Mksysb Backup and Restore Skytap on Azure



Mksysb Backup and Restore in Skytap

- 1) Backing up on-prem system using mksysb
 - a. Prechecks
 - Error logs for any OS level issues
 - Check Software inconsistencies using # lppchk -v
 - Resolve any operating system level issue to take a healthy system Backup
 - Enough free space to backup all files in a filesystem
 - b. Backup execution
 - Populate the /tmp/exclude.rootvg file for excluding the filesystems from the backup
 - Use command # mksysb -ipX /<FS>/<hostname>.mksysb



- It may take some time to complete the backup
- Verify content of mksysb using # lsmksysb -lf

/<FS>/<hostname>.mksysb

<pre># lsmksysb -lf /bac</pre>	kup/myhost.	mksysb				
VOLUME GROUP:	rootvg					
BACKUP DATE/TIME:	Thu De	c 16 00:	38:18 UT	C 202	1	
UNAME INFO:	AIX sa	paix 2 7	00C97B6	04B00		
BACKUP OSLEVEL:	7.2.3.	15				
MAINTENANCE LEVEL:	7200-0	3				
SERVICEPACK LEVEL:	7200-0	3-02-184	6			
BACKUP SIZE (MB):	28448					
SHRINK SIZE (MB):	8483					
VG DATA ONLY:	no					
rootvg:						
LV NAME	TYPE	LPs	PPs	PVs	LV STATE	MOUNT POINT
hd5	boot	1	1	1	closed/syncd	N/A
hd6	paging	16	16	1	open/syncd	N/A
hd8	jfs2log	1	1	1	open/syncd	N/A
hd4	jfs2	168	168	1	open/syncd	
hd2	jfs2	160	160	1	open/syncd	/usr
hd9var	jfs2	6	6	1	open/syncd	/var
hd3	jfs2	320	320	1	open/syncd	/tmp
hdl	jfs2	160	160	1	open/syncd	/home
hd10opt	jfs2	13	13	1	open/syncd	/opt

2) Transferring Mksysb to Skytap

a. Option 1 (Direct Connectivity)

- VPN or ExpressRoute
- Network planning is required ahead of time
- Secured and Fast data transfer
- Future Proof





b. Option 2 (Published Service)

- Fastest and cheapest to deploy
- Native Skytap support
- Only Nim server in Skytap is required to started data transfer
- Encrypted Data Transfer over public Internet
- Only recommended for POC



c. Option 3 (Azure Blob)

- Azure Blob Storage
- Secured and Fast data transfer
- Additional VM for AZ copy required
- Future Proof
- Data can be copied over even before Skytap service is Started





3) Restore In Skytap

- a. Initiate a NIM server in Skytap
 - Deploy a new AIX template using public templates (Latest AIX level Recommended)





- Rename the Lpar to NIM server

			Rename VM	×	
AIX 7.2 TL3	SP2 //		VM name (Required):		
Last run: never (created: 12 n AIX 7.2 Technology Level 3, S	ninutes ago) ervice Pack 02 (7200-03-02-1846) GOLD Images	s provided by IBM.	NIM Server	- 2	
Tags: 🖉			3> Save	Cancel	
Region/Owner CAN-Toronto Abhishek Jain			¥ Networking: Settings Networks: 1 ▼ Pub. services: 0 ▼	WANS: 0 T	
VMs (1) Containers (0) Sharing Portals Network Topo	ology Labels (0) Activity			
VMs (1) Containers (0) Sharing Portals Network Topo	ology Labels (0) Activity			
VMs (1) Containers (0 Powered off Powered off Call N 7.2 TL3 SP2 Endpoints: 1 (nimserver - 192.168.0.1) Sharing Portals Network Topo ot by name	ology Labels (0) Activity			
VMs (1) Containers (0 Powered off Powered) Sharing Portals Network Topo	logy Labels (0) Activity			

- Setup the Desired Network and attach the network to the Lpar

Edit network		х
Edit the properties of this ne	twork in the AIX 7.2 TL3 SP2 environment.	
Network name:	NIM network	
Network type:	Automatic (what's this?)	
Gateway IP address:	192.168.0.254	
Domain name:	example.com	
Subnet:	192.168.0.0	
Subnet size:	24 (255.255.255.0) 🗸	
Normalized subnet:	192.168.0.0/24 (what's this?)	
Custom DNS (primary):	(what's this?)	
Custom DNS (secondary):		
Visible to other networks:	(what's this?)	
Apply NAT for connecting networks:	(what's this?)	
NAT Subnet:	(what's this?)	
	Save Changes or	Cancel

- Set the desired hostname in Adapter setting

< В	ack VM Settings	Network Settings	VM Sequencing User Data
Sta	IX 7.2 TL3 SP2 ate: Powered off Type: I Iware Network Ac	Power VM ID: 87653682	Credentials User Data Licenses
2 · Netw	ork adapter (MAC: 02	:00:73:89:93:06) was su	auccessfully updated.
P,	Adapter • Connected		3 →
	IP address: Hostname: Network: MAC address: Network type: Resource ID:	192.168.0.1 nimserver NIM network 02:00:73:89:93:06 Automatic nic-58629275-90772	Services: Published services: 0 Public IP address (static): 0 WAN NAT: 0 ICNR NAT: 0 ICNR NAT: 0



ardware	Network Adapters	Labels	Credentials	User Data	Licenses	
					⊥ Export CSV	+ Add network adapter
Edit adapto						
Euit adapte	1					
IP address						
192.168.0.1						
Subriet: 192.16	6.0.0/24					
MAC address	02-02					
02.00.73.09.	93.06					
Hostname						
nimserver						

- Power on the Lpar and logon with root access
- b. Configure NIM Server

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- Check if required file sets are Installed # lslpp -l | grep -i nim
- Attach Install ISO image to the server

Skytap dashboard	ENVIRON	IMENTS ASSETS	PROJECTS SCHE	DULES MANAGE -	HELP		
 All Environments 							
Nim Functional // Running: 7 minutes (created: 19 days ago) AIX 7.2 Technology Level 3, Service Pack 02 (72004) Tags: //	03-02-1846) GOLD	D Images provided by IBM.					
 Region/Owner CAN-Toronto Metered RAI Abhishek Jain Metered RAI 	Settings M (x86): 0 GB M (Power): 2 GB	Storage: 4	40 GB	 ♀ Networking: Settings Networks: 1 ▼ Pub. services: 0 ▼ 	WANs: 0 * Public IPs: 0 *	d ^e Automation VM sequencing: Off Auto-shutdown: Off	
VMs (1) Containers (0) Sharing Port	als Netwo	rk Topology Labels (0)	Activity				
Sort by name	• ↑						
Running Image: Constraint of the second	-						
Load ISO							ad ISO Cancel
You may only load an ISO from the same region.							
My Company Skytap All	Sort by date or	reated \checkmark \downarrow					
> Project	0	AIX_7.1_Install_710	00-05-03-1837_DVD_1_of Owner: Skytap Region: C/	F_2_92018.iso AN-Toronto Size: 4 GB			
> Owner	0	AIX_v7.1_Install_71	100-05-02-1806_DVD_2_c Owner: Skytap Region: C	of_2_32018.iso AN-Toronto Size: 4 GB			
> Region: CAN-Toronto	0	Aix6100-09-12-183	37_Install_2_of_2_92018.i Owner: Skytap Region: C/	iso AN-Toronto Size: 4 GB			
> Date created	0	Aix6100-09-12-183	37_Install_1_of_2_92018.i Owner: Skytap Region: C	iso AN-Toronto Size: 4 GB			
	0	AIX_v7.2_install_72	200-03-02-1845_DVD_2_c Owner: Skytap Region: C/	of_2_112018.iso AN-Toronto Size: 4 GB			
2	۲	AIX_v7.2_install_72	200-03-02-1845_DVD_1_ Owner: Skytap Region: C	of_2_112018.iso AN-Toronto Size: 3 GB			
	0	AIX_v7.2_Install_72	200-03-00-1837_DVD_2_d Owner: Skytap Region: C/	of_2_92018.iso AN-Toronto Size: 4 GB			
	0			-f a asara !			

- Run #cfgmgr in OS to configure CDROM



- List CDROM to confirm # lsdev -Cc cdrom



2. Search for NIM in software to install

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3. Select NIM master using F7 or esc+7 keys

Type or select valu Press Enter AFTER m	es in entry fields aking all desired	changes	5.				
<pre>[TOP] * INPUT device / di * SOFTWARE to insta PREVIEW only? (in COMMIT software u SAVE replaced fil AUTOMATICALLY ins EXTEND file syste OVERWRITE same or VERIFY install an Include correspon DETAILED output? Process multiple ACCEPT new licens [MORE11]</pre>	rectory for softwa ll stall operation wi pdates? es? tall requisite sof ms if space needed newer versions? d check file sizes ding LANGUAGE file volumes? e agreements?	ire ill NOT tware? ? ? sets?	occur)	[Entry /dev/cdi [+ 7.2.3 no yes no yes yes no no yes yes yes yes yes	y Field ∂ ◀ .15 N€	is] etwork I	* + + + + + + + + + + + + + + + + + + +
F1=Help Esc+5=Reset F9=Shell	F2=Refresh F6=Command F10=Exit	F3=0 F7=E Ente	Cancel Edit er=Do	F4 F8	4=List B=Imag€	2	



4. Continue installation

r		SOFTWA	RE to install		
Г	Move cursor to ONE OR MOI Press Enter A	o desired item and RE items can be sel FTER making all sel	press F7. Use ected. ections.	arrow keys to scroll	
	[MORE583]				
	bos.sysmgt @ 7.2.3.15 @ 7.2.3.15 > + 7.2.3.15 > + 7.2.3.15 = + 7.2.3.15 [MORE1464]	Filesystem Quota C HMC Client Runtim License Managemen Network Install M Network Install Ma PowerVC Client Ru	ommands e t anager - Maste nager - SPOT ntime	er Tools	ALL
1	F1=Help	F2=Refre	sh	F3=Cancel	
1	F7=Select	F8=Image		F10=Exit	
۶L		,			
		COmm	AND STATUS		
omi	mand: <mark>OK</mark>	stdout: yes	stderr	: no	
ef	ore command com	npletion, additional	instructions n	may appear below.	
T0	P]				
en	install -I "a -	cgNQqwXY -J" -Z	-d /dev/cd0 -f	File 2>&1	
il	e: Tibos sysmat r	nim master 7	2 3 15		
	I:bos.sysmgt.r	nim.spot 7.	2.3.0		
		Pre-installation	Verification		+
				•	+
er er MO	ifying selectio ifying requisit RE65]	onsdone tesVerifying requ	isitesdone		
	Help	F2=Refresh	F3=Cancel	F6=Command	

- Exit installation menu using F10 or esc+0

- Confirm Installation is done # lslpp -l | grep -i nim

# #								
#	lslpp -l grep -i nim							
	<pre>bos.sysmgt.nim.client</pre>	7.2.3.16	COMMITTED	Network	Install	Manager	-	
	<pre>bos.sysmgt.nim.master</pre>	7.2.3.15	COMMITTED	Network	Install	Manager		
	bos.sysmgt.nim.spot	7.2.3.0	COMMITTED	Network	Install	Manager		SP0T
	bos.sysmgt.nim.client	7.2.3.16	COMMITTED	Network	Install	Manager	-	
ţ								



Set Hostname	e and /etc/hosts to	o exact name	e as step 3b	
# # hostname nimserver ◀ # # tail /etc/hos # line are not # lines are all	ts interpreted by routing owed.	es which search	this file. Blank	
<pre># Internet Addr # 192.9.200.1 # 128.100.0.1 # 10.2.0.2 # 2000:1:1:1:20 127.0.0.1 192.168.0.1 #</pre>	ess Hostname net0sample token0sample x25sample 9:6bff:feee:2b7f loopback loca nimserver	<pre># Comments # ethernet n # token ring # x.25 name/ ipv6sample alhost # log</pre>	ame/address name/address address # ipv6 name/address opback (lo0) name/addres	s
Run NIM conf	iguration # smitty	nim config	env	
	Configure a Basic N	un chvironment (Easy Startup)	
Type or select Press Enter AFT	values in entry field ER making all desired	ls. 1 changes.		
[TOP]	5	5	[Entry Fields]	
Initialize th * Primary Netwo	e NIM Master: rk Interface for the	NIM Master	[en0]	+
Basic Install	ation Resources:		[10]	
* LPP_SOURCE Na	me	jes	[lpp_source1]	+
* LPP_SOURCE Di Create new	rectory filesystem for LPP SC	OURCE?	[/export/lpp_source] [yes]	+++
Filesystem	SIZE (MB) P for new filesystem		[650] [rootyg]	#
* SPOT Name	i for new ricesystem		[spot1]	
* SPOT Director Create new	y filesystem for SPOT?		[/export/spot] [yes]	+++
[MORE26]				
F1=Help	F2=Refresh	F3=Cancel	F4=List	
F9=Shell	F10=Exit	Enter=Do	ro-illage	
Press enter to	start- this sten w	vill take ~30 n	nins to complete	
Command: OK	stdout: y	ves st	tderr: no	
Before comma	nd completion, addit	ional instructi	ions may appear below.	
[TOP]				

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>>>> Initializing the NIM Master. 0513-071 The nimesis Subsystem has been added. 0513-071 The nimd Subsystem has been added. 0513-059 The nimesis Subsystem has been started. Subsystem PID is 5964144. >>>> Checking available space for the new filesystems 1000 MB required on rootvg. 22496 MB available. >>>> Creating the /export/lpp_source filesystem in the rootvg volume
group on the master machine.
[MORE...8957] F1=Help F8=Image n=Find Next F2=Refresh F9=Shell F3=Cancel F10=Exit F6=Command /=Find

Congratulations NIM Server is Ready !!!!

4) Setup Client on NIM server to restore Mksysb

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a.	Update the /etc/h	nosts file with the	e client hostnar	ne	
	<pre># tail /etc/hosts # lines are allowed.</pre>				
	<pre># Internet Address # 192.9.200.1 # 128.100.0.1 # 10.2.0.2 # 2000:1:1:1:209:6bf1 127.0.0.1 192.168.0.1 nimse 192.168.0.2 nimc1 # </pre>	Hostname net0sample token0sample x25sample f:feee:2b7f loopback localho erver lient ◀	<pre># Comments # ethernet name/ad # token ring name/ # x.25 name/addres ipv6sample # st # loopback</pre>	ddress Yaddress Ss ipv6 name/address < (lo0) name/address	
b.	Verify hostname i	s resolved			
	# # host 192.168.0 nimclient is 192 #	0.2 2.168.0.2			
	<pre># host nimclient nimclient is 192 # ■</pre>	2.168.0.2			
с.	Add the Client in I	NIM config # smi	tty nim_mkma	c and enter the clie	ent hostname
		Detin			
	Type or select a va Press Enter AFTER m	alue for the entry naking all desired	field. changes.		
	* Host Name of Mach (Primary Networ	<mark>iine</mark> ⁺k Install Interfac	e)	[Entry Fields] nimclient] ◀	
	F1=Help Esc+5=Reset F9=Shell	F2=Refresh F6=Command F10=Exit	F3=Cancel F7=Edit Enter=Do	F4=List F8=Image	



d.	Change the setting	g as below and pr	ess enter		
	Type or select value Press Enter AFTER ma	Define es in entry fields. aking all desired ch	a machine anges.		
	<pre>[TOP] * NIM Machine Name * Machine Type * Hardware Platform Kernel to use for Communication Prof Primary Network IT</pre>	Type Network Boot tocol used by client nstall Interface	1	<pre>[Entry Fields] [nimclient] [standalone] [chrp] [64] []</pre>	++++++
	 Cable Type Network Speed So Network Duplex 9 NIM Network Host Name Network Adapter Network Adapter [MORE15] 	etting Setting Hardware Address Logical Device Name		tp [] network1 nimclient [0] []	+ + +
	F1=Help Esc+5=Reset F9=Shell	F2=Refresh F6=Command F10=Exit CO	F3=Cancel F7=Edit Enter=Do	F4=List F8=Image	
	Command: <mark>OK</mark>	stdout: no	st	derr: no	
	F1=Help F8=Image n=Find Next	F2=Refresh F9=Shell	F3=Canco F10=Exi	el F6=Con t /=Find	nmand 1
e.	NIM Client is defin # # lsnim nimclien nimclient ma #	ned and can be ve nt achines sta	rified in # ls ndalone	nim nimclient	
f.	Copy the Source N - Create th size=100	Aksysb in a new fi ne filesystem # crl 6 -r rootvg	lesystem /e fs -v jfs2 -m ,	xport/mksysb /export/mksysb -/	4 yes -a
	# crfs File sy 104852 New Fi # ■	ystem created succe stem created succe G6 kilobytes total le System size is 2	7mksysb -A ye ssfully. disk space. 0971520	s -a size =106 -g ro	otvg



- List the mksysb file content lsmksysb -lf <filename>

bash-4.3# lsmksysb	lf myhost.	mksysb				
VOLUME GROUP:	rootvg					
BACKUP DATE/TIME:	Thu De	c 16 00:	38:18 UT(202	1	
UNAME INFO:	AIX sa	paix 2 7	00C97B60	94B00		
BACKUP OSLEVEL:	7.2.3.	15				
MAINTENANCE LEVEL:	7200-03					
SERVICEPACK LEVEL:	7200-03	3-02-1840	6			
BACKUP SIZE (MB):	28448					
SHRINK SIZE (MB):	8483					
VG DATA ONLY:	no					
rootvg:						
LV NAME	TYPE	LPs	PPs	PVs	LV STATE	MOUNT POINT
hd5	boot	1	1	1	closed/syncd	N/A
hd6	paging	16	16	1	open/syncd	N/A
hd8	jfs2log	1	1	1	open/syncd	N/A
hd4	jfs2	168	168	1	open/syncd	/
hd2	jfs2	160	160	1	open/syncd	/usr
hd9var	jfs2	6	6	1	open/syncd	/var
hd3	jfs2	320	320	1	open/syncd	/tmp
hdl	jfs2	160	160	1	open/syncd	/home
hd10opt	jfs2	13	13	1	open/syncd	/opt

- g. Create the NIM resources for restoration
 - We need two NIM resources to restore Mksysb
 - 1. Mksysb resource
 - 2. Spot resource
 - Mksysb # smitty nim_res > define a resource and select mksysb and press enter

		Manage Kesour	ces
Мо		Resource Typ	e
	Move cursor to d	esired item and press Ent	er. Use arrow keys to scroll.
	[MORE11] bosinst_data image_data vg_data	<pre>= config file used dur = config file used dur = config file used dur</pre>	ing base system installation ing base system installation ing volume group restoration
	<pre>mksysD script resolv_conf savevg adapter_def linux_source devexports [MORE10]</pre>	<pre>= a mksysb image = an executable file w = configuration file f = a savevg image = directory containing = resource containing = device handling file</pre>	hich is executed on a client or name-server information secondary adapter definition f Linux installation images used during wpar installation
F1	F1=Help F8=Image /=Find	F2=Refresh F10=Exit n=Find Next	F3=Cancel Enter=Do



- Fill in the Name, Server of resource and location of resource (absolute path for location of the mksysb file)

1		or the may so me	-1			
	Type or select valu Press Enter AFTER m	Define a es in entry fields. aking all desired ch	nesource			
	<pre>[TOP] * Resource Name * Resource Type * Server of Resourc * Location of Resour NFS Client Securi NFS Version Acces Comments</pre>	e rce ty Method s		[En [sapmk mksys [maste [/expo [] []	try Fields] sysb] b f] rt/mksysb/myhost>	+ / + +
	Source for Replic	ation OR-		[]		+
	System Backup Ima CREATE system b NIM CLIENT to b [MORE17]	ge Creation Options: ackup image? ackup		no []		+ +
	F1=Help Esc+5=Reset F9=Shell	F2=Refresh F6=Command F10=Exit	F3=Cancel F7=Edit Enter=Do		F4=List F8=Image	

 Define Spot from mksysb resource # smitty nim_res -> define a resource select spot and press enter (Make sure you have enough space in /export/spot filesystem ~2 GB)

Mo		Planage Resource	les -					
PIO		Resource Type						
	Move cursor to desired item and press Enter. Use arrow keys to scroll.							
	[<u>TOP]</u>							
	<pre>spot root paging dump home shared_home tmp exclude_files</pre>	<pre>= Shared Product ubject = parent directory for = parent directory for = parent directory for = /home directory share = parent directory for = files to be excluded</pre>	client / (root) directories client paging files client dump files client /home directories d by clients client /tmp directories when creating a mksysb or save					
	lpp_source installp_bundle [MORE21] F1=Help	= source device for opt = an installp bundle fi F2=Refresh	ional product images le F3=Cancel					
F1 F9	F8=Image /=Find	F10=Exit n=Find Next	Enter=Do					



- Enter Name, Server of resource, Source of Install images and Location (absolute Path for the resource "/export/spot/sapaix spot")

(d	DSG	Siule Path for	the resource /	export/spot/s	Sapaix_spot)			
			Define	e a nesource				
	Typ Pre	e or select val ess Enter AFTER	ues in entry fields making all desired	s. changes.				
	[T0 * R * R * S	DP] Resource Name Resource Type Gerver of Resour Gource of Instal	rce l Images		[Entry Fields] [sapaix_spot] spot [master] [sapmksysb]	+		
	Source of Install Images							
		Move cursor to	desired item and p	press Enter.				
		lpp_source1 spot1 re cd0 Availabl sapmksysb	resources sources spot e Virtual SCSI Opt resources r	lpp_source tical Served by <mark>mksysb</mark> ◀───	VIO Server			
	[M F1 Es F9	F1=Help F8=Image /=Find	F2=Refres F10=Exit n=Find Ne	sh ext	F3=Cancel Enter=Do			
	62	tion of spot w	vill take some tin	ne ~ 15 to 30	mins			
	Cu		(¹) Ctrl-Alt-Del III EN		0	ĺ.		
	Comm	and: OK	stdout: yes	stderr: n	0			
	Refo	re command comm	letion additional i	instructions may	annear below			
	Jeru				appear betow.			
	Cre	ating SPOT in ",	/export/spot/sapaix_	_spot" on machin	e "master" from "sapmksysb			
	Restoring files from BOS image. This may take several minutes							
	Che Thi	ecking filesets a s may take seve	and network boot ima ral minutes	ages for SPOT "s	apaix_spot".			
	F1=H F8=I n=Fi	lelp image .nd Next	F2=Refresh F9=Shell	F3=Cancel F10=Exit	F6=Command /=Find			

- Assign resources to nimclient machine defined earlier in the document # smitty nim_mac_res -> Allocate Network Install resources and select nimclient from the list and press enter
- Use F7 or Esc+7 to select the sapmksysb and sapaix_spot and press enter

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Mo				
	Available	Network Install	Resources	
Move cursor	⁻ to desired item	and press F7.		
ONE OR Press Enter	MORE items can b AFTER making al	e selected. l selections.		
[MORE15]	j j			
SystemMgm Trusted A	ntClient in	stallp_bundle		
Trusted_A	IX_SYSMGT in	stallp_bundle		
openssh_s	server in	stallp_bundle		
bid_ow > sapmksysb	bo bo mk	sinst_data sysb		
> sapaix_sp [BOTTOM]	ot sp	ot		
F1=Help	F2=	Refresh	F3=Cancel	
F7=Select	F8=	Image	F10=Exit	
F9 Enter=Do	/=r.	110	h=Find Next	
ommand out	put will be as	below exit us	ing F10 or esc+0	
	CO	US ביאו US		
ommand: <mark>OK</mark>	stdout: no	stderr:	no	
efore command com	npletion, addition	nal instructions ma	ay appear below.	
L=Help R=Tmane	F2=Refresh F9=Shell	F3=Cancel F10=Fyit	F6=Command /-Find	
=Help =Image Find Next	F2=Refresh F9=Shell	F3=Cancel F10=Exit	F6=Command /=Find	
L=Help ∃=Image ⊧Find Next	F2=Refresh F9=Shell	F3=Cancel F10=Exit	F6=Command /=Find	
=Help =Image Find Next nable Bos ins	F2=Refresh F9=Shell tallation for t	F3=Cancel F10=Exit he client # sm	F6=Command /=Find itty nim_mac_o	o > nimclie
L=Help B=Image FFind Next Nable Bos ins	F2=Refresh F9=Shell tallation for t	F3=Cancel F10=Exit he client # sm	F6=Command /=Find itty nim_mac_o	o > nimclie @
H=Help S=Image Find Next Nable Bos ins	F2=Refresh F9=Shell tallation for t	F3=Cancel F10=Exit he client # sm Del I R R .11	F6=Command /=Find itty nim_mac_o	o > nimclie ?
I=Help ⇒Image Find Next nable Bos ins	F2=Refresh F9=Shell tallation for t	F3=Cancel F10=Exit he client # sm DeI EN ℛ .II	F6=Command /=Find itty nim_mac_o]≘	o > nimclie ?
=Help B=Image Find Next nable Bos ins	F2=Refresh F9=Shell tallation for t Ctrl-Alt-[F3=Cancel F10=Exit he client # sm Del EN R .1	F6=Command /=Find itty nim_mac_o	o > nimclie @
L=Help B=Image FFind Next Nable Bos ins	F2=Refresh F9=Shell tallation for t	F3=Cancel F10=Exit he client # sm Del EN A .11	F6=Command /=Find itty nim_mac_o	o > nimclie ?
L=Help B=Image =Find Next nable Bos ins	F2=Refresh F9=Shell tallation for t	F3=Cancel F10=Exit he client # sm Del IIII EN R .11	F6=Command /=Find itty nim_mac_o	o > nimclie ?
I=Help =Image Find Next nable Bos ins	F2=Refresh F9=Shell tallation for t Ctrl-Alt-E	F3=Cancel F10=Exit he client # sm Del ⊞EN ℛ .II	F6=Command /=Find itty nim_mac_o	o > nimclie @
Help B=Image Find Next nable Bos ins	F2=Refresh F9=Shell tallation for t ■ () Ctrl-Alt-[F3=Cancel F10=Exit he client # sm Del EN R .1	F6=Command /=Find itty nim_mac_o	o > nimclie ?
1=Help B=Image Find Next nable Bos ins	F2=Refresh F9=Shell tallation for t ■ ひ Ctrl-Alt-E	F3=Cancel F10=Exit he client # sm Del I FN R .11	F6=Command /=Find itty nim_mac_O	o > nimclie ?
Help B=Image Find Next Table Bos ins	F2=Refresh F9=Shell tallation for t ■ ① Ctrl-Alt-C	F3=Cancel F10=Exit he client # sm Del EN A .11 Target Nam tem and press Er	F6=Command /=Find itty nim_mac_o]≣ ne nter.	o > nimclie ?
L=Help =Image =Find Next nable Bos ins □ □ ■ □ ■ Move curso _master	F2=Refresh F9=Shell tallation for t Ctrl-Alt-D or to desired i machines	F3=Cancel F10=Exit he client # sm Del I R R Target Nam tem and press Er master	F6=Command /=Find itty nim_mac_o	o > nimclie ₹
1=Help B=Image =Find Next nable Bos ins	F2=Refresh F9=Shell tallation for t ■ ① Ctrl-Alt-C or to desired in machines	F3=Cancel F10=Exit he client # sm Del EN A .1 Target Nan tem and press Er master standalor	F6=Command /=Find itty nim_mac_of [Ξ ne nter.	o > nimclie ?
1=Help 8=Image =Find Next nable Bos ins Move curso master nimclier F1=Help	F2=Refresh F9=Shell tallation for t	F3=Cancel F10=Exit he client # sm Del I FN R .1 Target Nam tem and press Er master standalor F2=Refresh	F6=Command /=Find itty nim_mac_of IE me nter. ne F3=Cancel	o > nimclie ?
1=Help 8=Image =Find Next nable Bos ins Move curso master nimclier F1=Help F8=Image /~Farmage	F2=Refresh F9=Shell tallation for t Ctrl-Alt-C	F3=Cancel F10=Exit he client # sm Del I FN R .11 Target Nam tem and press Er master standalor F2=Refresh F10=Exit n=Fin0Hext	F6=Command /=Find itty nim_mac_O I≡ I≡ nter. ne F3=Cancel Enter=Do	o > nimclie ?

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- Select bos_inst and press enter



- Select the below options for mksysb restore (Use Arrow keys and F4 or $\mbox{Esc}{+}4)$

	Perform	a weiwork Instal	l	
Type or select v Press Enter AFTE	alues in entry fiel R making all desire	ds. d changes.		
Target Name Source for BOS installp Flags Fileset Names	Runtime Files		<pre>[Entry Fields] nimclient mksysb [-agX] []</pre>	+
Remain NIM cli Initiate Boot	ent after install? Operation on Client	?	yes no	+ +
Set Boot List	if Boot not Initiat	ed on Client? blement?	no	+
ACCEPT new lic	ense agreements?		[yes]	+
Open a console Set the DISPLA	e window? Y environment varia	ble	[no] []	+
F1=Help	F2=Refresh	F3=Cancel	F4=List	
Esc+5=Reset F9=Shell	F6=Command F10=Exit	F7=Edit Enter=Do	F8=Image	

- Ready to ROCK n ROLL !

		СОнни	US TATE UN	
	Command: <mark>OK</mark>	stdout: no	stderr:	no
	Before command comp	letion, additional	instructions ma	ay appear below.
	F1=Help	F2=Refresh	F3=Cancel	F6=Command
	F8=Image n=Find Next	F9=Shell	F10=Exit	/=Find
V	erify the client Sta	tus # lsnim -l nir	nclient	
	Dasii-4.5#			
	bash-4.3# bash_1 3#			
	bash-4.3# lsnim -1	l nimclient		
	nimclient:			
	class	= machines		
	type	= standalone		
	platform	= nimsn		
	netboot kernel	= 64		
	if1 ⁻	= network1 nimc	lient 0	
	<pre>cable_type1</pre>	= tp		
	Cstate	= ready for a N.	IM operation	anahlad
	prev_state Mstate	= BUS Installat.	ion has been e	enabled
	mksvsb	= sapmksvsb		
	spot	= sapaix spot		
	control	= master		
	Cstate_result	= failure		
	bash-4.3#			

h. Setup New Ipar to restore the mksysb

-



- From the Skytap dashboard Add a new lpar in your existing Environment



- Select Templates and choose any AIX template and add VM

Add VMs						5		Add VM(s)	Cancel
You must add VMs from the same region.									
Environments Templates - 1									
My Company Skytap All	Sort	by date	created \checkmark \downarrow						
aix 4 3 Q > Owner: Skytap		₿	AIX 7.1 TL5 SP3 Last deployed: 4 days ago (create CAN-Toronto Storage: 40 GB M Container hosts: No Labels: 0	ed: 2 years ago) Own Metered RAM: 2 GB	ner: Skytap Networks: N/A	Region:			1 VMs ▼
> Region: CAN-Toronto			VM	Status	Туре	Storage	Metered RAM	Licenses	Endpoints
> Status			AIX 7.1 TL5 SP3	Powered off	Power	40 GB	2 GB 🔻		ý 🕶
> Date created > Date last deployed	0	₽	AIX 7.2 TL3 SP2 Last deployed: a month ago (crea CAN-Toronto Storage: 40 GB M Container hosts: No Labels: 0 T	ated: 2 years ago) O Metered RAM: 2 GB Attached licenses:	wner: Skytap Networks: N/A	Region:			1 VMs 🔻
> Attributes	0	8	AIX NIM Master with SPOTs Last deployed: 2 months ago (cre CAN-Toronto Storage: 60 GB N Container hosts: No Labels: 0 ♥	eated: 2 years ago) (Metered RAM: 2 GB Attached licenses:	Dwner: Skyta Networks: N/A	np Region: 1 ▼			1 VMs 🔻



- Edit the setting on VM and Set Hostname and IP

@Skytap	DASHBOARD	ENVIRONMENTS	ASSETS	PROJECTS	SCHEDULES	MANAGE -	HELP
K Back VM Settings	Network Settings	VM Sequencing	User Data				
AIX 7.1 TL5 SP3 State: Powered off Type: Hardware Network A	Power VM ID: 8846855	4 Credentials Use	er Data Li	censes			
	× 1			⊥ Export (CSV + Add ne	etwork adapter	
Adapter • Connected		2	► / Edit	& Disconnec	t î Delete 🚽	⊢ Add service	
IP address: Hostname: Network: MAC address: Network type: Resource ID:	192.168.0.2 aix71tl5sp3 NIM network 02:00:EA:36:42:3E Automatic nic-58629275-915	92928-0		Services: Published service Public IP address Secondary IP add WAN NAT: ICNR NAT:	s: 0 (static): 0 ress: 0 0 0		
Skytap	DASHBOARD		S ASSE	TS PROJEC	TS SCHEDU	LES MANAG	ēE ₹
AIX 7.1 TL5 SP3 State: Powered off Type Hardware Network	Power VM ID: 88468 Adapters Labels	554 : Credentials	User Data	Licenses			
Edit adapter IP address 192.168.0.2 Subnet: 192.168.0.0/24 MAC address 02:00:EA:36:42:3E Hostname nimolient	↓ ↓ ↓			Ex;	port CSV + A	vdd network ada	pter
Save Cancel							

- From hardware setting assign the disks as per Source lpar rootvg



1. Delete the existing disk and add new disk

CPUs	Delete Disk	Is depends on several factors, including compute type and region. For
1 🗸	A Deleting a disk is permanent. You can't restore a deleted disk.	
CPU sharing mode	2 Delete disk Cancel	
ntitled capacity		
intitled capacity 0.05 //		
intitled capacity		or capacity specifies with fraction of each vCPU core is used by the VM. Learn more.
ntitled capacity .05 // orage Disk size	Disk ID	ar capacity specifies with fraction of each vCPU core is used by the VM. Learn more.
ntitled capacity .05 // Drage Disk size 40 GB	Disk ID SCSI Controller: 0, LUN: 0	er capacity specifies with fraction of each vCPU core is used by the VM. Learn more. + Add of 1

2. Add new disk

Storage		
Disk size	Disk ID	1
80 GB ┥	2	
 Valid disk siz Total VM stor 	e: 2 GB - 2,048 GB (32,768 GB remaining) rage limit: 32,768 GB & 32 disks (32 disks remaining)	
Save	acel 3	
32,768 GB limit	- 0 GB used, 32,768 GB available	0 of 32 in use

3. Update the CPU/RAM if required and start the lpar and open the console. System will enter in SMS menu

Silone System will enter in Sivis menu	
Version FW860.70 (SV860_205) SMS (c) Copyright IBM Corp. 2000,2016 All rights reserved.	
Main Menu 1. Select Language 2. Setup Remote IPL (Initial Program Load) 3. I/O Device Information 4. Select Console 5. Select Boot Options	
Navigation Keys: X = eXit System Manage	ement Services
Type menu item number and press Enter or select Navigation key:	

- Setup NIC/Ethernet to boot using NIM server using below sequence
 - 1. "2 Setup Remote IPL"
 - 2. "1 Interpartition Logical LAN"
 - 3. "1 IPv4 Address Format"
 - 4. "1 BOOTP"
 - 5. "1 IP Parameters"



6.	Configure the IPS to match the IP as below						
	Version FW860.70 (SV860_205) SMS (c) Copyright IBM Corp. 2000,2016 All rights reserved.						
	IP Parameters Interpartition Logical LAN: U8284.22A.7829E4X-V13-C3-T1 1. Client IP Address [192.168.0.2] NIMClient IP 2. Server IP Address [192.168.0.1] NIMserver IP 3. Gateway IP Address [192.168.0.254] NIMClientGateway IP 4. Subnet Mask [255.255.255.0] NIMClient Subnet						
	Navigation keys: M = return to Main Menu ESC key = return to previous screen X = eXit System Management Services						
	Type menu item number and press Enter or select Navigation key:						

7. Press esc to return to previous Menu and run "3 - Ping Test" -> press 1 and enter to execute

į Ping Success. į
Press any key to continue

8. On successful ping press enter and return to main menu using "M"



9.	Press X to e	xit and serve	r should start	boot using th	e LAN adapter
----	--------------	---------------	----------------	---------------	---------------

TFTP B00T Server IP Client IP Gateway IP Subnet Mask (1) Filename TFTP Retries Block Size	192.166 192.166 255.255 /tftr 5 5	3.0.1 3.0.2 3.0.254 5.255.0 yboot/nimclient.o	example.com
TFTP B00T	192.166 192.166 255.255 /tftg 5 512	3.0.1 3.0.2 5.0.254 5.255.0 bboot/nimclient.0	example.com
	Installi	ng base operat	ting System
Please wait			
Approximate % tasks complete	Elapsed (in minu	time tes)	
8	Θ	1% of mksysb	data restored.

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10. It will take 10 – 20 Mins to restore Mksysb and server will reboot with the Mksysb restored

# #					
# uname -a					
AIX nimclient	2 7 00FB29E44	C00			
#					
# df -g					
Filesystem	GB blocks	Free %	Used	Iused %	Iused Mounted on
/dev/ĥd4	5.25	5.05	4%	14569	2% /
/dev/hd2	5.00	2.95	41%	45896	7% /usr
/dev/hd9var	0.25	0.16	36%	741	2% /var
/dev/hd3	10.00	6.48	36%	1781	1% /tmp
/dev/hd1	5.00	5.00	1%	61	1% /home
/dev/hd11admin	0.12	0.12	1%	5	1% /admin
/proc					- /proc
/dev/hd10opt	0.50	0.13	74%	14141	32% /opt
/dev/livedump	0.25	0.25	1%	4	1% /var/adm/ras/livedump
#					

Savevg Backup and Restore in Skytap

- 5) Backup and restore data volumes using savevg
 - a. Prechecks
 - Minimise active read/writing to disk to avoid file or database corruption
 - Verify enough free space to backup volume group to your filesystem
 - b. Backup execution -
 - Verify volume group has desired volumes:
 - 1. run # lsvg and #lsvg -a app to review volumes to be backed up

0	•							
# lsvg								
rootvg								
арр								
data								
<pre># lsvg -l app</pre>								
app:								
LV NAME		TYPE	LPs	PPs	PVs	LV STATE	MOUNT	POINT
applv		jfs2	1278	1278	1	open/syncd	/app	
#								

2. run backup to location with sufficient space with the command # savevg -r - f /tmp/backup/app.image app



savevg -r -f /tmp/backup/app.image app Creating information file for volume group app. Backing up user Volume Group information files only. Creating list of files to back up. Backing up 6 files 6 of 6 files (100%) 0512-038 savevg: Backup Completed Successfully.

- c. Copy backup to Skytap LPAR (see copy methods above for mksysb)
- d. Prepare system in Skytap to restore volumes. Note: if you want to shrink your volumes when restoring, you should pick smaller sizes that are still sufficient for the data in the volume group.
 - Identify physical volumes associated with the volume and their sizes:
 - run # lspv and # lspv hdisk1 to confirm the size in megabytes of any necessary disks

# # lcpv					
hdisk0 00f	b3aca9c0a8fc1		rootva		active
hdisk1 00f	b4f3c486538a2		app		active
hdisk2 00f	b4f3c486580b9		data		active
# lspv hdisk1					
PHYSICAL VOLUME:	hdisk1	VOLUME	GROUP:	арр	
PV IDENTIFIER:	00fb4f3c486538a2 VG IDEN	TIFIER	00fb4f3	c0000	4c0000000187
8653808					
PV STATE:	active				
STALE PARTITIONS:		ALLUCA	ABLE:	yes	
PP SIZE:	64 megabyte(s)			1	
TUTAL PPS:	12/8 (81/92 megabytes)		RIPTORS:	2	
FREE PPS:	0 (0 megabytes)	HUT SPA		no	1. 1 . h h
USED PPS:	1278 (81792 megabytes)	MAX REU	QUEST:	250	Kilobytes
FREE DISTRIBUTION:					
USED DISTRIBUTION:	256256255255256				
MIRROR POOL:	None				
#					

- In Skytap add disks to your restore target of sufficient size





a. Shut down the restore LPAR in Skytap, go to edit VM and add disks

b. Pick how much storage you need and save

Storage		
Disk size	Disk ID	+ Add disk
80 GB		
Valid disk size: 2Total VM storage	GB - 2,048 GB (32,728 GB remaining) e limit: 32,768 GB & 32 disks (31 disks remaining)	
Save Cancel		
40 GB	SCSI Controller: 0, LUN: 0	🖉 Edit 🛛 🗙 Delete
32,768 GB limit - 40	GB used, 32,728 GB available	1 of 32 in use

- c. Repeat for any additional physical disks you need to add
- d. Start LPAR when disks added
- 6) Run restores for savevg

```
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```

b.

c.

a. identify the sizes of your disks to make sure you are restoring to the correct locations with # lspv and # bootinfo -s hdisk1

<pre># lspv hdisk0 00f hdisk1 non hdisk2 non # bootinfo -s hdisk 81920 #</pre>	b3aca9c0a8 le le l	fc1			rootvg None None	active
run # lssavevg -f app.im	age -l to con	firm conte	ents of sa	vevg fi	е	
<pre># lssavevg -f app VOLUME GROUP: BACKUP DATE/TIME: UNAME INFO: BACKUP OSLEVEL: MAINTENANCE LEVEL: SERVICEPACK LEVEL: BACKUP SIZE (MB): SHRINK SIZE (MB): VG DATA ONLY:</pre>	image -l app Mon A AIX a 7.3.0 7300- 7300- 81792 3201 yes	Apr 3 13: 1x7 3 7 0.0 00 00-01-21	56:22 CD 00FB4F3C 48	T 2023 4C00		
app:	TVPF	l Pc	PPc	P\/c	IV STATE	
applv #	jfs2	1278	1278	1	open/syncd	/app
run restore # restvg -f a	pp.image hd	lisk1 (add	flag -s to	restore	with minimum	1
size, you can specify mu	ıltiple hdisks	if desired)			
<pre># restvg -f app.imag</pre>	e hdiskl					

```
Will create the Volume Group: app
Target Disks: hdisk1
Allocation Policy:
Shrink Filesystems: no
Preserve Physical Partitions for each Logical Volume: no
Enter y to continue: y
```

d. Finished!