

# SR-IOV

## Ensure IOMMU Is Activated

“ First step of this process is to make sure that your hardware is even capable of this type of virtualization. You need to have a motherboard, CPU, and BIOS that has an IOMMU controller and supports Intel-VT-x and Intel-VT-d or AMD-v and AMD-vi. Some motherboards use different terminology for these, for example they may list AMD-v as SVM and AMD-vi as IOMMU controller.

## Update Bootloader

### Update Kernel Parameters

**\*\*NOTE\*\*** Be sure to replace `intel_iommu=on` with `amd_iommu=on` if you're running on AMD instead of Intel.

### Grub2

```
# /etc/default/grub
- GRUB_CMDLINE_LINUX_DEFAULT="quiet"
+ GRUB_CMDLINE_LINUX_DEFAULT="quiet intel_iommu=on iommu=pt"
```

### Systemd

```
# /etc/kernel/cmdline
- root=ZFS=rpool/ROOT/pve-1 boot=zfs
+ root=ZFS=rpool/ROOT/pve-1 boot=zfs intel_iommu=on iommu=pt
```

## Rebuild Bootloader Options

### Grub

```
update-grub
```

## systemd-boot

```
bootctl update
```

## Proxmox

```
pve-efiboot-tool refresh
```

# Enable Virtual Functions

Find the link name you want to add virtual function to using `ip link`. In this scenario we're going to say we want to add 4 virtual functions to link `eth2`. You can find the maximum number of virtual function possible by reading the `sriov_totalvfs` from sysfs...

```
cat /sys/class/net/enp10s0f0/device/sriov_totalvfs  
7
```

To enable virtual functions you just `echo` the number you want to `sriov_numvfs` in sysfs...

```
echo 4 > /sys/class/net/enp10s0f0/device/sriov_numvfs
```

# Make Persistent

Sysfs is a virtual file system in Linux kernel 2.5+ that provides a tree of system devices. This package provides the program 'systool' to query it: it can list devices by bus, class, and topology.

In addition this package ships a configuration file `/etc/sysfs.conf` which allows one to conveniently set sysfs attributes at system bootup (in the init script `etc/init.d/sysfsutils`).

```
apt install sysfsutils
```

# Configure sysfsutils

To make these changes persistent, you need to update `/etc/sysfs.conf` so that it gets set on startup.

```
echo "class/net/eth2/device/sriov_numvfs = 4" >> /etc/sysfs.conf
```

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