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How to configure VyOS to create a switch

BIOS configuration

CPU

- Enable Direct Cache Access (DCA)
- Under chipset/North bridge check for IOAT and VT-d setting
 - IOAT enable
Try No Snoop and Relaxed Ordering if present
- VT-d enable VT-d
enable Interrupt remapping

PCIe configuration

- Set Above 4G Decoding Enable
- Set Maximum Payload Set to max available
- Set Maximum Read Request Set to max available

Installation

Boot VyOS install

- user = vyos
- pass = vyos

(*) System boots in ***Operational Mode***

How to configure VyOS to create a switch

Getting started

After boot

- Run *install image*
- When finished, remove CD and type *reboot*

(*) For Help Type ?

Commands

- | | |
|--|---|
| • view interfaces: | <i>show interfaces</i> |
| • Blink interface LED: | <i>show interfaces ethernet <interface> identify</i> |
| • Enter Configuration Mode: | <i>configure</i> |
| • Set IP address: | <i>set interfaces ethernet <interface> address <x.x.x.x/yy></i> |
| • Set interface description: | <i>set interfaces ethernet <interface> description 'name'</i> |
| • Allow ssh on interface: | <i>set service ssh listen-address <x.x.x.x></i> |
| • Show commands in buffer for execution: | <i>compare</i> |
| • Save changes in buffer: | <i>commit</i> |
| | <i>save</i> |

Example how to assign an IP to an interface and enable ssh

```
configure
show interfaces
show interfaces ethernet eth0 identify
set interfaces ethernet eth0 address 10.10.10.245/24
set interfaces ethernet eth0 description 'management'
set service ssh listen-address 10.10.10.245
commit
save
```

– *ssh is set on interface eth1*

How to configure VyOS to create a switch

How to order the interfaces

- List interfaces with ifconfig: `sudo ifconfig`
- List sorting by MAC: `sudo ifconfig | grep -i hwaddr | sort -u -k5`

i.e.:

```
vyos@vyos:~$ sudo ifconfig | grep -i hwaddr | sort -u -k5  
eth2    Link encap:Ethernet  HWaddr 00:15:17:d2:d8:e0  
eth1    Link encap:Ethernet  HWaddr 00:15:17:d2:d8:e1  
eth4    Link encap:Ethernet  HWaddr 00:15:17:d2:d8:e2  
eth3    Link encap:Ethernet  HWaddr 00:15:17:d2:d8:e3  
eth0    Link encap:Ethernet  HWaddr 94:de:80:ba:35:60
```

Interfaces are out of order by mac address. Eth0 should be (your choice) 00:15:17:d2:d8:e0

Config is kept on /config/config.boot. Good practice to save it before major changes.

i.e.:

```
vyos@vyos:~$ cd /config/  
vyos@vyos:/config$ cp config.boot config.boot-old
```

How to configure VyOS to create a switch

Changing/assigning interfaces names to a mac

Enter configure mode	<i>configure</i>
Assign interface to mac	<i>set interfaces eth <interface> <mac></i>
Commit changes	<i>commit</i>
Save	<i>save</i>

i.e.:

```
vyos@vyos# set interfaces eth eth0 hw-id 00:15:17:d2:d8:e0
```

Compare will show changes waiting to be committed:

```
vyos@vyos# compare
```

```
[edit interfaces ethernet eth0]
```

```
>hw-id 00:15:17:d2:d8:e0
```

```
[edit interfaces ethernet eth2]
```

```
>hw-id 00:15:17:d2:d8:e2
```

```
[edit interfaces ethernet eth4]
```

```
>hw-id 94:de:80:ba:35:60
```

```
[edit]
```

After the changes you might need to reassign the management interface IP address.

- Enter configure mode: *configure*
- Delete old interface IP: *delete interfaces ethernet <interface> address x.x.x.x/yy*
- Delete old interface name: *delete interfaces ethernet <interface> description <name>*
- Set IP to new interface: *set interfaces ethernet <interface> address <x.x.x.x/yy>*
- Set name to new interface: *set interfaces ethernet <interface> description 'name'*

How to configure VyOS to create a switch

Changing configuration

Show running config

```
vyos@vyos:~$ configure
```

```
[edit]
```

```
vyos@vyos# show system
```

Changing host name

```
vyos@vyos# set system host-name melloswitch
```

Changing gateway

```
vyos@vyos# set system gateway-address 10.10.10.1
```

Changing DNS

```
vyos@vyos# set system name-server 10.10.10.1
```

Changing time zone

```
vyos@vyos# set system time-zone US/Eastern
```

Checking with compare

```
vyos@vyos# compare
```

```
[edit system]
```

```
+gateway-address 10.10.10.1
```

```
>host-name melloswitch
```

```
+name-server 10.10.10.1
```

```
>time-zone America/New_York
```

```
[edit]
```

```
vyos@vyos# set system time-zone US/Ea
```

```
US/East-Indiana US/Eastern
```

How to configure VyOS to create a switch

[edit]

vyos@vyos# set system time-zone US/Eastern

[edit]

vyos@vyos# **compare**

[edit system]

+gateway-address 10.10.10.1

>host-name melloswitch

+name-server 10.10.10.1

>time-zone US/Eastern

[edit]

Commit and Save

vyos@vyos# **commit**

[system host-name melloswitch]

Stopping enhanced syslogd: rsyslogd.

Starting enhanced syslogd: rsyslogd.

[system time-zone US/Eastern]

Stopping enhanced syslogd: rsyslogd.

Starting enhanced syslogd: rsyslogd.

[edit]

vyos@vyos# **save**

Saving configuration to '/config/config.boot'...

Done

[edit]

How to configure VyOS to create a switch

Verifying configuration

vyos@vyos# **ping yahoo.com**

PING yahoo.com (98.138.219.231) 56(84) bytes of data.

64 bytes from media-router-fp1.prod1.media.vip.ne1.yahoo.com (98.138.219.231): icmp_req=1 ttl=47 time=50.7 ms

vyos@vyos# **ntpq -p**

remote	refid	st	t	when	poll	reach	delay	offset	jitter
--------	-------	----	---	------	------	-------	-------	--------	--------

=====

=====

+ord1.m-d.net	142.66.101.13	2	u	3	64	1	40.592	2.306	2.130
---------------	---------------	---	---	---	----	---	--------	-------	-------

+nms.switch.ca	206.108.0.134	2	u	-	64	3	89.506	3.708	8.144
----------------	---------------	---	---	---	----	---	--------	-------	-------

*europa.ellipse.	204.9.54.119	2	u	31	64	1	56.702	1.555	0.116
------------------	--------------	---	---	----	----	---	--------	-------	-------

Note:

Tried setting time zone using Americas/New_York. System didn't show any errors.

vyos@vyos# **set system time-zone America/New_York**

[edit]

vyos@vyos# **commit**

[system time-zone America/New_York]

Stopping enhanced syslogd: rsyslogd.

Starting enhanced syslogd: rsyslogd.

[edit]

vyos@vyos# **save**

Saving configuration to '/config/config.boot'...

Done

[edit]

vyos@vyos# **ntpq -p**

How to configure VyOS to create a switch

remote refid st t when poll reach delay offset jitter

=====

+ord1.m-d.net 142.66.101.13 2 u 9 64 3 40.261 3.259 2.833
+nms.switch.ca 206.108.0.134 2 u 4 64 7 89.208 5.387 9.108
*europa.ellipse. 204.9.54.119 2 u 41 64 3 56.755 2.818 1.353

How to configure VyOS to create a switch

The bridge

Note: Work from console as management IP will be removed (notice new switch name)

Creating the bridge

```
vyos@melloswitch:~$ configure
vyos@melloswitch# delete interfaces eth eth4 address
vyos@melloswitch# delete interfaces eth eth4 description
vyos@melloswitch:~$ compare
vyos@melloswitch:~$ commit
vyos@melloswitch:~$ save
vyos@melloswitch# set interfaces bridge br0
vyos@melloswitch# set interfaces bridge br0 address 10.10.10.245/24
vyos@melloswitch# set interfaces bridge br0 description 'bridge 1'
vyos@melloswitch# compare
vyos@melloswitch# commit
vyos@melloswitch# save
vyos@melloswitch# exit
vyos@melloswitch# show interfaces
```

Verify br0 was created and has an IP address

Assign interfaces to the bridge

```
vyos@melloswitch# configure
vyos@melloswitch# set interfaces ethernet eth1 bridge-group bridge br0
```

How to configure VyOS to create a switch

Add description to interface

```
vyos@melloswitch# set interfaces eth eth1 description 'br0 1gb member'
```

```
vyos@melloswitch# set interfaces eth eth2 description 'br0 10gb member'
```

Setting MTU on 10gb interfaces

```
vyos@melloswitch# set interfaces eth eth2 mtu 9000
```

Compare/review/commit/save

```
vyos@melloswitch# compare
```

```
vyos@melloswitch# commit
```

```
vyos@melloswitch# save
```