# ThinkStation SSD Secure Erase

*Version 1.0*

# 1. Introduction

There is no doubt that solid state drive (SSD) technology has exploded in popularity in the computing world. SSDs offer a lot of significant benefits over traditional spinning hard drives such as increased bandwidth, smaller physical footprint, and lower power consumption. Couple that with increasing capacity points, and the ability to support SSDs in traditional RAID arrays, and it's clear that SSD technology is becoming a dominant force in the PC market.

With all of the benefits of SSDs, one area that requires additional attention is that of data security. Because of the way SSDs actually store data on the drive, data is constantly moved and written to different blocks to achieve certain levels of robustness and wear leveling. This creates the need for a way for users to securely erase data from their SSD, and do so without causing unnecessary wasted writes to blocks that didn't actually contain data (which would theoretically shorten the life of the drive).

Fortunately, ThinkStation BIOS comes with a built in secure erase feature to serve just this purpose. This document will instruct users on how to take advantage of this BIOS feature to securely erase all data on a SSD.

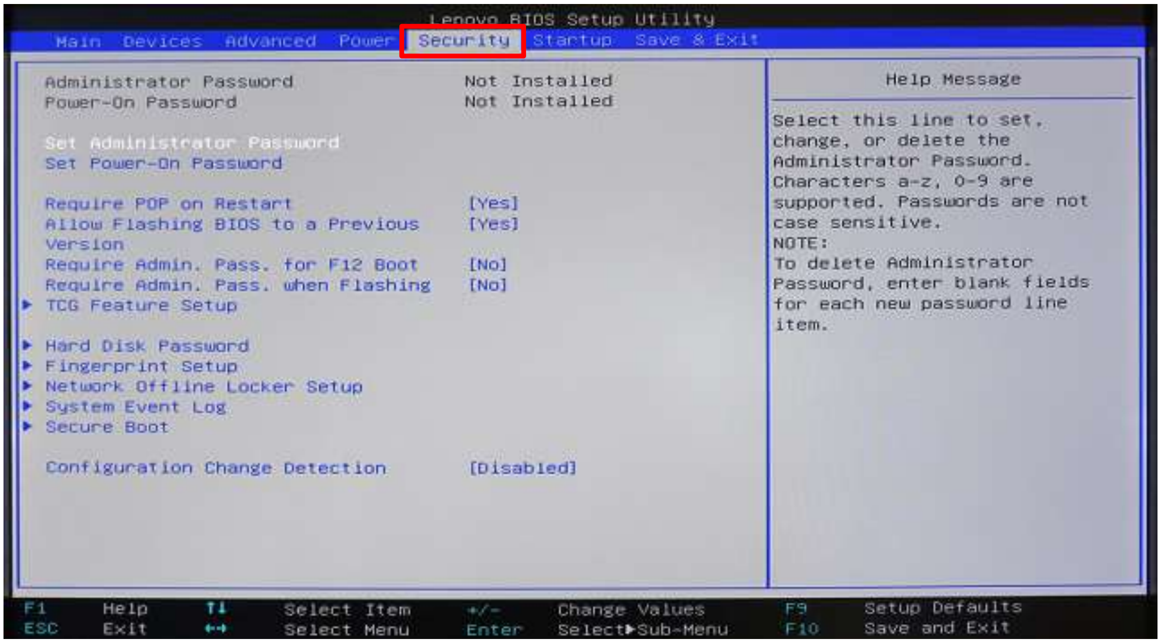
## 2. How to Securely Erase SSDs Using ThinkStation BIOS

The following instructions will cover the steps required to use ThinkStation BIOS to securely erase a SSD.

***<u>IMPORTANT NOTES:</u>***

- *In order for the integrated secure erase feature to function correctly, any SSD to be erased MUST be attached to one of the system's onboard Intel SATA ports. The controller must be set to "ACHI" mode (controller cannot be set to "RAID" mode).*
- *SAS SSDs cannot be secure erased using this method. It is recommended to remove any drives not to be securely erased from the system for this method.*

1. With the target drive connected to the system correctly, power on the system and press "F1" to enter BIOS setup.
2. Use the arrow key to highlight the "Security" tab.



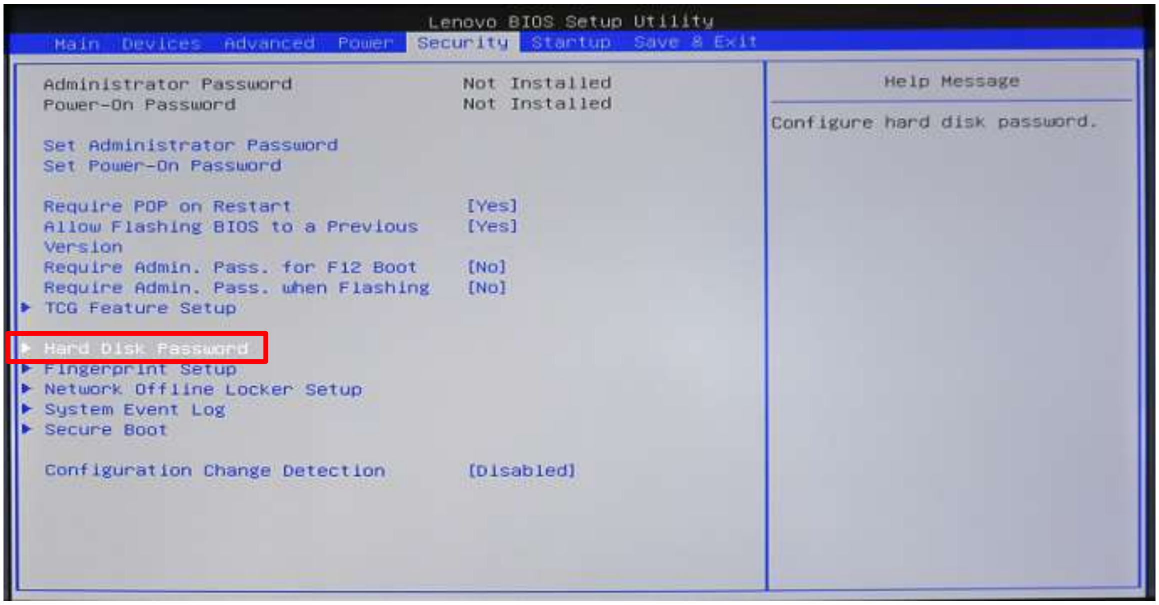
```
                         Lenovo BIOS Setup Utility
   Main  Devices  Advanced  Power  Security  Startup  Save & Exit

  Administrator Password               Not Installed      Help Message
  Power-On Password                    Not Installed
                                                       Select this line to set,
  Set Administrator Password                           change, or delete the
  Set Power-On Password                                Administrator Password.
                                                       Characters a-z, 0-9 are
  Require POP on Restart               [Yes]           supported. Passwords are not
  Allow Flashing BIOS to a Previous    [Yes]           case sensitive.
  Version                                              NOTE:
  Require Admin. Pass. for F12 Boot    [No]            To delete Administrator
  Require Admin. Pass. when Flashing   [No]            Password, enter blank fields
▶ TCG Feature Setup                                    for each new password line
                                                       item.
▶ Hard Disk Password
▶ Fingerprint Setup
▶ Network Offline Locker Setup
▶ System Event Log
▶ Secure Boot

  Configuration Change Detection       [Disabled]

 F1   Help   ↑↓  Select Item   +/-    Change Values       F9   Setup Defaults
 ESC  Exit   ↔   Select Menu   Enter  Select▶Sub-Menu     F10  Save and Exit
```

3. Use the down arrow to select the “Hard Disk Password” option, then press Enter.



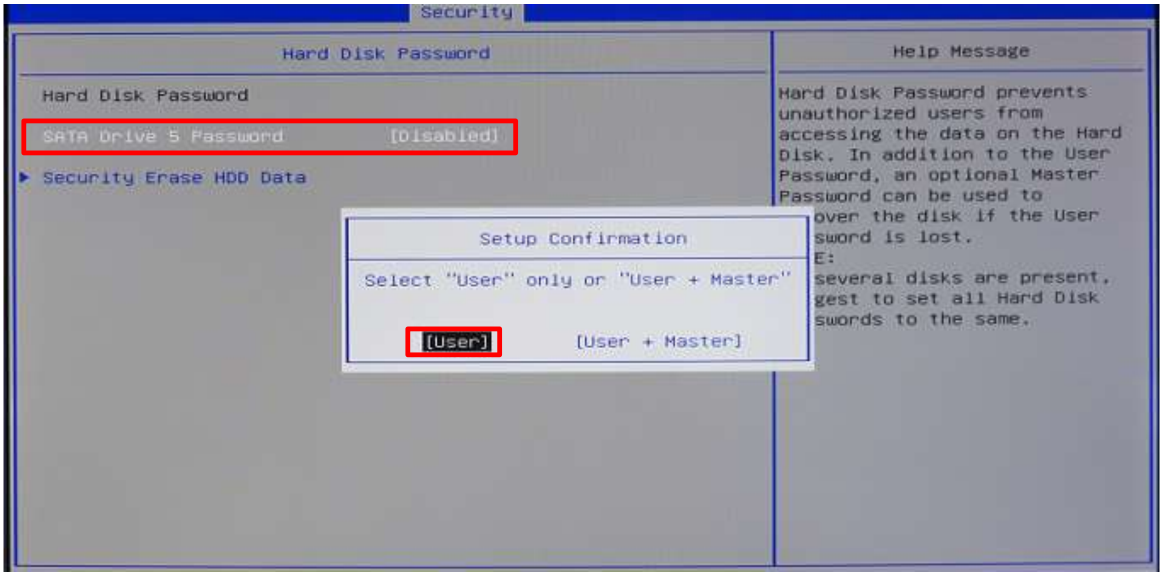
```
                         Lenovo BIOS Setup Utility
  Main  Devices  Advanced  Power  Security  Startup  Save & Exit

  Administrator Password              Not Installed  |     Help Message
  Power-On Password                   Not Installed  |
                                                     | Configure hard disk password.
  Set Administrator Password                         |
  Set Power-On Password                              |
                                                     |
  Require POP on Restart              [Yes]          |
  Allow Flashing BIOS to a Previous   [Yes]          |
  Version                                            |
  Require Admin. Pass. for F12 Boot   [No]           |
  Require Admin. Pass. when Flashing  [No]           |
▶ TCG Feature Setup                                  |
                                                     |
▶ Hard Disk Password                                 |
▶ Fingerprint Setup                                  |
▶ Network Offline Locker Setup                       |
▶ System Event Log                                   |
▶ Secure Boot                                        |
                                                     |
  Configuration Change Detection      [Disabled]     |
```

4. In order for BIOS to be able to securely erase the SSD, a password must be assigned to the drive if one doesn’t already exist. If a password is already assigned to the drive, skip to **STEP #9.** Otherwise, highlight “SATA Drive X Password” (where X is the drive number to be erased) and press Enter.

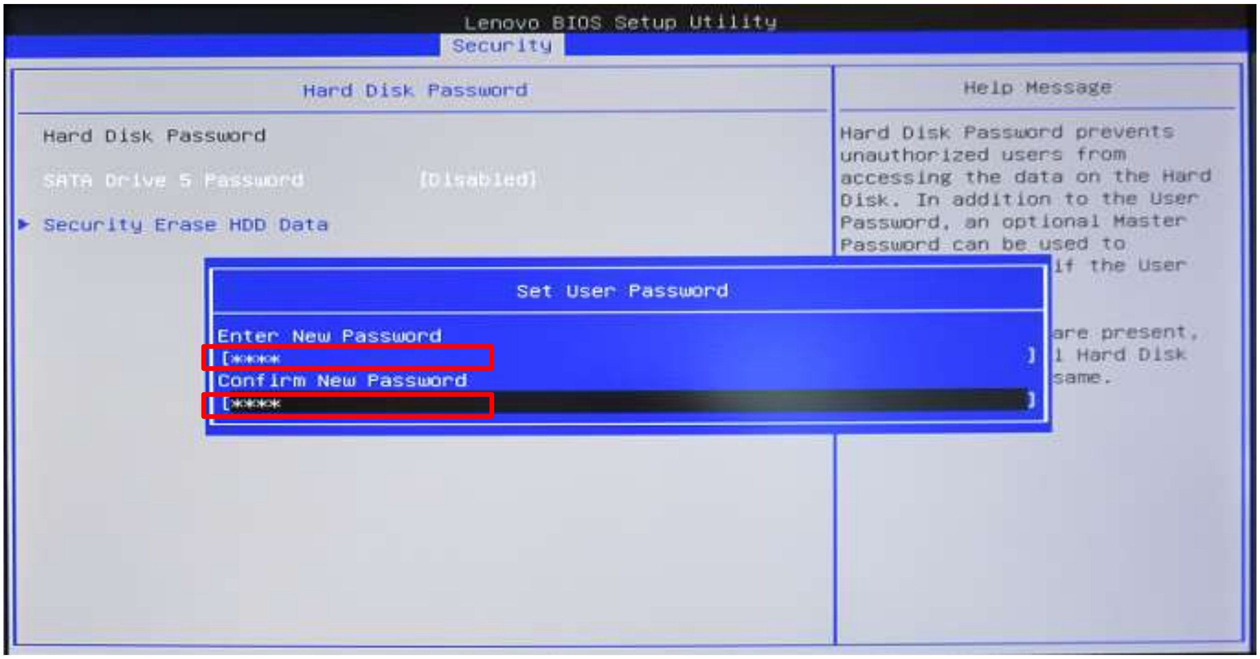
5. A “Setup Confirmation” box will appear. Select “User” and press Enter.

Note: Selecting the User + Master password option is also acceptable. At minimum, a user password is required for the secure erase feature to work.



```
                             Security
              Hard Disk Password                  |        Help Message
                                                  |
  Hard Disk Password                              | Hard Disk Password prevents
                                                  | unauthorized users from
  SATA Drive 5 Password            [Disabled]     | accessing the data on the Hard
                                                  | Disk. In addition to the User
▶ Security Erase HDD Data                         | Password, an optional Master
                                                  | Password can be used to
                    Setup Confirmation            |      over the disk if the User
                                                  |      sword is lost.
          Select "User" only or "User + Master"   |      E:
                                                  |      several disks are present,
             [User]          [User + Master]      |      gest to set all Hard Disk
                                                  |      swords to the same.
```

6. A “Set up User Password” box will appear.  Choose a temporary password and enter it on the first line, then press Enter.  Re-enter the same password on the second line, and press Enter again.



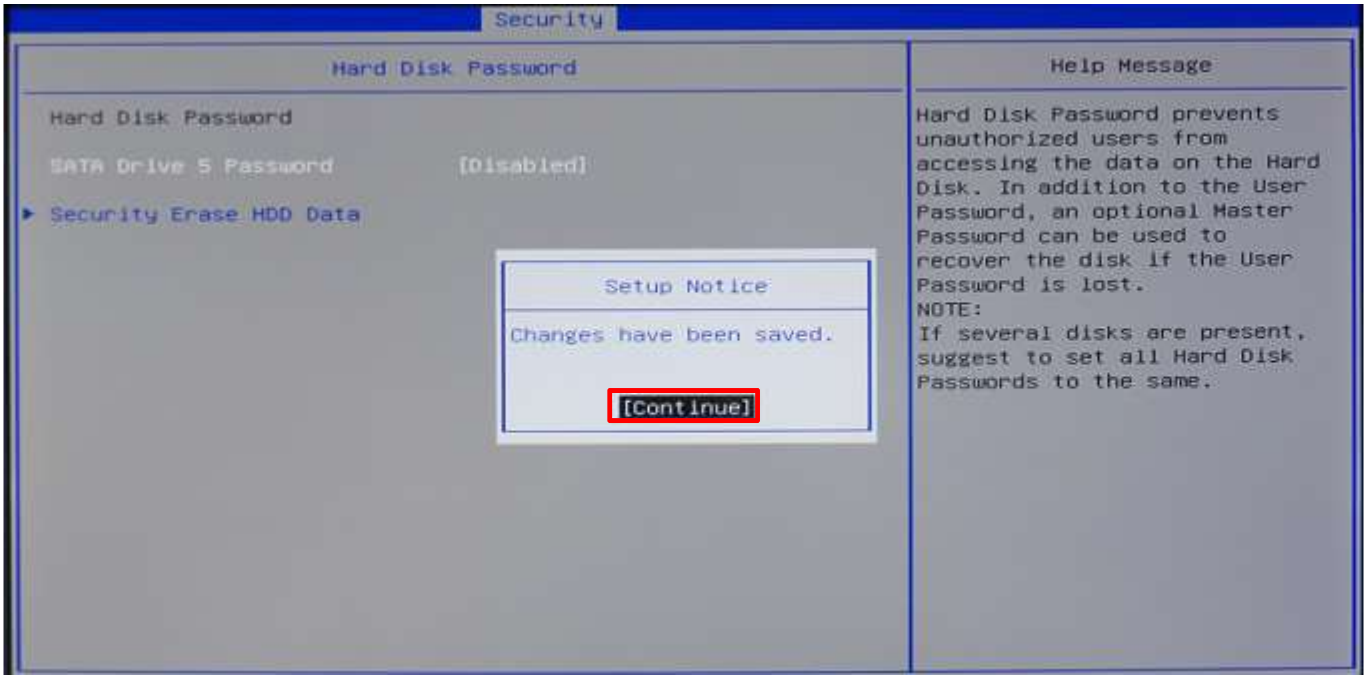
```
Lenovo BIOS Setup Utility
Security

Hard Disk Password                              Help Message

Hard Disk Password                              Hard Disk Password prevents
                                                unauthorized users from
SATA Drive 5 Password        [Disabled]         accessing the data on the Hard
                                                Disk. In addition to the User
▶ Security Erase HDD Data                       Password, an optional Master
                                                Password can be used to
                                                if the User

     Set User Password
                                                are present,
     Enter New Password                         l Hard Disk
     [*****                                 ]   same.
     Confirm New Password
     [*****                                 ]
```

7. The user password should now be set, and a “Setup Notice” box will appear informing the user that the changes have been saved.  Press Enter to continue.



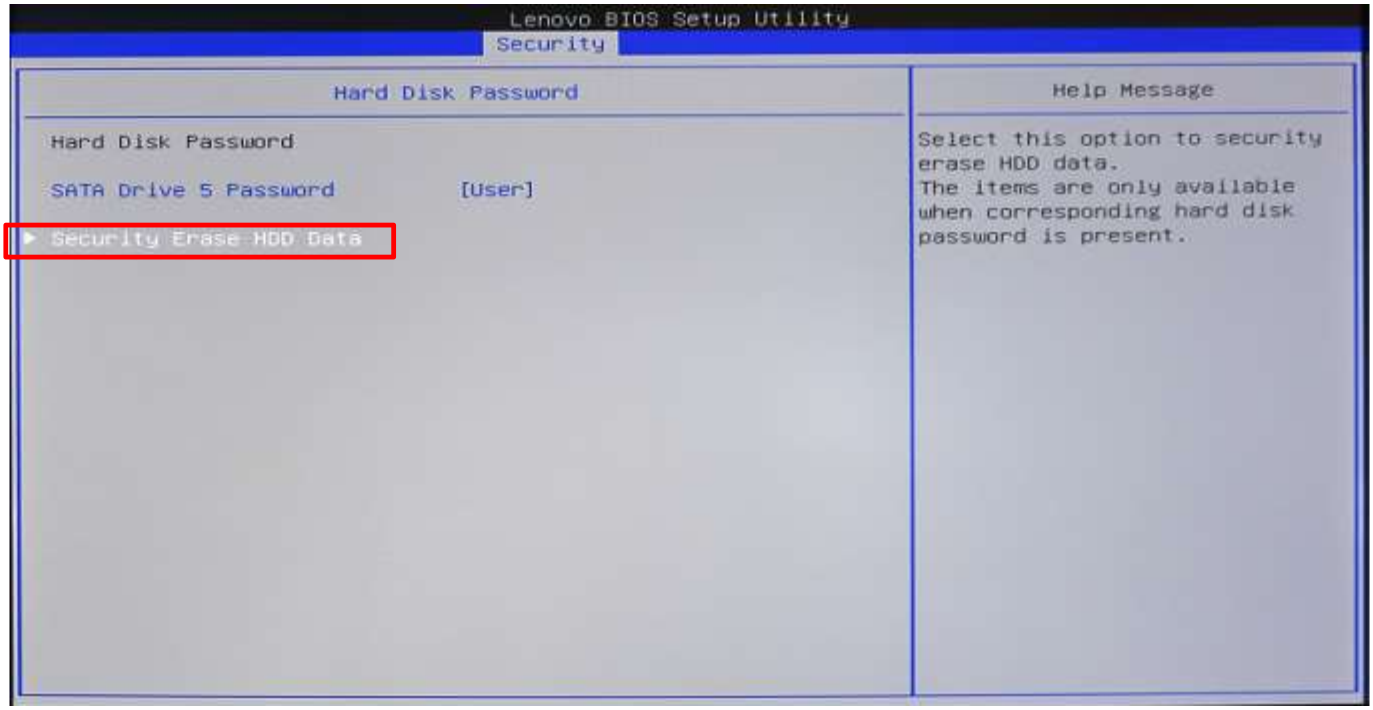
```
Security

Hard Disk Password                              Help Message

Hard Disk Password                              Hard Disk Password prevents
                                                unauthorized users from
SATA Drive 5 Password        [Disabled]         accessing the data on the Hard
                                                Disk. In addition to the User
▶ Security Erase HDD Data                       Password, an optional Master
                                                Password can be used to
                                                recover the disk if the User
                  Setup Notice                  Password is lost.
                                                NOTE:
           Changes have been saved.             If several disks are present,
                                                suggest to set all Hard Disk
                  [Continue]                    Passwords to the same.
```

8. At this point, the system needs to be rebooted for the changes to take effect.  Press F10 to save and exit setup.  The system will reboot.  During the reboot, press F1 to enter BIOS setup again.  Use the arrow keys to select the “Security” tab.  Then use the arrow keys to select “Hard Disk Password” and press Enter.

9. Use the arrow keys to select “Security Erase HDD Data”, then press Enter.

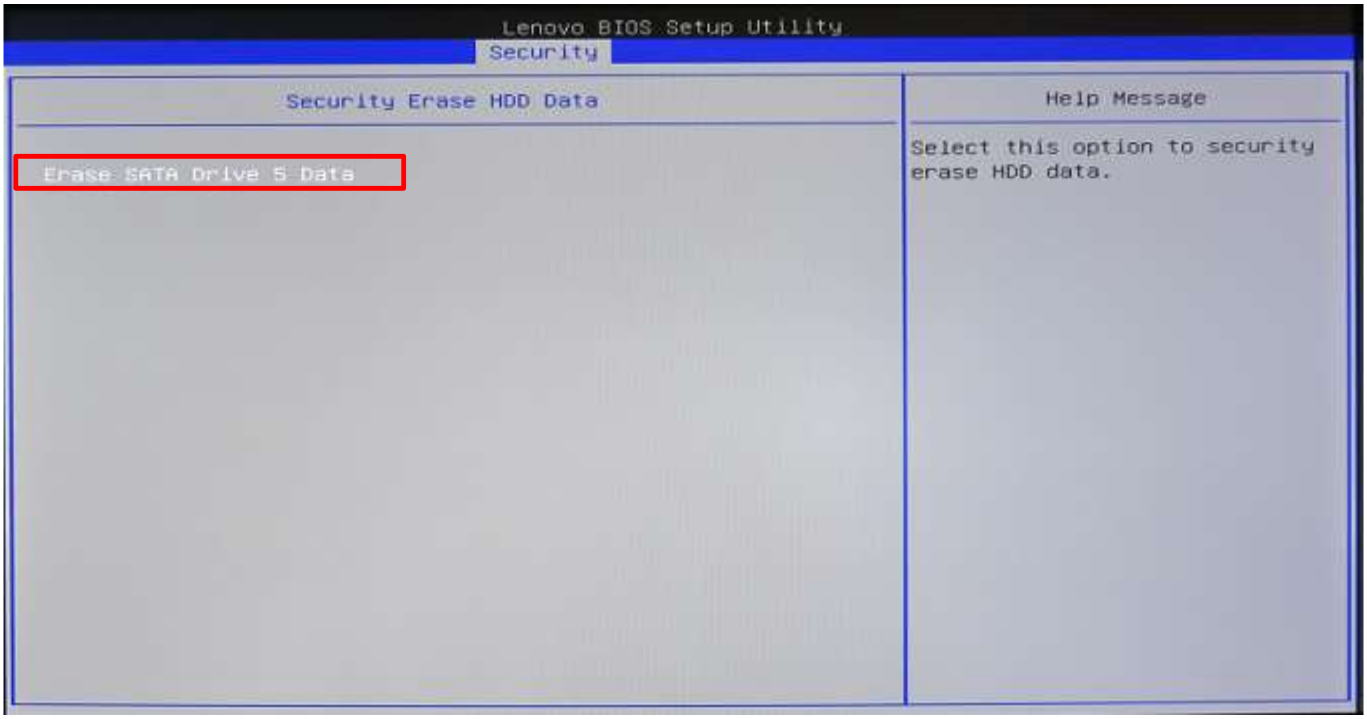


```
Lenovo BIOS Setup Utility
Security

Hard Disk Password                              Help Message

Hard Disk Password                              Select this option to security
                                                erase HDD data.
SATA Drive 5 Password          [User]           The items are only available
                                                when corresponding hard disk
▶ Security Erase HDD Data                       password is present.
```

10. Use the arrow keys to highlight “Erase SATA Drive X Data” (where X is the drive to be erased), then press Enter.



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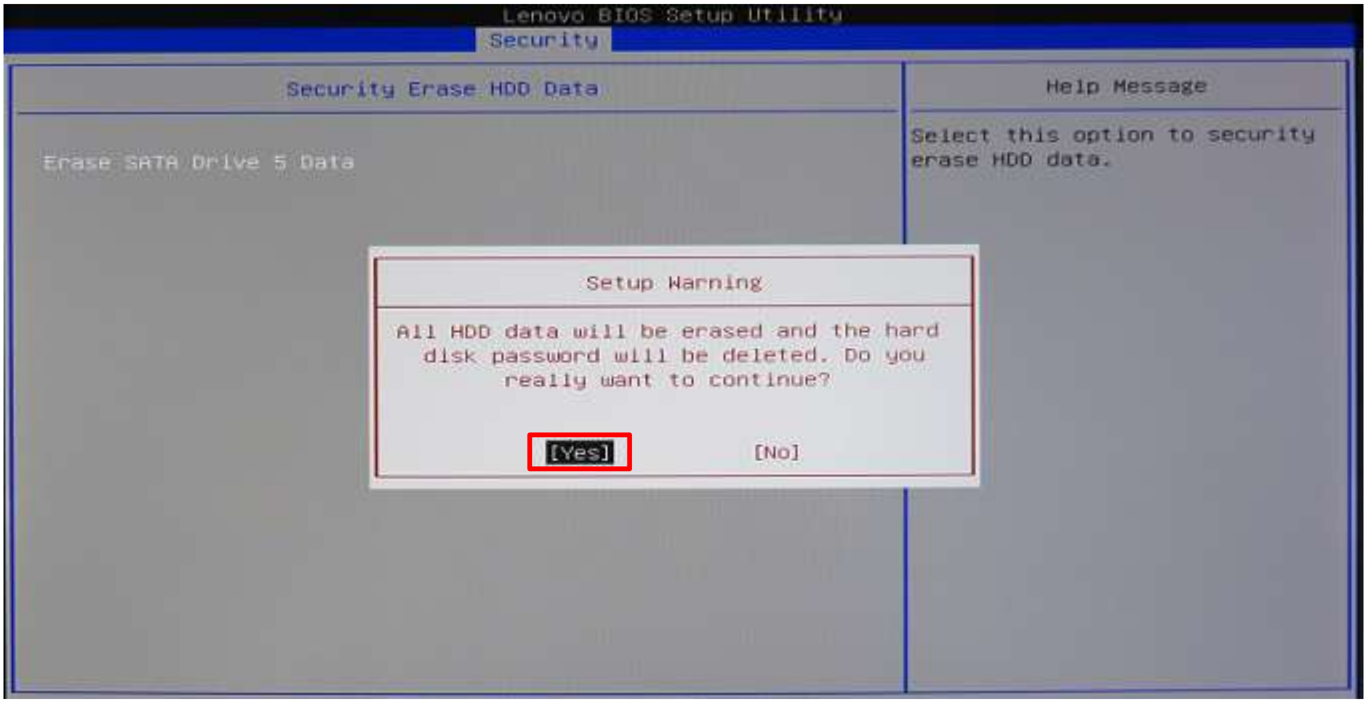
Lenovo BIOS Setup Utility
Security

Security Erase HDD Data                         Help Message

Erase SATA Drive 5 Data                         Select this option to security
                                                erase HDD data.
```

11. A "Setup Warning" box will appear warning the user that all HDD data will be erased and the hard disk password will be reset.  Ensure "Yes" is highlighted, then press Enter to continue.



Lenovo BIOS Setup Utility

Security

Security Erase HDD Data

Erase SATA Drive 5 Data

Help Message

Select this option to security erase HDD data.

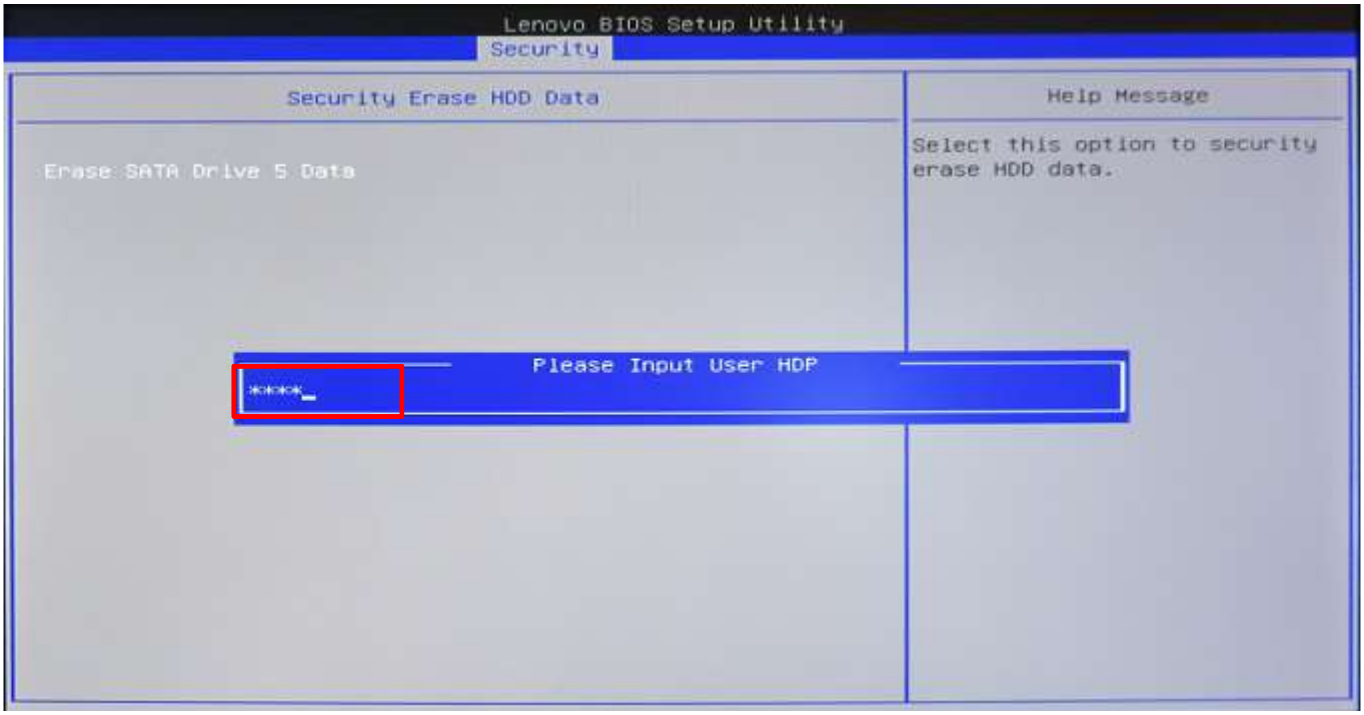
Setup Warning

All HDD data will be erased and the hard disk password will be deleted. Do you really want to continue?

[Yes] [No]

12.  A message box will appear prompting for the user password.  Enter the existing user password (or the one created earlier in this procedure) and press Enter

*****WARNING – Proceeding with this step will erase all HDD data and cannot be undone.*****



Lenovo BIOS Setup Utility

Security

Security Erase HDD Data

Erase SATA Drive 5 Data

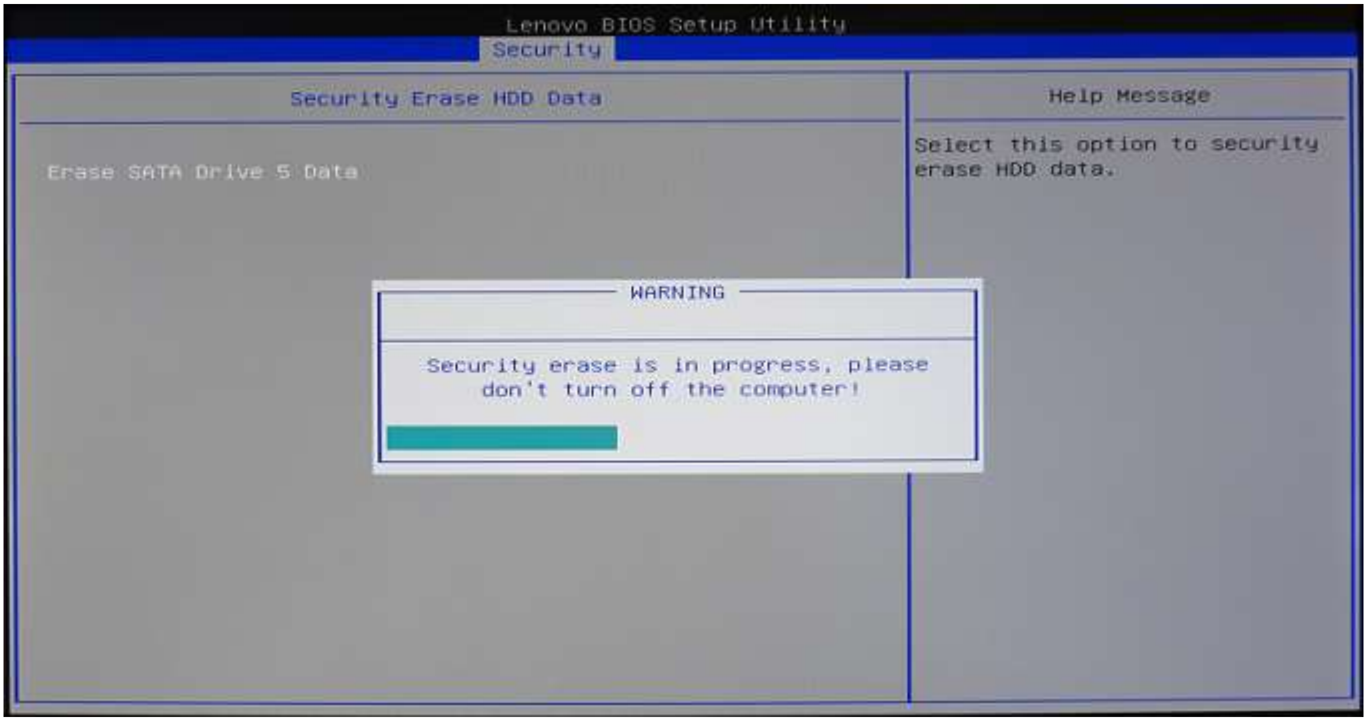
Help Message

Select this option to security erase HDD data.

Please Input User HDP

****_

13. After entering the user password, a box will open that will show the progress of the secure erase process. **Do not unplug the system during this procedure.**



Lenovo BIOS Setup Utility

Security

Security Erase HDD Data

Erase SATA Drive 5 Data

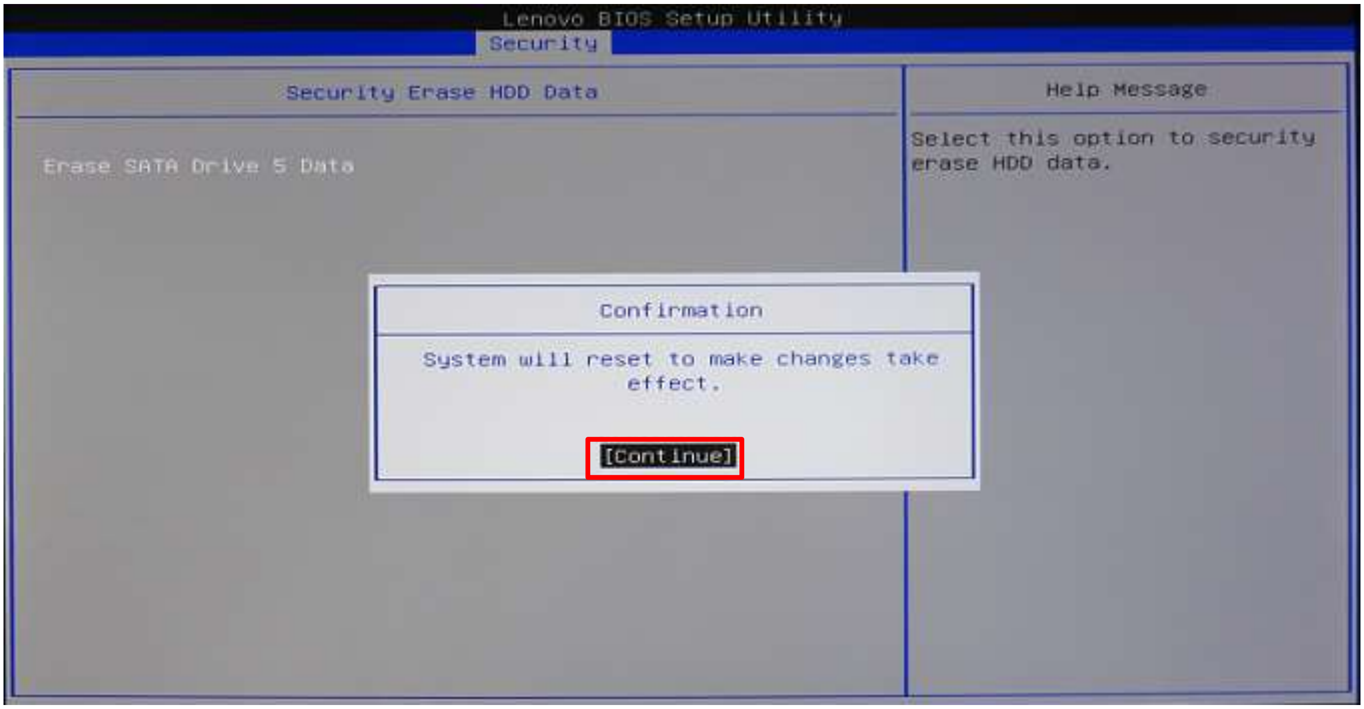
Help Message

Select this option to security erase HDD data.

WARNING

Security erase is in progress, please don't turn off the computer!

14. Once the secure erase process completes, a new confirmation box will appear stating "System will reset to make changes take effect". Press Enter, and the system will reboot.



Lenovo BIOS Setup Utility

Security

Security Erase HDD Data

Erase SATA Drive 5 Data

Help Message

Select this option to security erase HDD data.

Confirmation

System will reset to make changes take effect.

[Continue]

15. At this point, the secure erase procedure is complete. The system can be powered down, and the SSD can safely be removed from the system. Repeat the process for any additional SSDs that might need to be securely erased.