

System x IBM BladeCenter S Configuration Guide for Windows Essential Business Server 2008

Version 1.0



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Note

Before using this information and the product it supports, read the general information in "Notices," on page 23.

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Chapter 1. Introduction (What's included in this document)

This white paper is intended to provide pre-installation instructions and recommendations to prepare the IBM BladeCenter S for Windows Essential Business Server (EBS). This white paper lists the preferred configuration and the tools needed to get the IBM BladeCenter S chassis ready for the EBS installation.

This white paper also documents post-installation tasks that add the management software and the plug-in for EBS, and the storage drivers required for multipath support for the RAID SAS Switch Modules (RSSM) included in this BC S configuration.

This white paper does not provide installation details for the EBS software itself because that is provided in the appropriate Microsoft documentation.

Chapter 2. Recommended bill of materials (BOM) configuration

This bill of materials list is a recommended configuration that you can use as a guideline for a standard Windows Essential Business Server 2008 (EBS) installation.

Many variations can be used including other blades that support Windows 2008. HS12s were selected because they provide Hot-Swap drives which enhances serviceability. The Intelligent Copper Pass-thru Module was selected because it requires little or no configuration and allows the EBS Security server to be easily configured for two separate networks which is an EBS requirement. The additional Storage required by the Management and Messaging server is enhanced with the presence of the RSSMs as opposed to the standard SAS switches. The RSSMs provide full multipath support and the ability to provision storage to the blades in a granular manner.

Part number	Description	Quantity
88861MU	IBM Bladecenter S Chassis with 2x950/1450W PSU, Rackable	1
43W3581	IBM BladeCenter S 6-Disk Storage Module	1
43X0802	IBM 300GB 3.5in 15K HS SAS HDD	0
43W7524	IBM 146GB 15K 3.5in HS SAS HDD	6
43W3582	IBM BladeCenter S 950W/1450W Auto-Sensing Power Supplies 3 and 4	1
43W3584	IBM BladeCenter S SAS RAID Controller Module	2
44W4483	Intelligent Copper Pass-thru Module for IBM BladeCenter	1
Blade server config	uration:	
802845U	HS12, Xeon Quad Core X3353 80W 2.66GHz/1333MHz/12MB L2, 2x1GB,	3
46C0512	4GB (2 x 2 GB) PC2-5300 CL5 ECC DDR2 667MHz SR VLP RDIMM	3
43W7535	IBM 73 GB 10K SAS 2.5in SFF Slim-HS HDD	6
39Y9190	SAS Expansion Card (CFFv) for IBM BladeCenter	3

BC S hardware configuration

The table above meets the minimum required hardware. Depending on storage requirements, a second Disk Storage Module might be necessary as well as more drives or larger drives.

Chapter 3. What you will need

You need software, firmware, and driver updates.

Tools and utilities required

- The latest version of Start Now Advisor
- The latest version of Storage Configuration Manager (SCM), which is also included with Start Now Advisor
- BIOS and firmware updates for the blade servers and SAS daughter cards
- The BC S plug-in for Essential Business Server (EBS) and the Director agents
- The Subsystem Device Driver Device Specific Module (SDDDSM) drivers for the RAIDed SAS Switch Module (RSSM)

BladeCenter S update site

Go to the following IBM Support Web site to find the IBM BladeCenter S updates:

https://www-304.ibm.com/systems/support/supportsite.wss/ supportresources?categoryind=0&selectedButton.x=18&selectedButton.y=20 &selectedButton=category&familyind=5356544&brandind=5000020&osind=5358175 &typeind=0&modelind=0&matrix=Y&taskind=2

Chapter 4. Getting started

Perform these tasks to prepare for installation and configuration.

Make the network connections

This configuration includes the Intelligent Copper Pass-thru Module for network connectivity.

1. Make the network connections.

This configuration includes the Intelligent Copper Pass-thru Module (ICPM) for network connectivity.

Make the following connections to the network from the ICPM.

- Port 1 is network interface card (NIC) 1 for Blade 1, which is the management server
- Port 2 is NIC 1 for Blade 2, which is the internal NIC for the security server
- Port 3 is NIC 1 for Blade 3, which is the messaging server
- Port 9 is NIC 2 for Blade 2, which is the external NIC for the security server, Internet
- Port 7 is for management of the first Redundant Array Of Independent Disks enabled (RAIDed) SAS Switch Module (RSSM)
- Port 14 is for management of the second RSSM

Port 7 and 14 of the ICPM must be connected in order for the RSSMs to be managed with the command line interface (CLI) or Storage Configuration Manager (SCM).

2. If you are using a switch that is different than the ICPM, isolate the second NIC for the security server by putting the server in its own VLAN.

Configuring the BC S

The use of Start Now Advisor is highly recommended. The alternative is to configure the BC S manually.

Use Start Now Advisor to configure the IBM BladeCenter S (BC S) chassis

The Start Now Advisor wizard goes thru a step-by-step configuration of the BC S chassis and chassis components to automatically install the Storage Configuration Manager (SCM) to set up the storage.

1. Run Start Now Advisor to configure the chassis. Start Now Advisor can run from any Windows machine that is connected to the same network as the BCS

chassis.



2. Choose your preferred network connection.



3. Let Start Now Advisor discover the BC S automatically or you can manually discover the BC S by providing an IP Address for the management module.

BPH BladeLenter Start Now Advisor		
BM BladeCenter Start Now Adv	risor	IBM
V Welcome Chassis Connection Chassis Discovery Chassis Inventory and Health Configuration Method Configuration Method Configuration I/O Modules IP Configuration I/O Modules IP Configuration Firmware Update General Settings Administrator Passwords Event Notifications Configuration Progress Configuration Progress Firmsh	Chassis Discovery Al Electronia 5 chaosis connected to the network will be automatically discovered and displayed. You can either select one of the docovered chaosis C Use a discovered chaosis C Manually enter the IP autoress for a chaosis Chassis IP address: 9.39.31.60	

4. After discovery Start Now Advisor will present an inventory of the chassis either by image view or table view. Select Table view for a detailed inventory.



Click the Table View tab to see the tabular view of the inventory.
 IBM BladeCenter Start Now Advisor

/ Welcome	Charei	e In	wentory and H	aalth				
Chassis Connection	Before vol		e, make sure that al compo	neatsin th	e dhassis have been detected a	nd that they are		
Chassis Discovery	functioning	prormali	k.					
Chassis Inventory and Health	Refresh]						
Configuration Method	~							
Management Module IP Configuration		Your current hardware configuration may prevent some options from being correctly applied. Datails are below.						
I/O Modules IP Configuration		1	Cannot configure the 3 because there is no Eth	AS RAID	Controller Modules witch Module at I/O bay 1.			
Firmware Update		8	If you want to configur you must install an Ethi	e the SA: ernet SN	5 FAID Controller Modules, tch Nodule at 1/0 bay 1.			
General Settings			After you install the sw Chassis Inventory at	itch, click nd Healt	the Refresh button on the h page.			
Contraction of the Contract of								
Administrator Passwords								
Administrator Passwords Event Notifications	Image 1	Vien	Table View					
Administrator Passwords Event Notifications Storage Pools Creation	Image 1 Blades	Vienni S	Table View					
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taministrator Passwords Event Notifications Etarage Pools Creation Etarage Provisioning Confirm Chokes Configuration Progress Tinish	Image Blades Bay 1	View S LS21 HS21 S	Table View Description (Type 7971) AS Expansion Opton (Type 8853) AS Expansion Opton	Pwr On On On	Status Norma Norma Norma Norma			
Administrator Passwords Event Notifications Storage Pools Creation Storage Provisioning Confirm Cholces Configuration Progress Finish	Image Blades Bay 1 2 3	View 5 LS21 LS21 HS21 S LS21	Table View Description (Type 7971) AS Expansion Cpton (Type 8863) AS Expansion Opton (Type 7971)	Pwr On On On On On	Status Norma Norma Norma Norma			

6. The ICPM requires the Launch Method.

Launch method is required to automatically install the Storage Configuration Manager to configure the storage.

The current version of Start Now Advisor does not support the Intelligent Copper Pass-thru Module (ICPM) for Express Setup. However, ICPM works

IBM.

fine with Launch method.



7. Assign the IP information for the Management Module.

BM BladeCenter Start Now Advisor	sor	IBM.
J Weltome J Chassis Connection J Chassis Discovery J Chassis Discovery J Chassis Inventory and Health J Configuration Nethod Management Nedule IP Configuration > I/O Modules IP Configuration > Storage Management Software > Launch Web Consoles > Finish	Management Module IP Configuration Lise these fields to assign a host name and IP acidess to your Advanced Management Module. Host name: MM000145EEEFFFC2 Statk: IP address: 9.39.91.50 Submet mask: 256.255.256.0 Default gateway: 9.39.91.1	

8. Assign IP information for all I/O modules.

Bind BladeCenter Start Now Advisor BM BladeCenter Start Now Advis	or			IBM
✓ Welton e ✓ Chassic Cannection ✓ Chassis Discovery	I/O Jse t	Modules IP Configu hese fields to actign an IP acchees to y	ration Join VO modules	
Chassis Inventory and Health	Subre	et mask (applies to all):		
/ Configuration Method	255.2	55 255.0		
/ Management Module IP Configuration	5.39.5	er ganeway (applies to all):		
I/O Modules IP Configuration	Bay	Description	Static IP Address	
Firmware Undate	1	ICPM	9.39.91.42	
comment of the second sectors and	2	(not installed)		
 Storage Management Software 	3	SAS RAID Ctrl Mod		
Launch Web Consoles		SAS Switch Subsystem	9.39.91.43	
Finish		-RAID Controller Subsystem	9.39.91.48	
	4	SAS RAID Ctrl Mod		
		SAS Switch Subsystem	9.39.91.47	
		FAD Controller Subsystem	9 39 91 45	

9. The Start Now Advisor automatically updates selected BC S components.

			-					
M BladeCenter Start Now Adv	sor							
 Violoome Chassis Connection Chassis Discovery Chassis Inventory and Health Configuration Nethod Management Module IP Configuration 	Fin Start for th Note: neodu on up Contr	mware U Now Advisor ta e Advanced He For other comp sisin bay 1 or 3 daking hierware roler Nodue ins tirmware	Jpdate in automatical inagement Mu operativity auto convertigation	In update finaven Idule, SAS Connec, as SAS RAID Con ervers, see the or update time update time hassis compone	e for your chas livity Module a troller Module, cournentation th ame for your sto ents are up to	sis compones ad storage in Differnet Sw at came with erage moduli erage moduli e date.	nts, This includes rodule: itch Module, ethe the device for in ell'you have SAS	itmware 1/0 Fornation RAID
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I/O Modules IP Configuration Firmware Update Storage Management Software Launch Wob Consoles	Бау	Status	Euid ID	Installed Vers Release Date	ion Revision	build 1D	Available Vers Release Date	ion Revision
I/O Modules (P Configuration Firmware Update Storage Nanagement Software Launch Wob Consoles Finish	Eay Adv	Status anced Mana	Build ID gement M	Installed Vers Release Date odule	Revision	/ Build 1D	Available Vers Release Date	Revision

10. The Start Now Advisor automatically installs SCM for storage configuration.

BM BladeCenter Start Now Advis	sor	IBM.
V Welcome Chassis Connection Chassis Discovery Chassis Discovery Chassis Inventory and Health Configuration Method Management Module IP Configuration I/O Mocules IP Configuration Firmware Update Storoge Management Software Launch Web Consoles Finish	Stor age Management Software Very computer in order to continue. The IBM Borge Goniguation Manager (G2N) is a system transpersent application that enables you to use a Web terower to manage and configure the SAS Connectivey Module and SAS FAD Controller Module in your. IBM stadacencer. Soft uses Web-based standards. It can be installed to be accessed from a translatione Web browser, or from a Web browser launcher from Instrumetors SULP or later to manage Deathor Stores Prinale Devices. SUPH more as a Web server that communicates with the SAS connectivity Module and SAS FAD Controller Module in your. IBM stadacencer. Soft uses Web-based standards. It can be installed to be accessed from a translatione Web browser, or from a Web browser launcher from Instrumetors SULP inter to manage Deathor Stores per Managed Obdiets. SUPH more as a Web server that communicates with the SAS connectivity module, and standard Web Browser, or from a Web browser with state the Instrumetors SULP inter to manage Deathor Stores per Managed Obdiets. SUPH more as a Web server that communicates with the SAS connectivity module, and standard Web Inverser (Musel Medicines, SUPH more as a Web server that communicates with the SAS connectivity module, and the system of the state intervence to SOFT more management as a standards where the installed to process will take 10-15 minutes to complete. Note: the installed on process will take 10-15 minutes to complete. Begin SCM Installation	

11. Launch Storage Configuration Manager to configure volumes and assignments to the blade servers.

If this is first time you have run SCM, use the Welcome Wizard to discover the RAID controllers.

EPI Bladet enter Start NoA Advisor		
IBM BladeCenter Start Now Advi	sor	IBM.
 Velocitie Chassis Connection Chassis Discovery Chassis Inventory and Health Configuration Nethod Management Module (P Configuration Monagement Module (P Configuration Monagement Module (P Configuration Finnware Update Storage Nanagement Software Launch Web Consoles Finish 	Launch Web Consoles Provider the learch points for the individual web console. Advanced Management Middle Console This will open the Advanced Management Middle web console. One opened, enter the default user mane, USEFID, and the default passware, PASSW0PD (note the number zero (0), not the later C. jn PASSW0PD), to cat the initial renote session. Set the cleared time-out value of your ession and clet Start Naw Session. Launch AMM web console Storage Configuration Managem Console The disasio incograted acrose is configured using Storage Configuration Nanager (SCM) for the IBM BiodoCenter S/S Correctivity Mode. The console Launch SCM web console	
 Velocitie Chassis Connection Chassis Discovery Chassis Inventory and Health Configuration Nethod Management Module (P Configuration Vol Modules (P Configuration Firmware Update Storage Nanagement Software Launch Web Consoles Finish 	Launch Web Consoles Provider the launch ports for the individual web consoles. Advanced Management Middle Console This will open the Advanced Management Models web console. One openod, enter the default users man, USERD, and the default passware, PASSWORD (note the number zero (0), not the letter 0, in PASSWORD), to clart the initial renote session of direct start lauer Session usession and direct start lauer Session. Launch AMM web console Storage Configuration Manager Console The deaxis incograted acrose is configured using Storage Configuration Nonager (SCM) for the IBM BoddConter 5/5 Correctivity Module. The software allow your boardman how your storage is allocated acrose your service. Launch SCM web console	

12. Create storage pools. Select the physical drives and RAID level 5 to create a pool.

For EBS, use RAID 5 pools with enough space to create a volume for the management server and a volume for the messaging server. The size varies on the amount of data and user environment. Also allow room for growth. If

there is space left over, create a volume for the security server logs.

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Velcome administrator						Helo	I Lee	out
N Storage Configuration Manager					R	A MAR		N IB
Welcome	Storage		Cum	ent Device:	RAID Subsy	riten (9.39.91.4	48, 9.39.91.45)	×
B Health								
B Configuration	Volumes	Storage	Pools Hests	1	Disk Dri	wes	Configuration	ons
Storage			Last Rof	resh: Tuesd	ay, Nove	mbor 18, 20	008 10:45:2	1 AM 🗍
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SladeCenter SAS Modele	D bool_1	Normal (Online)	535.120	450.129	2	RAID 5	🗘 1 Glob	2
	Pool_2	Normal (Online)	642.178	577.178	1	RAID 5	🗘 1 Glob	al

13. Create volumes from the pools.

At a minimum, create two volumes, one for the management server and one for the exchange server. If you are using premium edition EBS, then at least one volume is required for the SQL server.

IBM Storage Configuration Manag	er - Micros	soft Internet Ex	plurer					- 0
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) Dock 👻 🔁 👘 👔 👔 🎾 S	earch 就	fevoriles 🚷	🖉 🖓 🕼					
Alcome administrator						Hel	p Log ou	t
N Storage Configuration Manager					20	1.1.1		IBM
Welcome	Stor	age		Current Devi	ce: RAD Subayat	om (0.30.9	1.46, 0.30.01.45)	F
BD-S SAS RAID Nodule								
B Jobs and Processes	Vulu	ITIES	Storage Pools H	usts	Disk Drive	th.	Configurations	
 SAS Zoning SAS Ports Set Date and Time Service 		Greate Volumes. More Actions	. Map Hosto		escey, we were		Refrest	
User Management BladeCenter SBS Module		Volume 0	Status 🗘	Capacity (GB) �	Storage Poo	• ¢ RAID	Mapped Hosts 0	
I IRO		ebsHF	Normal (Online)	65	Pobl_2	RAID	5 BLADED	
		ebsblace2	Normal (Online)	50	Pool_1	PAID.	S Blade_Bay_2	
		rtml	Normal (Online)	35	Pob_1	PAID	5 Blace_8ay_1	

14. Use the Volume Creation Wizard to map drives to the blade servers. The SAS HBA cards in the blades are mapped to the volumes.

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Welcome administrator								Felp	Log out
BM Storaga Configuration Manage							23		
Welsome B0 0 0 0A0 RA3D Module		stor	age		c	ument Device:	RAD Subsyste	em (5.39.91.46, 9.39.91 +	45)
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SAS Ports		۰	H 🖻 📃 Map Yolunes		More Actions		•	Refres	Refresh
Set Date and Time Gervice B User Management			Host	/ Port 🗘	Location 🛇	Mapped (GB)	Mapped Volumes ©	Address (WWN)
BladeCenter SAS Module		Г	.1	PLADE3	Blade Bay 3	65	1		2
I IRC				Port 1	I/O Bary 3	65	1	500062800008A	FCC
	4			Port 2	I/O Bay 4	65	1	500052800008A	FCD
		Г	=1	Blade_Bay_1	Blade Bay 1	35	1		
				Port 1	I/O Вау З	35	1	500062800007E	07C
				Port 2	I/O Bary 4	35	1	500062800007E	07D
			∎1	Blade_Bay_2	Blade Bay 2	50	1		
				Port 1	I/O Bay 3	SD	1	500062800007E	2B4

15. Create a Global Hot Spare to quickly recover from a drive failure.

BM Storage Conliguration Man	ager - Microsoft Intern	4 Espiorer				_ 1	
Elle Edit Yew Favorites Iool	ir Help						
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Address 🔕 hctos://liocalhost/Console/	aces/protected/MainConsc	ie.15p			💌 🛃 Gu	Uin	
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EN Storage Configuration Manage	er .			E COA		TR	
				DS O			
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BC-S SAS RAID Mudule	etterage		5 30 AC	C. C. C. C. Dennessen and Statement		-	
El Health							
Configuration	Volumos	Storage Pools	Hosts	Disk Drives	Configurations		
E Staroge							
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User Management	Punio	have al F	Expan	d Storage Pool	D : Olahal		
群 BladeCenter SAS Module 第1日の	4 [_PCCI_1	(Online)	Assign	e Storage Pool 6 Girbal Hot Spare	- 1000al	1	
20 BD 4	Pocl_2	Normal 6 (Orline)	42.177 592.17	7 I KAID	s 🗘 i Global		

16. Turn off the second SAS port for each blade because the operating system does not yet recognize multi path configuration during the installation. Once EBS is installed and the drivers are loaded, you can use SCM to turn on



17. That completes the Start Now Advisor.



Configuring the BC S manually

You can configure the BladeCenter S chassis manually instead of using the Start Now Advisor.

About this task

At a minimum, you must configure an IP address on the network for the advanced management module (AMM).

Each RAIDed SAS Switch Module (RSSM) must have an IP Address for the SAS component of the switch and the RAID Controller component of the switch. Many options can be configured for the AMM, including DNS, LDAP, SNMP, Alerts, and others. At a minimum, assign the modules a valid IP address so that Storage Configuration Manager (SCM) can configure each RSSM later in the installation.

- 1. Log into the AMM.
- 2. Click I/O Module TasksConfigurationBay 3 (First RSSM).
- 3. Fill in the IP information for the SAS switch and RAID controller.

		BladeCenter, S Advanced Management Module	2				
	Firmware Update Configuration	Bay 3 (SAS RAID Ctrl Mod)					
	Serial Over LAN Open Fabris Manager	Current IP Configuration for SAS Switch Subsystem					
	▼ 1/0 Module Tasks Admin:Power/Restart	Configuration method Static IP address 9.39.51.43					
	Configuration Firmware Update	Subhet mask: 255 255 255 0 Gateway address: 9.39.91.1					
		New Static IP Configuration for SAS Switch Subsystem					
	✓ MN Centrol General Sattings Login Profiles	Status: To change the IP configuration for this VD module, fill in the following fields and click "Save". This will save and enable the new IP configuration.					
,	Alerts Serial Port	IP address 9.39.91.48					
	Port Assignments Network interfaces	Subnet mask 255 255 255 0					
-	Network Protocols Chassis Int Network	Gateway address 9 39 91.1					
	Security Fille Management	Advanced Configuration Zone Configuration Management					
	Firmware Update Configuration Norm	Current IP Configuration for RAID Controller Subsystem					
	Restart MM Service Tcols	Configuration method. Static IP address 9.39.91.46					
	AMV Service Data AMV Status	Subnet mask: 255.255.250.0 Gateway address: 9.39.91.1					

- 4. Assign IP addresses to both SAS switches and both RAID controllers.
- 5. If the configuration has a network switch instead of a pass-thru module, assign the network switch an IP address as well.

Prepare the blades

The blades should be updated to the current BIOS and firmware levels. Also update the SAS daughter card to the current firmware level.

About this task

The HS12 blade contains two hot-swap drives that you must mirror. These drives are for the operating system portion of the EBS installation.

- 1. To create a mirror, press **Ctrl-C** during post to enter the LSI configuration program.
- 2. Select the onboard controller.
- **3**. Include the two internal drives in a mirrored pair as shown in the following graphic.

LSI Logic Config Utility	v6.88.95.80 (2886.93.82)
Select New Array Type)	SNS1864E
Create 14 Unlune	Create Integrated Mirror Array of Z disks plus an optional hot spare. Data on the primary disk may be migrated.
Create IME Volume	Create Integrated Mirrored Enhanced Array of 3 to 8 disks including an optional hot spare. ALL DAIA on array disks will be DELEIED!
Create IS Volume	Create Integrated Striping array of

Chapter 5. Installing Essential Business Server

Installing Essential Business Server (EBS) involves installing three EBS servers for specific tasks.

About this task

The installation must be done in order:

- 1. Management server
- 2. Security server
- 3. Messaging server

For detailed instructions for any of the steps in the following procedure, consult the Windows EBS documentation.

- 1. Install the management server.
 - a. Use the Planning Wizard to generate the Planning Wizard XML file that is required to install the management server.
 - b. To install the management server, insert the Management Server DVD and follow the instructions.
- 2. Install the Security server.
- 3. Install the Messaging server.
- 4. Point to the volumes previously created during the installation.

Each server installation prompts for the location to store the data for that server. The locations should point to the volumes that were created with Start Now Advisor.

What to do next

Once the installation for all three servers is completed, perform the post-installation tasks.

Chapter 6. Performing post-installation tasks

Perform the post-installation procedure to configure your BladeCenter S for use with Windows Essential Business Server 2008 (EBS) and to take advantage of the management plug-in.

Before you begin

Install all three EBS servers before performing this procedure, as described in Chapter 5, "Installing Essential Business Server," on page 17.

- 1. Install IBM Director Core Services Agent on each blade.
- 2. Install the IBM Hardware Management Pack on the EBS management server.
- **3**. Discover the BladeCenter S that the three EBS servers are in, using the management module IP address and subnet mask, plus the user ID and password, as required.
- 4. Install "IBM EBS Administration Add-in for BladeCenter 1.0" on the EBS management server.



Chapter 7. Providing multipath support

To provide multipath support for each RAIDed SAS Switch Module (RSSM), the Subsystem Device Driver Device Specific Module (SDDDSM) drivers must be installed on each server.

- 1. Run the setup program to install the drivers.
- 2. After the installation of SDDDSM and rebooting, use Storage Configuration Manager (SCM) to enable the second port on the SAS switch can be enabled from the SCM.
- **3**. Issue the following commands from the command prompt to verify that both paths are available.

CD \Program Files\IBM\SDDDSM Datapath query device

Administrator: C:\Windows\system32\cmd.exe			ز اعلے
C:\Progran Files\IBM\SDDDSM>datapath que Iotal Devices : 1	ry device		
DEU#: 0 DEVICE NAME: Diski Part0 TY SERIAL: 600507680741317P000000000000000	PE: 1320N00	FOLICY: OPTIMI	ZED
Path# Adapter/Hard Disk Ø Scsi Port2 Bus0/Diskl PartØ 1 Scsi Port2 Bus0/Diskl PartØ	State Mode OPEN NORM OPEN NORM	Select AL 0 AL 1077	Errors Ø Ø
:\Program Files\IBM\SDDDSM>_			

Both paths should be present.

Appendix. Notices

This information was developed for products and services offered in the U.S.A.

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