

Installation procedure and setting up **ISP admin** to RAID1



Installation procedure and setting up ISP admin to RAID1

- Connect to the IP address of the server via SSH
- Password is "ispadmin"
- It is need to make partition in connected HDD. ISP admin Installation suposes two disks, which will be set as mirror. We supose two SATA disks as mirror. One as /dev/sda and second as /dev/sdb.

We make one primary partition for system and second for swap file. Minimal size of Swap partition is 2GB (a little more then the size of RAM memory). Primary partition must be set up as FD type (Raid Autodetect) and SWAP partition as 82 (SWAP) type.

Example of creation

write fdisk to disk /dev/sda (system disk)

fdisk /dev/sda

Device contains neither a valid DOS partition table, nor Sun, SGI or OSF disklabel
Building a new DOS disklabel. Changes will remain in memory only,
until you decide to write them. After that, of course, the previous
content won't be recoverable.

The number of cylinders for this disk is set to 38913.
There is nothing wrong with that, but this is larger than 1024,
and could in certain setups cause problems with:
1) software that runs at boot time (e.g., old versions of LILO)
2) booting and partitioning software from other OSS
(e.g., DOS FDISK, OS/2 FDISK)

Warning: invalid flag 0x0000 of partition table 4 will be corrected by w(rite)

Show partition tables on disk and remove unnecessary tables (command "d")

Command (m for help): **p**

Disk /dev/sda: 320.0 GB, 320072933376 bytes
255 heads, 63 sectors/track, 38913 cylinders
Units = cylinders of 16065 * 512 = 8225280 bytes

Device	Boot	Start	End	Blocks	Id	System
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Disk is empty, now create a new partition

Command (m for help): **n**

Command action

e extended

p primary partition (1-4)

The primary partition

P

Partition 1 on the disk

Partition number (1-4): **1**

First cylinder (1-38913, default 1):

The first cylindr on the disk has number 1 (fdisk sets automatically)

Using default value **1**

last cylindr of the first partition has number 38000. Disk size is 38913. Now set up disk size, but remember, you need some free space for swap!

Last cylinder or +size or +sizeM or +sizeK (1-38913, default 38913): **38000**

Same way create another new partition for Swap

Command (m for help): **n**

Command action

e extended

p primary partition (1-4)

P

Partition number (1-4): **2**

First cylinder (38001-38913, default 38001):

fdisk offers first number of sector, where is free space

Using default value **38001**

Last cylinder or +size or +sizeM or +sizeK (38001-38913, default 38913):

fdisk offers the last free sector at the end of the disk, push Enter. Now is second partition created to the end of the disk.

Using default value **38913**

Show created partition to make sure that are all created and swap partition has optimal size. If not, delete all partition and repeat the procedure from beginnig.

Command (m for help): **p**

Disk /dev/sda: 320.0 GB, 320072933376 bytes
255 heads, 63 sectors/track, 38913 cylinders
Units = cylinders of 16065 * 512 = 8225280 bytes

Device	Boot	Start	End	Blocks	Id	System
/dev/sda1		1	38000	305234968+	83	Linux
/dev/sda2		38001	38913	7333672+	83	Linux

Set up Boot to first partition

```
Command (m for help): a
Partition number (1-4): 1
```

Set up first partition to FD type (Linux raid autodetect)

```
Command (m for help): t
Partition number (1-4): 1
Hex code (type L to list codes): fd
Changed system type of partition 1 to fd (Linux raid autodetect)
```

Set up second partition to Swap

```
Command (m for help): t
Partition number (1-4): 2
Hex code (type L to list codes): 82
```

Check

```
Command (m for help): p
```

```
Disk /dev/sda: 320.0 GB, 320072933376 bytes
255 heads, 63 sectors/track, 38913 cylinders
Units = cylinders of 16065 * 512 = 8225280 bytes
```

Device	Boot	Start	End	Blocks	Id	System
/dev/sda1	*	1	38000	305234968+	fd	Linux raid autodetect
/dev/sda2		38001	38913	7333672+	82	Linux swap / Solaris

Save changes to disk

```
Command (m for help): w
The partition table has been altered!
```

```
Calling ioctl() to re-read partition table.
Syncing disks.
```

Disk configuration is complete

- Partition in both disks must be the same. Use the same procedure to second disk /dev/hdb.
- now is need to create raid 1 (mirror) from disk /dev/sda1 and /dev/sdb1. Use this command:

```
mdadm --create /dev/md0 --level=1 --raid-devices=2 /dev/sda1 /dev/sdb1
```

Display:

```
mdadm: array /dev/md0 started.
```

Display status with this command:

```
more /proc/mdstat
```

Display:

```
Personalities : [raid0] [raid1] [raid10] [raid6] [raid5] [raid4] [multipath] [faulty]
md0 : active raid1 sdb1[1] sda1[0]
      306841344 blocks [2/2] [UU]
      [=>.....] resync = 5.2% (16186816/306841344) finish=41.2min speed=117548K/sec
```

```
unused devices: <none>
```

As you see, array is named as /dev/md0, and it is active (md0 : active raid1), It is created from two disks (sdb1[1] sda1[0]), both disks are in "U" status, that's mean UP ([2/2] [UU]). Synchronization time is 41 min. After time is up, array will be fully redundant. Mirroring speed is currently 117MB/sec.

Preparation of disks is complete now

- Now start Installation of the ISP admin with this command

```
/install-md0.sh
```

This command makes a disk format and then copies the data to disk (It may takes several minutes)

- When is the installation finished, set up boot sector and create boot loader

```
### switch to the new disk
```

```
chroot /hd
```

```
### edit /etc/lilo.conf
```

```
pico -w /etc/lilo.conf
```

write following changes:

```
prompt
disk=/dev/md0
# bios=0x80
timeout=20
default=ISP_admin_64
boot=/dev/md0
map=/boot/map
raid-extra-boot=mbr-only # delete hash
root=/dev/md0

image=/boot/vmlinuz-2.6.27.7
    label=ISP_admin_64
    read-only
```

```
### start LILO to create the boot sector
```

```
lilo
```

Display:

```
Warning: '/proc/partitions' does not exist, disk scan bypassed
Added ISP_admin_64 *
The Master boot record of /dev/sda has been updated.
Warning: /dev/sdb is not on the first disk
The Master boot record of /dev/sdb has been updated.
```

- leave chroot

```
exit
```

- using ifconfig check actual IP address. After reboot server must have this new IP address (not default 192.168.1.100)

```
ifconfig
```

Display

```
eth0      Link encap:Ethernet  HWaddr 00:E0:4C:62:3B:9F
          inet addr:10.0.0.33  Bcast:172.20.100.7  Mask:255.255.255.248
          UP BROADCAST RUNNING MULTICAST  MTU:1500  Metric:1
          RX packets:70239 errors:0 dropped:0 overruns:0 frame:0
          TX packets:73398 errors:0 dropped:0 overruns:0 carrier:0
          collisions:0 txqueuelen:1000
          RX bytes:4774126 (4.5 MiB)  TX bytes:13479965 (12.8 MiB)
          Interrupt:16 Base address:0xe800
```

find the default gateway

```
route -n
```

```
Kernel IP routing table
Destination      Gateway          Genmask          Flags Metric Ref    Use Iface
172.20.100.0    0.0.0.0         255.255.255.248 U        0      0      0 eth0
0.0.0.0         10.0.0.1        0.0.0.0         UG       0      0      0 eth0
```

- IP address, gateway and mask write to /hd/etc/rc.local

```
pico -w /hd/etc/rc.local
```

- Disconnect disk that contains new data

```
umount /hd
```

- Eject CD

```
eject
```

If is CDROM as SATA, it is OK.
If is CDROM as IDE, write this command

```
eject /dev/hda
```

- reboot system

```
reboot -f
```

- If all steps was made correctly, installation is complete and system will boot.

Now you can log in via SSH using password: "ispadmin" :-)

Default login information

SSH

user: root
pass: ispadmin

access to ISP admin using web interface

user: admin
pass: ispadmin