博通 MegaRAID 93 系列和 94 系列的现存 VD 扩展的方法概述

1. 在 Legacy BIOS 中也就是按 Ctrl+R 进入卡的 bios 后,创建 VD, 如下图我们选择 4 块 1T 的磁盘,选择 RAID 模式位 RAID-5,默认应 该 RAID5 容量应该是不到 3T,容量位置假设手动输入自定义容量位 1.5T,单击 OK



返回到 VD mgmt.界面看到下图



我们可以看到到有可用剩余容量 1.2T,此时我们在 VD 1 上按键盘

F2 操作键选择扩充容量。



系统会出来如上图,显示已经实用容量和可用容量,输入可用容量的 百分比。并单击 Resize。

如果客户想对已有的 RAID 系统进行扩容或者说迁移升级,则需要

通过 HII, MSM ,LSA 三种模式管理工具进行设置

2. HII 模式,要求主板对应的 PCI-E boot 模式改为 EFI,随后在主 机开机 BIOS 中设置。

备注: IMR 卡无法在 HII 中执行扩展操作。



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主板 BIOS 中 Advanced 选项看到 MegaRAID 选项,进去选择配置并

创建 RAID

PROPERTIES	
Status	[Optimal]
Current Personality	[RAID]
Backplane	1
BBU	[NO]
Enclosure	0
Drives	3
Victual Daluar	0
Virtual prives	0
· view Server Profile	
ACTIONS	
▶ Configure	
Set Factory Defaults	
Update Firmware	
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选中两个盘创建 RAID0 并单击 Apply Changes

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保存配置

PROPERTIES Status [Optimal] Current Personality [RAID] Backplane 1 BBU [No]
Enclosure Drives Drive Groups Virtual Drives View Server Profile ACTIONS Configure Set Factory Defaults Update Firmware Silence Alarm BACKGROUND OPERATIONS Virtual Drive Operations in Progress None Fil: Ge Drive Operations in Progress None Fil: Ge



选中虚拟磁盘管理





重新配置修改该虚拟磁盘



选中 Go,进行修改



可以重新定义 RAID 级别或增加新的物理磁盘



选中要增加的磁盘,将其改为可用的



选中应用改变





选中开始执行



系统开始对原来的虚拟磁盘组进行扩容,重建完成后,新的 RAID 容 量则是 3 块盘容量之和。而且并不影响原来 RAID 数据

3. 在 MSM 管理平台中

平台 OS 为 windows 平台, linux 平台也是类似。安装 MSM 管理软件,确保硬件连接无误,开机进系统,运行软件。

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输入 OS 系统管理员用户密码

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Capacity	271.945 Units: GB		
Initialization state:	Fast Initialization		
Strip size:	64 KB 💌		
Read policy:	Always Read Ahead		
Mrite policy:	Always Write Back		
I/O policy:	Cached IO		
Access policy:	Read Write		
Disk cache policy:	Enabled		<u>.</u>
Update Virtual Drive	<u>Create Virtual Drive</u>	Remove Virtual Drive	
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注意几个参数读写策略以及缓存,并单击 Create Virtual Drive

				AV	ago
Specify parameters for <u>V</u> irtual drive name:	the new virtual drive.	Drive gro	ups: ntroller0: LSI Meg Drive Group0: RAI	aRAID SAS 9271- D 5: Available	8i (Bus 1, Dev Capacity: O
Capacity:	0 ÷ Units: GB▼		- U Virtual Drive	0, VD_0:271.945	GB
Initialization state:	No Initialization				
Strip si <u>z</u> e:	64 KB 💌				
R <u>e</u> ad policy:	Always Read Ahead				
Mrite policy:	Write Back				
I/O policy:	Direct IO 💌				
Access policy:	Read Write				
Disk cache policy:	Disabled 💌	.			
Update Virtual Drive		e. <u>R</u> emove	Virtual Drive		

创建 raid 成功, 单击 Next



提示成功创建

Controller	0: LSI Me	gaRAID SA	S 9271	-8i (Bus)	l, Dev	O, Domain O)			
🗄 🥪 Drive G	roup: 0, 1	RAID 5							
🖯 🚺 Via)rive Grou	p: 0. RAJ	D 5						
1	Virtual Dr	ive: 0, 1	D_0,	271.945 G	B, Op	timal			
🗄 🥥 Driv	res								
	Inclosure	: Bobcat	(29),	Sløt: 0,	SAS,	136.733 GB,	Online,	(512	B)
	Inclosure	: Bobcat	(29),	Slot: 1,	SAS,	136.733 GB,	Online,	(512	B)
	Inclosure	: Bobcat	(29),	Slot: 2,	SAS,	136.732 GB,	Online,	(512	B)
i 🖓 Ilean fi	murad Driv	inc.	2.541100. 8	and a second second second					



系统的设备管理器中的磁盘驱动器可以看到 Lsi 的虚拟磁盘

□ 3 磁盘 2 基本 271.82 GB 联机	271.82 GB 未分配	

进入系统磁盘工具对该盘进行分区以及格式化,此处卷标设置为

"raid"

-/.`Q	◆自动醫放	=¤×
15	raid (F:)	
\mathcal{S}'		
	常规 选项	_
	打开文件夹以查看文件 使用 Windows 资源管理器	
	在"控制面板"中查看更多"自动播放"说	顽

复制一些文档过去



下面进行扩容操作,选中磁盘组0,



Drive group name: Drive RAID level: RAID 5	e Group O		
RAID level: RAID 5			
Virtual drive state: On	otimal		
1		0 222 SA	1 125 16
Drive	Type	Capacity	Status
Enclosure : Bobcat.	CAC	136.733 GB	Online
Realocure ' Bohoat	SAS	136.732 GB	Online
	11	1.11	¥.
			Cancel Jext
ify Drive Group - Se	选择新 lect the possible B/	新的 raid 级别	Cancel Dext
ify Drive Group - Se wizard allows you to mo- moving drives from it, o ent drive group configu twe group name: Drive Gr ID level: RAID 5	选择的 lect the possible Ra dify the drive group con or changing its RAID lev gration oup 0	新的 raid 级别 MD level nfiguration by adding drive	es to the virtual drive
ify Drive Group - Se wizard allows you to mo- moving drives from it, o rent drive group configu ive group name: Drive Gr CD level: RAID 5 rtual drive state: Optim	选择的 lect the possible Ra dify the drive group con or changing its RAID lev gration coup 0	新的 raid 级别 MD level	es to the virtual drive
ify Drive Group - Se wizard allows you to mo- moving drives from it. o ent drive group configu ive group name: Drive Gr ID level: RAID 5 stual drive state: Optim Drive	选择的 lect the possible Ray dify the drive group con or changing its RAID lev aration oup 0 al	新的 raid 级别 MD level nfiguration by adding drive vel. <u>Capacity</u>	es to the virtual drive Status
ify Drive Group - Se wizard allows you to mo- moving drives from it, o ent drive group configu ive group name: Drive Gr ID level: RAID 5 rtual drive state: Optim Drive Enclosure : Bobcat	选择的 lect the possible Ray dify the drive group con or changing its RAID lev gration toup 0 hal 	新的 raid 级别 MD level nfiguration by adding drive vel. Capacity	es to the virtual drive
ify Drive Group - Se wizard allows you to mo- noving drives from it ent drive group configu ive group name: Drive Gr (D level: RAID 5 -tual drive state: Optim Drive Enclosure : Bobcat Enclosure : Bobcat	选择的 lect the possible Rd dify the drive group con or changing its RAID lev aration oup 0 al <u>Type</u> SAS SAS	新的 raid 级别 MD level nfiguration by adding drive vel. 136.733 GB 136.733 GB	es to the virtual drive
ify Drive Group - Se wizard allows you to mo- moving drives from it. ent drive group configu ive group name: Drive Gr (D level: RAID 5 stual drive state: Optim Drive Enclosure : Bobcat	选择的 lect the possible Re dify the drive group con or changing its RAID lev gration toup 0 tal Type SAS SAS	新的 raid 级别 MD level nfiguration by adding drive vel. <u>Capacity</u> 136.733 GB 136.733 GB	es to the virtual drive

我们还是选择 raid5,系统会自动进行判断可选的 raid 级别,单击

Next

You have selected Use the below tab	l RAID 5. To migrate from RAI le to add the drive(s) and c	D 5 to RAID 5, you need lick next to proceed.	to add at least 1 o	drive(s) to the configurat
Select the unconf	igured drive to <u>a</u> dd:			
	Available Drives	Туре	Capacity	Status
v	🗇 Enclosure : Bobc	SAS	136.733 GB	Unconfigured Good
	Enclosure : Bobc	SAS	136.733 GB	Unconfigured Good
	Zenclosure Bobc	SAS	136.733 GB	Unconfigured Good
	Enclosure : Bobc	SAS	136,733 GB	Unconfigured Good
	Enclosure . Bobc	CAC	136,733 GB	Unconfigured Good
	September 2 Bobc	SAS	136 733 GB	Unconfigured Good
	Enclosure : Bobc	SAS	136.733 GB	Unconfigured Good
	Enclosure : Bobc	SAS	136.733 GB	Unconfigured Good
	Denclosure : Bobc	SAS	136.733 GB	Unconfigured Good
	🗇 Enclosure : Bobc	SAS	136.733 GB	Unconfigured Good
dify Drive Gro	复选要¥ ap - Summary	忝加的新盘,」	单击 Next	
odify Drive Gro view the summary	复选要注 up - Summary and go back if you need to s	忝加的新盘, make corrections. The Ch	单击 Next Langes will be made	AVAGO
o dify Drive Gro view the summary unmary:	复选要注 ap - Summary and go back if you need to a	忝加的新盘,	单击 Next Ananges will be made	Standing States
odify Drive Gro view the summary unmary: urrent settings:	复选要注 up - Summary and go back if you need to a	忝加的新盘, make corrections. The Ch Post modification s	单击 Next nanges will be made ettings:	2 Vago * when you click Finish
odify Drive Gro view the summary unmary: urrent settings: ive group name:	复选要? ap - Sussary and go back if you need to a Drive Group: 0, RAID 5	添加的新盘, make corrections. The Ch Post modification so prive group name	单击 Next hanges will be made ettings:	AVAGO * when you click Finish
odify Drive Gro view the summary mmary: urrent settings: ive group name: ID Level:	复选要? ap - Sussary and go back if you need to a Drive Group: 0, RAID 5 RAID 5	忝加的新盘, make corrections. The Ch Post modification su prive group name RAID Level:	单击 Next nanges will be made ettings: . prive or RAID 5	AVAGO * when you click Finish roup: 0, 10419 9
odify Drive Gro view the summary mmary: urrent settings: ive group name: ID Level: rtual drive name:	复选要注 up - Summary and go back if you need to a Drive Group: 0, RAID 5 RAID 5 VD_0	添加的新盘, make corrections. The Ch Post modification su prive group name RAID Level: Virtual drive na	单击 Next nanges will be made ettings: . Drive vi RAID 5 me: VD_0	AVAGO * when you click Finish coup. 0, 10410 0
odify Drive Gro view the summary mmary: mrent settings: ive group name: ID Level: rtual drive name: ital capacity:	复选要注 ap - Sussary and go back if you need to a Drive Group: 0, RAID 5 RAID 5 VD_0 271.945 GB	忝加的新盘, make corrections. The Ch Post modification su prive group name RAID Level: Virtual drive na Iotal capacity:	单击 Next nanges will be made ettings: . Drive vi RAID 5 me: VD_0 679.863	GB
odify Drive Gro eview the summary ummary: urrent settings: rive group name: AID Level: irtual drive name: otal capacity: umber of drives:	复选要注 and go back if you need to a Drive Group: 0, RAID 5 RAID 5 VD_0 271.945 GB 3	添加的新盘, make corrections. The CH Post modification su prive group name RAID Level: Virtual drive na Iotal capacity: Number of drives	单击 Next hanges will be made ettings: . Drive vi RAID 5 me: VD_0 679.863 : 6	GB

新 raid 概述,确认无误单击 Finish



系统开始重建

	Avago
Controller0: LSI MegaRAID SAS 9271-S: (Bus 1, Dev 0, Domain 0)	
Ongsing Operations on Firtual Disks Virtual Drive: 0, VD_0, 271.045 GH, Optimal	Ongoing Operations on Physical Drives
Beconstruction 18 Estimated time Left: 2 Hours 25Mins 515ecs	
	(lase (C)
扩名	学中。。。
⊡ ◆ Controller0: LSI MegaRAID SAS 9271-8i	(Bus 1, Dev 0, Domain 0)
🖻 💕 Drive Group: 0, RAID 5	
Uirtual Drive(s):	.863 GB, Optimal
□ Urives □ Enclosure : Bohcet (29) Si	ot: 0 SAS 136 733 GB Online
Enclosure : Bobcat (29), Sl	ot: 1, SAS, 136.733 GB, Online,
Enclosure : Bobcat (29), Sl	ot: 2, SAS, 136.732 GB, Online,
Enclosure : Bobcat (29), Sl	ot: 5, SAS, 136.733 GB, Online,
Enclosure : Bobcat (29), 51	ot: 20, SAS, 136.733 GB, Online
扩容完成后 RAID 总容量增加,	扩容完成后,在管理软件看到还是-
AID •	
レビン 「「」 「」 「」 「」 「」 「」 「」 「」 「」 「」 「」 「」 「」	
INTEL SSDSC2	BW12UA4 SUSI Disk Device

🖻 👝 磁盘驱动器 INTEL SSDSC2BW120A4 SCSI Disk Device ISI MR9271-8i SCSI Disk Device UDISK PDU15_8G C9J2.0 USB Device 日本存储控制器

操作系统里看到的仍旧是1个虚拟盘

Ĩ	□ 磁盘 1		
	基本 679.74 GB	raid (F:) 271.82 GB NTFS	407.92 GB
	联机	状态良好(主分区)	未分配
		J	

磁盘管理会看到原来的虚拟盘会多出一个新的未分区而不会影响原来的数据。

4. 在 LSA 系统中,目前仅博通 MegaRAID 94xx 可进行操作

Avago	LSI Storage Authority	and the second sec
G Remote Server I	Discovery	Windo
	Server Id: e0:3f:49:e6:f0:e2	
		Non J
	Sign In	2
	HOST T	
	C English T	
	Sign In	

输入用户名,密码单击 Sign In

Controller is Optimal	^		
💈 🥝 Controller ID: (AVAGO MegaRAID SAS 944	10-8i Bus 1 Dev 0	
a Balan Camara a Minta	al Polices 24 Physical Polices		
o brive Groups, o virtu	al Drives, 24 Physical Drives	Configurer	Capacity 0 KB of 12.215 TB
Serial No	SAS Address	Alarm	Driver Version
3100700130			1,
	E -b -	ந்து திரார நடித்து பார	
	点击:	控制畚	
			Actions
gured Capacity 0 KB of '	12.215 TB		View Event Log
	Driver Moreion		Download Diagnostics
	7.70 Advanced Configu Detailed customiz	able process	/ Configure
	Simple Configura	tion	Undate Firmulare
	CacheCade - SSD	Caching	Firmware version 5.010.01- 0671
	Configuration		
	Foreign Configura 0 Found	ition	
	Clear Configuratio	on	
X		11	
单言	F Configure 选择	Advanced	Configuration
			6
Advanced Config Step 1/2 (Choose your new	uration 💿		
	Rener Dates Cases 0		
	24 yearlable unconfigu	and driverod.	
1. RAID Level Setting (Comp	are and seloct)	an hara sahi sinas	
AAD G	 The field week a substitution for high period Arris reductioncy Crucics this spiton and 	mantae with sense In fair many screek divise	
A Address of the American American	ates.		
5° barcentraneora nunve wonits			

创建虚拟磁盘 选 RAID0 单击 Next

	(410)	contraction and the second	e exterpinet i	10400	LINNE C			Tippe	111
	IB I	EnclosureSilot	Device ID	Type	Interface	Capacity	Sector Size	Hodel	-
In Proceed Design	-	EH_03 13	ii a	HOD	545	1353258	5128	0514040454	
		EH_ED_4	2. 1 0	100	SAS	130.2268	9178	DG1408ADCF	
hadrand	10	EN_03-12	2	нор	sata	405,2568	9328	GB0500C8048	
Contractory of the second seco	12	EN_63.16	.9	(00)	SATA	465,2508	5128	T00580C8048	
	- 10	EN 03 14		HDD	SATA.	405.2508	5128	G80500C8046	
Name of the Association of the A	- 40	EN 63:23	ń	HDD	SATA	465,1558	5128	580500Cada#	
The second se	10	EN_63 15	7	HDD	547A	405.2558	512B	68050008046	
	UD .	EN_6310	0	нор	54TA	465.2568	512B	HD5725050KLA	360
选中2个 Advanced Configuration Step 2/2: Configure Physical Drives	·盘, on(并单 Preate Virtua	击 Ao	dd I	Physic	cal Dı	rivers		
	New	Drive Gro RAID 0 Wit	up DG_0	ption					
Add Pfrysical Orives			.hpsrrs		Add	Virtual D	rives inte across i t Drives can t	2 selected drive be added	5
second sufficient success rate on accord.				×	No	Virtual Oriv	e added ynt		
EN 63: 17. Model-DG146ABAB4 SAS 136.22 GB				20 20					
EN_63 : 17, Model-DG146ABAB4 SAS, 136.22 GB				x					
EN_63 : 17, Model-DG146ABAB4 SAS, 136.22 GB EN_63 : 4, Model-DG146BABCF SAS, 136.22 GB									
EN_63 : 17, Model-DG146ABAB4 SAS, 136.22 GB EN_63 : 4, Model-DG146BABCF SAS, 136.22 GB	3								



Back Finis

How many virtual	frives do you wish to create?	
1 🚔 each with	capacity of 272.44 🚔 GB) •
Virtual Drive Name	Strip Size	2
VDName	64 KB 🔻	
Initialization State No Initialization	In tialization prepares the storage medium for use No Initialization	
Read Policy	The new configuration is not initialized, and the existing data on the drives is not	

这里默认设置最大容量给虚拟磁盘,可以手动修改,以后可以在卡的

BIOS 进行容量扩展(expanded)

Ade	d Virtual Drives	
Maxi	mum size is used to create a Virtual Drives for this Drive Group.	
Max	imum size is used to create a Virtual Drives for this Drive Group	
_		[

		单击 F	inish,完成	创建一个虚拟	よ <u></u> 出
	Drive Grou /irtual Drive	ps)	24 Drives 22 Unconfigured	I Drives	2 Other Hardware
= DG_0	RAID 0	1 Virtual & 2 Physical Driv 2 Physical Drives	es Used 272.44 GB of 2	72.44 GB Available	
1 Vir					
1 Vu		ID Name	Cepietity	Strip Star	Cache Policy

可以看到已经成功创建了一个虚拟磁盘





单击 Add Physical drivers

?

22 Available Unconfigured Drive(s)

×

Add a maximum of 30 drive as required by RAID 0 Level.

	Enclosure:Slot	Device ID	Туре	Interface	Capacity	Sector Size	Model
	EN_63 : 12	2	HDD	SATA	465.25GB	512B	GB0500C8046
V	EN_63 : 16	3	HDD	SATA	465.25GB	512B	GB0500C8046
	EN_63:14	4	HDD	SATA	465.25GB	512B	GB0500C8046
	EN_63:9	5	HDD	SATA	465.25GB	512B	GB0500C8046
	EN_63:23	6	HDD	SATA	465.25GB	512B	GB0500C8046
	EN_63:15	7	HDD	SATA	465.25GB	512B	GB0500C8046
	EN_63:0	8	HDD	SATA	465.25GB	512B	HDS725050KLA360
	EN_63:1	9	HDD	SATA	465.25GB	512B	HDS725050KLA360
	EN 63:3	10	HDD	SATA	931GB	512B	HitachiHUA721010KLA330

Add Physical Drives

2 drives selected.

选中要添加的磁盘后,单击 Add Physical Drivers 按钮



单击 Finish 按钮,



系统对虚拟磁盘进行重新扩建