



NV-BM Series

PCIE Duplicator and Sanitizer

User Manual

v A.15



Index Table

v A.15

Product Disclaimer.....	3
Warranty.....	3
Piracy Statement.....	3
Before You Start.....	4
Notice Symbols	4
Functions Table.....	5
Product Overview	10
Functions	12
1.Copy	12
2. Compare.....	13
3. Copy+Compare.....	13
4. Erase.....	14
5. Utility	16
6. Setup.....	18
Image Management using PC Link Software.....	35

Product Disclaimer

U-Reach is not accountable for any incidental or consequential damages, including, but not limited to property harm, loss of time or data from use of any U-Reach product, or any other damages attributable to product malfunction or failure of including without limitation, those attributed to reliance of the materials provided, costs of product replacement, loss of use, data or profits, delays or business interruptions, any principle of legal responsibility arising from or in reference to the use, overall performance, delays in servicing, or lack of ability to render service of any U-Reach product. U-Reach makes every effort to ensure proper function of all products. However, the customer is responsible for verifying that the output of U-Reach product meets the customer's quality requirement. The customer further acknowledges that improper use of U-Reach products, software program, and/or hardware issues can cause loss of data, defective formatting, or unreliable data loading. U-Reach will make efforts to resolve or repair any issues recognized by customer either within the warranty period or on a time and materials basis. Specifications and features are subject to change without notice or obligation.

Warranty

U-Reach provides a basic, one-year parts and labor warranty for all its products, excluding cables, adapters, and other consumable items. An extended warranty may be purchased. Telephone and email support are available for the life of the product as defined by U-Reach.

All warranties are specific to a market region and will be defined per the market region in which the product was purchased.

Piracy Statement

U-Reach accepts no responsibility for copyright infringement or misuse of any U-Reach equipment. Copying any form of data (audio, video, or software) without the permission of the copyright holder is illegal. It is the sole responsibility of the user to ensure that the legal copyrights of the copyright owners are respected.

Before You Start

Important Notice

- Carefully read the entire manual before operating.
- Make sure the source device is correct and functioning.
- Equal capacity of source and target is recommended for guaranteed data consistency.
- Using the Copy+Compare function provides the most flawless duplication.
- Damage incurred due to non-compliance with U-Reach operating instructions will void the warranty.
- Store the equipment safely when not in use and keep out of the reach of children.
- Please turn off duplicator before replacing sockets.
- Never turn off the power while the firmware updates.
- Use only approved, stable power sources.
- The power supply has overload protection. When it is overloaded and shutdown, please unplug the power cord for 2 minutes for discharging.
- Use product only in a clean, dry, dust-free, and ventilated area. Liquids or foreign debris can severely damage your duplicator.
- It is typical for the machine to heat up during operation.
- While in use, do not move the duplicator or remove HDDs.
- Static electricity may cause duplication error. Please pay attention to the duplicator's environment while operating equipment. Purchasing electricity elimination equipment helps avoid shock.
- Devices will operate at high temperatures during selected tasks.
- Wear protective gloves to prevent burns when handling devices.
- Ensure machine and operator are properly grounded to prevent ESD.

Notice Symbols

Special items, procedures, or notes to be observed prior to use:

Note

Refers to related duplicator operations, special details, tips, or suggestions for operational effectiveness.

Caution

Refers to procedures that need to be adhered to or precautions.

Functions Table

Functions	Descriptions	
1. Copy	1.1 Source Port Copies data from the device connected to the Source Port (Port #1).	
	1.2 Internal Storage (<i>Available when internal SSD is installed</i>) Copies saved data images from the duplicator's internal storage device.	
2. Compare	2.1 Source Port Verifies data, bit-by-bit, from the device connected to the Source Port (Port #1).	
	2.2 Internal Storage (<i>Available when internal SSD is installed</i>) Verifies saved data images, bit-by-bit, from the duplicator's internal storage device.	
3. Copy + Compare	3.1 Source Port Copies and verifies data, bit-by-bit, from the device connected to the Source Port or Port #1.	
	3.2 Internal Storage (<i>Available when internal SSD is installed</i>) Copies and verifies saved data images, bit-by-bit, from the duplicator's internal storage device.	
4. Erase	4.1 Quick Erase Erases device(s)' index table.	
	4.2 Full Erase (NIST Clear) Erases entire device(s) complying with NIST 800-88 Standards.	
	4.3 DoD3 Pass Erases device(s) complying with DoD 5220.22-M Standards.	
	4.4 DoD3 Pass+Compare Erase device(s) complying with DoD 5220.22-M Standards and verifies complete erasure.	
	4.5 Secure Erase(NIST Purge) Erases the non-loadable areas complying with NIST 800-88 Standards.	
	4.6 Enhanced Secure Erase Erases devices that support this feature.	
5. Utility	5.1 Show Device Info Displays basic information such as device model, name, capacity, etc.	
	5.2 System Update	5.2.1 Update BIOS

	Updates system firmware		Updates system firmware through the source or USB port.
			5.2.2 Create Update Device Prepares firmware update device by formatting the device to a 2GB FAT partition.
	5.3 System Info Displays system information such as controller, model number, software version, etc.		
	5.4 Burn SSD Firmware Begins firmware update for compatible SSDs.	5.4.1 Load New Firmware	
		5.4.2 Burn FW→SSD Slot1	
		5.4.3 Burn FW→SSD Slot2	
		5.4.4 Burn FW→SSD Slot3	
		5.4.5 Burn FW→All Slot	
		5.4.6 Show SSD Version	
		5.4.7 Power Off Time	
5.5 Calc. CRC64 Calculates the CRC64 value of the source device.			
6. Setup	6.1 Start-up Menu Sets default function to display after equipment initialization.		
	6.2 Copy Mode	System and Files Copies data and skips empty space. Only supports standard formats.	
		ALL Partitions Copies all partitions and data, unallocated partitions not included.	
		Whole Device Copies all source data, bit by bit.	
		Percentage (%) Sets percentage of source capacity to copy.	
		Custom Data Copy Analyze the data location and then copy. It doesn't have format limitation.	

	6.3 Copy GPT Backup Area Enable this function to copy the GPT backup area.		
	6.4 Skip Bad Sectors Skips bad sectors during Copy/Compare.		
	6.5 Language Sets preferred language: English, Japanese, Spanish.		
	6.6 Advanced Setup	6.6.1 Unknown Format	Copy Unknown Copies unknown format(s).
			Skip Unknown Skips unknown format(s).
		6.6.2 Erase Source Port	Disabled Source port will be unable to erase.
			Enabled Source port will be able to erase.
		6.6.3 Erase Pattern	One Byte Sets to write random character.
			Big Random Data Sets to write random block of data.
		6.6.4 Skip Bad Sector at Erase	Skips bad sectors during Erase.
		6.6.5 HPA Copy Mode	Do Not Copy HPA
			Keep Target HPA
			Clear Target HPA
			Setting Target HPA
			Copy and Setting
		6.6.6 Clear HPA at ERASE	Clear HPA Setting Clears HPA setting during erase.
			Keep HPA Setting Keeps original HPA setting during erase.
		6.6.7 Device Power-up Sets device power up buffer time prior to copy, erase, etc.	
		6.6.8 Scroll	Do NOT Lock Key

		Lock	Do Lock Key Only down/up buttons are disabled. Reboot system for setting to be in effect.
		6.6.9 Stop Motor Time Sets device power down buffer time prior to device disconnection.	
		6.6.10 Password Setup Sets up the login password.	
		6.6.11 Delete Device Signature After Copy	No
			Yes Do not copy the disk signature onto target devices.
		6.6.12 PCIe Speed Sets data transmission speed.	
		6.6.13 Target Tolerance Sets the capacity tolerance range between the source and target. The default setting is “No limit”.	
		6.6.14 Clear SSD Before Copy	No The default setting is “No”.
	Yes		
	6.7 Restore Defaults Reinstates manufacturer settings.		
7. Log Manager	7.1 Today’s Log Report Outputs today’s log data.		
	7.2 Recent Log Report Outputs recent log data.		
	7.3 Custom Log Report Outputs a set period of log data.		
	7.4 Advanced Function Default password: 123456	7.4.1 Clear All Logs Clear all log records.	
		7.4.2 Password Setup Allows password change.	
		7.4.3 Adjust Time/Date Change time and date.	
		7.4.4 Add Watermark at text File Creates watermark on the log report.	

	7.5 Export System Info Creates a file containing the current system details and exports it to the attached USB drive.
8. Image Manager (Available when the SSD is inserted into the slot or else this function will not be displayed in the menu.)	8.1 Copy SSD to Image Uploads the source data onto internal SSD.
	8.2 Compare SSD with Image Compares the source data with an image file stored in the internal SSD.
	8.3 Show Image Tank Displays the disk information of the internal SSD.
	8.4 Show One Image Display image information.
	8.5 Rename One Image Rename an image file.
	8.6 Delete One Image Delete an image file in the internal SSD.
	8.7 Format Image Tank Formats the internal SSD.

Product Overview

- Front View

USB port for Log
Report Outputs
and Firmware
Updates.



Control Buttons

OK Button

LCD Display

SSD slot for saving
Master Images.

- Back View



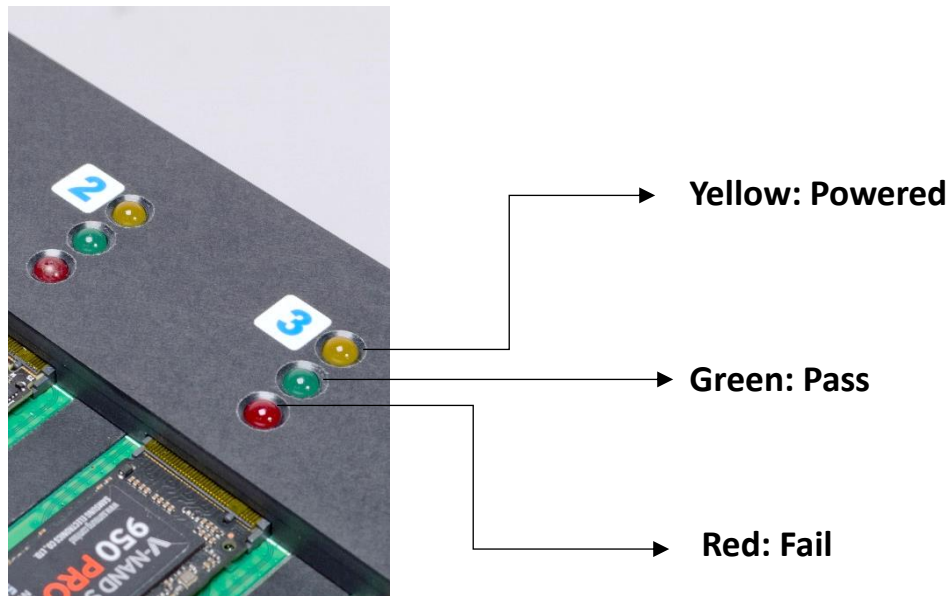
USB Port
for PC-LINK

Power Input

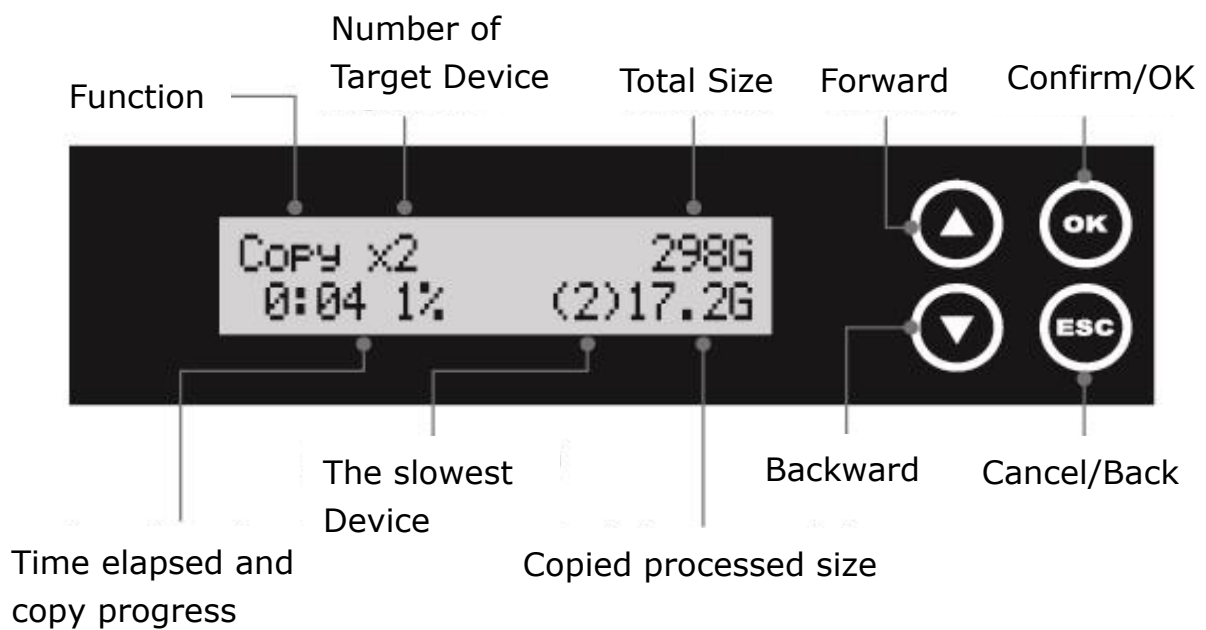
Power Switch

Grounding Port

- LED Status



- LCD Configuration



Functions

1.Copy

Step 1: Prepare source and target devices.

Note

Recommendation: Target device(s)' capacity must be equal to or larger than the source device capacity.

Step 2: Connect source and target devices.

Step 3: Proceed to copy.

Scroll to select “1. Copy”, then press “OK” to select which source to copy from. Scroll to select “1.1 Source Port” or select “1.2 Internal Storage”, then press “OK” to start the duplication process.

Note

The number of working/connected targets will be displayed on the LCD. Press “OK” to start.

The following information below states what is displayed on the LCD during duplication.

Function		Total Data	
Copy		40.0G	
3ready			

Function		Total Data	
Copy x3		40G	
1:38	25%	(4)	10.3G
Copied	Slowest	Copied	
Time & %	Port	Data	

Note

Press ▲ ▼ together for 5 seconds to stop operation on the slowest device.

Step 4: Copy Completed!

The quantity of passed or failed target device(s) and the copy duration will be displayed on the LCD after duplication completes.

1.1 Source Port

Scroll to select “1. 1 Source Port”, then press “OK” to copy to targets from the source port.

1.2 Internal Storage *(Available when internal SSD is installed)*

Scroll to select “1. 2 Internal Storage”, then press “OK” to select which GOB Image to copy from the duplicator’s built-in storage device. The GOB Image is created through U-Reach’s proprietary software that is included with the duplicator or through the Image Manager (function 8 when an SSD is installed).

Caution

1. When “1.2 Internal Storage” is selected, the 1st port becomes a target port automatically (e.g. NV-BM600 will become a 1-6 duplicator). Please use the duplicator carefully as the manufacturer will not be held responsible for any data loss.
2. The GOB Image (internal storage) will not copy to smaller target capacities.

2. Compare

Scroll to select “2. Compare”, then press “OK” to select which source to verify from. Scroll to select “2.1 Source Port” or select “2.2 Internal Storage”, then press “OK” to start the verification process.

Note

The number of working/connected targets will be displayed on the LCD. Press “OK” to start.

2.1 Source Port

Scroll to select “2. 1 Source Port”, then press “OK” to verify targets from the source port.

2.2 Internal Storage *(Available when internal SSD is installed)*

Scroll to select “2. 2 Internal Storage”, then press “OK” to select which GOB Image to verify from the duplicator’s built-in storage device. The GOB Image is created through U-Reach’s proprietary software that is included with the duplicator or through the Image Manager (function 8 when an SSD is installed).

3. Copy+Compare

Sequentially automates from Function 1, Copy to Function 2, then Compare.

Scroll to select “3. Copy+Compare”, then press “OK” to select which source to copy and verify from. Scroll to select “3.1 Source Port” or select “3.2 Internal Storage”, then press “OK” to start the automated duplication and verification process.

3.1 Source Port

Scroll to select “3. 1 Source Port”, then press “OK” to copy to and verify targets from the source port.

3.2 Internal Storage *(Available when internal SSD is installed)*

Scroll to select “3. 2 Internal Storage” , then press “OK” to select which GOB Image to copy and verify from the duplicator’s built-in storage device. The GOB Image is created through U-Reach’s proprietary software that is included with the duplicator or through the Image Manager (function 8 when an SSD is installed).

Caution

1. When “1.2 Internal Storage” is selected, the 1st port becomes a target port automatically (e.g. NV-BM600 will become 1-6 duplicator). Please use the duplicator carefully as the manufacturer will not be held responsible for any data loss.
2. GOB images cannot be copied to smaller target capacities.

4. Erase

The erase menu offers several different erase options that comply with many standards such as NIST and DoD.

Caution

Please backup all important data before using this function.

Step 1: Connect device(s) for sanitizing.

Note

Source Port is disabled for erasing. Go to 6.4.2.2 to enable source port erasing.

Step 2: Enter function “4. Erase”

Scroll to select “4. Erase”, then press “OK” to view the 6 submenus.

4.1 Quick Erase

Security level: Low

This function erases the area on the connected device(s) where the index table is located, effectively removing the ability to locate file data directly.

Scroll to select “4.1 Quick Erase”, then press “OK” to start the erasing process.

4.2 Full Erase (NIST Clear)

Security level: High

This function will erase all data per NIST 800-88 Standards to the connected device(s) by overwriting all bits of data with binary 0's

Scroll to select "4.2 Full Erase (NIST Clear)", then press "OK" to start the erasing process.

4.3 DoD3 Pass

Security level: High

This function will erase all data per DoD 5220.22-M Standards of the connected device(s) with a 3-step process; Step 1: Overwrite all data with binary 0's, Step 2: Overwrite all data with binary 1's, Step 3: Overwrite all data with randomly generated binary 1's and 0's. The type of random data may be changed in advanced settings. See "6.3.3 Erase Pattern" for more details.

Scroll to select "4.3 DoD3 Pass", then press "OK" to start the erasing process.

4.4 DoD3 Pass+Compare

Security level: High

This function will erase all data per DoD 5220.22-M Standards (same as 4.3). The last pass of random data will be verified for each of the connected device(s). The type of random data may be changed in advanced settings. See "6.3.3 Erase Pattern" for more details.

Scroll to select "4.4 DoD3 Pass+Compare", then press "OK" to start the erasing and verification process.

4.5 Secure Erase (NIST Purge)

Security level: High

This function erases both loadable and non-loadable areas complying with NIST 800-88 Standards, by utilizing an ATA secure erase or NVMe Format command. The device's firmware will overwrite all sectors on the device with binary 0's.

Scroll to select "4.5 Secure Erase(NIST Purge) ", then press "OK" to start the erasing process.

4.6 Enhanced Secure Erase

This function erases devices that supports this feature, (similar to 4.5) utilizing an ATA/NVMe command from within the device firmware to overwrite all data on the device with a manufacturer-predetermined pattern, usually multiple times. This function also complies with NIST Purge standards and is recommended by NIST if available.

Scroll to select "Enhanced Secure Erase", then press "OK" to start the erasing process.

Note

Although Secure Erase/ Enhanced Secure Erase are commands of the SATA and NVMe specifications, not all devices support them. If non-compliant devices are encountered, the LCD will display “Not Support!”

5. Utility

This menu will reveal submenus related to device information, system information and updates.

Scroll to select “5. Utility”, then press “OK” to view the submenus.

5.1 Show Device Info

This function will display basic information such as device model, name, capacity, device firmware version, power cycle, power-on hours, and temperature.

Scroll to select “5.1 Show Device Info”, then press “OK” to view the connected device(s). Then through to view connected device(s) by port number order.

5.2 System Update

There are 2 system update methods.

① Through USB port.

Step 1: Prepare a USB drive for update.

Connect a USB drive to a PC. Download the latest firmware provided from technical support, unzip the BIOS firmware, and save it to the root directory of the USB drive.

Note

- The USB’s format must be: FAT16 or FAT32.
- Ensure that the device does not have any bad sectors.

Step 2: Proceed to update firmware

Connect USB drive to the USB port on the front of the duplicator. Scroll to select “5.2.1 Update BIOS”, then press “OK” to start the firmware update process.

Caution

The firmware update process may take longer than 5 minutes. Please do not disrupt power or process during BIOS update. If interrupted, the system will become useless. We will not be held responsible for any damages.

② Through Source port.

Step 1: Prepare a device for update.

Connect a device to the source port. Scroll to select "5.2.2 Create Update Device", then press "OK" to start the format process. This will format the device to a 2GB FAT32 Partition.

Caution Any data on connected device will be erased or corrupted.

Step2: Download Firmware.

Connect this device to PC. Download the latest firmware provided by supplier's technical support, unzip the BIOS firmware, then save it to the root directory in the device.

Note Ensure that the device does not have any bad sectors.

Step3: Proceed to update firmware.

Connect this device to the source port. Scroll to select "5.2.1 Update BIOS", then press "OK" to start the firmware update process.

Caution The firmware update process may take longer than 5 minutes. Please do not disrupt power or process during BIOS update. If interrupted, the system will become useless. We will not be held responsible for any damages.

5.3 System Info

This function will display basic system information such as system type and firmware version. Scroll to select "5.3 System Info", then press "OK" to view the system info. More info can be seen by scrolling down.

5.4 Burn SSD Firmware

Allows user to do firmware updates for compatible SSDs.

Note Contact our technical team for details.

Step 1: Prepare a USB drive for update.

Connect a USB drive to PC. Locate the desired BIOS file and save it to the root directory of the USB drive.

Note The USB's format must be: FAT16 or FAT32.

Step 2: Proceed to update firmware

Connect USB drive to the USB port on the front side of the duplicator. Scroll to select "5.4.2

Burn FW -> SSD Slot1” or “5.4.5 Burn FW -> ALL Slot”, then press “OK” to start the firmware update process.

Caution

The firmware update process may take longer than 5 minutes. Please do not disrupt power or process during BIOS update. If interrupted, the devices may become useless. We will not be held responsible for any damages.

5.5 Calc. CRC64

This function will calculate the CRC64 value for the source port and record the results in the Log report.

Caution

The user is responsible for verification of targets’ quality. Testing a few completed targets in a mass production environment for quality control is recommended.

6. Setup

This menu will reveal submenus related to device information, system information and updates.

Scroll to select “6. Setup”, then press “OK” to view the submenus.

6.1 Start-up Menu

This function allows users to select the default function to display after equipment initialization.

Scroll to select "6.1 Start-up Menu", then press "OK." Next, scroll through the available menus for startup.

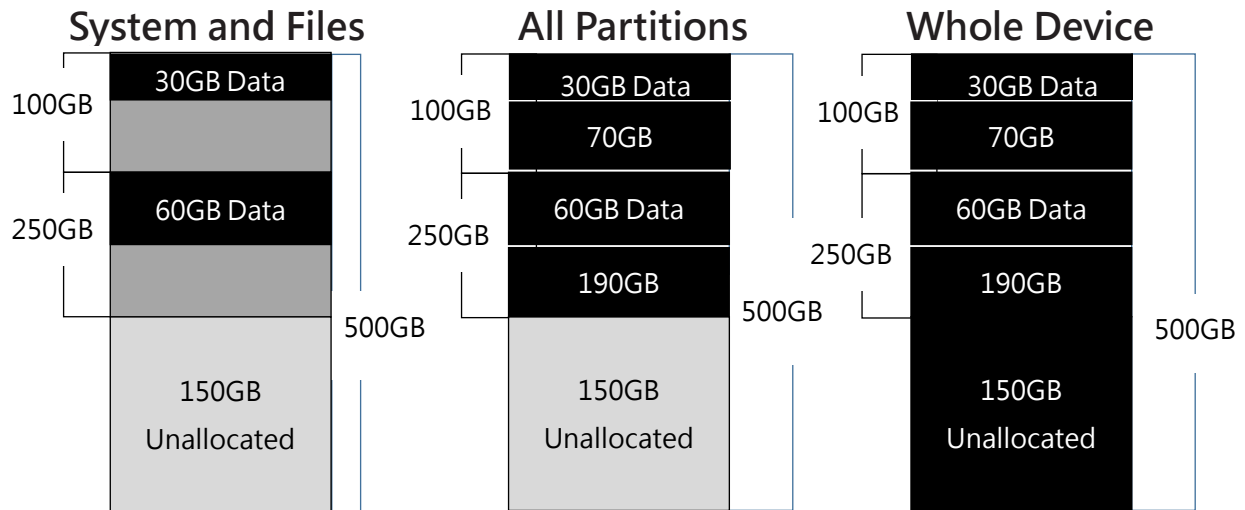
6.2 Copy Mode

There are five submenu modes.

Scroll to select “6.2 Copy Mode”, then press “OK.” Then scroll through to select one of the five copy methods.

● Selecting the Proper Copy Modes

Example: There are two defined partitions in a 500GB device. The charts below illustrate what portion would be duplicated.



This function will analyze and copy only data and skip empty spaces.

This function will copy all data within the defined partitions.

This function will copy the entire device.

● Copy and Compare Preparations

Please consider the following settings before proceeding with copy:

- 6.2 Copy Mode
- 6.4 Skip Bad Sectors

Using appropriate copy modes can greatly reduce operation time and increase efficiency. There are five copy modes, each with a unique method of analyzing and copying data.

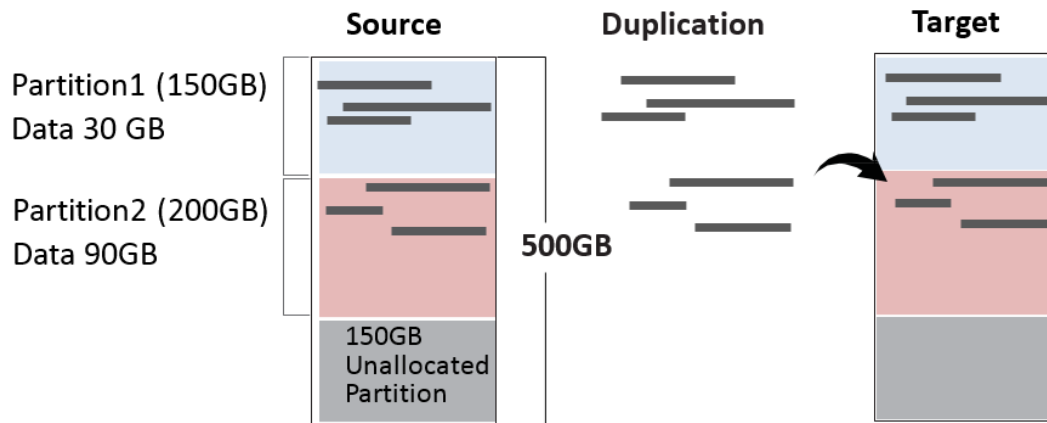
❶ System and Files

Copies data and skips empty space. Only supports FAT16/32/64, NTFS, EXT2/EXT3/EXT4, and HFS/HFS+/HFSX.

Scroll to select “6.2 Copy Mode > System and Files”, then press “OK” to save the copy method.

Allows user to copy source device’s System and Files, instead of the entire device. The system will analyze the source device and identify the data area to be copied. If the source device’s data is within the target device’s capacity, the copy will be processed. System and Files is the default setting.

[Copy Area]
System & Files

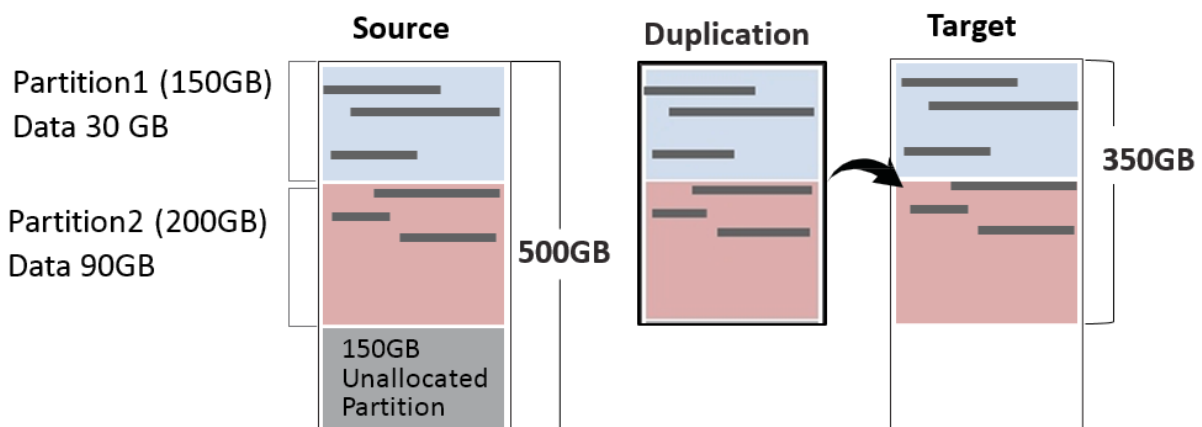


Only 120G data area will be copied.

② All Partitions

Scroll to select “6.2 Copy Mode > All Partitions”, then press “OK” to save the copy method. The target device’s capacity must be equal to or larger than the source device’s capacity.

[Copy Area]
ALL Partitions



350GB of all Partitions along with its contents will be copied.

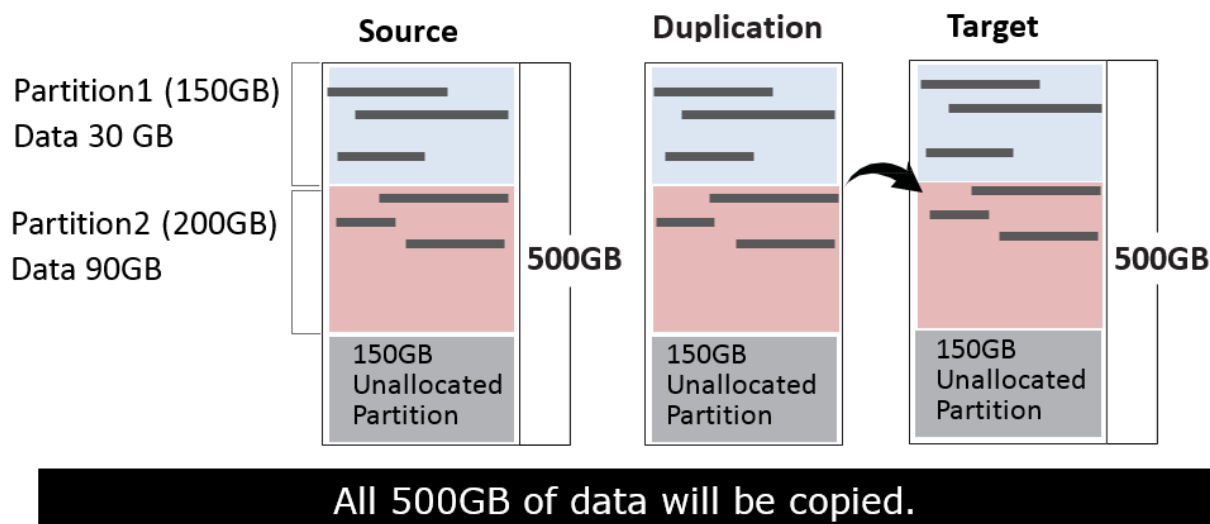
③ Whole Device

Copies all source data, bit-by-bit.

Scroll to select “6.2 Copy Mode > Whole Device”, then press “OK” to save the copy method.

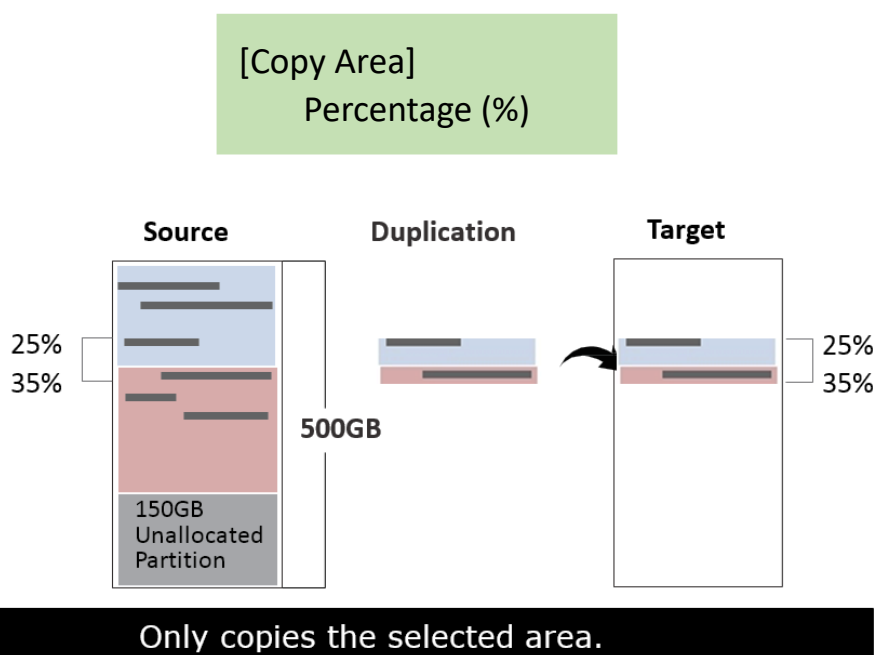
Copies the whole source device, irrespective of content, format, partition or empty space. This mode does not analyze the data.

[Copy Mode]
Whole Device



④ Percentage (%)

The user will be presented with two sub-selections, allowing the user to specify where to start and end the copy as a percentage of total capacity. Please see the image below. Scroll to select “6.2 Copy Mode > Percentage”, then press “OK” to save the copy method.



⑤ Custom Data Copy

This copy mode is designed to handle special format devices when normally a “Whole Device” copy would be needed. The duplicator analyzes the whole device and stores the data locations before starting the first copy. As a result, the first copy will run slower and subsequent copies will run much faster. After the first copy when the display shows the copy results, replace all drives and press “OK” again to begin the next copy. Do not go back to the main menu or the analysis will need to run again.

Scroll to select “6.2 Copy Mode > Custom Data Copy”, then press “OK” to save the copy method.

Note

1. “Custom Data Copy” copy mode needs to take time to analyze the whole device capacity prior to copying.
2. “Custom Data Copy” is recommended for use with “8.1 Copy SSD to Image.” Please see section 8. Image Manager for more details.

Caution

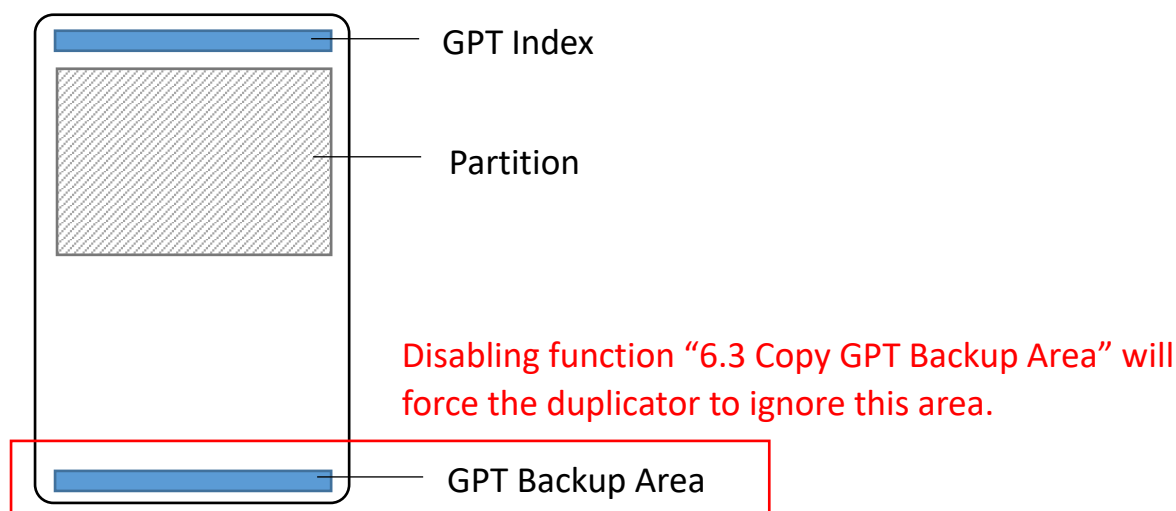
1. Use a clean source device to make the analyzed data capacity smaller. (Clean Source Device means no garbage data in the source device.)
2. The target device must be new or wholly cleaned prior to copy. Otherwise, there is risk for data combination.

6.3 Copy GPT Backup Area

Disabling this function makes the duplicator ignore the GPT backup area, and thus allows the duplicator to copy from a big capacity device to a small capacity device(s). The default value is “Yes, copy.”

Note

The partition size of the source HDD should be smaller than target capacity. Otherwise, it is recommended to leave the GPT backup area intact.



Caution

GPT backup areas will be rebuilt automatically the next time Windows reboots. For Linux, tools such as gdisk can rebuild these backups.

6.4 Skip Bad Sectors

Skip source bad sectors during Copy/Compare.

Scroll to select “6.4 Skip Bad Sectors”, then press “OK” to scroll through the available values for skipping bad sectors. If the device data is critical and needs to be a full clone, it is recommended to set “Skip Bad Sectors” at “0.” Bad sectors can be set as unlimited or at a value from 0 to 65,535. The default value is 0 (do not skip bad sectors).

[Skip Bad Sectors]
1000

Caution The “Copy+Compare” function is advised for enhanced copy accuracy.

6.5 Language

Select English, Japanese, or Spanish.

Scroll to select “6.5 Language”, then press “OK.” Then scroll through and select the desired language. The default language is English.

6.6 Advanced Setup

This function contains settings to fine tune copy and erase functions.

Scroll to select “6.6 Advanced Setup”, then press “OK” to view the submenus.

6.6.1 Unknown Format

This function only works with copy functions: “System and Files” and “All Partitions”.

Scroll to select “6.6.1 Unknown”, then press “OK”. Then scroll through to select one of two settings.

Unknown format includes all forms of modified and proprietary data and partitions. If the duplicator finds a partition but doesn’t recognize the file system, it will either copy the whole partition bit for bit or it will skip it based on the following two selections:

■ Copy Unknown

Copy unknown format(s). This is the default value.

Scroll to select “6.6.1 Unknown Format > Copy Unknown”, then press “OK” to save this setting.

■ Skip Unknown

Skip unknown format(s).

Scroll to select “6.6.1 Unknown Format > Skip Unknown”, then press “OK” to save this setting.

6.6.2 Erase Source Port

This function allows the user to enable or disable the source port for sanitization.

Scroll to select “6.6.2 Erase Source Port”, then press “OK.” Then scroll through to select one of two settings. The default value is disabled.

■ Disabled

Source port will not be allowed to erase.

Scroll to select “Disabled”, then press “OK” to save this setting.

■ Enabled

Source port will be allowed to erase.

Scroll to select “Enabled”, then press “OK” to save this setting.

6.6.3 Erase Pattern

Scroll to select “6.6.3 Erase Pattern”, then press “OK”. Then scroll through to select one of two settings.

■ One Byte

When erasing, the duplicator generates a single random byte to be used with erase functions. This byte will be repeatedly written to each sector. This setting affects the random values on the third pass of DoD erase and DoD erase+compare functions.

Scroll to select “One Byte”, then press “OK” to save this setting.

■ Big Random Data

When erasing, the duplicator will generate a 4MB space of random data. This data is repeatedly written across the entire device. This setting affects the random values on the third pass of DoD erase and DoD erase+compare functions.

Scroll to select “Big Random Data”, then press “OK” to save this setting.

6.6.4 Skip Bad Sector at Erase

Allows the duplicator to skip bad sectors when performing any erase functions. Bad sectors can be set as unlimited or at a value from 0 to 65,535. The default setting is “0”. This setting affects full erase, DOD erase, and DOD+compare functions.

Scroll to select “6.6.4 Skip Bad Sector at Erase”, and press “OK” to scroll through the available values for skipping bad sectors.

Note

When “6.6.4 Skip Bad Sector at Erase” is set to greater than 1,
[Red Light] Erase job is failed, or bad sector quantity greater than set amount.
[Green Light] Erase job is done, and no bad sectors.
[Red Light + Green Light] Erase job is completed, and there are bad sectors. The bad sector quantity is less than the set amount.

6.6.5 HPA Copy Mode

Scroll to select "6.6.5 HPA Copy Mode", then press "OK" to view the submenus. The default setting is: "Do Not Copy HPA > Keep Target HPA". This setting affects all copy modes. HPAs are part of the ATA specification. Hence, only SATA devices will be affected.

① Do Not Copy HPA

After selecting this menu option, the user is given two choices:

■ Keep Target HPA

Does not copy source HPA setting/data and keeps the target device(s) original HPA setting. Scroll to select "Keep Target HPA", then press "OK" to save this setting.

■ Clear Target HPA

Does not copy HPA setting/data and clears target device(s) HPA setting. Scroll to select "Clear Target HPA", then press "OK" to save this setting.

② Setting Target HPA

Copies the HPA setting from the source device to the target but does not copy data stored in the source HPA.

Scroll to select " HPA Copy Mode >> Setting Target HPA", then press "OK" to save this setting.

③ Copy and Setting

Copies the HPA setting and data within the HPA from the source device to the target. Scroll to select " HPA Copy Mode >> Copy and Setting", then press "OK" to save this setting.

Caution

HPA function “Copy and Setting” may change the original setting of target devices. To reset it, the user must set “6.6.6 Clear HPA at Erase >> Clear HPA Setting” and then execute “4. Erase.”

6.6.6 Clear HPA at ERASE

Sets to clear HPA setting prior to erase functions.

Scroll to select "6.6.6 Clear HPA at Erase", then press "OK" to save this setting.

■ Clear HPA Setting

Clears HPA setting first and then runs the erase operation. Any data residing within the HPA area will be erased. This is the default setting.

Scroll to select "6.6.6 Clear HPA at Erase >> Clear HPA Setting", then press "OK" to save this setting.

■ Keep HPA Setting

Keeps original HPA setting. Data residing in the HPA area will be preserved.

Scroll to select "6.6.6 Clear HPA at Erase >> Keep HPA Setting", then press "OK" to save this setting.

6.6.7 Device Power-up

Defines how long the duplicator should idle while supplying power before beginning copy, erase, or compare operations. This setting is for HDDs as they require a longer time to initialize. Users may input a time in seconds or choose "wait key to start" which makes the duplicator wait for the operator to press "OK" to begin. The default value is 30 seconds.

Scroll to select "6.6.7 Device Power-up, then press "OK" to set buffer time.

6.6.8 Scroll Lock

This function allows users to enable or disable the up and down arrow buttons. When used in conjunction with "6.1 Start-up Menu", navigation can be limited to a single menu item and prevent accidental scrolling (e.g. lock menu to copy+compare)

Scroll to select "6.6.8 Scroll Lock", then press "OK" to access available settings.

■ Disabled

Scroll to select "Disabled", then press "OK" to save this setting.

■ Enabled

Only up/down buttons are disabled. Reboot system for setting to take effect.

Scroll to select "Enabled", then press "OK" to save this setting.

Note

To remove the lock, hold down all 4 control panel buttons. This setting would then need to be disabled to prevent locking on power-ups.

6.6.9 Stop Motor Time

This setting affects HDDs. A short time buffer is given to allow HDDs to spin down properly. The user can choose a time in seconds between 1 and 20. The default value is 3. Scroll to select “6.6.9 Stop Motor Time”, then press “OK” to set buffer time.

6.6.10 Password Setup

Sets up the login password for system. When enabled, the duplicator will require a power-on password. After setting it, the user must enter the password every time the machine boots. There is no way to reset the password should the user forget it.

■ Disabled

Users do not need a password to access the system.

■ Enabled

Requires the password to access the system.

Caution The system must be returned to reset the password if forgotten.

6.6.11 Delete Device Signature After Copy

Setting this to “Yes” means do not copy the device signature part. This function is for Windows only. Duplicated drives will have the same device signature. If connecting more than one device to a PC with the same signature, Windows will only recognize one of them. Deleting the device signature will allow Windows to see all devices by generating a new device signature for devices without one.

Caution “Compare” function will always Fail if “6.6.11 Delete Device Signature After Copy” is set at “Yes.”

6.6.12 PCIe Speed

Sets data transmission speed at “Normal” or “Low Speed.” Reducing the machine speed to low can increase compatibility for certain devices. In most cases, the low-speed setting is not necessary. However, the user is encouraged to try the “Low Speed” setting if receiving excessive failures.

6.6.13 Target Tolerance

The user can specify whether to allow a difference in capacity between the source drive and target drives. The user can specify “No Limit”, “100% Same”, or “Allow Tolerance”. If “Allow Tolerance” is specified, the user is given two sub-selections: an upper limit and a lower limit. The “Up” limit specifies how much larger the target device can be in terms of

percentage of source capacity. The “Low” limit specifies how much smaller the target device can be in terms of percentage of source capacity. If the capacity is outside the tolerance range, the copy will fail. This function is useful in environments where varied capacity drives are being duplicated. For example, a 500GB source drive with an Up and Low limit set to 10% can only copy to drives with capacity between 450GB and 550GB. This can prevent inadvertent use of smaller or larger drives. The default value is “No Limit.”

6.6.14 Clear SSD Before Copy

The duplicator will run a secure erase prior to copying. This function is useful when using “Custom Data Copy” mode as a cleared SSD is required to avoid data combination. If a target device does not support secure erase, it will fail. The default setting is “No”.

6.7 Restore Defaults

Restores all settings to manufacturer defaults.

Scroll to select “6.7 Restore Defaults”, then press “OK” to revert settings back to manufacturer defaults.

7. Log Manager

The Log Manager allows the user to output log reports to a USB drive based on a specified date or date range. Note that the USB drive must be formatted to FAT32 or exFAT prior to exporting, otherwise a “bad device” error will be displayed.

Job: COPY

Time Start: 2025-02-27 11:11:12
End: 2025 02 27 11:12:24

Source HDD Model : Samsung SSD 950 PRO 512GB
Version : 3R0QHX7
Serial Number : S2GMNXX0H713125X
Capacity : 476.9GB(1000215216 sectors)
Data Size : 23.8GB(50010752 sectors)
copy Area : Percentage(0% to 5%)
CRC-64-ECMA-182 : CC2ECA63283AF516

Quantity Total: 5
Pass: 5
Fail: 0

Device management log messages

Source device information

Execution result

[Pass Record]

Number of month/date/time (execution time)

	[Model No.]	[Revision]	[S/N]	Capacity(Sectors)	Write Speed	VID/PID
Port:07, 2025 02 27 11:11:12 (71 seconds)	NVM(T:TEAM TMB:PKS00G	[[[ELFMIH0.6]]	[TPH02210110040500395]	465.7GB[976773168]	[Write Speed:376.5MB/second]	[VID=1907,PID=5021]

S.M.A.R.T Info

Composite Temperature : 297 degree Kelvin (24 degree Celsius)
Available Spare : 100%
Percentage Used : 2%
Data Units Read : 18052.42 GB
Data Units Written : 30876.49 GB
Host Read Commands : 210162034
Host Write Commands : 327140180
Controller Busy Time : 1891
Power Cycles : 941
Power On Hours : 55
Unsafe Shutoffs : 295
Media and Data Integrity Errors : 0
Warning Temperature Time : 0
Critical Temperature Time : 0

USB drive (F)

View

USB drive (F)

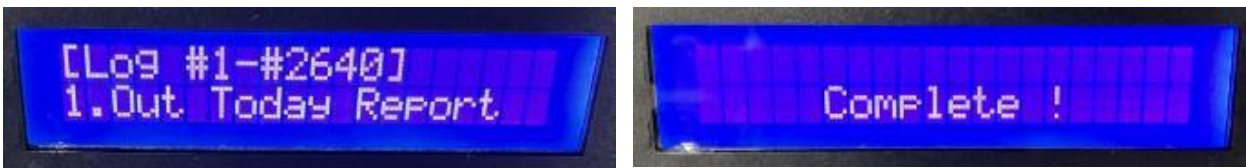
Search USB Drive (F)

name	modification date	type	size
20250227-153926	2025/2/27 03:39 pm	Microsoft Excel ...	8 KB
20250227-153932 Burn Firmware	2025/2/27 03:39 pm	Microsoft Excel ...	1 KB
20250227-153938	2025/2/27 03:39 pm	text file	94 KB

Name: Year/Month/Day-Hour/Minute/Second

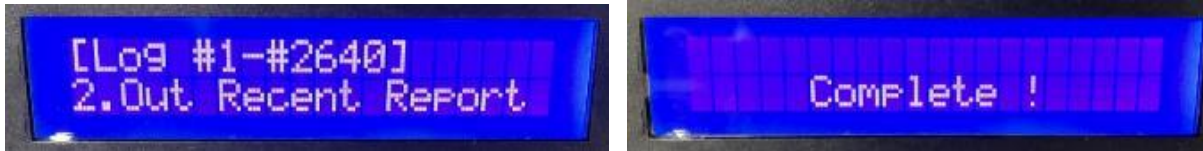
7.1. Out Today Report

Go to the menu Log Manager >> Out Today Report and press OK to output log entries. All log entries with a date stamp matching the current date will be exported.



7.2. Out Recent Report

Go to the menu Log Manager >> Out Recent Report and press OK, you can select to output all the log entries of each month within "the last 1 day" to "the last 28 days". Through the USB slot, the log entries from the current day to the previous 28 days can be exported to the USB.



7.3. Out Period Date

Go to the menu Log Manager >> Out Period Date and press OK to output log entries corresponding to a specific period. Through the USB slot, use ▲ ▼ to set a period to output the work records to the USB.

Note

Whether through real-time monitoring or USB slot, the output LOG file can be saved as a text file and csv file, without the need for special software output, providing customers with convenient access and analysis.

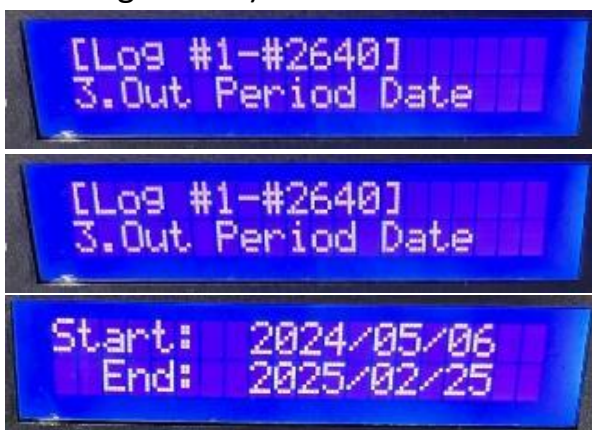
Note

Please make sure the USB flash drive you are using is in FAT32/exFAT format.



Non FAT32/exFAT Format

The screen will display the number of recorded log entries. (ex. #1~#2640 means there are 2640 log entries).





7.4. Advanced Function

A password is required to access this function. When entering for the first time, you need to enter the factory preset password [123456] of the duplicator.



7.4.1. Clear All Logs

After the user enters the password, all log entries in the duplicator can be erased.



7.4.2. Setup Password

The user can set a password to protect the log entries stored in the duplicator. In order to execute the [Clear All Logs] function, the user must use the ▲▼ keys to enter the correct password.



7.4.3. Adjust Clock

Users can set the time displayed by the system.



7.4.4. Add Watermark at Text File

You can set whether to allow invisible ink marks to be added to log files, so that the log can be verified through the iSecuLog.exe program to see if the content has been tampered with. This software is not included by default. If you would like to use the watermark feature, please reach out to techsupport@ureach-usa.com for a copy of the program.



8. Image Manager

GOB Images

GOB images are a custom U-Reach format that allow for efficient storage. When creating images, the current copy mode affects the size of the stored image. For example, if the copy mode is set to “System and Files”, the duplicator will store an image that only stores partition/boot info (system files) and user data files. If the copy mode is set to “Whole Media”, the entire disk will be converted to an image file, which will be much larger. If the user is copying custom operating systems, it is recommended to set the copy mode to “Custom Data”. This will have the same effect as “Whole Media” but because GOB only stores the data areas, the resulting image will be much smaller. When creating images, it is recommended to use wholly erased drives. This will prevent extraneous data from becoming part of the image file.

Image Manager functions allow users to manage and utilize GOB image files stored in the internal SSD of the duplicator.

Note

Make sure an SSD is inserted into the SSD tray before powering on the duplicator. The Image Manager function will not appear otherwise.

Note

When executing the Image Manager function, do not remove the SSD at all, as this will cause failure.

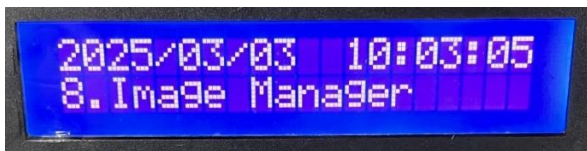


Removed Internal SSD



Removed Source Drive

It is strongly recommended to lock the SSD extraction box and keep the key safe.



8.1. Copy SSD to Image

Convert the data stored on the source port's device to a GOB file and save it to the built-in SSD of the duplicator. The size and contents of the GOB file is affected by the current copy mode set on the duplicator (Setup > Copy Mode). If the whole device is needed, it is recommended to use the "Custom Data Copy" mode. This will result in a smaller GOB file size and faster and more efficient duplication.



8.2. Compare SSD with Image

Prompts the user to choose a stored image. Afterwards, the duplicator compares the chosen image to the drive connected to the first (source) port. This confirms that the image was stored correctly.



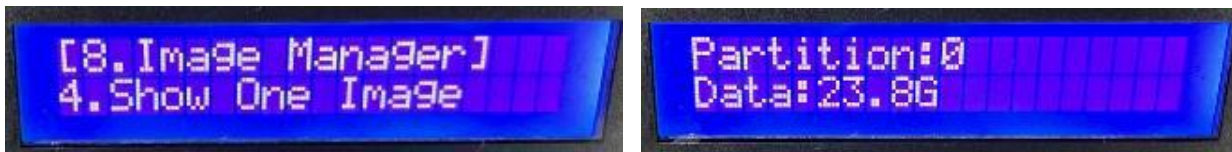
8.3. Show Image Tank

Displays the total and used capacities of the internal SSD in the duplicator.



8.4. Show One Image

Displays a list of stored images. The user may select any image to view partition and size information about the image.



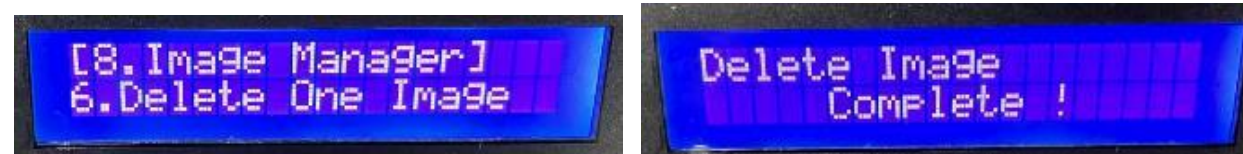
8.5. Rename One Image

Displays a list of stored images. The user may select an image and change the name of it. Supports all alphanumeric English letters and a length of 8 characters.



8.6. Delete One Image

Displays a list of stored images. The user may select an image to delete. Upon confirmation, the image is permanently removed.



8.7. Format Image Tank

Formats the SSD inside the duplicator to accept GOB images. This is a necessary step prior to storing image files. Note that if attempting to store an image to an unformatted device, the user will be prompted to format.

Note Any files stored in the SSD will be lost after formatting

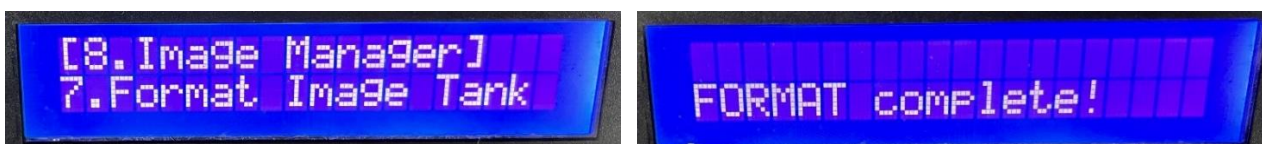


Image Management using PC Link Software

Users can easily create a GOB image on a PC, upload it to the machine and duplicate.

1. Software Introduction

1.1 Connect the PC Link USB drive to a PC, it will show two folders.

📁 PCIe Software: The installation software is stored in this folder. Please copy the folder from PC Link USB drive to the PC.

📁 Usermanual: The user guide is stored in this folder.

1.2 Double click 📁 PCIe Software, it will show three folders.

📁 Driver: The user needs to install the driver first in order to install other software.

📁 GOB Compiler: Used for creating GOB Images.

📁 PCIE-Upload Image: Used for uploading GOB Images to PCIE duplicator.

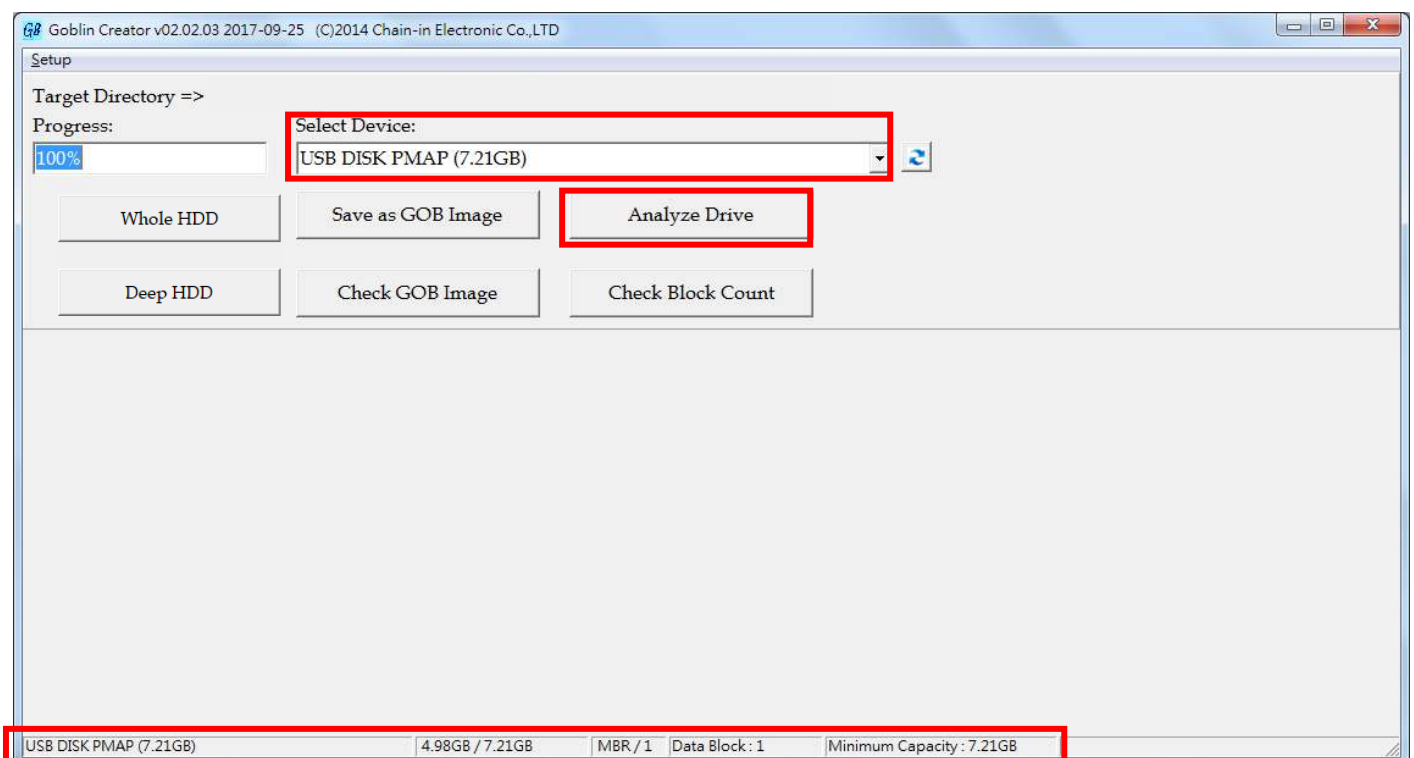
1.3 Double click 🖱️ to install the driver.

2. Creating a GOB Image

2.1 Connect a source drive to the PC.

2.2 Double click 📁 GOB Compiler and execute "GOB Compiler 🖱️ application".

2.3 Select the source device, and then click "Analyze Drive," it will display data details at the bottom.



Note

If the device has not been detected in the list, please click  "refresh button" on the right.

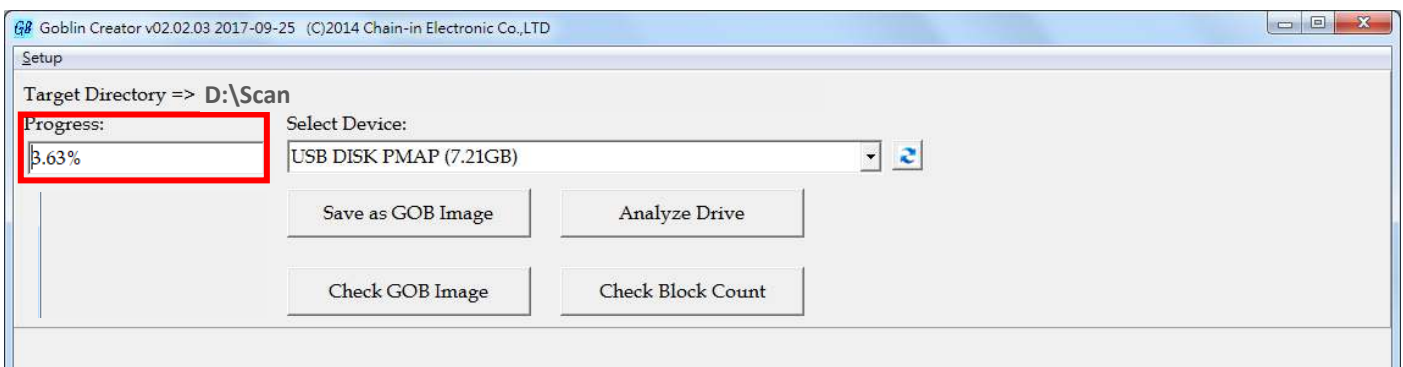
Caution

Please note that GOB Image files cannot be used to copy to smaller target capacities than the original source drive capacity.

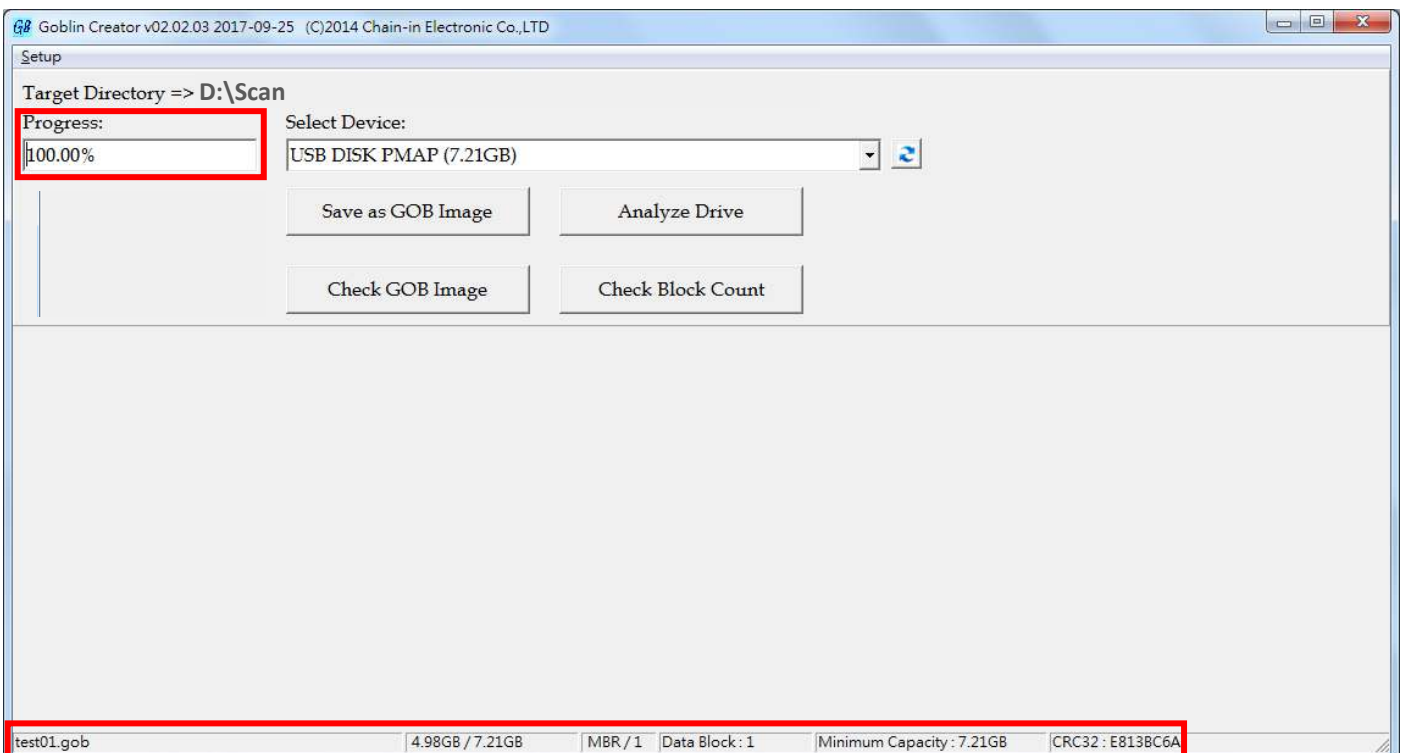
2.4 There are 3 modes for making GOB image files: System and Files, Whole Device, and Depth Profiling Analysis.

❶ System and Files:

- Click "Save as GOB Image," name the image and click "Save." The GOB file will be created.
- During compiling process, the progress bar will update.

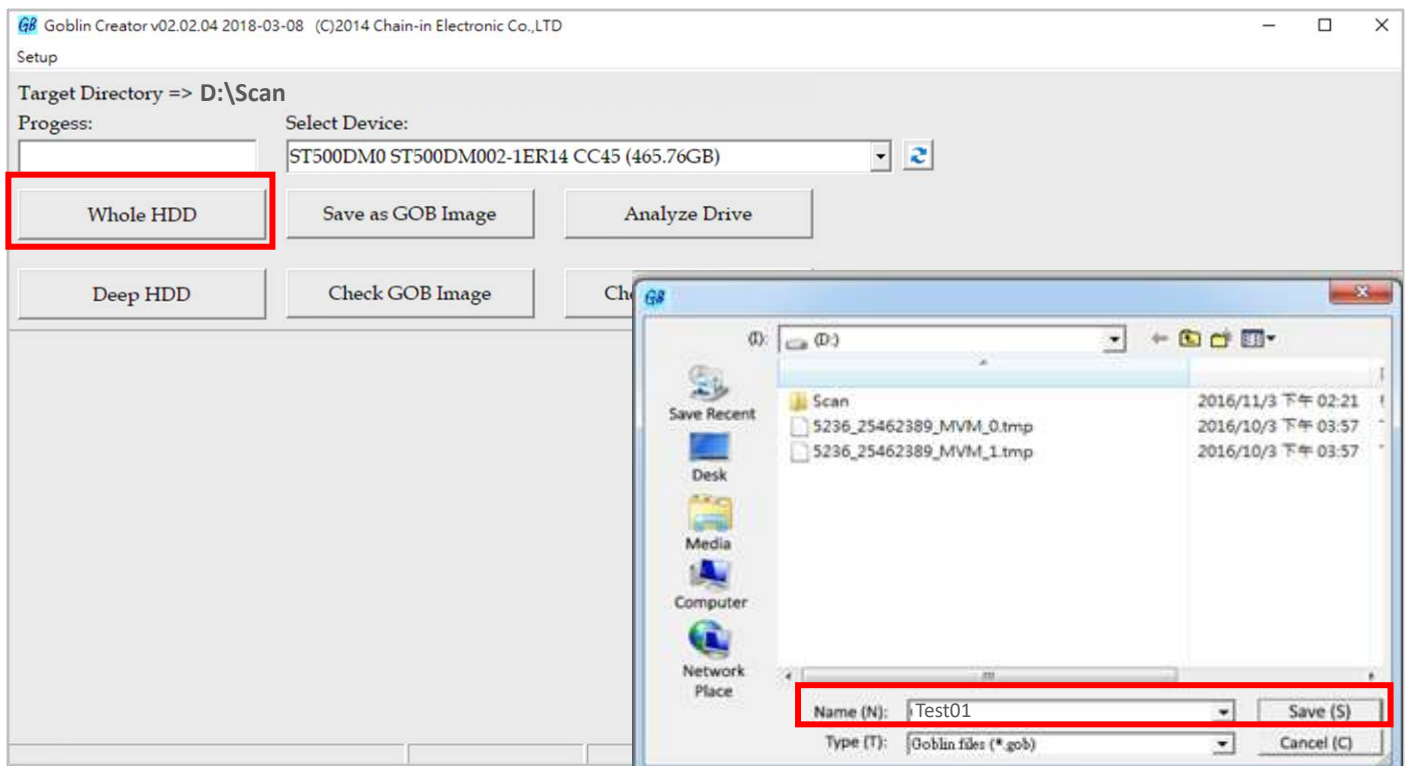


- After completion, the detail of image information will be displayed at the bottom.



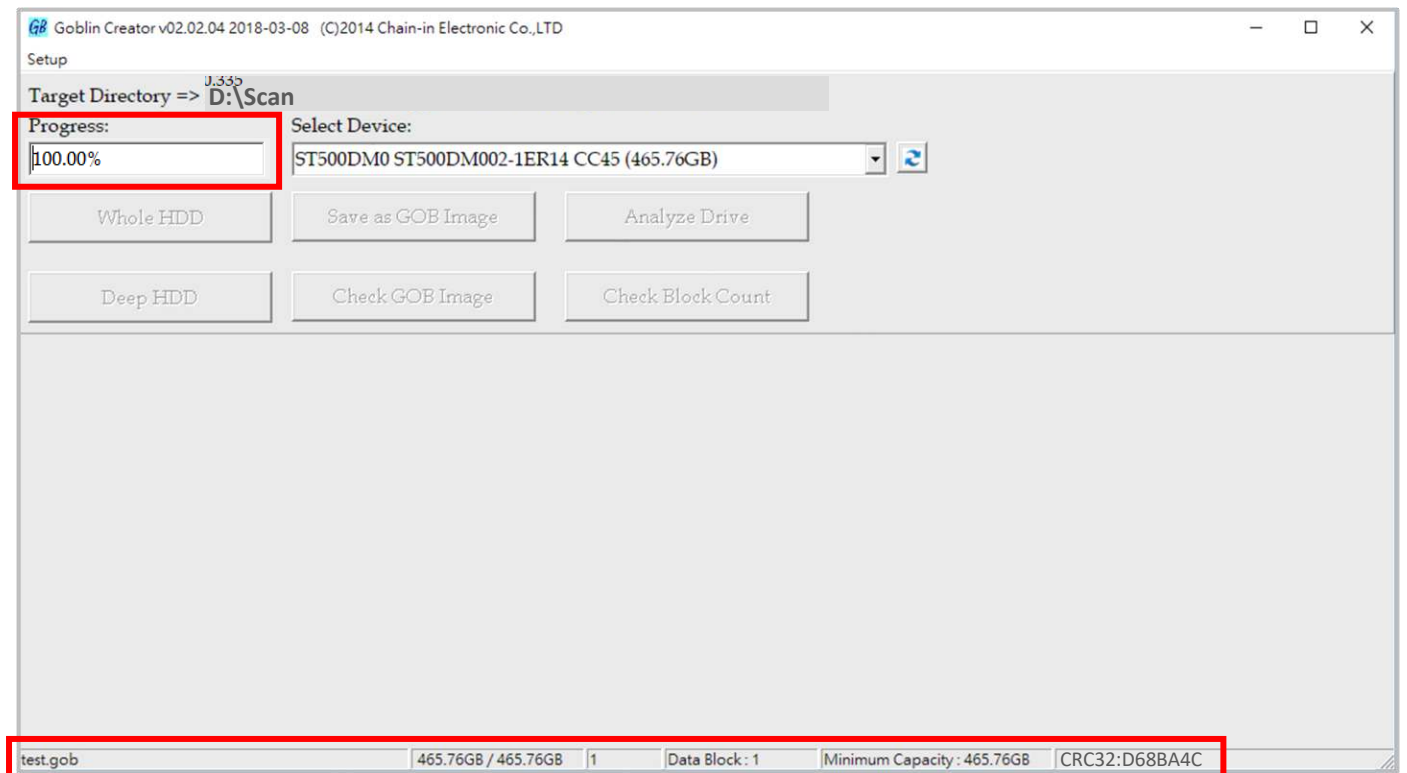
② Whole Device

a. Click "Whole HDD," named the image and click "Save." The GOB file will be created.



b. During compiling process, the progress bar will update.

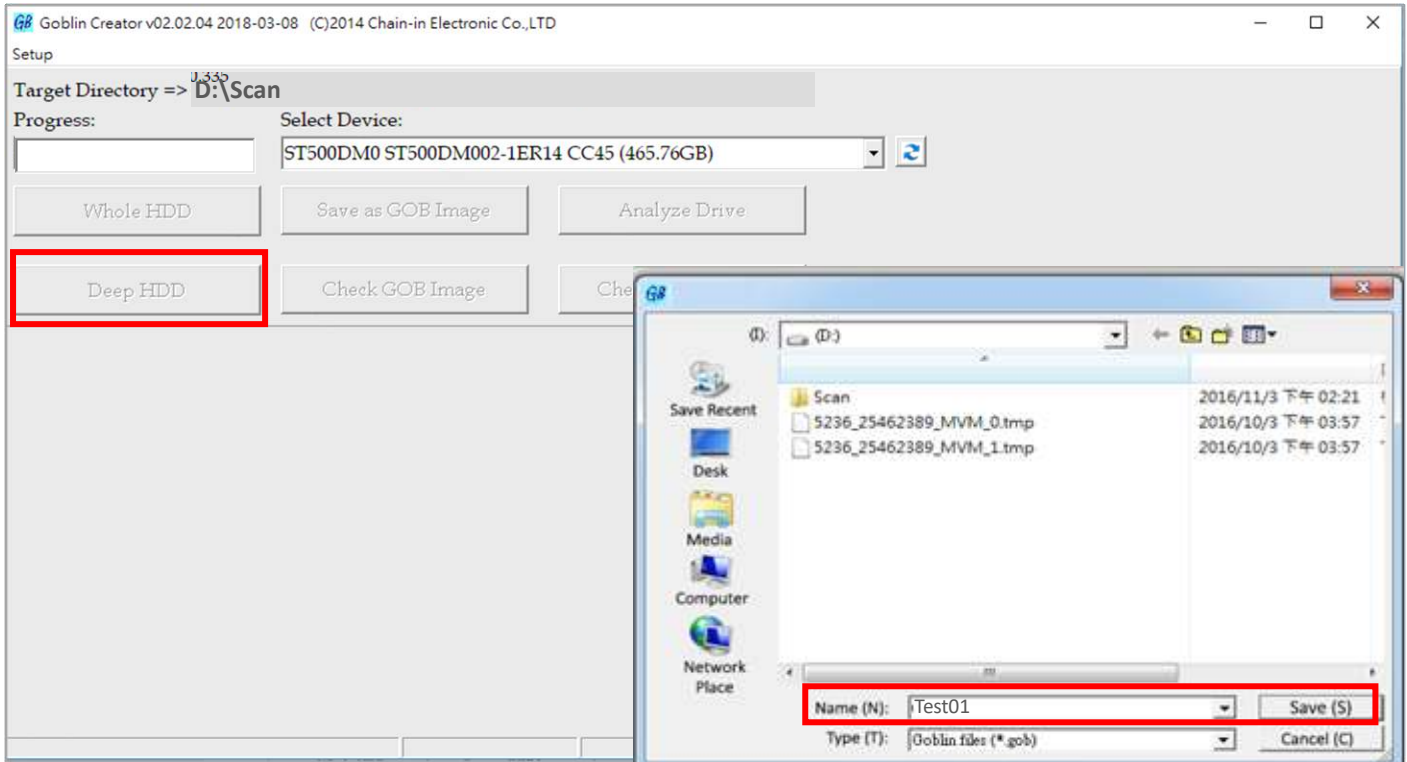
c. After completion, the detail of image information will be displayed at the bottom.



③ Depth Profiling Analysis

This function is specially designed for data formats that “System and Files copy mode” doesn’t support. It detects data areas in the source and makes the image file.

a. Click "Deep HDD," name the image and click "Save." The device will start the deep analysis process, and the GOB file will be created.



b. After completion, the progress field will show “Deep Analyze 100%.”

Caution

- If your source device has a lot of garbage data, the image file size made through Depth Profiling Analysis will be big. It is recommended to use a clean device to make a source. Executing 4.5 Secure Erase is one way to clean the device.
- Depth Profiling Analysis copy only supports new target device (clean target device). Without using a clean target device, there will be high risk for data error.

2.5 Other Functions

There are 2 functions for checking the status of a GOB file: Check GOB Image and Check Block Count.

- ① Check GOB Image: Determines if the GOB disk image file is broken or has been re-edited.
- ② Check Block Count: Calculates the number of data blocks in the disk drive. The transmission can cause acute delays when the data block count is greater than 10000.

3. Upload the GOB Image to PCIE Duplicator

Steps 3.1 to 3.4 are for users who have purchased an optional internal SSD and will be setting it up for the first time.

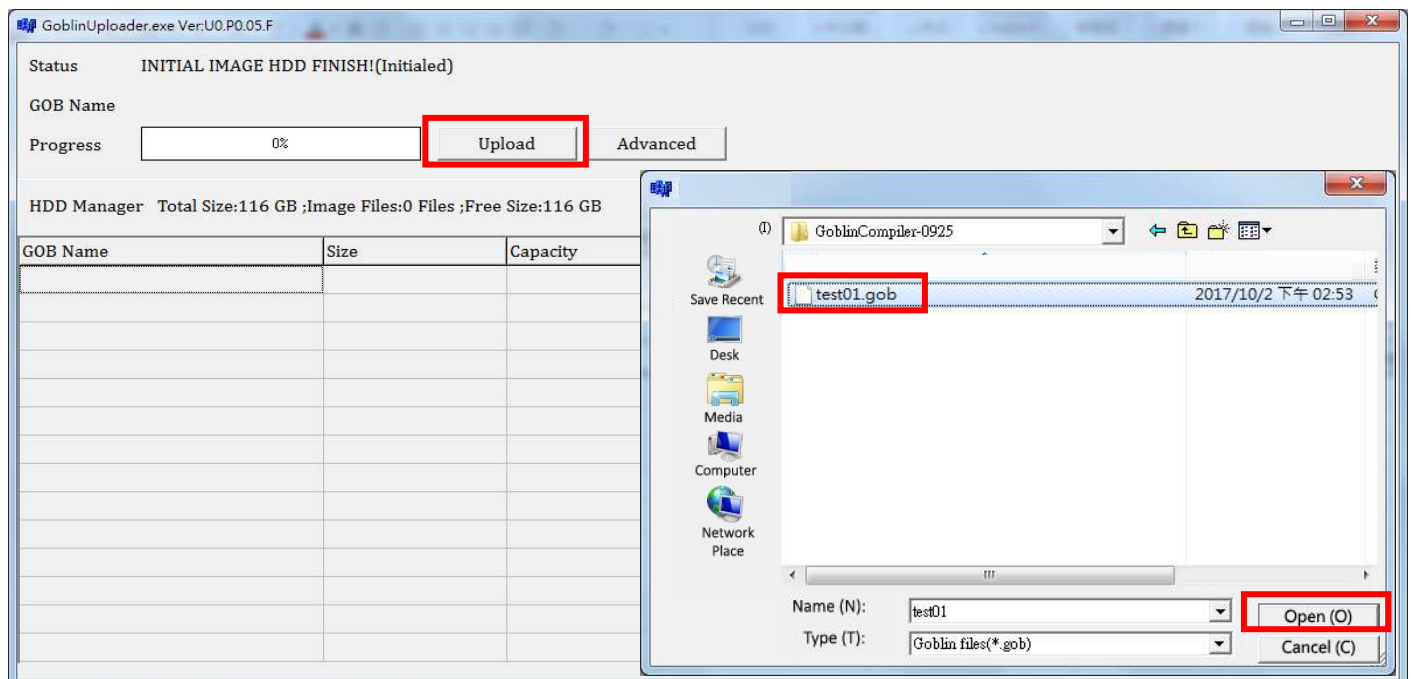
3.1 Insert an SSD into the internal port of the PCIE duplicator.

3.2 Connect your computer via USB cable to the PCIE duplicator with both systems powered on.

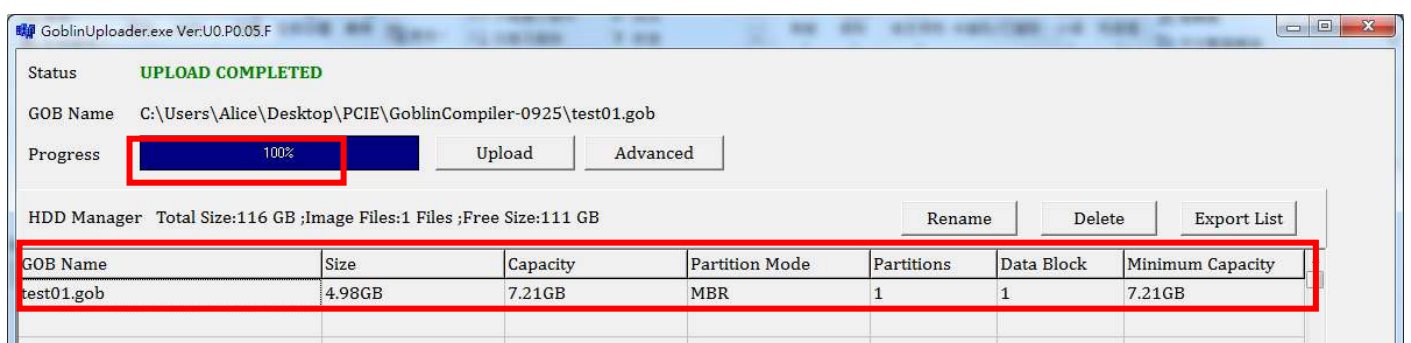
3.3 Double click  PCIE-Upload Image and execute “GOB Uploader  application.”

3.4 After successful detection, a popup menu will display (shown in the figure below). Click OK to “Format HDD FOR FIRST USE.” This formats the internal SSD installed in the PCIE duplicator.

3.5 Once formatted, click “Upload” and choose an image file. For example, select “test01.gob” then press “OPEN”.



3.6 The progress bar will launch. It uploads the GOB image to the duplicator’s internal SSD and completes at 100%.



Note

- To verify the GOB file is in the duplicator, please power off, remove the USB link cable, and then power on the machine. Scroll through to select “1.2 Internal Storage”, then press “OK” to verify the file name and size are correct.

Select Image:
Test01.gob 5096M

- Only one duplicator is allowed to be connected.
- If any error occurs, delete all files except for “GOB Uploader  application” within the  PCIE-Upload Image folder and retry.

4. How to copy by selecting GOB Image

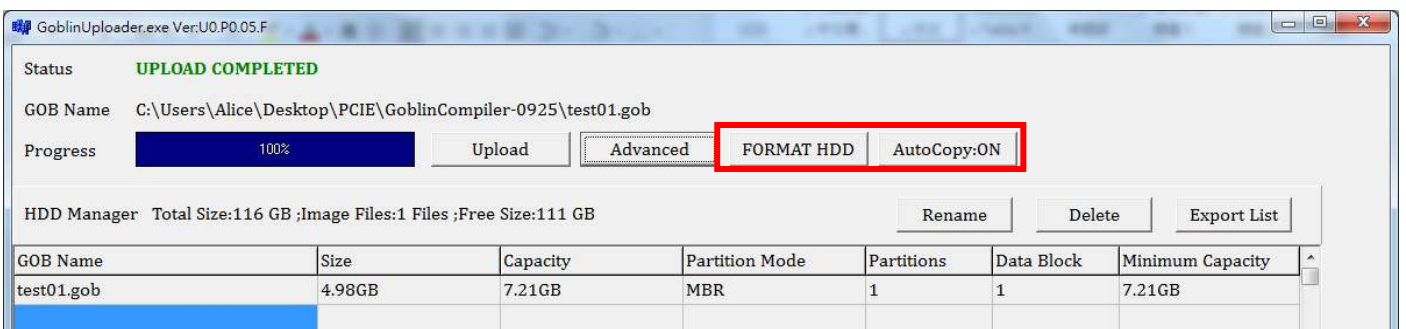
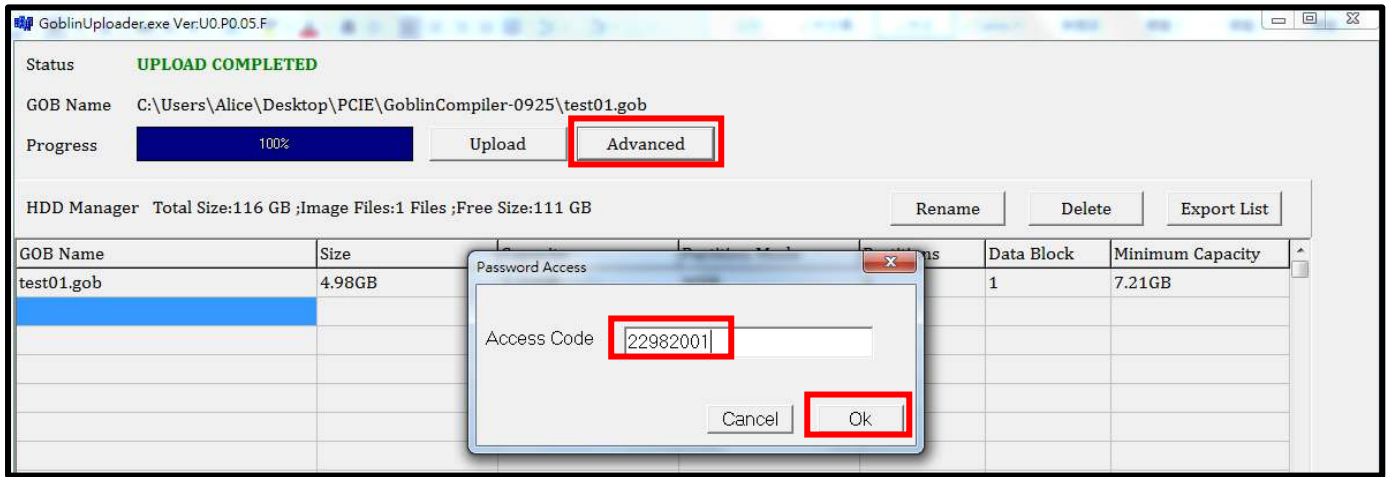
- 4.1 Confirm that the GOB Image was stored on duplicator successfully.
- 4.2 Remove the USB connection cable from duplicator to PC and reboot the duplicator.
- 4.3 Scroll to select “1. 2 Internal Storage”, then press “OK” to select the GOB Image to copy from the duplicator’s built-in storage device.

5. How to delete the GOB Image

- 5.1 Connect your computer via USB cable to the PCIE duplicator.
Then, execute “GOB Uploader  application.”
- 5.2 Select the GOB file in the list, and press “Delete.”
- 5.3 Confirm the file name and then press “OK.”

6. Advanced Functions

- 6.1 Connect your computer via USB cable to the PCIE duplicator.
Then, execute the “GOB Uploader  application.”
- 6.2 Press “Advanced” and enter the password, “22982001.” It will display the advanced functions on the main screen.



- **Format HDD:**
Format the internal SSD in the PCIE duplicator.

Caution Please backup all important data before using this function.

- **AutoCopy:**
It will automatically copy after the image is uploaded.

More Information

For additional details on the U-Reach® NV-BM Series, please visit:

<https://www.ureach-usa.com/Products/PCle-NVMe-M2-Duplicators-Sanitizers/>

Specifications are subject to change without notice.