

The purpose of this document is to guide users to have the best use case regarding NVR Champ's recording performance.

The basic use case of NVR Champ 2 is **full recording**, **local display¹**, and **storage auto recycling**, so the main factors which affect performance are:

1. The number of remote channels streaming out
2. The case under auto backup
3. 4ch POS text overlay

*Camera Parameter: **H.264** (baseline profile²), high quality, and moderate traffic.

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¹ NVRsolo v2.0 supports multi-stream for local display and remote live view. Using lower resolution streams for local display and remote live view can save CPU loading and network bandwidth as well, which is highly recommended. Meanwhile, recording and playback remains to record and display the 1st stream.

² The CPU loading will be at least 5% higher when decoding H.264 high profile.

³ NVRsolo v2.1.1 supports embedded motion detection. It is strongly recommended to playback 8CH or less at the same time

NC-2160

Displaying lower resolution streams for local live view and remote live view is strongly recommended. The performance results may vary from different parameters of multi-stream setting. Suggest setting 2nd and 3rd stream bitrate under 500kbps/100kbps for better performance.

2-bay basic

Recording + Local Live View + Recycle							
Recording Resolution	FPS (NTSC)	Throughput (Mbps)	Recording (CH)	Local Live View (CH)	Remote Connections (CH)		CPU Loading (%)
					Live View	Playback	
D1/1.3M (720p)	22	80Mbps	16	16(2nd)	16(2nd)*	4	77.47%
2M (1080p)	11	80Mbps	16	16(2nd)	16(2nd)	4	77.08%
2M (1080p)	4CH*12 + 12CH*11 = 180fps	80Mbps	16	16(2nd)	16(2nd)	4	86.1%

*(2nd) indicates the 2nd stream set in Camera Settings is used.

Recording + Local Playback + Recycle							
Recording Resolution	FPS (NTSC)	Throughput (Mbps)	Recording (CH)	Local Playback (CH)	Remote Connections (CH)		CPU Loading (%)
					Live View	Playback	
D1/1.3M (720p)	22	60Mbps	16	16	16(2nd)	0	83.13%
2M (1080p)	11	60Mbps	16	16	16(2nd)	0	84.31%

2-bay (with auto backup)

Recording + Local Live View + Recycle							
Recording Resolution	FPS (NTSC)	Throughput (Mbps)	Recording (CH)	Local Live View (CH)	Remote Connections (CH)		CPU Loading (%)
					Live View	Playback	
D1/1.3M (720p)	22	40Mbps	16	16(2nd)	16(2nd)	4	86.81%
2M (1080p)	11	40Mbps	16	16(2nd)	16(2nd)	4	85.63%

Recording + Local Playback + Recycle							
Recording Resolution	FPS (NTSC)	Throughput (Mbps)	Recording (CH)	Local Playback (CH)	Remote Connections (CH)		CPU Loading (%)
					Live View	Playback	
D1/1.3M (720p)	22	40Mbps	16	8	16(2nd)	0	88.01%
2M (1080p)	11	40Mbps	16	8	16(2nd)	0	85.97%

2-bay (with 4ch POS text overlay)

Recording + Local Live View + Recycle							
Recording Resolution	FPS (NTSC)	Throughput (Mbps)	Recording (CH)	Local Live View (CH)	Remote Connections (CH)		CPU Loading (%)
					Live View	Playback	
D1/1.3M (720p)	22	80Mbps	16	16(2nd)	16(2nd)	4	79.26%
2M (1080p)	11	80Mbps	16	16(2nd)	16(2nd)	4	76.97%

*POS data frequency: 10 seconds.

Limitation of Local Display

There are some limitations of local display on NVR Champ. Despite the total fps³, the resolution is restricted to the figures below.

Out of resolution:

Please set the cameras of which resolution are over 1920x1200

Video being played or recorded with high resolution is with limited support on local display, which is described as below. If it's over the capacity, it shows "out of resolution" on local display.

- ▶ **H.264:** no resolution limitation on single channel, the total capacity is around:
 - 5 channels: 5M**The actual performance depends on the type of cameras.*
- ▶ **MPEG4:** Up to 2M (1920x1080) per channel
- ▶ **MJPEG:** Up to 4M (2560x1600) per channel but with limited fps support

**Note:* The local display won't work if either one side is over the limit.

**Note:* there is no such limitation in the client PC where you use Remote live viewer, as long as the CPU is powerful enough to handle.

MxPEG is not supported on local display at all.



No MxPEG

Video is being played or recorded with MxPEG codec currently on a remote browser/application rather than on the local display that doesn't support MxPEG codec.

Refer to [NUUO wiki](#) for details.

³ 1) H.264: 180fps @1920x1080 / 240fps @1280x720
2) MPEG4: 120fps @1920x1080 / 240fps @1280x720
3) MJPEG: 15fps @1280x720