Changing, adding and disabling L1 cache – VSAN for vSphere

2025

StarWind Documents

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StarWind is a pioneer in virtualization and a company that participated in the development of this technology from its earliest days. Now the company is among the leading vendors of software and hardware hyper-converged solutions. The company’s core product is the years-proven StarWind Virtual SAN, which allows SMB and ROBO to benefit from cost-efficient hyperconverged IT infrastructure. Having earned a reputation of reliability, StarWind created a hardware product line and is actively tapping into hyperconverged and storage appliances market. In 2016, Gartner named StarWind “Cool Vendor for Compute Platforms” following the success and popularity of StarWind HyperConverged Appliance. StarWind partners with world-known companies: Microsoft, VMware, Veeam, Intel, Dell, Mellanox, Citrix, Western Digital, etc.

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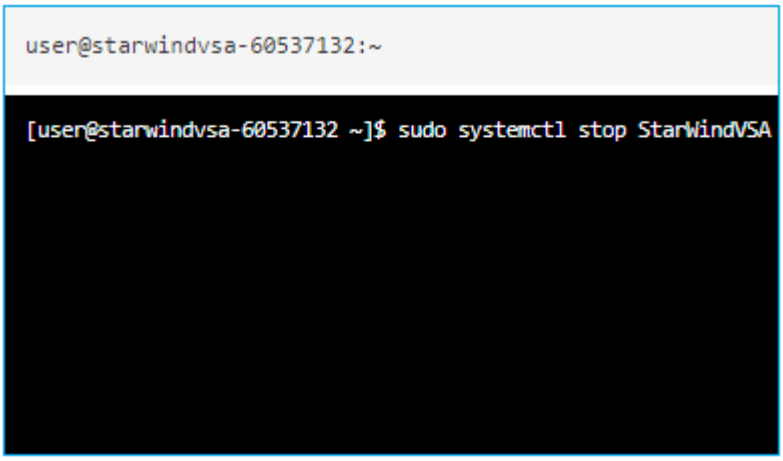
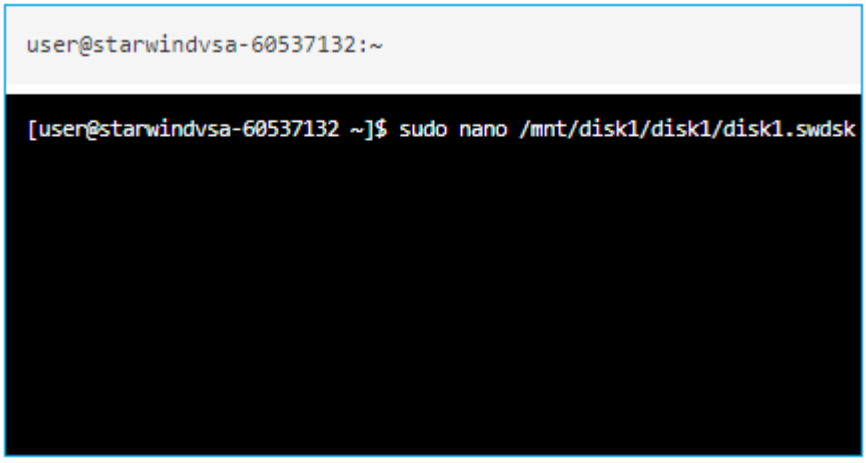
More information about L1 cache is available on the link: https://knowledgebase.starwindsoftware.com/explanation/starwind-virtual-san-l1-and-l2-caches-operational-principles/

Note: It is not recommended to configure cache in Write-Back mode on Standalone devices in order to avoid possible data corruption upon power outage or incorrect service shutdown.

Disabling Cache



1. Stop the StarWind service.
2. Check the path to the .swdsk file(s) in StarWind Management Console. It is in the same folder which contains the .img file. For example, VSA Storage\mnt\disk1\disk1. 3. Open the folder containing the *.swdsk StarWind device header file(s). Please make sure that there is a copy of the .swdsk files before editing them:



4. These are the lines to be removed from *.swdsk device header file(s):

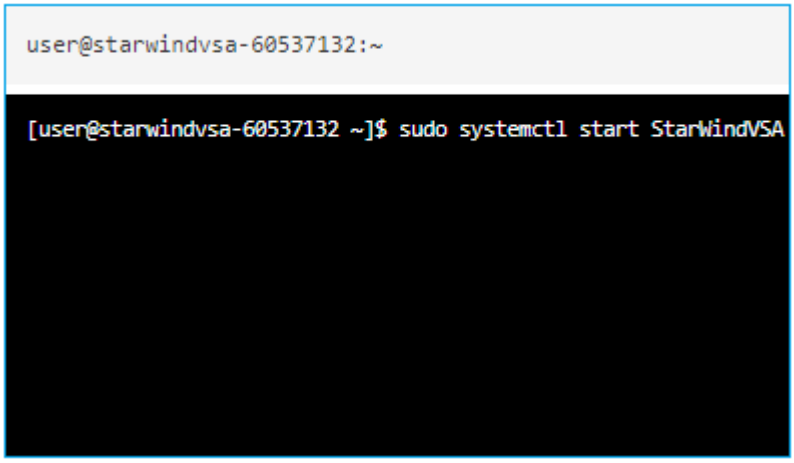
```
<caching>
  <cache type="write-back" size="128" units="MB" level="1">
```

```
        <storages>
          <storage_ref id="1"/>
        </storages>
      </cache>
    </caching>
```

and

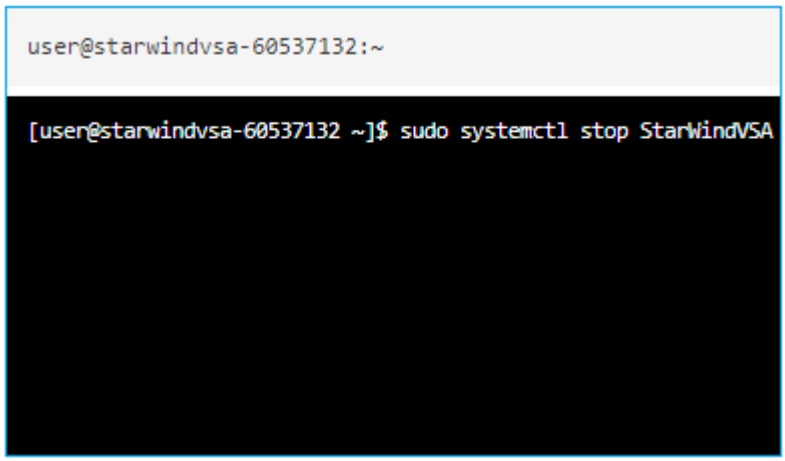
```
    <storage id="1" name="RAM" type="RAM">
      <interval size="128" units="MB"/>
    </storage>
```

NOTE: Units and size values may differ from the ones provided in the above example. 5. Save the file(s). 6. Start the StarWind service.



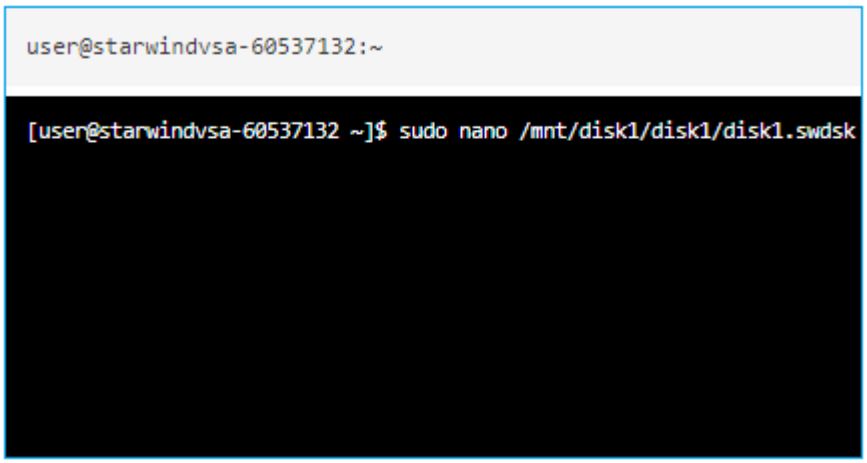
Wait for synchronization to complete, then repeat the same steps on the other node(s).

Changing Cache Size And Type



1. Stop the StarWind service.
2. Check the path to the .swdsk file(s) in StarWind Management Console. It is in the

same folder which contains the .img file. For example, VSA Storage\mnt\disk1\disk1. 3. Open the folder containing the *.swdsk header file(s). Please make sure that there is a copy of the .swdsk files before editing them:



4. These are the lines to be edited from *.swdsk header file(s):

```
 <caching>
         <cache type="write-back" size="128" units="MB" level="1">
           <storages>
             <storage_ref id="1"/>
           </storages>
         </cache>
       </caching>
```

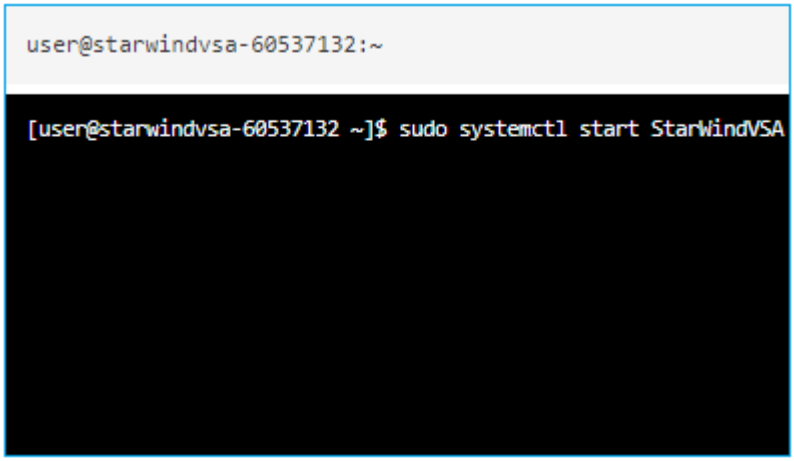
and

```
<storage id="1" name="RAM" type="RAM">
         <interval size="128" units="MB"/>
       </storage>
```

where:

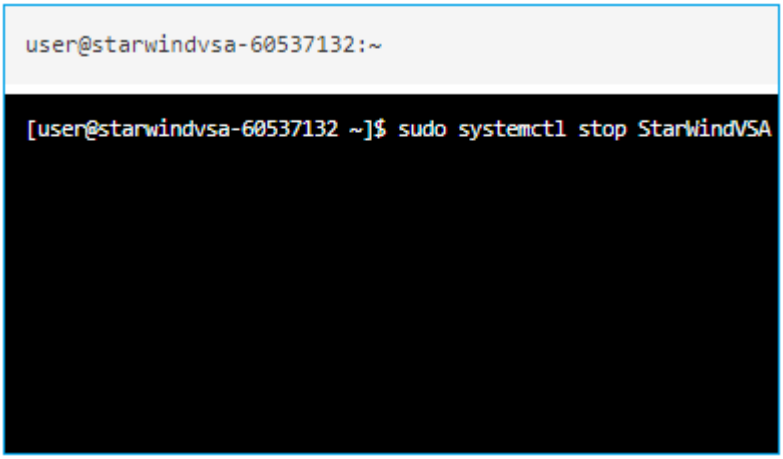
Parameter	Value	Description
cache type	*write-through*	Storage method in which data is written into the cache and the corresponding main memory location at the same time. The cached data allows for fast retrieval on demand, while the same data in main memory ensures that nothing gets lost if a crash, power failure, or other system disruption occurs.
	write-back	During idle machine cycles, the data are written from the cache into memory or onto disk. Write back caches improve performance, because writing to the high-speed cache is faster than to normal RAM or disk. Using write-back cache for disks adds a slight amount of risk, because the data remain in volatile memory longer.
size	{value}	Cache size in the corresponding units "MB", "GB".
storage_ref id storage id	{value} {value}	"Storage id" and "storage_ref id" should be the same for device type, but differ from 1, because the main device storage has this reference index. You can set this number to 3 or 4, for example.

NOTE: Units and size values may differ from the ones provided in the above example. 5. Save the file(s). 6. Start the StarWind service.

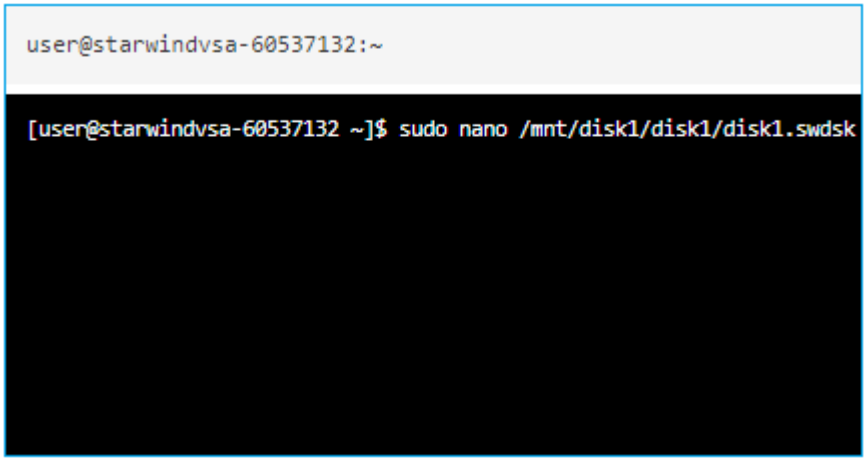


Wait for synchronization to complete, then repeat the same steps on the other node(s).

Adding Cache



1. Stop the StarWind service.
2. Check the path to the .swdsk file(s) in StarWind Management Console. It is in the same folder which contains the .img file. For example, VSA Storage\mnt\disk1\disk1. 3. Open the folder containing the *.swdsk header file(s). Please make sure that there is a copy of the .swdsk files before editing them:



NOTE: "Storage id" and "storage_ref id" should be the same for device type, but differ from 1, because the main device storage has this reference index. You can set this number to 3 or 4. These are the lines to be added to both .swdsk HA and image header files of the device:

- After the closing *</geometry>* tag:

```
<caching>
        <cache type="write-back" size="128" units="MB" level="1">
          <storages>
            <storage_ref id="4"/>
          </storages>
        </cache>
      </caching>
```

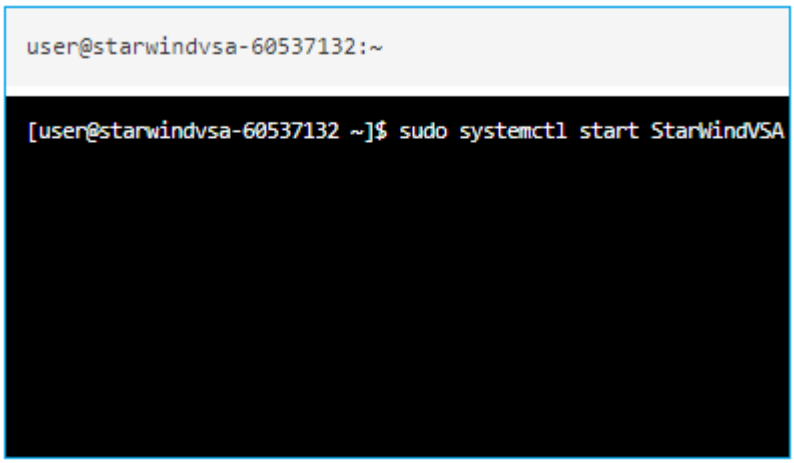
- After the *<storages>* tag which is below the *<resources>* tag:

```
<resources>
        <storages>
          <storage id="4" name="RAM" type="RAM">
            <interval size="128" units="MB"/>
          </storage>
```

where:

Parameter	Value	Description
cache type	*write-through*	Storage method in which data is written into the cache and the corresponding main memory location at the same time. The cached data allows for fast retrieval on demand, while the same data in main memory ensures that nothing gets lost if a crash, power failure, or other system disruption occurs.
	write-back	During idle machine cycles, the data are written from the cache into memory or onto disk. Write back caches improve performance, because writing to the high-speed cache is faster than to normal RAM or disk. Using write-back cache for disks adds a slight amount of risk, because the data remain in volatile memory longer.
size	{value}	Cache size in the corresponding units "MB", "GB".
storage_ref id storage id	{value} {value}	"Storage id" and "storage_ref id" should be the same for device type, but differ from 1, because the main device storage has this reference index. You can set this number to 3 or 4, for example.

NOTE: Units and size values may differ from the ones provided in the above example. 4. Save the file(s). 5. Start the StarWind service.



Wait for synchronization to complete, then repeat the same steps on the other node(s).

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Contacts

US Headquarters	EMEA and APAC
+1 617 829 44 95	+44 2037 691 857 (United Kingdom)
+1 617 507 58 45	+49 800 100 68 26 (Germany)
+1 866 790 26 46	+34 629 03 07 17 (Spain and Portugal)
	+33 788 60 30 06 (France)

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Support Forum: https://www.starwind.com/forums

Sales: sales@starwind.com

General Information: info@starwind.com

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StarWind Software, Inc. 100 Cummings Center Suite 224-C Beverly MA 01915, USA
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