How to Identify disks and Datastore in VMware ESXi 5 / 6

There are a few reasons that will degrade the performance of virtual machines such as a disk I/O bottleneck, resource contention, misconfigurations and other problems.

When too many VMs compete for limited resources, results will inevitably suffer.

The effort it takes to solve the storage I/O bottleneck is a variety of ways, it may be from physical infrastructure choices to configuration changes.

The starting point for solving your I/O problems will be VM monitoring and establishing baseline performance.

From there, you can examine the IOPS read vs. write IOPS, network cards, and certain points which may contribute to the I/O bottlenecks.

With the right approach and the right technology, administrators can resolve the problems that caused the dismal performance of the infrastructure.

When performing troubleshooting with ESXi/ESX storage, use command line tools which require you to identify a specific disk or LUN connected to ESXi/ESX.

This article provides information on different ways to identify these disks. This can be part of troubleshooting, primarily due to the storage component of the virtual environment.

Display availabke command for esxcli storage :

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

Available Namespaces:
  core                  VMware core storage commands.
  nfs                   Operations to create, manage, and remove Network Attached Storage
filesystems.
  nmp                   VMware Native Multipath Plugin (NMP). This is the VMware default
```

```
implementation of the Pluggable Storage Architecture.
  san                   IO device management operations to the SAN devices on the system.
  vflash                virtual flash Management Operations on the system.
  vmfs                  VMFS operations.
  filesystem            Operations pertaining to filesystems, also known as datastores, on the
ESX host.
```

Display availabke command for esxcli storage -> vmfs :

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

Available Namespaces:
  snapshot              Manage VMFS snapshots.
  extent                Manage VMFS extents.

Available Commands:
  unmap                 Reclaim the space by unmapping free blocks from VMFS Volume
  upgrade               Upgrade a VMFS3 volume to VMFS5.
```

```
~ # esxcli storage vmfs extent
Usage: esxcli storage vmfs extent {cmd} [cmd options]

Available Commands:
  list                  List the VMFS extents available on the host.
```

List the VMFS extents available on the host :

```
~ # esxcli storage vmfs extent list
Volume Name  VMFS UUID                            Extent Number  Device
Name                                                                Partition
-----------  -----------------------------------  -------------
------------------------------------------------------------------------  ---------
datastore1   52a0db3f-d87636dc-61bb-28924a2f1bc0              0
t10.ATA_____VB0250EAVER_____________________________Z3TDY30B______________            3
datastore2   53f6103b-e2c46411-13e9-28924a2f1bc0              0
t10.ATA_____WDC_WD1600AAJS2D00L7A0_____________________________WD2DWCAV36165769          1
```

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

```
Available Commands:
  automount             Request mounting of known datastores not explicitly unmounted.
  list                  List the volumes available to the host. This includes VMFS, NAS, VFAT
and UFS partitions.
  mount                 Connect to and mount an unmounted volume on the ESX host.
  rescan                Issue a rescan operation to the VMkernel to have is scan storage
devices for new mountable filesystems.
  unmount               Disconnect and unmount and existing VMFS or NAS volume. This will not
delete the configuration for the volume, but will remove the
                        volume from the list of mounted volumes.
```

List the volumes available to the host. This includes VMFS, NAS and VFAT partitions :

```
~ # esxcli storage filesystem list
Mount Point                                         Volume Name
UUID                                 Mounted  Type            Size         Free
---------------------------------------------------  -----------
---------------------------------  -------  ------  ------------  -----------
/vmfs/volumes/52a0db3f-d87636dc-61bb-28924a2f1bc0  datastore1   52a0db3f-d87636dc-61bb-
28924a2f1bc0     true  VMFS-5  244544700416  52979302400
/vmfs/volumes/53f6103b-e2c46411-13e9-28924a2f1bc0  datastore2   53f6103b-e2c46411-13e9-
28924a2f1bc0     true  VMFS-5  159987531776  14871953408
/vmfs/volumes/556a99d3-4dc8997f-b819-28924a2f1bc0               556a99d3-4dc8997f-b819-
28924a2f1bc0     true  vfat      4293591040   4255121408
/vmfs/volumes/4a052e7f-ed60f807-e327-66c4dcb34a59  Hypervisor1  4a052e7f-ed60f807-e327-
66c4dcb34a59     true  vfat       261853184     96874496
/vmfs/volumes/25230d7e-4dcb47f9-390e-25a3db175fe7  Hypervisor2  25230d7e-4dcb47f9-390e-
25a3db175fe7     true  vfat       261853184     96976896
/vmfs/volumes/2da668ef-40e5d96b-90bf-855ddb9c5547  Hypervisor3  2da668ef-40e5d96b-90bf-
855ddb9c5547     true  vfat       299778048     96681984
```

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

Available Namespaces:
  psp                   Operations pertaining to the Path Selection Policy Plugins for the
VMware Native Multipath Plugin.
  satp                  Operations pertaining to the Storage Array Type Plugins for the VMware
Native Multipath Plugin.
```

```
  device                Operations pertaining to the devices currently claimed by the VMware
Native Multipath Plugin.
  path                  Operations pertaining to the paths currently claimed by the VMware
Native Multipath Plugin.
```

```
~ # esxcli storage nmp device
Usage: esxcli storage nmp device {cmd} [cmd options]

Available Commands:
  list                  List the devices currently controlled by the VMware NMP Multipath
Plugin and show the SATP and PSP information associated with that
                        device.
  set                   Allow setting of the Path Selection Policy (PSP) for the given device
to one of the loaded policies on the system.
```

List the devices currently controlled by the VMware NMP Multipath Plugin and show the SATP and PSP information associated with that device :

```
~ # esxcli storage nmp device list
t10.ATA_____VB0250EAVER_____________________________Z3TDY30B______________
   Device Display Name: Local ATA Disk
(t10.ATA_____VB0250EAVER_____________________________Z3TDY30B______________)
   Storage Array Type: VMW_SATP_LOCAL
   Storage Array Type Device Config: SATP VMW_SATP_LOCAL does not support device
configuration.
   Path Selection Policy: VMW_PSP_FIXED
   Path Selection Policy Device Config: {preferred=vmhba0:C0:T0:L0;current=vmhba0:C0:T0:L0}
   Path Selection Policy Device Custom Config:
   Working Paths: vmhba0:C0:T0:L0
   Is Local SAS Device: false
   Is USB: false
   Is Boot USB Device: false

t10.ATA_____WDC_WD1600AAJS2D00L7A0_____________________________WD2DWCAV36165769
   Device Display Name: Local ATA Disk
(t10.ATA_____WDC_WD1600AAJS2D00L7A0_____________________________WD2DWCAV36165769)
   Storage Array Type: VMW_SATP_LOCAL
   Storage Array Type Device Config: SATP VMW_SATP_LOCAL does not support device
configuration.
   Path Selection Policy: VMW_PSP_FIXED
   Path Selection Policy Device Config: {preferred=vmhba32:C0:T0:L0;current=vmhba32:C0:T0:L0}
```

```
   Path Selection Policy Device Custom Config:
   Working Paths: vmhba32:C0:T0:L0
   Is Local SAS Device: false
   Is USB: false
   Is Boot USB Device: false
```

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