

ReadyNAS RAID Mode Configuration (Switching between X-RAID and RAID 5)

1. Introduction

With **RAIDIator** and **RAIDar 2.00c1-p6** release or later, you can switch between X-RAID mode and RAID 0/1/5 mode on you ReadyNAS system.

2. Changing Between X-RAID Mode and RAID 0/1/5 Mode

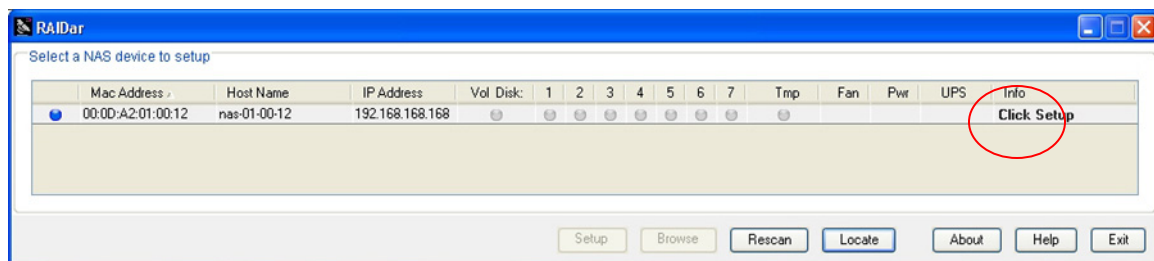
The process involves setting the ReadyNAS to factory default and using **RAIDar** to configure the volume during a 10-minute delay window during boot.

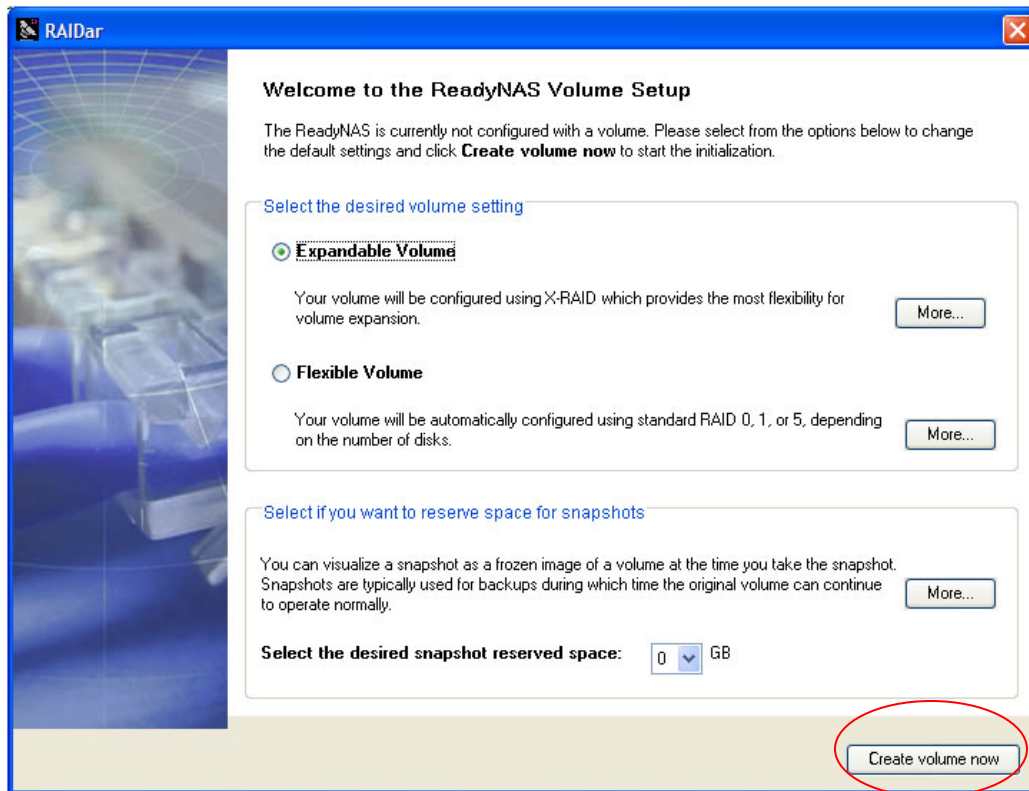
- 1) **To change between X-RAID and non-X-RAID mode**, you will need to perform a Factory Default using the method described below.
- 2) **To set the ReadyNAS device to Factory Default**, locate the 'System Reset' switch first, use a paper clip to depress the switch while the system is off. Continue to depress the reset switch while powering on the system and continue to hold the reset switch for 30 seconds after powering on the system. You should see the disk LED's flash twice (at the 5th second and the 30th second) to signify that the command has been accepted. Release the switch after you see the 30th second LED flashing.

Note that this process re-installs the firmware and resets all disk configurations, **WIPING OUT ANY DATA** you may have had on the NAS.

Note that changing RAID modes will not preserve your data, so make sure to perform a backup before doing this.

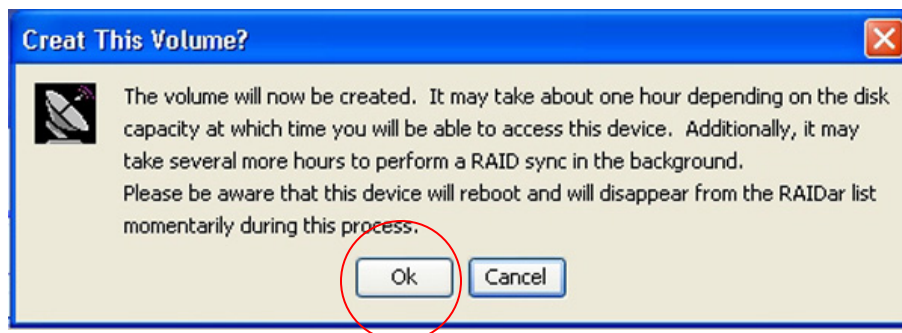
- 3) During the boot process during Factory Default, there will be a 10-minute window where you can use RAIDar to select the desired volume setup. RAIDar will display your ReadyNAS with **Click Setup** in the Info column. It may take a couple of minutes for RAIDar to display this. At this point, click the Setup button to enter the Volume Setup screen.





- 4) Select the desired mode along with the desired snapshot size and click Create volume now.
- Expandable Volume: X-RAID
 - Flexible Volume: RAID 0, 1, or 5

The ReadyNAS will proceed with a reboot to re-configure your volume to the desired specification.



Note that you can download the latest RAIDar image at <http://www.infrant.com/support.htm>
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Appendix A. X-RAID vs. RAID 0/1/5

Feature-wise and performance-wise, both devices are the same. The only difference lies in the RAID and Volume management. For the experienced RAID administrator, the ReadyNAS 600 utilizes traditional RAID level 0, 1 or 5 and is slightly more configurable, but requires an intimate understanding of RAID management in order to fully extract the benefits. In addition, the ReadyNAS 600 **does not** facilitate automatic, single volume expansion. The ReadyNAS X6 with X-RAID technology simplifies and automates the RAID management process, selecting the best configuration to balance protection and capacity. This enables both experienced and novice RAID users to quickly setup a multi-drive NAS. In addition, X-RAID allows users to easily and automatically scale from 1 to 4 disks as their needs grow.

RAID 0/1/5 (ReadyNAS 600 default RAID mode)

- The default volume can be deleted and recreated, with or without the snapshot reserved space.
- Hot spare disk is supported.
- Full volume management is available – you can create a volume utilizing RAID level 0, 1, or 5, specify the size of the volume, delete a disk from a volume, assign a hot spare, etc.
- Multiple volumes are supported, each with a different RAID level, snapshot schedule and disk quota definition.
- Each disk can be replaced, one by one, then rebuilt; after the last disk is replaced, another data volume utilizing the newly added capacity can be configured.
- Performance optimized for smaller random access request pattern, fitting multi-user office environments.

X-RAID (ReadyNAS X6 Default mode)

- One volume technology with volume expansion support, either by adding more disks or by replacing existing disk with larger capacity disks.
- You can start out with one disk, and add up to 3 more disks when you need them or can afford them.
- Volume management is automatic. Add a 2nd disk, it becomes a mirror to the 1st; add a 3rd, your capacity doubles; add a 4th, and your capacity triples – the expansion occurring while maintaining redundancy.
- At a future point in time, each disk can be replaced one by one, have it finish rebuilding, and after the last disk is replaced, your volume automatically expands utilizing the new capacity.
- Performance optimized for larger sequential access request pattern, such as video streaming and editing.

Appendix B. X-RAID and ReadyNAS X6 FAQ

1) What is X-RAID?

X-RAID is Infrant's patent-pending auto-expanding technology that allows automatic expansion without reconfiguration in a NAS RAID array while maintaining protection against single-disk failure.

Current NAS RAID storage solutions must be pre-configured with a specific number of drives. Infrant X-RAID technology allows users to start with a single drive and add hard drives as they need them, keeping user data intact while the volume is expanded.

1 Drive = NAS

2 Drives = NAS + RAID Protection

3 Drives = NAS + RAID Protection + Double Capacity

4 Drives = NAS + RAID Protection + Triple Capacity

2) What is ReadyNAS X6?

ReadyNAS X6, the first of the Infrant's X Series NAS products, is an advance NAS product equipped with X-RAID and UPnP & AV Media Streaming Service support for both the small business and home users.

3) What's the difference between ReadyNAS 600 and ReadyNAS X6?

The ReadyNAS Models 600 (and 1000S) utilizes the industry standard RAID levels 0, 1, and 5. The ReadyNAS X Series utilizes the Infrant patent-pending X-RAID technology.

4) Can I re-build my ReadyNAS 600 into X-RAID?

No. ReadyNAS 600 is built on standard RAID levels 0, 1, and 5. If you want a X-RAID product, choose ReadyNAS X6.

5) What's the Advantage of ReadyNAS X6?

Refer to Appendix A.

6) What's the Advantage of ReadyNAS 600 and other non X-RAID

ReadyNAS?

Refer to Appendix A.

7) Can I use different size disks to build my ReadyNAS X6 System?

Yes. However, X-RAID devices only have one data volume. This volume encompasses one to four disks, utilizing the capacity of the smallest disk from each disk. For instance, if you have one 80GB disk and two 250GB disks, only 80GB from each disk will be used in the volume. (The leftover space on the 250GB disks will be reclaimed only when the 80GB disk is replaced with a 250GB or greater capacity disk.)

8) How long does it take to build the ReadyNAS X6 if I install disks by myself?

The total time from the start of initialization to the end of resync can be up to 5 hours or more, depending on disk capacity and number of disks installed. You will be notified when this resync process is completed and the system status can be read on RAIDar 'State' column.

9) Where I can find more info on how to use ReadyNAS X6?

There are printed ReadyNAS X6 Getting Started Guide and Disk Installation Guide in your shipping package. Also read the ReadyNAS User Guide on the CD-ROM for more info.

10) Which hard disk models and peripherals work well with ReadyNAS X6?

There is a ReadyNAS Device Compatibility List which has listed the disk drives and media players tested and qualified by Infrant Technologies.

<http://www.infrant.com/forum/viewtopic.php?t=66>

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