Lenovo P-series Workstations Secure Erase

ThinkStation: P920-P720-P620-P520-P520c-P340-P330-P320 ThinkPad: P1-P15-P15v-P15s-P17-P14s-P53-P72-P73



Contents

OVERVIEW

SECTION 1 – HOW TO SECURELY ERASE SATA and M.2 NVMe DRIVES USING THINKSTATION BIOS

SECTION 2 – HOW TO SECURELY ERASE DRIVES USING THINKPAD THINKSHIELD

SECTION 3 – DOCUMENT REVISION HISTORY

Overview

The purpose of this document is to provide guidelines for users on how to securely erase SATA and M.2 drives in Lenovo ThinkStations P920, P720, P620, P520, P520c, P340, P330, P320 and Lenovo ThinkPads P1, P15, P15v, P15s, P17, P14s, P53, P72, P73.

Section 1 – How To Securely Erase SATA Drives Using ThinkStation BIOS

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

Note 1: Images represent newer platforms with graphical BIOS setup screens. BIOS interface on older platforms might appear different than the images shown.

Note 2: For the integrated secure erase feature to function correctly, any drive to be erased MUST be attached to one of the system's onboard SATA ports. To avoid erasing incorrect drives, Lenovo recommends the users to remove any drives not targeted for secure erase to ensure only intended drive is erased.

1. With the target drive connected to the system correctly, power on the system and keep pressing "F1" at the Lenovo splash screen to enter the BIOS setup.

	 System Summary System Time & Date 		
Start Menu	Machine Type and Model	qwertyu	
(a) Main	System Brand ID		
A Devices	System Serial Asset Tag Genera	l Help	
🖗 Advanced	System UUID Arro	ws : Move Between Options	57F8170F01
D Power	Ethernet MAC Ente	r : Select>Sub-Menu : Change Value	
🔒 Security	ME Firmware \ ESC F1	: [Şxit : Help	
Startup	Embedded Col F9	: Setup Defaults	
	BIOS Revision	: save and Exit	
La exit	Boot Block Re	ок	
	BIOS Date (MM)	2 - 2	
	Preinstalled OS License	Not Defined	
Lenovo	OA3 License Key ID	NO DPK	
	Language	English	~
F1 Help	↑↓ Select Item	+/- Change Values	F9 Setup Defaults
ESC Exit	♦ Select Menu	Enter Select > Sub-Menu	F10 Save and Exit

2. Navigate to the "Devices" tab and select the "ATA Drive Setup". Press enter.

	Serial Port Setup Select this option to configure your system's serial port. USB Setup Select this option to configure your system's USB port.	Í
Start Menu	ATA Drive Setup Select this option to configure your system's ATA drive.	
Advanced	 > Video Setup Select this option to configure your system's video. > Audio Setup Select this option to configure your system's audio. > Network Setup Select this option to configure your system's network. > PCI Express Configuration > Intel(R) Thunderbolt 	
Lenovo.	Select this option to configure your system's Intel Thunderbolt. Select this option to configure your system's Intel Thunderbolt. Select Ttem +/- Change Values F9 Setup Defaults Select Nenu Enter Select > Sub-Menu F10 Save and Exit Varian 2 20 0019 (consister U.2000 Available Materiane International)))	

3. Make sure the "Configure SATA as" option is set to "AHCI".

	< ←		ĺ
	ATA Drive Setup		
Start Menu	SATA Controller Select whether to enable or disable SATA controller.	Enabled 🗸	
G Main	SATA Drive 1 Select whether to enable or disable SATA drive 1.	Enabled 🗸	
A dyanced	SATA Drive 2 Select whether to enable or disable SATA drive 2.	Enabled 🗸	
Power	SATA Drive 3 Select whether to enable or disable SATA drive 3.	Enabled 🗸	
Security	SATA Drive 4 Select whether to enable or disable SATA drive 4.	Enabled 🗸	
→ Exit	SATA Drive 4 Hot-Plug Support Select whether to enable or disable hot-plug for this port.	Disabled 🗸	
Lenovo	Configure SATA as Select AHCI/RAID/Intel(R) RST with Intel(R) Optane Mode. NOTE: Device driver support is required for AHCI or RAID or Intel(R) RST with Intel(R) Optane. Demending on how the bard disk image was installed changing this setting	AHCI	
F1 Help ESC Exit	↑↓ Select Item +/- Change Values ◆→ Select Menu Enter Select > Sub-Menu	F9 Setup Defaults F10 Save and Exit	

- Lenovo
- 4. For users referring this document to securely erase NVMe drives, navigate to the "Devices" tab and select the "NVMe Setup". Press enter.



5. Make sure the "NVMe RAID Mode" is set to "Disabled".

	NVMe Setup	
Start Menu	NVMe RAID Mode Select whether to enable or disable NVMe RAID mode. NOTE: Device driver support is required for NVMe RAID.Depending on how the hard disk image was installed, changing this setting may prevent the system from booting. System should be installed on First array if the system is booted from AMD-RAID Array.	Disabled
F1 Help	↑↓ Select Item +/- Change Values	F9 Setup Defaults

6. Use the arrow key to highlight the "Security" tab.

	Supervisor Password Power-On Password	Not Installed Not Installed
	System Management Password	Not Installed
Start Menu 슈 Main 谷 Devices	Set Supervisor Password Select this line to set, change, or delete the Supervisor Password. NOTE: To delete Supervisor Password, enter blank fields for each new pas line item. Set Power-On Password	ssword
☆ Advanced ① Power 合 Security ▲ Startup → Exit	Select this line to set, change, or delete the Power-On Password. NOTE: To delete Power-On Password, enter blank fields for each new pass line item. Set System Management Password Select this line to set, change, or delete the System Management F (SMP). NOTE: To delete System Management Password, enter blank fields for ea password line item.	sword Password Ich new
Lenovo.	 System Management Password Access Control System Management Password prevents unauthorized user from a BIOS Setup in default. 	uccessing
F1 Help ESC Exit	NJ Select Item +/- Change Vi €→ Select Menu Enter Select > Si	alues F9 Setup Defaults ub-Menu F10 Save and Exit
	Version 2.20.0049. Copyright (C) 2020 American Megatrends Inter	mational LLC.

7. Use the down arrow to select the "Hard Disk Password" option, then press enter.

	Smart USB Protection could block copying data from the computer to the USB storage device in Windows Read Only mode: the user can copy data from USB storage device to the Computer but cannot copy data from the computer to USB storage device No Access mode: the user cannot use USB storage device in Windows	^
Start Menu		
Main	> Hard Disk Password Configure hard disk password.	
♀ Devices ∦ Advanced	> TCG Feature Setup Contains TCG security features.	
PowerSecurity	> System Event Log	
🙇 Startup 🕞 Exit	> Secure Boot Customizable Secure Boot settings	
-	> Computrace	
Lenovo	Device Guard Device Guard enables PCs to be protected against malware by introducing a collective set of restrictions on a device across several technologies. [Enabled[CPU Virunization Technology be enabled. J CDMU, Suchas Intel VT.d. AMD.Vi be enabled. Secure here the enabled. J CDMU, Suchas Intel VT.d. AMD.Vi be enabled. Secure here the enabled. J CDMU, Suchas Intel VT.d. AMD.Vi be enabled. Secure here the enabled. J CDMU, Suchas Intel VT.d. AMD.Vi be enabled. Secure here the enabled. J CDMU, Suchas Intel VT.d. AMD.Vi be enabled. Secure here the enabled. J CDMU, Suchas Intel	~
F1 Help ESC Exit	↑↓ Select Item +/- Change Values F9 Setup Defaults ◆→ Select Menu Enter Select > Sub-Menu F10 Save and Exit	

 In order to secure erase a drive permanently, a password must be assigned to the drive. If a password is already assigned to the drive, skip to STEP 10. Otherwise, highlight "SATA Drive X Password" or "M.2 Drive X Password" (In case erasing M.2 drive. Where X = drive number to be erased) and press enter.

		\leftarrow					
		Hard Disk Passwo	rd				
Start M	lenu	SATA Drive 1 Password Hard Disk Password prevents una on the Hard Disk. In addition to th	[Disabled] uthorized users from he User Password, an	accessing the data optional Master			
선 Devic	ces	Password can be used to recover t NOTE: If several disks are present, sugg same.	est to set all Hard Disl	ssword is lost. Passwords to the			
Powe	er	SATA Drive 3 Password Hard Disk Password prevents una on the Hard Disk. In addition to t	[Disabled] uthorized users from he User Password, an	accessing the data optional Master			
🚵 Start	up	Password can be used to recover to NOTE: If several disks are present, sugge same.	the disk if the User Pa est to set all Hard Disl	ssword is lost. Passwords to the			
L→ Exit		Require HDP on System Boo	t	e Hard Dick is in lock	Auto		~
Len	OVO.	[No] - HDP will not be required. H hard disk is attached to a differer	owever, HDP will be re to system.	quired when the			
F1 Help ESC Exit		★ Select Item ★ Select Menu	+/- Enter	Change Values Select > Sub-Menu	F9 F10	Setup Defaults Save and Exit	

9. A "Setup Confirmation" box will appear. Select "User" and press enter.

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

	← Hard Disk Passwo	ord	
Start Menu Main Devices Advanced Power Security Startup	SATA Drive 1 Password Hard Disk Password prevents un on the Hard Disk NOTE: It several disks a same. Setul Require HDP c [Auto] - Hard Dr status when the [No] - HDP will n hard disk is atta	[Disabled] authorized users from accessing the data p Confirmation elect "User" only or "User + Master"	~
Exit Lenovo.	 Security Erase T Select this option to security era when corresponding hard disk p Select Item Select Item 	User + Master User + Master use HDD data. The items are only available assword is present. +/- Change Values Enter Select > Sub-Menu	F9 Setup Defaults F10 Save and Exit
F1 Help ESC Exit	11↓ Select Item ♦ Select Menu	+/- Change Values Enter Select > Sub-Menu	F9 Setup Defaults F10 Save and Exit

10. A "Set User Password" box will be prompted. Choose a temporary password and confirm it. Press enter or select "Yes" to continue.

н	ard Disk Password			
Start Menu sa				
Ha Main on	Set User Password			
수 Devices NO				
🛠 Advanced	Enter New Password			
D Power	*****			
E Security [At	Confirm New Password		luto	~
📩 Startup	*****			
Exit				
> Se		Ves No		
Se	l≥			
Lenovo	en corresponding nora a sic passirora is	present.		
F1 Help	N Select Item	+/- Change Values	F9 Setup Defaults	
ESC Exit	€→ Select Menu	Enter Select > Sub-Menu	F10 Save and Exit	

11. A "Setup Notice" box will be prompted displaying that the changes have been saved. Press "Continue".

	\leftarrow		
	Hard Disk Passwo	rd	
Start Menu Main Avanced Power Security Startup Exit	SATA Drive 1 Password Hard Disk Password prevents uni- on the Hard Dist Password can be NOTE If several disks a same. Require HDP c [Auta] - Hard Dis status when the [No] - HDP will r hard disk is attay	[Disabled] uthorized users from accessing the data o Notice nanges have been saved.	~
	 Security Erase T Select this option to security era when corresponding hard disk pa 	se HDD data. The items are only available sssword is present.	
Lenovo			
F1 Help ESC Exit	Nelect ItemSelect Menu	+/- Change Values Enter Select > Sub-Menu	F9 Setup Defaults F10 Save and Exit
	Version 2.20,004	9. Copyright (C) 2020 American Megatrends International LLC.	

12. At this point, the system needs to be rebooted for the changes to take effect. Press "F10" function key to save and exit the BIOS setup.

	← Hard Disk Password	
Start Menu Main Povices Advanced Power Security Security Exit Exit	SATA Drive 1 Password [User] Hard Disk Password prevents unauthorized users from accessing the data on the Hard Ois Password and Reset I' several disks a and Disk Password of Reset Password disks and Require HDP of No Security Erase Security Erase Mode Security erase HDD data. The items are only available when corresponding hard disk password is present.	~
F1 Help ESC Exit	1 1 Select Item +/- Change Values F9 Setup Do €→ Select Menu Enter Select > Sub-Menu F10 Save and	efaults d Exit

13. Once the system starts to reboot, press "F1" at Lenovo splash screen to enter the BIOS setup again. If the system prompts to enter the "Hard Disk Password", enter the temporary password created in STEP 6.

System Security: Hard Disk Password Required Enter System SATA Drive 1 User Password Free State	System Security: Hard Disk Password Required Enter System SATA Drive 1 User Password Off Keyboard Layout Yes No				
System Security: Hard Disk Password Required Enter System SATA Drive 1 User Password Off Keyboard Layout Yes No	System Security: Hard Disk Password Required Enter System SATA Drive 1 User Password Fitter System Sata Drive 1 User Password Fitter State St				
Enter System SATA Drive 1 User Password Show Password Off Keyboard Layout English Yes No	Enter System SATA Drive 1 User Password Show Password Off Keyboard Layout Yes No	System Security: Haro	l Disk Password Re	equired	
Keyboard Layout English 🗸	Keyboard Layout English 🗸	Enter System SATA Drive	1 User Password		Show Password Off
Yes No	Yes No			Keyboard Layout	English 🗸
			Yes	No	

		BIOS Password At System Boot	Yes		~
		[Yes] The system prompts for passwords when the system starts from the full off or hibernate state. [No] Passwords are not prompted and continue to boot the OS. To prevent unauthorized access to the system, recommend to set user authentication on the OS.			
Start Menu		BIOS Password At Reboot	No		~
Ju	renena	If "No" is selected, the Power-On Password will not be required when system			
G	Main	DIOC Dessured At Deet Davise List			
49	Devices	If Yes and a supervisor password is set, the user will be prompted for a	No		~
-	Advanced	password when F12 is pressed during POST.			
不	Auvanceu	Smart USB Protection	Disabled		~
Ο	Power	Smart USB Protection could block copying data from the computer to the USB storage device in Windows			8
	Security	Read Only mode: the user can copy data from USB storage device to the Computer but cannot copy data from the computer to USB storage device			
a de	Startup	No Access mode: the user cannot use USB storage device in Windows			
⊳	Exit				
		> Hard Disk Password			
		Configure hard disk password.			
	enovo	> TCG Feature Setup			
3		Contains TCG security features.			
Fl	Help	↑↓ Select Item +/- Change Values	F9	Setup Defaults	
ESC	Exit	←→ Select Menu Enter Select > Sub-Menu	F10	Save and Exit	
		Version 2.20.0049. Convrint! (*) 2020. American Menatrands International II.C			

15. Highlight the "Security Erase HDD Data" and press enter. Select "Erase SATA Drive X Data" to wipe the drive.

Warning: In case of multiple drives present in the system, users need to make sure of selecting the correct drive for secure erase.

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16. A "Setup Warning" box will appear as a final warning to the user before erasing the data from the drive permanently. Select "Yes" to proceed.

Start Menu Main Devices Advanced Power Security Startup 	← Security Eras Erase M.2 Drive 2 Da Select this option to sec Erase SATA Dr Select this optio	e HDD Data a arity 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? P			
Exit Exit Lenovo.	î↓ Select Item €→ Select Menu	Yes No +/- Change Values Enter Select > Sub-Menu	F9 F10	Setup Defaults Save and Exit	

17. Input the temporary password created in STEP 6, and press enter.

Warning: Proceeding with this step will erase all data from the selected drive and cannot be undone.

	<i>←</i>		
	Security Erase HDD	Data	
Start Menu	Era Sei Please Input User HDI	P	
 Main Control Main Control Main	Era Please Input User H	HDP	-
Power Becurity		Þ	
📩 Startup [→ Exit			
		Yes No	
Lenovo			
F1 Help ESC Exit	 Number Select Item Select Menu 	+/- Change Values Enter Select > Sub-Menu	F9 Setup DefaultsF10 Save and Exit
	Version 2.20.0049. Co	pyright (C) 2020 American Megatrends International LLC.	

18. A progress bar will appear to display the secure erase progress.

Note: Users should not unplug the system during this process.

	\leftarrow			
	Security	/ Erase HDD Data		
Start Menu Main Ar Devices Advanced Power Composed Security Startup Composed Startup Composed Exit	Erase M.2 D Select this opt	rive 2 Data ion to security erase HDD data. Warning Security erase is in progress, please don't turn off the computer! Progress: 1%	2	
Lenovo				
F1 Help ESC Exit	↑↓ Select↔ Select	Item +/- Change Values Menu Enter Select > Sub-Menu Version 2.20.0049, Copyright (C) 2020 American Hegstrends International LLC.	F9 F10	Setup Defaults Save and Exit

19. Once the secure erase process completes, a new confirmation box will be prompted stating "System will reset to make changes take effect". Press enter to reboot the system.



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

Section 2 – How To Securely Erase Drives Using ThinkPad's ThinkShield

The following instructions will cover the steps required to use ThinkShield feature in ThinkPad BIOS to securely erase storage drives.

1. Boot into BIOS by pressing function "F1" key at the Lenovo splash screen.



2. Once inside the BIOS setup, tab over to the "Security" menu and select "ThinkShield secure wipe".

ThinkPad	Security
Setup 슈 Main 아 Config ① Date/Time	 → Password → Fingerprint → Security Chip → UEFI BIOS Update Option → Memory Protection → Virtualization → 1/O Port Access
▲ Security ▲ Startup ♥ Restart	→ Internal Device Access → Absolute Persistence® Module → Secure Boot → Intel® SGX
Lenovo.	Povice Guard ThinkShield secure wipe F9 Setup Defaults Esc Back F10 Save and Exit

3. Confirm the "ThinkShield secure wipe in App Menu" is set to enabled.

ThinkPad	Security ThinkShield secure wipe		
Setup	> ThinkShield secure wipe in App Menu	[on R
品 Main 않 Config			
• Date/Time			
 ▲ Security ▲ Startup ◆ Restart 			
Lenovo.	F9 Setup Defaults	Esc Back	F10 Save and Exit

4. Save and exit the BIOS setup by pressing the "F10" function key. On reboot, boot into the "boot menu" by pressing the "F12" function key at the Lenovo splash screen.



Lenovo

5. Tab over to the "App Menu" and select "ThinkShield secure wipe" option.

ThinkPad ∴ Boot Menu 於 App Menu	App Menu ThinkShield secure wipu actup Diagnostic Splash Scree Lenovo Diagnostics Regulatory Information	en n		
Lenovo.	Expand/Collapse	Tab. Switch Menu	Enter Select	Esc Exit

6. Select the storage device to be erased and press "Next".



7. Select an appropriate method from the dropdown menu to securely erase the chosen drive and press "Next".

Note: ATA Secure Erase method resets all data in the standard way, while ATA Cryptographic Key Reset method resets the internal encryption key thereby making the drive data completely unreadable.



8. A warning will appear to confirm if the user wants to continue with the secure erase process. Select "Yes" to proceed.

ThinkShield	
ThinkShield™ secure wipe	A
	Before continuing please ensure the following:
	Make sure that a charged battery pack is installed in the system.
	All data in this disk will be erased and can not be recovered.
	Are you sure to continue?
	Yes k
Lenovo.	No

9. A progress window will appear displaying the data wiping process. Do not power off until the process is complete.

ThinkShield			
ThinkShield™ secure wipe	DO NOT POWER OFF DURING AN WIPE Data is wiping, please wait		
	·∷ 8%		
	Drive: SAMSUNG MZVLB256HBHQ-000L7 Capacity: 238.47 GB Method: ATA Secure Erase		
Lenovo.	Start: 11/19/2020 at 19:52:02		

10. On completion of the process, a confirmation message will be displayed. At this time, drives are wiped successfully, and the system should be rebooted for the changes to take effect. Select "Reboot".

ThinkShield	
ThinkShield [™] secure wipe	
	Data wipe is successful!
	Drive: SAMSUNG MZVLB256HBHQ-000L7
	Capacity: 238.47 GB
	Method: ATA Secure Erase
	Start: 11/19/2020 at 19:52:02
	End: 11/19/2020 at 19:52:14
	View Wipe Log Go
	Return to Top
Lenovo	Reboot

Lenovo

11. At this point, the erase procedure is complete. Repeat the process for any additional drives that might need to be securely erased.

Section 3 – Document Revision History

Version	Date	Author	Updates
1.0	03/22/2021	Sayali Pawar	Initial launch release