

VyattaCore 6 - alpha 2 release notes

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Image installation support

The `install-image` command is used to install the system image to the hard drive. It is similar to `install-system` in functionality, and the main difference is that when a version of Vyatta is installed using `install-system` to a disk partition, it will use the partition exclusively, i.e., it cannot coexist with a different version on the same partition. In contrast, `install-image` can install multiple Vyatta versions into the same partition, and the user can then choose which version to boot into using the grub menu at boot time.

The command can be used in two different modes.

- 1. From a live CD boot:** If you have a new system and want to install Vyatta from scratch, you can boot the Vyatta live CD and then run the `install-image` command to install the image in the live CD to the disk. In this mode, the command operates similarly to the `install-system` command, i.e., it creates and formats a new disk partition and then installs the image to the partition. However, it installs the image with a particular structure such that later versions can be installed into and coexist on the same partition.
- 2. From an installed system:** If you already have an existing installed Vyatta system, you can boot the installed system, copy the Vyatta ISO image file to the system (e.g., using `scp`), and then run the `install-image` command to install the ISO image file to the disk. Note that when run on an installed system, you must specify the "ISO image file" to be installed (in contrast, when run from a live CD boot, the live CD image will be installed). Your existing installation(s) will be preserved and can then be selected through the grub menu at boot time if necessary.

Usage of these two modes are described next, and then related operational commands will be discussed.

Install an image on a new system using a live CD

To install an image on a new system, follow these steps.

- Boot the live CD.
- Login to the system as the vyatta user (password vyatta).
- Run the install-image command.

```
vyatta@vyatta:~$ install-image
Welcome to the Vyatta install program. This script
will walk you through the process of installing the
Vyatta image to a local hard drive.
Would you like to continue? (Yes/No) [Yes]:
```

- Answer Yes to continue. The next part, setting up the install partition, is very similar to install-system. Below is an example of a typical install (not using RAID, "Auto" partition, default values, etc.).

```
Probing drives: OK
Looking for pre-existing RAID groups...none found.
The Vyatta image will require a minimum 1000MB root.
Would you like me to try to partition a drive automatically
or would you rather partition it manually with parted? If
you have already setup your partitions, you may skip this step
```

```
Partition (Auto/Parted/Skip) [Auto]:
```

```
I found the following drives on your system:
sda    1074MB
```

```
Install the image on? [sda]:
```

```
This will destroy all data on /dev/sda.
Continue? (Yes/No) [No]: Yes
```

```
How big of a root partition should I create? (1000MB - 1074MB) [1074]MB:
```

- Next, the command will format the partition and then install the image into the partition.

```
Creating filesystem on /dev/sda1: OK
Done!
Mounting /dev/sda1...
Copying squashfs image...
Copying kernel and initrd images...
Done!
```

- After the image is installed, the command will set up the default start-up configuration on the newly installed system. This includes copying the configuration file and then set up the password for the vyatta user.

```
I found the following configuration files
/opt/vyatta/etc/config/config.boot
Which one should I copy to sda? [/opt/vyatta/etc/config/config.boot]:
```

```
Enter password for administrator account
Enter vyatta password:
Retype vyatta password:
```

- The last part is the grub installation.

```
I need to install the GRUB boot loader.
I found the following drives on your system:
sda    1074MB
```

```
Which drive should GRUB modify the boot partition on? [sda]:
```

```
Setting up grub: OK
Done!
```

- The image has been installed. Reboot the system to boot into the newly-installed version.

Install an image on an existing installed Vyatta system

If you already have an existing installed Vyatta system, and you want to install a new version into the same partition, you can use the `install-image` command as follows.

- Note: the following steps assume that your existing install is version "VC6_a2" (i.e., "Vyatta Core 6 alpha 2") or later. If your existing install is "jenner-based", the `install-image` command on your system is an earlier version and has more limited functionality, and its usage is different from below.
- Boot the existing installed system if it is not already up and running.
- Login into your system, e.g., as the `vyatta` user.
- Download the new ISO image file that you want to install.
- As an example, suppose in the previous step you downloaded the image file to `/home/vyatta/newimage.iso`. Now run the `install-image` command and specify the image file as a command argument.

```
vyatta@vyatta:~$ install-image /home/vyatta/newimage.iso
Welcome to the Vyatta install program. This script
will walk you through the process of installing the
Vyatta image to a local hard drive.
Would you like to continue? (Yes/No) [Yes]:
```

- Answer Yes to continue. Next the command will ask you if you want to use the current partition, i.e., the one that contains the existing install. (Note that currently when installing from an existing install, the command only supports using the current partition. In other words, if you answer "No" here, the command will not perform the install. If you do not want to use the current partition, the live CD install procedure in the previous section should be used instead.) Answer Yes to continue. The command will then install the image into the current install partition.

```
You are running an installed system. Do you want to use the current install
partition? (Yes/No) [Yes]: Yes
```

```
Done!  
Installing "999.kenwood.11051132" release.  
Copying new release files...
```

- Next, you can choose whether or not to use the current configuration file (i.e., the start-up configuration file of the currently running system) for the newly-installed version.

```
Would you like to use the current configuration  
for the new version? (Yes/No) [Yes]: Yes  
Copying current configuration...
```

- The command then sets up the grub configuration to include the new version.

```
Setting up grub configuration...  
Done.
```

- The new Vyatta image is now installed in the current partition. Reboot the system to boot into the newly-installed version.

Related commands

The following operational commands are related to the installed Vyatta images.

show system installed-images

This command shows the Vyatta images currently installed on the system. Here is an example of the output.

```
vyatta@vyatta:~$ show system installed-images  
The system currently has the following images installed:  
  
1: 999.kenwood.11051132 (default boot)  
2: 999.kenwood.11041537  
  
vyatta@vyatta:~$
```

Note that it also indicates which image is the default when booting the system.

set system boot-image

This command can be used to change the default boot image. It lists the currently-installed images and asks the user to select the default boot. An example is shown below.

```
vyatta@vyatta:~$ set system boot-image  
The system currently has the following images installed:  
  
1: 999.kenwood.11051132 (default boot)  
2: 999.kenwood.11041537  
  
Select the default boot image: 2  
  
Default boot image has been set to "999.kenwood.11041537".
```

You need to reboot the system to start the new default image.

```
vyatta@vyatta:~$
```

Netflow support

Configuration

```
system {
  accounting {
    interface <ifname> {          # multi-value
      sampling-rate <u32>         # sample 1 in N packets, default
    }
    syslog-facility facility
    netflow {
      version <1|5|9>             # default 5
      engine-id <u32>             # 0-255
      server <ipv4> {             # multi-value
        port <u32>                #
      }
      timeout {
        expiry-interval <u32>     # default 60
        flow-generic <u32>        # default 3600
        icmp <u32>                # default 300
        max-active-life <u32>    # default 604800
        tcp-fin <u32>             # default 300
        tcp-generic <u32>        # default 3600
        tcp-rst <u32>            # default 120
        udp <u32>                 # default 300
      }
    }
  }
  sflow {
    agentid <u32>
    server <ipv4> {               # multi-value
      port <u32>                  # default 6343
    }
  }
}
```

Operational commands

show accounting

Shows the flows for all interfaces configured for system accounting:

```
vyatta@R1:~$ show accounting
```

Accounting flows for [eth0]

Src Addr	Dst Addr	Sport	Dport	Proto	Packets	Bytes	Flows
10.1.0.14	224.0.0.18	0	0	vrrp	4106	164240	1
10.1.0.95	255.255.255.255	68	67	udp	32	10496	1
69.59.150.135	10.1.0.90	123	123	udp	32	2432	32
0.0.0.0	255.255.255.255	68	67	udp	2	656	1
10.1.0.96	255.255.255.255	68	67	udp	2	656	2
10.1.0.13	10.1.0.90	67	68	udp	2	656	2

```
10.0.0.31      10.1.0.90      53    2377    udp      2          258      1
```

```
Total entries: 7
Total flows   : 41
Total pkts    : 4,178
Total bytes   : 179,394
```

Accounting flows for [eth1]

Src Addr	Dst Addr	Sport	Dport	Proto	Packets	Bytes	Flows
172.16.117.1	172.16.117.2	47181	23	tcp	1021	53683	10
172.16.117.25	172.16.117.2	0	0	icmp	18	2688	14
172.16.117.25	10.0.0.31	2377	53	udp	2	148	2
172.16.117.25	172.16.117.2	1904	4949	tcp	1	60	1
172.16.117.25	172.16.117.2	4359	4949	tcp	1	60	1
172.16.117.25	172.16.117.2	4407	4949	tcp	1	60	1
172.16.117.25	172.16.117.2	4172	4949	tcp	1	60	1
172.16.117.25	172.16.117.2	1102	4949	tcp	1	60	1
172.16.117.25	172.16.117.2	2836	4949	tcp	1	60	1
172.16.117.25	172.16.117.2	3612	4949	tcp	1	60	1
172.16.117.25	172.16.117.2	3234	4949	tcp	1	60	1
172.16.117.25	172.16.117.2	2179	4949	tcp	1	60	1
172.16.117.25	172.16.117.2	4636	4949	tcp	1	60	1
172.16.117.25	172.16.117.2	3328	4949	tcp	1	60	1
172.16.117.25	172.16.117.2	1225	4949	tcp	1	60	1
172.16.117.25	172.16.117.2	4668	4949	tcp	1	60	1
172.16.117.25	172.16.117.2	2185	4949	tcp	1	60	1

```
Total entries: 17
Total flows   : 40
Total pkts    : 1,055
Total bytes   : 57,359
```

show accounting interface

Shows the flows for specific interface:

```
vyatta@R1:~$ show accounting interface eth0
```

Accounting flows for [eth0]

Src Addr	Dst Addr	Sport	Dport	Proto	Packets	Bytes	Flows
10.1.0.14	224.0.0.18	0	0	vrrp	4315	172600	1
10.1.0.95	255.255.255.255	68	67	udp	32	10496	1
69.59.150.135	10.1.0.90	123	123	udp	33	2508	33
10.1.0.13	10.1.0.90	67	68	udp	3	984	3
0.0.0.0	255.255.255.255	68	67	udp	2	656	1
10.1.0.96	255.255.255.255	68	67	udp	2	656	2
10.0.0.31	10.1.0.90	53	2377	udp	2	258	2

```
Total entries: 7
Total flows   : 43
Total pkts    : 4,389
Total bytes   : 188,158
```

show accounting interface host

Shows the flows for specific interface and host:

```
vyatta@R1:~$ show accounting interface eth0 host 10.1.0.90
```

Src Addr	Dst Addr	Sport	Dport	Proto	Packets	Bytes	Flows
----------	----------	-------	-------	-------	---------	-------	-------

69.59.150.135	10.1.0.90	123	123	udp	2	152	2
10.0.0.31	10.1.0.90	53	2377	udp	1	129	1

Total entries: 2
 Total flows : 3
 Total pkts : 3
 Total bytes : 281

show accounting interface port

Shows the flows for specific interface and port:

vyatta@rtr2-eng-bmca:~\$ show accounting interface eth1 port 5901

Src Addr	Dst Addr	Sport	Dport	Proto	Packets	Bytes	Flows
10.1.0.21	10.254.1.1	5901	1062	tcp	1173976	549257260	4
10.1.0.16	76.74.103.44	5901	56233	tcp	226162	315581529	2
10.1.0.21	10.254.1.1	5901	4533	tcp	185367	12470433	2
10.1.0.16	76.74.103.44	5901	39642	tcp	9251	9872712	1
10.1.0.21	10.3.0.111	5901	4815	tcp	12025	5004733	1
10.1.0.21	10.254.1.2	5901	1467	tcp	20864	2830817	1
10.1.0.5	10.3.0.111	5901	3664	tcp	24199	2808749	4
10.1.0.5	10.254.1.2	5901	1478	tcp	20658	1834930	1
10.1.0.5	10.3.0.182	5901	2765	tcp	16132	1191533	15
10.1.0.5	10.3.0.111	5901	4801	tcp	2390	127650	1
10.1.0.21	10.1.18.20	5901	4889	tcp	14	560	1
10.1.0.5	10.1.18.20	5901	4905	tcp	14	560	1

Total entries: 12
 Total flows : 34
 Total pkts : 1,691,052
 Total bytes : 900,981,466

show accounting interface top

Shows the top flows for given interface:

vyatta@rtr2-eng-bmca:~\$ show accounting interface eth1 top 10

Accounting flows for [eth1]

Src Addr	Dst Addr	Sport	Dport	Proto	Packets	Bytes	Flows
10.1.0.23	10.0.0.32	10080	703	tcp	8062647	3282078738	34
10.1.0.5	10.0.0.30	851	2049	tcp	45216151	1621821376	5
10.1.18.1	10.3.0.187	22	1552	tcp	857282	1170311436	1
10.1.0.23	10.1.23.2	80	56372	tcp	404313	606376579	1
10.1.0.23	10.1.23.2	80	52732	tcp	396782	595122383	1
10.1.0.23	10.1.23.2	80	35070	tcp	384939	577077737	1
10.1.0.21	10.254.1.1	5901	1062	tcp	1173976	549257260	4
10.1.0.24	10.3.0.196	22	4555	tcp	236158	354222840	0
10.1.0.16	76.74.103.44	5901	56233	tcp	226162	315581529	2
10.1.0.23	10.1.23.2	80	37882	tcp	127931	191040360	1

Total entries: 10
 Total flows : 50
 Total pkts : 57,086,341
 Total bytes : 9,262,890,238

clear accounting counters

Clears memory plugin for all configured interfaces:

vyatta@R1:~\$ clear accounting counters

clearings accounting for [eth1]

```
OK: Clearing stats.
clearings accounting for [eth0]
OK: Clearing stats.
```

clear accounting interface eth0 counters

Clears memory plugin for a given interface:

```
vyatta@R1:~$ clear accounting interface eth0 counters
clearings accounting for [eth0]
OK: Clearing stats.
```

Configuration Examples

Just memory plugin

```
vyatta@R1# set system accounting interface eth0
[edit]
vyatta@R1# set system accounting interface eth1
[edit]
vyatta@R1# commit
Starting [eth1] accounting
Starting [eth0] accounting
[edit]
vyatta@R1# show system accounting
  interface eth0 {
  }
  interface eth1 {
  }
[edit]
```

Multiple interfaces with netflow

```
vyatta@R1# show system accounting -all
  interface eth0 {
  }
  interface eth1 {
  }
  netflow {
    server 1.1.1.1 {
      port 2055
    }
    version 5
  }
  syslog-facility daemon
[edit]
```

Export netflow to multiple collectors

```
vyatta@R1# set system accounting interface eth
eth0 eth1
[edit]
vyatta@R1# set system accounting interface eth0
[edit]
vyatta@R1# set system accounting interface eth1
[edit]
vyatta@R1# set system accounting netflow version 5
[edit]
vyatta@R1# set system accounting netflow server 1.1.1.1
[edit]
vyatta@R1# set system accounting netflow server 2.2.2.2 port 2056
```

```

[edit]
vyatta@R1# commit
Starting [eth1] accounting
Starting [eth0] accounting
[edit]
vyatta@R1# show system accounting
interface eth0 {
}
interface eth1 {
}
netflow {
  server 1.1.1.1 {
  }
  server 2.2.2.2 {
    port 2056
  }
  version 5
}
[edit]

```

Wireless 802.11 support

Support for wireless access has been added to the Vyatta Core 6 release. This release provides basic functionality for configuring Vyatta as a station or an access point.

Configuration Mode

Access Point Configuration example:

```

wireless wlan0 {
  address 192.168.40.1/24
  channel 1
  security {
    wpa {
      passphrase "sjkghfwfsfddsg999"
    }
  }
  ssid Test
  mode n
  type access-point
}

```

Station configuration example:

```

wireless wlan1 {
  address dhcp
  security {
    wep {
      key 6d26455b47582878223b354873293a71
    }
  }
  ssid Example
  type station
}

```

Full syntax:

```

interfaces {

```

```

wireless wlanX {
    device phyX
    ssid ssid
    type type
    mode X
    disable-broadcast
    channel number
    security ...
    country XX

    # Normal interface configuration parameters
    description "arbitrary text"
    address ipv4/ ipv6 / dhcp
    mtu number
    firewall ...
    qos-policy ...
}
}

```

Wireless device specific values are:

device: associates physical device with *wlanX*, the syntax is phyN where N is one or more digits. The value is optional for the first wireless interface on a device (ie *wlan0*) but required when creating additional devices.

ssid: Service Set Identifier required

disable-broadcast: Changes access-point manager to not broadcast SSID, often used to hide access-points.

type: used to choose *access-point*, *station*, or *monitor*

mode: defines the 802.11 mode which controls the frequencies and modulation used. Possible values are *a*, *b*, *g*, or *n*.

channel: controls the frequency used. Possible values are 1-14, default is to just allow hardware to choose.

country: used by access-points to control allowable frequencies and power based on regulations in country. The optional value is two letter ISO country code, common values would be: US, EU, JP. CLI enforces only that the value be two letters.

security: controls the use of encryption

Open: If no security parameter is given, the wireless connection is assumed to be open/unencrypted.

WEP: Wired Equivalent Protection (WEP) is configured by specifying the key. The key is in hex and can be either 10, 26, or 32 characters corresponding to 64, or 152 bit WEP. WEP encryption has been broken and is NOT recommended.

```

wireless wlan {
    security wep key value
}

```

WPA-PSK: Wired Protected Access - Personal Shared Key is a stronger form of encryption using a shared password. The shared pass phrase can be from 8 to 63 printable characters.

```
wireless wlan {  
    ...  
    security wpa passphrase "shared pass phrase"  
}
```

WPA Enterprise: Wired Protected Access - Enterprise uses a RADIUS server to provide keys and optional accounting. Multiple radius servers can be defined.

```
wireless wlan {  
    ...  
    security wpa {  
        radius-server 1.1.1.1 {  
            secret Secret1  
            accounting  
        }  
    }  
}
```

The *address, mtu, firewall, qos-policy* are same as *ethernet* devices and are therefore not described in this document.

Operational commands

Wifi specific commands:

There are two wireless specific commands:

```
$ show interfaces wireless info
```

Interface	Type	SSID	Channel
mon.wlan0	monitor	-	?
wlan0	AP	testing	3

```
$ show interfaces wireless wlan0  
brief      capture  stations
```

```
$ show interfaces wireless wlan0 stations
```

Station	Signal	RX: bytes	packets	TX: bytes	packets
00:1d:e0:30:26:3f	-45	59074	1409	75714	631

Generic interface commands:

The standard operational commands work as well:

```
$ show interfaces wireless
```

Interface	IP Address	State	Link	Description
wlan0	192.168.40.1/24	up	up	

```
$ show interfaces wireless wlan0 brief
```

Interface	IP Address	State	Link	Description
wlan0	192.168.40.1/24	up	up	

```
$ show interfaces wireless wlan0
```

```
wlan0: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc pfifo_fast state UP  
qlen 1000
```

```
link/ether 00:21:91:d1:18:ca brd ff:ff:ff:ff:ff:ff  
inet 192.168.40.1/24 brd 192.168.40.255 scope global wlan0  
inet6 fe80::221:91ff:fed1:18ca/64 scope link
```

```
valid_lft forever preferred_lft forever
```

RX:	bytes	packets	errors	dropped	overrun	mcast
	18705	150	0	0	0	0
TX:	bytes	packets	errors	dropped	carrier	collisions
	27349	142	0	0	0	0

Hardware support

A list of compatible wireless cards can be found here:

<http://linuxwireless.org/en/users/Devices/PCI>