

LVM: Shrink & extend a filesystem/volume

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LVM: Shrink & extend a filesystem/volume

```
# 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
```

```

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

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:
00c8425d00004c00000011f18c09ed8
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)
```

```

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
```

```
# -----
-----
```

```
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

```

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