1 VMware VCAP-DCA exam command-line cheat sheet

VMware Certified Advanced Professional Datacenter Administration exam cheat sheet.
VDCA410

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1.1 Unix commands

Command	Description	Example
man	Show the help of the command ESXi has no man command For ESXi use command -help	List the help for ls `man ls`
ls	List files and directories	List files and directories long format `ls -l`
cd	Change directories	Change the directory `cd /vmfs/volumes`
watch	Run a command at a specific interval.	watch 'ps –ef | grep | wc –l "
pwd	print name of current/working directory	`pwd`

find	Find files on the filesystem	Find *.delta.vmdk files
		`find /vmfs/volumes/ -iname "*delta.vmdk"`
		
		Find *.vmsn files
		`find /vmfs/volumes/ -iname "*.vmsn"`

vi	screen-oriented (visual) display editor Modes: a / A = append I / I = insert o / O = open new line	Edit file vi /etc/ntp.conf

	r / R = replace $ end of line dd delete line :wq write and quit (save)	
nano	Simple text editor not available in ESXi	Edit the ntp.conf `nano /etc/ntp.conf`
cat	Concatenate the contents of files and display the content on the screen	List the content of the filename on the screen `cat vmkernel.log`
grep	Find certain text string in a file	Find on the vmkernel.log the error text string `cat vmkernel.log | grep error`

more	Dislay the content of one screen at a time. Use the spacebar for the next screen
	
	q = quit
		List the error output page by page by pressing space or enter (line by line)
		`cat vmkernel.log | grep error | more`
		
		List the error of the vmkernel.log output page by
		`more vmkernel.log`

tail	Output the last part of files	Show the last 15 lines of the vmkernel.log `tail -15 vmkernel.log`
less	Display the contents of a specified file one screen at a time. Use the arrow keys to move up and down through the file	less file
df / vdf	Display the free space on the mounted mount points	Display the free space in human readable format (In MB of GB) df -h
ps	Show names, process IDs and other information for running processes	Shows all proccesses ps –ef

1.2 ESX(i) command line commands

The following command line tools can be used:

- VMware vSphere Command-Line Unterface (vCLI), Installs the vSphere SDK for Perl on Windows or Linux
- Local Console (VMware ESX or ESXi) **esxcfg**
- VMware vSphere Management Assistant (vMA) **vicfg**
- VMware vSphere PowerCLI

vCLI syntax on a vMA appliance:

vCLI command targeted directly at an ESXi host:

vCLI command targeted at an ESXi host through vCenter Server:

Some Service Console commands will not work on ESXi. For example esxcfg-vswif is replace with vicfg-vmknic

In Lockdown mode (disables all direct root access to ESXi hosts) some commands are not possible such as commands that support the `–vihost` option. The following commands cannot run against vCenter and therefore not available in lockdown mode:

- `vicfg-snmp`
- `vifs`
- `vicfg-user`
- `vicfg-cfgbackup`
- `vihostupdate`
- `vmkfstools`
- `esxcli`
- `vicfg-ipsec`

1.3 vMA commands

Command	Description	Examples

vifp
(vi-fastpass)
	Adds an ESX(i) servers to the vMA
	
	`addserver`
	`removeserver`
	`rotatepassword`
	`listservers`
		Add server
		`vifp addserver servername`
		
		List server(s)
		`vifp listservers`
		
		Remove servers
		`Vifp removeserver servername`

vifp-target
 	
(vifp-init)
	Specify ESX(i) server	Initialize vi-fastpass Specify server
		`vifptarget --set esxi-02`
		
		Resets server
		`vifptarget --clear`

1.4 vSphere (v)CLI commands

Most of the commands can be used on VMware ESX(i) on the local console by using **esxcfg-** instead of using **vicfg-** (vCLI and vMA).

Command	Description	Examples

vicfg-hostops	You can use maintenance mode, shut down or reboot an ESX/ESXi host	Enter host in maintenance mode
		`vicfg-hostops --operation enter`
		Exit maintenance mode
		`vicfg-hostops --operation exit`
		
		Reboot host
		`vicfg-hostops <conn_options> --operation reboot --force`

vicfg-cfgbackup	back up and restore the ESXi host configuration data	You can back up configuration data by running vicfg-backup with the -s option.
		`vicfg-cfgbackup <conn_options> -s /tmp/ESX_181842_backup.txt`
		
		Restore ESXi configuration data
		`vicfg-cfgbackup <conn_options> -l /tmp/ESX_181842_backup.txt`

vmkfstools	create and manage a virtual machine file
	
	-X extend (use the entire new size, not the increment)
	m or M = megabytes
	g or G = gigabytes
	-E rename
	-U delete
	-E Rename
	-c create
	-i clone
		Create a 10GB VMDK (defaults to zeroedthick with a BUSLOGIC adapter.
		`vmkfstools –c 10GB <path to VMDK>`
		
		Extend the virtual disk to 10GB
		`vmkfstools –X 10g <path to VMDK>`
		
		Query VMFS
		`vmkfstools –P <path to VMDK>`

vifs	view and manipulate files on remote ESX/ESXi hosts directly	List the content of the datastore iSCSI-1
		`vifs -D [iSCSI-1]`
		
		Move a file into a virtual machine directory.
		`vifs --move '[osdc-cx700-03] vcli_test/test_doc' '[osdc-cx700-03] winxpPro-sp2/test_doc`

svmotion	moves a virtual	The command prompts you for

Command	Description	Examples
	machine's configuration file, and, optionally, its disks, while the virtual machine is running.	the information it needs to complete the storage migration `svmotion --interactive`
vmware-cmd	manage virtual machines perform operations on a virtual machine such as powerstate, register, unregister and manage snapshots	List all registered VMs configuration files `vmware-cmd -l` register to add the virtual machine to the inventory vmware-cmd -s

vicfg-mpath
 	
For for ESX/ESXi 3.5 use vicfg-mpath35
	configure and manage storage multipathing	List all devices with their corresponding paths, state of the path, adapter type, and other information.
		`vicfg-mpath -l`
		
		Display a short listing of all paths.
		`vicfg-mpath --list-compact`
		
		List all multipathing plugins loaded into the system.
		`vicfg-mpath --list-plugins`
		
		Set path by using
		`esxcli <conn_options> nmp device setpolicy --device naa.xxx --psp VMW_PSP_RR`
		
		See the SATPs
		vicfg-mpath -G

vicfg-vmknic	Adds, deletes, and modifies virtual network adapters (VMkernel NICs).	Enable IPv6
		`vicfg-vmknic -6 true`
		List
		`vicfg-vmknic –list`
		
		Add VMkernel for iSCSI
		`vicfg-vmknic --add --ip 172.16.1.200 --netmask 255.255.255.0 -p "iSCSI-1" -mtu 9000`

vicfg-vswitch	Adds or removes virtual switches or vNetwork Distributed Switches, or modifies switch settings.	vSS
		
		Unlink an uplink
		`vicfg-vswitch –U <vmnic> <vSwitch>`
		
		link an uplink
		`vicfg-vswitch –L <vmnic> <vSwitch>`

Command	Description	Examples

		Enable CDP
		`vicfg-vswitch –B vSwitch0`
		
		Create switch
		`vicfg-vswitch -a vSwitch0`
		
		Add jumbo frames
		`vicfg-vswitch --mtu 9000 vSwitch0`
		
		Create portgroup
		`vicfg-vswitch -add-pg iSCSI-1 vSwitch0`
		
		ADD Pnic to vSwitch
		`vicfg-vswitch -L vmnic5 vSwitch0`
		
		vDS
		
		Add an uplink adapter to a distributed virtual port
		`–add-dvp-uplink | –P`
		
		Deletes an uplink adapter from a port on the distributed virtual switch.
		`–del-dvp-uplink | –Q <adapter_name> –dvp <DVPort_id><dvswitchname>`
		
		Name of a distributed virtual port
		`–dvp | –V`
		
		unlink an DVS uplink
		`vicfg-vswitch –Q <vmnic> - V <dvport ID or vmnic> <dvswitch>`
		
		adds an DVS uplink
		`vicfg-vswitch –P <vmnic> - V <dvport ID or vmnic> <dvswitch>`

net-dvs	is a debugging utility for Distributed vSwitch	
vicfg-snmp	Manages SNMP	Set SNMP `vicfg-snmp –server <hostname> –username <username> –password <password> -t target address>@<port>/<community>`

Command	Description	Examples

		`vicfg-snmp -server esxi-02 -t vcenter/public`
		
		Enable SNMP
		`vicfg-snmp -server <hostname> -username <username> -password <password> -enable`
		
		Send test trap
		`vicfg-snmp -server <hostname> -username <username> -password <password> -p <port>`

vicfg-volume	supports resignaturing a snapshot volume and mounting and unmounting the volume.	see a list of copied volumes
		`vicfg-volume -l`
		
		resignature the volume
		`vicfg-volume -r <previous VMFS label | UUID`
		
		mount the volume without resignaturing
		`esxcfg-volume -M <previous VMFS label | UUID`

vicf-advcfg	offers a number of low-level advanced options.	Enable OEM CIM providers as follows: vicfg-advcfg <conn_options> -s 1 CIMOEMProvidersEnabled

vicfg-module	setting and retrieving VMkernel module options	Run vicfg-module --list to list the modules on the host.
		`vicfg-module <conn_options> --list`
		
		Configures a supported network interface to use NetQueue.
		`vicfg-module <conn_options> --set-options 'intr_type_2 rx_ring_num=8' s2io`
		
		Verifies that the NetQueue module is configured.
		`vicfg-module <conn_options> --get-options s2io`

esxtop / resxtop	Realtime monitoring ESX(i) statistics
	
	Default configuration file = .esxtop4rc
	
	resxtop has no fastpass
		Batch mode
		Allows collection that will be captured to a file.
		`esxtop -b > file.csv`
		
		Load esxtop with config file
		`esxtop -c <config_file>`

Command	Description	Examples

	f = Edit fields to display
	v= view VM stats only
	W = Save config file
		Replay mode
		Esxtop will replay resource utilization stats that were collected using the vm-support command. The capture from the vm-support command would have been generated by the following command
		`vm-support -s -d duration -I interval`
		
		You would then unzip/untar this for
		`esxtop -R <path to dir>`

vscsistats	gather storage performance data
	
	only available on ESX/ESXi, not in vMA
		Find IDs of the VMs
		`vscsistats -L`
		Start monitoring
		`vscsistats -S -W id`
		Display
		`vscsistats -P all -W id`
		Stop monitoring
		`vscsistats -x`

esxcli
 	
(doesn't work with vi-fastpass)
 	
`vicfg-scsidevs -vmfs (list ID naa.)`
	Configure iSCSI, Multipathing and list, stop VMs
	
	Configure multipathing
	
	set path policy
	
	NMP (native Multipathing plugin)
	
	SATP (Storage Array Type Plugin) = path failover
	
	PSP (Path Selection Plugin) = load balancing policy
	MRU, Fixed, Round Robin, Fixed_AP
	
	To set round robin use –bytes or –iops
	
	Default 1000 iops
		LIST SATP
		`esxcli nmp satp list`
		
		LIST PSP
		`esxcli nmp psp list`
		
		Configure the default PSP for a SATP
		`esxcli nmp satp setdefaultpsp -psp VMW_PSP_RR -satp VMW_SATP_DEFAULT_AA`
		
		Change a specific path
		`esxcli nmp device setpolicy --device naa.xxx --psp VMW_PSP_RR`
		
		Viewing the multipathing policy
		`esxcli -server <host> --username root -password <password> nmp device list`
		
		Retrieve path selection settings for a device that is using the roundrobin PSP.
		`esxcli <conn_options> nmp roundrobin getconfig --device na.xxx`
		
		Sets the device specified by --device to switch to the next path each time 12345 bytes have been sent

Command	Description	Examples

		along the current path.
		`esxcli <conn_options> nmp roundrobin setconfig --type=iops --iops 4200 --device naa.xxx`
		
		Sets the device specified by --device to switch to the next path each time 1 iop have been sent
		along the current path.
		esxcli nmp round robin setconfig –type "iops"-iops 1 –device naa.
		
		EMC
		`esxcli nmp satp setdefaultpsp –psp VMW_PSP_RR –satp VMW_SATP_SYMM`

	iSCSI port binding
	
	• Create multiple VMkernel ports
	• Configure each VMkernel port for a dedicated pNIC (other pNICS unused)
	• Bind each VMkerne; port to the iSCSI initiator
	• Rescan storage
	• Enable iSCSI
		iSCSI
		
		Connect vmk1 to vmhba33
		`esxcli swiscsi nic add -n vmk1 -d vmhba33`
		
		`esxcli swiscsi nic add –n <port_name> –d <vmhba>`
		
		Display configuration
		`esxcli swiscsi nic list`
		
		Rescan storage
		`vicfg-rescan vmhba33`
		
		List All running VMs
		`esxcli vms vm list`
		
		Stop the virtual machine by running the following command.
		`esxcli vms vm kill --type <kill_type> --world-id <ID>`

vmware-umds	VMware Update Manager Download Service	Configure to only download the host patches
		`vmware-umds.exe --set-config –enable host 1 –enable win 0 –enable`
		
		Start downloading patches
		`vmware-umds.exe --download`

Command	Description	Examples

		Set the path where the patches will be stored
		`vmware-umds.exe --set-config –path c:\download`
		
		Export patches to VUM
		`vmware-umds.exe –E –exportstore path`

vicfg-syslog	All ESX/ESXi hosts run a syslog service (syslogd), which logs messages from the VMkernel and other system components to a file.	Run vicfg-syslog --show to display the syslog server configuration.
		`vicfg-syslog -i`
		
		Run vicfg-syslog --setserver to set a remote server as the syslog server.
		`vicfg-syslog -s mysyslogserver`
		
		Run vicfg-syslog --setport to set the port for the syslog server.
		`vicfg-syslog -p <port>`

vilogger	Collect ESX/ESXi logs to the vMA
	
	ESX logs collected:
	messages
	vmkernel
	vmksummary
	vmkwarning
	hostd.log
	vpxa.log
	
	ESXi logs collected:
	Messages
	Hostd.log
	Vpxa.log
	
	vCenter logs collected:
	vpxd.log
	
	Defaults:
	collectionperiod = 10
	maxfilesize = 5MB
	numrotations = 5
	
	Logs are default placed under /var/logl/vmware on the vMA
		Enables log collection for the testserver vMA target using default values for collection period, log rotation, and log size.
		`vilogger enable –server testserver`
		
		Enable log collection for all vMA targets using default values for collection period, log rotation,
		`vilogger enable`
		
		diable vilogger
		`vilogger disable`

vicfg-dns	change/update DNS	Specify the DNS server using the --dns

Command	Description	Examples
		option and a comma-separated list of hosts, in order of preference. `vicfg-dns <conn_options --dns <dns1,dns2>`

vicfg-nics	Manages the ESX/ESXi host's NICs (uplink adapters).	List settings.
		`vicfg-nics  -l`
		
		Set vmnic2 to auto-negotiate its speed and duplex settings.
		`vicfg-nics <conn_options> -a vmnic2`

vicfg-ntp	Specifies the NTP (Network Time Protocol) server	Run vicfg-ntp --start to start the service.
		`vicfg-ntp --start`
		
		Add NTP server.
		`vicfg-ntp -a 192.168.250.2`

vicfg-route	Lists or changes the ESX/ESXi host's route entry (IP gateway)	add a route to 192.168.100.0 through 192.168.0.1 `vicfg-route -a 192.168.100.0/24 192.168.0.1`

vicfg-iscsi	configuration and property retrieval for software or hardware iSCSI initiators.
	
	`-D --discovery`
	`-S --static`
	`-A --authentication`
	`-P --phba`
	`-T --target`
	`-L --lun`
	`-N --network (Independent hardware iSCSI only)`
	`-p --pnp (Independent hardware iSCSI only)`
	`-I --iscsiname`
	`-W --parameter`
	`-E --swiscsi`
	`-H --adapter`
	`Suboption is one of the following operations:`
	`-l --list`
		Enable iSCSI
		`Esxcfg-swiscsi –e (enable iSCSI)`
		
		Determine the HBA type and retrieve the HBA ID.
		`vicfg-iscsi --adapter –list`
		
		With static discovery, you must specify the host name or IP address and the iSCSI name of the storage target. You run the following command:
		`vicfg-iscsi <conn_options> --static –add --ip <ip_addr | domain_name> --name <iscsi_name> <adapter_name>`

Command	Description	Examples
	`-a --add` `-r --remove`	
vmkiscsi-tool	Enable,rescan	Vmkiscsi-tool –D –a 10.0.0.1:3260 vmhba33
vmkping	VMkernel ping	vmkping –d –s 9000 <ip address or destination>

vicfg-nas	manipulates NAS file systems associated with ESX/ESXi hosts
	
	-d delete NAS mount point
		List all known NAS file systems.
		`vicfg-nas -l`
		
		Add a new NAS file system to the ESX/ESXi host.
		`vicfg-nas --add --nasserver dir42.eng.vmware.com -s /<mount_dir>nfsstore-dir42`

vicfg-rescan	Perform a rescan operation each time you reconfigure your storage setup	Run vicfg-rescan, specifying the adapter name. `vicfg-rescan vmhba1`

vicfg-scsidevs	displays information about available LUNs on ESX/ESXi 4.x hosts.	List all logical devices known on this system with detailed information.
		`vicfg-scsidevs -list`
		
		Print mappings for VMFS volumes to the corresponding partition, path to that partition, VMFS uuid, extent number, and volume names.
		`vicfg-scsidevs –vmfs`
		
		Print HBA devices with identifying information.
		`vicfg-scsidevs -hbas`

vicfg-firewall	Manage the Service Console firewall
	
	Only for VMware ESX!
	
	-q query
	-o open port
		Enable/Disable pre-configured services
		esxcfg –e service
		esxcfg –d service
		
		Allow syslog outgoing traffic
		`esxcfg-firewall -o 514,udp,out,syslog`
		
		Close a port
		`esxcfg-firewall –c 514,udp,out,syslog`
		
		View security level
		`esxcfg-firewall –q incoming o`
		`esxcfg-firewall –q outgoing`
		
		Set medium security
		`esxcfg-firewall -- allowOutgoing --blockIncoming`

Command	Description	Examples

		Set low security
		`esxcfg-firewall --allowIncoming –allowOutgoing`
		
		Set high security (default)
		`esxcfg-firewall --blockIncoming –blockOutgoing`

vm-support	Creates support bundle	Creates Support bundle `vm-support`

vihostupdate
 	
For ESXi 3.5 host use Vihostupdate35
	The vihostupdate command applies software updates to ESX/ESXi images and installs and updates ESX/ESXi extensions such as VMkernel modules, drivers, and CIM providers.	Verify that the bulletins are installed on your ESX/ESXi host.
		`vihostupdate <conn_options> --query`
		
		Adds a packages to an ESXi server
		`vihostupdate.pl --server <IP address of ESXi 4 host> -i -b <name.zip>`

vicfg-user	create, modify, delete, and list local direct access users and groups of users on an ESX/ESXi host
	
	If you create a user without specifying the role (--role), the user has no permissions.
		List the existing users.
		`vicfg-user -e user -o list`
		
		Add a new user, specifying a login ID and password.
		`vicfg-user -e user -o add -l user27 -p 27_password`
		
		Add group40 to the existing groups. If you do not specify a group ID, the system assigns an ID for the group.
		`vicfg-user <conn_options> -e group -o add -d group40 -D 55`

1.5 High Availiability (HA) attributes:

HA advanced attributes	Description	Examples
das.slotcpuinmhz	Defines the maximum bound on the CPU slot size. If this option is used, the slot size is the smaller of this value or the maximum CPU	`das.vmCpuMinMHz = <value>`

HA advanced attributes	Description	Examples
	reservation of any powered-on virtual machine in the cluster. Default 256MHz	
das.slotmeminmb	Defines the maximum bound on the memory slot size. If this option is used, the slot size is the smaller of this value or the maximum memory reservation plus memory overhead of any powered-on virtual machine in the cluster.	
das.usedefaultisolationaddress	By default, VMware HA uses the default gateway of the console network as an isolation address. This attribute specifies whether or not this default is used (true|false).	`das.usedefaultisolationaddress = false`
das.failuredetectiontime	Changes the default failure detection time for host monitoring. The default is 15000 milliseconds (15 seconds). This is the time period, when a host has received no heartbeats from another host, that it waits before declaring that host as failed.	`das.failuredetectiontime = 60000`
das.isolationaddress[...]	Sets the address to ping to determine if a host is isolated from the network. This address is pinged only when	`das.isolationaddress1 to das.isolationaddress10 = <value>`

HA advanced attributes	Description	Examples
	heartbeats are not received from any other host in the cluster. If not specified, the default gateway of the management network is used. This default gateway has to be a reliable address that is available, so that the host can determine if it is isolated from the network. You can specify multiple isolation addresses (up to 10) for the cluster: das.isolationaddress X, where X = 1-10. Typically you should specify one per management network. Specifying too many addresses makes isolation detection take too long.	
das.failuredetectioninterval	Changes the heartbeat interval among VMware HA hosts. By default, this occurs every 1000 milliseconds (1 second).	
das.preferredPrimaries	Select the primary HA hosts This setting is unsupported!	`das.preferredPrimaries = 172.16.1.1, 172.16.1.2,172.16.1.3`

NOTE If you change the value of any of the following advanced attributes, you must disable and then re-enable VMware HA before your changes take effect.

- das.isolationaddress[...]
- das.usedefaultisolationaddress
- das.failuredetectiontime
- das.failuredetectioninterval
- das.isolationshutdowntimeout

For all HA advanced attributes see the vsp_41_availability PDF

1.6 Basic PowerCLI command

Command	Description	Examples
set--ExecutionPolicy	Set the scripts allowed to execute. Policies: • Restricted • AllSigned • RemoteSigned • Unrestricted	Allow the execution of all local scripts `Set-ExecutionPolicy remotesigned`
add-PSSnapin VMware.VimAutomation.Core	Add the VMware PowerCLI functionality to the Powershell environment	
add-PSSnapin VMware.VUMAutomation	ADD the VMware Update Manager CMDlets	
connect-viserver	Connect to ESX(i) or vCenter host	Connect to vCenter host `connect-viserver vcenter01`
disconnect--viserver	Disconnect from ESX(i) or vCenter host	Disconnect from vCenter host `disconnect-viserver vcenter01`

get-vm	List all VMs on the ESX(i) or vCenter server	List all VMs
		`Get-vm`
		
		List all VMs with the name DC01
		`Get-vm "DC01"`

get-command	List all the Powershell commands available	`Get-command`
get-member	List all properties and methods	List all properties and methods for the DC01 VM `Get-vm "DC01"| get-member`
where-object	Using filters	List all VMs that have more than 1 CPU `Get-VM | where-object {$_.numcpu -gt 1}`

get-help	Gets help on a specific cmdlet	List all cmdlets with *vmotion* in it.
		`Get-help *vmotion*`
		Show the examples of the cmdlet get-vm
		`Get-help get-VM -Examples`

Get-powerCLIVersion	Get the version of PoweCLI	`Get-powerCLIVersion`