

# **NexStar MX Series**

## NST-225MX-S3

## 2.5" SATA to USB3.0 Dual Bay RAID Enclosure

**User Manual** 



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## **Package Contents**

Dual 2.5" SATA 6 Gb/s to USB 3.0 HDD/SSD RAID Enclosure

- 1) NexStar MX main unit
- 2) USB 3.0 Cable
- 3) Power Adapter
- 4) User's Manual
- 5) Quick Installation Guide
- 6) Installation Screws

## Introduction

Vantec NexStar<sup>®</sup> MX 2.5" Dual Bay External HDD Enclosure with USB 3.0 interface is a small and simple way to expand and protect your data anywhere. This compact form factor design can houses two small hard drive or Solid State Drive with Individual/JBOD/RAID0/RAID1 mode capability and can travel with it. This RAID in a box simplifies the configuration and at the same time provides maximum storage for your precious family photos, music, video, and games. The sturdy drive cage protects your hard drive while the aluminum case effectively draws away the heat; the front vents and the rear fan keep your hard drive(s) cool and improve performance. The Vantec NexStar<sup>®</sup> MX 2.5" is a high performance, high capacity, and durable portable storage solution and lets you store your personal data in an enclosure with style!



### **Front View**

**Rear View** 

- A. Fan
- B. USB 3.0 Port
- C. Power Switch
- D. Power Socket
- E. Power LED
- F. HDD1 LED
- G. HDD2 LED

## Hard Drive Installation Guide

1. Remove the 4 screws shown.



2. Slide out the enclosure cover.



3. Insert the Second (lower) HDD/SSD in to the lower bay and push all the way in for the SATA interface on the tray to make full contact with the drive interface. The screw hole on the drive should align with the tray screw hole.



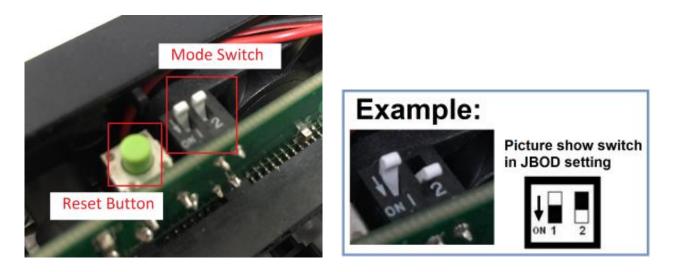
4. Insert the HDD/SSD into the top bay and push horizontally for both the SATA interface on the tray and drive to be fully inserted. The screw hole on the drive should align with the tray screw hole.



5. Secure both HDD/SSD with the 4 screws on each side of the Tray.



6. Set the RAID Mode Switch to the correct setting according to RAID SW definition table below.



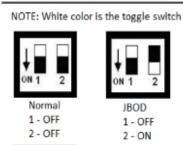
IMPORTANT: If your drive have existing data AND you like to use it as Normal mode (Individual mode), set the switch to Normal Mode and DO NOT PRESS THE RESET BUTTON IN THE NEXT STEP (SKIP STEP #7).

#### Note:

- $\stackrel{\scriptstyle <}{\sim}$  When you press the RESET button, it will cause a RAID mode change.
- ☆ HDD formatting is required whenever RAID mode changes. If you have important data on the drive, STOP, backup your data before you continue.
- $\stackrel{\scriptstyle \wedge}{\curvearrowright}$  Make sure the enclosure is powered on before changing RAID mode.

Mode	Operation Mode Description
Normal (Individual)	<b>Normal</b> - Write each HDD independently two separate HDDs and their capacities
JBOD	Just a Bunch of Disk - It concatenates two disks to a single drive. Capacity equals to the sum of two disks.
RAID 0	<b>Stripe</b> - Write data evenly across both disks Capacity is double of the smaller HDD
RAID 1	<b>Mirror</b> - Create a mirror of data on both disks Capacity equals to that of the smaller HDD

#### **RAID SW Definition**





1 - ON

2 - ON



JBOD

1 - OFF



7. This Step will set the RAID mode. Connect the power cable to the enclosure and the ac adapter to your power outlet. While pressing the reset button, turn ON the power switch and continue to hold the reset button for another 10-15 seconds while the drive spin up and set the mode change. After 15 seconds later, you can release the reset button and the mode change is done. The Green HDD LED will continue to flash and the Red Power LED will be ON. You can now turn off the unit and continue with the next step.



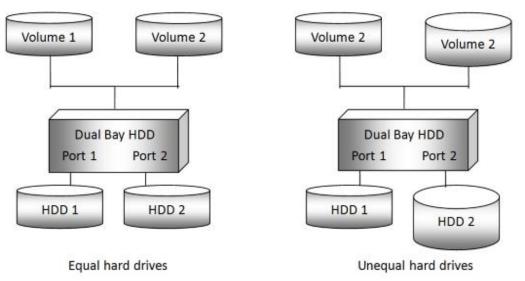
8. Slide the cover back on to the Tray and secure using the 4 Screws.



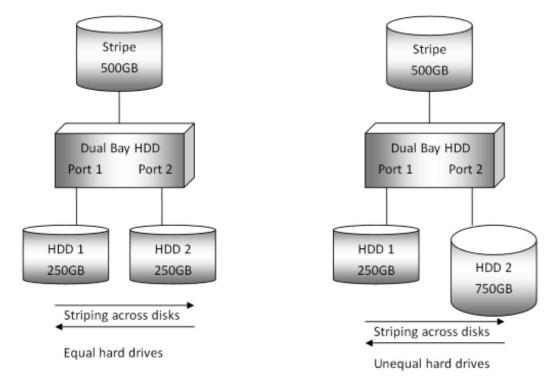
9. You can now start using your enclosure. If you need to initialize, partition and format the drive, please refer to Chapter on **Hard Drive Formatting Guide**.

## **RAID Mode Selection**

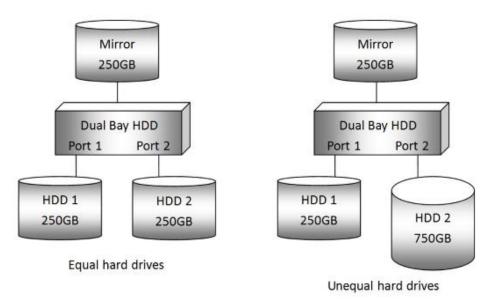




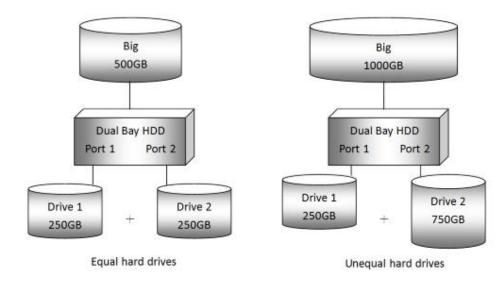
**RAID 0 (Stripe):** It's a combination of two physical partitions where the data is striped between them. It presents the best data speed but no data redundancy. Both HDDs allots the loading evenly. In short, RAID 0 stands for faster transmission.



**RAID 1 (Mirror):** It allows the device to automatically copy data to both HDDs. It stores all data in duplication to both drives to protect against data loss out of drive failure. If one drive fails, the Mirrored volume is still usable, but it is in a vulnerable state since the other mirrored hard drive is inaccessible. When the offline drive resumes online, the appliance begins the rebuild process immediately to restore data redundancy. Host access takes precedence in rebuild process. If you continue using the Mirror volume during the rebuild, the rebuild process will take a longer time to complete, and the host data transfer performance will also be impacted.



**JBOD (BIG or LARGE):** It concatenates a series of physical HDDs as a single large volume; HDD 1 and 2 are combined into a storage capacity that is equal to the sum of both HDDs.



## Resources

#### The section contains information that will help answer questions about this product.

### Drive mapping for HDD LED / RAID AP / PCB

LED	JMicron HW RAID Manager	Physical Location on PCB printout				
HDD 1	P0 port	CON1				
HDD 2	P1 port	CON2				



### <u>LED – Normal Status</u>

Citure				LED status						
Situation			HDD1	HDD2	Power					
PC in Sleep Mode S3/	S4/S5		OFF	OFF	RED					
USB, HDD1 & 2 conne	ected		ON	ON	GREEN					
Normal	HDD1 acce	ess	Flashing	ON	GREEN					
(Individual)	HDD2 acce	ess	ON	Flashing	GREEN					
RAID 0 (Strip)	RAID 0 (Strip)			Flashing	GREEN					
	Data Acces	SS	Flashing	Flashing	GREEN					
RAID 1 (Mirror)	Debuild	Online	Both, Flashing until f	inished	GREEN					
	Rebuild	Offline	Both, Flashing until f	inished	GREEN					
	HDD1 access		Flashing	ON	GREEN					
JBOD (Big)	HDD2 acce	ess	ON	Flashing	GREEN					
MODE change (USB c	onnected to	system)	Flashing Flashing		GREEN					

### <u>LED – ERROR Status</u>

			Operati	on								
Operations	PWR	USB	HDD	HDD	System	HDD1	HDD2	LED	LED	LED	FAN	Comments
		Linked	#1	#2	Power	Power	Power	HDD1	HDD2	PWR		
HDD1 Error	ON	Linked	Error	Read	ON	OFF	ON	Flash at	Flash	Green	ON	HDD1 error, spin
				Write				fix				down, LED Flash at
								0.5Hz				fixed 0.5Hz
HDD2 Error	ON	Linked	Read	Error	ON	ON	OFF	Flash	Flash at	Green	ON	HDD2 error, spin
			Write						fix			down, LED Flash at
									0.5Hz			fixed 0.5Hz
RAID 0 Mode	(Strip)		Operati	on				Activ	ities			
Operations	PWR	USB	HDD	HDD	System	HDD1	HDD2	LED	LED	LED	FAN	Comments
		Linked	#1	#2	Power	Power	Power	HDD1	HDD2	PWR		
HDD1 Error	ON	Linked	Error	D/C	ON	OFF	OFF	Flash at	Flash	Green	OFF	HDD1 error, both
Sector Error								fix				HDD spin down, LE
HDD Failure								0.5Hz				Flash at fixed 0.5Hz
HDD2 Error	ON	Linked	D/C	Error	ON	OFF	OFF	Flash	Flash at	Green	OFF	HDD2 error, both
Sector Error									fix			HDD spin down LED
HDD Failure									0.5Hz			Flash at fixed 0.5Hz
JBOD Mode (	D Mode (BIG) Operation						1	Activi	1			
Operations	PWR	USB	HDD	HDD	System	HDD1	HDD2	LED	LED	LED	FAN	Comments
		Linked	#1	#2	Power	Power	Power	HDD1	HDD2	PWR		
HDD1 Error	ON	Linked	Error	D/C	ON	OFF	ON	Flash at		Green	ON	HDD1 error & spin
HDD Failure								fix				down
HDD2 Error	ON	Linked	D/C	Error	ON	ON	OFF	0.5Hz	Flash at	Green	ON	HDD2 error & spin
		LIIKeu	D/C	LIIUI					fix	Green		down
	1	1										down
HDD Failure									0.5Hz			

RAID 1 Mode	(Mirror)	)										
	Operation					Activities						
Operations	PWR	USB	HDD	HDD	System	HDD1	HDD2	LED	LED	LED	FAN	Comments
		Linked	#1	#2	Power	Power	Power	HDD1	HDD2	PWR		
HDD1 Error	ON	Linked	Error	Read	ON	OFF	ON	Flash at	Random	Green	ON	HDD1 error & spin
				Write				fix 0.5Hz	Flash			down
HDD2 Error	ON	Linked	Read	Error	ON	ON	OFF	Random	Flash at	Green	ON	HDD2 error & spin
			Write					Flash	fix 0.5Hz			down
RAID Rebuild	ON	D/C	Old	New		ON	ON	Flashing	Slow	Green	ON	Rebuilding
Source:HDD1								at 3Hz	Flash at			reconstructing
Target:HDD2									0.5Hz			HDD2
RAID Rebuild	ON	D/C	New	Old		ON	ON	Slow	Flashing	Green	ON	Rebuilding
Source:HDD2								Flash at	at 3Hz			reconstructing
Target:HDD1								0.5Hz				HDD1
Rebuild error	ON	D/C	Old	New		ON	ON	Stop	Slow	Green	ON	Rebuilding
Source:HDD1								Flashing	Flash at			reconstructing
Target:HDD2									0.5Hz			HDD2
Rebuild error	ON	D/C	New	Old		ON	ON	Slow	Stop	Green	ON	Rebuilding
Source:HDD2								Flash at	Flashing			reconstructing
Target:HDD1								0.5Hz				HDD1
Rebuild	ON	D/C	Mirror	Mirror		D/C	D/C	0.5Hz	0.5Hz	Green	D/C	Rebuilding
Completed			ed	ed								Completed

#### **Important Note!**

- All HDDs must be re-initialize, partition and formatted on every mode change operation.
- All new HDDs must be initialize, partition and formatted in this enclosure when used in this enclosure for the first time, except use of old HDDs under Normal mode\*\*.
- HDD capacity beyond 2TB are support via GPT (GUID) Windows Vista/7/8.1/10, OS X, and Linux.
- Windows<sup>®</sup> XP 32bit OS cannot support capacity over 2TB HDD(s) and cannot be used in this enclosure.

\*\* If the hard drives was from another enclosure formatted differently, this enclosure may not read it correctly.

## Hard Drive Formatting Guide

### Partition a volume under Windows<sup>®</sup> OS

 Right-click on the Computer icon (Windows 7) and select Manage from the drop-down window. If you are using Windows 8.1, press the Windows key and X key on your keyboard at the same time and select Computer Management. From the Computer Management window select Disk Management under Storage to start this process.

Se Computer Management							
File Action View Help							
🗢 🔿 🙎 📰 🔮 🖬	£ 10						
Computer Management (Local)	Volume	Layout	Туре	File System	Status	*	
a 🎁 System Tools	🖙 (C:)	Simple	Basic	NTES	Healthy (System, Boot, Page File, Active, Crash Dump, Prin		
D Task Scheduler	🖙 (D:)	Simple	Basic	NTFS	Healthy (Logical Drive)	E	
Event Viewer	🖙 (F:)	Simple	Basic	NTFS	Healthy (Primary Partition)		
Shared Folders	CAROCK (K:)	Simple	Basic	FAT32	Healthy (Primary Partition)	-	
Performance	partition1 (G:)	Simple	Basic	NTFS	Healthy (Primary Partition)	÷	
A De in Manager			III		,		
Storage	Basic 465.76 GB Online Unallocated						
	GDisk 2 Unknown 2794.52 GB Not Initialized	2794.52 Unalloca				ш	

 Right-click on the "Unallocated" space and select "New Simple Volume". If this option is not available, the disk was not initialized. You must initialize the disk first before you can continue. Please stop here and go to the section on "Initialize a Disk" to initialize the disk before return to this section on "Partition a volume under Windows OS".

* + 200 000	-					
Computer Management (Local)	Volume			File System		
System Tools	(C:)	Simple	Basic	NTES	Healthy (System, Boot, Page File, Active, Crash Dump, F	hit
D Task Scheduler	(D:)	Simple	Basic	NTFS	Healthy (Logical Drive)	
Event Viewer	🖙 (F:)	Simple		NTFS	Healthy (Primary Partition)	
b 🙀 Shared Folders	CAROCK (K:)	Simple			Healthy (Primary Partition)	
Performance	capartition1 (G:)	Simple	Basic	NTFS	Healthy (Primary Partition)	
Device Manager	4		111			٠
Storage     Storage     Disk Management     Es Services and Applications	Ciribisk 1 Basic 465.76 GB Online	465.76 G Unalloca	5 . C / /	<	New Simple Volume New Spanned Volume New Striped Volume	
	Disk 2 Unknown 2794.52 GB Not Initialized	2794.52 Unalloca		-	Properties	

3. Click "Next" to start the New Simple Volume Wizard.



4. Specify the partition size. If you are not sure, by default the partition occupies the entire volume. Click "Next".

Specify Volume Size Choose a volume size that is betwee	en the maximum and minimum sizes.
Maxmum dak space in MB: Minimum dak space in MB:	476937 8
Simple volume size in MB:	• •
	< Back Next > Cancel

5. Assign a drive letter. If you are not sure, the system will automatically assign the next

available drive letter, click "Next".

ew Simple Volume Wizard	ta tanan kan tan ita da 🗾
Assign Drive Letter or Path For easier access, you can assign a drive letter o	r drive path to your partition.
Assign the following drive latter.	н -
O Mount in the following empty NTFS folder	
	Вюнаа
Do not assign a drive letter or drive path	
	$\sim$
luin luin	<back (next="">) Cancel</back>

6. Change the Volume name; if you are not sure, by default the system will assign a volume, you can change it later. Click "Next" to start the formatting.

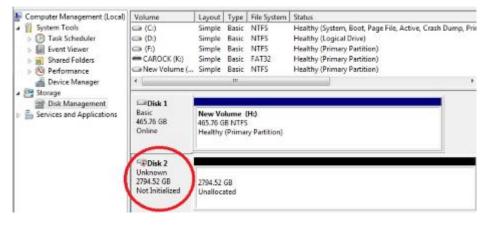
Format Partition			
To store data on this partition, yo	u must format it first.		
Choose whether you want to form	nat this volume, and if so	, what settings you wa	nt to use.
O Do not format this volume			
Format this volume with the	e following settings:		
File system:	NTFS	•	
Allocation unit size:	Default	•	
Volume label:	New Volume		
Perform a quick form	at		
Enable file and folde	r compression		

7. Review the file system settings and click "Finish" to create the logical partition.



#### **Initialize a Disk**

1. New disk need to be initialize before they can be used. Here are the steps for initializing a new disk before you can create a volume to format the drive.



2. Right-click on the "Not Initialized" box.

Computer Management (Local)	Volume	Layout	Type	File System	Status			
# 👔 System Tools	C:)		Basic		Healthy (System, Boot, Page File, Active, Crash Dump, Prin			
Task Scheduler	(D:)	Simple			Healthy (Logical Drive)			
Event Viewer	🗁 (F:)	Simple			Healthy (Primary Partition)			
D at Shared Folders	CAROCK (K-)	Simple			Healthy (Primary Partition)			
b (N) Performance	New Volume (	Simple		NIES	Healthy (Primary Partition)			
Device Manager	<u> </u>		m	_				
a 🔠 Storage	-							
📰 Disk Management	Disk 1							
Services and Applications	Basic 465.76 GB Online	New Volume (H:) 465.76 GB NTFS						
		Healthy (Primary Partition)						
		i naminy	(c.neither	A semicorul				
	-							
	Disk 2							
(	Unknown							
(	2794.52 GB	Initialize	Dieb					
	Not Initialized	Inmanze	DISK					
	$\sim$	Offline		-				
	Disk 3	Properti		_				
	Basic	riopeni	<del>.</del>					
	1397.26 GB	Help						
	Online		No.					

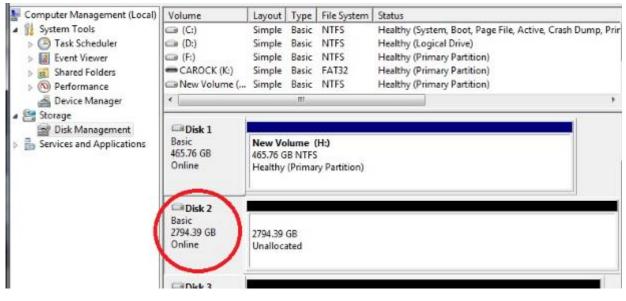
#### 3. Select "Initialize Disk".

Computer Management (Local) A 12 System Tools D 20 Task Scheduler	Volume	Layout Type File Syste	m Status
	(C)	Simple Basic NTFS	Healthy (System, Boot, Page File, Active, Crash Dump, Pr
	(D:)	Simple Basic NTFS	Healthy (Logical Drive)
Event Viewer	(F1)	Simple Basic NTFS	Healthy (Primary Partition)
<ul> <li>B Shared Folders</li> <li>Performance</li> <li>Device Manager</li> </ul>	CAROCK (K:)	Simple Basic FAT32	Healthy (Primary Partition)
	Cilli New Volume (		Healthy (Primary Partition)
	*	11	
# 🔠 Storage	Concerns of		
Disk Management B Services and Applications	GDisk 1		
	Basic 465.76 GB	New Volume (H:)	
	Online	465.76 GB NTFS Healthy (Primary Partition	
	Second Second	realizity (Frimary Fanulus)	
	COsk 2		
	Unknown	Contraction of the local sectors of the local secto	
	2794.52 GB		
	Not Initialized	Initialize Disk	
		Offine	
	Disk 3	Properties	
	Basic		
	1397.26 GB	Help	
	Online	I STINISSING	

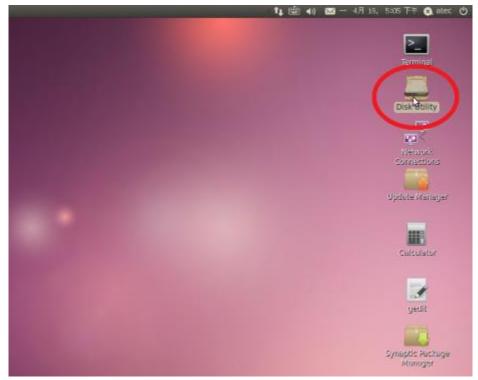
4. Windows 7/8.1 provides options for "MBR" or "GPT". Please select "MBR" if your drive capacity is less than 2TB. If the capacity is over 2TB, please select "GPT". And select "OK".

	gical Disk Manager can access it.
Select disks:	
Disk 2	
✓ Disk 4	
Use the following partition style for	the extended distant
The second s	the selected disks.
MBR (Master Boot Record)     OPT (CLUP Detailed Table)	
GPT (GUID Partition Table)	
GPT (GUID Partition Table)	t recognized by all previous versions of
GPT (GUID Partition Table) Note: The GPT partition style is not	t recognized by all previous versions of isks larger than 2TB, or disks used on

5. "Online" message will replace "Not Initialized" message when disk is initialized and ready for disk partitioning and formatting.

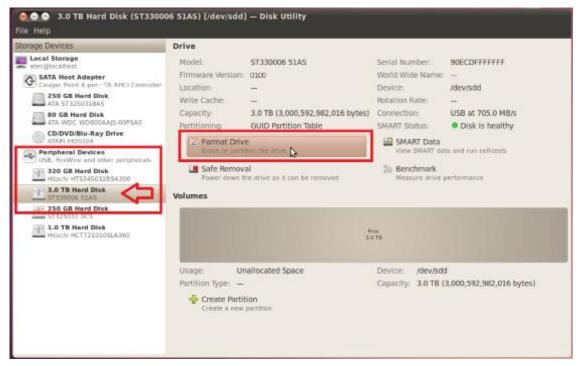


### Partition a volume under Linux Ubuntu

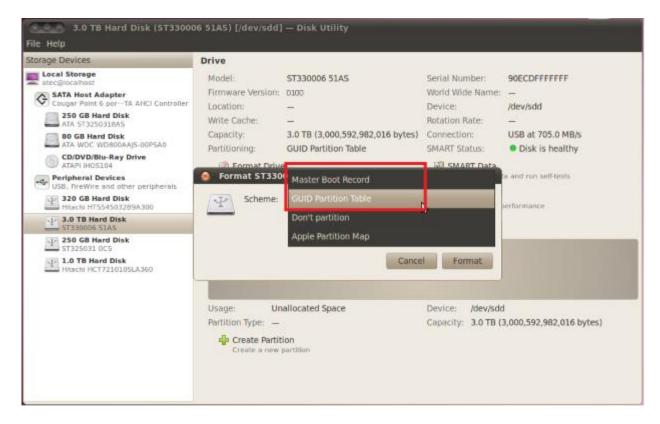


1. Click "Disk Utility" on the Desktop

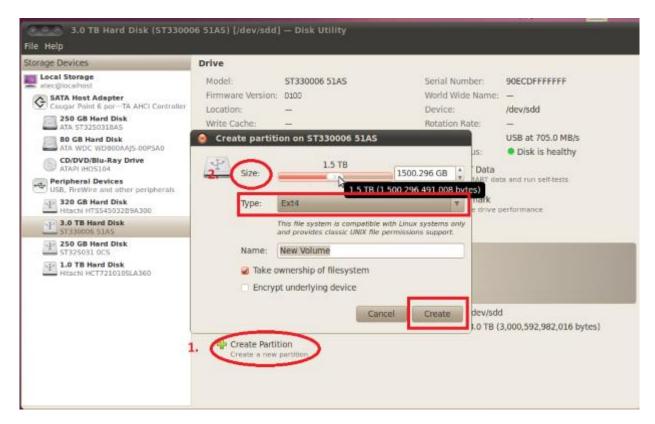
2. Find HDD(s) under **"Peripheral Devices"**, choose the HDD(s) and click **"Format Drive**"



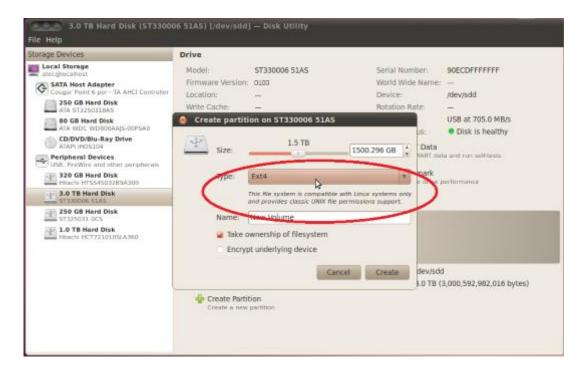
3. Select **"Master Boot Record"** if capacity per HDD does not exceed 2TB. Select **"GUID Partition Table"** if capacity per HDD is over 2TB. Press **"Format**" to proceed.



4. Select **"Create Partition"**, and then slide the bar to draw towards the desired capacity for the HDD(s). Select **"Type"** of format and press **"Create**" to proceed.



NOTE: some formats cannot be used under popular OS i.e.: Windows. Refer to the circled block for details.



5. "New Volume" appears after partitioning completes, select "Mount Volume"

olumes			
New Volume 160 GB ext4		New Volume 160 GB NTF5	
Usage:	Filesystem	Device:	/dev/sdc1
Partition Type:	HPFS/NTFS (0x07)	Partition Label:	-
Partition Flags:	-	Capacity:	160 GB (160,039,240,704 bytes)
туре:	Ext4 (version 1.0)	Available:	-
Label:	New Volume	Mount Point:	Not Mounted
Mount Vo		Erase or for	lume mat the volume
Check Filesystem Check and repair the filesystem		Edit Filesystem Label     Change the label of the filesystem	
Edit Partition Change partition type, label and flags		S Delete Partition Delete the partition	

### 6.Select **"Mount Point"** to access the HDD.

olumes		
	New Volume 160 GB ext4	New Volume 160 GB NTFS
Usage:	Filesystem	Device: /dev/sdcl
Partition Type:	HPFS/NTFS (0x07)	Partition Label: —
Partition Flags:	_	Capacity: 160 GB (160,039,240,704 bytes)
Туре:	Ext4 (version 1.0)	Available: —
Label:	New Volume	Mount Point: Mounted at /media/New Volume
Unmount Volume		Format Volume     Frase or format the volume
Check Filesystem Check and repair the filesystem		Change the label of the filesystem
Edit Partition Change partition type, label and flags		S Delete Partition Delete the partition

### Partition a volume under Mac<sup>®</sup> OS

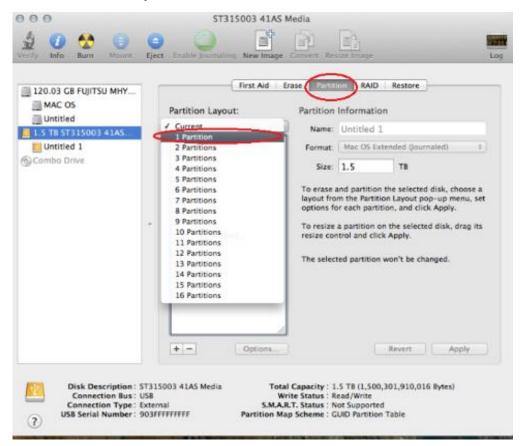
1. Right click on the **"Go"** icon and select **"Utilities"** from the drop-down window.



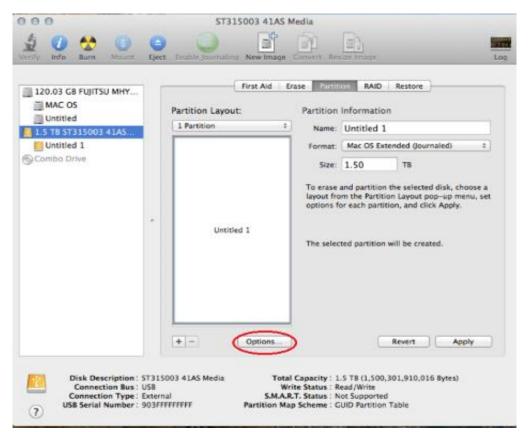
2. Select "Disk Utility"



3. Select **"Partition"** on the top of the window, then select 1 partition from the **"Partition Layout"** 



4. Select "Options" at the bottom of the window.



 Select "GUID Partition Table". Currently, most of the Mac computers are Intel based. To enhance the best compatibility, make sure GUID Partition Table is selected.

Note: For PPC Mac, please select "Apple Partition Map"

000	ST315003 41AS Media	
Verify Into Rarr	Bourr Gett Institutionaling New Image Convert, Resize Image	1.0g
I 120.03 GB FUJITSU MAC OS Untitled 1.5 TB ST315003 4 Untitled 1	Choose a partition scheme appropriate for the way you will use this disk:   CUID Partition Table  To use the disk to start up an Intel-based Mac, or to use the disk as a non-startup disk with any Mac with Mac OS X version 10.4 or later.  Apple Partition Map  To use the disk to start up a PowerPC-based Mac, or to use the disk as a non-startup disk with any Mac.  Master Boot Record  To use the disk to start up DOS and Windows computers, or to use with devices that require a DOS-compatible or Windows-compatible partition.  Default	urnaled) : ted disk, choose a pop-up menu, set click Apply. eated.
	fiption: ST315003 41A5 Media Total Capacity: 1.5 TB (1,500,301,910 Write Status : Read/Write	
Connection	1 Type: External S.M.A.R.T. Status : Not Supported umber : 903FFFFFFFFF Partition Map Scheme : GUID Partition Table	

6. Select "Apply" to finish formatting a hard drive

