ESXcli интерфейс

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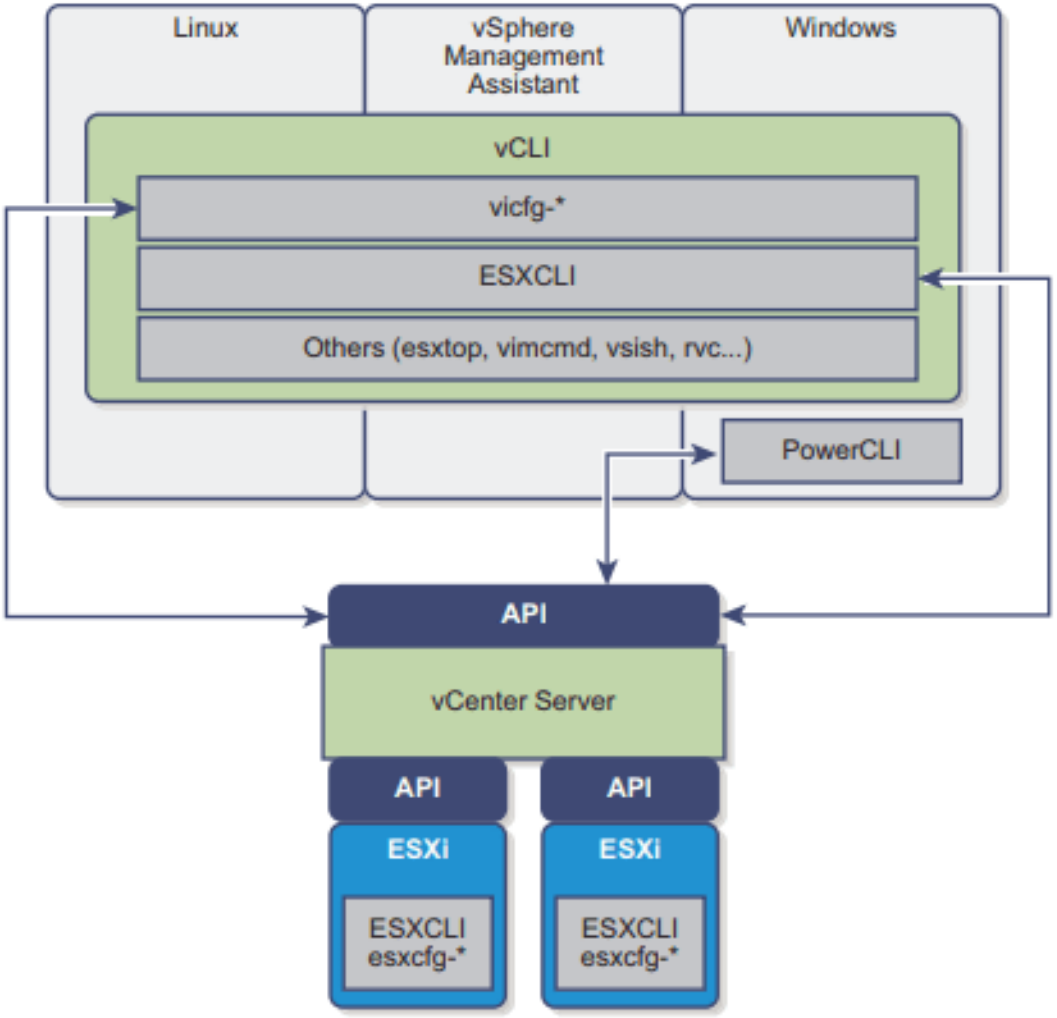
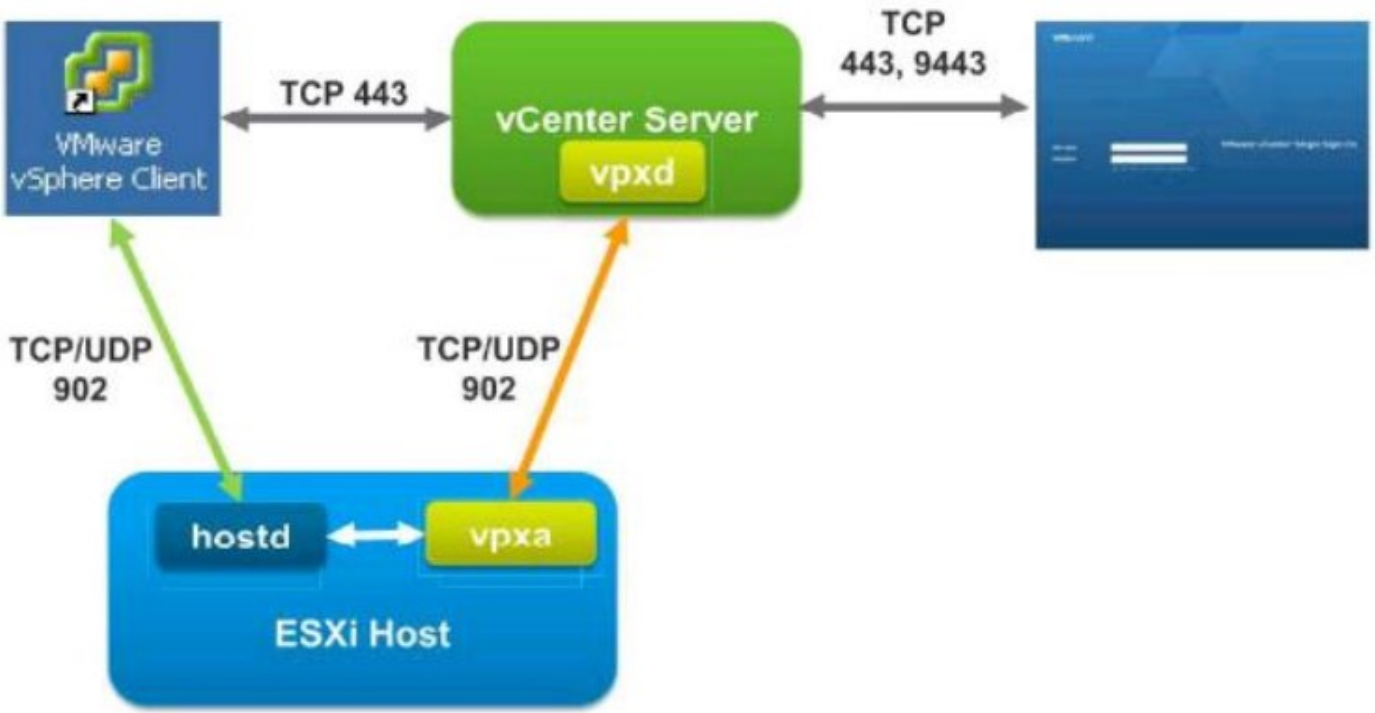
ESX command line interface



ESX command line interface

- ESXcli commands – управляват редица аспекти на ESXi хост. Могат да се изпълняват от PowerCLI с командлета ***Get-EsxCli***.
- vCLI – пакет за отдалечено управление на хост от Windows или Linux.
- vicfg – команди за отдалечено управление на хост (остарели).
- esxcfg – команди в ESX shell (остарели).
- Vmware PowerCLI – интерфейс на vSphere за Windows PowerShell. Включва „командлети“ (cmdlet).

Услуги за управление

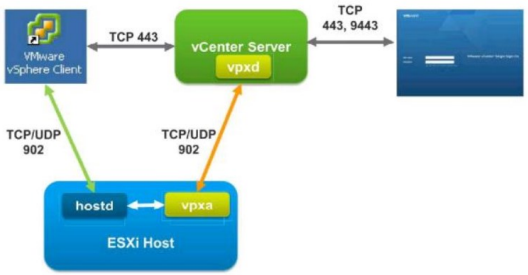


Управляващи услуги

- HOSTD – услуга, реализираща основния управляващ канал между ESX хост и Vmkernel. Ако агентът спре, хостът се откача от vCenter и не може да се управлява.

- рестартиране

```
/etc/init.d/hostd restart
/etc/init.d/hostd status
```

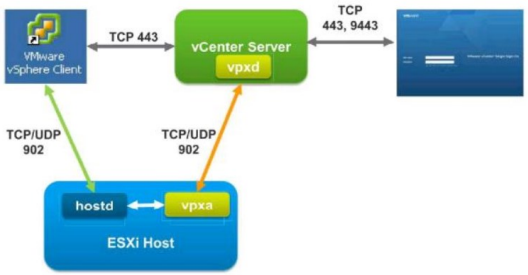


Управляващи услуги

- VPXA – услуга, реализираща връзката между vCenter и *hostd*. Има я само при наличие на vCenter. Стартира се при добавяне на хоста към инвентара на vCenter.

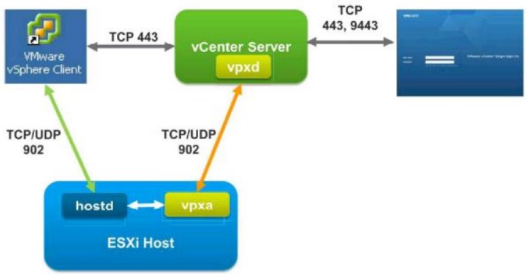
- рестартиране

```
/etc/init.d/vpxa restart
/etc/init.d/vpxa status
```



Управляващи услуги

- VPXD – услуга на vCenter. Ако е спряна, няма да може да се осъществи връзка между vSphere клиента и vCenter.



vCenter

- Приложение, позволяващо управление на виртуална инфраструктура от централно място.
- Може да се инсталира на поддържани платформи на Windows или да се използва като предварително конфигуриран Linux (vCenter Server Appliance).
- Необходим е за използване на услуги като High Availability, Fault Tolerance, vMotion.
- Единична инстанция може да поддържа до 1000 ESX хоста, 10 000 стартирани виртуални машини и 15 000 регистрирани виртуални машини.

vSphere client

194.141.30.125 - vSphere Client

File Edit View Inventory Administration Plug-ins Help

Home ▸ Inventory ▸ Inventory

ESXi
ESXi_Ivo
PowerManager
vCenter 6.0
VT vCenter Server Ap
Win-1
Win-2
WServer2008Zabbix
Zabbix

localhost.localdomain VMware ESXi, 5.5.0, 2068190

Getting Started | Summary | Virtual Machines | Resource Allocation | Performance | Configuration | Local Users & Groups

Configuration Issues
ESXi Shell for the host has been enabled
SSH for the host has been enabled

General

Manufacturer:	FUJITSU
Model:	PRIMERGY TX200 S7
CPU Cores:	6 CPUs x 1,899 GHz
Processor Type:	Intel(R) Xeon(R) CPU ...
License:	VMware vSphere 5 H...
Processor Sockets:	1
Cores per Socket:	6
Logical Processors:	12
Hyperthreading:	Active
Number of NICs:	2
State:	Connected
Virtual Machines and	9
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-5.5.0...
Profile Compliance:	N/A
DirectPath I/O:	Supported

Resources

CPU usac **472 MHz** — Capacity 6 x 1,899 GHz

Memory usa **22358,00 MB** — Capacity 32734,23 MB

Storage	Drive Type	Capacity	
datastore1	Non-SSD	2,72 TB	2,

Network	Type
VM Network	Standard port group
Internal net	Standard port group

Fault Tolerance

Fault Tolerance Version: 5.0.0-5.0.0-5.0.0
Refresh Virtual Machine
Total Primary VMs: 0
Powered On Primary VMs: 0
Total Secondary VMs: 0
Powered On Secondary VMs:

Host Management

Manage this host through VMware vCenter.

Commands

New Virtual Machine
New Resource Pool
Enter Maintenance Mode
Reboot

Recent Tasks

Name, Target or Status contains: Clear

Name	Target	Status	Details	Initiated by	Requested Start...	Start Time	Completed Time

Tasks root

vSphere web client

vmware vSphere Web Client

vCenter

localhost

Tokyo DC

esxi1.mydomain.local

linux

VMware vCenter Server

localhost Actions

Getting Started | Summary | Monitor | Manage | Related Objects

Settings | Alarm Definitions | Tags | Permissions | Sessions | Storage Providers | Scheduled Tasks

General

Licensing

Message of the Day

Advanced Settings

vCenter Server Settings

Statistics	Estimated space required: 16.71 GB	
Runtime settings	vCenter Server name: localhost	
User directory	60 seconds timeout	
Mail	--	
SNMP receivers		
Ports	HTTP: 80	HTTPS: 443
Timeout settings	Normal: 30	Long: 120
Logging options	info	
Database	Max connections: 50	
SSL settings	vCenter Server requires verified SSL certificates	
Customer experience improvement program	Disabled	

ESXCLI команди

esxcli [dispatcher options] <namespace> [<namespace> ...] <cmd> [cmd options]

- Dispatcher options – предефинирани опции за информация за връзката – хост, потребителско име. Не се изисква при използване на команди от ESX shell.
- Namespace – групиране на ESXCLI команди.
- Command - команда

- Навсякъде може да се използва помощна информация с

```
-- help
```

ESXCLI namespace

Namespace	Описание
device	Команди за устройства
esxcli	Всички esxcli команди.
hardware	Информация за хардуера.
esxcli iscsi	iSCSI namespace for monitoring and managing hardware and software iSCSI.
network	Управление на виртуални мрежи, виртуални комутатори и мрежови интерфейси
software	Управление и инсталиране на софтуерни пакети
storage	Управление на сториджа
system	Мониторинг и управление на системата
vm	Управление на виртуални машини

Изпълнение на команди

```
~ # esxcli system
Usage: esxcli system {cmd} [cmd options]

Available Namespaces:
  boot                  Operations relating to host boot that allow
                        manipulation of VMkernel boot time configuration.
  coredump              Operations pertaining to the VMkernel Core dump
                        configuration.
  module                Operations that allow manipulation of the VMkernel
                        loadable modules and device drivers. Operations
                        include load, list and setting options.
  process               Commands relating to running processes.
  secpolicy             Options related to VMkernel access control subsystem.
                        These options are typically in place for specific
                        workarounds or debugging. These commands should be
                        used at the direction of VMware Support Engineers.
  settings              Operations that allow viewing and manipulation of
                        system settings.
  stats                 Access to various system statistics
  syslog                Operations relating to system logging
  visorfs               Operations pertaining to the visorfs memory filesytem.
  hostname              Operations pertaining the network name of the ESX
                        host.
  maintenanceMode       Command to manage the system's maintenance mode.
  shutdown              Command to shutdown the system.
  snmp                  Commands pertaining to SNMPv1/v2c/v3 Agent
                        configuration.
  time                  Commands to get and set system time.
  uuid                  Get the system UUID
  version               Commands to get version information.
  welcomemsg            Commands to get and set the welcome banner for DCUI.

~ # esxcli system version
Usage: esxcli system version {cmd} [cmd options]

Available Commands:
  get                   Display the product name, version and build
                        information.
~ # esxcli system version
```

Команди

 # esxcli esxcli command list

```
~ # esxcli esxcli command list
Namespace                                                  Command
-------------------------------------------------------    ------------
device.alias                                               get
device.alias                                               list
esxcli.command                                             list
fcoe.adapter                                               list
fcoe.nic                                                   disable
fcoe.nic                                                   discover
fcoe.nic                                                   list
graphics.device                                            list
graphics.vm                                                list
hardware.bootdevice                                        list
hardware.clock                                             get
hardware.clock                                             set
hardware.cpu.cpuid                                         get
hardware.cpu.global                                        get
hardware.cpu.global                                        set
hardware.cpu                                               list
hardware.ipmi.fru                                          get
hardware.ipmi.fru                                          list
hardware.ipmi.sdr                                          get
hardware.ipmi.sdr                                          list
hardware.ipmi.sel                                          clear
hardware.ipmi.sel                                          get
hardware.ipmi.sel                                          list
hardware.memory                                            get
```

Команди за системата

```
# esxcli system version get
```

```
~ # esxcli system version get
   Product: VMware ESXi
   Version: 5.5.0
   Build: Releasebuild-2068190
   Update: 2
~ #
```

Команди за системата

```
# esxcli system hostname get
```

```
~ # esxcli system hostname get
   Domain Name:
   Fully Qualified Domain Name: localhost
   Host Name: localhost
~ #
~ #
```

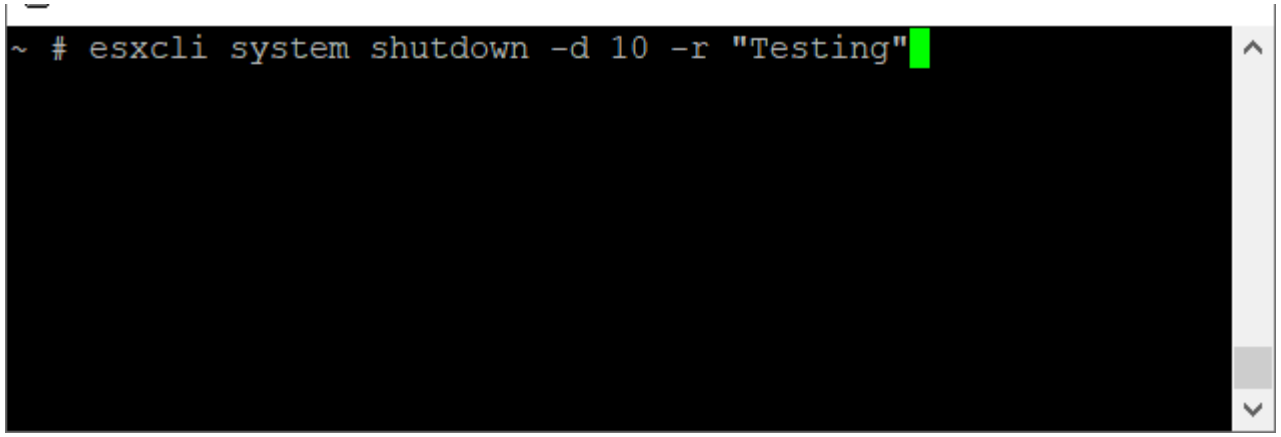
Команди за системата

```
# esxcli system maintenanceMode set –enable true
```

```
[root@esx-c:~] esxcli system maintenanceMode set --enable true
[root@esx-c:~] esxcli system maintenanceMode get
Enabled
[root@esx-c:~]
```

Команди за системата

```
# esxcli system shutdown -d 10 -r “Testing”
```



Команди за мрежата

```
# esxcli network ip interface ipv4 get
```

```
~ # esxcli network ip interface ipv4 get
Name   IPv4 Address    IPv4 Netmask     IPv4 Broadcast  Address Type  DHCP DNS
----   --------------  ---------------  --------------  ------------  --------
vmk0   1[redacted]     255.255.255.192  1[redacted]     STATIC           false
~ #
```

Команди за мрежата

```
# esxcli network ip interface list
```

```
~ # esxcli network ip interface list
vmk0
   Name: vmk0
   MAC Address: 00:19:99:e3:6e:cc
   Enabled: true
   Portset: vSwitch0
   Portgroup: Management Network
   Netstack Instance: defaultTcpipStack
   VDS Name: N/A
   VDS UUID: N/A
   VDS Port: N/A
   VDS Connection: -1
   MTU: 1500
   TSO MSS: 65535
   Port ID: 33554436
~ #
```

Команди за мрежата

```
# esxcli network ip connection list
```

```
~ # esxcli network ip connection list
Proto  Recv Q  Send Q  Local Address         Foreign Address    State
  World ID  CC Algo  World Name
-----  ------  ------  --------------------  -----------------  -----------
  --------  -------  ---------------
tcp         0       0  127.0.0.1:8307        127.0.0.1:22481    ESTABLISHED
     34137  newreno  hostd-worker
tcp         0       0  127.0.0.1:22481       127.0.0.1:8307     ESTABLISHED
     33953  newreno  rhttpproxy-work
tcp         0       0  127.0.0.1:443         127.0.0.1:25369    ESTABLISHED
     33953  newreno  rhttpproxy-work
tcp         0       0  127.0.0.1:25369       127.0.0.1:443      ESTABLISHED
  32198373  newreno  python
tcp         0       0  127.0.0.1:5988        127.0.0.1:51472    ESTABLISHED
     34991  newreno  sfcb-HTTP-Daemo
tcp         0       0  127.0.0.1:51472       127.0.0.1:5988     ESTABLISHED
     34135  newreno  hostd-worker
tcp         0       0  127.0.0.1:5988        127.0.0.1:20668    TIME_WAIT
         0
```

Команди за мрежата

```
# esxcli network ip route ipv4 list
```

```
~ # esxcli network ip route ipv4 list
Network         Netmask          Gateway         Interface  Source
-------------   ---------------  -------------   ---------  ------
default         0.0.0.0          1[redacted]     vmk0       MANUAL
[redacted]      255.255.255.192  0.0.0.0         vmk0       MANUAL
~ #
```

Команди за мрежата

```
# esxcli network ip neighbor list
```

```
~ # esxcli network ip neighbor list
Neighbor        Mac Address        Vmknic    Expiry  State  Type
-------------   -----------------  ------  --------  -----  -------
1[redacted]     00:1e:0b:f9:a0:cf  vmk0    1198 sec         Unknown
1[redacted]     00:20:85:f0:f4:2c  vmk0     438 sec         Unknown
~ #
```

Команди за мрежата

```
# esxcli network vm list
```

```
~ # esxcli network vm list
World ID  Name          Num Ports  Networks
--------  ------------  ---------  ----------
   35284  PowerManager          1  VM Network
   35644  vCenter_6.0           1  VM Network
~ #
```

Команди за софтуера

 # esxcli software vib list

```
~ # esxcli software vib list
Name                           Version                              Vendor
Acceptance Level  Install Date
-----------------------------  ----------------------------------  ------
----------------  ------------
vsphered                       1.1-1                                Dev
VMwareAccepted    2015-06-17
ata-pata-amd                   0.3.10-3vmw.550.0.0.1331820          VMware
VMwareCertified   2005-05-26
ata-pata-atiixp                0.4.6-4vmw.550.0.0.1331820           VMware
VMwareCertified   2005-05-26
ata-pata-cmd64x                0.2.5-3vmw.550.0.0.1331820           VMware
VMwareCertified   2005-05-26
ata-pata-hpt3x2n               0.3.4-3vmw.550.0.0.1331820           VMware
VMwareCertified   2005-05-26
ata-pata-pdc2027x              1.0-3vmw.550.0.0.1331820             VMware
VMwareCertified   2005-05-26
ata-pata-serverworks           0.4.3-3vmw.550.0.0.1331820           VMware
VMwareCertified   2005-05-26
ata-pata-sil680                0.4.8-3vmw.550.0.0.1331820           VMware
```

Команди за сториджа

```
# esxcli storage core device list
```

```
~ # esxcli storage core device list
naa.60030057010f52a00968b46f1abb88ec
   Display Name: Local LSI Disk (naa.60030057010f52a00968b46f1abb88ec)
   Has Settable Display Name: true
   Size: 2861056
   Device Type: Direct-Access
   Multipath Plugin: NMP
   Devfs Path: /vmfs/devices/disks/naa.60030057010f52a00968b46f1abb88ec
   Vendor: LSI
   Model: RAID 5/6 SAS 6G
   Revision: 2.13
   SCSI Level: 5
   Is Pseudo: false
   Status: on
   Is RDM Capable: false
   Is Local: true
   Is Removable: false
   Is SSD: false
   Is Offline: false
   Is Perennially Reserved: false
   Queue Full Sample Size: 0
   Queue Full Threshold: 0
   Thin Provisioning Status: unknown
   Attached Filters:
   VAAI Status: unsupported
   Other UIDs: vml.020000000060030057010f52a00968b46f1abb88ec524149442035
```

Команди за сториджа

```
# esxcli storage filesystem list
```

```
~ # esxcli storage filesystem list
Mount Point                                       Volume Name  UUID                                 Mounted  Type            Size          Free
-------------------------------------------------  -----------  -----------------------------------  -------  ------  -------------  -------------
/vmfs/volumes/429527ac-338ffe29-9016-001999e36ecc  datastore1   429527ac-338ffe29-9016-001999e36ecc     true  VMFS-5  2991981592576  2593904394240
/vmfs/volumes/429527ad-78fb55a4-5d11-001999e36ecc               429527ad-78fb55a4-5d11-001999e36ecc     true  vfat       4293591040     4267769856
/vmfs/volumes/5e65eb77-f27923da-38fd-17ed90c15ea6               5e65eb77-f27923da-38fd-17ed90c15ea6     true  vfat        261853184       81133568
/vmfs/volumes/af58bb79-9106b7de-f5e2-12c86bc348a5               af58bb79-9106b7de-f5e2-12c86bc348a5     true  vfat        261853184       81137664
/vmfs/volumes/429527a1-0c91aaab-32aa-001999e36ecc               429527a1-0c91aaab-32aa-001999e36ecc     true  vfat        299712512       96935936
~ #
```

Команди за процеси

 # esxcli vm process list

```
~ # esxcli vm process list
PowerManager
   World ID: 35284
   Process ID: 0
   VMX Cartel ID: 35281
   UUID: 56 4d 2c d9 cf 07 d3 b7-d9 f9 c8 93 d7 ad a1 4a
   Display Name: PowerManager
   Config File: /vmfs/volumes/429527ac-338ffe29-9016-001999e36ecc/Po
werManagaer/PowerManagaer.vmx

vCenter 6.0
   World ID: 35644
   Process ID: 0
   VMX Cartel ID: 35643
   UUID: 56 4d a9 cb 6f 78 76 d9-a0 27 6c 4a 72 8c 1a 91
   Display Name: vCenter 6.0
   Config File: /vmfs/volumes/429527ac-338ffe29-9016-001999e36ecc/vC
enter 6.0/vCenter 6.0.vmx
~ #
```

Команди за процеси

```
# esxcli vm process kill -w=World_id
```

```
~ # esxcli vm process list
PowerManager
   World ID: 35284
   Process ID: 0
   VMX Cartel ID: 35281
   UUID: 56 4d 2c d9 cf 07 d3 b7-d9 f9 c8 93 d7 ad a1 4a
   Display Name: PowerManager
   Config File: /vmfs/volumes/429527ac-338ffe29-9016-001999e36ecc/Po
werManagaer/PowerManagaer.vmx

vCenter 6.0
   World ID: 35644
   Process ID: 0
   VMX Cartel ID: 35643
   UUID: 56 4d a9 cb 6f 78 76 d9-a0 27 6c 4a 72 8c 1a 91
   Display Name: vCenter 6.0
   Config File: /vmfs/volumes/429527ac-338ffe29-9016-001999e36ecc/vC
enter 6.0/vCenter 6.0.vmx
~ #
```

Команди за хардуер

 # esxcli hardware cpu list

```
~ # esxcli hardware cpu list
CPU:0
   Id: 0
   Package Id: 0
   Family: 6
   Model: 45
   Type: 0
   Stepping: 7
   Brand: GenuineIntel
   Core Speed: 1899999703
   Bus Speed: 99999984
   APIC ID: 0x0
   Node: 0
   L2 Cache Size: 262144
   L2 Cache Associativity: 8
   L2 Cache Line Size: 64
   L2 Cache CPU Count: 2
   L3 Cache Size: 15728640
   L3 Cache Associativity: 20
   L3 Cache Line Size: 64
   L3 Cache CPU Count: 2

CPU:1
   Id: 1
   Package Id: 0
   Family: 6
   Model: 45
   Type: 0
```

Команди за хардуер

```
# esxcli hardware platform get
```

```
~ # esxcli hardware platform get
Platform Information
   UUID: 0x75 0x30 0x28 0x86 0x88 0x28 0x79 0x46 0x8b 0x22 0x9d 0xd7
 0xb4 0xb0 0x9b 0x23
   Product Name: PRIMERGY TX200 S7
   Vendor Name: FUJITSU
   Serial Number: YLFK008059
   IPMI Supported: true
~ #
```

Манипулиране с виртуални машини

```
# vim-cmd
```

```
~ # vim-cmd
Commands available under /:
hbrsvc/        internalsvc/  solo/        vmsvc/
hostsvc/       proxysvc/     vimsvc/       help
~ #
```

```
~ # ls -l /bin/vim-cmd
lrwxrwxrwx    1 root     root            10 Aug 23  2014 /bin/vim-cmd -> /bin/hostd
~ #
```

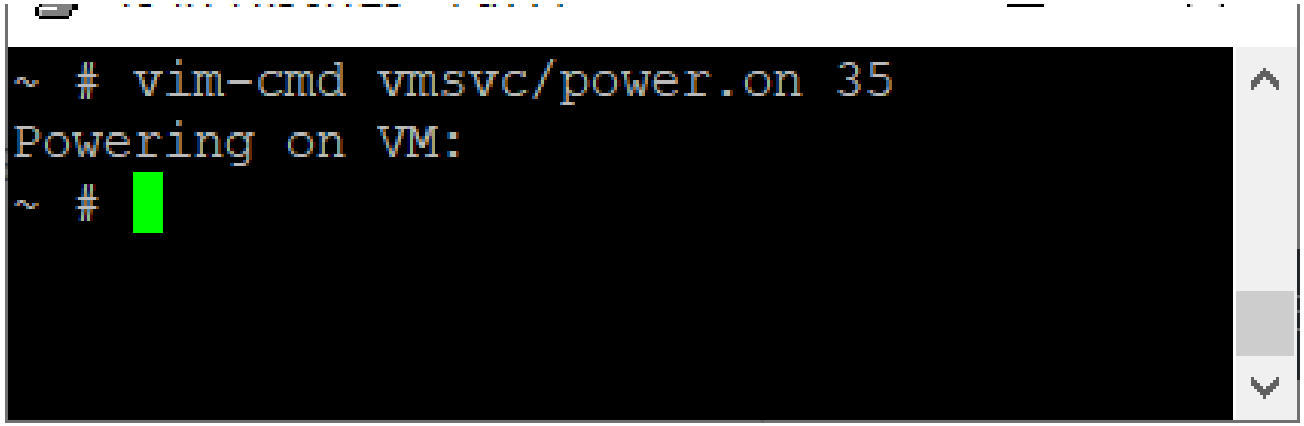
Манипулиране с виртуални машини

 # vim-cmd vmsvc/getallvms

```
~ # vim-cmd vmsvc/getallvms
Vmid              Name                                                  File
                                Guest OS          Version   Annotation
12      ESXi                          [datastore1] ESXi/ESXi.vmx
                          otherGuest64            vmx-08
14      Zabbix                        [datastore1] Zabbix/Zabbix.vmx
                          otherLinux64Guest       vmx-09
20      WServer2008Zabbix             [datastore1] WServer2008Zabbix/WServer2008Zabbix.
vmx                       windows7Server64Guest   vmx-08
21      ESXi_Ivo                      [datastore1] ESXi_Ivo/ESXi_Ivo.vmx
                          otherGuest64            vmx-08
23      VT vCenter Server Appliance   [datastore1] VT vCenter Server Appliance/VT vCent
er Server Appliance.vmx   sles11_64Guest          vmx-07
31      PowerManager                  [datastore1] PowerManagaer/PowerManagaer.vmx
                          windows8Server64Guest   vmx-08
34      vCenter 6.0                   [datastore1] vCenter 6.0/vCenter 6.0.vmx
                          windows7Server64Guest   vmx-08
35      Win-1                         [datastore1] Win-1/Win-1.vmx
                          windows7Server64Guest   vmx-08
36      Win-2                         [datastore1] Win-2/Win-2.vmx
                          windows7Server64Guest   vmx-08
~ #
```

Манипулиране с виртуални машини

```
# vim-cmd vmsvc/power.on VM_id
# vim-cmd vmsvc/power.off VM_id
# vim-cmd vmsvc/power.reboot VM_id
# vim-cmd vmsvc/power.shutdown VM_id
```



Изпълняващи се процеси

```
# esxtop
```

```
 3:56:02pm up 140 days  4:53, 485 worlds, 2 VMs, 5 vCPUs; CPU load average: 0.05, 0.06,
0.06
PCPU USED(%): 9.7 0.6 0.0 1.2 1.9 0.0 1.1 0.4 1.2 0.0 144 0.0 AVG:  13
PCPU UTIL(%): 8.6 0.0 0.0 0.7 1.4 7.0 0.0  28 0.8 0.0 100 0.0 AVG:  12
CORE UTIL(%): 9.2     0.7     1.4     0.0     0.8     100     AVG:  18
```

ID	GID	NAME	NWLD	%USED	%RUN	%SYS	%WAIT	%VMWAIT	%RD
62899993	62899993	esxtop.32208918	1	5.52	7.59	0.00	0.00	-	0.0
5255	5255	vCenter 6.0	10	2.57	2.22	0.02	73.81	0.00	0.0
2478	2478	sh.34187	1	0.17	0.14	0.00	7.45	-	0.0
4614	4614	PowerManager	7	0.11	0.10	0.00	52.84	0.06	0.0
2	2	system	108	0.04	0.04	0.00	817.02	-	0.0
2292	2292	hostd.34088	23	0.02	0.02	0.00	174.61	-	0.0
62873039	62873039	sshd.32195232	1	0.01	0.01	0.00	7.58	-	0.0
1256	1256	net-lacp.33462	3	0.00	0.00	0.00	22.81	-	0.0
3018	3018	vpxa.34465	8	0.00	0.00	0.00	60.73	-	0.0
2016	2016	rhttpproxy.3395	13	0.00	0.00	0.00	98.71	-	0.0
1	1	idle	12	0.00	122.06	0.00	0.00	-	1200.0
8	8	helper	148	0.00	0.00	0.00	1119.05	-	0.0
9	9	drivers	13	0.00	0.00	0.00	98.26	-	0.0
10	10	ft	5	0.00	0.00	0.00	37.79	-	0.0
11	11	vmotion	1	0.00	0.00	0.00	7.56	-	0.0
4138	4138	sh.35034	1	0.00	0.00	0.00	7.56	-	0.0
4185	4185	openwsmand.3505	3	0.00	0.00	0.00	22.67	-	0.0
4192	4192	sfcb-ProviderMa	6	0.00	0.00	0.00	45.33	-	0.0

Стартирани услуги

 # chkconfig -l

```
~ # chkconfig -l
vsantraced      on
vsphered        on
ntpd            on
lsassd          off
lwiod           off
netlogond       off
ESXShell        on
SSH             on
DCUI            on
vmamqpd         off
clomd           off
swapobjd        off
osfsd           off
vsanvpd         off
usbarbitrator   on
cmmdsd          off
sensord         on
rhttpproxy      on
sdrsInjector    on
vprobed         off
lbtd            on
vmfstraced      on
hostd           on
storageRM       on
```

Тестване на връзка

```
# vmkping -I interface IP_destination
```

```
~ # vmkping -I vmk0 8.8.8.8
PING 8.8.8.8 (8.8.8.8): 56 data bytes
64 bytes from 8.8.8.8: icmp_seq=0 ttl=114 time=38.778 ms
64 bytes from 8.8.8.8: icmp_seq=1 ttl=114 time=38.728 ms
64 bytes from 8.8.8.8: icmp_seq=2 ttl=114 time=38.774 ms

--- 8.8.8.8 ping statistics ---
3 packets transmitted, 3 packets received, 0% packet loss
round-trip min/avg/max = 38.728/38.760/38.778 ms
~ #
```

Въпроси?