ipinfusion™

DANOS-Vyatta edition®

Disaggregated Network
Operating System
Version 2009a

uCPE Install Guide

October 2020

Contents

Preface

This guide shows how to install and recover DANOS-Vyatta edition (DVE).

Audience

This guide is intended for network administrators and other engineering professionals who install DANOS-Vyatta edition.

At a minimum, you need to be familiar with:

- Linux operating systems and their command line interfaces
- Internet routing and switching software protocols

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CHAPTER 1 Installing uCPE

uCPE installs and runs on most standard devices such as the x86 servers and PCs. You can use uCPE LiveCD or LiveUSB to install uCPE onto a variety of persistent devices, including a hard drive, USB memory stick, and compact Flash.

You must create a LiveCD or LiveUSB disk before you being the installation. The installation process uses LiveCD or LiveUSB as the source image, formats the device on which the system is being installed, installs the system, and, if possible, preserves the configuration from previous installations. When the installation is completed, you reboot your system and the newly installed system begins running.

Note: Not all hardware supports the ability to boot from a USB device or compact Flash; check the BIOS of your hardware to see if it does.

About LiveCD and LiveUSB

LiveCD and LiveUSB run on uCPE on a RAM disk that resides on the host system. The system uses the RAM disk for writeable sections of the file system and uses an external system, such as a TFTP server or USB memory stick, for the storage of configuration files.

LiveCD and LiveUSB can run on a device that has an existing operating system. The previously installed operating system is not disturbed or changed when you use LiveCD or LiveUSB. The configuration is not stored on the system, but you can save it to a persistent device, such as a USB memory stick. In addition, you cannot upgrade an installation from LiveCD or LiveUSB; each upgrade requires a new instance. While you are running the system from LiveCD or LiveUSB, you are not able to access other applications or programs on your system.

LiveCD and LiveUSB is also required to install uCPE to a persistent device, such as a hard disk. As a method of deployment, running from LiveCD and LiveUSB is best suited for evaluation and test scenarios.

Prerequisites

Before you install the uCPE platform, perform the following steps.

* Ensure these hardware requirements:
    * CD ROM drive or a USB drive
    * Quad-core CPU
    * Minimum of 8 GB of storage space
* Download the installation file from the IP Infusion Inc. website.
* Create a LiveCD or LiveUSB disk for the software.
* Specify the boot device of the system to boot from LiveCD or LiveUSB.

Data plane memory allocation

Table 1-1 shows the memory allocation for each RAM size.

Table 1-1: Data plane memory allocation

RAM (GB)	Memory allocation to the data plane
8 and 64	1/8
64	8 GB
Greater than 64	8 GB

Note: The minimum size of RAM that is supported is 8 GB in which 1 GB is allocated for data plane

Guest memory allocation

uCPE allocates three-fourths of the total memory to the guests. RAM that is not allocated to the data plane or guests is shared between Linux and the controller.

Table 1-2 shows the memory that is allocated to Linux and the controller function based fro each RAM size.

Table 1-2: Linux and controller memory allocation

RAM (GB)	Memory allocation
8	1GB for the data plane 1 GB for Linux and the controller 6 GB for guests
64	8 GB for the data plane 8 GB for Linux and the controller 48 GB for the guests
128	8 GB for the data plane 24 GB for Linux and the controller 96 GB for the guests

Downloading the files

You must download the software from the IP Infusion Inc. website before you can create a LiveCD or LiveUSB disk.

Creating a LiveCD or LiveUSB disk

A LiveCD or LiveUSB must be bootable. Refer to your operating system documentation on how to create a bootable LiveCD or LiveUSB disk.

Before creating a bootable LiveCD or LiveUSB disk, download the installation files and perform the following steps:

1. Download the ISO image for the product.

2. Create a bootable ISO image.

Specifying the boot device in the system BIOS

Use LiveCD and LiveUSB to install the software. Before doing so, specify the boot device to boot from a CD, DVD, or USB drive.

To specify the boot device, perform the following steps:

1. During the boot sequence, press the appropriate key (for example, <F2>) to interrupt the boot sequence and enter the BIOS setup program for your system.

2. In the boot sequence menu, arrange the boot devices such that the device name for the CD or USB drive is first in the list, which allows the system to boot from a CD or USB drive, if one is present.

3. Save the settings and reboot the system. When the system restarts, it boots from the LiveCD or LiveUSB disk.

After the system has booted, you can check that you can access it from your network.

Installing uCPE using a USB flash drive

You must have USB Flash drive with the uCPE ISO image and the USB flash drive plugged in to your laptop.

To install uCPE by using a USB flash drive, perform the following steps.

1. Download the universal USB installer (UUI) application, from the internet.

2. Run the universal USB installer application. A UUI dialog box is displayed.

3. Under Select a Linux Distribution from the drop-down to put on your USB, select Try Unlisted Linux iso.

4. Under Select your *iso, browse to the location on your local drive and select the uCPE.iso.

5. Under Select your USB Flash drive Letter Only, select the flash drive on your laptop from the drop-down list. For example: e:\UUI 14GB

6. Click create.

A bootable uCPE platform5545 ISO image is created on your USB flash drive.

Installing the software

You can install the software after you download the ISO file and create a LiveCD or LiveUSB disk.

To install the software, perform the following steps.

1. Create and run LiveCD or LiveUSB.

2. Log in using a username of tmpuser and a password of tmppwd.

3. Enter a username for the administrator account.

    Note: If you do not enter a username for the administrator account, the device uses the default username, tmpuser.

4. Enter a password for the new username that you provided for the administrator.

5. When the installation is completed, remove the LiveCD or LiveUSB disk.

6. Set the BIOS to boot from the device on which the system is now installed.

7. Reboot the system.

8. Test the installation.

Installation session example

The following example shows how to install uCPE by using the `install image` command. The name of the image in the example is 4.x.

```
vyatta@vyatta:~$ install image

Welcome to the image installer.
What would you like to name this image? [4.x]:
This image will be named: 4.x
The vRouter system requires a minimum 1000MB disk space
on a partiton type 83 (Linux).
Probing drives:  OK

The following drives were detected on your system:
 sda     8589MB


Install the image on? [sda]:

A legacy partition table (msdos) supports drives up to 2 TB
GPT partition format supports larger drives and partitions
Disk label type (msdos/gpt) [msdos]:
Would you like me to try to partition a drive automatically
or would you rather partition it manually with parted?

If partitions are already set up, you may skip this step.
Partition (Auto/Parted/Skip) [Auto]:

Welcome to the Automated Partition Installer!
The default set up for using multiple partitions is to reserve just enough
disk space for the vRouter and use the rest for data storage. The first partition
entry always gets treated as the root partition for vRouter. In this case,
your partitions would look like this:


Partition 1: vRouter 4096MB on /
Partition 2: LIBVIRT 4493MB on /var/lib/libvirt/images


Continue (Yes/No/Adjust/Insert/Delete/Print) [Yes]:
Using msdos label
combined_part_size[8589] size[8589]
Creating a new disklabel on sda
parted /dev/sda mklabel msdos
```

```
Creating root partition on /dev/sda sect 1024KiB:4096MB
Creating filesystem on /dev/sda1:  OK
Creating extra partition 1 from 4097MB:8590MB with FS label: LIBVIRT
Creating filesystem on /dev/sda2:  OK
Marking /dev/sda partition 1 as bootable

Done!
Mounting /dev/sda1...
I need to install the GRUB boot loader.
I found the following drives on your system:
 sda    8589MB


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

Setting up grub on /dev/sda: OK
Copying squashfs image...
Copying kernel and initrd images...
I found the following configuration files:
    /config/config.boot
    /opt/vyatta/etc/config.boot.default
Which one should I copy? [/config/config.boot]:

Copying /config/config.boot...

Enter username for administrator account [vyatta]:

Enter password for administrator account
Enter password for user 'tmpuser':
Retype password for user 'tmpuser':
Done.
```

Testing the installation

After the system has successfully booted, you see the login: prompt. This prompt indicates that the system is operational.

Perform the following procedures to test your installation:

- Verify the release and system type
- Verify connectivity

Verifying the release and system type

You must confirm that the correct release version is running on the system.

To verify the release and system type, perform the following steps.

1. Log in with the username and password that you provided during installation. During installation, if you did not select the default user of tmpuser, use the new username and password you created during the installation. Use the default password of tmpuser unless you have changed it.

2. Enter the show version command.

- The Version: line displays the version number of the system that is running. Ensure that the displayed result is the version you require.

- The System type: line displays the type of hardware on which the system is running and whether it is in a virtual environment. Ensure that the displayed result is the version you require.

- The Boot via: line displays the type of system that is running.

Verifying connectivity

After you confirm that the correct version is running, you must confirm that the system can be accessed on the local network. Configure an Ethernet interface on the system and ping the interface from another host on the network.

Note: In the system, a data plane interface is an abstraction that represents the underlying physical or virtual Ethernet interface of the system. The terms Ethernet interface and data plane interface are synonymous in this guide.

To test the system connectivity, perform the following steps:

1. At the command prompt, enter the commands that are shown in the example, substituting an IP address from your existing subnet. The example uses the following network and IP address.

- The network is 192.168.1.0/24.

- The IP address of the interface is 192.168.1.81.

Make the appropriate substitutions for your network, as shown in the following example.

```
tmpuser@node:~$ configure
tmpuser@node# set system login user vyatta level superuser
tmpuser@node# set system login user vyatta authentication plaintext vyatta
tmpuser@node# set interfaces dataplane dp0sN address 192.168.1.81/24
tmpuser@node# set service ssh
tmpuser@node# set service telnet
tmpuser@node# commit
```

2. To ping the device from an outside network, add the management "routing-instance" (VRF) configuration below.

```
tmpuser@node# set routing routing-instance management description management
tmpuser@node# set routing routing-instance management interface dp0sN
tmpuser@node# set routing routing-instance management protocols static route 0.0.0.0/0
next-hop 192.168.1.1
tmpuser@node# set routing routing-instance management service ssh
tmpuser@node# commit
tmpuser@node# exit
tmpuser@node:~$
```

3. From another host on the same subnet, ping the interface to ensure that it is up. From a Linux or Windows command prompt, enter the following command, substituting the IP address you assigned to the interface.

```
ping 192.168.1.81
```

If the system can be reached, you see replies from it in response to the pings. If so, your system is installed and can be accessed on your network.

CHAPTER 2 Upgrading uCPE

Release-specific upgrade information

Your system may have special upgrade considerations, depending on your release. For release-specific upgrade information and to ensure that configuration information is correctly preserved, see the release notes for your release.

Upgrade overview

Using the `add system image` command is the only supported upgrade method for physical hardware systems.

You must download a new system image from my.brocade.com, and then add the image to previous versions of the system that are present by using the add system image command. The add system image command also allows you to migrate the current configuration to the new image. After the system is rebooted, the new image is running.

Before upgrading

Before upgrading the system, you must perform the following steps:

- Save your existing configuration file for reference. Your configuration file is named config.boot and is located in the /config directory.
- Ensure that you have enough space on your root partition to load the image. You can determine the amount of space that is available by using the show system storage command.
- Download the ISO image file to use for your upgrade.

Upgrading the ISO

The `add system image` command uses an ISO file as the image source. The command installs the image with existing images and sets the new image as the default boot image. The new image is run the next time the system is rebooted.

Determine the location of the ISO file and record the name of the file.

To prepare for the upgrade, perform the following steps.

1. Enter the `add system image` command. Use the location and name of the ISO file as arguments in the command, as shown in Example of upgrading the ISO.

2. Before you reboot the system, confirm that the new image is loaded and ready to run the next time the system is rebooted. (Enter the `show system image` command as shown in Example of upgrading the ISO.)

3. Reboot the system by entering the `reboot` command. The system restarts with the new system image.

Example of upgrading the ISO

The following example shows how to use the `add system image` command to upgrade the `xxx.iso` system image, where `xxx` is the file name of the ISO image that you downloaded. The following example uses the 4.xR1 image.

```
tmpuser@node:~$ add system image /home/vyatta/xxx.iso
Checking MD5 checksums of files on the ISO image...OK.
Done!
What would you like to name this image? [4.xR1]:
OK.  This image will be named: 4.xR1
Installing "4.xR1" image.
Copying new release files...
Would you like to save the current configuration
directory and config file? (Yes/No) [Yes]:
Copying current configuration...
Would you like to save the SSH host keys from your
current configuration? (Yes/No) [Yes]:
Copying SSH keys...
Setting up grub configuration...
Done.
tmpuser@node:~$
```

The following example shows how to display installed images.

```
tmpuser@node:~$ show system image
The system currently has the following image(s) installed:
   1: xxx (default boot)
   2: yyy (running version)
```

CHAPTER 3   Installation and Upgrade Commands

This chapter describes the installation and upgrade commands:

- add system image
- clone system image
- delete system image
- install image
- rename system image
- set system image default-boot
- show system image
- spawn

add system image

Use this command to add a binary image to the currently running system. A system image can be added to a system that was installed by using a disk-based installation or an image-based installation. After an image is added, it is set as the new default boot image and is run the next time the system boots.

The command validates the MD5 checksums of the files that are contained in the ISO image to ensure that the image has not been corrupted. In addition, the command does not allow more than one copy of an image to exist on the same system.

The `iso-filename` and `iso-URL` parameters provide the source of the ISO image file.

Command Syntax

```
add system image { iso-filename | iso-URL [ username username password password ] }
```

Parameters

`iso-filename`	Name of the image file to add.
`iso-URL`	URL location of the image file to add.
`username`	User name required to log in to the remote system at the URL location.
`password`	Password required to log in to the remote system at the URL location. If the `username` is specified, then `password` must also be specified.

Mode

Operational mode

File Locations

Table 3-3 shows how to specify the file locations.

Table 3-3: File locations

Location	Specification
An absolute path	For `iso-filename`, use standard UNIX file specification.
A relative path	For `iso-filename`, you can also specify the path name relative to the current directory.
FTP server	Use the following syntax for the `iso-URL` parameter: `ftp://user:passwd@host/image-file` where `user` is the user name on the host, `passwd` is the password that is associated with the user name, `host` is the host name or IP address of the FTP server, and `image-file` is the ISO image file, including the path. Alternatively, the username and password can be specified as parameters of the `add system image` command. If you do not specify a username and password, you are prompted for them.

Table 3-3: File locations (Continued)

Location	Specification
SCP server	Use the following syntax for the `iso-URL` parameter: `scp://user:passwd@host/image-file` where `user` is the user name on the host, `passwd` is the password that is associated with the user name, `host` is the host name or IP address of the SCP server, and `image-file` is the ISO image file, including the path. Alternatively, the username and password can be specified as parameters to the `add system image` command. If you do not specify the user name and password, you are prompted for them.
HTTP server	Use the following syntax for the `iso-URL` parameter: `http://host/image-file` where `host` is the host name or IP address of the HTTP server and `image-file` is the ISO image file, including the path relative to the HTTP root directory.
TFTP server	Use the following syntax for the `iso-URL` parameter: `tftp://host/image-file` where `host` is the host name or IP address of the TFTP server, and `image-file` is the ISO image file, including the path relative to the TFTP root directory.

clone system image

Use this command to create a copy of a system image that is installed on the local system or a remote system.

If `user@host` is specified, the image is fetched from the named host by using the Secure Copy Protocol (SCP). If `user@host` is omitted, `source-image-name` is the name of an image that exists on the system, and `new-image-name` is the image name that the system uses for the clone. No image that is named `source-image-name` can exist on the system.

Command completion is performed for local image names if `user@host` is not specified. No command completion is performed on remote image names if `user@host` is specified.

If the `clean` parameter is omitted, the command copies the squashfs file that is being used by the image named `source-image-name` and the read/write directory tree of `source-image-name`. If the `clean` parameter is given, the read/write directory tree of `source-image-name` is not copied. Instead, an empty read/write directory tree is created for the new image, which creates a new image that is functionally equivalent to the source image as it existed when it was initially installed.

Images created by this command behave the same as images that are installed by the `install image` or `add system image.` command

Both the HTTPS and SSH services must be enabled on the remote system for `clone system image` to work properly:

- HTTPS is enabled by the `set service https` command
- SSH is enabled by the `set service ssh` command

Command Syntax

```
clone system image [ user@host:] source-image-name new-image-name [ clean ]
```

Parameters

user	User name on a remote host. A user name is required for remote host access through SCP and is not required for cloning a local system image.
host	Host name or IP address of a remote host. The host name or IP address is required for remote access through SCP and is not required for cloning a local system image.
source-image-name	
	Name of a system image to be copied. The source image can exist on the local system or a remote system.
new-image-name	Name of the new (copied) system image. An image with this name must not exist on the system.
clean	Creates an empty read/write directory tree for the new image, which is a new image that is functionally equivalent to the source image as it existed when it was originally installed.

Mode

Operational mode

delete system image

Use this command to delete an image from the local disk drive.

The image and all its local files, including its configuration file, are destroyed. Because this command is destructive, the system prompts for confirmation.

Command completion displays all valid completions for the `image-name` parameter. If the `image-name` parameter is omitted, the system displays a list of available images and prompts you to select one.

If the system was originally installed in disk-based mode, an `image-name` option is available that you can use to delete the disk-based installation.

The system does not allow you to delete the currently running system image. However, the system does allow you to delete the image currently selected to be run at the next reboot. If you delete that image, the system uses the currently running image when the system reboots

Command Syntax

```
delete system image [ image-name ]
```

Parameters

image-name   Name of an image to delete.

Mode

Operational mode

install image

Use this command to install a binary image on the system.

After the installation is completed, you can add multiple image versions to the same partition by using the add system image command, and you can then choose which version to boot by using the set system image default-boot command. This allows you to move easily between different versions of the system.

If you have a new system and want to install from scratch, you can boot from the `*.iso` and run the `install image` command to install the image to the disk. The `install image` command is similar to the `install system` command: it creates and formats a new disk partition and then installs the image to the partition while preserving the system configuration.

Command Syntax

```
install image
```

Mode

Operational mode

rename system image

Use this command to rename an image.

The old name must match the name of an image on the system. The system does not allow you to rename the currently running system image. The new system image name cannot be in use by another image.

Command Syntax

```
rename system image old-image-name new-image-name
```

Parameters

old-image-name   Name of an existing image to be renamed.

new-image-name   New name for the image.

Mode

Operational mode.

set system image default-boot

Use this command to select an image to run when the system is rebooted.

When multiple system images have been installed by using the add system image command, use this command to direct the system to boot from a specific system image the next time the system restarts

Command completion displays all valid completions for the `image-name` parameter. If the `image-name` parameter is omitted, the system displays a list that shows all images that are installed on the system and prompts you to select one. If the system was originally installed in disk-based mode, a special `image-name` option is available so that you can select the disk-based system as the default system from which to boot.

Command Syntax

```
set system image default-boot [ image-name ]
```

Parameters

image-name   Name of an image to run when the system is reboots.

Mode

Operational mode

show system image

Use this command to display a list of all images that are installed on the system.

The command output identifies the image that is currently running and the image that has been selected to run when the system reboots. If the system was originally installed in disk-based mode, one of the image names identifies that installation.

Command Syntax

```
show system image [ storage | version ]
```

Parameters

storage   Amount of disk space used by each image.

version   Includes the image version number in the display of system images.

Mode

Operational mode

spawn

Use this command to run a native Linux command in operational mode.

Commands that are spawned are run by the local shell with the current user's permissions. The spawned command provides a documented and supported way of running any Linux command.

The spawned command prevents any changes to the set of modeled commands from effecting the user's ability to run native commands consistently, if they are using this supported method.

Command Syntax

```
spawn command-name [ text ]
```

Parameters

command-name	Command to run
text	Parameters for the command

Mode

Operational mode

Licensing

About Licenses

DANOS-Vyatta edition supports a subscription-based node-locked license, where the generated license activates just one device.

Enforcement Action

When a device license is expired or the device does not have the license, the device reboots.

Delayed Enforcement

When a device license is released, to avoid the service interruption license enforcement is scheduled to happen 20 minutes after the license release time. This duration allows the user to install the license.

Note: During this interim period any license installation failure will not lead to enforcement.

Host Identifier

A host is identified by the licensing module with the basemac/uuid prefixed with "IPI-". All the characters must be in uppercase. Use the `show licensing` command after powering the device.

Generate the License File

The DANOS-Vyatta edition device license file needs to be generated from the license portal provided to you.

The default name of a generated license file is `<host-id>.bin`. For example:

```
IPI-CC37ABBE0340.bin
```

Copy the License File to the Device

Use the `licensing get` command or `license-get` NetConf RPC to copy the license file from a remote file server to the device. Or use Linux utilities such as `curl` or `wget`.

Command

```
licensing get URL dest-filepath FILEPATH routing-instance VRF
```

where:

    URL   License file URL

FILEPATH   Local filesystem's absolute path or path with file name to store the downloaded file

VRF   Routing instance name

Note: Use the `routing-instance` name when the interface to be used in download is part of a non-default routing-instance.

Example

```
tmpuser@node:~$ ls
tmpuser@node:~$ licensing get ftp://10.12.65.89:2121/IPI-
A2E11F714C0B47E8B5237F34C0225387.bin dest-filepath /home/tmpuser/
################################################################### 100.0%
tmpuser@node:~$
tmpuser@node:~$ ls
IPI-A2E11F714C0B47E8B5237F34C0225387.bin
tmpuser@node:~$
```

Download Failure

```
tmpuser@node:~$  licensing get ftp://10.12.65.89:2121/IPI-
A2E11F714C0B47E8B5237F34C0225387.bin dest-filepath /home/tmpuser/
curl: (7) Couldn't connect to server
tmpuser@node:~$
```

NetConf RPC

```
rpc license-get {
    configd:call-rpc "vyatta-license-rpc --license-get";
    description "Install license on device";
    input {
        leaf url  {
            type string;
            mandatory true;
            description "License file URL";
        }

        leaf dest-filepath  {
            type string;
            mandatory true;
            description "Local filesystem's absolute path or
            path with file name to store the downloaded file";
        }

        leaf routing-instance  {
            type string;
            description "Download license through this routing-instance";
        }
    }

    output {
        leaf license-response {
            description "License file download status";
            type string;
```



```
        }
    }
}
```

Example

```
license_get.xml:
<license-get xmlns="urn:vyatta.com:mgmt:vyatta-op-licensing-v1:1">
  <url>ftp://10.12.65.89:2121/IPI-A2E11F714C0B47E8B5237F34C0225387.bin</url>
  <dest-filepath>/home/tmpuser/</dest-filepath>
</license-get>

netconf> rpc license_get.xml
<?xml version='1.0' encoding='UTF-8'?>
<rpc-reply xmlns="urn:ietf:params:xml:ns:netconf:base:1.0"
xmlns:nc="urn:ietf:params:xml:ns:netconf:base:1.0" message-id="urn:uuid:5e3a0a66-f666-
43c1-875b-af7eddf7c4d9">
  <ok/>
</rpc-reply>
netconf>
```

Download Failure

```
license_get.xml:
<license-get xmlns="urn:vyatta.com:mgmt:vyatta-op-licensing-v1:1">
  <url>ftp://10.12.65.89:2121/IPI-A2E11F714C0B47E8B5237F34C0225387.bin</url>
  <dest-filepath>/home/tmpuser/</dest-filepath>
  <routing-instance>wrong-routing-instance</routing-instance>
</license-get>

netconf> rpc license_get.xml
<?xml version='1.0' encoding='UTF-8'?>
<rpc-reply xmlns="urn:ietf:params:xml:ns:netconf:base:1.0"
xmlns:nc="urn:ietf:params:xml:ns:netconf:base:1.0" message-id="urn:uuid:2c959683-cf00-
4e3f-b756-d605ec6201ed">
  <license-response xmlns="urn:vyatta.com:mgmt:vyatta-op-licensing-v1:1">curl: (7)
Couldn't connect to server
</license-response>
</rpc-reply>
netconf>
```

Install the License

Use the `licensing install` command or `license-install` NetConf RPC to install the license file present on the device local file system. The device clock needs to be up to date, otherwise an incorrect clock on the device may lead to license installation failure.

Refer to the License Troubleshooting to resolve installation failures.

Command

```
licensing install PATH
```

where:

PATH	Enter the license file absolute path

NetConf RPC

```
rpc license-install {
        configd:call-rpc "vyatta-license-rpc --license-install";
        description "Install license on device";
        input {
            leaf file-path  {
                type string;
                mandatory true;
                description "Local filesystem path of the
                    license file to be installed";
            }
        }
        output {
            leaf license-response {
                description "License installation status";
                type string;
            }
        }
}
```

Installing on a Device with an Inactive License

Command

```
tmpuser@node:~$
tmpuser@node:~$ licensing install /home/tmpuser/IPI-
A2E11F714C0B47E8B5237F34C0225387.bin
tmpuser@node:~$
tmpuser@node:~$ show licensing
status       : active
feature      : DVE-bSDE-BASE
environment : Physical
host-id      : IPI-A2E11F714C0B47E8B5237F34C0225387
type         : subscription
enforcement : CPU_COUNT=2
validity-in-days : 357
tmpuser@node:~$
```

NetConf RPC

```
netconf> rpc license_install.xml
<?xml version='1.0' encoding='UTF-8'?>
<rpc-reply xmlns="urn:ietf:params:xml:ns:netconf:base:1.0"
xmlns:nc="urn:ietf:params:xml:ns:netconf:base:1.0" message-id="urn:uuid:0da2341c-33e8-
4059-b561-60633fc1abd0">
  <ok/>
</rpc-reply>
netconf>
```

```
netconf> rpc license_show.xml
<?xml version='1.0' encoding='UTF-8'?>
<rpc-reply xmlns="urn:ietf:params:xml:ns:netconf:base:1.0"
xmlns:nc="urn:ietf:params:xml:ns:netconf:base:1.0" message-id="urn:uuid:54a8b0b6-7339-
4aaf-b4c5-a9bf6de37466">
  <license-status xmlns="urn:vyatta.com:mgmt:vyatta-op-licensing-v1:1">
    <host-id>IPI-00E0EDBD7F8A</host-id>
    <error>14</error>
    <error-string>License not available</error-string>
    <status>inactive</status>
    <feature>DVE-bSDE-BASE</feature>
  </license-status>
</rpc-reply>
netconf>
```

Installing on a Device with an Active License

Any active license on the device must be released before installing a new license.

Command

```
tmpuser@node:~$ show licensing
status      : active
feature     : DVE-bSDE-BASE
environment : Physical
host-id     : IPI-A2E11F714C0B47E8B5237F34C0225387
type        : subscription
enforcement : CPU_COUNT=2
validity-in-days : 357
tmpuser@node:~$
tmpuser@node:~$ licensing install /home/tmpuser/IPI-
A2E11F714C0B47E8B5237F34C0225387.bin
Device already have a valid license
tmpuser@node:~$
```

NetConf RPC

```
license_show.xml:
<show-license-status xmlns="urn:vyatta.com:mgmt:vyatta-op-licensing-v1:1">
</show-license-status>


license_install.xml:
<license-install xmlns="urn:vyatta.com:mgmt:vyatta-op-licensing-v1:1">
  <file-path>/home/tmpuser/IPI-A2E11F714C0B47E8B5237F34C0225387.bin</file-path>
</license-install>



netconf> rpc license_show.xml
<?xml version='1.0' encoding='UTF-8'?>
<rpc-reply xmlns="urn:ietf:params:xml:ns:netconf:base:1.0"
xmlns:nc="urn:ietf:params:xml:ns:netconf:base:1.0" message-id="urn:uuid:3a62d330-923d-
493e-b2ad-49eafee70d05">
  <license-status xmlns="urn:vyatta.com:mgmt:vyatta-op-licensing-v1:1">
```

```
      <host-id>IPI-00E0EDBD7F8A</host-id>
      <model>node-locked</model>
      <type>subscription</type>
      <enforcement>CPU_COUNT=32</enforcement>
      <validity-in-days>1083</validity-in-days>
      <status>active</status>
      <feature>DVE-bSDE-BASE</feature>
    </license-status>
</rpc-reply>
netconf>


netconf>
netconf> rpc license_install.xml
<?xml version='1.0' encoding='UTF-8'?>
<rpc-reply xmlns="urn:ietf:params:xml:ns:netconf:base:1.0"
xmlns:nc="urn:ietf:params:xml:ns:netconf:base:1.0" message-id="urn:uuid:feb28a3e-2f57-
475e-bc21-4ecfe28273b1">
  <license-response xmlns="urn:vyatta.com:mgmt:vyatta-op-licensing-v1:1">Device already
have a valid license</license-response>
</rpc-reply>
netconf>
```

View Device License Status

Use the `show licensing` command or the `show-license-status` RPC to view the license status of the device.

Command

```
show licensing
```

NetConf RPC

```
rpc show-license-status {
    configd:call-rpc "vyatta-license-rpc --show-license";
    description "This RPC will display the license status informations";
    output {
        leaf license-response {
            description "show-license-status rpc failure response";
            type string;
        }
        container license-status {
            leaf status {
                description "License installation status";
                type enumeration {
                    enum "inactive";
                    enum "active";
                }
            }

            leaf feature {
```

```
description "This attribute refers to the device feature/SKU name, which is used in
license validation. The feature/SKU name present in the license file must match with
device feature/SKU name";
            type string;
        }

        leaf type {
            description "Indicates the installed license type";
            type enumeration {
                enum "subscription";
                enum "perpetual";
            }
        }

        leaf enforcement {
            description "This attribute refers to the enforcement attribute value";
            type string;
        }

        leaf validity-in-days {
             description "License validity in days, and this field exisits when the
license type is trial";
              type uint64;
        }

        leaf model {
description "License model, indicates the method used by the device to acquire the
license";
            type enumeration {
                enum "node-locked";
                enum "license-server";
            }
         }

        leaf host-id {
description "License identifier, this is the device base MAC or UUID for VM prefixed
with IPI- , and this attribute is used in license validation";
            type string;
        }

        leaf error {
            description "Error observed while installing the license";
            type uint64;
        }

        leaf error-string {
description "Error messages in user readable text form corresponding to the error
observed during license installation";
            type string;
        }
      }
    }
```

```
}
```

Installation Success

Command
```
tmpuser@node:~$ show licensing
status      : active
feature     : DVE-bSDE-BASE
environment : Physical
host-id     : IPI-E8C57A186F1B
type        : subscription
validity-in-days    : 59
```

NetConf RPC
```
license_show.xml:
<show-license-status xmlns="urn:vyatta.com:mgmt:vyatta-op-licensing-v1:1">
</show-license-status>

netconf> rpc license_show.xml
<?xml version='1.0' encoding='UTF-8'?>
<rpc-reply xmlns="urn:ietf:params:xml:ns:netconf:base:1.0"
xmlns:nc="urn:ietf:params:xml:ns:netconf:base:1.0" message-id="urn:uuid:3a62d330-923d-
493e-b2ad-49eafee70d05">
  <license-status xmlns="urn:vyatta.com:mgmt:vyatta-op-licensing-v1:1">
    <host-id>IPI-00E0EDBD7F8A</host-id>
    <model>node-locked</model>
    <type>subscription</type>
    <enforcement>CPU_COUNT=32</enforcement>
    <validity-in-days>1083</validity-in-days>
    <status>active</status>
    <feature>DVE-bSDE-BASE</feature>
  </license-status>
</rpc-reply>
netconf>
```

Installation failure

Command
```
tmpuser@node:~$ show licensing
status      : inactive
feature     : DVE-bSDE-BASE
environment : Physical
host-id     : IPI-E8C57A2E4F1B
error       : 14
error-string: License not available
```

NetConf RPC
```
license_show.xml:
<show-license-status xmlns="urn:vyatta.com:mgmt:vyatta-op-licensing-v1:1">
```

```
</show-license-status>

netconf> rpc license_show.xml
<?xml version='1.0' encoding='UTF-8'?>
<rpc-reply xmlns="urn:ietf:params:xml:ns:netconf:base:1.0"
xmlns:nc="urn:ietf:params:xml:ns:netconf:base:1.0" message-id="urn:uuid:75d2dcfe-4c4d-
4506-8cad-302a57f3eaa4">
  <license-status xmlns="urn:vyatta.com:mgmt:vyatta-op-licensing-v1:1">
    <status>inactive</status>
    <feature>DVE-bSDE-BASE</feature>
    <host-id>IPI-E8C57A2E4F1B</host-id>
    <error>21</error>
    <error-string>Invalid host-id</error-string>
  </license-status>
</rpc-reply>
netconf>
```

License Troubleshooting

Table 4-4 shows the possible errors thrown by the DANOS-Vyatta edition licensing module and the methods to recover from the error.

Table 4-4: Troubleshooting errors

Error code	Error description	Resolution
1	Failed to create license error object	Report the error to support team
2	Failed to create license environment	Report the error to support team
3	Failed to add trusted storage as license source	Trusted storage path does not exist or does not have required permission. Please contact the support team.
4	Failed to create trusted storage folder	Creation of trusted storage inside /config/license-manager parent directory is not successful. This should not fail, but if you see this error please report to the support team.
5	Failed to create license object	Report the error to support team
6	Failed to process license	Downloaded license files could have been corrupted, download the license file from the portal again and try installing. Also compare the checksum of the license file between the file present in the device and the one downloaded from the portal.
7	Failed to get mapped SKU in license	The generated license could have been mapped to a different software feature than what is required for the device. Use the `show licensing` command to understand the SKU to be mapped while generating the license. This happens mostly when customers have purchased multiple software features / SKUs.
8	Device SKU is not found in license	Generate the license file by mapping the correct device feature in the portal.
9	Failed to acquire license	Report the error to support team

Table 4-4: Troubleshooting errors (Continued)

Error code	Error description	Resolution
10	Failed to return acquired license	Report the error to support team
11	License file is not the latest one, please install the recently downloaded license or download again from the portal	When license is generated successively say first and second, installation of second on top of the first is accepted, but not vice versa.
12	Failed to update private storage	Report the error to support team
13	Failed to fetch data from private storage	Report the error to support team
14	License not available	Device does not have any license activated
15	Subscription license is expired	Validity of the device license has ended, download new license from portal and install if you have purchased.
16	Device already have a valid license	To install new license on the already license activated device. 1. Use `licensing release` command or `license-release` RPC to remove current license 2. Use `licensing install` command or `license-install` RPC to install new license
17	Device does not have a valid license	Device does have any license activated
18	File not found	Check whether the specified absolute path, and the file exists on the device
19	Empty file	Could be a copy or the download issue, please download the license into the device using the alternate method or compare the checksum of the license file between the file present in the device and the one downloaded from the portal.
20	License start date is in future	Device clock must be up to date, to install the license successfully
21	Invalid host-id	The license is generated with a different HOST ID, please cross check and download the license with the correct HOST-ID.
22	License activation time (lifetime) elapsed, please download the license again from the portal	License file downloaded from the portal should be installed within 42 days of generation, otherwise user needs to download the license file from portal again