User Manual for NVR Server

Version 5.02

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Chapter 1. Function of the NVR Server

1.1 Introduction of the Functions

The NVR Server realizes the centralized storage of the surveillance recording files. It gets the video data stream by connecting the device directly or using stream media server, save these data in pre-allocated disc spaces in the data block form, and save the recording file information by the disc‘s data index files. This software has VOD Server inside, and provides the interface for remote searching, so it is convenient to playback particular recordings remotely.

The NVR Server records particular surveillance videos during the given time sections according to the plan users have set and realizes the centralized storage. It is used mostly in the following two cases:

1. The distributed clients run at different places on the network. The NVR Server realizes the centralized management of the live surveillance video.

2. The NVR Server provides recording service when DVR devices have no HD.

As a part of a network surveillance system, the NVR Server has only a few functions, focusing on the centralized storage. It mainly has the following functions:

1. Group the partitions. Manage the recording data by disc pre-allocation technology.

2. Support the adjustment of basic running parameters of the Server.

3. Set the recording plan with half an hour as the unit.

4. Provide friendly management interface for the record plan.

5. Have a VOD Server inside. Provide the remote search and VOD function for the recording data.

6. Support remote operations as setting the record plan, starting or stopping recording manually.

1.2 Introduction of the Performance

The performance of the Server depends on the performance of the deployed device’s following

hardware: the band-width, CPU's speed, memory's size, disc's size, disc's speed, etc. The Server operates on the disc frequently; as a result, improving the disc's performance can improve the Server's performance. When it is recording, the operation on the disc may conflict with the virtual memory operation executed by the operating system, so it is recommended that another partition shall be used to store the video data. The Server uses many threads; it would be better to choose a high performance CPU. A big size of memory is good for the Server, too**.**

When the Server deploys the devices, the running parameters' limitation should be set according to the specific hardware. If the Server works unstable, lower the parameters and run again. If the problem still exists, please contact the developers to ask for advice**.**

Remote playback restrictions: at most 30 channels playback and 5 channels download at the same time.

Suggestion: The number of recording channel at the same time is not more than 100; the disc group number is not more than 5; the partitions every disc group is not more than 10.

1.3 Running environment

The running environment of the Server**:**

Hardware platform requirements: The current dominating configurations of PC (CPU: 1.5G Hz, 512M Memory, two partitions). Adding any 1TB storing space needs to add about 25 MB memories; adding one recording channel needs to add 2MB memories. Adding a disk group add 150M memories.

Note: The index files are very big because the Server adopts the disc pre-allocation technology to store the data. The volume of each partition must be less than 5TB, and no more than 3TB is recommended; the total size of all the partitions should not exceed 30TB.

Software requirements：Windows 2K/XP/2003; Access 2003

Chapter 2. Instructions for NVR Server

2.1 The Preparations

2.1.1 The Organization of the Discs

The following points on how to organize the discs should be paid attention to:

1. Because of the disc pre-allocation technology, the store unit is data block, and writing operation is frequent when recording. So it is recommended that divide the hard disc into two or more partitions, the partition used to store the video data is isolated from the partition where the operation system runs**.**
2. The disc pre-allocation technology reduce the Read\Write head's wiggle, and cut down the answering time, so it is recommended that the partitions on the same hard disc should be put into the same disc group**.**
3. The disc's performance has a limitation; in order to lift the Server's answering ability, it is recommended that the number of channels that recording at the same time should be less than 100 in each disc group**.**
4. The record data is stored circularly in every disc group, when the pre-allocated disc space is full, the oldest data will be covered with the newest data. If you need to recording for a long time, please buy discs big enough**.**
5. SATA HDs are recommended. If using disc matrix to store, whether the IO performance of the disc matrix can satisfy the demand of frequently writing and reading should be confirmed**.**
6. If using the disc matrix to store, the disc matrix should be mapped as the system's fixed disc partitions or remote disc partitions**.**
7. Format the disc partitions that are planned to store the video data into NTFS format, or else it will take a long time to format when pre-allocation**.**
8. The symbol of the disc that is assigned to store the record data can't be changed

after being formatted. Another formatting is required if there is a need to change the disc's symbol. Violating this rule, serious mistakes will happen in the NVR Server**.**

2.1.2 Original Database File

The NVR Server uses the Access 2003 database to store the system configuration information, disc group information, device and channel information, recording plan template, etc. The name of the Access database is: *pdcss.mdb*. It is defined inside the system and cannot be changed**.**

There is a file named "pacss_bak.mdb", it is the original data base file, user can change its name to "pdcss.mdb" and use it while the previous one is damaged, however, all the recorded files cannot be explored and the record plan should be reset**.**

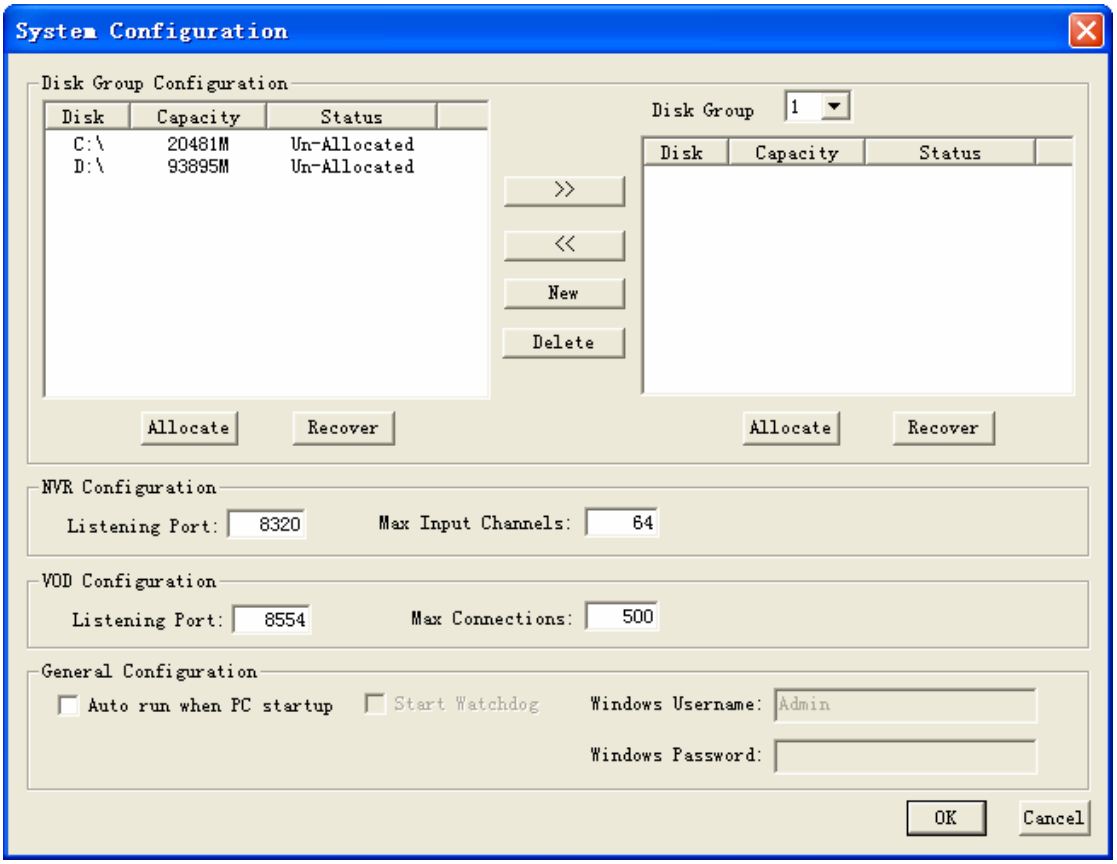
2.1.3 Confirm the Running Environment

The machine where the software is deployed needs MFC running environment. Generally it can run on Windows 2000/XP/2003, and does not support others**.**

2.2 Introduction of Operations on the Server

2.2.1 Running for the First Time

When running for the first time, system will pop up a dialog to tell it and some necessary configuration must be done before running the server. The following interface will be shown after clicking OK.



This configuration dialog consists of 4 parts:

1. Disk Group Configuration

Click Allocate to pre-allocate the HDD to recorded files, click Recover to recover the broken HDD.

Click New or Delete to create or delete new Disk Group if group have contain at least 1 HDD partition.

Click >> to add a HDD partition to a Disk Group, click << to remove it. Then, the disk group configuration is finished.

Note: The server supports 26 Disk Groups at most. It is recommended that the number is below 5.

2. NVR configuration

The NVR listening port and max input channels can be set. The system can start\stop the server and set recording schedule remotely by setting the listening port.

Note: If the bit rate of one channel is 1.5M, it is recommended that the number of max recording channels is smaller than 80. If the bit rate of one channel is 512K, the recommended

number limitation is 100.

3. VOD Configuration

The VOD listening port and max connections can be set. The VOD server inside can search and play recorded files through the listening port.

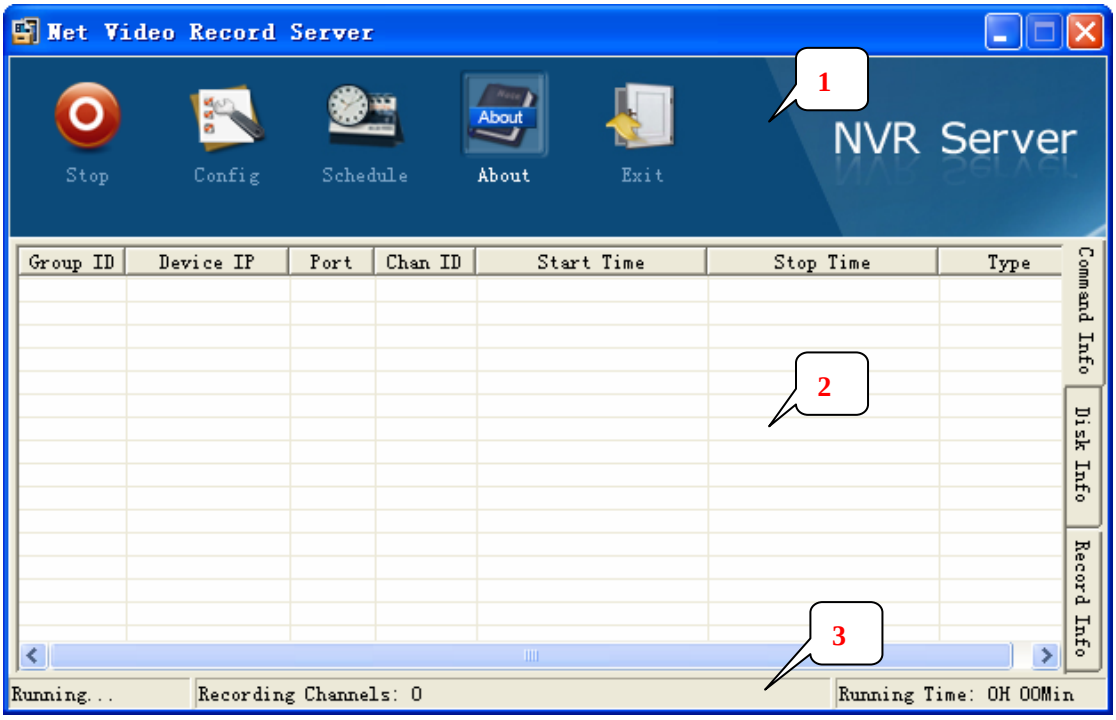
Note: The NVR Server can playback remotely 32 channels at most, download 5 channels at one time.

4. General Configuration

Whether enable Auto run when PC startup can be set. If it is chosen, whether enable watchdog can be set too. If the watchdog is chosen, it must set up the user and password of the operating system.

2.2.2 The main interface

The main interface of NVR Server is as below.

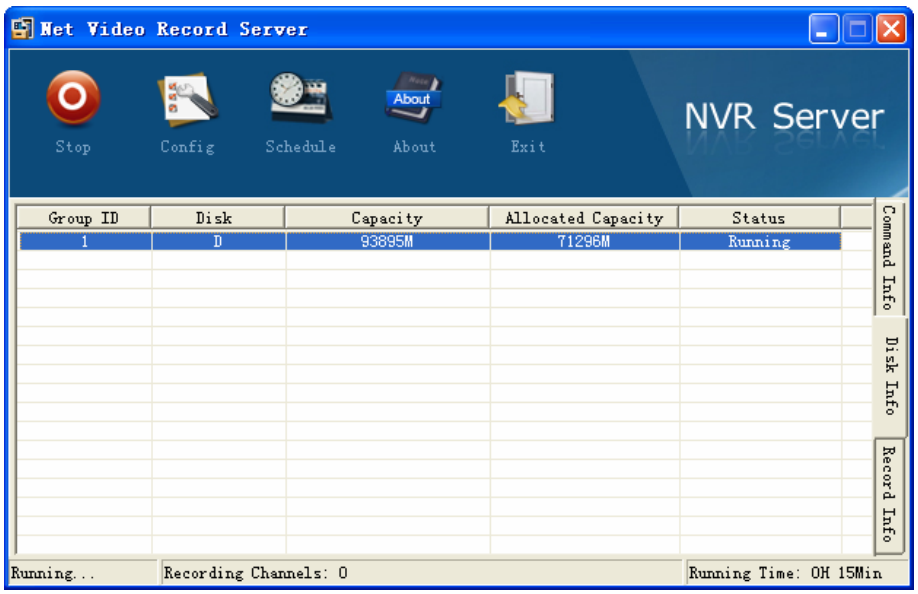


❶ Control Buttons Area

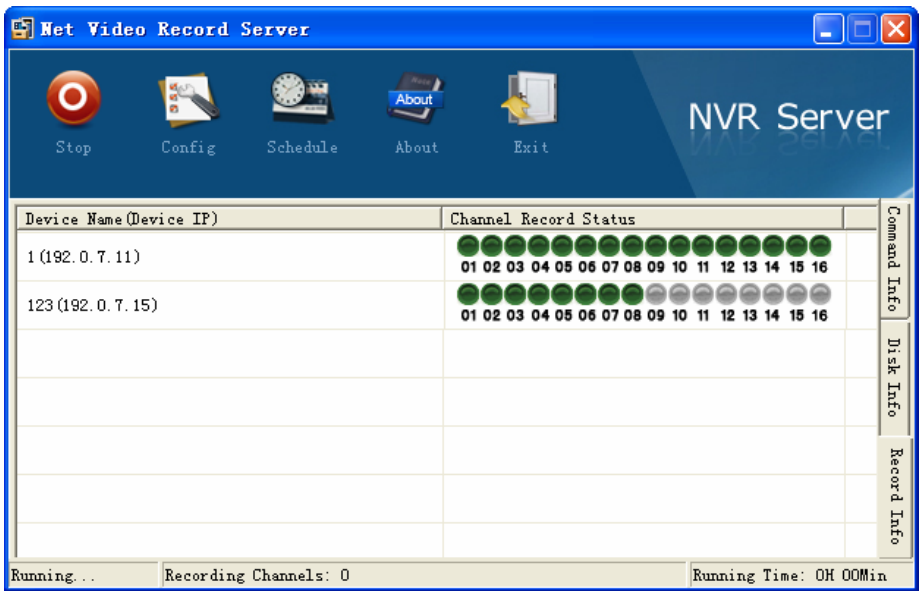
❷ Information Display Area: one of Commands information, Disk information and Record information can be displayed in this area.

Commands information: showing the recording commands information, including the belonged disk group, IP address of the devices and listening port, channels, start time and end time of recording, recording mode, etc.

Disk information: showing the HDD information that has been pre-allocated, including disk group, HDD size, pre-allocated size and status. Shown as below.



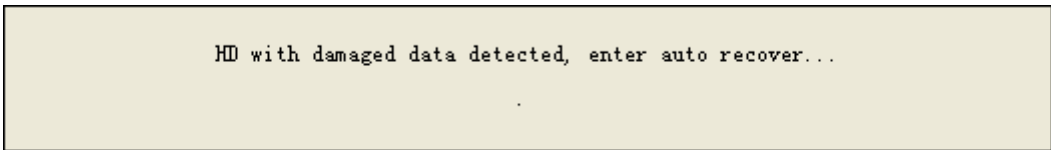
Recording information: showing the device name, IP address and recording status in schedule. Gray means no recording schedule, green means recording. Dark green means recording error. Shown as below.



❸ Status Bar

2.2.3 Start the Server

Server checks HDDs for partition formatting status and data consistency from the second start up on and it will repair the abnormal HDDs in few seconds automatically and show a message as below. If require succeed, the server will be initialized after that, manually repair is required while the operation fails, then the server will begin to initialize**.**



2.2.4 Stop the Server

A confirm dialogue for stopping the Server will pop up when the “Stop” button on the main interface has been clicked, to avoid the case of stopped by accident. Click “Yes” if truly want the Server to stop, or else click “No”, and the running state of the Server will remain the same**.**

Note: Stopping the record plan won’t stop the remote control service or the VOD service. These two services will be stopped only after the Server exit.

2.2.5 System configuration

NVR server requires system configuration in the first start up, after that, users may enter “Config” button in the main interface to configure, e.g. HDD groups, monitor port…and so on. For details please refer to 2.2.1 running for the First Time. Software restart is required if the configuration is modified**.**

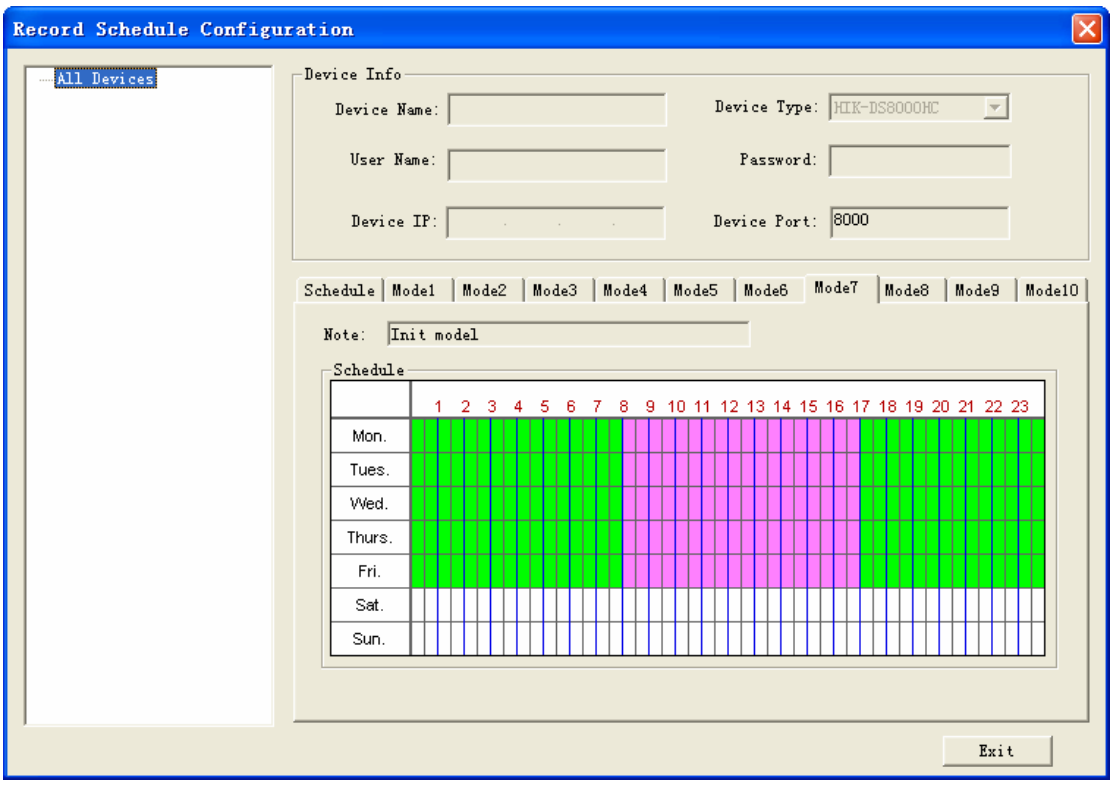
2.2.6 Exit

When you click on “exit” in the main interface, it will quit if the server is not started. Otherwise, a dialog box is displayed to prompt users to close the server first**.**

Note: If the server quits due to exception such as out of power, it will require disk repair in the next start up because of incomplete HDD data**.**

2.2.7 Configure the record schedule

The dialogue for configuring the record schedule will pop up if the “Plan” button being clicked, which can be used to look through device and channel information, as shown below:



In the record schedule configuration dialogue, green means schedule recording, pink means motion detection recording, white means no recording schedule.

Note: When the recording channel’s path changed, server boot is required to make the modification into effective.

2.2.8 Logs of No Recording Channel

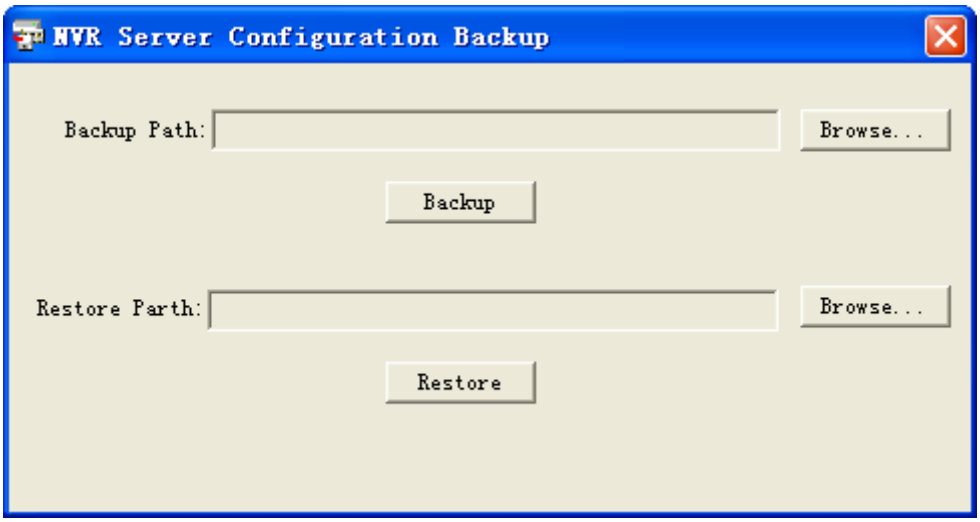
If the number of channels that want to record is larger than the max number of the NVR Server allows when it is running, the device information of the after coming channels will be recorded in log file MaxRecordChanErr.txt

Chapter 3. Backup the NVR Server's Database

As the server use Access databases to preserve key data the NVR server running on, improper operation leading to damage the database or deleting the database will cause serious problems like the recording plan lost or failing to search the history record. Therefore, it is better to back up the database after the server running stably. There is a simple tool called "CSSBackup.exe" in order to backup the database under the NVR server's installation root path. It must run under the path, and should make sure that the server is not running.

3.1 Backup and Restore the Database

Backup tool interface is displayed as shown, offering two functions: backup and restoring.



When back up is needed, please stop NVR Server first, and then start back up tool. Click the on button "Browse" and choose the directory, then click on button "Backup", backup will begin after the next confirming dialog. There will be a confirm box before starting backup. If backup successfully, a pop-up dialog box will be displayed to show success, or a error message dialog box will be shown

When restore is needed, be sure to stop the server first if the server is running and click on "Browse" button get the backup database file then on "Restore", restoring will begin after the next confirming dialog. If restore successfully, a pop-up dialog box will be displayed to show success, or an error message dialog box will be shown.

3.2 Reinstall or Update the NVR Server

When the NVR Server needs an upgrade or reinstall because of the system error, users should back up the "pdcss.mdb" file which is under the old program's installation root path, then install the new NVR Server program, and back the file to the new server, in order to make sure that the original record data can be found correctly. Or else the old record data can't be found or there would be a search error. Backup tool is recommended to be used for back and restore.