VMware ESXi™ 5.1 Reference

ESXCFG/VICFG Command	PowerCLI Cmdlet	ESXCLI 5.1
esxcfg-advcfg vicfg-advcfg	Get-VMHostAdvancedConfiguration Set-VMHostAdvancedConfiguration	esxcli system settings advanced
esxcfg-dns vicfg-dns	Get-VMHostNetwork Set-VMHostNetwork	esxcli network ip dns
esxcfg-dumpart vicfg-dumppart	Get-EsxCLI	esxcli system coredump
esxcfg-fcoe vicfg-fcoe	Get-EsxCLI	esxcli fcoe
esxcfg-ipsec vicfg-ipsec	Get-EsxCLI	esxcli network ip ipsec
esxcfg-module vicfg-module	Get-EsxCLI	esxcli system module
esxcfg-mpath vicfg-mpath	Get-ScsiLun Set-ScsiLun	esxcli storage core path
esxcfg-nas vicfg-nas	Get-Datastore New-Datastore Set-Datastore	esxcli storage nfs
esxcfg-nics vicfg-nics	Get-VMHostNetworkAdapter Set-VMHostNetworkAdapter	esxcli network nic
esxcfg-rescan vicfg-rescan	Get-VMHostStorage - RescanAllHBA	esxcli storage core adapter
esxcfg-route vicfg-route	Set-VMHostNetwork	esxcli network ip route
esxcfg-scsidevs vicfg-scsidevs	Get-ScsiLun Set-ScsiLun	esxcli storage core device esxcli storage filesystem
esxcfg-swiscsi esxcfg-hwiscsi vicfg-iscsi	Get-iScsiHBATarget New-iScsiHBATarget Set-iScsiHBATarget Remove-iScsiHBATarget	esxcli iscsi
esxcfg-vmknic vicfg-vmknic	Get-VMHostNetworkAdapter Set-VMHostNetworkAdapter	esxcli network ip interface
esxcfg-volume vicfg-volume	Get-View needed to call APIs	esxcli storage filesystem
esxcfg-vswitch vicfg-vswitch	Get-VirtualSwitch Set-VirtualSwitch Get-VirtualPortGroup Set-VirtualPortGroup	esxcli network vswitch
esxtop resxtop	Get-EsxTop	No equivalent
esxupdate	Get-VMHostPatch Install-VMHostPatch	esxcli software vib
svmotion	Move-VM -Datastore	No equivalent
vicfg-authconfig	No equivalent	No equivalent
vicfg-cfgbackup	Get-VMHostFirmware Set-VMHostFirmware	No equivalent
vicfg-hostops	Get-VMHost Set-VMHost Restart-VMHost	esxcli system maintenanceMode esxcli system shutdown
vicfg-mpath35	Get-ScsiLun Get-ScsiLun	No equivalent
vicfg-ntp	Get-VMHostNTPServer Set-VMHostNTPServer	No equivalent
vicfg-snmp	Get-VMHostSNMP Set-VMHostSNMP	esxcli system snmp
vicfg-syslog	Get-VMSysLogServer Set-VMSysLogServer	esxcli system syslog
vicfg-user	Get-VMHostAccount Set-VMHostAccount New-VMHostAccount Remove-VMHostAccount	No equivalent
vifs	Copy-DatastoreItem PSDrives	No equivalent
vihostupdate	Install-VMHostPatch	esxcli software vib
vihostupdate35	Install-VMHostPatch	No equivalent
vm-support	Get-Log	No equivalent
vmkfstools	No equivalent	No equivalent
vmkping	No equivalent	esxcli network diag ping
vmware-cmd	Various cmdlets including: Get-VM Set-VM Get-Snapshot Set-Snapshot Start-VM Restart-VM Stop-VM Get-VMGuestInfo	No equivalent

Virtual Hardware Support

vSphere 4.0	vSphere 4.1	vSphere 5.0	vSphere 5.1
Virtual Hardware 4	Virtual Hardware 4 Virtual Hardware 7	Virtual Hardware 4 Virtual Hardware 7 Virtual Hardware 8	Compatibility 3.x (Virtual Hardware 4) Compatibility 4.x (Virtual Hardware 7) Compatibility 5.0 (Virtual Hardware 8) Compatibility 5.1 (Virtual Hardware 9)

VMware Tools Support

vSphere 4.0	vSphere 4.1	vSphere 5.0	vSphere 5.1
Tools 4.0	Tools 4.1	Tools 4.x Tools 5.0	Tools 4.x Tools 5.0 Tools 5.1

Virtual Machine Capabilities

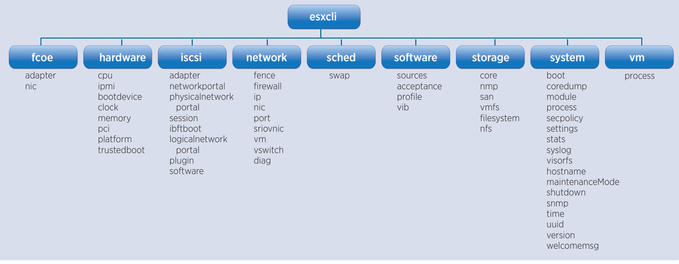
vSphere 4.0 (ESX 4 ESXi)	vSphere 4.1 (ESX 4 ESXi)	vSphere 5.0 (ESXi)	vSphere 5.1 (ESXi)
• 8 vCPU • 255GB RAM • 10 NICs • 128MB Video Ram	• 8 vCPU • 255GB RAM • 10 NICs • 128MB Video Ram	• 32 vCPU • 1TB RAM • 10 NICs • 128MB Video Ram	• 64 vCPU • 1TB RAM • 10 NICs • 256MB Video Ram

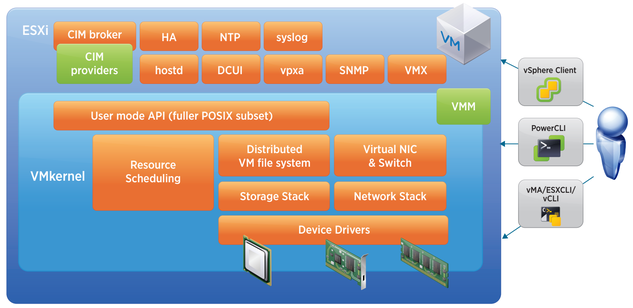
vHW4 (Compatibility 3.x)	vHW7 (Compatibility 4.x	vHW8 (Compatibility 5.0)	vHW9 (Compatibility 5.1)
• 4 vCPU • 64GB RAM • 4 NICs • 128MB Video Ram • IPv6 Support • Paravirtualzied Guest OS* • Enhanced VMXNET	• 8 vCPU • 255GB RAM • 10 NICs • 128MB Video Ram • VMCI • SAS virtual device for MSCS • IDE virtual devices • VMXNET 3 Generation 3 • Virtual Machine Hot Plug Support • MDirectPath • Paravirtual Controllers • USB 1 & 2	• 32 vCPU • 1TB RAM • 10 NICs • 128MB Video Ram • E1000e • SVGA 3D Hardware Acceleration • USB 3.0 • EFI BIOS • UI for multi-core CPUs • Mac OS X	• 64 vCPU • 1TB RAM • 10 NICs • 512MB Video Ram • Virtual GPU (vGPU)** • Guest OS Storage Reclamation** • Nested Hardware Virtualization (HV) • CPU Performance Counters

* Dropped in vHW 8

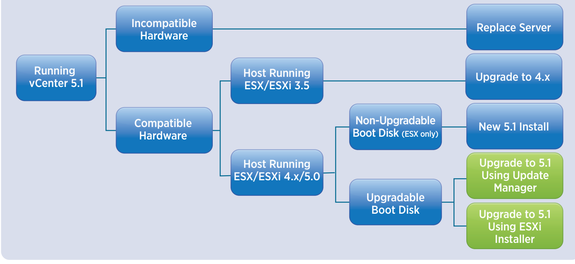
** View Only Feature

ESXCLI 5.1 Name Spaces





ESXi Upgrade Path



Host Commands

Host Information

Display ESXi Version and Build
```
# esxcli system version get
```

Display ESXi Hardware Platform
```
# esxcli hardware platform get
```

List CPU Processors
```
# esxcli hardware cpu list
```

List Memory
```
# esxcli hardware memory get
```

List VMkernel Modules
```
# esxcli system module list
```

List Advanced Settings
```
# esxcli system settings advanced list
```

Host Configurations

Manage and Configure Firewall Rules
```
# esxcli network firewall
```

Configure Remote Syslog Host
```
# esxcli system syslog config set
--loghost=<ipaddress1>,<ipaddress2>

# esxcli network firewall ruleset set --enabled=true --ruleset-
id=syslog

# esxcli system syslog reload
```

Configure Remote Core Dump
```
# esxcli system coredump network set --interface-name=<vmk>
--server-ipv4=<ipaddress> --server-port=<port>

# esxcli system coredump network set --enabled=true
```

Verify and Check Core Dump Server
```
# esxcli system coredump get

# esxcli system coredump check
```

Configure SNMP
```
# esxcli system snmp set --enabled=true
--communities=<community>
--targets=<ipaddress1>@<port>,<ipaddress2>@<port>

# esxcli system snmp get

# esxcli system snmp test
```

Join Host to Active Directory

Join host to AD Domain (vCLI only)
```
# vicfg-authconfig --authscheme AD --joindomain <domainname>
--adusername <aduser>
```

Verify AD Domain (vCLI only)
```
# vicfg-authconfig --authscheme AD --currentdomain
```

Remove host from AD Domain (vCLI)
```
# vicfg-authconfig --authscheme AD --leavecurrentdomain
```

Host Operations

Enter/Exit Maintenance Mode
```
# esxcli system maintenanceMode set --enabled=[ true | false ]
```

Shutdown/Reboot Host
```
# esxcli system shutdown reboot --delay=[60]
--reason=["installing new vib"]
```

Host Configuration Backup/Restore

Backup Host Configuration
```
# vicfg-cfgbackup --save </path/to/filename>
```

Restore Host Configuration
```
# vicfg-cfgbackup --load </path/to/filename>
```

Patching

Upload VIB to ESXi Datastore
```
# vifs --put /path/to/patch.zip "[datastore1] patch.zip"
```

Install VIB
```
# esxcli software vib install
--depot=/vmfs/volumes/datastore1/patch.zip
```

Verify VIB installation
```
# esxcli software vib list
```

Virtual Machine Commands

List Registered VMs (vCLI only)
```
# vmware-cmd -l
```

Register a VM (vCLI)
```
# vmware-cmd -s register /vmfs/volumes/<volume
name>/<vm>/<vm>.vmx <datacenter> <resource pool>
```

Unregister a VM (vCLI only)
```
# vmware-cmd -s unregister /vmfs/volumes/<volume
name>/<vm>/<vm>.vmx
```

Get VM Power State (vCLI only)
```
# vmware-cmd /vmfs/volumes/<volume name>/<vm>/<vm>.vmx
getstate
```

Power on a VM (vCLI only)
```
# vmware-cmd /vmfs/volumes/<volume name>/<vm>/<vm>.vmx start
```

Shut Down a VM (vCLI only)
```
# vmware-cmd /vmfs/volumes/<volume name>/<vm>/<vm>.vmx stop
[ soft | hard ]
```

Power off a VM (vCLI only)
```
# vmware-cmd /vmfs/volumes/<volume name>/<vm>/<vm>.vmx stop
[ soft | hard ]
```

Reset a VM (vCLI only)
```
# vmware-cmd /vmfs/volumes/<volume name>/<vm>/<vm>.vmx reset
[soft | hard ]
```

Suspend a VM (vCLI only)
```
# vmware-cmd /vmfs/volumes/<volume name>/<vm>/<vm>.vmx suspend
[soft | hard ]
```

Resume a VM (vCLI only)
```
# vmware-cmd /vmfs/volumes/<volume name>/<vm>/<vm>.vmx resume
[soft | hard ]
```

Get ESXi Host Platform Information (vCLI only)
```
# vmware-cmd /vmfs/volumes/<volume name>/<vm>/<vm>.vmx
getproductinfo [ product | platform | build | majorversion|
minorversion ]
```

Get VM Uptime (vCLI only)
```
# vmware-cmd /vmfs/volumes/<volume name>/<vm>/<vm>.vmx
getuptime
```

Get VMware Tools Status (vCLI only)
```
# vmware-cmd /vmfs/volumes/<volume name>/<vm>/<vm>.vmx
gettoolslastactive

      0 = Not installed/Not running

      1 = Normal

      5 = Intermittent Heartbeat

      100 = No heartbeat. Guest operating system might have
      stopped responding
```

Create VM Snapshot (vCLI only)
```
# vmware-cmd /vmfs/volumes/<volume name>/<vm>/<vm>.vmx
createsnapshot <name> <desc> <quiesce> <memory>
      quiesce = Quiesce filesystem w/VMware Tools [ 0 | 1 ]
      memory = Include memory state in snapshot [ 0 | 1 ]
```

Check if VM Has a Snapshot (vCLI only)
```
# vmware-cmd /vmfs/volumes/<volume name>/<vm>/<vm>.vmx
hassnapshot
```

Revert to VM Snapshot (vCLI only)
```
# vmware-cmd /vmfs/volumes/<volume name>/<vm>/<vm>.vmx
revertsnapshot
```

Commit VM Snapshot (vCLI)
```
# vmware-cmd /vmfs/volumes/<volume name>/<vm>/<vm>.vmx
removesnapshot
```

Forcibly Stop a VM with ESXCLI
```
# esxcli vm process list

# esxcli vm process kill --type [ soft | hard | force ] -w
<worldId>

      soft = similiar to kill or kill -SIGTERM

      hard = similiar to kill -9 or kill -SIGKILL

      force = use as a last resort
```

Network Commands

vSwitch

List Standard Virtual Switches
```
# esxcli network vswitch standard list
```

List Distributed Virtual Switches
```
# esxcli network vswitch dvs vmware list
```

Add/Remove Virtual Switch
```
# esxcli network vswitch standard [ add | remove ]
--vswitch-name <name>
```

List All Physical Network Adapters
```
# esxcli network nic list
```

Add/Remove Uplink to Virtual Switch
```
# esxcli network vswitch standard [ add | remove ]
--uplink-name=<vmnic> --vswitch-name <name>
```

Set MTU for Virtual Switch
```
# esxcli network vswitch stanard set --mtu=[9000]
--vswitch-name <name>
```

List Network Policy Settings
```
# esxcli network vswitch standard policy [ failover |
security | shapping ] get
```

Portgroup

List Portgroups
```
# esxcli network vswitch standard portgroup list
```

Add/Remove Portgroup
```
# esxcli network vswitch standard portgroup [ add | remove
] --portgroup-name <portgroup> --vswitch-name <name>
```

Set Portgroup VLAN ID
```
# esxcli network vswitch standard portgroup set
--portgroup-name <portgroup> --vlan-id=<vlan>
```

VMkernel Interface

Add VMkernel Interface
```
# esxcli network ip interface add --interface-name=<vmk>
--portgroup-name=<portgroup> --mtu=<mtu>
```

Set IP Address for VMkernel Interface
```
# esxcli network ip interface [ ipv4 | ipv6 ] set
--interface-name=<vmk> --ipv4=<ipaddress>
--netmask=<netmask> --type=[ static | dhcp ]
```

Tag VMkernel Interface Traffic Type
```
# esxcli network ip interface tag add --interface-
name=vmk1 --tagname=[ Management |  VMotion | faultToler-
anceLogging | vSphereReplication ]
```

List all VMkernel Interfaces
```
# esxcli network ip interface list
```

Other Network Configurations

Add/Remove DNS Servers
```
# esxcli network ip dns server [ add | remove ]
--server=<ipaddress>
```

List DNS Servers
```
# esxcli network ip dns server list
```

Add/Remove Network Routes
```
# esxcli network ip route [ ipv4 | ipv6 ] [ add | remove ]
--network=<network/CIDR> --gateway=<gateway>
```

Add/Remove NTP Servers (vCLI only)
```
# vicfg-ntp [ --add  | --delete ] <ipaddress>
```

List NTP Servers (vCLI only)
```
# vicfg-ntp --list
```

Start NTP Service (vCLI only)
```
# vicfg-ntp --start
```

Network Statistics

NIC Statistics
```
# esxcli network nic list

# esxcli network nic stats get --nic-name=<vmnic>
```

VLAN Statistics
```
# esxcli network nic vlan stats set --enabled=true --nic-
name=<vmnic>

# esxcli network nic vlan stats get --nic-name=<vmnic>
```

VM Port Statistics
```
# esxcli network vm list

# esxcli network vm port list --world-id=<worldId>

# esxcli network port stats get --portid=<portId>
```

Storage Commands

Storage Device

List All Storage Devices
```
# esxcli storage core device list
```

Get VAAI Status for all Devices
```
# esxcli storage core device vaai status get
```

Storage Adapter

List All Storage Adapters
```
# esxcli storage core adapter list
```

Rescan Storage Adapter
```
# esxcli storage core adapter rescan --adapter=<vmhba>
```

VMFS

List all VMFS volumes
```
# esxcli storage filesystem list
```

Check for VMFS snapshots
```
# esxcli storage vmfs snapshot list
```

Mount VMFS snapshot volume
```
# esxcli storage vmfs snapshot mount --volume-label=<label>
```

Resignature VMFS snapshot volume
```
# esxcli storage vmfs snapshot resignature --volume-
label=<label>
```

NAS

List all NAS volumes
```
# esxcli storage nfs list
```

Add NAS volume
```
# esxcli storage nfs add --host=<ipaddress>
--share=</path/to/share> --volume-name=<share name>
```

Remove NS volume
```
# esxcli storage nfs remove --volume-name=<share name>
```

iSCSI

Enable Software iSCSI
```
# esxcli iscsi software set --enabled=true
```

Get iSCSI Status
```
# esxcli iscsi software get
```

List iSCSI Adapters
```
# esxcli iscsi adapter list
```

Add iSCSI Adapter
```
# esxcli iscsi networkportal add --adapter=<adapter>
--nic=<vmkX>
```

Add/Remove iSCSI Target (Dynamic Discovery)
```
# esxcli iscsi adapter discovery sendtarget [ add | remove
] --adapter=<adapter> --address=<ip:port>
```

Add iSCSI Target (Static Discovery)
```
# esxcli iscsi adapter discovery statictarget [ add |
remove ] --adapter=<adapter> --address=<ip:port>
--name=<target>
```

Rediscover iSCSI Targets
```
# esxcli iscsi adapter discovery rediscover
--adapter=<adapter>
```

List all iSCSI Targets
```
# esxcli iscsi adapter target list
```

Set iSCSI Name and Alia
```
# esxcli iscsi adapter set --adapter=<adapter>
--name=<name>

# esxcli iscsi adapter set --adapter=<adapter>
--alias=<name>
```

Configure iSCSI CHAP Authentication
```
# esxcli iscsi adapter auth chap set --direction=[ unit |
mutal ] --authname=<name> --level=[ prohibited | discour-
aged | preferred | required ] --secret=<secret>
```

Storage Statistics & Troubleshooting

Storage Statistics
```
# esxcli storage san [ fc | fcoe | iscsi | sas ] stats get
```

Get events for Fibre Channel
```
# esxcli storage san events get
```

Clear events for Fibre Channel adapter
```
# # esxcli storage san events clear --adapter=<adapter>
```

LIP reset for FC adapter
```
# esxcli storage san fc reset --adapter=<adapter>
```

LIP reset for FCoE adapter
```
# esxcli storage san fcoe reset --adapter=<adapter>
```

Reset SAS adapter
```
# esxcli storage san sas reset --adapter=<adapter>
```

VMware Tools Upgrade Paths

Virtual Hardware Upgrade Paths

Performance and Troubleshooting

VMDK I/O Statistics
```
# vscsiStats
```

Show Open Ports on Remote Host (ESXi Shell only)
```
# nc -z <ipaddress> [1-1024]
```

Show Active TCP/IP Connections on Host
```
# esxcli network ip connection list
```

Show ARP Table on Host:
```
# esxcli network ip neighbor list
```

Capture Network Traffic (ESXi Shell only)
```
# tcpdump-uw -c 5 -n -i vmk0 host <ipaddress> and port [443]
```

Test Network Connectivity
```
# esxcli network diag ping -s [9000] -H <ipaddress>
```

Trace Network routes
```
# traceroute <ipaddress>
```

Host Performance Monitoring
```
# esxtop (ESXi Shell)
# resxtop (vCLI)
```

Resource Links

ESXi Info Center:
http://www.vmware.com/products/vsphere/esxi-and-esx/index.html

ESXi Official Blog: http://blogs.vmware.com/vsphere/esxi/

Automation Official Blog: http://blogs.vmware.com/vsphere/automation/

vSphere Official Blog: http://blogs.vmware.com/vsphere/

VMware Hands-on Labs Online: http://hol.vmware.com

Follow us on Twitter: @VMwarevSphere @VMwareESXi @VMWAutomation

ESXCLI and vCLI remote connection options • Connection options when connecting through vCenter Server: `--server <vcenter ipadddress> --vihost <ESXi hostname or ipaddress>` • Connection options when connecting directly to ESXi host: `--server <ESXi hostname or ipaddress>`

vmware