acontis technologies GmbH

SOFTWARE

Hypervisor-Network-RtosVnet-Guide

acontis Real-time Hypervisor Network RtosVnet Setup

Version 9.x

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1 Introduction

This guide describes setting up a private network with 2 running `Linux (UBUNTU)` guest VM instances (`Linux I (UBUNTU)` + `Linux II (UBUNTU)`), an `RT-Linux` instance (`RTOS`) and the Hypervisor Host (`Host`), each pinging the others through the `virtual network`.

This manual will guide you through the following steps:

- Using virtual adapter `RtosVnet`

- Setting up the `IP` addresses for each instance/guest.

- Adjust additional settings

- Ping each instance/guest

Caution: This guide describes **only** a small aspect therefore the prerequisites are important! (See Chapter *Prerequisites*)

Hint: The private network addresses used in this guide are in the range of `192.168.157.XXX`.

1.1 Prerequisites

- PC/IPC running the RTOSVisor.

    - 2 configured `Linux (UBUNTU)` guests. Please checkout `Hypervisor-LinuxGuest-Guide`.

    - 1 configured `RT-Linux` guest. Please checkout the Hypervisor Quickstart Guide if not yet done.

- already used (as default pre-configured) `IP` addresses (`RtosVnet`):

    - Hypervisor Host: `192.168.157.1`

    - RT-Linux: `192.168.157.2`

2 Setup Guests

Important: **Always** start RTOS as **first** guest, as this will create the *initial* instance of RtosVnet!

Hint: This guide focuses on the Ubuntu example guest. Initially, the Hypervisor Host does not provide any example guest folders. To switch to the Ubuntu guest example, you need to perform the appropriate initialization. For instructions on initializing the examples, please see the **RTOS Guests** chapter in the Hypervisor Manual.

```
hv_open_example ubuntu_rtlinux
hv_sync_example ubuntu_rtlinux
cd /hv/guests/guestubuntu
```

With the example ubuntu_rtlinux, an RT-Linux guest and an Ubuntu guest are initialized. However, in this chapter, we need two Ubuntu guests. To achieve this, you must load the current configuration in the system manager with sync. Then create a new Ubuntu guest and subsequently transfer it back to the Hypervisor Host with sync. This second Ubuntu guest will be located in /hv/guests/guest0001.

2.1 Host

No setup required, as this guide uses the **default** IP address (192.168.157.1) of the Host.

2.2 RT-Linux

No setup required, as this guide uses the **default** IP address (192.168.157.2) of the RTOS.

2.3 Linux I (UBUNTU)

2.3.1 Linux I Host-side guest configuration

Attention: These changes **must** be done on the Host side for the Linux (UBUNTU) guest!

Open configuration script of ubuntu and edit the rtosvnet_nw value.

```
$ cd /hv/guests/guestubuntu
$ mousepad ./usr_guest_config.sh
```

Search the following line:

```
# Private RtosVnet network between RTOS and GP-OS
export rtosvnet_nw=0
```

and change it to:

```
# Private RtosVnet network between RTOS and GP-OS
export rtosvnet_nw=1
```

Hint: Changes to the other values of the `RtosVnet` config section are **only** needed if different `IP` ranges or names are required!

2.3.2 Linux I Guest-side configuration

Attention: These changes **must** be done inside the running `Linux (UBUNTU)` guest!

Caution: To start the `Linux I (UBUNTU)` guest with a loaded `RtosVnet` instance, the Rtos (`RT-Linux`) **must** be started before!

- start `RT-Linux`

```
$ cd /hv/guests/guestrtlinux
$ hv_guest_start -view
```

- start `Linux I (UBUNTU)` guest

```
$ cd /hv/guests/guestubuntu
$ hv_guest_start -view
```

Switch into `UBUNTU` guest and goto `Settings -> Network` and edit the `ens10` adapter.

Goto IPv4 tab and edit the following values:

- IPv4 Method: `manual`

- Address: `192.168.157.10`
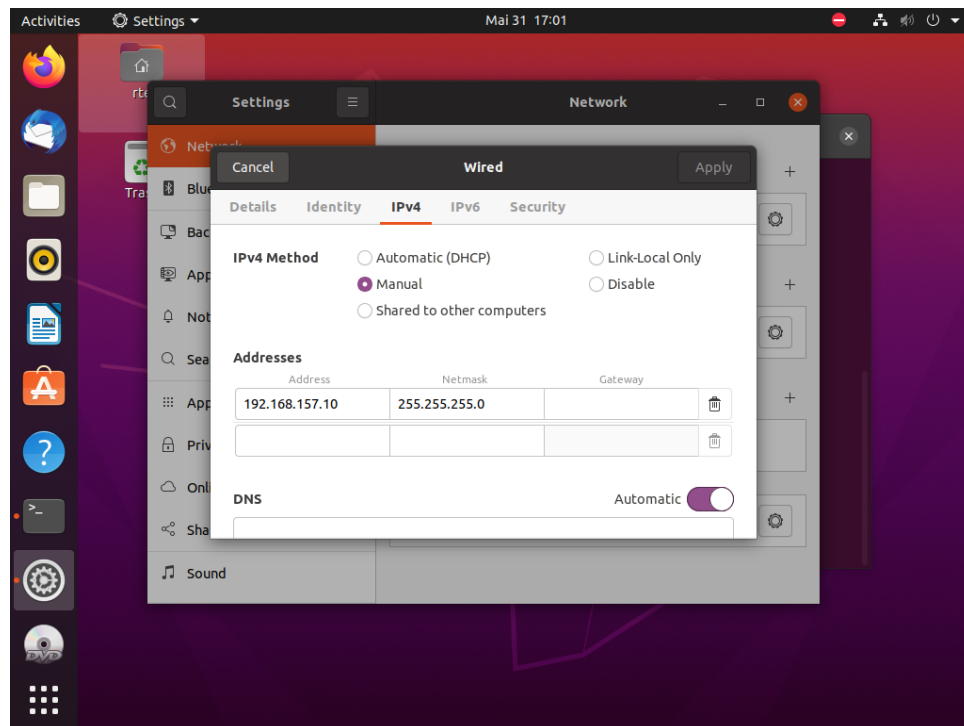
- Netmask: `255.255.255.0`

Fig. 2.1: Linux guest I (UBUNTU) network config settings dialog.

2.4 Linux II (UBUNTU)

2.4.1 Linux II Host-side guest configuration

> **Attention:** These changes **must** be done on the `host` side for the `Linux (UBUNTU)` guest!

Open the appropriate guest configuration script of the `ubuntu2` guest and edit the `rtosvnet_nw` value.

```
$ cd /hv/guests/guest0001
$ mousepad ./usr_guest_config.sh
```

Search the following line:

```
# Private RtosVnet network between RTOS and GP-OS
export rtosvnet_nw=0
```

and change it to:

```
# Private RtosVnet network between RTOS and GP-OS
export rtosvnet_nw=1
```

> **Hint:** Changes to the other values of the `RtosVnet` config section **only** needed if different `IP` ranges or names are required!

2.4.2 Linux II Guest-side configuration

> **Attention:** These changes **must** be done in running `Linux (UBUNTU)` guest!

> **Caution:** To start the `Linux II (UBUNTU)` guest with a loaded `RtosVnet` instance, the Rtos (`RT-Linux`) **must** be started before!

- start `RT-Linux` **(if not yet started!)**

```
$ cd /hv/guests/guestrtlinux
$ hv_guest_start -view
```

- start `Linux II (UBUNTU)` guest

```
$ cd /hv/guests/guest0001
$  hv_guest_start -view
```

Switch into `UBUNTU` guest and goto `Settings` **->** `Network` and edit the `ens10` adapter.

Goto IPv4 tab and edit the following values:

- IPv4 Method: `manual`

- Address: `192.168.157.11`

- Netmask: `255.255.255.0`
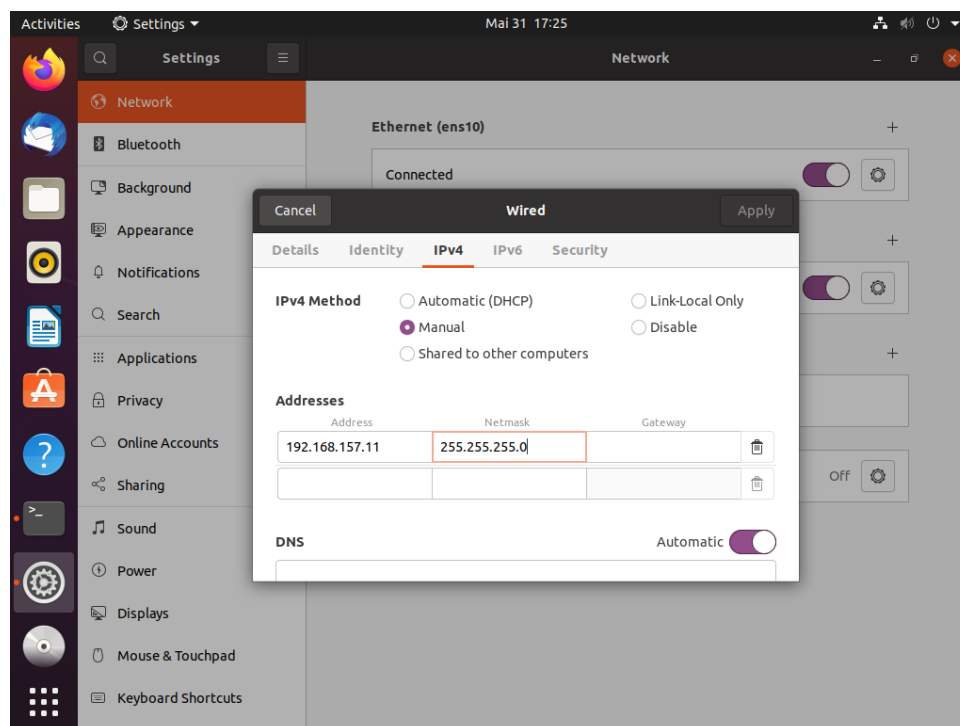

Fig. 2.2: Linux guest II (UBUNTU) network config settings dialog.

2.5 Final IP configuration

- `Host:` `192.168.157.1`
- `RT-Linux:` `192.168.157.2`
- `Linux I (UBUNTU):` `192.168.157.10`
- `Linux II (UBUNTU):` `192.168.157.11`

3 Validate Network

3.1 Host

Open a shell (right click on desktop and select *'Open Terminal here'* **or** press CRTL + ALT + T) on the Host and enter the following commands.

> **Attention:** Each destination **must** be ping-able!

- Ping Host **(self)**

  ```
  $ ping 192.168.157.1
  ```
- Ping RT-Linux

  ```
  $ ping 192.168.157.2
  ```
- Ping Linux I (UBUNTU)

  ```
  $ ping 192.168.157.10
  ```
- Ping Linux II (UBUNTU)

  ```
  $ ping 192.168.157.11
  ```

3.2 RT-Linux

Switch to console of RT-Linux and enter the following commands.

> **Attention:** Each destination **must** be ping-able!

- Ping Host

  ```
  $ ping 192.168.157.1
  ```
- Ping RT-Linux **(self)**

  ```
  $ ping 192.168.157.2 -c 5
  ```
- Ping Linux I (UBUNTU)

  ```
  $ ping 192.168.157.10
  ```
- Ping Linux II (UBUNTU)

  ```
  $ ping 192.168.157.11
  ```

3.3 Linux I (UBUNTU)

Switch into `Linux I (UBUNTU)` guest and open a shell (right click on desktop and select *'Open Terminal here'* **or** press `CRTL + ALT + T`) and enter the following commands.

Attention: Each destination **must** be ping-able!

- Ping `Host`

  `$ ping 192.168.157.1`

- Ping `RT-Linux`

  `$ ping 192.168.157.2`

- Ping `Linux I (UBUNTU)` **(self)**

  `$ ping 192.168.157.10`

- Ping `Linux II (UBUNTU)`

  `$ ping 192.168.157.11`

3.4 Linux II (UBUNTU)

Switch into `Linux II (UBUNTU)` guest and open a shell (right click on desktop and select *'Open Terminal here'* **or** press `CRTL + ALT + T`) and enter the following commands.

Attention: Each destination **must** be ping-able!

- Ping `Host`

  `$ ping 192.168.157.1`

- Ping `RT-Linux`

  `$ ping 192.168.157.2`

- Ping `Linux I (UBUNTU)`

  `$ ping 192.168.157.10`

- Ping `Linux II (UBUNTU)` **(self)**

  `$ ping 192.168.157.11`