QNAP Surveillance Tool

Here is the briefly introductions of the QNAP Surveillance Tool. This calculator is based on the NVR CPU usage.

Note:

1. MxPEG of Mobotix is newly added into this calculator. Because it needs additional NVR CPU power for this video compression, please reserve more CPU usage and bandwidth for stable operation.
2. The results from the calculator are only for reference.
3. The real performance should depend on the network environment. Please reserve CPU usage and bandwidth for stable operation.

Video Recording (required)

Enter recording settings.

Video Recording										
Recording resolution		CIF	VGA	720P/1M	1.3M	1080P/2M	3M	4M	5M	10M
Step 1. Choose **video compression for recording**	→	H.264	H.264	H.264	H.264	H.264	H.264	H.264	H.264	H.264
Step 2. Enter **number of cameras for recording**	→									
Step 3. Recording FPS	→	30	30	30	30	30	30	30	30	30
Step 4. Choose **recording quality**	→	Medium	Medium	Medium	Medium	Medium	Medium	Medium	Medium	Medium
Step 5. Estimated **motion frequency** in the field of view	→	Low	Low	Low	Low	Low	Low	Low	Low	Low
Step 6. Low light?	→	No	No	No	No	No	No	No	No	No
Step 7. Enter **recording hours** (per day)	→	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0
Estimated bit rare per camera (Mbps, megabits per second)	=>	0.39	0.94	2.76	3.86	6.18	9.41	12.03	14.65	27.59
Estimated bit rare (Mbps, megabits per second)	=>	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total estimated file size of recordings (per day)*	=>	0.00 GB								
Total recording bandwidth (Mbps, megabits per second)**	=>	0.00 Mbps								
* The actual hard drive capacity required depends on the system configuration and sometimes the variation can be quite large. **Please reserve 15% or more hard drive space for recording.**										
** The total bandwidth is the largest amount of network capacity provided by the VioStor NVR for data streaming on LAN or the Internet. Please reserve 20% or more bandwidth to guarantee more stable connection and higher quality of viewing.										

If you know the real bit rate of camera, you can enter the real number for more accurate result. Otherwise, the result will be calculated by resolution, fps, quality, motion frequency and so on.

Form Factor (required)

Choose the form factor you want, including all, desktop/portable, and rack mount.

Form Factor	→	All	*Required

Total array capacity (required)

Enter total usable capacity of the hard drives.

Total Array Capacity*** (total usable capacity of the hard drives)	→	10.00 TB	*Required

For RAID 1, the total array capacity is minimum storage capacity of one of installed HDDs. For RAID 5, the total array capacity is (n-1) * minimum storage capacity of one of installed HDDs. For RAID 6, the total array capacity is (n-2) * minimum storage capacity of one of installed HDDs.

n = number of installed HDDs

*If you configure higher percentage of storage capacity to overwrite the oldest recording files in NVR, please lower the number here.

Application (multi-select)

Choose the applications you are using.

Application								
	☐	Remote monitoring on Windows	☐	Remote playback on Windows	☐	Local display	☐	Local playback
	☐	Remote monitoring on Mac client	☐	Remote playback on Mac client	☐	Other applications, such as RAID rebuilding and recovery, remote replication, and video backup		

*Except video recording, only the selected application will be calculated.

Remote Monitoring on Windows (Optional)

If you select “Remote Monitoring on Windows” in Application, the value here will be calculated.

Remote Monitoring on Windows *(up to* ***64-channel display mode*** *is supported for a monitor on NVR FW v4.0.0 or above)*										
Recording resolution		CIF	VGA	720P/1M	1.3M	1080P/2M	3M	4M	5M	10M
Step 1. Choose **streaming source for remote monitoring**	→	Streaming from server	Streaming from server	Streaming from server	Streaming from server	Streaming from server	Streaming from server	Streaming from server	Streaming from server	Streaming from server
Step 2. Choose **video resolution for remote monitoring****	→	M-JPEG/VGA	M-JPEG/VGA	M-JPEG/720P	Same as recording	Same as recording	Same as recording	Same as recording	Same as recording	Same as recording
Step 3. Enter **number of cameras for remote monitoring**	→									
Live view bandwidth (Mbps, megabits per second)	=>	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total live view bandwidth (Mbps, megabits per second)**	=>	0.00 Mbps								
** The total bandwidth is the largest amount of network capacity provided by the VioStor NVR for data streaming on LAN or the Internet. Please reserve 20% or more bandwidth to guarantee more stable connection and higher quality of viewing.										
**** Estimated bit rate of MJPEG/VGA for streaming from server is 2.5 Mbps , and estimated bit rate of MJPEG/720P for streaming from server is 7.5 Mbps .										

*Please check “Multi-stream” tab for streaming source support and multi-stream support. System default is “stream from camera” to reduce NVR loading.

	Camera Model	Recording Settings	Stream from Camera	Stream from Server	Local Display	Notes
A-MTK	AM6221, AM9539	Any	320x240, 640x480	Recording stream and M-JPEG - 4CIF	Recording stream and M-JPEG - 4CIF	
A-MTK	AM9120, AM9130, AM9260M	Any	320x240, 640x480	Recording stream and M-JPEG - VGA	Recording stream and M-JPEG - VGA	
A-MTK	AM9060, AM9730	Any	320x240, 480x360, 640x480, 800x600, 1024x768, 1280x960	Recording stream and M-JPEG - VGA	Recording stream and M-JPEG - VGA	
ACTi	TCM and KCM series excluding KCM-3911	Any	Same as recording setting	Recording stream and M-JPEG - VGA	Recording stream and M-JPEG - VGA	User can define resolution and fps for second stream on cameras' page. Default resolution is VGA.

*What is the difference between stream from the network camera and server?

If the camera’s multi-stream is supported by QNAP NVR, user can use smaller video stream to monitor for saving the transfer bandwidth.

Remote Playback on Windows (Optional)

If you select “Remote Playback on Windows” in Application, the value here will be calculated.

Remote Playback on Windows *(up to* ***16-channel playback*** *is supported on NVR FW v3.6.0)*										
Recording resolution		CIF	VGA	720P/1M	1.3M	1080P/2M	3M	4M	5M	10M
Step 1. Enter **number of cameras for remote playback**	→									
Vidoe playback bandwidth (Mbps, megabits per second)	=>	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total video playback bandwidth (Mbps, megabits per second)**	=>	0.00 Mbps								
** The total bandwidth is the largest amount of network capacity provided by the VioStor NVR for data streaming on LAN or the Internet. Please reserve 20% or more bandwidth to guarantee more stable connection and higher quality of viewing.										

*The video resolution is same as the recording resolution.

Local Display (Optional)

If you select “Local Display” in Application, the value here will be calculated.

Local Display *(up to* ***16-channel display mode*** *is supported on NVR FW v3.6.0* ***** *)*									
Recording resolution		CIF	VGA	720P/1M	1.3M	1080P/2M	3M	4M	5M
Step 1. Choose **video resolution/compression for local monitoring*****	→	M-JPEG/VGA	M-JPEG/VGA	M-JPEG/VGA	Same as recording	Same as recording	Same as recording	Same as recording	M-JPEG/720P
Step 2. Enter **number of cameras for local monitor******	→								
***** To know current local monitor resolution, please right click specific channel and go to "Select Stream" on local display interface.									
****** VS-12100U-RP Pro, VS-8100U-RP Pro, and VS-8100 Pro+ series support 1 to 16-channel display mode. VS-4008U-RP Pro, VS-4008 Pro, VS-2008 Pro support 1 to 10-channel display modes only. VS-2004 Pro supports 1 to 6-channel display modes only. Other NVR models support 1 to 12-channel display modes.									

* When monitoring or playback by the local display interface, the resolution width or height of the video stream must not exceed 2048.

*If the multi-stream of camera model is not supported by QNAP, the resolution of live-view videos will be the same as your recording settings.

	Camera Model	Recording Settings	Stream from Camera	Stream from Server	Local Display	Notes
A-MTK	AM6221, AM9539	Any	320x240, 640x480	Recording stream and M-JPEG - 4CIF	Recording stream and M-JPEG - 4CIF	
A-MTK	AM9120, AM9130, AM9260M	Any	320x240, 640x480	Recording stream and M-JPEG - VGA	Recording stream and M-JPEG - VGA	
A-MTK	AM9060, AM9730	Any	320x240, 480x360, 640x480, 800x600, 1024x768, 1280x960	Recording stream and M-JPEG - VGA	Recording stream and M-JPEG - VGA	
ACTi	TCM and KCM series excluding KCM-3911	Any	Same as recording setting	Recording stream and M-JPEG - VGA	Recording stream and M-JPEG - VGA	User can define resolution and fps for second stream on cameras' page. Default resolution is VGA.

Local Playback (Optional)

If you select “Local Playback” in Application, the value here will be calculated.

Local Playback (Only **single channel** playback is supported on NVR FW v3.6.0)								
Recording resolution		CIF	VGA	720P/1M	1.3M	1080P/2M	3M	4M
Step 1. Enter **number of cameras for remote playback**	→							

* When monitoring or playback by the local display interface, the resolution width or height of the video stream must not exceed 2048.

*The video resolution is same as the recording resolution.

Remote Monitoring on QNAP Surveillance Client for Mac (Optional)

If you select “Remote Monitoring on Mac Client” in Application, the value here will be calculated.

Remote Monitoring on QNAP Surveillance Client for Mac (up to **16-channel** display mode is supported on Mac client v1.0.1)									
Recording resolution		CIF	VGA	720P/1M	1.3M	1080P/2M	3M	4M	5M
Step 1. Choose **video resolution/compression for remote monitoring******	→	M-JPEG/VGA	M-JPEG/VGA	M-JPEG/VGA	Same as recording	Same as recording	Same as recording	Same as recording	M-JPEG/720P
Step 2. Enter **number of cameras for remote monitoring**	→								
Live view bandwidth (Mbps, megabits per second)	=>	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*
Total live view bandwidth (Mbps, megabits per second)**	=>	*0.00* Mbps							
** The total bandwidth is the largest amount of network capacity provided by the VioStor NVR for data streaming on LAN or the Internet. Please reserve 20% or more bandwidth to guarantee more stable connection and higher quality of viewing.									
**** Estimated bit rate of MJPEG/VGA for streaming from server is		2.5 Mbps	, and estimated bit rate of MJPEG/720P for streaming from server is		7.5 Mbps	.			

* When monitoring or playback by the Mac Client, the resolution width or height of the video stream must not exceed 2048.

*Only stream from server is supported for Mac Client.

	Camera Model	Recording Settings	Stream from Camera	Stream from Server	Local Display	Notes
A-MTK	AM6221, AM9539	Any	320x240, 640x480	Recording stream and M-JPEG - 4CIF	Recording stream and M-JPEG - 4CIF	
A-MTK	AM9120, AM9130, AM9260M	Any	320x240, 640x480	Recording stream and M-JPEG - VGA	Recording stream and M-JPEG - VGA	
A-MTK	AM9060, AM9730	Any	320x240, 480x360, 640x480, 800x600, 1024x768, 1280x960	Recording stream and M-JPEG - VGA	Recording stream and M-JPEG - VGA	
ACTi	TCM and KCM series excluding KCM-3911	Any	Same as recording setting	Recording stream and M-JPEG - VGA	Recording stream and M-JPEG - VGA	User can define resolution and fps for second stream on cameras' page. Default resolution is VGA.

Remote Playback on QNAP Surveillance Client for Mac (Optional)

If you select “Remote Playback on Mac Client” in Application, the value here will be calculated.

Remote Playback on QNAP Surveillance Client for Mac (Only **single channel** playback is supported on Mac client v1.0.1 or above)								
Recording resolution		CIF	VGA	720P/1M	1.3M	1080P/2M	3M	4M
Step 1. Enter **number of cameras for remote playback**	→							
Vidoe playback bandwidth (Mbps, megabits per second)	=>	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*
Total video playback bandwidth (Mbps, megabits per second)**	=>	*0.00* Mbps						
** The total bandwidth is the largest amount of network capacity provided by the VioStor NVR for data streaming on LAN or the Internet. Please reserve 20% or more bandwidth to guarantee more stable connection and higher quality of viewing.								

* When monitoring or playback by the Mac Client, the resolution width or height of the video stream must not exceed 2048.

*The video resolution is same as the recording resolution.

Suggestion

Based on form factor, total array capacity, number of cameras, local display, CPU loading (lower than 88%), the suggested VioStor NVR model and disk configuration will be listed.

Suggestion (by form factor, total array capacity, number of cameras, local display, CPU loading)			
Suggested VioStor NVR model and disk configuration	=>	*VS-6120 Pro+*	*RAID 5*
A. **Estimated CPU loading** for suggested VioStor NVR model	=>	*53.07%*	
B. **Storage rollover time** for suggested VioStor NVR model	=>	*7.49*	*day(s)*

Customer Request (Optional)

You can also know the information for other VioStor NVR model.

Customer request			
If you have **preferred VioStor NVR model and disk configuration**, please choose it from the drop-down menu.	→	VS-6120 Pro+	RAID 5
A. Estimated CPU usaage for video recording/ remote monitoring/ remote playback	=>	*41.20% (only for reference)*	
B. Estimated CPU usage for local display/ local playback	=>	*11.87% (only for reference)*	
C. Estimated CPU usage for other application, such as RAID rebuilding and recovery, remote replication, and video backup	=>	*0.00%*	
1. Estimated CPU loading for preferred VioStor NVR model	=>	*53.07%*	
2. Storage rollover time for preferred VioStor NVR model	=>	*7.49*	*day(s)*
3. Will this configuration work with preferred VioStor NVR model?	=>	*Yes*	