

Hibernation with LVM, LUKS and a Swapfile

With this How To you can use a swap file instead a swap partition as described [here](#).

First create a swap file (you can choose another name and / or size if you want):

```
dd if=/dev/zero of=/swapfile bs=1M count=4096
mkswap /swapfile
```

Activate the swap:

```
swapon /swapfile
```

Check if the swap file is recognized by the system:

```
cat /proc/swaps
Filename                                Type              Size      Used
Priority
/swapfile                               file              4194300  0      -1
```

Add to the fstab

```
/swapfile    none        swap        defaults    0    0
```

For suspend/resume you need to append 2 kernel parameter in /etc/lilo.conf resume and resume_offset.

resume is the partition where the swap file is located (e.g /dev/sda, /dev/cryptslack/root)
resume_offset is the beginning of the swap file on the resume partition, you can get the offset with:

```
sudo /sbin/filefrag -v /swapfile | head -n -3 | tail -n 1 | awk ' {print $3 }'
```

Your lilo entry should look like this:

```
# Append any additional kernel parameters:
append="vt.default_utf8=1 resume=/dev/cryptslack/root
resume_offset=1134591"
```

You need to patch the initrd to recognize the resume_offset parameter

[init-swapfile.patch](#)

```
--- init.orig      2012-12-01 14:03:39.344538490 +0100
+++ init           2012-12-01 14:01:12.526373970 +0100
@@ -69,6 +69,7 @@
    LUKSDEV=$(cat /luksdev)
```

```
LUKSKEY=$(cat /lukskey)
RESUMEDEV=$(cat /resumedev)
+RESOFFSET=$(cat /resoffset)
WAIT=$(cat /wait-for-root)
KEYMAP=$(cat /keymap)
INIT=/sbin/init
@@ -269,18 +270,35 @@
    umount -l /mountkey
    rmdir /mountkey 2>/dev/null
    fi
-
- # Resume state from swap
- if [ "$RESUMEDEV" != "" ]; then
-     if ls -l $RESUMEDEV | grep -q "^l" ; then
-         #RESUMEDEV=$(ls -l $RESUMEDEV | awk '{ print $NF }')
-         RESUMEDEV=$(readlink -f $RESUMEDEV)
-     fi
-     echo "Trying to resume from $RESUMEDEV"
-     RESMAJMIN=$(ls -l $RESUMEDEV | tr , : | awk '{ print $5$6 }')
-     echo $RESMAJMIN > /sys/power/resume
- fi
+
+if [ "$RESUMEDEV" != "" ]; then
+    # be lvm aware
+    RESUMEDEV=$(readlink -f ${RESUMEDEV} | awk -F '/' '{ print $3
}')
+    if [ -r "/sys/class/block/${RESUMEDEV}/dev" ] ; then
+        # try sysfs
+        read RESMAJMIN < "/sys/class/block/${RESUMEDEV}/dev"
+    elif [ -r "/proc/partitions" ] ; then
+        # otherwise run through /proc/partitions
+        while read m n b d jnk ; do
+            if [ "$d" = "${RESUMEDEV}" ] ; then
+                RESMAJMIN="$m:$n"
+                break
+            fi
+        done < "/proc/partitions"
+    fi
+    if [ -z "${RESMAJMIN}" ] ; then
+        # Device does not exist (not found in /proc/partitions)
+        exit 99
+    fi
+
+    if [ -n "${RESOFFSET}" ] ; then
+        echo "Try resume from ${RESMAJMIN}:${RESOFFSET}"
+        echo "${RESMAJMIN}:${RESOFFSET}" > /sys/power/resume
+    else
+        echo "${RESMAJMIN}" > /sys/power/resume
+    fi
+fi
```

```
+fi  
+
```

```
mkdir patched_initrd  
cd patched_initrd  
cp -r /boot/initrd-tree .  
echo "1134591" > resoffset  
patch < init-swapfile.patch
```

After successful patching, pack the initrd to `/boot/initrd-swapfile.gz`:

```
find . -print0 | cpio -ov -0 --format=newc | gzip -9 > /boot/initrd-swapfile.gz
```

I recommend to test this initrd first with another boot entry

```
image = /boot/vmlinuz  
initrd = /boot/initrd-swapfile.gz  
root = /dev/cryptslack/root  
label = "Linux Swapfile"  
read-only
```

Then you need to run `lilo` to save the changes

```
lilo
```

After a reboot you can suspend to your swap file as with your swap partition

You need the reboot, suspend also uses `resume_offset` to find the swap file

Sources

- <https://wiki.archlinux.org/index.php/Swap>
- <https://answers.launchpad.net/ubuntu/+source/initramfs-tools/+question/193862>
- Originally written by `f10`

[howtos](#), [swapfile](#), [hibernation](#), [suspend](#)

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