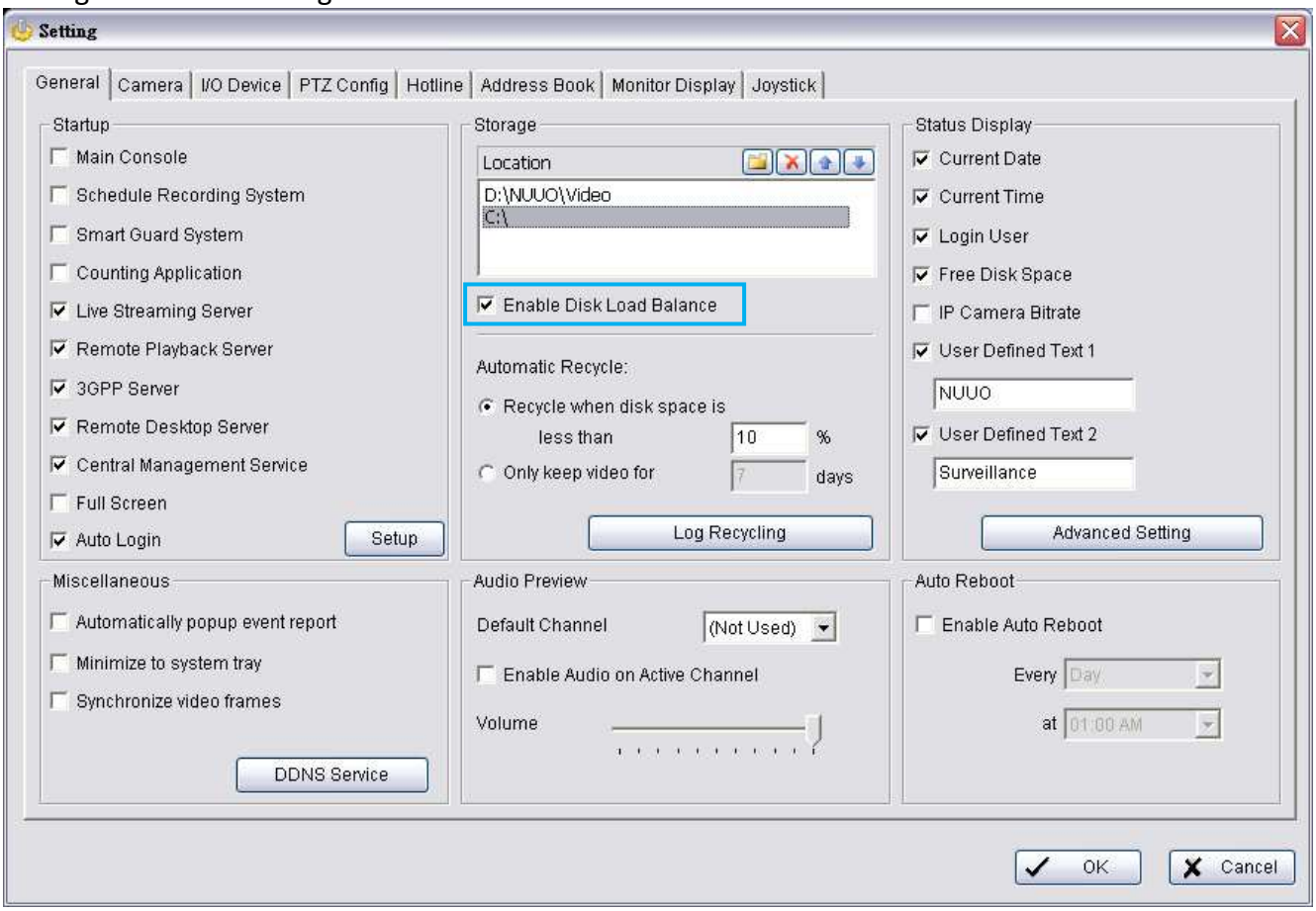
Disk Load Balance Application Notes

Main Console v3.4.0 2010/12/02

1. Introduction

The **Disk Load Balance** function is introduced under Main Console v3.4.0.

You will be able to find the interface of this feature here:
Setting – General – Storage – Enable Disk Load Balance



With the **Disk Load Balance** function enabled, your system *may* experience advanced performance due to increased HDD throughput.
Please find requirements and suggestions below:

Requirements: You must have at least two HDDs to use this feature. One disk partitioned to several drives will only be counted as one and will not increase performance.

Suggestions: It is strongly recommended to use HDDs of the same capacity and start initial recording when both or all drives are empty. This optimizes performance of the feature.

For reference test results please refer to **Appendix A**.

2. Background Theory

Disk throughput is known to be the bottleneck of the IP+ product, especially for Mega-pixel camera recording. Nuuo's disk load balance mechanism adapts from RAID0, which merges the throughput from available hard diskettes. By introducing Nuuo's sophisticated auto-balancing algorithm, the throughput is almost linearly boosted according to the number of disk. The detailed performance

data is listed in Appendix A.

Nuuo's auto-balancing algorithm will select the disk with the largest empty percentage as the recording target whenever a recording data is available. In most cases, this mechanism can guarantee the simultaneous feed of all the available disks, which in turn guarantee the throughput is close to the sum of every of the disk throughput. In addition, if the installer can make sure identical sizes and emptiness before starting the Disk load balance, this mechanism will also guarantee the simultaneous recording data recycling.

Since the earlier MainConsole always only use one disk to record data, using this new Disk balancing mechanism would guarantee the superior performance. Please kindly give it a try.

Appendix A

1. 1 HDD Scenario – appx 75Mb/s

Time	F:	Total MB/s	Total Mb/s
[18:10:10]	9.4096	9.4096	**75.2768**
[19:10:10]	9.43176	9.43176	**75.45408**
[20:08:10]	9.1932	9.1932	**73.5456**

2. 3 HDD Scenario – appx 200Mb/s

Time	F:	G:	H:	Total MB/s	Total Mb/s
[11:23:42]	10.0548	6.89187	8.25803	25.2047	**201.6376**
[11:51:42]	9.14993	6.71368	9.44811	25.31172	**202.49376**
[12:15:42]	9.00498	7.26101	9.00627	25.27226	**202.17808**
[12:37:45]	9.12148	7.00718	9.1104	25.23906	**201.91248**
[13:01:42]	9.30091	6.17201	9.72239	25.19531	**201.56248**
[13:25:42]	8.9322	7.19343	9.08291	25.20854	**201.66832**
[13:47:42]	8.2445	5.66381	10.5526	24.46091	**195.68728**
[14:11:43]	9.25165	7.66581	8.30946	25.22692	**201.81536**
[14:33:43]	9.04713	6.66259	8.97326	24.68298	**197.46384**
[14:57:43]	9.04779	6.54047	9.61419	25.20245	**201.6196**
[15:21:43]	9.15497	6.89655	9.18282	25.23434	**201.87472**
[15:43:43]	9.53384	6.62592	8.66936	24.82912	**198.63296**
[16:07:43]	8.9834	7.07663	9.14084	25.20087	**201.60696**
[16:31:43]	8.80496	6.31698	10.0317	25.15364	**201.22912**

3. 4 HDD Scenario – appx 270 Mb/s

Time	E:	F:	H:	I:	Total MB/s	Total Mb/s
[11:07:16]	7.96701	10.5572	8.78244	6.30708	33.61373	**268.90984**
[12:11:26]	9.28885	8.90603	7.85421	7.58335	33.63244	**269.05952**
[13:17:35]	9.91384	9.8282	5.69555	8.22743	33.66502	**269.32016**
[14:23:17]	8.27196	8.40947	8.44448	8.55816	33.68407	**269.47256**
[15:29:18]	8.39278	8.45456	8.72056	8.05218	33.62008	**268.96064**
[15:29:18]	11.4751	7.25586	7.36985	7.47979	33.5806	**268.6448**