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## PROXMOX Quick overview

### Remove subscription dialog

```
sed -Ezi.bak "s/(Ext.Msg.show(\{\s+title: gettext\('No valid sub)/void(\{\ \/\ \1/g"
/usr/share/javascript/proxmox-widget-toolkit/proxmoxlib.js && systemctl restart
pveproxy.service
```

### BIOS Tweaking

I/OAT DMA Engine	?	<a href="https://en.wikipedia.org/wiki/I/O_Acceleration_Technology">https://en.wikipedia.org/wiki/I/O_Acceleration_Technology</a>
SRV/IOV Global Enable	Enabled	<a href="https://en.wikipedia.org/wiki/Single-root_input/output_virtualization">https://en.wikipedia.org/wiki/Single-root_input/output_virtualization</a>
X2Apic	Enabled	<a href="https://en.wikipedia.org/wiki/Advanced_Programmable_Interrupt_Controller">https://en.wikipedia.org/wiki/Advanced_Programmable_Interrupt_Controller</a>

IBM lab tests show that enabling the x2APIC support for Red Hat Enterprise Linux 6 guests can result in 2% to 5% throughput improvement for many I/O workloads.

### Add S3 storage

<https://dragontek.com/blog/post/adding-s3-capabilities-proxmox>

### NUMA Info

```
numactl --hardware
```

When possible, create smaller VMs, instead of “Monster” VMs, that fit into a single NUMA node.

### Disk performance (not for SSD)

```
echo 100000 > /sys/block/sdX/queue/nr_requests
```

### List CEPH Snapshot

```
rbd --pool ceph-pool snap ls vm-100-disk-1
```

```
rbd snap rm ceph-pool/vm-100-disk-1@vzdump
```

### Windows Preparation

```
sysprep.exe [/oobe | /audit] [/generalize] [/reboot | /shutdown | /quit] [/quiet]
[/unattend:answerfile]
```

## Import HyperV

```
qemu-img convert -O qcow2 disk.vhdx /var/lib/vz/images/112/vm-112-disk-1.qcow2
```

## BBR

/etc/sysctl.conf

```
net.ipv4.tcp_congestion_control=bbr
```

## Jumbo Frames

/etc/network/interface

```
pre-up ip link set <interface name> mtu 9000
```

```
post-up ip link set eth2 mtu 9000 && ip link set eth3 mtu 9000 && ip link set bond1 mtu 9000
```

Instantly ip link set <interface name> mtu 9000

## HA Logic

shutdown: stops VMs, then move them to other nodes

reboot: stops VMs, put the into freeze state

## Migrate Hyper-V to KVM

```
qemu-img check -r all disk.vhdx  
qemu-img convert -O qcow2 disk.vhdx output.qcow2
```

## OpenVZ / PROXMOX Tips

Proxmox "no subscription" patch

/usr/share/pve-manager/ext6/pvemanagelib.js Modify

```
-if (data.status !== 'Active') {  
+if (false) {
```

System limits [Hints for Redhat Linux](#)

## Set ULIMIT

When you are using large JAVA applications, Databases

in Proxmox Hypervisor edit `/etc/security/limits.conf`

```
* soft nfile 65535
* hard nfile 65535
root soft nfile 65535
root hard nfile 65535
* soft stack unlimited
* hard stack unlimited
root soft stack unlimited
root hard stack unlimited
* soft memlock unlimited
* hard memlock unlimited
root soft memlock unlimited
root hard memlock unlimited
```

## Cluster

```
pvecm create YOUR-CLUSTER-NAME
pvecm status
pvecm add IP-ADDRESS-CLUSTER (from new node)
pvecm nodes
pvecm delnode NAME
```

## ext3 vs ext4

ext3 have better performance, ext4 much faster fsck.

## How to edit Proxmox config without quorum

```
/etc/default/pve-cluster so that DEAMON_OPTS="-l"
```

(set local mode) and reboot  
or try.

```
systemctl stop pve-cluster
pmxcfs -l
```

## Change node IP address

```
/etc/network/interfaces
/etc/hosts
/etc/pve/cluster.conf
```

## Update

edit **nano** `/etc/apt/sources.list` and add public repo

```
# PVE pve-no-subscription repository provided by proxmox.com, NOT recommended for production
use
```

```
deb http://download.proxmox.com/debian stretch pve-no-subscription
```

```
edit nano /etc/apt/sources.list.d/pve-enterprise.list  
disable enterprise by hash #
```

```
apt-get update && apt-get dist-upgrade
```

## Graphs Problems

Clean directory `/var/lib/rrdcached/*` then restart.

## Network Bond

- 1) Remove `vmbr0`
- 2) Create `bond0`
- 3) Assign `eth0 eth1 eth2` etc + Balance-RR (Switch support 2Gbit / up-down) or Balance-TLB (any switch 2Gb up / 1Gb down)
- 4 Create `vmbr0` set IP and Bridge ports `bond0`

```
cat /proc/net/bonding/bond0
```

## Root minimum size

Approx. 8GB

## Speedup migration

```
datacenter.cfg
```

```
migration: network=172.24.16.1/24,type=insecure
```

## KSM Sharing default at 50% used

```
/etc/ksmtuned.conf
```

## KVM IO

```
Cache -> Writeback  
Discard on -> LVM Thin
```

## Disable the USB tablet device

# Do not use balloon driver

## IO Scheduler in KVM

Set noop or deadline

## Mount ext4 in KVM

```
/dev/X /c ext4 defaults,noatime,nodiratime,nobh,commit=40,barrier=0,data=writeback 0 2
```

## SSD / LVM-Thin

Edit harddisk setting and check "discard"

## Check IOMMU Support

```
#!/bin/sh
if [ $(dmesg | grep ecap | wc -l) -eq 0 ]; then
    echo "No interrupt remapping support found"
    exit 1
fi

for i in $(dmesg | grep ecap | awk '{print $NF}'); do
    if [ $(( (0x$i & 0xf) >> 3 )) -ne 1 ]; then
        echo "Interrupt remapping not supported"
        exit 1
    fi
done
```

## Single node

You can disable

```
systemctl disable zed
systemctl disable zfs
systemctl disable zfs-import-scan
systemctl disable zfs-mount
systemctl disable zfs-share
systemctl disable zfs-zed

pve-ha-crm
pve-la-hrm
pve-firewall
pvefw-logger
```

# Unmanaged LXC

```
pct create 128 /mnt/pve/synology-vm/template/cache/aws-2-standard-amd64.tar.gz --arch amd64 -  
-hostname amazon --rootfs ceph-rbd:128 --memory 1024 --cores 2 --ostype unmanaged --  
unprivileged 1
```

# Convert QCOW2 to RAW

```
qemu-img convert -f qcow2 -O raw image.qcow2 image.raw
```

# Kernel clean

<https://raw.githubusercontent.com/jordanhillis/pveclean/master/pveclean.sh>

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