

Optimizing Disk Performance

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Symptom (public)

TRIM/DISCARD Support

TRIM/DISCARD is a mechanism commonly used by SSD's to properly do write levelling, this is where deleted data is marked and data written in the same spot is written to a lesser used part of the disk. This effectively levels out the wear of the storage. Its used for a few other purposes, but this is the main one.

Enabling this will give our SAN a bit more information and allow it to better allocate storage for optimal speed. Our SAN monitors block allocation, read and writes and re-arranges blocks on physical storage to optimize access times. Why this will bring additional speed benefits is if blocks are recovered within the disk allocated to your VM that could be used to optimize adjacent data. This unused block can now be used for this purpose. Think of it like an automatic defrag, based on statistics, with re-ordering of data for performance purposes.

Problem (public)

Solution (public)

For all distributions a suitable filesystem must be used that supports this functionality. For example 'ext4'.

Fedora 21+

In Fedora support is enabled by running the below commands...

```
systemctl enable fstrim.timer
systemctl start fstrim.timer
```

CentOS 7+

In CentOS 7 support is enabled by running the below commands...

```
systemctl enable fstrim.timer
systemctl start fstrim.timer
```

Ubuntu 16.04+

There is no need to do anything here. Its enabled by default in /etc/cron.weekly/fstrim.

Debian 8 & 9

In Debian support is enabled by running the below commands...

```
cp /usr/share/doc/util-linux/examples/fstrim.service /etc/systemd/system/
cp /usr/share/doc/util-linux/examples/fstrim.timer /etc/systemd/system/
systemctl enable fstrim.timer
systemctl start fstrim.timer
```

OpenSuse 13+

In OpenSuse 13 support is enabled by running the below commands...

```
systemctl enable fstrim.timer
systemctl start fstrim.timer
```

CentOS 6

CentOS 6 doesn't have systemd support for fstrim, but it can easily be setup with a cronjob. Run the following command to edit your crontab...

```
cron -e
```

In the editor which pops up, create a weekly cron, save and exit...

```
@weekly /sbin/fstrim /
```