

If the operating system is HP-UX 11i v2 or HP-UX 11i v1, run the **ioscan -funC disk** command to view LUNs detected by the application server.

Step 2 Run umount /test/ to unmount the file system of the LUN.

/test/ indicates the mount directory of the file system.

Step 3 Run extendfs -F vxfs /dev/disk/disk399 to expand the file system of the LUN.

vxfs indicates the file system type.

- Step 4 Run mount /dev/disk/disk399 /test/ to mount the file system of the LUN.
- Step 5 Run bdf to view the file system capacity after it is expanded.

ash-3.2# bdf						
ilesystem	kbytes	used	avail	%used	Mounted or	1
dev/vg00/lvol3	1048576	920416	127376	88%	/	
dev/vg00/lvol1	1835008	368824	1454800	20%	/stand	
dev/vg00/lvol8	8912896	2309816	6552824	26%	/var	
dev/vg00/lvol7	6553600	3012368	3513640	46%	/usr	
dev/vg00/lvol4	524288	23504	497008	5%	/tmp	
dev/vg00/lvol6	7864320	4358216	3479048	56%	/opt	
dev/vg00/lvol5	131072	64088	66464	49%	/home	
dev/disk/disk399	5242880	0 7950	04 490774	172	0% /test	

The preceding command output displays that the capacity of the file system becomes 50 GB.

----End

F

7.2.3.8 Expanding a LUN on an Application Server in VMware ESX

After expanding a LUN on its storage system, perform the expansion configuration on the corresponding application server for it to identify and use the expanded storage space. This task uses an application server running VMware ESXi 5.1.0 as an example to describe how to expand a LUN on an application server. For application servers running other versions of VMware ESX operating systems, adjust the operations based on actual conditions.

Prerequisites

A LUN has been expanded on the storage system.

Context

In this example of the section, the capacity of the LUN to be expanded is 25 GB and it will be expanded to 50 GB. The ID of the LUN to be expanded is 14.

Procedure

Step 1 In vSphere Client, click the Configuration tab.

- Step 2 On the left navigation bar, click Storage.
- Step 3 On the Storage page, click the Devices tab.

On the **Devices** page, view the device mapped from the LUN to be expanded on the application server, as shown in **Figure 7-5**.

Figure 7-5 Device mapped from the LUN to be expanded on the application server

VMwaar5u1IP124 VMware ESXi, 5.1. Getting Started Summary Virtual M	0, 799733 Evaluation (55 days achines Resource Allocation Per	remaining) formance Configura	tion Local Users	& Group:	s Events Per	rmissions		
Hardware	View: Datastores Devices	5						-
Health Status	Devices					Refresh	Rescan A	l
Processors	Name	Runtime Name	Operational Sta.	LUN Ty	/pe Drive T	Transport	Capacity	
Memory	HUASY Fibre Channel Disk	vmhba3:C0:T1:L6	Mounted	6 di	sk Non-S	Fibre Chann	28.00 GB	
Storage	HUAWEI Fibre Channel D	vmhba3:C0:T1:L13	Mounted	13 di	sk Non-S	Fibre Chann	1.00 KB	
Networking	HUASY Fibre Channel Disk	vmhba3:C0:T1:L12	Mounted	12 di	sk Non-S	Fibre Chann	32.00 TB	
Storage Adapters	HUASY Fibre Channel Disk	vmhba3:C0:T1:L10	Mounted	10 di	sk Non-S	Fibre Chann	88.00 GB	
Network Adapters	HUAWEI Fibre Channel D	vmhba3:C0:T1:L14	Mounted	14 di	sk Non-S	Fibre Chann	25.00 GB	
Advanced Settings	HUASY Fibre Channel Disk	. vmhba3:C0:T1:L9	Mounted	9 di	sk Non-S	Fibre Chann	40.00 GB	
Power Management	HUASY Fibre Channel Disk	. vmhba3:C0:T1:L0	Mounted	0 di	sk Non-S	Fibre Chann	400.00 G	_
							•	
Software	Device Details						Manage Path	
Licensed Features		1 (-lanage r a a	
Time Configuration	Location: /vmfs/devices	s K (1128.030 s/disks/naa 630303711	10 TD:		naa 63030371	003030370115d	onfonono	
DNS and Routing	Type: disk	,,	Capacity		25.00 GB			
Authentication Services	Owner: NMP		Partition	Format:	Unknown			
Virtual Machine Startup/Shutdown			_					
Virtual Machine Swapfile Location			Iranspor	t .				
Security Profile			Fibre Cha	annel				
Host Cache Configuration								
System Resource Allocation								-
Acont VM Sottings								-

Step 4 On the Devices page, click Rescan All.

The Rescan dialog box is displayed, as shown in Figure 7-6.

Figure 7-6 Rescan dialog box

🕑 R	escan	×
V	Scan for New Storage Devices	
	Rescan all host bus adapters for new storage devices. Rescanning all adapters can be slow.	
•	Scan for New VMFS Volumes	
	Rescan all known storage devices for new VMFS volumes that have been added since the last scan. Rescanning known storage for new file systems is faster than rescanning for new storage.	
	OK Cancel Help	

Step 5 Click OK.

It takes 2 to 4 minutes to scan for new storage devices and VMFS volumes. You can check the task status in the **Recent Tasks** area at the lower part of the main window.

• If the task status is **In Progress** as shown in **Figure 7-7**, the scanning is ongoing.

Figure 7-7 Scanning ongoing

Recent Tasks						Name, Target or Status	contains: +	Clear	×
Name	Target	Status	Details	Initiated by	vCenter Server	Requested Start Ti 🔽	Start Time	Completed Time	
Rescan VMFS		In Progress		Administrator	win232.zcyunhvs	8/19/2013 6:47:46 PM	8/19/2013 6:47		
🖉 Rescan all HBAs	100 C	In Progress		Administrator	🧑 win232.zcyunhvs	8/19/2013 6:46:58 PM	8/19/2013 6:46		

• If the task status is **Completed** as shown in **Figure 7-8**, the scanning is completed.

Figure 7-8 Scanning completed

Recent Tasks Name, Target or Status contains: • Clear Name Target Status Details Initiated by vCenter Server Requested Start Tim • Start Time Completed Time				×					
Name	Target	Status	Details	Initiated by	vCenter Server	Requested Start Ti 🗢	Start Time	Completed Time	
Rescan VMFS		Completed		Administrator	🚱 win232.zcyunhvs	8/19/2013 6:47:46 PM	8/19/2013 6:47	8/19/2013 6:47:58 PM	
🖉 Rescan all HBAs		Completed		Administrator	🤯 win232.zcyunhvs	8/19/2013 6:46:58 PM	8/19/2013 6:46	8/19/2013 6:47:46 PM	

Step 6 On the Storage page, click the Datastores tab.

On the **Datastores** page, view the datastore mapped from the LUN to be expanded on the application server, as shown in **Figure 7-9**.

Figure 7-9 Device mapped from the LUN to be expanded on the application server

VMwaar5u1IP124 VMware ESXi, 5.1.0, 7	99733 Evaluation (55 days remaining)	
Getting Started Summary Virtual Machi	nes Resource Allocation Performance Configuration Local User	rs & Groups Events Permissions
Hardware	View: Datastores Devices	<u> </u>
Health Status	Datastores	Refresh Delete Add Storage Rescan All
Processors	Identification 🗠 Device Drive Type	Capacity Free Type Last Update
Memory	DataStore_Extend HUAWEI Fibre Ch Non-SSD	24.75 GB 23.83 GB VMF55 6/29/2013 11:
 Storage 	DataStore_T_400 HUASY Fibre Cha Non-SSD	399.75 GB 102.65 GB VMFS5 6/29/2013 11:
Networking	DataStore_T_50 HUASY Fibre Cha Non-SSD	49.75 GB 8.80 GB VMFS5 6/29/2013 11:
Storage Adapters	DataStore_T_50 HUASY Fibre Cha Non-SSD	49.75 GB 48.80 GB VMFS5 6/29/2013 11:
Network Adapters	DataStore_T_500 HUASY Fibre Cha Non-SSD	499.75 GB 418.79 GB VMFS5 6/29/2013 11:
Advanced Settings	DataStore_T_OS HUASY Fibre Cha Non-SSD	199.75 GB 58.68 GB VMFS5 6/29/2013 11:
Power Management	datastore1 (1) LSILOGIC Serial A Non-SSD	131.00 GB 130.05 GB VMF55 6/29/2013 11: -
Software	Datastore Details	Properties
Licensed Features	DataStava Suband	
Time Configuration	Location: /vmfs/volumes/51ce562d-cd078eba-4bd2-00259ed44	24.75 GB Capacity
DNS and Routing	Hardware Acceleration: Supported	940.00 MB 🔲 Used
Authentication Services		23.83 GB 🔲 Free
Virtual Machine Startup/Shutdown		
Virtual Machine Swapfile Location		
Security Profile		
Host Cache Configuration	Path Selection Deportion	tantr _
System Resource Allocation		
Agent VM Settings		

Step 7 Right-click the datastore corresponding to the LUN to be expanded, and choose Properties from the shortcut menu.

The DataStore_Extend Properties dialog box is displayed, as shown in Figure 7-10.

olume Properties			
General		-Format	
Datastore Name: DataStore_Extend	Rename	File System: VMFS 5.58	
Total Capacity: 24,75 GB	Increase	Maximum File Size: 2.00 TB	
217505	Indeddeni	Block Size: 1 MB	
VMES file system can spap multiple bard dis	k partitions or	The extent selected on the left resides on	the LLIN or physical
VMFS file system can span multiple hard dis ctents, to create a single logical volume. xtent	k partitions, or	The extent selected on the left resides on disk described below.	the LUN or physical
VMFS file system can span multiple hard dis (tents, to create a single logical volume. Stent UAWEI Fibre Channel Disk (naa.6303037)	k partitions, or Capacity	The extent selected on the left resides on disk described below. Device HI JAWFT Fibre Channel Disk (na	Capacity
VMFS file system can span multiple hard dis ttents, to create a single logical volume. ixtent IUAWEI Fibre Channel Disk (naa.6303037)	k partitions, or Capacity 1 25.00 GB	The extent selected on the left resides on disk described below.	Capacity 50.00 GB
VMFS file system can span multiple hard dis ttents, to create a single logical volume. 5tent IUAWEI Fibre Channel Disk (naa.6303037)	k partitions, or Capacity	The extent selected on the left resides on disk described below. Device HUAWEI Fibre Channel Disk (na Primary Partitions	the LUN or physical Capacity 50.00 GB Capacity
VMFS file system can span multiple hard dis ttents, to create a single logical volume. Extent IUAWEI Fibre Channel Disk (naa.6303037)	k partitions, or Capacity 25.00 GB	The extent selected on the left resides on disk described below. Device HUAWEI Fibre Channel Disk (na Primary Partitions	Capacity 50.00 GB Capacity
VMFS file system can span multiple hard dis ttents, to create a single logical volume. Extent IUAWEI Fibre Channel Disk (naa.6303037)	k partitions, or Capacity 1 25.00 GB	The extent selected on the left resides on disk described below. Device HUAWEI Fibre Channel Disk (na Primary Partitions 1. VMFS	the LUN or physical Capacity 50.00 GB Capacity 25.00 GB
VMFS file system can span multiple hard dis (tents, to create a single logical volume. Extent IUAWEI Fibre Channel Disk (naa.6303037)	k partitions, or Capacity 25.00 GB	The extent selected on the left resides on disk described below. Device HUAWEI Fibre Channel Disk (na Primary Partitions 1. VMFS	the LUN or physical Capacity 50.00 GB Capacity 25.00 GB
VMFS file system can span multiple hard dis (tents, to create a single logical volume. Extent IUAWEI Fibre Channel Disk (naa.6303037)	k partitions, or Capacity 1 25.00 GB	The extent selected on the left resides on disk described below. Device HUAWEI Fibre Channel Disk (na Primary Partitions 1. VMFS	the LUN or physical Capacity 50.00 GB Capacity 25.00 GB
VMFS file system can span multiple hard dis (tents, to create a single logical volume. Extent IUAWEI Fibre Channel Disk (naa.6303037)	k partitions, or Capacity 1 25.00 GB	The extent selected on the left resides on disk described below. Device HUAWEI Fibre Channel Disk (na Primary Partitions 1. VMFS Befresh	the LUN or physical Capacity 50.00 GB Capacity 25.00 GB Manage Paths

Figure 7-10 DataStore Extend Properties dialog box

Step 8 In the Volume Properties area, click Increase.

The Increase Datastore Capacity dialog box is displayed, as shown in Figure 7-11.

Figure 7-11 Increase Datastore Capacity dialog box

Increase Datastore Ca Extent Device Select a LUN to crea Extent Device Current Disk Layout Extent Size Ready to Complete	acity				
Extent Device	a datastore or expand the current one				
Extent Device Current Disk Layout	Name, Identifier, Path ID, LUN, Capa	ity, Expandable or VM	FS Label	c •	Cle
Extent Size	Name	Path ID	LUN 🗠	Drive Type	Capacit
leady to Complete	HUASY Fibre Channel Disk (naa.630	vmhba3:C0:T1:L7	7	Non-SSD	5.00 GI
	HUASY Fibre Channel Disk (naa.630	vmhba3:C0:T1:L9	9	Non-SSD	40.00 GI
	HUASY Fibre Channel Disk (naa.630	vmhba3:C0:T1:L10	10	Non-SSD	88.00 G
	HUASY Fibre Channel Disk (naa.630	vmhba3:C0:T1:L11	11	Non-SSD	120.00 G
	HUASY Fibre Channel Disk (naa.630	vmhba3:C0:T1:L12	12	Non-SSD	32.00 T
	HUAWEI Fibre Channel Disk (naa.63	vmhba3:C0:T1:L14	14	Non-SSD	50.00 G
	The datastore already occupies the device will expand it in the datastore.	one or more extents on atastore. Selecting anyt	this device hing else (e. Selecting one of on the device will a	these extents o dd a new extent
Help		<	Back	Next >	Cancel

- Step 9 Select the datastore corresponding to the LUN to be expanded and click Next.
- Step 10 View the current disk distribution and click Next.
- Step 11 Set the size of the expansion data area. The maximum storage space is recommended, as shown in Figure 7-12. Click Next.

Figure 7-12 Setting the size of the expansion data area

🛃 Increase Datastore Capacity		
Extent Size Specify how much capacity s	should be allocated to the expanded extent.	
Extent Device Current Disk Layout Extent Size Ready to Complete	Capadty Capadty Maximum available space Custom space setting 25.00 GB of 25.00 GB available space	
Help	< Back Next >	Cancel

Step 12 Click Finish.

The DataStore_Extend Properties dialog box is displayed.

Step 13 Click Close.

----End

Result

• On the **Datastores** tab of **Storage** page, view the expanded datastore, as shown in **Figure 7-13**.

rdware	View	Datastores De	vices					
Health Status	Data	stores			Refresh	Delete	Add Storage	Rescan All.
Processors	Ide	ntification 🕢	Device	Drive Type	Capacity	Free	Туре	Last Update
Memory		DataStore_Extend	HUAWEI Fibre Ch	Non-SSD	49.75 GB	48.80 GE	3 VMFS5	6/29/2013 11:
Storage		DataStore_T_400	HUASY Fibre Cha	Non-SSD	399.75 GB	102.65 GE	3 VMFS5	6/29/2013 11:
Networking		DataStore_T_50	HUASY Fibre Cha	Non-SSD	49.75 GB	8.80 GE	3 VMFS5	6/29/2013 11:
Storage Adapters		DataStore_T_50	HUASY Fibre Cha	Non-SSD	49.75 GB	48.80 GE	3 VMFS5	6/29/2013 11:
Network Adapters		DataStore_T_500.	HUASY Fibre Cha	Non-SSD	499.75 GB	418.79 GE	3 VMFS5	6/29/2013 11:
Advanced Settings		DataStore_T_OS	HUASY Fibre Cha	Non-SSD	199.75 GB	58.68 GE	3 VMFS5	6/29/2013 11:
Power Management		datastore1 (1)	LSILOGIC Serial A	Non-SSD	131.00 GB	130.05 GE	3 VMFS5	6/29/2013 11:
								Þ
ftware	Data	store Details						Properties
Licensed Features	Dat	Store Extend			40	75 00 0		
Time Configuration	loc	ation: /vmfs/vol	umes/51ce562d-cd078	aba-4bd2-00259ec	49. 14407f	.75 GB Cap	bacity	
DNS and Routing	Ha	rdware Acceleration:	Supported		971.	00 MB	Used	
Authentication Services					48.	.80 GB 🔲	Free	
Virtual Machine Startup/Shutdown								
Virtual Machine Swapfile Location								
Security Profile								
Host Cache Configuration	Path	Selection	-					

Figure 7-13 Datastore mapped from the expanded LUN on the application server

• On the **Devices** tab of **Storage** page, view the expanded device, as shown in **Figure** 7-14.

Figure 7-14 Device mapped from the expanded LUN on the application server

Hardware	View: Data	astores Devices	6								
Health Status	Devices								Refresh	Rescan A	۸I.
Processors	Name		Runtime Name	Operatio	onal Sta.	LUN	Туре	Drive T	Transport	Capacity	Ē
Memory	HUASY Fibr	e Channel Disk	vmhba3:C0:T1:L6	Mounted		6	disk	Non-S	Fibre Chann	28.00 GB	
Storage	HUAWEI Fil	ore Channel D	vmhba3:C0:T1:L13	Mounted	l I	13	disk	Non-S	Fibre Chann	1.00 KB	
Networking	HUASY Fibr	e Channel Disk	vmhba3:C0:T1:L12	Mounted	1	12	disk	Non-S	Fibre Chann	32.00 TB	
Storage Adapters	HUASY Fibr	e Channel Disk	vmhba3:C0:T1:L10	Mounted	1	10	disk	Non-S	Fibre Chann	88.00 GB	
Network Adapters	HUAWEI Fil	ore Channel D	vmhba3:C0:T1:L14	Mounted	I	14	disk	Non-S	Fibre Chann	50.00 GB	ľ
Advanced Settings	HUASY Fibr	e Channel Disk	vmhba3:C0:T1:L9	Mounted		9	disk	Non-S	Fibre Chann	40.00 GB	1
Power Management	HUASY Fibr	e Channel Disk	vmhba3:C0:T1:L0	Mounted		0	disk	Non-S	Fibre Chann	400.00 G	
-Augusta										D	4
bitware	Device Deta	ils							, i i i i i i i i i i i i i i i i i i i	Manage Pat	h
Licensed Features	HUAWEI Fit	ore Channel Dis	:k (naa.630								
Time Configuration	Location:	/vmfs/devices	/disks/naa.63030371	00	ID:		na	a.63030371	003030370115d	90f000000	
DNS and Routing	Type:	disk			Capacity		50	.00 GB			
Authentication Services	Owner:	NMP			Partition	Forma	t: Gl	т			
Virtual Machine Startup/Shutdown	Primary Pau	titiona	Capacity	-	[
Virtual Machine Swapfile Location		litions			Fibro Ch	L Innel					
Security Profile	1. VIVIES		20.00 GD		nore che	n n ei					
Host Cache Configuration											
System Resource Allocation											

7.3 Allocating Storage Space to New File Services

Before establishing a storage space environment for new file services of application servers, you need to create and share a file system.

Figure 7-15 describes the procedure for allocating storage space to new file services.