



Building a Video Surveillance System for less than \$300

The Video Surveillance market is expected to top \$10 billion in 2005 according to IDC. From this, a significant portion is for the home or Small Office/Home Office (SOHO) markets. With the cost of the IP based video cameras coming down rapidly, home protection using a video, 24x7, makes a lot of sense for home owners looking for a secure way to protect their valuables. While there are many different options out in the market today, it's very simple to set up an effective home surveillance system and it's very affordable. While this is targeted for a home, small to mid sized business can benefit from using this configuration. You can join our message board [here](#) for more information and help. You can also get more information on ReadyNAS products at the Infrant's [web site](#).

This is a step-by-step instruction on setting up a network based video surveillance system. First of all, you will need a PC and a ReadyNAS 600 system all attached to a network via Ethernet or Wi-Fi.

Following system configuration and network router is minimum requirement to install ReadyNAS 600 and your new Internet Video Camera.

PC System Requirement:

- PC with 550MHz or Faster Processor
- 64 MB RAM Memory
- Internet Explorer 5.5 or higher for Web Viewing and Web-based Configuration
- Cable/DSL connection for Internet viewing
- Active-X 8.0 or higher
- CD-ROM Drive
- Windows Media Player 7 or higher
- Wired or Wireless Network Adapter with TCP/IP Protocol Installed
- Windows 98SE/ME/2000/XP

Network Router: wired (minimum 100 based Ethernet) or wireless (minimum 802.11b Wi-Fi, 802.11g preferred)

Storage: ReadyNAS 600 (can also be used for general uses like backup)

Camera: Any wired or wireless IP based camera

We will make an assumption that you have the PC and the ReadyNAS 600 system already and do not need to purchase them. The camera can be any Internet Video Camera that can attach to your router/switch/hub by Ethernet cable or Wireless. We have chosen LinkSys Internet Video Camera *Model WVC11B* for our example. You will need a gateway/DHCP server on the network. Make sure you "Enable" the DHCP setup under your router and all the systems on the network. Otherwise, your network will not recognize the camera. Typically, most routers and PCs come with DHCP as a default.

Typical cost to be expected for this project is as follows:

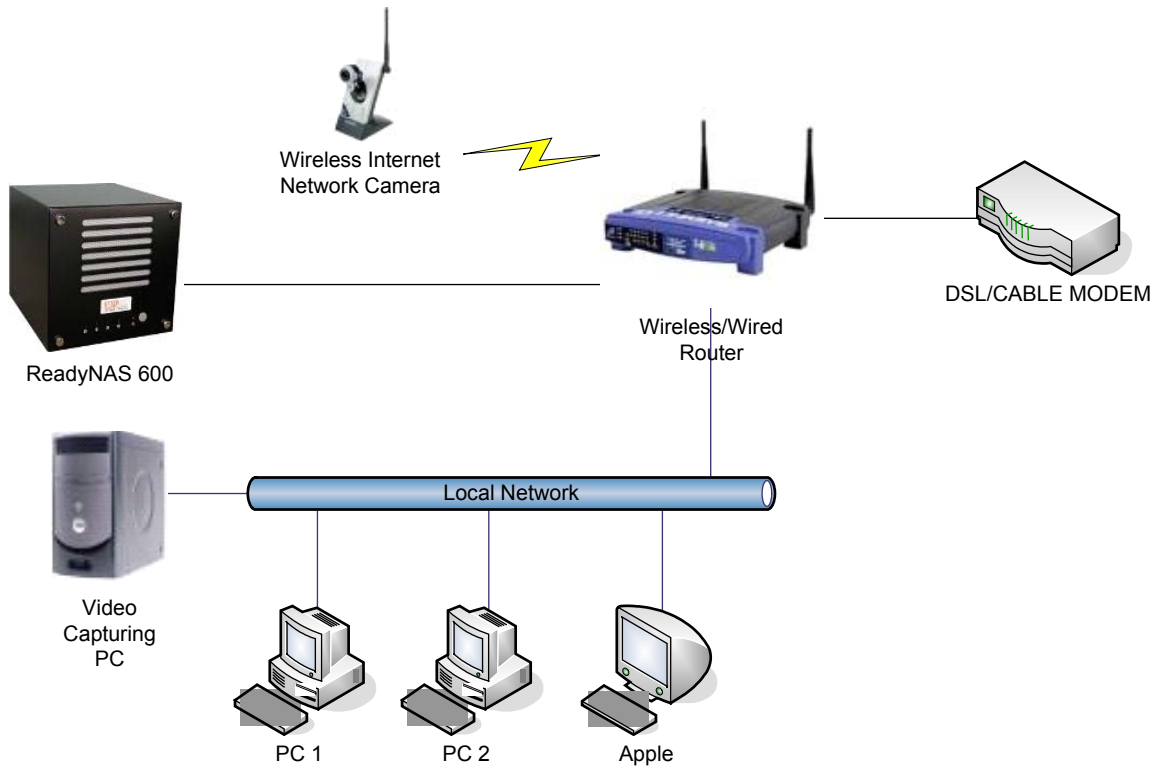
Routers*	\$50 to \$85
Web Cam	\$99 to \$190
Total	\$149 to \$270

* Not needed if you already have a home network set up.

This is a typical price you can expect to find on the web and is not a guaranteed price.

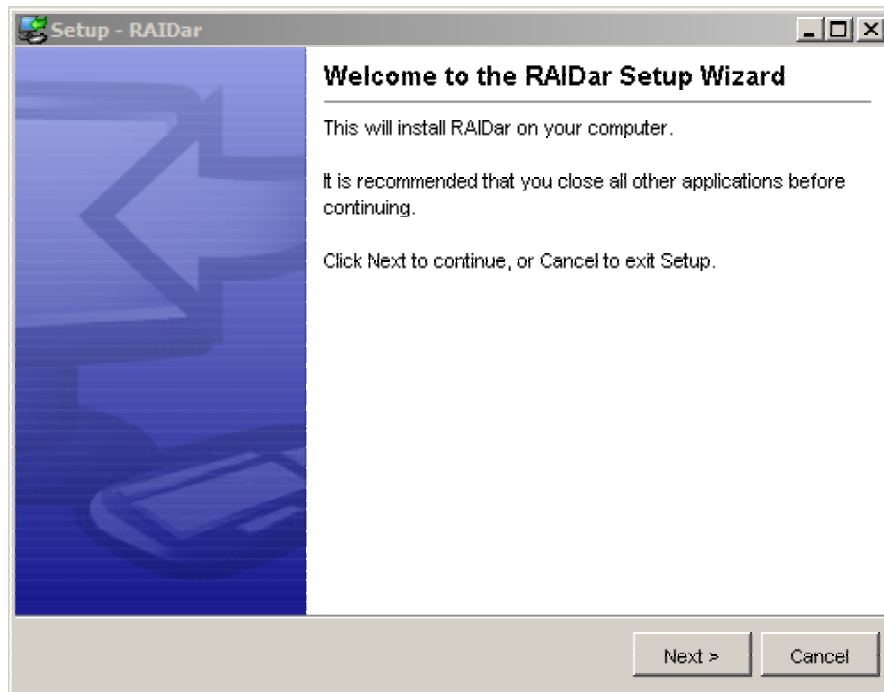
Finally, your storage needs should be base on your video quality requirement. Typically, a 320x240 resolution at 12 frames per second and normal quality is good for most home uses. Using that set up, expect to store about 128MB/hour of raw video. That's about 3GB per day of recording.

READYNAS™ INSTANT STORAGE

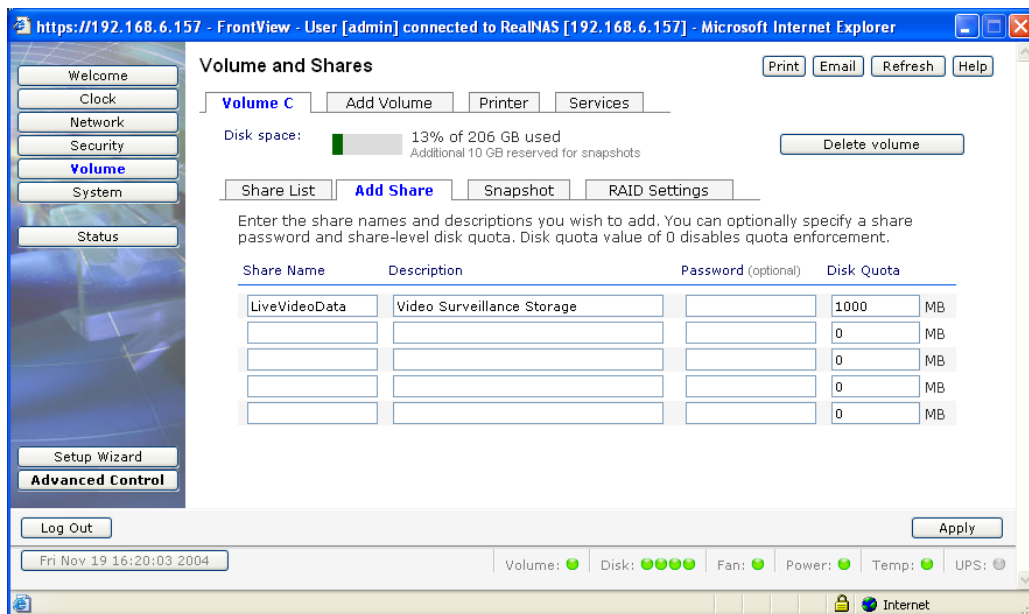


Step by step installation procedure for your ReadyNAS 600:

1. Make sure your PC is connected to your LOCAL Network Router and Router is Setup for DHCP.
2. Insert the Setup CD Provided by ReadyNAS 600 in your PC CD-ROM Drive. Run the RAIDar installation program, and the Welcome screen should appear.



3. Follow the RAIDar setup wizard.
4. After completing the RAIDar setup wizard, you will see NAS Device setup screen. This is where you locate your NAS System by MAC ID Address of your system.
5. Select your NAS Device and click *Setup* to setup your Device.
6. Follow the Setup Wizard.
7. Create the Share folder under VOLUME section on your NAS System. For example we have created a shared called LiveVideoData.



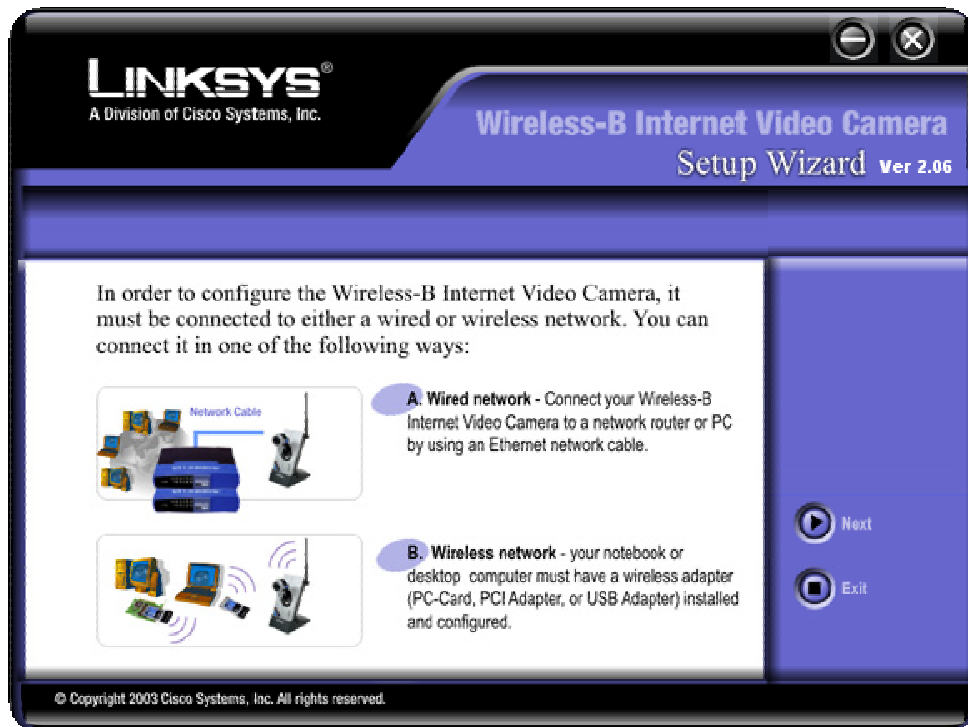
8. Complete the Setup Wizard and Click *Logout*.
9. By now your ReadyNAS 600 device is configured and setup for sharing.

Step by step installation procedure for Internet Video Camera:

1. Connect your wire or wireless Internet Video Camera to your LOCAL network router.
2. Insert the Setup CD Provided by LinkSys. The Setup Wizard should run automatically, and the Welcome screen should appear. If it does not click *Start* and then *Run*. In the field provided, enter *D:\wvc11b.exe* (if "D" is the letter of your CD-ROM drive).



3. Click *Setup* to begin the setup process



4. Make sure the Camera is correctly connected to your network and Click *Next*

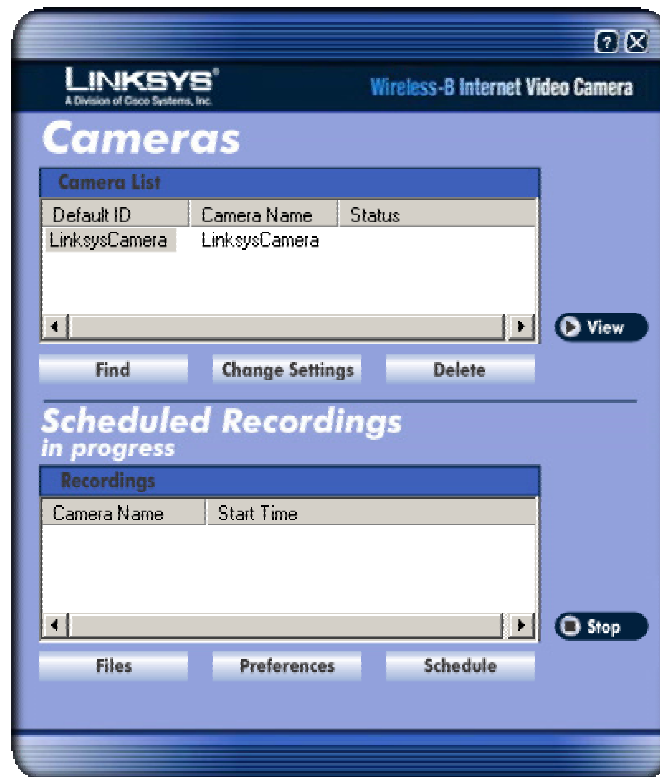
5. The Screen will display a list of Wireless-B Internet Cameras on your network and Status information. In the Selection box, click the name of the Camera you are currently installing. Click *Next*.
6. A verify password screen will appear. In lowercase letter, enter *admin* in the Administrator Name and Password field. Click OK.
7. On the Basic Setup Screen, Enter a unique name of the Camera in the Camera Name Field, and Complete Description Field. Select the correct entries for the Time Zone, Date, and Time Settings.
8. **Network Configuration:**
 - a. If the Camera requires a static IP address, keep the default setting, Static IP address. If your network has a router or other DHCP server, select Automatic Configuration-DHCP. Click Next.
 - b. If you selected Automatic Configuration-DHCP in step K, then proceed to step I. If you selected Static IP address, the IP Settings screen will appear. Enter an IP Address, Subnet Mask, and Default Gateway appropriate for your network. You must specify an IP Address and Subnet Mask. If you are unsure about the Default Gateway, then leave this field blank. Complete the Primary DNS and/or Secondary DNS fields. Enter at least one DNS address, which you can obtain from your ISP. Click Next.
 - c. Click the Infrastructure radio button if you want the Camera to communicate using an access point or wireless router. Click the Ad-Hoc radio button if you want the Camera to communicate without using an access point or wireless
 - d. Enter your wireless network's SSID or network name. If you chose Ad-Hoc mode, select the channel at which the network broadcasts its wireless signal. Then click *Next*.
 - e. The Security Settings screen will appear. If your network has WEP encryption enabled, then select the level of WEP encryption and enter a Passphrase. If you do not have a Passphrase and want to manually enter a WEP key, leave the Passphrase field blank. If your network has WEP encryption disabled, keep the default, Disabled. Then click *Next*.
 - f. If you entered a Passphrase, you will see the automatically generated WEP key. Otherwise, manually enter the WEP key in the Key 1 field. Click *Next*.
 - g. Review your settings before the Setup Wizard starts to copy your files. Click *Save*.
9. After the files have been successfully copied, the Congratulations screen will appear. Click the *Install Viewer & Recorder Utility* button to install the Camera's Utility on your PC. This Utility provides a convenient way to view and record the Camera's video.
10. After you clicked the *Install Viewer & Recorder Utility* button, the Welcome screen will appear. Click *Next*.
11. The Choose Destination Location screen will appear. To install the Viewer & Recorder Utility files in the default folder, click *Next*.
12. To select a different folder, click *Browse* and follow the on-screen directions.
13. To add program icons to the default folder, click *Next*. To add program icons to an existing folder, select one from the Existing Folders listed, and then click *Next*.

14. When you see the screen registry windows click *OK*.

15. When the setup is complete, click *OK*.

16. Software Configuration:

- a. Double-click on Viewer & Recorder Utility shortcut on your desktop.

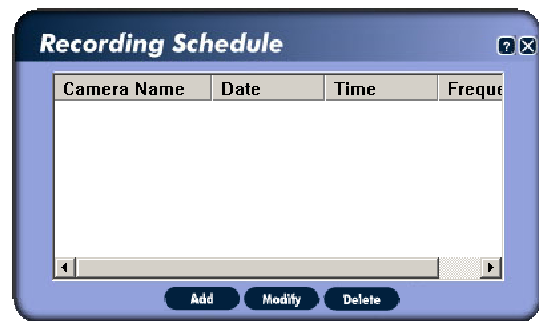
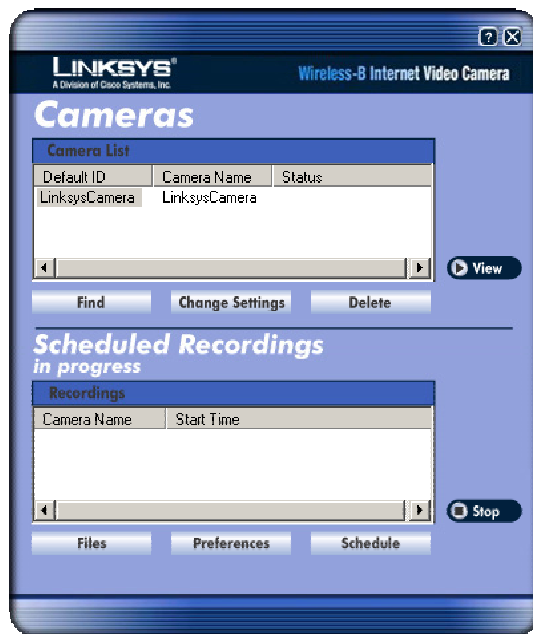


- b. In Camera Section, you will see the Current Default Camera. There are three buttons Find, Change Settings, and Delete for your current default camera setting.

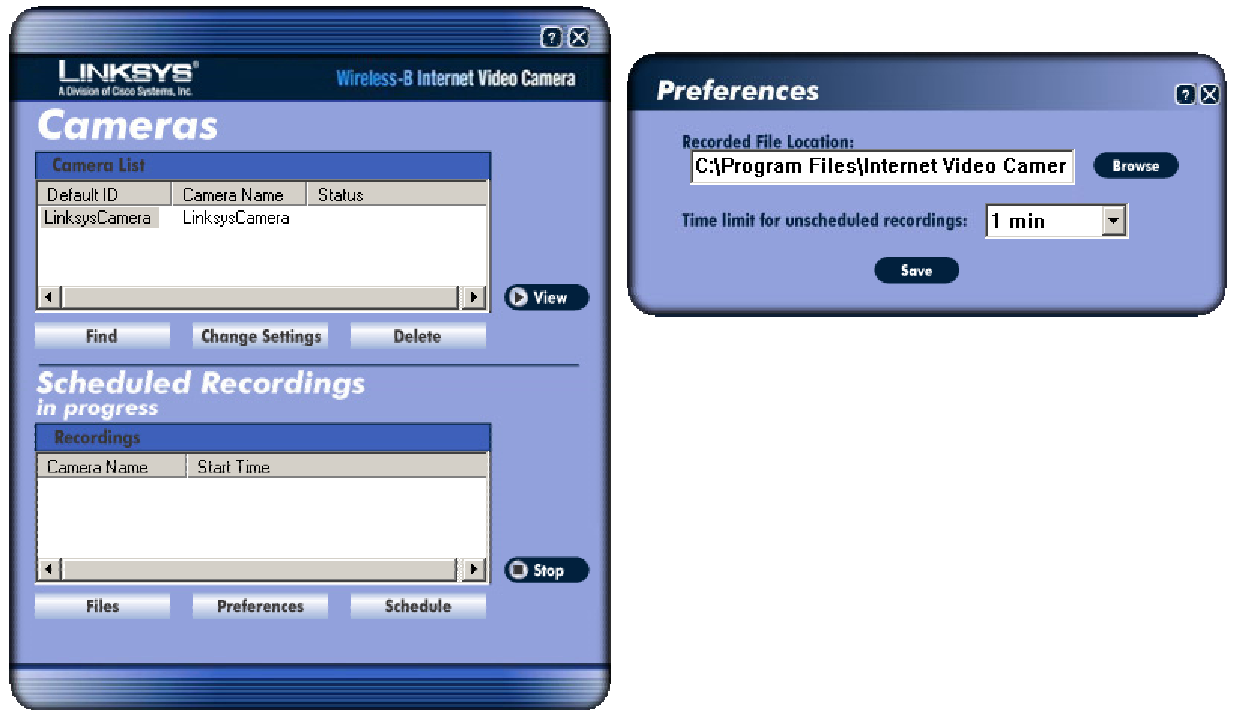
- c. Also, you can click on *View* to live view.



- d. In Schedule Recording Sections, you can setup the schedule of recording.



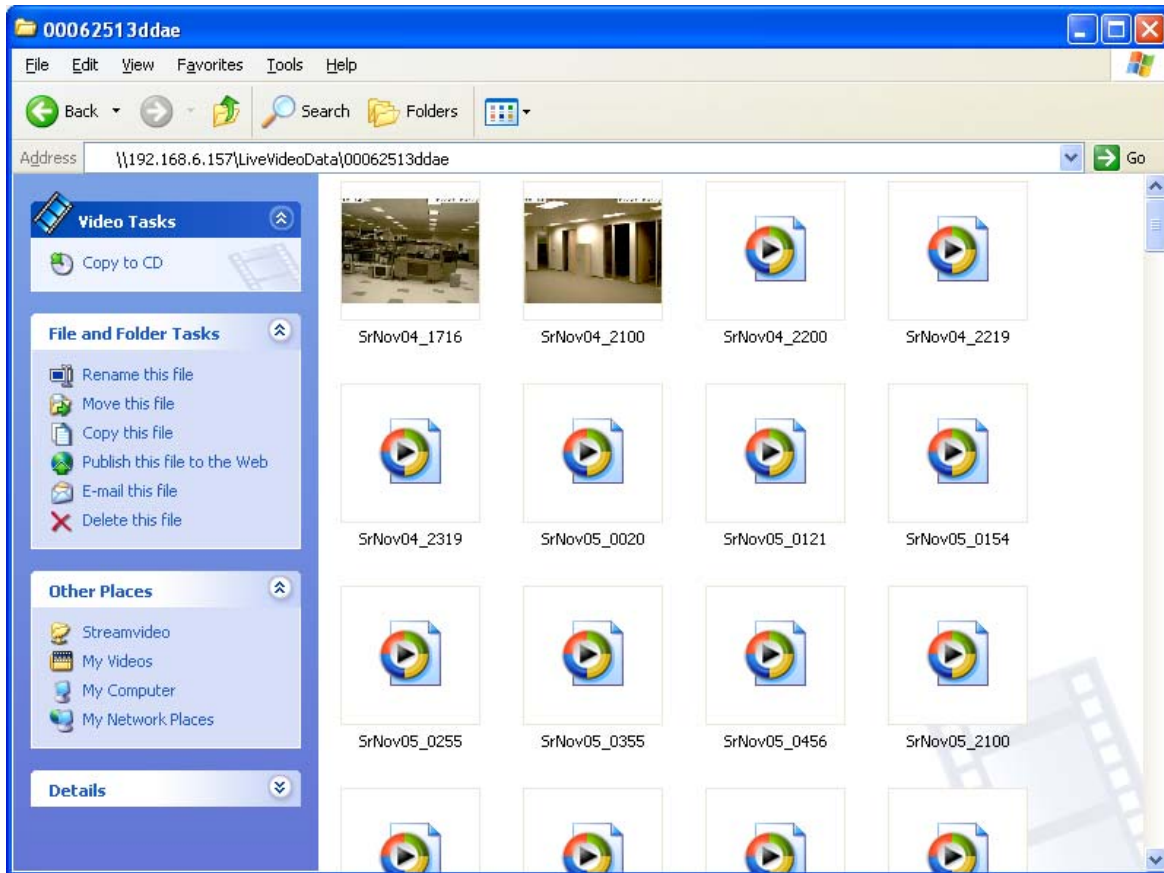
- e. You can change the recording file location by clicking *Preference* in Scheduled Recording Section.



- f. Click on *Browse* and pointed to your NAS Share Directory. For example:
\\ReadyNAS\LiveVideoData
- g. You can play the recorded file by click *Files* in Scheduled Recording Section.

Congratulation! You have completed the setup for your ReadyNAS 600 and your wire or wireless Internet Video Camera on your LOCAL network.

Once you set up the system, it will continuously record the images to ReadyNAS 600 at a time interval. You can play back any of the captures files using the Windows Media Player. We do recommend that you move the images to a folder once in a while to make them more manageable.



Some cameras will have motion detection feature which would save a lot of storage by only recording when there is a movement on the camera. This feature can help conserve storage requirements.

Just to illustrate how the quality of the video image effects the storage requirement:

Resolution: 320X240 pixels
Frame Rate: 12-15 frames per second
Image Quality:
1200Kbps -High ~430MB/hour
300Kbps - Normal ~ 128MB/hour
120Kbps - Low ~ 51.6MB/hour

Choosing the right image quality and resolution depends on the application. Typically, a 320x240 resolution at a normal quality is ok for most home uses. However, for image critical application, 640x480 resolution at high quality may be required. As this illustrates, a large storage solution is a must for this application. ReadyNAS 600 provides a perfect solution with a large capacity, hardware RAID 5 data protection and low power consumption.