Converting an HMC-managed System p model to use Integrated Virtualization Manager

Joseph Pu Terry Wang ISV Business Strategy and Enablement August 2006

Table of contents

Abstract	1
Introduction	1
Prerequisites	1
Getting the software	2
Acquiring the Virtual I/O Server software	2
Downloading the latest System p diagnostics file	2
Downloading the latest System p firmware	
Setting up the tty device	5
Using the diagnostic CD to update the firmware	9
Installing Virtual I/O Server	19
Starting Virtual I/O Server for the first time	21
Creating a new storage pool	25
Creating logical volumes	29
Creating logical partitions	31
Bridging the virtual Ethernet	36
Installing AIX on the partition	
Summary	41
Resources	42
About the author	42
Trademarks and special notices	43

Abstract

This white paper shows detailed steps for converting an IBM POWER5 processor-based system that is managed by IBM Hardware Management Console (HMC) to IBM Integrated Virtualization Manager (IVM). A significant portion of this paper is dedicated to explaining how to apply System p firmware updates. This is especially important for some early IBM System p and IBM POWER processor-based systems with older firmware levels. For most steps, there are screen captures to help make this paper a useful guide for a successful conversion from HMC to IVM. For thoroughness, this paper also provides instructions on how to use IVM to configure and manage partitions.

Introduction

IBM logical-partition technology allows a large system to be divided logically into multiple partitions. This provides enterprises with a significant opportunity to consolidate their IT environments, reducing systems management costs and overall IT expenses. Traditionally, IBM Hardware Management Console (HMC) handles logical-partition management. However, this requires a separate, stand-alone management system. Therefore, IBM has introduced a software-based partition management solution called Integrated Virtualization Manager (IVM). This tool is part of IBM Virtual I/O Server, which must also be installed on the system. (**Note:** IVM is not supported for IBM AIX 5L[™] V5.2 and earlier IBM AIX® releases.)

IVM is designed to be an easy-to-use, browser-based tool that literally allows users to point, click and consolidate multiple workloads onto one IBM System p[™] or other supported system. IVM provides an economical alternative to HMC for creating and managing logical partitions on entry and middle-level systems that are part of the IBM POWER5[™] processor-based System p family.

Prerequisites

Part of the conversion process when moving to IVM for partition management (instead of HMC-based management) requires that you reset and upgrade the System p firmware. If you use a PC as a terminal type (tty) device, you must ensure that Microsoft® Windows® HyperTerminal service is set up and configured properly on the PC client.

This paper provides the detailed instructions for installing the System p diagnostics files and firmware (also referred to as "microcode"), as well as the instructions for verifying that your tty device is properly configured.

Getting the software

You need three sets of software in order to install Virtual I/O Server: the Virtual I/O Server software itself, the latest System p diagnostics file and the latest microcode updates.

Acquiring the Virtual I/O Server software

Virtual I/O Server 1.2.1 can be ordered through IBM sales.

Downloading the latest System p diagnostics file

Downloading the most recent System p diagnostics file is designed to be a simple and quick process.

- 1. Go to the Web site listed below. (See Figure 1.) http://www14.software.ibm.com/webapp/set2/sas/f/diags/download/home.html
- 2. Download the latest System p diagnostics file (CDLatest.iso file).
- 3. Burn the CDLatest.iso file onto a CD.



Figure 1. Downloading the latest System p diagnostics file

Downloading the latest System p firmware

Downloading the most recent System p microcode (and firmware) is also designed to be easy. .

 From the Web site listed below (see Figure 2), select the machine type and model for the microcode you need to download and click GO. http://www14.software.ibm.com/webapp/set2/firmware/gjsn

Note: IBM updates the firmware frequently; in this example, level SF235-185 is downloaded.



Figure 2. Downloading the latest System p microcode

2. From the next screen (see Figure 3), select the firmware updates that are not yet installed on your System p model; then press the **Enter** key to download this microcode.

Note: Your System p model must be current to level SF235_185 or higher.

3. Burn the firmware file (*.img format) onto a CD.

IBM - Microcode down	loads - Select	: firmware (9113-550) - Mi	crosoft Int	ernet Explorer										
<u> </u>	es <u>T</u> ools <u>H</u> e	lp												
🔇 Back 🝷 🕥 🔹 💌	1 🗈 🏠	🔎 Search	છ 🔗	- 🎍 🛛 - 📃 🗧	🗿 💮 67° 🛛 Forecast 🔼 85°/6									
Search the Web		Search - Address) http://ww	w14.software.ibm.com/weba	pp/set2/firmware/gjsn?mode=1&mtm=9113-3									
Google -	*	Search 🝷 🌍 🛷 👰	173 blocked	ABC Check 🔹 💐 Look f	for Map 🔹 🧐 AutoFill 🔩 Options 🖉									
TT				Country/region [sele	ct] Terms of use									
<u>≞</u> ⊒⊒⊒₹≞∞					Search									
Home Products S	Services & soli	utions Support & downloa	ads My	account										
Microcode downloads Feedback	Microc	ode downloads	5											
	Machine typ	e and model selected: 9113	-550		Related resources									
	Select one o	→ Power5 code matrix												
	Select one or more items, then click the "Continue" button at the bottom of the page. This is a list of updates. Adapters or devices that have not been updated will not appear in this list.													
	Select anoth	er machine type and model			→ Standalone diagnostics CD ISO image									
	System fire	mware 9113-550			→ Hardware service updates for Linux on									
	Packages	Updated / Version	Desc	Impact / Severity	POWER									
	System Firm	ware SF230_145			→ AIX operating system updates									
	RPM	Updated 08/24/2005 Version SF230_145	P <u>Desc</u>	년 Impact <u>SVC</u> 년 Severity <u>SPE</u>										
	System Firm	ware SF230_150												
	RPM	Updated 11/03/2005 Version SF230_150	🗗 <u>Desc</u>	Impact <u>SVC</u> Severity <u>SPE</u>										
	System Firm	ware SF235_180												
	RPM	Updated 12/07/2005 Version SF235_180	🗗 <u>Desc</u>	년 Impact <u>SVC</u> 년 Severity <u>SPE</u>										
	System Firm	ware SF235_185												
	RPM	Updated 01/13/2006 Version SF235_185	🗗 <u>Desc</u>	Impact <u>FUNC</u> - Severity <u>HIPER</u>										
	System Firm	ware SF240_202												
	RPM	Updated 03/02/2006 Version SF240_202	🗗 <u>Desc</u>	뎝 Impact <u>FUNC</u> 뎝 Severity <u>HIPER</u>										
	Adapters													
	Packages	Updated / Version	Desc	Impact / Severity										
	10/100 Mbp	s Ethernet PCI Adapter II FC	4962	. , ,										
	AIX	Updated 05/01/2003 Version SCU015	🗗 <u>Desc</u>	Impact SVC Severity ATT										
	10/100/100	0 Base-TX Ethernet PCI-X Ad	lapter FC 5	701										
ど Done														

Figure 3. Selecting the firmware not yet installed on your System p model

Setting up the tty device

On the AIX operating system, a tty interface is necessary for installation processes, such as installing a Virtual I/O Server. If you install a Virtual I/O Server from a PC client (instead of a tty device), then set up HyperTerminal to serve as the tty emulation device.

1. Ensure that the Advanced System Management Interface (ASMI) connection is disconnected.

Note: ASMI is required if you need to enter IBM Capacity on Demand (COD) microcode, which means that the System p model must be booted to Firmware Standby mode. The conflict here is that a tty connection does not work in Firmware Standby mode.

2. Disconnect any physical connections from the HMC0 and HMC1 ports.

Note: This step is important because the system is sometimes confused if HMC is still in place.

- Connect the RS232 cable between the T1 serial port at the back of the System p model and the PC serial port.
- 4. On the Lab Properties pop-up window, click the **Connect To** tab.
- 5. From the **Connect using** pull-down menu, select **COM1** or the appropriate communications port for your installation (see Figure 4).

lab Properties	? 🛛
Connect To Settings	
lab Change <u>l</u> con)
Country/region: United States (1)	
Enter the area code without the long-distance prefix.	
Ar <u>e</u> a code: 1	
Phone number:]
Connect using: COM1	
Configure	
✓ Use country/region code and area code Redial on busy	
ОК	Cancel

a. Click Configure to define the port settings.

Figure 4. Selecting the COM1 port

b. Select the appropriate port settings for the tty communications port, and then click **OK** (see Figure 5).

COM1 Properties	? 🛽
Port Settings	
<u>B</u> its per second:	19200 🗸
<u>D</u> ata bits:	8
<u>P</u> arity:	None
<u>S</u> top bits:	1
Elow control:	Hardware 🗸
	Restore Defaults
0	K Cancel Apply

Figure 5. Establishing the port settings

- c. If the tty device is not communicating to the System p model, it is necessary to boot the system in the Power Standby mode by performing the following steps:
 - i. Press the white reset button on the front system panel to boot the System p model.
 - ii. Select System Service Aids (see Figure 6). Then, press Enter.

🗞 lab - HyperTerminal	
Elle Edit View Call Transfer Help	
System name: Server-9111-520-SN10661DE Version: SF220_051 User: admin Copyright - 2002-2004 IBM Corporation. All rights reserved. 1. Power/Restart Control 2. System Service Aids 3. System Information 4. System Configuration 5. Network Services 6. Performance Setup 7. On Demand Utilities 8. Concurrent Maintenance 9. Login Profile 99. Log out	
	N

Figure 6. Selecting System Service Aids

iii. Reset the System p model by selecting **Factory Configuration** (see Figure 7). Then, press **Enter**.

🗞 lab - HyperTerminal	
Ele Edit View Gall Transfer Help	
System Service Aids 1. Error/Event Logs 2. Serial Port Snoop 3. System Dump 4. Service Processor Dump 5. Serial Port Setup 6. Modem Configuration 7. Call-Home/Call-In Setup 8. Reset Service Processor 9. Factory Configuration 98. Return to previous menu 99. Log out	
Connected 0:07:04 Auto detect 19200 8-N-1 SCROLL CAPS NUM Capture Print echo	

Figure 7. Selecting Factory Configuration

iv. You see an important informational screen as shown in Figure 8. This screen warns you that continuing will result in the loss of all configured system settings. If you are sure you want to continue, type 1 to confirm that you do want to reset your System p model to its IBM factory settings. Then, press Enter.



Figure 8. Viewing the informational warning screen when resetting to Factory Configuration

v. The system now reboots itself. You receive an additional informational message that the system is about to reboot (see Figure 9). After the reboot finishes, you can load the system updates.



Figure 9. Viewing the informational screen that indicates a reboot will occur

Using the diagnostic CD to update the firmware

To update the microcode on your System p model, follow the directions outlined below. If your System p model has a firmware level that is greater than SF235_185, you can go directly to the "Installing Virtual I/O Server" section of this paper.

- 1. Put the newly created diagnostics CD (that contains the CDLatest.iso file) into the System p model's CD drive. Then, reboot again by pressing the **white reset button**.
- 2. When you see the screen shown in Figure 10, type **0** to select your tty device as the active console for your System p model. Then, press **Enter**.



Figure 10. Pressing **0** designates your TTY device as the active console

9	lab -	Hyper	Termir	nal																	
E	e Edit	View	<u>C</u> all <u>⊺</u> ∷∎D	iransfer	Help																
	IBM	IBM	IBM	IBM	IBM	IBM	IBM	IBM	IBM	IBM	IBM	IBM	IBM	IBM	IBM	IBM	IBM	IBM	IBM	IBM	
	IBM	IBM	IBM	IBM	IBM	IBM	IBM	IBM	IBM	IBM	IBM	IBM	IBM	IBM	IBM	IBM	IBM	IBM	IBM	IBM	
	IBM	IBM	IBM	IBM	IBM	IBM	IBM	IBM	IBM	IBM	IBM	IBM	IBM	IBM	IBM	IBM	IBM	IBM	IBM	IBM	
	IBM	IBM	IBM	IBM	IBM	IBM	IBM	IBM	IBM	IBM	IBM	IBM	IBM	IBM	IBM	IBM	IBM	IBM	IBM	IBM	
	IBM	IBM	IBM	IBM	IBM	IBM	IBM	IBM	IBM	IBM	IBM	IBM	IBM	IBM	IBM	IBM	IBM	IBM	IBM	IBM	
	IBM	IBM	IBM	IBM	IBM	IBM	IBM	IBM	IBM	IBM	IBM	IBM	IBM	IBM	IBM	IBM	IBM	IBM	IBM	IBM	
	IBM	IBM	IBM	IBM	IBM	IBM	IBM	IBM	IBM	IBM	IBM	IBM	IBM	IBM	IBM	IBM	IBM	IBM	IBM	IBM	
	IBM	IBM	IBM	IBM	IBM	IBM	IBM	IBM	IBM	IBM	IBM	IBM	IBM	IBM	IBM	IBM	IBM	IBM	IBM	IBM	
	IBM	IBM	IBM	IBM	IBM	IBM	IBM	IBM	IBM	IBM	IBM	IBM	IBM	IBM	IBM	IBM	IBM	IBM	IBM	IBM	
			1 8	= SI = 01	4S Me Den F	enu İrmu	vare	Pro	npt				5 = 6 =	Defa Stor	ault ed I	Boot Boot	t Lis List	st t			
	4	mer	iory		key	yboar	-d	ne	etwor	-k	s	csi									
Co	nnected	0:25:07	,	Auto d	letect	19200	8-N-1	SCR	OLL	CAPS	NUM	Captu	ne Pri	int echo	1						

3. Figure 11 shows an in-progress screen. There is no action to take on your part.

Figure 11. Viewing an in-progress screen

4. Type the password for your administrator account on the service processor (see Figure 12). Then, press **Enter**.



Figure 12. Entering your administrator password

5. Figure 13 shows an in-progress screen. There is no action to take on your part.

٩	lab2	- Нуре	rTerm	inal																	
E	le <u>E</u> dit	View	<u>C</u> all <u>T</u>	ransfer	<u>H</u> elp																
Г	ነ 🚔	A	C III	h 🖻	P																
_		·····			-																
	три	три	три	три	три	три	три	три	три	три	три	три	три	три	три	три	три	три	три	три	- 🖴
	TRW	TRW	TRW	TRW	TDM	TDM	TRW	TRW	TRW	TRW	TRW	TRW	TRW	TRW	TRW	TRW	TDM	TRW	TRW	TDM	
							TDM														
	TDH	TDH	TDH	TDH	TDH	TDH	TDH	TDH	TDH	TDH	TDH	TDH	TDH	TDH	TDH	TDH	TDH	TDH	TDH	TDH	
	F1ar	nsed	time	s sir	nce M	elea	ise r	nf su	ister	n nra	10659	ons	6	nins	26 9	secs					
	LIG	/3Cu	(I M	5 311		CICC	130 (/1 35	310	" pr		501.3		1113	20 .	5003					
									Weld	come	to F	<u>нх.</u>	F0 4	0.44							
					т	b	poot	ımag	je t:	Imesi	tamp:	15	58]	12/19) 101 11	070					
					The	e cur	rent	t t1M	ne ar	າdຼdá	ate:	00:0	۲ <u>5</u> :51	L 017	0171	1970					
				,	numbe	er 01	pro		sors	: Z	SI S	LZE (DT ME	emory	ų r	SQQ WI	5				
	000	οτ α	evice	e: /p	00160	10000	10026	10000	1037	DC1吧/ D/ つ1/	(, J/] 201	Laeel	LZ d19	SK@Ø	. Abbo	: vchr	-b / pc	DOTT	ue.e	exe	
						ĸer	net	5126	s: 10	J4ZI(JOZ;	04 I	JI ()	cerne	:1						
	pportod	0.25.1	,	VT 100	1	10200	9.N.1	SCR		CAPS	NUM	Captu	re Pri	int echo							
	in iecteu	0.55.1		1100		19200	011-1														

Figure 13. Viewing a reboot informational screen

6. When you see the screen shown in Figure 14, type **2** to identify your tty device as the system console for your System p model. Then, press **Enter**.



Figure 14. Identifying your TTY device as the system console

 When you see the informational screen shown in Figure 15, read its explanation regarding the use of the Enter, Backspace and cursor keys during the installation of the new diagnostics. Then, press Enter.



Figure 15. Reading the diagnostic operating instructions

8. When you see the screen shown in Figure 16, type **3** to list the tasks that are supported by the procedures that are contained on the diagnostics CD. Then, press **Enter**.



Figure 16. Listing the tasks that are supported by the updated diagnostics

9. If you are using a PC with HyperTerminal services, type **vt100** as the terminal type. Then, press **Enter** (see Figure 17).



Figure 17. Entering the tty device

 From the Tasks Selection List, move your cursor to highlight the Run Diagnostics task. Then, press Enter (see Figure 18).



Figure 18. Selecting the Run Diagnostics task

11. From the Tasks Selection List screen shown in Figure 19, move your cursor to highlight **Update** and Manage System Flash. Then, press Enter.



Figure 19. Selecting Update and Manage System Flash

12. Put the firmware SF235_185 (or higher level) CD in the CD drive. When you see the screen shown in Figure 20, select Validate and Update System Firmware.

Note: If you have an IBM System p model 550 with a firmware level that is below SF222_102_102, you must update the firmware twice. Upgrade to level SF222_102_102_and then upgrade again to level SF235_185. The reason for this two-step process is that there is a high occurrence of timing problems on the p550. Firmware level SF222_102_102 is not listed under the microcode download site as depicted in the following screen captures. The best way to get this earlier firmware code release is to call your local IBM support contact.



Figure 20. Selecting Validate and Update System Firmware

13. Move the cursor to highlight Flash update image file. Then, press the F4 key (see Figure 21).

4	ab2 - HyperTerminal		×
E	jle <u>E</u> dit <u>V</u> iew <u>C</u> all <u>T</u> ransfer <u>H</u> elp		
C) 🚰 🍘 🍒 🗈 🎦 🗳		
	UPDATE AND MANAGE FLASH	802817	~
	Enter the flash update image file on the device. The copied to /var/update_flash_image.	file will be	
	When finished, use 'Commit' to continue.		
	flash update image file	[<u>/</u> 02BP230_> +	
		E de la constante	
	H=Help H2=Retresh H3=Cancel Esc+5=Reset F7=Commit Esc+0=Exit	F4=L1st	
Co	onnected 0:12:49 VT100J 19200 8-N-1 SCROLL CAPS NUM Capture Print	techo	

Figure 21. Selecting Flash update image file

14. Select the ...**SqnP5/...** img file by moving the cursor to highlight the file name (see Figure 22). Then, press **Enter**.

🗞 lab2 - HyperTerminal	
Elle Edit <u>V</u> iew <u>Call</u> <u>Transfer</u> <u>H</u> elp	
요 🚔 👜 🚡 🗳	
UPDATE AND MANAGE FLASH 802	817
	20000000
	k
cox flash update image file	x
	x
Whx Move cursor to desired item and press Enter.	X
	×
x [IUF] x (microcode/U2W7060-681/3H051122 ima	XT
/microcode/V2N7040-681/2H060323 img	0
× /microcode/SapP5/01SE235185160 ima	Ŷ
× /microcode/SP 7024-E30/srecover.img	x
x /microcode/M9076-N81/nk050912.img	x
x /microcode/M9076-N80/nk050912.img	x
// x /microcode/M9076-5X0/wc010611.img	x
x /microcode/M9076-270/sx05195.img	x
× /microcode/M90/6-260/tw0521/.img	x
x /microcode/M/044-2/0/sx05195.img	X
X LMURE20J	X
x Esc-Halp E2=Rafrash	Č I
x ESC 0-LATC FITHED FZ-Refresh	0
Fix /=Find n=Find Next	Ŷ
	ä 📘
1	
Connected 0:23:20 VT100J 19200 8-N-1 SCROLL CAPS NUM Capture Print echo	

Figure 22. Highlighting the name of the flash file to use for the firmware update

15. Figure 23 shows an in-progress screen. There is no action to take on your part.



Figure 23. Viewing an in-progress screen

16. Notice that the next screen issues a warning (see Figure 24.) to inform you that the operating system is about to reboot itself. You can move the cursor over YES to highlight it. Then, press Enter. The reboot takes about 15 minutes to complete.



Figure 24. Selecting a reboot

- 17. If the system boots all the way to the operating system, press the **white reset button** again to boot to Standby mode. This is important because the goal is to make the System Management menu available through HyperTerminal tty emulation.
- 18. Confirm the new firmware level by reviewing the System Management menu on the tty device. Your System p model should be in Power On mode and Standby mode.
- 19. You then need to set the time of day by selecting option 4 (System Configuration) on the screen shown in Figure 25.

🗞 lab2 - HyperTerminal	
<u>Ele Edit View Call T</u> ransfer <u>H</u> elp	
System name: Server-9111-520-SN10661DE Version: SF235_185 User: admin Copyright - 2002-2005 IBM Corporation. All rights reserved. 1. Power/Restart Control 2. System Service Aids 3. System Information 4. System Configuration 5. Network Services 6. Performance Setup 7. On Demand Utilities 8. Concurrent Maintenance 9. Login Profile 99. Log out	
Connected 1:05:38 VT100J 19200 8-N-1 SCROLL CAPS NUM Capture Print echo	

Figure 25. Selecting System Configuration functions

- 20. You see an intermediary system-configuration screen, where you select option **4** to see the **Time Of Day** panel (see Figure 26).
- 21. On the Time of Day panel, perform the following steps:
 - a. Select option 1 (Date) to reset the date.



Figure 26. Updating the date for the system configuration

b. Select option **2** (**Time**) to update the time of day (see Figure 27).



Figure 27. Updating the time of day for the system configuration

c. If you need to get the precise Coordinated Universal Time (UTC), you can do so at the following Web site: http://tycho.usno.navy.mil/cgi-bin/timer.pl (also shown in Figure 28.).



Figure 28. Getting the correct time to enter as the system time

Installing Virtual I/O Server

Now, you can install the Virtual I/O Server code. This is a highly automated process.

1. Load the Virtual I/O Server CD and press the **white reset button** to reboot the system. Follow the normal AIX installation process (see Figure 29).

4	lab2	- Нуре	rTerm	inal																	
Ei	e <u>E</u> dit	View	<u>C</u> all <u>T</u>	ransfer	Help																
С) 🚔	1	<u>-</u> D	Ъ С	P																
Γ.																					1^
	IBM	IBM	IBM	IBM	IBM	IBM	IBM	IBM	IBM	IBM	IBM	IBM	IBM	IBM	IBM	IBM	IBM	IBM	IBM		
	IBM	IBM	IBM	IBM	IBM	IBM	IBM	IBM	IBM	IBM	IBM	IBM	IBM	IBM	IBM	IBM	IBM	IBM	IBM		
	IBM	IBM	IBM	IBM	IBM	IBM	IBM	IBM	IBM	IBM	IBM	IBM	IBM	IBM	IBM	IBM	IBM	IBM	IBM		
	TRW	TRW	TRW	TRW	TRW	TRW	TRW	TRW	TRW	TRW	TRW	TRW	TRW	TRW	TRW	TRW	TRW	TRW	TRW		
	TRW	TRW	TRW	TRW	TRW	TRW	TRW	TRW	TRW	TRW	TRW	TRW	TRW	TRW	TRW	TRW	TRW	TRW	TRW		
	Chor	10円 -レーノr	LDH VCI08	гооо	1011	тры	IDM Ø3/r	ci00	7 (TDH	uci10	960 h TDM	1666	1 /sz	-ciQ(y/e∔t TD⊡	at 0	TDH	TDH	TDH		
	Fla	nsed	tim	e si	nce i	elea	se r	fsi	ster		102,1	sons	2	ins	38 4	Secs					
	LIG	/50u	C I III	5 511		CICU	30 0	1 39	5.0			501 51		11113							
						W	elco	me t	o th	ne Vi	irtua	al Iz	′0 Se	erver							
						b	oot	imag	je ti	imes	tamp	23	01 0	01/10)						
					The	e cur	rent	tim	ne ar	nd_da	ate:	00:5	59:58	3 01/	/01/:	L970	_				
				ļ	numbg	er of	pro	cess	sors	: 2	, si	ize	of me	emory	ų: 10	924MI	Β		.,		
	bod	ot de	evic	e: /i	00166	30000	0020	0000	1037 p		2,3/1	ide@]	/dis	skev	: \ppo	:\chr	rp\bo	potti	lle.e	xe	
						кег	nei	SIZE	9: II	10003	≠∠ď;	JZ 1)1(k	cerne	51						
	-																				-
Co	nnected	1:28:01		VT 100)	19200	3-N-1	SCR	DLL	CAPS	NUM	Captu	re Pr	int echo							

Figure 29. Viewing a reboot informational screen

2. When you see the screen shown in Figure 30, type **2** to identify your tty device as the system console for your System p model. Then, press **Enter**.



Figure 30. Identifying your tty device as the system console

3. In the next screen (see Figure 31), type the number corresponding to the language in which you want this AIX instance and Virtual I/O Server to display messages.



Figure 31. Choosing the language for this AIX instance

 You see an informational screen that asks you to wait while the base AIX operating system is installed automatically (see Figure 32).



Figure 32. Installing the base AIX operating system

5. After the installation, the system reboots to the Virtual I/O Server prompt (see Figure 33).

Starting Virtual I/O Server for the first time

1. Log on using the default **padmin** user ID and **padmin** password. You can then reset the password as required.



Figure 33. Logging on to Virtual I/O Server

 Enter the following two AIX commands to accept the new license and start the Virtual I/O Server configuration process (see Figure 34):

>license -accept
>mkgencfg -o init

3. Check the network interfaces on the system by entering the following AIX command (see Figure 34):

>lsdev | grep ent

4	ab2 - HyperTerminal	\mathbf{X}
Ei	Edit View Call Iransfer Help	
С		
	Jean-loup Gailly Mark Adler jloup@gzip.org madler@alumni.caltech.edu The data format used by the zlib library is described by RFCs (Request for Comments) 1950 to 1952 in the files ftp://ds.internic.net/rfc/rfc1950.txt (zlib format), rfc1951.txt (deflate format) and rfc1952.txt (gzip format).	
	opyright 1995-2000 Jean-loup Primary site hosted by Gailly, Mark Adler and Greg Roelofs. FreeSoftware.com. Sicense -accept Mkgencfg -o init Isdev grep ent ant0 Available 2-Port 10/100/1000 Base-TX PCI-X Adapter (1410890 Destrict 10 Destrict 10/1000 Pares TX PCI V Odenter (1410890	
	Inti Hvallable 2-Fort 10/100/1000 Base-TX PCI-X Hdapter (1410690) Int2 Available 10/100/1000 Base-TX PCI-X Adapter (14106902) Int3 Available 10/100/1000 Base-TX PCI-X Adapter (14106902) Int4 Available 10/100/1000 Base-TX PCI-X Adapter (14106902) Int5 Available Virtual I/0 Ethernet Adapter (1-1an)	
	nt6 Available Virtual I/O Ethernet Adapter (1-1an) nt7 Available Virtual I/O Ethernet Adapter (1-1an) bmvmc0 Available Virtual Management Channel	
Co	ected 0:24:39 VT 100 J 19200 8-N-1 SCROLL CAPS NUM Capture Print echo	

Figure 34. Entering AIX licensing and other relevant commands

- 4. Physically connect Ethernet 0 (the T5 port at the back of the System p model) to your site network. (**Note:** The 9.3.245.* network addresses below are examples.)
- 5. Set up the IP address on the en0 port by using the following AIX mktcpip command: >mktcpip -hostname isvlab044 -inetaddr 9.3.245.44 -interface en0 -netmask 255.255.255.0 -gateway 9.3.245.1

At this point, the Virtual I/O Server setup is complete. You can now use IVM to set up partitions.

- 6. To access the IVM interface, point your browser to http://9.3.245.44.
- 7. Log in with the **padmin** user ID and the password you established in step 1 on the previous page. The default user ID is padmin (see Figure 35).



Figure 35. Logging in to Virtual I/O Server

8. You now see the main IVM display (see Figure 36).



Figure 36. Viewing the main IVM display

 Notice that the left panel of the IVM acts as a navigation tree (see Figure 37), enabling you to view, modify and create partitions, Ethernets, devices and user accounts. You can also access service-related functions, such as backups, restores, application logs and other facilities.



Figure 37. Navigating the left IVM panel to access various system-management functions

10. The right IVM panel provides system-overview information for each partition, including details for each managed partition (see Figure 38).

To perform an action on a partition, first select the partition or partition, and then select the task. System 3	View/Modi	fy Partitio	ns							?
System memory: 0.6 0.0 Processing units available: 2.6 0.0 Processing units available: 0.2 % Partition Details Processing units available: 0.2 % 0.2 % 0.2 % System Attention LED: Processing Units available: 0.2 % 0.2 % System Attention LED: Processing Units available: 0.2 % Select ID:^ Name State Memory Processor Processor Units available: 0.2 % Select ID:^ Name State Memory Processor Processor Units available: 0.2 % Select ID:^ Name State Memory Processor Processor Units available: 0.2 % Select ID:^ Name State Memory Processor Processor Units available: To for the processor Units available: Select ID:^ Name State Memory Processor Processor Units available: Select ID:^ Name State Memory Processor Processor Units available: Select ID:^ Name </td <td>To perform</td> <td colspan="5">o perform an action on a partition, first select the partition or partitions, and then select the task.</td>	To perform	o perform an action on a partition, first select the partition or partitions, and then select the task.								
Total processing unita: 2 Remory available: 6.5 Remory available: 256 MB Processing unita: 0.2% Sytem distribution (ED): 0.2% Partition Details Select 10 ^ Name Salect 10 ^ Naming 26.5 Minutes 1 GB 1 10-661DE Running 26.5 Minutes 1 20-2 1.6 2 1.7% Processory Running	System Ov	iystem Overview								
Memory available: 6.75 GB Processing units available: 1.8 Reserved firmware memory: 256 MB Procession pool utilization: 0.2% System attention LED: Inactive 0.2% 0.2% Partition Details Istantia Uptime Memory Procession Units available: 0.2% Select II ^ Name State Uptime Memory Procession Procession Units Procession Units Procession Units Reference Code 1 10-661DE Running 26.5 Minutes 1 GB 2 0.2 1.7% ranks State State State State State State	Total syste	otal system memory: 8 GB Total processing units: 2								
Reserved timware memory: 256 MB Processor pool utilization: 0.2% Partition Details Inactive Inactive Inactive Select II ^ Name State Uptime Memory Processor Processor Utilization Reference Code I 10-661DE Running 26.5 Minutes 1 6B 2 0.2 1.7%	Memory av	ailable:				6.75 GB	Process	sing units available:		1.8
Partition Details Select ID ^ Name State Mamory Processors Processor Utilization Reference Code 1 10-661DE Running 26.5 Minutes 1 GB 2 0.2 1.7%	Reserved t System att	rirmware m rention LEC	emory:			256 MB Inactive	Process	sor pool utilization:		0.2%
Select JD ^ Name State Uptime Mampry Processing Units Processor Utilization Reference Code 1 10-661DE Running 26.5 Minutes 1 GB 2 0.2 1.7%	Partition D	Dystem sciencom Leo. Inscire								
Select ID Name State Uptime Memory Processor Processor Processor Utilization Reference Code										
Select ID ^ Name Sate Uptime Memory Processors Processors Uplication Reference Code 1 10-661DE Running 26.5 Minutes 1 GB 2 0.2 1.7% Image: Comparison of the second of the seco		1								
aks roperties Activate Shutdown Delate Operator panel service functions Reference Codes	Select	<u>ID</u> ^	Name	State	Uptime	Memory	Processors	Processing Units	Processor Utilization	Reference Code
Tasks Yoperties Activate Shutdown Delete Operator panel service functions Reference Codes		1	10-661DE	Running	26.5 Minutes	1 GB	2	0.2	1.7%	
Tasks Toperties Activate Shutdown Delete Operator panel service functions Reference Codes										/
Tasks Properties Activate Shutdown Delete Operator panel service functions Reference Codes										
Tasks Properties Activate Shutdown Delete Operator panel service functions Reference Codes										
Tasks Tasks Properties Activate Shutdown Delete Operator panel service functions Reference Codes Internet #										
Tasks										
Fasks Properties Activate Shutdown Delete Operator panel service functions Reference Codes										
Fasks Properties Activate Shutdown Delete Operator panel service functions Reference Codes										
Fasks Properties Activate Shutdown Delete Operator panel service functions Reference Codes Internet										
Fasks Properties Activate Shutdown Delete Operator panel service functions Reference Codes										
Fasks Properties Activate Shutdown Delete Operator panel service functions Reference Codes										
Fasks Properties Activate Shutdown Delete Operator panel service functions Reference Codes										
Fasks Properties <u>Activate Shutdown Delete Operator panel service functions Reference Codes</u>										
Tasks Properties Activate Shutdown Delete Operator panel service functions Reference Codes										
Tasks Properties Activate Shutdown Delete Operator panel service functions Reference Codes										
Tasks Properties Activate Shutdown Delete Operator panel service functions Reference Codes										
Tasks Properties Activate Shutdown Delete Operator panel service functions Reference Codes										
Tasks Properties Activate Shutdown Delete Operator panel service functions Reference Codes										
Tasks Properties Activate Shutdown Delete Operator panel service functions Reference Codes										
Properties Activate Snutdown Delete Operator panel service functions Reference Codes	Tasks		L et al.							
🌍 Internet	Properties	Activate	Shutdown	Delete Op	erator panel service fu	unctions R	eterence Codes			
										Internet

Figure 38. Viewing the details available on the right IVM panel

Creating a new storage pool

With the IVM running, you can create and modify partitions as required.

1. From the left navigation panel (see Figure 39), click **Create Devices**. Then, click the **Advanced Create Devices** tab and click **Create Virtual Disk**.

Partition Management	Create Devices
<u>View/Modify Partitions</u> Create Partitions	Create Devices Advanced Create Devices
<u>View/Modify System Properties</u>	Virtual disks will be created in the default storage pool. You can extend th
Virtual Ethernet Management	
<u>View/Modify Virtual Ethernet</u>	Create Virtual Disk
Storage Management	
<u>View/Modify Devices</u> <u>Advanced View/Modify Devices</u> <u>Create Devices</u>	

Figure 39. Creating a storage pool

 In this example, three disks (hdisk0, hdisk1 and hdisk2) make up a storage pool called "LparStoragePool." In the Create Storage Pool pop-up window, select these three disks (see Figure 40). Then, click OK.

Note: In this sample system, Virtual I/O Server uses hdisk3 as its own disk drive resource. It is recommended that you devote this entire disk to Virtual I/O Server.

🕘 http:	🖀 http://9.3.245.44 - Create Storage Pool - Microsoft Inte 🔳 🗖 🔀							
Integra	Integrated Virtualization Manager							
Create 9	Storage Pool			?				
To creat volumes	e a storage pool, to assign to this	enter the storage p	storage pool name and select the pl oool.	nysical				
* Stora	ge pool name: L	parStorage	ePool					
Select	Physical Volume	Size	Physical Location Code					
	hdisk0	33.9 GB	U787A.001.DNZ0BXE-P1-T10-L3-L0					
	hdisk1	33.9 GB	U787A.001.DNZ0BXE-P1-T10-L4-L0					
	hdisk2	33.9 GB	U787A.001.DNZ0BXE-P1-T10-L5-L0					
* Requir	*Required field							
ок са	incel							
ど Done			🧼 Internet					

Figure 40. Selecting physical disk volumes to assign to a partition

3. In the left navigation pane, click **View/Modify Devices**, and then click the **Physical Volumes** tab. Notice that Virtual I/O Server creates the new storage pool and uses all three hdisks (see Figure 41).

View/Modi	fy Devices								
Virtual Disks Physical Volumes Optical Devices									
To perform an action on a physical volume, first select the physical volume or physical volumes, and then select the task Default Storage Pool Overview									
Total Siz	e	33.88 GB	Available	Size	17.88 GB				
Physical	Volumes								
D	ð 🛷								
Select	Name ^	Storage Pool	Assigned Partition	Size	Physical Location Code				
	hdisk0	LparStoragePool		33.9 GB	U787A.001.DNZ0BXE-P1-T10-L3-L0				
	hdisk1 LparStoragePool 33.9 GB U787A.001.DNZ0BXE-P1-T10-L4-L0								
	hdisk2 LparStoragePool 33.9 GB U787A.001.DNZ0BXE-P1-T10-L5-L0								
	hdisk3	rootvg (Default)		33.9 GB	U787A.001.DNZ0BXE-P1-T10-L8-L0				

Figure 41. Viewing the newly created storage pools

4. From the left navigation pane, click **Advanced View/Modify Device.** Select the LparStoragePool item from the storage pool list. Then click **Assign as default storage pool** at the bottom of the panel (see Figure 42).

Note: The default storage pool for Virtual I/O Server is rootvg. To separate the partition storage from the Virtual I/O Server rootvg, you must tell the system to use the new LparStoragePool as the default storage pool. Therefore, future storage activities do not touch the Virtual I/O Server rootvg.

Partition Management		Advanced V	/iew/Modif	y Dev	ices
<u>View/Modify Partitions</u> Create Partitions		Storage Po	ools Lo	gical	Volumes Physical Volumes Optical D
View/Modify System Properties		To perform	n an action	on a	storage pool, first select the storage pool or
Virtual Ethernet Management			1 🐼		
<u>View/Modify Virtual Ethernet</u>			Calact		Name A
Storage Management			Select		Name ···
View/Modify Devices Advanced View/Modify Devices Create Devices					LparStoragePool
User Management					
<u>View/Modify User Accounts</u> <u>Create User Accounts</u>	-				
Service Management					
 Service Focal Point Manage Serviceable Events Service Utilities Create Serviceable Event Manage Dumps Collect VPD Information Updates Backup/Restore Application Logs Hardware Inventory 	I	ī <mark>asks</mark> Properties	Extend	Red	uce Assign as default storage pool
A LINE (10 2 245 44)					
e http://9.3.245.44/					

Figure 42. Assigning a default storage pool

5. After you click **Assign as default storage pool** (in the previous step), the system prompts you to verify your decision (see Figure 43). Click **OK**. Then, press **Enter**.

Partition Management	Assign As Default Storage Pool
<u>View/Modify Partitions</u> <u>Create Partitions</u>	This task will change the default storage pool.
<u>View/Modify System Properties</u>	Existing default storage pool: rootvg
Virtual Ethernet Management	
<u>View/Modify Virtual Ethernet</u>	OK Cancel
Storage Management	
<u>View/Modify Devices</u>	

Figure 43. Verifying your decision to assign a default storage pool

6. Confirm that the new default storage pool is created correctly (see Figure 44).

Partition Management		dvanced View/Modif	v Devices
<u>View/Modify Partitions</u>	Ī	Storage Pools Lo	gical Volumes Physical Volu
<u>View/Modify System Properties</u>	Г	To perform an action	on a storage pool, first select
Virtual Ethernet Management		664	
Storage Management		Select	
<u>View/Modify Devices</u>			rootvg
<u>Advanced View/Modify Devices</u> <u>Create Devices</u>			LparStoragePool (Default)
User Management	L		

Figure 44. Confirming the new default storage pool

Creating logical volumes

After specifying the new, default storage pool for partitions to use, you can proceed to create logical volumes (LVs). Logical volumes serve as logical disks that are visible to the partitions as if they are physical disks.

1. From the left navigation, click **Create Devices** under Storage Management. Click **Advanced Create Devices** from the right panel and click **Create Storage Pool** (see Figure 45).

Partition Management	Create Devices
<u>View/Modify Partitions</u> Create Partitions	Create Devices Advanced Create Devices
View/Modify System Properties	New logical volumes can be created in any existing v
Virtual Ethernet Management	proceed.
<u>View/Modify Virtual Ethernet</u>	Create Logical Volume
Storage Management	
<u>View/Modify Devices</u>	Select Create Storage Pool to create a new storage p
<u>Advanced View Modify Devices</u> <u>Create Devices</u>	Create Storage Pool
User Management	
View/Medify Lleas Assounts	

Figure 45. Creating a logical volume

Note: This example uses 25 gigabytes of disk space (from LparStoragePool) to serve as rootvg for partition 1. Two logical volumes are created to serve as rootvg for a total of two partitions.

2. In the pop-up window shown in Figure 46, type 25 for Logical Volume Size. Then, click OK.

http://9.3.245.44 -	🖹 http://9.3.245.44 - Create Logical Volume - Microsoft I 🔳 🗖 🔀					
Integrated Virtualization	Manager					
Create Logical Volume	2					
To create logical volume enter logical volume name, size and select a storage pool. If you wish to increase the available size of a storage pool, please use the Extend task in the Storage Pool tab in the Advanced View/Modify Devices page.						
* Logical Volume Name	Lpar2Rootvg					
* Storage Pool Name	LparStoragePool (51.44 GB Available) 💙					
* Logical Volume Size	25 GB 💌					
*Required field						
OK Cancel						
ど Done	🔮 Internet					

Figure 46. Specifying the disk-space size for a logical partition

3. Verify the creation of two logical volumes (see Figure 47).

	1						
Partition Management	A	Advanced View/Modify Devices					
<u>View/Modify Partitions</u> Create Partitions	5	Storage Pools	Logical Volumes Physical Vol	lumes Optical Devices			
<u>View/Modify System Properties</u>		To perform an act	tion on a logical volume, first sele	ect the logical volume or logica			
Virtual Ethernet Management							
<u>View/Modify Virtual Ethernet</u>							
Storage Management		Select	Name ^	Stor			
<u>View/Modify Devices</u>			Lpar1Rootvg	LparStoragePool (Default)			
<u>Advanced View/Modify Devices</u> <u>Create Devices</u>			Lpar2Rootvg	LparStoragePool (Default)			
User Management							
<u>View/Modify User Accounts</u> <u>Create User Accounts</u>							

Figure 47. Verifying the creation of two logical volumes

Creating logical partitions

You can use the IVM to create logical partitions.

1. From the left navigation panel (see Figure 48), click **Create Partitions** (under Partition Management).

Partition Management
-
 View/Modify Partitions
Create Partitions
 View/Modify System Properties
Virtual Ethernet Management
<u>View/Modify Virtual Ethernet</u>
Storage Management
View/Medify Devices
Advanced View/Medify Devices
Advanced View/Modify Devices
<u>Create Devices</u>
liser Management
oser Hanagement
View/Modify User Accounts
Create User Accounts
Service Management
-
<u>Service Focal Point</u>
Manage Serviceable Events
<u>Service Utilities</u>
Create Serviceable Event
Manage Dumps
Collect VPD Information
Updates
Backup/Restore
Application Logs
Hardware Inventory
<u>.</u>

Figure 48. Selecting Create Partitions

- 2. Click Start Wizard and you are presented with the screen shown in Figure 49.
- 3. After typing the partition ID and the partition name, click **Next**.

http://9.3.245.4	4 - Create Partition Wizard - Microsoft Internet Explorer	
Integrated Virtualiza		
Create Partition: Nan	ne	Step 1 of 8
••• Name	Name	
Memory Processors	To create a partition complete the following information.	
Virtual Ethernet Storage Type	System name: Server-9111-520-SN10661DE	
Storage Optical	Partition ID: 2 * Partition name: Ipar1_aix	
Summary	Environment: AIX or Linux	
	*Required field	
< Back Next >	Finish Cancel	Help
ど Done		🥥 Internet

Figure 49. Entering the partition ID and the partition name

🕘 http://9.3.245.44	4 - Create Partition Wizard - Microsoft Internet Explorer	
Integrated Virtualizat	tion Manager	
Create Partition: Mer	nory	Step 2 of 8
Name ••• Memory Processors	Memory Specify the amount of memory. Input should be in multiples of 32 MB.	
Virtual Ethernet Storage Type Storage Optical	Total system memory: 8 GB (8192 MB) Current memory available for partition usage: 6.75 GB (6912 MB)	
Summary	Assigned memory: 1.5 GB 💌	
< Back Next >	Finish Cancel	Help
E Done	🔮 Internet	

4. Assign 1.5 gigabytes of memory to the partition (see Figure 50). Then, click Next.

Figure 50. Assigning memory for the new partition

 Select two processors for this partition and leave the Shared radio button selected (see Figure 51). Click Next.

http://9.3.245.44	4 - Create Partition Wizard - Microsoft Internet Explorer
Integrated Virtualizat	tion Manager
Create Partition: Pro	cessors Step 3 of 8
Name Memory *** Processors Virtual Ethernet Storage Storage Optical Summary	Processors In shared mode, every assigned virtual processor uses 0.1 physical processors. In dedicated mode, every assigned processor uses 1 physical processor. Specify the desired number of processors and the processing mode. Processors Total system processors: 2 Assigned processors: 2 Processing Mode Processing Mode Shared - 18 available virtual processors Dedicated - 1 available dedicated processors
< Back Next >	Finish Cancel Help
🙆 Done	🥥 Internet

Figure 51. Assigning two processors to the new partition

6. Click Virtual Ethernet. Accept the default value of 1 (see Figure 52). (Note: Do not enter a bridge value at this point, as you will set the Ethernet bridge later.) Click Next.

http://9.3.245.4	4 - Create Partit	ion Wizard - Micros	oft Internet Explorer		
Integrated Virtualizat	tion Manager				
Create Partition: Virt	ual Ethernet			Step 4 of	3
Name Memory Processors ••• Virtual Ethernet	Virtual Ethernet Specify the desir adapters. If you none.	ed virtual Ethernet for do not wish to configu	r each of this partition's ure an adapter, then se	: virtual Ethernet elect a virtual Ethernet of	
Storage Type Storage Optical	Virtual Ethernet	Configuration			
Summary	Adapter	Virtual Ethernet			=
	1	1			_
	2	None 💙			
	Virtual Ethernet	Bridge Overview			
	Virtual Ethernet	ID Physical Adapter			
	1	None			
	2	None			
	3	None			
	4	None			
< Back Next >	Finish Cancel				lelp
🙆 Done				🔮 Internet	

Figure 52. Selecting the Virtual Ethernet

7. From the Storage Type screen, select **Assign existing virtual disks and physical volumes** (see Figure 53). Click **Next**.



Figure 53. Assigning existing virtual disks and physical volumes

8.	Select Lpar1Rootvg as the logical volume (see Figure 54). Click Next.

🗿 http://9.3.245.44 - Create Partition Wizard - Microsoft Internet Explorer 🛛 📮 🗖 🔀									
Integrated Virtualizat	ion Manager								
Create Partition: Stor	age				Step 6 of 8				
Name Memory Processors Virtual Ethernet Storage Type	Storage Select any number of physical volumes and virtual disks from the following lists of devices which are not currently assigned to a partition. You may use the Storage Management functions to change assignments at any time.								
••• Storage	Available Vi	rtual Disks							
Optical Summary	Select	Name ^		Storage Pool	Size				
		Lpar1Rootvg	LparStora	32 MB					
		Lpar2Rootvg	LparStoragePool (Default) 32 M						
	Available Physical Volumes								
	Select	Name ^	Size	Physical Location Co	de				
< Back Next >	Finish Can	cel			Help				
🙆 Done				🔮 Interne	t ja				

Figure 54. Selecting Lpar1Rootvg as the logical volume

- http://9.3.245.44 Create Partition Wizard Microsoft Internet Explorer Integrated Virtualization Manager **Create Partition: Optical** Step 7 of 8 Optical Name Memory Select optical devices from the following list of devices which are not currently assigned to a partition. Processors Virtual Ethernet Storage Type Available Optical Devices Storage ••• Optical Select Name ^ Description Physical Location Code \checkmark cd0 IDE DVD-ROM Drive U787A.001.DNZ0BXE-P4-D2 < Back Next > Finish Cancel Help 🞒 Done 🥝 Internet
- 9. Select the CD drive (See Figure 55). Click Next.

Figure 55. Selecting the CD drive

10. Review the partition Summary screen for accuracy (see Figure 56). Then, click Finish.

🔮 http://9.3.245.44 - Cr	eate Partition Wizard - Microsoft Internet Explorer	
Integrated Virtualization M	anager OF	
Create Partition: Summary		Step 8 of 8
Name Sum Memory This Processors Setti Virtual Ethernet Storage Type Storage You	mary is a summary of your partition settings. Select Finish to create the partition. To make changes ngs, select Back. can modify the partition by using the partition properties task after you complete this wizard.	to the
Optical Syst ↔ Summary Part Mern Proc Virtu Stor Stor	em name: Server-9111-520-SN10661DE ition ID: 2 ition name: Ipar1_aix hory: 1.5 GB (1536 MB) essors: 2 virtual ial Ethernets: 1 age capacity: 32 MB age devices: Lpar1Rootvg cal devices: cd0	
<pre> Back Next > Finish</pre>	Cancel	Help
Done	🔮 Internet	t ,;

Figure 56. Reviewing the partition summary screen for accuracy

Note: You build all partitions in the same way. For this example, one additional partition is created (see Figure 57).

Fo perform System O	n an actio verview	n on a partition	, first select the partit	tion or partitions,	and then sele	ct the task.			
Total system memory: 8 GB Total processing units: 2 Memory available: 3.66 GB Processing units available: 1.4 Reserved firmware memory: 352 MB Processor pool utilization: 1.1% System attention LED: Inactive									
	A ap								
્ય⊻્⊴્ય Select		Name	State	Uptime	Memory	Processors	Processing Units	Processor Utilization	Reference Code
	1	10-661DE	Running	2.04 Hours	1 GB	2	0.2	7.7%	
	2	lpar1_aix	Not Activated		1.5 GB	2	0.2		0000000
	з	lpar2	Not Activated		1.5 GB	2	0.2		00000000

Figure 57. In this example, one additional partition is created

Bridging the virtual Ethernet

Before installing the operating system for the partition, it is important to bridge the virtual Ethernet that is assigned to the partition to a physical network adapter. When setting up the Virtual I/O Server Ethernet in a previous example, the ent0 port and IP address 9.3.245.44 were assigned. In this example, the same physical Ethernet (ent0) is assigned to the lpar1_aix partition.

 On the left IVM navigation bar, click View/Modify Virtual Ethernet. Then, from the Virtual Ethernet Bridge tab, select the ent0 physical adapter from the pull-down menu (see Figure 58). Then, click Apply.

Partition Management	View/Modify Virtual Ethernet				
<u>View/Modify Partitions</u> Create Partitions	Virtual Ethernet Virtual Ethernet Bridge				
<u>View/Modify System Properties</u>	A physical network bridge provides a specific virtual Ethernet access				
Virtual Ethernet Management	on the virtual Ethernet is restricted to member partitions.				
<u>View/Modify Virtual Ethernet</u>					
Storage Management	Virtual Ethernet ID Physical Adapter				
<u>View/Modify Devices</u>	1 ent0 (U787A.001.DNZ0BXE-P1-T5) V				
Advanced View/Modify Devices Create Devices	2 None 💙				
User Management	3 None 💙				
<u>View/Modify User Accounts</u>	4 None 💌				
<u>Create User Accounts</u>					
Service Management					
<u>Service Focal Point</u>	Apply Reset				

Figure 58. Selecting the ent0 physical adapter

2. On a command line, enter the following AIX command to verify that the shared Ethernet adapter (SEA) is created (see Figure 59):

>lsdev	grep	ent
--------	------	-----

Telnet 9.3.245.	.44		×
\$ lsdev ¦ grep en0 en1 en2 en3 en4 en5 en6 en7 en8 ent0 ent1 ent2 ent3 ent4 ent4 ent5 ent4 ent5 ent6 ent5 ent6 ent7 ent8 ent6 ent7 ent8 ent8	<pre>^en Available Defined Defined Defined Defined Defined Available Available Available Available Available Available Available Available Available Available</pre>	Standard Ethernet Network Interface Standard Ethernet Network Interface 2-Port 10/100/1000 Base-TX PCI-X Adapter (1410890 2-Port 10/100/1000 Base-TX PCI-X Adapter (14106902) 10/100/1000 Base-TX PCI-X Adapter (1-1an) 10/100/1000 Base-TX PCI-X Adapter (1-1an)	

Figure 59. Verifying that the SEA is created

3. Use the following AIX command to verify the SEA (ent8) details (see Figure 60):

>lstcpip

🔤 Telnet	9.3.	245.44						- 🗆 🗙
\$ \$ \$ \$ \$ lstcpij	р							
Name Mtu en8 150 en8 150 lo0 168 lo0 168 \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	u 00 896 896 896 896	Network link#3 9.3.245 link#1 127 ::1	Address 0.9.6b.6b.4a.46 isvlab044 loopback	Ipkts Ierrs 190 190 102 102 102	0000	Opkts Oerrs 87 105 105 105	Coll Ø Ø Ø Ø	00000

Figure 60. Verifying the SEA (ent8) details

Installing AIX on the partition

You are now ready to install the AIX operating system on the lpar1_aix partition.

- 1. From the View/Modify Partitions screen, select **Ipar1_aix**. Notice the ID number. In this case, the logical partition's ID is **2**.
- 2. If the logical partition's state is not at "Open Firmware," you must activate it by selecting the partition and clicking the **Activate** button at the bottom of the screen (see Figure 61).

View/Modify Partitions									
To perform an action on a partition, first select the partition or partitions, and then select the task. System Overview									
Total syste Memory a Reserved System at	em memo vailable: firmware tention LE	ory: memory: ED:		8 GB 3.66 GB 352 MB Active <u>/</u>		Total processing units: Processing units available: Processor pool utilization:			
Partition Details									
Select	<u>ID</u> ^	Name	State	Uptime	Memory	Processors	Processing Units	Proces	
	1	10-661DE	Running	19.96 Hours	1 GB	2	0.2	10.4%	
	2	lpar1_aix	Open Firmware	19.9 Hours	1.5 GB	2	0.2	5.0%	
	3	lpar2_aix	Open Firmware	19.9 Hours	1.5 GB	2	0.2	5.0%	
Tasks									
Properties Activate Shutdown Delete Operator panel service functions Reference Codes									

Figure 61. Activating the logical partition

- 3. Use the AIX PuTTY command to telnet the logical partition to the Virtual I/O Server IP address.
- 4. Log in with **padmin** as the user ID. Enter the password that you set up earlier (see Figure 62).



Figure 62. Logging in to the partition

5. Use the AIX command listed below to open a virtual terminal for the lpar1_aix partition (see Figure 63).

```
>mkvt -id 2
```

Note: To terminate this command, enter the ~ (tilde) character.

🛃 9.3.245.44 - PuTTY		×
		~
telnet (isvlab044)		
IBM Virtual I/O Server		
login: padmin padmin's Password: Last unsuccessful login: Fri Jan 9 06:53:14 CST 1970 on /dev/vty0 Last login: Fri Jan 9 08:59:24 CST 1970 on /dev/vts/0 from 9 41 195 190		
\$ mkvt -id 2		

Figure 63. Opening a virtual terminal

Note: If you do not activate the partition (as explained in step 2), the mkvt command appears to be hung (see Figure 64).

V	View/Modify Partitions ?									
T o	To perform an action on a partition, first select the partition or partitions, and then select the task. System Overview									
T M R S	Total system memory: Memory available: Reserved firmware memory: System attention LED: Partition Details				8 GE 5.19 320 Activ	8 GB Total processing units: 5.19 GB Processing units available: 320 MB Processor pool utilization: Active			2 1.6 0.2%	
	Select	<u>ID</u> ^	Name	State	<u>Uptime</u>	Memory	Processors	Processing Units	Processor Utilization	Reference Code
		1	10-661DE	Running	54.4 Minutes	1 GB	2	0.2	2.0%	
	~	2	lpar1_aix	Not Activated		1.5 GB	2	0.2		0000000
Та	Tasks									
Pr	Properties Activate Shutdown Delete Operator panel service functions Reference Codes									

Figure 64. Observing a hung mkvt command

 Activating the partition brings up an AIX installation display. Follow the normal AIX installation process from this point forward. Note: This paper omits detailed screen captures related to the installation.

7. On the next screen (see Figure 65), select option 5 (Select Boot Options).



Figure 65. Selecting boot options

 Log in from the tty device (or the PC-based HyperTerminal service) and verify the correct Poweron settings for the newly created partition on the System p model (see Figure 66):



Figure 66. Verifying correct system Power-on settings

- 9. After pressing the **white reset button** on your System p model to boot in Standby mode, the system might hang. If so, review the following steps.
 - a. Check to see if the system LCD panel shows the "C7004019" message; if so, the system is trying to boot in partition mode. In this case, you need to reboot, either by pressing the pin hole or by disconnecting and then reconnecting the power cord.
 - b. If the light on the front system panel is green but nothing is displayed in the LCD panel, disconnect the power cord at the back, wait 15 seconds, and then reconnect the power cord.

Summary

The main steps in converting an HMC-managed System p model to use IVM involve resetting the system to its IBM manufactured configuration and upgrading the system firmware to support Virtual I/O Server. To perform these steps, the basic tty connection is essential. Windows HyperTerminal or a standalone TTY terminal suffices for this purpose.

This paper provided the step-by-step instructions to perform these operations and also presented screen captures as examples for configuring IVM partitions to install the AIX operating system. Next, you can install IVM-managed System p models, either from the beginning or from a previously HMC-managed configuration.

Resources

These Web sites provide useful references to supplement the information contained in this document:

- IBM eServer[™] iSeries[®] Information Center http://publib.boulder.ibm.com/iseries/
- IBM System p and AIX Information Center http://publib.boulder.ibm.com/infocenter/pseries/index.jsp
- IBM Publications Center www.elink.ibmlink.ibm.com/public/applications/publications/cgibin/pbi.cgi?CTY=US
- IBM Redbooks™ www.redbooks.ibm.com/

About the author

Joseph Pu is an AIX technical consultant in the IBM Systems and Technology group. His focus is in the area of AIX performance, tuning and sizing. Joe has extensive experience in software development, from graphics to software simulation. He started his AIX development experience more than 10 years ago. Joe graduated from the University of Texas at Austin, with a degree in Computer Science.

Terry Wang is a senior technical consultant in IBM Systems and Technology Group. Terry joined IBM in 1988 working on AIX development. He is currently with the STG ISV Solution Enablement team. His most recent interest is in the areas of AIX virtualization technology and the application of virtualization technology to solution provider applications.

Trademarks and special notices

© Copyright. IBM Corporation 1994-2006. All rights reserved.

References in this document to IBM products or services do not imply that IBM intends to make them available in every country.

AIX, AIX 5L, eServer, IBM, the IBM logo, iSeries, POWER, POWER5, Redbooks and System p are trademarks of International Business Machines Corporation in the United States, other countries, or both.

Microsoft and Windows are trademarks of Microsoft Corporation in the United States, other countries, or both.

Other company, product, or service names may be trademarks or service marks of others.

Information is provided "AS IS" without warranty of any kind.

Any references in this information to non-IBM Web sites are provided for convenience only and do not in any manner serve as an endorsement of those Web sites. The materials at those Web sites are not part of the materials for this IBM product and use of those Web sites is at your own risk.