# How to manually retrieve info from ESXi log bundle

# based on `tdlog` result

# 1. Reconstruct log files

The files in ESXi log bundle are fragmented. For example, the `vsish` files under `Commands` folder, they are

```
vsi_traverse_-s--l-0.txt.FRAG-00000
...
vsi_traverse_-s--l-0.txt.FRAG-00309
```

It need be reconstructed after unzip. How to reconstruct the log files without CSP server?

1) deploy an ESXi 7.0/8.0 in nested or bare metal where we can get the `vm-support` command
2) upload ESXi log bundle to the ESXi host and unzip with the cmd '*tar zxvf <esxi-log.tgz>*'
   for example:
   `# tar zxvf esx-w2-tse-d13.wsl.vmware.com-2024-05-30--09.32-2160407.tgz`
3) reconstruct the folder after unzip with the cmd '*vm-support -r <folder-after-unzip>*'
   for example:
   `# vm-support -r esx-w2-tse-d13.wsl.vmware.com-2024-05-30--09.32-2160407`

NOTE:

1. The below each section to retrieve info contains three parts:
   1) sample info in tdlog result file
   2) path to get this info from log bundle files
   3) corresponding info in ESXi log files
2. The 'path' means you have been in the ESXi log folder after unzip.

# 2. General Info

## 2.1 hostname

```
- hostname: TVS101.transglobe.com.tw | uptime: 289.3 days | uptime: 416596 minutes
  # my uptime is '289.3' days, the GSS average is '106.6' days, based on '8963' samples
```

Path to retrieve: `commands/esxcfg-info_-a.txt`

Hostname:

```
    \==+Dns Config :
       |----Netstack Instance.....................................defaultTcpipStack
       |----Hostname..............................................TVS101
       |----Domain................................................transglobe.com.tw
       |----Search List...........................................
       |----User Search List......................................
       |----System Search List....................................
       |----Primary Name Server...................................10.67.0.91
       |----Secondary Name Server.................................10.67.0.92
```

uptime: (*microsecond*)

```
 |----Host Uptime.............................................24995540696516
```

## 2.2 version

```
- this is VMware ESXi 7.0.3 build-21053776
  # unable to decode, build '21053776' either missing in KB2143832 or scraping the web page has failed
```

Path to retrieve: `commands/vmware_-vl.txt`

```
VMware ESXi 7.0.3 build-21053776
VMware ESXi 7.0 Update 3
```

## 2.3 license

```
- the host has the following license key/edition installed
  H541H-8TL42-189GN-0H900-18JKN | esx.enterprisePlus.cpuPackageCoreLimited | vSphere 7 Enterprise Plus
```

Path to retrieve: commands/vmware-vimdump_-o----U-dcui.txt

```
         (vmodl.DynamicProperty) {
            name = 'licenses',
            val = (vim.LicenseManager.LicenseInfo) [
               (vim.LicenseManager.LicenseInfo) {
                  dynamicType = <unset>,
                  dynamicProperty = (vmodl.DynamicProperty) [],
                  licenseKey = 'H541H-8TL42-189GN-0H900-18JKN',
                  editionKey = 'esx.enterprisePlus.cpuPackageCoreLimited',
                  name = 'vSphere 7 Enterprise Plus',
                  total = 6,
                  used = 2,
                  costUnit = 'cpuPackage:32core',
```

## 2.4 software profile

```
- the following ESXi70 updates have been installed (+ date)
  # software acceptance level: 'PartnerSupported'
  # translation from strict to unsupported: VMwareCertified -> VMwareAccepted -> PartnerSupported -> CommunitySupported ('https://via.vmw.com/CU2NXj')
    # WARNING: this seems to be an OEM image (vendor created), see KB67959, implications are explained here: https://via.vmw.com/rFwC4e
  ...
  Name:              (Updated) ESXi-7.0U3j-21053776-standard
  Vendor:            Dell Inc.
  Creation Time:     2023-11-05T02:21:31
  Modification Time: 2024-05-09T10:10:23
```

Path to retrieve: commands/localcli_software-profile-get.txt

```
(Updated) ESXi-7.0U3j-21053776-standard:
   Name: (Updated) ESXi-7.0U3j-21053776-standard
   Vendor: Dell Inc.
   Creation Time: 2023-11-05T02:21:31
   Modification Time: 2024-05-09T10:10:23
```

## 2.5 ntp

```
- the host is synchronising with '3' NTP server
  server 10.67.0.37
  server 10.67.0.91
  server 10.67.0.92
```

Path to retrieve: commands/vmware-vimdump_-o----U-dcui.txt

```
               systemClockProtocol = 'ntp',
               ntpConfig = (vim.host.NtpConfig) {
                  dynamicType = <unset>,
                  dynamicProperty = (vmodl.DynamicProperty) [],
                  server = (str) [
                     '10.67.0.37',
                     '10.67.0.91',
                     '10.67.0.92'
                  ],
```

## 2.6 dns

```
- the host is using the following DNS server (/etc/resolv.conf)
  nameserver 10.67.0.91
  nameserver 10.67.0.92
```

Path to retrieve: etc/resolv.conf

```
nameserver 10.67.0.91
nameserver 10.67.0.92
```

## 2.7 scratch

```
- scratch location, see 'https://via.vmw.com/ESx7' what it is used for
  # configured to '/vmfs/volumes/64ad7c8a-f676e08d-7707-00620be3b3b0'
    # decode datastore UUID from 'localcli_storage-vmfs-extent-list.txt'
    Volume Name                                VMFS UUID                           Extent Number  Device Name                              Partition
    -----------------------------------------  ----------------------------------  -------------  ---------------------------------------  ---------
    OSDATA-64ad7c8a-f676e08d-7707-00620be3b3b0  64ad7c8a-f676e08d-7707-00620be3b3b0             0  naa.6c4cbe10a75cdb002c20d0eeab7a16c3          7
  # the 'Syslog.global.logDir' config points to '[] /scratch/log', see KB2151209 and 'https://via.vmw.com/ESx8
    # HINT: this is the default and if scratch is on persistent storage like VMFS/VMFS-L or vFAT, than the host is happy
```

Path to retrieve: commands/vmware-vimdump_-o----U-dcui.txt

```
            (vim.option.OptionValue) {
               dynamicType = <unset>,
               dynamicProperty = (vmodl.DynamicProperty) [],
               key = 'ScratchConfig.ConfiguredScratchLocation',
               value = '/vmfs/volumes/64ad7c8a-f676e08d-7707-00620be3b3b0'
            },
            (vim.option.OptionValue) {
               dynamicType = <unset>,
               dynamicProperty = (vmodl.DynamicProperty) [],
               key = 'ScratchConfig.CurrentScratchLocation',
               value = '/vmfs/volumes/64ad7c8a-f676e08d-7707-00620be3b3b0'
            },
```

## 2.8 boot

```
- this ESXi70 host boots from
  UUID: c37a0c0c-754b771a-fabe-0ec2cc4ffd65
  Display Name: Local DELL Disk (naa.6c4cbe10a75cdb002c20d0eeab7a16c3)
  Vendor: DELL | Model: PERC H745 Frnt | Is Local: true | Is SSD: false
```

Path to retrieve: commands/vmkfstools_-P--v-10-bootbank.txt

```
UUID: c37a0c0c-754b771a-fabe-0ec2cc4ffd65
Logical device: naa.6c4cbe10a75cdb002c20d0eeab7a16c3:6
Partitions spanned (on "disks"):
        naa.6c4cbe10a75cdb002c20d0eeab7a16c3:6
```

## 2.9 virtual machine

```
- VM 'virtualHW.version', KB1003746, running on this ESXi70 at the time the vm-support bundle was taken
  vmx-19 (18)
    TMWFUNDSAP1-10.67.67.201  DLRELKAP1  DLREPAPS1-2-10.67.67.3)  TLRSASRPS1-10.67.70.147  DLREPAPS4-8-10.67.67.37(base
    UMWECDB1-10.67.67.67      TMWDITDBS1-10.67.70.115       SLRGRAF                                SLRKONG                  PLRCD1
    ULRINSMO05-10.67.70.235   S3LRGLSTA01                   TMWNES1                                TMWRPABP1-10.67.67.178   SMWEPORTALWEB2
    UMWEPORTALWEB1            TMWDC2                        URLESPJENKINS1
  vmx-18 (4)
    ULULDIVDMS1-10.67.70.153  DLREBWS  TMWDC1  TMWAFINSDB1-10.67.70.74
  vmx-17 (1)
    TMWTS1-10.67.67.190
  vmx-13 (3)
    TLRES3-10.67.70.109  TLRES2-10.67.70.108  URLODSCF2-10.67.67.87
  vmx-11 (4)
    SRLODSESP1-10.67.67.181  URLODSTWS3-10.67.67.124  SLRTGLAP1-10.67.67.127  vCLS-1d932703-412e-43de-a92e-bca2602278fe
  vmx-8 (1)
    PPLRMPOSPRE1-10.67.67.58
  vmx-7 (1)
    vsim-netapp-DOT9.6-cm
```

Path to retrieve： etc/vmware/hostd/vmInventory.xml

```
<ConfigRoot>
  <ConfigEntry id="0250">
    <objID>409</objID>
    <vmxCfgPath>/vmfs/volumes/6510ef5b-cbf83e0e-74a7-d4f5ef34f7c0/DLRELKAP1 （目前關機，可開啟)/DLRELKAP1 （目前關機，可開啟).vmx</vmxCfgPath>
  </ConfigEntry>
  <ConfigEntry id="0251">
    <objID>411</objID>
    <vmxCfgPath>/vmfs/volumes/6510ef5b-cbf83e0e-74a7-d4f5ef34f7c0/DLREPAPS1-2-10.67.67.3(保留至20230731)/DLREPAPS1-2-10.67.67.3(保留至20230731).vmx</vmxCfgPath>
  </ConfigEntry>
  <ConfigEntry id="1024">
    <objID>1699</objID>
    <secDomain>1706</secDomain>
    <vmxCfgPath>/vmfs/volumes/650ba744-356dc78a-be08-d4f5ef34f7c0/TLRSASRPS1-10.67.70.147/TLRSASRPS1-10.67.70.147.vmx</vmxCfgPath>
  </ConfigEntry>
  <ConfigEntry id="1025">
    <objID>1714</objID>
    <secDomain>1704</secDomain>
    <vmxCfgPath>/vmfs/volumes/60d2ef70-f6d0df5e-b07a-48df3791b240/URLESPJENKINS1/URLESPJENKINS1.vmx</vmxCfgPath>
```

## 2.10 vm tools

```
- list of 'VMware Tools' version, see 'https://via.vmw.com/AuxeQB'
  # [HINT] from 'vmware.log', not all VM might have tools installed, reading only first 10000 lines per file, fetched web page @ '2024-05-09'
  # this particular ESXi70 host can provide tools version '12320' via right click > 'Guest OS' > 'Install VMware Tools...'
    # translated with the web page (via link): {'column 1': '12320', 'column 2': 'esx/7.0p06', 'column 3': '20842708', 'column 4': '12.1.0', 'column 5': '20219665'}
  # column 1 counts the amount of VM for each row, for decoding the column headers use the via link above
    8 12325       esx/7.0p07          21424296           12.1.5          20735119
    2 12320       esx/7.0p06          20842708           12.1.0          20219665
    3 10359       esx/6.5p06          17477841           10.3.23         17030940
    13 TOOLS_STATUS_UNMANAGED
```

Path to retrieve： vmfs/volumes/<datastore>/<vm-name>/vmware.log

```
2024-02-15T09:22:43.095Z In(05) vmx - ToolsGetAppInfoEnabledFromConfigStore: Returning the cached value: '1'.
2024-02-15T09:22:43.101Z In(05) vmx - Guest: toolbox: Version: 12.1.5.39265 (build-20735119)
2024-02-15T09:22:43.117Z Wa(03) vcpu-1 - GuestRpc: application toolbox, changing channel 65535 -> 0
2024-02-15T09:22:43.117Z In(05) vcpu-1 - GuestRpc: Channel 0, guest application toolbox.
```

# 3. Hardware Asset

## 3.1 server model

```
- server model and BIOS version
  Dell Inc. PowerEdge R750 | BIOS: 1.10.2 | Date (ISO-8601): 2023-03-03
  # this is a 'Dell Inc.' server, about '41.752%' of all other '8972' customers use this hardware vendor too
  # for the 'PowerEdge R750' model, the BIOS/date combination is also used by '12.727%' of all '220' Dell Inc.
```

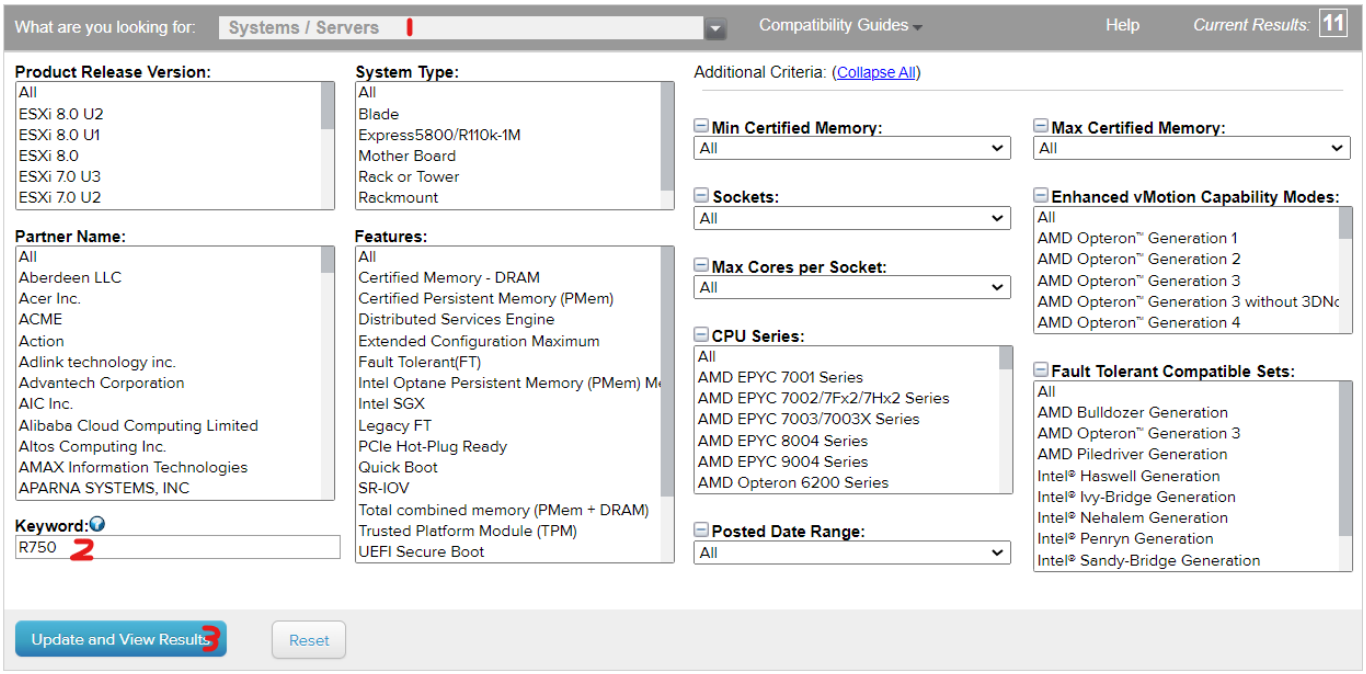
Path to retrieve： commands/esxcfg-info_-a.txt

```
   \==+Hardware Info :
      |----BIOS UUID.....................................0x4c 0x4c 0x45 0x44 0x0 0x56 0x46
      |----BIOS Vendor...................................Dell Inc.
      |----BIOS Version..................................1.10.2 (1.10)
      |----BIOS ReleaseDate..............................2023-03-03T00:00:00
      |----BIOS Asset Tag................................
      |----Product Name..................................PowerEdge R750
      |----Vendor Name...................................Dell Inc.
      |----Serial Number.................................2VF17Y3
      |----Enclosure Serial Number.......................2VF17Y3
      |----Hardware Uptime...............................24995636027332
      |----Ipmi Supported................................true
      |----BMC Version...................................6.10
```

## 3.2 server compatibility

```
- hardware compatibility check, server model, VMware Verification Service API, see 'https://via.vmw.com/vvs'
  [PowerEdge R750]: Compatible, FoundMatches[4] [test for 7.0 U3, CPU '0000:0000:0000:0110:0000:0110:1010:0110', BIOS '1.10.2']
  [1] [Rackmount] [id:51125] Dell PowerEdge R750
  [1] vcgLink = 'https://www.vmware.com/resources/compatibility/detail.php?deviceCategory=server&productid=51125'
  [1] picture = 'https://www.google.com/search?q=Dell%20PowerEdge%20R750&source=lnms&tbm=isch&sa=X'
  ----
  [2] [Rackmount] [id:52933] Dell PowerEdge R750
  [2] vcgLink = 'https://www.vmware.com/resources/compatibility/detail.php?deviceCategory=server&productid=52933'
```

Path to retrieve： https://www.vmware.com/resources/compatibility/search.php




## 3.3 power policy

```
- Host Power Management (HPM), see KB1018206 and 'https://via.vmw.com/2KvHXQ'
  # vsish '/power/currentPolicy'
    Short name:dynamic  -->  Long name:Balanced  -->  Description:Reduce energy consumption with minimal performance compromise  -->  ID (profile):2
  # vsish '/power/hardwareSupport' (this may be empty or look incomplete, raw dump from vsi)
  # CPU power management:
  # about '59.400%' of the other GSS customers using the 'dynamic' policy
  # the total count is: 1x low | 4x custom | 3530x static | 5172x dynamic
```

Path to retrieve: `vsish -c commands/vsi_traverse_-s.txt`

Note: `vsish` is a built-in cmd in ESXi host. Need to run in ESXi host.

```
/> cat /power/currentPolicy
Host power management policy {
   ID: 2
   Short name:dynamic
   Long name:Balanced
   Description:Reduce energy consumption with minimal performance compromise
}
```

## 3.4 cpu

```
- CPU type and how many
  Intel(R) Xeon(R) Gold 6346 CPU @ 3.10GHz
  Family: 0x06 , Model: 0x6a , Stepping: 0x06 , TSC Hz: 3092733861, Bus Hz: 24941405, Name: GenuineIntel
  # Hyperthreading, see KB57374 and KB55806
    active=true, supported=true, enabled=true, mitigated=true
  # reading CPUID leafs for '/hardware/cpu/cpuList/0', see 'https://via.vmw.com/j8GCFu' and 'https://via.vmw.com/nC60Wq' for dec
    00:CPUID leaf { EAX:0x0000001b EBX:0x756e6547 ECX:0x6c65746e EDX:0x49656e69
    01:CPUID leaf { EAX:0x000606a6 EBX:0x00800800 ECX:0x77fefbff EDX:0xbfebfbff
    80:CPUID leaf { EAX:0x80000008 EBX:0x00000000 ECX:0x00000000 EDX:0x00000000
    81:CPUID leaf { EAX:0x00000000 EBX:0x00000000 ECX:0x00000121 EDX:0x2c100800
    88:CPUID leaf { EAX:0x0000392e EBX:0x00000200 ECX:0x00000000 EDX:0x00000000
    8a:CPUID leaf { EAX:0x00000000 EBX:0x00000000 ECX:0x00000000 EDX:0x00000000
      # HINT: e.g. '81' (ESXi vsish) aka 'EAX=80000001h' (Wikipedia) aka 'Fn8000_0001_E[A-D]X' (AMD pdf) aka 'Function 80000001h
  # testing CPUID leafs '00 01 80 81 88 8a' for all '64' cores, except unique 'Local APIC ID at 1:CPUID EBX', bits 31:24, see 'h
    # [PASS] every one of the 64 cores has the same features enabled, very likely identical physical CPUs
  Number of sockets: 2
  Number of NUMA nodes: 2
  Number of cores (total): 32
```

Path to retrieve: `vsish -c commands/vsi_traverse_-s.txt`

```
/> cat /hardware/cpu/cpuModelName
Intel(R) Xeon(R) Gold 6346 CPU @ 3.10GHz
/>
/> cat /hardware/cpu/cpuInfo
CPU global information {
   Hyperthreading state: 3 -> enabled
   HV state: 3 -> HV Enabled
   Number of packages:2
   Number of dies:2
   Number of tiles:2
   Number of modules:2
   Number of cores:32
   Number of CPUs (threads):64
   Number of licensable cores:32
   SLC64 capable:0
   NVOA:0
   Hyperthreading security vulnerability mitigated:1
}
```

## 3.5 pci device

```
- PCI devices and slot capabilities
  Device  Location (lspci)  Passthru Cap?  Parent Device           Dependent Device        Class                Slot Description (esxcfg-info)
  ------  ----------------  -------------  -------------           ----------------        -----                ------------------------------
  vmhba0  0000:65:00.0      true           PCI 0:100:4:0           PCI 0:101:0:0           RAID bus controller  SL3 RAID
  vmhba1  0000:00:11.5      false          not in esxcfg-info.txt  not in esxcfg-info.txt  SATA controller      not in esxcfg-info.txt
  vmhba2  0000:00:17.0      false          not in esxcfg-info.txt  not in esxcfg-info.txt  SATA controller      not in esxcfg-info.txt
  vmhba3  0000:b1:00.0      true           PCI 0:176:2:0           PCI 0:176:2:0           Fibre Channel        PCIe Slot 5
  vmhba4  0000:b1:00.1      true           PCI 0:176:2:0           PCI 0:176:2:0           Fibre Channel        PCIe Slot 5
  vmnic0  0000:04:00.0      true           PCI 0:0:28:5            PCI 0:4:0:0             Ethernet controller  Embedded NIC 1
  vmnic1  0000:04:00.1      true           PCI 0:0:28:5            PCI 0:4:0:1             Ethernet controller  Embedded NIC 2
  vmnic2  0000:31:00.0      true           PCI 0:48:4:0            PCI 0:49:0:0            Ethernet controller  Integrated NIC 1 Port 1-1
  vmnic3  0000:31:00.1      true           PCI 0:48:4:0            PCI 0:49:0:1            Ethernet controller  Integrated NIC 1 Port 2-1
  vmnic4  0000:b2:00.0      true           PCI 0:176:4:0           PCI 0:178:0:0           Ethernet controller  PCIe Slot 4
  vmnic5  0000:b2:00.1      true           PCI 0:176:4:0           PCI 0:178:0:1           Ethernet controller  PCIe Slot 4
```

Path to retrieve: commands/lspci.txt

```
xqiu@gss-prd-csp-1:035034396420:commands$ grep -E 'vmhba|vmnic' lspci.txt
0000:00:11.5 SATA controller: Intel Corporation Lewisburg SATA AHCI Controller [vmhba1]
0000:00:17.0 SATA controller: Intel Corporation Lewisburg SATA AHCI Controller [vmhba2]
0000:04:00.0 Ethernet controller: Broadcom Corporation NetXtreme BCM5720 Gigabit Ethernet [vmnic0]
0000:04:00.1 Ethernet controller: Broadcom Corporation NetXtreme BCM5720 Gigabit Ethernet [vmnic1]
0000:31:00.0 Ethernet controller: Broadcom NetXtreme E-Series Advanced Dual-port 10Gb SFP+ Ethernet OCP 3.0 Adapter [vmnic2]
0000:31:00.1 Ethernet controller: Broadcom NetXtreme E-Series Advanced Dual-port 10Gb SFP+ Ethernet OCP 3.0 Adapter [vmnic3]
0000:65:00.0 RAID bus controller: Broadcom Dell PERC H745 Front [vmhba0]
0000:b1:00.0 Fibre Channel: QLogic Corp QLE2700/QLE2800 32/64G SP/DP Fibre Channel Adapter [vmhba3]
0000:b1:00.1 Fibre Channel: QLogic Corp QLE2700/QLE2800 32/64G SP/DP Fibre Channel Adapter [vmhba4]
0000:b2:00.0 Ethernet controller: Broadcom BCM57416 NetXtreme-E 10GBASE-T RDMA Ethernet Controller [vmnic4]
0000:b2:00.1 Ethernet controller: Broadcom BCM57416 NetXtreme-E 10GBASE-T RDMA Ethernet Controller [vmnic5]
```

## 3.6 memory

```
- RAM details
  Total amount of RAM: 1023 GB
  Free (as seen in the Web Client): 22 %
```

Path to retrieve: commands/esxcfg-info_-a.txt

```
        \==+Group Capacity :
           |----Total CPU.....................................98975
           |----Total Memory.....................................1023.09 GB
           |----Reserved CPU.....................................10732
           |----Reserved Memory.....................................35.51 GB
```

# 4. Network

## 4.1 vswitch

```
- standard vSwitch configuration, from 'esxcfg-vswitch.txt'
  Switch Name      Num Ports   Used Ports  Configured Ports  MTU     Uplinks
  vSwitch0         9216        6           128               1500    vmnic0,vmnic1

  PortGroup Name                          VLAN ID  Used Ports  Uplinks
  vSS_72_ESXi                             0        0           vmnic0,vmnic1
  Management Network                      0        1           vmnic0,vmnic1

  DVS Name         Num Ports   Used Ports  Configured Ports  MTU     Uplinks
  DSwitch Manager  9216        41          512               1500    vmnic3,vmnic2
```

Path to retrieve: commands/esxcfg-vswitch_-l.txt

```
Switch Name      Num Ports   Used Ports  Configured Ports  MTU     Uplinks
vSwitch0         9216        6           128               1500    vmnic0,vmnic1

  PortGroup Name                          VLAN ID  Used Ports  Uplinks
  vSS_72_ESXi                             0        0           vmnic0,vmnic1
  Management Network                      0        1           vmnic0,vmnic1

DVS Name         Num Ports   Used Ports  Configured Ports  MTU     Uplinks
DSwitch Manager  9216        41          512               1500    vmnic3,vmnic2

  DVPort ID                               In Use      Client
  1881                                    0
  1882                                    0
```

## 4.2 firewall

```
- ESXi firewall, from vsish '/vmkModules/esxfw/rulesets/<rule>/ruleset' --> 'enable status'
  # enabled (23) -> is allowed to communicate
    CIMHttpServer   dns             EMC_RP_Splitter  HBR         NFC         snmp       trusted-infrastructure-kmxa
    CIMHttpsServer  DVSSync         faultTolerance   iofiltervp  ntpClient   sshServer  updateManager
    dhcp            dynamicruleset  fdm
  # disabled (35) -> is NOT allowed to communicate
    activeDirectoryAll  DVFilter            etcdPeerComm  httpClient  nfs41Client  pvrdma            settingsd  trus
    CIMSLP              esxio-orchestrator  ftpClient     ipfam       nfsClient    rdt               sshClient  vdfs
    cmmds               esxupdate           gdbserver     iSCSI       nvmetcp      remoteSerialPort  syslog     vic-
    DHCPv6              etcdClientComm      gstored       iwarp-pm    ptpd
```

Path to retrieve: vsish -c commands/vsi_traverse_-s.txt

vmkModules/esxfw/rulesets/<rule>/ruleset' --> 'enable status'

```
/vmkModules/esxfw/rulesets/NFC/> cat /vmkModules/esxfw/rulesets/NFC/ruleset
ESXFW ruleset {
   ID of this ruleset:NFC
   Filtering action: 0 -> Pass
   enable status:1
   must have:0
   all IP allowed?:1
}
```

## 4.3 vmk address

```
- vmkernel ports, from 'esxcfg-vmknic_-l.txt', without IPv6
  # for IPv6 values, review 'esxcfg-vmknic_-l.txt' manual
  Interface  Port Group/DVPort/Opaque Network       IP Family  IP Address       Netmask        Broadcast
  vmk0       Management Network                     IPv4       10.67.72.101     255.255.255.0  10.67.72.255
  vmk1       500                                    IPv4       192.168.0.101    255.255.255.0  192.168.0.255
  vmk2       1888                                   IPv4       192.168.1.101    255.255.255.0  192.168.1.255
  vmk3       57                                     IPv4       192.168.68.101   255.255.255.0  192.168.68.255
  vmk4       1447                                   IPv4       10.67.81.198     255.255.255.0  10.67.81.255
```

Path to retrieve: commands/esxcfg-vmknic_-l.txt

| Interface | Port Group/DVPort/Opaque Network | IP Family | IP Address | Netmask | Broadcast |
|---|---|---|---|---|---|
| vmk0 | Management Network | IPv4 | 10.67.72.101 | 255.255.255.0 | 10.67.72.255 |
| vmk1 | 500 | IPv4 | 192.168.0.101 | 255.255.255.0 | 192.168.0.255 |
| vmk2 | 1888 | IPv4 | 192.168.1.101 | 255.255.255.0 | 192.168.1.255 |
| vmk3 | 57 | IPv4 | 192.168.68.101 | 255.255.255.0 | 192.168.68.255 |
| vmk4 | 1447 | IPv4 | 10.67.81.198 | 255.255.255.0 | 10.67.81.255 |

## 4.4 vmk tags

```
- vmkernel ports, roles and stacks, see 'https://via.vmw.com/gll5BE'
    Interface  NetstackInstance    Tags
    ---------  -----------------   ----
    vmk0       defaultTcpipStack   Management
    vmk1       defaultTcpipStack   blank in esxcfg-info_-a.txt
    vmk2       defaultTcpipStack   blank in esxcfg-info_-a.txt
    vmk3       defaultTcpipStack   blank in esxcfg-info_-a.txt
    vmk4       defaultTcpipStack   vSphereProvisioning, Management, VMotion
```

Path to retrieve：commands/esxcfg-info_-a.txt

```
            \==+VmKernel Nic :
               |----Port Group.....................................Management Network
               |----Netstack Instance.............................defaultTcpipStack
               |----Interface.....................................vmk0
               |----Index.........................................0
               |----Port ID.......................................67108877
               |----MTU...........................................1500
               |----TSO MSS.......................................65535
               |----Mac Address...................................ec:2a:72:ef:4d:2c
               |----Tags..........................................Management
```

## 4.5 vswitch ports

```
- dvSwitch ports details | since there are 2 dvSwitches, duplicate portkey values are possible, manual check recommended
  endpoint                                portKey  portID     portgroupKey       DvsPortset    teamUplink  teaming     name             vlan
  --------                                -------  ------     ------------       ----------    ----------  -------     ----             ----
  DLREBWS.eth0                            1377     100665204  dvportgroup-2095   DvsPortset-0  LACP        LACP,       vDS_67_UAT       VLAN 67
  DLREPAPS4-8-10.67.67.37(base.eth0       1744     100665255  dvportgroup-2095   DvsPortset-0  LACP        LACP,       vDS_67_UAT       VLAN 67
  DLREPAPS4-8-10.67.67.37(base.eth1       1752     100665256  dvportgroup-2217   DvsPortset-0  LACP        LACP,       vDS_175_VDI      VLAN 175
  PPLRMPOSPRE1-10.67.67.58.eth0           324      100665131  dvportgroup-2095   DvsPortset-0  LACP        LACP,       vDS_67_UAT       VLAN 67
  S3LRGLSTA01.eth0                        1575     100665363  dvportgroup-2095   DvsPortset-0  LACP        LACP,       vDS_67_UAT       VLAN 67
  SLRKONG.eth0                            147      100665429  dvportgroup-2217   DvsPortset-0  LACP        LACP,       vDS_175_VDI      VLAN 175
  SLRKONG.eth1                            66       100665430  dvportgroup-2101   DvsPortset-0  LACP        LACP,       vDS_101_TGL      VLAN 101
  SLRTGLAP1-10.67.67.127.eth0             320      100665193  dvportgroup-2095   DvsPortset-0  LACP        LACP,       vDS_67_UAT       VLAN 67
  SMWEPORTALWEB2.eth0                     1973     100665336  dvportgroup-16268  DvsPortset-0  LACP        LACP,       vDS_75_UAT       VLAN 75
  SRLODSESP1-10.67.67.181.eth0            472      100665142  dvportgroup-2095   DvsPortset-0  LACP        LACP,       vDS_67_UAT       VLAN 67
  TLRSASRPS1-10.67.70.147.eth0            1433     100665353  dvportgroup-2096   DvsPortset-0  LACP        LACP,       vDS_70_UAT       VLAN 70
  TMWAFINSDB1-10.67.70.74.eth0            892      100665136  dvportgroup-2096   DvsPortset-0  LACP        LACP,       vDS_70_UAT       VLAN 70
  TMWDC1.eth0                             1004     100665411  dvportgroup-2096   DvsPortset-0  LACP        LACP,       vDS_70_UAT       VLAN 70
  TMWDC2.eth0                             1373     100665440  dvportgroup-2096   DvsPortset-0  LACP        LACP,       vDS_70_UAT       VLAN 70
  TMWDC2.eth1                             1811     100665441  dvportgroup-2101   DvsPortset-0  LACP        LACP,       vDS_101_TGL      VLAN 101
```

Path to retrieve：commands/dump-cswitch-info.py.txt，vmware-vimdump_-o----U-dcui.txt，net-stats_-l.txt

1) search `vm name` in dump-cswitch-info.py.txt to get the `DVPortID`

| Client | PortID | DVPortID |
|---|---|---|
| Management | 100663311 | |
| LACP_MgmtPort | 100663312 | |
| LACP | 100663313 | |
| vmk1 | 100663318 | 500 |
| vmk2 | 100663319 | 1888 |
| vmnic2 | 2248146974 | 1885 |
| Shadow of vmnic2 | 100663327 | |
| vmnic3 | 2248146976 | 1886 |
| Shadow of vmnic3 | 100663329 | |
| PPLRMPOSPRE1-10.67.67.58.eth0 | 100665131 | 324 |
| TMWTS1-10.67.67.190.eth0 | 100665134 | 321 |
| TMWAFINSDB1-10.67.70.74.eth0 | 100665136 | 892 |
| URLODSCF2-10.67.67.87.eth0 | 100665139 | 459 |
| SRLODSESP1-10.67.67.181.eth0 | 100665142 | 472 |
| TMWDITDBS1-10.67.70.115.eth0 | 100665143 | 253 |
| URLESPJENKINS1.eth0 | 100665146 | 142 |
| URLESPJENKINS1.eth1 | 100665147 | 1729 |
| SLRTGLAP1-10.67.67.127.eth0 | 100665193 | 320 |
| DLREBWS.eth0 | 100665204 | 1377 |

2) search `DVPortID` in vmware-vimdump_-o----U-dcui.txt

```
      backing = (vim.vm.device.VirtualEthernetCard.DistributedVirtualPortBackingInfo) {
         dynamicType = <unset>,
         dynamicProperty = (vmodl.DynamicProperty) [],
         port = (vim.dvs.PortConnection) {
            dynamicType = <unset>,
            dynamicProperty = (vmodl.DynamicProperty) [],
            switchUuid = '50 07 51 b8 ba fa aa 62-6e e5 57 91 ee 3b 5d 9b',
            portgroupKey = 'dvportgroup-2095',
            portKey = '1377',
            connectionCookie = 508315154
         }
```

3) search `portgroupkey` in net-stats_-l.txt to get portgroup name

```
   (vmodl.DynamicProperty) {
      name = 'config',
      val = (vim.dvs.DistributedVirtualPortgroup.ConfigInfo) {
         dynamicType = <unset>,
         dynamicProperty = (vmodl.DynamicProperty) [],
         key = 'dvportgroup-2095',
         name = 'vDS_67_UAT',
         numPorts = 0,
         distributedVirtualSwitch = 'vim.dvs.VmwareDistributedVirtualSwitch:50 07 51 b8 ba fa aa 62-6e
         defaultPortConfig = <unset>,
         description = <unset>,
         type = 'earlyBinding',
         backingType = 'standard',
```

## 4.6 vmnic

```
- Network Interface Cards from 'nicinfo.sh.txt'
   vmnic   PCI bus address  link  speed  duplex  MTU   driver   driver version  firmware version              MAC address
   -----   ---------------  ----  -----  ------  ---   ------   --------------  ----------------              -----------
   vmnic0  0000:04:00.0     Up    1000   Full    1500  ntg3     4.1.8.0         bc 1.39 ncsi 1.5.42.0         ec:2a:72:ef:4d:2c
   vmnic1  0000:04:00.1     Up    1000   Full    1500  ntg3     4.1.8.0         bc 1.39 ncsi 1.5.42.0         ec:2a:72:ef:4d:2d
   vmnic2  0000:31:00.0     Up    10000  Full    1500  bnxtnet  223.0.152.0     223.0.205.0 /pkg 22.31.13.70  00:62:0b:e3:b3:b0
   vmnic3  0000:31:00.1     Up    10000  Full    1500  bnxtnet  223.0.152.0     223.0.205.0 /pkg 22.31.13.70  00:62:0b:e3:b3:b1
   vmnic4  0000:b2:00.0     Down  0      Half    1500  bnxtnet  223.0.152.0     223.0.205.0 /pkg 22.31.13.70  14:23:f2:a4:49:80
   vmnic5  0000:b2:00.1     Up    10000  Full    1500  bnxtnet  223.0.152.0     223.0.205.0 /pkg 22.31.13.70  14:23:f2:a4:49:81
```

Path to retrieve: `commands/nicinfo.sh.txt, esxcfg-info_-a.txt`

1) get pci address from `nicinfo.sh.txt`

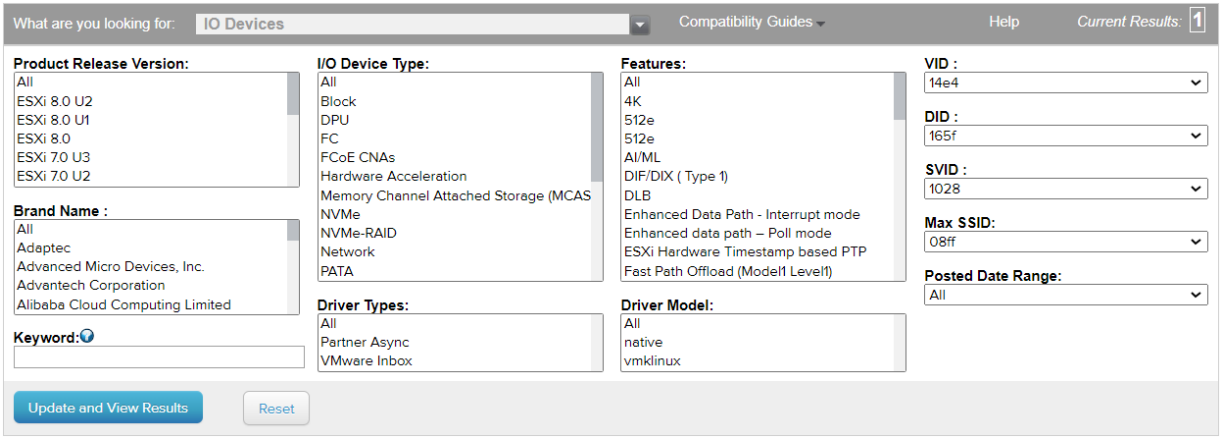
```
Network Interface Cards Information.

Name    PCI Device    Driver   Admin Status  Link Status  Speed  Duplex  MAC Address
------  ------------  -------  ------------  -----------  -----  ------  -----------------
vmnic0  0000:04:00.0  ntg3     Up            Up            1000  Full    ec:2a:72:ef:4d:2c
vmnic1  0000:04:00.1  ntg3     Up            Up            1000  Full    ec:2a:72:ef:4d:2d
vmnic2  0000:31:00.0  bnxtnet  Up            Up           10000  Full    00:62:0b:e3:b3:b0
vmnic3  0000:31:00.1  bnxtnet  Up            Up           10000  Full    00:62:0b:e3:b3:b1
vmnic4  0000:b2:00.0  bnxtnet  Up            Down             0  Half    14:23:f2:a4:49:80
vmnic5  0000:b2:00.1  bnxtnet  Up            Up           10000  Full    14:23:f2:a4:49:81
vusb0   Pseudo        cdce     Up            Up             100  Full    ec:2a:72:ef:83:63
```

2) search pci address in `esxcfg-info_-a.txt` to get DID, VID, SDID, SVID

```
      \==+PCI Device :
         |----Segment.....................................0x0000
         |----Bus.........................................0x04
         |----Slot........................................0x00
         |----Function....................................0x00
         |----Runtime Owner...............................vmkernel
         |----Has Configured Owner........................false
         |----Configured Owner............................vmkernel
         |----Vendor Id...................................0x14e4
         |----Device Id...................................0x165f
         |----Sub-Vendor Id...............................0x1028
         |----Sub-Device Id...............................0x08ff
         |----Vendor Name.................................Broadcom Corporation
         |----Device Name.................................NetXtreme BCM5720 Gigabit Ethernet
         |----Device Class................................512
         |----Device Class Name...........................Ethernet controller
         |----PIC Line....................................255
         |----Old IRQ.....................................255
         |----Vector......................................58
         |----PCI Pin.....................................0
         |----Spawned Bus.................................0
         |----Flags.......................................12289
```

3) search the device compatibility in VMware HCL with the VID, DID, SVID, SDID




## 4.7 vmnic stats

```
- vmnic error statistics for standard counters only
  the     Rx           Tx           Rx              Rx       Tx              Tx       Rx   Tx   Rx    Tx
  vmnic   Pkts         Pkts         Bytes           GB       Bytes           GB       Err  Err  Drop  Drop  M-cast    Coll
  -----   ----         ----         -----           --       -----           --       ---  ---  ----  ----  ------    ----
  vmnic0  1491637420   1653262500   863717137516    804.4    3176587843247   2958.4   0    0    0     0     67931793  0
  vmnic1  501741745    171          114958730783    107.1    115901          0.0      0    0    0     0     67935597  0
  vmnic2  393546159    268400196    86335495548     80.4     41975137473     39.1     0    0    0     0     9244191   0
  vmnic3  304738949    280765827    113256998417    105.5    43858710254     40.8     0    0    0     0     5143382   0
  vmnic4  0            0            0               0.0      0               0.0      0    0    0     0     0         0
  vmnic5  22345698677  21818031910  31299368974651  29149.8  30567297425014  28468.0  0    0    0     0     43834872  0
    # hint: Rx Total Err = (('Rx Err' + 'Rx Drop' + 'Rx Len Err' + 'Rx Ovr Err' + 'Rx CRC Err' + 'Rx Frm Err' + 'Rx Fifo Err
```

Path to retrieve: `vsish -c commands/vsi_traverse_-s.txt`

```
/> cat /net/pNics/vmnic0/stats
device {
   -- General Statistics:
   Rx Packets:1491637420
   Tx Packets:1653262500
   Rx Bytes:863717137516
   Tx Bytes:3176587843247
   Rx Errors:0
   Tx Errors:0
```

# 5. Storage

## 5.1 vmhba

```
- Host Bus Adapter (HBA, hardware only, lspci)
  # [HINT] filtered out: 'ata_piix|vmw_ahci|ahci|vmkata'
  vmhba    driver      driver version                   VID   DID   SVID  SDID  model
  -----    ------      --------------                   ---   ---   ----  ----  -----------------------------------------------
  vmhba0   lsi_mr3     7.722.02.00-1OEM.700.1.0.15843807  1000  0014  1028  1f3b  Broadcom Dell PERC H745 Front
  vmhba3   qlnativefc  5.3.80.0-1OEM.703.0.0.18644231   1077  2281  1077  02f3  QLogic Corp QLE2700/QLE2800 32/64G SP/DP Fibre Channel Adapter
  vmhba4   qlnativefc  5.3.80.0-1OEM.703.0.0.18644231   1077  2281  1077  02f3  QLogic Corp QLE2700/QLE2800 32/64G SP/DP Fibre Channel Adapter
  vmhba64  qlnativefc  5.3.80.0-1OEM.703.0.0.18644231   1077  2281  1077  02f3  QLogic Corp QLE2700/QLE2800 32/64G SP/DP Fibre Channel Adapter
  vmhba65  qlnativefc  5.3.80.0-1OEM.703.0.0.18644231   1077  2281  1077  02f3  QLogic Corp QLE2700/QLE2800 32/64G SP/DP Fibre Channel Adapter
```

Path to retrieve: `commands/localcli_storage-core-adapter-list.txt`

```
HBA Name  Driver      Link State  UID                                   Capabilities         Description
--------  ----------  ----------  ------------------------------------  -------------------  -----------
vmhba0    lsi_mr3     link-n/a    sas.5c4cbe10a75cdb00                                       (0000:65:00.0) Broadcom Dell PERC H745 Front
vmhba1    vmw_ahci    link-n/a    sata.vmhba1                                                (0000:00:11.5) Intel Corporation Lewisburg SATA AHCI Controller
vmhba2    vmw_ahci    link-n/a    sata.vmhba2                                                (0000:00:17.0) Intel Corporation Lewisburg SATA AHCI Controller
vmhba3    qlnativefc  link-up     fc.2000f4c7aa0f4a3e:2100f4c7aa0f4a3e  Second Level Lun ID  (0000:b1:00.0) QLogic Corp QLE2700/QLE2800 32/64G SP/DP Fibre Channel Adapter
vmhba4    qlnativefc  link-up     fc.2000f4c7aa0f4a3f:2100f4c7aa0f4a3f  Second Level Lun ID  (0000:b1:00.1) QLogic Corp QLE2700/QLE2800 32/64G SP/DP Fibre Channel Adapter
vmhba64   qlnativefc  link-up     fc.2000f4c7aa0f4a3e:2100f4c7aa0f4a3e                       (0000:b1:00.0) QLogic Corp QLE2700/QLE2800 32/64G SP/DP Fibre Channel Adapter
vmhba65   qlnativefc  link-up     fc.2000f4c7aa0f4a3f:2100f4c7aa0f4a3f                       (0000:b1:00.1) QLogic Corp QLE2700/QLE2800 32/64G SP/DP Fibre Channel Adapter
```

search the HBA name (eg, vmhba3) in `commands/esxcfg-info_-a.txt` to get VID,DID,SVID,SDID

```
\==+FibreChannel SCSI Interface :
   |----Link State.....................................Up
   |----World Wide Port Number.....................0x2100f4c7aa0f4a3e
   |----World Wide Node Number.....................0x2000f4c7aa0f4a3e
   \==+SCSI Interface :
      |----Name.....................................vmhba3
      |----UID......................................fc.2000f4c7aa0f4a3e:2100f4c7aa0f4a3e
      |----Driver...................................qlnativefc
      |----Queue Depth..............................2176
      |----Is Virtual...............................false
      |----Communication protocol...................SCSI
      \==+Data Integrity Information :
         |----Protection Mask.......................0x00000000
         |----Guard Type............................NO GUARD SUPPORT
      \==+PCI Device :
         |----Segment...............................0x0000
         |----Bus...................................0xb1
         |----Slot..................................0x00
         |----Function..............................0x00
         |----Runtime Owner.........................vmkernel
         |----Has Configured Owner..................false
         |----Configured Owner......................vmkernel
         |----Vendor Id.............................0x1077
         |----Device Id.............................0x2281
         |----Sub-Vendor Id.........................0x1077
         |----Sub-Device Id.........................0x02f3
         |----Vendor Name...........................QLogic Corp
         |----Device Name...........................QLE2700/QLE2800 32/64G SP/DP Fibre Channel Adapter
         |----Device Class..........................3076
```

search the DID, VID, SDID, SVID in VMware HCL

## 5.2 LUN

```
- block level statistics for SCSI devices
  device                                CMDS         FCMDS  <--%   READS          FREAD  <--%   WRITES        FWRITE  <--%   RESV
  ------                                ----         -----  ----   -----          -----  ----   ------        ------  ----   ----
  naa.6c4cbe10a75cdb002c20d0eeab7a16c3  239695528    4      0.00%  6096046394     0      0.00%  4284279520    0       0.00%  3575843
  naa.60060160a7225400bfa90b65de61ab06  77767856     6      0.00%  3364109691     0      0.00%  2292996432    0       0.00%  0
  naa.60060160a7225400e5a60b65bc5fe0cb  152453502    7      0.00%  3772869220     0      0.00%  3787075305    0       0.00%  0
  naa.60060160a72254001aa90b654679f8d5  136326772    6      0.00%  2073228073     0      0.00%  8508553148    0       0.00%  0
  naa.60060160a72254004da80b650be74e52  52921967     7      0.00%  2026466388     0      0.00%  1449829592    0       0.00%  0
  naa.60060160a72254006caa0b65817d37ca  115450149    7      0.00%  3002547211     0      0.00%  2829103530    0       0.00%  0
  naa.60060160a72254009fa70b65cc6817f9  8134145288   7      0.00%  24527789774    0      0.00%  110273283024  0       0.00%  0
  naa.60060160a722540014a60b65b57198c0  139083772    6      0.00%  2251395363     0      0.00%  3675228347    0       0.00%  0
  naa.60060160a722540017ab0b65254a2aa9  267017915    361    0.00%  3198477139     0      0.00%  7969447167    0       0.00%  0
  naa.60060160a722540020ef1065cdc046f4  10349451     6      0.00%  61518022       0      0.00%  354033219     0       0.00%  0
```

Path to retrieve: commands/localcli_storage-core-device-stats-get.txt

```
naa.60060160a722540017ab0b65254a2aa9:
   Device: naa.60060160a722540017ab0b65254a2aa9
   Successful Commands: 267027181
   Blocks Read: 3201630053
   Blocks Written: 7969497502
   Read Operations: 99941801
   Write Operations: 162155340
   Reserve Operations: 0
   Reservation Conflicts: 0
   Failed Commands: 362
   Failed Blocks Read: 0
   Failed Blocks Written: 0
   Failed Read Operations: 1
   Failed Write Operations: 354
   Failed Reserve Operations: 0
```

## 5.3 datastore

```
- VMFS datastore utilisation, LUN ID, topology, since the last reboot, sort by 'Commands' column
  Datastore Name                                naa / t10 / eui ID                 Volume UUID                           Commands
  --------------                                ------------------                 -----------                           --------
  ISO                                           naa.6006016004c048006e88316259b81ef5  62318c47-6c70c864-2756-48df37bc93e0  7339763
  U480_Shutdown                                 naa.60060160a722540020ef1065cdc046f4  6510ef5b-cbf83e0e-74a7-d4f5ef34f7c0  8007398
  U480F_DB_03                                   naa.60060160a72254004da80b650be74e52  650ba8cb-4c4d53a2-2f49-d4f5ef34f7c0  42499076
  U480F_L_03                                    naa.60060160a7225400bfa90b65de61ab06  650baa0c-6fd78ac0-19b4-d4f5ef34f7c0  62609158
  OSDATA-64ad7c8a-f676e08d-7707-00620be3b3b0     naa.6c4cbe10a75cdb002c20d0eeab7a16c3  64ad7c8a-f676e08d-7707-00620be3b3b0  93235757
  Tvs101-Local datastore                        naa.6c4cbe10a75cdb002c20d0eeab7a16c3  64ad7c8a-00bbfe1f-5290-00620be3b3b0  95910836
```

Path to retrieve: commands/localcli_storage-vmfs-extent-list.txt

| Volume Name | VMFS UUID | Extent Number | Device Name | Partition |
|---|---|---|---|---|
| Tvs101-Local datastore | 64ad7c8a-00bbfe1f-5290-00620be3b3b0 | 0 | naa.6c4cbe10a75cdb002c20d0eeab7a16c3 | 8 |
| U350F-TR01_L | 60d2ef57-862d325c-4dcf-48df3791b240 | 0 | naa.6006016004c048008c8bd1607d919600 | 1 |
| U350F-TR02_L | 60d2ef70-f6d0df5e-b07a-48df3791b240 | 0 | naa.6006016004c048005e8cd1605d14ed59 | 1 |
| ISO | 62318c47-6c70c864-2756-48df37bc93e0 | 0 | naa.6006016004c048006e88316259b81ef5 | 1 |
| U350F-TR03_L | 60d2ef85-e3df8548-5b71-48df3791b240 | 0 | naa.6006016004c04800828cd160fa4883 9e | 1 |
| U350F-TR04_L | 60d2efa7-6fb335a8-59fb-48df3791b240 | 0 | naa.6006016004c048009f8cd16060fb5d34 | 1 |
| U350F-TR05_L | 60dd52c5-047ba462-2cfe-48df3791b240 | 0 | naa.6006016004c048003e07dc60562c0e8a | 1 |
| U350F-TR06_L | 6129e05c-a4823c70-e3c0-48df37d08320 | 0 | naa.6006016004c048001fde296159699134 | 1 |
| U350F-TR07_L | 613f024e-1d0e4cc8-82c7-48df371eaba4 | 0 | naa.6006016004c04800def43e615995bbab | 1 |
| U350F-TR08_W | 615e528e-f07f0fce-1588-48df378e0d70 | 0 | naa.6006016004c04800c74f5e611e8259a8 | 1 |
| U350F-TR09_W | 624166a1-64dcfcca-1719-48df376dd200 | 0 | naa.6006016004c04800406641629bdc2114 | 1 |