

X-PHY®

QUICK START GUIDE

User Guide

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Disclaimer

X-PHY® Dimension

- The width for the X-PHY M.2 2280 Engineering Sample is 25mm. For the Customer Sample that will be ready in Q4 2021, the width will be reverted to standard 22mm

Operating System

- X-PHY M.2 2280 Engineering Sample currently supports Windows with NTFS
- The next version of X-PHY that supports both Windows and Linux systems will be made available in Q3 2021. X-PHY users with the 1st ES version can then upgrade the X-PHY SSD using the User Application Tool.

X-PHY® Ransomware Detection

- X-PHY monitors the behavior of SSD and detects any malicious activity. To avoid false positive, it will take around 2 seconds for the ransomware to be detected. During this process, only several small files may have been encrypted before X-PHY locked up the drive.
- As the duration is too short, several small files might be simply renamed by the ransomware instead of being encrypted. The user needs to reboot the X-PHY to verify the file status.
- Recommend to simulate the usage in real world environment for ransomware detection.
For example,
Put more than 500 files with different formats (jpg, word, ppt, pdf, excel...) and different sizes (varied from 100MB to 10GB) into each partition.
- Disable bitlocker as X-PHY embeds the data encryption and key management function.

X-PHY® Cloning Detection

- Cloning detection is based on the read access pattern of the entire disk or individual partitions.
- Cloning detection will apply to cloning in sectors and not for the normal copying of files.

X-PHY® Physical Attack Detection and Rapid Purge

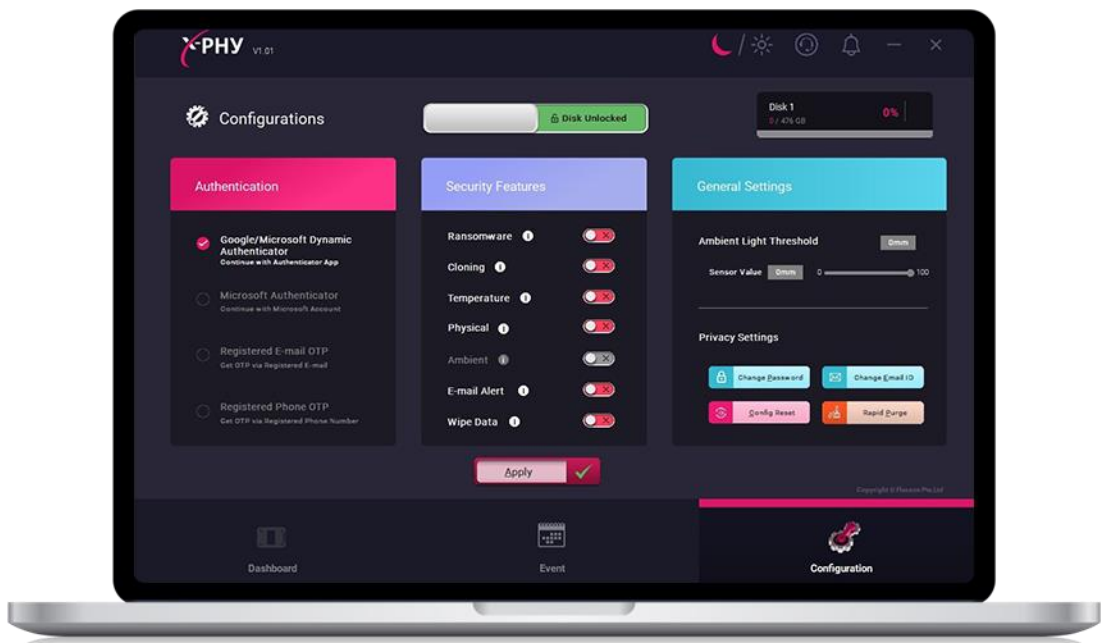
- This feature is for advanced user only. Please do data backup to avoid data loss due to mishandling.
- For new user, we suggest to keep the PC power on 24 hours before triggering this feature.

Prerequisites

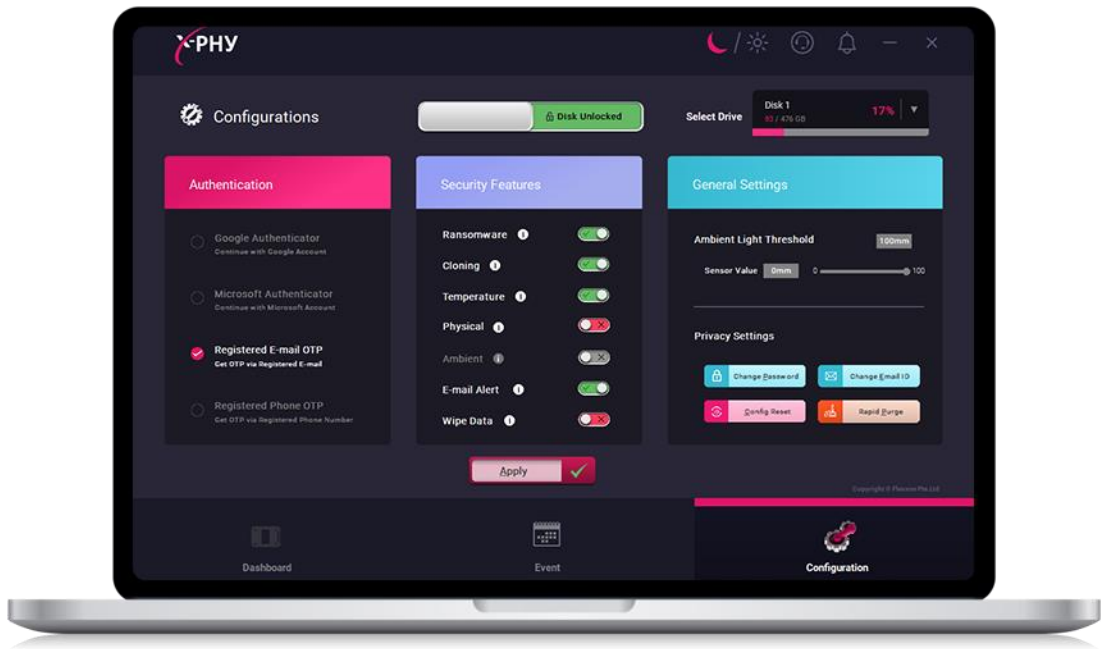
- Required CPU/motherboard and NVMe to support along with PCIe slots
- PCIe slot: support M.2 with M key
- Minimum 150MB free space
- Minimum Windows 10 and above

X-PHY® Quick Start

- 1 Clone existing storage device to X-PHY® SSD
 - Please refer to the “X-PHY® Data Migration Guide” to migrate from the old disk to the X-PHY®.
 - User also could install O/S (recommend Win 10) on X-PHY directly.
 - It is recommended to separate user data into 2 or more partitions for Windows.
- 2 Plugin X-PHY® to user desktop or laptop and bootup
- 3 Install X-PHY® Windows User Application
 - Refer to “X-PHY® Windows User Application Guide” to download and install the user application.
 - Note: Please install and register as soon as you get the X-PHY®. It is one layer of security.
 - After receiving the X-PHY® drive, you need to register your email and password to the drive. It is one layer of security

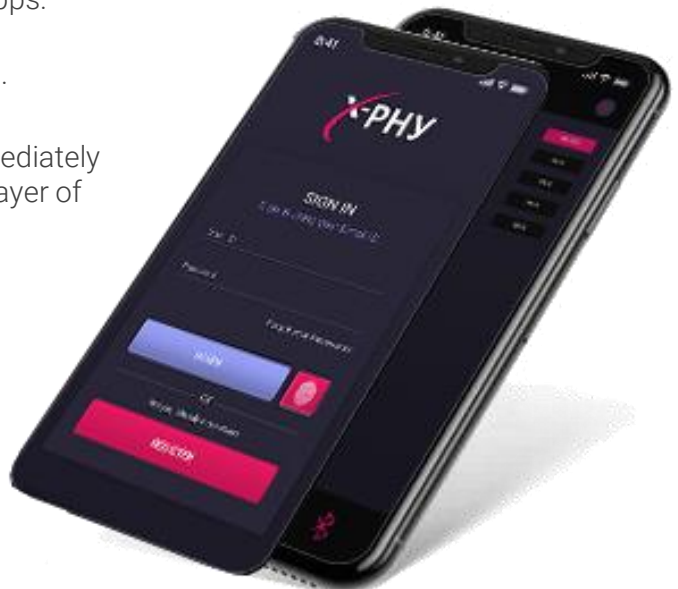


- 4 Follow Windows User Application Guide to configure X-PHY® and enable security features.
 - You are recommended to enable “ransomware/cloning/temperature/e-mail alert” for the first usage.



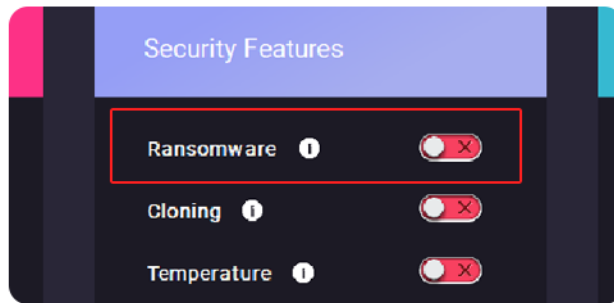
- 5 Reboot PC and begin to X-PHY® with cybersecurity protection.
- 6 Install BLE Apps on mobile phone or tablet.

- Please follow “X-PHY® BLE Mobile App User Guide” to download and install the Apps.
- Note: Supports both Android and iOS.
- Note: Please install and register immediately when you first get X-PHY®. It is one layer of security.



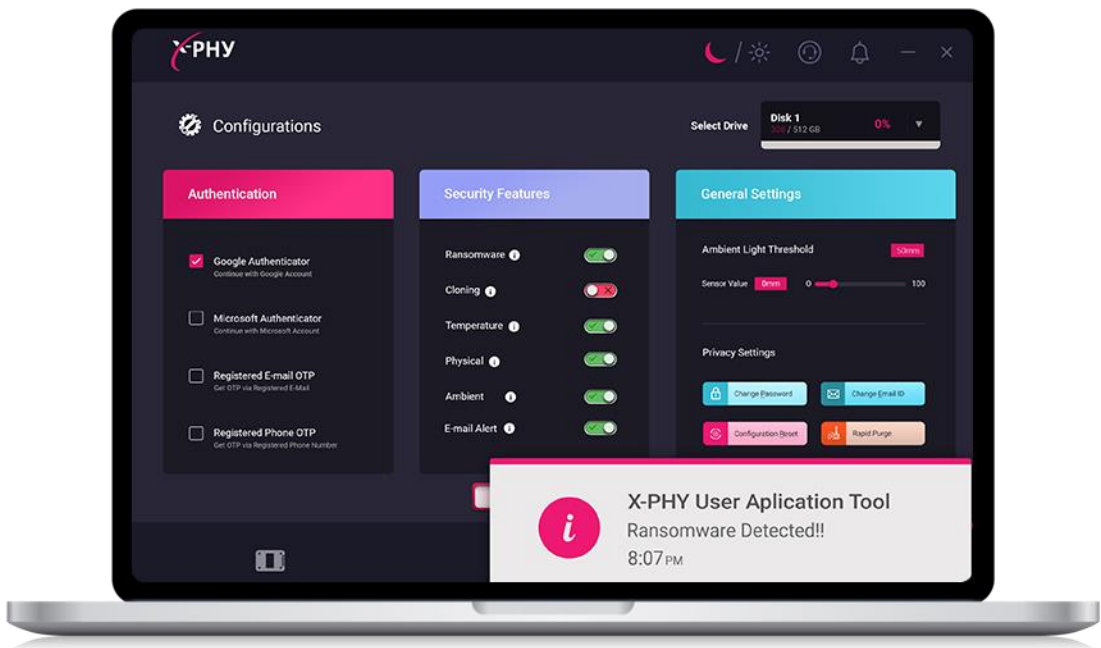
Ransomware Detection

- **Prerequisites:** Enable the “Ransomware” feature via Windows User Apps.



Ransomware detection and X-PHY® lock

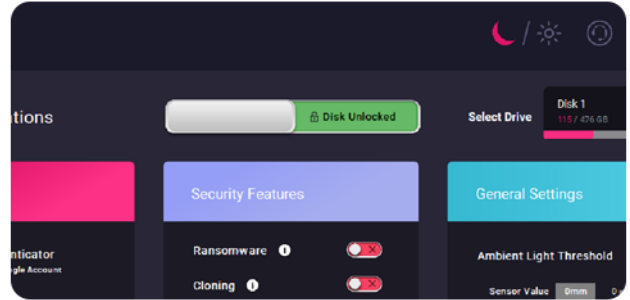
- “Ransomware detected and SSD locked” notification message will pop up at the right bottom screen on Windows.
- Email notification will send to the authenticated email id which is given by the user. It will contain X-PHY® details like SSD serial number, event info, timestamp, user name, MAC address, IP address.
- X-PHY® is locked and cannot be accessed or Read/Write



Unlock X-PHY®

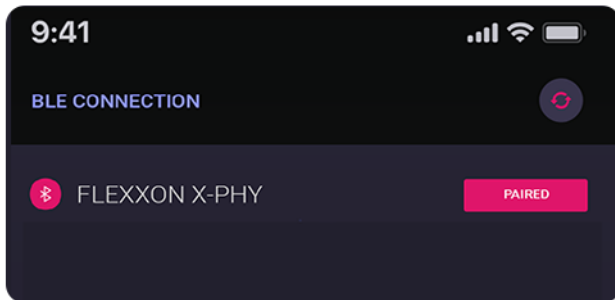
1.

When the ransomware attack is cleaned, the user can unlock the X-PHY® by using “X-PHY® BLE Mobile Apps”.



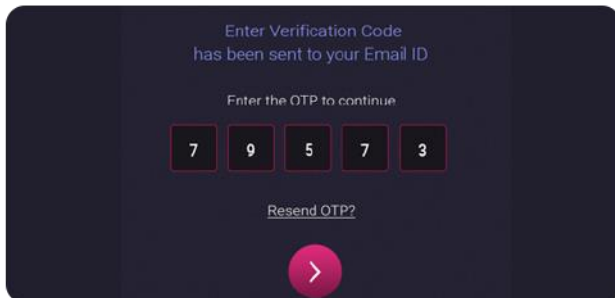
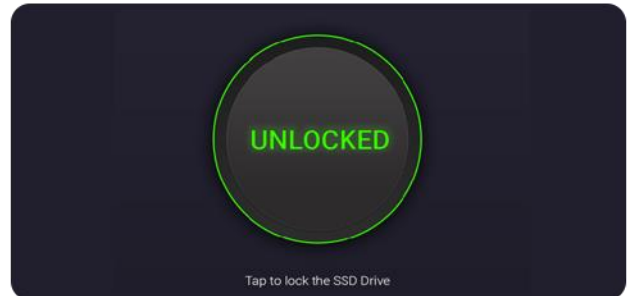
2.

Turn on PC with X-PHY® locked. Then use “X-PHY® BLE” Apps to connect Bluetooth and pair with the correct SSD MAC address in the “BLE CONNECTION” page.



3.




After BLE gets paired, go to the “UNLOCKED SSD” page and tap on the “UNLOCKED” sign. Then it will send an OTP to the authenticated email id.



4.

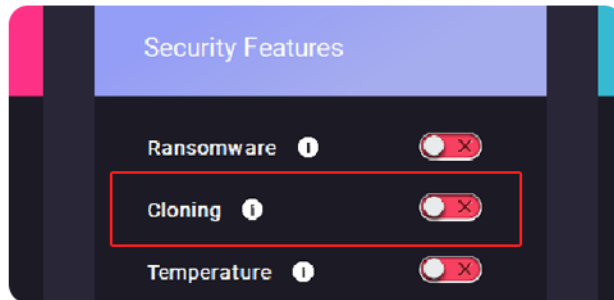
Enter 5 digit OTP in the check boxes and it will unlock X-PHY®. Now the SSD is unlocked and you can turn on the windows machine.

Highlights

-  X-PHY® monitors the behavior of SSD and detects malicious activity. About 2+ seconds are required to detect ransomware and avoid any false positive. Then several small files may be encrypted before X-PHY® is locked.
-  Sometimes the last encrypted few files may simply be renamed by ransomware but it is not actually encrypted, so the user needs to reboot X-PHY® to verify the file status.
-  For better accuracy: Create a separate partition for windows and user data.

Clone Detection

- **Prerequisites:** Enable the “Cloning” feature via Windows User Apps.

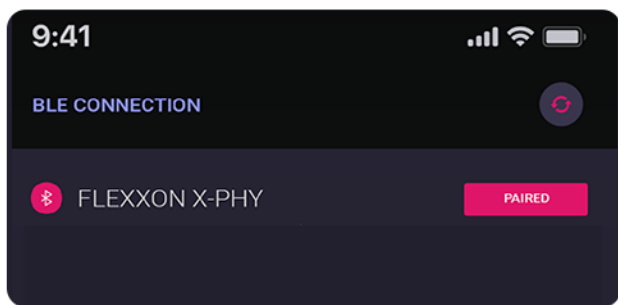


Cloning detection and X-PHY® lock

- “Cloning detected and SSD locked” notification message will pop up at the right bottom screen on Windows.
- Email notification will send to the authenticated email id which is given by the user. It will contain X-PHY® details like SSD serial number, event info, timestamp, user name, MAC address, IP address.
- X-PHY® is locked and cannot be accessed or Read/Write

Unlock X-PHY®

When the cloning attack is cleaned, the user can unlock X-PHY® by using the “X-PHY® BLE Mobile Apps”.

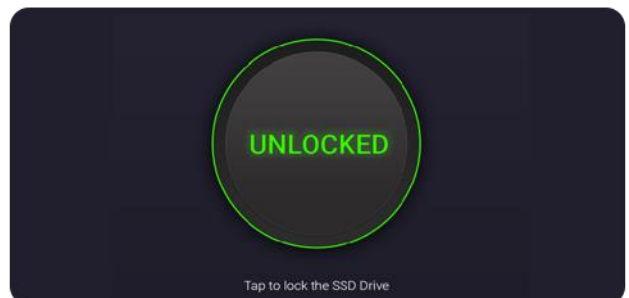


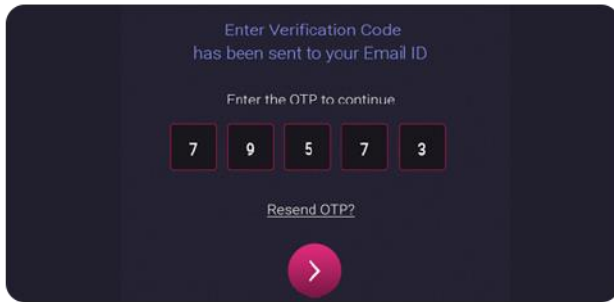
1.

Turn on PC with X-PHY® locked. Then use X-PHY® BLE Apps to connect Bluetooth and pair with the correct SSD MAC address on the “BLE CONNECTION” page.

2.

After BLE gets paired, go to the “UNLOCK SSD” page and tap on the “UNLOCKED” sign. Then it will send an OTP to the authenticated email id.







3.

Enter 5 digit OTP in the check boxes and it will unlock X-PHY®. Now the SSD is unlocked and you can turn on the windows machine.

Note: Another way to unlock X-PHY®: Please refer to Windows Use Apps Guide to unlock.

Highlights

-  Cloning detection is based on the read access pattern of the whole disk or individual partition cloning.
-  It will not work when users backup the files using backup tools with the “Backup Actual Data” method.

Physical Attack

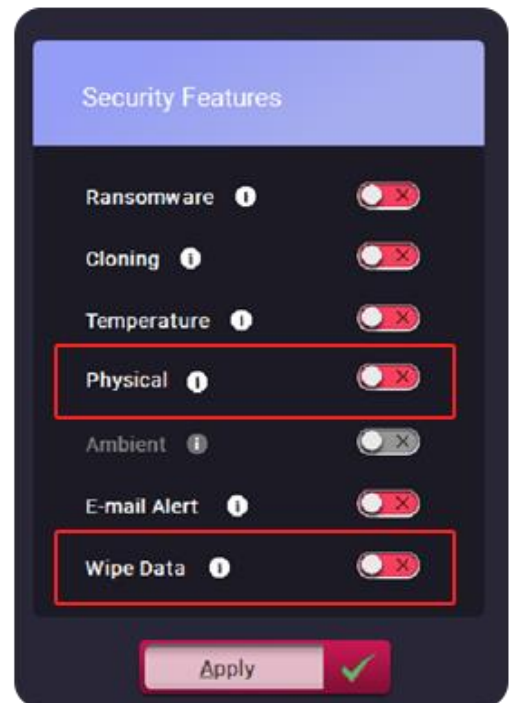
Prerequisites

- Enable the “Physical” feature via Windows User Apps.
- Enable “Wipe Data” if the user wants to remove all user data when a physical attack happens.



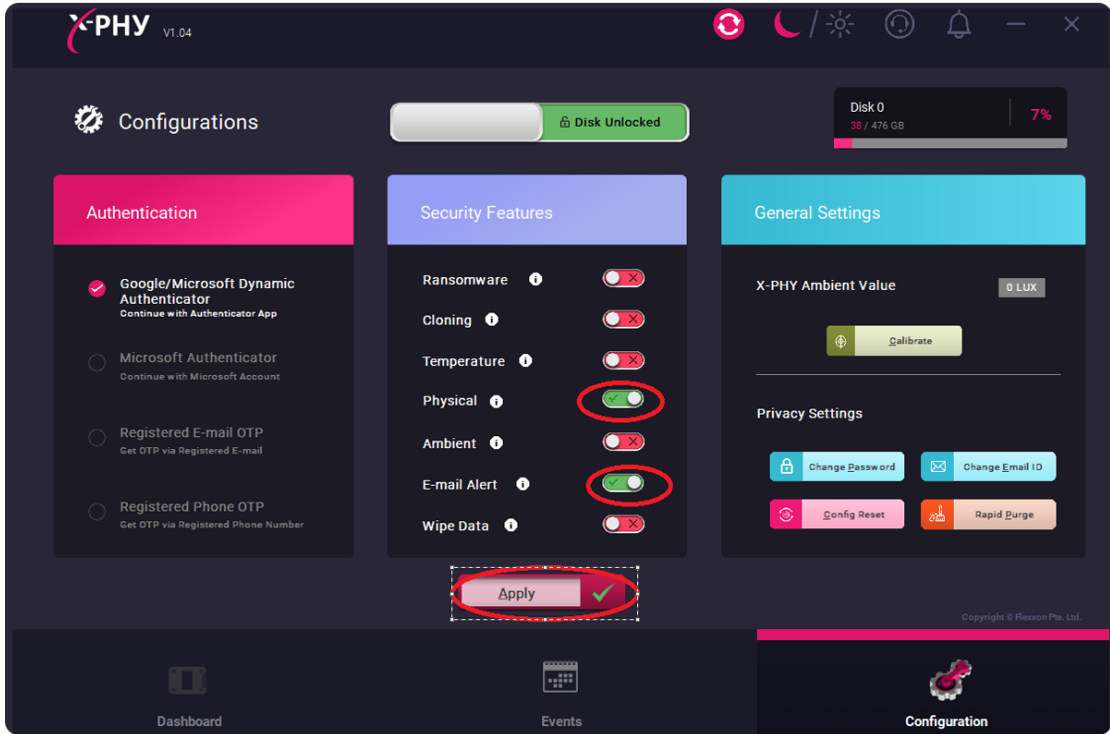
By enabling the “Wipe Data” function, all user data will be removed when a physical attack happens.

- If the “Wipe Data” feature is disabled, the X-PHY® will lock only when a physical attack occurs.

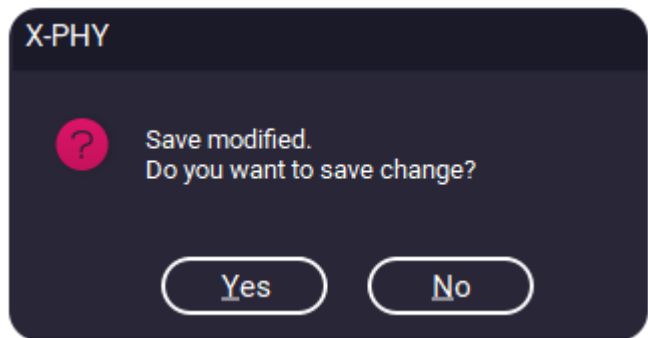


X-PHY® physical disconnection detection (first time activation)

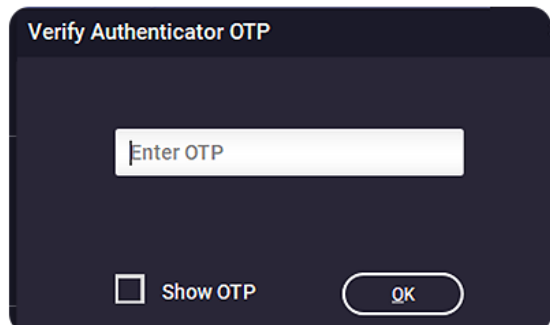
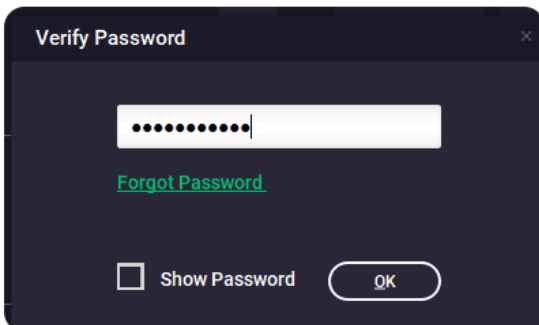
- 1 Enable the 'Physical' and 'E-mail Alert' security features in the 'Configurations' window, under the 'Security Features' column. Click on the 'Apply' button to save the changes.



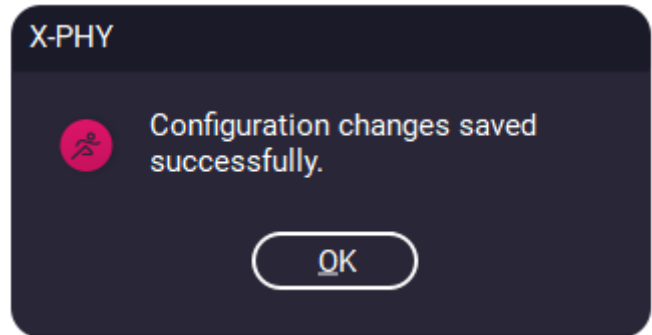
- 2 A popup window will appear to inform you that the settings have been changed. Click the 'Yes' button to save and continue.



- 3 Enter the SSD's password and the OTP from Google/Microsoft authenticator to authenticate this process.



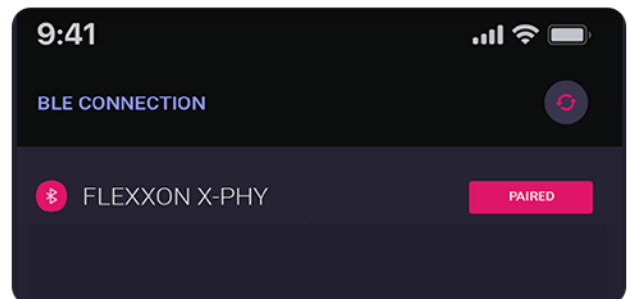
- 4 A popup window will appear to indicate that the configuration changes are successfully saved. Close the X-PHY® application and power off (shut down) the system.



- 5 Power on the system again. The system will show the BIOS screen with the error message.

Reboot and select proper Boot Device
or Insert Boot Media in selected Boot device

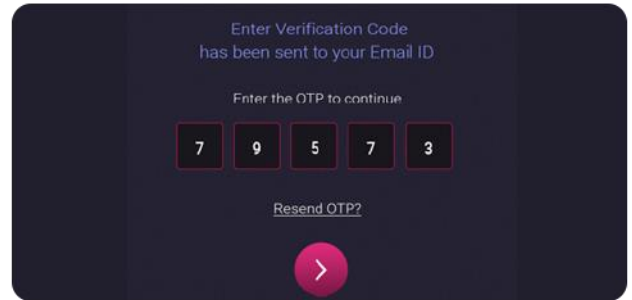
- 6 Turn on Bluetooth on the mobile device and open the XPHY Connect mobile application. Select the X-PHY® SSD device ID that is to be unlocked and click on 'Pair' button to start pairing. The application will show 'Paired' status if it is successfully connected.



- 7 Click on the 'padlock' icon at the bottom of screen to show the X-PHY SSD unlock screen. If the 'Unlock' button is highlighted in green (below), it means that the X-PHY SSD is currently in the locked state. If the 'Unlock' button is grayed out that means it is currently in an unlocked state.



- 8 You will be prompted to enter SSD's Password and OTP from the Google/Microsoft authenticator for this registered X-PHY SSD. Once the authentication process is successful, the device will be unlocked.








- 9 Shut down/power down the desktop/laptop completely. Wait for at least 3 secs before powering up again. The system will be able to boot up normally after the X-PHY SSD is unlocked by the mobile application.

X-PHY® physical disconnection detection testing

- Power off the PC
- Disconnect X-PHY® from PC via screw
- Connect X-PHY® to another PC via USB adapter or PCIe slot
- X-PHY® is locked or the recorded data is removed (if Wipe Data is Enabled)

Highlights

-  This feature is for advanced users only.
-  Please do data backup to avoid data loss due to mishandling.
-  Please charge the X-PHY® SSD 24 hours on the PC before triggering this feature.
-  **Do not attempt** to remove or tamper the X-PHY SSD at this point as doing so might trigger the alarm to lock it again since the physical security feature is enabled.
-  If an error message is still occurred during the booting and the X-PHY SSD has already unlocked, you might need to go into the BIOS configuration settings and select the X-PHY SSD to be the first bootable device. The settings for each BIOS configuration between each manufacturer may vary due to different hardware devices.

Learn more about X-PHY®

X-PHY® AI Embedded Cyber Secure SSD | The Last Line of Defense



x-phy.com



[+65-6493 5035](tel:+6564935035)



flexxon@flexxon.com



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