HDSENTINEL GUIDE FOR SYNOLOGY DS216 PLAY

HIGH LEVEL STEPS:

- 1. Synology NAS Web UI Setup:
 - a. Enable ssh service for Synology NAS
 - b. Create shared folder in Synology NAS to be used by hdsentinel for Synology NAS
- 2. SSH Connection Setup:
 - a. Install hdsentinel for Synology NAS
 - b. Test if hdsentinel is working for Synology NAS
 - c. Schedule background job for hdsentinel on Synology NAS to generate the disk report
- 3. Hdsentinel for Windows Setup:
 - a. Test if hdsentinel in Synology NAS is able to generate a report
 - b. Configure hdsentinel in Windows to monitor the hdsentinel disk report from Synology NAS

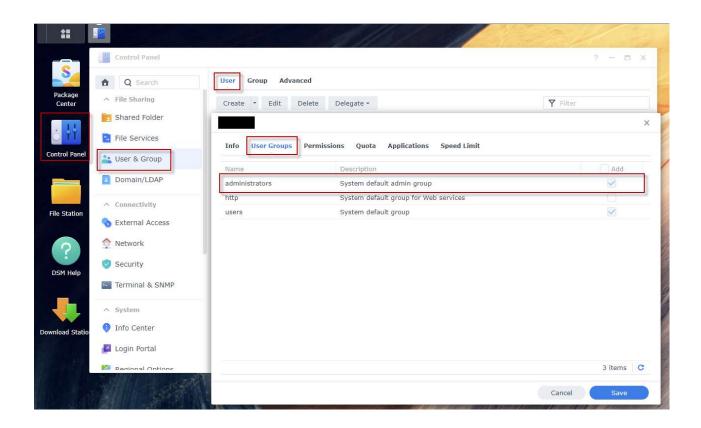
DETAILED STEPS (SYNOLOGY NAS WEB UI SETUP):

LOGIN TO SYNOLOGY NAS WEB UI

- 1. Open Web Browser and type the IP address of your Synology NAS (with port 5000 or 5001)
 - a. Alternatively, you may type <u>https://finds.synology.com/</u> in your web browser to automatically find the Synology NAS:

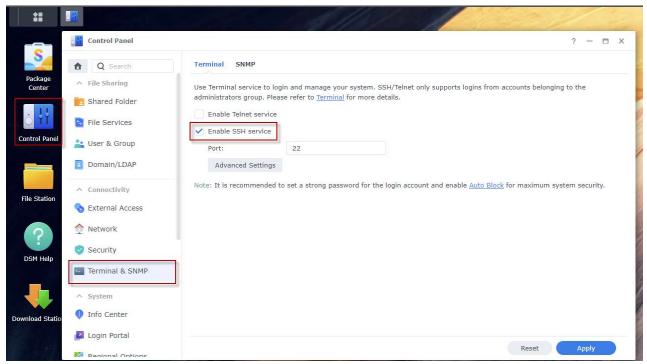
← Ċ ゐ û https://finds.synology.com		A" (6
	Find Your Synology NAS To use Web Assistant to locate your Synology device on the local network, Synology collects the data below. This information will be deleted upon completing DSM installation. Refer to the Data Collection Disclosure and Privacy Statement for details. • • Server name DiskStation IP address 192.168 MAC address MAC address	- A 10
	Serial number DSM version 7.1.1-42962 Model name DS216play Status Ready	

- 2. Login to the Synology NAS with a username with administrative rights.
 - a. Confirm if the logged in user has administrative rights by going to the path below:
 - i. Control Panel -> User & Group -> User -> User Groups -> administrators (must be ticked)



ENABLE SSH SERVICE FOR SYNOLOGY NAS

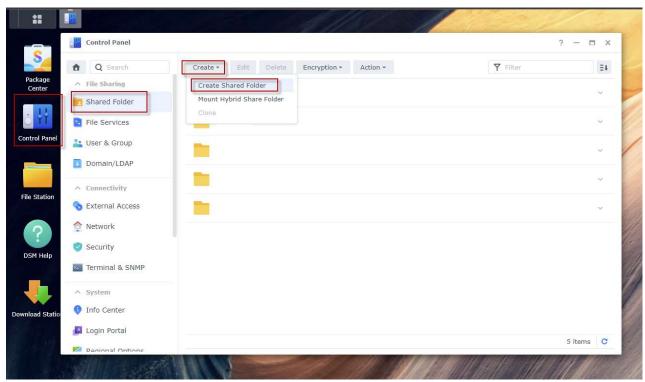
- 1. Enable SSH service on the Synology NAS by going to the path below:
 - b. Control Panel -> Terminal & SNMP -> Enable SSH Service (must be ticked). Retain the default port number:



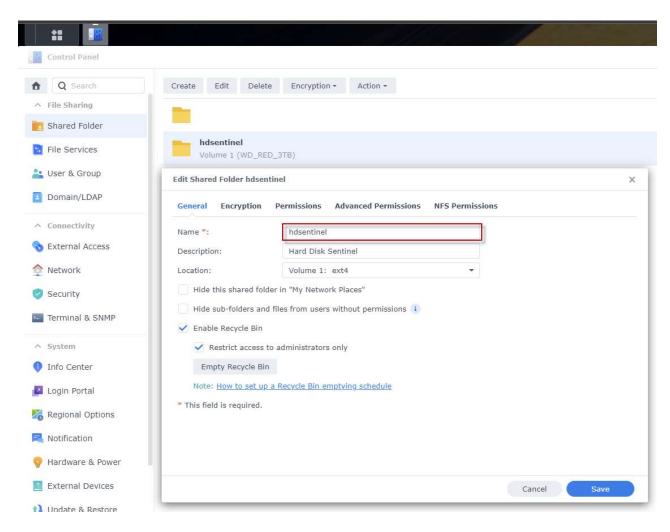
c. Click "Apply" to save the changes

CREATE SHARED FOLDER IN SYNOLOGY NAS

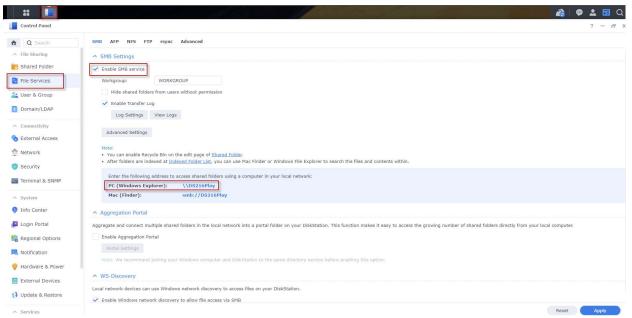
- 1. Create a shared folder to be used by hdsentinel for Synology NAS by going to the path below:
 - a. Control Panel -> Shared Folder -> Create -> Create Shared Folder:



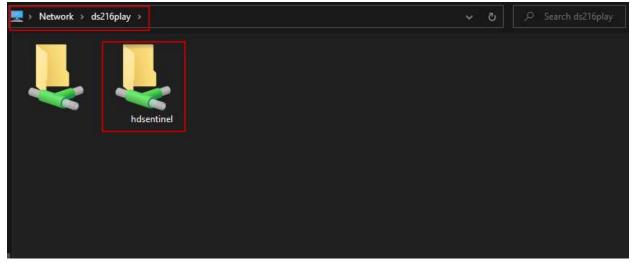
b. Use a descriptive name for the folder (in this guide, the folder name is "hdsentinel"):



- 2. Verify if the shared folder can be seen from Windows Explorer:
 - a. Identify the name of your Synology NAS for SMB by going to the path below:
 - i. Control Panel -> File Services -> SMB -> Enable SMB service (must be ticked)
 - ii. Check the value in "PC (Windows Explorer)":



- b. In Windows Explorer, check if the created shared folder can be seen:
 - i. In the folder path, type the SMB name in the previous step, and check if the "hdsentinel" folder exists:



DETAILED STEPS (SSH CONNECTION SETUP):

LOGIN TO SYNOLOGY NAS VIA SSH

- 1. Download and install PuTTY:
 - a. URL of PuTTY is https://putty.org:



- 2. Open PuTTY and connect to Synology NAS via SSH:
 - a. Input the IP address of your Synology NAS (retain the default port number) and click "Open":

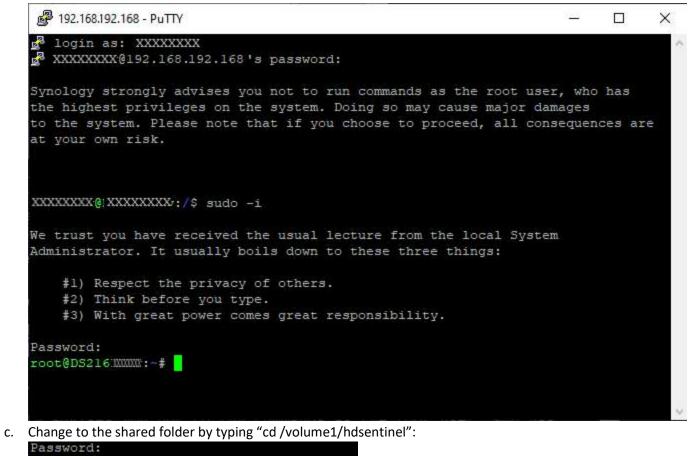
RepuTTY Configuration

Session	Basic options for your PuTTY session					
Logging Terminal Keyboard	Specify the destination you want to connect to Host Name (or IP address)					
Bell	192.168.xxx.xxx	22				
Features	Connection type:					
- Window - Appearance	● <u>S</u> SH ○ Serial ○ Other: Telne	st >>				
Behaviour Translation ⊕ Selection	Load, save or delete a stored session Sav <u>e</u> d Sessions	1				
Colours	Default Settings	Load				
Data Proxy		Sa <u>v</u> e				
i SSH Serial Telnet		<u>D</u> elete				
	Close window on e <u>x</u> it: ○ Always ○ Never ● Only on c	lean <mark>exit</mark>				

- b. The tasks to be executed needs to have root privileges. Perform the following steps:
 - i. Login as user with administrative rights.
 - ii. Once successfully logged in, temporarily elevate privilege by typing "sudo -i" and re-entering your password for the user with administrative rights. This step is necessary to skip entering the password for each of the commands to be executed in the succeeding steps.

X

- iii. If successful, the user should appear "root@[nas_name]" on the left side of the prompt
- iv. Sample output can be seen below:



Password: root@DS216.XXXXX:~# cd /volume1/hdsentine1 root@DS216.XXXXX:/volume1/hdsentine1#

INSTALL HDSENTINEL FOR SYNOLOGY NAS

1. Download prerequisites:

- a. The DS216 PLAY has an ARM-based processor (which can be verified in the URL below):
 - i. https://kb.synology.com/en-global/DSM/tutorial/What kind of CPU does my NAS have

¢	\rightarrow	C	â	٥	https://kb.synology.com/en	global/DSM/tutorial/What_kind_of_CPU_does_my_NAS_have					-	්) A ^N	€	îõ
			2								DS216PLAY				×
	Sy	no	olog	sy*	Knowledge	Center			Q Sear	ch Knowledge Cer	nter				
				052	10		Dual Core	2	163	Annauasox	DDR3	J 12 101	0		
				DS2	16play	STM STiH412	Dual Core	2	Yes	Monaco	DDR3	1 GB			

- b. For the DS216 PLAY, the ARM installer will be used. Get the URL of the download link by going to the URL below:
 - i. https://www.hdsentinel.com/hard_disk_sentinel_linux.php
 - ii. Note the URL of the download link by doing any of the following:
 - 1. Hovering the mouse on the download icon and noting the text in the status bar
 - 2. Right clicking the link, then click "copy link"
 - 3. Sample screenshot can be seen below:

Note that the spaces in hard disk model ID and serial number are replaced with underscore ().		
If you have any ideas, thoughts about the automatic processing of output or if you have complete script(s) you want to sh	are with other users, please	e send a mail a
will be published on this page with the name and credits of the sender of the script.		
Download Hard Disk Sentinel Linux		
Hard Disk Sentinel 32-bit Linux console version - executable, gzip-compressed		
Hard Disk Sentinel 64-bit Linux console version - executable, gzip-compressed		
Hard Bisk Schandron-Sik Einer Console Version - exceedable, gelp-compressed		
Hard Disk Sentinel Linux console version for Raspberry PI (ARM CPU) - executable, gzip-compressed		
Hard Disk Sentinel Linux console version for NAS boxes (ARMv5 CPU) - executable, non-compressed (see notes belo	w)	
Hard Disk Sentinel Linux console version for NAS boxes / Raspberry PI 4 (ARMv7 CPU) - executable, gzip-compresse	d	
	Open link in new tab	
Hard Disk Sentinel Linux console version for NAS boxes / Raspberry PI 4 64-bit (ARMv8 / ARM64 CPU) - executable, b	Open link in new window	
Can be used with Synology D220j and other Synology NAS models with ARMv8 CPU	C Open link in InPrivate window	
	Open link as	
Compatibility	Save link as	
Kernel support is required to detect and display information about SATA hard disks. This version was successfully tested		
	Copy link	
blackPanther OS v16.2 SE	Open in Immersive Reader	
CentOS 5, 6 and newer	Add to Collections	
 Fedora 5, 6, 7, 8, 9, 10, 15 and newer Ubuntu 8.04 server kernel 2.6.24-16-server, 9.04 	「A Share	
Kubuntu 8.04	- 	
Xubuntu 8.04	G Web select	Ctrl+Shift+X
Slackware 11.0	🚱 Web capture	Ctrl+Shift+S
UHU Linux 2.1	U Bitwarden	
 SuSe 10.2, SuSe 10.3 (SuSe 10.0 - NOT working, reports wanted) 	□ Inspect	
Debian Lenny 5.0		_
Debian GNU/Linux 6.0.1 Squeez		
Raspberry PI (ARM CPU)		
 NAS boxes (ARM CPU): WD MyBook Live, D-Link DNS-320LW two bay Sharecenter, D-Link DNS-327L two bay S 	Characontor Soggato Eroo/	aont DockStar

- iii. The latest version when this guide is written is version 7. The download link may be updated in case a newer version is released
- 2. Install hdsentinel for linux by using wget command and specifying the download link in the previous step
 - a. For this guide, the command is "wget <u>https://www.hdsentinel.com/hdslin/hdsentinel-armv7.gz</u>":
 - b. The installer will be downloaded and the successful download will look like the screen below:

```
root@IXXXXXXX:/volumel/hdsentinel# wget https://www.hdsentinel.com/hdslin/hdsentinel-armv7.gz
--2022-12-17 18:23:28-- https://www.hdsentinel.com/hdslin/hdsentinel-armv7.gz
Resolving www.hdsentinel.com.. 79.172.252.60
Connecting to www.hdsentinel.com/79.172.252.60]:443... connected.
HTTP request sent, awaiting response... 200 OK
Length: 1433042 (1.4M) [application/x-gzip]
Saving to: 'hdsentinel-armv7.gz'
hdsentinel-armv7.gz 100%[========>] 1.37M 427KB/s in 3.3s
2022-12-17 18:23:33 (427 KB/s) - 'hdsentinel-armv7.gz' saved [1433042/1433042]
```

- c. After downloading the installer, perform the following steps to prepare the installer:
 - i. Decompress the downloaded installer by typing the command below:
 - 1. "gunzip hdsentinel-armv7.gz"
 - a. The command doesn't return any status, but should not raise any error
 - ii. Change permission for the downloaded installer by typing the command below:
 - 1. "chmod 0755 hdsentinel-armv7"
 - a. The command doesn't return any status, but should not raise any error
- d. Sample screenshot after doing the previous steps to prepare the installer:

```
root@!XXXXXXXX:/volumel/hdsentinel# gunzip hdsentinel-armv7.gz
root@!XXXXXXXX:/volumel/hdsentinel# chmod 0755 hdsentinel-armv7
```

TEST IF HDSENTINEL IS WORKING FOR SYNOLOGY NAS

- 1. Type the command below to check the report for the two (2) hard disks:
 - a. ./ hdsentinel-armv7
 - b. There should be a detailed information for the two (2) hard disks, which can look like the screen below:

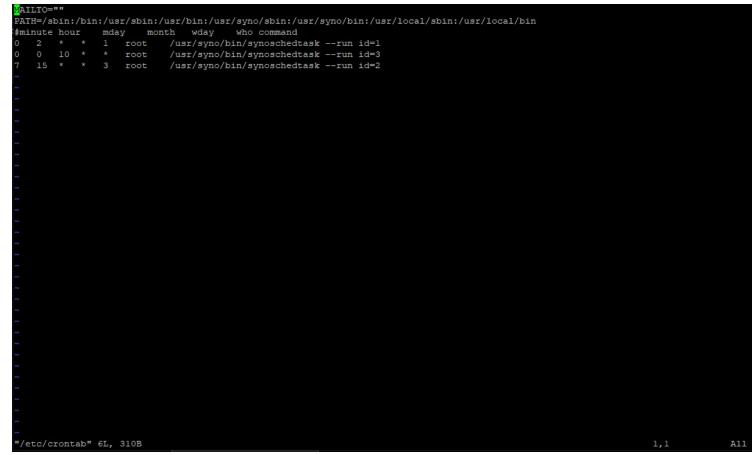
```
oot@XXXXXXXX:/volumel/hdsentinel# ./hdsentinel-armv7
Hard Disk Sentinel for LINUX console 0.18e.8675 (c) 2020 info@hdsentinel.com
Start with -r [reportfile] to save data to report, -h for help
Examining hard disk configuration ...
HDD Device 0: /dev/sda
HDD Size
        Interface : S-ATA Gen3, 6 Gbps
Temperature : 34 °C
Highest Temp.: 40 °C
Health : 100 %
Performance : 100 %
Est. lifetime: more than 1000 days
 The hard disk status is PERFECT. Problematic or weak sectors were not found and there are no spin up or data transfer errors.
  No actions needed.
HDD Device 1: /dev/sdb
HDD Size
       Interface : S-ATA Gen3, 6 Gbps
Temperature : 38 °C
Highest Temp.: 47 °C
Health
       : 100 %
Performance : 100 %
Est. lifetime: more than 1000 days
 The hard disk status is PERFECT. Problematic or weak sectors were not found and there are no spin up or data transfer errors.
  No actions needed.
```

SCHEDULE BACKGROUND JOB FOR HDSENTINEL ON SYNOLOGY NAS

- 1. Type the command below to edit the background job file:
 - a. vim /etc/crontab

root@ XXXXXXX:/volumel/hdsentinel# vim /etc/crontab

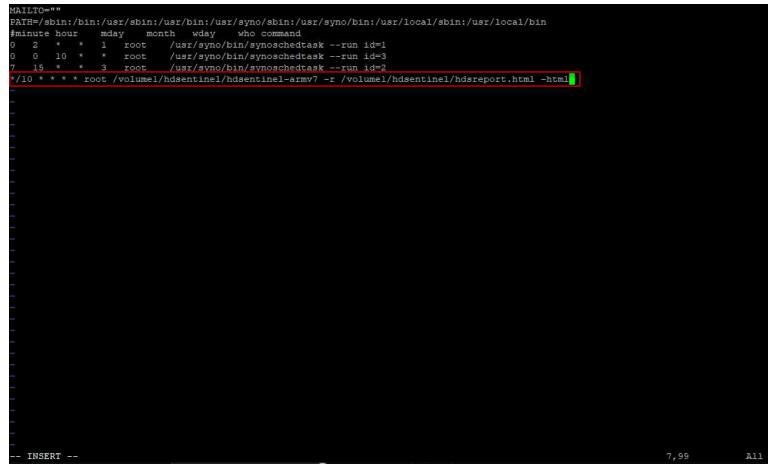
b. The VIM editor will be displayed:



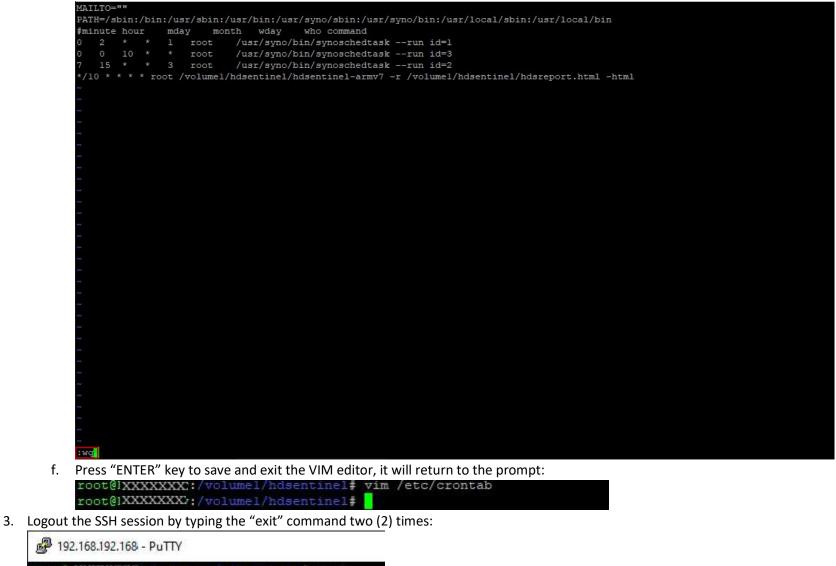
- 2. Once in the VIM editor, perform the following steps:
 - a. Press "down" arrow five (5) times to go down five (5) lines
 - b. Press "o" key to insert a new line
 - c. We would like to generate the hdsentinel report for the Synology NAS HDDs every ten (10) minutes. Paste the following lines in the editor (right-click the mouse in PuTTY to paste the line):

*/10 * * * * root /volume1/hdsentinel/hdsentinel-armv7 -r /volume1/hdsentinel/hdsreport.html -html

d. Sample output should look like below:



e. Press "ESC" key, then type the values ":wq". The values should appear in the lower left part of the window:

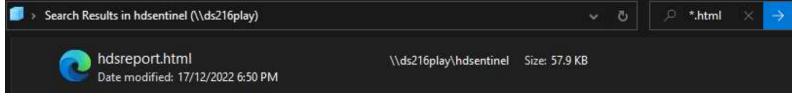


root@1XXXXXX2:/volumel/hdsentinel# exit logout XXXXXXX@XXXXXXX2:/\$ exit

DETAILED STEPS (HDSENTINEL FOR WINDOWS SETUP):

TEST IF HDSENTINEL IN SYNOLOGY NAS IS ABLE TO GENERATE A REPORT

1. Open Windows Explorer and go to the shared folder used by hdsentinel for Synology NAS to see if the background job has generated the hdsentinel output report



- 2. Open the HTML in the previous step to see the report details:
 - a. Sample for Disk 1 (in same file):

÷	С	ଜ	(i) File	ds216pla	y /hdse	ntinel/hdsreport.htr	nl			Aø	ଭ୍	ŵ	U	\$ Ð.	0
		Disk	Sentinel ≖												
Gen	ieral In	format	ion												
Ap	plication	Informa	ition												
	stalled Versi irrent Date /					I Disk Sentinel 0.18e 2-22 18:50:01									
Co	mputer I	nformat	ion												
	imputer Nar AC Address														
Sy	stem Inf	ormation	1												
Pro	S Version poess ID itime				: Linu : 2582 :	x : 3.10.108 (#42962 SMP Tu 29	ue Oct 18 15:01:56 (CST 2022)							

ard Disk Summary			
Hard Disk Number Hard Disk Device nterface	: 0 : /dev/sda : S-ATA Gen3, 6 Gbps		
fard Disk Model ID firmware Revision lard Disk Serial Number fotal Size Jurrent Temperature Aaximum Temperature (during Entire Lifespan) Yower On Time			
Estimated Remaining Lifetime	more than 1000 days		
fealth Performance		 100 % (Excellent) 100 % (Excellent) 	
The hard disk status is PERFECT. Pr	blematic or weak sectors were not found and the	re are no spin up or data transfer errors.	24 25
No actions needed.			

b. Sample for Disk 2 (in same file):

C	ଜ	(i) File	ds216play/hdsentinel/hdsreport.html				
199	U	tra ATA CRC Error	Count	0	200	200	
200 Write Error Rate		rite Error Rate		0	100	253	

lard Disk Summary			
Hard Disk Number Hard Disk Device Interface Hard Disk Model ID Firmware Revision Hard Disk Serial Number Total Size Current Temperature Maximum Temperature Maximum Temperature (during Entire Lifespan) Power On Time Estimated Remaining Lifetime Health Performance The hard disk so		100 % (Excellent) 100 % (Excellent) prs were not found and there are no spin up or data transfer errors.	
ATA Information			
Hard Disk Cylinders	: 5814021		

CONFIGURE SYNOLOGY NAS DISK MONITORING

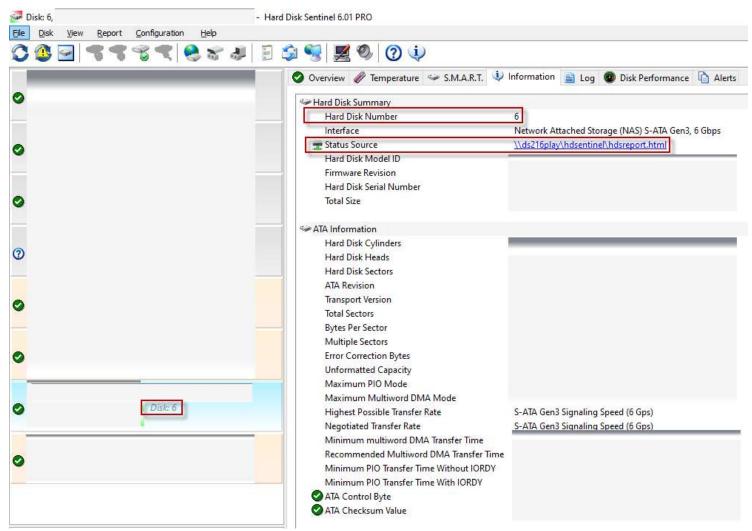
- 1. Open hdsentinel for windows and go to the path below:
 - a. File -> Configure NAS Disk Monitoring



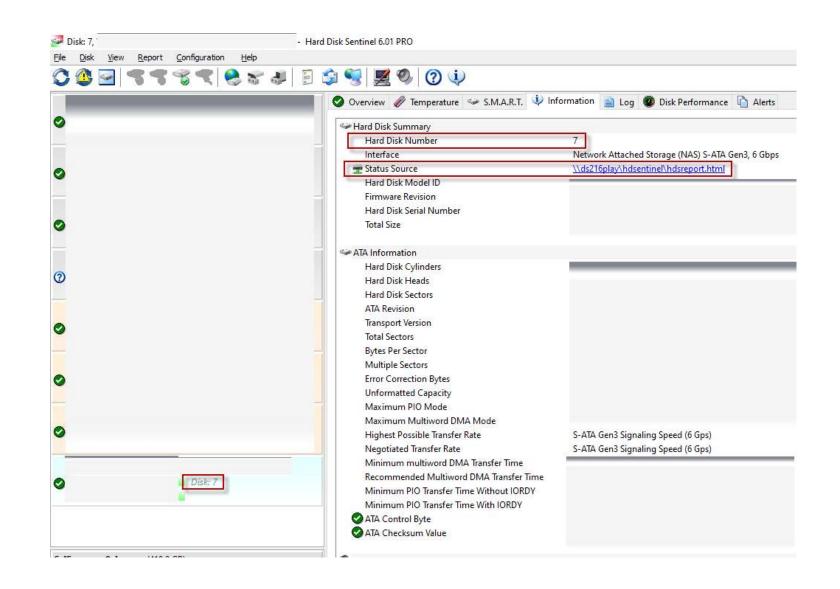
2. Click "Browse" and load the HTML file generated by the hdsentinel for Synology NAS:

Configure NAS Disk Monitoring		×
Specify Status Source(s) to monitor Net	work Attached Storage (NAS) disk drives.	
Status Source files contain complete sta appropriate disk drives like if they would	tus of hard disk drives, SSDs, storage devices and Hard Disk Sentinel read be connected directly.	ads them to show the 🛛 🔍
Status Source files saved and updated o	n the NAS device, created by (for example) Hard Disk Sentinel Linux ve	ersion.
The Auto Detect function automatically	detects possible Status Source files (HDSReport.html) on available net	work drives.
More information: <u>How to: mon</u>	itor Network Attached Storage (NAS) status	
Status Source	Physical Disk(s)	Browse
📉		
★\\ds220	ntml 2	Add <u>U</u> RL
\\ds216play\hdsentinel\hdsreport.l		Edit
		Delete
		Ţest
	Auto Detect	OK Cancel

- 3. Click "OK", the two (2) HDD drives in the Synology NAS should be seen in the main window:
 - a. Sample for Disk 1:



b. Sample for Disk 2:



END OF GUIDE

CREDITS:

1. Janos Mathe | hdsentinel creator | <u>www.hdsentinel.com</u> | <u>info@hdsentinel.com</u> | <u>www.facebook.com/HDSentinel</u>

REFERENCES:

- 1. Marcus Wagner's guide to Synology DS416Play
- 2. Ronald San Jose's guide to Synology DS420J

Guide Creation Details:

Version	Date	Name	Description
1	2022 December 17	Vince Leonardo	Initial Version