

IBM Systems Director VMControl V2.2

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Agenda

- > * **VMControl V2.2 Overview** *
- > Express Edition
 - Overview and Summary
 - Platform support – Power Systems, x86, z/VM
 - Performance Summary
- > Image Manager - Standard Edition
 - Virtual Appliances
 - Capture, deploy, import, versioning
- > System Pools - Enterprise Edition
 - Workloads
 - System Pools
 - Resilience Policies
- > IBM Systems Director Editions

What is IBM Systems Director VMControl V2.2 (VMControl) ?

A plug-in to IBM Systems Director to enhance virtualization management, simplify virtual appliance deployment and pool systems to manage workloads across platforms.

VMControl V2.2 Overview



> No-charge features

- Manage Virtual Servers, hosts, platforms
 - z/VM
 - PowerVM
 - VMware, Microsoft, Xen
- Performance Summary

> Chargeable features

- Image Management
 - Deploy
 - Capture
 - Import
 - Versioning
- System Pools
 - Resilience Policy
 - Placement Plans
 - Workloads

The screenshot displays the IBM Systems Director web interface. The left sidebar contains a navigation menu with categories like Automation, Availability, Inventory, Release Management, Security, System Configuration, and System Status and Health. The main content area shows a list of system components, each with a green checkmark indicating a 'Ready' status. The 'VMControl' component is highlighted with a red rectangular box. Below it, 'System z Management' is also visible. The top of the interface includes the user name 'Hintermeister' and a 'Select Action' dropdown menu.

Component	Status	Version	Additional Info
Automation Manager	Ready	6.1.2	Event Automation Plans Active and Scheduled Jobs
Configuration Manager	Ready	6.1.2	Plans Configuration templates
Remote Access	Ready	6.1.2	Setup Remote Control
Storage Management	Ready	6.1.2	SMI-S Providers Systems And Volumes Storage Subsystems And Volumes
IBM Systems Director Network Control	Ready	1.1.0	Ready. Evaluation period expires on 12/26/09 (53 days) View all network systems Purchase License
BladeCenter and System x Management	Info	6.1.2	Additional plug-ins are required before BladeCenter chassis can be fully managed. Setup required for I/O module plug-ins BladeCenter chassis and members Servers and service processors
Power Systems Management	Ready	6.1.2	ATX/Linux virtual servers IBM i virtual servers
VMControl	Ready	6.1.2	Ready. Evaluation period expires on December 24, 2009 (51 days). Workloads Virtual Servers and Hosts Virtual Appliances Deploy System Pools Purchase license
System z Management	Ready	6.1.2	z/VM hosts Linux on System z HMC and managed System z servers

VMControl V2.2 Editions

> Express Edition (no-charge)

- Create and Edit virtual servers
- Manage and relocate virtual servers
- Monitor, performance summary, thresholds, automation

> Standard Edition (VMControl Image Manager, chargeable)

- Express edition features plus:
- Discover existing image repositories
- Import OVF images into repositories as virtual appliances
- Capture a running virtual server, including OS, applications and server
- Deploy virtual appliances quickly to create new virtual servers

> Enterprise Edition (VMControl Image Manager+System Pools, chargeable)

- Standard Edition features plus:
- Create system pools
- Deploy virtual appliances into system pools
- Manage workloads

VMControl V2.2 Server and Licensing

- > **VMControl V2.2 is a plug-in that installs on the IBM Systems Director Server running V6.1.2.1 or later. The following server operating systems are supported:**
 - AIX
 - Linux on Power
 - Linux on System x/BladeCenter
 - Linux on System z
 - Windows

- > **It is not required to have a homogenous server and client environment.**


- > **VMControl V2.2 Standard and Enterprise Editions are available on a 60-day trial period from the date of installation.**

- > **VMControl is licensed based on a per-core metric. A license is required for each server managed by VMControl based on the size of the server.**
 - VMControl Enterprise Edition license includes the Standard Edition license functionality.

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- > *** Express Edition ***
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- > Enterprise Edition
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 - System Pools
 - Resilience Policies
- > IBM Systems Director Editions

Summary Page

> Basics

- Basic tasks
- Install agents
- Setup z/VM, NIM
- Discover
- License 
- Learn

> Virtual Servers/Hosts

VMControl

Use system pools and virtual appliances to manage your data center more efficiently. Deploy virtual appliances and manage the resulting workloads. Pool your systems to increase resource utilization and automation.

[Learn more...](#)

Resources	Active Status	Jobs
6 Virtual appliances	Problems 2 - -	Active - -
2 Workloads	Compliance - - -	Completed 2 5
0 System pools		Scheduled - -

Basics | Workloads | Virtual Appliances | System Pools | Virtual Servers/Hosts

VMControl is ready.

Deploy a virtual appliance
View workloads in your data center

Common Tasks

- Install agents
- Discover virtual appliances
- Import
- Capture

License

VMControl 2.2
License installed

VMControl Image Manager 2.2
Evaluation period expires on December 24, 2009 (51 days) [Purchase license](#)

VMControl System Pools 2.2
Evaluation period expires on December 24, 2009 (51 days) [Purchase license](#)

Common Tasks

- Set up virtualization management
- Check for updates
- Launch information center

Virtual Servers/Hosts

> Basics

> Virtual Servers/Hosts

- Status
- Virtual Servers & hosts
- Virtual farms
- Relocation Plans



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[Learn more...](#)

Resources	Active Status	Jobs
6 Virtual appliances	Problems 2 - -	Active - -
2 Workloads	Compliance - - -	Completed 2 5
0 System pools		Scheduled - -

Basics | Workloads | Virtual Appliances | System Pools | **Virtual Servers/Hosts**

24 Virtual servers

- ✖ 24 Critical
- ⚠ 0 Warning
- i 0 Informational
- ✔ 0 OK

5 Hosts with 24 virtual servers
0 Virtual farms

Common Tasks

- Virtual servers and hosts
- Virtual farms
- Create virtual farm
- Relocation plans
- Relocate

Multiplatform Virtualization Management



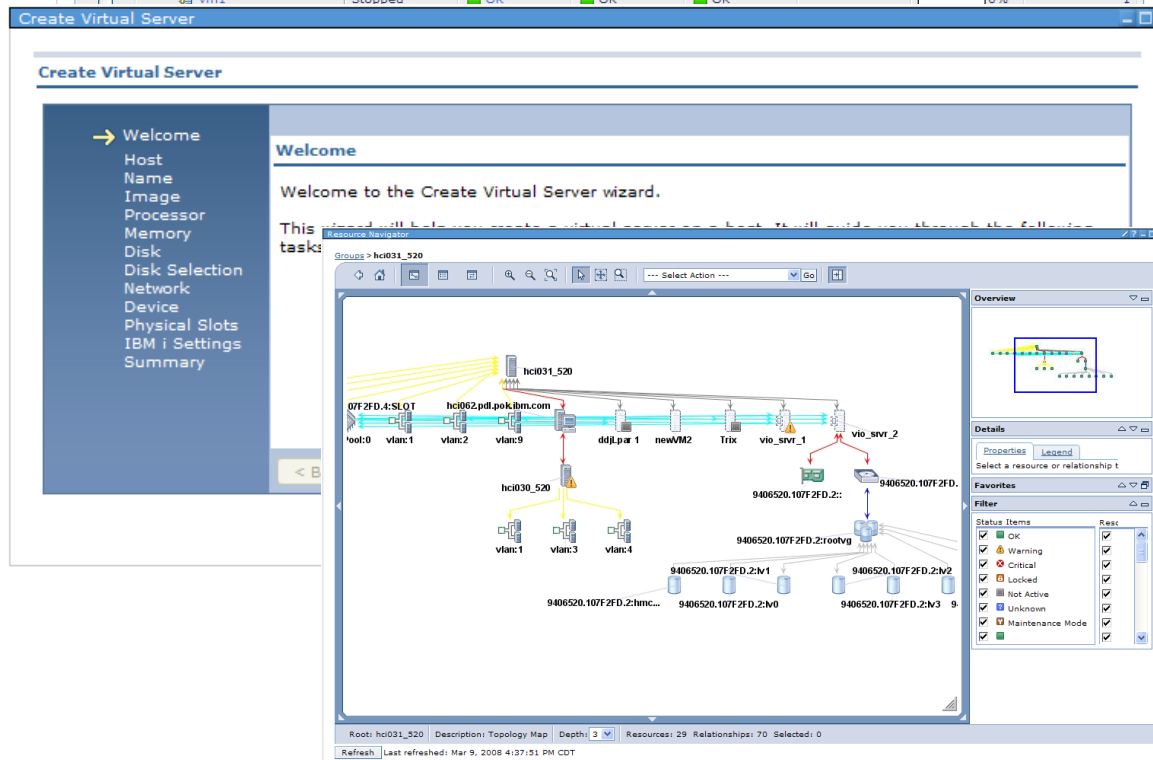
> Multi-Platform Management

- Manage virtual servers & hosts
- Manage PowerVM via HMC and IVM
- Manage x86 via VMware, MSVS, MS Hyper-V
- Topology maps
- Deploy/Create empty virtual servers
- Manage z/VM hosts & virtual servers
- Monitoring, automation

> Edit virtual resources

> Relocate virtual servers

Select	Name	State	Access	Problems	Compliance	IP Address	CPU Utilization	Processors
<input checked="" type="checkbox"/>	vsmesx1-host	Running	OK	OK	OK	9.5.23.51	1%	2
<input type="checkbox"/>	2003Server_Base	Stopped	OK	OK	OK		0%	2
<input type="checkbox"/>	2003Server_gwr59a	Suspended	OK	OK	OK		0%	2
<input type="checkbox"/>	bws_fc8	Suspended	OK	OK	OK		0%	1
<input type="checkbox"/>	hatteras	Stopped	OK	OK	OK		0%	1
<input type="checkbox"/>	Ken	Stopped	OK	OK	OK		0%	1
<input type="checkbox"/>	MIKE	Stopped	OK	OK	OK		0%	1
<input type="checkbox"/>	rh5install	Stopped	OK	OK	OK		0%	1
<input type="checkbox"/>	testgreg	Stopped	OK	OK	OK		0%	1
<input type="checkbox"/>	vm1	Stopped	OK	OK	OK		0%	1



Editing Virtual Resources

- > Multi-Platform Management
- > Edit virtual resources
 - Edit hosts
 - Edit virtual servers
 - GUI or command-line
 - Edit z/VM virtual servers
- > Relocate virtual servers

The screenshot displays two overlapping windows from the IBM Power Systems management interface.

The top window, titled "Edit Host", has tabs for "Disk", "Memory", and "Processor". The "Processor" tab is active, showing "Processor allocations across the host:" with the following table:

Virtual Server	Shared	Minimum Proce:	Assigned Proce:	Maximum Proce:	Sharing Priority	Minimum P
mpotestaix5	<input checked="" type="checkbox"/>	1	1	4	Medium(128)	
hy21vs1	<input checked="" type="checkbox"/>	1	1	4	Medium(128)	
mptestaix2	<input checked="" type="checkbox"/>	1	1	4	Medium(128)	
mptestaix3	<input checked="" type="checkbox"/>	1	1	1	None(capped)	
mptestaix1	<input checked="" type="checkbox"/>	1	1	1	None(capped)	

The bottom window, titled "Edit Virtual Resources -- virtual server mpotestaix5", has tabs for "Processor", "Memory", "Network", "Physical Slots", "Virtual Disk", "Devices", and "Extended". The "Processor" tab is active, showing "Processor mode: Use Shared Processors" and "Shared priority: Medium(128)". Below this, there are two columns of settings:

Processors		Processing units	
Minimum:	1 (1-4)	Minimum:	0.1 (0.1-0.2)
Assigned:	1 (1-4)	Assigned:	0.1 (0.1-0.2)
Maximum:	4 (1-4)	Maximum:	4 (0.1-4)

At the bottom of the second window are "OK" and "Cancel" buttons.

Relocate Virtual Servers

- > Multi-Platform Management
- > Edit virtual resources
- > Relocate virtual servers

- Virtual Farms
 - PowerVM
 - VirtualCenter with ESX
 - Xen
- Static relocation
 - Microsoft Virtual Server
 - VMware ESX
- Relocation plans

Relocation Plans (View Members)

Select	Name	Plan type	Source	Destination	Description
<input type="checkbox"/>	1171ToSystem2	Single	pla1171_AIX5.3	RM SVT Power6 Sy	
<input type="checkbox"/>	Relocate ALL System I to System II	All	RM SVT Power6 Sy	RM SVT Power6 Sy	
<input type="checkbox"/>	Relocate ALL System II to System I	All	RM SVT Power6 Sy	RM SVT Power6 Sy	
<input type="checkbox"/>	Relocate pla1171 to System I	Single	pla1171_AIX5.3	RM SVT Power6 Sy	
<input type="checkbox"/>	Relocate pla1171 to System II	Single	pla1171_AIX5.3	RM SVT Power6 Sy	

The diagram illustrates a server architecture where a central server (BC-KQDL406) is connected to multiple blades and network interfaces. A VMware Cluster is connected to an ESX1 hypervisor, which manages VM1 and VM2.

Create Virtual Server

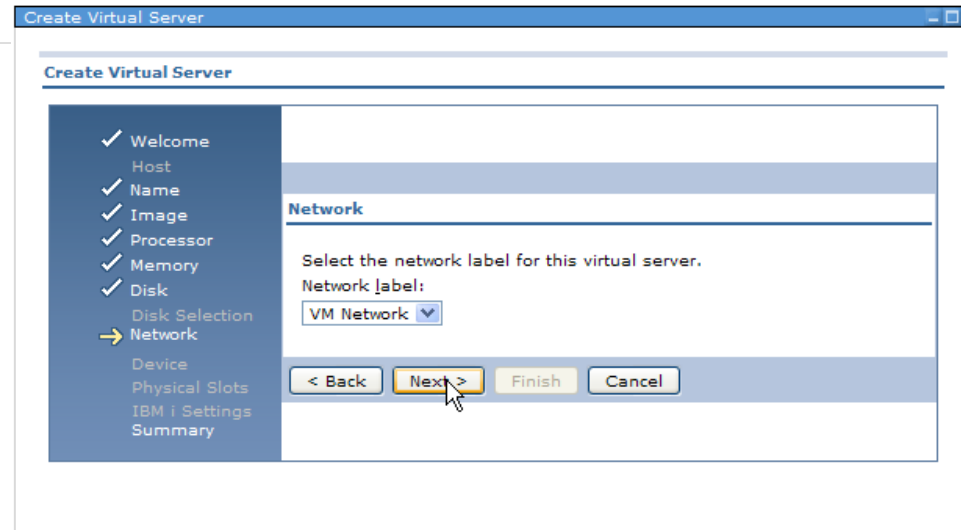
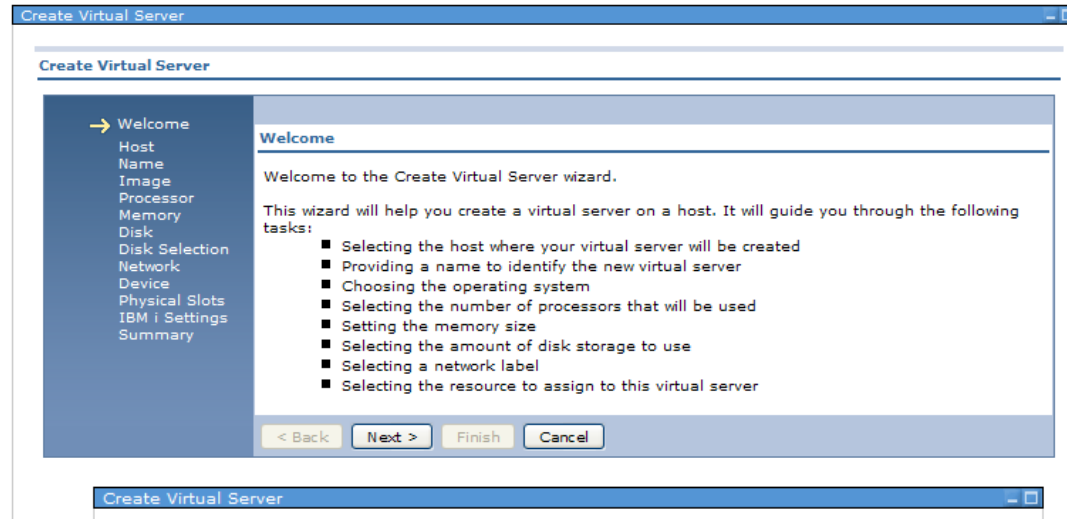
- > Creates a new, empty virtual server
- > Available from Create Virtual Server task on Host
- > Based on existing or from scratch

> PowerVM:

- Virtual CPUs, entitled capacity
- Memory
- Disk (existing or new)
- Network
- Optical devices
- Dedicated slots

> VMware, etc:

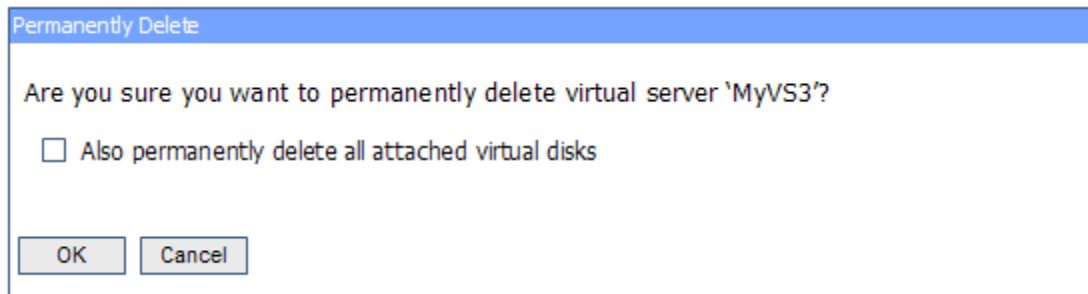
- Image, processors
- Memory, disk
- Network



Delete Virtual Server – Power Systems, VMware, etc.



- > Virtual Server must be powered off before it can be deleted
- > Deleted server is removed from the HMC/IVM
- > Virtual disks are removed if selected
- > IBM Systems Director is updated after removal



Delete Virtual Server - z/VM

- > **Virtual Server must be powered off before it can be deleted**
- > **Deleted server is removed from the z/VM User Directory**
- > **Minidisks are recovered by the Directory Manager after all users of the disk have stopped using the disk**
- > **IBM Systems Director is updated after removal**

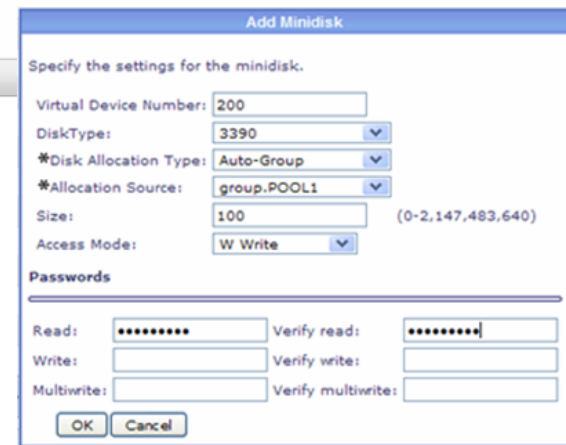
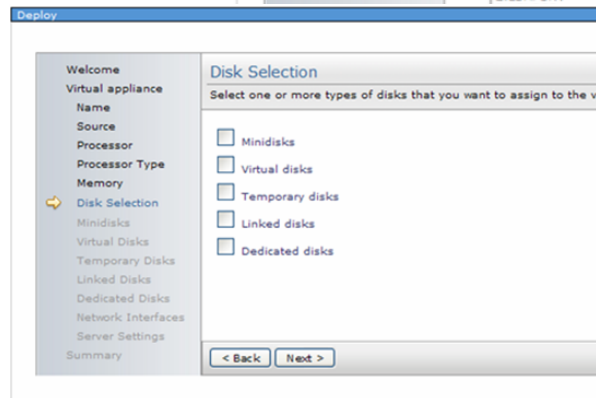
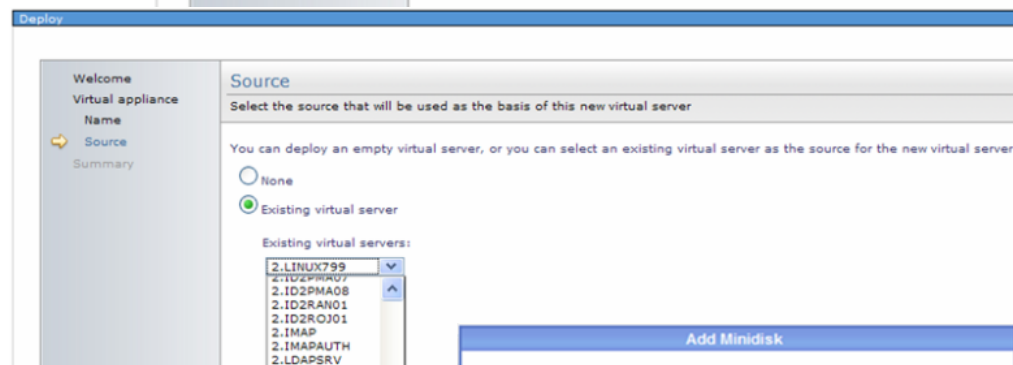
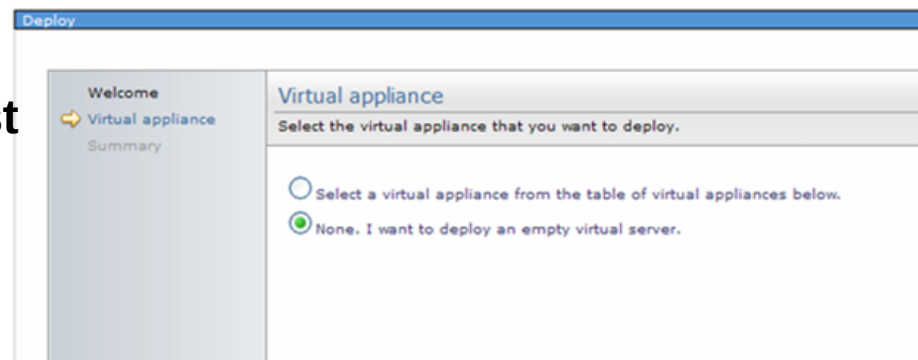
Deploy/Create Virtual Server - z/VM

- > Creates a new, empty virtual server
- > Available from deploy task on z/VM host
- > Based on existing or from scratch. Existing server exceptions:

- Disk allocation is not set as default
- Passwords are not set as default

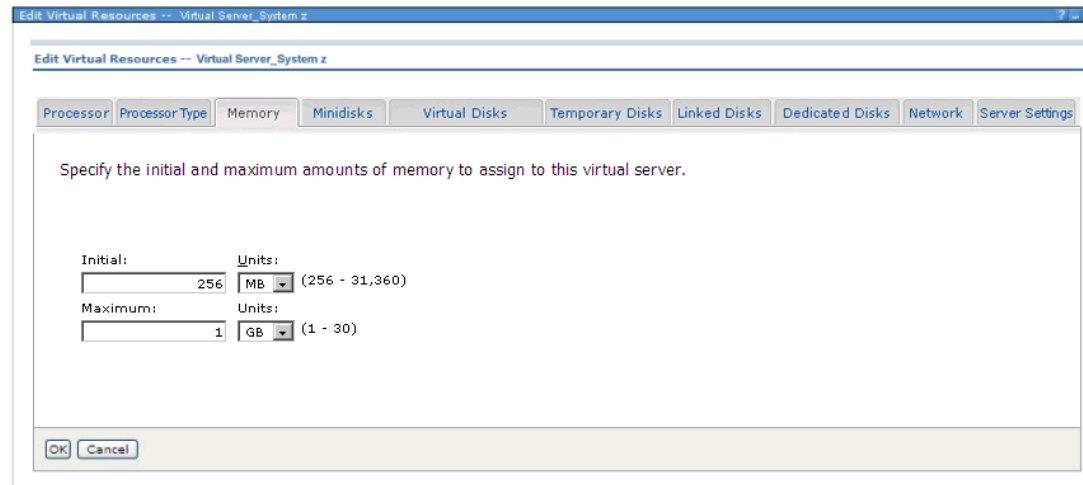
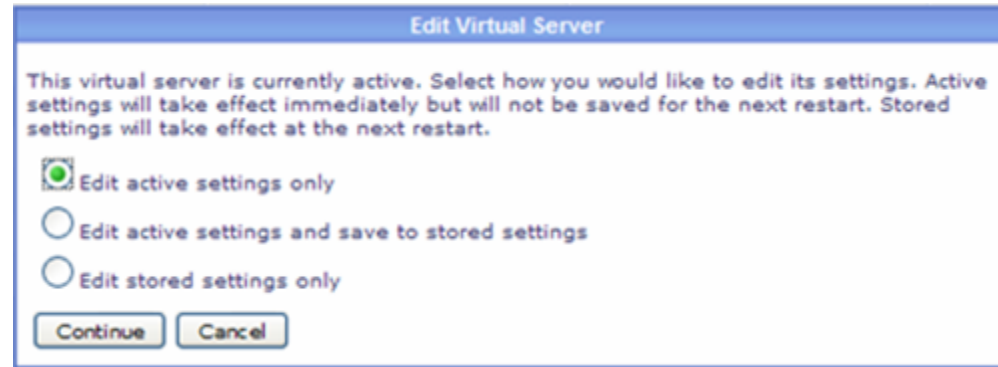
> Options:

- Processor, memory
- Minidisk, virtual disk
- Temporary disk, linked disk
- Dedicated disk, network ports
- Server related settings



Edit Virtual Server - z/VM

- > z/VM User Directory changes
- > Allowed to Add / Remove / Delete resources (does not matter if VS is running)
- > Not allowed to modify minidisk sizes (this would change physical allocation of disk)



Edit Virtual Server – Power Systems, VMware, etc.



- > Edit Hosts
- > Edit Virtual Servers
- > GUI or command line

Processor allocations across the host:

Virtual Server	Shared	Minimum Proce:	Assigned Proce:	Maximum Proce:	Sharing Priority	Minimum P
mpotestaix5	<input checked="" type="checkbox"/>	1	1	4	Medium(128)	
hy21vs1	<input checked="" type="checkbox"/>	1	1	4	Medium(128)	
mptestaix2	<input checked="" type="checkbox"/>	1	1	4	Medium(128)	
mptestaix3	<input checked="" type="checkbox"/>	1	1	1	None(capped)	
mptestaix1	<input checked="" type="checkbox"/>	1	1	1	None(capped)	

Processor mode: Use Shared Processors

Shared priority: Medium(128)

Processors	Processing units
Minimum: 1 (1-4)	Minimum: 0.1 (0.1-0.2)
Assigned: 1 (1-4)	Assigned: 0.1 (0.1-0.2)
Maximum: 4 (1-4)	Maximum: 4 (0.1-4)

OK Cancel

Number of processors: 1 (1-4)

OK Cancel

Relocation Support – PowerVM, VMware, Microsoft



Virtualization environment	Relocation support		
	Static relocation within IBM Systems Director virtual farms	Live relocation within IBM Systems Director virtual farms	Live relocation within VMControl system pools *
IBM Power Systems® that are under the control of the Hardware Management Console or the Integrated Virtualization Manager	Yes	Yes	Yes
VMware VirtualCenter	Yes	Yes	No
VMware vCenter	Yes	Yes	No
Virtualization manager subagent for VMware VirtualCenter with VMware ESX Server hosts	Yes	Yes	No
Microsoft® Virtual Server	Yes	No	No
Virtualization manager subagent for VMware ESX Server	Yes	No	No
Windows® Server 2008, Enterprise, Standard, and Datacenter x64 Editions with Hyper-V role enabled	No	No	No
Xen	Yes	Yes	No

* Relocation within system pools requires System Pools license

Relocation Differences

Virtual Farms versus System Pools

	Relocation type	
Relocation features	Virtual farm relocation in IBM Systems Director	System pool relocation in VMControl *
Relocate all virtual servers in a host	Yes	Yes
Relocate one or more virtual servers	Yes	Yes
Automatic placement (VMControl determines the target virtual server or host)	No ¹	Yes
Advisory placement (User can approve the relocation before it can occur)	No	Yes
Relocate all virtual servers on predicted failure	No	Yes
Relocation plans	Yes	No
Fixed target (User determines the target virtual server or host)	Yes	No
Relocation automation	Yes	Yes

* Relocation within system pools requires System Pools license

Performance Summary



- > Hierarchical Views
- > Live data in columns
- > Relationships between virtual resources
- > Activate thresholds

Performance Summary

Select a target from the list or use Browse to select one or more targets. A target might be a server, virtual server or operating system.

pla0054,PLA9139_AIX,pva9214,ip9.12.33.34_AIX,NIMSRV_ip9.12.33.20

Select a monitor view to apply to the selected targets.

Virtualization Manager Monitors

Processor Memory Network

Shows processor performance summary results

Performance Summary (ip9.12.33.34_AIX, NIMSRV_ip9.12.33.20, pla0054...)

Select	Name	Processors	CPU Utilizat...	CPU Utilizat...	CPU Utilizat...	CPU Utilizat...	Available Pr...	Entitled Pro...	Available Pr...
<input type="checkbox"/>	IBM 8203 E4A 06243D4	4	0%	0.016	0.01	0.01	1	0.5	1.5
<input type="checkbox"/>	ip9.12.33.34_AIX	1	2%	0	0.01	0.01	1	0.5	1.5
<input type="checkbox"/>	NIMSRV_ip9.12.33.20	1	—	—	—	—	1	0	0.5
<input type="checkbox"/>	pva9214	1	1%	0	0.006	0.006	1	0.5	1.5
<input type="checkbox"/>	IBM 8203 E4A 06243F4	4	1%	0.021	0.004	0.005	1	1	1.5
<input type="checkbox"/>	Port 1	4	13	13	3,491	24	0	0	0
<input type="checkbox"/>	Port 0								
<input type="checkbox"/>	PLA9139_AIX								

Processor Memory Network

Shows network performance summary results

Performance Summary (NIMSRV_ip9.12.33.20, PLA9139_AIX, pva9214)

Select	Name	OS Type	Error Rate/sec	Pause Fra...	MC Packet...	Bytes Rec...	BC Packet...	Pause Fra...	Packets Tr...
<input type="checkbox"/>	IBM 8203 E4A 06243D4								
<input type="checkbox"/>	NIMSRV_ip9.12.33.20								
<input type="checkbox"/>	Port 1								
<input type="checkbox"/>	pva9214								
<input type="checkbox"/>	IBM 8203 E4A 06243F4								
<input type="checkbox"/>	Port 0								
<input type="checkbox"/>	PLA9139_AIX								

Processor Memory Network

Shows memory performance summary results

Performance Summary (ip9.12.33.34_AIX, NIMSRV_ip9.12.33.20, pla0054...)

Select	Name	Memory (MB)	Page-In Delay...	I/O Entitled M...	Mapped I/O E...	Physical Mem...	Available Me...	Memory Overc...
<input type="checkbox"/>	IBM 8203 E4A 06243D4	16,384				16,384	9,920	
<input type="checkbox"/>	ip9.12.33.34_AIX	2,176				2,176		
<input type="checkbox"/>	NIMSRV_ip9.12.33.20	2,176				2,176		
<input type="checkbox"/>	pva9214	1,536				1,536		
<input type="checkbox"/>	IBM 8203 E4A 06243F4	16,384				16,384	8,192	
<input type="checkbox"/>	PLA9139_AIX	2,176				2,176		
<input type="checkbox"/>	IBM 8203 E4A 06244B4	16,384				16,384	3,648	
<input type="checkbox"/>	Shared Memory Pool	3,072	362	77	7	2,176	2,733	12,321
<input type="checkbox"/>	pla0054	2,176		77	8	1,421		

- > VMControl V2.2 Overview
- > Express Edition
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- > *** Standard Edition ***
 - Virtual Appliances
 - Capture, deploy, import, versioning
- > Enterprise Edition
 - Workloads
 - System Pools
 - Resilience Policies
- > IBM Systems Director Editions

> Discover

- Existing image repositories

> Capture

- A running virtual server that is configured just the way you want, complete with guest operating system, running applications and virtual server definition. Can also capture an existing AIX mksysb or NIM lpp_source resource.

> Import

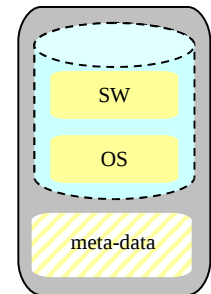
- Virtual appliance packages that exist in Open Virtualization Format (OVF).

> Deploy

- Virtual appliances quickly to create new virtual servers or into empty virtual servers

> Versioning

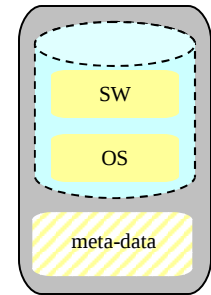
- Allows easier management of different levels of virtual appliances



Virtual Appliance

> Definition:

- A package that contains a virtual server definition that meets the requirements to run its associated image; where the image contains the operating system and installed software



Virtual Appliance

> Virtual Server image may contain

- A supported operating system (AIX or Linux on System z)
- Any software applications installed in that operating system image

> The Virtual Appliance is described using the methods described in the Open Virtualization Format (OVF) specification. OVF is an industry standard representation of a virtual server that contains a configured, tested operating system and optionally, middleware and software applications, along with the metadata that describes the virtual server.

> AIX virtual appliances can be

- A mksysb file and the associated metadata file (XML)
- An Open Virtualization Archive format (tar file with mksysb+metadata file)

Image Repositories

> Definition:

- Image repositories are the place where the OVF virtual appliances images are stored

> Requires an sub-agent to be installed on the repository system running the Common Agent

- For NIM servers, appliances in /export/nim/appliances directory

> After discovery of the virtual appliances on the repository, they appear in the virtual appliance list.

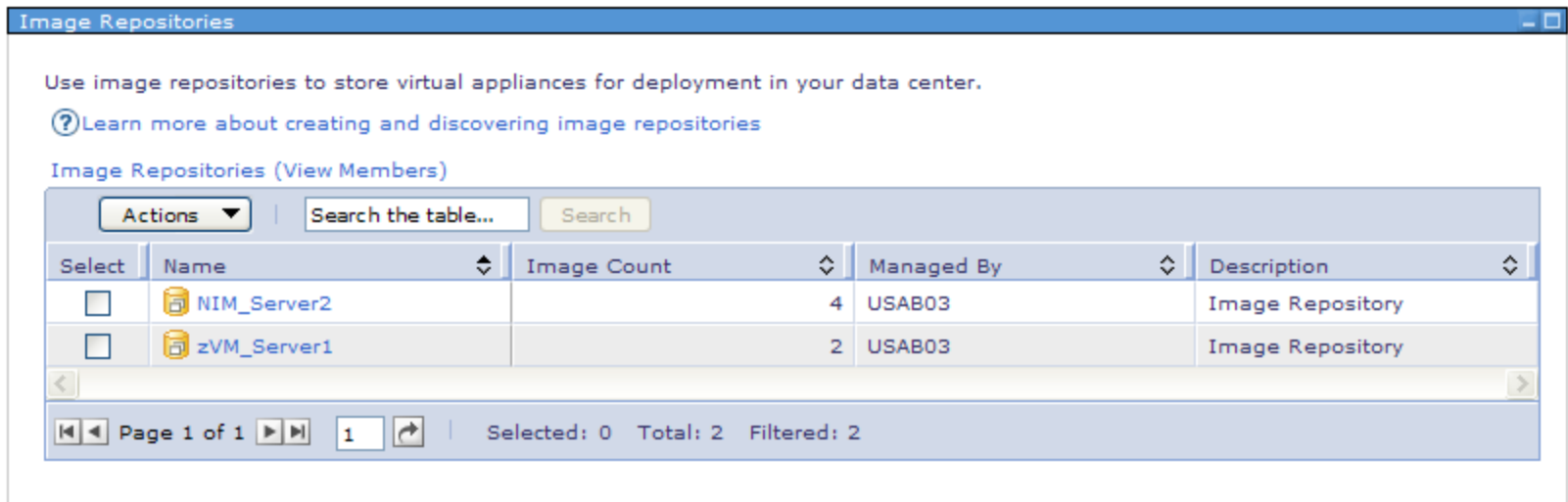


Image Repositories

Use image repositories to store virtual appliances for deployment in your data center.

[Learn more about creating and discovering image repositories](#)

Image Repositories (View Members)

Select	Name	Image Count	Managed By	Description
<input type="checkbox"/>	NIM_Server2	4	USAB03	Image Repository
<input type="checkbox"/>	zVM_Server1	2	USAB03	Image Repository

Page 1 of 1 | 1 | Selected: 0 Total: 2 Filtered: 2

Virtual Appliances – User Interface

> Basics

> Virtual Appliances

- What to deploy
- Where to deploy
- What to capture
- Where to store
- Import
- Versioning



> Virtual Servers/Hosts

VMControl

Use system pools and virtual appliances to manage your data center more efficiently. Deploy virtual appliances and manage the resulting workloads. Pool your systems to increase resource utilization and automation.

[Learn more...](#)

Resources	Active Status	Jobs
6 Virtual appliances	Problems: 2	Active: -
2 Workloads	Compliance: -	Completed: 2
0 System pools		Scheduled: -

Basics | Workloads | **Virtual Appliances** | System Pools | Virtual Servers/Hosts

What to deploy: 6 Virtual appliances
 Where to deploy: 60 Existing virtual servers, 60 Hosts and system pools

What to capture: 2 Workloads, 60 Virtual servers
 Where to store: 2 Image repositories

Common Tasks: Deploy, Capture, Import, View active and scheduled jobs

Virtual Appliances (View Members)

Capture | Deploy | Import | Actions | Search the table... | Search

Select	Name	Operating System	Repository	Description
<input type="checkbox"/>	asdfsadfs	Unknown	zVM_Server1	Virtual Appliance
<input type="checkbox"/>	asfd	Unknown	NIM_Server2	Virtual Appliance
<input type="checkbox"/>	testcapturename	Unknown	NIM_Server2	Virtual Appliance
<input type="checkbox"/>	tim's appliance	Unknown	NIM_Server2	Virtual Appliance
<input type="checkbox"/>	tims kitchen appliance	Unknown	NIM_Server2	Virtual Appliance

Page 1 of 2 | Selected: 0 Total: 6 Filtered: 6

Virtual Appliances – User Interface continued

> Tasks available:

- Capture
- Deploy
- Import

The screenshot shows the 'Virtual Appliances' tab in a management console. It includes configuration sections for deployment and capture, a 'Common Tasks' sidebar, and a table of existing virtual appliances.

Configuration Summary:

- What to deploy:** 6 Virtual appliances
- Where to deploy:** 15 Existing virtual servers, 5 Hosts and system pools
- What to capture:** 1 Workloads, 15 Virtual servers
- Where to store:** 2 Image repositories

Common Tasks: Deploy, Capture, Import, View active and scheduled jobs

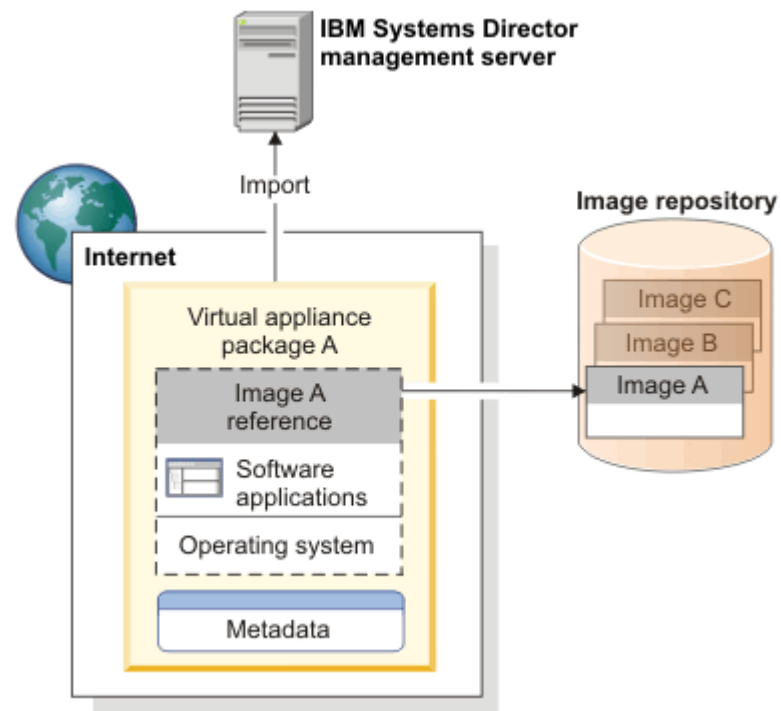
Virtual Appliances (View Members)

Select	Name	Operating System	Repository	Description
<input type="checkbox"/>	asdfsadfs	Unknown	zVM_Server1	Virtual Appliance
<input type="checkbox"/>	asfd	Unknown	NIM_Server2	Virtual Appliance
<input type="checkbox"/>	testcapturename	Unknown	NIM_Server2	Virtual Appliance
<input type="checkbox"/>	tim's appliance	Unknown	NIM_Server2	Virtual Appliance
<input type="checkbox"/>	tims kitchen appliance	Unknown	NIM_Server2	Virtual Appliance

Page 1 of 2 | Selected: 0 Total: 6 Filtered: 6

Importing a Virtual Appliance

- > Import task stores the virtual appliance (VA) package on the designated repository
- > Virtual appliance package must be in OVF format.
- > Import from the Internet (http), system on the local network (Windows share) or local directory on the Director Server

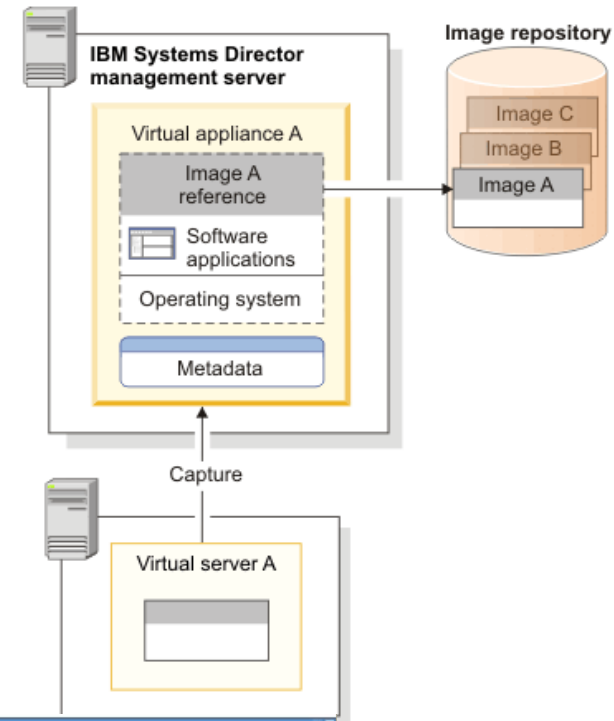


Capturing a Virtual Appliance



> Capture:

- PowerVM virtual server running AIX
- z/VM virtual server running Linux
- Existing AIX mksysb image or lpp_source via CLI



Capture

✓ Welcome
➔ Name
Source
Summary

Name
Specify a name and description for the virtual appliance that you want to create.

*Name:
[Text Field]

Description:
[Text Area]

Limit of 256 characters

Search tags:
[Text Area]

Enter tags separated by commas. Examp

< Back Next > Finish Cancel

Capture

Welcome
Name
➔ Source
Summary

Source
Select the virtual server to capture.

Select a valid target then add it to the selected list.

Show: Virtual Servers

Available:
Virtual Appliance Sources

Select	Name	State	Access
<input type="radio"/>	169.254.16.102		Offline
<input type="radio"/>	49xtst1.rchland.ibm.com		Offline
<input type="radio"/>	9.10.111.11		No access
<input type="radio"/>	9.10.111.16		Offline
<input type="radio"/>	9.10.111.26		Offline
<input type="radio"/>	9.10.111.29		No access
<input checked="" type="radio"/>	hcl062.pdf.pok.ibm.com		OK
<input type="radio"/>	IBM 2084314 000000000...		OK
<input type="radio"/>	IBM 9196 A49 LKDMGYA		No access
<input type="radio"/>	ibm-7962c3f618.rchland...		No access

Page 1 of 2 Total: 18

< Back Next > Finish Cancel

Run - Capture virtual appliance

Schedule Notification Options

Job name and schedule

*Job Name:
Capture virtual appliance - June 30, 2009 11:37:53 AM

Choose when to run the job.

Run Now
 Schedule

OK Cancel Help

Versioning a Virtual Appliance

> Versioning

- Replace with version
- Version tagging capability
- Advanced search

Replace with Revision

Virtual Servers
Select a valid target then add it to the selected list.

Show: Virtual Servers

Available:
Replace with Revision 'asdfsadfs'

Actions ▾

Select	Name	State
<input type="checkbox"/>		

Selected:

Advanced Search

Query:

[Learn more about creating a search query](#)

Name ▾ Equals ▾

AND (all must match) ▾

Virtual Appliances

Deploy... Import... Capture... Actions ▾

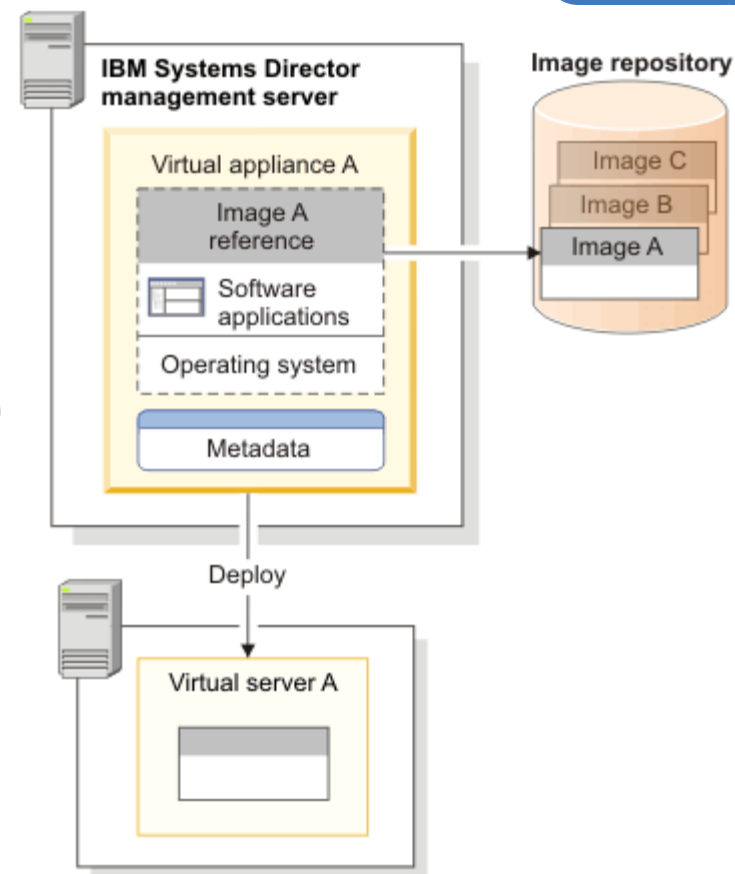
Select	Name	TrunkName	Revision	Operating...	Repository	Description
<input type="checkbox"/>	asdfsadfs	asdfsadfs	1.1	Unknown	zVM_Server1	Virtual Appla...
<input type="checkbox"/>	asfd	asfd	1.1	Unknown	NIM_Server2	Virtual Appla...
<input type="checkbox"/>	testcapturename	testcapturena...	1.1	Unknown	NIM_Server2	Virtual Appla...
<input type="checkbox"/>	tim's appliance	tim's appliance	1.1	Unknown	NIM_Server2	Virtual Appla...
<input type="checkbox"/>	tims kitchen appliance	tims kitchen ...	1.1	Unknown	NIM_Server2	Virtual Appla...
<input type="checkbox"/>	tims kitchen appliance2	tims kitchen ...	1.1	.	zVM_Server1	Virtual Appla...

Deploying a Virtual Appliance

- > **Deploy a virtual appliance to:**
 - A new virtual server on designated host
 - An existing virtual server (empty or not)
 - A system pool (with VMControl System Pools)

- > **Customization of attributes:**
 - Network settings
 - Hostname, IP address
 - Default route, DNS settings
 - Netmask, etc
 - Network mapping
 - Unique NIM customization script

- > **Image repository of source virtual appliance must be available**

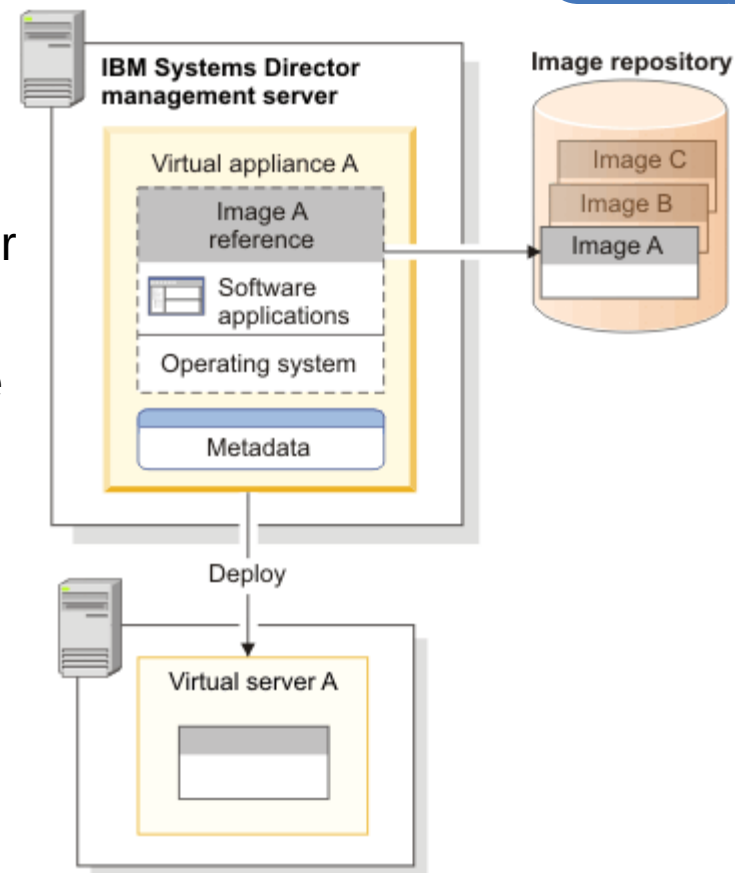


Deploying a Virtual Appliance – PowerVM Details



> Steps in deployment include:

- Reading of the virtual appliance's virtual server metadata for resource information
- Verification the target host, VS or pool has the required resources available
- Creation (if new) of the virtual server, possibly including the storage
- The OS component is installed on the virtual server. NIM performs the netboot via the virtual server's platform manager (HMC or IVM)
- The virtual server is booted from the installed image



> Storage used for new virtual server can be

- Allocated from IBM Systems Director-managed SAN storage pool hosted by a Virtual I/O Server
- Allocated from local storage pool on the VIOS

Storage Pools

Specify the disk settings you want to use when you deploy the virtual appliance.

Select a storage pool whose storage you want to use for your virtual disks. When you select a storage pool on a SAN storage system, a storage volume is created on the SAN automatically, and connected through the Virtual I/O Server to the virtual server.

Select	Pool	Storage Server Pa	Free Space (GB)	Description
<input type="radio"/>	1	VIOS acme189 to SAI	66.8027	SAN pool accessed through a V
<input type="radio"/>	2	VIOS acme189 to SAI	66.8027	SAN pool accessed through a V
<input type="radio"/>	DirectorPool0	VIOS acme189 to SAI	190.0	SAN pool accessed through a V
<input type="radio"/>	DirectorPool00	VIOS acme189 to SAI	126.0	SAN pool accessed through a V
<input type="radio"/>	Fibre Drives	VIOS acme189 to SAI	200.4082	SAN pool accessed through a V
<input type="radio"/>	PrimordialStoragePc	VIOS acme189 to SAI	1087.7842	SAN pool accessed through a V
<input type="radio"/>	rootvg	VIOS acme189	8.375	VIOS logical volume pool. Virtua

Page 1 of 1 | 1 | Selected: 0 Total: 7 Filtered: 7

- > **Select specifics of z/VM virtual appliance and containing new virtual server**
 - Processor, Processor Type, Memory, Disk pages, Network Interfaces, Server Settings

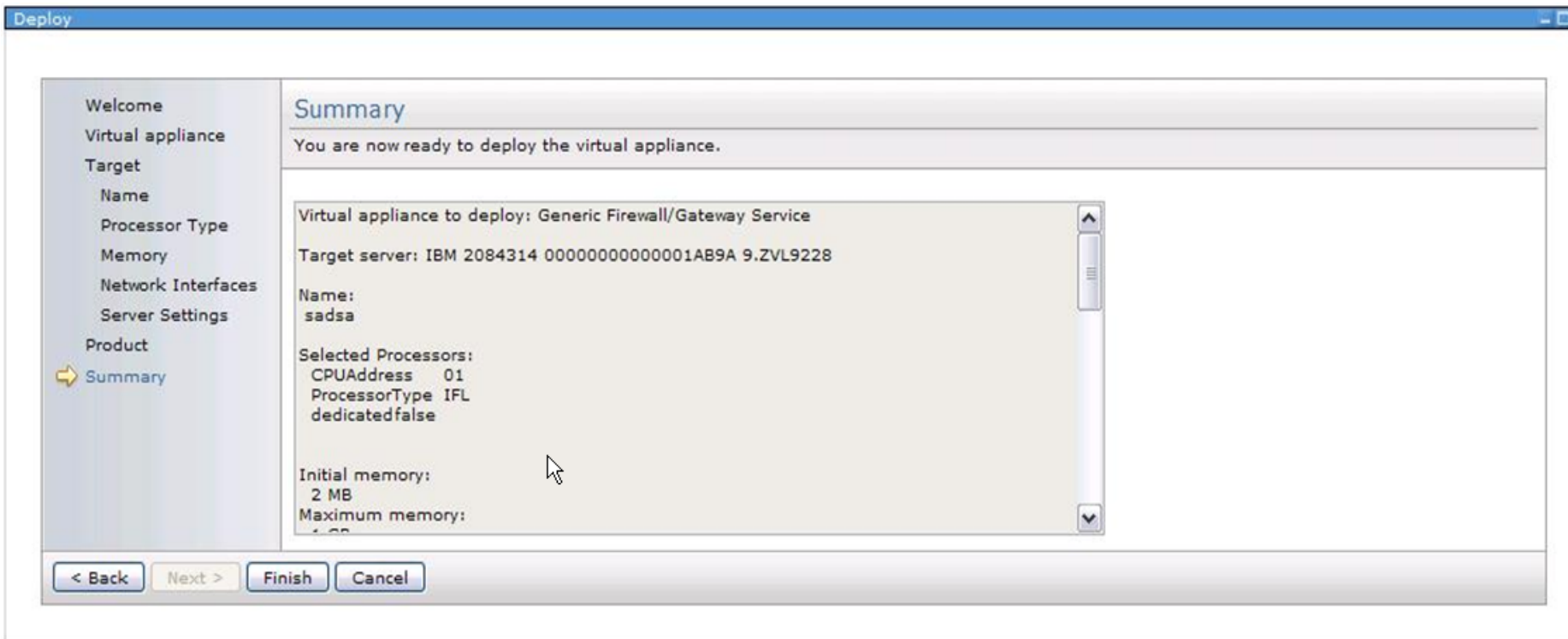
The screenshot shows the 'Deploy' wizard interface. On the left is a navigation pane with a tree structure: Welcome, Virtual appliance, Target, Name, Source, Processor (highlighted with a yellow arrow), Processor Type, Memory, Disk Selection, Minidisks, Virtual Disks, Temporary Disks, Linked Disks, Dedicated Disks, Network Interfaces, Server Settings, and Summary. The main area is titled 'Processor' and contains the instruction: 'Specify the initial and maximum number of processors to assign to this virtual server.' Below this, there are two input fields: 'Initial:' with a value of '3' and a range '(1-16)', and 'Maximum:' with a value of '6' and a range '(1-32)'. At the bottom of the main area are two buttons: '< Back' and 'Next >'. A mouse cursor is visible over the 'Next >' button.

- > Select specifics of z/VM virtual appliance and containing existing virtual server
 - Processor, Processor Type, Memory, Network Interfaces, Server Settings

The screenshot shows a web-based deployment wizard titled "Deploy". On the left is a navigation pane with a "Target" section containing a list of steps: "Processor", "Processor Type", "Memory", "Network Interfaces", "Server Settings", and "Summary". The "Processor" step is highlighted with a red box and a yellow arrow. The main content area is titled "Processor" and contains the instruction: "Specify the initial and maximum number of processors to assign to this virtual server." Below this are two input fields: "Initial:" with a value of "3" and a range of "(1-16)", and "Maximum:" with a value of "6" and a range of "(1-32)". At the bottom of the main area are two buttons: "< Back" and "Next >".

Deploying a Virtual Appliance – Summary

- > Summary lists all parameters
- > Run immediately or schedule for later deployment



> **AIX NIM Server requirements:**

- Already configured as a NIM server
- Running the Common Agent with latest updates (6.1.2 or later)
- AIX 5.3 or 6.1.3 (highest level needed for AIX clients)
- Installed filesets: dsm.core, openssh/openssl
- Installed VMControl NIM Subagent

> **Virtual Appliances (mksysb and OVF-based metadata) are stored in /export/nim/appliances file directory (recommend a separate file system)**

> **Image Manager only captures/deploys from/to Virtual Servers**

- Only LPARs managed by an HMC or IVM, not standalone
- Only LPARs under a VIOS

> **Systems Director Server must be at 6.1.2.1 level or later**

> **Minimum of HMC 7.3.4.2 + MH01181 or IVM 2.1.0.10 required**

> **See ISD Redbook wiki for details and hints/tips**

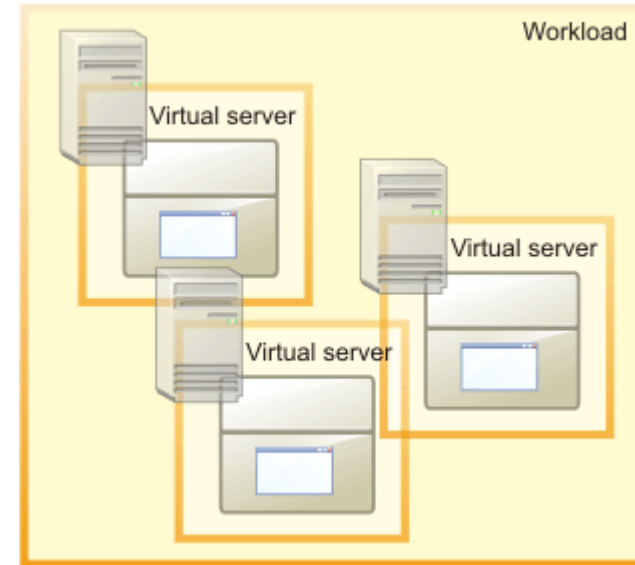
- > VMControl V2.2 Overview
- > Express Edition
 - Overview and Summary
 - Platform support – Power Systems, x86, z/VM
 - Performance Summary
- > Standard Edition
 - Virtual Appliances
 - Capture, import, versioning, deploy
- > * **Enterprise Edition** *
 - Workloads
 - System Pools
 - Resilience Policies
- > IBM Systems Director Editions

> Definition:

- A deployed virtual appliance that allows you to monitor and manage one or more virtual servers as a single entity

> Workloads

- Created from 'deploy' task
- Edit
- Group as Workload
- Dashboard




Workloads (View Members)

Select	Name	State	Problems	Average ...	Peak CPU...	Created By	Description	Re
<input type="checkbox"/>	Cool	Started	Critical	2%	3%	USAB03\test...	Workload	Not
<input type="checkbox"/>	Tims Test Workload	Started	Critical	USAB03\Admi...	Workload	Not

Page 1 of 1 | Selected: 0 Total: 2 Filtered: 2

> Basics

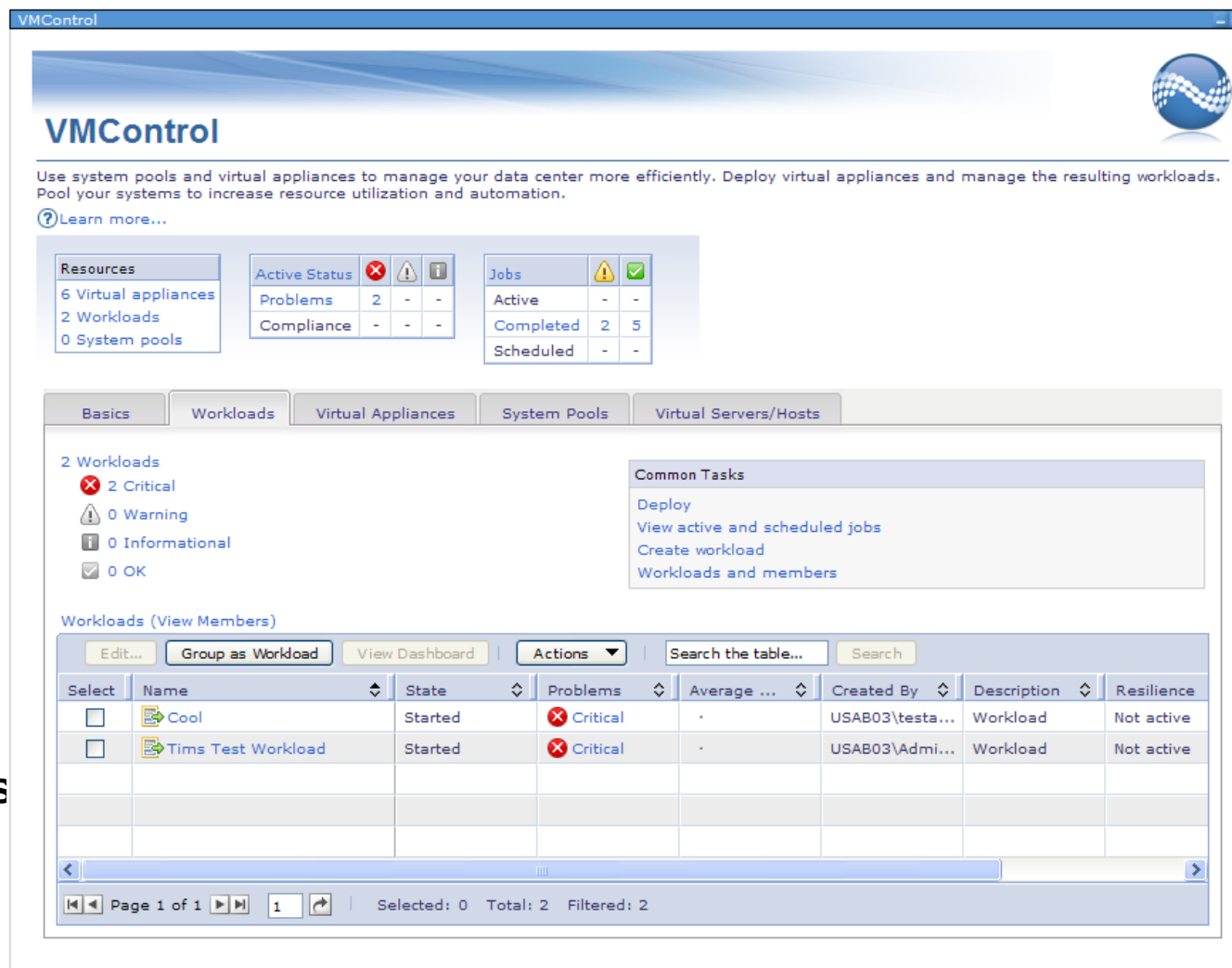
> Workloads

- Status
- Lists
- Deploy 
- Group as workload
- Dashboard

> Virtual Appliances

> System Pools

> Virtual Servers/Hosts



The screenshot displays the VMControl web interface. At the top, it says "VMControl" and provides a brief description: "Use system pools and virtual appliances to manage your data center more efficiently. Deploy virtual appliances and manage the resulting workloads. Pool your systems to increase resource utilization and automation." Below this is a "Learn more..." link.

Summary statistics are shown in three boxes:

- Resources:** 6 Virtual appliances, 2 Workloads, 0 System pools.
- Active Status:** Problems: 2 (Critical), 0 (Warning), 0 (Informational); Compliance: 0 (OK).
- Jobs:** Active: 0, Completed: 2 (5 total), Scheduled: 0.

Navigation tabs include: Basics, Workloads (selected), Virtual Appliances, System Pools, and Virtual Servers/Hosts.

Under the "Workloads" tab, it shows "2 Workloads" with a status summary: 2 Critical (red X), 0 Warning (yellow triangle), 0 Informational (blue 'i'), and 0 OK (checkmark).

A "Common Tasks" panel on the right lists: Deploy, View active and scheduled jobs, Create workload, and Workloads and members.

The main area shows a table titled "Workloads (View Members)".

Select	Name	State	Problems	Average ...	Created By	Description	Resilience
<input type="checkbox"/>	Cool	Started	Critical	.	USAB03\test...	Workload	Not active
<input type="checkbox"/>	Tims Test Workload	Started	Critical	.	USAB03\Admi...	Workload	Not active

At the bottom, there is a pagination bar: "Page 1 of 1", "Selected: 0", "Total: 2", "Filtered: 2".

- > Grouped virtual servers that contribute to the business
- > Summarize resources used
- > Aggregated monitoring

Dashboard - Wokload1

Workload1 – my web application serving the world

Source virtual appliance: MyVirtApp
Availability policy: Active

Virtual Servers

Virtual Server	State	Problems	Compliance	CPU Utilization
Linux Good	Active	OK	OK	30%
Sales App	Active	OK	OK	40%
Web Site	Active	OK	Warning	80%
My App	Active	OK	OK	30%
ADXplus	Active	OK	OK	95%
TestApp A	Active	Warning	OK	20%
TestApp B	Active	OK	Warning	30%

Scoreboard

Active Status	✖	⚠	ℹ
Hardware	1	-	-
Virtualization	-	3	-
LED	-	2	-
Threshold	-	1	-
Compliance	1	-	-

Workload Dashboard

WL - Workload

Resilience policy: Not Active

Scoreboard

Active Status	✖	⚠	ℹ
Hardware Status	-	1	-
Virtualization Status	-	-	-
Threshold Status	-	-	-

Monitors

Monitor	Average	Peak
CPU Utilization %	1.01	1.01

Virtual Servers

Performance Summary

Select	Name	State	Access	Problems	Compliance	IP Addresses	CPU Utilization
<input type="checkbox"/>	IBM 8203E4A 06243D4 2	Started	Unknown	Minor	OK	9.12.33.20	1%

Page 1 of 1 | Selected: 0 Total: 1 Filtered: 1

Resources being used by this workload:

Resource	Total
Memory(MB)	2176.0
Virtual Disks	2
Hosts	1
Entitled Processing Units	0.5

> Definition:

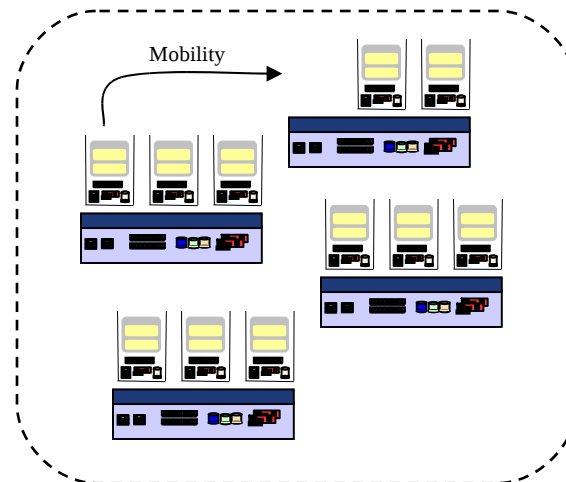
- A logical group of like hosts and their virtual servers with the goal of better resource usage and workload resilience.



> Capabilities:

- Create System Pool
- Add/remove hosts
- Monitor resilient workloads
- Automatic placement during deploy
- Dashboard

New type of system with IBM System Director, allowing the pool to be managed a single logical entity in the data center



- > Basics
- > Workloads
- > Virtual Appliances
- > System Pools
 - Status
 - Lists
 - Create
 - Add Hosts
 - Dashboard
- > Virtual Servers/Hosts

The screenshot displays the VMControl web interface. At the top, there's a header with the VMControl logo and a navigation bar with tabs for Basics, Workloads, Virtual Appliances, System Pools (selected), and Virtual Servers/Hosts. Below the header, there's a summary section with three tables:

Resources	Active Status	Jobs
6 Virtual appliances	Problems: 2	Active: -
2 Workloads	Compliance: -	Completed: 2
0 System pools		Scheduled: -

Below this, there's a 'System Pools' section with a status summary: 0 System pools, 0 Critical, 0 Warning, 0 Informational, and 0 OK. To the right, there's a 'Common Tasks' panel with links for Health summary, Monitors, Problems, Create system pool, and System pools and members.

The main area features a table titled 'System Pools (View Members)'. The table has columns for Select, Name, State, Problems, Platform, Average CPU, Peak CPU, and Allocated. The table is currently empty. Below the table, there's a pagination control showing 'Page 1 of 1', '1' items, and 'Selected: 0 Total: 0 Filtered: 0'.

System Pools Dashboard



- > Workloads running in a System Pool
- > Resources used/available
- > Aggregated monitoring
- > Aggregated status

Dashboard - SysPool1
?

SysPool1 – my pool that is so cool

Platform: PowerVM
State: ■ Active

Scoreboard

Active Status	✖	⚠	i
Hardware	1	-	-
Virtualization	-	3	-
LED	-	2	-
Threshold	-	1	-
Resilience	1	-	-
Compliance	-	-	-

Workloads

Workload	State	Problems	Compliance	CPU Utilization
Linux Good	Active	■ OK	■ OK	<div style="width: 30%;"></div> 30%
Service	Suspended	■ OK	■ OK	<div style="width: 0%;"></div> 0%
Sales App	Active	■ OK	⚠ Warning	<div style="width: 40%;"></div> 40%
Web Site	Active	■ OK	■ OK	<div style="width: 80%;"></div> 80%
My App	Active	■ OK	■ OK	<div style="width: 30%;"></div> 30%
AIXplus	Active	⚠ Warning	■ OK	<div style="width: 95%;"></div> 95%
TestApp A	Active	■ OK	⚠ Warning	<div style="width: 20%;"></div> 20%
TestApp B	Active	■ OK	■ OK	<div style="width: 30%;"></div> 30%
App Tool A	Active	■ OK	■ OK	<div style="width: 30%;"></div> 30%

Page 1 of 12 Page 1 of 1 Total: 125 Filtered: 125

Monitors

Monitor	Avg	Peak
CPU Utilization %	70%	95%

Resource usage details:

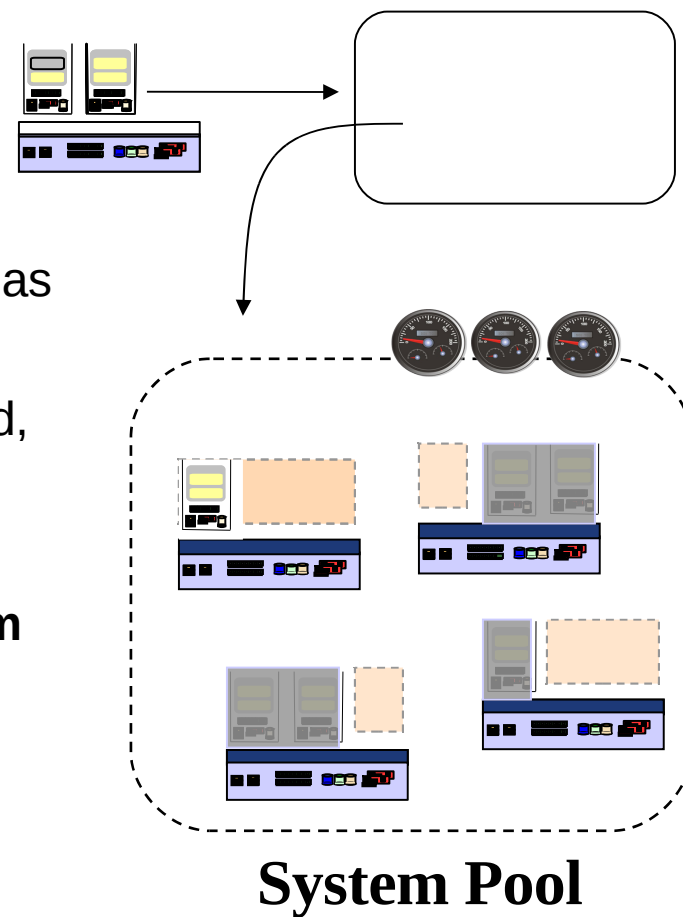
Resource	Free	Largest Slice	Allocated	Unavailable	Total
Processors	18	2	550	3	571
Memory	200 GB	3 GB	30 TB	30 GB	3230 GB
Virtual Disk	-	-	24	-	24
Hosts	4	-	98	3	105
Storage Provider	34 TB	1 TB	254 TB	-	288 TB

> System Pools can be defined from a combination of new or existing servers

- For new systems, all of the system's capacity is added to the system pool
- For existing systems, all of the remaining system's capacity is added and managed as part of the system pool
- Any pre-existing workloads are recognized, but not managed as part of the system pool

> Existing Workloads can be migrated to a system pool:

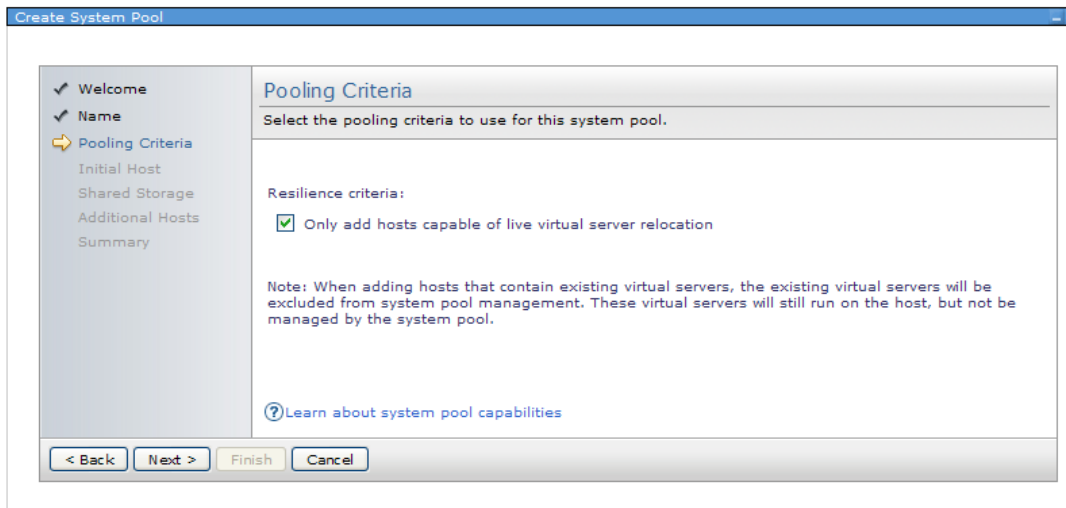
- Capture the existing virtual appliances
- Deploy as a workload into a system pool



Workload Resilience within a System Pool

> Resilience Policy can:

- Relocate virtual servers between hosts in the Pool
 - Supports both single VS and host evacuation
- Move virtual servers away from a failing host



> Resilience Policy associated with the Workload

- Provide Workload resilience: yes/no
- Enables host system monitoring for predictive failures
- Automates recovery action based on admin choice
- Users can add automation for customer thresholds

> Automation Policy associated with the Workload

- Automate: require approval / automate
 - Require approval: VMControl makes a recommendation
 - Automate: VMControl takes the action

Edit Workload

Name | **Resilience**

The resilience policy can identify problems on the hosting systems and take appropriate action to maintain the resilience of the workload. The policy can perform actions immediately, or ask for your approval before they are performed.

Activate resilience policy?
 ▼

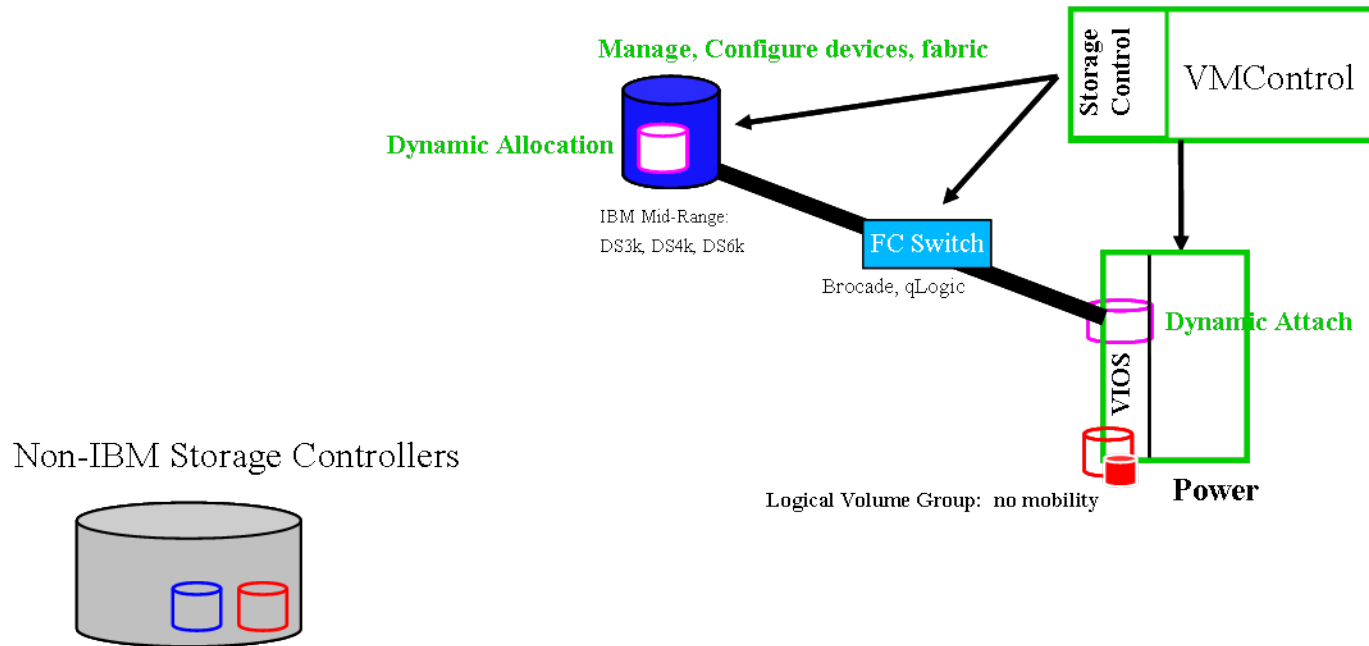
Require approval before policy-based actions are performed?
 Yes, require approval
 No, immediately perform policy-based actions without approval

Note: If a policy-based action requires approval, you will be notified through the problem status for the system pool.

VMControl and Storage: Mid-Range

> When managing storage with IBM Systems Director + VMControl:

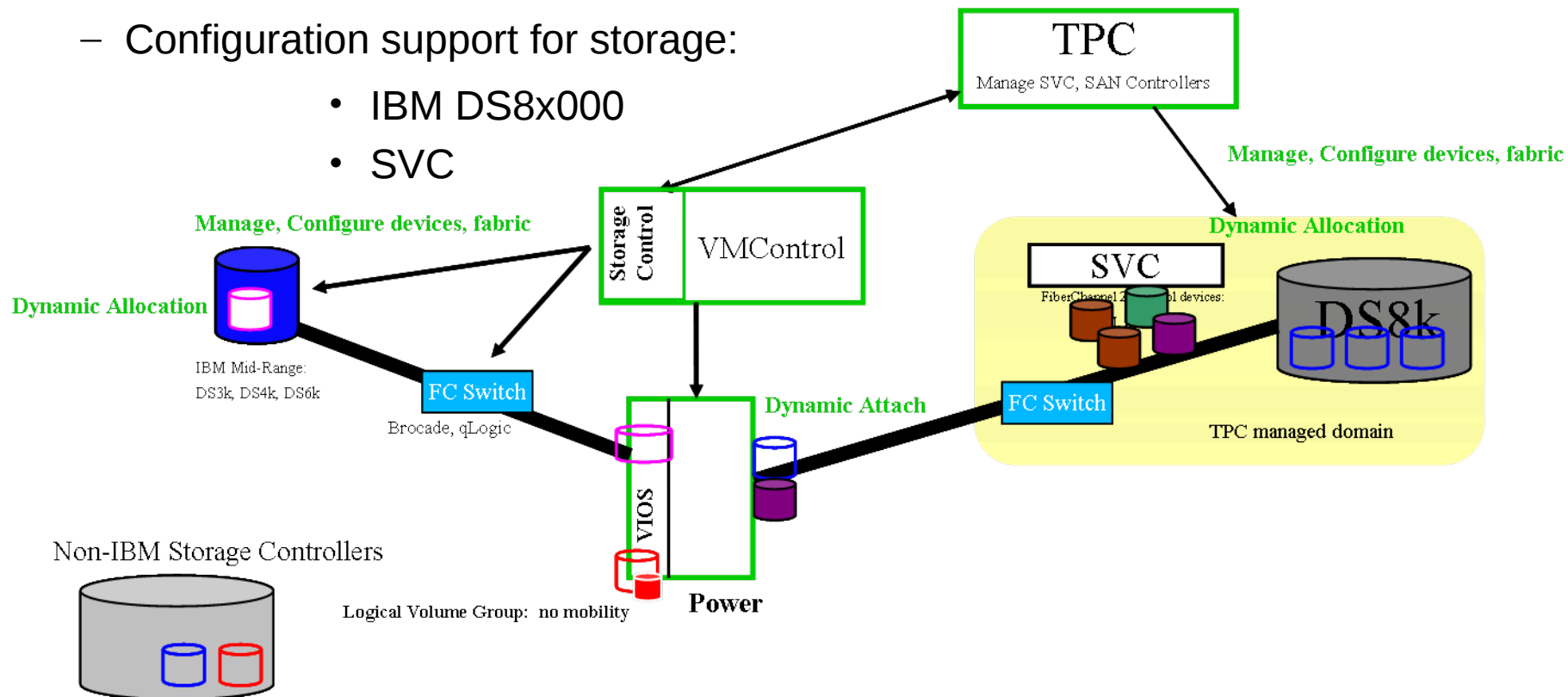
- Configuration support for storage fabric/switches inherent to ISD
 - IBM mid-range storage products: DS4000, DS6000, DS3x000, nSeries 3600
 - Various SAN switches (see documentation)



> IBM Systems Director + VMControl

- Interoperates with Tivoli Storage Productivity Center (TPC) V4.1 or later via API for inventory on and provisioning of storage
- Provides storage virtualization services for VMControl dynamic storage provisioning for both Image Management and Storage Pools
- Configuration support for storage:

- IBM DS8x000
- SVC



- > **These requirements are above and beyond what's needed for VMControl Standard Edition**
 - IBM Systems Director Server must be at 6.1.2.1 level or later
 - Appropriate X11 libraries to get through graphical installer
 - If not, then modify the installer.properties file for a silent install
 - For predictive failure notification for automated relocation:
 - HMC V7.3.5 or later, IVM 2.1.2 or later
 - For creation of, and deployment into, a System Pool, you must have shared storage managed by IBM Systems Director either directly or via TPC
 - Relocation within a System Pool requires LPM-capable (and appropriate PowerVM licensed) environment

- > VMControl V2.2 Overview
- > Express Edition
 - Overview and Summary
 - Platform support – Power Systems, x86, z/VM
 - Performance Summary
- > Standard Edition
 - Virtual Appliances
 - Capture, import, versioning, deploy
- > Enterprise Edition
 - Workloads
 - System Pools
 - Resilience Policies
- > *** IBM Systems Director Editions ***

IBM Systems Director Editions

Why Systems Director Edition?

Easier-to-order pre-packaged arrangements of some IBM Systems Director, Tivoli and AIX products to target customers with different systems management scope

All Systems Director Editions come with SWMA for the component pieces !

IBM Systems Director Express Edition for Power V6.1.2

Pieces and Parts:

IBM Systems Director products

- IBM Systems Director (ISD) 6.1.2
- ➔ ISD VMControl Express Edition for Power, V2.2
- ➔ ISD Service & Support Manager V6.1.2
- ➔ ISD Transition Manager for HP SIM V6.1

Tivoli products

- None



Note: Arrows indicate plug-ins (not standalone products) to IBM Systems Director

IBM Systems Director Standard Edition for Power V6.1.2

Pieces and Parts:

IBM Systems Director products

- IBM Systems Director (ISD) 6.1.2
- ISD VMControl **Standard** Edition for Power, V2.2
- ISD Service & Support Manager V6.1.2
- ISD Transition Manager for HP SIM V6.1
- **ISD Active Energy Manager V4.2**
- **ISD Network Control V1.1**

Tivoli products

- None



Note: Arrows indicate plug-ins (not standalone products) to IBM Systems Director

IBM Systems Director Enterprise Edition for Power V6.1.2

Pieces and Parts:

IBM Systems Director products

- IBM Systems Director (ISD) 6.1.2
- ➔ ISD VMControl **Enterprise** Edition for Power, V2.2
- ➔ ISD Service & Support Manager V6.1.2
- ➔ ISD Transition Manager for HP SIM V6.1
- ➔ ISD Active Energy Manager V4.2
- ➔ ISD Network Control V1.1



Tivoli products

- **IBM Tivoli Monitoring (ITM)**
- **IBM Tivoli Monitoring for Energy Management**
- **IBM Tivoli Application Discovery and Dependency Manager (TADDM)**
- **IBM Systems Director Enterprise Edition Installation Launchpad**

Note: Arrows indicate plug-ins (not standalone products) to IBM Systems Director

IBM AIX Enterprise Edition V6.1.1

Pieces and Parts:

IBM Systems Director products

- IBM Systems Director (ISD) 6.1.2
- ➔ ISD VMControl Enterprise Edition for Power, V2.2
- ➔ ISD Service & Support Manager V6.1.2
- ➔ ISD Transition Manager for HP SIM V6.1
- ➔ ISD Active Energy Manager V4.2
- ➔ ISD Network Control V1.1

Tivoli products

- IBM Tivoli Monitoring (ITM)
- IBM Tivoli Monitoring for Energy Management
- IBM Tivoli Application Discovery and Dependency Manager (TADDM)
- IBM Systems Director Enterprise Edition Installation Launchpad

AIX and other products

- AIX 6.1.4
- ➔ PowerVM Workload Partitions Manager V2.1



Express Edition Installation Process

1. Install Base ISD 6.1.2

- Update to 6.1.2.1

2. Install Service and Support Manager V6.1.2

3. Install Transition Manager for HP SIM V6.1 (optional)

4. Install VMControl Express Edition

- Install V2.2

Standard Edition Installation Process

1. Install Base ISD 6.1.2

- Update to 6.1.2.1

2. Install AEM

- Install V4.2
- Install permanent key

3. Install Network Control

- Install V1.1
- Install permanent key

4. Install Service and Support Manager V6.1.2

5. Install Transition Manager for HP SIM V6.1 (optional)

6. Install VMControl Standard Edition

- Install V2.2
- Install permanent key

Enterprise Edition Installation Process

1. Install Base ISD 6.1.2

- Update to 6.1.2.1

2. Install AEM

- Install V4.2
- Install permanent key

3. Install Network Control

- Install V1.1
- Install permanent key

4. Install Service and Support Manager V6.1.2

5. Install Transition Manager for HP SIM V6.1 (optional)

6. Install VMControl Enterprise Edition

- Install V2.2
- Install permanent key

7. Install the Tivoli Products using the ISD EE Tivoli Install Launchpad

- This will cause you to swap DVDs (~23) on multiple systems

Editions Requisite Information

Operating System

AIX 5.3 or 6.1 (levels based on ISD 6.1.2 base code support)

RHEL AS 4, 5 for Power

SLES 9, 10 for Power

Standard Edition requires a NIM Server and all the pre-reqs for VMControl Standard Edition

Enterprise Edition requires two additional LPARs above and beyond the IBM Systems Director Server

These are for the Tivoli Products

> **IBM Systems Director InfoCenter:**

publib.boulder.ibm.com/infocenter/director/v6r1x/index.jsp

> **VMControl InfoCenter:**

publib.boulder.ibm.com/infocenter/director/v6r1x/topic/vim_220/fsd0_vim_main.html

> **IBM Systems Director wiki:**

www-01.ibm.com/redbooks/community/display/director/IBM+Systems+Director+6.1

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Performance is in Internal Throughput Rate (ITR) ratio based on measurements and projections using standard IBM benchmarks in a controlled environment. The actual throughput that any user will experience will vary depending upon considerations such as the amount of multiprogramming in the user's job stream, the I/O configuration, the storage configuration, and the workload processed. Therefore, no assurance can be given that an individual user will achieve throughput improvements equivalent to the performance ratios stated here.

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