



Server Installation Manual

Applies to software release v7.0

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Server Installation Manual
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3200 Sencore Drive, Sioux Falls, SD USA
www.sencore.com

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1 INSTALLATION AND ACTIVATION

This manual documents the initial installation procedure for the server-based Sencore VideoBRIDGE software. For details on how to activate and configure the included software products, please refer to the individual User's Manuals.

1.1 First-time Installation

Make sure that the server hardware or virtual environment matches the requirements and then follow the procedure outlined below.

This manual details installation on Ubuntu Server 24.04 LTS. For more details, please refer to the Ubuntu Server installation guide¹.

1.1.1 Obtaining and preparing the installation media

Obtain the latest installation ISO image from Sencore. The same installation media is used for Ubuntu Server and Ubuntu Server Pro installations. If you have an Ubuntu Pro subscription, you can enter the subscription details during the installation procedure.

To install from a USB mass storage device, transfer the downloaded image to the device using a tool such as **dd** (macOS, Unix, Linux), **Rufus**² (Windows) or **Etcher**³ (macOS, Windows, Linux). The Ubuntu documentation⁴ has a step-by-step guide on how to create a bootable USB stick, just remember to use the ISO file you just downloaded and not the one linked from the guide.

Once the USB device is prepared, please continue to chapter 1.1.4. For installation in a virtualized environment, please continue to chapter 1.1.2.

1.1.2 Deploying in a virtualized environment

It is also possible to deploy the software in a virtualized environment. For optimal performance, check the processor configuration of **cores per socket** on your host server and use the same configuration setting of cores per virtual sockets on the virtual machine.

It is also strongly recommended to configure the data network interface card(s) in **pass-through mode** on the host server. This is required for accurate measurements on the Software Probe. To

¹<https://ubuntu.com/server/docs/how-to>

²<https://rufus.ie/>

³<https://etcher.io/>

⁴<https://ubuntu.com/tutorials/create-a-usb-stick-on-ubuntu>

reduce the chance of performance-related issues if you nevertheless need to use a virtual network interface, make sure each Software Probe has its own data interface(s).

If using the Software Probe with the multi-stream recording feature, we recommend creating a separate virtual disk and allocating this for recorded data. Mount the disk at `/opt/btech/probe/storage/recordings` and verify that it is identified as *Mounted filesystem* in the **Record – Dashboard** view.

If using the Software Probe with the Timeline feature, you may also want to create a virtual disk for Timeline data using `/opt/btech/probe/storage/database` as the mount point.

To install the software in the virtualized environment, please attach the downloaded ISO image to a virtual DVD-ROM unit and follow the steps in chapter 1.1.4. We recommended **disabling** any ‘Easy install’, ‘Unattended install’ or similarly worded option, and *not* selecting the operating system type when initially creating the new virtual machine instance in your virtualization environment. These options may override the installation instructions included in the provided installation image, causing an incomplete installation.

1.1.3 Obtaining and installing pre-built virtual images

Pre-built images for VMware (vSphere/Workstation/Player) are provided in OVA (Open Virtualization Format Archive) format. These images contains a system already installed according to the steps below, with VMware Tools already installed and activated.

To deploy the image, you need to import it to the virtualization host, please refer to the documentation of your virtualization environment for more details on how to do this.

If installed in a VMware vSphere environment, the machine should report back its network configuration to the host environment. Please allow some time for it to do so, and then continue to chapter 1.2.

1.1.4 Installing from provided installation media

The installation media will install Ubuntu Linux Server 24.04 LTS on the server. The disks will be formatted and all contents lost. Make sure that any important data on the server has been backed up before beginning the procedure.

1. Boot the server and make sure that the primary boot device is set appropriately.

The installer will run, showing a screen similar to the one depicted in figure 1.1. Some of the steps described in the Ubuntu Server installation guide will be skipped over, with the appropriate settings applied. Please follow the on-screen prompts to install the system:

2. First select the language in which to run the installer, and then which keyboard layout to use to navigate the installer, selecting ‘Done’ to continue.

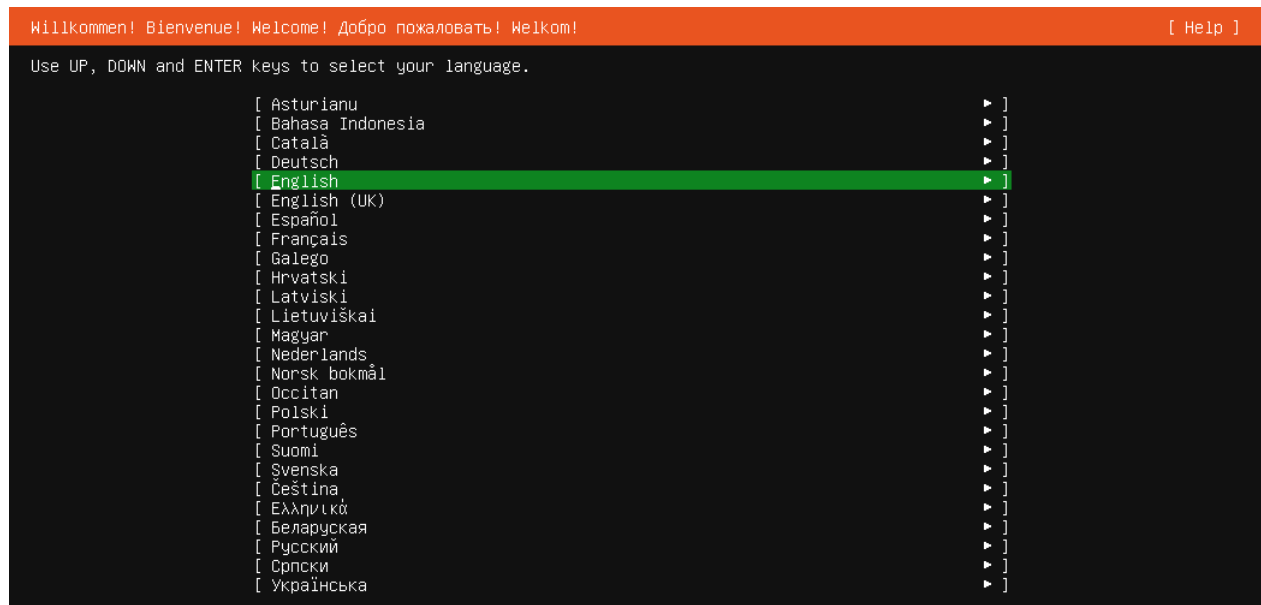


Figure 1.1: Welcoming screen

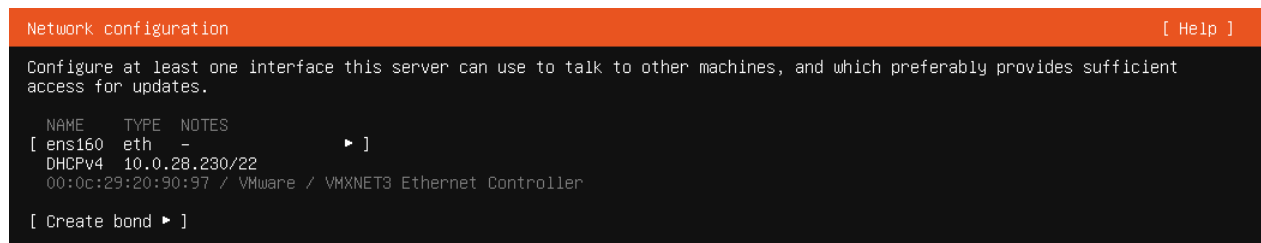


Figure 1.2: Network configuration

Please note that all screenshots and descriptions in this installation manual describe the English user interface, but all settings should be available independent of the language selected.

3. Configure your network devices as needed to reach the internet, see figure 1.2.

If a proxy is required on your network to reach the internet, provide the address in the next step. The connection will be tested and once ready, select ‘Done’ to continue.

The installer will be able to run without an internet connection, in this case select ‘Continue without network’.

Post-installation network configuration can be performed using the **nmtui** utility, please refer to A Appendix: Network configuration for details.

4. Next, configure the partitioning. We recommend selecting ‘Custom storage layout’ (figure 1.3) and configuring the partitioning manually, as the automatic partitioning often leaves parts of the hard disk unused.

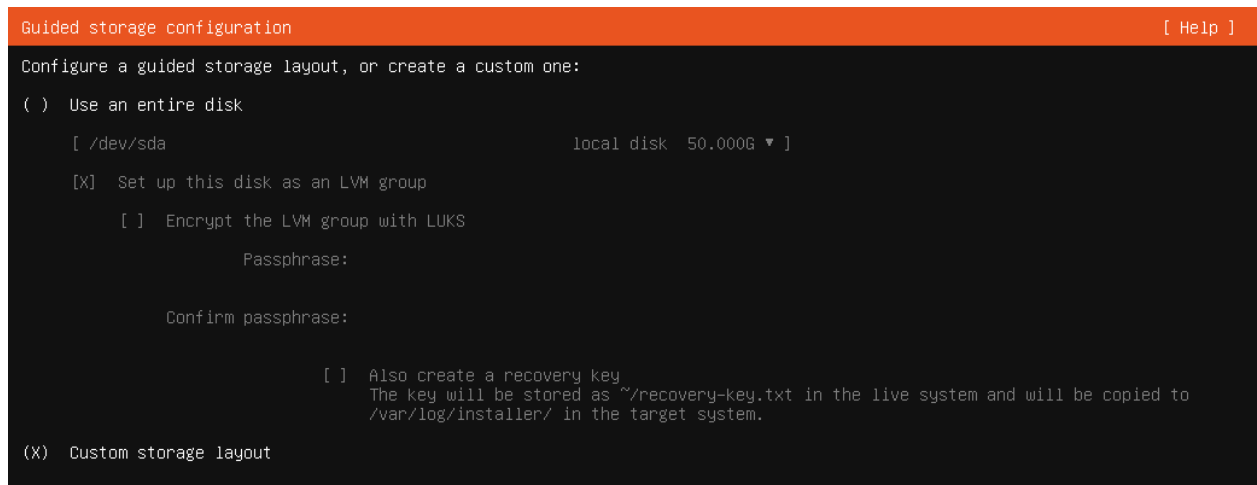


Figure 1.3: Select ‘Custom storage layout’

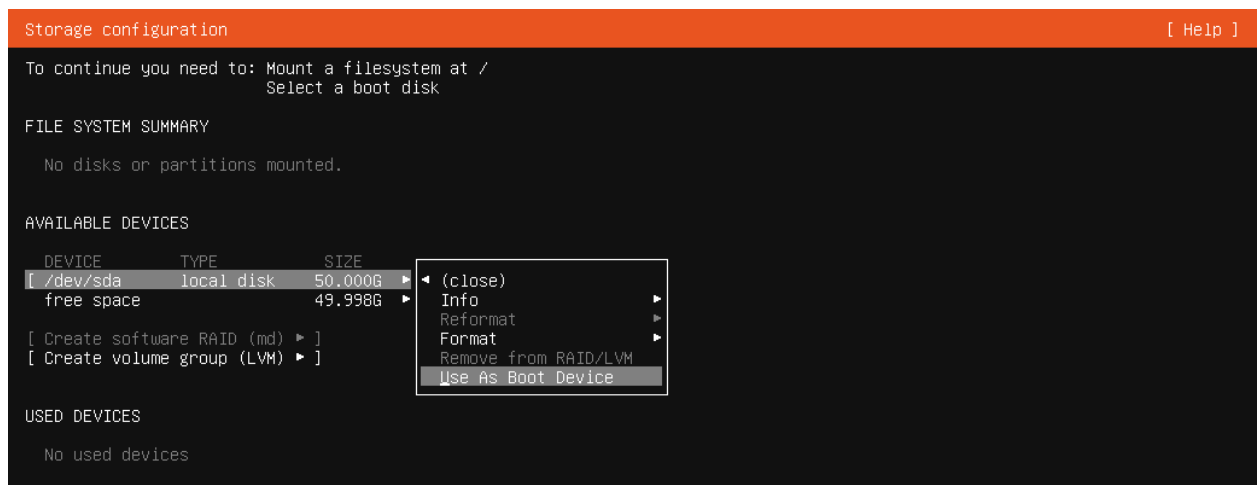


Figure 1.4: Select boot device

We recommend not using a swap partition when using the Software Probe, as this can interfere with the real-time operation of the software.

If you are installing on a system with pre-existing partitions, volumes and/or RAID devices, you will need to select ‘Delete’ on each of these in turn to remove them before continuing. If you are unable to remove specific partitions, highlight the disk itself and select ‘Reformat’ to clear all partitions on the disk. When installing from USB, the USB device will be displayed in this list. It will be marked as ‘in use’ and cannot be deleted.

- For the drive intended for the OS, select ‘Use As Boot Device’. Compare figure 1.4.
- Select ‘free space’ on the same device. In the pop-up menu, select ‘Add GPT Partition’ and create a partition of 1G, formatted as xfs at mount point /boot. Select ‘Create’ to create the partition, see figure 1.5.



Figure 1.5: Create boot partition



Figure 1.6: Create space for volume group

- Again, select 'free space', open the pop-up menu and select 'Add GPT partition'. Leave the Size field blank (to assign the maximum available), set format to 'Leave unformatted' and select 'Create' to create the partition, see figure 1.6.
- Select 'Create volume group (LVM)', selecting the partition created in the previous step. Select 'Create' to create the LVM volume group, see figure 1.7.
- Next, determine the amount of storage to set aside for the multi-stream recording feature, and possibly also the Timeline feature, if licensed.

To create a Timeline storage volume on a pair of disks using RAID mirroring, only set up the multi-stream recording partition now, and instead use the 'Disk Manager' option in the administrative interface after finishing the installation.

Unless using dedicated disks, as a rule of thumb, we can assign half the disk to the system and half to the multi-stream recording feature, or one-third each to the system, multi-stream recording feature and Timeline feature.

By creating the volumes using logical volumes, they can easily be extended later by adding additional storage space.

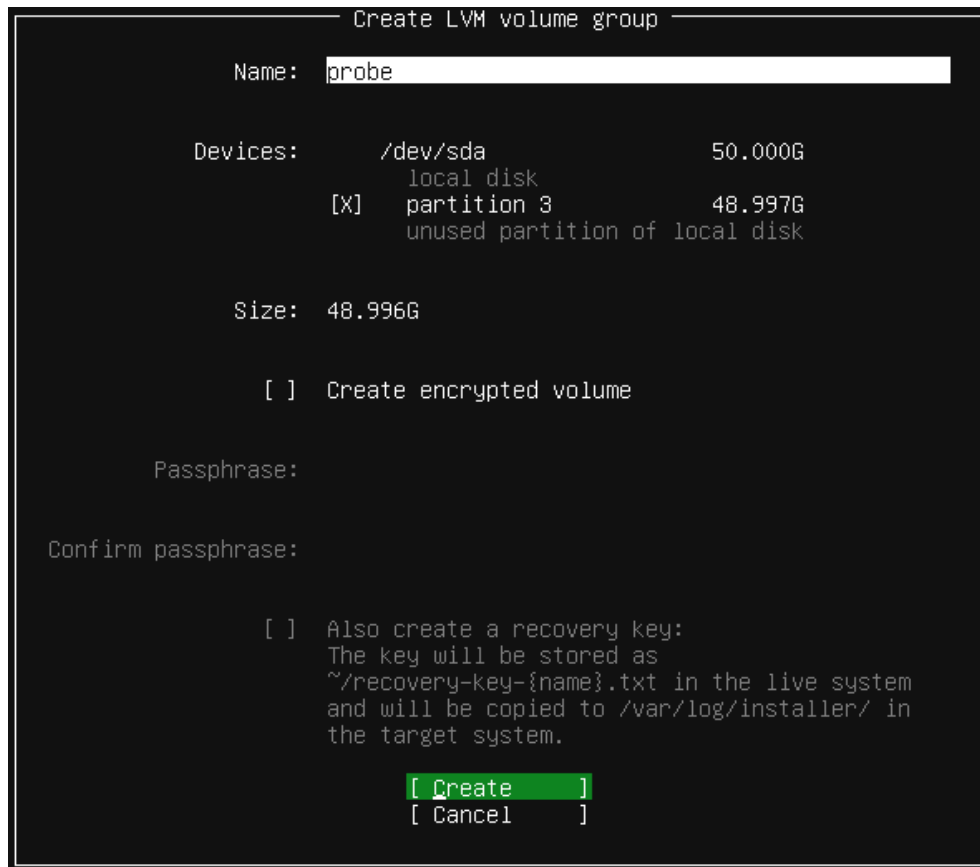
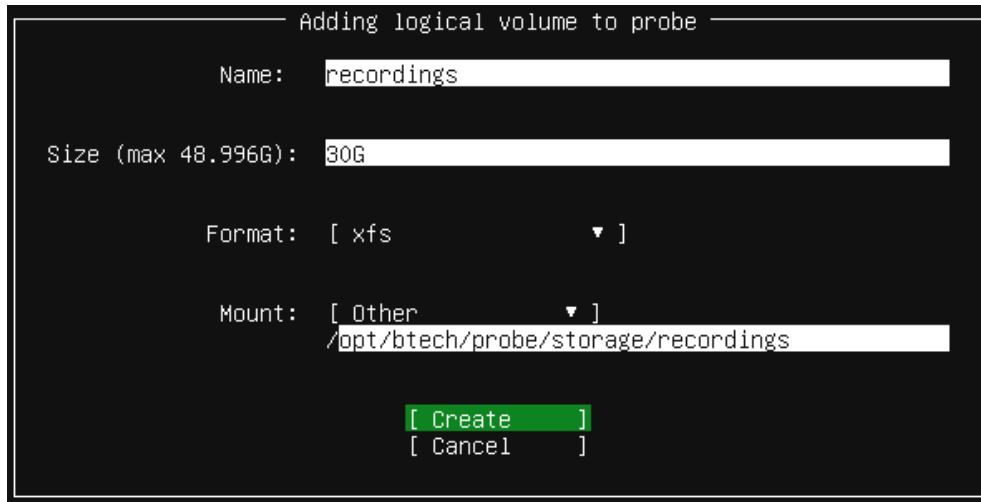


Figure 1.7: Create volume group

- To create the volumes for the multi-stream recording and Timeline features, select 'free space' under the 'NN (new)' device (where *NN* is the name you gave it in the previous step) or select the second attached drive as described in 1.1.2. Select 'Create Logical Volume', naming it 'recordings' for multi-stream recording and 'database' for Timeline. Assign the determined available space for the partition if creating a logical volume on the shared disk, or leave the size field blank to assign all available space if creating the volume on the second attached drive.
Set the format to 'xfs' and set the mount point by choosing 'Other' and selecting /opt/btech/probe/storage/recordings for multi-stream recording and /opt/btech/probe/storage/database for Timeline. The configuration should look similar to figure 1.8. Select 'Create' to create the logical volume.
- Select 'free space' under the 'NN (new)' device (where *NN* is the name you gave it in the previous step). Select 'Create Logical Volume'. Name it 'root', leaving the size field blank (to assign the maximum available), and setting format to 'xfs'.
The configuration should look similar to figure 1.9. Select 'Create' to create the logical volume.



Adding logical volume to probe

Name:

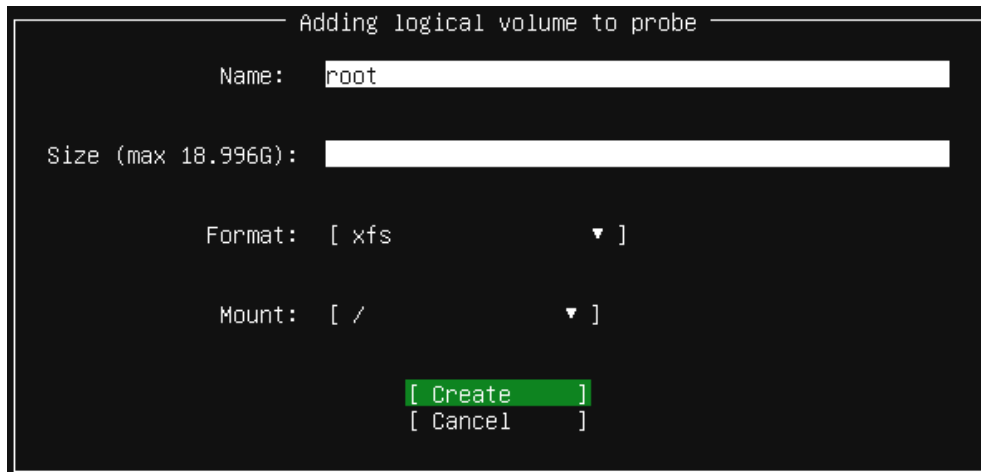
Size (max 48.996G):

Format: [xfs ▼]

Mount: [Other ▼]

[Create]
[Cancel]

Figure 1.8: Create multi-stream recording volume



Adding logical volume to probe

Name:

Size (max 18.996G):

Format: [xfs ▼]

Mount: [/ ▼]

[Create]
[Cancel]

Figure 1.9: Create root volume

- The storage configuration should look similar to figure 1.10. Accept it by selecting 'Done'.

Confirm that you want to apply the changes by selecting 'Continue'.

5. Next, create the administrative user and password, see figure 1.11. This is used later to log in to the administrative interface.
6. If you have an Ubuntu Pro subscription, enter it here, as seen in figure 1.12. Otherwise, select 'Skip for now'.

To attach an Ubuntu Pro subscription later, enter `pro attach` at the command line and follow the on-screen prompts.

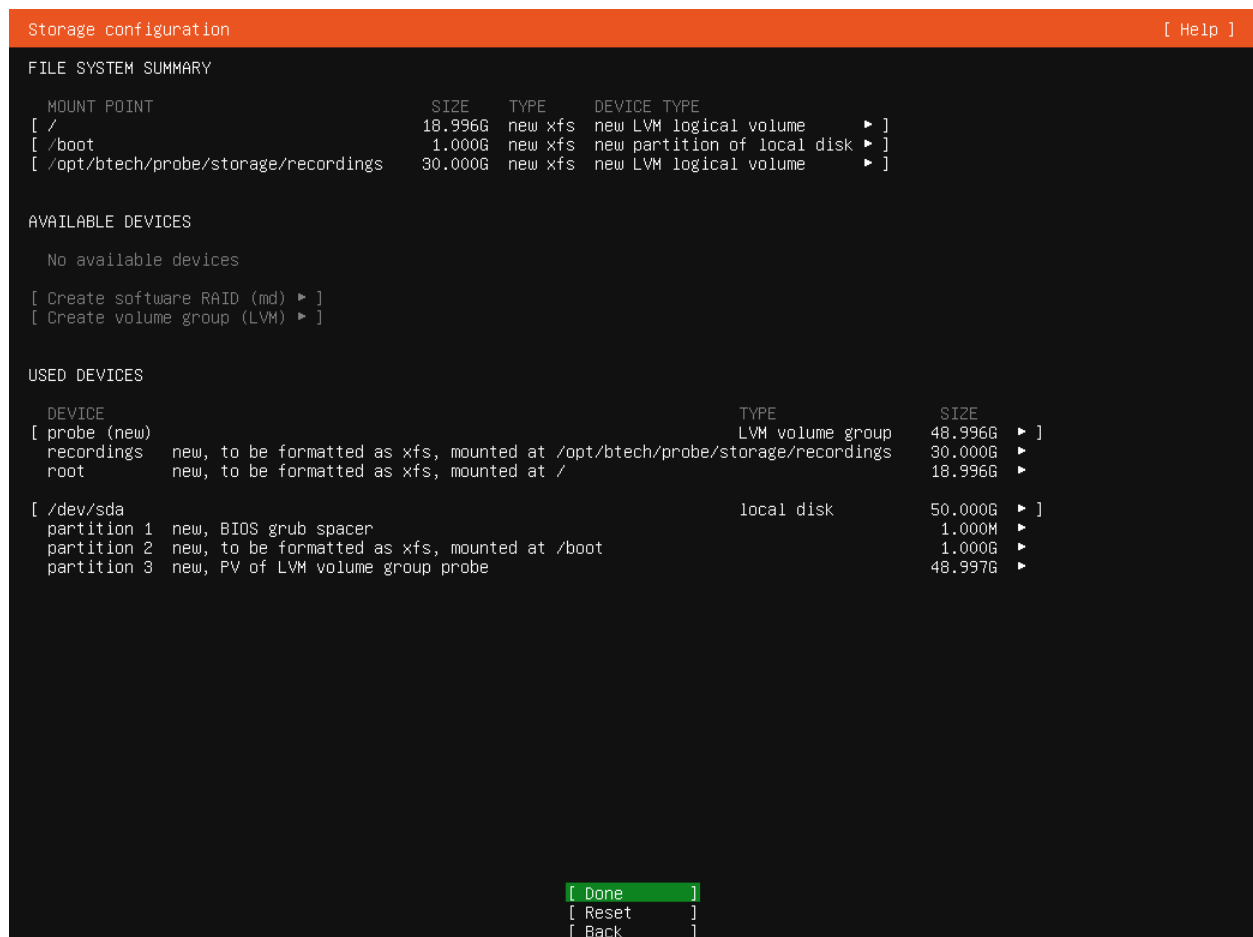


Figure 1.10: Finishing partitioning setup

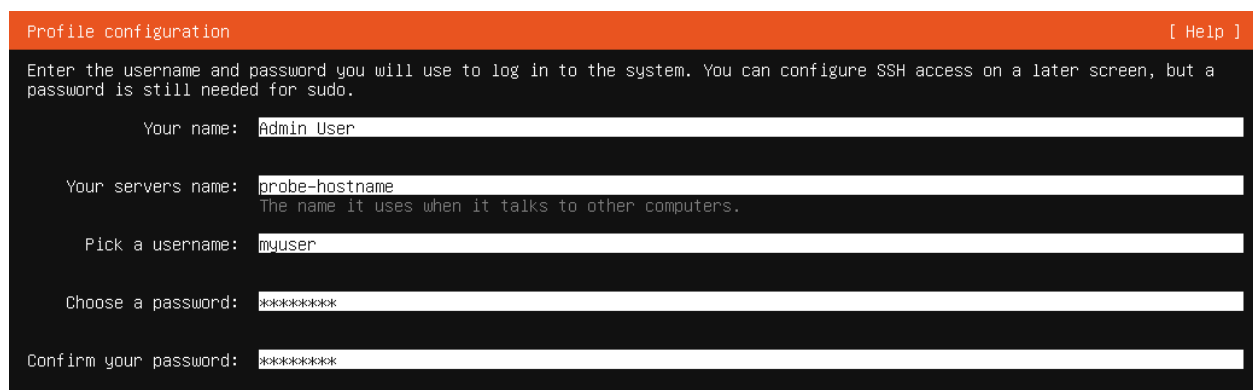


Figure 1.11: Create a log-in profile

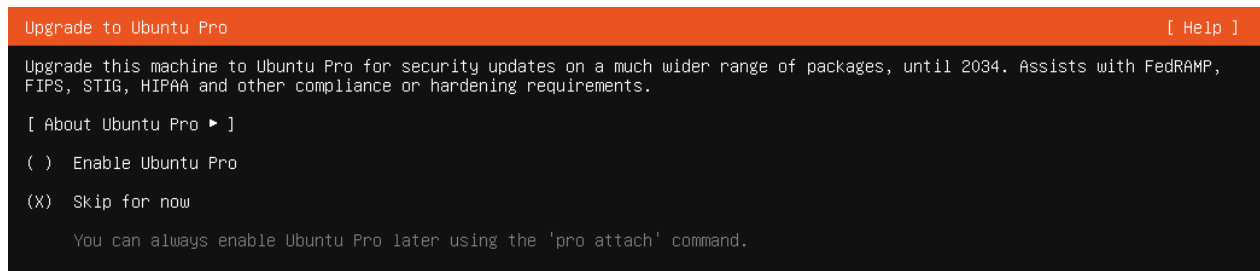


Figure 1.12: Enable Ubuntu Pro

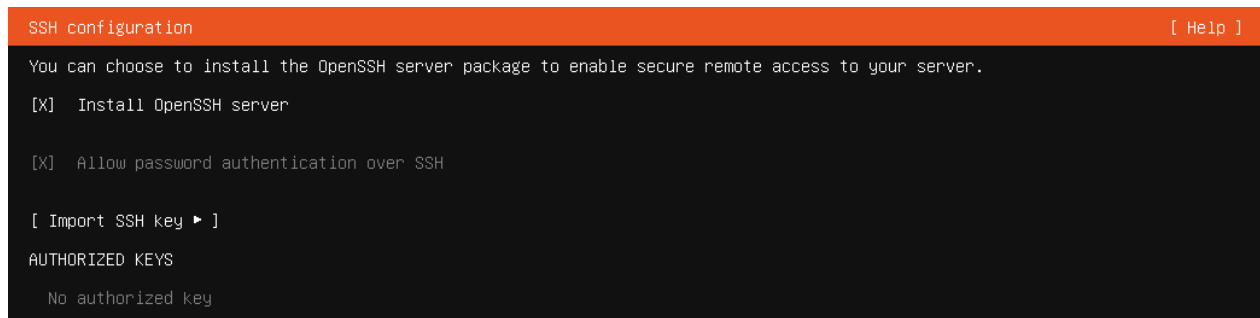


Figure 1.13: SSH configuration

7. To be able to log in remotely to the system, select ‘Install OpenSSH server’ in the SSH configuration screen depicted in figure 1.13.

You can import SSH keys to enable password-less installation using the ‘Import SSH key’ feature if the system has internet connectivity and you have an account with any of the supported services. Please note that you will still need to have set a password to use the Cockpit administrative interface.

8. The installation will now start. Once finished, there will be a button at the bottom of the screen saying ‘Reboot Now’. Remove the installation media and ensure that the system boots up properly.

The default installation does not provide any graphical user interface environment, and only a minimal set of command-line tools. Please refer to the Ubuntu Server documentation about how to unminimize it if necessary.

We do not recommend running a graphical user interface environment on a system running the Software Probe.

1.2 Maintaining the underlying Operating System

The software installed on the system is using Ubuntu Linux Server as its base system. For information on how to maintain the operating system, including how to update it to install security patches, please refer to the Ubuntu Server system documentation.

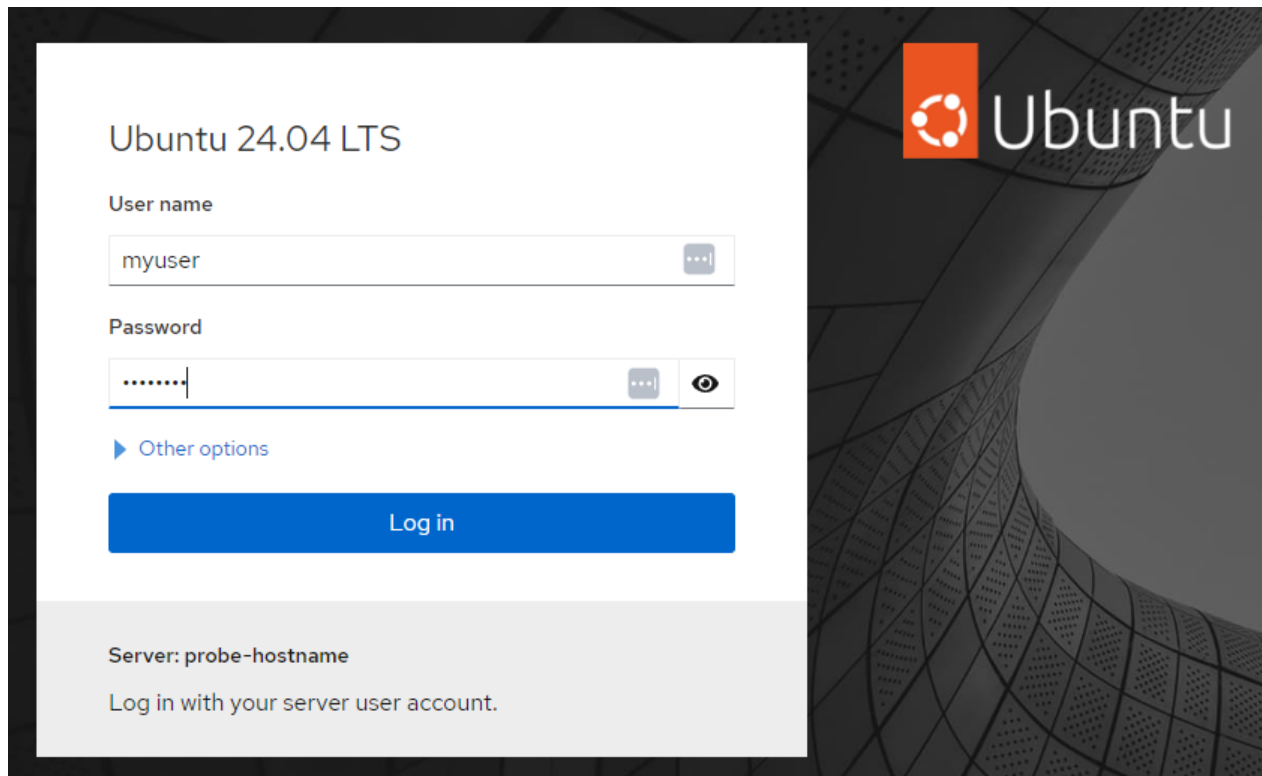


Figure 1.14: Cockpit administrative interface

An overview of Ubuntu Server documentation can be found at <https://ubuntu.com/server/docs/how-to>

We recommend keeping the base operating system updated; any known incompatibilities will be published in the release notes.

1.3 Verifying Correct Initial Setup and Software Activation

Once the software has been installed and restarted all further configuration takes place through the web interface.

When logging in to the pre-built images and the VB330 Appliance, the default password for the **admin** user is **elvis**. The same password is used for logging in remotely using Secure Shell (ssh) and the Cockpit administrative interface.

1. Launch a web browser application on the management system. One of the following browsers are recommended:
 - Google Chrome
 - Mozilla Firefox

- Microsoft Edge
 - Apple Safari
2. Enter the selected IP address in your web browser to access the Software Activation page. If your host is using dynamic addressing, you can log in to the account created during installation and issue the command **ip addr** to display the address assigned to the system.

If you get a HTTPS certificate warning, just accept it.

The network settings should have been set when the operating system was installed. If the web browser is unable to reach the web server, check the server's network settings in the operating system.

3. The Cockpit administrative interface should be displayed inside the browser. Cockpit is password-protected and uses the system accounts for logging in. The page displayed should look similar to figure 1.14.
4. Most operations require that you obtain administrative access by clicking the button at the top of the screen after having logged in. When using the command shell (terminal), use the **sudo** command to run programs with administrative access.

If you have enabled the root account by setting a password for it, it will automatically have administrative access.
5. If this is a new server, and you need to obtain license keys for the purchased products, please contact your sales representative.
6. None of the installed products are activated by default on the newly installed server. To enable one, click the icon next to its name. This will open a detailed view with display details of the installed software, such as the installed version. If you have a license key that you want to enable and have not yet done so, enter the key in the field labeled **Apply license key** and click the **Add license** button.

7. Click the button labeled **Activate** and wait for it to finish. An activation message will be shown upon completion.

Please note that it may take some additional time before the user interface of the activated product becomes available. If you receive an error trying to access it, please wait for a few minutes before trying again.

It is **strongly recommended** that the system time is configured to be synchronized against an external NTP server. Please refer to B Appendix: Enabling NTP time synchronization for more information on configuring time synchronization.

1.4 Initial Setup Troubleshooting

If you are having trouble bringing up the Software Activation interface:

- Verify that the client machine and the server are configured on the same subnet and that they have different addresses, or, if you use different subnets, verify that the routing and gateways are set correctly on both the client machine and the server.
- Make sure that the IP address of the gateway and the network interface are not the same.
- Verify that the appropriate Ethernet link indicators of the PC and the server are lit.
- Verify that web browser proxy settings are not interfering.
- Verify that local firewall settings on the PC are not interfering.
- Try rebooting the server and make sure all services start as expected.
- Clear the browser's cache.
- Verify that the web server is running, by entering the command

```
systemctl status nginx
```

on the server's command line. If it is not running properly, check the system logs for hints by typing

```
journalctl -u nginx
```

Please refer to A Appendix: Network configuration for more information on server network configuration using the Cockpit administrative interface.

1.5 Upgrading From a Previous Version

The ISO installation image is only used for first-time installations. For upgrades, please refer to the software documentation for details on how to perform a software upgrade.

If you want or need to re-install the system, please make sure you first make a backup of all the data you want to keep. See the software documentation for more details about how to do a backup.

1.6 Accessing the administrative interface

To return to the administrative interface after having activated a product, navigate your web browser to the address `https://<IP>/admin`, where `<IP>` is the IP address (or host name, if using DNS) of the server. A link to the administrative interface is usually available in the user interface under the **About** view.

1.7 Deactivating

To deactivate a product, you must first access the administrative interface (see the previous section) and make sure that it is not set to the default. Expand the product details heading and click the **Remove as default** button.

Once this is done, access the user interface and de-activate it from the **About** view.

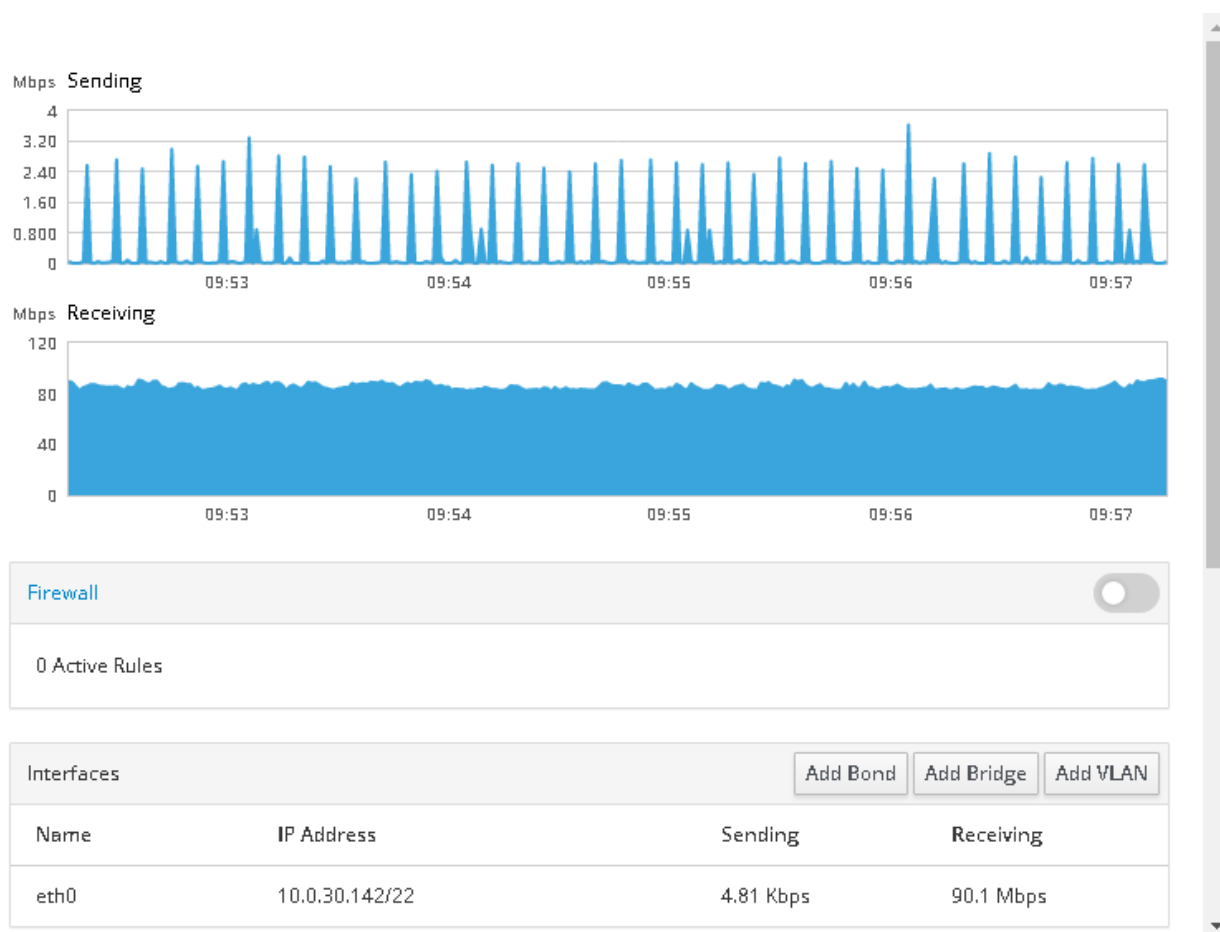
A Appendix: Network configuration

A.1 Web-based configuration

The system ships with a web-based network configuration module. If you are unable to access the system using the web interface, you will need to use the system console. Please see section A.2 for details on how to use the command-line based configuration tool from the console.

To access the web-based configuration module, open the Cockpit administrative interface, as described in section 1.3. The Cockpit administrative interface uses the same log-in credentials as the system accounts.

Click on the **Network** heading to open the network configuration.



For more information on how use Cockpit, please refer to the Cockpit documentation¹.

¹<https://cockpit-project.org/documentation.html>

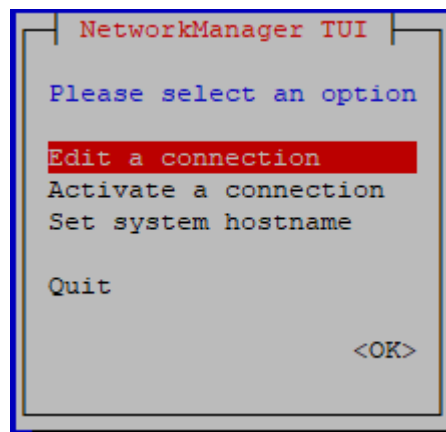
If you make changes here that causes you to lose web access to the server, you may need to use the command-line tools as described below.

A.2 Command-line based configuration

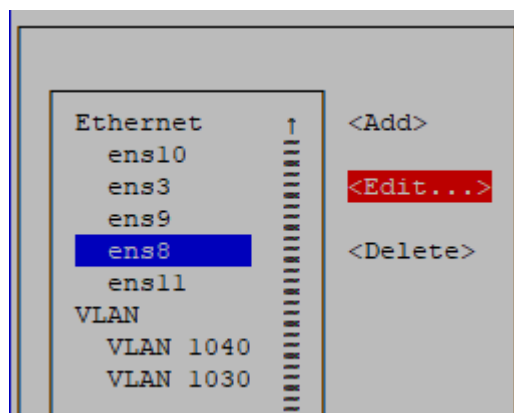
Changes to network configuration, adding new interface devices and VLANs can be done with the **nmtui** tool. Simply type **sudo nmtui** whilst logged into the server command shell². Navigate the nmtui menus using the cursor (arrow) keys and Enter to select.

Editing Network interface configuration

To edit a connection first select **Edit a connection** from the nmtui menu:

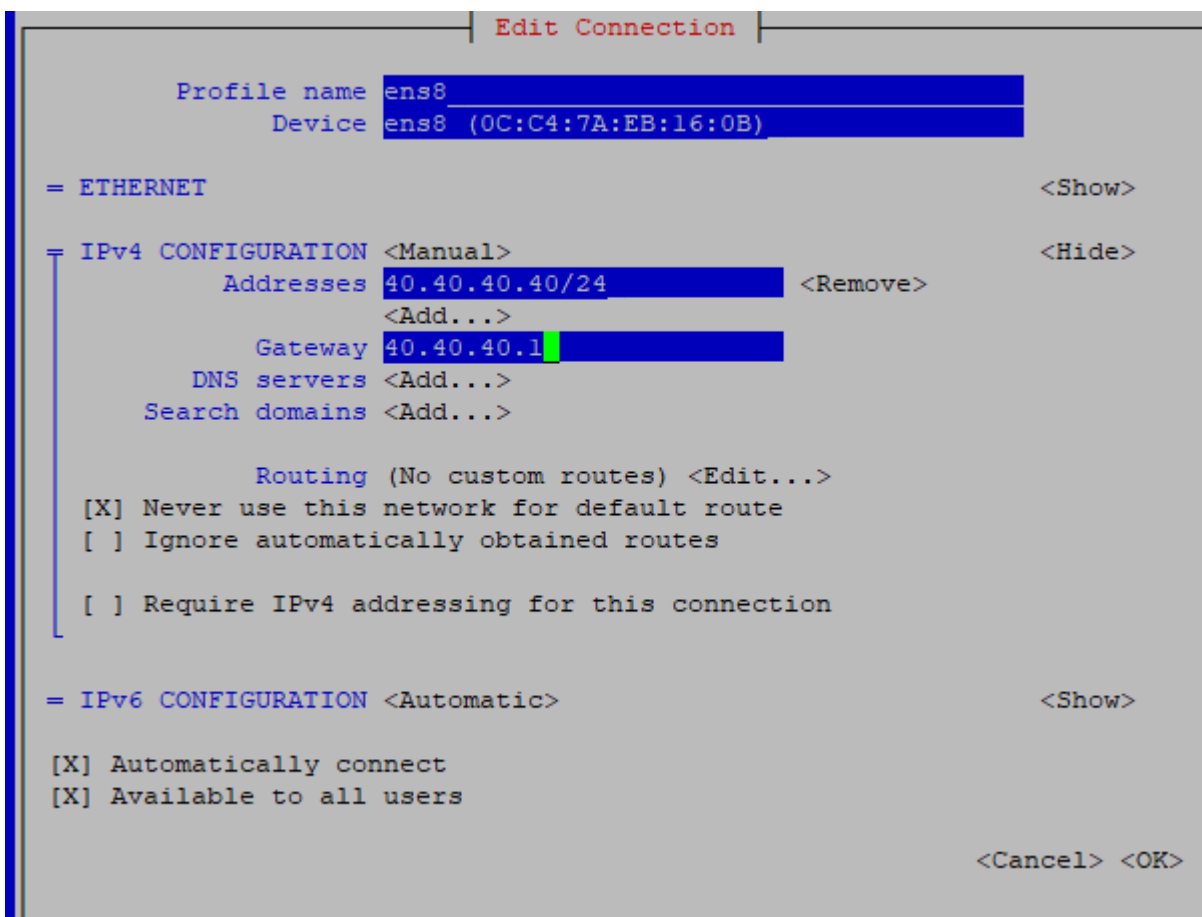


Select the interface to be edited and then select **Edit...** from the menu.



²If the **nmtui** tool is not available on your system, you can install it by issuing the command **sudo apt install network-manager**

Make the necessary changes to IPv4 and IPv6 configuration.



Selecting **Automatically connect** will ensure the interface is connected next time the system boots.

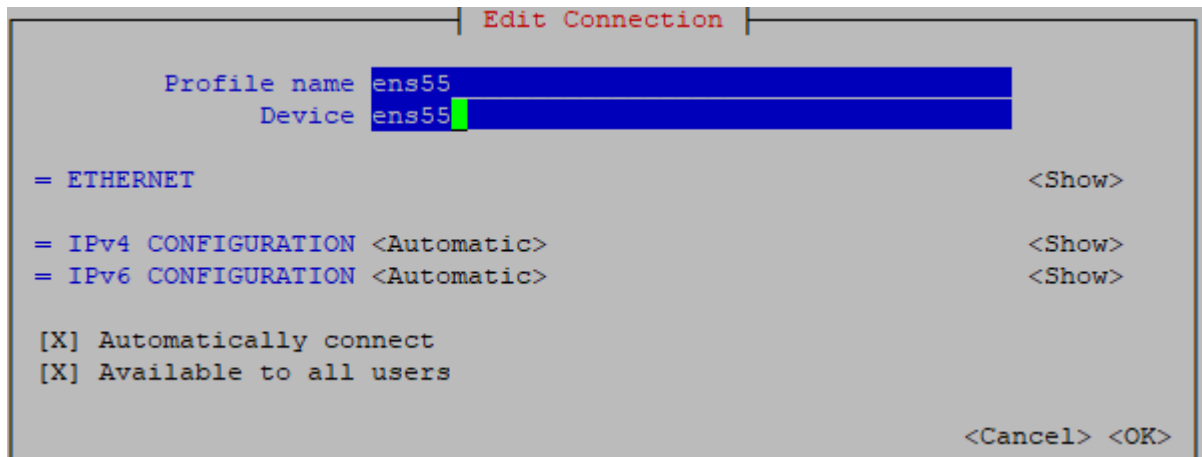
Sometimes it is desirable to select **Never use this interface for default route**, particularly if additional interfaces are only used for monitoring multicast traffic or when setting up a native interface for adding VLANs.

After making changes select **OK** to return the previous menu. Generally, network configuration changes will take effect the next time the interface is activated. This can be done by deactivating and reactivating the interface from the **Activate a connection** menu in nmtui or with the command line **ifdown ifname** followed by **ifup ifname**.

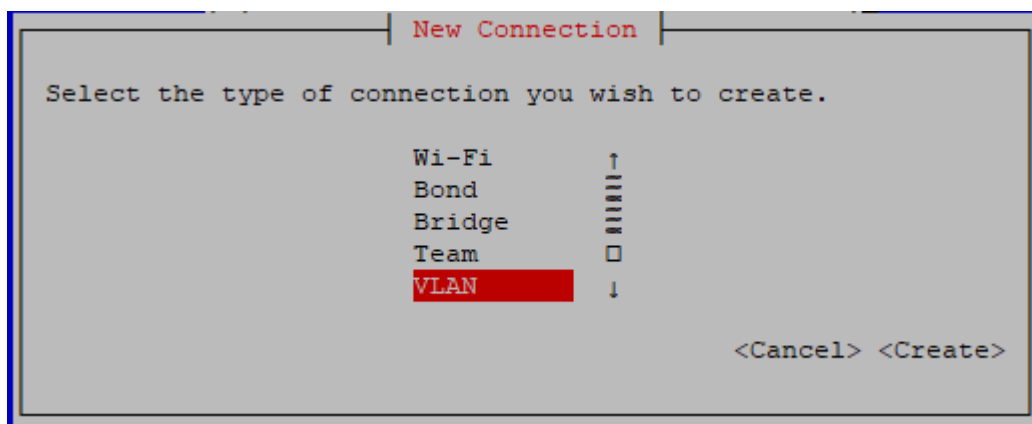
Adding new and VLAN interfaces

To add a new interface, in the nmtui main menu select **Edit a connection** followed by **Add** and select the interface type from the menu. Typically this is **Ethernet** but may also be used to create VLAN interfaces. Advanced configurations such as Bond and Bridge may be selected if they are required.

To find the system assigned name for a newly added hardware device use the command line **ifconfig** or search in the output of the **dmesg** tool. It can be helpful to keep the nmtui **Profile name** for the device the same as the device name itself, for example:



To add a VLAN interface from nmtui main menu select **Edit a connection** followed by **Add**. Scroll to the bottom of the list and select VLAN:



Edit the settings for the VLAN interface. The Device field should contain the name of the physical interface to be used for this VLAN and the VLAN number, for example `ens8.1040` means VLAN `1040` on interface `ens8`. The parent and VLAN ID fields should correspond to the values in the name field. In our example `ens8` is the parent and `1040` is the VLAN. Other settings are the same as for normal IPv4/6 interfaces.

Edit Connection

Profile name VLAN 1040
 Device ens8.1040

= VLAN <Hide>
 Parent ens8
 VLAN id 1040

Cloned MAC address
 MTU (default)

= IPv4 CONFIGURATION <Hide>
 Addresses 10.0.40.163/24 <Remove>
<Add...>
 Gateway
 DNS servers <Add...>
 Search domains <Add...>
 Routing (No custom routes) <Edit...>
☒ Never use this network for default route
☐ Ignore automatically obtained routes
☐ Require IPv4 addressing for this connection

= IPv6 CONFIGURATION <Show>
☒ Automatically connect
☒ Available to all users

<Cancel>
<OK>

After entering the configuration for the VLAN interface select **OK** to return the previous menu, then select **Back** and finally **Activate a connection** to activate the newly created VLAN interface.

A.3 Further reading

For more documentation, please refer to the *Introduction to networking*³.

³<https://ubuntu.com/server/docs/introduction-to-networking>

B Appendix: Enabling NTP time synchronization

It is strongly recommended that the server running the Sencore VideoBRIDGE software be synchronized against an external NTP server.

If not set up correctly, alarms may be displayed with incorrect timestamps and out of alignment with other monitoring devices in the system.

NTP synchronization against public servers on the Internet is usually enabled automatically if they were detected during the operating system installation. It is possible to change the servers to use, for instance to set it to use a local NTP server, by changing the configuration in the file `/etc/chrony.conf` manually.

The VideoBRIDGE Controller will also act as NTP server, if available. Please refer to the individual User's Manuals for information on how to set up the Sencore VideoBRIDGE software and hardware to synchronize towards the VBC server.

For more details on how to configure Chrony, please refer to *How to serve the Network Time Protocol with Chrony*¹.

¹<https://ubuntu.com/server/docs/how-to-serve-the-network-time-protocol-with-chrony>