RHEL: Resize/disable /dev/shm filesystem

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Notes from www.walkernews.net, www.generation-linux.fr and Red Hat
web site

Thanks to big memory size, nowadays most of RAM is not used at all. It is thus possible # to allocate a part of this physical memory to be used as storage.

The name given to a temporary unix file is 'tmpfs'. From Linux 2.6
on this tmpfs is based
on ramfs. It is possible to fix a limit to its size in a way that
system will allocate
memory dynamically.

By default, RHEL and most Linux distributions mount tmpfs (a RAMbased temporarily # filesystem for shared memory) on /dev/shm directory and this temporarily filesystem size # is always set to be half of the installed memory.

If that default size is not something expected, we can increase or reduce the /dev/shm # filesystem size.

We may drop or disable this temporarily RAM-based filesystem entirely, to prevent it # from auto-mount during system boot-up, if none of the application in our server is relying # on shared memory function or explicitly using tmpfs. # By default, tmpfs is mounted during system start-up and its
definition in /etc/fstab looks
like this (on RHEL 7 there's no specification in /etc/fstab file by
default):

tmpfs /dev/shm tmpfs
defaults 0 0
What produces, for a system with 16 GB of RAM, a F.S. like this:

df -k
[...]
tmpfs 7.8G 0 7.8G 0% /dev/shm
Creating own tmpfs

Create a mount point on /mnt/mytmpfs.

mkdir /mnt/mytmpfs

Change directory permissions so anyone will be able to read/write/execute on it

chmod 777 /mnt/mytmpfs

Finally, mount 'tmpfs' the usual way

mount -t tmpfs -o size=256M tmpfs /mnt/mytmpfs

Remember that if we don't specify the size, it will be half the RAM.

For this F.S. to be mounted during system boot-up, add it to
/etc/fstab file:

tmpfs /mnt/mytmpfs tmpfs defaults,size=256M 0 0

Open /etc/fstab and locate the line of /dev/shm and use the tmpfs size option to specify # desired size (on RHEL 7, add the line if not present):

e.g. 512MB:

tmpfs/dev/shmtmpfsdefaults,size=512m00

e.g. 2GB:

tmpfs /dev/shm tmpfs defaults,size=2g 0 0

To make change effective immediately, run following mount command to remount the # /dev/shm filesystem:

mount -o remount /dev/shm

Actually, Linux allocates the memory for this tmpfs on demand basis, up to the maximum # size shown in 'df -h' command output. If none of the application is using the /dev/shm, # this tmpfs in fact does not consume any memory space. So, why disable it?

Anyway, if you prefer to disable /dev/shm temporarily just execute the umount command:

umount /dev/shm

To prevent tmpfs from auto-mount each time RHEL boots up, just comment out or delete # corresponding line from /etc/fstab.

On RHEL 7 API file systems are mounted by systemd. As they constitute an important mean of # communication kernel<->userspace and userspace<->userspace they are mounted automatically # without user confirmation. It is possible to disable the automatic mounting of some of them, # but /dev/shm should always become available, so better leave it mounted ;)

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