



IRONWOLF
HEALTH



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SUPPORT DOCUMENT

IronWolf™ Health Management

Introduction

IronWolf Health Management (IHM) is an embedded software designed on the tenets of prevention, intervention and recovery. It aims to manage the health of the drive through the useful life, and provide ease of data recovery should a catastrophic event damage the drive and render it non-functional.

To provide this functionality, IHM analyzes multiple parameters related to drive health and uses proprietary algorithms to determine their impact to drive health. With this output and info on additional operating conditions, such as temperature and humidity, IHM recommends preventive actions to users to avoid anydrive damage. It may also recommend specific interventions when the drive health is likely to have been impacted.

Finally, it provides seamless linkage within the UI to Seagate® Rescue and Recovery plans, ensuring users have complete peace of mind in using their IronWolf™ drive in their NAS box.

Coverage

The following Seagate IronWolf and IronWolf Pro drives are IHM enabled. Please refer to Seagate IHM or ASUSTOR web page for most current list of supported capacities.

IronWolf model numbers:

- ST4000VN008
- ST6000VN0033
- ST6000VN0041
- ST7000VN0002
- ST8000VN0004
- ST8000VN0022
- ST10000VN0004
- ST12000VN0007

IronWolf Pro model numbers:

- ST4000NE0025
- ST6000NE0023
- ST6000NE0021
- ST8000NE0021
- ST8000NE0004
- ST10000NE0004
- ST12000NE0007

Exclusions:

The following drives are not IHM enabled:

- All non-Seagate drives
- All 3.5-inch Enterprise Capacity drives, Desktop, BarraCuda®, BarraCuda Pro, Surveillance, SkyHawk™, FireCuda™ drives
- All legacy NAS HDDs



ASUSTOR Systems with ADM 3.0

Series	Supported ASUSTOR NAS Model
Home	AS1002T, AS1004T, AS-202T, AS-202TE, AS-204T, AS-204TE, AS-302T, AS-304T, AS3102T, AS3104T
SOHO	AS3202T, AS3204T, AS5002T, AS5004T, AS5008T, AS5010T, AS6102T, AS6104T, AS6302T
Medium Business	AS5102T, AS5104T, AS5108T, AS5110T, AS6202T, AS6204T, AS6208T, AS6210T, AS6404T, AS-204RS, AS6204RS / AS6204RD, AS-609RS / AS-609RD
Enterprise	AS7004T, AS7008T, AS7010T, AS6212RD, AS7009RD / AS7009RDX, AS7012RD / AS7012RDX
Expansion Units	The AS6004U expansion will be supported in the next IHM release. Please contact your Seagate representative for further details.

Note. Only ADM 3.0 Beta 5 and onwards support the IHM feature.

IHM UI of ASUSTOR ADM

If you are using a Seagate IronWolf or IronWolf Pro drive with a capacity of over or equal to 4TB, you only need to navigate to **Storage Manager > Disk > Disk Doctor** and the **IronWolf Health Management** window will appear. You can use this function to schedule or immediately carry out a scan.

The screenshot displays two windows from the ASUSTOR ADM interface. The left window, titled 'Storage Manager', shows a sidebar with 'Disk' selected. The main area displays two disks: 'Disk1 / 3.64 TB / 44 °C / 111.2 °F' (ST4000VN000-1H4168) and 'Disk2 / 9.10 TB / 42 °C / 107.6 °F' (ST10000VN0004-1ZD101). The right window, titled 'Disk Doctor', has tabs for 'IronWolf health management', 'Bad Block Scan', and 'S.M.A.R.T. Scan'. It features a 'Start Scan' button, a 'Schedule scan' checkbox, and configuration options for 'Frequency' (Daily), 'Time' (01:00), and 'Disk' (Disk 2). Below these options, it shows 'Previous Iron Wolf detection results: Healthy (2017/7/5 01:33)' and a note about Seagate IronWolf hard disks with a link to learn more.



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Expected Out-of-Box Behavior

Right out of the box, the NAS system is likely unpopulated. If so, once the user inserts a drive in the NAS bay, ADM will automatically detect that both NAS box and drive are supported with IHM, and will display one of the following messages to the user:

This is a Seagate IronWolf hard disk, you can [click here](#) to learn more about the purchase of an appropriate rescue plan.

In the option above, the user has inserted an IronWolf drive and will be guided to the Seagate Data Rescue and Recovery Plans.

This is a Seagate IronWolf Pro hard disk, you can [click here](#) to learn more about the purchase of an appropriate rescue plan.

In this option, the user has inserted an IronWolf Pro drive and will be guided to the Seagate Product Registration page. Post-registration, they will be notified that their IronWolf Pro drive is eligible for a complimentary 2-year Data Recovery Plan. They will also be presented options to extend this coverage for an additional one to three years.



IHM Output Codes

IHM can be scheduled to run on a regular basis through the ADM User Interface. It can also be run manually at any point the user desires. It is recommended that the frequency be set at ≥ 12 hrs. After using IronWolf Health Management to scan your hard disks, the results will either be shown as *healthy* or a numerical output code. Please see the chart below to see the suggestions represented by the codes.

Category	Code	ASUSTOR UI Message
Normal	000	Normal
Notification	100	Abnormally high operating temperature has been detected. Please ensure rear ventilation ports are not blocked, and try to lower the ambient temperature. Alternatively, go to Settings > Hardware > Fan Control to increase fan speed. If issue persists , please contact the ASUSTOR Support Team.
	101	Connection issue on your ASUSTOR NAS and hard drive interface has been detected. Please ensure the hard drive is properly installed in the chassis or drive tray, and that the tray is properly installed in your ASUSTOR NAS. If issue persists , please contact the ASUSTOR Support Team.
	102	Excessive physical shock to the hard drive has been detected. Please ensure your hard drive and ASUSTOR NAS are placed on a stable surface. If issue persists , please contact the ASUSTOR Support Team.
	105	Excessive vibration has been detected. Please ensure your ASUSTOR NAS is placed on a stable surface. If issue persists , please contact the ASUSTOR Support Team.
	106	Excessive host resets have been detected. Please ensure the hard drive is properly installed in the chassis or drive tray, and perform a power cycle. If issue persists , please contact the ASUSTOR Support Team.
Warning	≥ 200	IHM has spotted some errors and a full SMART scan has been automatically triggered for your convenience. If the scan fails , please contact Seagate Customer Care.



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IHM vs S.M.A.R.T.

IronWolf Health Management complements other health test related features within the NAS operating system, such as Self-Monitoring, Analysis and Reporting Technology, or S.M.A.R.T.

S.M.A.R.T.

IronWolf Health Management

Monitors 20 drive parameters	Monitors in excess of 200 drive parameters that may influence drive health
Reports Pass or Fail status	Notifies user of possible prevention and intervention actions ahead of a Fail event, thereby reducing the probability of catastrophic failure and associated data loss
Reports end impact to drive through monitoring of 20 drive parameters with fixed thresholds	Reports end impact to drive, but also communicates failure mode through output code (for interpretation by STX Customer Care only)
Has no memory of past trends of threshold excursions	Maintains moving window of parametric data for trend analysis and assesses impact of external stresses over the drive life

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