Introduction

The VMware Virtual SAN Quick Monitoring and Troubleshooting Reference Guide provide troubleshooting guidance for issues encountered during the configuration and monitoring of VMware Virtual SAN. This document identifies the most common issues that can be encounter and how to quickly resolve them.

Tools

Aside from the vSphere Web Client, the vCenter Server and vSphere Hypervisor provide a set of monitoring and troubleshooting tools that are bundled with the software and can be used to monitor and troubleshoot VMware Virtual SAN (VSAN).

- vSphere Web Client
- ESXCLI
- Ruby vSphere Console (RVC)
- VSAN Observer

Details on these tools can be found in the Virtual SAN documentation.
Known Issues and Solutions

Network Status reports “Misconfiguration Detected”

**Issue:** The Virtual SAN cluster fails to form correctly due to one or more members of the cluster not being able to communicate over the Virtual SAN network as a result of being in different network partition groups.

![Network Status report](image)

**Solution:** Ensure the physical switch and the ports used for Virtual SAN are active and have multicast enabled. Enabling multicast can be done in one of two ways on your physical switches:

- Disabling IGMP snooping.
- Configure IGMP snooping for selective traffic

Also, validate the virtual switch configuration for correct uplink, VLAN, NIC team failover policy configuration and the Virtual SAN traffic service is enabled on the VMkernel interfaces.

Virtual SAN requires a VMkernel network interface with the Virtual SAN traffic enabled. All members of the clusters must communicate on the same L2 network segment with multicast enabled, and all members of the cluster should be able to ping each other. Failing to meet this requirement will prevent Virtual SAN from being successfully configured, as it will prevent the hosts from communicating.

Use the tools and examples below to monitor and troubleshoot this type of issue.

**VMKPING**

Use the “vmkping” command to validate network accessibility for the Virtual SAN network. All of the host in the cluster should be able to successfully ping each others VSAN network interface.
ESXCLI
Use the “esxcli vsan network” namespace to examine and modify VSAN network configurations. Monitor and validate hosts multicast configuration details.

vSphere Web Client
The use of multiple network adapters for the VSAN network is recommended from an availability perspective, the team failover policy adapter configuration should be in active/standby configuration in order to avoid possible VSAN network partition issues.

Automatic “Add Disk to Storage Mode”
**Issue:** Automatic disk claiming operation fails to claim disks.

**Solution:** The disk groups will have to be created manually. Disks are automatically claimed when ESXi flags them as “local”. Many SAS controllers allow disks to be
shared. If ESXi determines that the disks are shared, it does not report them as “local”. Shared disks are currently not supported in Virtual SAN 1.0 and are reported as not local or “Is local: false”. However, some disks are reported as shared but are actually not shared, in that case you will need to mark them “as local”. This applies to both magnetic disks (HDD) as well as solid state disks (SSD).

**ESXCLI**

Use the “esxcli storage core” namespace to examine whether the disks are flagged as local or not, by looking at the “Is Local” attribute. This can be done before or after enabling Virtual SAN.

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

**RVC**

Use “vsan.disks_info” to gather detailed disks capabilities and characteristics such as size, disk type, manufactures, model, as well as identify if the disks are flagged as local or non-local.

```
![](image)
```

```
![](image)
```
Disk Groups Creation Fails

**Issue:** After manually selecting a desired group of HDD and an SSD for the creation of a disk group, the operation is successfully completed but there are no disk groups created.

**Solution:** There are currently two possible issues that can be causing this behavior. In most cases, it has to do with Virtual SAN not being licensed correctly. Assign a Virtual SAN license to the cluster via the vSphere Web Client. The Virtual SAN feature is not automatically added to the cluster when a Virtual SAN license is added to the vCenter Server license catalog.
The second possibility is the vSphere Web Client refresh time out. Depending on the number of disk groups and the number of disks, the completion of the operation can take some time. Logout of the system and log back on.

**vSphere Web Client**
After enabling Virtual SAN in a vSphere Cluster, assigned the license to the Virtual SAN enabled cluster. From the Home screen go to > licenses > Cluster tab > Select cluster object > Assign License Key. The license key has to be assigned to the cluster in order to avoid any possible issues related to licensing.

Verify the license has been successfully assigned to the cluster in the vSphere Web Client. Navigate to Host and Cluster > Cluster > Manage Tab > Settings > Virtual SAN Licensing.
Unable to delete Disk Group

**Issue:** Unable to delete disk groups from the vSphere Web Client user interface.

**Solution:** The inability to delete disk groups is the result of Virtual SAN disk claiming operation being set to automatic. In order to be able to delete disk groups, modify the disk claiming operation and change it to manual.

**vSphere Web Client**
After the changing the add disk to storage setting to manual, the delete disk group icon will be displayed next to the “Add Disk” icon when a disk group is selected.

**RVC**
Use the “vsan.host_wipe_vsan_disks” command to wipe disks being used by Virtual SAN. The operation is to be performed individually in a per host basis. Use the --force command option to start the disk wiping process.
Unable to identify Virtual SAN Performance Stats

**Issue:** Unable to identify Virtual SAN performance stats in the vSphere Web Client user interface.

**Solution:** Use RVC’s VSAN Observer to monitor and gather in-depth performance metrics for Virtual SAN. The vSphere Web Client is not currently able to display performance counters for Virtual SAN.

**VSAN Observer**
Launch the VSAN Observer to start collecting performance metrics. Typing the command “vsan.observer ~/computers/<cluster name> --run-webserver --force” to start the tool and use a modern web browser and access the metrics portal. VSAN Observer provides in-depth monitoring of Virtual SAN’s physical disk layer performance, cache hit rates, latencies, etc.
Monitoring Virtual SAN Read Cache Utilization

**Issue:** Unable to monitor Virtual SAN read cache layer from the vSphere Web Client.

**Solution:** To monitor Virtual SAN's caching layer use the VSAN Observer. The VSAN Disks (deep-dive) screen displays hosts aggregated stats of all disks and disk groups as well as details about every physical disk.

**VSAN Observer**
Launch the VSAN Observer to start collecting performance metrics. Typing the command “vsan.observer ~/computers/<cluster name> --run-webserver --force” to start the tool and use a modern web browser and access the metrics portal. Go to the VSAN Disk (deep-dive) page and select a host from the "host to show list" to view the stats.

Monitoring Virtual SAN Related Logs

**Issue:** Location of Virtual SAN related logs.

**Solution:** Virtual SAN related logs as well as respective traces could be found under the /var/log directory on each host.
Cluster Level Object Manager (CLOM) Logs
- /var/log/clomd.log

Object Storage File System (OSFS)
- /var/log/osfsd.log

Hostd /vpxa / disklib / objectlib
- /var/log/hostd.log
- /var/log/vpxa.log

Disk Capacity

**Issue:** Identification of used and reserved disk capacity in Virtual SAN

![Disks Stats Table]

**Solution:** use the RVC “disks_stats” command for complete output of hosts and disks in a Virtual SAN cluster. The percentage of used and reserved capacity is displayed

Monitoring Virtual SAN Component Limits

**Issue:** Determination of Virtual SAN component count against the maximum number of components allowed per host.

![Check Limits Table]

**Solution:** Use the RVC command “check_limits” in order to identify components count per host.
**Host Failure Impact**

**Issue:** Impact of a host failure in Virtual SAN.

![Command Output]

**Solution:** use the RVC command “whatif_host_failure” in order to identify the difference between the current available resources and the results if a failure were to occur.
Conclusion

In summary, this troubleshooting and monitoring reference guide was developed to provide quick guidance around some of the most common configuration issues and performance monitoring inquiries related to Virtual SAN.

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