Kanguru Solutions SED30 and SED300 User Manual

Version	Published
1.0	March 2024
2.0	May 2024

3.0	August 2024

Introduction

What is an SED?

The Kanguru SED product line is a self-encrypting hard drive capable of full disk encryption to prevent unauthorized access to your computer at rest. Unlike most encryption types, this process activates security across the entire storage disk. Access to data requires authentication credentials, even before reaching the Operating System.

The SEDs come in 2 form factors, NVMe M.2 and 2.5" SSD SATA, allowing for a wide range of compatible computer systems.

Why use hardware-based encryption?

All encryption types are not created equal; there are several benefits to hardware-based encryption. One is that in the case of Kanguru SEDs, the encryption key does not leave the hardware, it is generated internally and never exported. Another is that typically hardware-based encryption is faster than software-based encryption and not dependent on outside processes for performance. In most cases, there is no conflict between hardware encryption and software encryption; meaning a user can have both running in parallel.

Meet the software

The application used to manage security, encryption, and configuration of the SEDs is called Opal Commander. It's a Windows and Linux installable program capable of initializing the Kanguru SED product line as well as making changes to the drives such as Username, Password, and installing our PBA (Pre-Boot Authenticator).

Before Initializing Security on your new SED

How would you like to use it?

Your SED can be used as a bootable drive, capable of running an operating system and securing your workstation's data at rest. The SED can also be used as a storage drive, using Opal Commander, the drive can be locked and unlocked at will for external use if desired. If you are planning to use the drive internally as a bootable disk, continue to the section labelled "Configuring your bootable SED". If you are planning to use the drive as either internal or external storage (non-bootable), continue to the section called "Configuring your SED for storage".

Configuring your bootable SED

There are some safety measures that we would recommend you perform before initializing security on your drive. Please follow these steps and you're on your way to initializing your self-encrypting drive for bootable use.

1. Test your computer's boot compatibility

Some computers prefer UEFI bootable options while others use Legacy BIOS configurations. It's important to keep your BIOS up to date and try Kanguru's Pre-Boot Authenticator before initializing security. Kanguru's PBA supports both UEFI and Legacy boot options, but to be safe, please test one of the following:

Initialize Testing with a different hard drive

If you have a hard drive with an OS capable of running Opal Commander, try initializing the SED without an OS or data. This will allow you to install the drive to your PC and test that your BIOS will support either the UEFI boot or Legacy boot options provided. Make sure you can reach the login GUI of the Pre-Boot Authenticator. If the unlock is successful, you can turn off security and install your new operating system and enjoy using your new encrypted drive.

Initialize Testing with a USB drive

If you have a USB drive that you can use to create bootable media, we recommend trying to create a bootable USB version of the Kanguru PBA. After installing Opal Commander, use the Kanguru PBA ISO or IMG file to create a bootable USB.

2. Backing up any data is recommended

If the SED you're working with already has critical data on it, you can initialize security and begin the encryption process without wiping any data. We recommend backing up any/all data in case errors occur or you need access to your data during the initialization process.

3. Install your Operating System

The SED30 and SED300 work as normal hard drives before encryption is enabled. It is easier to install your preferred operating system before enabling encryption. If you already have an operating system installed on your drive, you can skip this step.

4. Disable Sleep Mode

When you enter sleep mode, the SED locks itself for safety purposes. This can be a problem if you're using it for your internal operating system drive. We recommend turning off sleep mode and using alternative options.

5. We recommend Updating your BIOS firmware

The Pre-Boot Authentication feature runs by booting from the BIOS, often using UEFI. Make sure your BIOS firmware is up to date by downloading the latest flash update from your system's manufacturer.

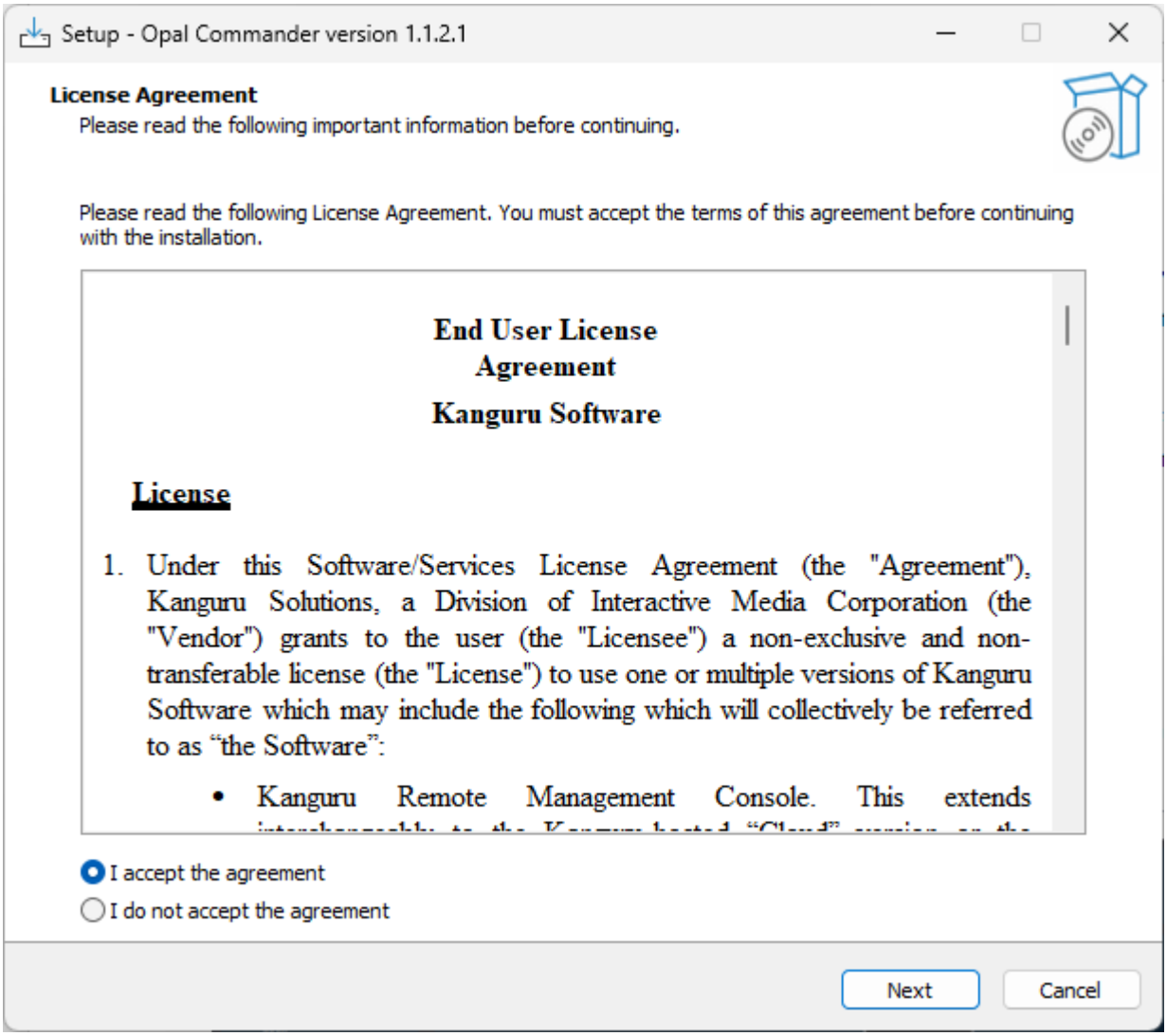
6. Installing Opal Commander

Opal Commander is available on our support site here: https://kanguru.zendesk.com/hc/en-us/articles/25912797815821

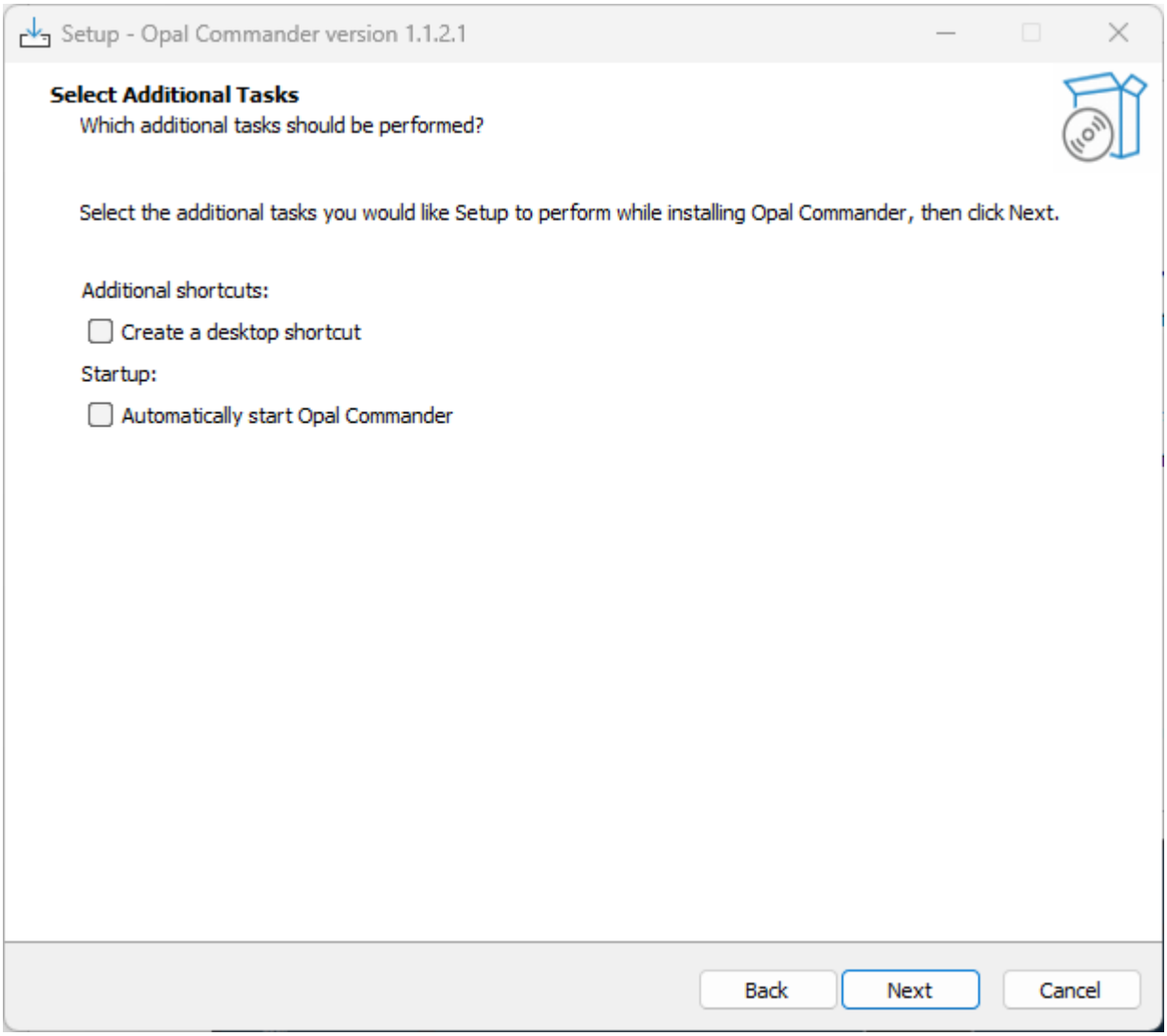
The default installer is for Windows, but specific flavors of Linux installers can be provided upon request.

To install, follow these steps:

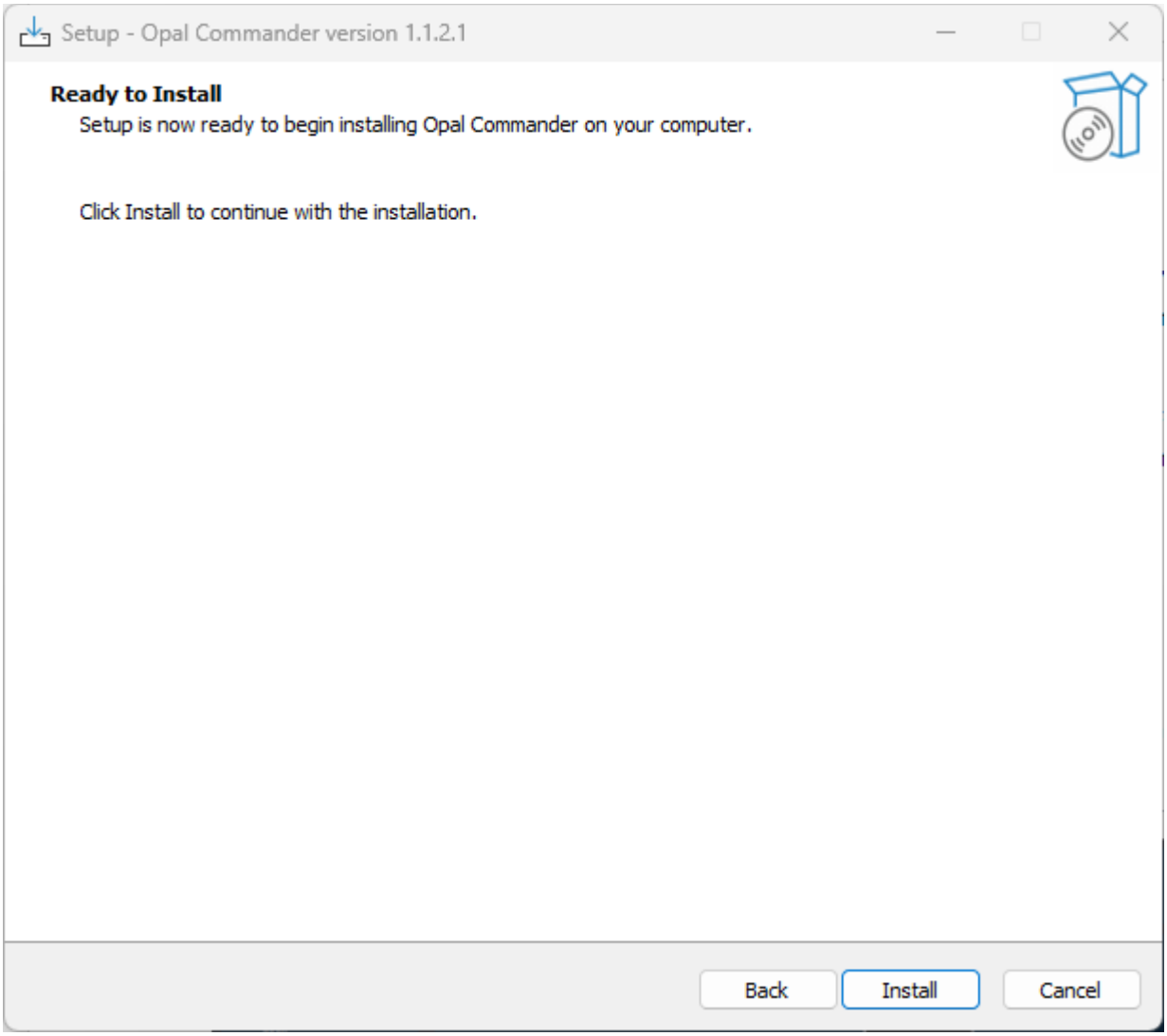
1. Double click the Opal_Commander_Setup.exe (usually a version number is applied to the end of the executable name).
2. You will be prompted with an End User License Agreement (EULA), if you agree to the terms listed, choose “I accept the Agreement” and click “Next”.



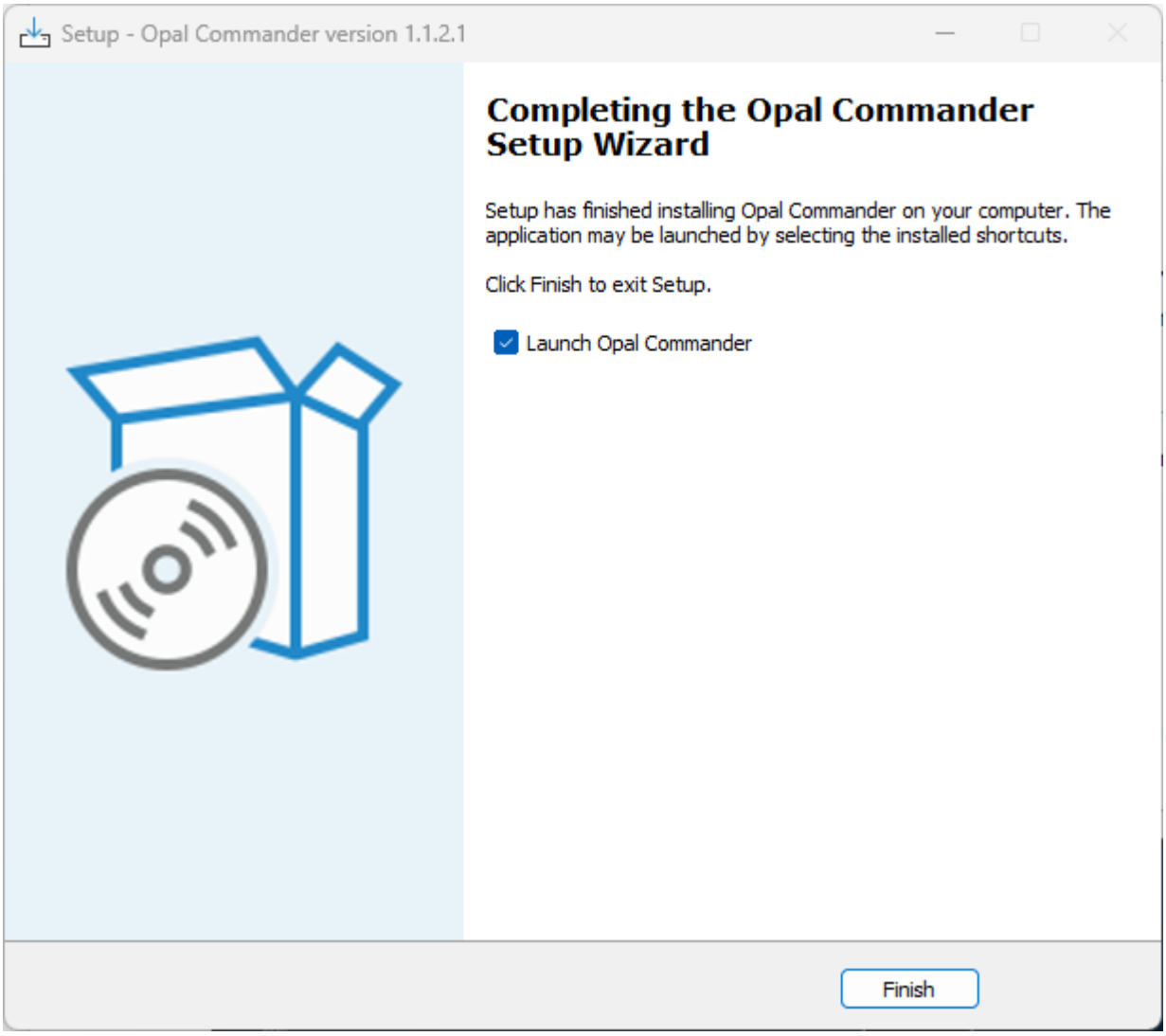
3. There are additional settings in the next window, you may choose to “Create a desktop shortcut” or “Automatically start Opal Commander” when you login to your operating system. Make your choices and click “Next” to continue.



4. If you are ready to install Opal Commander, select “Install” at the next window.

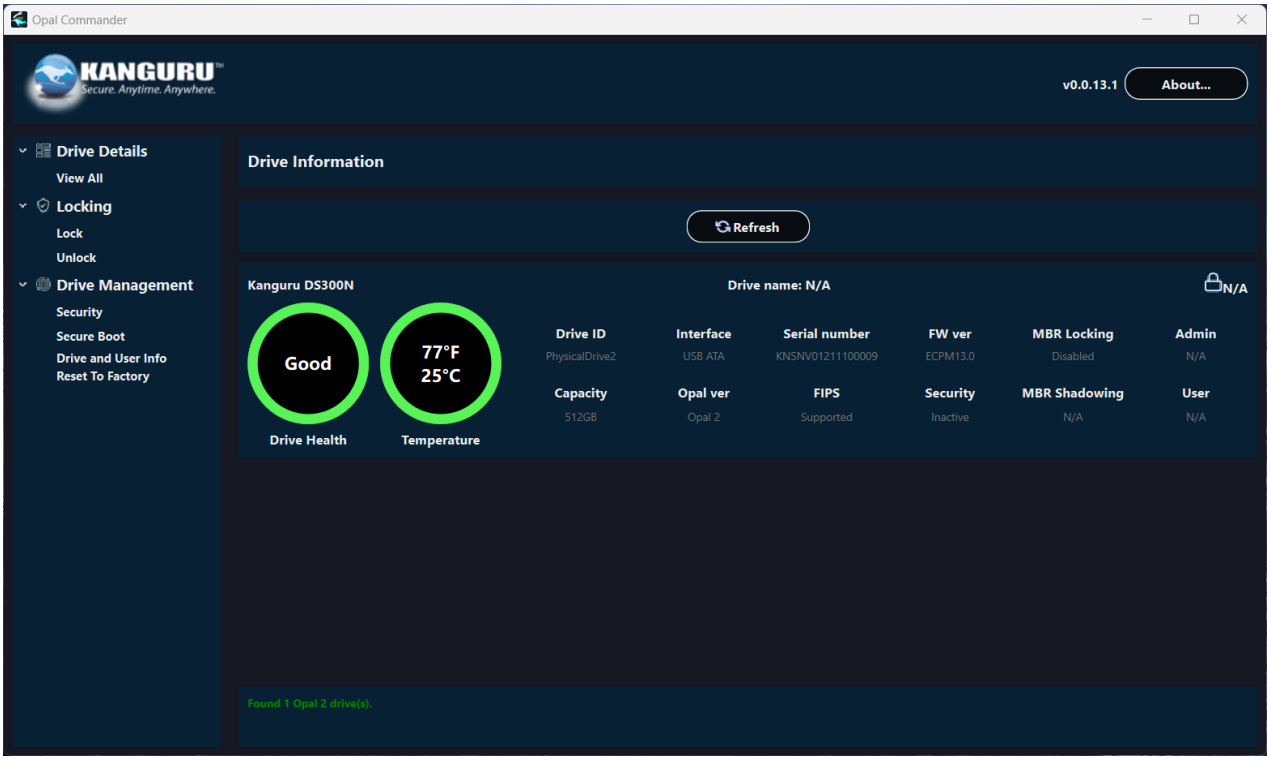


5. The installation will progress with a loading bar and take you to the last window. You may choose to launch Opal Commander right away or simply click “Finish” to complete the installation process.



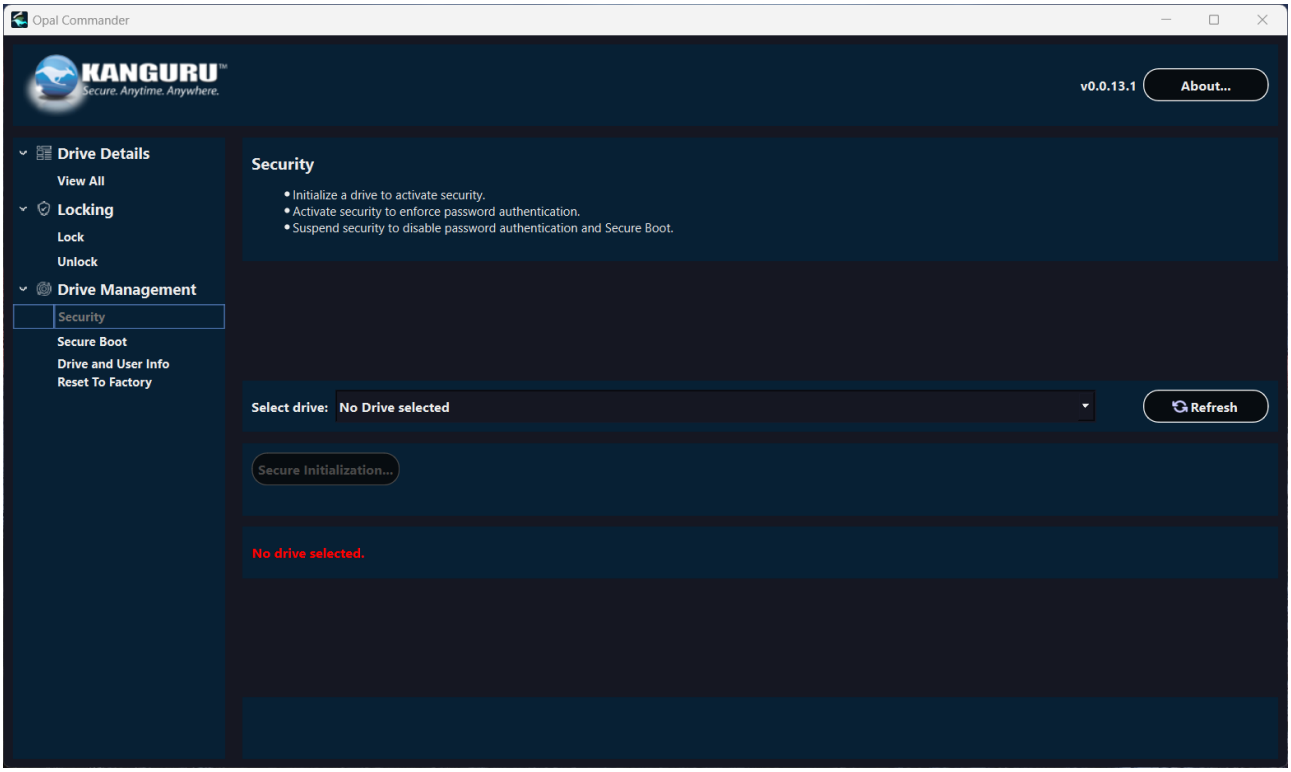
6. Running Opal Commander

Opal Commander is an application designed to initialize full disk encryption on any Kanguru hard drive that is Opal TCG 2.0 compliant.

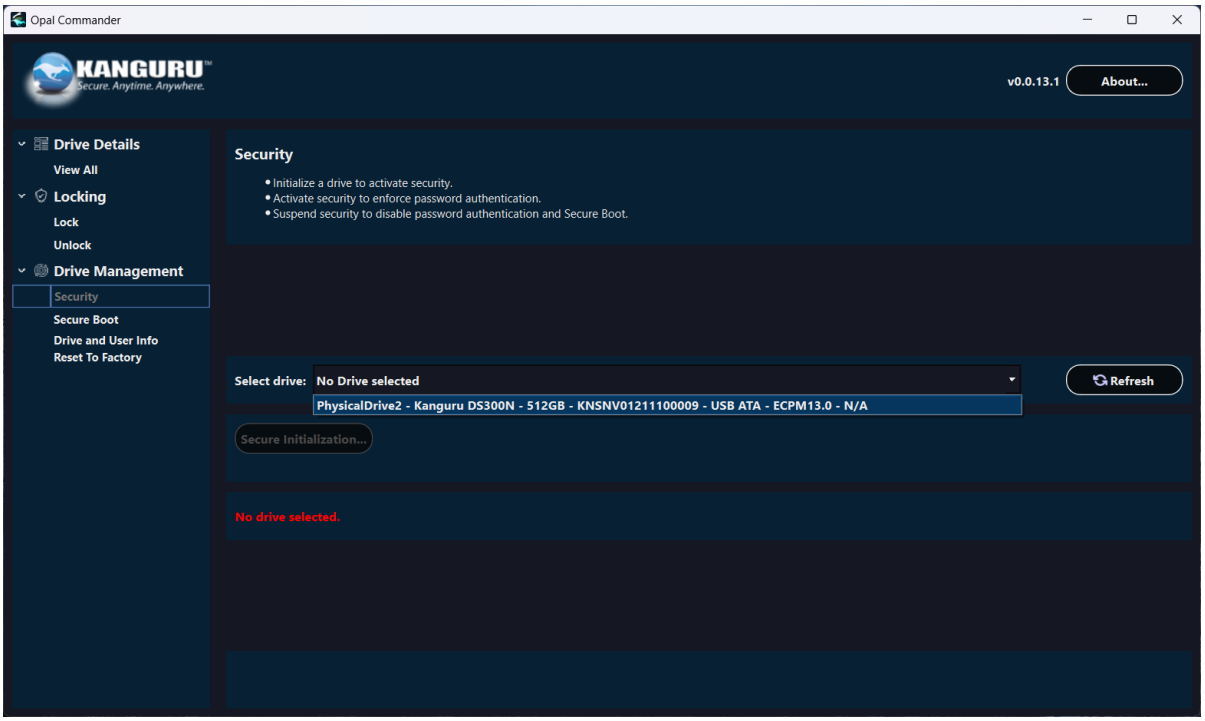


7. Activating Security

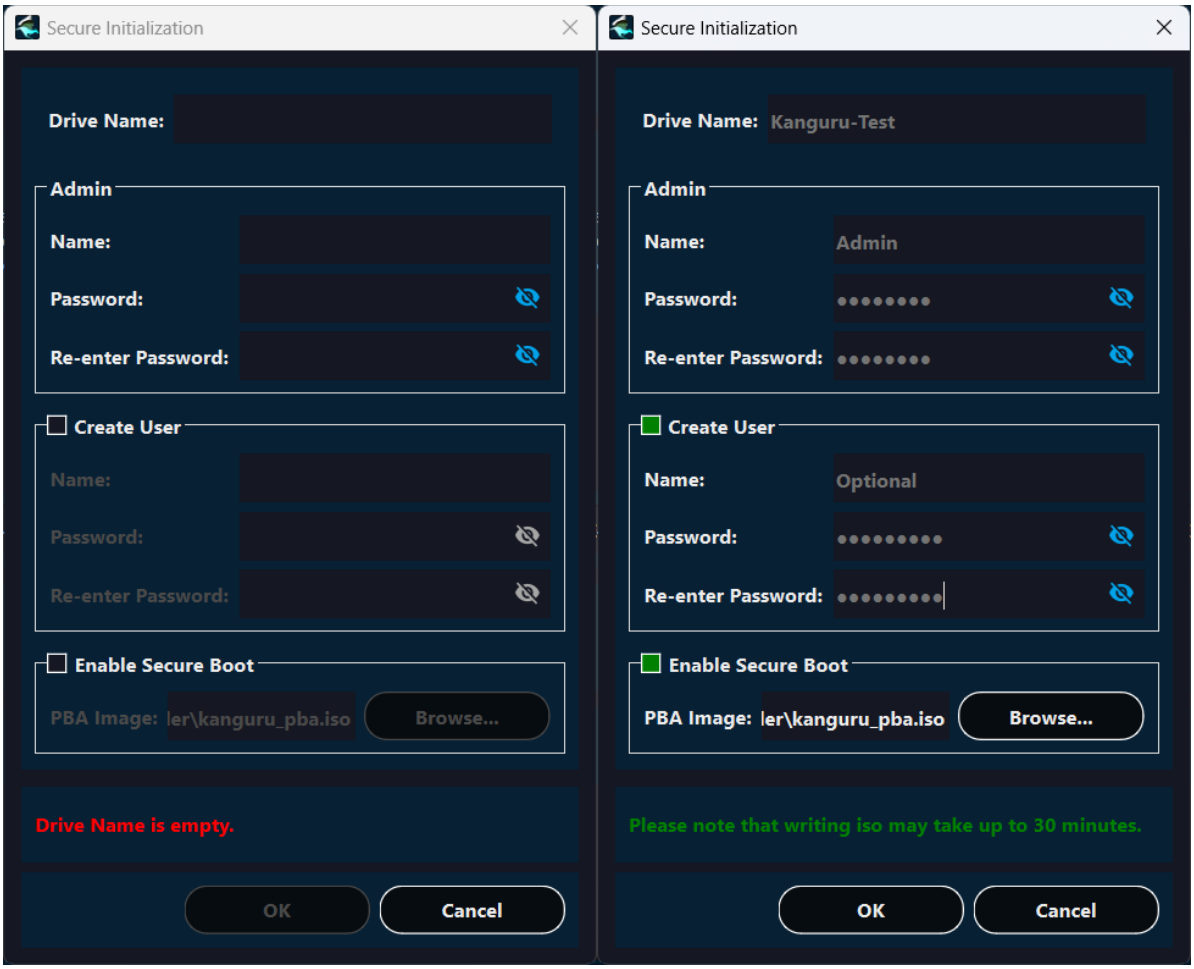
1. Start Opal Commander by clicking the designated shortcut on your desktop or running the Opal Commander application from your start menu.
2. In the navigation menu on the left, choose the “Security” option.
3. The Security information appears in the right pane of the window.



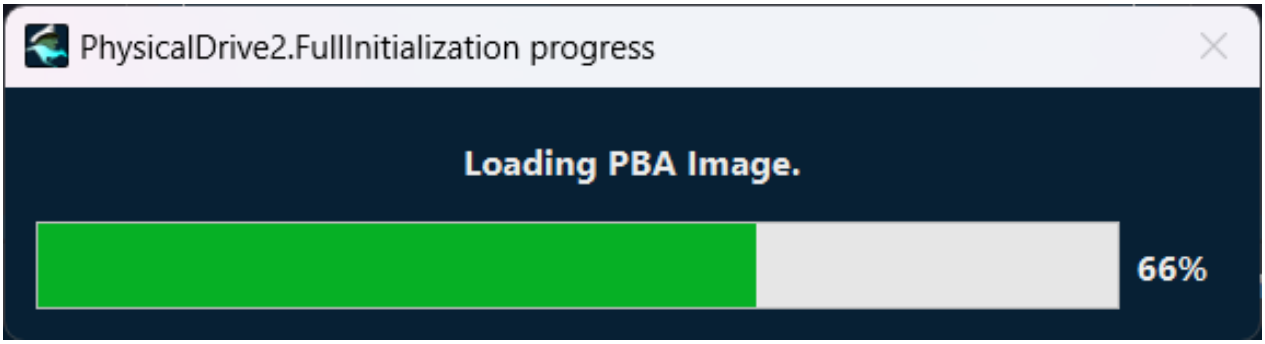
4. Use the “Select drive” drop menu to choose the drive you would like to initialize security on.
5. Click “Secure Initialization”, the Secure Initialization window will appear.



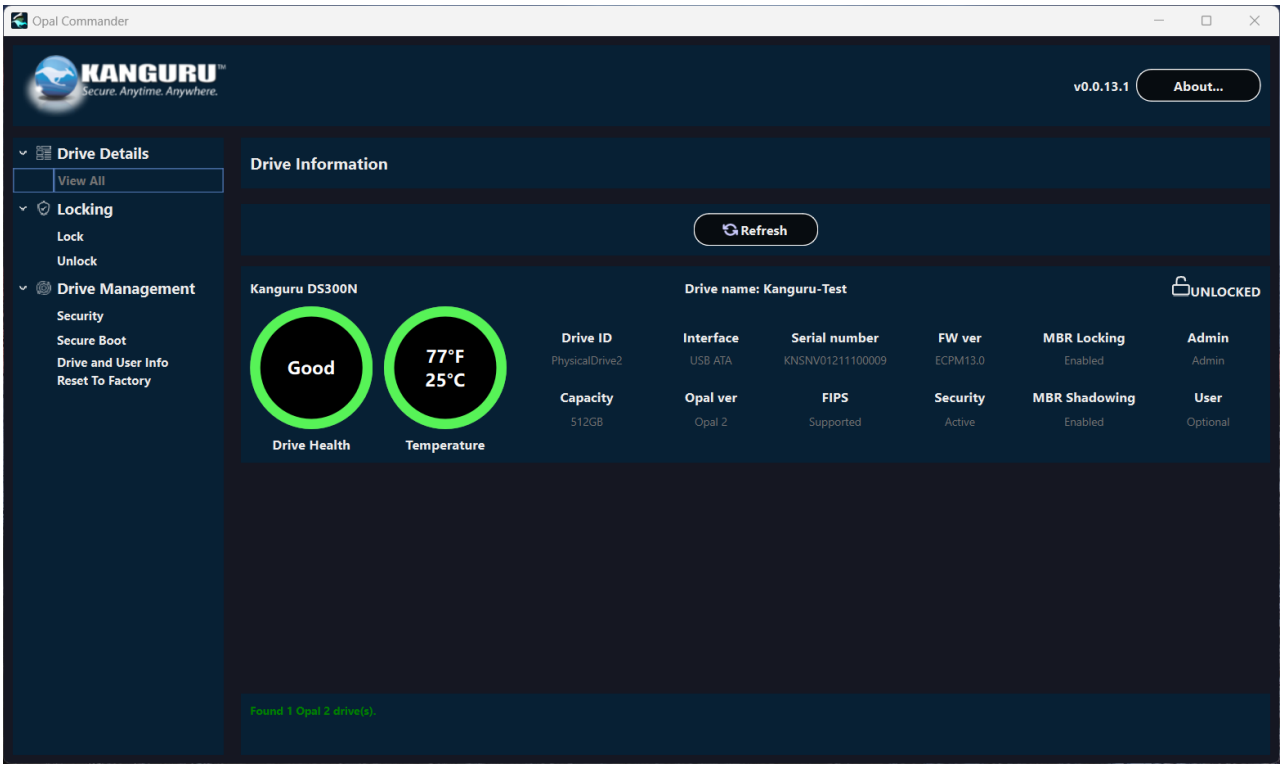
6. Name the device for the application's use, as well as create an Administrator Username and Password. All configuration changes made to the device from now on will require the Administrator Password.
7. Optionally you can create a standard user, this user will be able to lock and unlock the drive but cannot make any settings changes.
8. If you plan on using this device as an internal hard drive with an Operating System, you'll need to install the PBA image Kanguru provides. This PBA will allow you to boot into a login screen on system power and allow you unlock your OS by using the Administrator's credentials or the User's credentials. You can find your specific PBA image on our Opal Commander's download page. There is 1 for NVMe drives and 1 for SATA drives.



9. Please be aware, the Secure Boot PBA installation can take up to 30 minutes. This is the most intricate section of the process that will allow a user to login to the device through a Pre-OS Environment. Giving your drive complete encryption at rest with the ability to unlock using simple credentials. The loading screen may sit at 66% for a long duration, that section of the process takes the longest.



10. When the installation is completed, the drive will be left in the unlocked state to prevent the OS from crashing during a lock.



11. Your drive has activated its security, your drive is now encrypted and in the unlocked state. The drive will remain unlocked until you cycle the power. Note: All drives will remain unlocked until locked through Opal Commander or the device is power cycled.

Unlocking the drive through the Kanguru Pre-Boot Authenticator

If you chose to install the Kanguru PBA, your SED is now a bootable drive. Capable of launching into Kanguru's pre-boot login screen to unlock your drive and load your operating system.

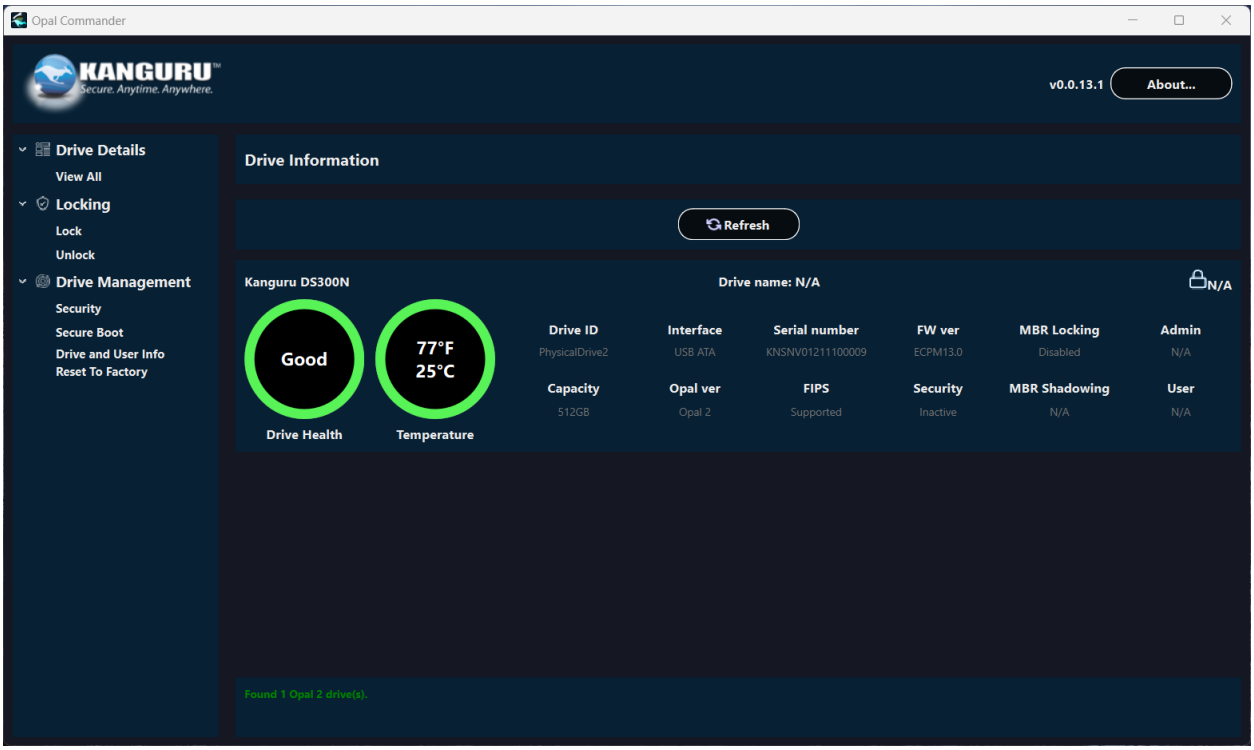
Here is the process to unlock a PBA installed drive:

1. Be sure to install your SED into your computer as an internal drive. The SED can be used as a bootable drive through an external USB connection, but the boot sequence will be related to USB configuration instead of internal.
2. Turn on your computer.
3. Access the BIOS by using the keyboard shortcut your manufacturer recommends, often the ESCAPE or DELETE buttons.
4. Navigate to your boot sequence options and choose to boot from your new Kanguru SED as the primary boot option.
5. Save and Exit the BIOS.
6. The Kanguru PBA will load into a menu with the following options.
    a. Boot GUI fast
    b. Boot GUI slow
    c. Boot Terminal fast
    d. Boot Terminal slow
7. When the interface loads, you will see the Kanguru PBA login window in the center. It has fields for choosing which drive to unlock and to input the user's password.
8. If you have a mouse, use the mouse to click the dropdown menu and choose the SED you'd like to unlock. If you don't have a mouse, use the arrow keys to choose your SED and press TAB to enter the password field.
9. Provide your password for the chosen SED and press ENTER.
10. The PBA will now begin to close and load your operating system since the drive is now unlocked.

Configuring your drive for storage (non-bootable)

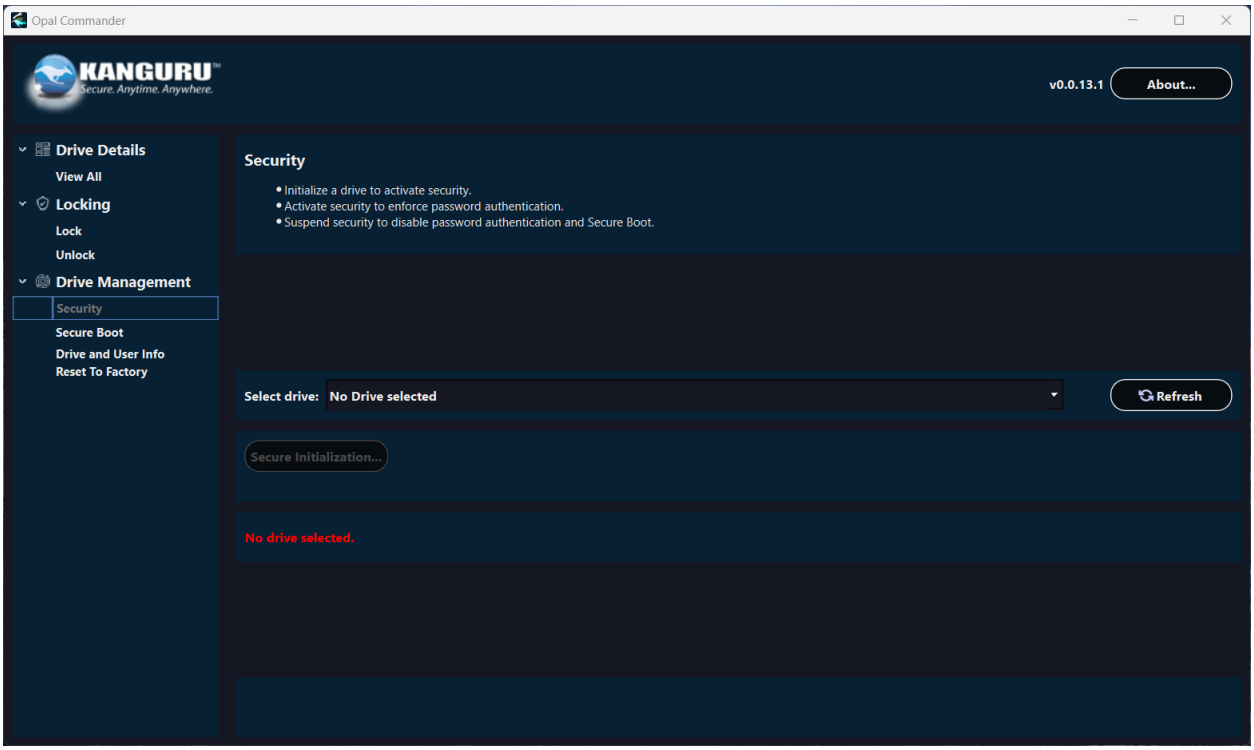
Running Opal Commander

Opal Commander is an application designed to initialize full disk encryption on any Kanguru hard drive that is Opal TCG 2.0 compliant.

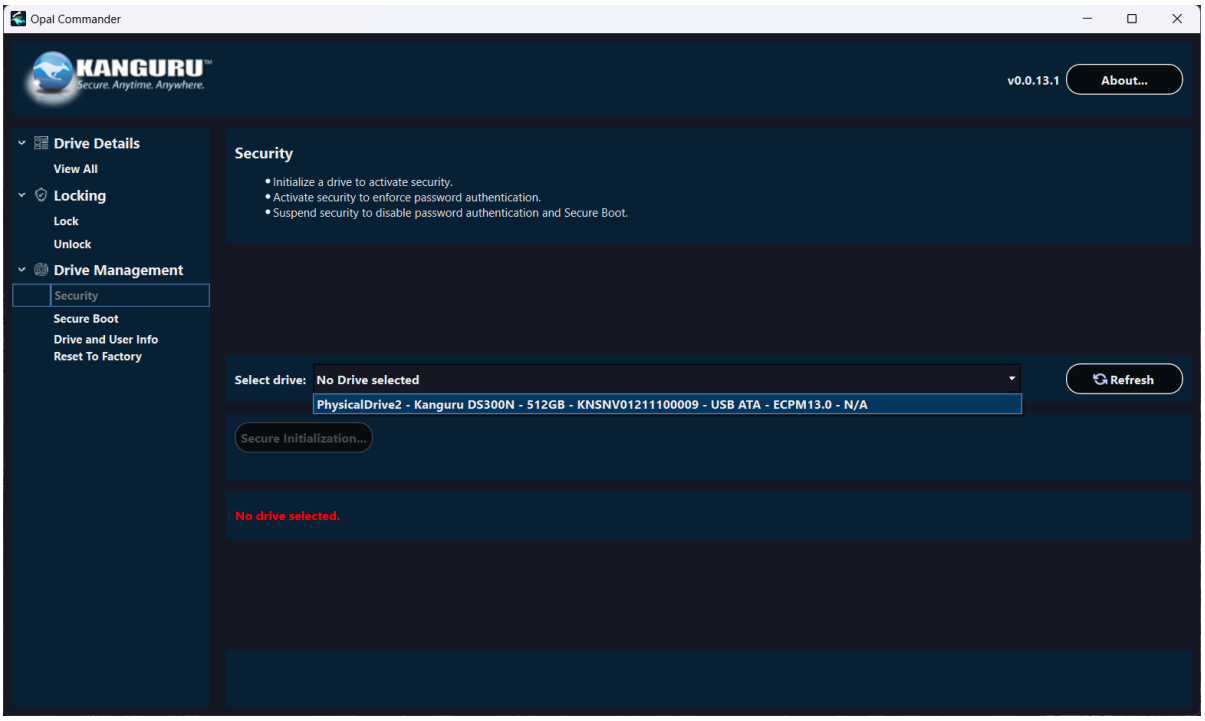


1. Activating Security

1. Start Opal Commander by clicking the designated shortcut on your desktop or running the Opal Commander application from your start menu.
2. In the navigation menu on the left, choose the “Security” option.
3. The Security information appears in the right pane of the window.

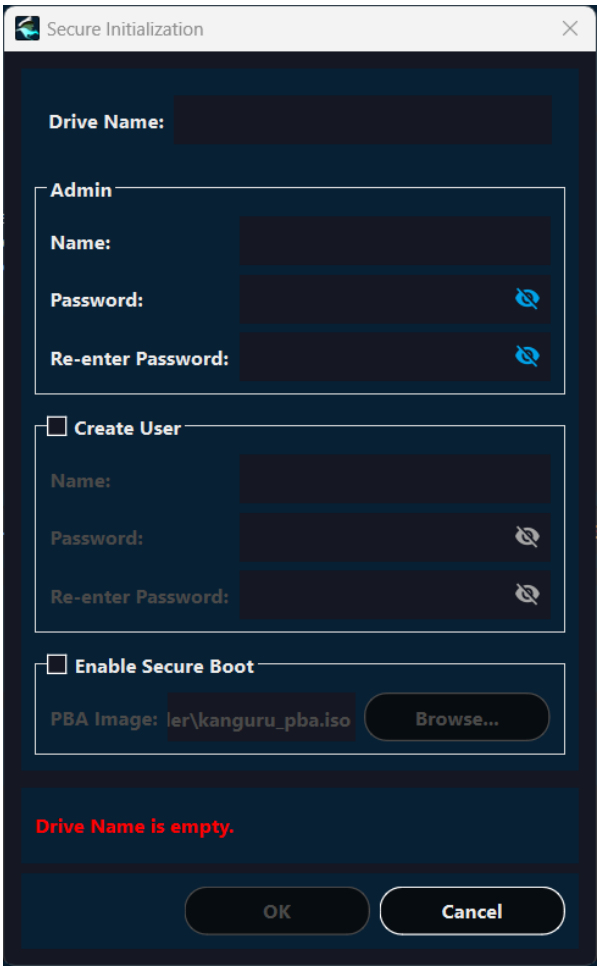


4. Use the “Select drive” drop menu to choose the drive you would like to initialize security on.
5. Click “Secure Initialization”, the Secure Initialization window will appear.



6. Name the device for the application’s use, as well as create an Administrator Username and Password. All configuration changes made to the device from now on will require the Administrator Password.

7. Optionally you can create a standard user, this user will be able to lock and unlock the drive but cannot make any settings changes.
8. Make sure to leave the PBA checkbox UNMARKED, your intention is to make this drive a non-bootable storage drive. Enabling the PBA will cause the drive to install Kanguru's Pre Boot Authenticator and the drive will act like a bootable OS hard drive.



9. Once you click OK, your drive is now initialized and encrypted. The drive will remain unlocked as to prevent access until you turn off the power or disconnect the drive.