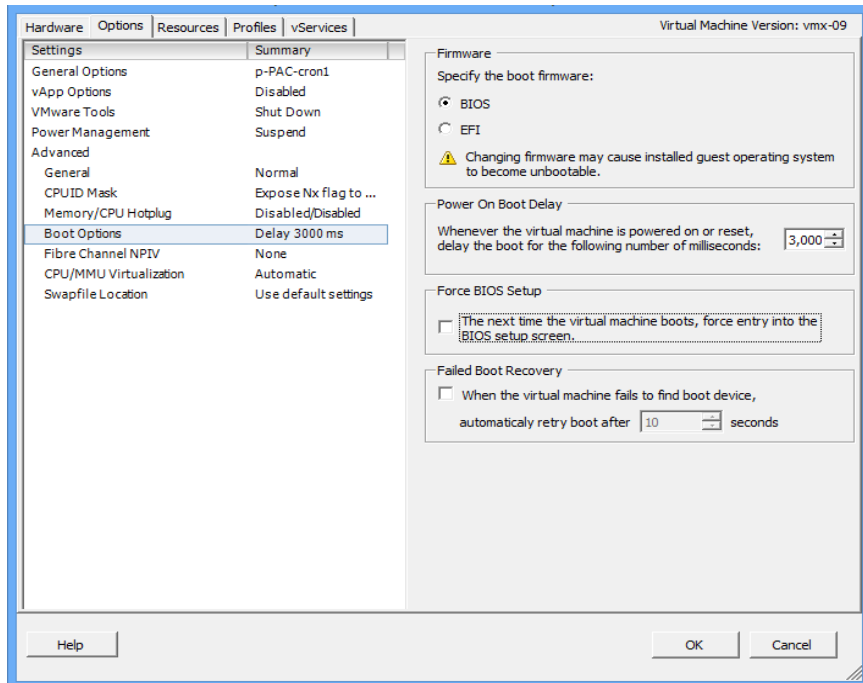
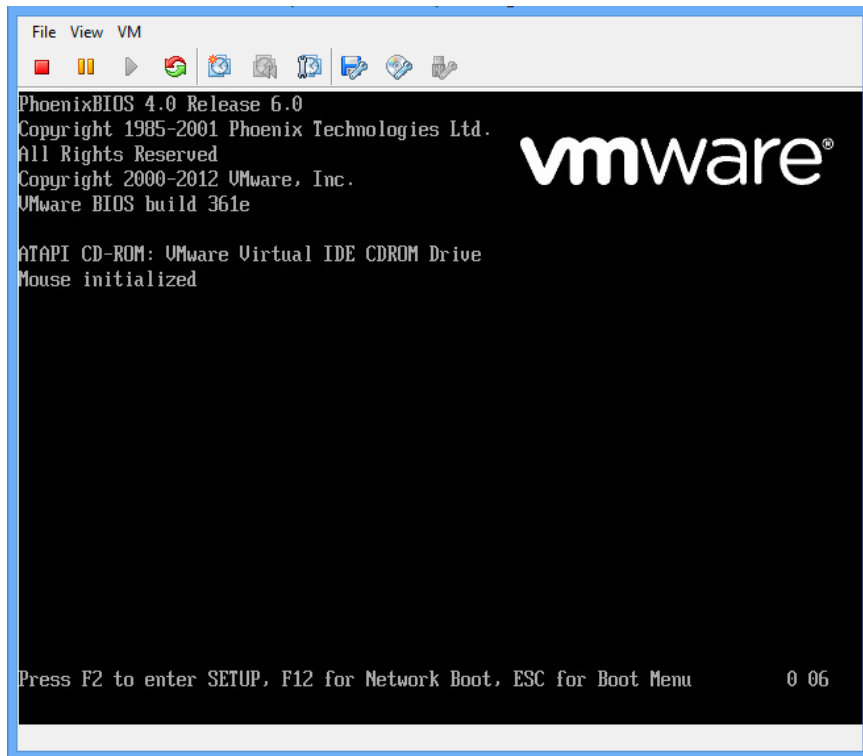
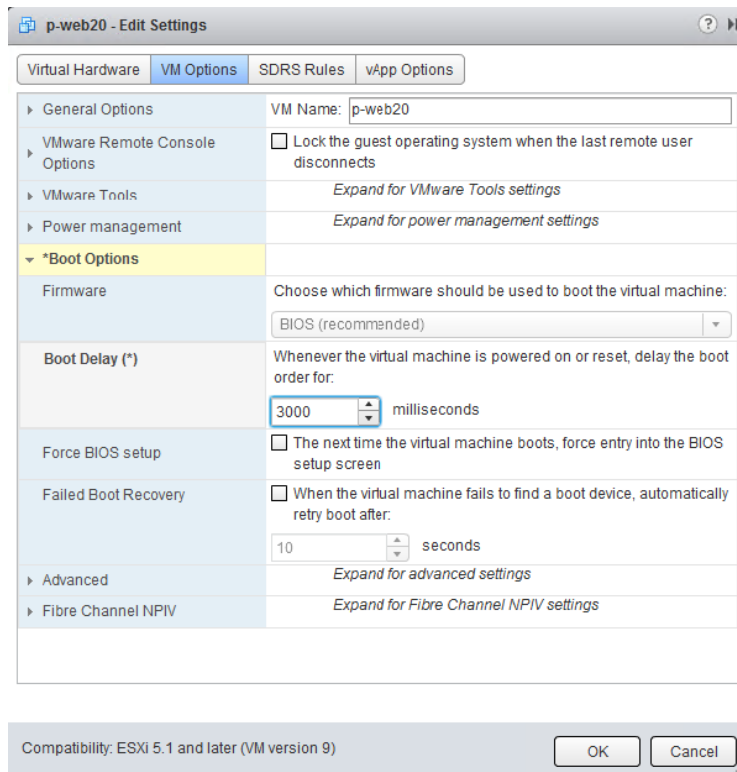
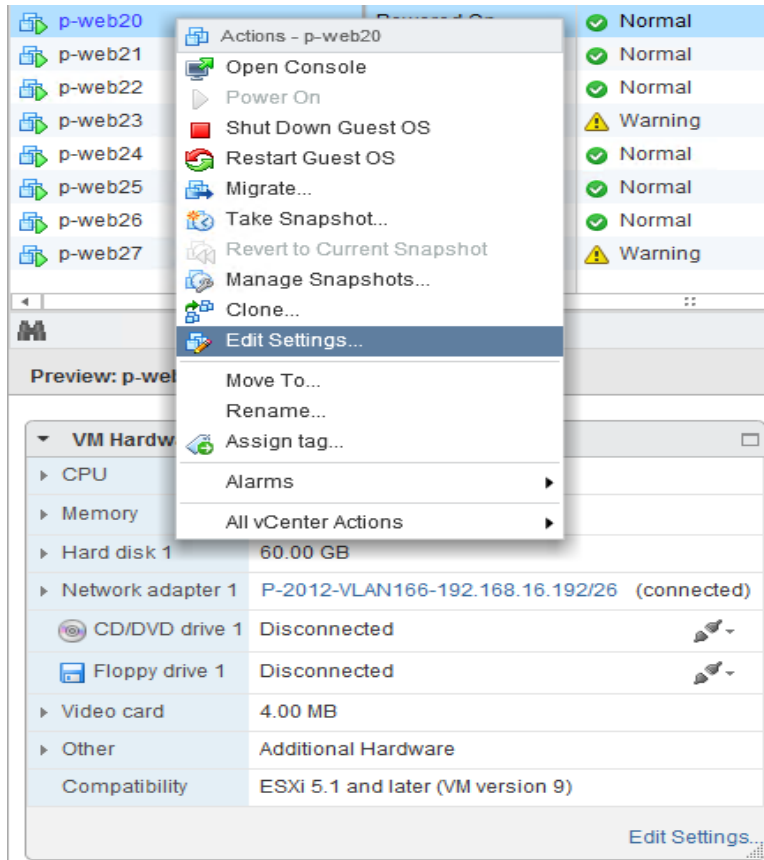
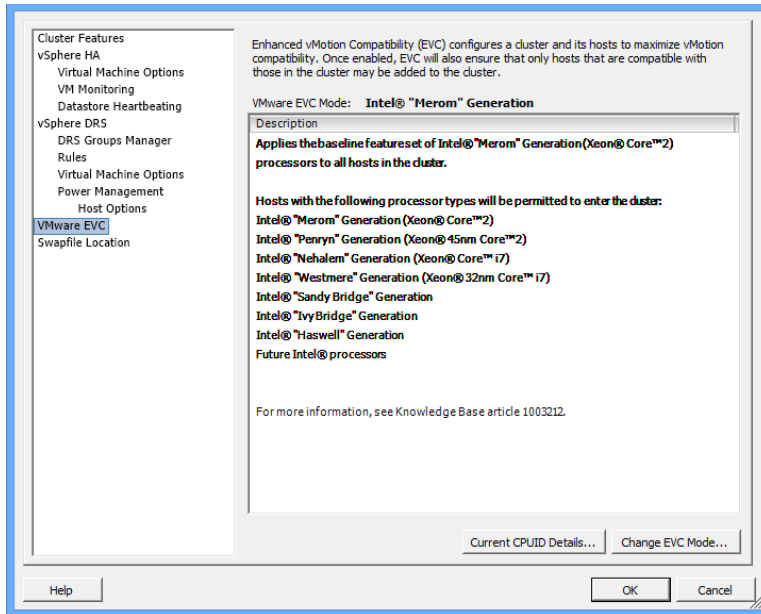
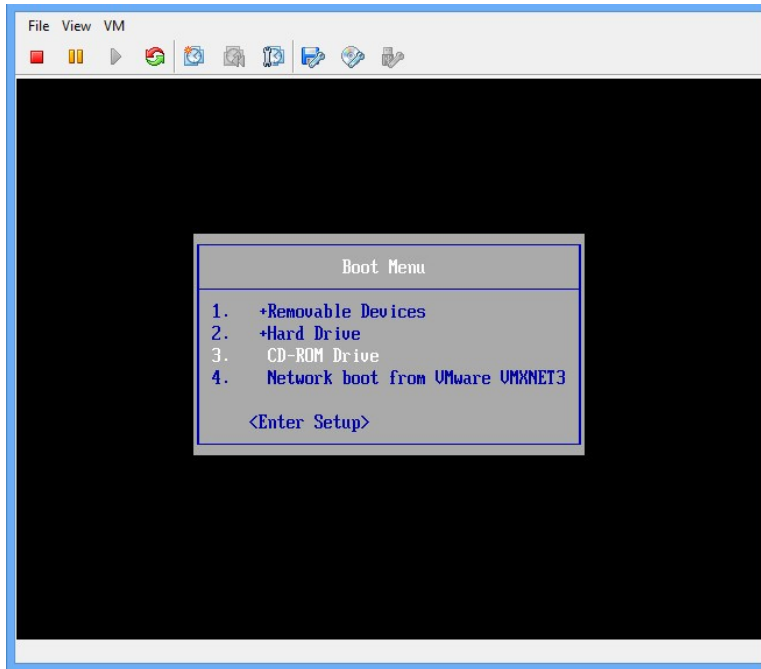
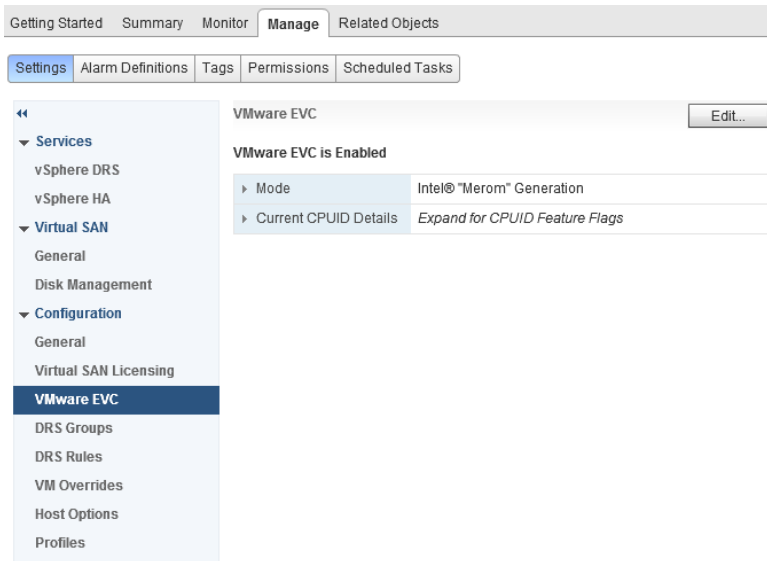
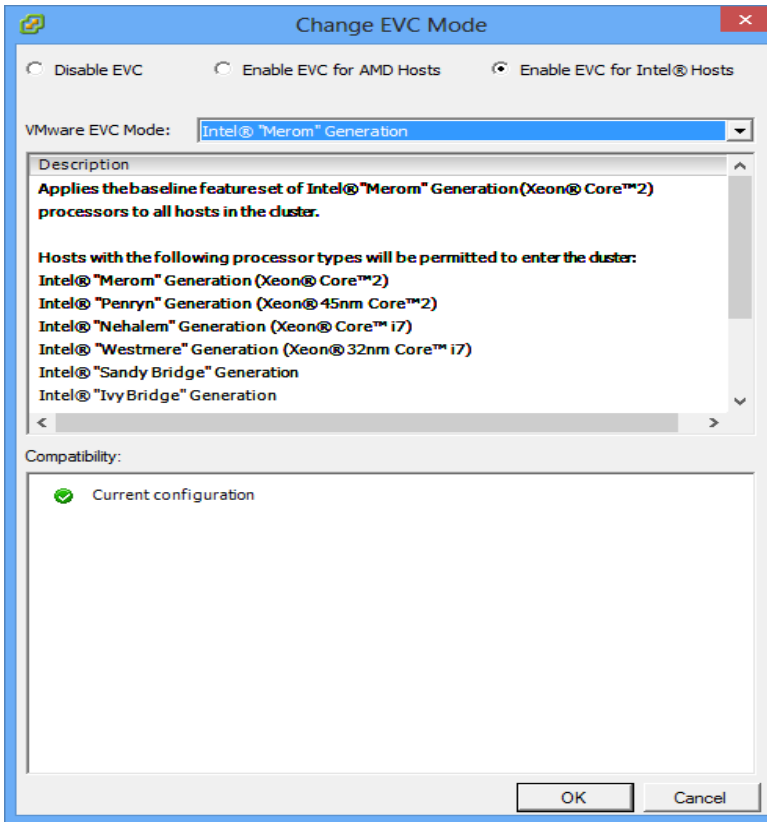


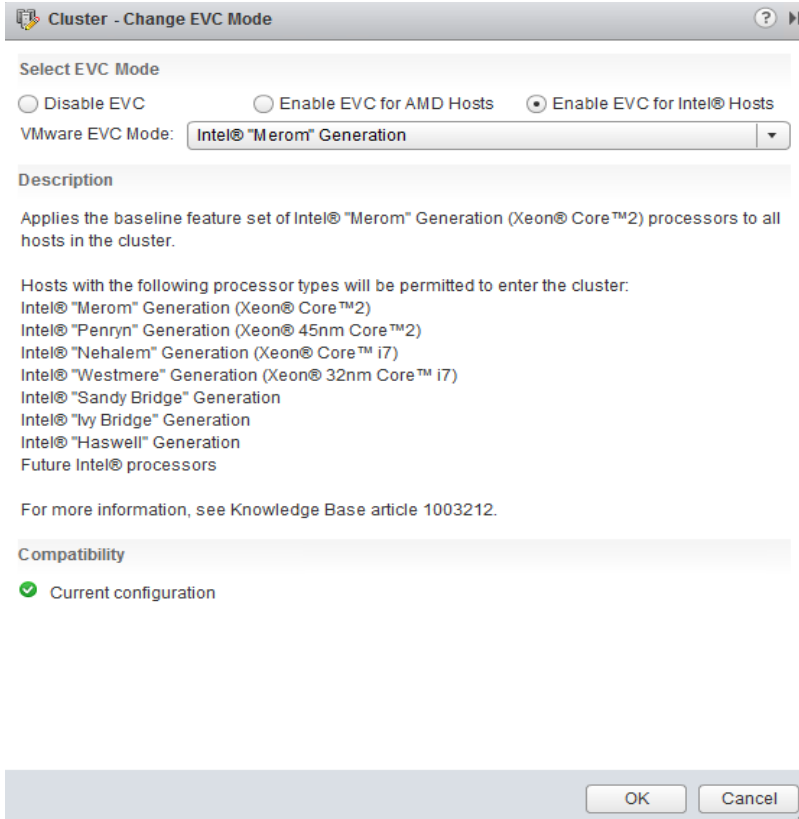
Chapter 1: vCenter Basic Tasks and Features



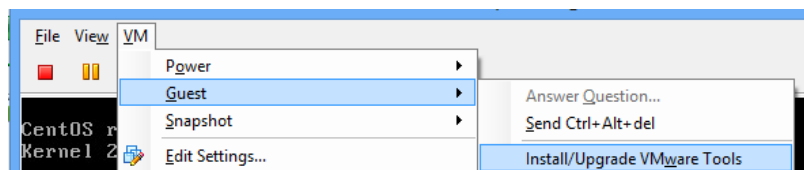


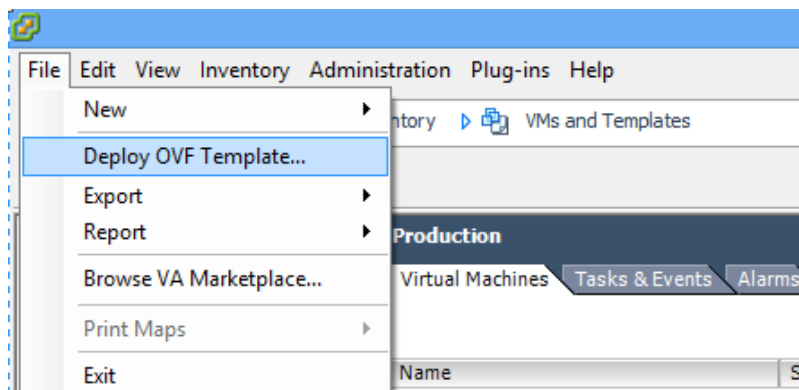
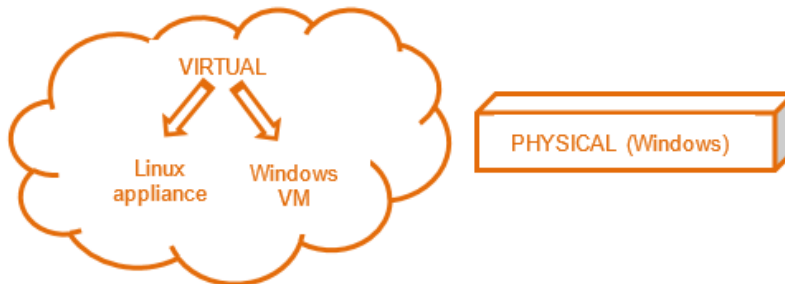
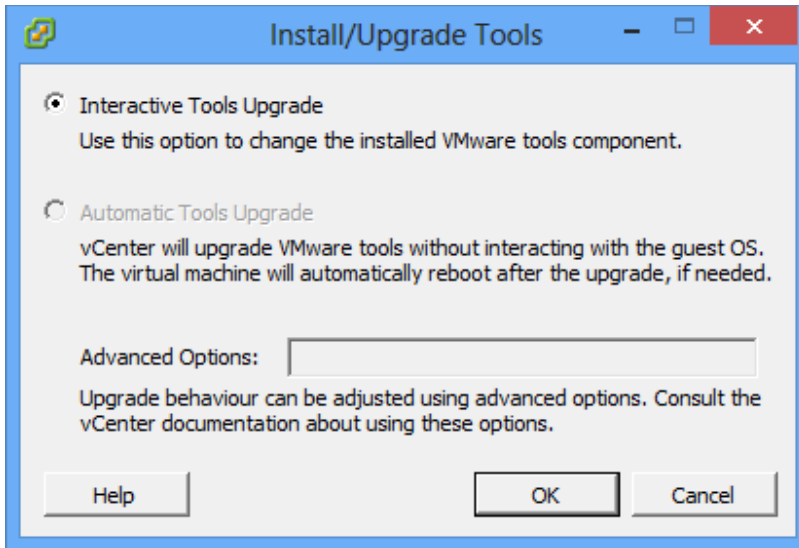






```
Checking acpi hot plug [ OK ]
Starting VMware Tools services in the virtual machine:
Switching to guest configuration: [ OK ]
VM communication interface: [ FAILED ]
VM communication interface socket family: [ FAILED ]
Guest operating system daemon: [ OK ]
```





vmware

User name:

Password:

Use Windows session authentication

Login

VMware vSphere Web Client

VMware vSphere
Welcome 

In order for this direct link to work, you must first log in to the vSphere Web Client at least once from `https://{webclient-host}:{webclient-https-port}`.

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- Hardware**
- Processors
 - Memory
 - Storage
 - Networking
 - Storage Adapters
 - Network Adapters
 - Advanced Settings
 - Power Management

- Software**
- Licensed Features
 - Time Configuration
 - DNS and Routing
 - Authentication Services
 - Power Management
 - Virtual Machine Startup/Shutdown
 - Virtual Machine Swapfile Location
 - Security Profile
 - Host Cache Configuration
 - System Resource Allocation
 - Agent VM Settings
 - Advanced Settings

Security Profile

Refresh Properties...

- Services**
- I/O Redirector (Active Directory Service)
 - snmpd
 - Network Login Server (Active Directory Service)
 - lbtd
 - vSphere High Availability Agent
 - vpaa
 - ESXi Shell
 - xorg
 - Local Security Authentication Server (Active Directory Service)
 - NTP Daemon
 - vprobed
 - SSH
 - Direct Console UI
 - CIM Server

Firewall

Refresh Properties...

Incoming Connections		
Service	Ports	Access
CIM Secure Server	5989 (TCP)	All
SSH Server	22 (TCP)	All
CIM Server	5988 (TCP)	All
DHCP Client	68 (UDP)	All
NFC	902 (TCP)	All
vSphere Web Access	80 (TCP)	All
vMotion	8000 (TCP)	All
vSphere High Availability Agent	8182 (TCP,UDP)	All
DNS Client	53 (UDP)	All
Fault Tolerance	8100,8200,8300 (TCP,UDP)	All
SNMP Server	161 (UDP)	All
vSphere Client	902,443 (TCP)	All
CIM SLP	427 (UDP,TCP)	All
Outgoing Connections		
Service	Ports	Access
Software iSCSI Client	3260 (TCP)	All
NTP Client	123 (UDP)	All
WOL	9 (UDP)	All
HBR	31031,44046 (TCP)	All
DHCP Client	68 (UDP)	All
NFC	902 (TCP)	All
vMotion	8000 (TCP)	All
vSphere High Availability Agent	8182 (TCP,UDP)	All
DNS Client	53 (UDP,TCP)	All
Fault Tolerance	80,8100,8200,8300 (TCP,UDP)	All
VMware vCenter Agent	902 (UDP)	All
CIM SLP	427 (UDP,TCP)	All

Firewall Properties

Remote Access

By default, remote clients are prevented from accessing services on this host, and local clients are prevented from accessing services on remote hosts.

Select a check box to provide access to a service or client. Daemons will start automatically when their ports are opened and stop when all of their ports are closed, or as configured.

Label	Incoming Ports	Outgoing Ports	Protocols	Daemon
Required Services				
Secure Shell				
<input checked="" type="checkbox"/> SSH Server	22		TCP	N/A
<input type="checkbox"/> SSH Client		22	TCP	N/A
Simple Network Management Protocol				
Ungrouped				
<input checked="" type="checkbox"/> DNS Client	53	53	UDP,TCP	N/A
<input type="checkbox"/> VM serial port connected to vSPC		0-65535	TCP	N/A
<input checked="" type="checkbox"/> NTP Client		123	UDP	Running
<input checked="" type="checkbox"/> Fault Tolerance	8100,8200,8300	80,8100,8200,8300	TCP,UDP	N/A

Service Properties

General

Service: SSH Server

Package Information:

Firewall Settings

Allowed IP Addresses: All

Firewall... Options...

OK Cancel Help

Getting Started Summary Monitor **Manage** Related Objects

Settings Networking Storage Alarm Definitions Tags Permissions

Virtual Machines

- Default VM Compatibility
- VM Startup/Shutdown
- Agent VM Settings
- Swap file location
- System
 - Licensing
 - Host profile
 - Time Configuration
 - Authentication Services
 - Power Management
 - Advanced System Settings
 - System Resource Allocation
 - Security Profile**
 - System Swap
- Hardware
 - Processors
 - Memory
 - Power Management

Firewall

Incoming Connections

Service	Port	Protocol	Access
CIM Server	5988	TCP	All
CIM Secure Server	5989	TCP	All
CIM SLP	427	TCP,UDP	All
DHCPv6	546	TCP,UDP	All
NFC	902	TCP	All
DHCP Client	68	UDP	All
DNS Client	53	UDP	All
Fault Tolerance	8200,8100,8300	TCP,UDP	All
vSphere High Availability Agent	3182	TCP,UDP	All
SNMP Server	161	UDP	All
SSH Server	22	TCP	All
vMotion	8000	TCP	All
vSphere Client	902,443	TCP	All
vSphere Web Access	80	TCP	All

Outgoing Connections

Service	Port	Protocol	Access
CIM SLP	427	TCP,UDP	All
DHCPv6	547	TCP,UDP	All
HR	44046,31031	TCP	All
NFC	902	TCP	All
WDL	9	UDP	All

p-esxi1: Edit Security Profile

To provide access to a service or client, check the corresponding box.
 By default, daemons will start automatically when any of their ports are opened, and stop when all of their ports are closed.

Name	Incoming Ports	Outgoing Ports	Protocols	Daemon
Required Services				
Secure Shell				
<input type="checkbox"/> SSH Client		22	TCP	N/A
<input checked="" type="checkbox"/> SSH Server	22		TCP	N/A
Simple Network Man...				
Ungrouped				

Service Details: N/A

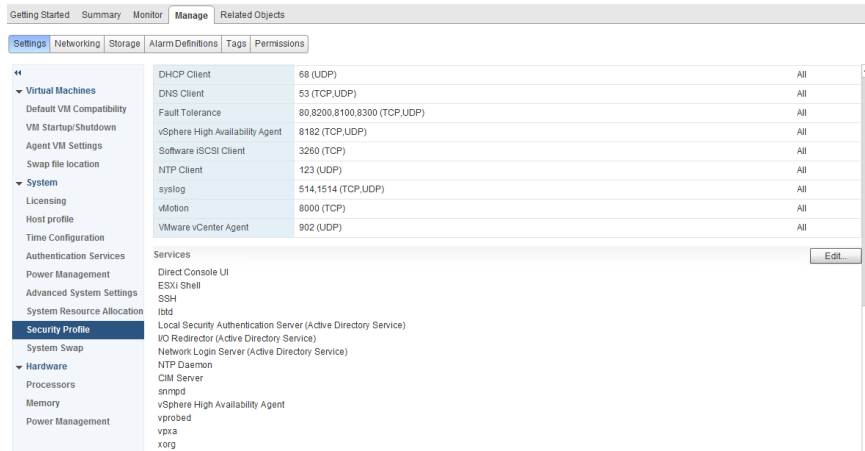
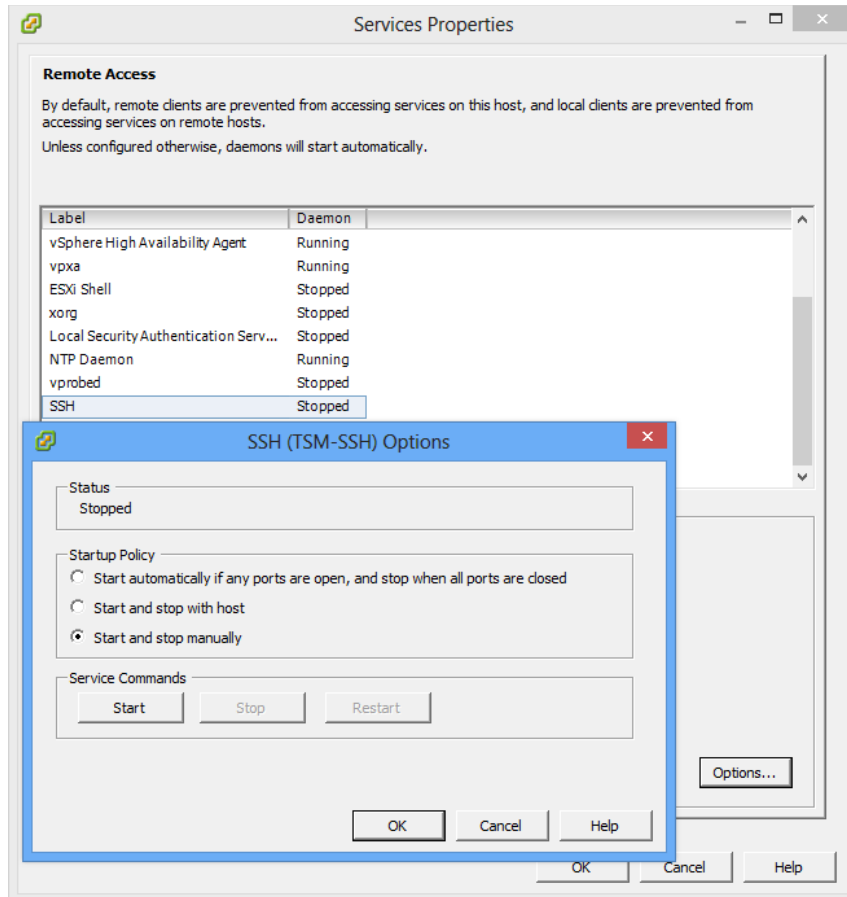
Status: N/A

Allowed IP Addresses: Allow connections from any IP address

IP Addresses: Allow connections from any IP address

Enter a comma-separated list of IP addresses. E.g.: 111.111.111.111, 111.111.111/22

OK Cancel



p-esxi1: Edit Security Profile

To provide access to a service or client, check the corresponding box.
By default, daemons will start automatically when any of their ports are opened, and stop when all of their ports are closed.

Name	Daemon
Direct Console UI	Running
ESXi Shell	Stopped
SSH	Stopped
lbttd	Running
Local Security Authentication Server (Active Directory Servic...	Stopped
I/O Redirector (Active Directory Service)	Stopped

Service Details: Stopped

Status: Stopped

Buttons: Start, Stop, Restart

Note: Action will take place immediately

Startup Policy: Start and stop manually

Start and stop manually

OK Cancel

p-esxi1

p-esxi2

p-esxi3

p-esxi4

p-esxi5

p-esxi6

Custom

High Cf

High M

Low CP

Normal

Configuration Issues
SSH for the host has been enabled

General		Resources	
Manufacturer:	Dell Inc.	CPU usage: 4819 MHz	Capacity: 8 x 2.826 GHz
Model:	PowerEdge 1950	Memory usage: 20225.00 MB	Capacity: 32762.87 MB
CPU Cores:	8 CPUs x 2.826 GHz		
Processor Type:	Intel(R) Xeon(R) CPU E5440 @ 2.83GHz		

Services Properties

Remote Access

By default, remote clients are prevented from accessing services on this host, and local clients are prevented from accessing services on remote hosts.

Unless configured otherwise, daemons will start automatically.

Label	Protocols	Daemon
vSphere High Availability Agent		Running
vpaxa		Running
ESXi Shell		Stopped
xorg		Stopped
Local Security Authentication Serv...		Stopped
NTP Daemon		Running
vprobed		Stopped
SSH		Stopped
Direct Console UI		Running
CIM Server		Running

Service Properties

General

Service: ESXi Shell

Package Information: esx-base
This VIB contains all of the base functionality of vSphere ESXi.

Options...

OK Cancel Help

Getting Started Summary Virtual Machines Performance Configuration Tasks & Events Alarms Permissions Maps Storage Views Hardware Status

Network Adapters

Advanced Settings

Power Management

Software

Licensed Features

Time Configuration

DNS and Routing

Authentication Services

Power Management

Virtual Machine Startup/Shutdown

Virtual Machine Swapfile Location

Security Profile

Host Cache Configuration

System Resource Allocation

Agent VM Settings

Advanced Settings

ESXi Shell

xorg

Local Security Authentication Server (Active Directory Service)

NTP Daemon

vprobed

SSH

Direct Console UI

CIM Server

Firewall

Incoming Connections

Service	Port	Protocol	Access
CIM Secure Server	5988	TCP	All
SSH Server	22	TCP	All
CIM Server	5988	TCP	All
DHCP Client	68	UDP	All
NFC	902	TCP	All
vSphere Web Access	80	TCP	All
vMotion	8000	TCP	All
vSphere High Availability Agent	8182	TCP,UDP	All
DNS Client	53	UDP	All
Fault Tolerance	8100,8200,8300	TCP,UDP	All
SNMP Server	161	UDP	All
vSphere Client	902,443	TCP	All
CIM SLP	427	UDP,TCP	All

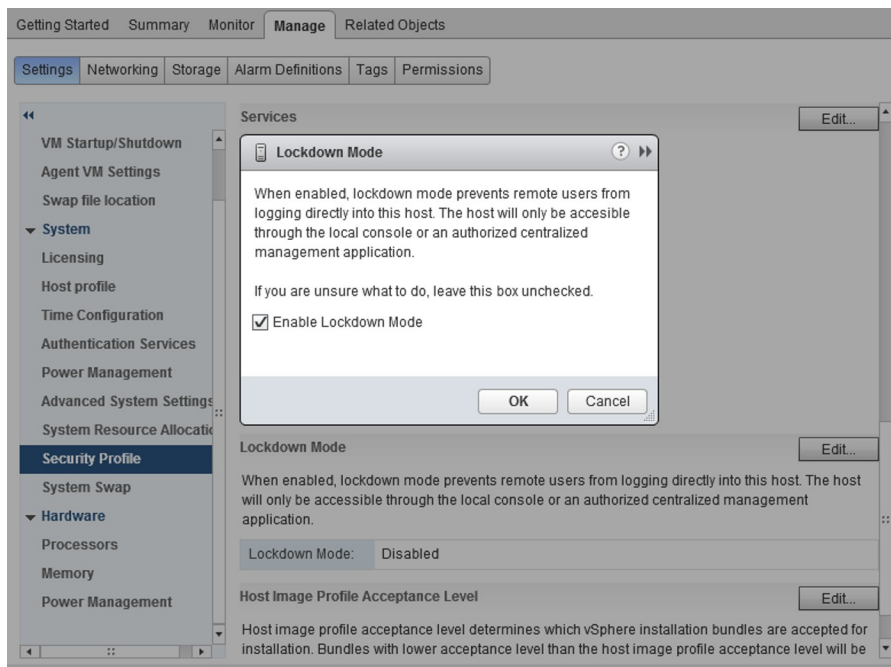
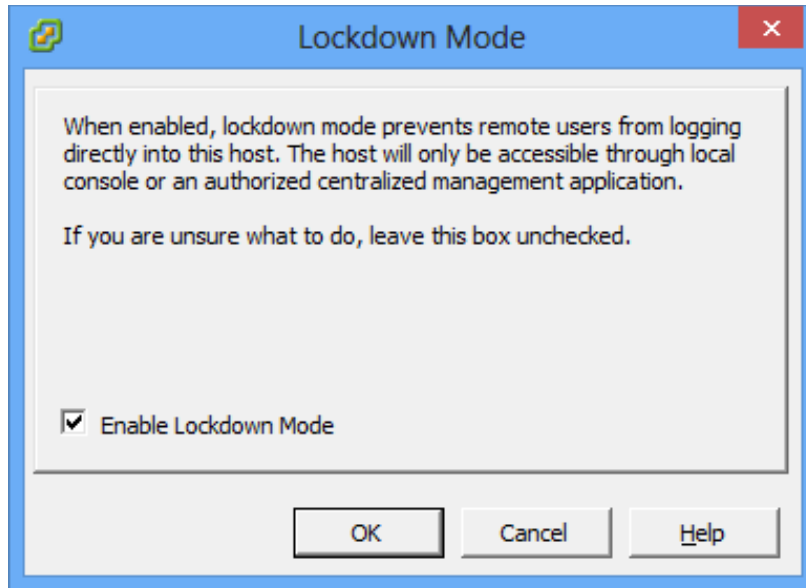
Outgoing Connections

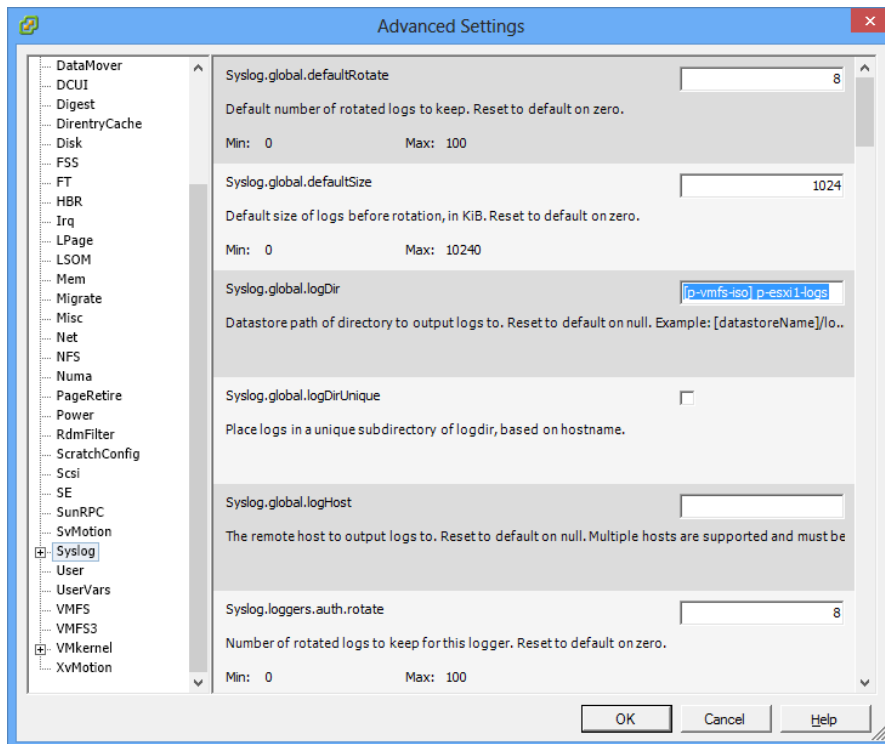
Service	Port	Protocol	Access
Software iSCSI Client	3260	TCP	All
NTP Client	123	UDP	All
WOL	9	UDP	All
HBR	31031,44046	TCP	All
DHCP Client	68	UDP	All
NFC	902	TCP	All
vMotion	8000	TCP	All
vSphere High Availability Agent	8182	TCP,UDP	All
DNS Client	53	UDP,TCP	All
Fault Tolerance	80,8100,8200,8300	TCP,UDP	All
VMware vCenter Agent	902	UDP	All
CIM SLP	427	UDP,TCP	All

Lockdown Mode

When enabled, lockdown mode prevents remote users from logging directly into this host. The host will only be accessible through local console or an authorized centralized management application.

Lockdown Mode: Disabled





Getting Started Summary Monitor **Manage** Related Objects

Settings Networking Storage Alarm Definitions Tags Permissions

←

- Virtual Machines
 - Default VM Compatibility
 - VM Startup/Shutdown
 - Agent VM Settings
 - Swap file location
 - System
 - Licensing
 - Host profile
 - Time Configuration
 - Authentication Services
 - Power Management
 - Advanced System Settings**
 - System Resource Allocation
 - Security Profile
 - System Swap
 - Hardware
 - Processors
 - Memory
 - Power Management

Advanced System Settings

Name	Value
Scsi.TimeoutTMThreadMin	1
Scsi.TimeoutTMThreadMax	16
Scsi.TimeoutTMThreadExpires	1800
Scsi.TimeoutTMThreadRetry	2000
Scsi.TimeoutTMThreadLatency	2000
Scsi.ScsiRestartStalledQueueLatency	500
Scsi.CompareLUNNumber	1
Scsi.UseAdaptiveRetries	1
Scsi.ChangeQErrSetting	1
Scsi.ScanSync	0
Scsi.FailVMIOonAPD	0
SunRPC.WorldletAffinity	2
SunRPC.MaxConnPerIP	4
SunRPC.SendLowat	25
SvMotion.SvMotionAvgDisksPerVM	8
Syslog.global.defaultRotate	8
Syslog.global.defaultSize	1024
Syslog.global.logDir	[p-vmfs-iso] p-esxi1-systemlogs
Syslog.global.logDirUnique	false
Syslog.global.logHost	udp://192.168.15.81:514
Syslog.loggers.Xorg.rotate	8

Advanced Settings

- DataMover
- DCUI
- Digest
- DirentryCache
- Disk
- FSS
- FT
- HBR
- Irq
- LPage
- LSOM
- Mem
- Migrate
- Misc
- Net
- NFS
- Numa
- PageRetire
- Power
- RdmFilter
- ScratchConfig
- Scsi
- SE
- SunRPC
- SvMotion
- Syslog
 - global
 - loggers
- User
- UserVars
- VMFS
- VMFS3
- VMkernel

Syslog.global.defaultRotate: 8
 Default number of rotated logs to keep. Reset to default on zero.
 Min: 0 Max: 100

Syslog.global.defaultSize: 1024
 Default size of logs before rotation, in KIB. Reset to default on zero.
 Min: 0 Max: 10240

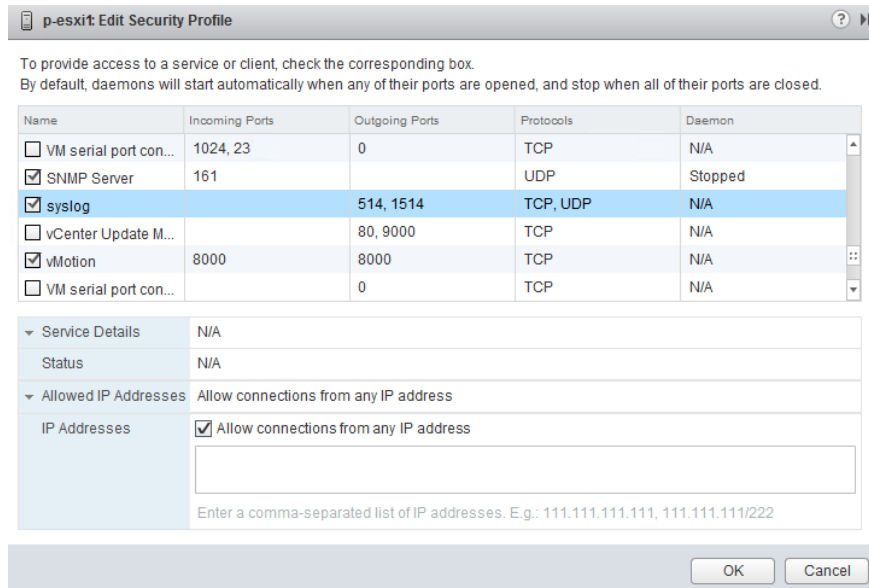
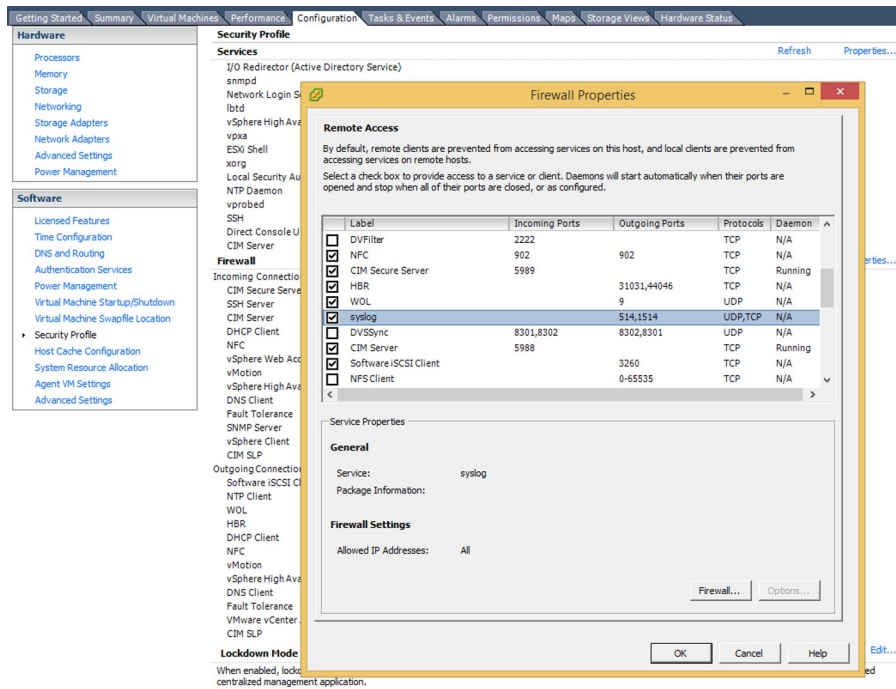
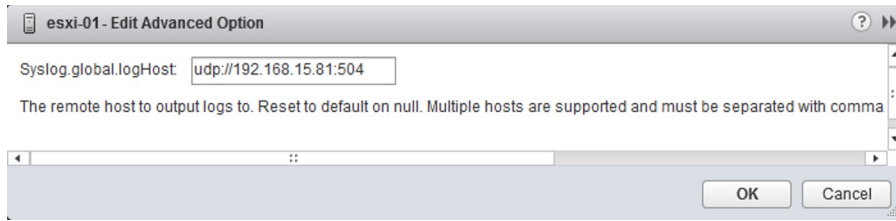
Syslog.global.logDir: [p-vmfs-iso] p-esxi1-systemlogs
 Datastore path of directory to output logs to. Reset to default on null. Example: [datastoreName]/lo..

Syslog.global.logDirUnique:
 Place logs in a unique subdirectory of logdir, based on hostname.

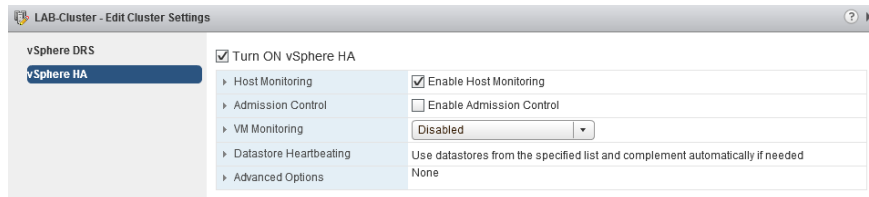
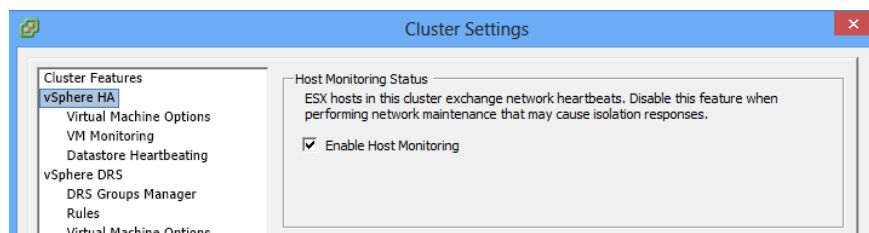
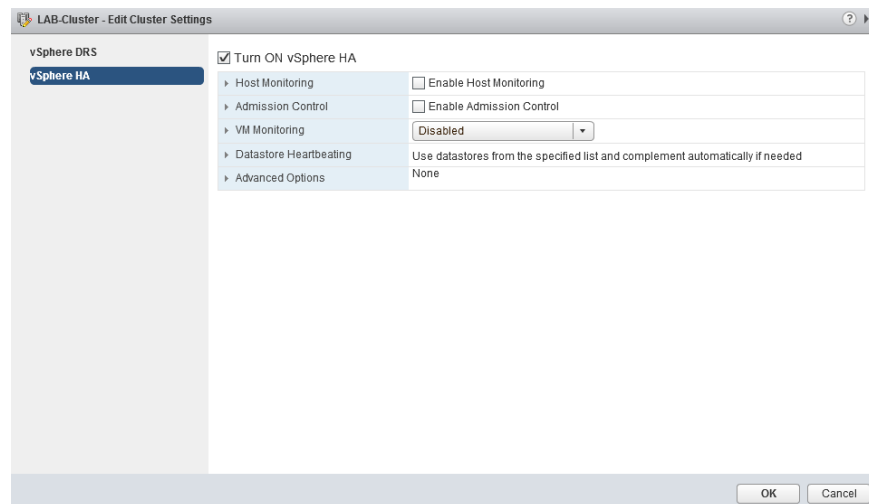
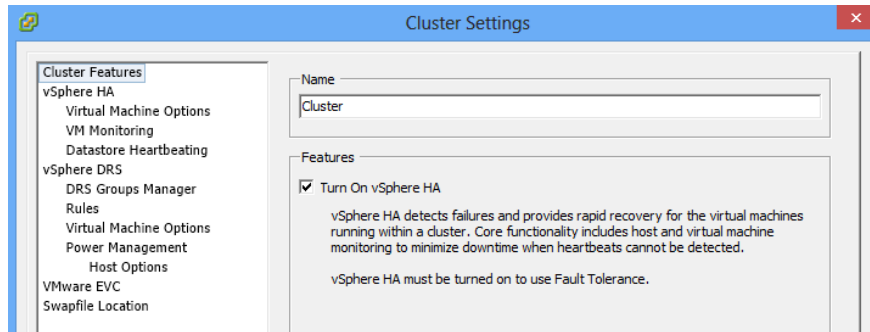
Syslog.global.logHost: udp://192.168.15.81:514
 The remote host to output logs to. Reset to default on null. Multiple hosts are supported and must be

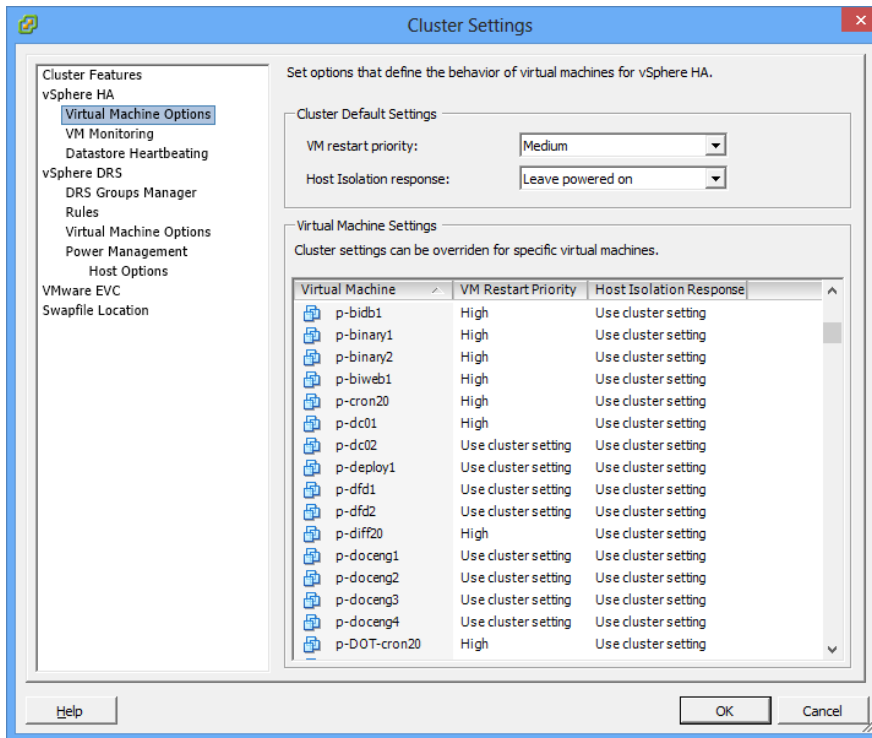
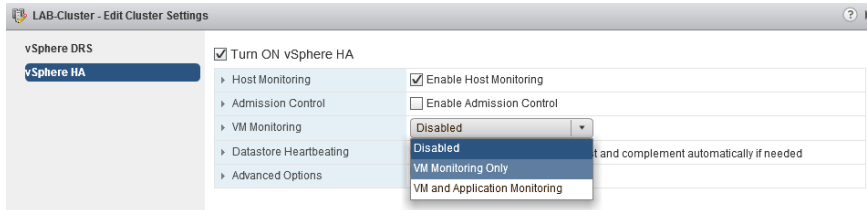
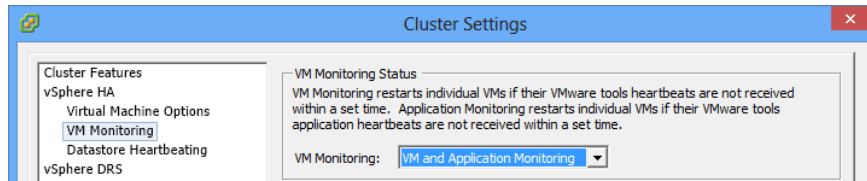
Syslog.loggers.auth.rotate: 8
 Number of rotated logs to keep for this logger. Reset to default on zero.
 Min: 0 Max: 100

OK Cancel Help



Chapter 2: Increasing Environment Availability





LAB-Cluster - Edit Cluster Settings

vSphere DRS

vSphere HA

Turn ON vSphere HA

Host Monitoring

Host Monitoring Status

ESX/ESXi hosts in this cluster exchange network heartbeats. Disable this feature when performing network maintenance that may cause isolation responses.

Host Monitoring

Virtual Machine Options

Choose default VM options for how vSphere HA should react to host failures and host isolations. These defaults can be overridden for individual virtual machines on the VM Overrides page.

VM restart priority:

Host isolation response:

LAB-Cluster Actions

Getting Started Summary Monitor **Manage** Related Objects

Settings Alarm Definitions Tags Permissions Scheduled Tasks

Services

- vSphere DRS
- vSphere HA
- Virtual SAN
 - General
 - Disk Management
- Configuration
 - General
 - Virtual SAN Licensing
 - VMware EVC
 - DRS Groups
 - DRS Rules
 - VM Overrides**
 - Host Options
 - Profiles

VM Overrides

Add ... Edit ... Delete

Name	1 vSphere HA Rest...	vSphere HA Host ...	Host
ADFS1	Default (Medi...	Default (Leav...	esxi-04
admin1	Default (Medi...	Default (Leav...	esxi-01
admin2	Default (Medi...	Default (Leav...	esxi-03
admin3	Default (Medi...	Default (Leav...	esxi-03

LAB-Cluster - Edit VM Overrides

Automation level:

VM restart priority:

Host isolation response:

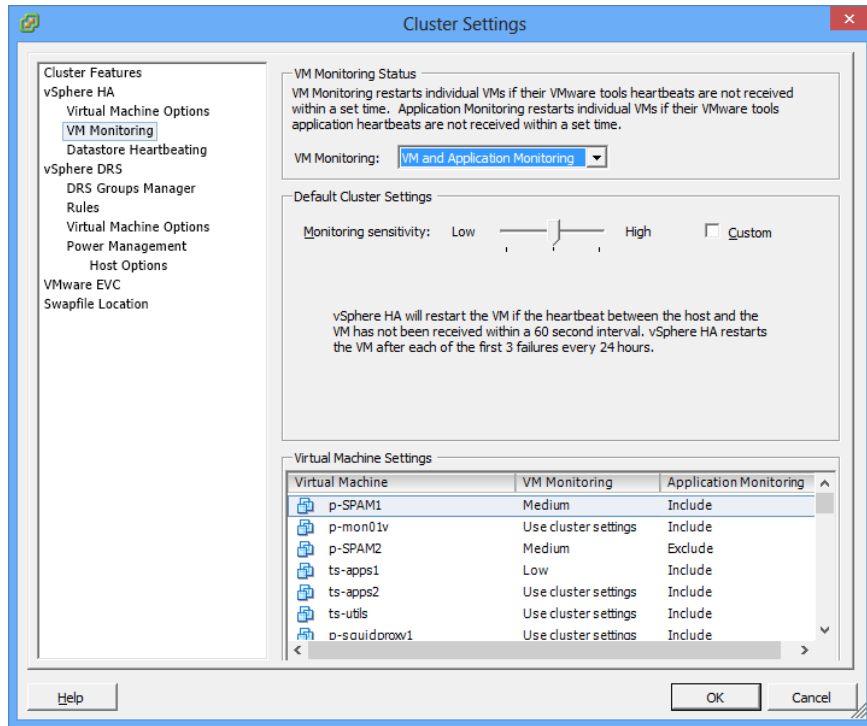
VM Monitoring:

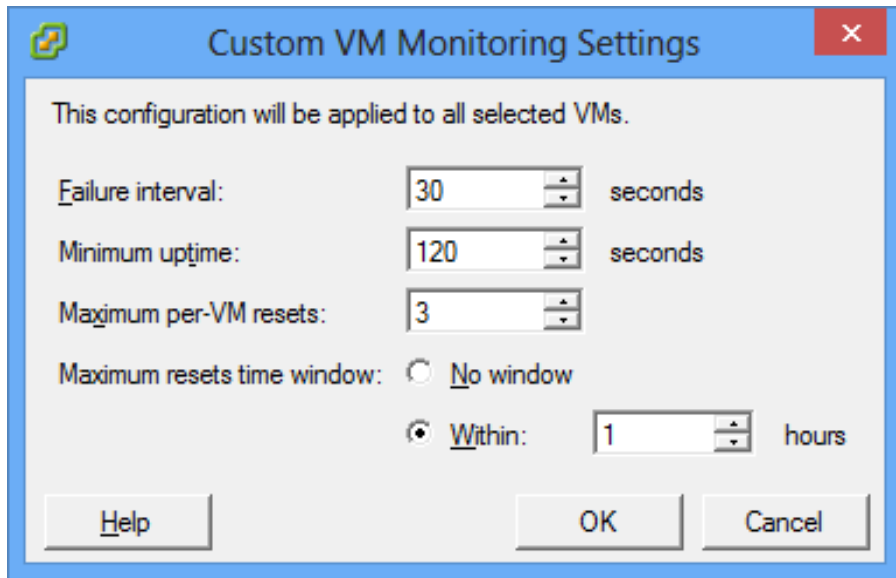
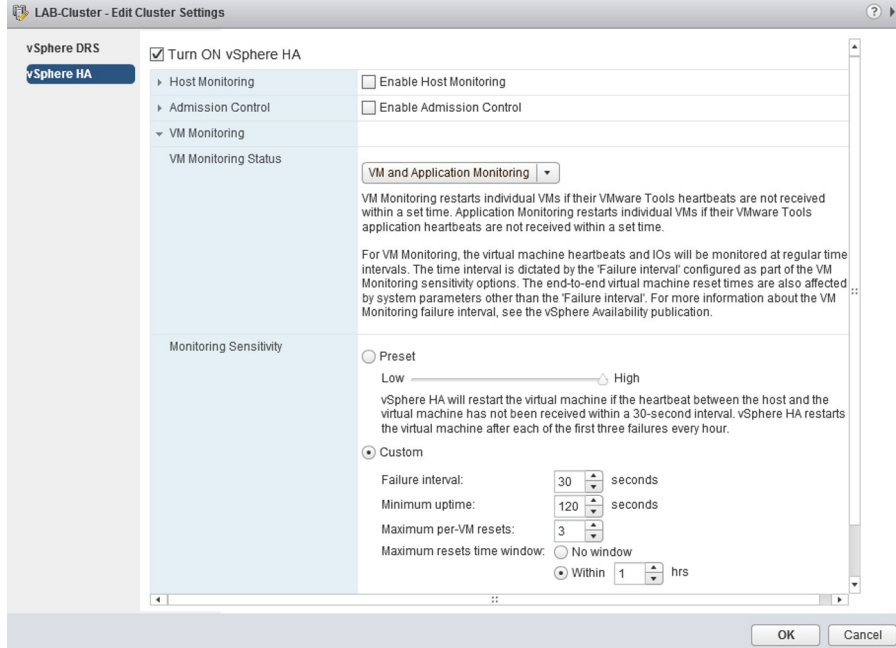
VM monitoring sensitivity:

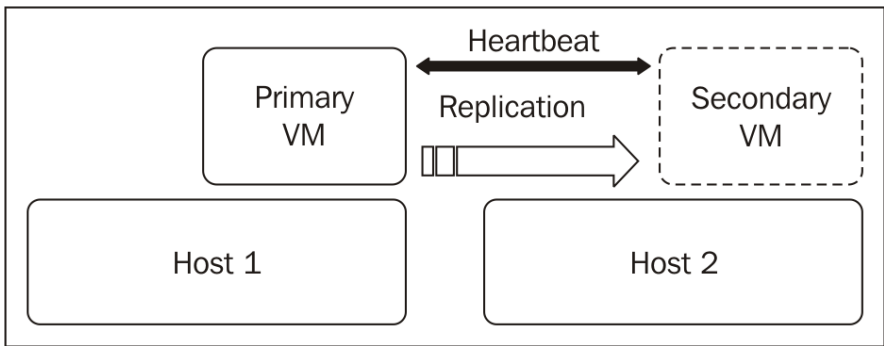
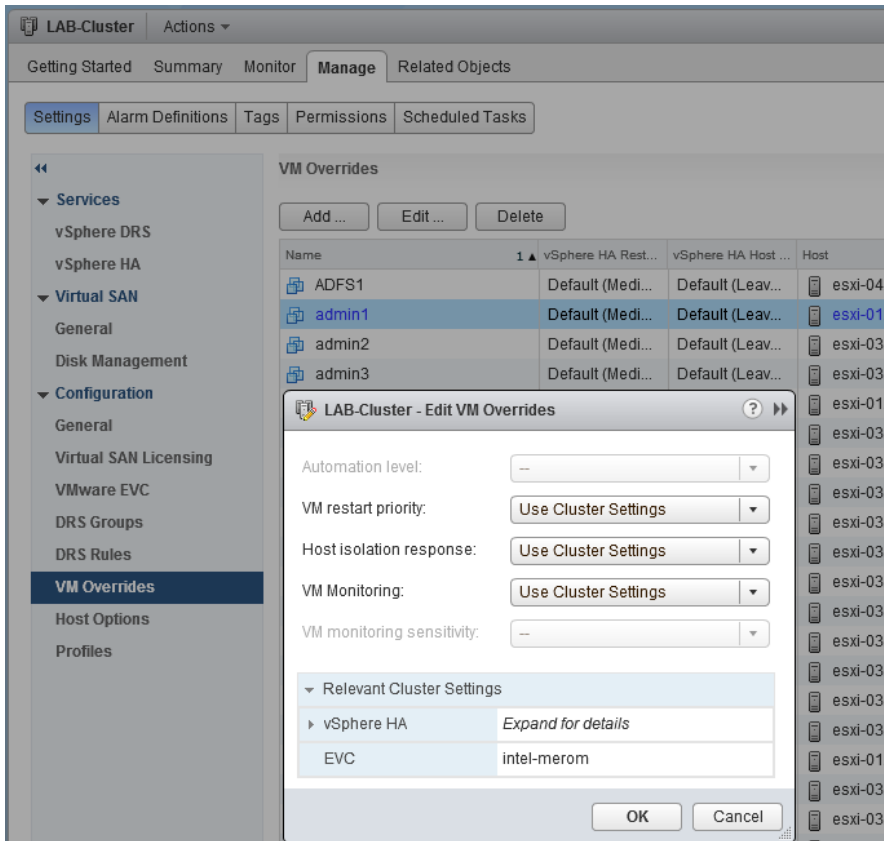
Relevant Cluster Settings

- vSphere HA *Expand for details*
- EVC intel-merom

OK Cancel







Power	Current	Not running
Guest	Current	Running
Snapshot	Current	Running
Open Console	Current	Running
Edit Settings...	Current	Running
Migrate...	Current	Running
Upgrade Virtual Hardware	Current	Running
Clone...	Out-of-date	Running
Template	Current	Not running
Fault Tolerance	Current	Running
VM Storage Profile	Out-of-date	Running
	Current	Running

Turn On Fault Tolerance ✕

Turning Fault Tolerance On will take thin-provisioned disks and disks with blocks zeroed out when written to and convert them to disks with all blocks zeroed out. This disk conversion requires that a virtual machine use more disk space and requires some processing time.

The memory reservation of this VM will be changed to the memory size of the VM and maintained equal to it until Fault Tolerance is turned off.

Do you want to turn On Fault Tolerance?

admin2

Summary Resource Allocation Performance Tasks & Events Alarms Console Permissions Maps Storage Views Update Manager

General

Guest OS: Microsoft Windows Server 2008 R2 (64-...
 VM Version: vmx-09
 CPU: 1 vCPU
 Memory: 2048 MB
 Memory Overhead: 125.47 MB

VMware Tools: ✔ Not running (Current)
 IP Addresses:

DNS Name: WIN2008-R2-STD-Template
 EVC Mode: N/A

State: Powered Off
 Host: esxi-03
 Active Tasks:
 vSphere HA Protection: ⊙ N/A ⓘ

Resources

Consumed Host CPU: **0 MHz**
 Consumed Host Memory: **0.00 MB**
 Active Guest Memory: **0.00 MB**

[Refresh Storage Usage](#)

Provisioned Storage: **42.21 GB**
 Not-shared Storage: **654.19 KB**
 Used Storage: **40.00 GB**

Storage	Status	Drive Type
NetApp-Vmware1	✔ Normal	Non-SSD

< >

Network	Type	Sta
Production	Standard port group	✔

< >

Commands

▶ Power On
ⓘ Edit Settings
ⓘ Migrate

Fault Tolerance

Fault Tolerance Status: ⚠ **Not protected**
 VM not Running

Secondary Location: esxi-01

Total Secondary CPU: 0 MHz
 Total Secondary Memory: 0.00 MB

vLockstep Interval: ⊙ N/A
 Log Bandwidth: N/A

Annotations

✎ Edit

Owner:
 Notes:

VM Storage Profiles

[Refresh](#)

VM Storage Profiles:
 Profiles Compliance:

Cluster Settings

Cluster Features

- vSphere HA
 - Virtual Machine Options
 - VM Monitoring
 - Datastore Heartbeating
- vSphere DRS
 - DRS Groups Manager
 - Rules
- Virtual Machine Options
 - Power Management
 - Host Options
- VMware EVC
- Swapfile Location

Host Monitoring Status

ESX hosts in this cluster exchange network heartbeats. Disable this feature when performing network maintenance that may cause isolation responses.

Enable Host Monitoring

Admission Control

The vSphere HA Admission control policy determines the amount of cluster capacity that is reserved for VM failovers. Reserving more failover capacity allows more failures to be tolerated but reduces the number of VMs that can be run.

Enable: Disallow VM power on operations that violate availability constraints
 Disable: Allow VM power on operations that violate availability constraints

Admission Control Policy

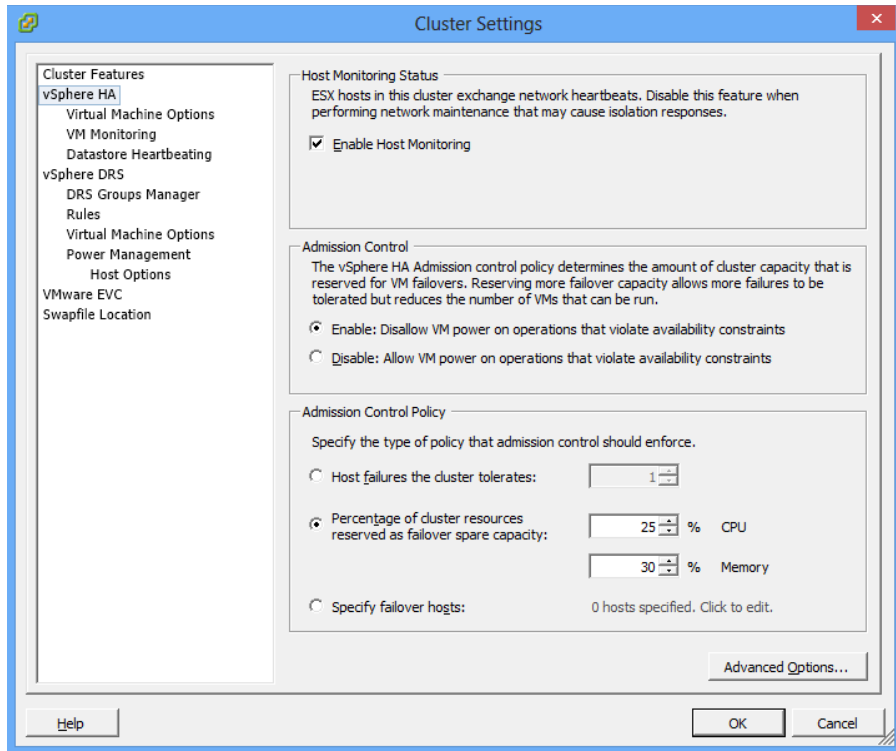
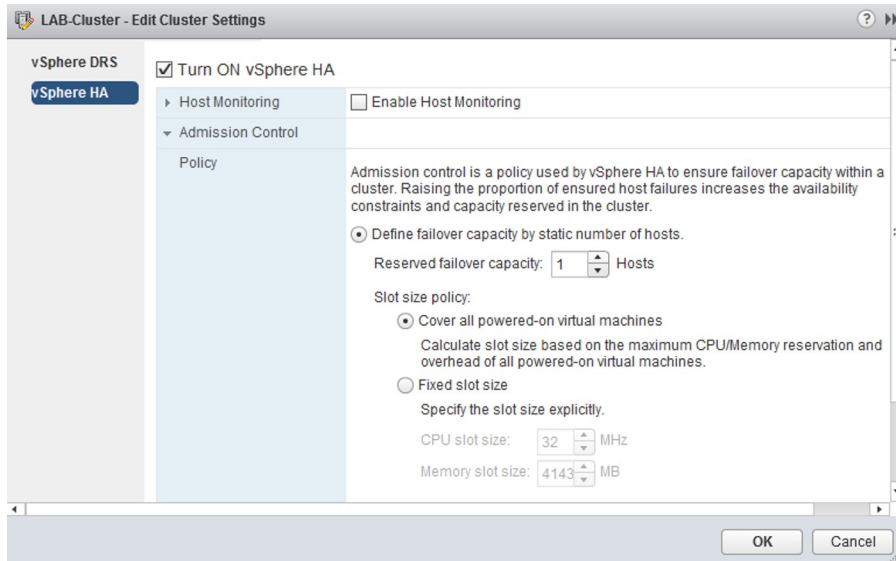
Specify the type of policy that admission control should enforce.

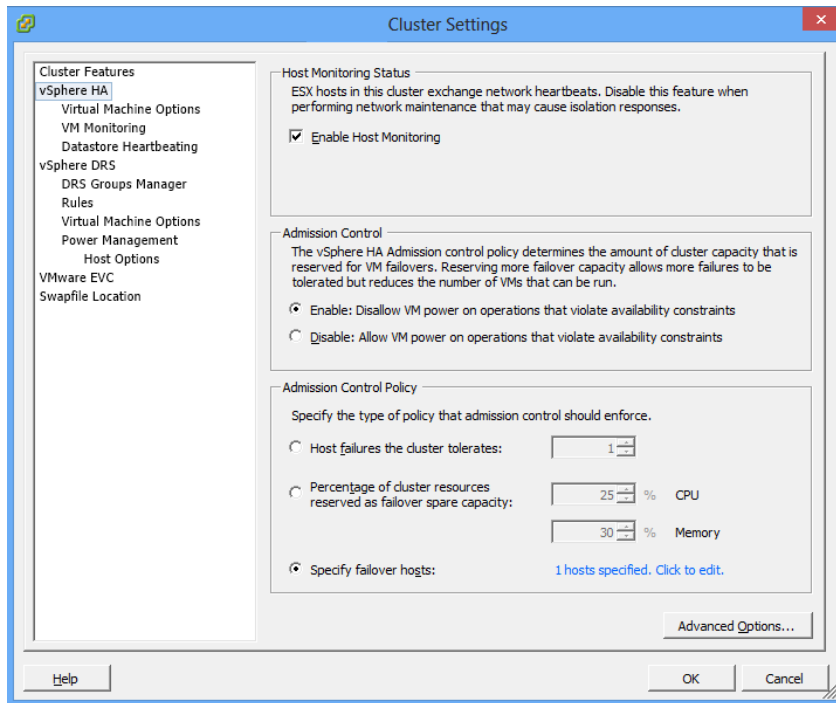
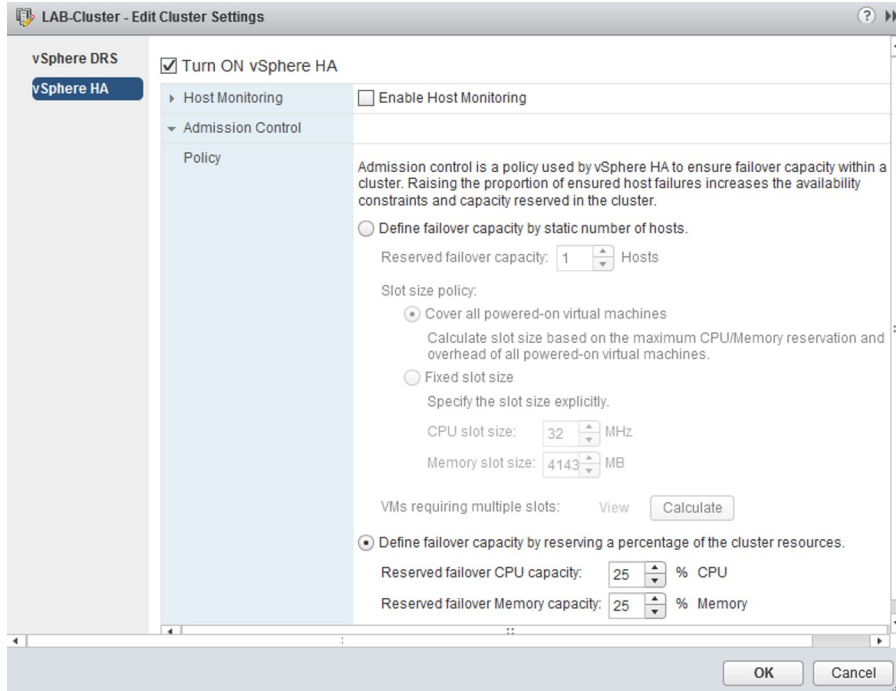
Host failures the cluster tolerates:

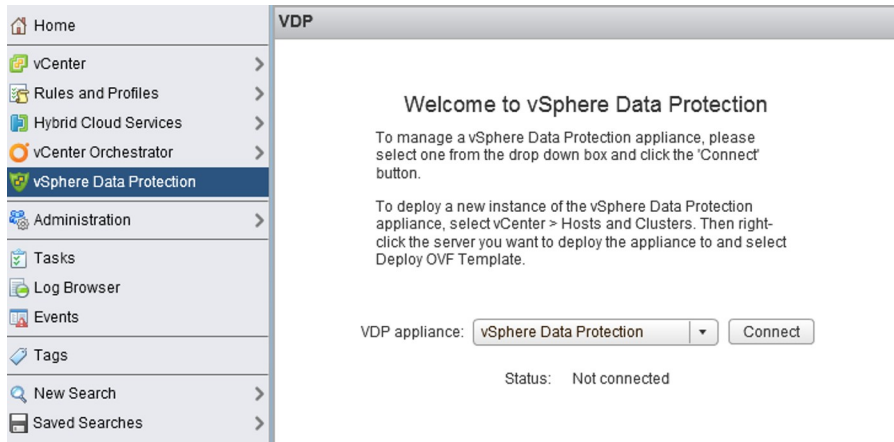
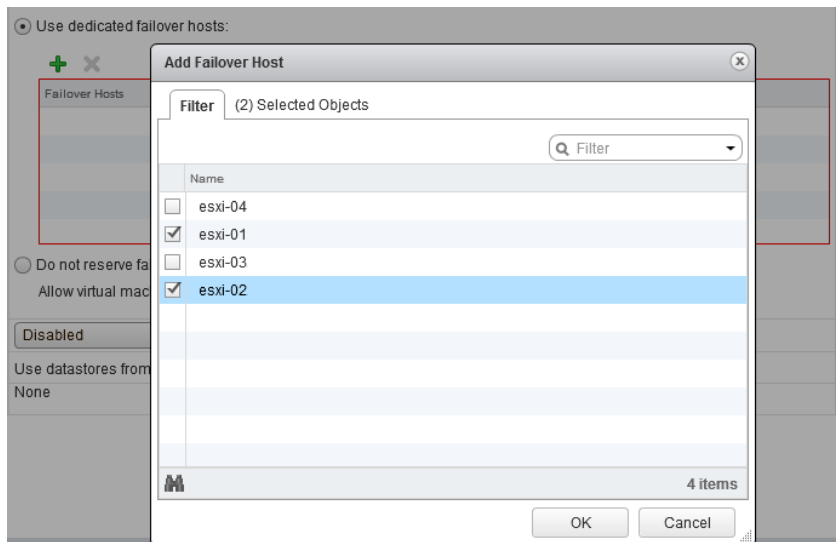
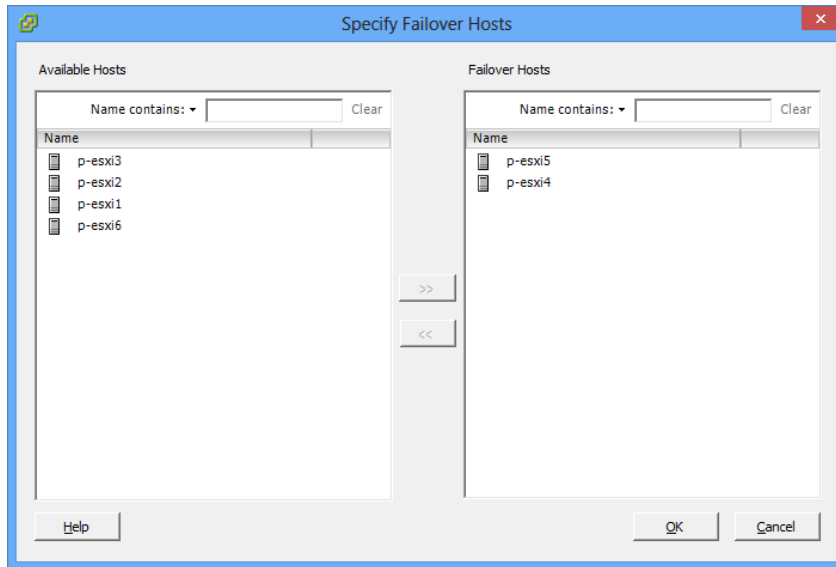
Percentage of cluster resources reserved as failover spare capacity: % CPU
 % Memory

Specify failover hosts: 0 hosts specified. Click to edit.

[Advanced Options...](#)







Create a new backup job

1 Virtual Machines
2 Schedule
3 Retention Policy
4 Name
5 Ready to Complete

Select the virtual machines to backup. You can also select other inventory objects like resource pools, clusters, etc.

Clear All Selections

- vc01
 - LAB
 - LAB-Cluster
 - ADFS1
 - admin1
 - admin2
 - admin3
 - apcontroller1
 - b-cron1
 - b-diff1
 - b-doceng1
 - b-ics1
 - b-logging1
 - b-sap1
 - b-solr1
 - b-spell1

Back Next Finish Cancel

Create a new backup job

1 Virtual Machines
2 Schedule
3 Retention Policy
4 Name
5 Ready to Complete

The schedule determines how often your selections will be backed up. Backups will occur as close to the start of the backup window as possible.

Backup schedule:

- Daily
- Weekly performed every Sunday
- The first Sunday of every month

vSphere Data Protection (192.168.6.230) Switch Appliance: vSphere Da... All Actions

Getting Started Backup Restore Reports Configuration

Refresh Backup Job Actions Backup Now

Name	State	Last Start Time	Duration	Next Run Time	Success	Failure Count
Admin	Enabled	Never	Never	11/24/2014 08:01	0	0

vSphere Data Protection 5.5

vSphere Data Protection (192.168.6.230) Switch Appliance: vSphere Da... All Actions

Getting Started Backup Restore Replication Reports Configuration

Manual restore Backup Verification

Refresh Restore Lock/Unlock Delete Clear all selections

Filter: Show all admin1

Name	Backup Types	Last Known ...	Location	Expiration ...
11/25/2014 08:07 PM	Image		VDP Appliance	01/24/2015
11/24/2014 08:06 PM	Image		VDP Appliance	01/23/2015
11/24/2014 03:07 AM	Image		VDP Appliance	01/22/2015

Restore backup

1 Select Backup
 2 Set Restore Options
 3 Ready to complete

Set Restore Options
Set the restore options for each backup that you are restoring.

Client: admin1
Backup: 11/25/2014 08:07 PM

Restore to original location

New name:

Destination:

Advanced options

Datstore:

Power On Reconnect NIC

Summary Virtual Machines Resource Allocation Performance Configuration Local Users & Groups Events Permissions

General

Manufacturer: IBM
 Model: IBM System x3550-[7978E...
 CPU Cores: 8 CPUs x 2.327 GHz
 Processor Type: Intel(R) Xeon(R) CPU E5345 @ 2.33GHz
 License: VMware vSphere 5 Enterprise - Licensed for 2 physical CP...
 Processor Sockets: 2
 Cores per Socket: 4
 Logical Processors: 8
 Hyperthreading: Inactive
 Number of NICs: 6
 State: Connected
 Virtual Machines and Templates: 25
 vMotion Enabled: N/A
 VMware EVC Mode: Disabled
 vSphere HA State: N/A
 Host Configured for FT: N/A
 Active Tasks:
 Host Profile: N/A
 Image Profile: (Updated) ESXi-5.1.0-7997...
 Profile Compliance: N/A
 DirectPath I/O: Not supported

Resources

CPU usage: **1457 MHz** Capacity 8 x 2.327 GHz
 Memory usage: **13016.00 MB** Capacity 32767.30 MB

Storage	Drive Type	Capacity
esxi-01:storage1	Non-SSD	131.50 GB
NetApp-Vmware1	Non-SSD	2.50 TB
NetApp-Vmware2	Non-SSD	2.50 TB
NetApp-Vmware3	Non-SSD	2.50 TB
Promise_spin_0_0	Non-SSD	2.00 TB
Promise_spin_0_1	Non-SSD	2.00 TB
Promise_spin_0_2	Non-SSD	2.37 TB
Promise_spin_2_0	Non-SSD	2.00 TB
Promise_spin_2_1	Non-SSD	745.75 GB
Promise_SSD_0_0	Non-SSD	1.36 TB

Network	Type
iSCSI Network	Standard port group
IGLOOLAB-VLAN6...	Standard port group
Production	Standard port group

Fault Tolerance

Fault Tolerance Version: 4.0.0-4.0.0-4.0.0
[Refresh Virtual Machine Counts](#)
 Total Primary VMs: 0
 Powered On Primary VMs: 0
 Total Secondary VMs: 0
 Powered On Secondary VMs: 0

Host Management

This host is currently managed by vCenter Server 192.168.10.154.
[Reconnect vSphere Client to this vCenter Server...](#)
[Disassociate host from vCenter Server...](#)

Commands

- New Virtual Machine
- Enter Maintenance Mode
- Reboot
- Shutdown

Browser address bar: <https://192.168.6...> | 192.168.6.230

Navigation tabs: Status | Configuration | Storage | Rollback | Upgrade | **Emergency Restore**

vSphere Data Protection Status

Core services	Running	Stop
Management services	Running	Stop
File system services	Running	Stop
File level restore services	Running	Stop
Maintenance services	Running	Stop
Backup scheduler	Running	Stop

Last updated: 11/25/2014 10:14 AM

Log collector

The log collector aggregates log files from all VDP related services to assist in troubleshooting. Click 'Collect logs' below and you will be prompted to download a zip file containing all system service logs.:

- Core VDP service logs
- Management service logs
- File system service logs
- File level restore service logs
- Client failure logs

If you would like the client logs for all failures click 'Collect client logs' below and you will be prompted to download an aggregated text file containing all client failure logs.

Navigation tabs: Status | Configuration | Storage | Rollback | Upgrade | **Emergency Restore**

Virtual Machines protected by vSphere Data Protection

Name	Last Known Path
admin1	/Datacenters/LAB/LAB-Cluster/admin1
11/24/2014 08:06 PM	
11/24/2014 03:07 AM	

Client Name	Status	Start Time	Completed Time	Bytes Transferred

Host Credentials

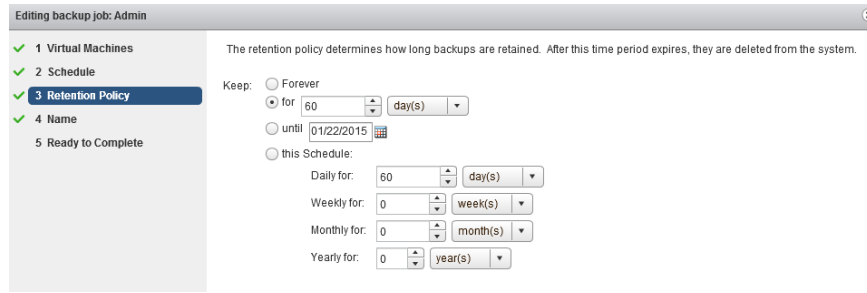
Enter information about the ESX host on which this VDP resides.

ESX hostname or IP:

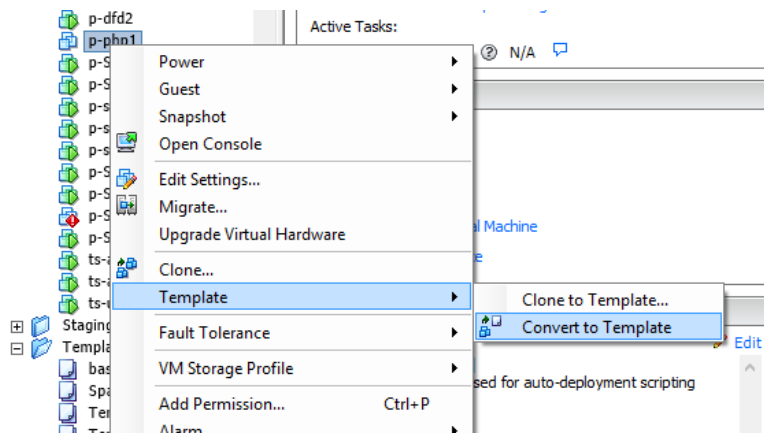
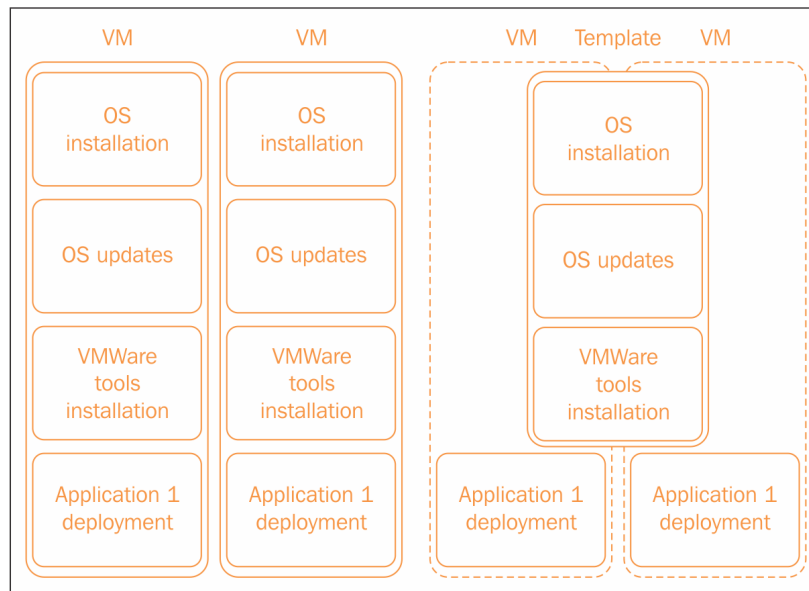
Port number:

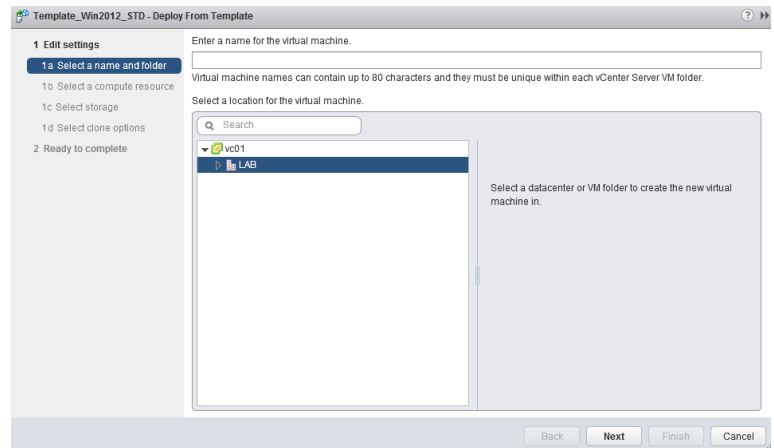
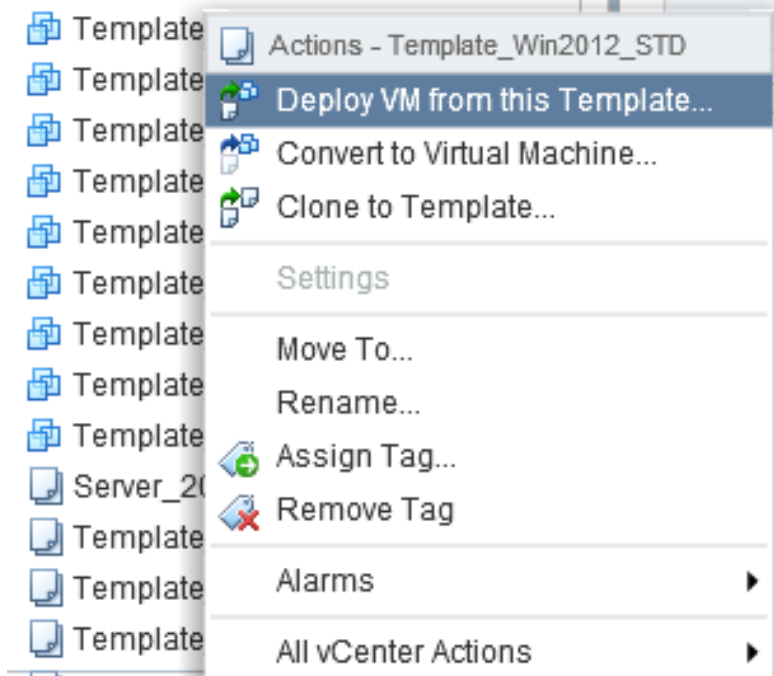
Username:

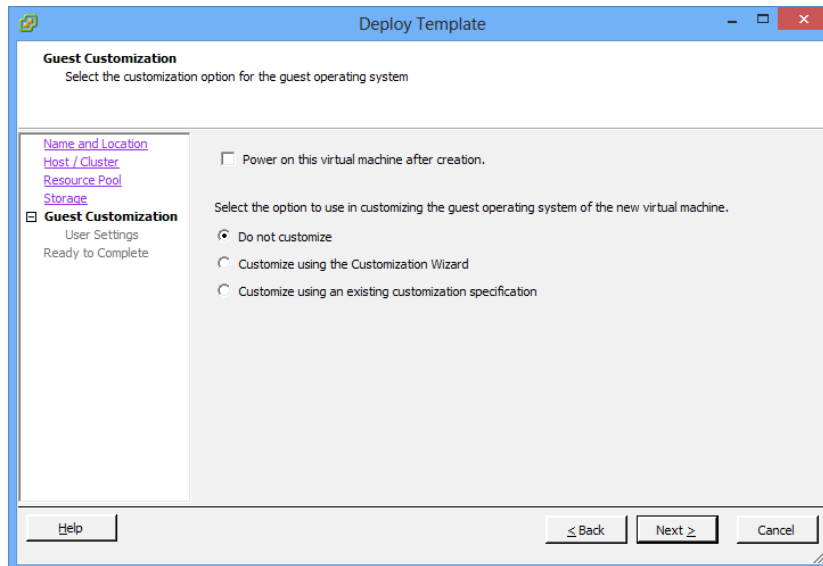
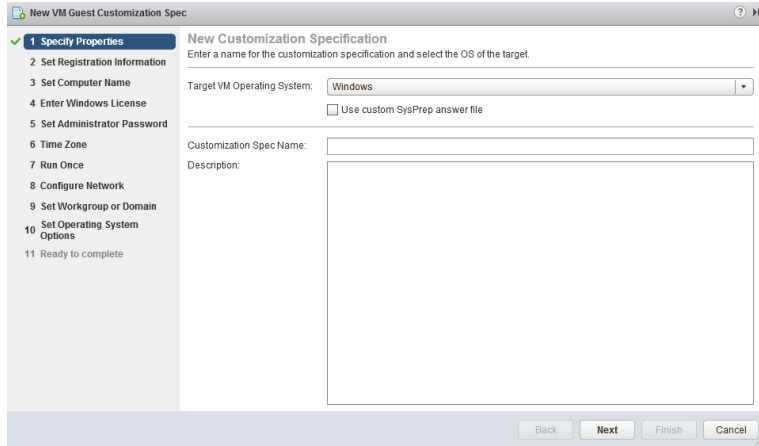
Password:



Chapter 3: Increasing Environment Scalability







Deploy Template

Guest Customization
Select the customization option for the guest operating system

[Name and Location](#)
[Host / Cluster](#)
[Resource Pool](#)
[Storage](#)

Guest Customization
User Settings
Ready to Complete

Power on this virtual machine after creation.

Select the option to use in customizing the guest operating system of the new virtual machine.

Do not customize
 Customize using the Customization Wizard
 Customize using an existing customization specification

vSphere Client Windows Guest Customization

Registration Information
Specify registration information for this copy of the guest operating system.

Registration Information
Type in the owner's name and organization.

Computer Name
Windows License
Administrator Password
Time Zone
Run Once
Network
Workgroup or Domain
Operating System Options
Save Specification
Ready to Complete

Name:
Organization:

Template_Win2012_STD - Deploy From Template

1 Edit settings

- ✓ 1a Select a name and folder
- ✓ 1b Select a compute resource
- ✓ 1c Select storage
- ✓ **1d Select clone options**

2 Ready to complete

Customize the operating system
 Customize this virtual machine's hardware (Experimental)
 Power on virtual machine after creation

Back Next

Template_Win2012_STD - Deploy From Template

1 Edit settings

- ✓ 1a Select a name and folder
- ✓ 1b Select a compute resource
- ✓ 1c Select storage
- ✓ 1d Select clone options
- ✓ **1e Customize guest OS**

2 Ready to complete

Operating System: **Microsoft Windows Server 2012 (64-bit)**

Name	Guest OS
Server_2012_lab	Windows

p-web28

Summary Resource Allocation Performance Tasks & Events Alarms

View: **Tasks** Events

Description	Type
A ticket of typemks has been acquired.	info
Remote console connected	info
Customization of VM p-web28 succeeded. Customization log located at C:\Windows\TEMP\vmware-vmc\guestcustlog in the guest OS.	info
Reconfigured virtual machine	info
Task: Reconfigure virtual machine	info
Resource allocation changed	info
Started customization of VM p-web28. Customization log located at C:\Windows\TEMP\vmware-vmc\guestcustlog in the guest OS.	info
Alarm 'Virtual machine memory usage' changed from Gray to Green	info
Alarm 'Virtual machine cpu usage' changed from Gray to Green	info

Template_Win2012_STD - Convert Template To Virtual Machine

1 Edit settings

1a Select a compute resource

2 Ready to complete

Search

LAB
LAB-Cluster

Select a cluster, host, vApp or resource pool to run this virtual machine.

Compatibility:

Back Next Finish Cancel

1 Select connection type

2 Select target device

3 Connection settings

3a Port properties

3b IPv4 settings

4 Ready to complete

Select target device
Select a target device for the new connection.

Select an existing standard switch

New standard switch

Select Switch

Select a standard switch on which to create a VMkernel adapter.

Switch	Discovered last
vSwitch0	--
vSwitch1	--
vSwitch2	--

OK Cancel

Back Next Finish Cancel

1 Select connection type

2 Select target device

3 Connection settings

3a Port properties

3b IPv4 settings

4 Ready to complete

Port properties
Specify VMkernel port settings.

VMkernel port settings

Network label:

VLAN ID:

IP settings:

TCP/IP stack: ?

Available services

Enable services:

vMotion traffic

Fault Tolerance logging

Management traffic

Virtual SAN traffic

LAB-Cluster - Edit Virtual SAN Settings

Turn ON Virtual SAN

Add disks to storage

Requires manual claiming of any new disks on the included hosts to the shared storage.

Licensing ⚠ You must assign a license key to the cluster before the evaluation period of Virtual SAN expires.

OK Cancel

192.168.6.57 - Create Disk Group

First, select a single SSD disk to serve as a write cache and read buffer.

Filter

Name	Drive Type	Capacity	Transport Type
This list is empty.			

0 items

Then, select one or many disks to serve as data disks.

Filter

Name	Drive Type	Capacity	Transport Type
<input type="checkbox"/> Local DELL Disk (naa.6b083fe0cdf520001c01f...	Non-SSD	837.75 GB	Parallel SCSI

1 items

OK Cancel

Create New VM Storage Policy

1 Name and description

2 Rule-Sets

2a Rule-Set 1

3 Matching resources

4 Ready to complete

Rule-Set 1
 Select rules to create your VM storage policy.
 • The VM storage policy will match datastores that satisfy any of the rule sets.
 • A rule set will match datastores that satisfy all of the selected rules.

Rules based on vendor-specific capabilities: VSAN

Number of failures to tolerate: 1

<Add capability>

Rules based on tags

Add tag-based rule...

Add another rule set Remove this rule set

Back Next Finish Cancel

SQLIO: Manage VM Storage Policies

The Home VM storage policy applies to the virtual machine configuration files.

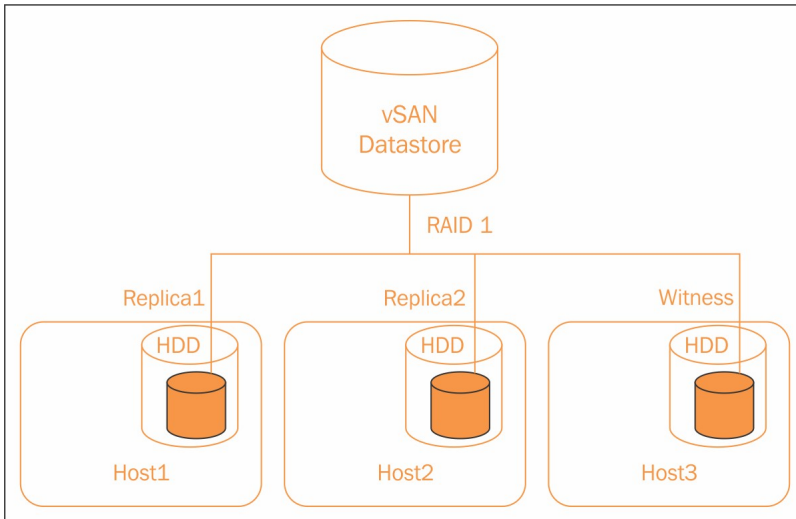
Home VM storage policy: Default Policy Apply to disks

Optionally, select a virtual disk and apply a separate VM storage policy to it.

VM storage policies for virtual disks:

Disk Name	VM Storage Policy
Hard disk 1	Default Policy
Hard disk 2	Default Policy

OK Cancel



```

VMware vSphere PowerCLI 5.1 Release 2
Welcome to the VMware vSphere PowerCLI!

Log in to a vCenter Server or ESX host:          Connect-VIServer
To find out what commands are available, type:  Get-UICommand
To show searchable help for all PowerCLI commands: Get-PowerCLIHelp
Once you've connected, display all virtual machines: Get-VM
If you need more help, visit the PowerCLI community: Get-PowerCLICommunity

Copyright (C) 1998-2013 VMware, Inc. All rights reserved.

PowerCLI C:\Program Files (x86)\VMware\Infrastructure\oSphere PowerCLI> Connect-
VIServer

cmdlet Connect-VIServer at command pipeline position 1
Supply values for the following parameters:
Server[0]: 192.168.15.100

```

```

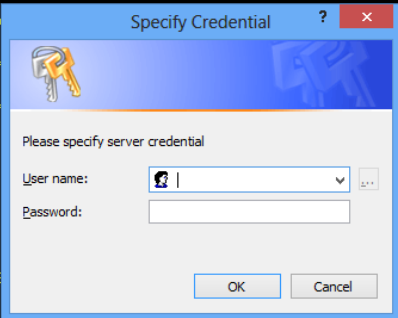
PowerCLI C:\Program Files (x86)\VMware\Infrastructure\oSphere PowerCLI> Connect-
VIServer

cmdlet Connect-VIServer at command pipeline position 1
Supply values for the following parameters:
Server[0]: 192.168.15.100
Server[1]:
WARNING: There were one or more problems with the server certificate:
* A certification chain processed correctly, but terminated in a root
certificate which isn't trusted by the trust provider.
* The certificate's CN name is:
Certificate: [Subject]
CN=p-vc01, L=TORONTO, S=
[Issuer]
CN=p-vc01, L=TORONTO, S=
[Serial Number]
00BDAADC70D88550E6
[Not Before]
12/4/2012 9:13:43 PM
[Not After]
12/2/2022 9:13:43 PM
[Thumbprint]
E55DFD8A1CA04298E30CE873

The server certificate is not valid.

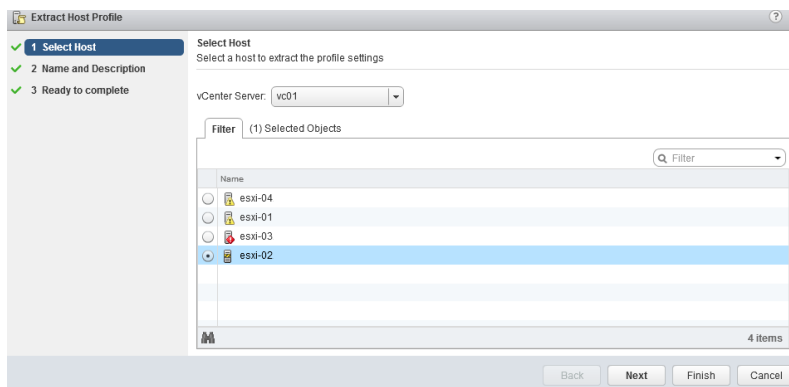
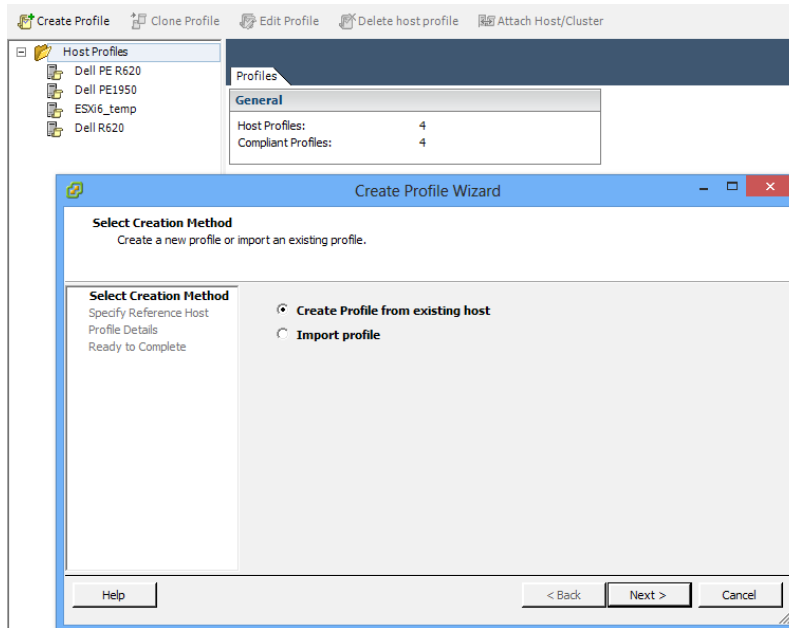
WARNING: THE DEFAULT BEHAVIOR UPON INVALID SERVER CERTIFICATE WILL CHANGE IN A
FUTURE RELEASE. To ensure scripts are not affected by the change, use
Set-PowerCLIConfiguration to set a value for the InvalidCertificateAction
option.

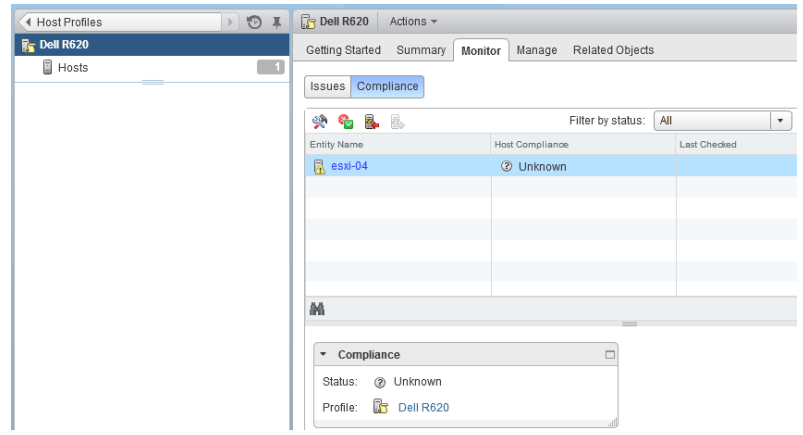
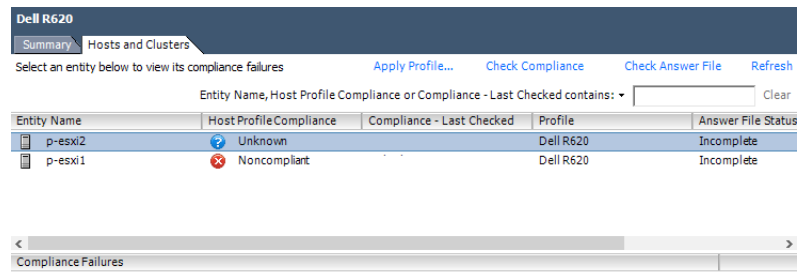
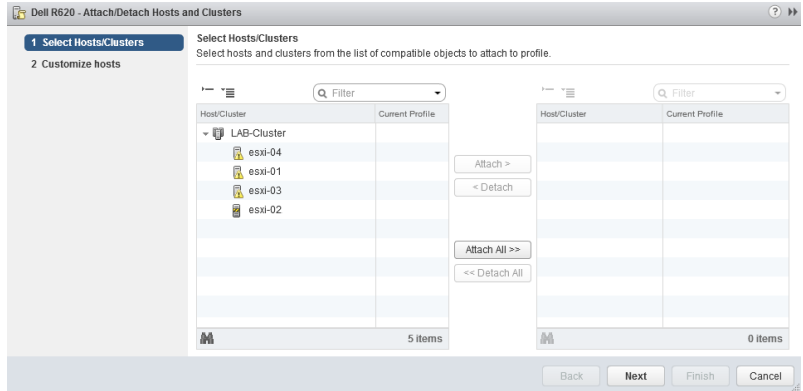
```

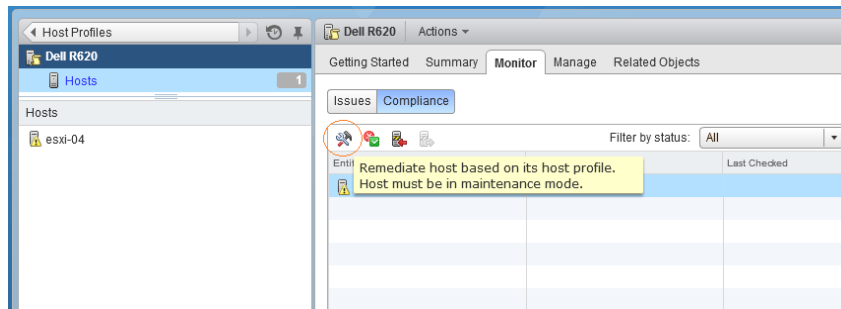
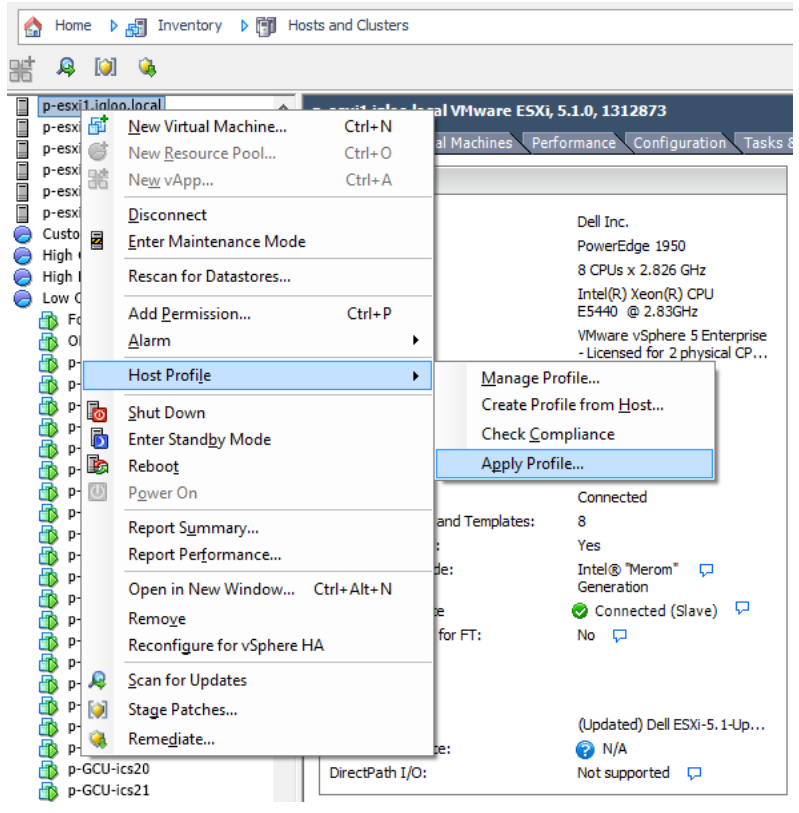


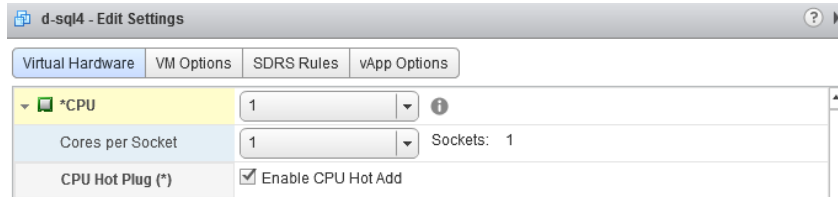
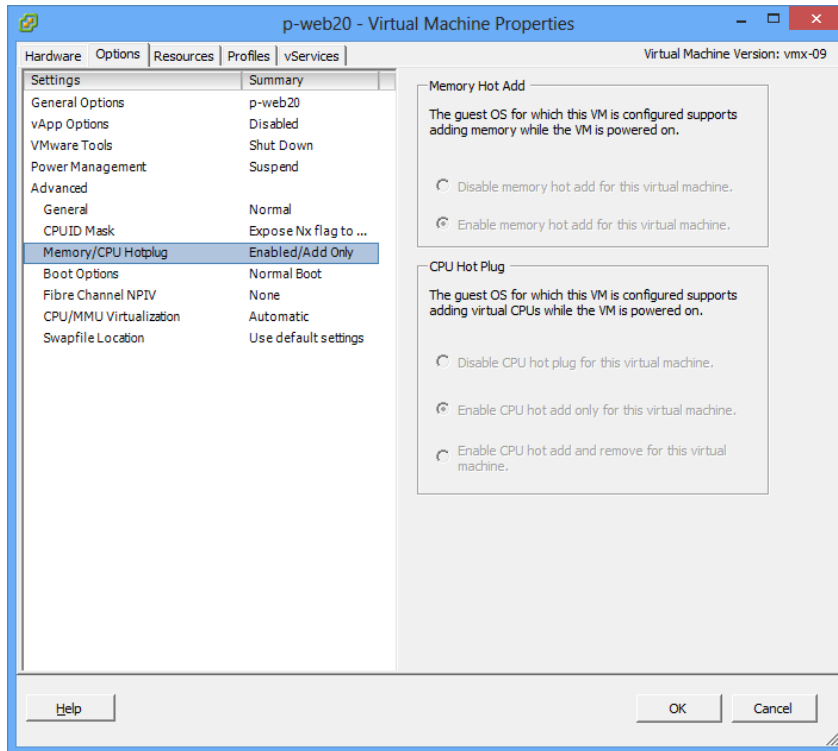
```
Name                               Port  User
-----                               -
192.168.15.100                     443   kkuminsky

PowerCLI C:\Program Files (x86)\VMware\Infrastructure\vsphere PowerCLI>
PowerCLI C:\Program Files (x86)\VMware\Infrastructure\vsphere PowerCLI> cd C:\Scripts
PowerCLI C:\Scripts> .\new-vm.ps1
```

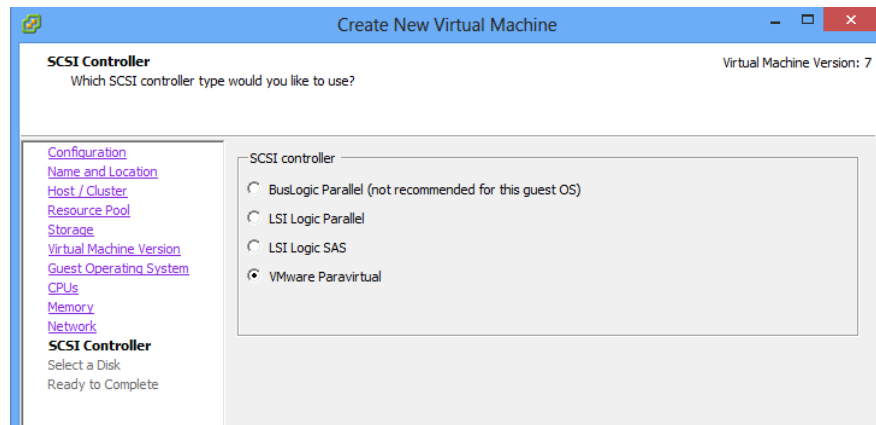
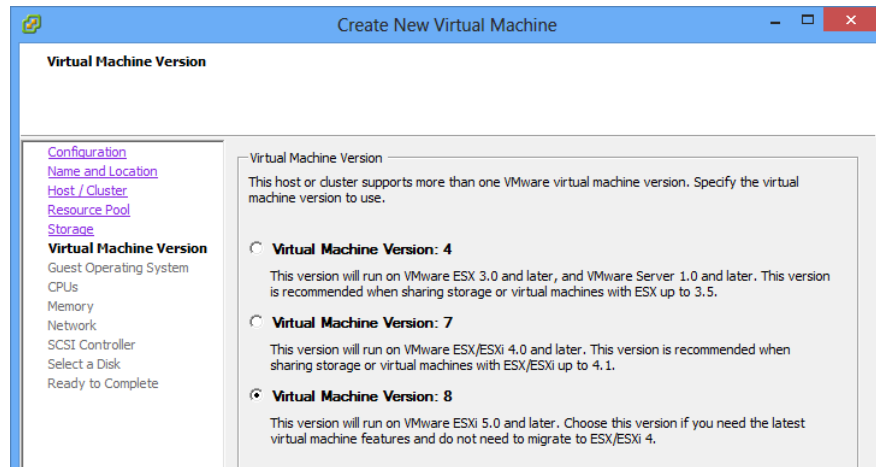
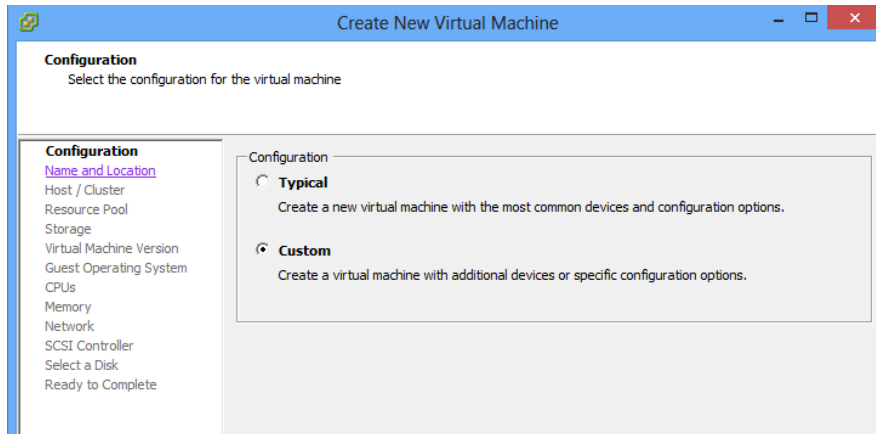


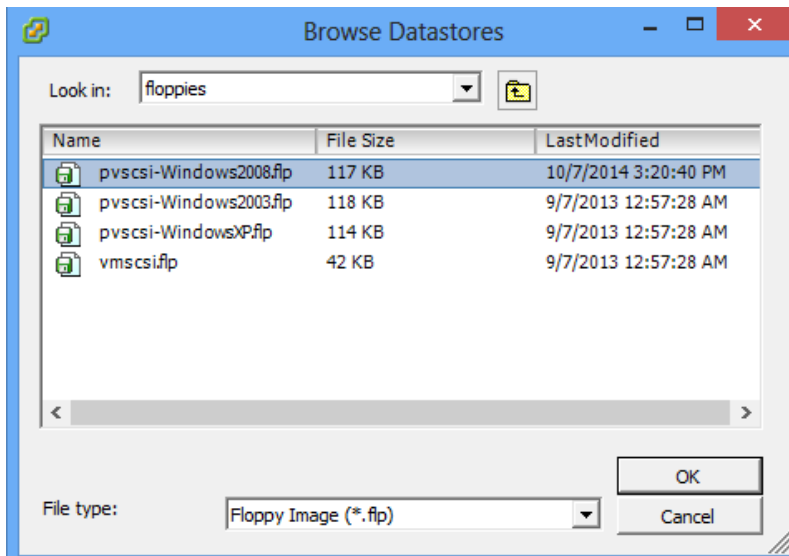
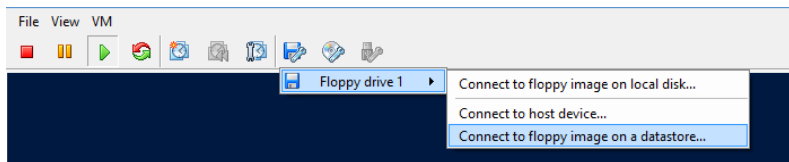
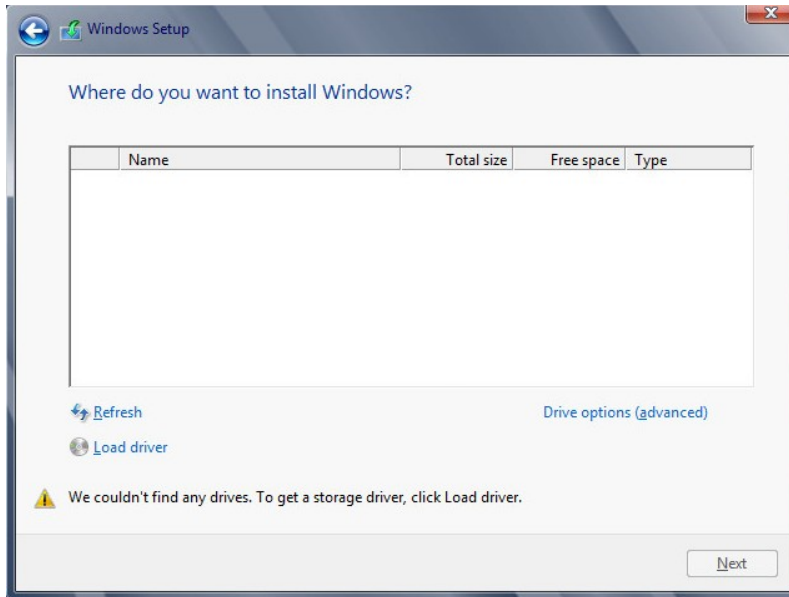


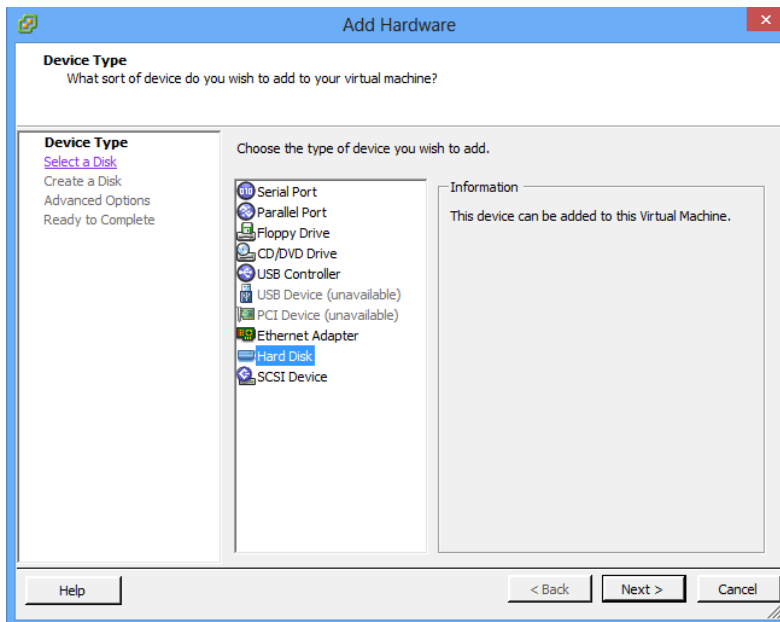
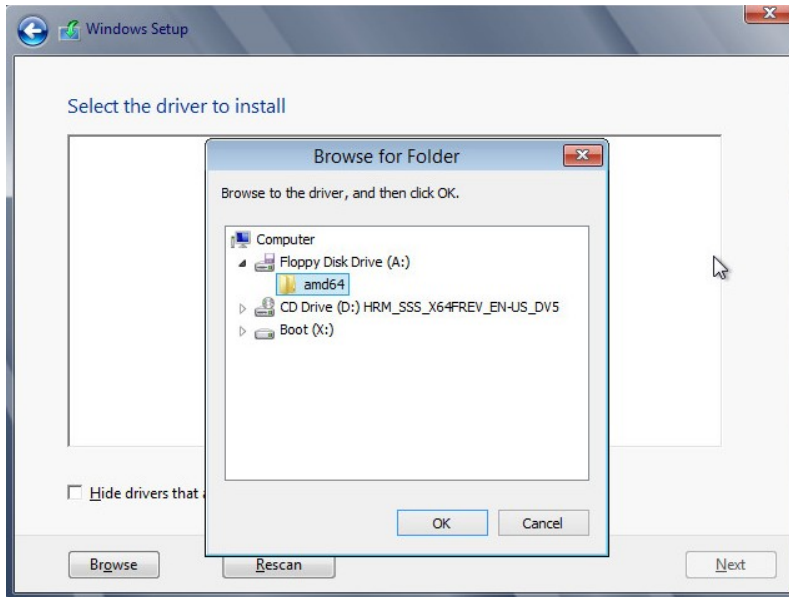


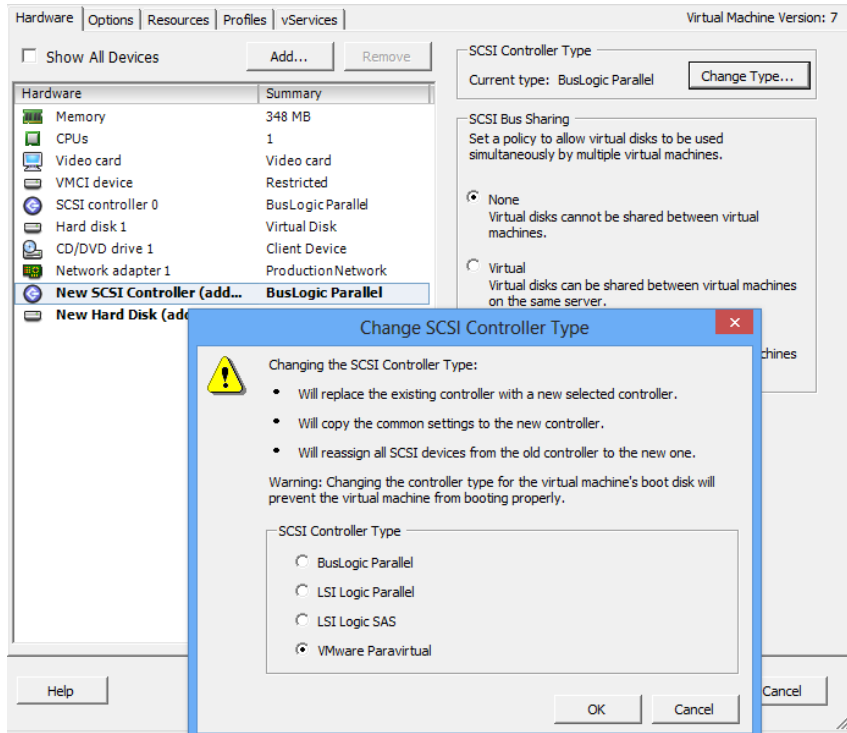
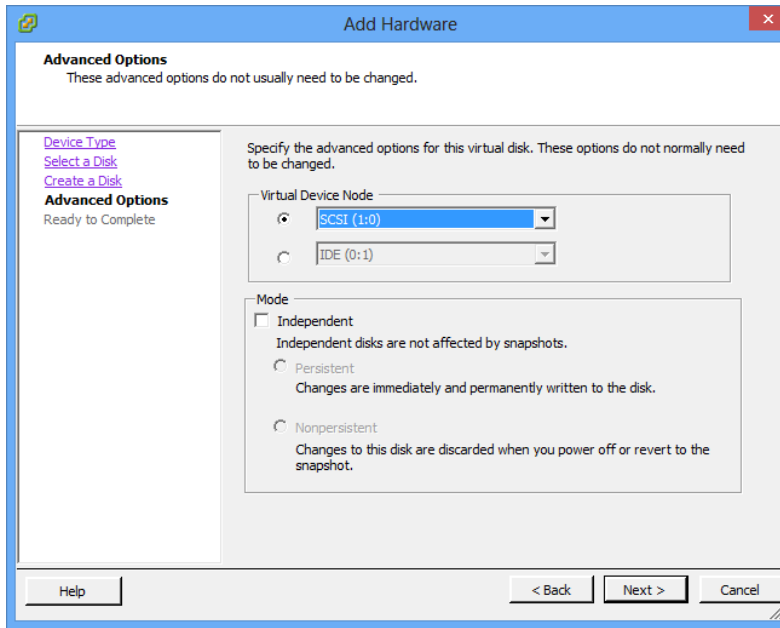


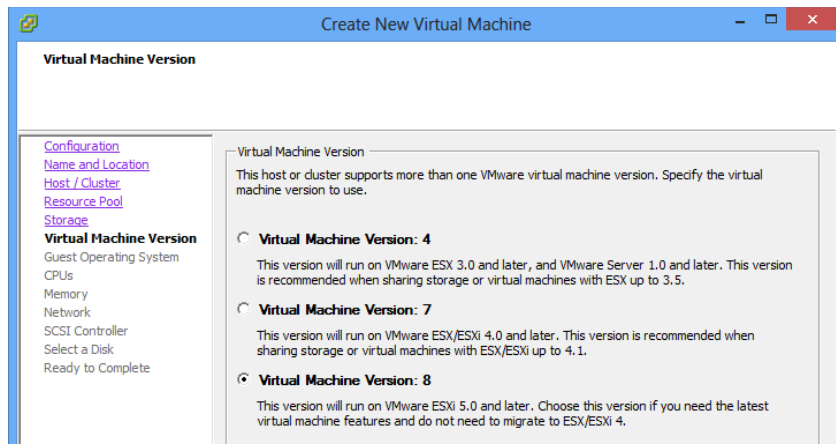
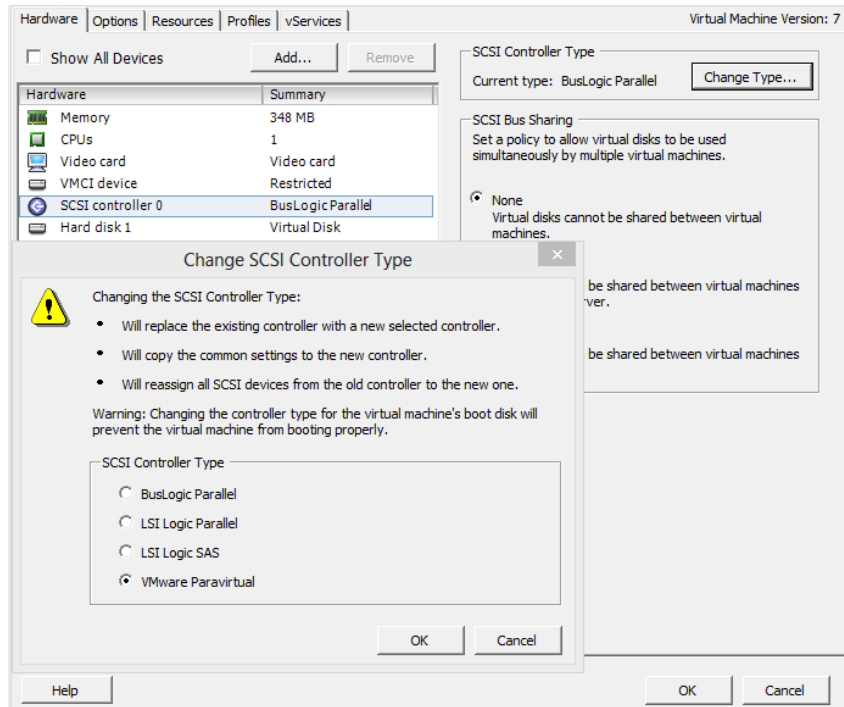
Chapter 4: Improving Environment Efficiency

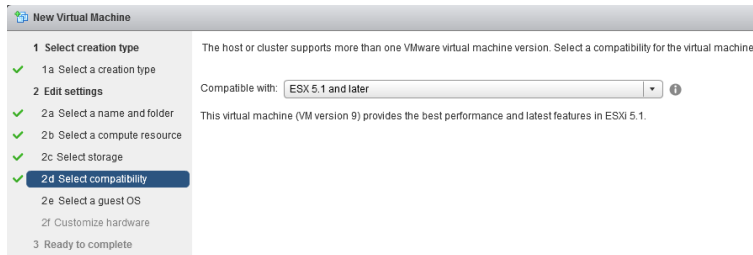
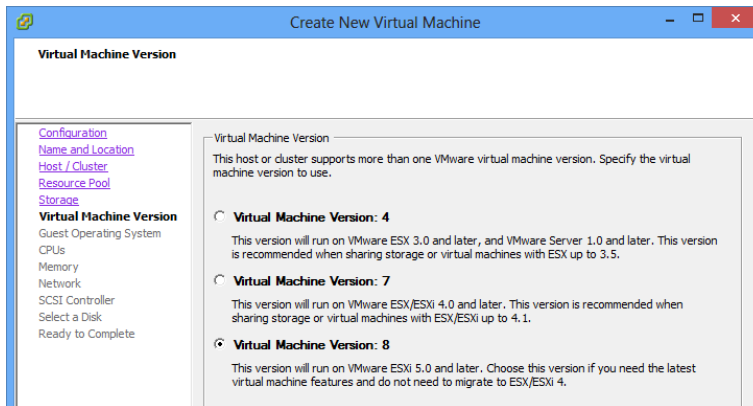
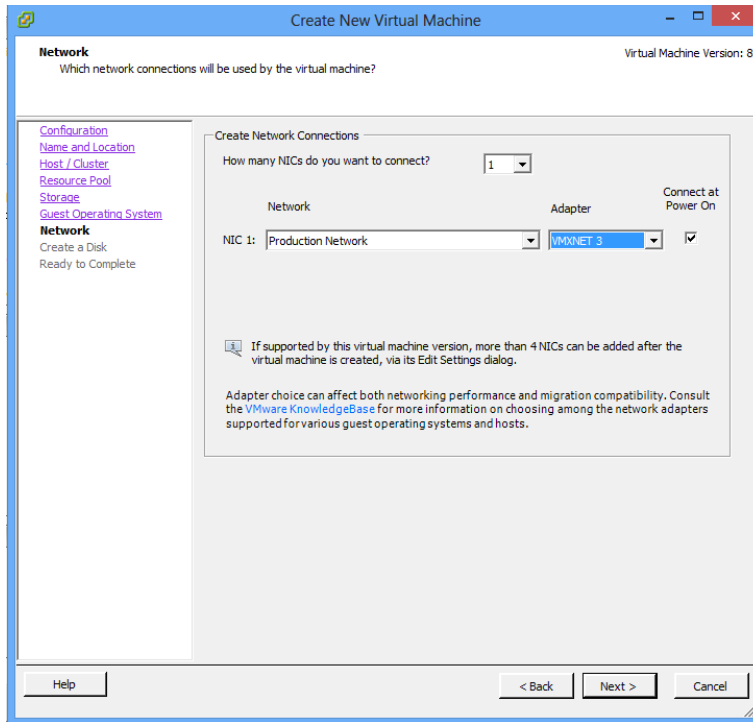












Summary Resource Allocation Performance Tasks & Events Alarms Console Permissions Maps Storage Views Update Man...

General

Guest OS: CentOS 4/5/6 (64-bit)
 VM Version: 7
 CPU: 1 vCPU
 Memory: 4096 MB
 Memory Overhead: 43.43 MB
 VMware Tools: ✔ Running (Current)
 IP Addresses: 192.168.15.51 [View all](#)

DNS Name: p-solr1
 EVC Mode: Intel® "Merom" Generation
 State: Powered On
 Host: p-esxi4
 Active Tasks:
 Record/Replay Status:
 vSphere HA Protection: ✔ Protected [⏏](#)

Resources

Consumed Host CPU: **19 MHz**
 Consumed Host Memory: **3992.00 MB**
 Active Guest Memory: **819.00 MB** [Refresh Storage Usage](#)

Provisioned Storage: **174.09 GB**
 Not-shared Storage: **174.09 GB**
 Used Storage: **174.09 GB**

Storage	Status	Drive Type
P-GRP1-NoSnaps1	✔ Normal	Non-SSD

Network	Type	Sta
Production Netwo...	Standard port group	✔

Template Win21

- Power
- Guest
- Snapshot
- Open Console
- Edit Settings...
- Migrate...
- Upgrade Virtual Hardware

TurnedOff

Confirm Virtual Machine Upgrade

This operation will cause the virtual hardware that your guest operating system runs on to change. It is an irreversible operation that will make your virtual machine incompatible with earlier versions of VMware software products. It is strongly recommended that you make a backup copy of your disks before proceeding.

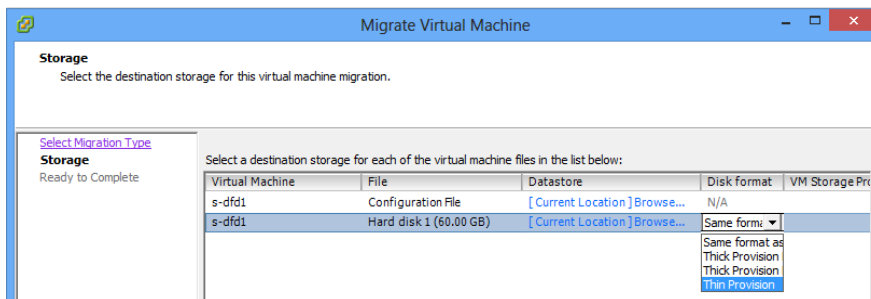
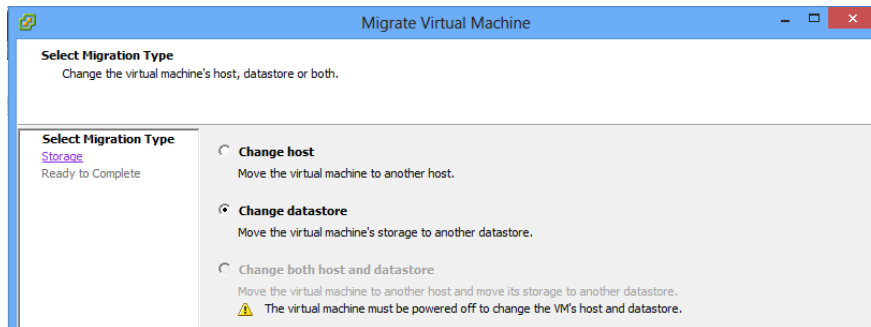
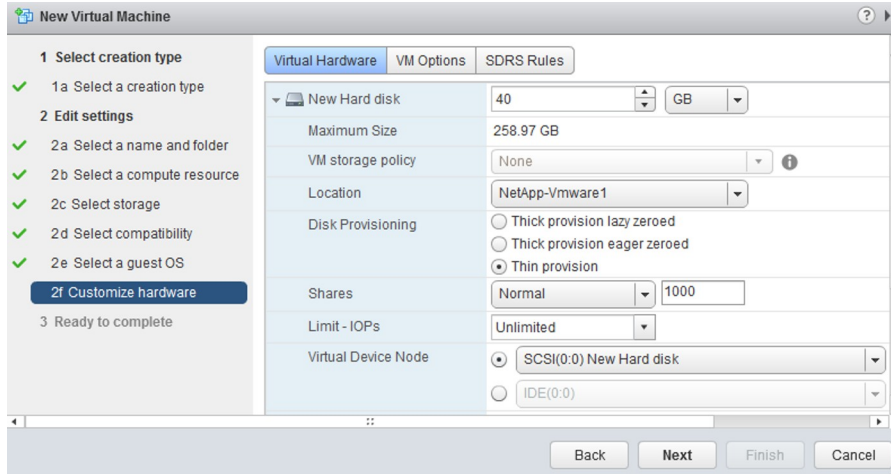
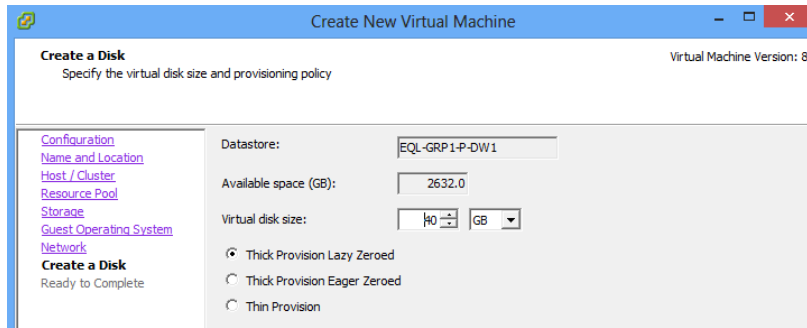
1 virtual machine(s) will be upgraded to version 10 or higher. If you upgrade the virtual hardware to this level, use the vSphere Web Client for managing these VMs.

Are you sure you want to upgrade your configuration?

- Take Snapshot...
- Revert to Current Snapshot
- Manage Snapshots...
- Clone...
- Edit Settings...
- Move To...
- Rename...
- Assign tag...
- Alarms
- All vCenter Actions

- Fault Tolerance
- Edit Resource Settings...
- Export OVF Template...
- Storage Profiles
- Compatibility
- Custom Attributes
- Edit Notes...
- Remove from Inventory
- Delete from Disk

- Upgrade VM Compatibility...
- Schedule VM Compatibility Upgrad...
- Cancel Scheduled VM Upgrade



s-dfd1 - Migrate

1 Select Migration Type

- Change host
Move the virtual machine to another host
- Change datastore
Move the virtual machine's storage to another datastore
- Change both host and datastore
Move the virtual machine to another host and move its storage to another datastore

s-dfd1 - Migrate

1 Select Migration Type

2 Select Datastore

3 Review Selections

Select virtual disk format: Same format as source

VM Storage Profile: Same format as source

The following datastores are available for you to select. Select the destination datastore for the virtual machine configuration:

Name	Capacity	Provisioned	Free	Type	Storage DR...
EQL-GRP1-P-DW1	4.50 TB	5.13 TB	2.53 TB	VMFS 5	

s-dfd1 - Migrate

1 Select Migration Type

2 Select Datastore

3 Review Selections

File	Storage	Disk format	VM Storage Profile
Configuration File	[S-GRP1-NoSnap1]	N/A	
Hard disk 1 (60.00 GB)	[S-GRP1-NoSnap1]	Same format as source	

p-vc01

Datacenter

Summary Virtual Machines Hosts IP Pools Performance Tasks & Events Alarms Permissions Maps Storage Views

View: Triggered Alarms Definitions

Name	Defined In	Description
Cannot connect to storage	p-vc01.IG...	Default alarm to monitor host conne...
Cannot find vSphereHA master agent	p-vc01.IG...	Default alarm to alert when vCenter...
Datastore capability alarm	p-vc01.IG...	Default alarm that triggers when the...
Datastore cluster is out of space	p-vc01.IG...	Alarm that monitors when a datasto...
Datastore is in multiple datacenters	p-vc01.IG...	Datastore in a datastore cluster is vs...
Datastore usage on disk	p-vc01.IG...	Default alarm to monitor datastore d...

Alarm Settings

General Triggers Reporting Actions

Alarm name: 1GB VM snapshot size

Description:

Alarm Type

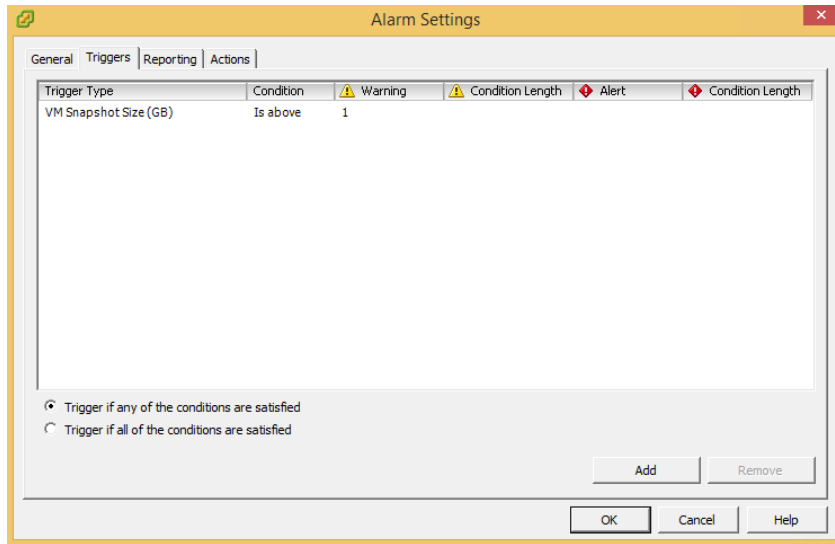
Monitor: Virtual Machine

Monitor for specific conditions or state, for example, CPU usage, power state

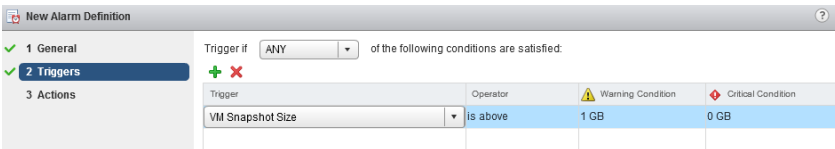
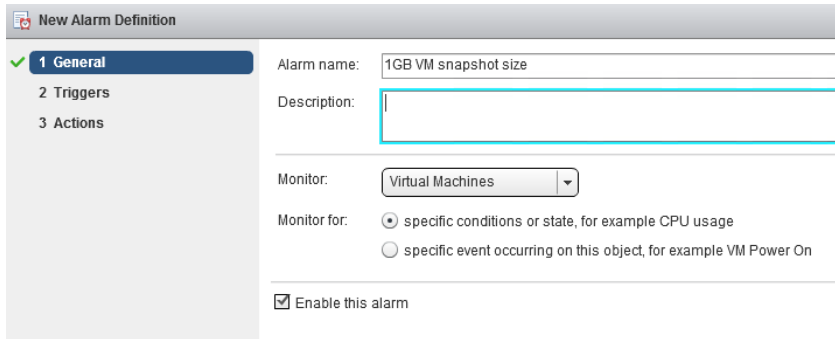
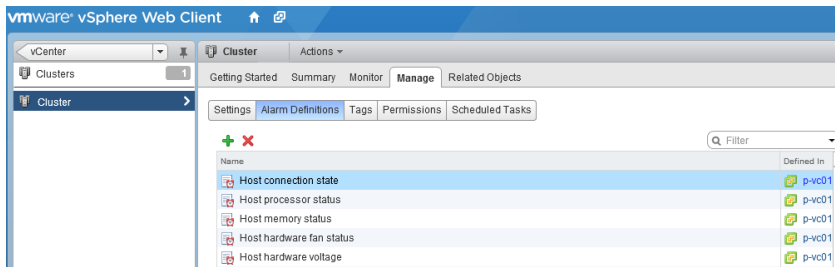
Monitor for specific events occurring on this object, for example, VM powered On

Enable this alarm

OK Cancel Help



Object	Status	Name
Foglight™ for Virtualization	Alert	1GB VM snapshot size
p-deploy2	Alert	1GB VM snapshot size



Getting Started Summary Monitor **Manage** Related Objects

Settings Networking Storage Alarm Definitions Tags Permissions

Virtual Flash Resource Management Add Capacity... Remove All

Use SSD devices connected to your host to set up a virtual flash resource. After you create the resource, it can be used to allocate space for virtual flash host swap cache or to configure virtual Flash Read Cache for virtual disks.

- Capacity
 - Capacity for virtual Flash Read Cache
 - File System

Getting Started Summary Monitor **Manage** Related Objects

Settings Networking Storage Alarm Definitions Tags Permissions

Virtual Flash Resource Management Add Capacity... Remove All

Use SSD devices connected to your host to set up a virtual flash resource. After you create the resource, it can be used to allocate space for virtual flash host swap cache or to configure virtual Flash Read Cache for virtual disks.

- Capacity
 - Capacity for virtual Flash Read Cache
 - File System

LAB-Cluster Settings

Cluster Features

- vSphere HA
 - Virtual Machine Options
 - VM Monitoring
 - Datastore Heartbeating
- vSphere DRS
 - DRS Groups Manager
 - Rules
 - Virtual Machine Options
 - Power Management**
 - Host Options
- VMware EVC
- Swapfile Location

Power Management

DPM uses Wake-on-LAN, IPMI, or iLO to power on hosts. When using IPMI or iLO, configure IPMI or iLO separately for each participating host prior to enabling DPM. For all power on methods, test exit standby for each participating host prior to enabling DPM.

Specify the default power management for this cluster.

Off

vCenter will not provide power management recommendations. Individual host overrides may be set, but will not become active until the cluster default is either Manual or Automatic.

Manual

vCenter will recommend evacuating a host's virtual machines and powering off the host when the cluster's resource usage is low, and powering the host back on when necessary.

Automatic

vCenter will automatically execute power management related recommendations.

DPM Threshold: Conservative Aggressive

Apply priority 3 or higher recommendations
vCenter will apply power on recommendations produced to meet vSphere HA requirements or user-specified capacity requirements.
Power on recommendations will also be applied if host resource utilization becomes higher than the target utilization range.
Power off recommendations will be applied if host resource utilization becomes very low in comparison to the target utilization range.

Help OK Cancel

LAB-Cluster Settings

Cluster Features

- vSphere HA
 - Virtual Machine Options
 - VM Monitoring
 - Datastore Heartbeating
- vSphere DRS
 - DRS Groups Manager
 - Rules
 - Virtual Machine Options
 - Power Management
 - Host Options**
- VMware EVC
- Swapfile Location

Set power management options for individual hosts in this cluster.

Host	Power Management	Last Time Exited Standby
esxi-04	Default (Disabled) ▼	Never
esxi-01	Default (Disabled)	Never
esxi-03	Disabled	Never
esxi-02	Manual	Never
	Automatic	Never

LAB-Cluster Actions

Getting Started Summary Monitor **Manage** Related Objects

Settings Alarm Definitions Tags Permissions Scheduled Tasks

- ←
- Services
- vSphere DRS**
- vSphere HA
- Virtual SAN
 - General
 - Disk Management
- Configuration
 - General
 - Virtual SAN Licensing
 - VMware EVC
 - DRS Groups
 - DRS Rules
 - VM Overrides
 - Host Options
 - Profiles

vSphere DRS is Turned ON Schedule DRS... Edit...

DRS Automation	Partially Automated
Power Management	
Automation Level	Off
vCenter Server will not provide power management recommendations. Individual host overrides may be set, but will not become active until the cluster default is either Manual or Automatic.	
DPM Threshold	N/A
Advanced Options	None

LAB-Cluster - Edit Cluster Settings

vSphere DRS

vSphere HA

Turn ON vSphere DRS

DRS Automation	Partially Automated ▼
Power Management	
Automation Level	<p>DPM uses Wake-on-LAN, IPMI, or iLO to power on hosts. When using IPMI or iLO, configure IPMI or iLO separately for each participating host prior to enabling DPM. For all power-on methods, test exit standby for each participating host prior to enabling DPM.</p> <p><input type="radio"/> Off vCenter Server will not provide power management recommendations. Individual host overrides may be set, but will not become active until the cluster default is either Manual or Automatic.</p> <p><input checked="" type="radio"/> Manual vCenter Server will recommend evacuating a host's virtual machines and powering off the host when the cluster's resource usage is low, and powering the host back on when necessary.</p> <p><input type="radio"/> Automatic vCenter Server will automatically execute power management related recommendations. Overrides for individual hosts can be set from the Host Options page.</p>
DPM Threshold	<p>Conservative ————— Aggressive</p> <p>Apply priority 3 or higher recommendations. vCenter Server will apply power-on recommendations produced to meet vSphere HA requirements or user-specified capacity requirements. Power-on recommendations will also be applied if host resource utilization becomes higher than the target utilization range. Power-off recommendations will be applied if host resource utilization becomes very low in comparison to the target utilization range.</p>

OK Cancel

esxi-04 VMware ESXi, 5.5.0, 2068190

Summary Virtual Machines Performance Configuration Tasks & Events Alarms Permissions Maps Storage Views Hardware Status

Hardware

- Processors
- Memory
- Storage
- Networking
- Storage Adapters
- Network Adapters
- Advanced Settings
- Power Management

Software

- Licensed Features
- Time Configuration
- DNS and Routing
- Authentication Services
- Power Management
- Virtual Machine Startup/Shutdown
- Virtual Machine Swapfile Location
- Security Profile
- Host Cache Configuration
- System Resource Allocation
- Agent VM Settings
- Advanced Settings

Power Management Settings

Technology: ACPI C-states

Active Policy: Balanced

Edit Power Policy Settings

Power Management Policy

- High performance**
Do not use any power management features
- Balanced**
Reduce energy consumption with minimal performance compromise
- Low power**
Reduce energy consumption at the risk of lower performance
- Custom**
User-defined power management policy

OK Cancel Help

esxi-04 Actions

Getting Started Summary Monitor **Manage** Related Objects

Settings Networking Storage Alarm Definitions Tags Permissions

Power Management

Technology	ACPI C-states
Active policy	Balanced

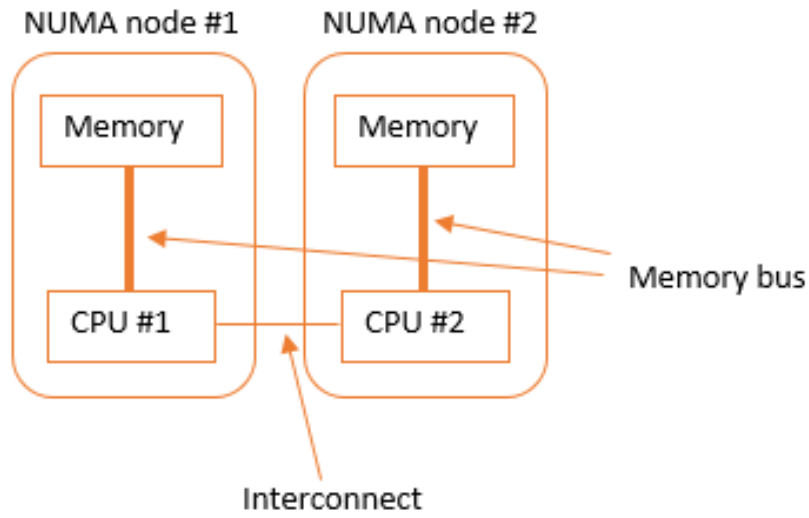
esxi-04: Edit Power Policy Settings

- High performance
Do not use any power management features
- Balanced**
Reduce energy consumption with minimal performance compromise
- Low power
Reduce energy consumption at the risk of lower performance
- Custom
User-defined power management policy

OK Cancel

- Virtual Machines
 - Default VM Compatibility
 - VM Startup/Shutdown
 - Agent VM Settings
 - Swap file location
- System
 - Licensing
 - Host profile
 - Time Configuration
 - Authentication Services
 - Power Management
 - Advanced System Settings
 - System Resource Allocation
 - Security Profile
 - System Swap
- Hardware
 - Processors
 - Memory
 - Graphics
 - Power Management**
 - PCI Devices
- Virtual Flash
 - Virtual Flash Resource Management
 - Virtual Flash Host Swap Cache Configuration


```
10:45:14pm up 60 days 21:30, 850 worlds, 46 VMs, 67 vCPUs; CPU load average: 0.21, 0.20, 0.19
Power Usage: 150W, Power Cap: N/A
BSTATE MHZ:
CPU %USED %UTIL %CO %C1 %C2
0 11.3 31.2 30 63 6
1 7.6 22.8 22 63 15
2 9.9 26.9 27 61 13
3 7.3 21.2 21 54 25
4 8.4 23.1 23 60 18
5 8.5 23.0 23 47 31
6 6.7 18.8 18 54 27
7 8.9 23.5 23 44 33
8 10.2 25.8 26 47 27
9 5.5 15.6 15 45 40
10 5.5 15.2 15 50 35
11 6.6 17.5 17 37 47
12 6.9 18.0 18 58 24
13 6.1 16.0 15 37 48
14 8.8 22.8 23 59 19
15 7.7 20.3 20 36 45
```



Chapter 5: Optimizing Resource Usage

admin3 - Edit Resource Settings

*CPU	
Shares (*)	High 4000
Reservation	0 MHz
Limit	Unlimited MHz
*Memory	
Shares (*)	Custom 20480
Reservation	0 MB
	<input type="checkbox"/> Reserve all guest memory (All locked)
Limit	Unlimited MB

OK Cancel

admin3 - Virtual Machine Properties

Virtual Machine Version: vmx-09

Settings	Summary
CPU	0 MHz
Memory	0 MB
Disk	Normal
Advanced CPU	HT Sharing: Any

Resource Allocation

Shares: Normal 2000

Reservation: 0 MHz

Limit: 47408 MHz

Unlimited

▲ Limit based on parent resource pool or current host

admin3 - Edit Resource Settings

CPU

Shares	Normal	2000
Reservation	0	MHz
Limit	Unlimited	MHz

Memory

Shares	Normal	20480
Reservation	0	MB
<input type="checkbox"/> Reserve all guest memory (All locked)		
Limit	Unlimited	MB

OK Cancel

admin3 - Virtual Machine Properties

Virtual Machine Version: vmx-09

Hardware	Options	Resources	Profiles	vServices
Settings	Summary			
CPU	0 MHz			
Memory	0 MB			
Disk	Normal			
Advanced CPU	HT Sharing: Any			

Resource Allocation

Reserve all guest memory (All locked)

Shares: Normal 20480

Reservation: 0 MB

Limit: 472011 MB

Unlimited

▲ Limit based on parent resource pool or current host

admin3 - Edit Resource Settings

*CPU			
Shares	Normal	2000	
Reservation	0	MHz	
Limit (*)	443	MHz	
*Memory			
Shares	Normal	20480	
Reservation	0	MB	
	<input type="checkbox"/> Reserve all guest memory (All locked)		
Limit (*)	256	MB	

OK Cancel

admin3 - Virtual Machine Properties

Virtual Machine Version: vmx-09

Settings	Summary
CPU	0 MHz
Memory	0 MB
Disk	Normal
Advanced CPU	HT Sharing: Any

Resource Allocation

Reserve all guest memory (All locked)

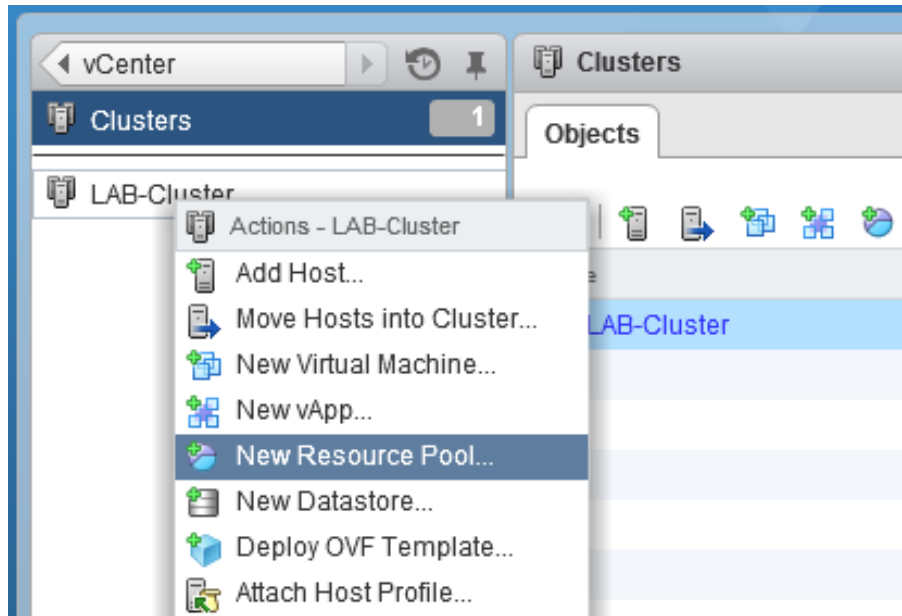
Shares: Normal 20480

Reservation: 0 MB

Limit: 322463 MB

Unlimited

▲ Limit based on parent resource pool or current host



LAB-Cluster: New Resource Pool

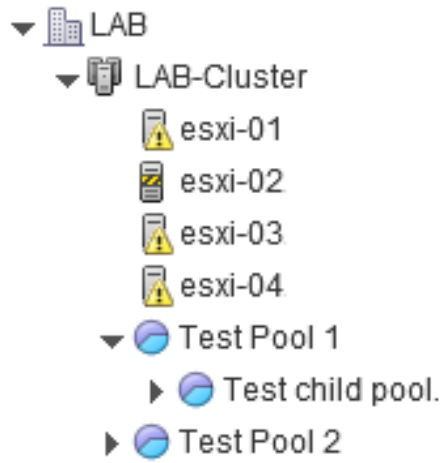
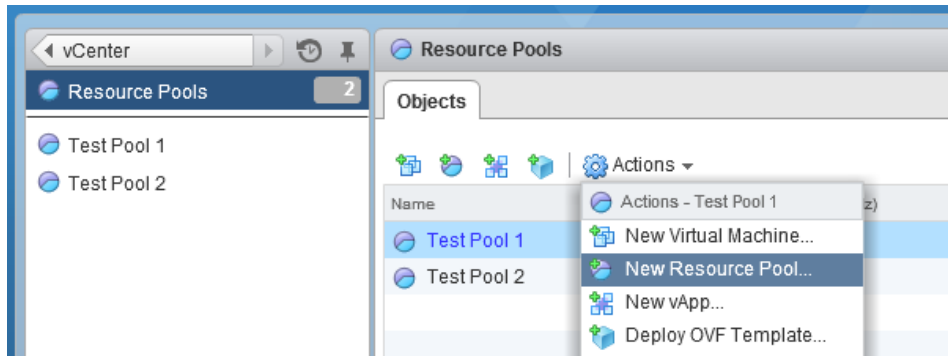
Name:

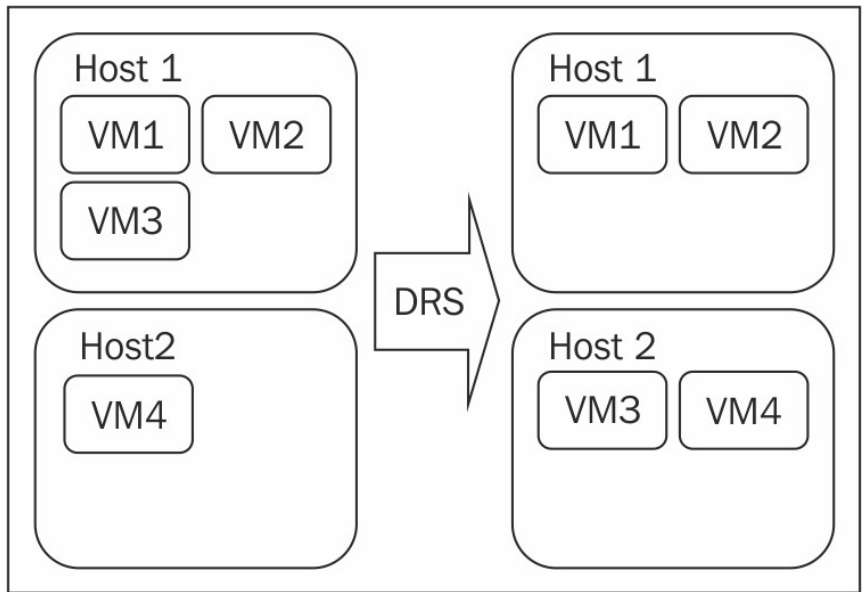
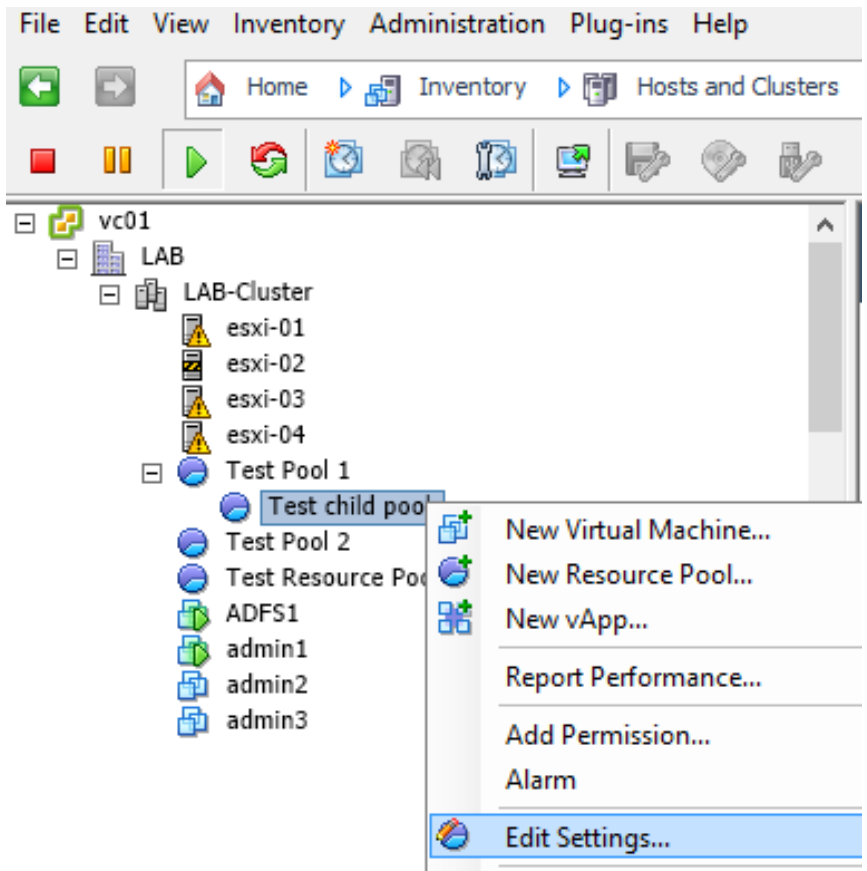
▼ CPU

Shares	<input type="text" value="Normal"/>	<input type="text" value="4000"/>
Reservation	<input type="text" value="0"/>	<input type="text" value="MHz"/>
Max reservation: 47,408 MHz		
Reservation type	<input checked="" type="checkbox"/> Expandable	
Limit	<input type="text" value="Unlimited"/>	<input type="text" value="MHz"/>
Max limit: 47,408 MHz		

▼ Memory

Shares	<input type="text" value="Normal"/>	<input type="text" value="163840"/>
Reservation	<input type="text" value="0"/>	<input type="text" value="MB"/>
Max reservation: 461,084 MB		
Reservation type	<input checked="" type="checkbox"/> Expandable	
Limit	<input type="text" value="Unlimited"/>	<input type="text" value="MB"/>
Max limit: 472,020 MB		





LAB-Cluster Actions

Getting Started Summary Monitor **Manage** Related Objects

Settings Alarm Definitions Tags Permissions Scheduled Tasks

Services

vSphere DRS

vSphere HA

Virtual SAN

General

Disk Management

vSphere DRS is Turned ON Schedule DRS... Edit...

DRS Automation	Partially Automated
Power Management	Off
Advanced Options	None

LAB-Cluster - Edit Cluster Settings

vSphere DRS

vSphere HA

Turn ON vSphere DRS

DRS Automation	Partially Automated
Power Management	Manual
Advanced Options	Partially Automated

Partially Automated

Manual

Partially Automated

Fully Automated

LAB-Cluster Settings

Cluster Features

vSphere HA

Virtual Machine Options

VM Monitoring

Datastore Heartbeating

vSphere DRS

DRS Groups Manager

Rules

Virtual Machine Options

Power Management

Host Options

VMware EVC

Swapfile Location

Automation Level

Manual
vCenter will suggest migration recommendations for virtual machines.

Partially automated
Virtual machines will be automatically placed onto hosts at power on and vCenter will suggest migration recommendations for virtual machines.

Fully automated
Virtual machines will be automatically placed onto hosts when powered on, and will be automatically migrated from one host to another to optimize resource usage.

Migration threshold: Conservative Aggressive

Apply only priority 1 recommendations.
vCenter will only apply recommendations that must be taken to satisfy cluster constraints like affinity rules and host maintenance.

Advanced Options...

Help OK Cancel

LAB-Cluster Actions

Getting Started Summary Monitor **Manage** Related Objects

Settings Alarm Definitions Tags Permissions Scheduled Tasks

VM Overrides

Add ... Edit ... Delete

Name	vSphere DRS Aut...	vSphere HA Rest...	vSphere HA Host ...	Host	VM Monitoring	VM Monitoring
ADFS1	Default (Parti...	Default (Medi...	Default (Leav...	esxi-04...	Default (Disa...	--
FPS01vm	Default (Parti...	Default (Medi...	Default (Leav...	esxi-04...	Default (Disa...	--
Golden...	Default (Parti...	Default (Medi...	Default (Leav...	esxi-01...	Default (Disa...	--
Golden...	Default (Parti...	Default (Medi...	Default (Leav...	esxi-01...	Default (Disa...	--
Golden...	Default (Parti...	Default (Medi...	Default (Leav...	esxi-01...	Default (Disa...	--
Golden...	Default (Parti...	Default (Medi...	Default (Leav...	esxi-01...	Default (Disa...	--
QA-squi...	Default (Parti...	Default (Medi...	Default (Leav...	esxi-04...	Default (Disa...	--
Templa...	Default (Parti...	Default (Medi...	Default (Leav...	esxi-03...	Default (Disa...	--
Templa...	Default (Parti...	Default (Medi...	Default (Leav...	esxi-01...	Default (Disa...	--
Templa...	Default (Parti...	Default (Medi...	Default (Leav...	esxi-01...	Default (Disa...	--
Templa...	Default (Parti...	Default (Medi...	Default (Leav...	esxi-01...	Default (Disa...	--
Templa...	Default (Parti...	Default (Medi...	Default (Leav...	esxi-01...	Default (Disa...	--
Templa...	Default (Parti...	Default (Medi...	Default (Leav...	esxi-01...	Default (Disa...	--
Templa...	Default (Parti...	Default (Medi...	Default (Leav...	esxi-03...	Default (Disa...	--

LAB-Cluster - Edit VM Overrides

Automation level:

VM restart priority:

Host isolation response:

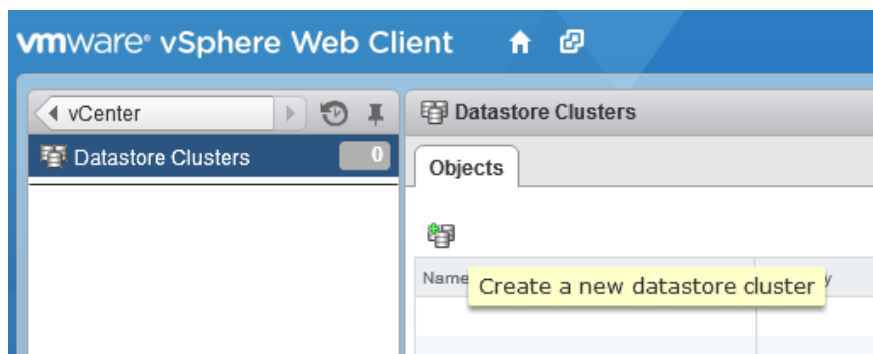
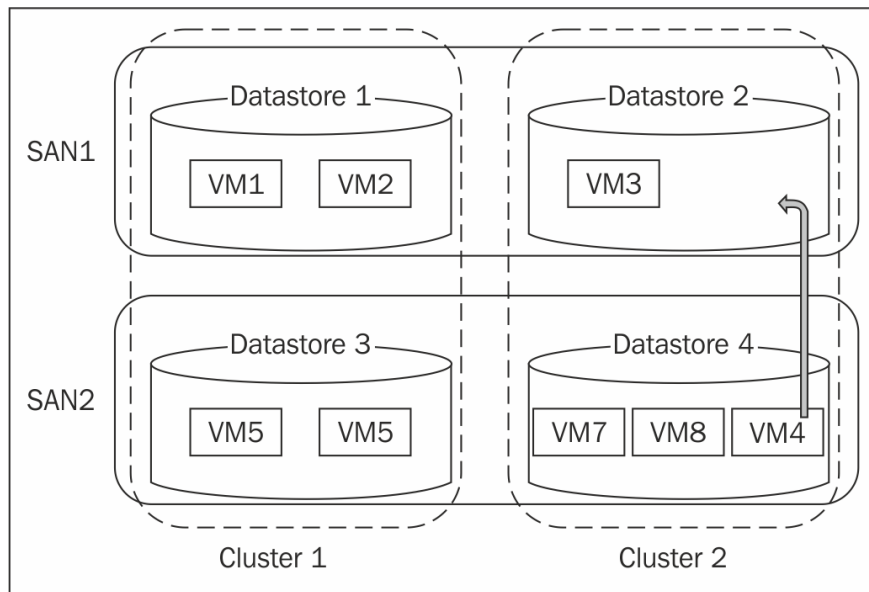
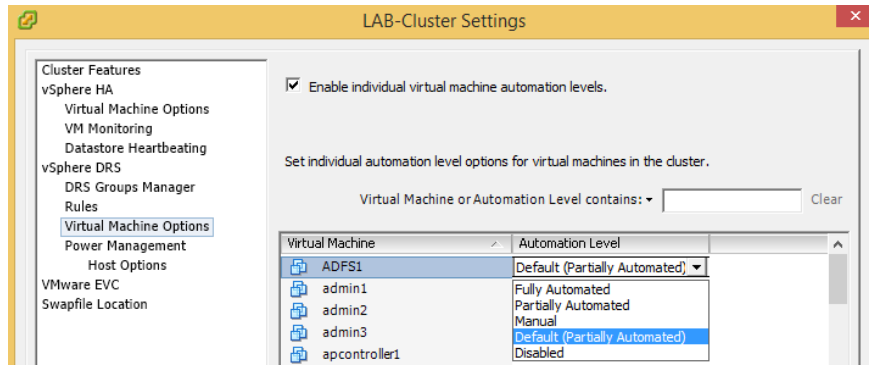
VM Monitoring:

VM monitoring sensitivity:

Relevant Cluster Settings

vSphere DRS	Partially Automated
vSphere HA	Expand for details
EVC	intel-merom

OK Cancel



New Datastore Cluster

1 Name and Location

Datastore Cluster Name:

Turn ON Storage DRS

Select placement location for the new datastore cluster.

Search

- vc01
 - LAB

Select a datacenter or datastore folder in which to place the new datastore cluster.

Back Next Finish Cancel

New Datastore Cluster

2 Storage DRS Automation

Automation level

No Automation (Manual Mode)
vCenter Server will make migration recommendations for virtual machine files, but will not perform automatic migrations.

Fully Automated
Files will be migrated automatically to optimize resource usage.

Advanced Options: None

New Datastore Cluster

4 Select Clusters and Hosts

Select all hosts and clusters that require connectivity to the datastores in the datastore cluster.

Filter (1) Selected Objects

Clusters Standalone Hosts

Name

- LAB-Cluster

New Datastore Cluster

5 Select Datastores

Show datastores connected to all hosts

Name	Host Connection Status	Capacity	Free Space	Type
<input checked="" type="checkbox"/> NetApp-Vmware2	All Hosts Connected	2.50 TB	582.49 GB	VMFS
<input type="checkbox"/> NetApp-Vmware3	All Hosts Connected	2.50 TB	275.16 GB	VMFS
<input checked="" type="checkbox"/> NetApp-Vmware1	All Hosts Connected	2.50 TB	938.50 GB	VMFS

New Datastore Cluster

General

How do you want this Datastore Cluster configured?

General

- SDRS Automation
- SDRS Runtime Rules
- Select Hosts and Clusters
- Select Datastores
- Ready to Complete

Datastore Cluster Name:

Datastore Cluster Features

Turn on Storage DRS

vSphere Storage DRS enables vCenter Server to manage datastores as an aggregate pool of storage resources.

vSphere Storage DRS also enables vCenter Server to manage the assignment of virtual machines to datastores, suggesting placement when virtual machines are created, migrated or cloned, and migrating running virtual machines to balance load and enforce placement rules.

SDRS Runtime Rules

How do you want this Datastore Cluster configured?

General

SDRS Automation

SDRS Runtime Rules

Select Hosts and Clusters
Select Datastores
Ready to Complete

I/O Metric Inclusion

Select this option if you want I/O metrics considered as a part of any SDRS recommendations or automated migrations in this datastore cluster. This will also enable Storage I/O Control on all datastores in this cluster.

Enable I/O metric for SDRS recommendations

Storage DRS Thresholds

Runtime thresholds govern when storage DRS performs or recommends migrations (based on your selected automation level). Utilized space dictates the minimum level of consumed space that is the threshold for action, and I/O latency dictates the minimum I/O latency below which I/O load balancing moves will not be considered.

Utilized Space: 50% %

I/O Latency: 5ms ms

[Show Advanced Options](#)

New Virtual Machine

VM Storage Policy:

The following datastores are accessible from the destination resource that you selected. Select the destination datastore for the virtual machine configuration files and all of the virtual disks.

Name	Capacity	Provisioned	Free	Type	Storage DRS
TestCluster	5.00 TB	3.52 TB	1.48 TB		Enabled
Promise_spin_0_1	2.00 TB	1.68 TB	1,007.58 GB	VMFS	
Promise_spin_0_2	2.37 TB	2.12 TB	997.99 GB	VMFS	

Disable Storage DRS for this virtual machine

Name	Capacity	Provisioned	Free	Type	Thin Provision
NetApp-Vmware2	2.50 TB	2.18 TB	579.00 GB	VMFS	Supported
NetApp-Vmware1	2.50 TB	2.26 TB	937.45 GB	VMFS	Supported

Create New Virtual Machine

Virtual Machine Version: 8

Storage

Select a destination storage for the virtual machine files

[Configuration](#)
[Name and Location](#)
[Host / Cluster](#)
[Resource Pool](#)

Storage

Guest Operating System
Network
Create a Disk
Ready to Complete

Select a destination storage for the virtual machine files:

VM Storage Profile:

Name	Drive Type	Capacity	Provisioned	Free	Type	Storage DRS
TestCluster		5.00 TB	3.52 TB	1.48 TB		Enabled
esxi-01:storag...	Non-SSD	131.50 GB	971.00 MB	130.55 GB	VMFS5	
esxi-02:storag...	Non-SSD	131.50 GB	971.00 MB	130.55 GB	VMFS5	
NetApp-Vmwa...	Non-SSD	2.50 TB	2.53 TB	273.52 GB	VMFS5	
Promise_spin_...	Non-SSD	2.00 TB	1.85 TB	975.32 GB	VMFS5	
Promise_spin_...	Non-SSD	2.00 TB	1.68 TB	1,007.58 G	VMFS5	
Promise_spin_...	Non-SSD	2.37 TB	2.12 TB	997.99 GB	VMFS5	
Promise_spin_...	Non-SSD	2.00 TB	1.38 TB	739.54 GB	VMFS5	
Promise_spin_...	Non-SSD	745.75 GB	534.38 GB	392.37 GB	VMFS5	

ADF51 - Migrate

1 Select Migration Type

2 Select Datastore

3 Review Selections

Select virtual disk format:

VM Storage Policy:

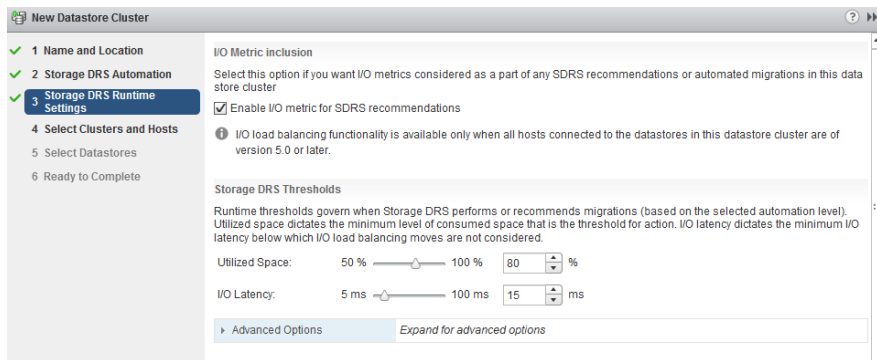
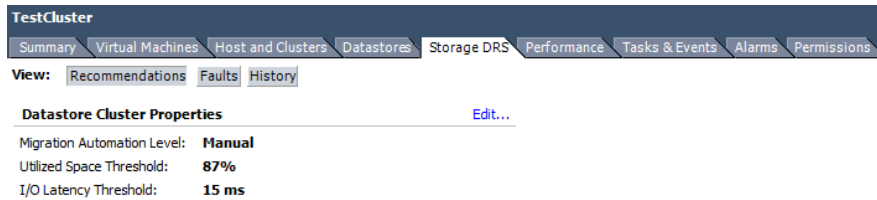
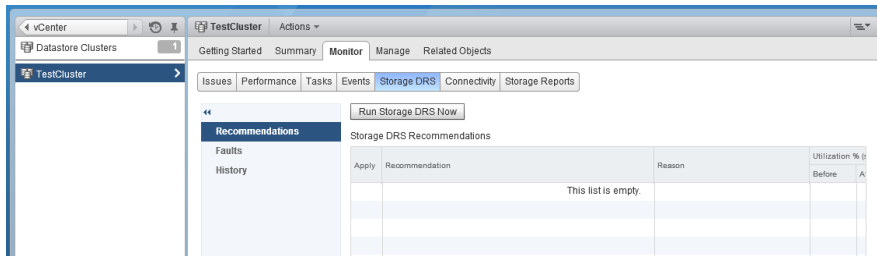
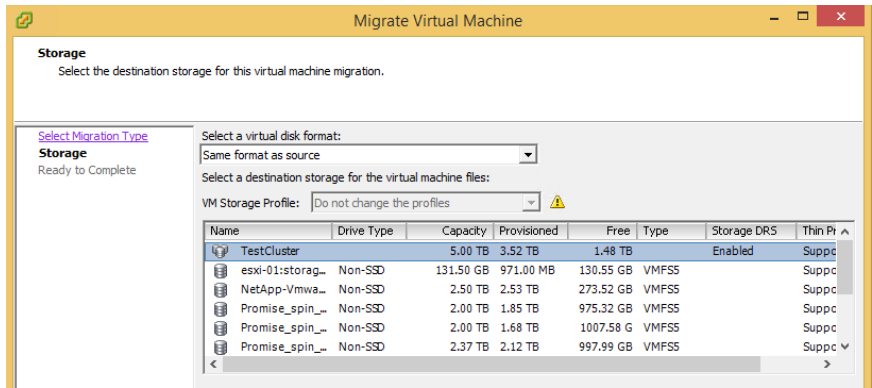
The following datastores are accessible from the destination resource that you selected. Select the destination datastore for the virtual machine configuration files and all of the virtual disks.

Name	Capacity	Provisioned	Free	Type	Storage DRS
TestCluster	5.00 TB	3.52 TB	1.48 TB		Enabled
Promise_spin_0_1	2.00 TB	1.68 TB	1,007.58 GB	VMFS 5	

Disable Storage DRS for this virtual machine

Name	Capacity	Provisioned	Free	Type	Thin Provision
NetApp-Vmware2	2.50 TB	2.18 TB	579.00 GB	VMFS 5	Supported
NetApp-Vmware1	2.50 TB	2.26 TB	937.45 GB	VMFS 5	Supported

[Advanced >>](#)



New Datastore Cluster

- 2 Storage DRS Automation
- 3 **Storage DRS Runtime Settings**
- 4 Select Clusters and Hosts
- 5 Select Datastores
- 6 Ready to Complete

Storage DRS Thresholds

Runtime thresholds govern when Storage DRS performs or recommends migrations (based on the selected automation level). Utilized space dictates the minimum level of consumed space that is the threshold for action. I/O latency dictates the minimum I/O latency below which I/O load balancing moves are not considered.

Utilized Space: 50% 100% %

I/O Latency: 5 ms 100 ms ms

Advanced Options

Default VM affinity **Keep VMDKs together by default**
Specifies whether or not each virtual machine in this datastore cluster should have its virtual disks on the same datastore by default.

No recommendations until utilization difference between source and destination is: 1% 50% %

Check imbalances every:

I/O Imbalance Threshold: Aggressive Conservative
The I/O imbalance threshold is the amount of imbalance that Storage DRS should tolerate. When you use an aggressive setting, Storage DRS corrects small imbalances if possible. When you use a conservative setting, Storage DRS produces recommendations only when the imbalance across datastores is very high.

New Datastore Cluster

SDRS Runtime Rules
How do you want this Datastore Cluster configured?

General

SDRS Runtime Rules
Select Hosts and Clusters
Select Datastores
Ready to Complete

I/O Metric Inclusion
Select this option if you want I/O metrics considered as a part of any SDRS recommendations or automated migrations in this datastore cluster. This will also enable Storage I/O Control on all datastores in this cluster.
 Enable I/O metric for SDRS recommendations

Storage DRS Thresholds
Runtime thresholds govern when storage DRS performs or recommends migrations (based on your selected automation level). Utilized space dictates the minimum level of consumed space that is the threshold for action, and I/O latency dictates the minimum I/O latency below which I/O load balancing moves will not be considered.

Utilized Space: 50% 100% %

I/O Latency: 5ms 100ms ms

[Show Advanced Options](#)

TestCluster Actions

Getting Started Summary Monitor **Manage** Related Objects

Settings Alarm Definitions Tags Permissions Scheduled Tasks

Services

Storage DRS

vSphere Storage DRS

vSphere Storage DRS is Turned ON

- Storage DRS Automation No Automation (Manual Mode)
- I/O Metrics I/O metrics for Storage DRS recommendations are enabled.
- Advanced Options *Expand for advanced options*

TestCluster - Edit Storage DRS Settings

Turn ON vSphere Storage DRS

Storage DRS Automation	
Automation Level	<input checked="" type="radio"/> No Automation (Manual Mode) vCenter Server will make migration recommendations for virtual machine files, but will not perform automatic migrations.
	<input type="radio"/> Fully Automated Files will be migrated automatically to optimize resource usage.
Utilized Space Threshold	50 % 100 % <input type="text" value="87"/> %

i I/O load balancing functionality is available only when all hosts connected to the datastores in this datastore cluster are of version 5.0 or later.

I/O Metrics	
I/O Metric Inclusion	<input checked="" type="checkbox"/> Enable I/O metric for SDRS recommendations Select this option if you want I/O metrics considered as a part of any SDRS recommendations or automated migrations in this data store cluster
I/O Latency Threshold	5 ms 100 ms <input type="text" value="15"/> ms
Advanced Options	Expand for advanced options

OK Cancel

Edit TestCluster

General SDRS Automation SDRS Runtime Rules SDRS Scheduling Rules Virtual Machine Settings	<p>I/O Metric Inclusion</p> <p>Select this option if you want I/O metrics considered as a part of any SDRS recommendations or automated migrations in this datastore cluster. This will also enable Storage I/O Control on all datastores in this cluster.</p> <input checked="" type="checkbox"/> Enable I/O metric for SDRS recommendations
	<p>i I/O load balancing functionality is available only when all hosts connected to the datastores in this datastore cluster are of version 5.0.</p>
	<p>Storage DRS Thresholds</p> <p>Runtime thresholds govern when storage DRS performs or recommends migrations (based on your selected automation level). Utilized space dictates the minimum level of consumed space that is the threshold for action, and I/O latency dictates the minimum I/O latency below which I/O load balancing moves will not be considered.</p> <p>Utilized Space: 50% 100% <input type="text" value="80"/> %</p> <p>I/O Latency: 5ms 100ms <input type="text" value="15"/> ms</p> <p>Show Advanced Options</p>

NetApp-Vmware1 Actions

Getting Started Summary Monitor **Manage** Related Objects

Settings Alarm Definitions Tags Permissions Files Scheduled Tasks

General Device Backing Connectivity and Multipathing	<p>Properties</p> <p>Name NetApp-Vmware1</p> <p>File System VMFS 5.54</p> <p>Drive Type Non-SSD</p> <p>Capacity <input type="button" value="Refresh"/> <input type="button" value="Increase..."/></p> <p>Capacity 941.69 GB free out of 2.50 TB</p> <p>Datastore Capabilities <input type="button" value="Edit..."/></p> <p>Thin Provisioning Supported</p> <p>Storage I/O Control Disabled</p> <p>Hardware Acceleration Supported on all hosts</p>
--	---

NetApp-Vmware1 - Configure Storage I/O Control

Storage I/O Control is used to control the I/O usage of a virtual machine and to gradually enforce the predefined I/O share levels.

Enable Storage I/O Control

Congestion Threshold: Percentage of peak throughput 90 %

Manual 30 ms

Reset to defaults

Exclude I/O statistics from SDRS

OK

Cancel

esxi-01:storage1 Properties

Volume Properties

General

Datastore Name: esxi-01:storage1

Total Capacity: 131.50 GB

Format

File System: VMFS 5.54

Maximum File Size: 2.00 TB

Block Size: 1 MB

Storage I/O Control

Enabled

Extent Device

The extent selected on the left resides on the LUN or physical disk described below.

Extent	Capacity
Local ServeRA Disk (mpx.vmhba1:C0:T0:L0)...	131.74 GB

Device

Device	Capacity
Local ServeRA Disk (mpx.vmhba...	136.62 GB

Primary Partitions

Primary Partitions	Capacity
1. Legacy MBR	4.00 MB
2. Legacy MBR	250.00 MB
3. Legacy MBR	250.00 MB
4. VMware Diagnostic	110.00 MB
5. Legacy MBR	286.00 MB
6. Legacy MBR	4.00 GB
7. VMFS	131.74 GB

ADFS1 - Edit Settings

Virtual Hardware | VM Options | SDRS Rules | vApp Options

CPU: 1

Memory: 2048 MB

Hard disk 1: 40 GB

Maximum Size: 981.69 GB

VM storage policy: None

Type: Thin provision

Disk File: [NetApp-Vmware1] ADFS1/ADFS1.vmdk

Shares: Normal 1000

Limit - IOPs: Unlimited

ADFS1 - Virtual Machine Properties

Hardware | Options | Resources | Profiles | vServices

Virtual Machine Version: 8

Settings	Summary
CPU	0 MHz
Memory	0 MB
Disk	Normal
Advanced CPU	HT Sharing: Any

Resource Allocation

Select a virtual hard disk from the list below and click the Shares field to change its value.

Disk	Shares	Shares Value	Limit - IOPs
Hard disk..	Normal	1000	Unlimited

Limit specifies an upper bound for storage resources that can be allocated to a virtual machine. IOPs are number of I/O operations per second.

Help | OK | Cancel

VSANTest-DVSwitch

Summary | Monitor | Manage | Related Objects

Settings | Alarm Definitions | Tags | Permissions | Network Protocol Profiles | Ports | Resource Allocation

VSANTest-DVSwitch - Edit Settings

General

Name: VSANTest-DVSwitch

Number of uplinks: 2

Number of ports: 32

Network I/O Control: Enabled

Resource Allocation Properties

Network I/O Control

Enable Network I/O Control on this vSphere distributed switch

Help OK Cancel

VSANTest-DVSwitch - New Network Resource Pool

Name: Limited-10Mbps pool

Origin: User-defined network resource pools

Description:

Limit (Mbps): 10

Unlimited

Physical adapter shares: Low 25

QoS tag: 0

OK Cancel

Network Resource Pool Settings

General

Name:

Origin: User-defined

Description:

Resource Allocation

Physical adapter shares:

Host limit: Mbps

Unlimited

QoS priority tag:

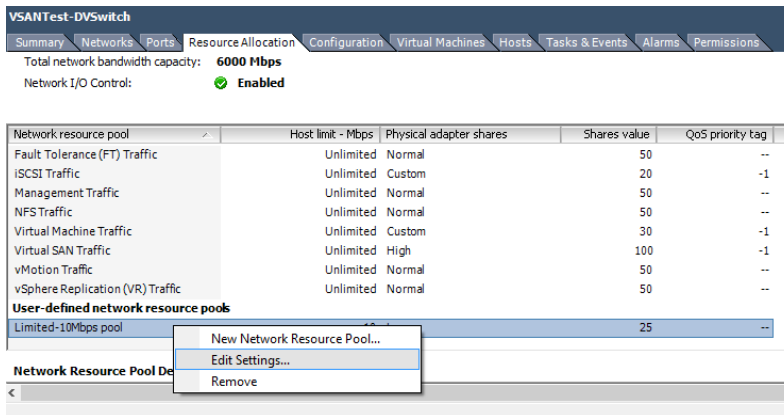
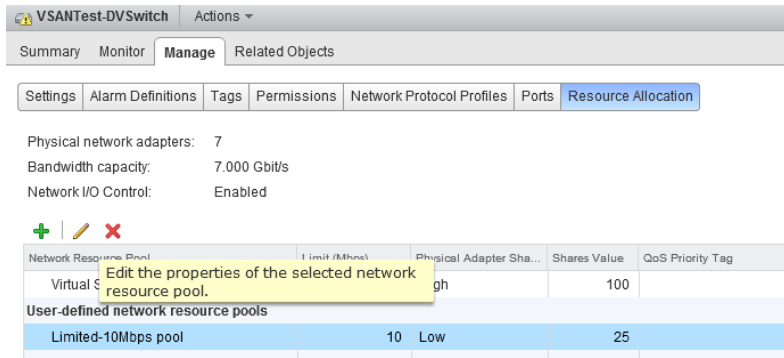
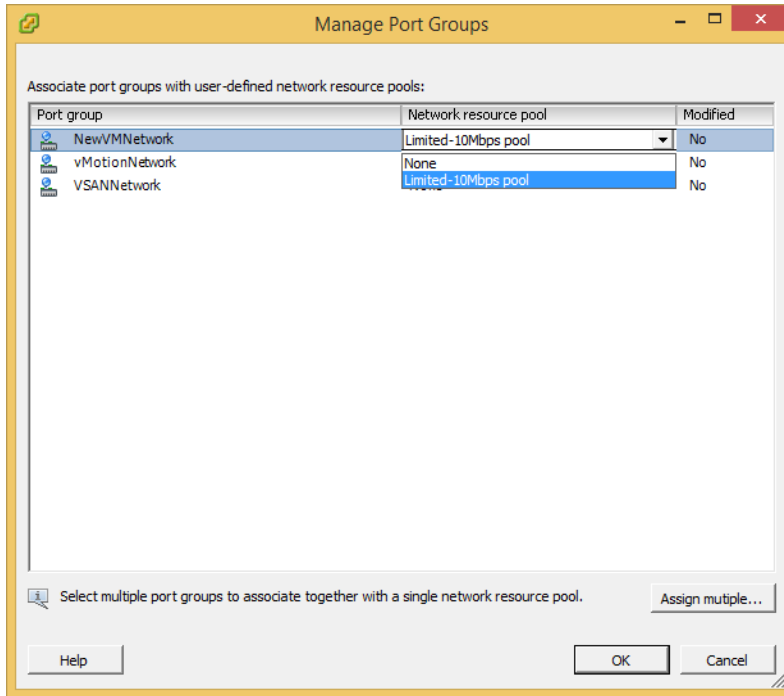
VSANTest-DVSwitch - Manage Distributed Port Groups

- ✓ 1 Select port group policies
- ✓ 2 Select port groups
- 3 Configure policies
- 3a Resource allocation
- 4 Ready to complete

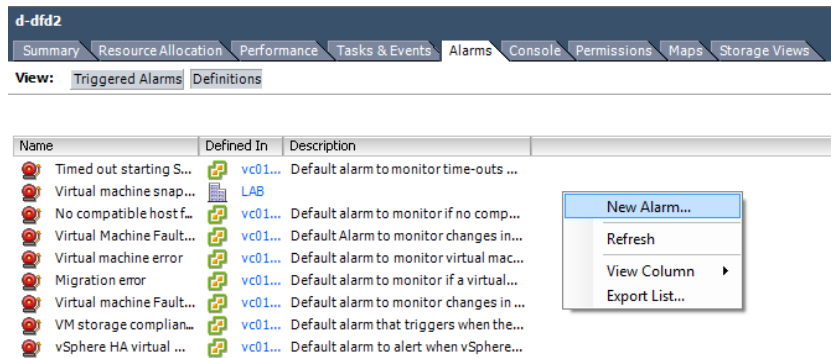
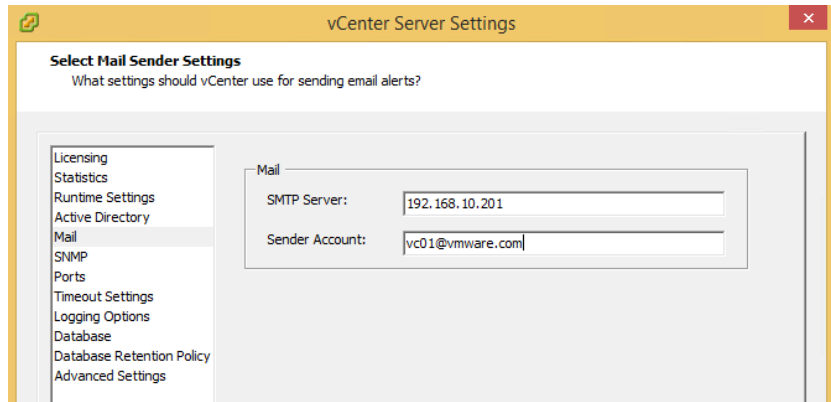
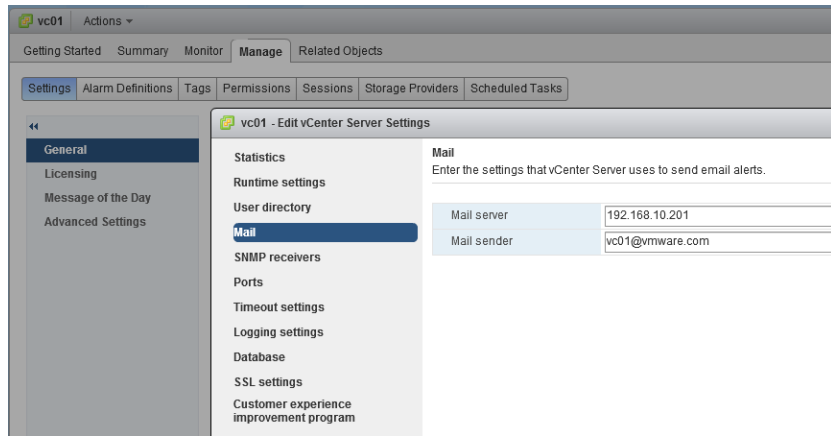
Resource allocation
Controls the network resource pool association.

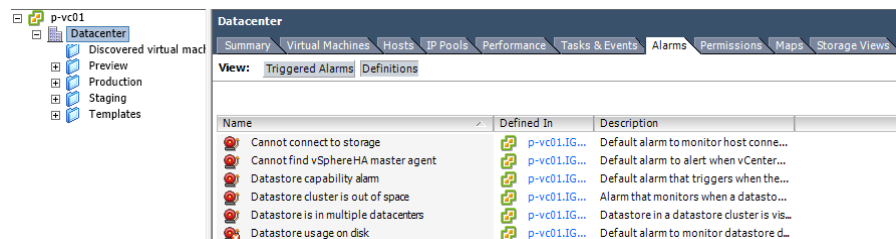
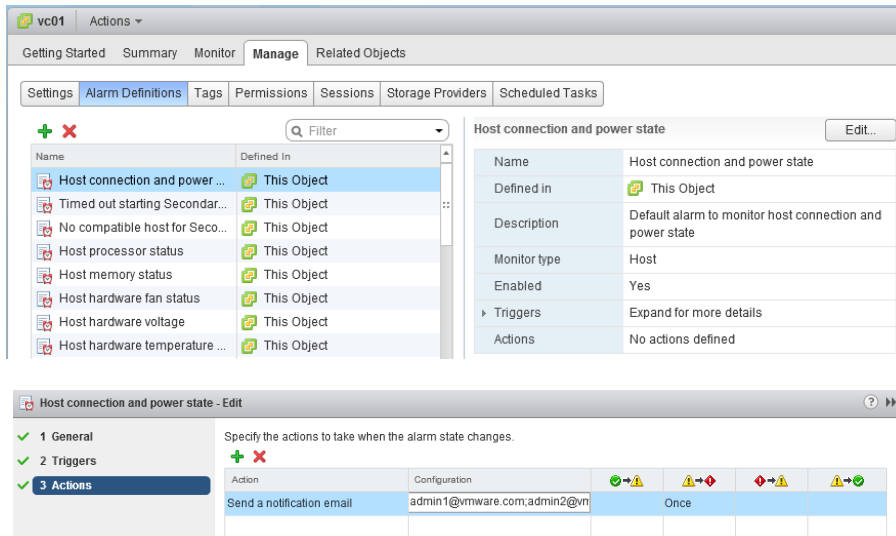
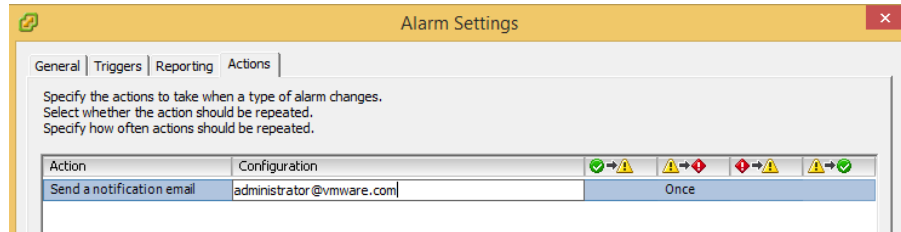
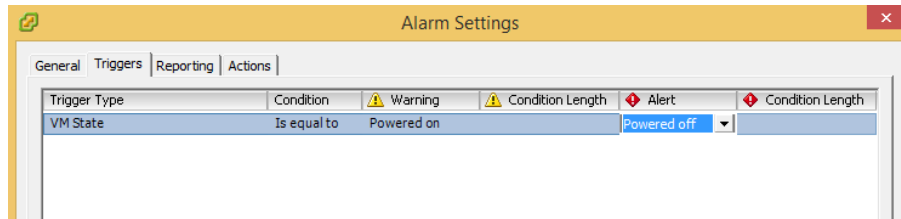
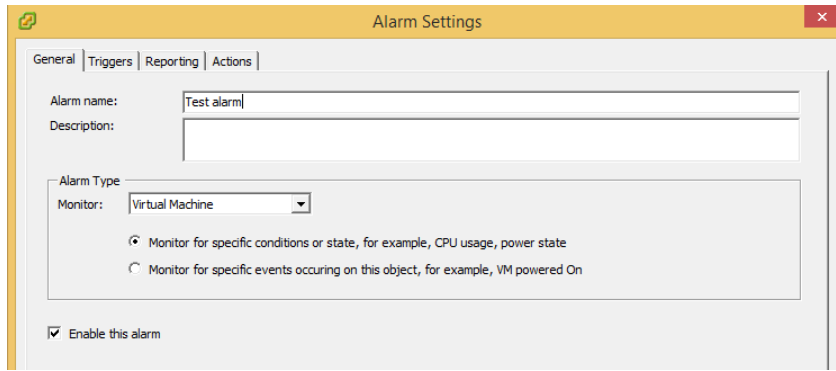
Network resource pool:

- (default)
- Limited-10Mbps pool



Chapter 6: Basic Administrative Tasks





Alarm Settings

General | Triggers | Reporting | Actions

Alarm name: 10 GB VM snapshot size

Description:

Alarm Type

Monitor: Virtual Machines

- Monitor for specific conditions or state, for example, CPU usage, power state
- Monitor for specific events occurring on this object, for example, VM powered On

Enable this alarm

OK Cancel Help

Alarm Settings

General | Triggers | Reporting | Actions

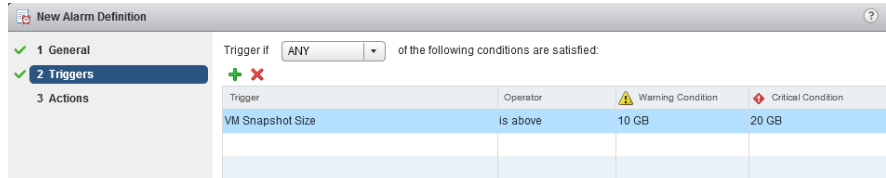
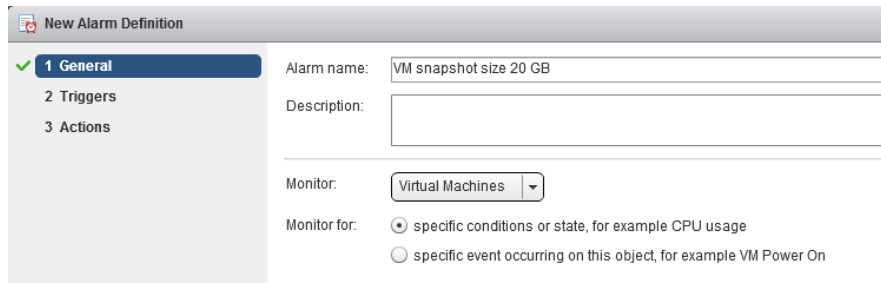
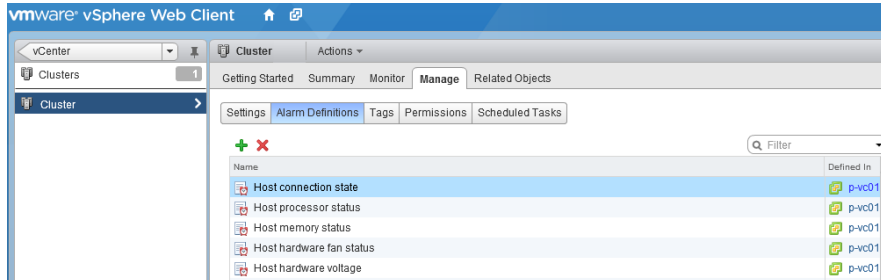
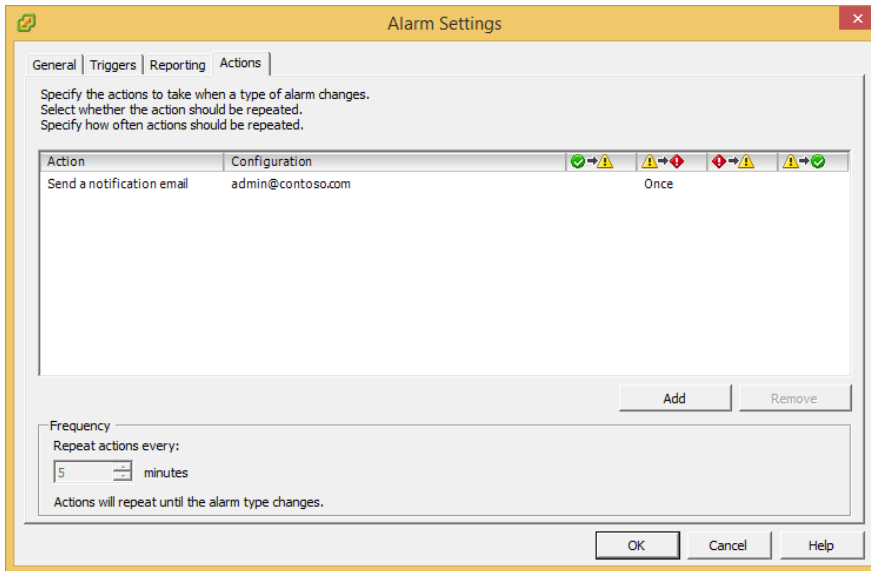
Trigger Type	Condition	Warning	Condition Length	Alert	Condition Length
VM Snapshot Size (GB)	Is above	10		20	

Trigger if any of the conditions are satisfied

Trigger if all of the conditions are satisfied

Add Remove

OK Cancel Help



Datastore usage on disk - Edit

1 General
2 Triggers
3 Actions

Alarm name: Datastore usage on disk
Description: Default alarm to monitor datastore disk usage

⚠ You cannot edit the alarm name and description of a system alarm.

Monitor: Datastores

Monitor for:
 specific conditions or state, for example CPU usage
 specific event occurring on this object, for example VM Power On

⚠ Changing these options will clear current Triggers and Actions lists.

Enable this alarm

LAB | Settings | Alarm Definitions | Tags | Permissions

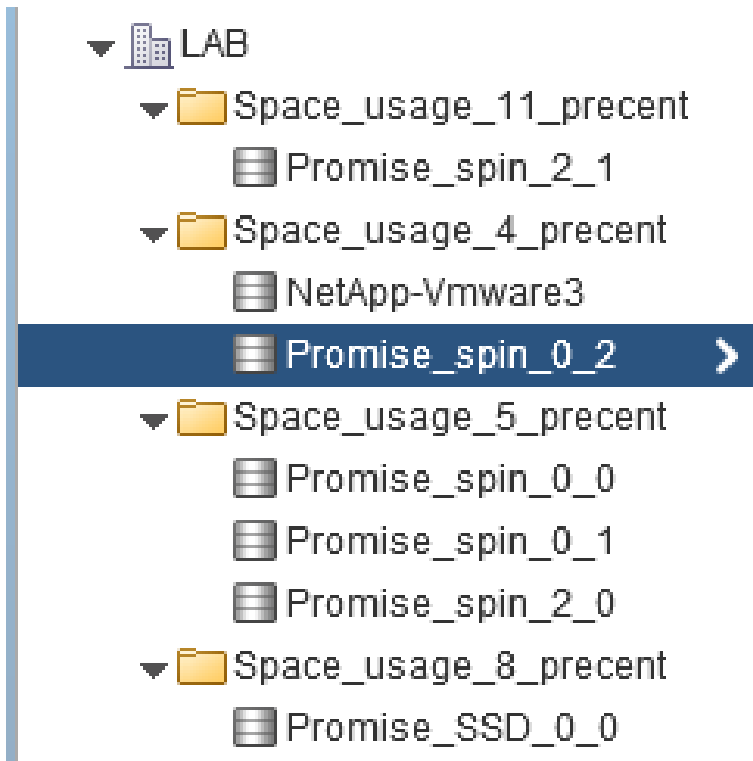
- Actions - LAB
 - Add Host...
 - New Cluster...
 - New Datastore Cluster...
 - New Distributed Switch...
 - New Virtual Machine...
 - Deploy OVF Template...
 - Migrate VM to Another Network...
 - Edit Default VM Compatibility...
 - Move To...
 - Rename...
 - Assign Tag...
 - Remove Tag
 - Alarms
 - All vCenter Actions
- New Storage Folder...
- New Network Folder...
- New Host and Cluster Folder...
- Import Distributed Switch...
- New Distributed Switch...
- Deploy OVF Template...
- New Virtual Machine...
- New Datastore Cluster...
- New Cluster...
- New Datastore...
- Add Host...

New Folder...

Enter a name for the folder:

Free_space_5_percent

OK Cancel



Datastore_usage_11_percent - Edit

1 General
2 Triggers
3 Actions

Alarm name: Datastore_usage_11_percent

Description:

Monitor: Datastores

Monitor for:

- specific conditions or state, for example CPU usage
- specific event occurring on this object, for example VM Power On

⚠ Changing these options will clear current Triggers and Actions lists.

Enable this alarm

Datastore_usage_11_percent - Edit

1 General
2 Triggers
3 Actions

Trigger if ANY of the following conditions are satisfied:

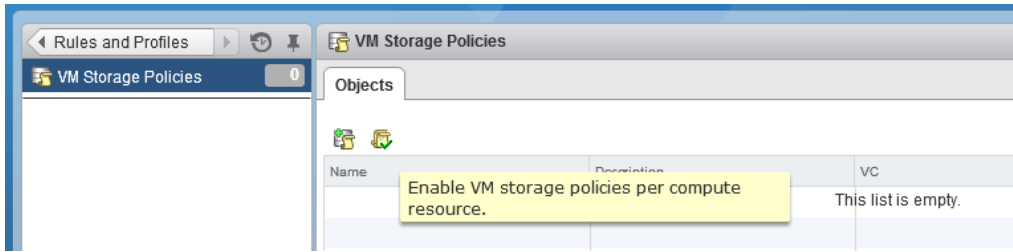
Trigger	Operator	Warning Condition	Critical Condition
Datastore Disk Usage	is above	88 %	89 %

Datastore_usage_11_percent - Edit

1 General
2 Triggers
3 Actions

Specify the actions to take when the alarm state changes.

Action	Configuration	Once	Once	Once	Once
Send a notification email	Alerts@vmware.com	Once	Once	Once	Once

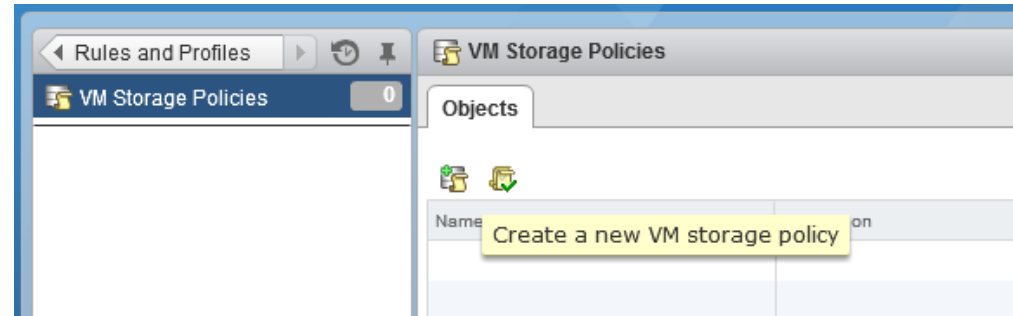


Enable VM Storage Policies

vCenter Server: vc01

Enable or disable VM storage policies for a host or a cluster. To enable the feature for a host, its license must include VM storage policies. To enable the feature for a cluster, all the hosts in the cluster must have a license that includes VM storage policies.

Name	Datacenter	Licensing Status	VM Storage Policy Status	Notes
LAB-Cluster	LAB	All hosts licensed	Unknown	



Create New VM Storage Policy

- 1 Name and description
- 2 Rule-Sets
 - 2a Rule-Set 1
- 3 Matching resources
- 4 Ready to complete

Rule-Set 1
 Select rules to create your VM storage policy. The VM storage policy will match the resources that have the selected tags.
 • A rule set will match datastores that have the selected tags.

Rules based on vendor-specific tags

Rules based on tags

Add Tag-Based Rule
 The rule will be satisfied by any of the selected tags below.

Categories: Storage Profile tag

Tag	Description
<input checked="" type="checkbox"/>	SSD

Create New VM Storage Policy

- 1 Name and description
- 2 Rule-Sets
 - 2a Rule-Set 1
- 3 Matching resources**
- 4 Ready to complete

Matching resources
 As defined, this VM storage policy matches the following storage:

Name	Datacenter	Type
Promise_SSD_0_0	LAB	VMFS 5

New Virtual Machine

1 Select creation type

- ✓ 1a Select a creation type
- 2 Edit settings
- ✓ 2a Select a name and folder
- ✓ 2b Select a compute resource
- ✓ 2c Select storage
- 2d Select compatibility
- 2e Select a guest OS
- 2f Customize hardware
- 3 Ready to complete

VM Storage Policy: **None**

The following datastores are available for the storage resource that you selected. Select the destination datastore for the virtual machine configuration files.

Name	Capacity	Provisioned	Free	Type	Storage DRS
Netapp_cluster	7.50 TB	6.18 TB	1.32 TB	VMFS	Enabled
Promise_spin_0_0	2.00 TB	1.89 TB	923.07 GB	VMFS	
Promise_spin_0_1	2.00 TB	2.05 TB	717.74 GB	VMFS	

Disable Storage DRS for this virtual machine

Name	Capacity	Provisioned	Free	Type	Thin Provision
NetApp-Vmware2	2.50 TB	2.28 TB	552.77 GB	VMFS	Supported
NetApp-Vmware3	2.50 TB	2.53 TB	268.25 GB	VMFS	Supported
NetApp-Vmware1	2.50 TB	2.70 TB	529.02 GB	VMFS	Supported

admin2: Manage VM Storage Policies

The Home VM storage policy applies to the virtual machine configuration files.

Home VM storage policy: **SSD** Apply to disks

Optionally, select a virtual disk and apply a separate VM storage policy to it.

VM storage policies for virtual disks:

Disk Name	VM Storage Policy
Hard disk 1	None

OK Cancel

admin2 Actions

Getting Started Summary Monitor **Manage** Related Objects

Settings Alarm Definitions Tags Permissions **VM Storage Policies** Scheduled Tasks vServices

VM Storage Policy assignments Manage VM Storage Policies...

Filter

Name	Description	Compliance Status
VM home policies of the selected virtual machine	Checks the compliance of all VM storage policies of the selected virtual machine	Not Compliant
Hard disk 1	SSD	Not Compliant

Getting Started Summary Monitor **Manage** Related Objects

Settings Alarm Definitions Tags Permissions **Scheduled Tasks**

DRS Groups

Add... Edit... Delete

Name	Type
Critical_VMs	VM DRS Group
Primary_hosts	Host DRS Group

Navigation: Services (vSphere DRS, vSphere HA), Configuration (General, VMware EVC, **DRS Groups**, DRS Rules)

Cluster - Create DRS Group

Name:

Type:

 Add

Members

Cluster - Create DRS Rule

Name:

Enable rule.

Type:

Description:
Virtual machines that are members of the Cluster DRS VM Group Critical_VMs must run on host group Primary_hosts.

VM Group:

OK Cancel

Cluster Features
 vSphere HA
 Virtual Machine Options
 VM Monitoring
 Datastore Heartbeating
 vSphere DRS
DRS Groups Manager
 Rules
 Virtual Machine Options
 Power Management
 Host Options
 VMware EVC
 Swapfile Location

Drs Group membership will apply to hosts and virtual machines only while they remain in the cluster, and will be lost if the virtual machine or host is moved out of the cluster. Each host or virtual machine can be in more than one DRS group.

Virtual Machines DRS Groups
 Name or Entities contains: Clear

Name
 Critical_VMs

< >

Add... Remove Edit...

Host DRS Groups
 Name or Entities contains: Clear

Name
 Primary_hosts

< >

Add... Remove Edit...

Rule ✕

Rule | DRS Groups Manager |

Give the new rule a name and choose its type from the menu below. Then, select the entities to which this rule will apply.

Name

Type

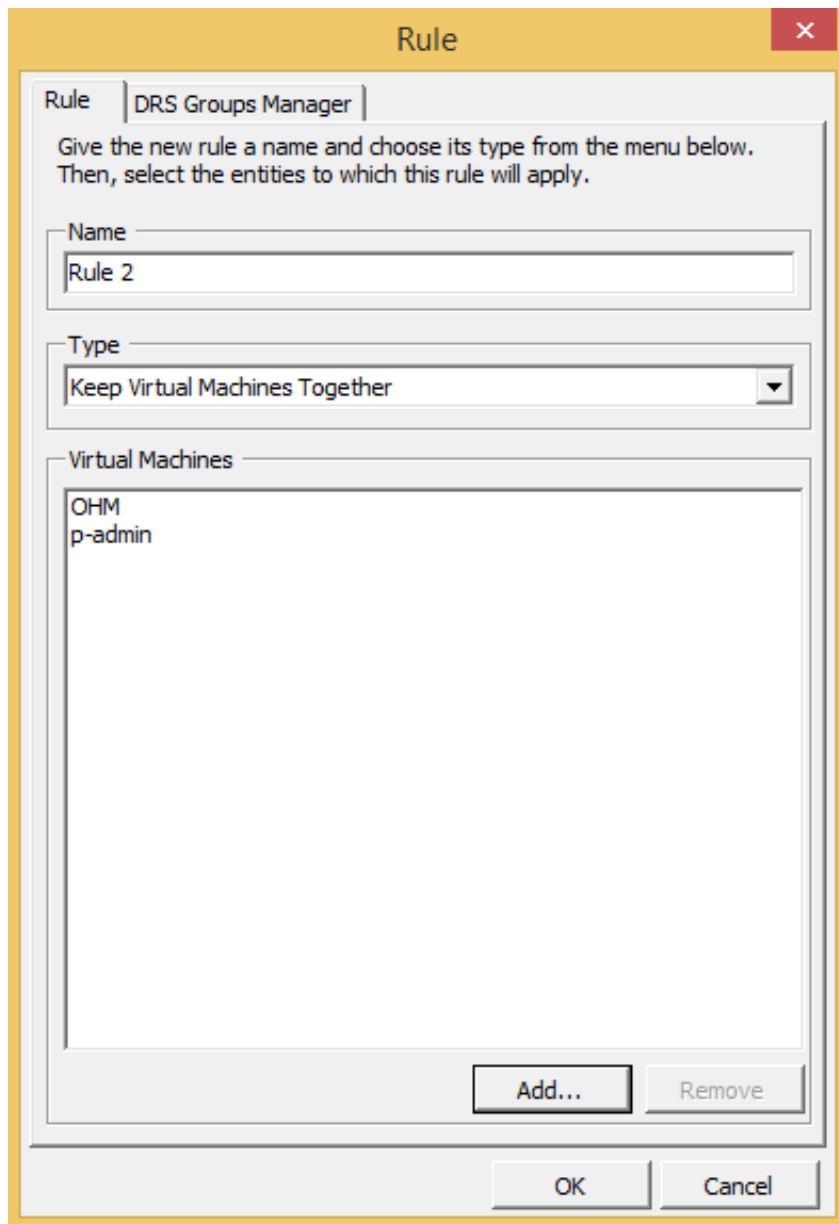
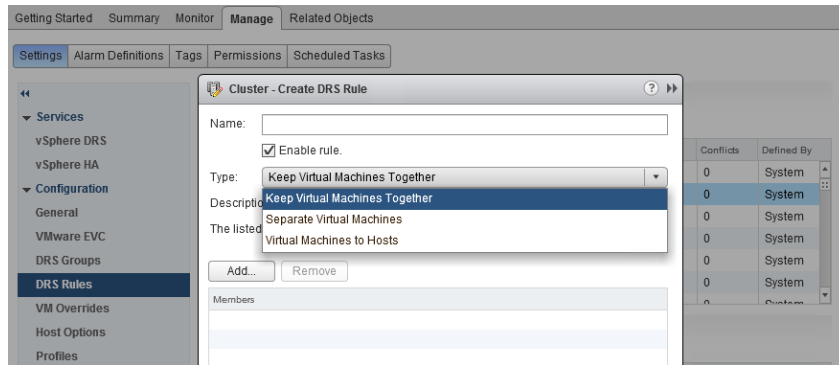
DRS Groups

Cluster Vm Group:

Cluster Host Group:

Virtual machines that are members of the Cluster DRS VM Group Critical_VMs Must run on hosts in group Primary_hosts.

OK Cancel



Getting Started Summary Monitor **Manage** Related Objects

Settings Alarm Definitions Tags Permissions Scheduled Tasks

Storage DRS + Add ...

Netapp_cluster - Add Storage DRS Rule

Enable rule

Name: Rule 1

Type: VMDK anti-affinity

Selected virtual disks should be placed on different datastores.

Virtual machine: Browse...

Netapp_cluster - Add Storage DRS Rule

Enable rule

Name: Rule 1

Type: VMDK anti-affinity

Selected virtual disks should be placed on different datastores.

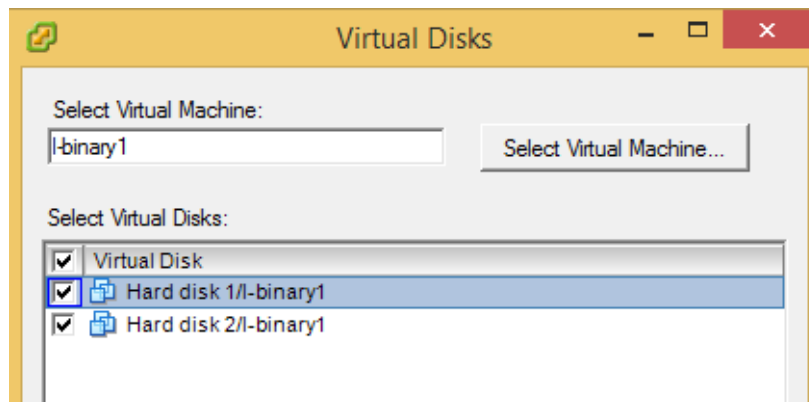
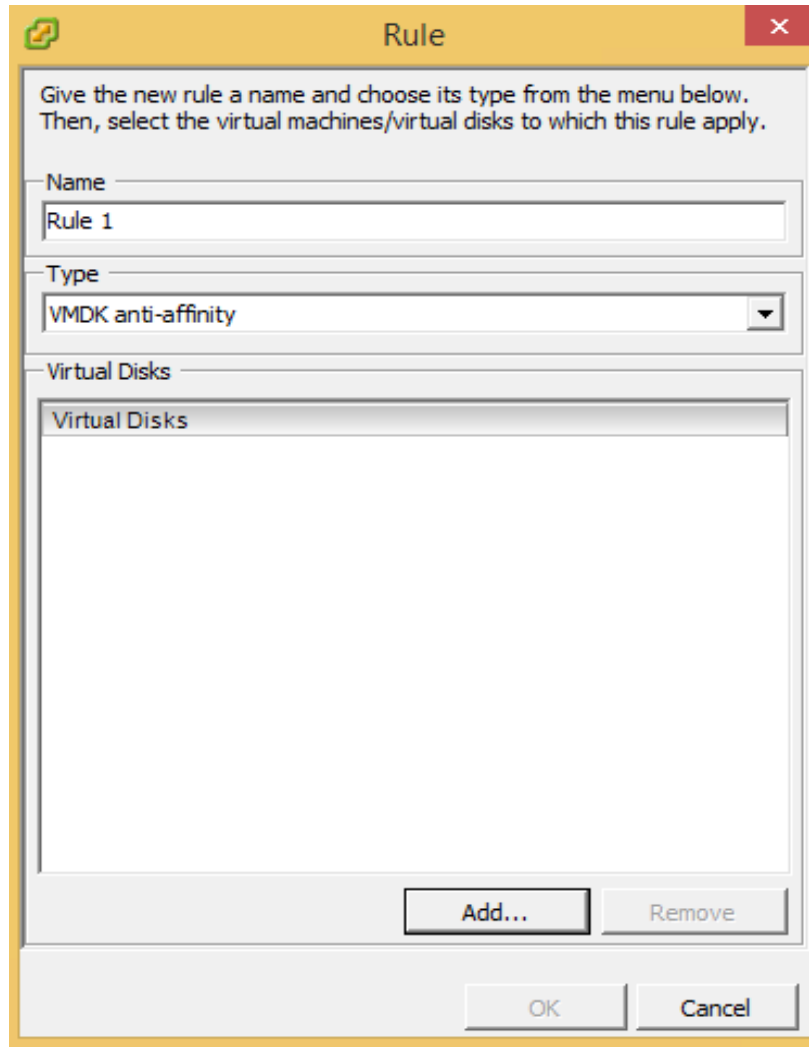
Virtual machine: l-binary4 Browse...

Filter

	Virtual Disk
<input checked="" type="checkbox"/>	Hard disk 1
<input checked="" type="checkbox"/>	Hard disk 2

2 items

OK Cancel



Netapp_cluster - Add Storage DRS Rule

Enable rule

Name:

Type:

All virtual disks of the listed virtual machines should be placed on different datastores.

Virtual Machine

Rule

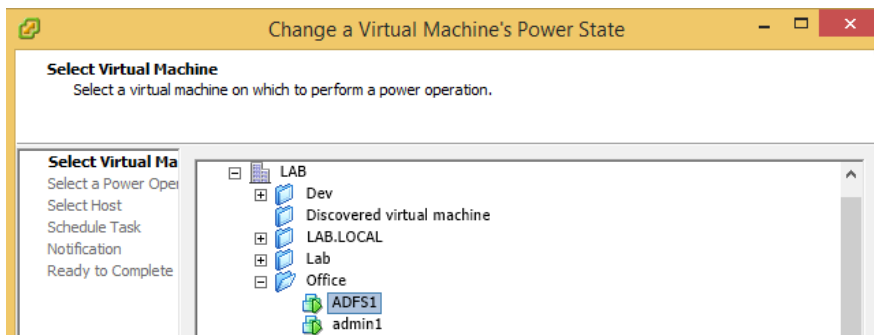
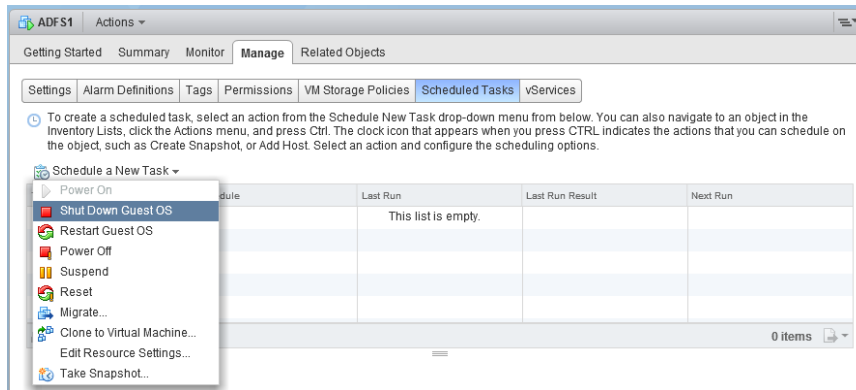
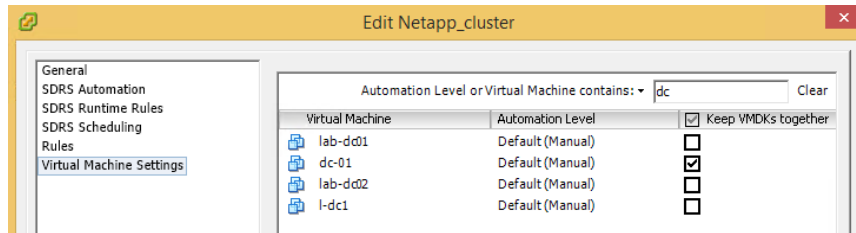
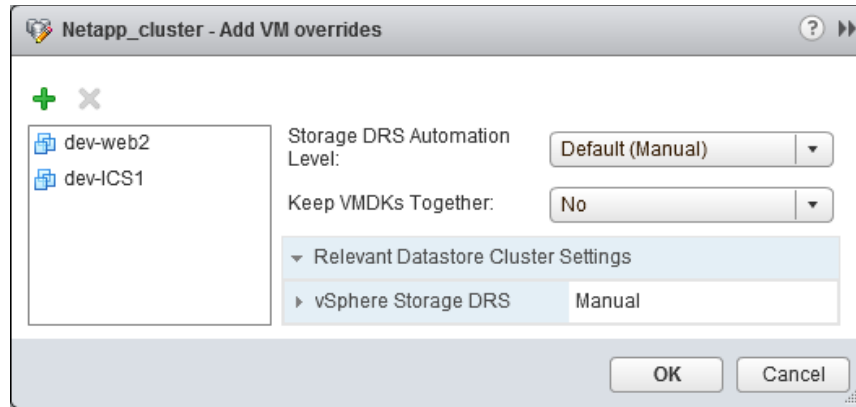
Give the new rule a name and choose its type from the menu below. Then, select the virtual machines/virtual disks to which this rule apply.

Name

Type

Virtual Machines

Virtual Machines
<input type="checkbox"/> admin3
<input type="checkbox"/> dc-01
<input type="checkbox"/> l-binary1



Change a Virtual Machine's Power State

Select a Power Operation
Select the type of power operation you would like to perform on a virtual machine.

[Select Virtual Machine](#)
Select a Power Operation
Select Host
Schedule Task
Notification
Ready to Complete

Power Operation

- Power on
- Power off
- Shut down
- Suspend
- Reset

Change a Virtual Machine's Power State

Schedule Task
Select the time and frequency of the task.

[Select Virtual Machine](#)
[Select a Power Operation](#)
Schedule Task
Notification
Ready to Complete

Task name:

Task description:

Frequency:

Start Time

- Now
- Later

Time:

Date:

Change a Virtual Machine's Power State

Notification
Request email notification when the task is complete

[Select Virtual Machine](#)
[Select a Power Operation](#)
[Schedule Task](#)
Notification
Ready to Complete

Send email to the following addresses when the task is complete

Email addresses:

Separate multiple email addresses with a semicolon ;

Summary **Monitor** Manage Related Objects

Issues **Tasks** Events System Logs Service Health Log Browser Update Manager

Attached Baseline Groups:

Plug-in Name	Vendor	Version	Status	Description
Installed Plug-ins				
VMware vCenter Storage Monitoring Service	VMware Inc.	5.5	Enabled	Storage Monitoring and Reporting
vCenter Service Status	VMware, Inc.	5.5	Enabled	Displays the health status of vCenter services
vCenter Hardware Status	VMware, Inc.	5.5	Enabled	Displays the hardware status of hosts (CIM monitoring)
Available Plug-ins				
VMware vSphere Update Manager Extension	VMware, Inc.	5.1.0....	Download and Install...	VMware vSphere Update Manager extension
VDP	VMware	5.1.11...	No clientside download is n...	VDP - vSphere Data Protection
VDP 5.5	VMware	5.5.7.5	No clientside download is n...	VDP - vSphere Data Protection 5.

VMware vSphere Update Manager Client 5.1

Ready to Install the Program

The wizard is ready to begin installation.

Setup has detected that VMware vSphere Client is installed under C:\Program Files (x86)\VMware\Infrastructure\Virtual Infrastructure Client\ directory. VMware vSphere Update Manager Client 5.1 will be installed under C:\Program Files (x86)\VMware\Infrastructure\Virtual Infrastructure Client\Plugins\Update Manager 5.1\ location.

Click Install to begin the installation or Cancel to exit the wizard.

InstallShield

< Back Install Cancel

ns Permissions Maps Storage Views Hardware Status Update Manager

Name contains: Clear Scan... Attach... Help Admin View

Attached Baselines	Type	Host Compliance	# Hosts
All		All Applicable Hosts	1
Critical Host Patches (Predefined)	Patch	Non-Compliant	0
Non-Critical Host Patches (Predefined)	Patch	Incompatible	0
Broadcom	Patch	Unknown	1
Dell	Upgrade	Compliant	0

Unknown

View Baselines for: Hosts VMs/VAs

Baselines Create... Edit... Delete

Baseline Name	Content	Type	Component	Last Modified
Critical Host Patches (Predefined)	273	Dynamic	Host Patches	2015-03-07 9:42:...
Non-Critical Host Patches (Prede..	611	Dynamic	Host Patches	2015-03-07 9:42:...
Broadcom	6	Dynamic	Host Patches	2015-03-07 9:42:...
Dell	VMware ESXi Release 5...	Fixed	Host Upgrade	2013-12-11 11:4:...

[New Baseline...](#)

[View Column](#) ▶

New Baseline

Baseline Name and Type
Enter a unique name and select the baseline type.

Baseline Name and Type

[Patch Options](#)

Criteria

Patches to Exclude

Additional Patches

Ready to Complete

Baseline Name and Description

Name:

Description:

Baseline Type

Host Baselines

Host Patch

Host Extension

Host Upgrade

VA Baselines

VA Upgrade

Host Patch baselines contain patches to apply to a host or set of hosts based on applicability. If the baseline contains patches for software that is not installed on a particular host, the patch will be ignored for that host.

[Help](#)

[≤ Back](#)

[Next ≥](#)

[Cancel](#)

New Baseline

Patch Options
Select the type of patch baseline that you want to use.

[Baseline Name and Type](#)
[Patch Options](#)
[Criteria](#)
[Patches to Exclude](#)
[Additional Patches](#)
[Ready to Complete](#)

Select a dynamic or fixed baseline.

Fixed
Fixed baselines remain the same even if new patches are added to the repository.

Dynamic
Dynamic baselines are updated when new patches meeting the specified criteria are added to the repository.

[Help](#) [≤ Back](#) [Next >](#) [Cancel](#)

New Baseline

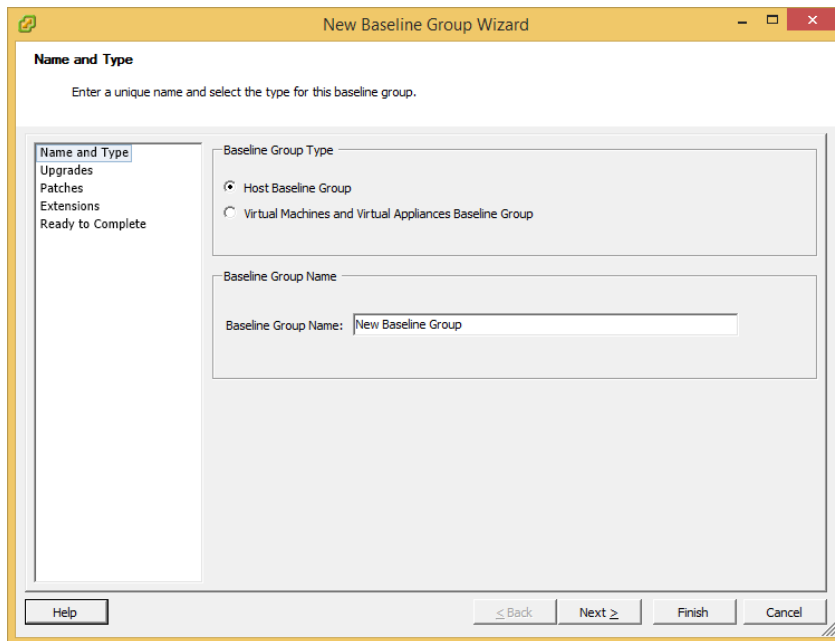
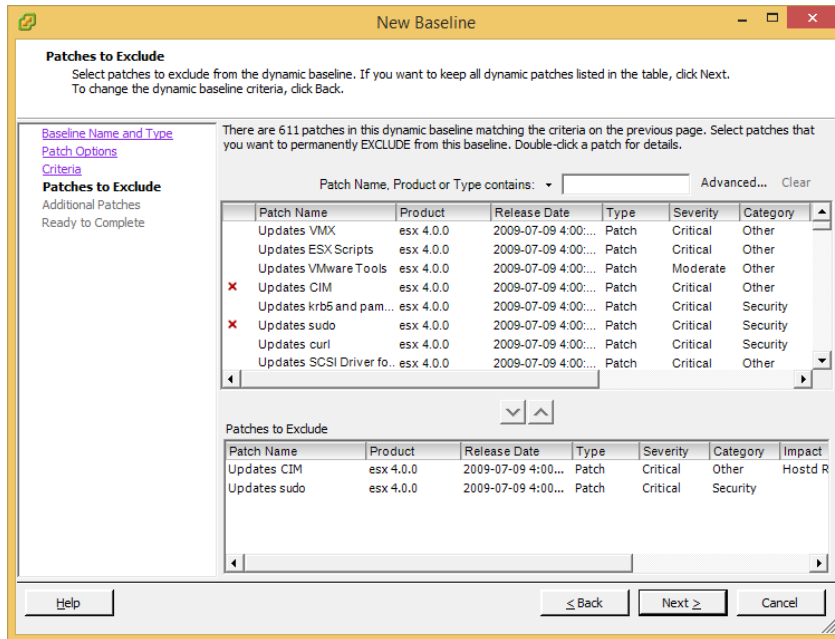
Dynamic Baseline Criteria
The following criteria determine the patches included in this baseline

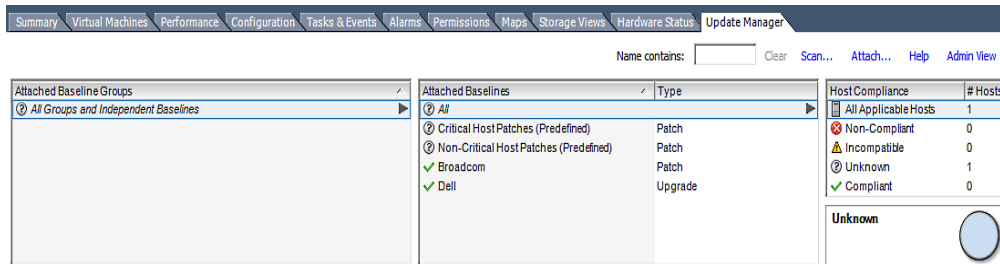
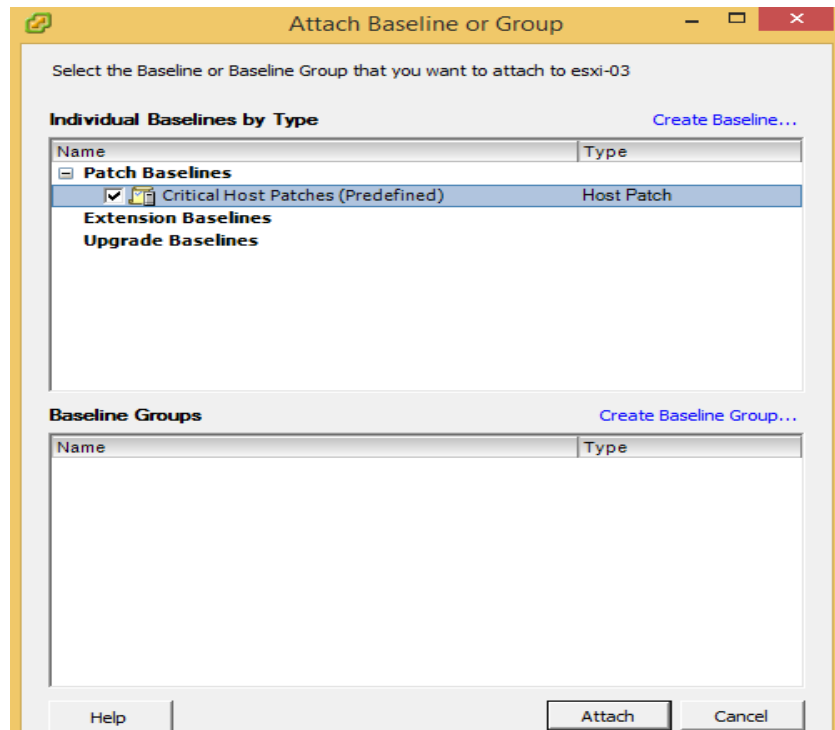
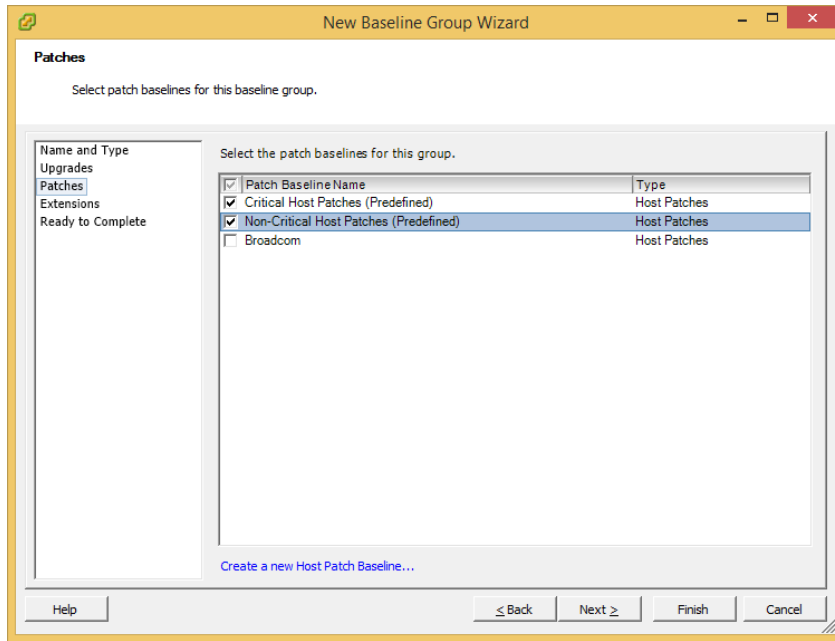
[Baseline Name and Type](#)
[Patch Options](#)
Criteria
[Patches to Exclude](#)
[Additional Patches](#)
[Ready to Complete](#)

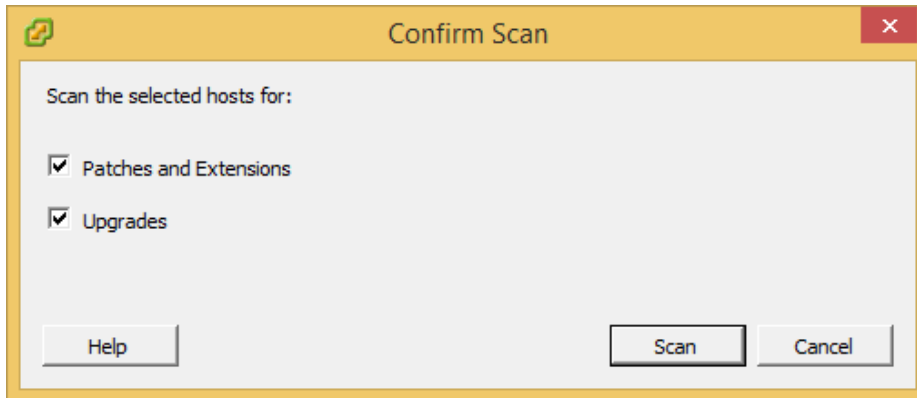
Enter specific criteria to determine the set of patches included in the dynamic baseline. The set will contain only the patches that match all fields.

Patch Vendor:	Product:
<input checked="" type="text" value="Any"/> VMware, Inc. AMCC Neterion Cisco Systems, Inc. Broadcom	<input checked="" type="text" value="Any"/> embeddedEsx 4.0.0 embeddedEsx 4.1.0 esx 4.0.0 esx 4.1.0 embeddedEsx 5.0.0 embeddedEsx 5.1.0 embeddedEsx 5.* embeddedEsx 6.*
Severity:	Release Date:
<input checked="" type="text" value="Any"/> Low Moderate Important Critical	<input type="checkbox"/> On or After <input type="text" value="March 8, 2015"/> <input type="checkbox"/> On or Before <input type="text" value="March 8, 2015"/>
Category:	
<input checked="" type="text" value="Any"/> Security BugFix Enhancement Other	611 patches match the selected criteria. Click Next to view patch details.

[Help](#) [≤ Back](#) [Next >](#) [Cancel](#)







Name contains: Clear Scan.

Attached Baselines		Type
<input checked="" type="checkbox"/> All		
<input checked="" type="checkbox"/> Critical Host Patches (Predefined)		Patch
<input checked="" type="checkbox"/> Non-Critical Host Patches (Predefined)		Patch
<input checked="" type="checkbox"/> Broadcom		Patch

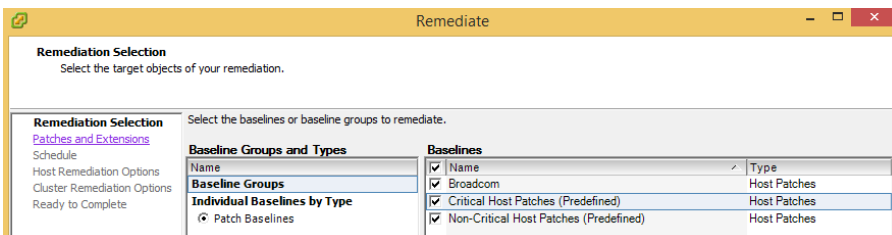
and Incompatible and Unknown Hosts

Patches	Upgrades	Extensions
<input checked="" type="checkbox"/> 34 - Details		

Missing (Non-compliant) - 34
 Obsolete by Host - 19
 Installed (Compliant) - 17
 Not Applicable - 531
 New Module - 10

Patch Name or Release Date contains: Clear

Patch Name	Vendor	Compliance	Patch ID	Severity	Category	Impact	Release Date
brx2x driver for ESX	Broadcom	<input checked="" type="checkbox"/> Installed	brx2x-1.74.17...	Important	Other	Reboot, Maint...	2012-09-28 6:...
cnic driver for ESX	Broadcom	<input checked="" type="checkbox"/> Installed	cnic-1.74.04.v...	Important	Other	Reboot, Maint...	2012-10-03 4:...
cnic_register driver for ESX	Broadcom	<input checked="" type="checkbox"/> Installed	cnic_register-...	Important	Other	Reboot, Maint...	2012-10-05 9:...
Updates ESXi 5.1 esx-bas...	VMware, Inc.	<input checked="" type="checkbox"/> Missing	ESXi510-2014...	Critical	Security	Reboot, Maint...	2014-01-16 3:...
Updates ESXi 5.1 tools-lig...	VMware, Inc.	<input checked="" type="checkbox"/> Missing	ESXi510-2014...	Important	Security		2014-01-16 3:...
Updates ESXi 5.1 esx-xlibs...	VMware, Inc.	<input checked="" type="checkbox"/> Missing	ESXi510-2014...	Moderate	Security	Reboot, Maint...	2014-01-16 3:...
Updates ESXi 5.1 esx-bas...	VMware, Inc.	<input checked="" type="checkbox"/> Missing	ESXi510-2014...	Critical	BugFix	Reboot, Maint...	2014-01-16 3:...
Updates ESXi 5.1 tools-lig...	VMware, Inc.	<input checked="" type="checkbox"/> Missing	ESXi510-2014...	Critical	BugFix		2014-01-16 3:...
Updates ESXi 5.1 net-tg3 ...	VMware, Inc.	<input checked="" type="checkbox"/> Missing	ESXi510-2014...	Important	BugFix	Reboot, Maint...	2014-01-16 3:...
Updates ESXi 5.1 net-e10...	VMware, Inc.	<input checked="" type="checkbox"/> Missing	ESXi510-2014...	Important	BugFix	Reboot, Maint...	2014-01-16 3:...
Updates ESXi 5.1 scsi-rste...	VMware, Inc.	<input checked="" type="checkbox"/> Missing	ESXi510-2014...	Important	BugFix	Reboot, Maint...	2014-01-16 3:...
Updates ESXi 5.1 scsi-mpt...	VMware, Inc.	<input checked="" type="checkbox"/> Missing	ESXi510-2014...	Important	BugFix	Reboot, Maint...	2014-01-16 3:...
Updates ESXi 5.1 sata-ata...	VMware, Inc.	<input checked="" type="checkbox"/> Missing	ESXi510-2014...	Important	BugFix	Reboot, Maint...	2014-01-16 3:...
Updates ESXi 5.1 sata-ahc...	VMware, Inc.	<input checked="" type="checkbox"/> Missing	ESXi510-2014...	Important	BugFix	Reboot, Maint...	2014-01-16 3:...



Remediate

Patches and Extensions
Select the specific patches and extensions that you want to apply.

Your remediation includes a dynamic baseline. The exact list of applicable patches might change before remediation occurs. Even if the list does change, any patch that you exclude now will not be applied.

Remediation Selection
Patches and Extensions
Schedule
Host Remediation Options
Cluster Remediation Options
Ready to Complete

Patch Name, Type or Vendor contains: Clear

<input checked="" type="checkbox"/>	Patch Name	Type	Severity	Category	Impact	Release Date	Vendor	Patch ID	P
<input checked="" type="checkbox"/>	Updates ES...	Patch	Critical	Security	Reboot, Ma...	2014-01-16 3:00...	VMware, Inc.	ESX510-20...	Y
<input checked="" type="checkbox"/>	Updates ES...	Update	Critical	BugFix	Reboot, Ma...	2014-01-16 3:00...	VMware, Inc.	ESX510-U...	Y
<input checked="" type="checkbox"/>	Updates ES...	Update	Critical	BugFix		2014-01-16 3:00...	VMware, Inc.	ESX510-20...	Y
<input checked="" type="checkbox"/>	VMware ES...	Rollup	Critical	BugFix	Reboot, Ma...	2014-01-16 3:00...	VMware, Inc.	ESX510-U...	Y
<input checked="" type="checkbox"/>	Updates esx...	Patch	Critical	Security	Reboot, Ma...	2014-04-29 4:00...	VMware, Inc.	ESX510-20...	Y
<input checked="" type="checkbox"/>	Updates esx...	Patch	Critical	BugFix	Reboot, Ma...	2014-04-29 4:00...	VMware, Inc.	ESX510-20...	Y
<input checked="" type="checkbox"/>	Updates esx...	Patch	Critical	Security	Reboot, Ma...	2014-07-31 4:00...	VMware, Inc.	ESX510-20...	Y
<input checked="" type="checkbox"/>	Updates esx...	Patch	Critical	BugFix	Reboot, Ma...	2014-07-31 4:00...	VMware, Inc.	ESX510-20...	Y
<input checked="" type="checkbox"/>	Updates ES...	Update	Critical	BugFix	Reboot, Ma...	2014-12-04 3:00...	VMware, Inc.	ESX510-20...	Y

Remediate

Schedule
Specify the time of the remediation task.

Remediation Selection
Patches and Extensions
Schedule
Host Remediation Options
Cluster Remediation Options
Ready to Complete

Task Name:

Task Description:

Remediation Time:

Remediate the selected hosts:

Immediately

At time:

Remediate

Host Remediation Options
Specify the maintenance mode options of the remediation task.

Remediation Selection
Patches and Extensions
Schedule
Host Remediation Options
Cluster Remediation Options
Ready to Complete

Maintenance Mode Options:

⚠ These options also apply to hosts in clusters.

Before host remediation, ESX/ESXi hosts might need to enter maintenance mode. Virtual machines and virtual appliances must be shut down or migrated. To reduce the host remediation downtime, you can select to shut down or suspend the virtual machines and appliances before remediation from the drop-down menu below.

Power state:

Disable any removable media devices connected to the virtual machines on the host.

Retry entering maintenance mode in case of failure

Retry delay:

Number of retries:

ESXi 5.x Patch Settings

Enable patch remediation of powered on PXE booted ESXi hosts

⚠ PXE booted ESXi hosts revert to their original state after a reboot. To keep new software and patches on stateless hosts after a reboot, use a PXE boot image that contains the updates.

Remediate

Cluster Remediation Options

Remediation Selection
Patches and Extensions
Schedule
Host Remediation Options
Cluster Remediation Options
Ready to Complete

To remediate clusters, first you should temporarily disable certain cluster features. Update Manager automatically re-enables the features after remediation.

Disable Distributed Power Management (DPM) if it is enabled for any of the selected clusters.

Disable Fault Tolerance (FT) if it is enabled. This affects all fault tolerant virtual machines in the selected clusters.

i If you let Update Manager disable FT when necessary, you should remediate all the hosts in a cluster, so that the hosts remain consistent. This way FT can be re-enabled after remediation.

Update Manager does not remediate hosts or clusters on which the features remain enabled.

Disable High Availability admission control if it is enabled for any of the selected clusters.

Enable parallel remediation for the hosts in the selected clusters.

Automatically determine the maximum number of concurrently remediated hosts in a cluster.

Limit the number of concurrently remediated hosts in each cluster to:

Migrate powered off and suspended virtual machines to other hosts in the cluster, if a host must enter maintenance mode.

Generate a report of the current configuration and changes during remediation:

Chapter 7: Improving Environment Manageability

New Tag

Tag

Name:

Description:

Category:

Category

vCenter Server:

Category Name:

Description:

Cardinality:
 One tag per object
 Many tags per object

Associable Object Types:
 All objects
 Cluster
 Datacenter
 Datastore
 Datastore Cluster
 Distributed Port Group

OK Cancel

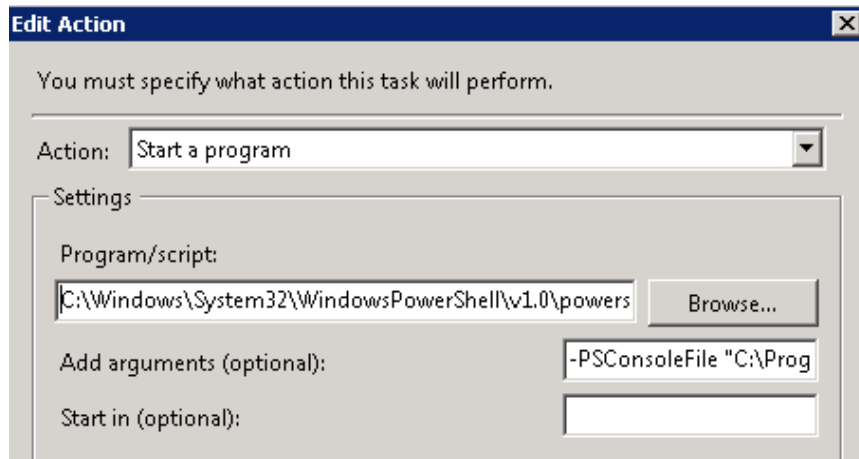
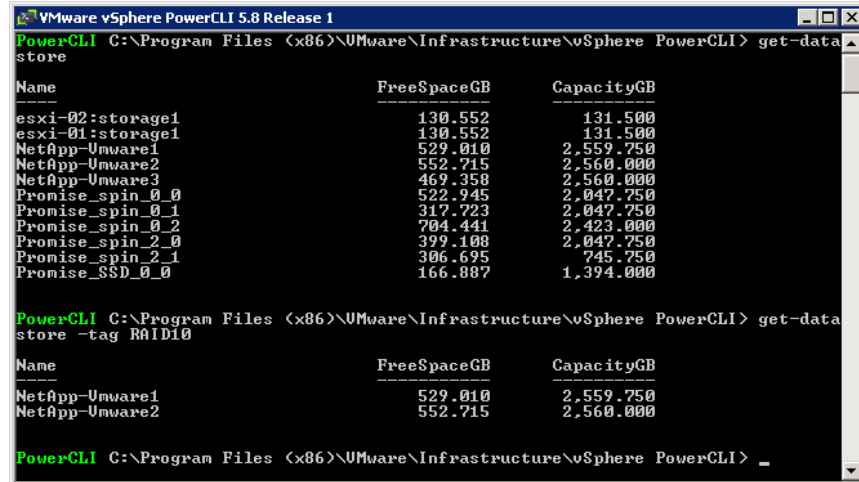
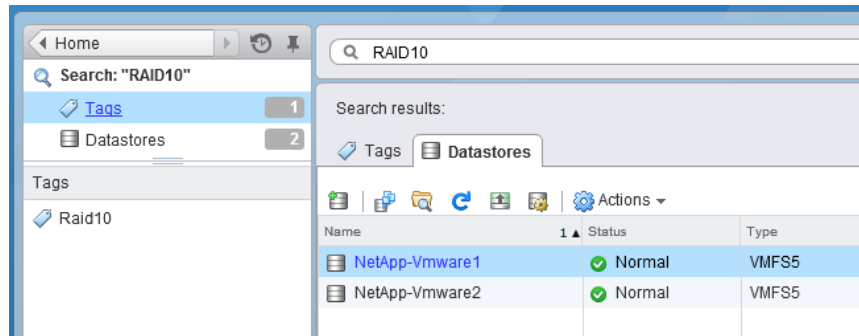
NetApp-Vmware2 - Assign Tag

Categories:

Tag Name	Category	Description
Raid10	RAID_level	

1 items

Assign Cancel



Network CoreDump Settings

Fixed Network CoreDump Policy	Network CoreDump settings	
	*Network CoreDump enabled	<input checked="" type="checkbox"/> Enabled
	Host NIC to use	vmk0
	Network CoreDump Server IP	192.168.0.56
	Network CoreDump Server Port	6500

dvSwitch - Edit NetFlow Settings

IP address:

Port:

Switch IP address:

- i** Assigning an IP address to the distributed switch enables the NetFlow collector to interact with the distributed switch as a single switch, rather than seeing a separate, unrelated switch for each associated host.

Advanced settings

Active flow export timeout (Seconds):

Idle flow export timeout (Seconds):

Sampling rate:

Process internal flows only:

OK

Cancel

dvSwitch Settings

Properties | Network Adapters | Private VLAN | **NetFlow** | Port Mirroring

NetFlow

Collector Settings

IP address: 192 . 168 . 0 . 52

Port: 5020

VDS IP address: . . .

The vSphere distributed switch will be identified with this IP address at the NetFlow collector. Specify the VDS IP address to prevent all hosts from appearing as separate anonymous switches at the collector.

Advanced Settings

Active flow export timeout: 60

Idle flow export timeout: 15

Sampling rate: 0

Process internal flows only

Help OK Cancel

dvSwitch - Restore Configuration

1 Restore switch configuration

2 Ready to complete

Restore switch configuration

Restore distributed switch from a file.

Restoring a distributed switch backup will overwrite the settings of the switch and its port groups. Port groups that are not part of the backup will be retained.

Select a distributed switch backup file

backup.zip Browse...

Restore distributed switch and all port groups

Restore distributed switch only

LAB - Import Distributed Switch

1 Import switch configuration

2 Ready to complete

Import switch configuration

Import distributed switch from a local file.

Select a distributed switch backup file

backup.zip Browse...

Preserve original distributed switch and port group identifiers

dvPortGroup - Restore Configuration

1 Restore port group configuration

2 Ready to complete

Restore port group configuration

Restore distributed port group from previous configuration or from a file.

Restore to previous configuration

Restore configuration from a file:

Browse...

vc01 - Edit Advanced vCenter Server Settings

Q config.vpxd.network

Key	Value	Summary
config.vpxd.network.rollback	false	--

Key: Value: Add

OK Cancel

dvPortGroup - Edit Settings

General
Advanced
Security
Traffic shaping
VLAN
Teaming and failover
Monitoring
Traffic filtering and marking
Miscellaneous

Promiscuous mode: Reject
MAC address changes: Reject
Forged transmits: Accept

Device Manager

File Action View Help

vc01
Batteries
Computer
Disk drives
Display adapters
DVD/CD-ROM drives
Floppy disk drives
Floppy drive controllers
IDE ATA/ATAPI controllers
Keyboards
Mice and other pointing de
Monitors
Network adapters
vmxnet3 Ethernet Ada
Ports (COM & LPT)
Processors
Storage controllers
System devices

vmxnet3 Ethernet Adapter #2 Properties

General Advanced Driver Details Resources Power Management

The following properties are available for this network adapter. Click the property you want to change on the left, and then select its value on the right.

Property: Value:
 01:00:02:03
 Not Present

Enable adaptive rx ring sizing
Interrupt Moderation
IPv4 Checksum Offload
IPv4 TSO Offload
Jumbo Packet
Large Rx Buffers
Large Send Offload V2 (IPv4)
Large Send Offload V2 (IPv6)
MAC Address
Max Tx Queues
Maximum number of RSS Process
Offload IP Options
Offload tagged traffic
Offload TCP Options

OK Cancel


```
esxi-01 - PuTTY
~ # esxcli network ip interface list
vmk0
  Name: vmk0
  MAC Address: 00:1a:64:98:51:54
  Enabled: true
  Portset: vSwitch0
  Portgroup: Management Network
  VDS Name: N/A
  VDS UUID: N/A
  VDS Port: N/A
  VDS Connection: -1
  MTU: 1500
  TSO MSS: 65535
  Port ID: 33554438

vmk1
  Name: vmk1
  MAC Address: 00:50:56:76:bd:50
  Enabled: true
  Portset: vSwitch0
  Portgroup: vMotion
  VDS Name: N/A
  VDS UUID: N/A
  VDS Port: N/A
```

```
esxi-01 - PuTTY
~ # esxcli --formatter=csv --format-param=fields="Name,Mac Address,Enabled" network ip interface list
Name,MACAddress,Enabled,
vmk0,00:1a:64:98:51:54,true,
vmk1,00:50:56:76:bd:50,true,
vmk2,00:50:56:7b:38:20,true,
vmk3,00:50:56:7b:64:6a,true,
~ #
```

```
esxi-01 - PuTTY
~ # esxcli system maintenanceMode get
Disabled
~ #
```

```
esxi-01 - PuTTY
~ # esxcli network ip dns server list
DNSServers: 192.168.10.10, 192.168.10.11
~ # esxcli network ip dns server add --server=192.168.10.12
~ # esxcli network ip dns server list
DNSServers: 192.168.10.10, 192.168.10.11, 192.168.10.12
~ #
```

```
esxi-01 - PuTTY
~ # esxcli network ip dns search list
DNSSearch Domains: lab.pvt
~ # esxcli network ip dns search add --domain=test.local
~ # esxcli network ip dns search list
DNSSearch Domains: lab.pvt, test.local
~ # esxcli network ip dns search remove --domain=test.local
~ # esxcli network ip dns search list
DNSSearch Domains: lab.pvt
~ #
```

```
esxi-01 - PuTTY
~ # esxcli network ip connection list
Proto Recv Q Send Q Local Address Foreign Address State Wo
rld ID World Name
-----
tcp 0 0 127.0.0.1:8307 127.0.0.1:54014 ESTABLISHED 1
186978 hostd-worker
tcp 0 0 127.0.0.1:54014 127.0.0.1:8307 ESTABLISHED
585253 rhttpproxy-work
tcp 0 0 127.0.0.1:443 127.0.0.1:50491 ESTABLISHED 8
142377 rhttpproxy-work
```

```
esxi-01 - PuTTY
~ # esxcli network ip neighbor list
Neighbor Mac Address Vmknfc Expiry State
-----
192.168.2.22 00:a0:98:12:5d:f0 vmk2 277 sec
192.168.10.10 00:50:56:ba:00:00 vmk0 1182 sec
192.168.10.11 00:50:56:95:45:d5 vmk0 1198 sec
192.168.10.30 00:1a:64:98:51:54 lo0 4283116810 sec
192.168.10.32 b8:ca:3a:ee:da:af vmk0 807 sec
```

```
esxi-01 - PuTTY
~ # esxcli network firewall get
Default Action: DROP
Enabled: true
Loaded: true
~ #
```

```
esxi-01 - PuTTY
~ # esxcli network firewall ruleset list
Name Enabled
-----
sshServer true
sshClient false
nfsClient false
dhcp true
dns true
```

```
esxi-01 - PuTTY
~ # esxcli network firewall ruleset list --ruleset-id=sshServer
Name Enabled
-----
sshServer true
~ #
```

```
esxi-01 - PuTTY
~ # esxcli network firewall ruleset allowedip list --ruleset-id sshClient
Ruleset Allowed IP Addresses
-----
sshClient All
~ #
```

```
esxi-01 - PuTTY
~ # esxcli network firewall ruleset set --ruleset-id sshClient --allowed-all false
~ # esxcli network firewall ruleset allowedip add --ruleset-id sshClient --ip-address 192.168.0.0/24
~ # esxcli network firewall ruleset allowedip list --ruleset-id sshClient
Ruleset    Allowed IP Addresses
-----
sshClient  192.168.0.0/24
~ #
```

```
esxi-01 - PuTTY
~ # esxcli network nic list
Name      PCI Device  Driver  Link  Speed  Duplex  MAC Address  MTU  Des
-----
vmnic0    0000:004:00.0  bnx2   Up    1000   Full    00:1a:64:98:51:54  1500 Bro
vmnic1    0000:006:00.0  bnx2   Up    1000   Full    00:1a:64:98:51:56  1500 Bro
vmnic6    0000:009:00.0  bnx2   Up    1000   Full    00:10:18:ae:98:b0  1500 Bro
vmnic7    0000:009:00.1  bnx2   Up    1000   Full    00:10:18:ae:98:b2  1500 Bro
vmnic8    0000:00a:00.0  bnx2   Up    1000   Full    00:10:18:ae:98:b4  1500 Bro
vmnic9    0000:00a:00.1  bnx2   Up    1000   Full    00:10:18:ae:98:b6  1500 Bro
~ # localcli network nic list
Name      PCI Device  Driver  Link  Speed  Duplex  MAC Address  MTU  Des
-----
vmnic0    0000:004:00.0  bnx2   Up    1000   Full    00:1a:64:98:51:54  1500 Bro
vmnic1    0000:006:00.0  bnx2   Up    1000   Full    00:1a:64:98:51:56  1500 Bro
vmnic6    0000:009:00.0  bnx2   Up    1000   Full    00:10:18:ae:98:b0  1500 Bro
vmnic7    0000:009:00.1  bnx2   Up    1000   Full    00:10:18:ae:98:b2  1500 Bro
vmnic8    0000:00a:00.0  bnx2   Up    1000   Full    00:10:18:ae:98:b4  1500 Bro
vmnic9    0000:00a:00.1  bnx2   Up    1000   Full    00:10:18:ae:98:b6  1500 Bro
~ #
```

dvSwitch - Export Configuration ?

Configurations to export: Distributed switch and all port groups
 Distributed switch only

Description:

OK Cancel