

# MAXPRO® NVR Server VMware ESXi Specifications

When the end user chooses to provide their own virtual server solution for use with Honeywell MAXPRO NVR Server software, it must meet or exceed specifications detailed below. The customer is responsible for the setup of the VMware ESXi host, the Virtual Machine configuration options, operating system software, physical and virtual networking configuration and all other customer IT requirements. Recommended Windows Operating System version must be installed and configured per the Honeywell installation instructions included on the MAXPRO NVR Server installation DVDs. The end user has full responsibility for the virtual solution, computer hardware and operating system compatibility. Honeywell is only responsible for the MAXPRO NVR Server software application and Honeywell-installed subsystem components. VMware ESXi qualification is for the MAXPRO NVR Server only. The MAXPRO NVR client is not supported in a virtual environment.

## NVR v3.5 Server Performance specification

- 64 Cameras per NVR Server instance, H.264 Compression, Medium compression level
- 1920 fps @ 4CIF/VGA or 1920 fps @ 720p HD or 1280 fps @ 1080p (4 Mbps bitrate) HD. Network bandwidth/throughput - Incoming: 160 Mbps, Outgoing: 350 Mbps, Total: 510 Mbps
- Server based VMD (Smart VMD) – channels supported:
  - Channels at max fps: 32 ch at 960 fps @ 4CIF/VGA or 32 ch at 960 fps @ 720p or 32 ch at 960 fps @ 1080p or total 64 Megapixel.
  - All Channels: For 64 channel Smart VMD, requires higher processing power than the minimum processors specifications recommended below.
- Max Video Streams support:
  - Web Client: Live - 64 streams, Playback - 32 streams. Note: Live streams consumed are per camera being viewed live and duplicate live views of the same camera in multiple or same web client instance are allowed without consuming additional streams. Playback streams consumed are per playback stream being viewed and each playback stream being viewed consumes 1 additional stream.
  - Desktop Client: Live - 256 streams, Playback/Video retrieval sessions - 32, Sync playback - 9 streams. 256 live streams limit excludes 1 stream used per camera if Smart VMD is enabled. Maximum live streams per camera is 15 with Smart VMD enabled.
  - Mobile App: 5 mobile devices per NVR.

The MAXPRO NVR Server virtual session shall be composed of the following minimum requirements to support the recording and monitoring performance specifications mentioned above:

- VMware ESXi V4.0 or above
- Minimum Processors:
  - With Server based VMD (Smart VMD): Speed 2.4 GHz, Sockets 1, Cores per socket 4 (4 – vcpu's/guest)
  - Without Server based VMD (Smart VMD): Speed 2.4 GHz, Sockets 1, Cores per socket 2 (2 – vcpu's/guest)
    - 1:1 processor ratio from real to virtual recommended
    - Edit the ESXi Host System Resource Allocation Configuration CPU Resources Reservation: to the maximum.
- Memory 8 GB Minimum – Allocate additional RAM based on pre-record calculations as required
  - 1:1 Memory ratio from real to virtual recommended
  - Edit the ESXi Host System Resource Allocation Configuration Memory Resources Reservation: to the maximum
- Storage - A Minimum of Two separate Disk/LUN datastores on a local SCSI, Fiber Channel or iSCSI
  - Provisioned Thick "Eager-zeroed" preferred
  - Dedicated Datastore 1 sized 120GB or larger is for the Windows operating system and MAXPRO NVR server software
  - Dedicated Datastore 2 sized 2TB (8MB block size – 2048GB maximum file size)
  - Create additional Datastores sized 2TB (8MB block size – 2048GB maximum file size) as required for MAXPRO NVR Server video storage based on the storage estimators recommendations for total storage. Each server's storage requirements including the number of 2TB Disk/LUN datastores will differ based on end user use case requirements. Disk Throughput at a minimum should be 20MBps per VM
- Networking: Minimum two or more of active VM Network adaptors 1000Mb, Full Duplex (vmxnet 3 preferred)
- Virtual Machine Video Card set to one display with 128MB total video memory
- Operating System for VM Session – Windows 7 Professional 64 bit SP1 or Windows Server 2008 R2 SP1

- MAXPRO NVR includes SQL Server 2008 R2 Express as default and supports SQL Server 2008 R2
- Turn off the scheduled antivirus scanning
- Turn off the Microsoft automatic updates option. Only apply updates that have been certified by the Honeywell Application Engineers and /or development center for compatibility. Always perform a full system backup prior to applying any of the tested Microsoft hot fixes.
- Follow the VMware ESXi best practices for configuring ESXi hosts and minimize SCSI Reservation delays. To support 64-bit virtual machines, support for hardware virtualization (Intel VT-x) must be enabled on x64 CPUs on the Physical ESXi Host Server. Place the management network and virtual machine networks on different physical network cards. Dedicated Gigabit Ethernet cards for virtual machines, such as Intel PRO 1000 adapters, improve throughput to virtual machines with high network traffic.

## NVR v3.1 Server Performance specification

- 32 Cameras per NVR Server instance, H.264 Compression, Medium compression level
- 960 fps @ 4CIF/VGA or 960 fps @ 720p HD or 640 fps @ 1080p HD. Network bandwidth/throughput - Incoming: 120 Mbps, Outgoing: 120 Mbps, Total: 240 Mbps
- Server based VMD (Smart VMD) – channels supported:
  - Channels at max fps: 32 ch at 960 fps @ 4CIF/VGA or 32 ch at 960 fps @ 720p or 16 ch at 640 fps @ 1080p.
  - All Channels at fps: 32 ch at 960 fps @ 4CIF/VGA or 960 fps @ 720p or 320 fps @ 1080p.
- Max Video Streams support:
  - Web Client: Total Streams Limit - 32 (live + playback). Note: Live streams consumed are per camera being viewed live and duplicate live views of the same camera in multiple or same web client instance are allowed without consuming additional streams. Playback streams consumed are per playback stream being viewed and each playback stream being viewed consumes 1 additional stream.
  - Desktop Client: Live - 160 streams, Playback/Video retrieval sessions - 32, Sync playback - 9 streams. 160 live streams limit includes 1 stream used per camera if Smart VMD is enabled. Maximum live streams per camera is 15 with Smart VMD enabled.
  - Mobile App: 3 mobile devices per NVR.

The MAXPRO NVR Server virtual session shall be composed of the following minimum requirements to support the recording and monitoring performance specifications mentioned above:

- VMware ESXi V4.0 or above
- Minimum Processors:
  - With Server based VMD (Smart VMD): Speed 2.4 GHz, Sockets 1, Cores per socket 4 (4 – vcpu's/guest)
  - Without Server based VMD(Smart VMD): Speed 2.4 GHz, Sockets 1, Cores per socket 2 (2 – vcpu's/guest)
  - 1:1 processor ratio from real to virtual recommended
  - Edit the ESXi Host System Resource Allocation Configuration CPU Resources Reservation: to the maximum.
- Memory 8 GB Minimum – Allocate additional RAM based on pre-record calculations as required
  - 1:1 Memory ratio from real to virtual recommended
  - Edit the ESXi Host System Resource Allocation Configuration Memory Resources Reservation: to the maximum
- Storage - A Minimum of Two separate Disk/LUN datastores on a local SCSI, Fiber Channel or iSCSI
  - Provisioned Thick "Eager-zeroed" preferred
  - Dedicated Datastore 1 sized 120GB or larger is for the Windows operating system and MAXPRO NVR server software
  - Dedicated Datastore 2 sized 2TB (8MB block size – 2048GB maximum file size)
  - Create additional Datastores sized 2TB (8MB block size – 2048GB maximum file size) as required for MAXPRO NVR Server video storage based on the storage estimators recommendations for total storage. Each server's storage requirements including the number of 2TB Disk/LUN datastores will differ based on end user use case requirements. Disk Throughput at a minimum should be 20MBps per VM
- Networking: Minimum two or more of active VM Network adaptors 1000Mb, Full Duplex (vmxnet 3 preferred)
- Virtual Machine Video Card set to one display with 128MB total video memory
- Operating System for VM Session – Windows 7 Professional 64 bit SP1 or Windows Server 2008 R2 SP1
- MAXPRO NVR includes SQL Server 2008 R2 Express as default and supports SQL Server 2008 R2
- Turn off the scheduled antivirus scanning

- Turn off the Microsoft automatic updates option. Only apply updates that have been certified by the Honeywell Application Engineers and /or development center for compatibility. Always perform a full system backup prior to applying any of the tested Microsoft hot fixes.
- Follow the VMware ESXi best practices for configuring ESXi hosts and minimize SCSI Reservation delays. To support 64-bit virtual machines, support for hardware virtualization (Intel VT-x) must be enabled on x64 CPUs on the Physical ESXi Host Server. Place the management network and virtual machine networks on different physical network cards. Dedicated Gigabit Ethernet cards for virtual machines, such as Intel PRO 1000 adapters, improve throughput to virtual machines with high network traffic.

**All Virtual Server hardware must be supported and listed in the VMware Certified Compatibility Guides.**

The online VMware compatibility guide is designed to be the complete reference for products that have been tested for VMware compatibility. <http://www.vmware.com/resources/guides.html>

Please indicate your acceptance by signing, dating, and returning a copy of this letter to the Honeywell sales associate.

Sincerely,

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