



## Application Note

# Net DVR Configuration Guidelines & Storage Considerations

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## Scope

This document provides guidelines to the sales personnel to assemble the appropriate Net DVR configuration based on customer needs, and equip them with the knowledge to provide the best-cost performance system configuration.

## Configuration Structure

The Net DVR offers various configurations depending on the parameters described below. Gathering accurate information on each parameter is essential to building the appropriate system and providing a competitive quotation to the customer:

1. **Cameras** - Number of required cameras determine the Net DVR model. Select 4, 8 or 16 channels and the number of the total DVRs required.
2. **Resolution** – A measure of picture definition and clarity that impact the video streaming bandwidth required and the storage capacity. Options are: QCIF, CIF, 2CIF, DCIF & 4CIF.
3. **Frame Rate** – A measure of the basic unit of a moving picture up to 25 (PAL) or 30 (NTSC) frames per second. A higher frame rate means the movement will appear continuous (not choppy) and the bandwidth required for streaming will increase, and the storage will increase.
4. **Days of storage** – Number of total days of storage, usually 1 week, 2 weeks or a month determine the size of storage (number of disk drives assembled) required to accommodate such length. The recorded video files are deleted until the disks are full, utilizing FIFO concept, meaning the oldest video files are deleted first.
5. **Recording Mode** – Recoding mode affects the storage requirements:
  - a. Continuously recording – 24/7 continuous recording
  - b. Scheduled – Recording continuously during predefined periods such as day or night
  - c. Event – Recording video footage is available only during the event with pre- and post-alarm recording of a few seconds/minutes before and after the actual event.

## Storage Consideration

Storage is one of the most confusing and debated aspects of video solutions that highly impacts the final cost of the solution. Hereby are several storage issues to consider when defining customer storage requirements:

### ***Quality Resolution***

CIF resolution should provide sufficient information for resolving security incidents, and not necessarily required high resolution such as 4CIF. Differences in resolution have massive impacts on storage costs.

### ***Frame Rates***

Video for security almost never requires the high frame rates. Almost all security problems can be solved with video of no more than 5 - 10 fps and not necessarily 25/30 fps. A smooth video playback is rarely an issue, as it only

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affects investigations if an incident happens extremely quickly (less than 1/20th of second). And, just like resolution, frame rate settings have significant effects on storage costs.

***Event vs. Continuous Recording***

In security video, no motion almost always means no security concern. Using motion based recording can reduce storage costs by 80% and is one of the most successful uses of video analytics. However the risk of motion detection based recording only is missing an incident and acceptability in court. Compensation is to implement a combination of continuous recording at a low frame rate and motion based recording to increase the frame rate when motion is detected.

**System Requirements**

Obtain from the customer the following system information to determine the required system:

No.	Item	No. / Value	Options
1	Total number of cameras		
2	Recording Image Resolution		QCIF, CIF, 2CIF, DCIF, 4CIF
3	Continuously Frame Rate		1, 2, 4, 6, 8, 10, 12, 15, 16, 18, 20, 22, Full frame (25 PAL, 30 NTSC) †
4	Total days of storage		
5	Type of recording		1. Continuously (24x7) 2. Scheduling (hours per day) 3. Event (average time per day) 6
6	Frame Rate during Event		15, 16, 18, 20, 22, Full frame (25/30)

† 4CIF resolution with frame rate above 6/7 frame per seconds are only available with the Net DVR RV7000 series

## Storage Calculation

Based on the customer requirement table, use the HDD calculator supplied with the Net DVR CD

Note: The bit rate result is for single camera.

## Net DVR Configuration options

The Net DVR series is delivered from the manufacture with a single hard drive depending on the Net DVR module.

- RC6004/RV7004/RV6008/RV7008 – 250GB HDD
- RV6016/RV7016 – 500GHDD

**Note:** 1TB HDD is available upon request

Four hard disks bays are available within the DVR enclosure. Thus depending on the customer's storage needs, the Net DVR should be populated with the relevant hard drive. It is mandatory that all hard drives will be have same storage capacity, manufacture and modules.

Each Net DVR supports an external storage array through its eSATA interface, thus the system can support external DAS or standard NAS with RAID control if necessary. (RAID is a storage array technology that provides redundancy capabilities)

In addition, the Net DVR can accommodate a DVD burner, not shipped with the basic unit.

## Configuration Sample

### Requirements #1

- Total number of cameras – 20
- Recording Image Resolution - CIF
- Frame Rate – 10 fps
- Total days of storage - 14
- Type of Recording – Continuously

### Solution #1

- For CIF resolution the RV 6000 series is sufficient. 20 channels system for best competitive price the RV6004 and RV6016 is suitable
- Utilizing the HDD calculator for both models the results are
  - RV6004 – 1 x 250GB
  - RV6016 – 2 x 500GB

### Requirements #2

- Total number of cameras – 24
- Recording Image Resolution - 4CIF
- Continuously Frame Rate – 25-PAL/30-NTSC
- Total days of storage - 10
- Type of Recording – Continuously

### Solution #2

- For 4CIF resolution at full frame RV 7000 series is required. For the best competitive price, offer 3 x RV7008
- Utilizing the HDD calculator the result is:
  - 3 x RV7008– 4 x 500GB each

### Requirements #3

- Total number of cameras – 24
- Recording Image Resolution - 4CIF
- Frame Rate – 4 fps
- Total days of storage - 10
- Type of Recording – Event recording
- Frame Rate during Event - 25-PAL/30-NTSC

### Solution #3

- For 4CIF resolution at full frame RV 7000 series is required. Depending on the customer site scenarios the average events per day should be estimated. As this sample 1 hour a day is required.
- Calculate the storage required for the Continuously recording for 4CIF at 10 fps and to that add total of 10 hours for the events 4CIF at 25/30 fps
- Utilizing the HDD calculator each Net DVR should have the following:
  - RV7016– 3 x 500GB
  - RV7008 – 2 x 500GB

**Note:** A failure in the RV6016 will cause down time of 16 cameras. In such configuration it is recommended, depending on the customer, to distribute the risk between several units and offer multiple RV6008 or RV6004.