BitRaser Hardware Diagnostics

User Guide for version 1.0.0.0

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1. About BitRaser Hardware Diagnostics

Hardware Diagnostics is the process of identifying and monitoring the computer's health. **BitRaser Hardware Diagnostics** is used as a diagnostic tool to troubleshoot issues in various components of computer system such as **CPU, Memory, Battery, Storage, Ethernet, GPU, Monitor, CMOS, System Board, Keyboard, Microphone and Audio etc**. Users may face various issues related to their hardware system such as overheating of CPU and GPU, RAM problems, motherboard failures, slow performance, etc. **BitRaser Hardware Diagnostics** swiftly identifies all these issues and alerts the user to take proactive measures thereby ensuring smooth operation of the system.

This software is embedded with a user-friendly interface enabling users to easily view the scanning of components and diagnosis information in a grid view. Various pre-defined Comprehensive tests are run for each component. These tests identify plethora of issues such as bad sectors in hard drive, RAM utilization, free space, total memory, CPU usage, temperature of components such as GPU, CPU, etc. Users can also access information about their components such as processor model, speed, BIOS version, vendors, sub-vendors etc. In addition to this, the software provides an option to conduct stress testing to identify potential hardware failures. After conducting these tests, this application generates a detailed diagnostic report containing the result of the process of each device with failed and passed tests along with errors (0-no error, 1-error). The report can be saved to the media location of your choice or collected via the **BitRaser cloud console**.

In nutshell, it provides users with comprehensive tests to analyze and address the issues so that appropriate steps can be taken on time to repair the components to ensure optimal performance of the system.

Key Features:

1. **Automatic Device Detection:** Automatically detects connected devices and provides information about them.
2. **Customize Test Settings:** Allow users to customize device selection for diagnosis based on their preferences.
3. **Diagnostic Analysis:** Generates both detailed and short report of diagnostic tests.
4. **Flexible Testing Options:** Provides support for Quick and Advanced tests.
5. **Access to Multiple Tests:** Runs multiple tests for different components to check their functionality.
6. **Display of Information:** Displays the diagnostic information in a grid view.
7. **Easy Network Connectivity:** Provides options to connect to internet either using Ethernet (LAN connection) or Wireless connection.
8. **Keyboard Layout:** Supports a keyboard layout of your preferred language.
9. **Non-Expiring Licenses:** Licenses never get expired- Pay per use.
10. **BitRaser Cloud Integration:** Cloud integration for user management, licenses and reports. The software saves the reports on **Bitraser Cloud**.
11. **Flexible Report Saving Formats**: Allows to customize reports with an option to save reports in **PDF**, **CSV**, and **XML** format.

2. About the Guide

BitRaser Hardware Diagnostics user guide contains sequential steps to assist you through various functions. Each function is explained in detail in the corresponding sections. It covers the following major topics:

1. About BitRaser Hardware Diagnostics
2. About the Guide
3. Getting Started
4. How To
5. Frequently Asked Questions (FAQ)
6. Legal Notices
7. About Stellar

This guide is helpful if you are using **BitRaser Hardware Diagnostics** application with license information either on cloud or a **USB lock key**. There are minor differences in the functionality of **BitRaser Hardware Diagnostics** if you are using **cloud** or a **USB lock key** for accessing the license information. These differences are given in detail, in the corresponding topics of this guide.

There are Notes in some topics of this guide for better understanding and ease of work. These Notes are given in italics style.

Acronyms used in this guide with their definitions:

ITEM	EXPLANATION
Bad Sectors / Bad Blocks	Bad sectors/ bad blocks are the areas of the disk, that can't be used due to the permanent damage or Operating System (OS) is unable to access them.
BIOS	BIOS stands for Basic Input / Output System. The BIOS is a computer program embedded on a chip on a computer's motherboard that recognizes and controls various devices that make up the computer.
HDD	Hard disk drive (HDD) storage is made up of magnetic tape and has mechanical parts inside. This type of drive is cheaper and available with more storage space than SSDs.
HPA / DCO	The Host Protected Area (HPA) and Device Configuration Overlay (DCO) are features for hiding sectors of a hard disk from being accessible to the end user.
ISO file	An ISO file, often called an ISO image, is a single file that's a perfect representation `of an entire CD OR DVD. The entire content of disc can be precisely duplicated into a single file.
KB, MB, GB and TB	This measure is used to describe memory capacity and disk storage. A kilobyte (KB) is 1,024 bytes, and one megabyte (MB) is 1,024 kilobytes, One gigabyte (GB) is equal to 1,024 megabytes, while a terabyte (TB) is 1,024 gigabytes.
PDF	Portable Document Format (PDF) is a file format designed to present documents consistently across multiple devices and platforms.
PNG	Portable Network Graphics (PNG) is a raster-graphics file-format for image compression.

SSD	Solid State Drive (SSD) is a flash storage and has no moving parts. whatsoever. As a result, they are smaller and take up less space in a PC.
User ID	Stands for User Identification, which by default is the e- mail address of the user in the guide.
XML	Extensible Markup Language (XML) is a metalanguage that allows users to define their own customized markup languages, especially to display documents on the internet.
ZIP	ZIP is an archive file format that supports data compression. A ZIP file may contain one or more files or directories that may have been compressed.

For any query or feedback related to this guide, kindly contact us.

3. Getting Started

Navigate to the different sections of the manual by clicking on the links below:

3.1. System Requirements

Before you start the installation of **BitRaser Hardware Diagnostics** make sure that your system meets the following requirements.

Minimum System Requirements:

Processor: x86 or x64 Processor.

RAM: 4GB minimum.

Optical Drive, if you are using an optical disk **(CD/DVD)** to boot your computer.

USB PORT 2.0 / 3.0 with an option in the BIOS to boot the computer from USB device, if you are using a USB to boot your computer.

Note: *For the* ***BitRaser Hardware Diagnostics*** *with cloud licensing, you need an active internet connection.*

Note: *If you are using a* ***BitRaser Lock Key (USB)*** *for licensing, you need two USB ports - one for* ***bootable USB*** *device and another for* ***BitRaser Lock Key****.*

3.2. Boot and Run BitRaser Hardware Diagnostics

To boot and run **BitRaser Hardware Diagnostics** on your computer or laptop, you will need a bootable media with **BitRaser Hardware Diagnostics** ISO file installed on it. An ISO file combines all the **BitRaser Hardware Diagnostics** installation file into single, uncompressed file.

For the BitRaser's Hardware Diagnostics edition with licences on BitRaser Cloud, you can receive the software in two ways:

- You can receive a **BitRaser Hardware Diagnostics** bootable media (USB drive or DVD), or you can receive a link to download a **BitRaser Hardware Diagnostics** ISO file.
- If you have downloaded the **BitRaser Hardware Diagnostics** ISO file, you can create a bootable media. To do so, copy the ISO file onto your drive and then burn the ISO onto a USB drive or DVD using any third party software.

Now boot **BitRaser Hardware Diagnostics** onto your computer directly from your USB or DVD drive, following the steps given below.

For the **BitRaser Hardware Diagnostics** edition with licenses on a lock key (USB), you will receive a USB device called as **BitRaser Lock Key** for licenses and a bootable media (USB drive or DVD) when you purchase the software. Using the bootable media, you can boot and run **BitRaser Hardware Diagnostics** following the steps given below:

Note: *The **BitRaser Hardware Diagnostics** application boots and runs using the RAM of your computer, which means **BitRaser Hardware Diagnostics** does not occupy space on your computer's hard drive.*

*Also, it means that a single session of **BitRaser Hardware Diagnostics** is only valid until your system reboots. Upon rebooting, you must boot and run **BitRaser Hardware Diagnostics** again using the bootable media for another session.*

Steps to Boot and Run BitRaser Hardware Diagnostics:

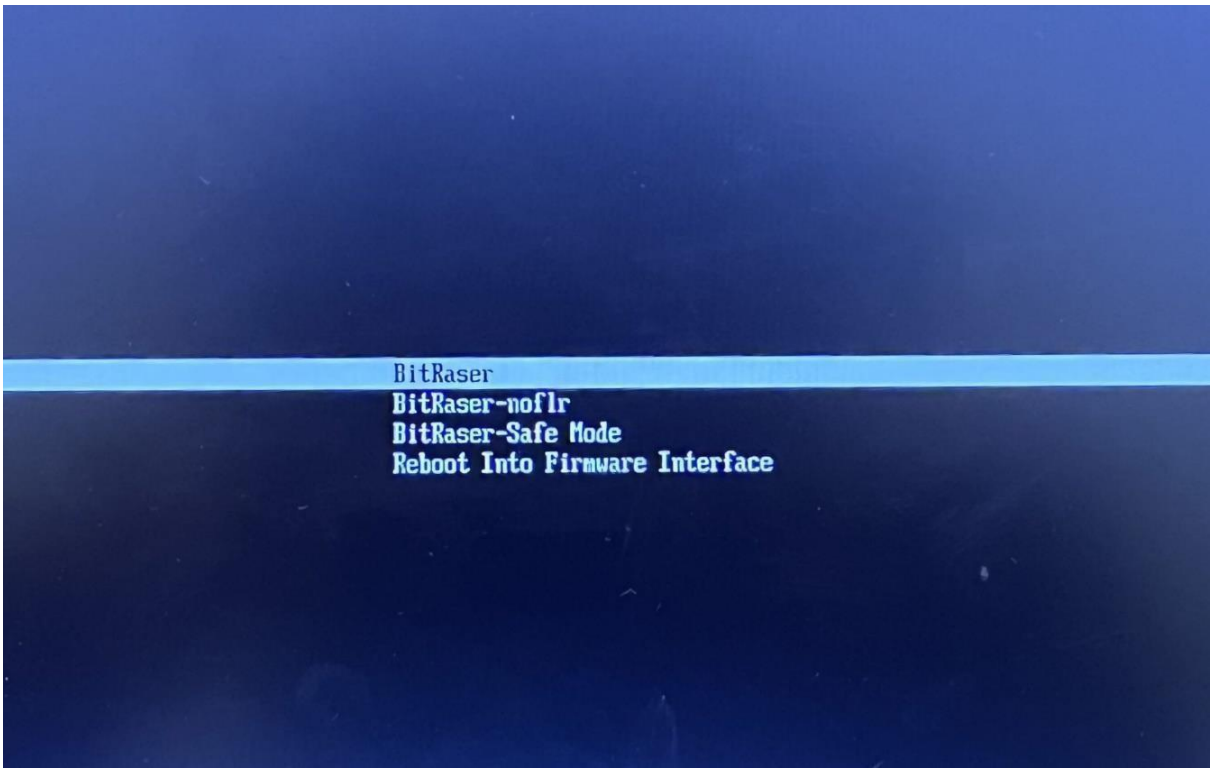
Verify that the **BitRaser Hardware Diagnostics** bootable media is connected to your computer and follow the below steps:

Note: *Also, connect the* ***BitRaser Lock Key*** *at this stage if you have licenses on* ***BitRaser Lock Key****.*

1. Power on your computer and check the BIOS boot options to boot from the bootable media (USB drive or DVD)

   Note: *To know how to check the BIOS boot options, refer to the manufacturer's documentation that came with your computer.*

2. Once the computer boots, you will see the **BitRaser Boot menu** screen.



3. This screen has the following options:

   a. **BitRaser:** This is the default option to run **BitRaser Hardware Diagnostics**. This option runs **BitRaser Hardware Diagnostics** automatically in the most commonly used system configuration.

Note: *It is recommended that you use this option to run the* ***BitRaser Hardware Diagnostics*** *successfully.*

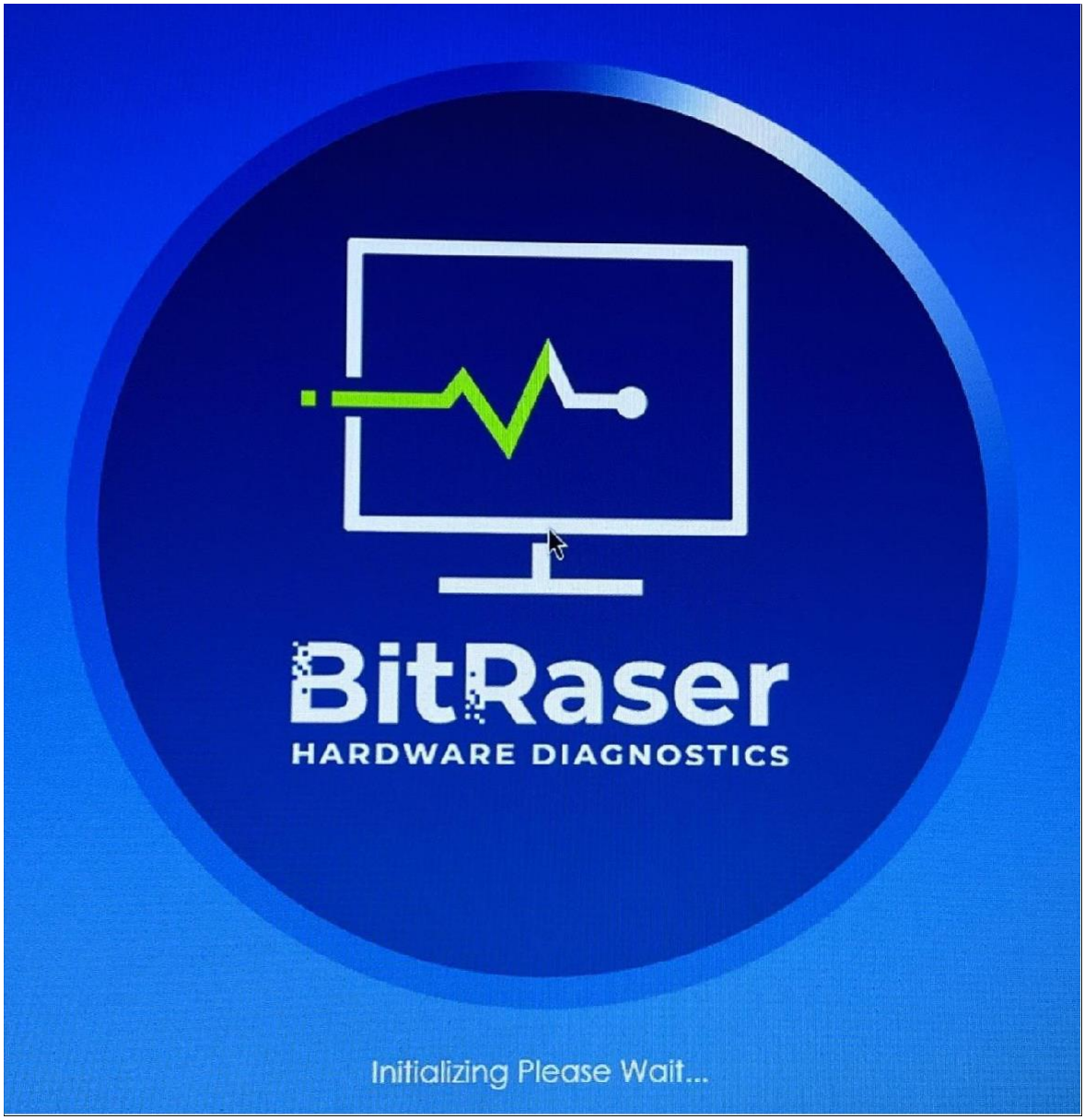
b. **BitRaser NOFLR:** This option uses NOFLR functionality and is mostly used if the **BitRaser Hardware Diagnostics** fails to run using the first option.

c. **BitRaser Safe Mode:** This option uses safe mode functionality and boots up the **BitRaser Hardware Diagnostics** with minimum resources that are required to run the application.

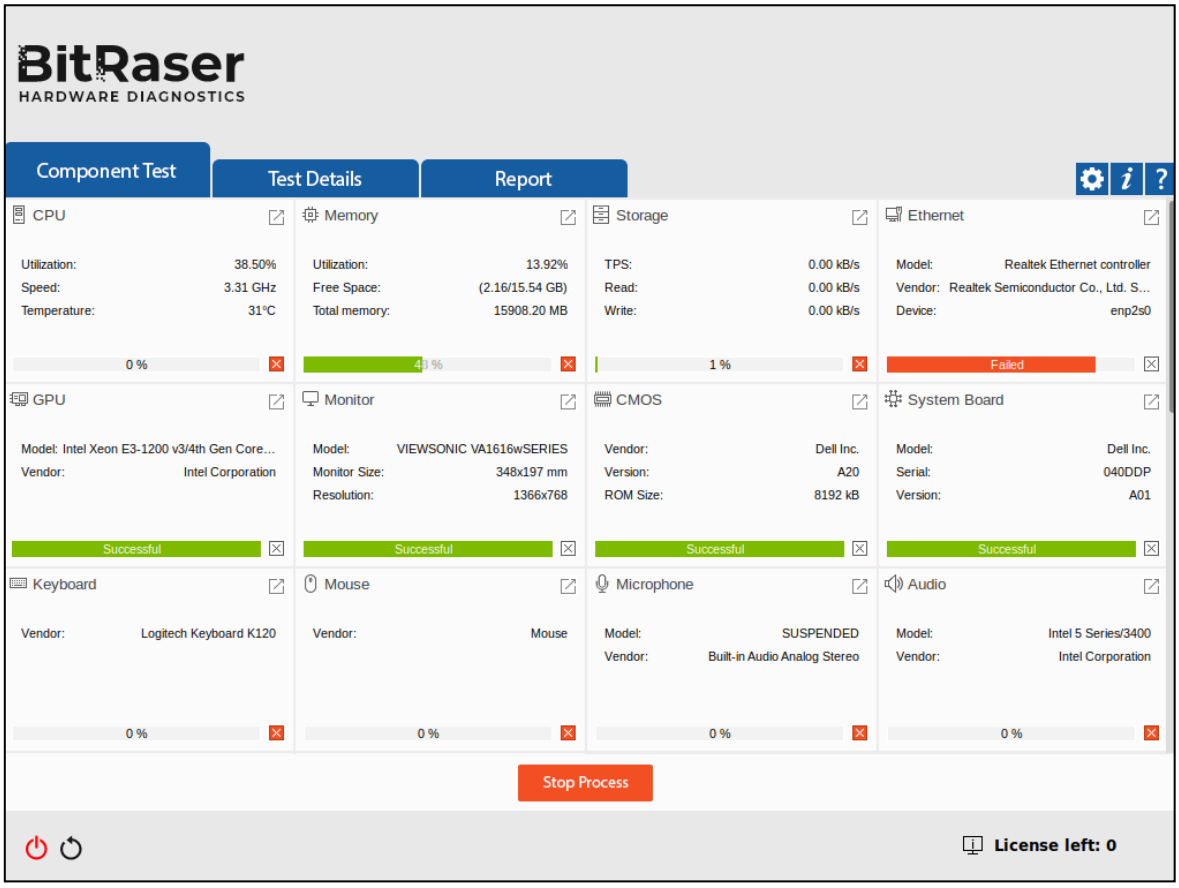
d. **BitRaser Into Firmware Interface:** This option is used to restart the PC. Click on this option if you want to restart the PC and then use any of the options above to start **BitRaser Hardware Diagnostics** application.

Note: BitRaser Hardware Diagnostics *automatically runs using the first option if there is no input from the user in 30 seconds. Use the arrow keys on your keyboard to cancel the action within 30 seconds.*

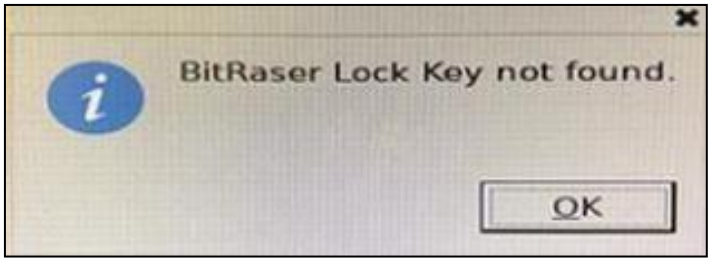
4. The **BitRaser Hardware Diagnostics** now starts to boot and load from the bootable media. The following screen appears:



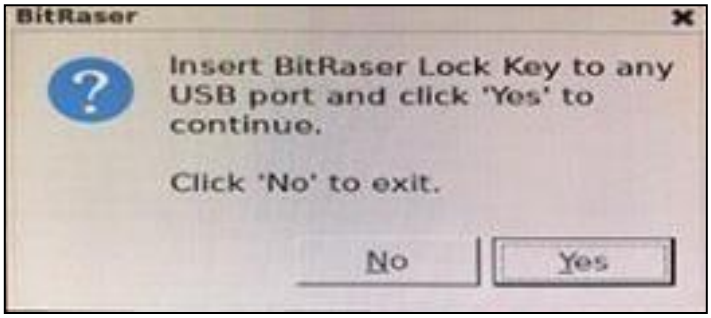
5. Once the system booting completes, it shows the **BitRaser Hardware Diagnostics** running on the screen as shown below:



Note: *If you have* ***BitRaser Lock Key*** *and the key is not connected, you will see an error message as shown below:*



Click **OK**, the following dialog box appears:



Connect the **BitRaser Lock Key** to the USB port of your computer and click **Yes**.

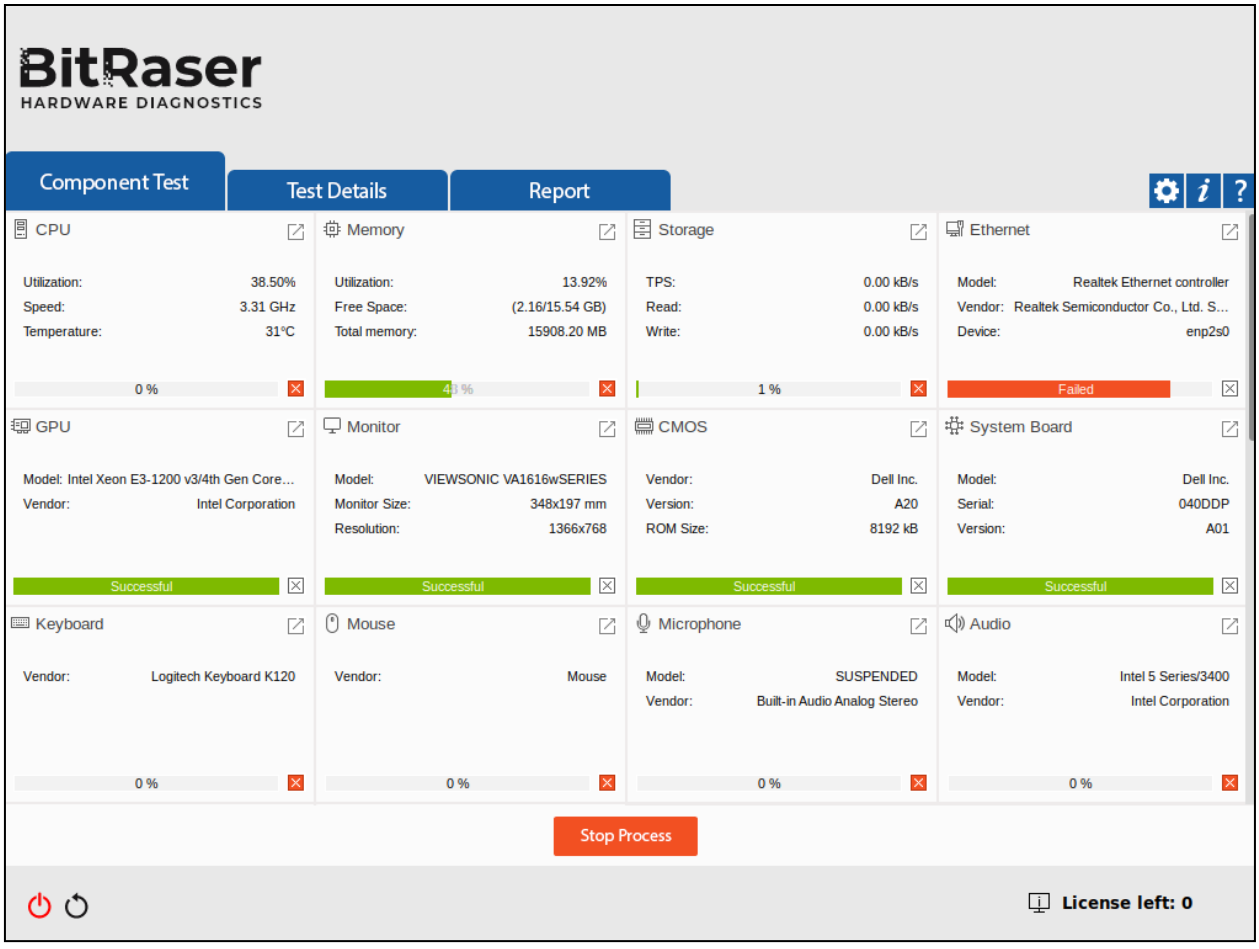
3.3. Getting Familiar with User Interface

The user interface consists of three tabs, each tailored to accomplish a specific function:

1. **Component Test:** This tab allows the users to view the information generated after scanning the components of the computer. Here, users can also view the detailed analysis of their devices.

2. **Test Details:** This tab allows users to enter various details to be included in reports.

3. **Report:** This tab provides **BitRaser Hardware Diagnostics** report and various options for working on Reports.



The user interface contains buttons that help you access various features of the software with ease.

3.3.1. Getting Familiar with Buttons

Icon	Description
	**Settings** Click on this button to update various settings available for **BitRaser Hardware Diagnostics**.
	**About** Click on this button to see information about **BitRaser Hardware Diagnostics** and system information. The about page also has buttons for Support and License information.
	**Help** Click on this button to open this help guide from the application.
	**Shutdown** Click on this icon to shutdown **BitRaser Hardware Diagnostics**.
	**Restart** Click on this button to restart **BitRaser Hardware Diagnostics**.
	**Battery Information** Hover on this icon to know the device's battery percentage.
	**System Information** Hover on this icon to learn about the device's RAM and Processor info.

License left: 0	**License left** This shows the number of licenses left to perform diagnosis.
Test Again	**Test Again** Click on this button to test the components again.
Stop Process	**Stop Process** Click on this button to stop the diagnostic process of the components.
Next	**Next** Click on this button to move to the next manual test.
Skip	**Skip** Click on this button to skip the current manual test.
Setting	**Setting** Click on this button to open advanced setting window.
Send	**Send** Click on this button to send the report to cloud server.

3.4. BitRaser Contact Information

Our Technical Support professionals will provide solutions for all your queries related to **BitRaser Hardware Diagnostics**.

- You can either call us or go online to our support section.
- Chat Live with an Online Technician.
- Search in our extensive Knowledgebase.
- Submit query from here.
- E-mail BitRaser Support at: support@stellarinfo.com.

4. How To

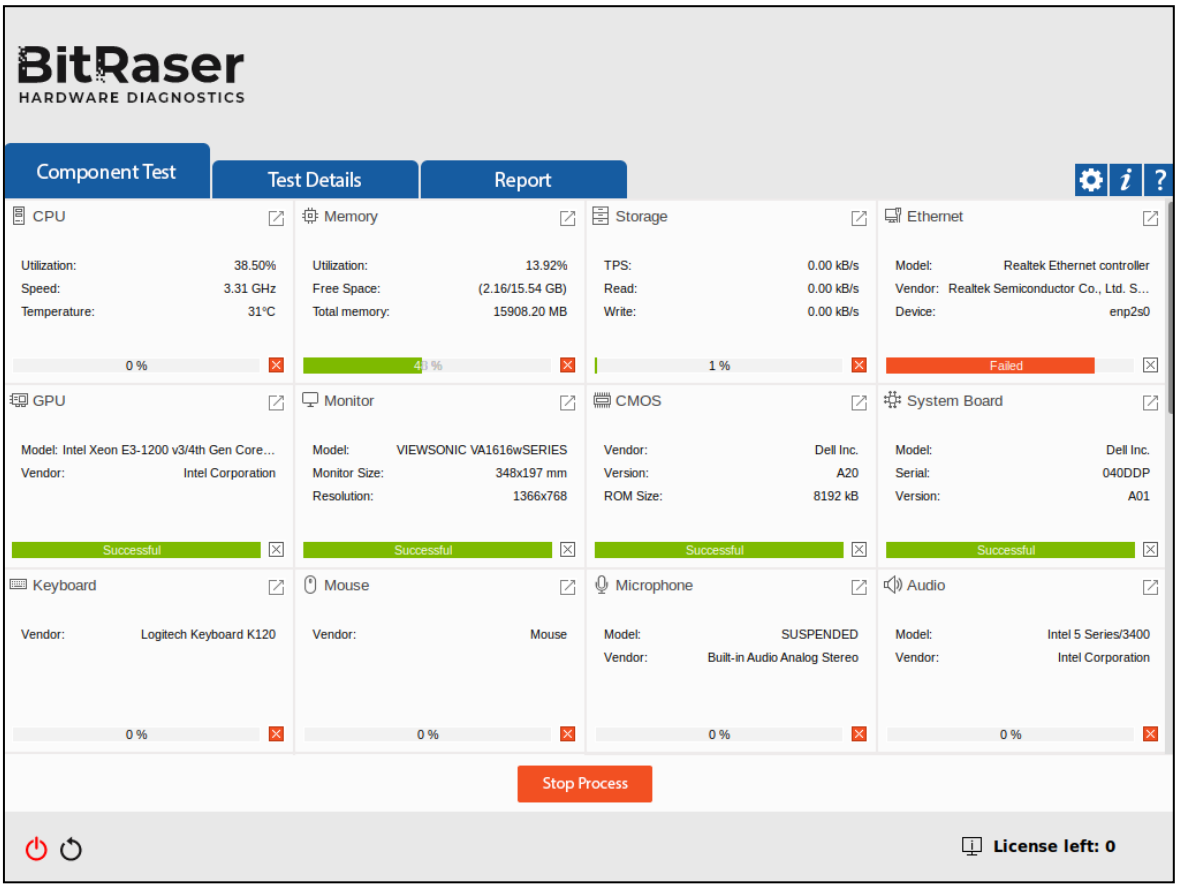
These sections describe how the software works. Navigate to these sections to get a deeper understanding of the software.

4.1. Perform Diagnostic Process

BitRaser Hardware Diagnostics is used to analyze and assess the functionality of your components. In this section, you will get an overview of how the diagnosis of the components take place.

1. Run **BitRaser Hardware Diagnostics**.

2. Click the **Component Test** tab. The main screen appears as shown below:



3. Initially, the **auto tests** are run followed by **manual tests** on the components currently present in the system.

   Note: *Auto-tests are run on* ***CPU, Memory, Ethernet, Battery, GPU, System Board, CMOS, Monitor, Storage****. To view the automated tests detailed diagnosis, refer to Auto Test.*

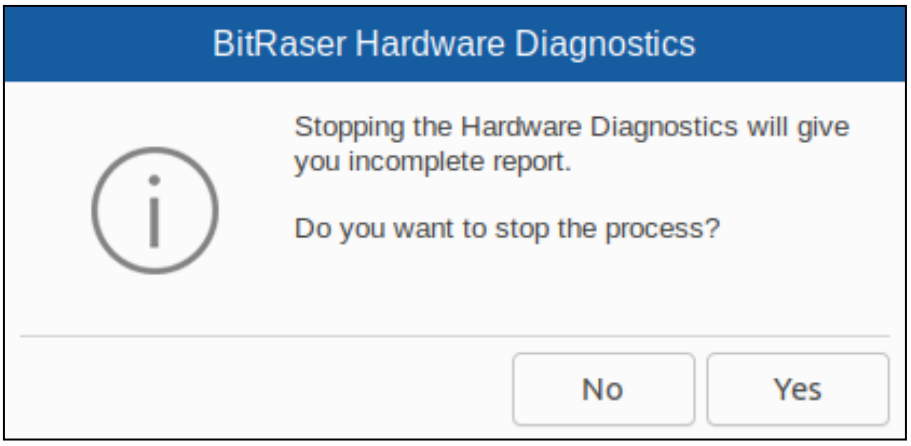
   Note: *Refer to Manual test to know the process of manual testing.*

Note: *If you wish to run manual tests, click on* ☒ *within the component grid of all the running auto tests. The system will automatically stop the auto tests and start the manual tests.*

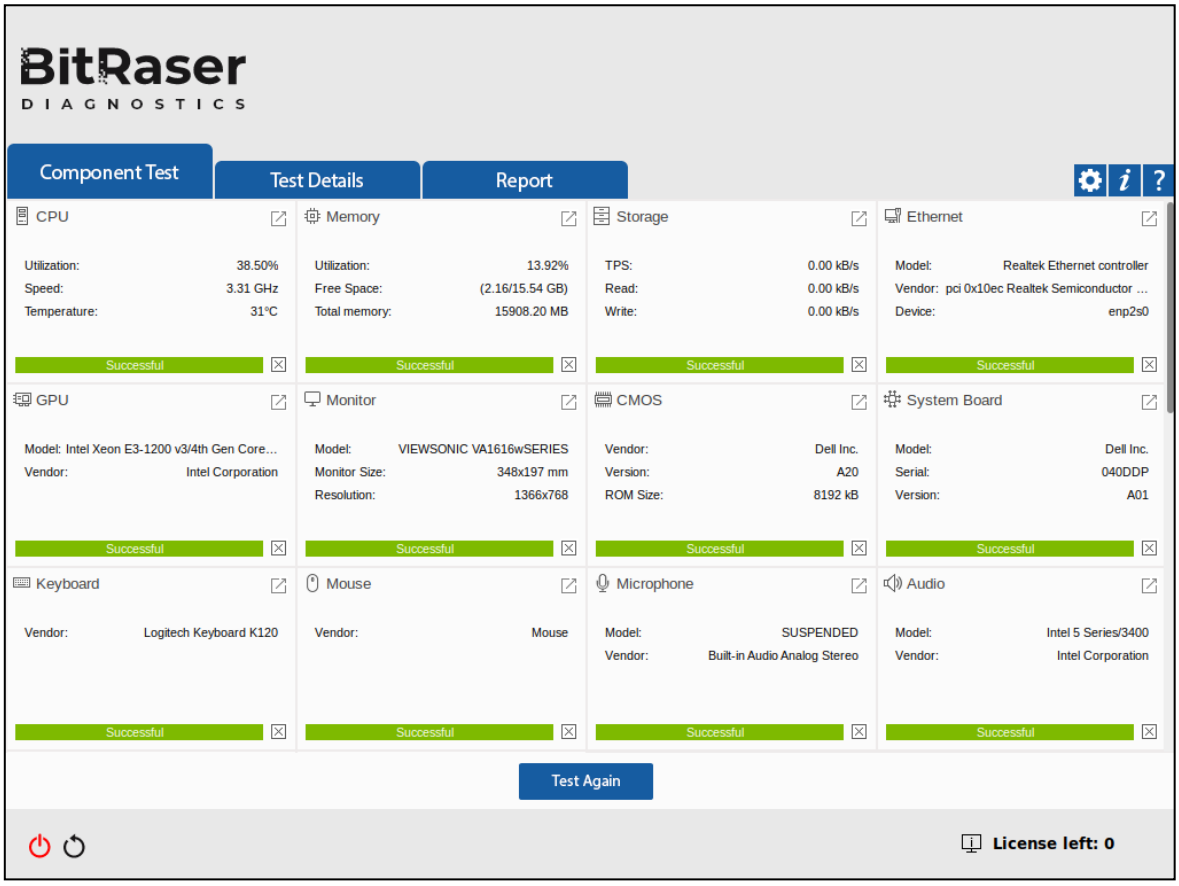
Note: *The software shows the process is* ***successful*** Successful *if no errors are found in the component else shows* ***failed*** Failed .

3. Click **Stop Process** Stop Process to stop the diagnostic process of all the components.

   BitRaser Hardware Diagnostics dialog box appears asking permission to stop process. Click **Yes**.



4. Once the diagnosis of all the components is completed, the main screen appears as shown below. Click **Test Again** Test Again to restart the scanning of components.


BitRaser
DIAGNOSTICS
Component Test
Test Details
Report
CPU
Utilization: 38.50%
Speed: 3.31 GHz
Temperature: 31°C
Successful
Memory
Utilization: 13.92%
Free Space: (2.16/15.54 GB)
Total memory: 15908.20 MB
Successful
Storage
TPS: 0.00 kB/s
Read: 0.00 kB/s
Write: 0.00 kB/s
Successful
Ethernet
Model: Realtek Ethernet controller
Vendor: pci 0x10ec Realtek Semiconductor ...
Device: enp2s0
Successful
GPU
Model: Intel Xeon E3-1200 v3/4th Gen Core...
Vendor: Intel Corporation
Successful
Monitor
Model: VIEWSONIC VA1616wSERIES
Monitor Size: 348x197 mm
Resolution: 1366x768
Successful
CMOS
Vendor: Dell Inc.
Version: A20
ROM Size: 8192 kB
Successful
System Board
Model: Dell Inc.
Serial: 040DDP
Version: A01
Successful
Keyboard
Vendor: Logitech Keyboard K120
Successful
Mouse
Vendor: Mouse
Successful
Microphone
Model: SUSPENDED
Vendor: Built-in Audio Analog Stereo
Successful
Audio
Model: Intel 5 Series/3400
Vendor: Intel Corporation
Successful
Test Again
License left: 0

4.1.1 Manual Test

In this section, users will get an overview of the process of running manual tests in **BitRaser Hardware Diagnostics**. Users have to perform manual diagnosis on components such as **keyboard, Microphone, Audio, Display, Webcam, Wi-Fi, Bluetooth and Accessories and Grading, touchscreen, fingerprints, mouse, etc.**

Steps to run Manual Tests:

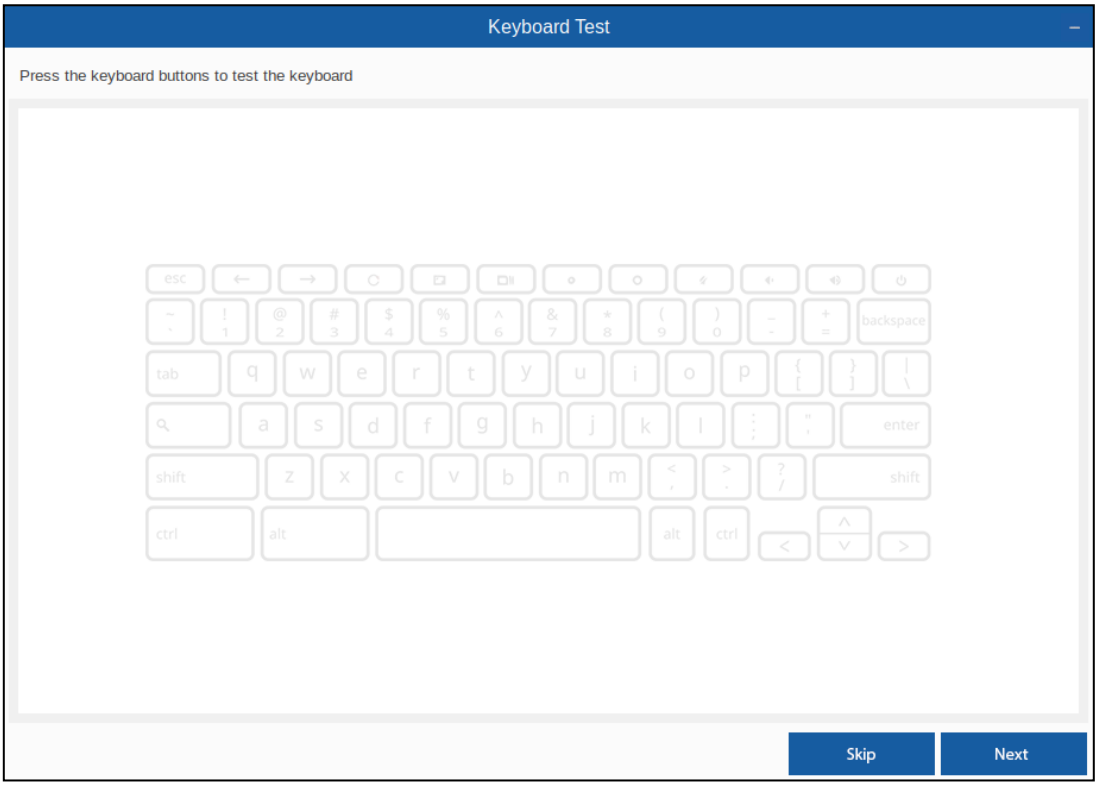
1. Run **BitRaser Hardware Diagnostics**.

Note: *Once all the auto tests are completed, manual tests will begin.*

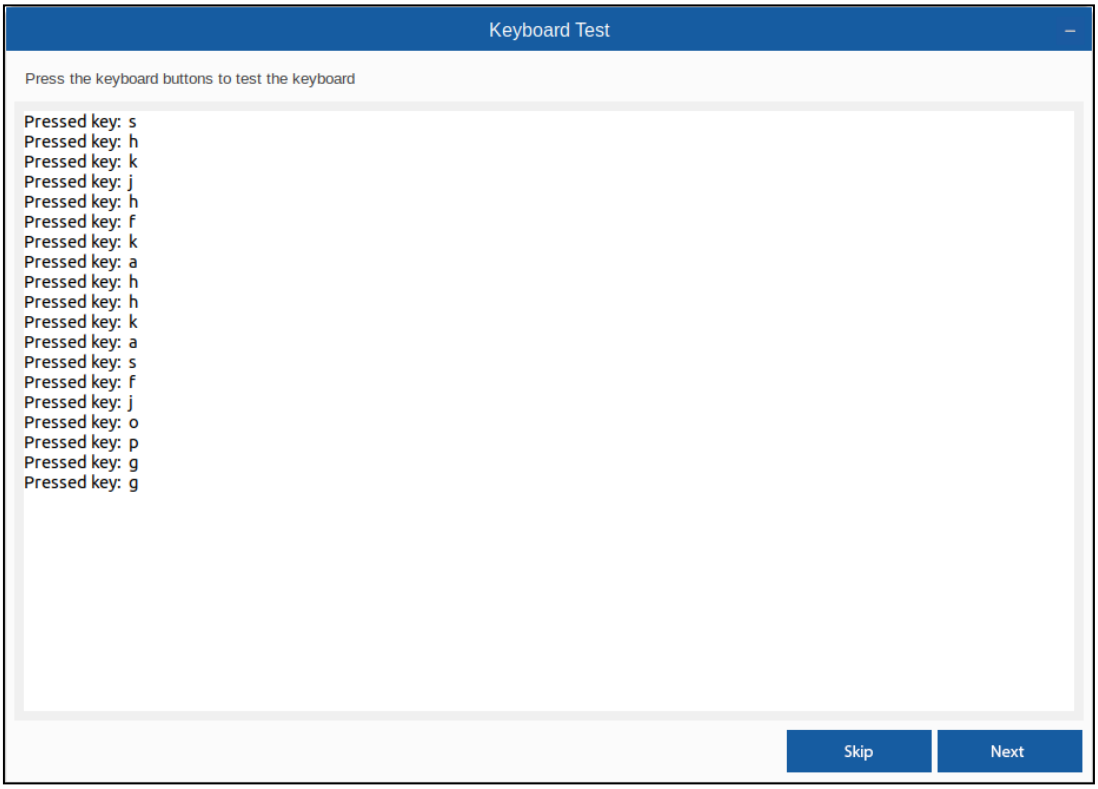
Note: *If you wish to start manual tests before auto-tests complete, click on* ☒ *within each component grid. The manual tests will start automatically.*

Manual Tests:

- **Keyboard**
    1. **Keyboard Test** screen appears. Press the keyboard keys to test the functionality of the keyboard.

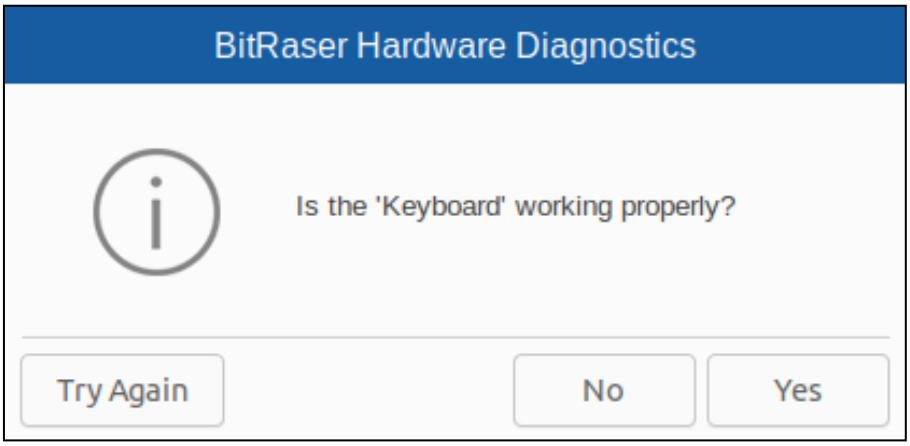


2. Click **Next** to proceed to the next manual test.



Note: *Click* ***Skip*** *if you wish to skip the* ***Keyboard test****.*

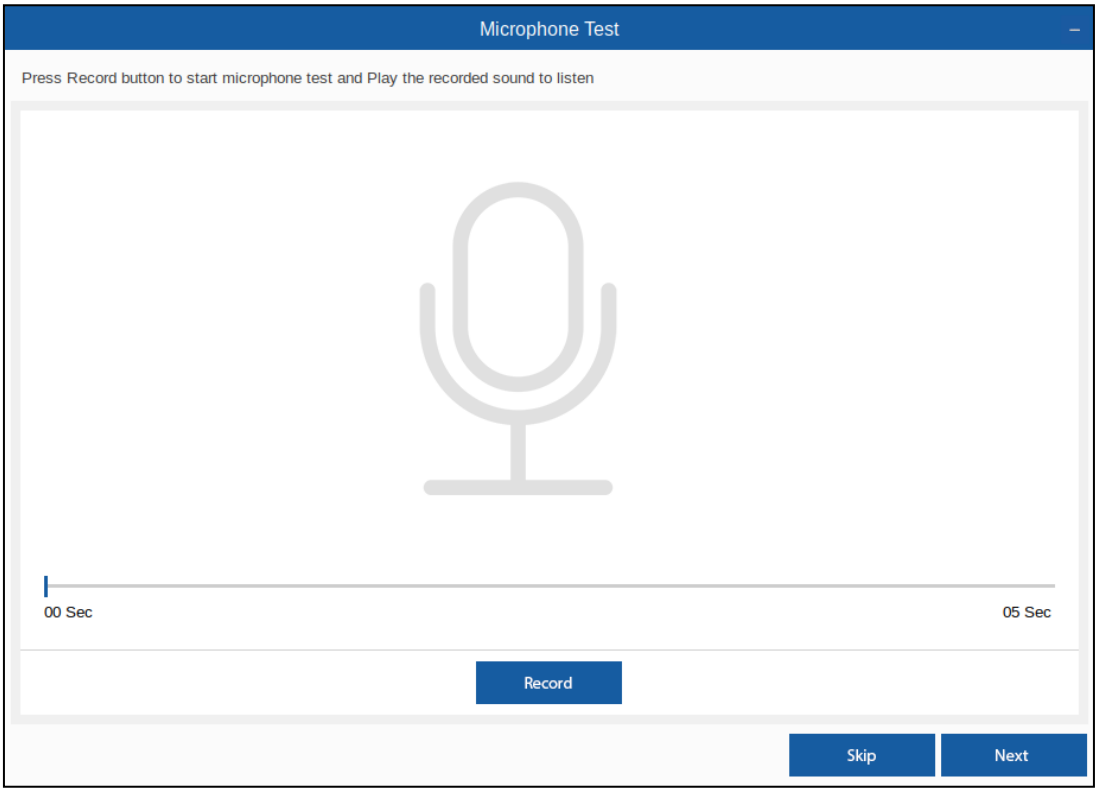
3. **BitRaser Hardware Diagnostics** dialog box appears on the screen with a message "**Is the keyboard working properly?**". Click **Yes** if the component is functioning properly or **No** if it does not.



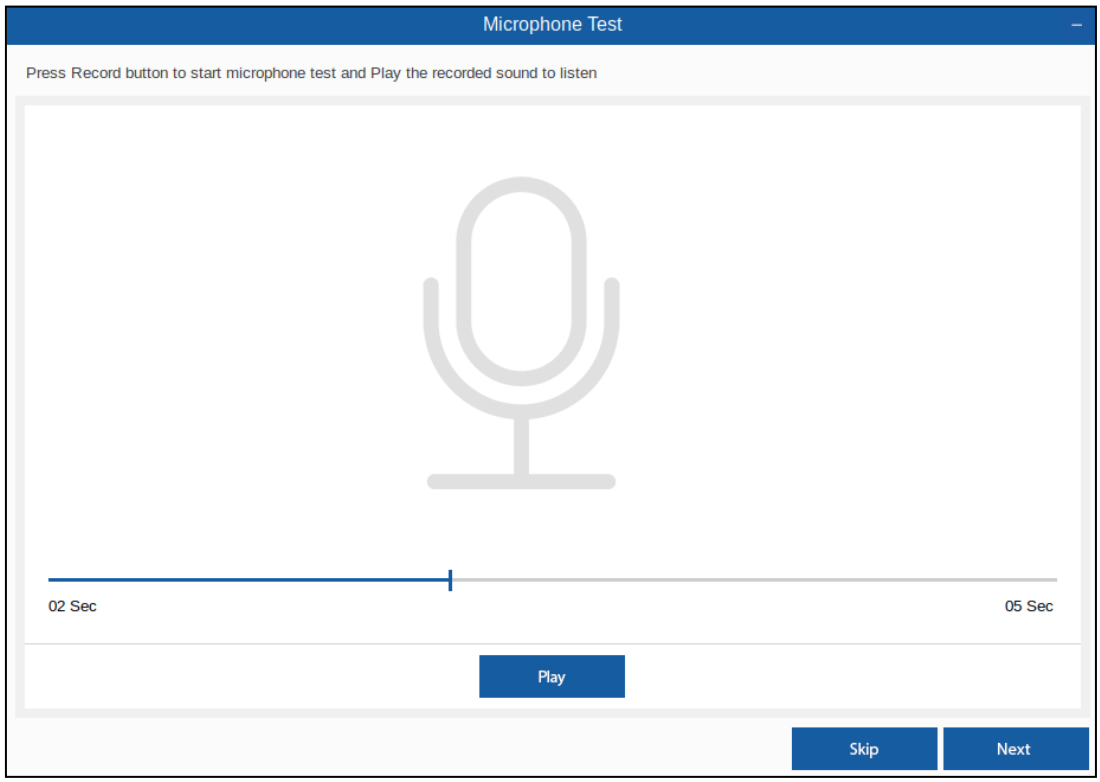
Note: *Click* ***Try Again*** *to re conduct the test.*

- **Microphone**

1. **Microphone Test** screen appears. Press **Record** button to start microphone test.



2. Click on **Play** button to listen the recorded sound.



3. Click **Next** to proceed to the next manual test.

   Note: *Click* ***Skip*** *if you wish to skip the* ***Microphone test****.*

4. **BitRaser Hardware Diagnostics** dialog box appears on the screen with a message "**Is the Microphone working properly?**". Click **Yes** if the component is functioning properly or **No** if it does not.

Note: *Click* ***Try Again*** *to re conduct the test.*

- **Audio Test**

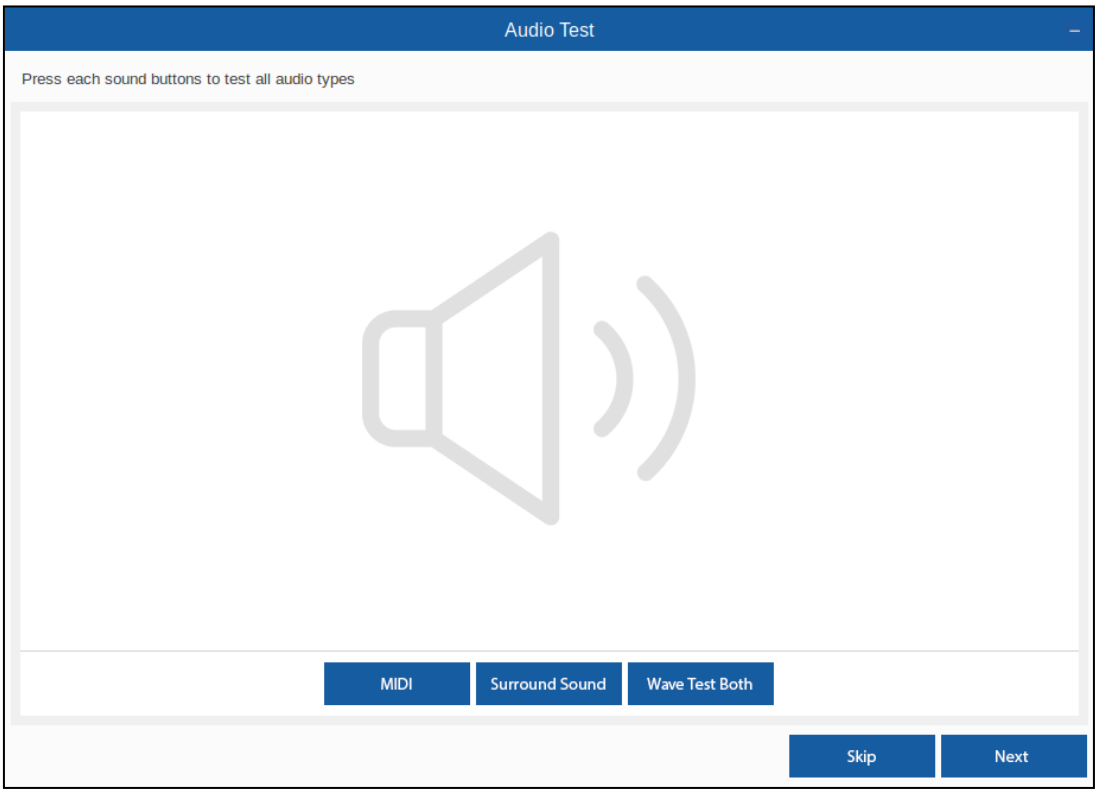
1. **Audio Test** screen appears. Press each sound button to test all audio types.

   The audio types that you can test are explained below:

   1. MIDI - It is used to test the functionality of MIDI devices.

   2. Surround Sound - It is used to test the configuration and operation of surround sound audio systems.

   3. Wave Test Both - It is used to test whether voice is picked up correctly by audio input devices.

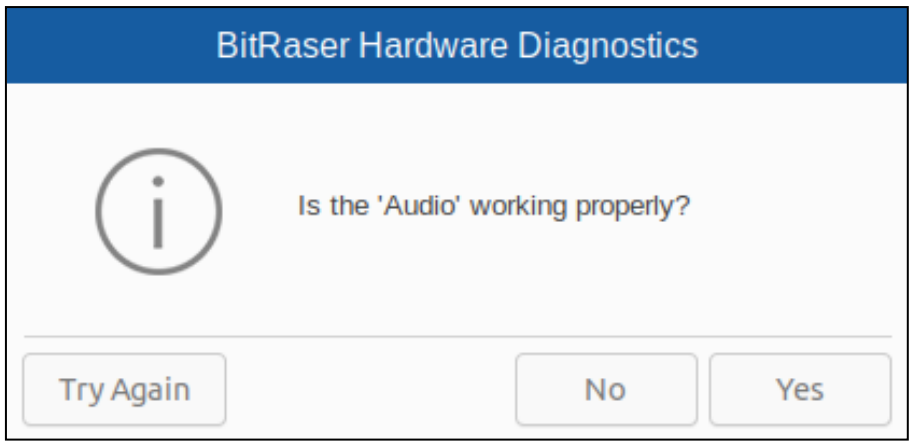


2. Click **Next** to proceed to the next manual test.

   Note: *Click* ***Skip*** *if you wish to skip the* ***Audio Test****.*

3. **BitRaser Hardware Diagnostics** dialog box appears on the screen with a message "**Is the Audio working properly?**". Click **Yes** if the component is functioning properly or **No**

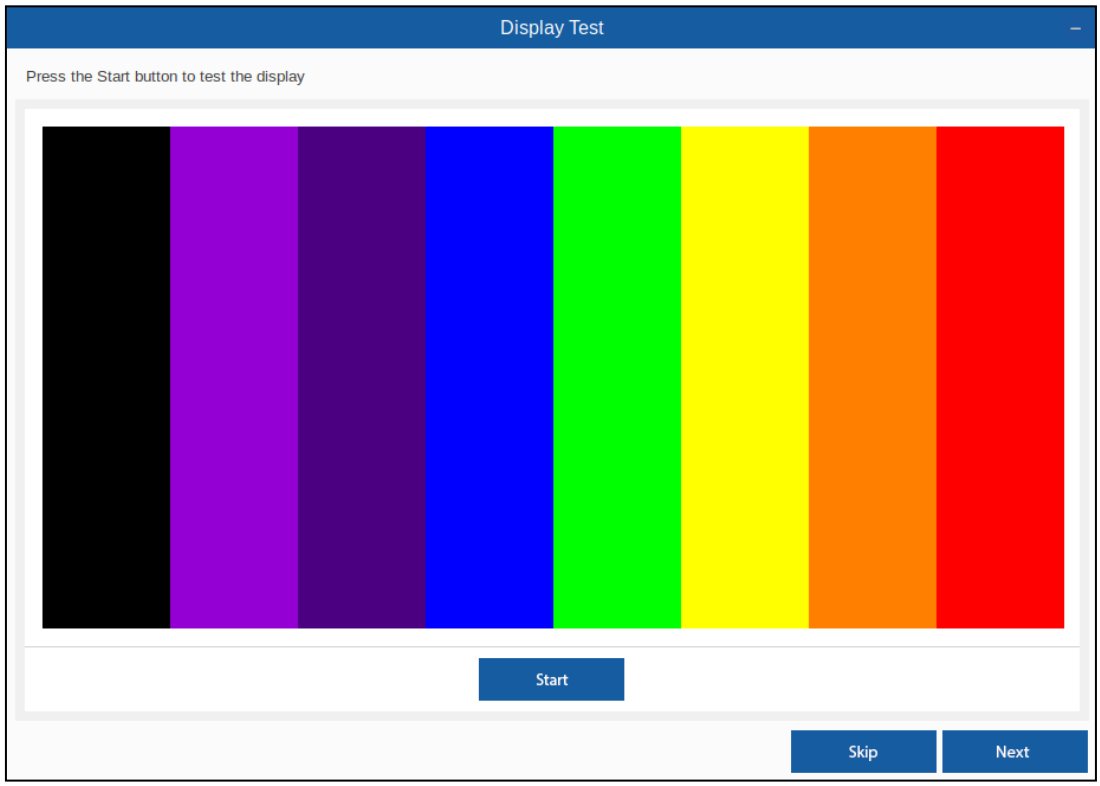
if it does not.



Note: *Click* ***Try Again*** *to re-conduct the test.*

- **Display Test**

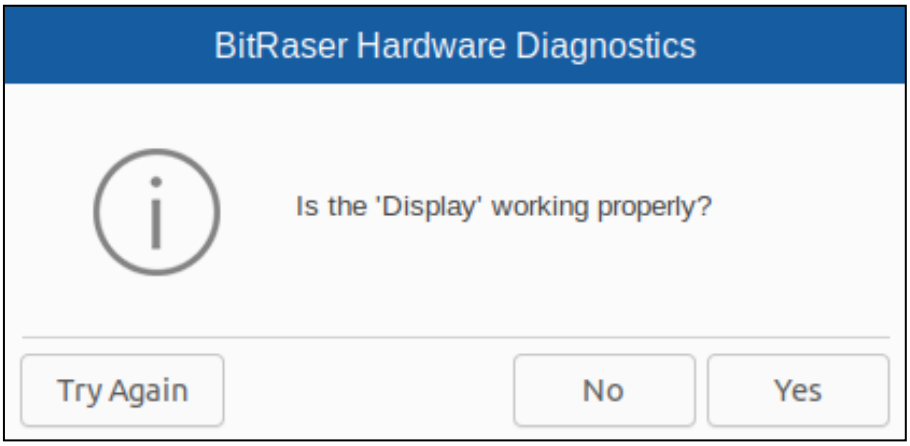
1. **Display Test** screen appears. Press the **Start** button to start the display diagnosis.



2. Click **Next** to proceed to the next manual test.

Note: *Click* ***Skip*** *if you wish to skip the* ***Display Test****.*

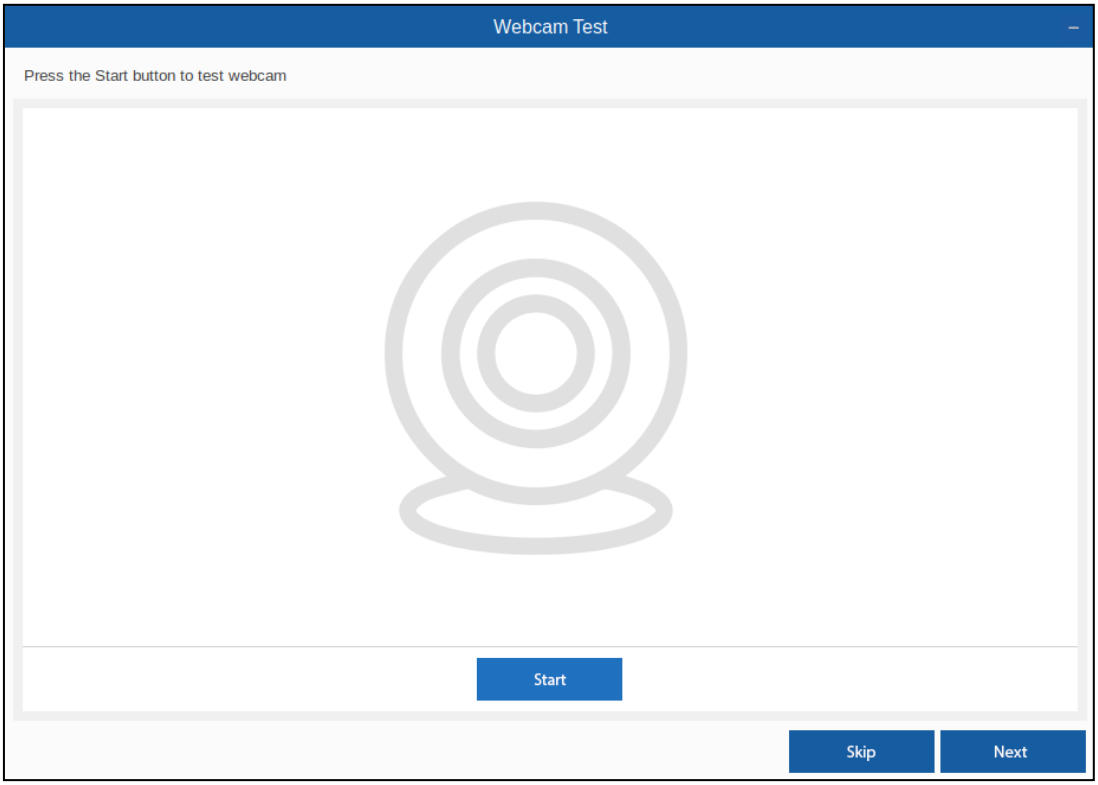
3. **BitRaser Hardware Diagnostics** dialog box appears on the screen with a message "**Is the Display working properly?**".Click **Yes** if the component is functioning properly or **No** if it does not.



Note: *Click* ***Try Again*** *to re conduct the test.*

- **Webcam Test**

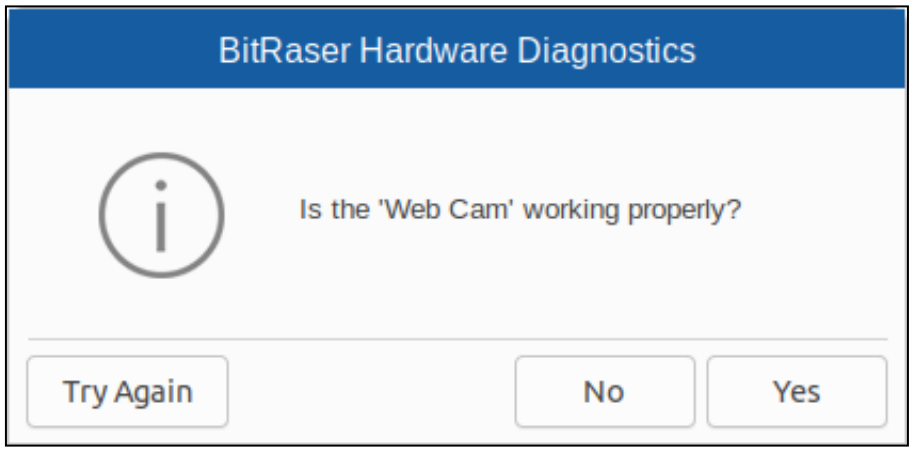
1. **Webcam Test** appears. Press the **Start** button to test webcam.



2. Click **Next** to proceed to the next manual test.

   Note: *Click* ***Skip*** *if you wish to skip the* ***Webcam Test****.*

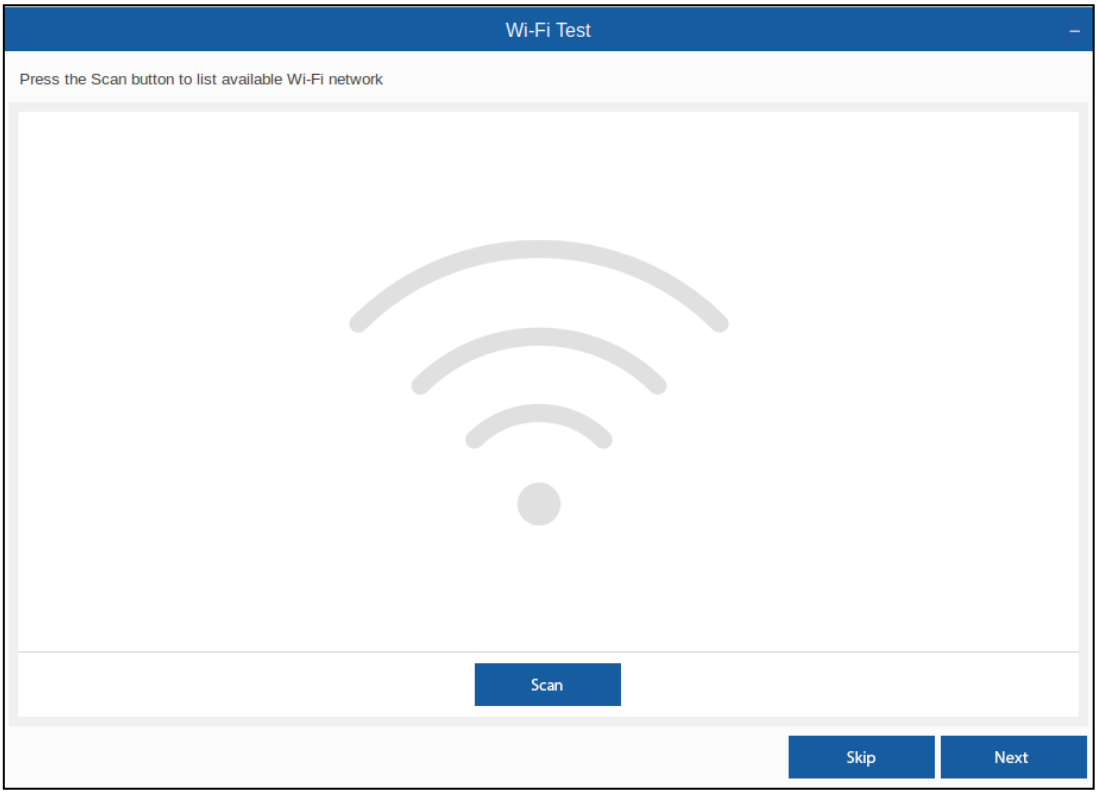
3. **BitRaser Hardware Diagnostics** dialog box appears on the screen with a message "**Is the Web Cam working properly?**" .Click **Yes** if the component is functioning properly or **No** if it does not.



Note: *Click* ***Try Again*** *to re conduct the test.*

- **Wi-Fi Test**

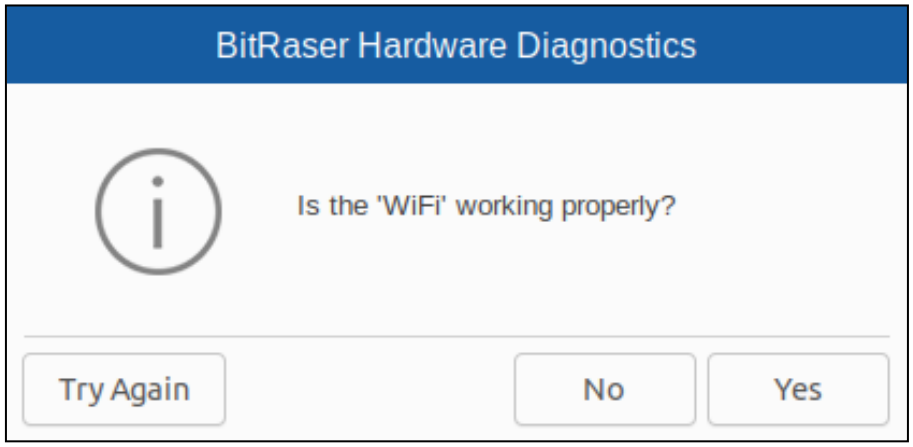
  1. **Wi-Fi Test** screen appears. Press the **Scan** button to test the Wi-Fi network.



2. Click **Next** to proceed to the next manual test.

   Note: *Click* ***Skip*** *if you wish to skip the* ***Wi-Fi Test****.*

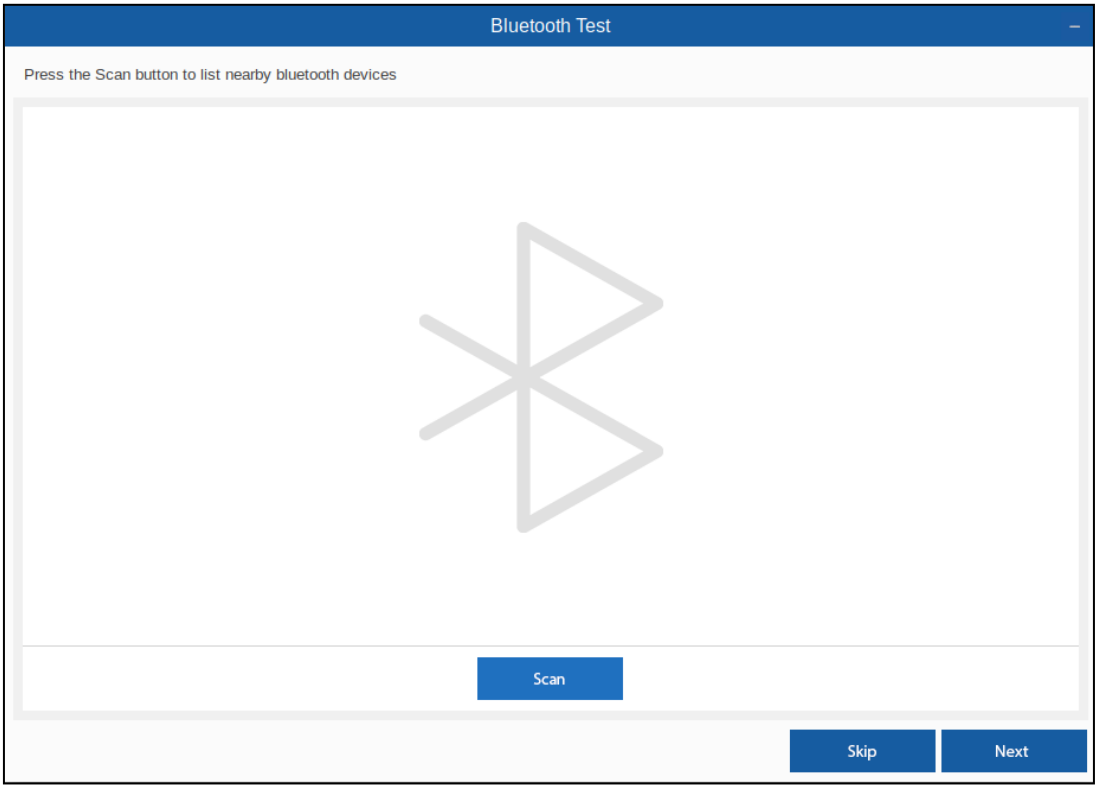
3. **BitRaser Hardware Diagnostics** dialog box appears on the screen with a message "**Is the WiFi working properly?**". Click **Yes** if the component is functioning properly or **No** if it does not.



Note: *Click* ***Try Again*** *to re conduct the test.*

- **Bluetooth Test**

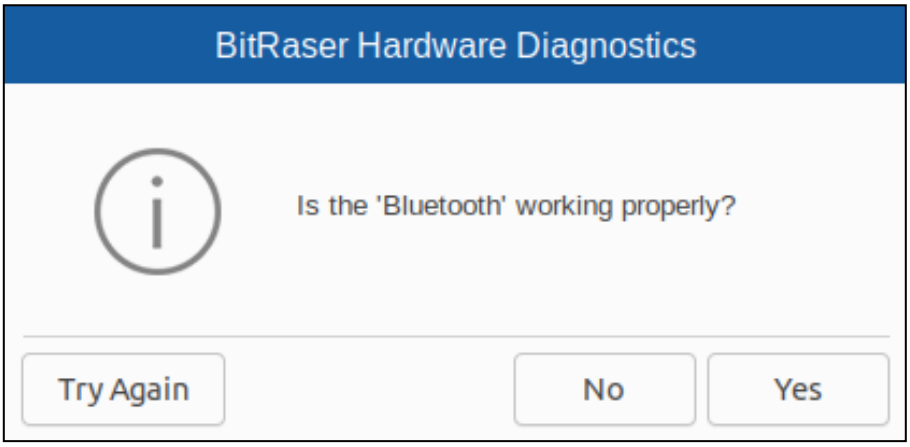
1. **Bluetooth Test** screen appears. Press the **Scan** button to list nearby bluetooth devices.



2. Click **Next** to proceed to the next manual test.

   Note: *Click* ***Skip*** *if you wish to skip the* ***Bluetooth Test****.*

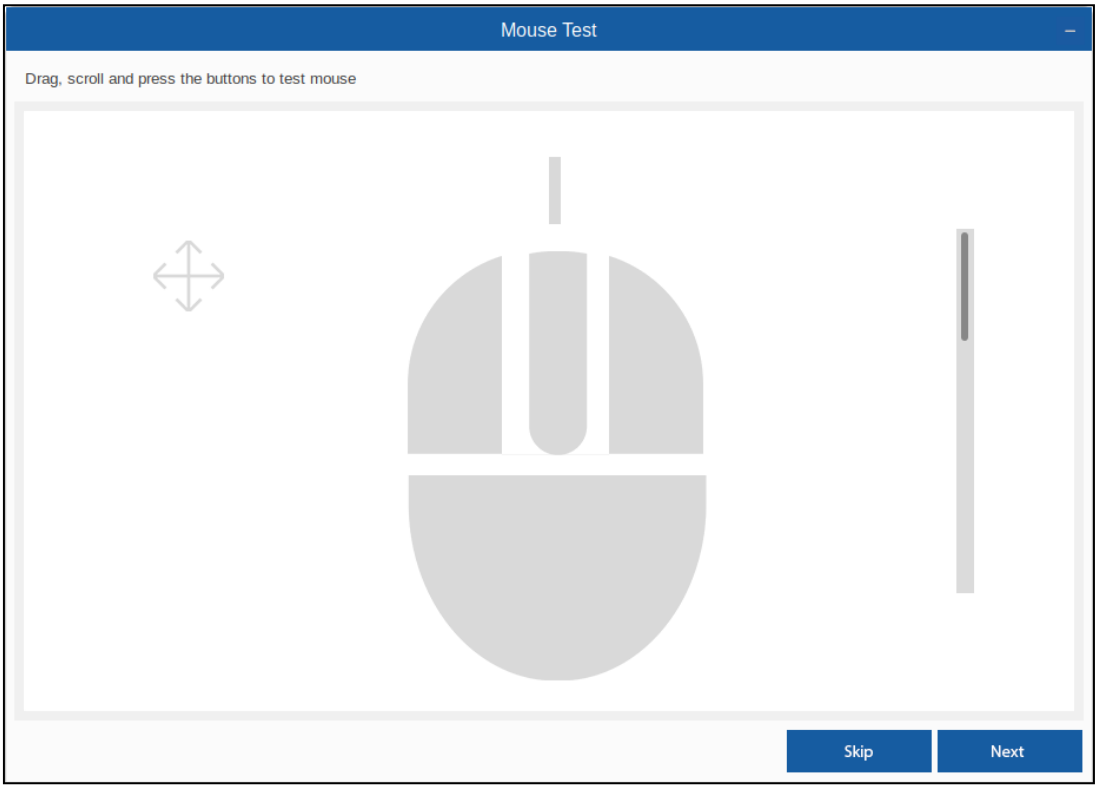
3. **BitRaser Hardware Diagnostics** dialog box appears on the screen with a message "**Is the Bluetooth working properly?**".Click **Yes** if the component is functioning properly or **No** if it does not.



Note: *Click* ***Try Again*** *to re conduct the* ***Bluetooth test****.*

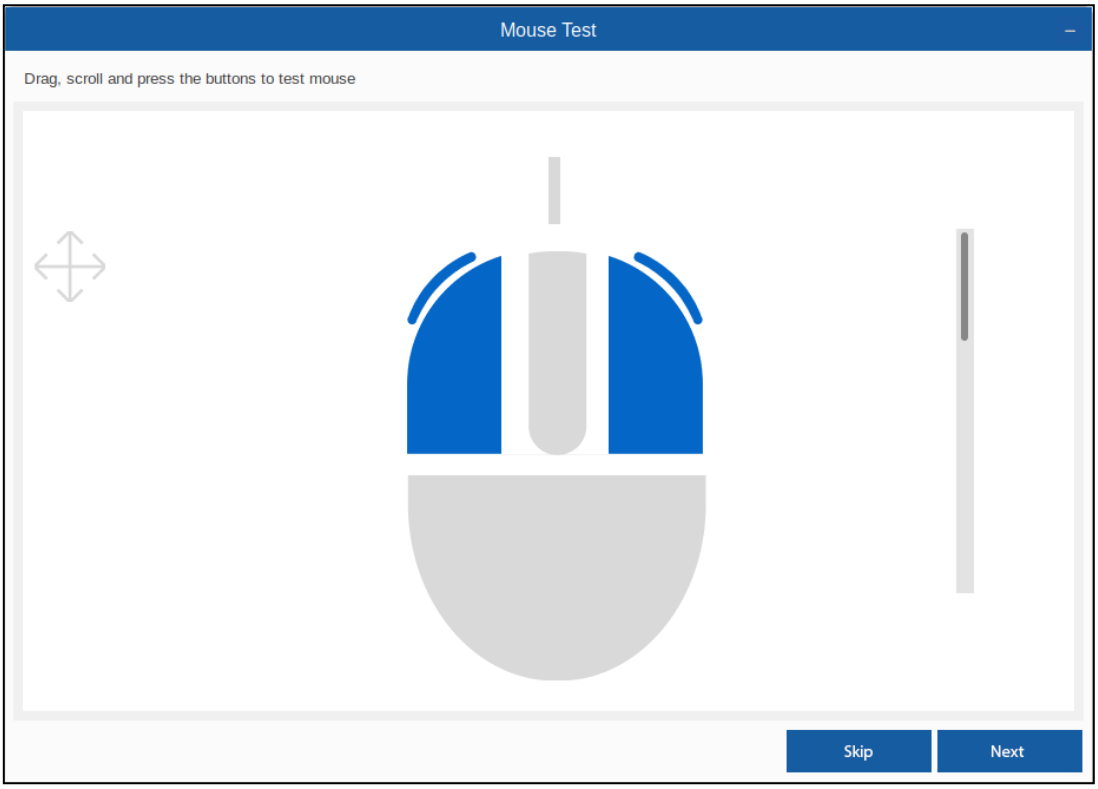
- **Mouse Test**

1. **Mouse Test** screen appears. Drag, scroll and press the buttons to test the mouse.

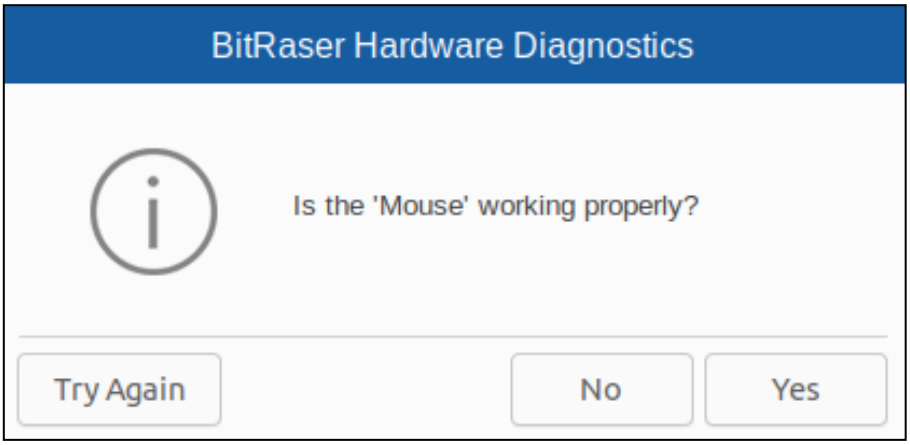


2. During testing, the mouse appears as shown below. Click **Next**.

   Note: *Click* ***Skip*** *if you wish to skip the* ***Mouse*** **Test***.*



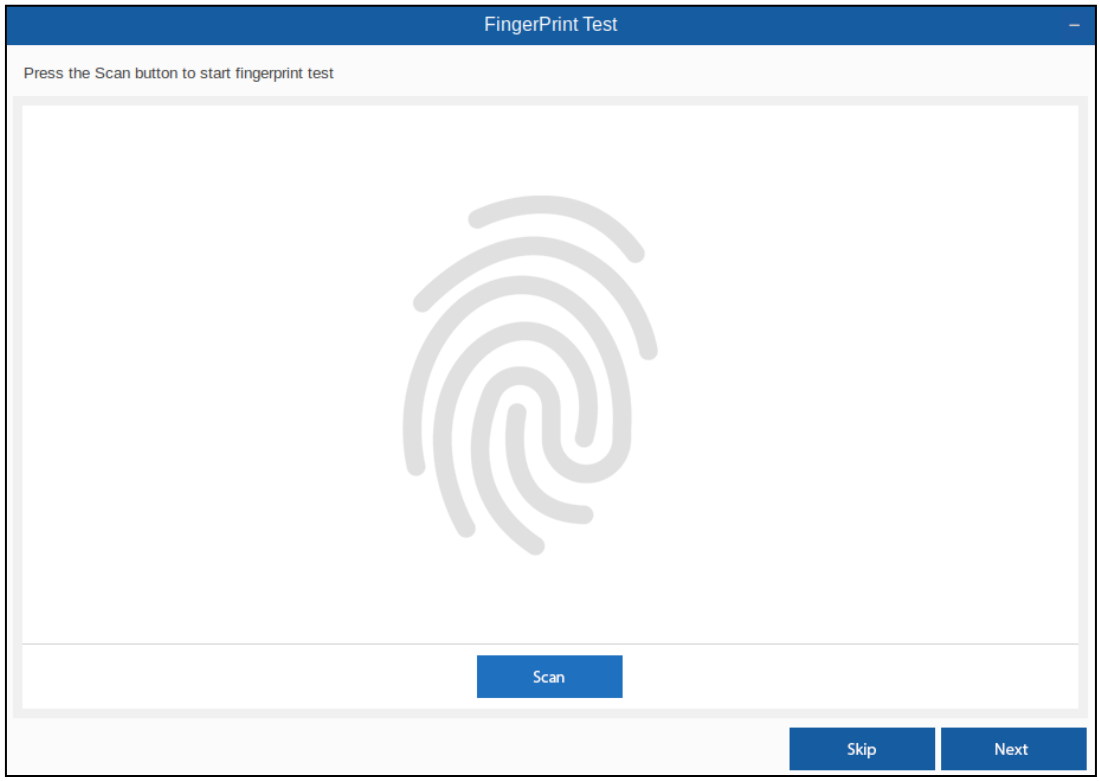
3. **BitRaser Hardware Diagnostics** dialog box appears on the screen with a message "**Is the Mouse working properly?**". Click **Yes** if the component is functioning properly or **No** if it does not.



Note: *Click* ***Try Again*** *to re conduct the* ***Mouse*** **test**.

- **FingerPrint Test**

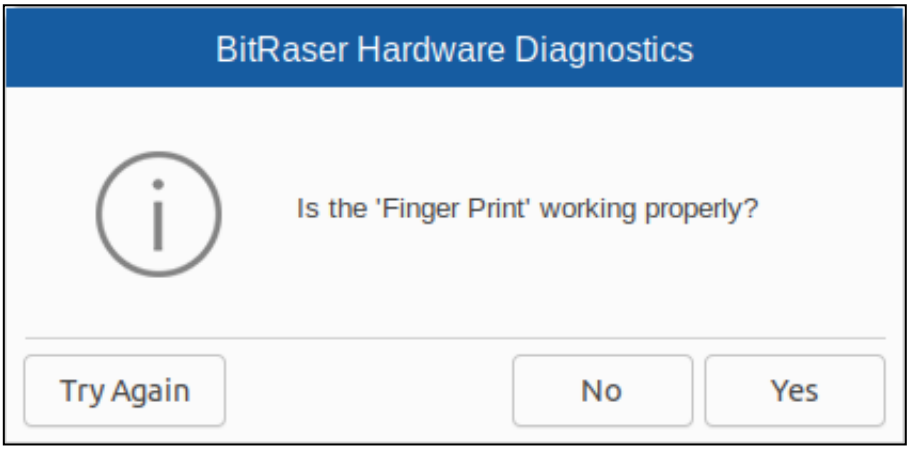
1. **FingerPrint Test** screen appears. Press the **Scan** button to start fingerprint test.



2. Click **Next** to proceed to the next manual test.

   Note: *Click* ***Skip*** *if you wish to skip the* ***Fingerprint Test****.*

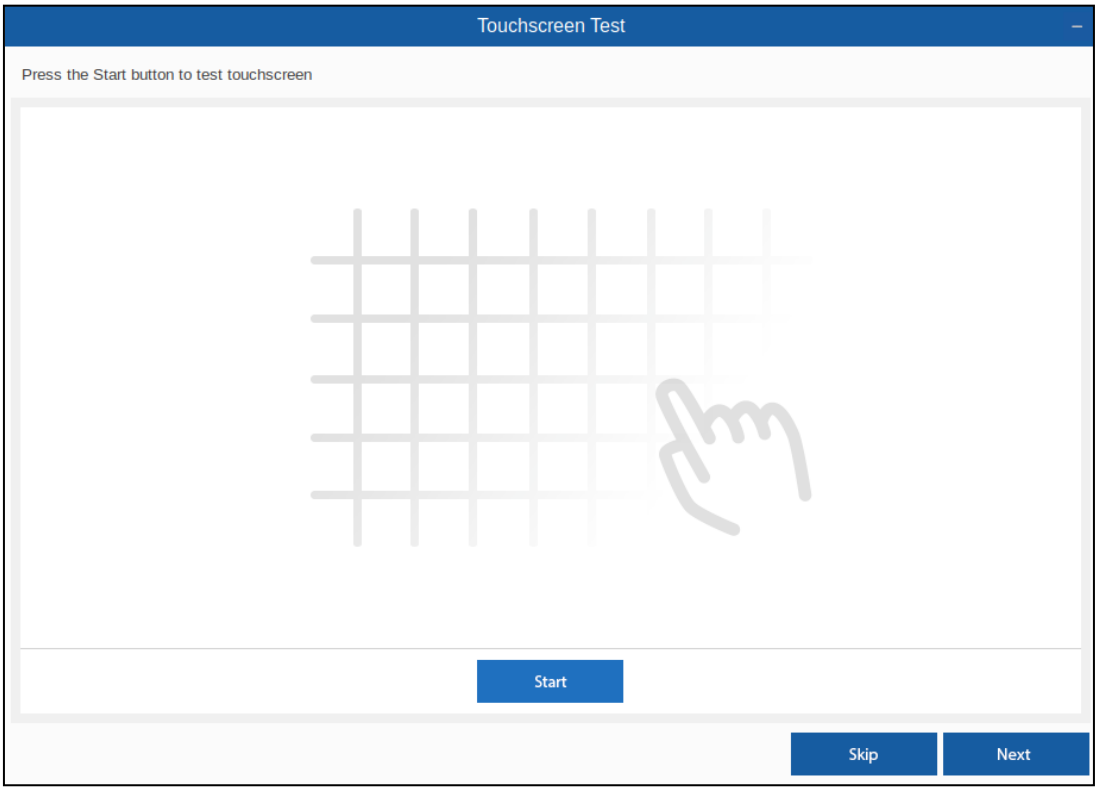
3. **BitRaser Hardware Diagnostics** dialog box appears on the screen with a message "**Is the Fingerprint working properly?**". Click **Yes** if the component is functioning properly or **No** if it does not.



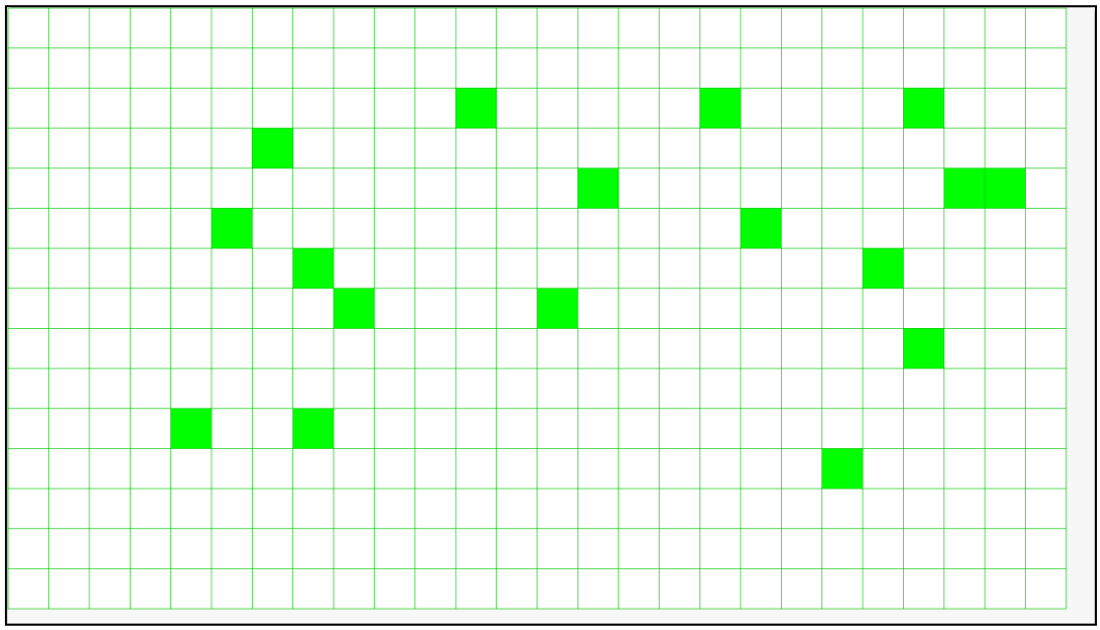
Note: *Click* ***Try Again*** *to re conduct the* ***Finger Print test****.*

- **Touchscreen Test**

1. **Touchscreen Test** screen appears. Press the **Start** button to test touchscreen.

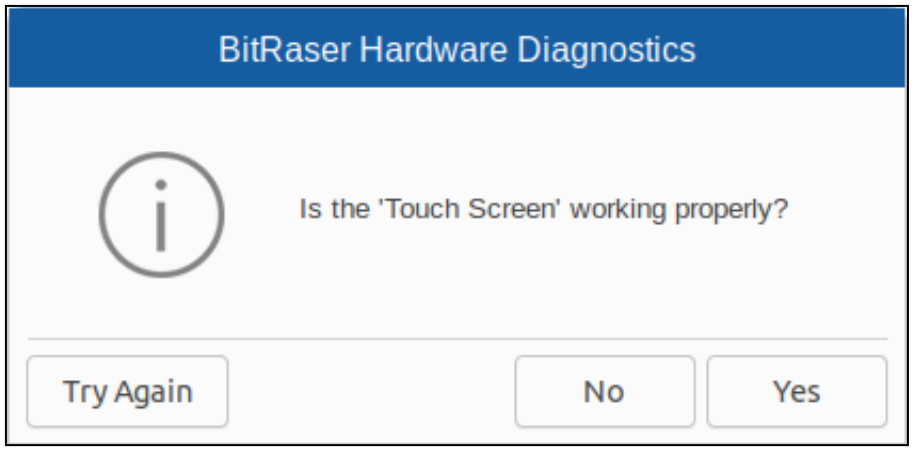


2. When you touch on the screen green boxes indicate that the touch is functioning as shown below. Click **Next**.



Note: *Click* ***Skip*** *if you wish to skip the* ***TouchScreen Test****.*

3. **BitRaser Hardware Diagnostics** dialog box appears on the screen with a message "**Is the Touch Screen working properly?**". Click **Yes** if the component is functioning properly or **No** if it does not.



Note: *Click* ***Try Again*** *to re conduct the* ***Touchscreen Test****.*

- **Accessories and Grading**

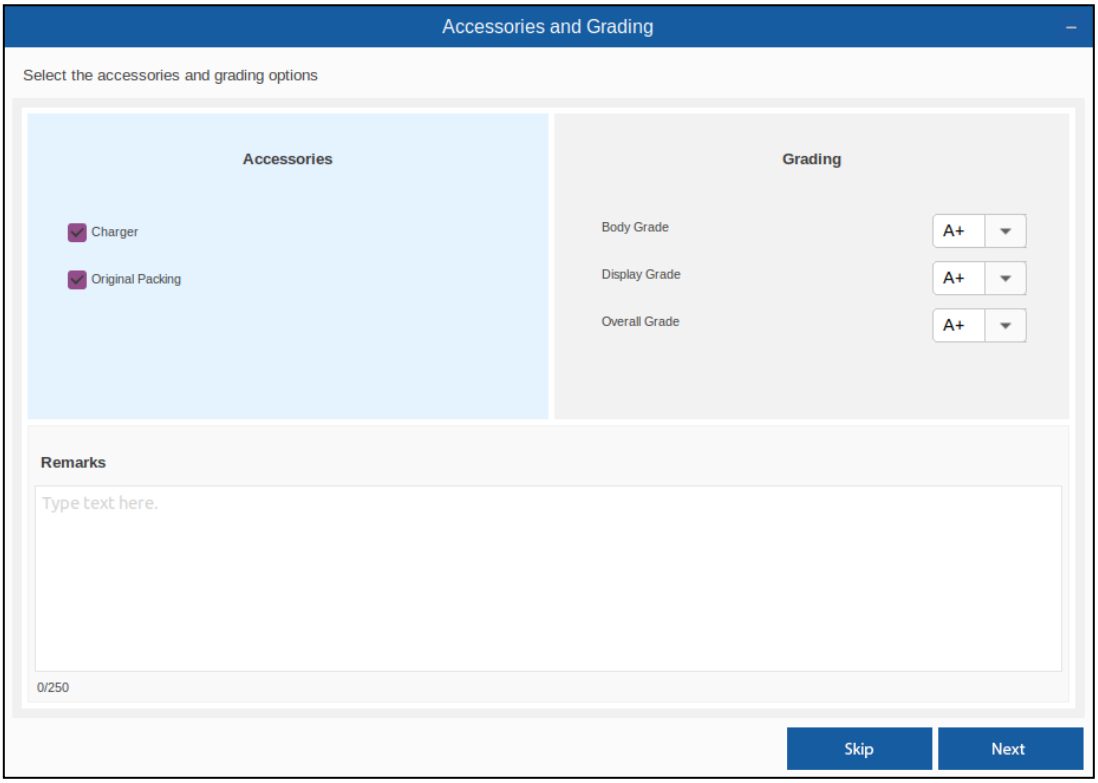
1. **Accessories and Grading** screen appears. It is divided into two primary sections where each section serve specific purpose and is organized as follows:

Accessories:

1. **Charger** - Select the check box if you are provided with a charger.
2. **Original Packing** - Select the check box if your accessories are originally packed.

Grading:

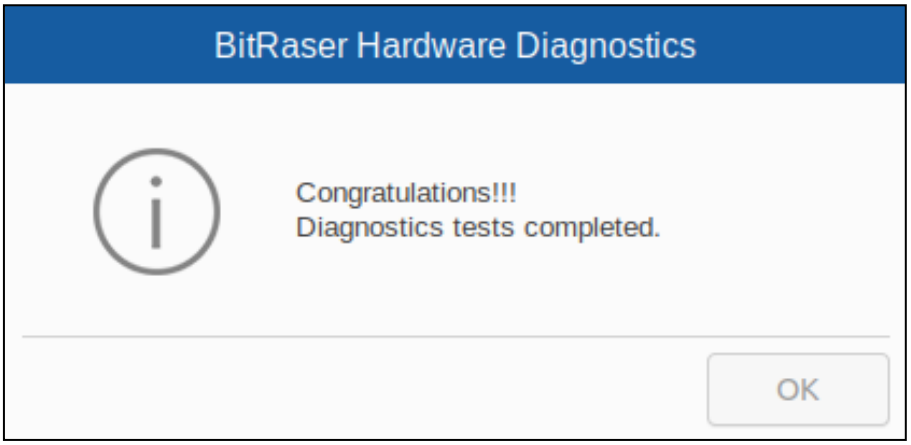
1. **Body Grade** - Select the drop-down to give grading to the body of the component from the available options i.e. (A+, A, B+, B, C+, C).
2. **Display Grade** - Grade the display of the component from the available options i.e. (A+, A, B+, B, C+, C)
3. **Overall Grade** - Grade the overall condition of the component from the available options i.e. (A+, A, B+, B, C+, C).



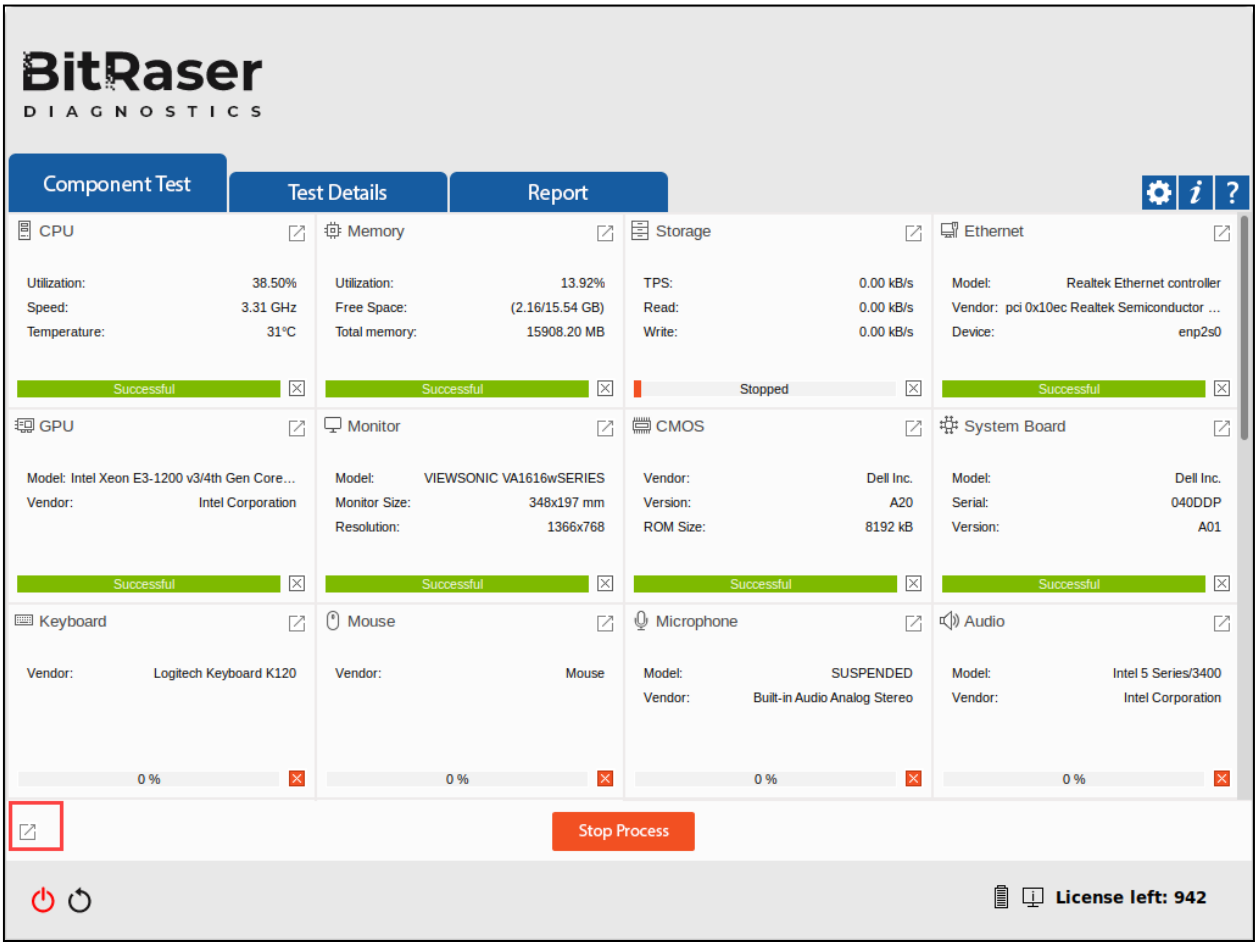
2. Click **Next** to proceed to the next manual test.

   Note: *Click* ***Skip*** *if you wish to skip the* ***Accessories and Grading*** *Test.*

3. **BitRaser Hardware Diagnostics** dialog box appears on the screen with a message "**Congratulations!!! Diagnostic tests completed**". Click **OK**.



Note: *You have the option to minimize the test screen using the and reopen it using the on the bottom left of the main screen. It is shown in the image given below in the red box.*



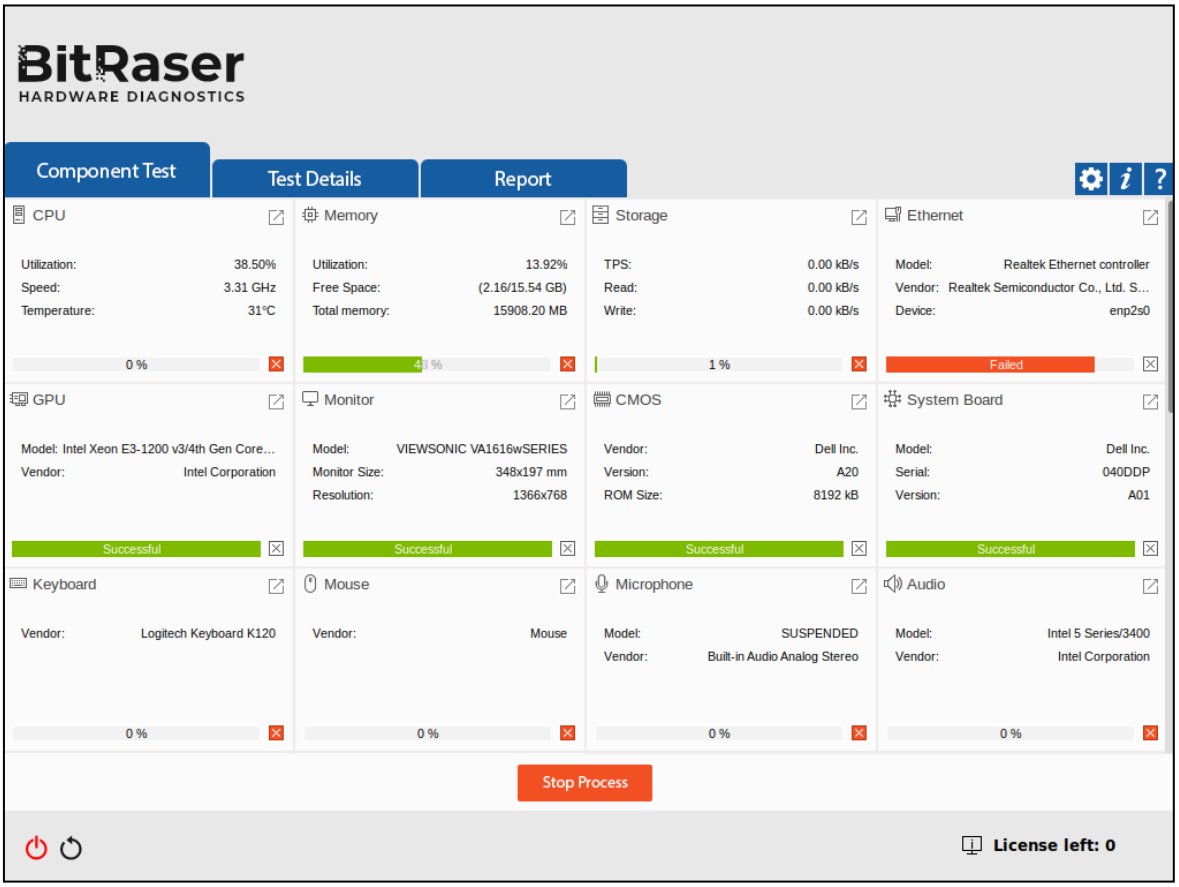
4.1.2. Auto Test

This section provides information on the detailed diagnosis of the automated tests running on the components. The **detailed diagnosis** shows all the tests carried out for each component.

Note: *Refer to Diagnostic Process to know the diagnostic process of the components.*

Steps to view automated tests:

1. Run **BitRaser Hardware Diagnostics**.
2. The main screen appears as shown below. Click  within any component grid.



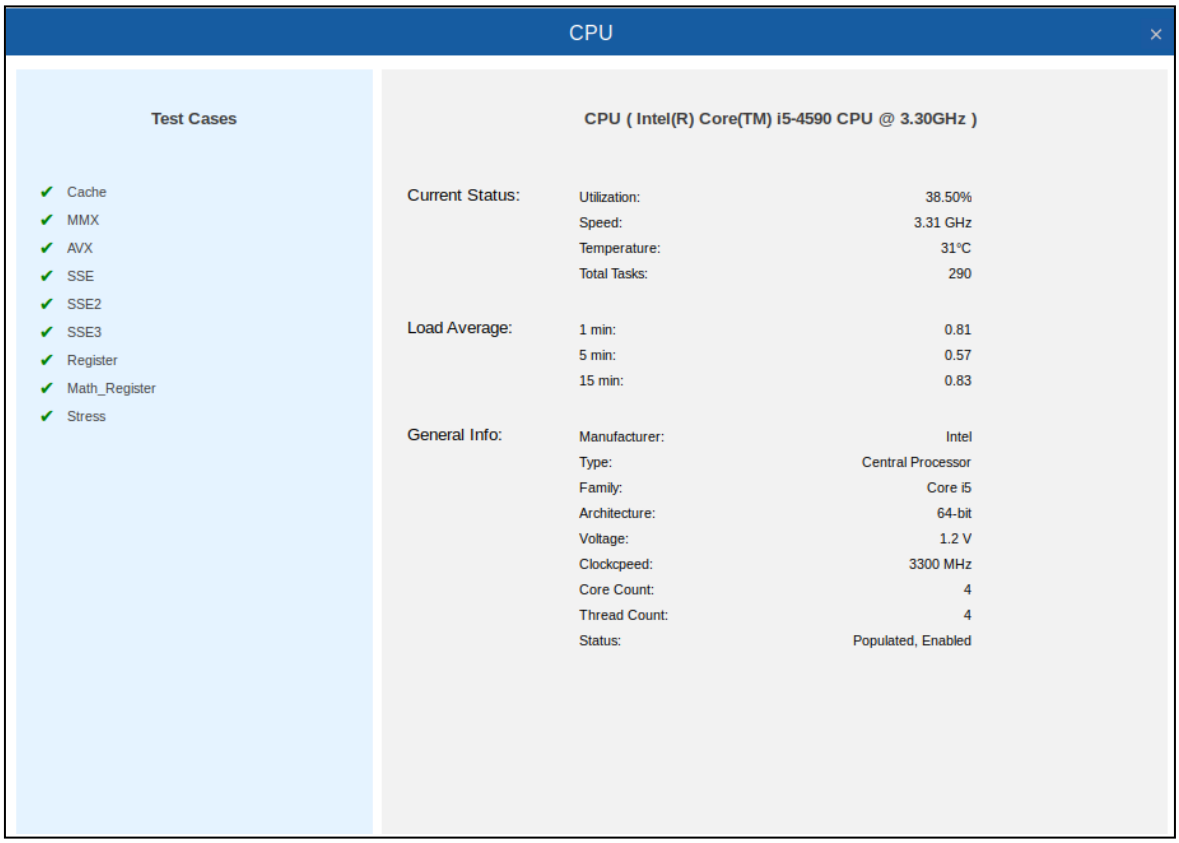
3. A detailed diagnostic screen appears for each component. The screen is divided into two parts where one part is dedicated to the tests that are conducted on the components and the other part gives detailed description of the component.

   Note: *These tests are pre-defined and are not user-defined.*

   Note: *Here,* ***section-1*** *contains all the* ***tests*** *that run on the component and* ***section-2*** *contains all the* ***general information*** *about the component.*

The detailed diagnosis of each component is given below:

1. **CPU :**



Section 1-

1. **Cache:** Small, high-speed memory, known as cache memory, is located close to the processor cores. It stores frequently used data and instructions, significantly reducing the time required to retrieve this information from the main memory (RAM). By doing so, cache memory enhances overall system performance and efficiency by minimizing latency and improving the speed at which the processor can execute tasks.

2. **MMX:** MMX stands for **Multi Media Extensions**, is a set of instructions added to Intel's microprocessor architecture to enhance the performance of multimedia and communication applications.

3. **AVX:** AVX stands for **Advanced Vector Extensions**, is an instruction set extension for x86 architecture CPUs. AVX enhances the capabilities of **SIMD** (Single Instruction, Multiple Data) by extending the size of registers and the complexity of instructions, which significantly boosts the performance of floating-point and integer operations in various applications, including scientific simulations, 3D modeling, and multimedia processing.

4. **SSE: SSE** stands for **Streaming SIMD Extensions**, is a **SIMD** (Single Instruction, Multiple Data) instruction set extension for x86 architecture CPUs. **SSE** was designed to enhance the performance of multimedia, gaming, and scientific applications by allowing the processor to execute operations on multiple data points at once. **SSE** extends the capabilities of the earlier MMX instruction set by adding new instructions and 128-bit XMM registers.

5. **SSE 2: SSE2** stands for **Streaming SIMD Extensions 2** is an extension of the original **SSE** (Streaming SIMD Extensions) instruction set. **SSE2** expands the capabilities of **SSE** by adding support for additional data types and operations, which significantly enhances the performance of applications involving multimedia, scientific computations, and other data-intensive tasks.

6. **SSE 3: SSE3** stands for **Streaming SIMD Extensions 3**, also known as **Prescott New Instructions** (PNI), is an extension of the **SSE2** instruction set. **SSE3** adds a set of new instructions designed to improve the performance of applications that benefit from **SIMD** (Single Instruction, Multiple Data) operations, particularly in multimedia, gaming, and scientific computing.

7. **Registers:** Small, high-speed storage locations in the CPU used to hold data and instructions temporarily during processing. They are integral to the CPU's operation, enabling it to execute instructions efficiently by providing quick access to frequently used data and control information.

8. **Math-Registers:** General-purpose registers available in the CPU, and they are used to hold operands and intermediate results during arithmetic and logical operations.

9. **Stress:** CPU performance test where the CPU is operated at maximum speed and utilization for a certain period. This test evaluates the overall reliability of the processor under high-stress conditions.

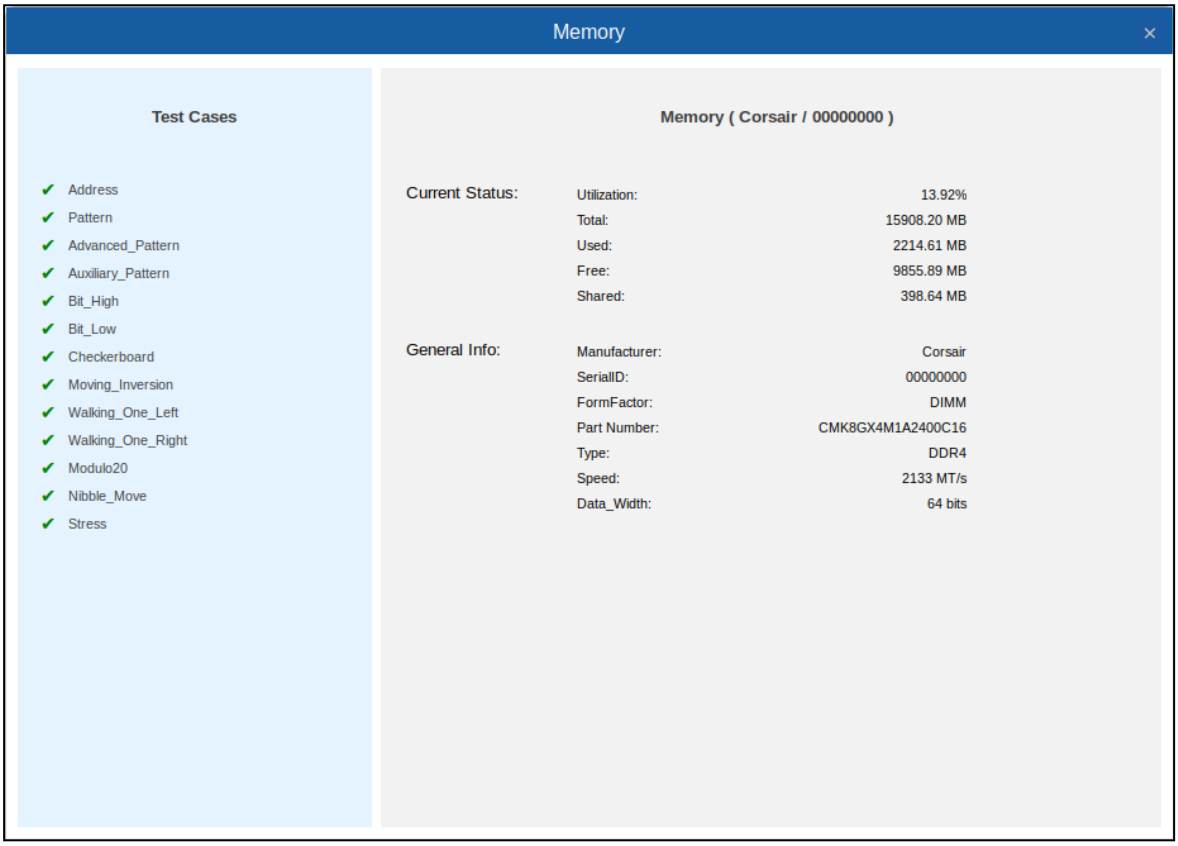
Section 2-

1. **Current Status:** It displays the utilization of the CPU, its speed, temperature and total tasks performed.

2. **Load Average:** It displays the workload on a system for a certain amount of time.

3. **General Info:** It displays the general information about the CPU such as manufacturer, type, family, etc

2. Memory



Section1-

1. **Address:** This method is used to verify the integrity and reliability of memory modules by systematically testing memory addresses for read and write operations.

2. **Pattern: Pattern** test in memory, also known as a **pattern sensitivity test**, is a method used to evaluate the reliability and integrity of memory modules by systematically writing specific patterns of data to memory locations and then reading back the data to check for errors. The goal of pattern testing is to detect potential faults or defects in memory hardware, such as defective memory cells, data corruption, or issues with memory addressing.

3. **Advanced_Pattern: Advanced pattern** test in memory is used to evaluate the reliability and integrity of memory modules. This type of test typically involves writing complex patterns of data to memory locations and then reading back the data to check for errors. The goal is to detect a wider range of potential faults or defects in memory

hardware, including subtle issues that may not be detected by simpler pattern tests.

4. **Auxiliary-Pattern: Auxiliary pattern** test involves additional or specialized patterns and testing techniques that complement primary pattern tests and provide additional coverage or sensitivity to certain types of faults. These tests are often used to target specific fault mechanisms or to enhance the effectiveness of primary pattern tests.

5. **Bit_High:** Checks for stuck-at faults in memory cells where the fault causes a bit to always read as **"high"** or **"1"**, regardless of the data written to the cell or the address accessed.

6. **Bit_Low:** Detects stuck-at faults in memory cells where the fault causes a bit to always read as **"low"** or **"0"**, regardless of the data written to the cell or the address accessed. It is essentially the opposite of a bit high test.

7. **Checkerboard: Checkerboard test** in memory involves writing specific patterns of alternating bits (typically ones and zeros) to memory locations in a checkerboard-like pattern. The goal of the checkerboard test is to detect various types of memory faults, including stuck-at faults, cross-talk between memory cells, and pattern-sensitive faults.

8. **Moving_Inversion:** Detects specific types of faults, such as coupling effects, adjacent cell interference, and pattern-sensitive faults, in memory modules. This test involves writing a repeating pattern of ones and zeros to adjacent memory locations and then shifting the pattern by one bit for each subsequent address. The memory is then read back, and the data is compared against the expected pattern to identify any deviations or errors.
9. **Walking_One_Left:** Specific type of memory testing technique used to detect specific types of faults, particularly those related to adjacent memory cells or address line coupling. In this test, a repeating pattern of binary ones (1s) is written to memory, with each bit shifting left by one position for each subsequent address. After writing the pattern, the memory is read back, and the data is compared against the expected pattern to identify any deviations or errors.

10. **Modulo20:** Memory testing technique that involves writing specific patterns of data to memory locations in a cyclic manner, with the pattern repeating every 20 memory addresses. This test is designed to detect various types of faults in memory modules, including stuck-at faults, coupling effects, and pattern-sensitive faults.

11. **Nibble_Move: Nibble Move** test is a memory testing technique that involves moving a nibble (a group of 4 bits or half a byte) of data through memory in a systematic manner to detect certain types of faults.

12. **Stress:** CPU performance test where the CPU is operated at maximum speed and utilization for a certain period. This test evaluates the overall reliability of the processor under high-stress conditions.

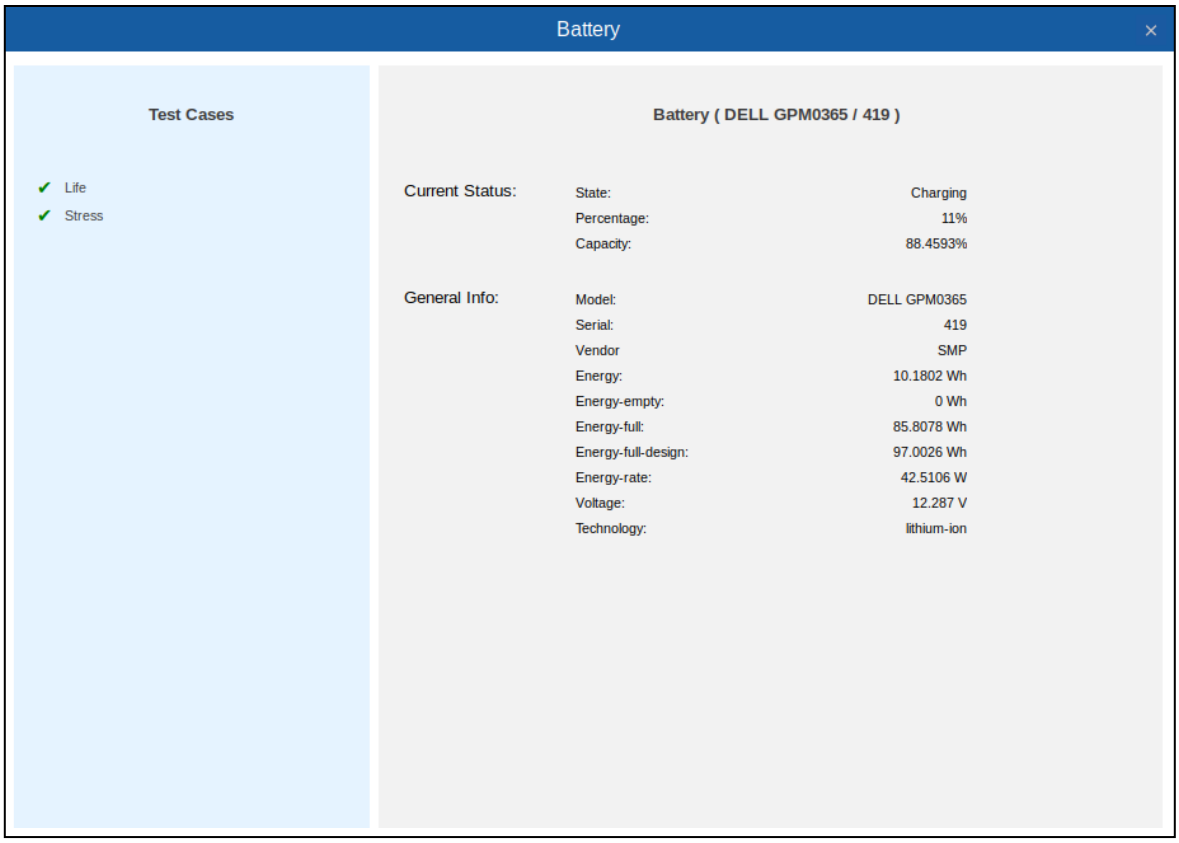
13. **Walking_One_Right:** Detects faults in memory cells, particularly those related to adjacent memory cells or address line coupling. In this test, a repeating pattern of binary ones (1s) is written to memory, with each bit shifting right by one position for each subsequent memory address. After writing the pattern, the memory is read back, and the data is compared against the expected pattern to identify any deviations or errors.

Section 2-

1. **Current Status:** It displays information about the utilization of the memory, free space, used space etc.

2. **General Info:** It shows general information of the memory such as its manufacturer, speed, serial id etc.

3. Battery:



Section 1-

1. Life: It determines the life or duration of the battery.

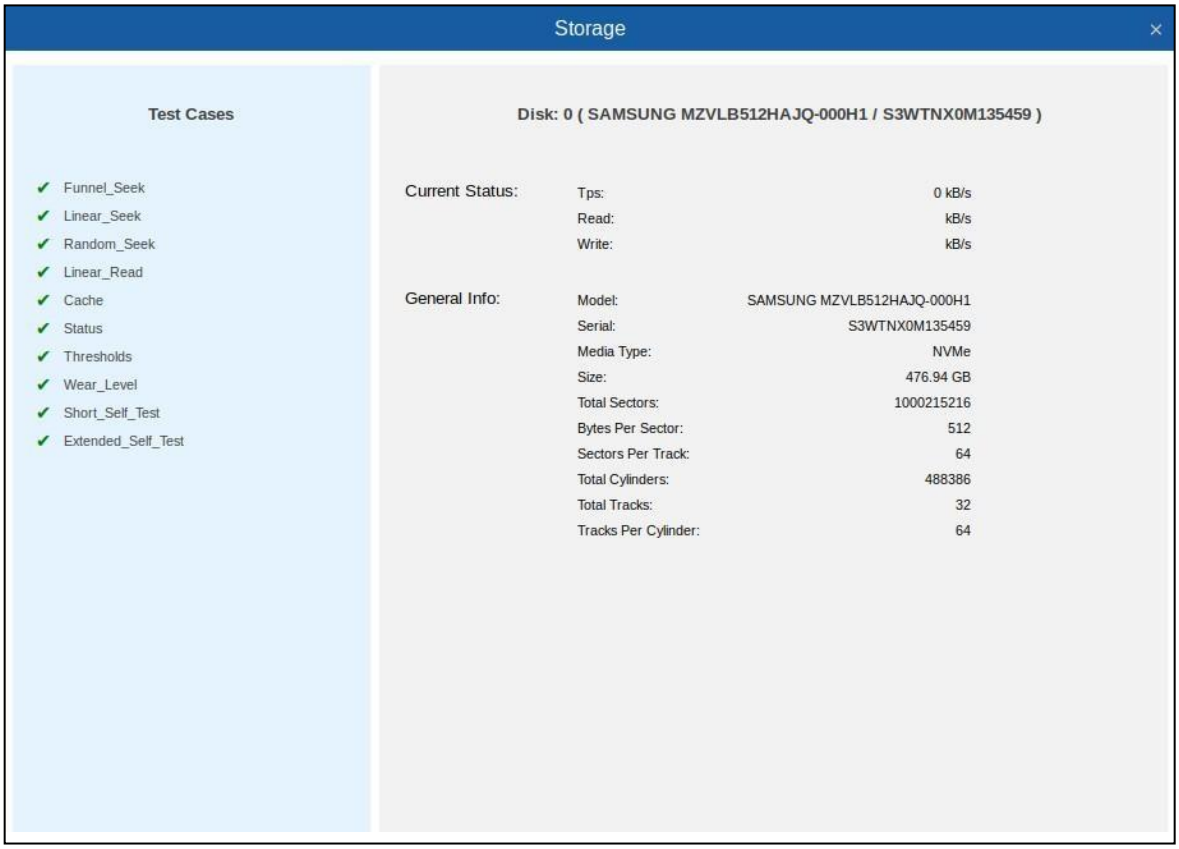
2. Stress: In this test a load is put on to the battery to check how well it handles it.

Section 2-

1. Current Status: It displays information about the battery's current status i.e. state, percentage of battery left,capacity.

2. General Info: It shows the general information such as the model no, vendor, energy, technology etc.

4. **Storage:**


Storage
Test Cases
Funnel_Seek
Linear_Seek
Random_Seek
Linear_Read
Cache
Status
Thresholds
Wear_Level
Short_Self_Test
Extended_Self_Test
Disk: 0 (SAMSUNG MZVLB512HAJQ-000H1 / S3WTNX0M135459)
Current Status:
Tps: 0 kB/s
Read: kB/s
Write: kB/s
General Info:
Model: SAMSUNG MZVLB512HAJQ-000H1
Serial: S3WTNX0M135459
Media Type: NVMe
Size: 476.94 GB
Total Sectors: 1000215216
Bytes Per Sector: 512
Sectors Per Track: 64
Total Cylinders: 488386
Total Tracks: 32
Tracks Per Cylinder: 64

Section 1-

1. **Funnel_Seek:** In this test, data is read or written across the storage device in a sequential manner bit by bit, starting from the outermost tracks and gradually moving towards the innermost tracks. This pattern resembles a funnel, hence the name.
2. **Linear_Seek:** This test is used to assess the performance and reliability of storage devices, particularly **hard disk drives** (HDDs) or **solid-state drives** (SSDs). This test involves seeking data across the storage device in a linear manner, typically from the outermost tracks to the innermost tracks or vice versa, to evaluate seek time, access latency, and overall read/write performance.
3. **Random_Seek:** In **Random Seek** test, data is accessed across the storage device in a non-sequential manner, meaning that the data access patterns are random rather than following a predetermined sequence. This simulates real-world usage scenarios where data access may occur randomly.
4. **Linear_Read: Linear Read** in storage refers to the sequential retrieval of data from a storage device, such as a **hard disk drive** (HDD) or **solid-state drive** (SSD), in which data is read sequentially in the order it is stored on the device.
5. **Target_Read:** It is a specific type of read operation performed on a storage device, where the reading process is focused on retrieving a particular subset or specific set of data from the storage medium. Unlike sequential or linear reads that retrieve data in a continuous manner, targeted reads are more selective and aim to access only the required data.
6. **Cache:** Small, high-speed storage area that temporarily holds frequently accessed or recently used data. This cache sits between the main storage medium (such as a hard disk drive or SSD) and the accessing system (like a computer or server), serving as a buffer to accelerate data access and improve overall system performance.
7. **Status:** It updates user about the functioning of the storage.
8. **Thresholds:** It focuses on performance metrics related to storage devices such as read/write speeds, latency, IOPS (input/output operations per second), throughput and response times.

9. **Wear-Level:** It is a durability test performed on flash-based storage devices, such as solid-state drives (SSDs), to assess their ability to evenly distribute write and erase cycles across the memory cells. This test is particularly important for NAND flash memory, which has a limited number of program-erase (P/E) cycles before it starts to degrade.

10. **Short_Self_Test: Short self-test**, also known as a **short drive self-test**, is a diagnostic procedure performed by storage devices, particularly **hard disk drives** (HDDs), to quickly assess their overall health and detect any potential issues with the drive's functionality. This test is designed to provide a rapid evaluation of the drive's basic operational status and is typically initiated by the user or the device itself through diagnostic software or built-in firmware.

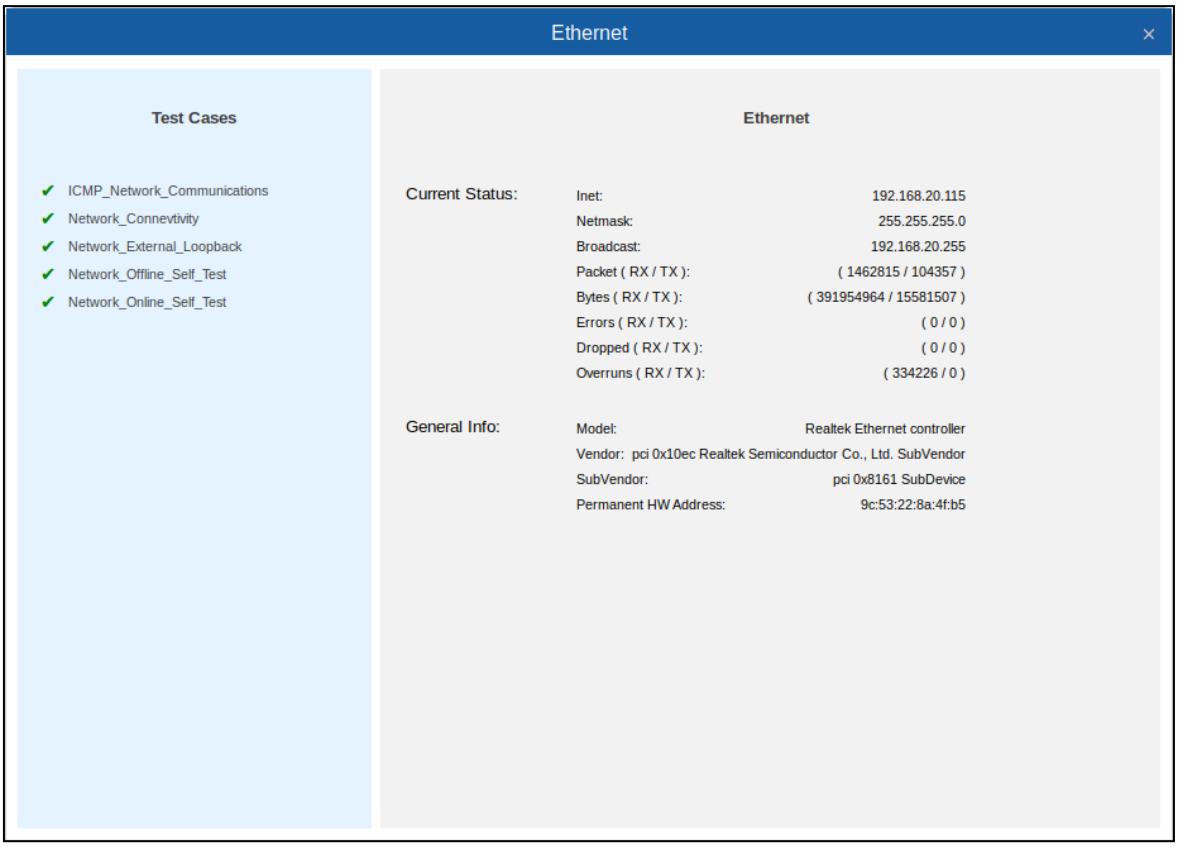
11. **Extended_Self_Test: Extended self-test** is a more thorough and comprehensive diagnostic procedure performed by storage devices, particularly hard disk drives (HDDs) and solid-state drives (SSDs). This type of self-test delves deeper into the health and functionality of the storage device, identifying potential issues that may not be detected by shorter, more basic tests.

Section 2-

1. **Current Status:** It shows **TPS** (transactions per second) and rate at which reading andwriting operations occur.

2. **General Info:** It shows general information about the storage device such as its Model, Serial, Size, Sectors etc.

5. Ethernet:



Section 1-

1. **ICMP_Network_Communications: ICMP** (Internet Control Message Protocol) network communication test is a diagnostic procedure used to assess the reachability, latency, and overall health of network connections. ICMP is a protocol used by network devices, like routers and hosts, to send error messages and operational information indicating success or failure when communicating with another IP address.

2. **Network_Connectivity:** It checks whether the device can connect with other devices on the same network.

3. **Network_External_Loopback:** A network external loopback is a diagnostic test used to verify the functionality and performance of network equipment by routing data from a device through the network and back to the original device. This test checks the integrity of the entire transmission path, including the device's network interface, cabling, intermediate networking hardware (like switches and routers), and the return path.

4. **Network_Offline_Self_Test: Network Offline Self-Test** is a diagnostic procedure performed on network devices, such as switches, routers, or network interface cards (NICs), while they are not actively connected to a live network or during a maintenance window when the device is not handling live traffic. This type of test aims to evaluate the hardware and software components of the network device to ensure they are functioning correctly without impacting the operational network.

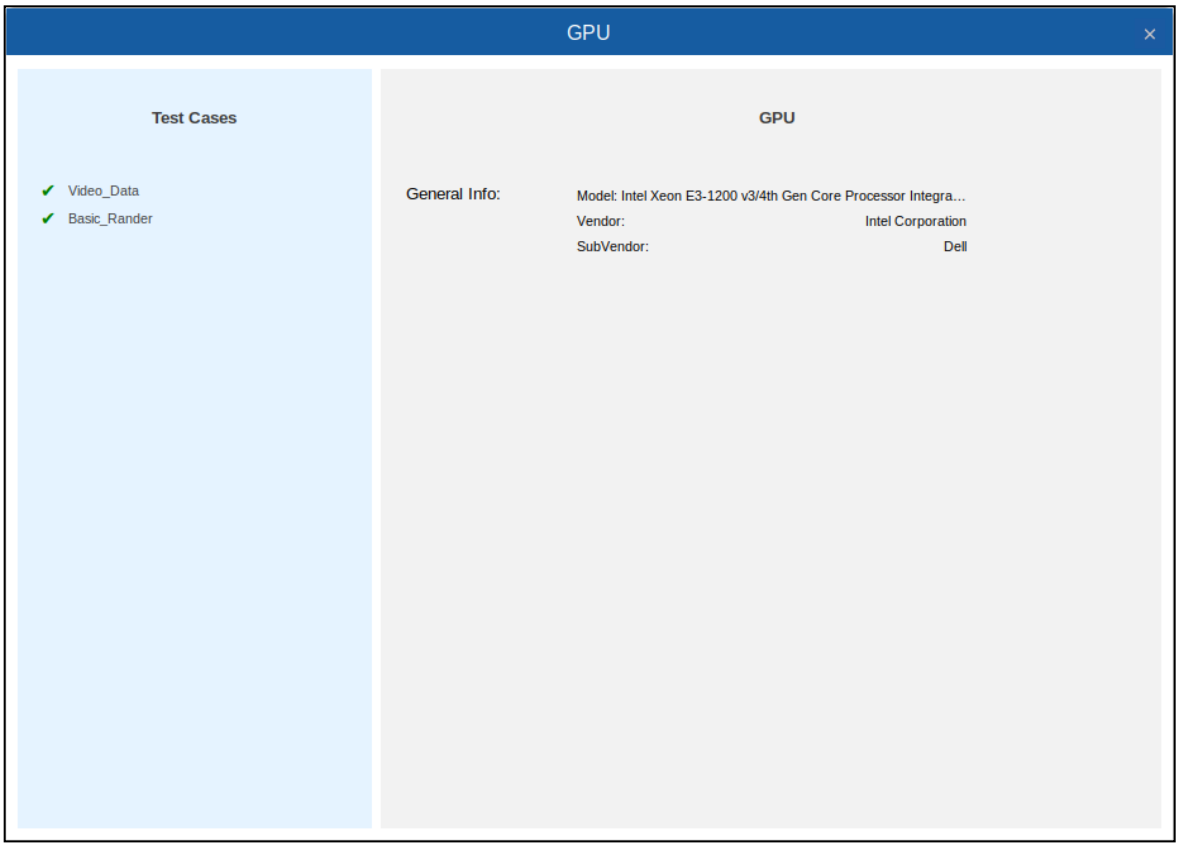
5. **Network_Online_Self_Test: Network Online Self-Test** is a diagnostic procedure performed on network devices (such as switches, routers, or network interface cards) while they are actively connected to and operating within a live network. The purpose of an online self-test is to assess the health, performance, and functionality of network devices without taking them offline or disrupting normal network operations.

Section 2-

1. **Current Status:** It shows netmask, packets received and sent on network, broadcast address etc.

2. **General Info:** It displays general information about the Ethernet such as its Model, Vendor, sub-vendor etc.

6. GPU:



Section 1-

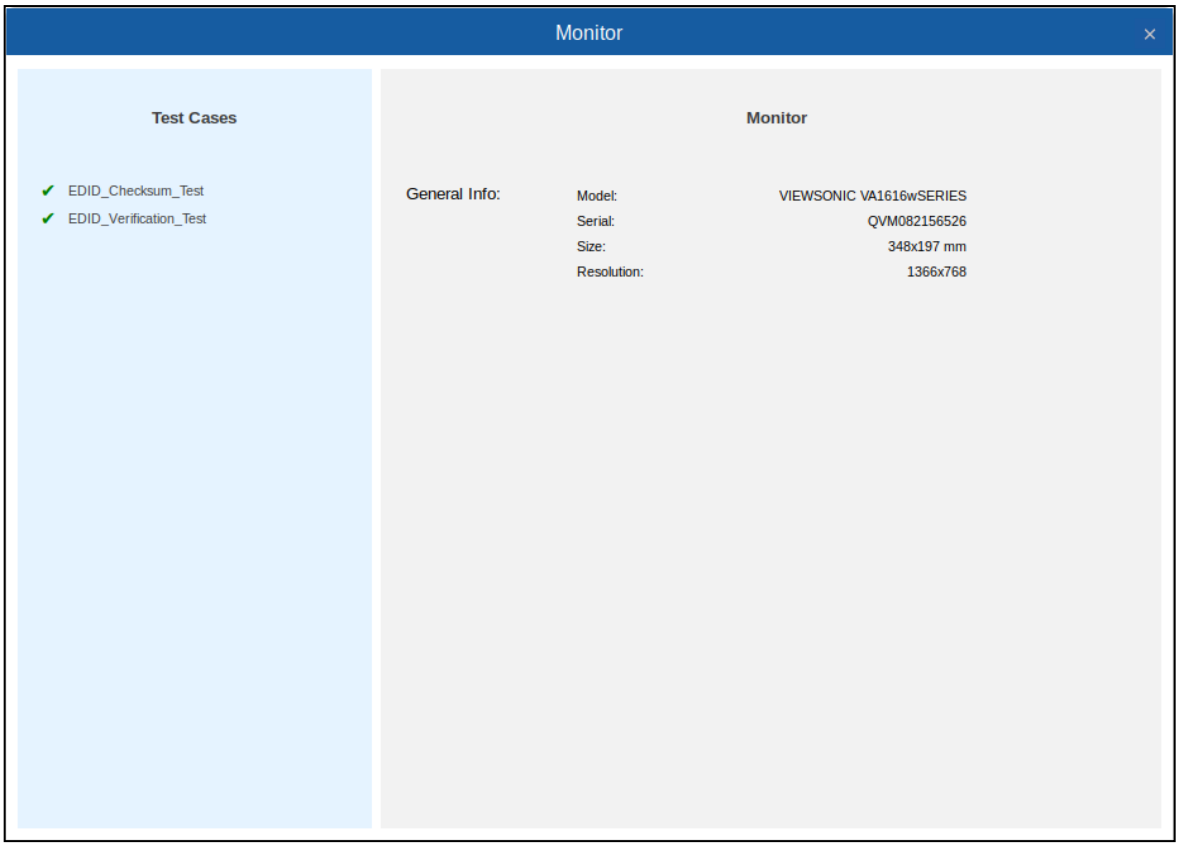
1. **Video_Data: Video Data** test on a **GPU** is a diagnostic procedure used to evaluate the GPU's ability to handle video-related tasks, such as decoding, encoding, and rendering video content. This test is essential for ensuring that the GPU can effectively process video streams, which is critical for applications like **video playback**, **video editing**, and **streaming**.

2. **Basic_Render: Basic Render** test of a **GPU** (Graphics Processing Unit) is a diagnostic procedure used to evaluate the performance and functionality of a graphics card by rendering graphics or performing compute tasks. This type of test helps determine if the GPU can handle graphical workloads, identifies any potential issues, and ensures that the GPU is operating correctly.

Section 2-

1. **General Info: I**t displays general information about GPU such as its model, vendor and sub-vendor.

7. Monitor:



Section 1-

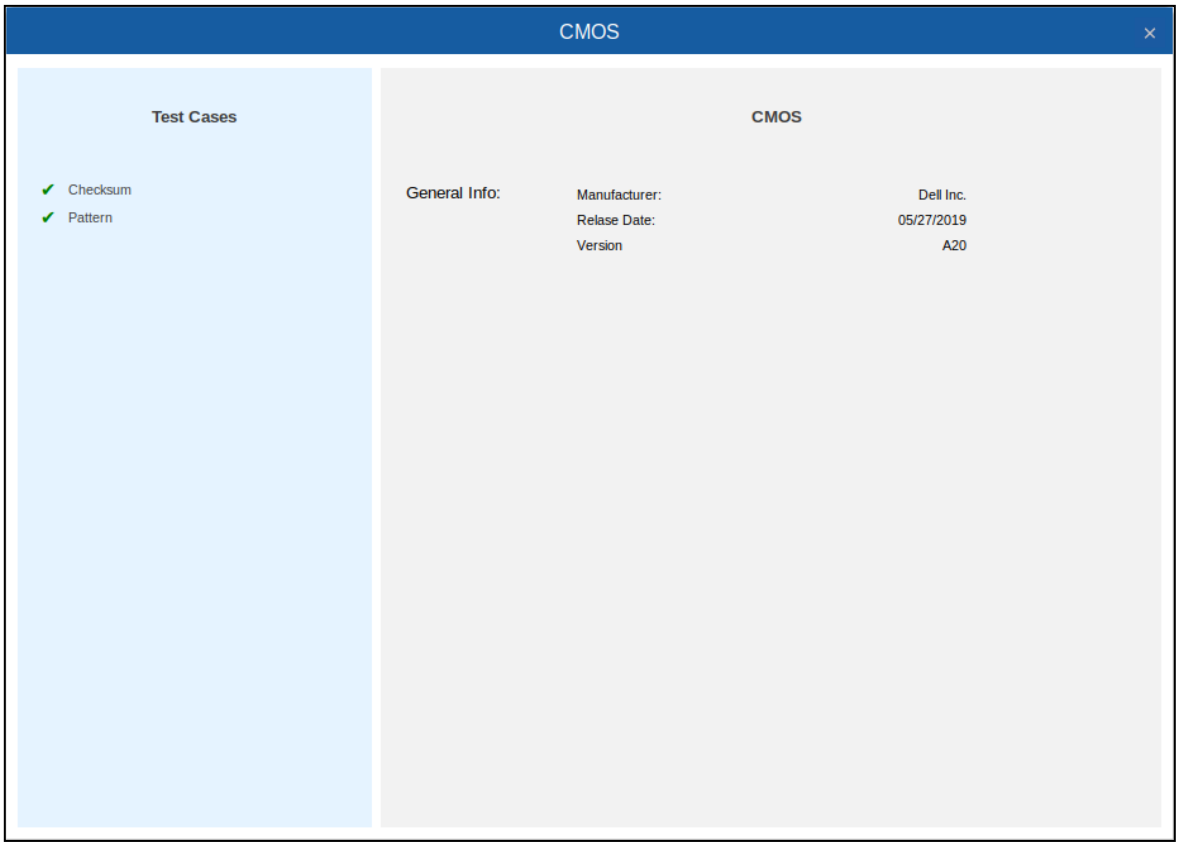
1. **EDID_Checksum_Test:** An EDID (Extended Display Identification Data) checksum test is a diagnostic procedure used to verify the integrity of the EDID information provided by a display device, such as a monitor or television. EDID is a standardized data format that a display sends to a connected graphics card or other video source to communicate its capabilities, such as supported resolutions, refresh rates, and audio formats. The checksum is a part of the EDID data structure that ensures the data has not been corrupted.

2. **EDID_Verification_Test:** The verification test ensures that this data is correct and that the display can properly communicate its capabilities to the video source.

Section 2-

1. General Info: It provides general information about the monitor such as its Model, Serial,Size, and Resolution.

8. CMOS:



Section 1-

1. **Checksum: Checksum** test in **CMOS** (Complementary Metal-Oxide-Semiconductor) is a diagnostic procedure used to verify the integrity of data stored in the CMOS memory of a computer. The CMOS memory holds system configuration settings and hardware parameters that the BIOS (Basic Input/Output System) uses during the boot process.

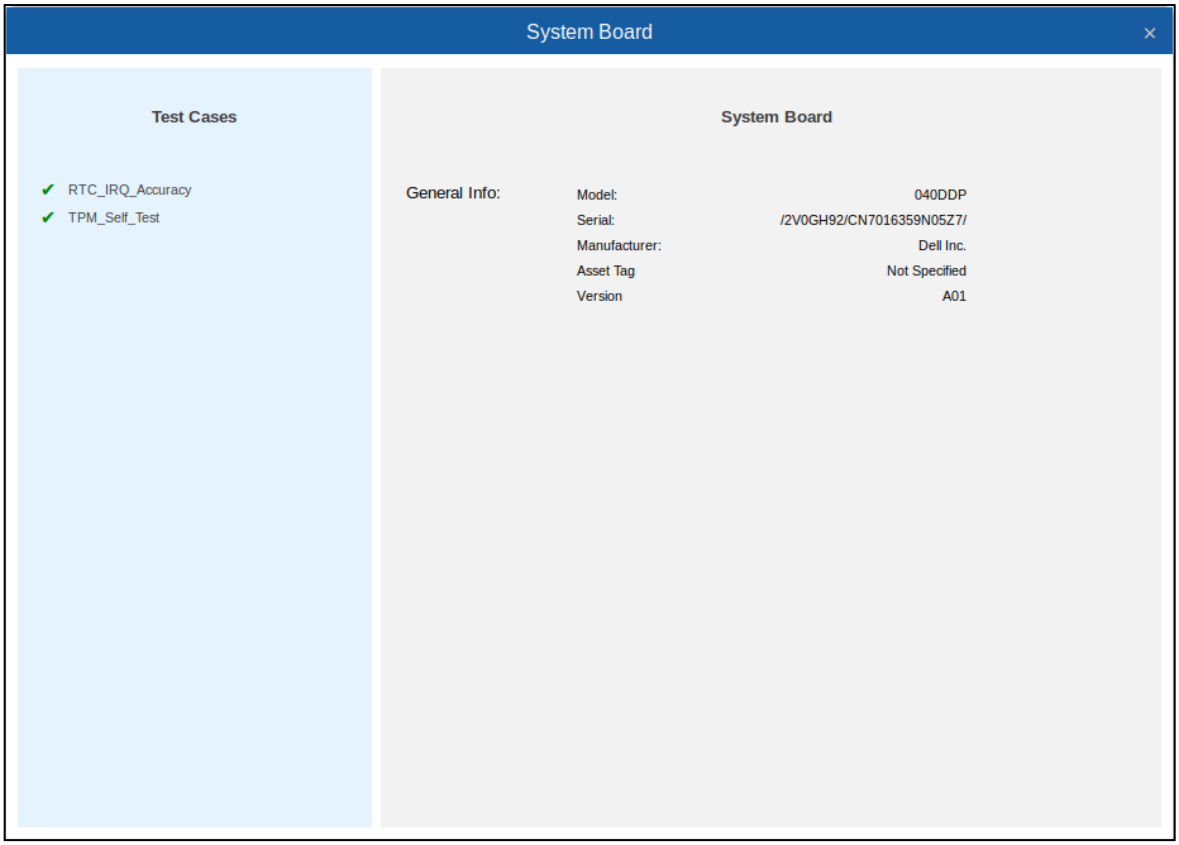
These settings include system time and date, hardware settings, boot sequence, and other critical information.

2. **Pattern: Pattern** test in **CMOS** (Complementary Metal-Oxide-Semiconductor) refers to a diagnostic procedure used to verify the integrity and reliability of the CMOS memory, which stores system configuration settings and hardware parameters for the BIOS (Basic Input/Output System). This type of test involves writing specific patterns of data to the CMOS memory and then reading them back to ensure they match the expected patterns. The purpose is to detect any faults or errors in the memory cells.

Section 2-

1. **General Info:** It shows general information about the CMOS such as its manufacturer, Release Date and Version.

9. System Board:



Section 1-

1. **RTC_IRQ_Accuracy: RTC (Real-Time Clock) IRQ (Interrupt Request) Accuracy** test on a system board is a diagnostic procedure used to verify the precision and reliability of the interrupts generated by the RTC. The RTC is a critical component in a computer system, responsible for keeping track of the current time and date, even when the computer is powered off. It generates periodic interrupts to signal the CPU to perform time-related tasks.

2. **TPM_Self_Test: TPM (Trusted Platform Module) Self-Test** is a diagnostic procedure performed to ensure the proper functioning and integrity of the TPM hardware and its internal components. The TPM is a secure crypto-processor used for tasks such as generating, storing, and managing cryptographic keys, ensuring platform integrity, and supporting secure boot processes. The self-test helps verify that the TPM is operating

correctly and securely, which is critical for maintaining the overall security posture of the system.

Section 2-

1. General Info: It displays the general information about the System Board such as its Model, Serial, Manufacturer, Asset Tag and Version.

Note: *The tests which are passed are shown with* ✔ *and tests that fail are shown with* ✖*.*

Note: *All the manual tests are self- run, refer to Manual Test for performing manual tests.*

4.2. Configure Test Details

Selecting **Test Details** tab enables the users add custom fields and configure general information about the customer, asset details as per the requirements. The information entered in this section will go to the Diagnostic report and can be modified later if required. The **Test details** configuration is further divided into two sub-sections:

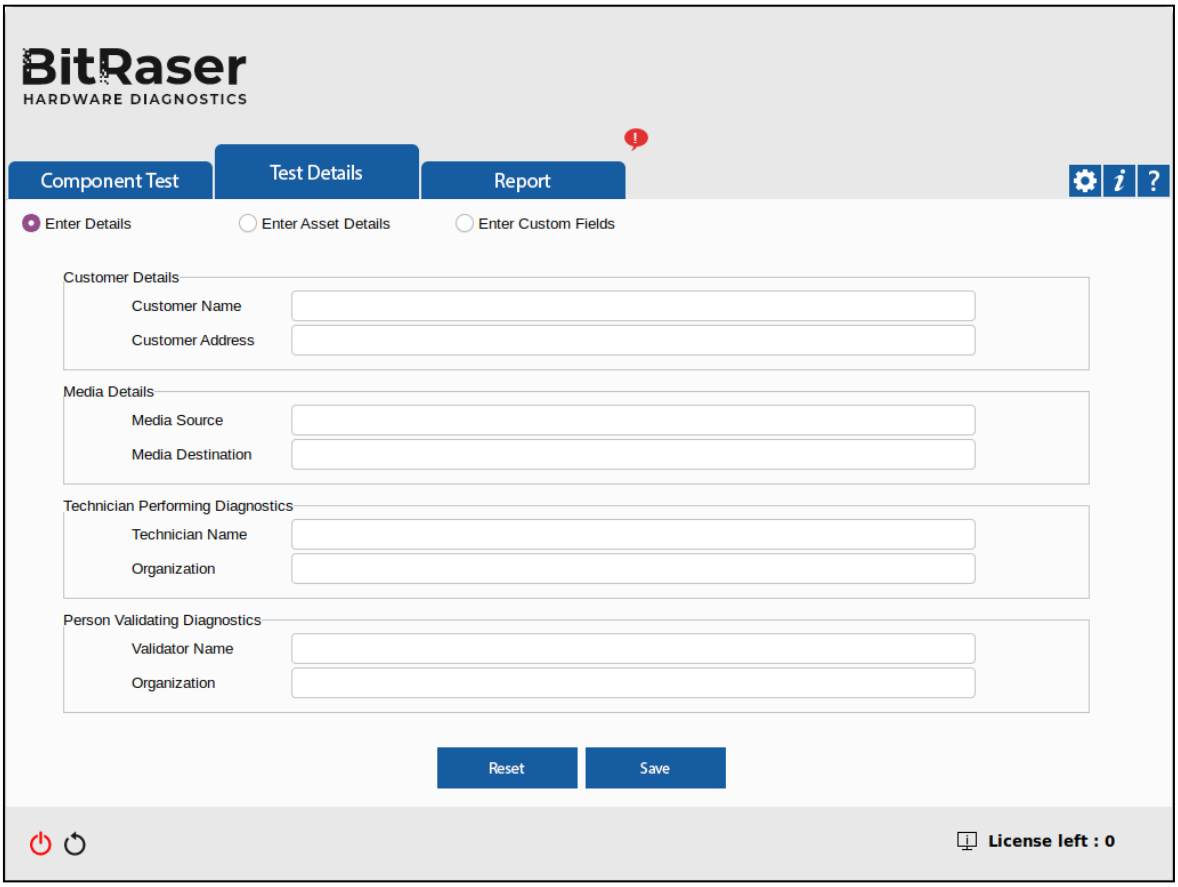
- Enter Details
- Enter Asset Tag Details
- Enter Custom Fields

4.2.1. Enter Details

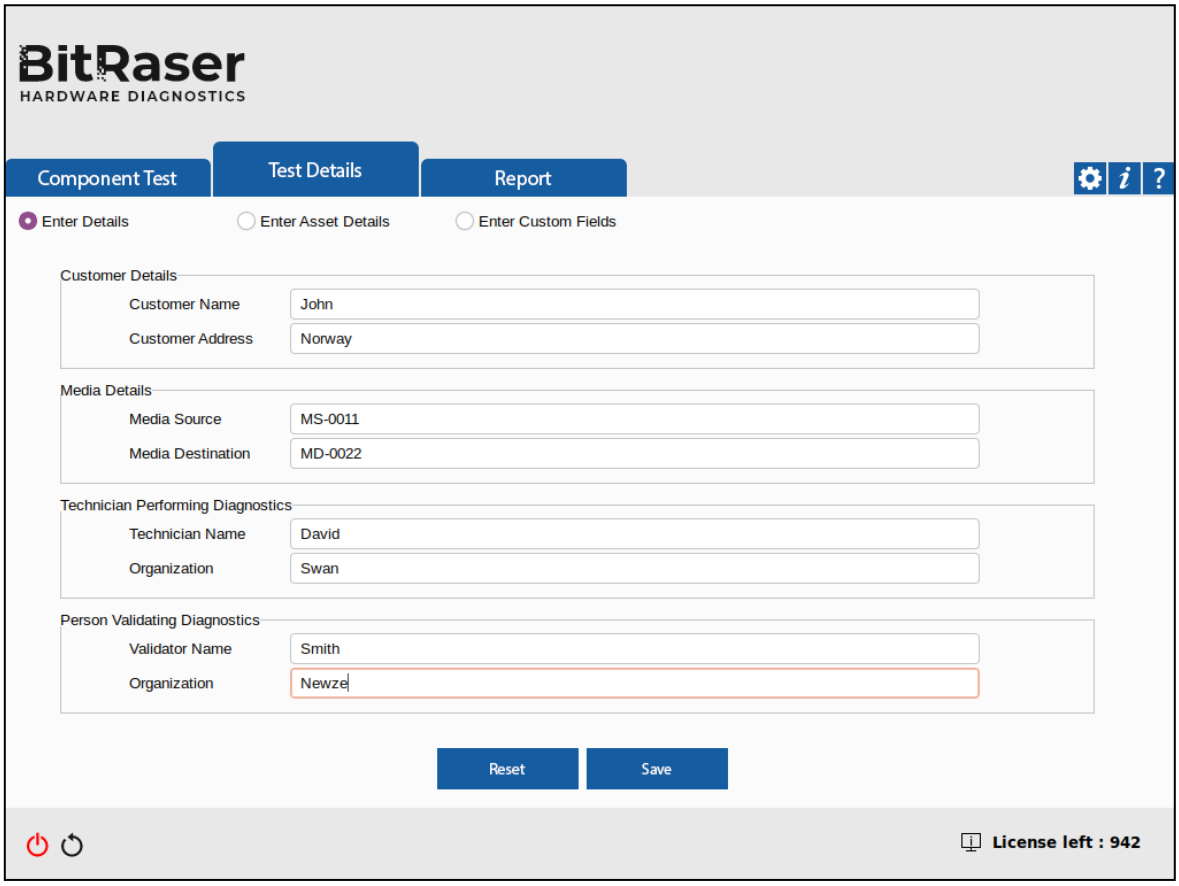
You can configure general information about the customer, asset details, technician details and other details like the person validating the diagnostics. The information that you will enter here will be added to the diagnostic report. The report can be modified later as per requirement if required.

Steps to enter the diagnosis details:

1. Run **BitRaser Hardware Diagnostics**. Select the **Test Details** tab.



2. Select the radio button, **Enter Details**.
3. Specify the required details:



- **Customer Details:** Enter the details associated with the customer like Customer Name and Customer Address.
- **Media Details:** Enter the details associated with media like the media source and destination.
- **Technician Performing Diagnostics:** Enter the details of the technician who would perform the diagnosis process. It contains fields like Technician Name and Organization.
- **Person Validating Diagnostics:** Enter the details of the person who is validating the diagnostic process. It contains the fields like Validator Name and Organization.

4. Click **Save** to save the entered information. If required, use **Reset** to reset the fields.
5. **BitRaser Hardware Diagnostics** dialog box appears with a message "**Diagnostics details saved successfully**". Click **OK**.

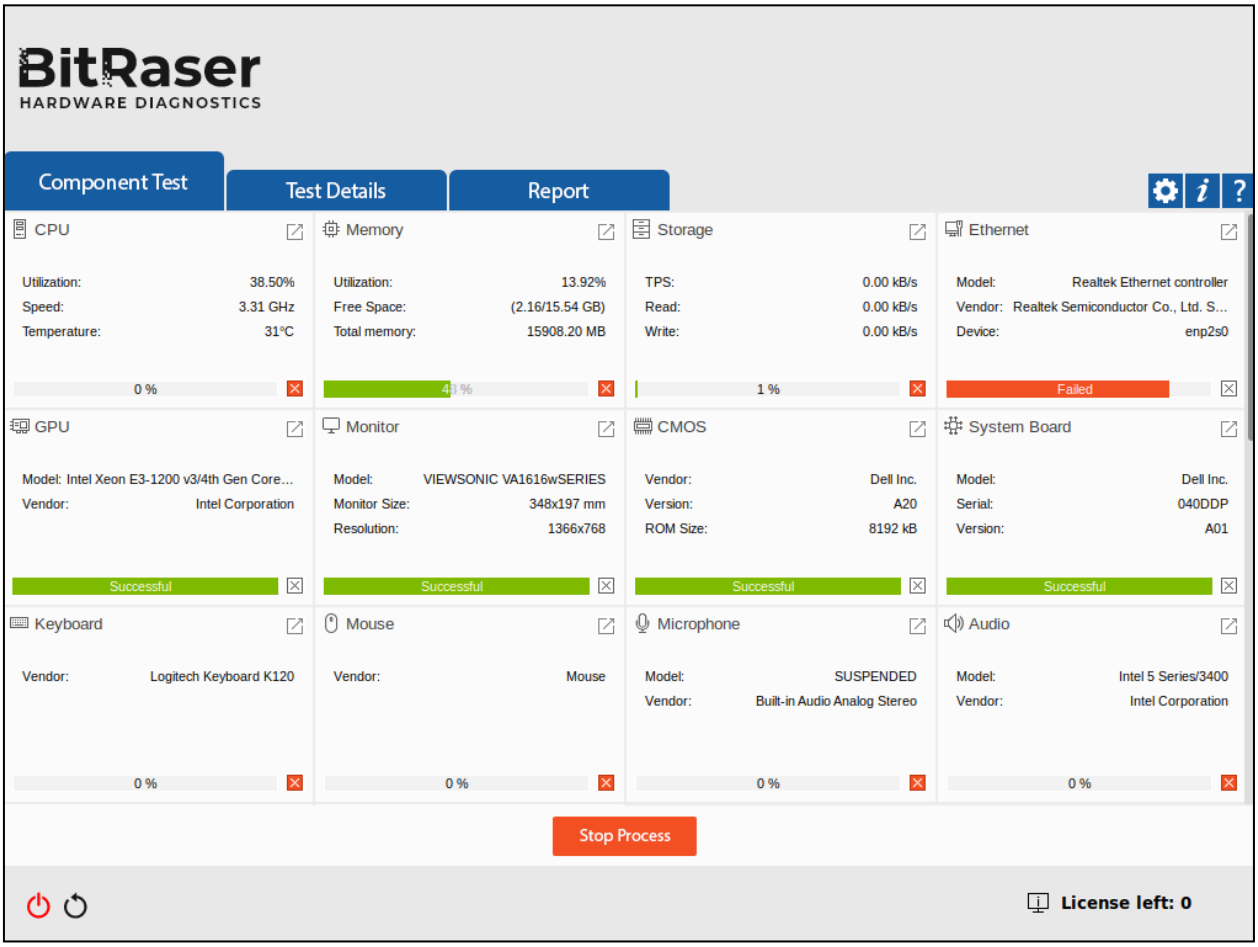

BitRaser Hardware Diagnostics
Diagnostics details saved successfully.
OK

4.2.2. Enter Asset Tag Details

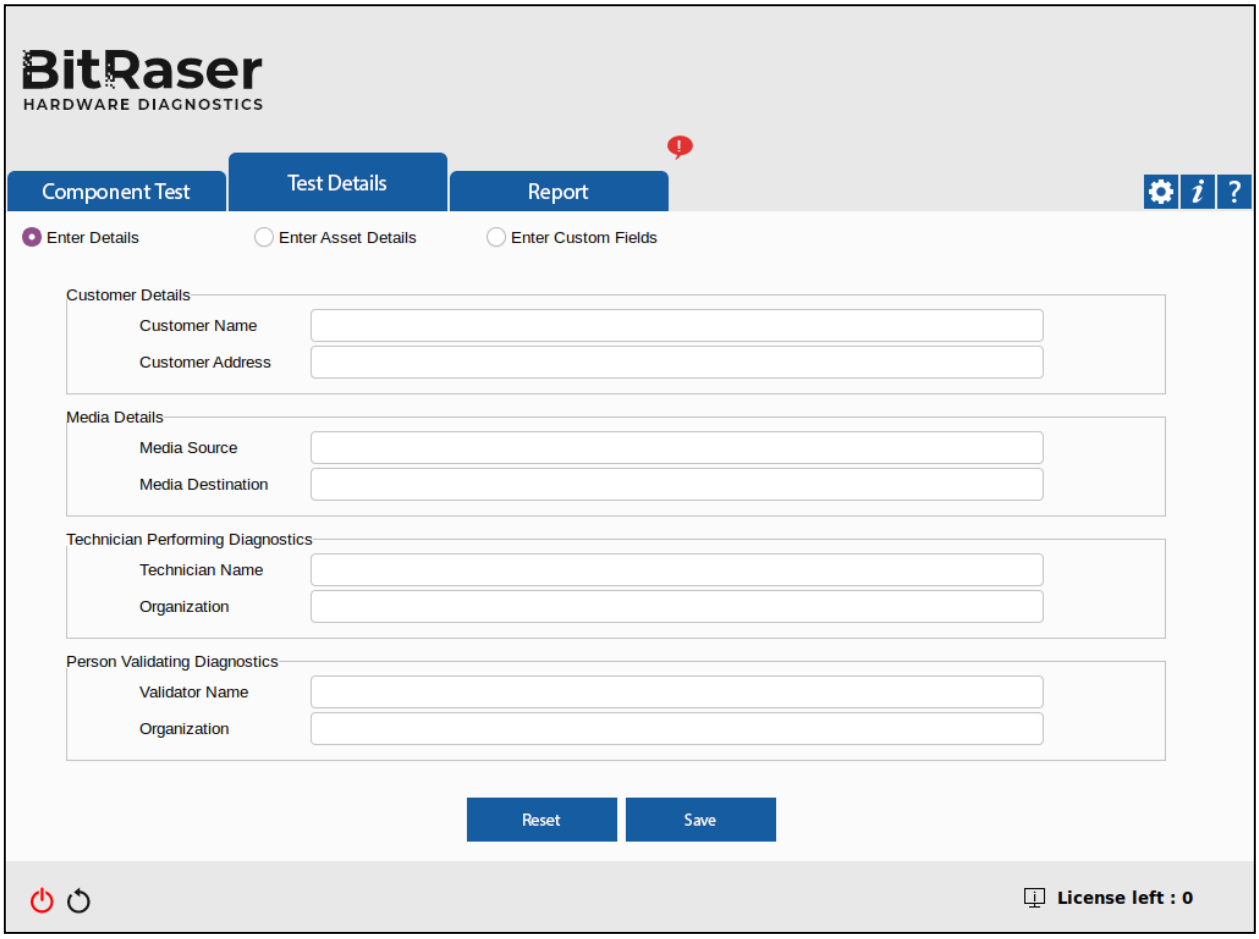
The Asset Details Tab shows the information like Machine Asset Tag Name, it also shows information about Asset Tag, Model No, Serial No, and Size of the connected storage device(s). User can add same or different asset tags for the disks they want to diagnose.

Steps to add Asset Tag Details:

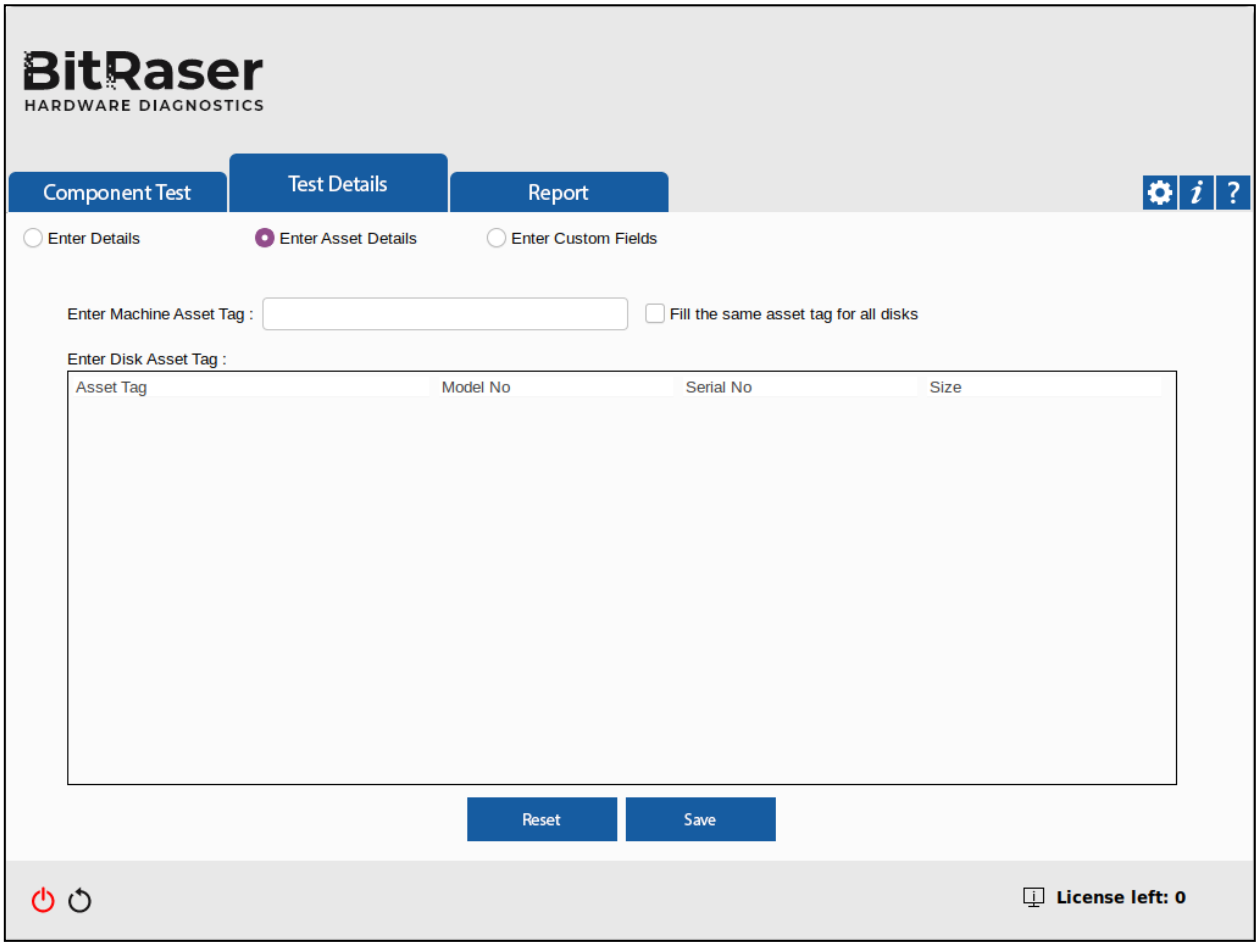
1. Run **BitRaser Hardware Diagnostics**. The main screen appears as shown below.



2. Select **Test Details** tab.



3. Select the radio button Enter **Asset Details**.



4. Enter the Machine **Asset Tag** in the provided field.

   Note: *Machine* ***Asset Tag*** *is located at the bottom of the laptop.*

5. Select the check box **Fill the same asset tag for all disks** if you wish to apply the same asset tag to all storage disks.

6. The Asset Details Tag shows the information such as **Asset Tag**, **Model No**, **Serial No**. and **Size.**

7. Click on its particular field to enter a different asset tag to a disk.

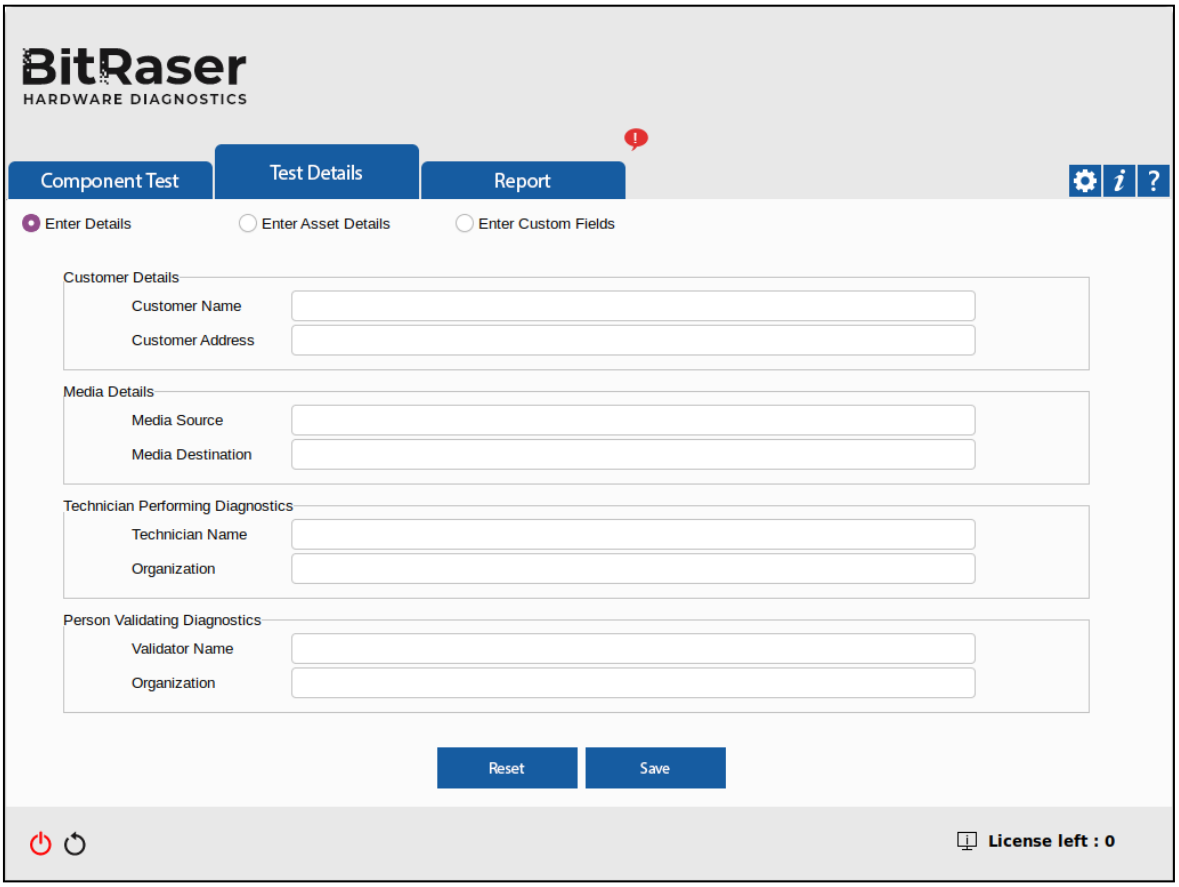
8. Click **Reset** to reset the fields, if required, or click **Save** to save the information.

4.2.3. Enter Custom Fields

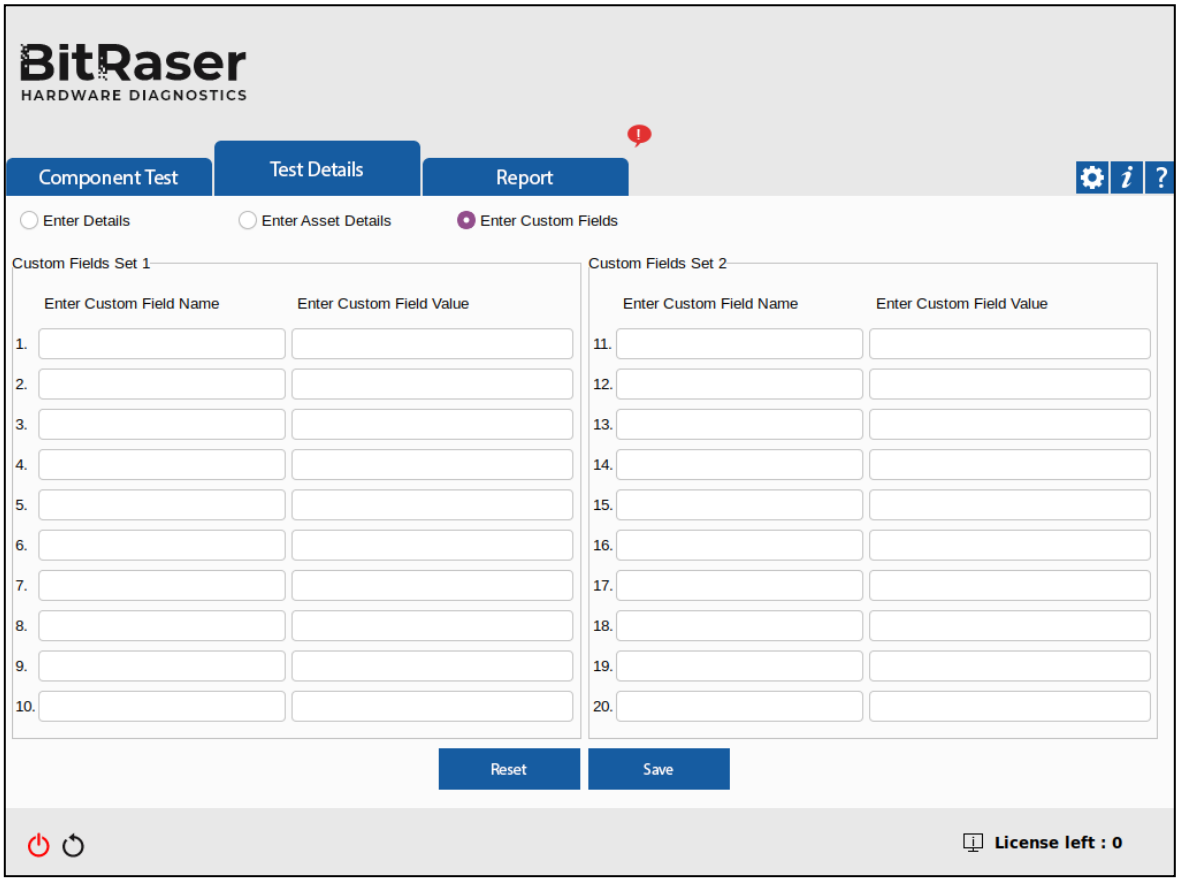
The **Custom Fields** tab allows you to add up to 20 sets of customized fields that can be used in creating the diagnostic reports.

Steps to add Custom Fields:

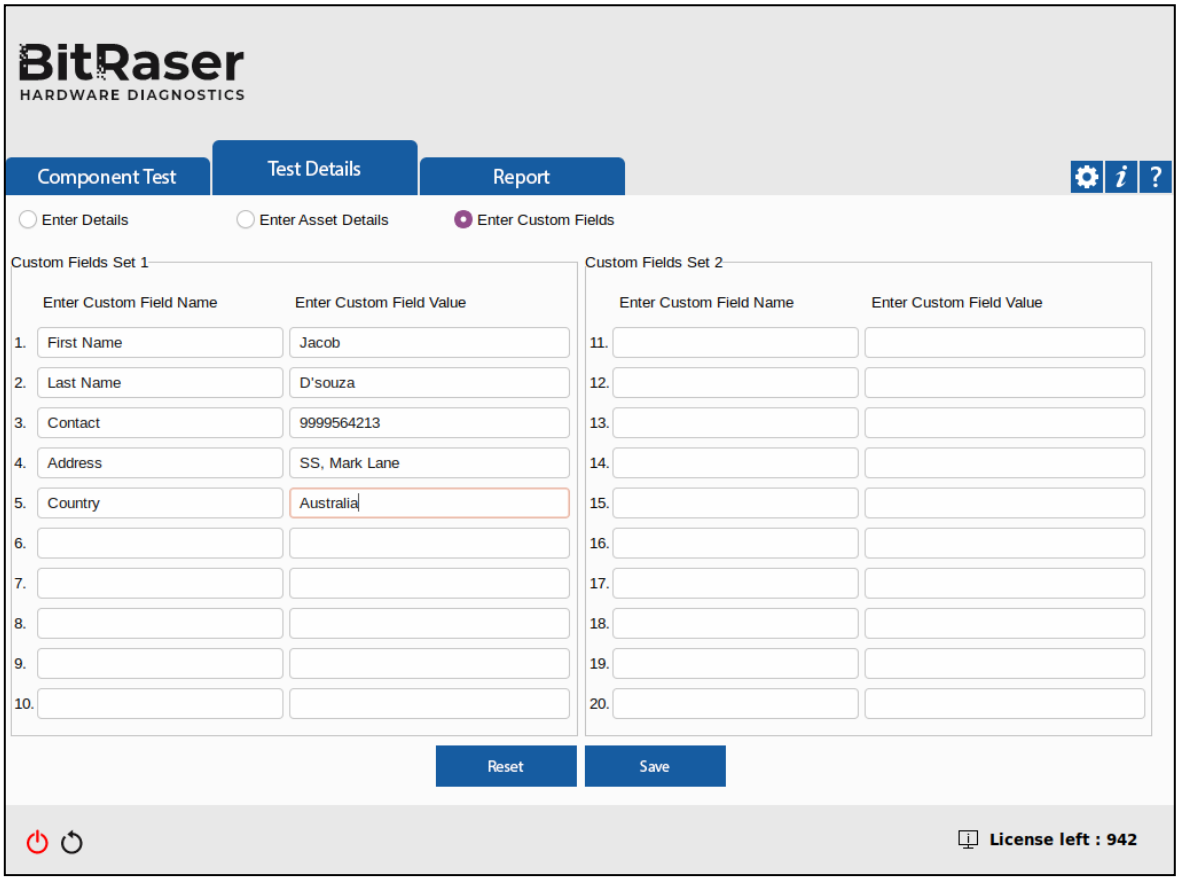
1. Run **BitRaser Hardware Diagnostics**. Select the **Test Details** tab.



2. Select the radio button **Enter Custom Fields**.

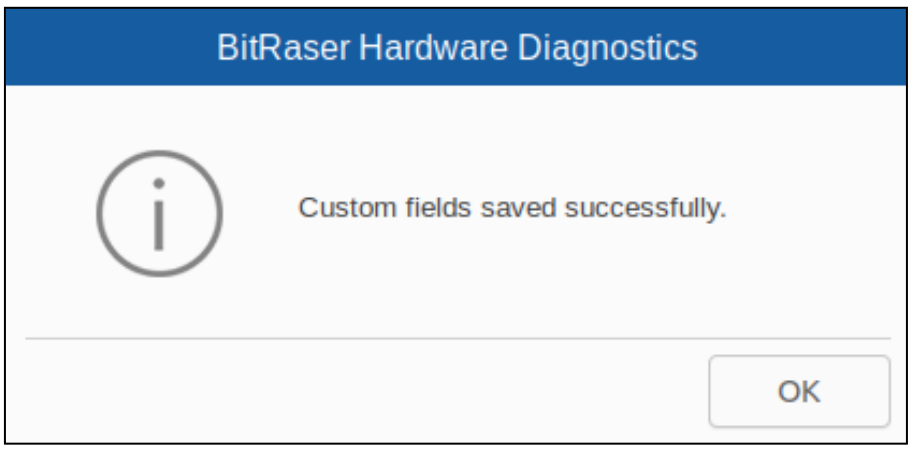


3. Specify the **Custom Field Name (s)** and **Custom Field Value (s)** respectively.



4. Click **Save** to save the entered information. If required, use **Reset** to reset the fields.

5. **BitRaser Hardware Diagnostics** dialog box appears with a message "**Custom fields saved successfully**". Click **OK**.



4.3. Work on Reports

BitRaser Hardware Diagnostics analyze the performance and health of the components and summarize the functionality of each component examined with the help of a Report. The Report provides basic details like the tests conducted on the components, machine information, errors found, custom fields, diagnostics and validation details etc. This application provides user with the flexibility to generate two kind of reports:

1. Short Report
2. Detailed Report

Short Report

You can generate short reports to get a brief information about the health of the component. The summary attributes present in the short report are explained below:

- **Report Information:** Report Information contains details such as Report ID, Report Date, Digital Identifier and Software Version.
- **Customer Details:** Customer Details contains details such as Customer Name and Address.
- **Test Summary:** Test Summary contains Total Test, Test Passed, Test Performed, Test Failed, Start Time, End Time, Duration and the Status of the test.
- **Hardware Test:** Hardware Test contains details of tests performed on various hardware devices of the system such as system board, memory, CPU, and so on.

Fields	Description
Test	Shows the components on which test will be conducted
Test Type	Displays the tests as auto or manual

Part Exists	Contains the information about whether the component exists.
Tested	Component information about whether the component has been tested.
Result	Displays the result as either pass or fail.
Error Found	Indicates the error either 0 or 1

- **Machine Information:** Hardware Information lists out the hardware details of the computer such as manufacturer details, detailed system information and memory.
- **Custom Fields:** Custom Fields contain the customized information that you have defined using Custom Fields option of **BitRaser Hardware Diagnostics**.

Detailed Report

Long reports provide extensive detailed information about the performance and health of the com ponent. The summary attributes present in the long report are explained below:

- **Report Information:** Report Information contains details such as Report ID, Report Date, Digital Identifier and Software Version.
- **Customer Details:** Customer Details contains details such as Customer Name and Address.
- **Test Summary:** Test Summary contains Total Test, Test Passed, Test Performed, Test Failed, Start Time, End Time, Duration and the Status of the test.
- **Hardware Test:** Hardware Test contains details of tests performed on various hardware devices of the system such as system board, memory, CPU, and so on.
- **Machine Information:** Hardware Information lists out the hardware details of the computer such as manufacturer details, detailed system information and memory.

- **Detailed Device Test:** Contains about information about the manufacturing details, functionality and the tests conducted on each component. The result of the tests contain the following information:

Fields	Description
Test	Contains the tests that will be performed on the component.
Exists	Contains the information about the test exists for the device or not.
Support	Shows whether the test supports the device or not.
Select	Indicates whether the test is selected.
Result	Displays the tests have passed or failed.
Error	Indicates the error either 0 or 1

- **Custom Fields:** Custom Fields contain the customized information that you have defined using Custom Fields option of **BitRaser Hardware Diagnostics.**

For information about viewing and customizing report, see View and Customize Report.

For information about saving a report in PDF, CSV, or XML format, see Save Report.

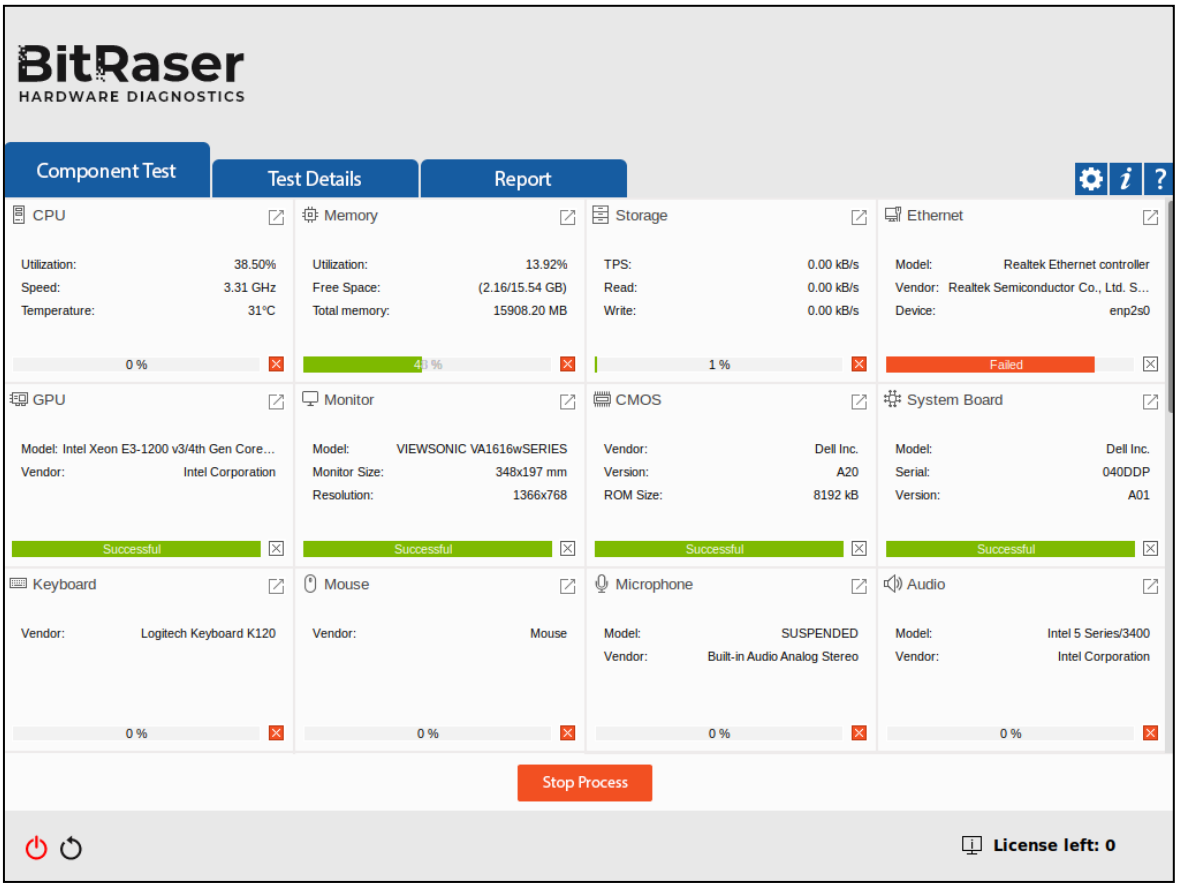
For information about sending a report to **BitRaser server** or exporting a report to media in RPT format, see Export Report (Applicable only if you have licences on **BitRaser cloud**).

4.3.1. View and Customize Report

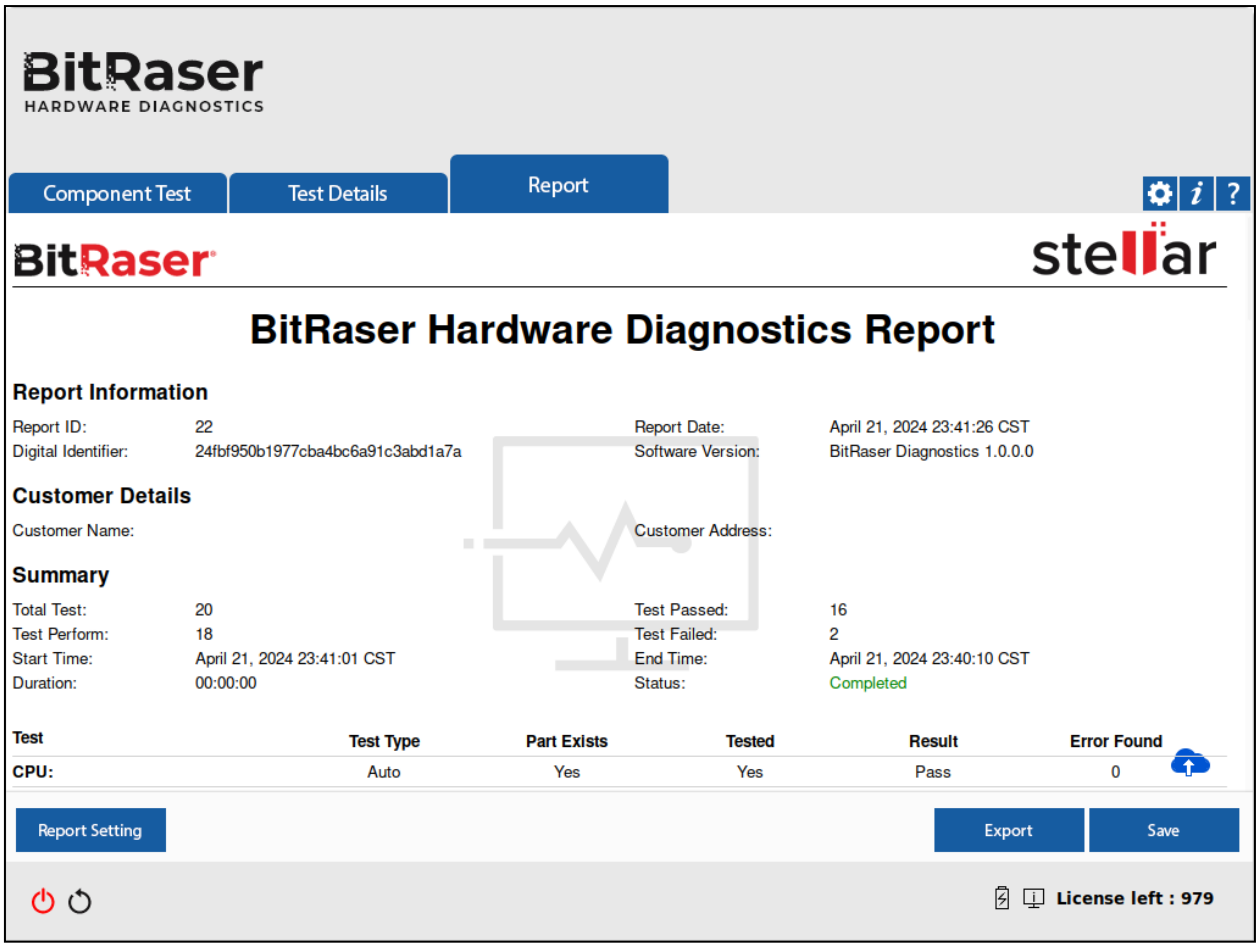
BitRaser Hardware Diagnostics enables the user modify the diagnostic reports of the components currently present in the system. Users can add logo, watermarks and signatures to the Report. In this section, the customizing process of the report is explained in detail.

Steps to view and customize BitRaser Hardware Diagnostics report:

1. Run **BitRaser Hardware Diagnostics**.

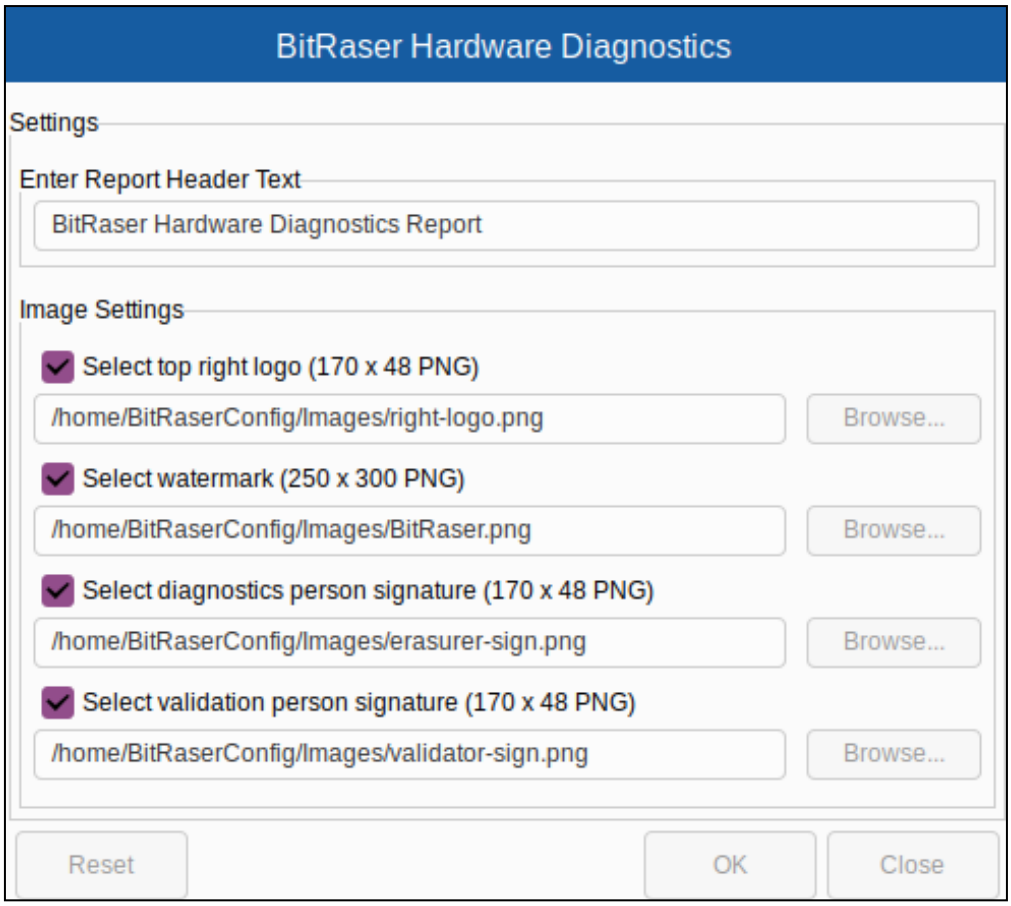


2. Select **Report** tab. The screen appears as shown below:



3. If you want to customize the report, select 

Report Setting button located at the bottom left of the screen.



4. In **Report Settings** dialog box,you can edit the following details :

Sr. No.	Field Name	Description
1.	**Enter Report Header Text**	Enter header text that appears on the header of the report (must be maximum of 30 characters)
2.	**Select top right Logo**	Select the check-box and click Browse to select the top-right logo of the report (image size and format - 170 x48 PNG)
3.	**Select watermark**	Select the check-box and click Browse to select the watermark (image size and format - 250 x300 PNG)

4.	**Select person signature**	Select the check-box and click Browse to select the person performing diagnostics (image size and format - 170 x48 PNG)
5.	**Select Validation person signature**	Select the check-box and click Browse to select the validation person signature (image size and format - 170 x 48 PNG)

Note: *You can reset report settings fields using the* ***Reset*** *button located at the bottom left of the* ***Report Settings*** *dialog box.*

Note: *Top right logo, watermark, erasure person signature and validation person signature image size needs to be the same as specified in* ***Report Settings****. Top left logo and footer image and text are set by default.* ***BitRaser Hardware Diagnostics*** *will accept images with specified size and format only. In case of size mismatch,* ***BitRaser Hardware Diagnostics*** *will continue to use the previously selected images.*

5. After making the required changes to **Report Settings,** click **OK** to save.

4.3.2. Save Report

BitRaser Hardware Diagnostics provides user with the option to save report and log information with them. The report can be saved in different formats like **PDF, CSV** and **XML**.

Note: *Insert an external storage device like* ***Pen Drive*** *to save the report.*

What Information Report Contains

A report saves information about the diagnostic process. All the information about the errors in the components, their presence in the PC, vendor, model etc, is documented in the Report.

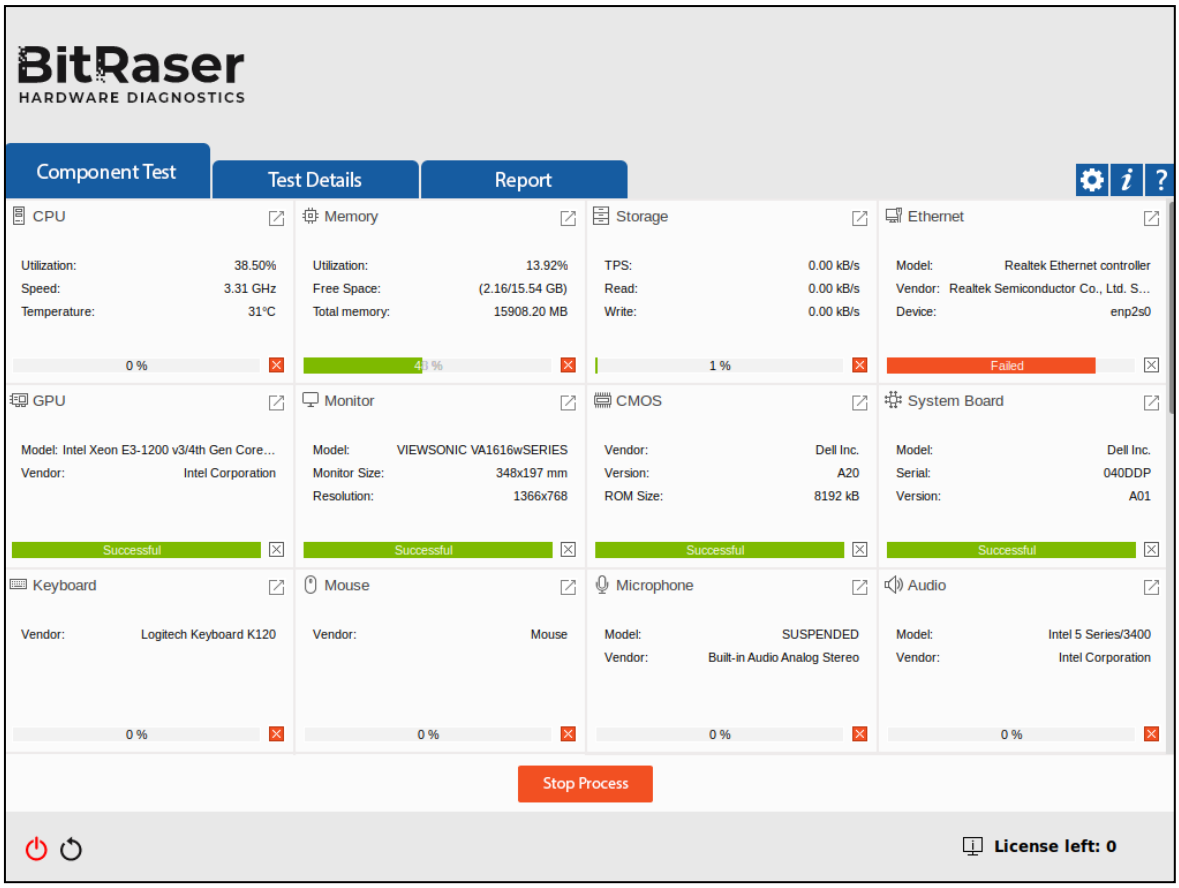
What Information Log Contains

Log Report stores the information about the diagnostic process of the components in encrypted form which users can save in external storage device.

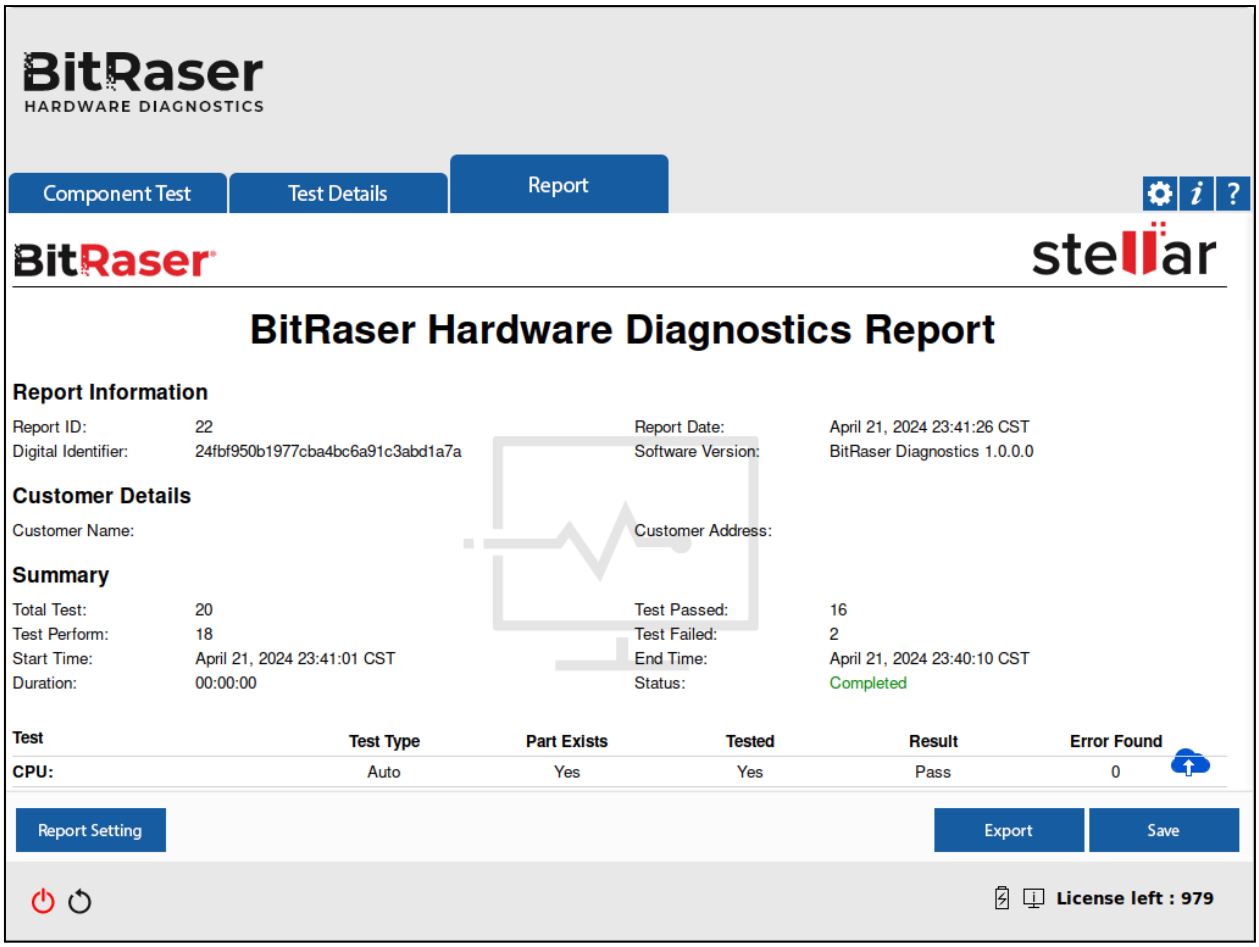
In this section, you will receive a walkthrough about the steps to save both the report and log information.

Steps to save BitRaser Hardware Diagnostics report:

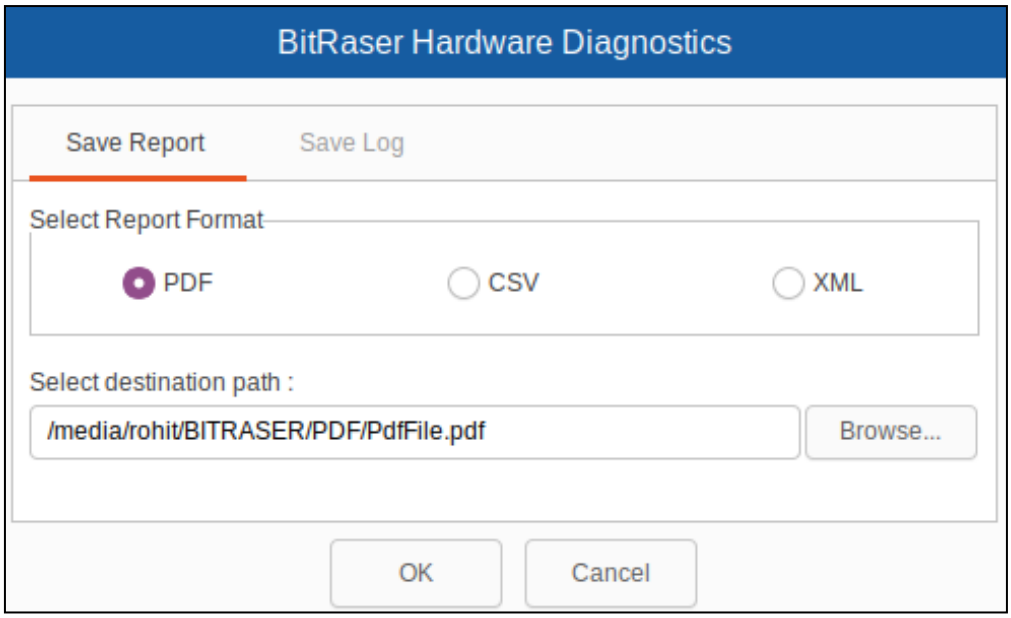
1. Run **BitRaser Hardware Diagnostics**.



2. Select **Report** tab. The screen appears a shown below.



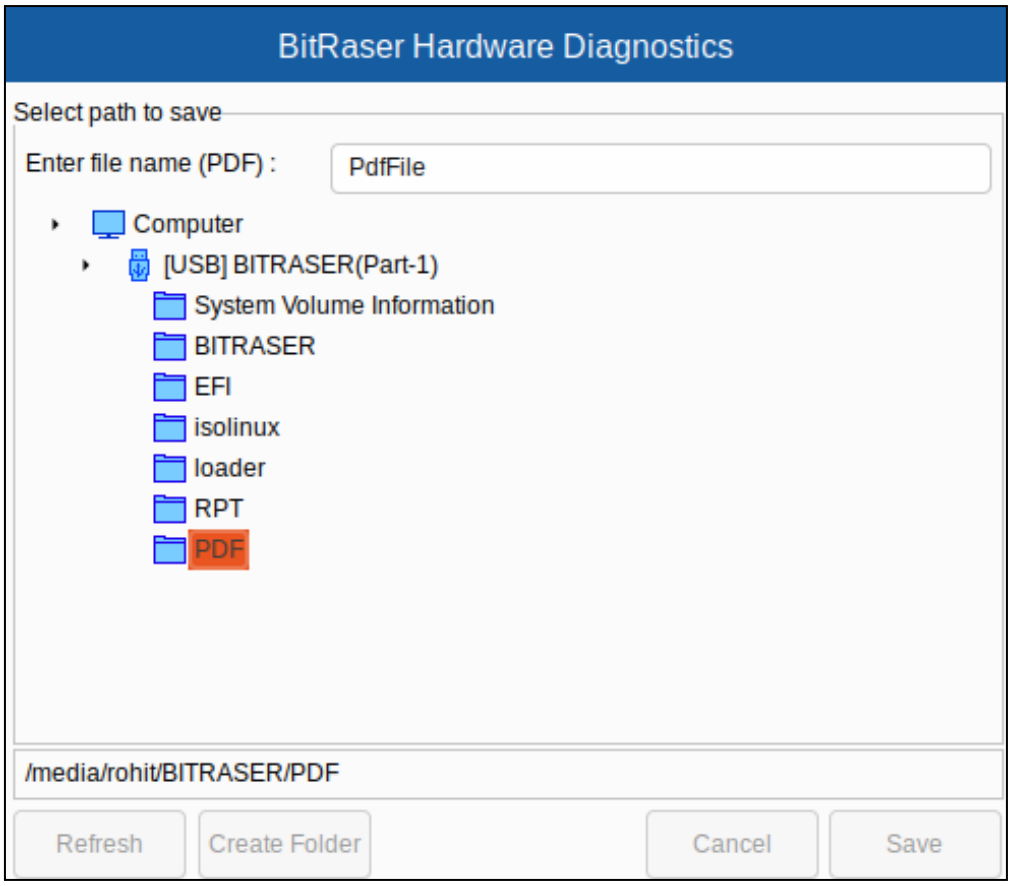
2. Click on  **Save** button located at the bottom right of the screen. A **BitRaser Hardware Diagnostics** dialog box appears as shown below.



3. Click on **Save Report** tab.

4. Select the report format in which you want to save the report that is either **PDF**, **CSV** or **XML** format.

5. Click on **Browse**. The screen appears as shown below:



5. Enter the file name and select the destination folder in the media device where you want the file to be saved.

   Note: *Use* ***Refresh*** *button to refresh the list of media connected to the computer and* ***Create Folder*** *to create a new folder at the destination you selected.*

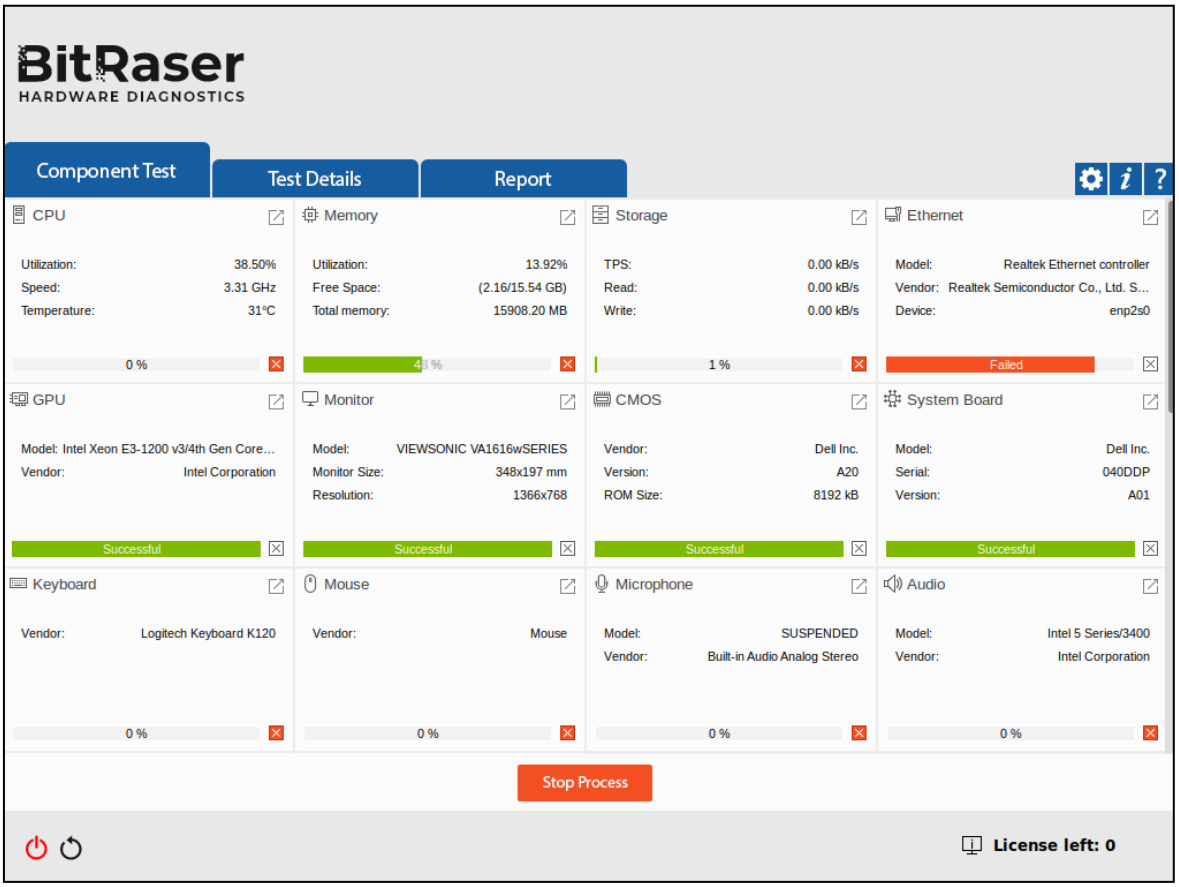
6. Click **Save** to continue.

7. Click **OK** and the report will be saved.

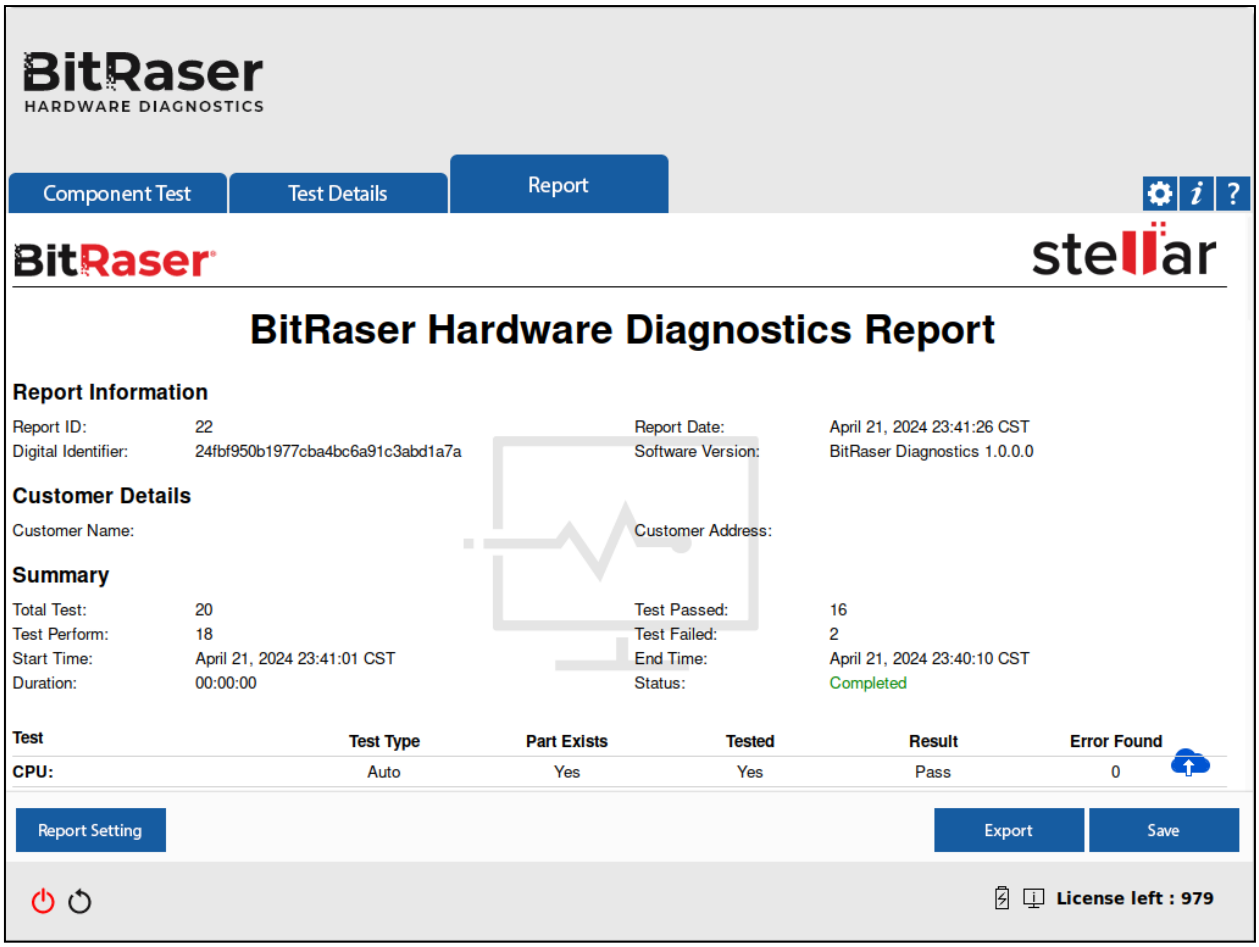
   Note: *If you have* ***BitRaser Hardware Diagnostics*** *licences on* ***BitRaser cloud****, the report is sent to* ***BitRaser server*** *once the diagnostic process is completed. Make sure your internet connection is active.*

Steps to save Log Report

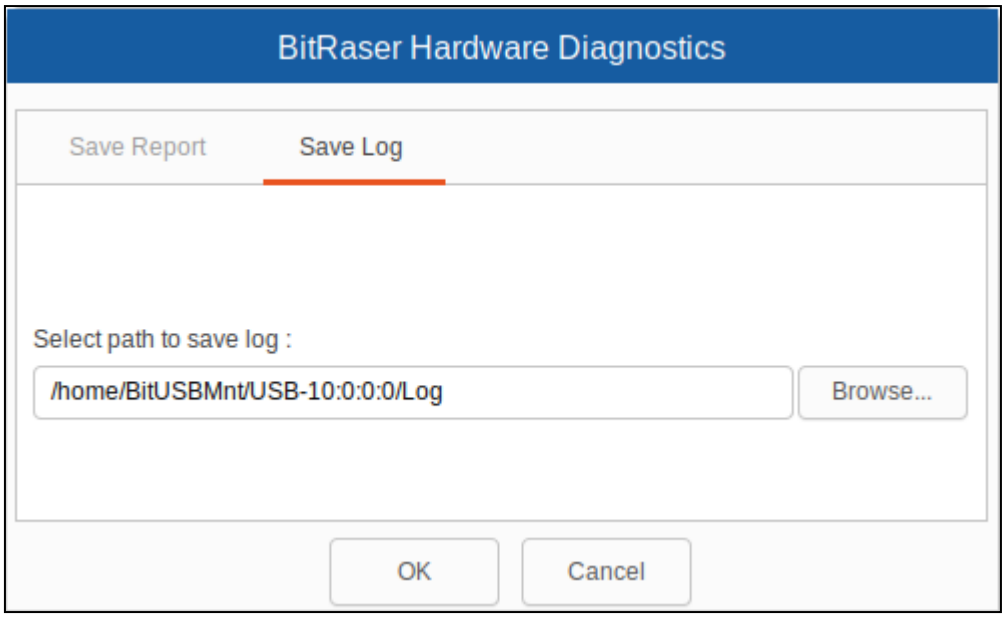
1. Run **BitRaser Hardware Diagnostics**.



2. Select **Report** tab. The screen appears a shown below.

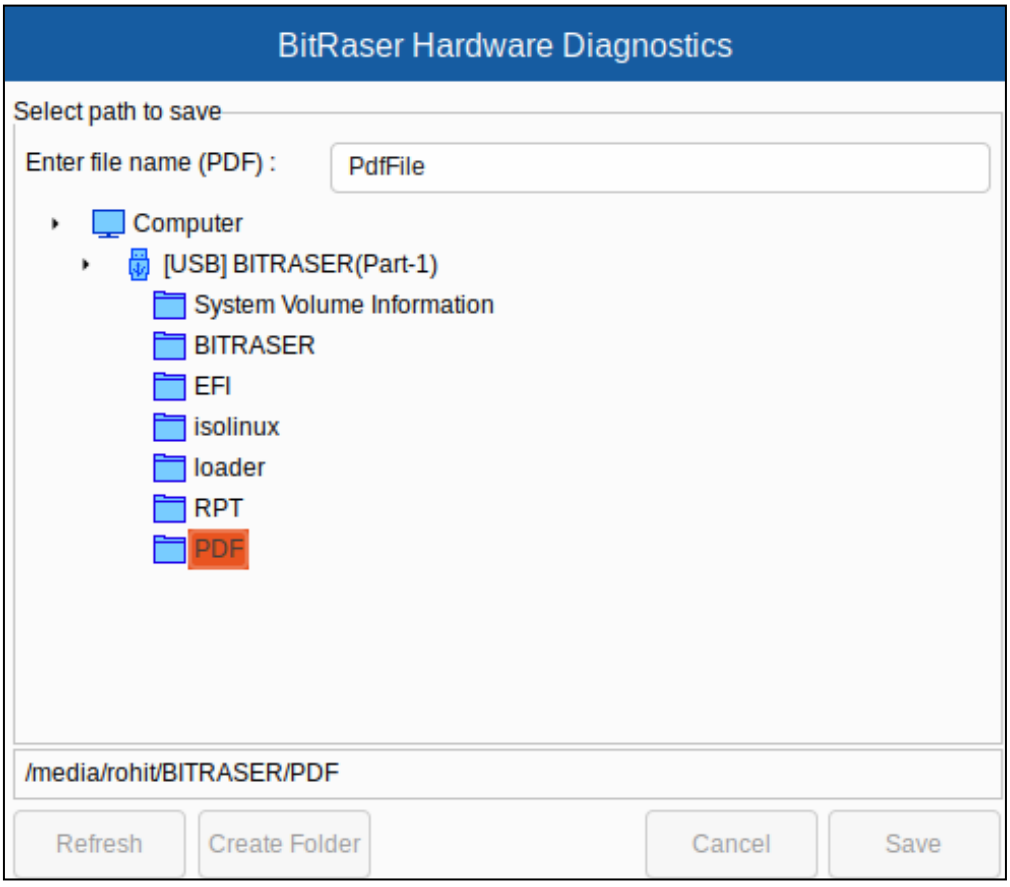


3. Click on  **Save** button located at the bottom right of the screen. A **BitRaser Hardware Diagnostics** dialog box appears as shown below.



4. Click on **Save Log** tab.

5. Click on Browse. The screen appears as shown below.\



6. Enter the file name and select the destination folder in the media device where you want the file to be saved.

   Note: *Use* ***Refresh*** *button to refresh the list of media connected to the computer and* ***Create Folder*** *to create a new folder at the destination you selected.*

8. Click **Save** to continue.

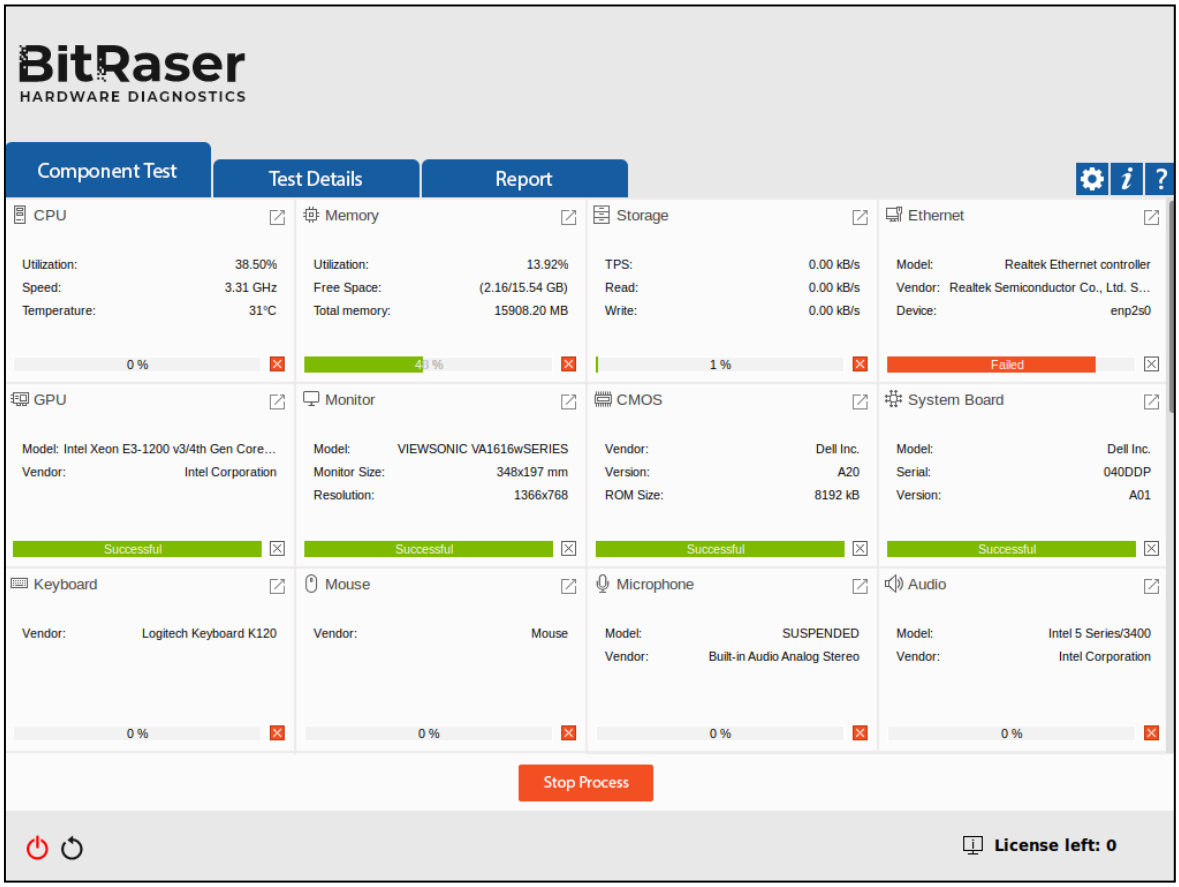
9. Click **OK** and the log file will get saved in the storage device.

4.3.3. Export Report

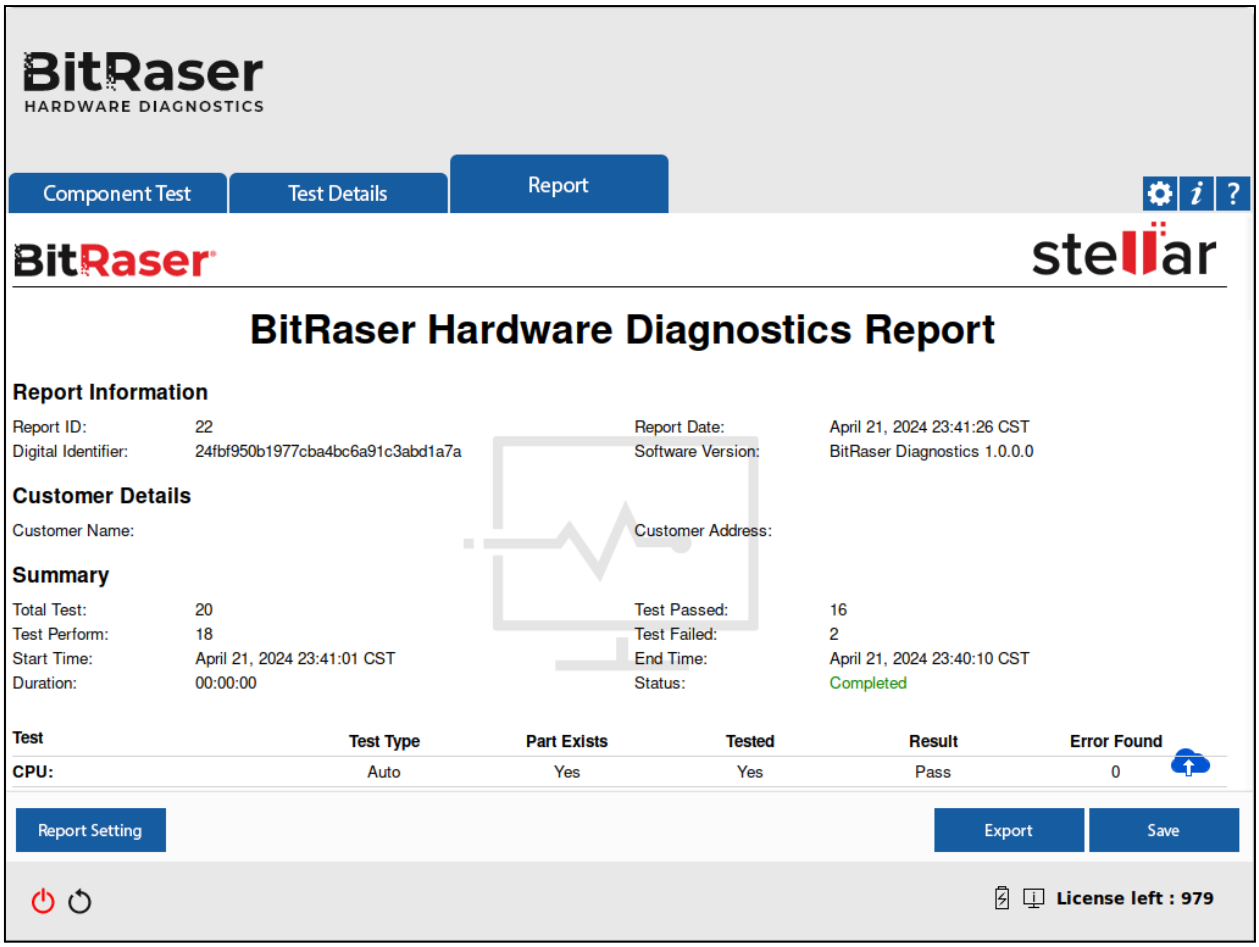
With **BitRaser Hardware Diagnostics** you can send the report manually to cloud server. There are two ways to send the report to the server - you can either send the report directly to cloud or you can export it to an external storage device and then import to cloud server. In this section, both the methods are explained in detail.

Steps to export BitRaser Hardware Diagnostics Report:

1. Run **BitRaser Hardware Diagnostics**.

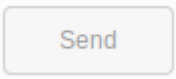


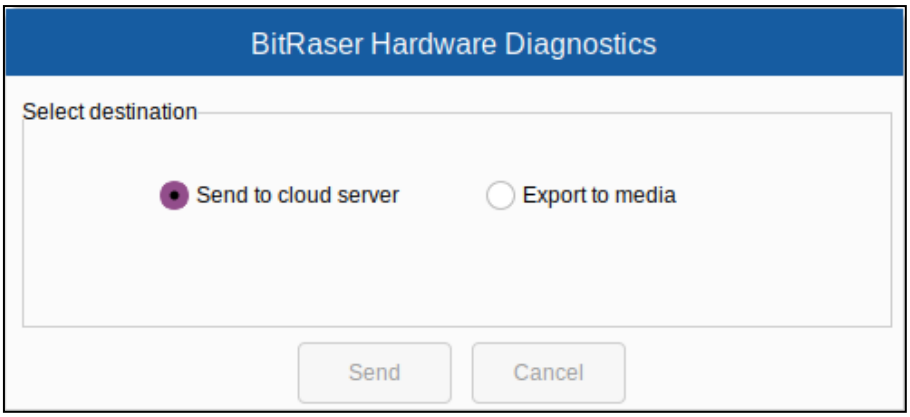
2. Select **Report** tab. The screen appears a shown below.



2. Click on  **Export** located at the bottom right of the screen.

3. Browse the destination to export the report, the following options are available:

   - **Send to cloud server** (Applicable only if you have licenses on BitRaser cloud) – This option allows you to send the report to **BitRaser Server** manually. To send reports, select Send to cloud server radio button and click  on **Send**.



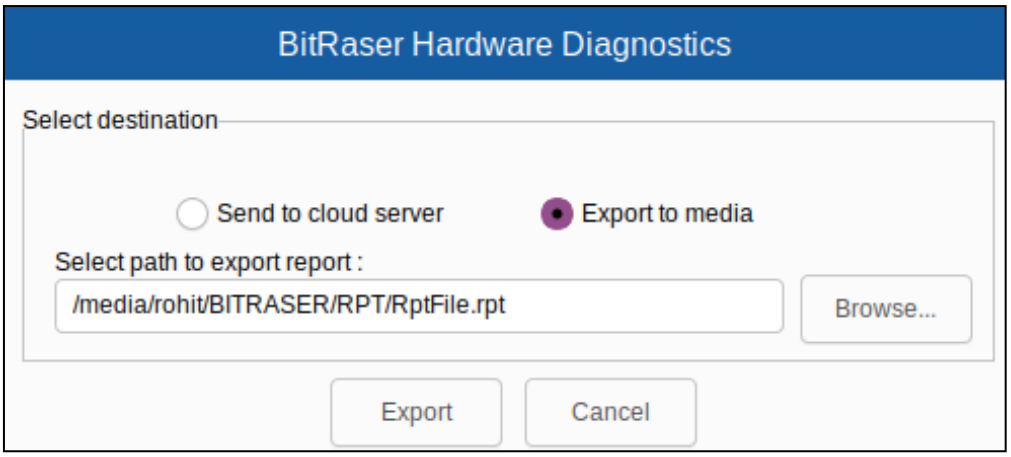
Note: *Once the process is completed, the report is automatically sent to the* ***BitRaser Server*** *after the licenses are fetched.*

The  icon on the bottom right corner of the report under Report Tab indicates that the report has been successfully sent to **BitRaser Server**.

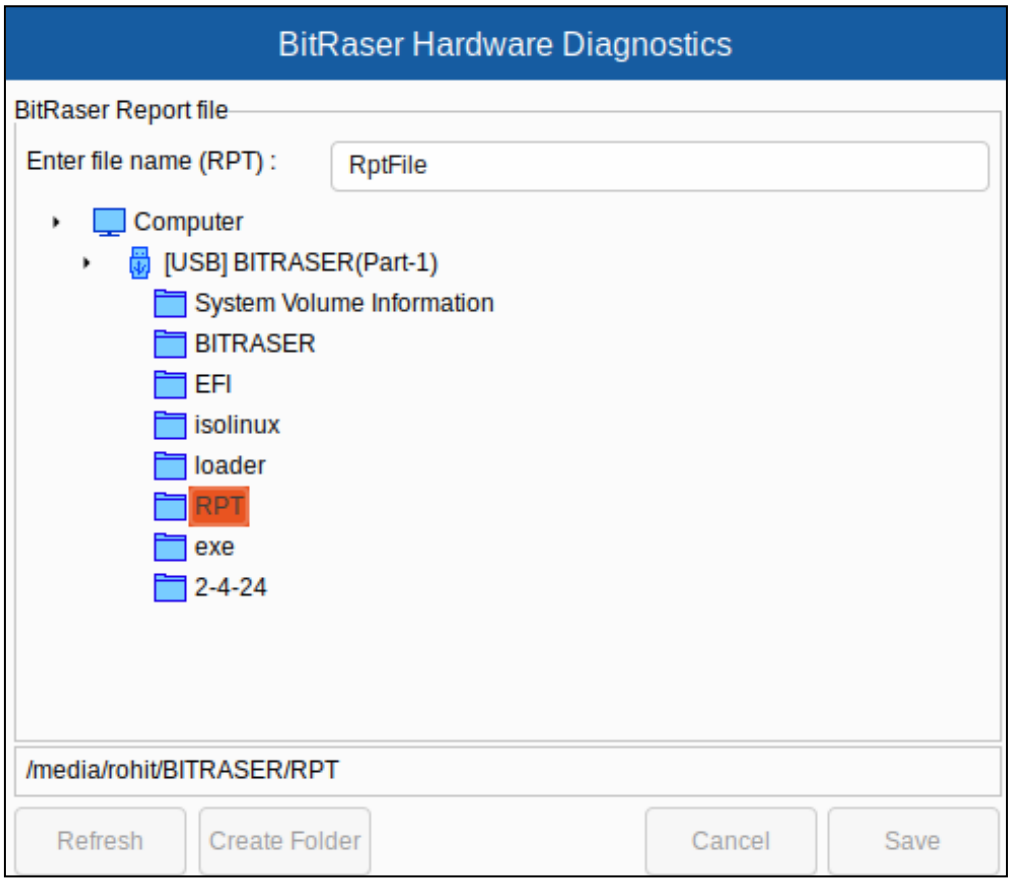
- **Export to media** – This option allows you to export the report to media device in RPT format. Follow the steps as shown below:

    1. Select **Export to media** button.

        Note: *For the* ***BitRaser Hardware Diagnostics*** *edition with licences on a lock key(USB) , if you want to transfer the report to* ***BitRaser Cloud Console****, select* ***Export to media*** *option.*



2. Click **Browse** to '**Select path to export report**'.



3. Enter the filename for **RPT** file in the field provided and select the destination folder where you wish the file to be saved.

Note: *Use* ***Refresh*** *button to refresh the list of media connected to the computer and* ***Create Folder*** *button to create a new folder at the destination you selected.*

4. Click **Save** to continue.
5. Click **Export** to save the report at the selected destination.

For information about importing report from media device to **BitRaser cloud console**, refer Import Report to Cloud.

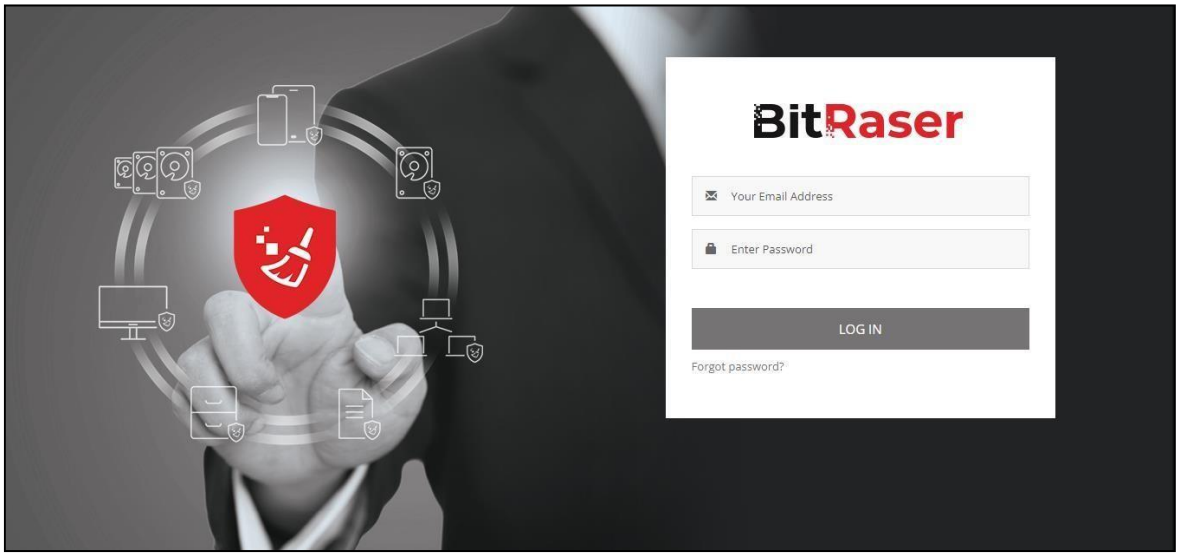
4.3.4. Import Report to Cloud

The report exported to the media device is imported to the **BitRaser cloud** server manually. In this section, you will get an overview of how the report is imported to the cloud console.

Note: *To know how to export report to cloud and media device, refer to Export Report.*

Steps to import the report to BitRaser cloud console:

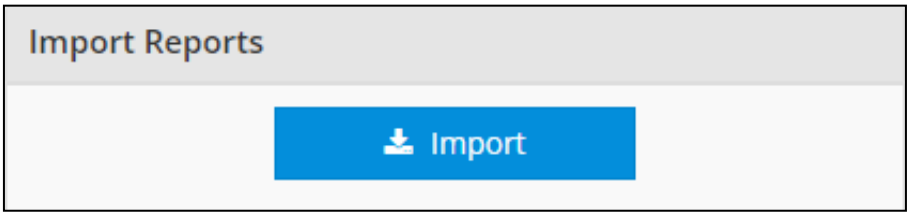
1. Log in to the **BitRaser cloud** application via user name and password.



Note: *The user name and the password are provided to the user upon the purchase of the software.*

2. On the main screen, Click on the **Show List** button on the top right side of the main screen.

3. A screen appears with options like "**Available License**", "**My last Recharge**", "**Import Reports**", and "**Consumed License**". Click on **Import** under **Import Reports**.



4. **Import Report** dialog box appears. Click on **Choose File** button.

5. Choose the report you exported in the media device. Click on **Import**.

6. Once the report is imported, an alert box appears with a message **Import done successfully, Page is redirecting to the Disk Reports**. Click **OK**.

7. The report is imported successfully.

4.4. Perform System Configuration

BitRaser Hardware Diagnostics enables the user to configure various system settings with the help of Settings option available at the top right corner of the screen. This window contains various tabs which can be accessed to change various general and default settings of the software. Setting these configurations is either mandatory for setting up the application or for an ease of using the application. The following tabs are used to configure the settings:

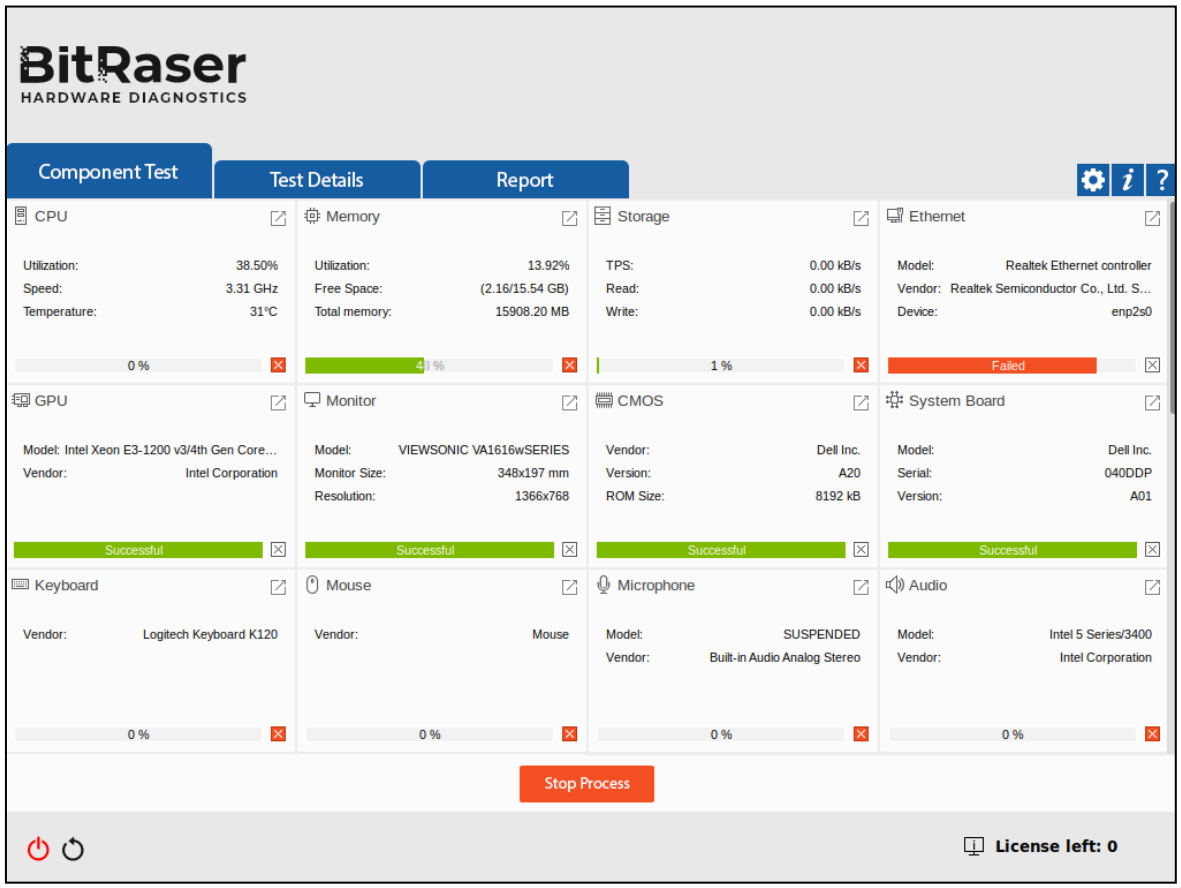
1. General settings
2. Test settings (Applicable only if you have licenses on BitRaser cloud)
3. Server Settings (Applicable only if you have licenses on BitRaser cloud)
4. Network Settings (Applicable only if you have licenses on BitRaser cloud)
5. Proxy Settings (Applicable only if you have licenses on BitRaser cloud)

4.4.1. General Settings

The **General Setting** tab allows the user to configure some very basic details that are needed in diagnostics process of the components like the keyboard layout settings and detailed diagnostic report of the health of components.

Steps to Configure General Settings:

1. Run **BitRaser Hardware Diagnostics**. The main screen appears as shown below:

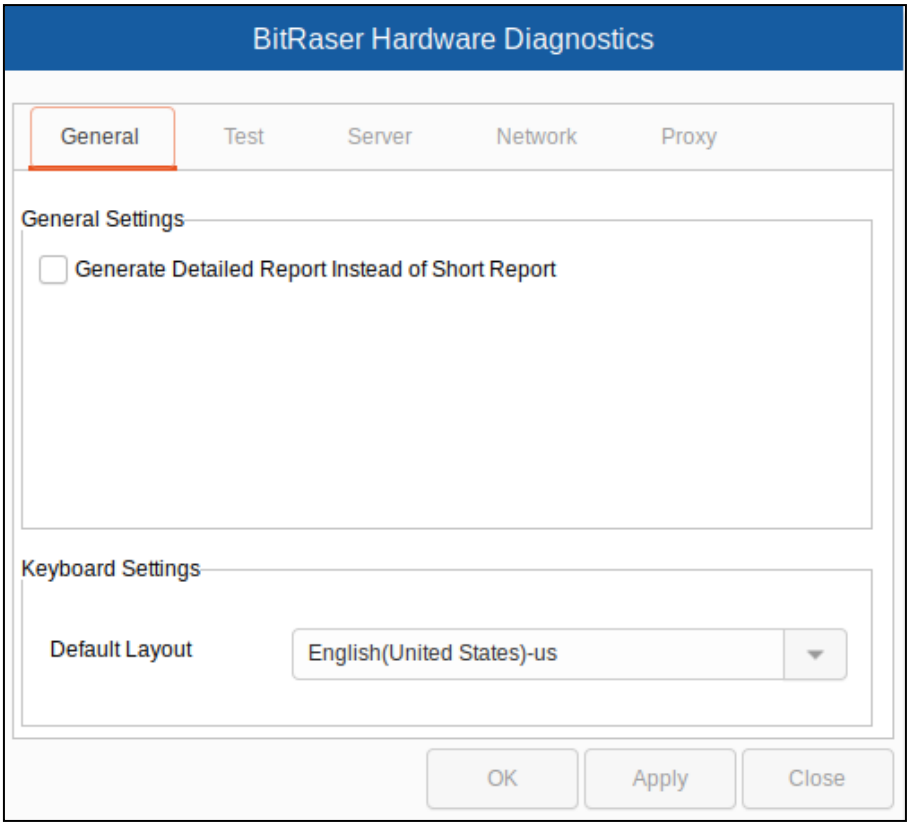


2. To access **General** settings, click on 

Stop Process button to stop the diagnostic process or wait for the completion of process.

3. Then, click on  **Settings** in the top right corner of the main screen. **BitRaser Hardware Diagnostics** screen appears.

4. Click on **General** tab.



General Settings:

- **Generate Detailed Report Instead of Short Report -** Check-mark this field to generate a diagnostic report where health information of each component currently present in the system is explained in detail.
- **Keyboard Settings** - Click **Default layout** drop down and select the language without changing the language that **BitRaser Hardware Diagnostics** is using on the screen. Changing the keyboard layout settings help you access accent marks and other specialized characters or for typing on a keyboard with a different language layout.

  The following keyboard Layouts are available with **BitRaser Hardware Diagnostics:**

  - Belgian (Belgium) - be
  - Chinese (China) - cn

- Danish (Denmark) - dk
- Dutch (Netherlands) - nl
- English (United Kingdom) - gb
- English (United States) - us
- Finnish (Finland) - fi
- French (France) - fr
- French (Canada) - ca
- French (Switzerland) - ch_fr
- German (Germany) - de
- German (Switzerland) - ch
- Hungarian (Hungary) - hu
- Italian (Italy) - it
- Japanese (Japan) - jp
- Korean (Korea) - kr
- Norwegian (Norway) - no
- Polish (Poland) - pl
- Portuguese (Portugal) - pt
- Portuguese (Brazil) - br
- Spanish (Spain) - es
- Spanish Latam (Latin American) - latam
- Slovak (Slovakia) - sk
- Swedish (Sweden) - se

4.4.2. Test Settings

BitRaser Hardware Diagnostics provides you with the option to perform quick and advanced functionality check on the components currently present in the system. In this section, both the tests are explained in detail.

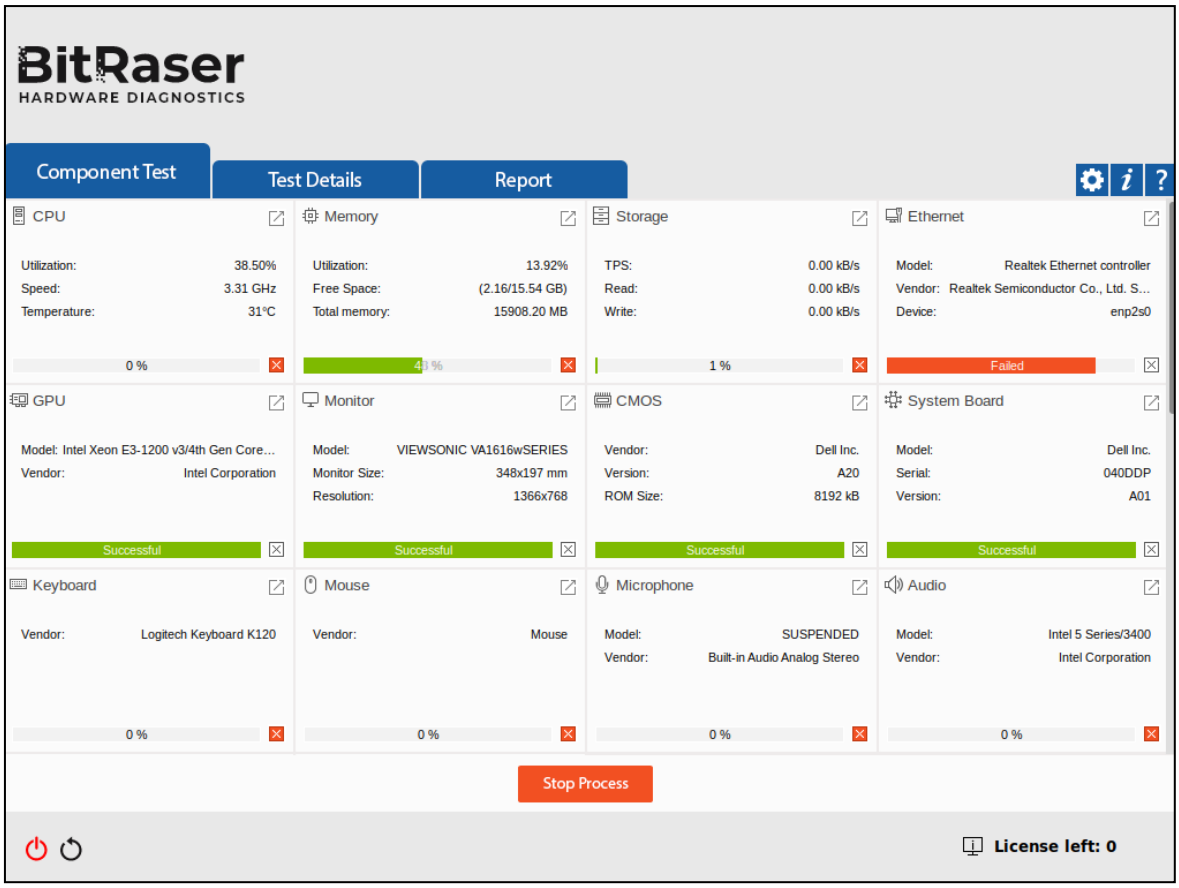
What are Quick and Advanced tests?

Quick Test - It is a diagnostic process which analyses and assesses the errors in components in a shorter period of time. It quickly identifies the hardware failures that affect the functionality of the system.

Advanced Test - It is a diagnostic process which performs deep level of analysis of the components in a longer period of time. It executes comprehensive scanning to identify any complex hardware related-issues.

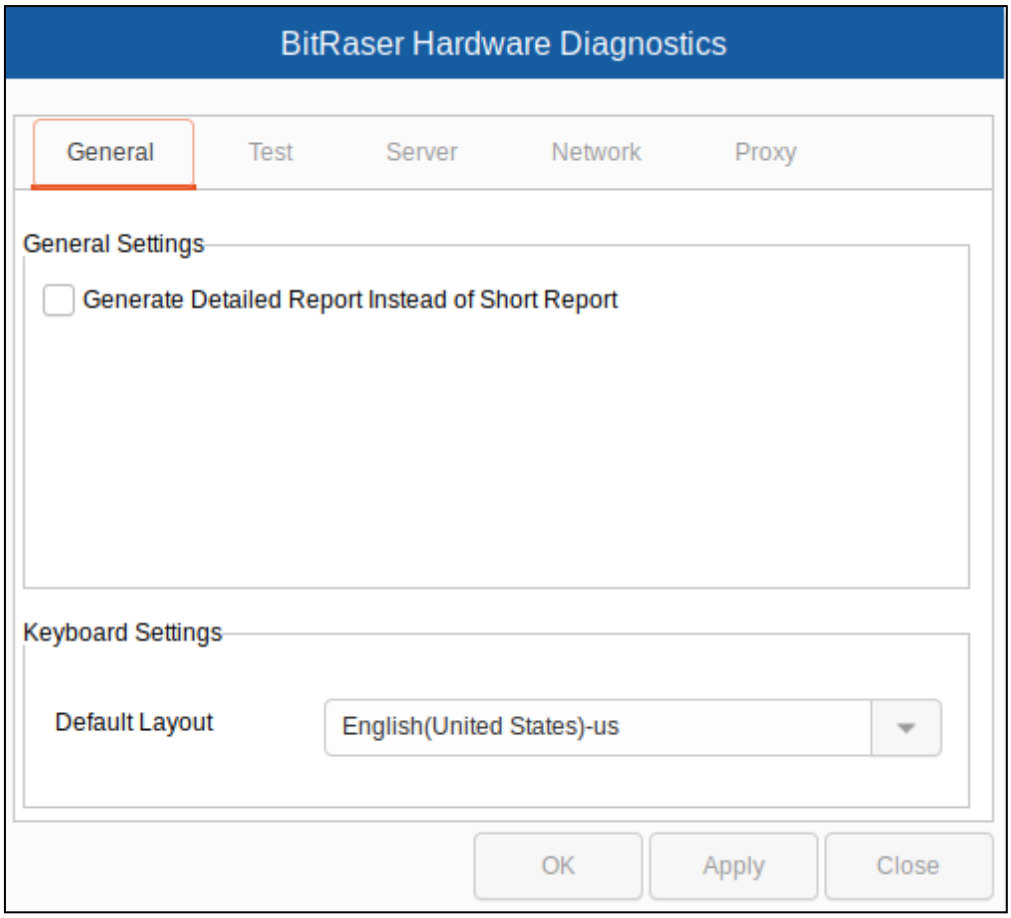
Steps to perform Quick Testing on the components:

1. Run **BitRaser Hardware Diagnostics**. The main screen appears as shown below.

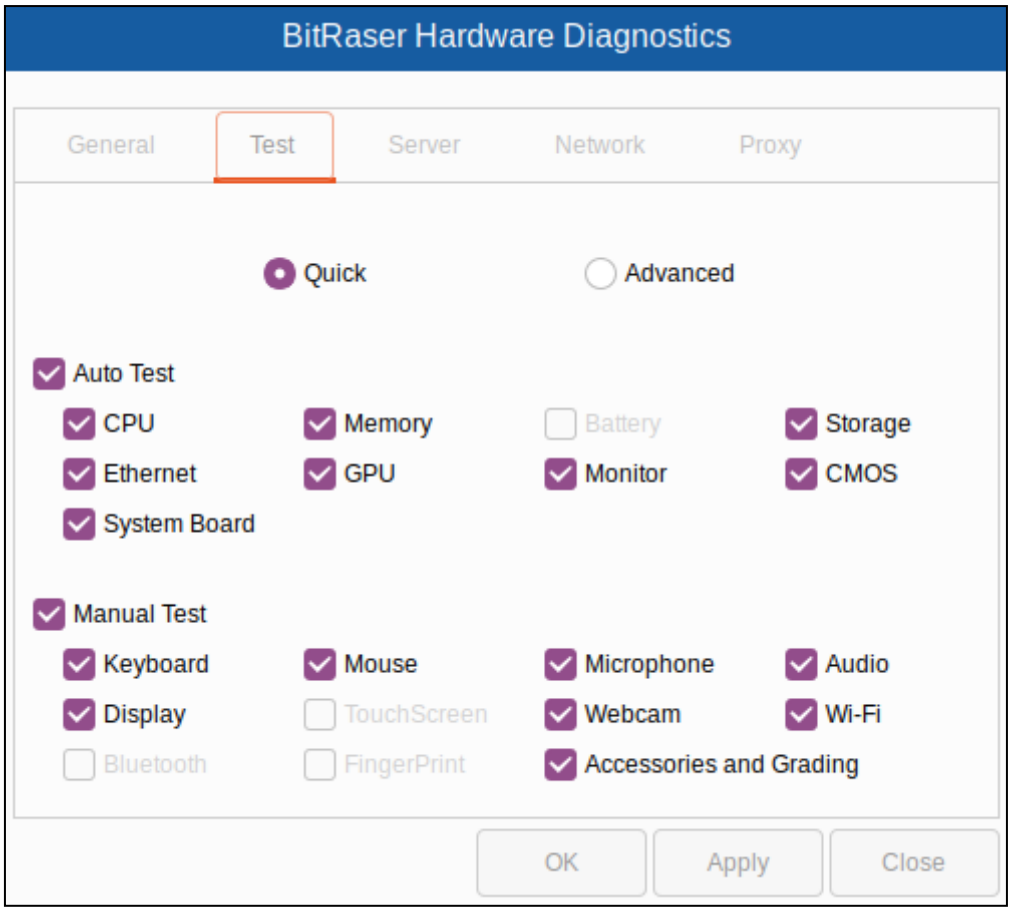


2. Click on  **Stop Process** button.

3. Click  **Settings** on the top right corner of the main screen. The **setting** window appears.



4. Click on **Test** tab.



5. The **Test** tab provides two options to perform testing on the components: Quick and Advanced.

6. Select the **Quick** Radio Button.

7. A screen appears with two options:

   Auto Test - Use this option to check all the components for auto-diagnosis.

   Manual Test - Use this option to check all the components for manual diagnosis.

   Note: *All the components currently not present in system are shown as disabled.*

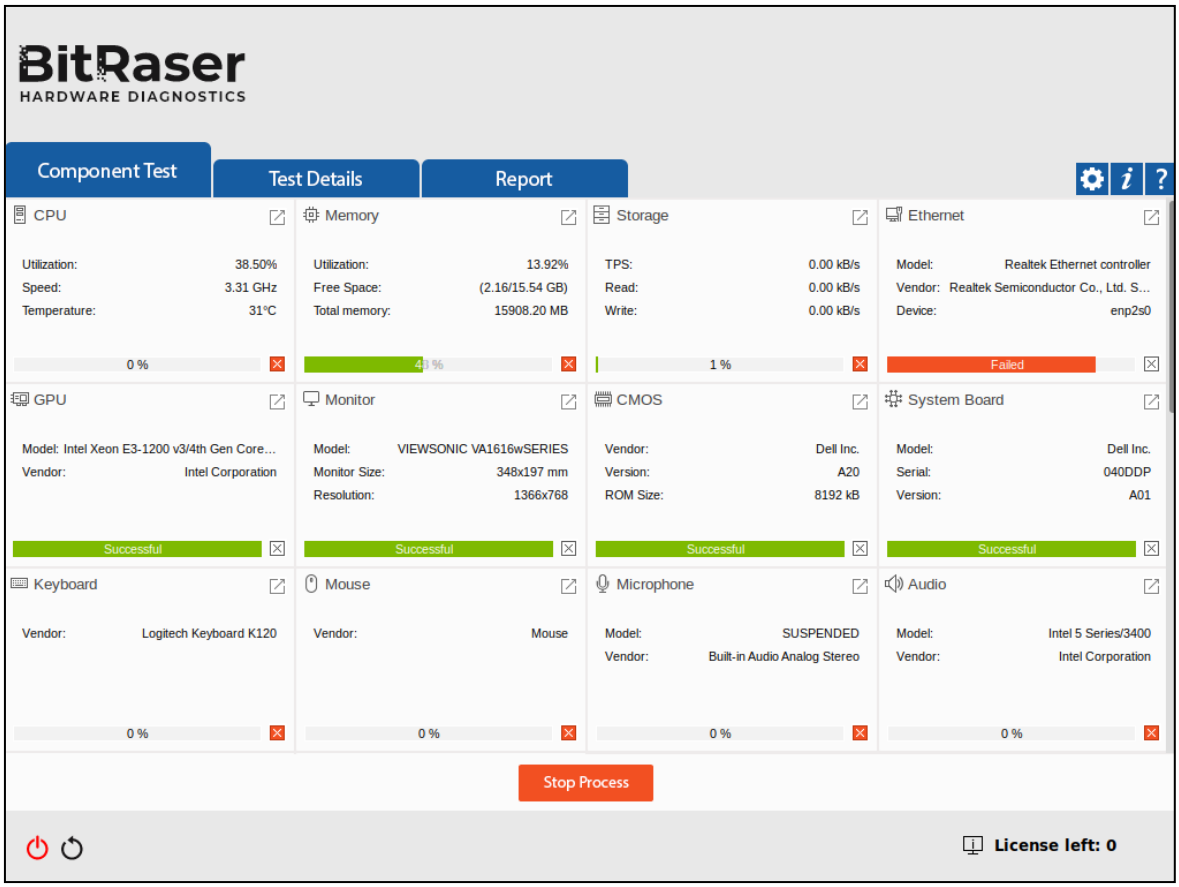
   Note: *You can also check the components individually if you don't wish to scan all the components.*

8. Click **Apply** to save the information.

9. Click **OK** to finish the process.

Steps to perform Advanced Testing on the components:

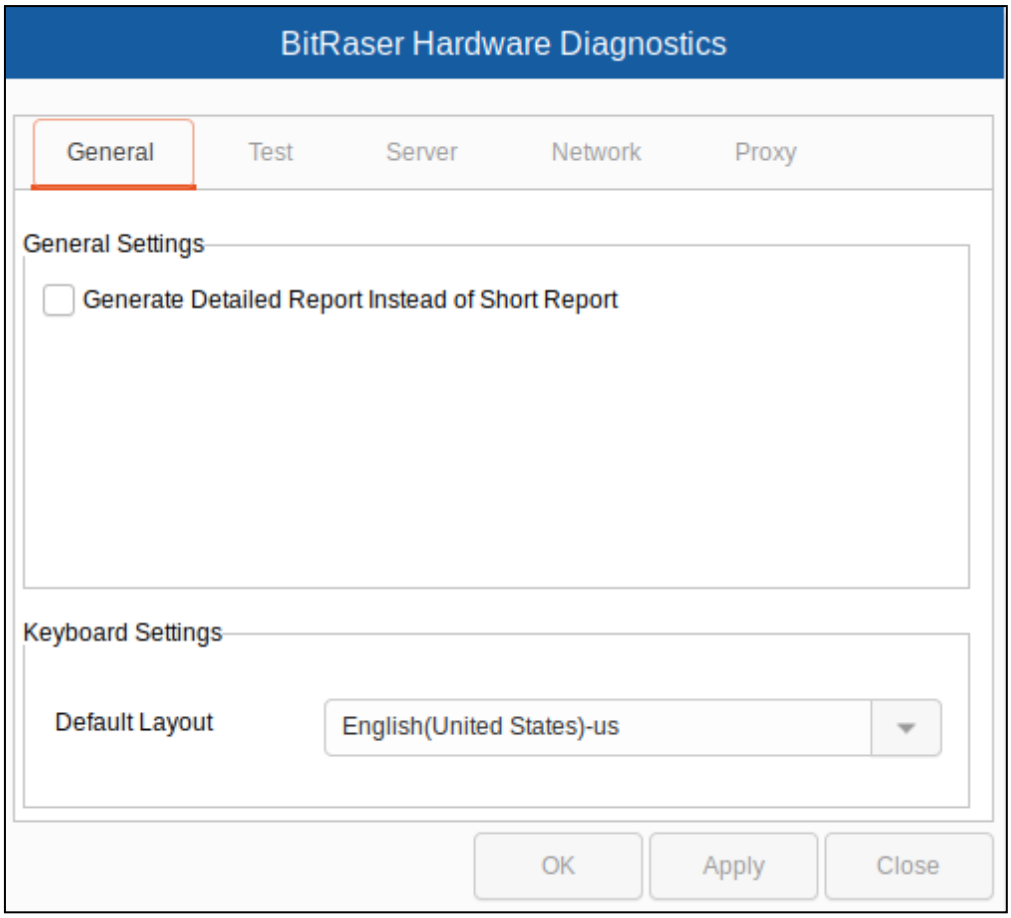
1. Run **BitRaser Hardware Diagnostics**. The main screen appears as shown below.



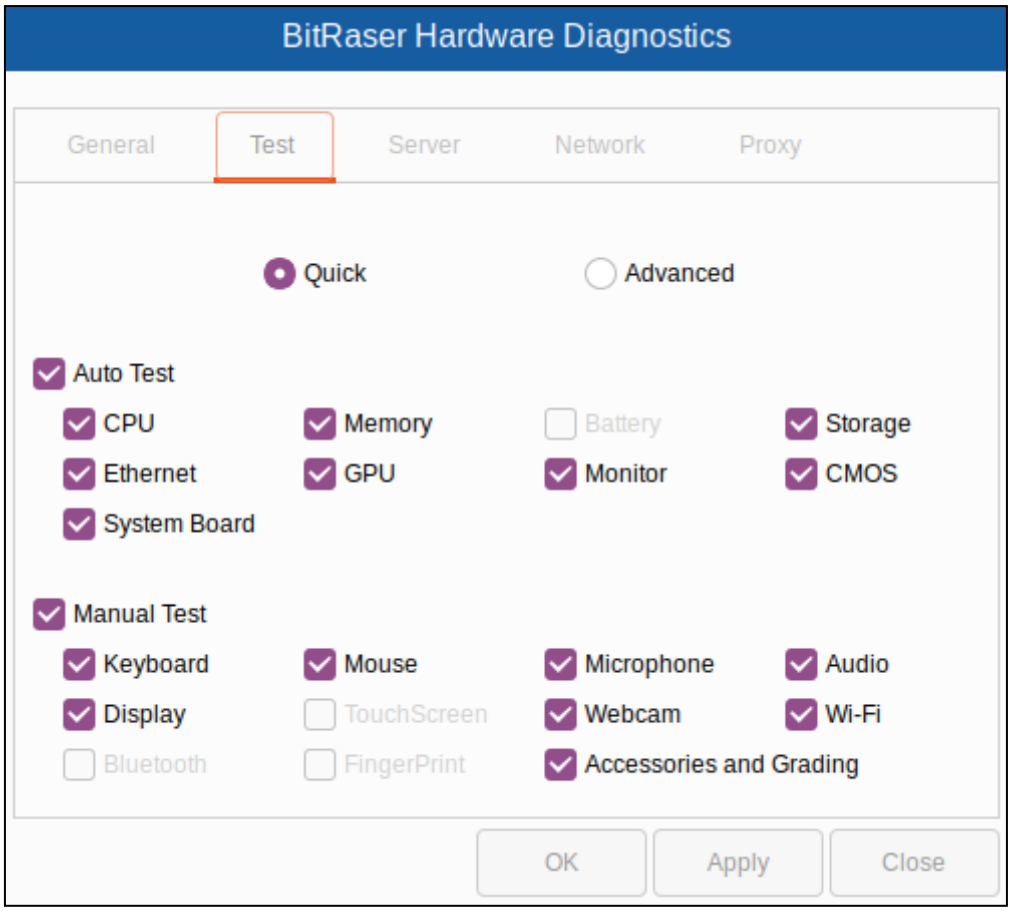
2. Click on 

Stop Process button.

3. Click on  **Settings** on the top right corner of the main screen. The **setting** window appears.

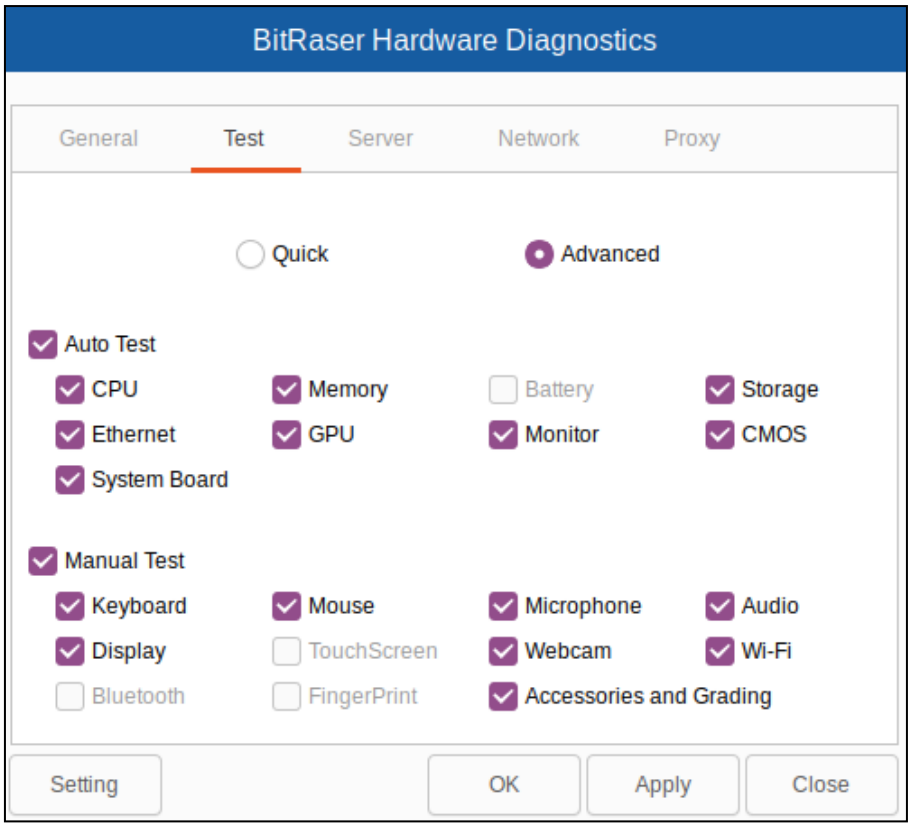


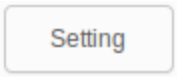
4. Click on **Test** tab.



5. The tab provides two options to perform testing on the components: Quick and Advanced.

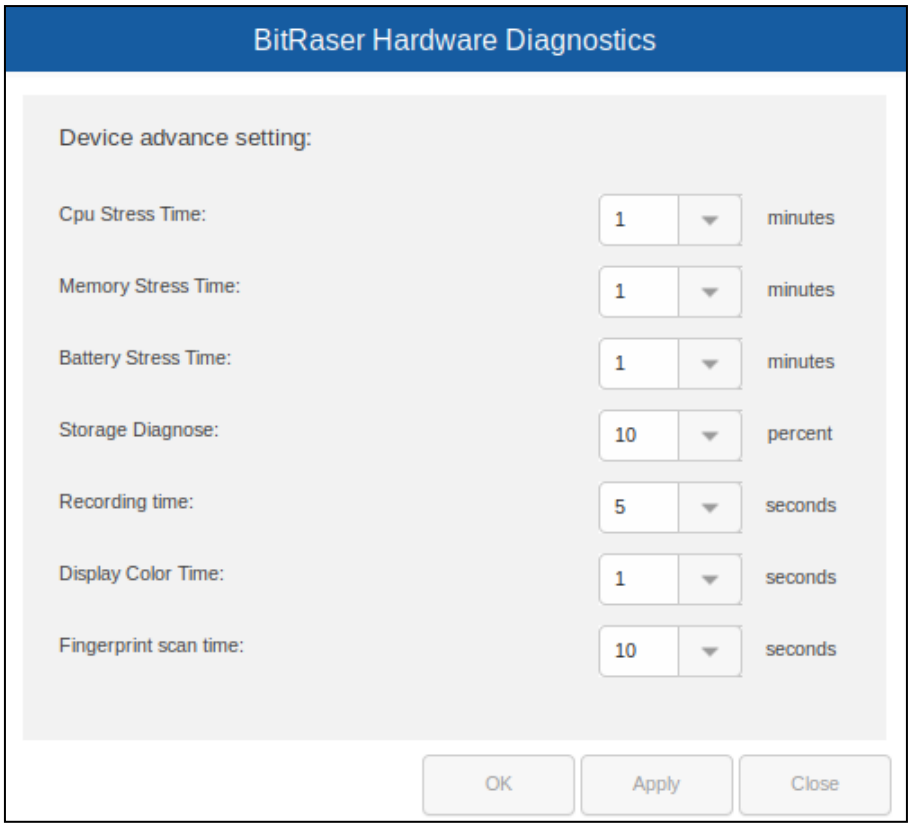
6. Select the **Advanced** radio button.



7. Click on 

Setting button at the bottom left of the **BitRaser Hardware Diagnostics** Window.

A window appears with the following options:



CPU Stress Time: Time duration for which CPU is under maximum load.

Memory Stress Time: Time duration for testing the memory under maximum load.

Battery Stress Time: Time duration for testing the battery under maximum usage.

Storage Diagnose: Time duration for testing the performance of secondary drive.

Recording Time: Time duration for testing the recording time of the system.

Display Color Time: Time duration for which display color settings remain active before changing to default.

Fingerprint scan Time: Time taken to authenticate a user by the fingerprint scanner.

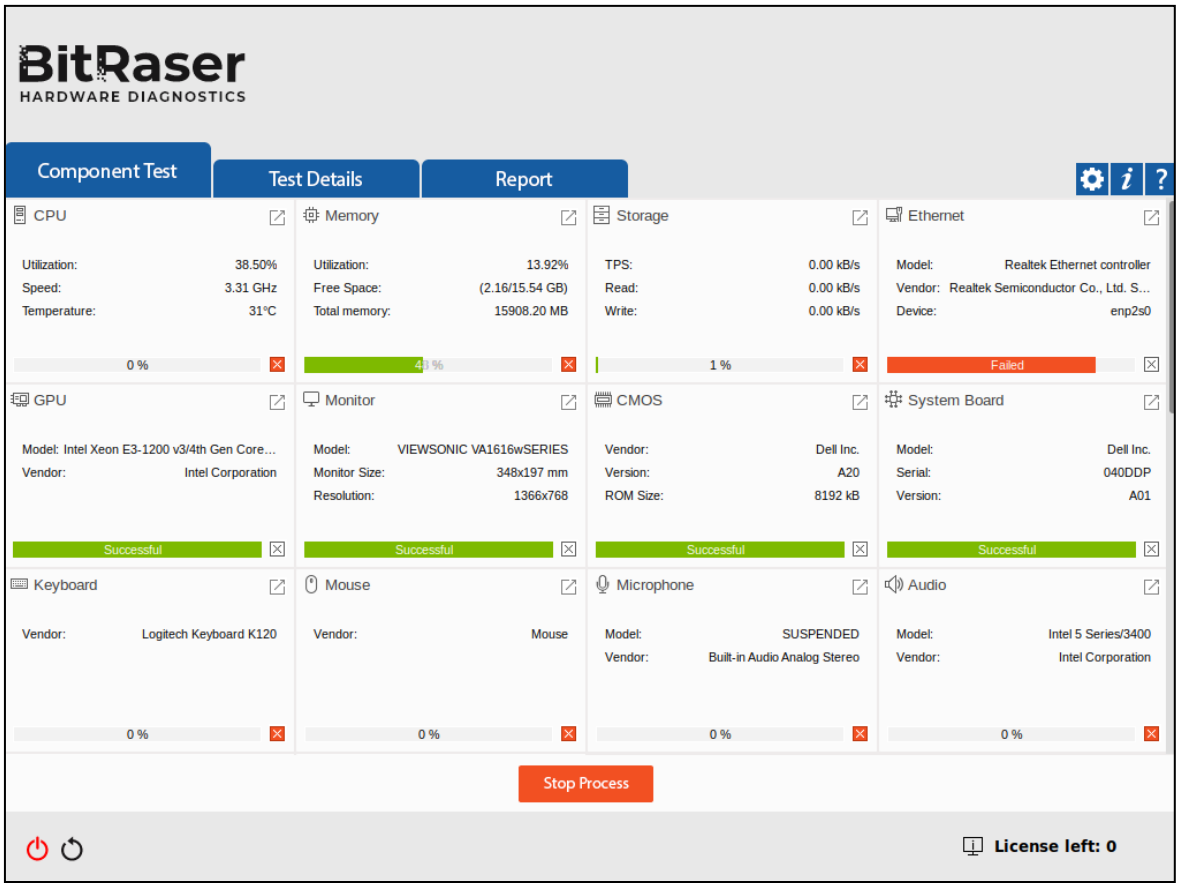
8. Use the drop-down menu opposite to the Device's **Advanced settings** to modify the scan time for each component.
9. Click **Apply** to save the information.
10. Click **OK** to finish the process.

4.4.3. Server Settings

In order to acquire the **BitRaser Hardware Diagnostics** licenses for performing the diagnostic process, you need to connect **BitRaser Hardware Diagnostics** application to the **BitRaser Server**. This section comprises of the entire procedure of connecting to cloud console.

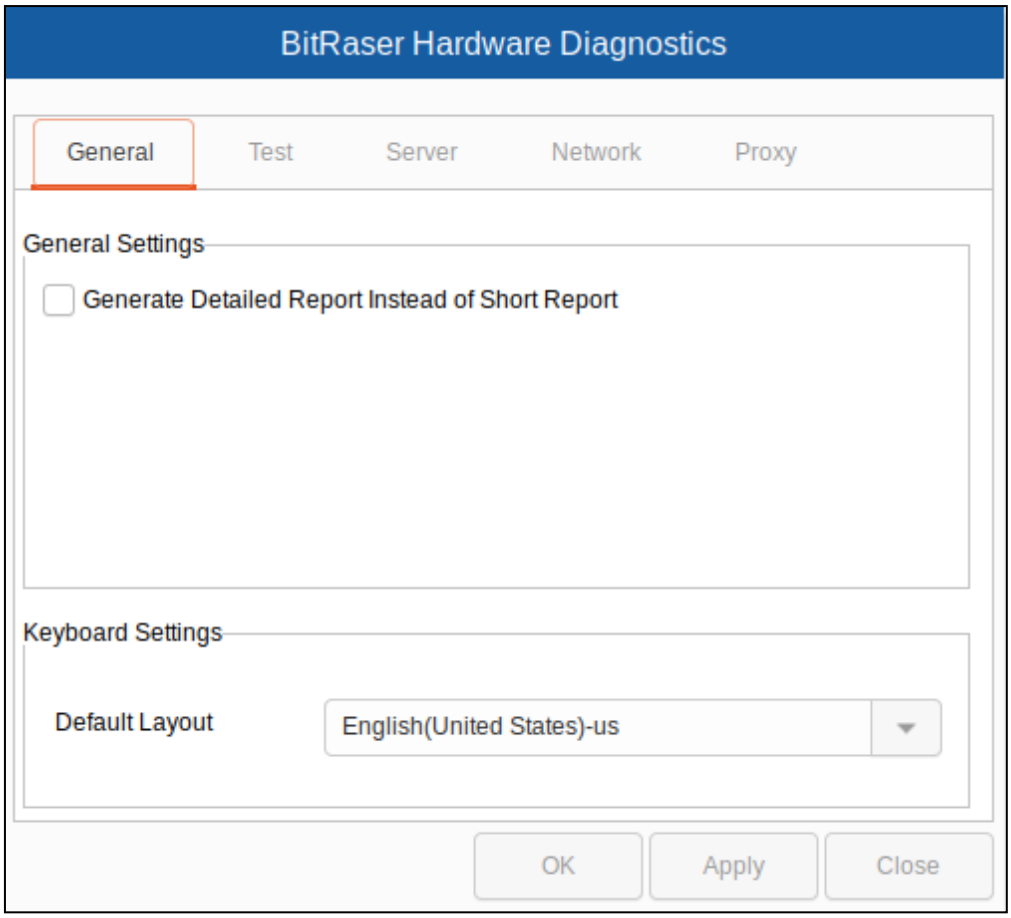
Steps to connect the BitRaser Server:

1. Run **BitRaser Hardware Diagnostics**. The main screen appears as shown below.

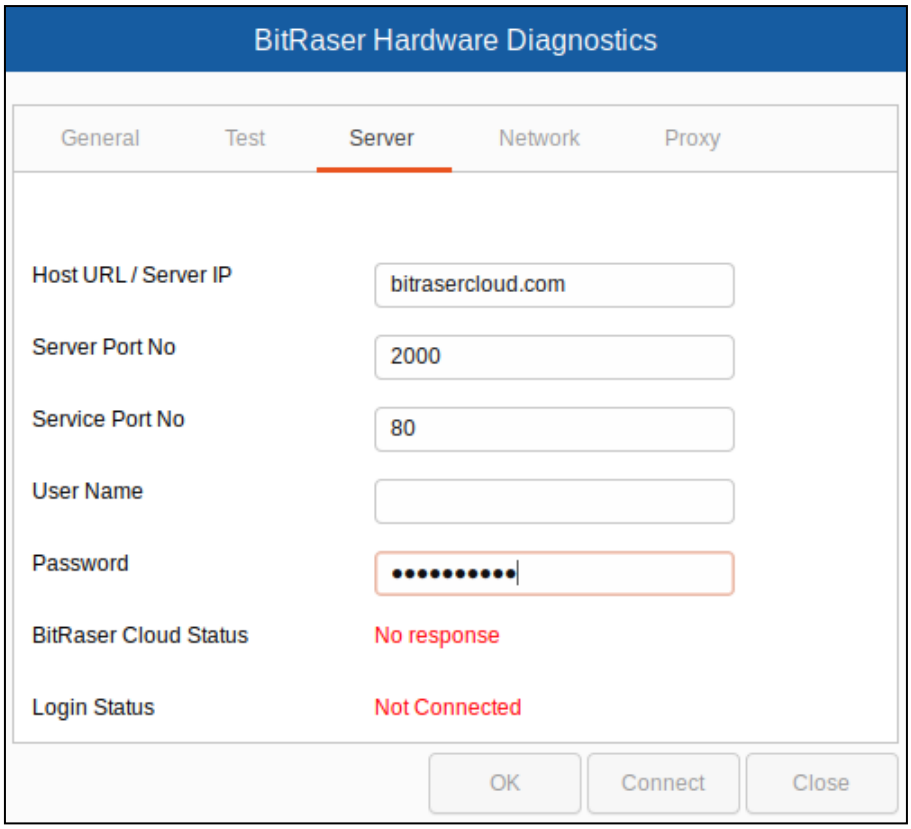


2. Click on  **Stop Process** button.

3. Click on  **Settings** on the top right corner of the main screen. The **setting** window appears.



4. Click **Server** tab. This tab has the following details to be filled:



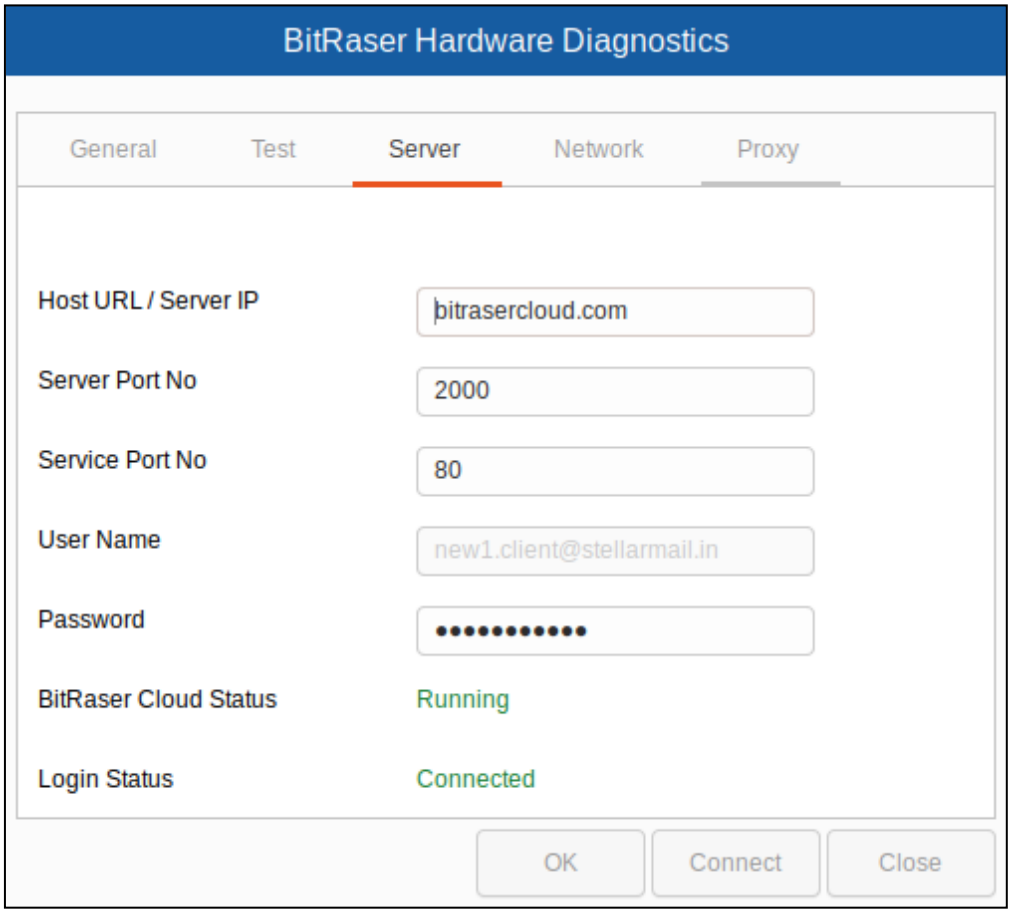
***Note: BitRaser** Cloud Status shows "**No Response**" when **BitRaser Cloud Server** is not accessible from your network otherwise it shows **Running**.*

Sr. No.	Field Name	Description
1.	Host URL/Server IP	It is the URL address where the BitRaser Cloud Console is located.
2.	User Name	It is the user name used to login to the BitRaser cloud console.
3.	Password	It is the password used to login to the BiRaser Cloud Console.

***Note:** The server (**Server Port No**) is listening on port **2000** and providing HTTPS service (**Service Port No**) on port 443 to establish a secure communication. These fields are disabled and cannot be modified.*

5. After filling the above details. Click **Connect**.

6. If the application is successfully logged into **BitRaser Server**, the Login Status shows **Connected**. If the login is unsuccessful, the Login Status shows **Not Connected**.



Note: *If the Login Status shows Not* ***Connected****, check if the details entered are correct and try again.*

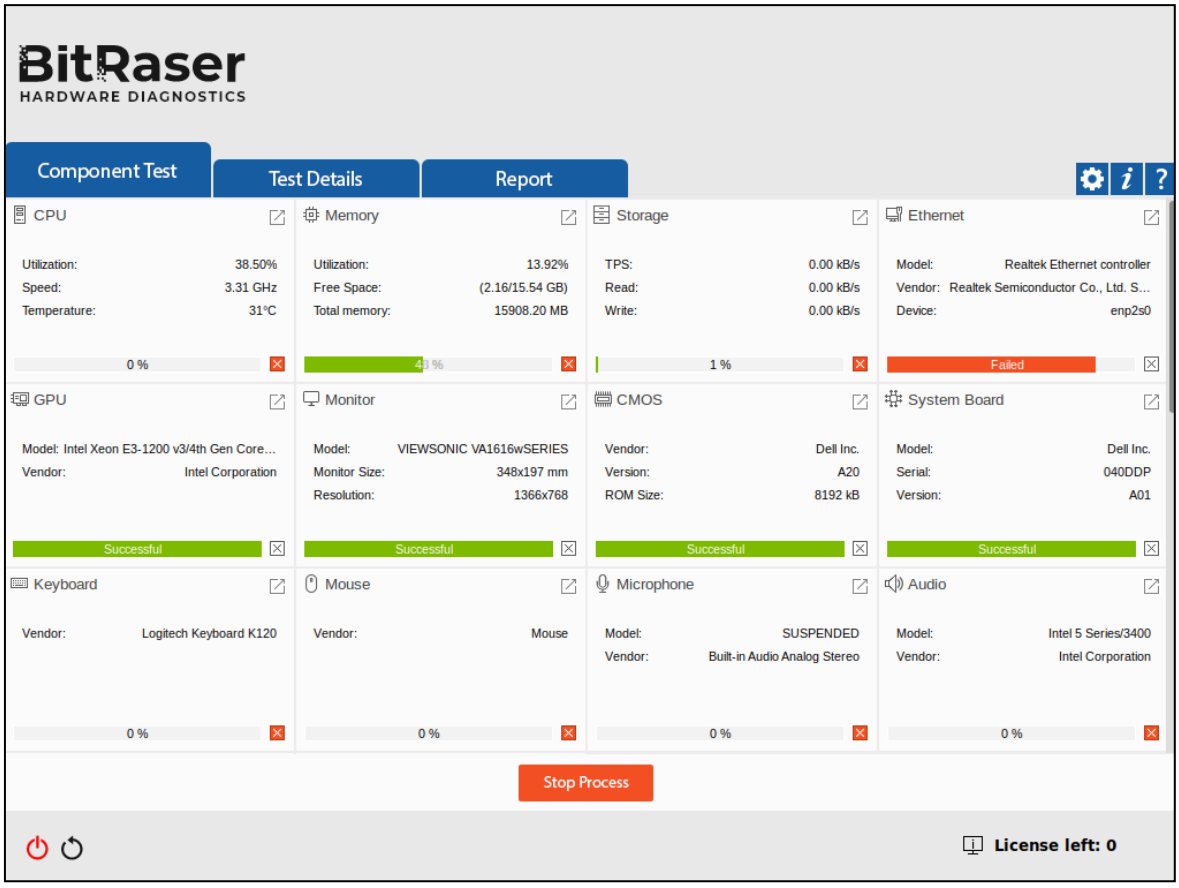
7. Click **OK** to finish the process.

4.4.4. Network Settings

Once the **BitRaser Hardware Diagnostics** application starts, you must connect it to the internet to fetch the license information and generate hardware diagnostics report.

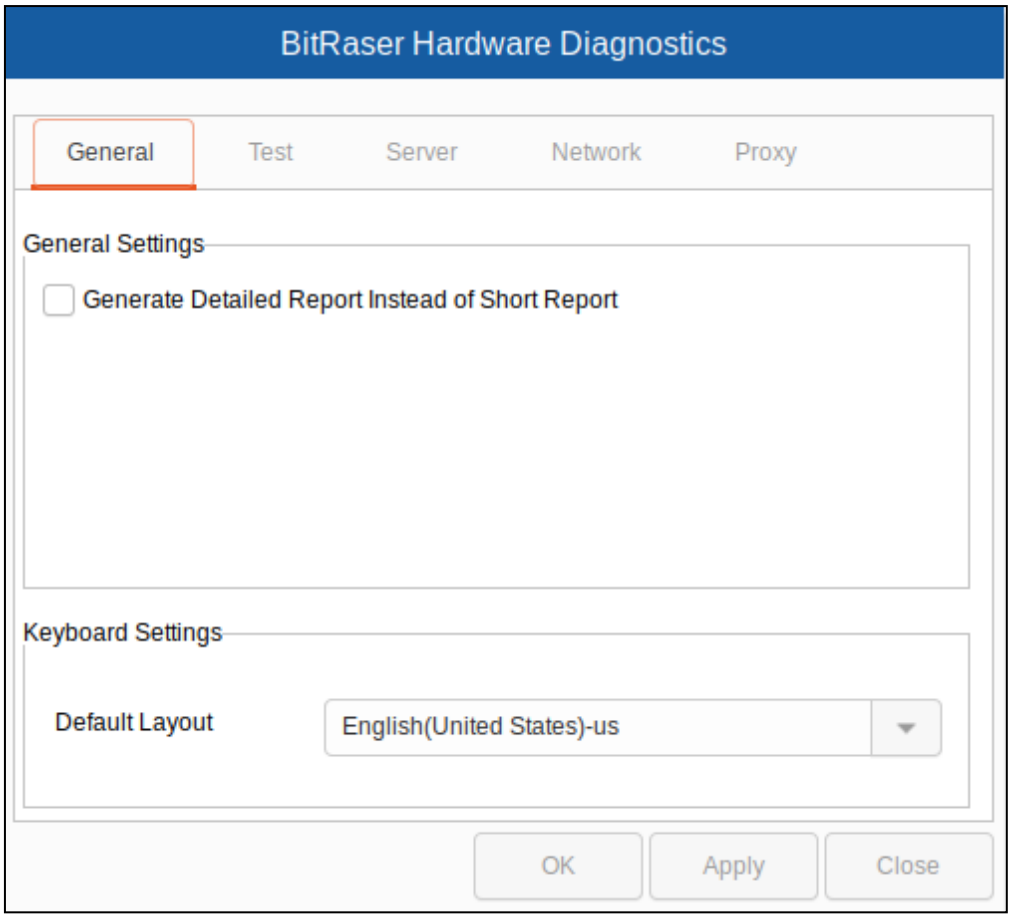
Steps to connect to the internet:

1. Run **BitRaser Hardware Diagnostics**. The main screen appears as shown below.



2. Click on  **Stop Process** button.

3. Click on  **Settings** in the top right corner of the main screen. The setting window appears.

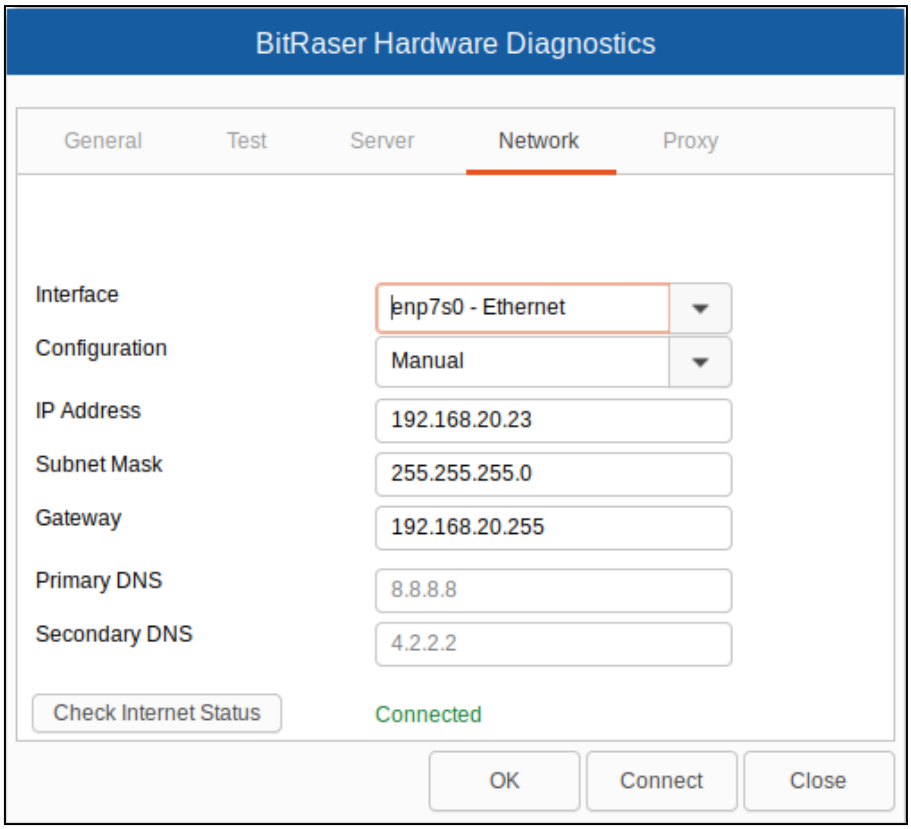


4. Click on **Network** tab. This tab has the following options to connect to the internet.

    - Ethernet
    - Wireless

Note: *The* ***Wireless*** *option will only be available if you have a wireless network card installed on your computer.*

- **Ethernet :** This option has the following fields:



Interface: Click the drop down button to select the device with which you wish to connect the **BitRaser Hardware Diagnostics** to the internet.

Configuration: Click the drop down button to select either Automatic (DHCP) or Manual Internet Protocol (IP) configuration as network management protocols.

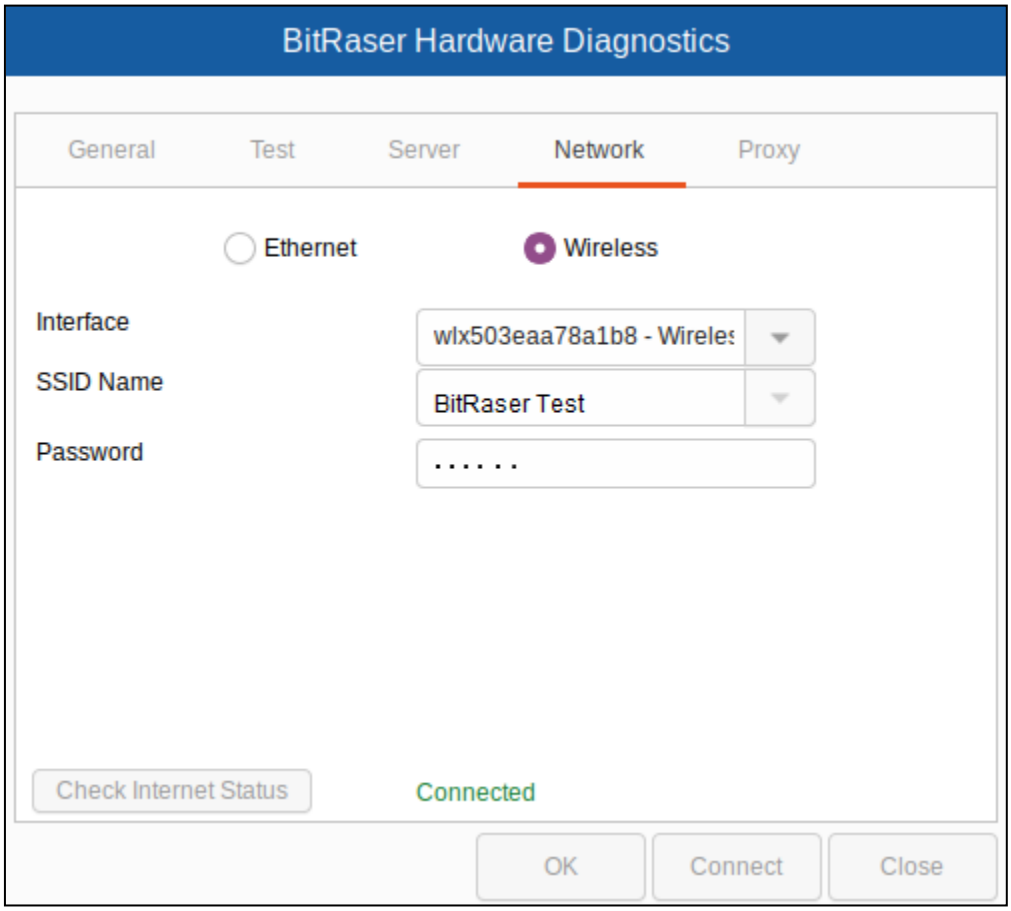
(i) **Automatic (DHCP) Configuration** - This configuration is selected by default. It fetches the IP address and other details automatically and fill up all the required fields.

(ii) **Manual Configuration** - The network settings of each device is configured manually. These are the following fields to be filled:

- **IP Address**: In the given field, enter the IP address provided by your network administrator. Further, enter the Subnet Mask in the field below it.

- **Subnet Mask**: In the given field, enter the subnet mask (subnetwork).
- **Gateway**: In this field, enter the network's gateway IP address.
- **Primary DNS**: In this field, enter the network's primary DNS IP address.
- **Secondary DNS**: In this field, enter the network's secondary DNS IP address.

- **Wireless :** This option has the following fields:



Interface: Click on the drop down menu to select the interface device you wish to use for wireless network connection.

SSID Name: Click on the SSID Name drop down menu to select the Wi-Fi network you wish to connect to.

Password: Enter the password of the wireless network you connected to.

Note: *You will not see any network in the* ***SSID Name*** *dropdown menu if the wireless adapter is switched off or is not configured correctly.*

5. After filling the above details, click Connect. Configured DHCP/ Network / Wifi connection message appears showing you that settings have been configured.
6. Check the internet connectivity by clicking on **Check Internet status** button.
7. If the application is successfully connected to internet, the **Network Status** shows **Connected**. If the connection is unsuccessful, the Network status shows **Delay in response**. **Check status again**.

Note: *If the* ***Network Status*** *shows Delay in response, Check* ***Status*** *again.*

- Check if the LAN cable is properly connected to your computer while using Ethernet.
- Check if the details you have entered are correct.

8. Click **OK** to finish the process.

Note: *If you wish to connect the internet using a proxy, refer to Proxy Settings.*

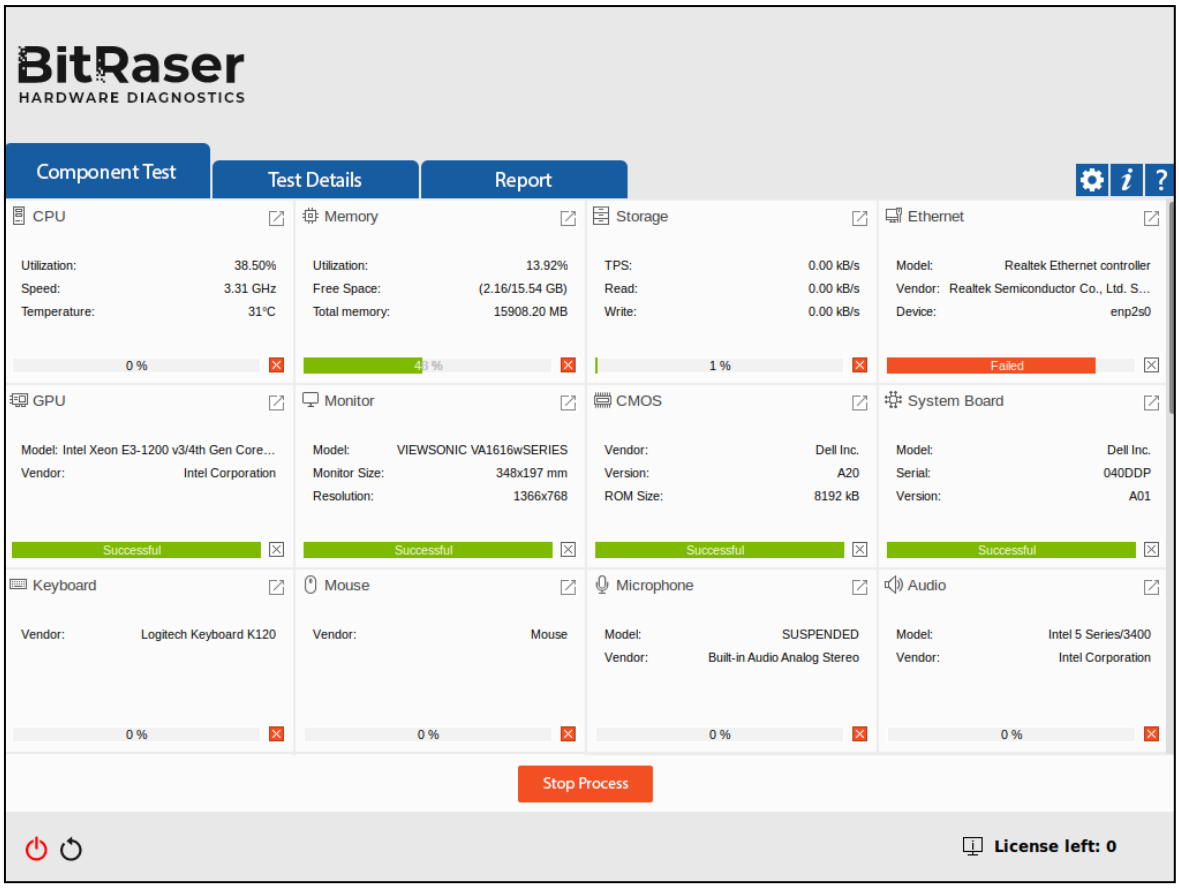
4.4.5. Proxy Settings

BitRaser Hardware Diagnostics provides an option Proxy Settings to bypass the network restrictions.

Add all the proxy details and then connect to the network to use the application.

Steps to connect to a Proxy:

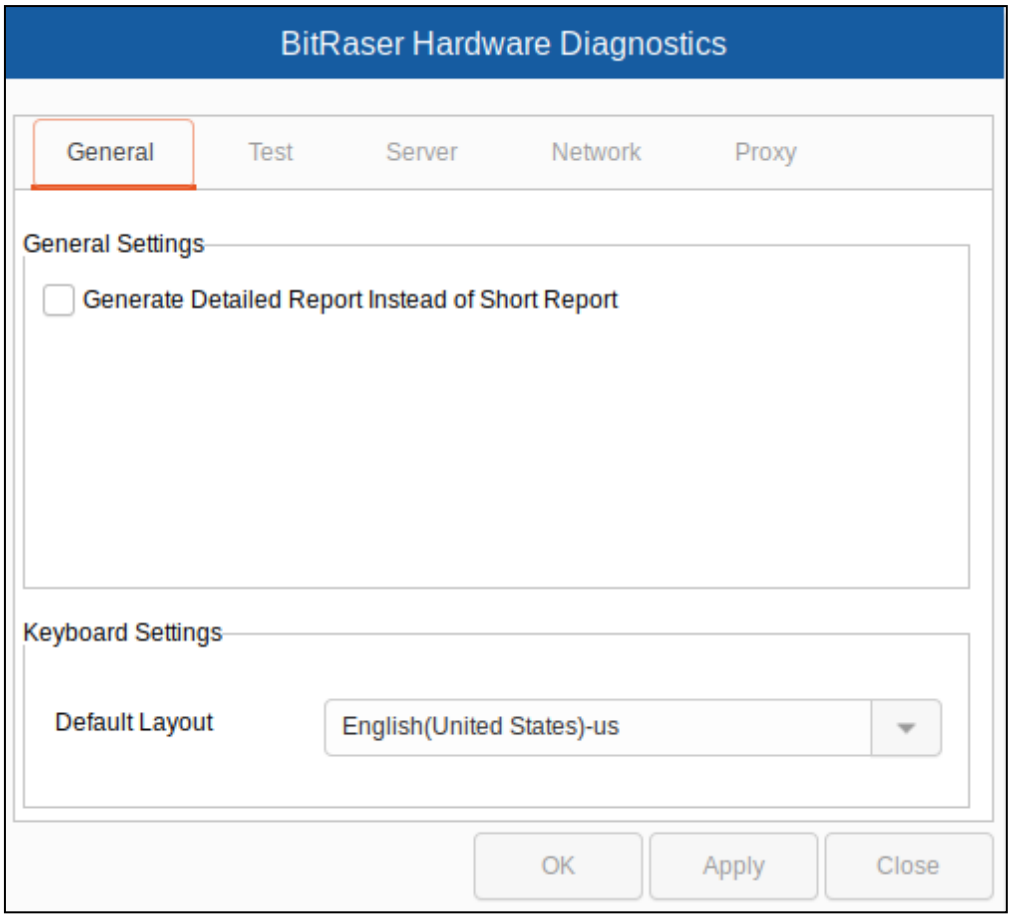
1. Run **BitRaser Hardware Diagnostics**. The main screen appears as shown below:



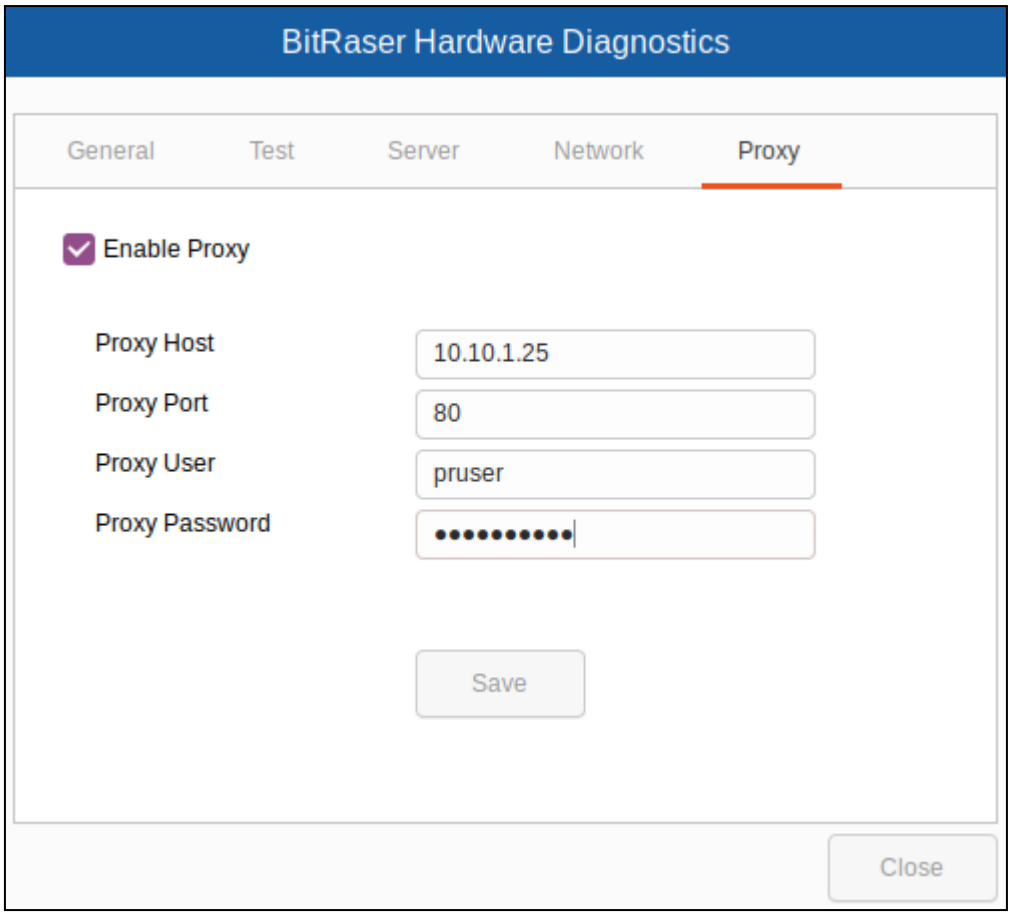
2. Click on 

Stop Process button.

3. Click on  **Settings** on the top right corner of the main screen. The setting window appears.



4. Click on **Proxy** tab.



5. Check the **Enable Proxy** check-box.

Note: *If you are connected to the internet, selecting* ***Enable proxy*** *will disconnect to the internet.*

The following fields are required to be filled:

Sr. No.	Field Name	Description
1.	Proxy Host	Enter the IP address of the proxy server.
2.	Proxy Port	Enter the port no. that the proxy server uses.
3.	Proxy User	Enter the proxy user name.
4.	Proxy Password	Enter the authentication password of the proxy user.

6. Click **Save** to save the entered proxy server details.

7. Use the Network Tab to connect to the internet with the saved proxy details.

5. Frequently Asked Questions (FAQ)

1. What is PC Diagnostics?

It is the process of checking the health and functionality of the components of a PC. A scan is run on each component to check whether it is working properly or not. Then, a diagnostic report is documented containing the information about the errors in the component, its model, vendor, sub vendor etc. Users can use this tool identify the issues in their hardware devices and resolve them at the earliest to prevent any future damage.

2. What is BitRaser Hardware Diagnostics and what are its main features?

BitRaser Hardware Diagnostics is a PC Diagnostics tool that updates user about the information and the health of the component so that early measures can be taken for the smooth operation of the system. Refer to the Key Features to know about its main features.

3. What is the difference between having licenses on BitRaser Lock Key and having licenses on BitRaser cloud?

BitRaser Hardware Diagnostics needs access to license data for the diagnostic process. This license information is stored either on a USB device called as **BitRaser Lock Key** or in **BitRaser cloud** with BitRaser Server. Both options are available for the users at the time of purchase. The major differences are listed as follows:

Sr. No.	Licenses on BitRaser Cloud	Licenses on BitRaser Lock Key
1.	Stores information on BitRaser Server.	Stores license information on a USB device.
2.	Needs connection to internet and BitRaser server while running the application.	Needs the USB device to be connected physically and internet connection is not required.
3.	Automatically delivers reports to BitRaser Cloud Console.	Reports need to be saved on a USB device.

4.	Cloud integration for user management.	User management option is not available.

4. In how many formats, can I save my diagnostic report?

BitRaser Hardware Diagnostics allows you to save the diagnostic report in three formats. You can save your diagnostic report in PDF, CSV or XML format.

5. Does BitRaser Hardware Diagnostics support other languages?

BitRaser Hardware Diagnostics is currently available in English language only. However, the keyboard layout can be changed to your preferred language from General Settings.

6. Is it possible to customize the diagnostics report?

Yes, you can customize the diagnostics report of **BitRaser Hardware Diagnostics** as per your requirement. To add details such as customer information, test and validator person details etc. and to add custom fields refer to Configure Test Details. To modify report settings such as logos, watermark and validator person signature, refer to View and Customize Report.

7. I want to hide the diagnostic information of some components. Is it possible?

Yes, it is possible. You can simply hide the diagnostic information of the components from the Test tab. Deselect all the components you wish to hide. Click on Apply. The main screen will appear without the diagnostic information of the components you deselected. For more information, refer to Test Settings.

8. How to view the tests running on the component?

BitRaser Hardware Diagnostics performs both automated and manual tests on different hardware components. To view the automated tests, refer to Auto Test. To view manual tests, refer to Manual Test.

9. I want to get diagnostic information of multiple drives, is it possible to do so using BitRaser Hardware Diagnostics?

Yes, of course, you can diagnose multiple drives at the same time. When you will click on  in Storage component, it will ask you which drive's information you need. Click on that particular drive to get the information.

10. I lost my internet connection while performing diagnosis. Will the report still be saved on cloud?

There is a possibility that the report may or may not be saved because of internet unavailability. Hence, it is recommended to manually send the report to the server. Refer to Export Report to know how to send the report to the server.

11. I want to access settings but when I click on it I am only able to see the Network and Proxy tab?

During the hardware diagnostic process, if you click on settings, you will only see the Network and Proxy Tab. Hence, click on Stop Process button to stop the scanning of components, then access settings to view other tabs in it.

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10. INTERNET CONNECTIVITY & PRIVACY

10.1. Automatic Connections to the Internet. The Software may cause Customer's Computer, without notice, to automatically connect to the Internet and to communicate with Stellar website or Stellar domain for purposes such as license validation and providing Customer with additional information, features, or functionality. Unless otherwise specified in Sections 10.2 through 10.5, the following provisions apply to all automatic Internet connections by the Software:

10.1.1. Whenever the Software makes an Internet connection and communicates with a Stellar website, whether automatically or due to explicit user request, the Privacy Policy shall apply. Stellar Privacy Policy allows tracking of website visits and it addresses in detail the topic of tracking and use of cookies, web beacons, and similar devices.

10.1.2. Whenever the Software connects to Stellar over the Internet, certain Customer information is collected and transmitted by the Software to Stellar pursuant to the Stellar Online Privacy Policy available at Stellar under Privacy Policy section.

10.1.3. If Customer accesses Stellar Online Service or activates or registers the Software, then additional information such as Customer's ID, user name, and password may be transmitted to and

stored by Stellar pursuant to the Privacy Policy and additional terms of use related to such Stellar Online Service.

10.1.4. Stellar, unless barred under applicable law, may (a) send Customer transactional messages to facilitate the Stellar Online Service or the activation or registration of the Software or Stellar Online Service, or (b) deliver in-product marketing to provide information about the Software and other Stellar products and Services using information including but not limited to platform version, version of the Software, license status, and language.

10.2. **Updating.** The Software may cause Customer's Computer, without additional notice, to automatically connect to the Internet (intermittently or on a regular basis) to (a) check for Updates that are available for download to and installation on the Computer and (b) notify Stellar of the results of installation attempts.

10.3. **Activation.** The Software may require Customer to (a) obtain Stellar Software Activation Key, (b) activate or reactivate the Software, (c) register the software, or (d) validate the Ownership. Such requirement may cause Customer's Computer to connect to the Internet without notice on install, on launch, and on a regular basis thereafter. Once connected, the Software will collect and transmit information to Stellar. Software or Customer may also receive information from Stellar related to Customer's license, subscription, or Ownership. Stellar may use such information to detect or prevent fraudulent or unauthorized use not in accordance with a valid license, subscription, or Ownership. Failure to activate or register the Software, validate the subscription or Ownership, or a determination by Stellar of fraudulent or unauthorized use of the Software may result in reduced functionality, inoperability of the Software, or a termination or suspension of the subscription or Ownership.

10.4. **Use of Online Services.** The Software may cause Customer's Computer, without additional notice and on an intermittent or regular basis, to automatically connect to the Internet to facilitate Customer's access to content and services that are provided by Stellar or third parties. In addition, the Software may, without additional notice, automatically connect to the Internet to update downloadable materials from

these online services so as to provide immediate availability of these services even when Customer is offline.

10.5. **Digital Certificates.** The Software uses digital certificates to help Customer identify downloaded files (e.g., applications and/or content) and the publishers of those files. For example, Stellar uses digital certificates to help Customer identify the publisher of Stellar applications. Customer's Computer may connect to the Internet at the time of validation of a digital certificate.

11. LIMITATION OF LIABILITY

In no event shall Stellar or its suppliers be liable for any special, incidental, indirect, or consequential damages whatsoever (including, without limitation, damages for loss of business profits, business interruption, loss of business information, or any other pecuniary loss) arising out of the use of or inability to use the software product or the provision of or failure to provide support services, even if Stellar has been advised of the possibility of such damages. In any case, Stellar's entire liability under any provision shall be limited to the amount actually paid by you for the software product or a sum of US Dollars Five whichever is higher.

12. TERMINATION

If Customer breaches this EULA, and fails to cure any breach within 30 calendar days after request from Stellar, Stellar may terminate this EULA, whereupon all rights granted to Customer shall immediately cease including but not limited to the license granted to the customer to use the software which shall also stand revoked. Furthermore, upon termination, Customer shall return to Stellar all copies of the Licensed Software, or verify in writing that all copies of the Licensed Software have been destroyed and failure of the customer to do so would entitle Stellar to sue for relief in equity and damages.

13. JURISDICTION AND LAW

13.1 This EULA is subject to, and will be governed by and construed in accordance with the substantive laws applicable to the state of Delhi (India). Courts at Delhi, India alone shall have the jurisdiction to entertain any dispute arising out of the terms and conditions of this EULA and you consent to such jurisdiction of the courts at Delhi, India.

13.2 This EULA will not be governed by the conflict of law rules of any jurisdiction, or the United Nations Convention on Contracts for the International Sale of Goods, the application of which is expressly excluded.

14. GENERAL

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14.8 This EULA may only be modified, supplemented or amended by a writing signed by an authorized officer of Stellar.

7. About Stellar

Stellar is the world's foremost Data Care Corporation, with expertise in Data Recovery, Data Erasure, Mailbox Conversion, and File Repair software and services. Stellar has been in existence from past 25+ years and is a customer-centric, critically acclaimed, global data recovery, data migration & erasure solutions provider with cost-effective solutions available for large corporate, SMEs & Home Users. **Stellar** is an ISO 9001 and ISO 27001 certified organization and has a strong presence across USA, Europe & Asia. For more information about us, please visit www.stellarinfo.com.