mbit or better
GPU	Intel HD Graphics onboard GPU or better
Storage	Dedicated SSD or NVMe disk for the OS, 128 GB or larger

Dual Monitor Workstation:

Type	Requirement
CPU	Intel i7 8th gen or AMD Ryzen 7 3000 Quad-Core or better
RAM	16 GB DDR3 1600 MHz or better
Network Interface	100 Mbit or better
GPU	Intel HD Graphics onboard GPU or better
Storage	Dedicated SSD or NVME disk for the OS, 128 GB or larger

Quad Monitor Workstation:

Type	Requirement
CPU	Intel i9 or AMD Ryzen 9 Quad-Core or better
RAM	32 GB or better
Network Interface	1 Gbit or better
GPU	GeForce GTX 1650 or better
Storage	Dedicated SSD or NVME disk for the OS, 128 GB or larger

Note 1: Nx Desktop uses only the CPU for video decoding and can display up to 64 items on the viewing grid. The GPU is used for dewarping on the fly, drawing animations, controls, and rendering UI elements in the client.

Note 2: We assume that one instance of Nx Desktop runs on one Full HD monitor. If you want to run two instances of Nx Desktop on one monitor, use the recommended specs of the "Dual Monitor Workstation". For three or four instances of Nx Desktop, use the recommended specs for the "Quad Monitor Station".

Note 3: Please take notice that dewarping a fish-eye camera will set its resolution to "High". As a result, the specifications as mentioned above might not apply and are dependent on the camera settings (e.g., resolution, framerate, etc.). It is better to take the suggestions mentioned below in the decoding capabilities paragraph.

Decoding capabilities

Although it is difficult to offer reliable recommended specifications with regard to the decoding capabilities of a system due to multiple variables of a stream, we tried to provide some guidance to select the right workstations for your requirements.

The following camera settings were taken into consideration when creating these recommendations:

- Resolution of 1920 x 1080 or less
- Framerate of 15 fps or fewer
- Bandwidth of 2 Mbps or fewer
- [Group of Pictures](#) (GOP) of 15 (IBBBBPBBBBBPBBBBI)
- H.264 compression method

The following Monitor resolution was taken into consideration when creating these recommendations:

- Resolution of 1920 x 1080 or less

Up to 8 high-resolution streams:

Type	Requirement
CPU	Intel i5 8th gen or AMD Ryzen 5 3000 Quad-Core or better
RAM	8 GB DDR3 1600 MHz or better
Network Interface	100 Mbit or better
GPU	Intel HD Graphics onboard GPU or better
Storage	Dedicated SSD or NVMe disk for the OS, 128 GB or larger

Up to 16 high-resolution streams:

Type	Requirement
CPU	Intel i7 8th gen or AMD Ryzen 7 3000 Quad-Core or better
RAM	16 GB DDR3 1600 MHz or better
Network Interface	100 Mbit or better
GPU	Intel HD Graphics onboard GPU or better
Storage	Dedicated SSD or NVME disk for the OS, 128 GB or larger

Up to 32 high-resolution streams:

Type	Requirement
CPU	Intel i9 or AMD Ryzen 9 Quad-Core or better
RAM	32 GB or better
Network Interface	1 Gbit or better
GPU	GeForce GTX 1650 or better
Storage	Dedicated SSD or NVME disk for the OS, 128 GB or larger

Note 1: Please keep in consideration that most monitors have a native resolution of 1920x1080. As a result, there is no benefit of displaying more than 1 Full HD camera in High Resolution on such a

screen. The same applies to displaying more than 4 Full HD cameras on a 4K screen, or more than 16 Full HD cameras on an 8K screen.

Hardware Decoding

Hardware decoding is a powerful feature available in the Nx Witness Desktop Client, designed to leverage your system's GPU for improved hardware performance. Supported on both Windows and Ubuntu operating systems, hardware decoding can be utilized with NVIDIA GPUs on both platforms, and with Intel GPUs on Windows systems.

Enabling hardware acceleration allows the Desktop Client to offload video decoding tasks from the CPU to the GPU, freeing up processing power for other operations. This is especially beneficial for systems with lower-end hardware or those needing to handle high-resolution video streams, such as 16MP or 32MP cameras. By offloading these tasks, hardware decoding enhances overall system performance and enables smoother video playback even on resource-limited machines.

Why no minimum hardware requirements?

Although Nx Desktop is a very lightweight application that can run on an Atom Powered Intel Compute stick (as we show in [THIS](#) video), there are too many variables and use cases to determine viable minimum requirements.

A user who only reviews footage based on events/notifications and exports only small sections of footage would have very different requirements than a professional operator that interacts with many cameras/resources at the same time.

What about ARM-based devices?

ARM is gaining popularity - Microsoft uses ARM in some of their Surface devices, and Apple has currently is offering the Macbooks and iMacs with their ARM-based chipsets.

We also have an ARM-based Desktop Client installation package for Linux powered devices like the [Nvidia Jetson Nano](#) single board computers, but this package currently is only available as [an experimental build](#).

For a quick and easy setup guide for your ARM-based Single Board Computer, suitable only for prototyping and experimental use, please refer to [this](#) support article. To create your own ARM-based Linux NVR, please take notice of [this](#) support article. More on our ARM Support Policy can be read [here](#).

Do you have different requirements?

Every project has its unique needs, but the recommendations above will fulfill the needs of most projects. If you have special requirements like displaying many high-resolution streams, using more than four monitors for a video wall, or other project-specific requirements, please reach out to your local Nx Witness reseller to discuss these requirements and possible solutions.