

# **Multi-Report**

## **User Guide**

## Multi-Report User Guide (Version 2.1)

This user guide will provide an explanation of how to run the Multi-Report script and how to configure it for your specific use. Please read this entire user guide before proceeding as there are many customizations for practically every situation.

### IF YOU HAVE A PROBLEM

If you discover a drive (HDD/SSD/NVMe/USB) that does not appear to be addressed, please run the script using the '-dump email' and enter a short message pointing out the problem when asked. An example is: "Test Age for ada2 is incorrect." This will send me an email with all your dump data and I will be able to look into the issue and address it. I will respond to you once I receive the data. If you are just sending me drive data for collection purposes, please enter a message similar to "Hi Joe, here is some drive data for you."

NOTE: When you send me an email, I will know the address you sent it from. I will not share your email, go buy a new car with it, or sell it to the Mafia. I may use it to send you back a message if you reported a problem.

# Multi-Report User Guide (Version 2.1)

## Contents

|   |    |
|---|----|
| What is Multi-Report?.....                              | 4  |
| Versioning .....  | 4  |
| Automatic Configuration Update .....                    | 4  |
| What do I ask for in return? .....                      | 4  |
| Initial Setup: .....                                    | 4  |
| The Multi-Report External Configuration File.....       | 5  |
| Explanation of the Output File .....                    | 6  |
| Encrypted TrueNAS_Config in Email .....                 | 6  |
| Running the Script .....                                | 8  |
| Setting Up a CRON Job .....                             | 8  |
| Recommended Script and SMART Testing Schedule .....     | 9  |
| Command Line Switches .....                             | 10 |
| -config .....   | 10 |
| -m [-s] .....   | 11 |
| -s [-m] .....   | 11 |
| -dump [all] or [email] .....                            | 11 |
| -h .....  | 11 |
| -help .....   | 12 |
| HOW TO USE THIS CONFIGURATION TOOL.....                 | 13 |
| Advance Configuration Settings .....                    | 14 |
| Alarm Configuration Settings .....                      | 15 |
| Temperature Settings (Global) .....                     | 15 |
| Zpool Settings .....                                    | 15 |
| Media Alarm Settings (Global) .....                     | 15 |
| Activate Input/Output Settings .....                    | 15 |
| Ignore Alarms .....                                     | 16 |
| Monitor Email Settings (only for the '-m' switch) ..... | 16 |
| Config-Backup .....                                     | 16 |
| Email Address .....                                     | 16 |
| Output Formats .....                                    | 16 |
| Statistical Data File Setup .....                       | 16 |
| TLER / SCT .....  | 16 |
| Drive Errors and Custom Builds .....                    | 17 |

Multi-Report User Guide (Version 2.1)

Custom Drive Configuration (Drive Serial Number Specific) .....17

Custom Drive Configuration Mode .....18

Need Help? .....19

Appendix A - Drive Model Data Tested .....20

# Multi-Report User Guide (Version 2.1)

## WHAT IS MULTI-REPORT?

Multi-Report is a joint effort to produce a simple script that would report key drive data points in order to predict drive failure and deliver that via email. Additionally multi-report can maintain statistical data in a Comma Separated Value (CSV) format compatible with any typical spreadsheet program.

This is a highly configurable program designed to allow the end user the ability to customize the script to the specific needs of the user.

## VERSIONING

Multi-Report versioning is controlled by the version number and the date. Beta will be clearly identified. The multi\_report\_config.txt is also recognized by versioning text in the first line of the file.

## AUTOMATIC CONFIGURATION UPDATE

Multi-Report is controlled by a configuration file called "multi\_report\_config.txt" and this configuration file is adjusted to control the configuration of Multi-Report. Most of these adjustments can and should be made from running the '-config' switch (see below). When the script is run it will check the version of the configuration file. Should the configuration file be out of date it will create a copy of the configuration file and then create an updated version of the configuration file. Both files will be sent to the user with the emailed report. This allows a user the ability to revert easily to the previous version should they elect to because most configuration updates are not backwards compatible.

## WHAT DO I ASK FOR IN RETURN?

I would like to create the best and most inclusive free product but to do that, whenever someone has a problem, or when someone installs a NEW model drive, I would appreciate a little data in return. By running the script using the '-dump email' switch you will be prompted to enter a simple short message and then an email will be generated to my personal email address (created just for this project) that will contain drive configuration data. Drive Model data I already have and was used to test this script is listed in Appendix A.

## INITIAL SETUP:

The basic setup for Multi-Report is to install the script into a Dataset within your pool, and preferably a dataset that has an accessible share such as SMB. This will make everything easier to manipulate in the future. For this example the script is named "multi\_report.sh" and the dataset is located at '/mnt/mypool/scripts'.

Prerequisites:

1. TrueNAS Core/Scale must be installed and operating normal.
2. TrueNAS must have the email account setup already. If you cannot send yourself an email, it's not setup properly.

## Multi-Report User Guide (Version 2.1)

Steps to establish a basic setup: (Do not enter the single quotes)

In the examples below the dataset location will be `/mnt/my_pool/scripts` and the Multi-Report script is named `multi_report.sh`

1. Copy the script to a Dataset. NOTE: The dataset path cannot have any spaces in the path.  
Incorrect Example: `/mnt/my pool/scripts`  
Correct Example: `mnt/my_pool/scripts`
2. Open an SSH terminal window, or Shell and log in.
3. Type `cd /mnt/my_pool/scripts`
4. Make the file executable `chmod +x multi_report.sh`
5. Run the script `./multi_report.sh -config` NOTE: If you run the script without a configuration file, the script will display an error message and direct you to create a configuration file.
6. Press the 'n' key to create a New configuration file.
7. Read the questions and enter the answers (Email Address, EmailAlert Address, and From Address). If you would like to send to more than one email address, use a comma to separate the emails addresses.  
Example of multiple emails: `joe@aol.com,joe@work.com`
8. The Automatic Drive Compensation is good to use if you have any drives which have UDMA\_CRC\_ERRORS or bad sectors errors noted. This will offset the value and bring it back to a zero value. Should another issues occur, the value will increment.
9. The script will create an external configuration file called `multi_report_config.txt` where the user "could" edit this file with a simple text editor, however it's strongly advised against it due to the tight formatting restrictions. If you venture out to manually edit the configuration file and it starts working incorrectly, recreate a new configuration file using the steps above.
10. Let's run the script again but this time without any CLI switches `./multi_report.sh`
11. If all goes well you will receive an email that contains a chart and then a text section.

Unfortunately, because manufacturers do not have a standard to live by, it's almost impossible to take into account every drive configuration and the end user will need to do some customizations. They are easy.

If you have any drive errors such as a Sector Error or the Wear Level is incorrect, then you will need to customize some of the settings.

### THE MULTI-REPORT EXTERNAL CONFIGURATION FILE

The external configuration file is a file created to limit the needless reconfiguring of the parameters when upgrading the script to newer versions. The script will generate the configuration file and update the configuration file with the upgrades. The configuration file by default will create itself in the same directory as the script is located and the name of the file is `multi_report_config.txt`.

This configuration file is normally edited from within the script using the `-config` switch but may be edited using a simple text editor.

## Multi-Report User Guide (Version 2.1)

Prior to exiting the configuration tool ensure you WRITE the changes to your configuration file or the changes will be lost.

### EXPLANATION OF THE OUTPUT FILE

#### Header information

The email generated contains the following information:

Program Version, Operating System Version

Report Run Date and Time

How long it took to execute the script.

#### Zpool/ZFS Status Report Summary

Pool Name, Status, Capacity, Fragmentation, Errors, Last Scrub Age, Scrub Duration

#### Hard Drive Summary Report / SSD Summary Report / NVMe Summary Report

Device ID, Drive Identification, Capacity, SMART Status, Temperature, Power On Hours, Drive

Errors Last Test Age, Last Test Type

These are the core identifiers used in this script and will lead any user it easily identify a problem. Any errors have the background color changed making it obvious.

### ENCRYPTED TRUENAS\_CONFIG IN EMAIL

If you desire the TrueNAS\_Config.zip file to be encrypted then you MUST manually edit the 5<sup>th</sup> line of the script and enter a password. Why encrypt this data? While the data “should” be perfectly safe since the password file is encrypted, some of us prefer a little extra security. Additionally normally Windows compression will not open the encrypted attachment, you must use a third party application. I recommend 7-Zip which is a free community based program. Reference: <https://www.7-zip.org/download.html>

To add encryption you are looking at line #5 of the script, not the multi\_report\_config.txt file and then looking for line #5 (see below).

```
TrueNASConfigEmailEncryption="" # Set this to "" for no encryption or enter some text as your passphrase.
```

By default, there is no encryption, additionally some email providers will block certain encrypted content.

And example of a password might be:

```
TrueNASConfigEmailEncryption="ThisIsMyPassword#3#2@1!"
```

There are two files in the .zip file:

## Multi-Report User Guide (Version 2.1)

freenas-v1.db – Main Configuration File

pwenc\_secret – All the passwords in an encrypted format.

When you restore 'freenas-v1.db' the other file will automatically be restored.



## Multi-Report User Guide (Version 2.1)

### RUNNING THE SCRIPT

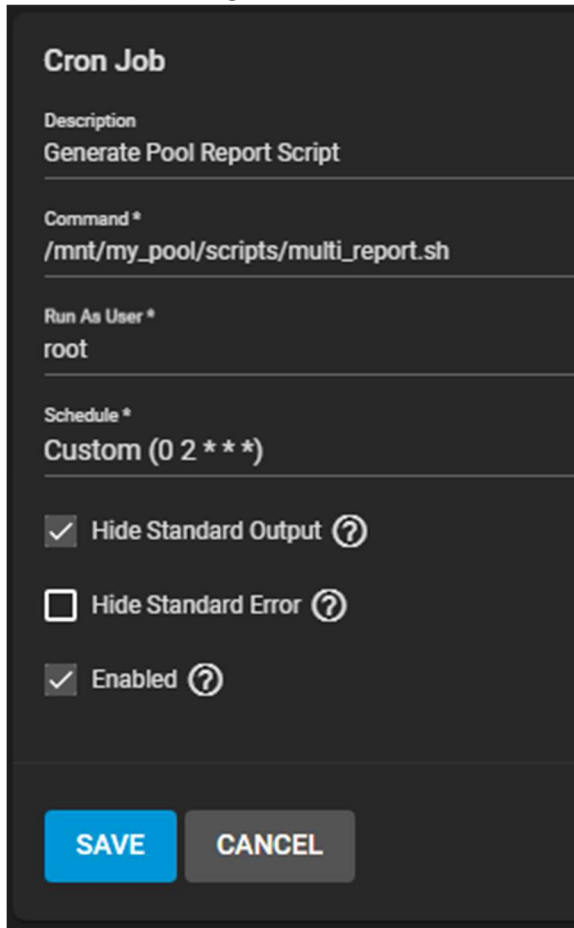
The script can be normally executed by simply entering the program name “./multi\_report.sh” the script will run normally. Below are various command line options you may use with the script in order to configure, run, and troubleshoot. Read these options carefully.

### SETTING UP A CRON JOB

Typically this type of script is designed to be automated to run periodically. In order to run this script we will setup a CRON job.

TrueNAS Core:

1. Log into the TrueNAS GUI.
2. Click on Tasks -> Cron Jobs.
3. On the right screen click ADD.
4. Next fill in the Description, Command, Run As User, Schedule, Hide Standard Output, and Enabled. (See image below)



The image shows a 'Cron Job' configuration window in the TrueNAS GUI. It has a dark theme. The fields are as follows:

- Description:** Generate Pool Report Script
- Command \*:** /mnt/my\_pool/scripts/multi\_report.sh
- Run As User \*:** root
- Schedule \*:** Custom (0 2 \* \* \*)
- Options:**
  - ☒ Hide Standard Output (?)
  - ☐ Hide Standard Error (?)
  - ☒ Enabled (?)
- Buttons:** A blue 'SAVE' button and a grey 'CANCEL' button.

5. We identified a job Description called “Generate Pool Report Script”.

## Multi-Report User Guide (Version 2.1)

6. We identified the command to run this script as `"/mnt/my_pool/scripts/multi_report.sh"`.

Note: The full path to the location of the script is required.

7. Run as is set to "root", but this could be any user with privledges.
8. Schedule is Custom (0 2 \* \* \*) which means 0 minutes, 2 hours, All Days/Months/Years, or in other words, 2AM every day the script will run.
9. Hide Standard Output is Checked.
10. Hide Standard Error in Unchecked.
11. Enabled is Checked.
12. Now click SAVE.

TrueNAS Scale is similar to setup.

### RECOMMENDED SCRIPT AND SMART TESTING SCHEDULE

The first thing you must know is that S.M.A.R.T. was designed to warn a user that a failure would occur in less than 24 hours. That was the goal and to be honest, SMART can give a person notification well in advance of a common media failure problem, HOWEVER SMART is not very good at warning a person of a pending spindle motor electronics failure. So first understand that it's not perfect and it's an attempt to provide us some sort of notification in advance. It is not a genie in a bottle. Do not over-expect. With all that said, it is recommended (by me) to run a SMART Short Test once a day and run a SMART Long/Extended test once a week. These are both non-destructive read-only tests. The Short Test generally takes less than 2 minutes to complete, whilst the Long/Extended Test can take 5 hours, 10 hours, 18 hours, or longer. Your SMART data provides you the time in minutes that the Long/Extended Test will take. For this example, we will say you have a 14TB hard drive and it takes 19 hours to complete a Long/Extended Test. Below is an example of a schedule you could use based on the NAS being used during the Day Light Hours:

| SMART TEST      | Run Start           | Runtime   |
|-----------------|---------------------|-----------|
| SHORT           | 11:05 PM (All Days) | 2 minutes |
| LONG/EXTENDED   | 11:10 PM (Friday)   | 19 Hours  |
| multi_report.sh | 6 AM (All Days)     | 2 minutes |

The above schedule would first run a Short Test every day. Then it would run a Long/Extended Test only on Fridays just after the SMART Short Test completed. And you would get a status report from Multi-Report every morning at 6 AM. Concerns about running the SMART Long/Extended Test are amplified by the drive size and drive count. If you do have large hard drives, say 14TB, and you have 12 of said hard drives, you would not want to perform a SMART Long/Extended Test on all the drives at the same time as this will affect performance when the NAS needs to be useful. Instead perform a SMART Long/Extended Test on two drives a day. This will generally make your NAS more responsive and the huge power consumption would be reduced and spread out over time, thus easing the load on the poor power supply.

## Multi-Report User Guide (Version 2.1)

### COMMAND LINE SWITCHES

-config

Configuration

The '-config' switch will present the user with highly configurable series of menus.

Below is the first menu you will see when invoking this switch.

```
Multi-Report v2.1 dtd:2023-03-15 (TrueNAS Core 13.0-U4)
```

```
Configuration File Management
```

```
*** WARNING - A CONFIGURATION CURRENTLY FILE EXISTS ***
```

```
  N)ew configuration file (creates a new clean external configuration file)
```

```
  U)pdate configuration file (updates select static variables to default)
```

```
  A)dvanced configuration (must have a configuration file already present)
```

```
  H)ow to use this configuration tool (general instructions)
```

```
  X) Exit
```

NOTE: In using this configuration script when the value is:

Number or Text: The current value will be displayed. You have the option to just press Enter/Return to accept the current value or you may enter a different value.

True or False: The current value will be displayed. You have the option to press Enter/Return to accept the current value or you may press 't' for true or 'f' for false.

Make your selection:

New Configuration File – Will create a new external configuration file in the same directory in which the script resides.

Update Configuration File – This option will reset most of the static variable to factory defaults.

Advanced Configuration – This option provides a step-by-step menu driven customization of the multi\_report\_config.txt file. See the Advanced Configuration section for details.

## Multi-Report User Guide (Version 2.1)

How to use this configuration tool – These are the basic instructions on how to answer questions. (See next page)

`-m [-s]`

Monitor

The ‘-m’ switch by itself will check for any Critical Alarms and any Warning Temperatures. If present a simple short email will be generated to the email(s) on file. No statistical data will be collected unless the ‘-s’ switch is also specified.

`-s [-m]`

Statistical Data Only

The ‘-s’ switch will only record statistical data in the CSV file and no email will be sent out, unless used with the ‘-m’ switch (see above). This is useful if you want to setup a CRON task to run periodically to collect temperature data over time for example. The statistical data file is a Comma Separated Value (CSV) format which can be opened in any spreadsheet program.

`-dump [all] or [email]`

Dump drive data files and Multi-Report configuration data

The -dump will generate several files for each drive in the system and append these files and the multi\_report\_config.txt file to the generated email. This is useful when troubleshooting a drive problem. Option ‘all’ which will include the Statistical Data File and the TrueNAS configuration file. Option ‘email’ will send the data generated in the ‘-dump’ command also to [ioeschmuckatelli2023@hotmail.com](mailto:ioeschmuckatelli2023@hotmail.com) which is a dedicated email to support this project. No personal information will be sent except your email address. Sorry, I can’t get away from that but I will not share your information with anyone.

`-h`

Command line help

This will provide a brief listing of the command line switches and a brief description

## Multi-Report User Guide (Version 2.1)

[-help](#)

Help

This will provide detailed help information.

## Multi-Report User Guide (Version 2.1)

### HOW TO USE THIS CONFIGURATION TOOL

This tool has many options and you should be able to perform a complete configuration using this tool.

In order to use the advanced options, you will need to have created an external configuration file then the tool will be able to read and write to this file.

Throughout this process you will be asked questions that require three different responses:

- 1) String content: Where you will either enter a new string followed by the Enter/Return key, or just press Enter/Return to accept the current value.
- 2) Numeric content: Where you will either enter a new number followed by the Enter/Return key, or just press Enter/Return to accept the current value.
- 3) True/False content: Where you will either enter 't' or 'f' followed by the Enter/Return key, or just press Enter/Return to accept the current value.
- 4) Some options will give you a choice of 'd' to delete the value and continue, or 'e' to Edit.

Press any key to continue

## Multi-Report User Guide (Version 2.1)

### ADVANCE CONFIGURATION SETTINGS

This is the main configuration if the defaults are not exactly what you desire.

#### Advanced Configuration Settings

- A) Alarm Setpoints (Temp, Zpool, Media, Activate In/Out, Ignore)
- B) Config-Backup (Edit Config-Backup & Multi-Report\_Config Settings)
- C) Email Address (Edit Email address)
- D) HDD Column Selection (Select columns to display/hide)
- E) SSD Column Selection (Select columns to display/hide)
- F) NVMe Column Selection (Select columns to display/hide)
- G) Output Formats (Hours, Temp, Non-Existent, Pool Capacity)
- H) Report Header Titles (Edit Header Titles, Add/Remove Text Section)
- I) Statistical Data File Setup
- J) TLER / SCT (Setup if TLER is active)
- K) Drive Errors and Custom Builds (Ignore Drives, UDMA CRC, MultiZone, Reallocated Sectors, ATA Errors, Warranty Expiration)
- S) Custom Drive Configuration
- W) Write Configuration File (Save your changes)
- X) Exit - Will not automatically save changes

Make your selection:

## Multi-Report User Guide (Version 2.1)

### Alarm Configuration Settings

#### Temperature Settings (Global)

- ✓ HDD Warning Temperature (45)
- ✓ HDD Critical Temperature (50)
- ✓ HDD Max Temperature Override for power Cycle Enabled (true)
- ✓ SSD Warning Temperature (45)
- ✓ SSD Critical Temperature (50)
- ✓ SSD Max Temperature Override for power Cycle Enabled (true)
- ✓ NVMe Warning Temperature (50)
- ✓ NVMe Critical Temperature (60)

#### Zpool Settings

- ✓ Pool Scrub Maximum Age (37) days
- ✓ Pool Used Percentage (80)
- ✓ Pool Fragmentation Percentage (80)

#### Media Alarm Settings (Global)

- ✓ SSD/NVMe Wear Level Lower Limit (9)
- ✓ Sector Errors Warning (0)
- ✓ Sector Errors Critical (9)
- ✓ Reallocated Sectors Warning (0)
- ✓ Raw Read Errors Warning (5)
- ✓ Raw Read Errors Critical (100)
- ✓ Seek Errors Warning (5)
- ✓ Seek Errors Critical (100)
- ✓ MultiZone Errors Warning (0)
- ✓ MultiZone Errors Critical (5)
- ✓ Helium Minimum Level (100)
- ✓ Helium Critical Alert Message (true)
- ✓ S.M.A.R.T. Test Age Warning (2) days
- ✓ Flag Device ID RED on Error (true)

#### Activate Input/Output Settings

- ✓ Automatic SSD Detection (true)
- ✓ Automatic NVMe Detection (true)
- ✓ Force non-SMART Devices to report (true)
- ✓ Remove non-SMART data from report (false)



## Multi-Report User Guide (Version 2.1)

### Ignore Alarms

- ✓ Ignore UDMA CRC Errors (false)
- ✓ Ignore Raw Read Rate Errors (false)
- ✓ Ignore Seek Errors (false)
- ✓ Ignore MultiZone Errors (false)
- ✓ Disable Warranty Email Header Warning (true)
- ✓ ATA Auto Enable (false)

### Monitor Email Settings (only for the '-m' switch)

- ✓ Alert On Warning Temperature (true)
- ✓ Alert On Critical Error (true)

### Config-Backup

- ✓ Save Local Copy of TrueNAS config-backup file (false)
- ✓ TrueNAS Backup Location (/tmp/)
- ✓ TrueNAS Backup Email Enabled (true)
- ✓ Day of the week to attach TrueNAS Backup file (Mon)
- ✓ Multi\_Report\_Config Email Enable (true)
- ✓ Day of the week to attach Multi\_Report\_Config (Mon)
- ✓ Attach Multi\_Report\_Config on any change (true)

### Email Address

- ✓ Email Address
- ✓ Monitoring Email Address
- ✓ From Email Address ([TrueNAS@local.com](mailto:TrueNAS@local.com))

### Output Formats

- ✓ Power On Hours Time Format (h)
- ✓ Temperature Display (\*C)
- ✓ Non-Existent Value (---)
- ✓ Pool Size and Free Space (zfs)
- ✓ Mouseover (alt)

### Statistical Data File Setup

- ✓ Statistical File Location (default to script location)
- ✓ Statistical Data Recording Enabled (true)
- ✓ Statistical Data Email Enabled (true)
- ✓ Statistical Data Purge Days (730)
- ✓ Day of week email attach Statistical Data (Mon)

### TLER / SCT

- ✓ Activate TLER (false)

## Multi-Report User Guide (Version 2.1)

- ✓ TLER Warning Level (TLER\_No\_Msg)
- ✓ SCT Read Timeout Setting (70)
- ✓ SCT Write timeout Setting (70)

### Drive Errors and Custom Builds

- ✓ Ignore Drives List (none)
- ✓ Automatic Drive Compensation 'y/n'
- ✓ Automatic ATA Error Count Updates (false)
- ✓ ATA Error Count (none)
- ✓ Drive Warranty Expiration Date Warning (none)
- ✓ Drive Warranty Expiration Chart Box Pixel Thickness (1)
- ✓ Drive Warranty Expiration Chart Box Pixel Color (#000000)
- ✓ Drive Warranty Expiration Chart Box Background Color (#f1ffad)

### Custom Drive Configuration (Drive Serial Number Specific)

This adjusts individual media alarms for individual drives.

## Multi-Report User Guide (Version 2.1)

### CUSTOM DRIVE CONFIGURATION MODE

This series of questions will allow you to customize each alarm setting for up to 24 drives on your system. It is suggested that only drives which need customization be included here.

If you choose to customize a drive you will be presented with the Drive ID, Drive Serial Number, and the "system default" alarm setting.

Press Return to accept the "system default" value. This means that if the system default value changes then this value will mirror that value.

or

Enter a numeric value. This value will be hardcoded for this one drive.

One additional setpoint is to disable "Last Test Age". This is useful for some older drives which may generate an alarm.

One additional setpoint is to Reverse the Wear Level value. Unfortunately sometimes the value is 0 and increasing to indicate wearing has occurred as opposed to a normal value of 100 and descending as the wearing occurs. To fix this you can chose to reverse the value for a specific drive.

Follow the prompts.

Press any key to continue

## Multi-Report User Guide (Version 2.1)

### NEED HELP?

If you need help you have a few options and you could do one, two, or all three if desired.

1. Post a question in the TrueNAS forum Resources Discussion area.
2. Post a Private Message to JoeSchmuck.
3. Use the '-dump email' option and when asked for a message, type a short message pointing at the problem. Joe Schmuck will respond to the email he received if from unless the message states otherwise.

If you have a problem like "Last Test Age" is higher than expected, then you might need to use advanced feature "Customize Drive Configuration" in order to correct the issue.

If you have a Wear Level that is at 0% yet you know the drive should have 100% left on it, use advanced feature "Customize Drive Configuration" in order to correct the issue.

If you need to use customize the configuration to remove an alarm condition, please let Joe Schmuck know of the issue. Maybe a software fix is required instead of the "Customize Drive Configuration".

## Multi-Report User Guide (Version 2.1)

### APPENDIX A

Drives Models Tested: (As of 25 March 2023)

| HDD Model Number            | SSD Model Number           | NVMe Model Number              |
|-----------------------------|----------------------------|--------------------------------|
| WDC WD140EDGZ-11B2DA2       | IBM HUSML4040ASS600 (SCSI) | CT1000P3PSSD8                  |
| HGST HUH721010AL5200 (SCSI) | SanDisk SD8SBAT128G1122    | INTEL SSDPEK1A118GA            |
| TOSHIBA MG07ACA14TE         | WDC WDS500G1R0A-68A4W0     | INTEL SSDPE21D280GA            |
| TOSHIBA MG08ACA14TE         | SATADOM-MV 3ME             | Samsung SSD 960 EVO 250GB      |
| TOSHIBA MG09ACA18TE         | HPE VO000960JWTBK (SCSI)   | Samsung SSD 970 EVO Plus 250GB |
| HGST HDN726060ALE614        | KINGSTON SA400S37120G      | SAMSUNG MZVL2512HCJQ-00BL7     |
| WDC WD60EFZX-68B3FN0        | INTEL SSDSC2BX016T4        | SAMSUNG MZVL2256HCHQ-00B00     |
| WDC WD60EFRX-68MYMN1        | INTEL SSDSC2BX800G4        |                                |
| WDC WD10JFCX-68N6GN0        | Lexar 240GB SSD            |                                |
| ST12000NM0008-2H3101        | PNY CS900 120GB SSD        |                                |
| ST16000NM001G-2KK103        | SAMSUNG MZ7LM240HMHQ-00003 |                                |
| ST12000NM001G-2MV103        | Samsung SSD 860 EVO 250GB  |                                |
| ST6000VN001-2BB186          | SuperMicro SSD             |                                |

If you have a drive model not listed above, please use ‘-dump email’ to forward the data to Joe Schmuck.