# Certus Software

Certified Data Erasure Professionals

## User Guide

# Certus Erasure for M-Series

v1.3

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# Certus Erasure for M-Series User Guide

## 1. Who should read this guide?

This guide should be read by the users of Certus Erasure for M-Series (CEMS) software product. It contains information about how to prepare the product before usage and how to use it in a proper (secure) way.

## 2. What is CEMS product for?

CEMS is a software product used for sanitizing (secure erase) the data stored on Apple computer models provided with M-series chips, called also “Apple Silicon”. At the end of the process, CEMS provides the user with a tamper-proof report about data sanitization.

## 3. What is the concept behind the way CEMS starts and runs?

The main goal behind CEMS’s starting and running concept is to overcome Apple’s security constraints related to:

1. Booting third-party operating systems on Apple Silicon hardware (not allowed).
2. Low level access to all user data stored on the local drive (not possible when booted from the local drive).

So, CEMS is using the only way allowed by Apple to overcome these two constraints, and this way is by booting a MacOS installed on an external drive.
With other words, CEMS is a product which runs on MacOS, after the operating system has been booted from an external USB drive.

## 4. How is it delivered?

CEMS is delivered to the user as a pre-installed software solution onto a ready-to-boot MacOS volume image. In simpler terms, it is presented as a file (about 36 GB in size) which needs to be “applied” to an external SSD before using it for booting the computer (erasure target).

## 5. What is required for using CEMS?

Below are the prerequisites for using CEMS:

1. An Apple M1/M2/M3 computer (the computer targeted for erasure). The computer must:
    a. Be activated and to contain a local user account with administrative privileges;
    b. Be without Recovery Lock active;
    c. Be shipped with a macOS version that is *not* newer than the one CEMS has;
    d. Not be set as Lost through **Find My** application.
        i. ***Note***: in this case, it is required the user account displayed on the Lock screen.
2. The CEMS bootable drive (prepared beforehand).
3. Internet access.
4. A Certus Erasure Web Manager (CEWM) account containing licenses and granted privilege for CEMS access.

# 6. What are the steps to be followed?

## 6.1. Prepare the CEMS bootable drive

This section presents the process of creating a bootable drive with CEMS.

### 6.1.1. The prerequisites

The prerequisites for preparing the bootable drive are the following:

1. A computer running Windows with about 100 GB storage space available.
2. Internet access.
3. The right CEMS archive with its corresponding checksum
4. The Certus USB Tool (CUT) (downloadable from the following link https://download.certussoftware.ro/products/cut/certus_usb_tool_setup.msi).
5. A 50 GB (or large size) removable/external ATA/NVMe drive (USB type C or Thunderbolt).

For Apple computers with M3 or M4 CPU, use the following links:

1. The CEMS image file archive (downloadable from the following link https://download.certussoftware.ro/products/cems/cems-0.4.0.zip).
2. The CEMS image file archive checksum (downloadable from the following link https://download.certussoftware.ro/products/cems/cems-0.4.0-checksum.txt).

For Apple compuers with M2 or M1 CPU, use the following links:

1. The CEMS image file archive (downloadable from the following link https://download.certussoftware.ro/products/cems/cems-0.2.0.zip).
2. The CEMS image file archive checksum (downloadable from the following link https://download.certussoftware.ro/products/cems/cems-0.2.0-checksum.txt).

### 6.1.2. Download the CEMS image file archive

Use the Windows computer and the below link to download the CEMS image file in .zip compression format. The archive size is about 25 GB. It might take around 2.5 hours (on average) to download, depending on the internet connection bandwidth.
https://download.certussoftware.ro/products/cems/cems-0.4.0.zip

### 6.1.3. Check the integrity of the CEMS image file archive

Use the below link to download the SHA 256 checksum (hash) of the compressed image file, then use a tool to check the integrity of the downloaded file (e.g. certutil, Get-FileHash, shasum etc.).
https://download.certussoftware.ro/products/cems/cems-0.4.0-checksum.txt

### 6.1.4. Decompress the CEMS image file archive

Unzip the compressed image file. It should expand from about 25 GB .zip file to about 36 GB .iso file.

### 6.1.5. Download and install the CUT application

Use the below link to download CUT (Certus USB Tool) and install it.
https://download.certussoftware.ro/products/cut/certus_usb_tool_setup.msi

#### 6.1.6. Use CUT to write the CEMS image file

After connecting the removable drive to the Windows computer, open CUT application and use it to browse for the decompressed file (.iso) and to write it to the removable drive. More details about using CUT to write an already downloaded image file can be found in the CE Quick User Guide, available at the below link.
https://download.certussoftware.ro/products/ce/manuals/CE_Quick_User_Guide.pdf#page=6

### 6.2. Prepare the computer targeted for erasure

The goal of this action is to configure the Apple computer (the computer targeted for erasure) to boot from the removable drive instead of its internal drive. This can be achieved through two methods:

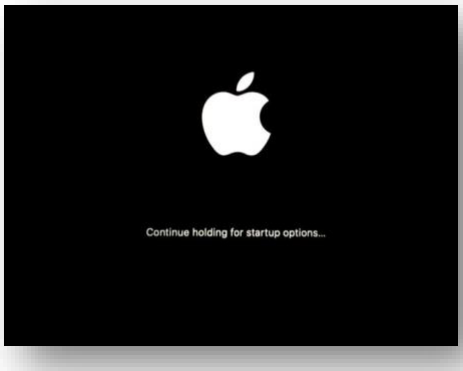
- Changes need to be done in the "Startup options" feature from boot menu;
- Changes need to be done in the "Startup disk" feature from macOS.

We recommend the second approach in cases where the MacBook computer cannot boot CEMS using the first method.

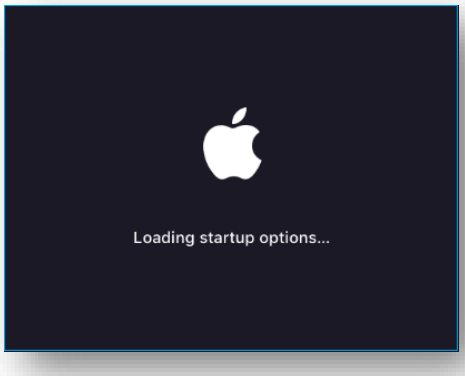
#### 6.2.1 Select CEMS as the startup disk from boot menu

##### *6.2.1.1. Access the startup options at power on*

Start with the computer powered off. Press and hold the power button until the message "Loading startup options..." appears on the screen.




Release the power button after the message "Loading startup options..." appears on the screen and wait for the startup options window to be displayed.



#### *6.2.1.2. Select the startup drive*

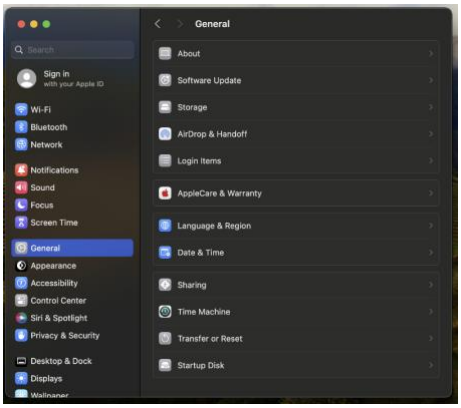
Select the drive called “cems” from the next window and then “Continue” to boot from it.

### 6.2.2 Select CEMS as the startup disk from System Settings

#### *6.2.2.1. Access system preferences from macOS*

Log into the macOS with an administrator account. From the main screen, select the Apple logo and choose “System settings”.

In the Settings window, select “General” and then you may need to scroll down until you see “Startup Disk”. Choose this option.

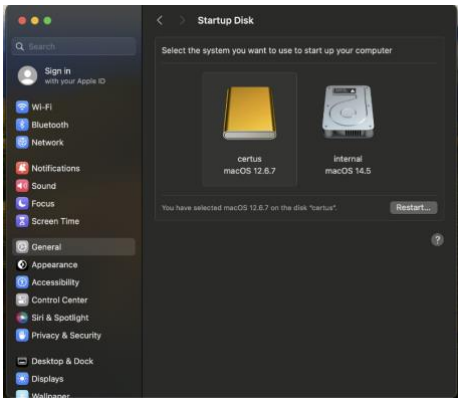


### *6.2.2.2. Set CEMS as the Startup Disk*

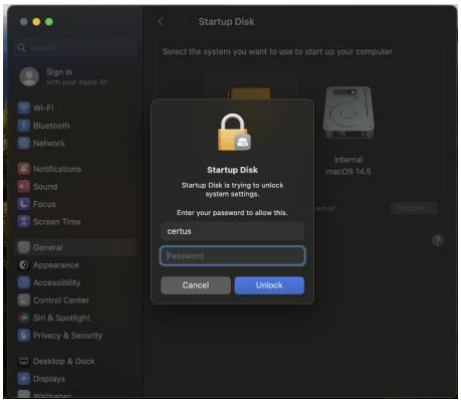
Select CEMS as the Startup Disk. You will be required to authenticate two times:

1. First time is for unlocking system settings to accept administrative changes
2. Second time is for making changes to set the selected Disk as the Startup Disk

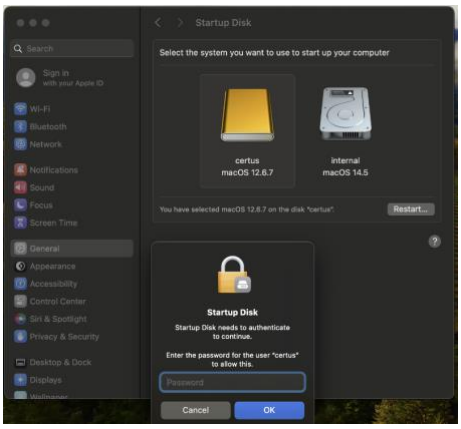
Select “certus” as the Statup Disk.




Authenticate for allowing setting changes.

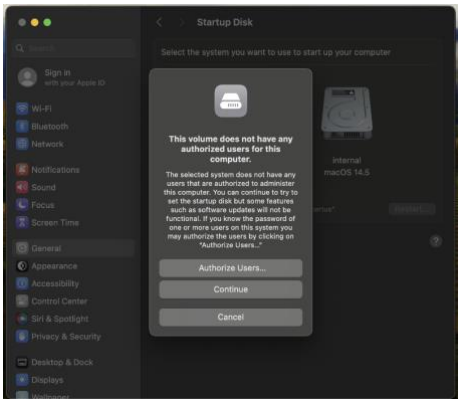



Authenticate again to set up the new Startup Disk.



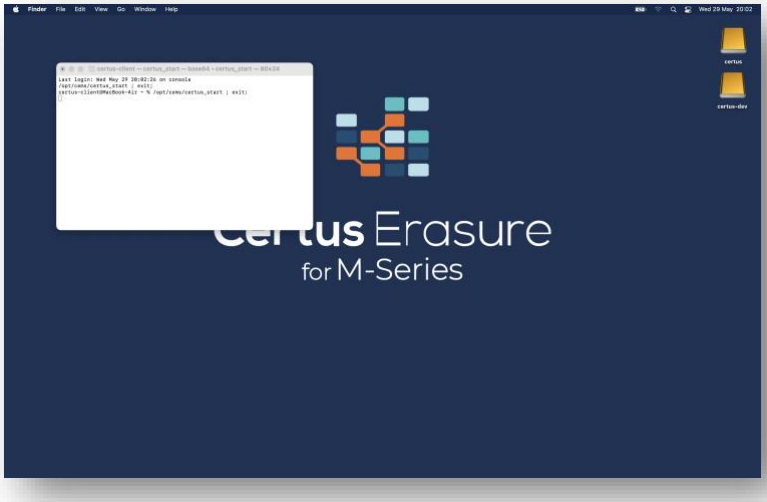
After the two authentications, the system will prompt to restart the system. For restarting, you will be required to authenticate again.

The system will inform you that no users are authorized from the selected Startup Disk. This is alright. You may choose the “Continue” option and the system will reboot.

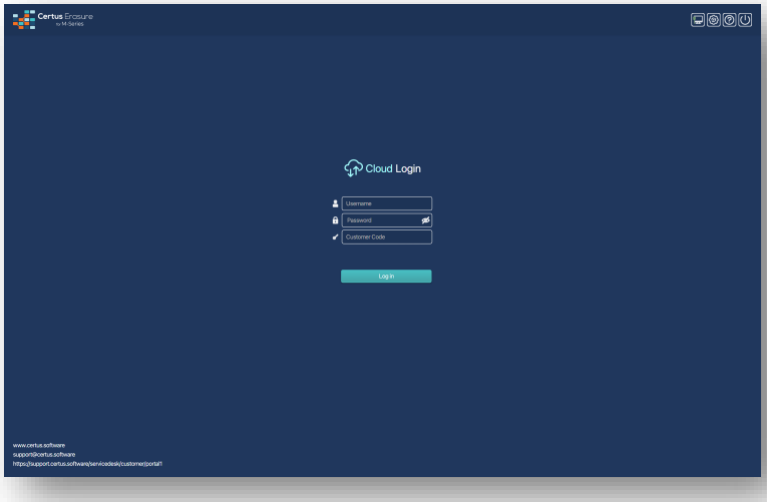


### 6.3. Reboot and start CEMS

After selecting the “cems” drive as the boot option, the computer should restart and boot the MacOS from the removable drive. At the end of the booting sequence, the CEMS application UI will be launched automatically from a terminal window.




After loading the UI, the CEMS login window will be displayed.




**Important note related to network connection**: If an USB to RJ45 network adapter is used for connecting the computer to the network/internet then the network connection should be up and running. When only Wi-Fi connection is to be used instead, then the connection needs to be configured before authentication and from outside CEMS application (from MacOS).

### 6.4. Authenticate and perform the erasure

Type the credentials (username, password, customer code) and click on “Login” button. After authentication, the application should be used in a similar way to Certus Erasure (CE). More details about how to operate can be found on Certus Erasure User Manual.
https://download.certussoftware.ro/products/ce/manuals/CE_User_Manual.pdf

# 7. Miscellaneous

## 7.1 Document revision history

| # | Version | Date | Author | Description/Comments |
|---|---|---|---|---|
| 1 | v0.1 | 2024-06-07 | Tech. Writer (AP) | First version of the document (draft). |
| 2 | v1.0 | 2024-06-18 | Tech. Writer (AP) | First public version. |
| 3 | v1.1 | 2024-09-10 | Tech. Writer (AP) | Adapted for CEMS v0.2.0. |
| 4 | v1.2 | 2025-03-24 | Tech. Writer (AP) | Adapted for CEMS v0.3.0. |
| 5 | v1.3 | 2025-07-14 | Tech. Writer (RM) | Adapted for CEMS v0.4.0. |

## 7.2 Recommendations

This section contains recommendations and possible solutions for encountered problems while using CEMS.

1. Always make sure the MacBook has internet access, either using wireless network or Ethernet adapters.
2. If the same flash storage device is used for erasing multiple MacBook computers, then it is recommended to re-write the image if problems are encountered. Each MacBook may leave information on CEMS that may corrupt the image.
3. For using the newest CEMS versions, we recommend updating the MacBook to the latest version of macOS to solve possible problems regarding software compatibilities.