LVM: Shrink & extend a filesystem/volume

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LVM: Shrink & extend a filesystem/volume

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# Tested on AIX 5.3

# Note: jfs2 allows to shrink the filesystem, but a jfs filesystem's
size cannot be reduced

# In this example we are reducing /local/opt in order to free some
space to be
# assigned to "/" afterwards


# First we've verified that there was no free space

lsvg rootvg
   VOLUME GROUP:       rootvg             VG IDENTIFIER:
00c8425d00004c000000011f18c09ed8
   VG STATE:           active             PP SIZE:        32
megabyte(s)
   VG PERMISSION:      read/write         TOTAL PPs:      1406 (44992
megabytes)
   MAX LVs:            256                FREE PPs:       2 (64
megabytes)        <--- !!!
   LVs:                13                 USED PPs:       1404 (44928
megabytes)
   OPEN LVs:           12                 QUORUM:         1
(Disabled)
   TOTAL PVs:          2                  VG DESCRIPTORS: 3
   STALE PVs:          0                  STALE PPs:      0
```

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   ACTIVE PVs:         2                   AUTO ON:        yes
   MAX PPs per VG:     32512
   MAX PPs per PV:     1016                MAX PVs:        32
   LTG size (Dynamic): 256 kilobyte(s)     AUTO SYNC:      no
   HOT SPARE:          no                  BB POLICY:      relocatable


# Check if we are able to reduce /local/opt. Verify filesystem type

lsvg -l rootvg
   rootvg:
   LV NAME             TYPE       LPs     PPs     PVs  LV STATE
MOUNT POINT
   hd5                 boot       1       2       2    closed/syncd
N/A
   hd6                 paging     136     272     2    open/syncd
N/A
   hd8                 jfs2log    1       2       2    open/syncd
N/A
   hd4                 jfs2       18      36      2    open/syncd
/
   hd2                 jfs2       47      94      2    open/syncd
/usr
   hd9var              jfs2       32      64      2    open/syncd
/var
   hd3                 jfs2       32      64      2    open/syncd
/tmp
   hd1                 jfs2       1       2       2    open/syncd
/local/home
   hd10opt             jfs2       2       4       2    open/syncd
/opt
   localoptlv          jfs2       128     256     2    open/syncd
/local/opt   <-- jfs2, ok
   lv_dump2            sysdump    32      32      1    open/syncd
N/A
   lv_dump1            sysdump    32      32      1    open/syncd
N/A
   lv_u01              jfs2       256     512     2    open/syncd
```

```
/u01




# Shrink F.S./volume
# ------------------------------------------------------------------
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df -m
   Filesystem    MB blocks      Free %Used    Iused %Iused Mounted on
   /dev/hd4          64.00      2.99   96%     2783    77% /
   /dev/hd2        1504.00    119.41   93%    36283    53% /usr
   /dev/hd9var     1024.00    225.42   78%      562     2% /var
   /dev/hd3        1024.00    961.14    7%     1818     1% /tmp
   /dev/hd1          32.00      9.35   71%      545    20%
/local/home
   /proc                -         -    -         -     -  /proc
   /dev/hd10opt      64.00     14.73   77%     1421    28% /opt
   /dev/localoptlv   5120.00   4819.80    6%     2776     1%
/local/opt      <---
   /dev/lv_u01     8192.00    602.68   93%    40483    20% /u01
   /dev/lv_u02    81920.00  59775.86   28%       54     1% /u02
   /dev/lv_u03    81920.00  50331.45   39%       56     1% /u03
   /dev/lv_u04    81920.00  63376.46   23%       42     1% /u04
   /dev/lv_u07   104448.00 101208.13    4%      340     1% /u07
   /dev/lv_u05    12288.00   2768.47   78%       89     1% /u05
   /dev/lv_u06    12288.00   2768.46   78%       89     1% /u06


# Let's reduce by 1GB

chfs -a size=-1G /local/opt
   Filesystem size changed to 8388608



# Otherwise, we can specify the final size like this:
# chfs -a size=7G /local/opt
```

```
# chfs -a size=7168M /local/opt


df -m
   Filesystem    MB blocks      Free %Used    Iused %Iused Mounted on
   /dev/hd4          64.00      2.99   96%     2783    77% /
   /dev/hd2        1504.00    119.41   93%    36283    53% /usr
   /dev/hd9var     1024.00    225.42   78%      562     2% /var
   /dev/hd3        1024.00    961.14    7%     1818     1% /tmp
   /dev/hd1          32.00      9.35   71%      545    20%
/local/home
   /proc                -         -    -         -     -  /proc
   /dev/hd10opt      64.00     14.73   77%     1421    28% /opt
   /dev/localoptlv   4096.00   3795.95    8%     2776     1%
/local/opt      <---
   /dev/lv_u01     8192.00    603.16   93%    40467    20% /u01
   /dev/lv_u02    81920.00  59775.86   28%       54     1% /u02
   /dev/lv_u03    81920.00  50331.45   39%       56     1% /u03
   /dev/lv_u04    81920.00  63376.46   23%       42     1% /u04
   /dev/lv_u07   104448.00 101208.13    4%      340     1% /u07
   /dev/lv_u05    12288.00   2768.47   78%       89     1% /u05
   /dev/lv_u06    12288.00   2768.46   78%       89     1% /u06


# Check new free space on volume group

lsvg rootvg
   VOLUME GROUP:       rootvg                  VG IDENTIFIER:
00c8425d00004c000000011f18c09ed8
   VG STATE:           active                  PP SIZE:        32
megabyte(s)
   VG PERMISSION:      read/write              TOTAL PPs:      1406 (44992
megabytes)
   MAX LVs:            256                     FREE PPs:       66 (2112
megabytes)
   LVs:                13                      USED PPs:       1340 (42880
megabytes)
```

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   OPEN LVs:           12                  QUORUM:         1
(Disabled)
   TOTAL PVs:          2                   VG DESCRIPTORS: 3
   STALE PVs:          0                   STALE PPs:      0
   ACTIVE PVs:         2                   AUTO ON:        yes
   MAX PPs per VG:     32512
   MAX PPs per PV:     1016                MAX PVs:        32
   LTG size (Dynamic): 256 kilobyte(s)     AUTO SYNC:      no
   HOT SPARE:          no                  BB POLICY:      relocatable




# Extend F.S./volume
# -----------------------------------------------------------------
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df -m
   Filesystem    MB blocks      Free %Used    Iused %Iused Mounted on
   /dev/hd4          64.00      2.98   96%     2783    77% /
<---
   /dev/hd2        1504.00    384.37   75%    36279    29% /usr
   /dev/hd9var     1024.00    225.42   78%      562     2% /var
   /dev/hd3        1024.00    961.14    7%     1818     1% /tmp
   /dev/hd1          32.00      9.35   71%      545    20%
/local/home
   /proc                -         -    -         -     -  /proc
   /dev/hd10opt      64.00     14.73   77%     1421    28% /opt
   /dev/localoptlv   4096.00   3795.95    8%     2776     1%
/local/opt
   /dev/lv_u01     8192.00    602.98   93%    40496    20% /u01
   /dev/lv_u02    81920.00  59775.86   28%       54     1% /u02
   /dev/lv_u03    81920.00  50331.45   39%       56     1% /u03
   /dev/lv_u04    81920.00  63376.46   23%       42     1% /u04
   /dev/lv_u07   104448.00 101208.13    4%      340     1% /u07
   /dev/lv_u05    12288.00   2768.47   78%       89     1% /u05
   /dev/lv_u06    12288.00   2768.46   78%       89     1% /u06
```

```
# Let's extend by 512M

chfs -a size=+512M /
   Filesystem size changed to 1179648

# Otherwise, we can specify the final size like this:
# chfs -a size=1152M /
# chfs -a size=2G /


df -m
   Filesystem    MB blocks      Free %Used    Iused %Iused Mounted on
   /dev/hd4         576.00    514.91   11%     2783     3% /
<---
   /dev/hd2        1504.00    384.37   75%    36279    29% /usr
   /dev/hd9var     1024.00    225.42   78%      562     2% /var
   /dev/hd3        1024.00    961.14    7%     1818     1% /tmp
   /dev/hd1          32.00      9.35   71%      545    20%
/local/home
   /proc                -         -    -         -     -  /proc
   /dev/hd10opt      64.00     14.73   77%     1421    28% /opt
   /dev/localoptlv   4096.00   3795.95    8%     2776     1%
/local/opt
   /dev/lv_u01     8192.00    602.82   93%    40520    20% /u01
   /dev/lv_u02    81920.00  59775.86   28%       54     1% /u02
   /dev/lv_u03    81920.00  50331.45   39%       56     1% /u03
   /dev/lv_u04    81920.00  63376.46   23%       42     1% /u04
   /dev/lv_u07   104448.00 101208.13    4%      340     1% /u07
   /dev/lv_u05    12288.00   2768.47   78%       89     1% /u05
   /dev/lv_u06    12288.00   2768.46   78%       89     1% /u06


lsvg rootvg
   VOLUME GROUP:       rootvg             VG IDENTIFIER:
00c8425d00004c000000011f18c09ed8
   VG STATE:           active             PP SIZE:        32
```

```
megabyte(s)
   VG PERMISSION:      read/write          TOTAL PPs:      1406 (44992
megabytes)
   MAX LVs:            256                 FREE PPs:       34 (1088
megabytes)
   LVs:                13                  USED PPs:       1372 (43904
megabytes)
   OPEN LVs:           12                  QUORUM:         1
(Disabled)
   TOTAL PVs:          2                   VG DESCRIPTORS: 3
   STALE PVs:          0                   STALE PPs:      0
   ACTIVE PVs:         2                   AUTO ON:        yes
   MAX PPs per VG:     32512
   MAX PPs per PV:     1016                MAX PVs:        32
   LTG size (Dynamic): 256 kilobyte(s)     AUTO SYNC:      no
   HOT SPARE:          no                  BB POLICY:      relocatable
```