Linux OS Administrator's Guide

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Table of contents

4 Configuring Axxon One in Linux OS

5 Linux OS Administrator's Guide. Introduction

Linux OS Administrator's Guide provides only the features of installing and configuring *Axxon One* in Linux OS:

- General information about Axxon One in Linux OS(see page 8) describes the technical specifications for installing *Axxon One*. The section also provides solutions for the most common problems that occur during installation and working with *Axxon One*.
- Installing Axxon One in Linux OS(see page 11) describes the conditions and manuals required to install the *Axxon One* Server and Client in Linux OS.
- Updating Axxon One in Linux OS(see page 24) and Removing Axxon One in Linux OS(see page 25) provide manuals for updating and removing *Axxon One*.
- Configuring Axxon One in Linux OS(see page 29) describes the configuration of *Axxon One* in Linux OS.
- Limitations of Axxon One in Linux OS(see page 10) describes the functionality that isn't available when you run *Axxon One* in Linux OS.
- Features of creating an archive in Linux OS(see page 29) describes manuals and options for creating archives in *Axxon One*.

For recommendations for configuring and working with the user interface, see Configuration of Axxon One[1] and Working with Axxon One[2].

1 https://docs.axxonsoft.com/confluence/display/one20en/Configuration+of+Axxon+One
2 https://docs.axxonsoft.com/confluence/display/one20en/Working+with+Axxon+One

6 General information about Axxon One in Linux OS

6.1 Supported versions of Linux OS and PostgreSQL

Axxon One supports all 64-bit distribution packages of Linux OS:

- **Debian**: 12, 11, 10, 9;
- **Ubuntu**: 22, 20, 19, 18.

Axxon One supports PostgreSQL versions from 9.5 to 14. For the current versions of distribution packages, the necessary versions of PostgreSQL are located in the regular repositories. If the versions are not available in the regular repositories of the distribution packages, you can find the installation repositories with the necessary versions in the official documentation: https://www.postgresql.org/docs/.

Attention!

- For *Axxon One* to operate correctly with Linux GUI, you must use one of the following graphical shells: GNOME, XFCE, CINNAMON, MATE.
- For the FailOver cluster to operate correctly, you must use the same versions of PostgreSQL on the cluster Servers.
- The stable operation of the Client is not guaranteed on Ubuntu 18 and 19. We recommend installing only the *Axxon One* Server. Both the Client and the *Axxon One* Server are supported on Ubuntu 20 and newer versions.
- The basic Face Detection TV cannot work on Debian 9 (see Configuring Face Detection TV[3]).

Installing the Axxon One Server in Linux OS(see page 11)
Installing the Axxon One Client in Linux OS(see page 16)

6.2 Features and potential problems with Linux OS

On the page:

3 https://docs.axxonsoft.com/confluence/display/one20en/Configuring+Face+Detection+TV

6.2.1 Problems with installing the Axxon One Client

Sometimes when you install the *Axxon One* Client, you can have problems with packages, specifically with incompatible versions of Mono packages. By default, version 6.8 is installed, but version 6.4 is required for *Axxon One* to work. To resolve the problem, do the following:

1. Completely remove Mono packages by running the commands:

```
sudo apt purge mono* libmono*
sudo apt autoremove
```

2. Install new Mono packages from the repository:

```
sudo apt-get install mono-complete -t stretch
```

After that, you can repeat the installation of the *Axxon One* Client (see Installing the Axxon One Client in Linux OS(see page 16)).

6.2.2 Problem with displaying a dialog box or a drop-down list

In some cases, when you change the configuration of objects for which you need to set a location or select a value from the drop-down list, when you click on the button to select a location or list value, they do not open.

> **Note**
>
> In fact, the location selection window or a drop-down list are opened outside the interface shell, and therefore are not visible to the user.

To resolve this problem, select a different desktop environment and restart *Axxon One*. For example, use Gnome Classic instead of Gnome for Debian 11.

6.2.3 Peculiarities of detection tools operation on NVIDIA GPUs in Linux OS

By default, the Nouveau driver can be installed in Linux OS. This driver does not guarantee stable operation when using NVIDIA graphics cards for decoding *Axxon One* detection tools (see Configuring detection tools[4]).

To resolve the problem, you need to install the current graphics card driver from the official NVIDIA website and run the command in the terminal:

```
nvidia-smi
```

If the operating system uses the installed driver to work, the driver version will be displayed. Otherwise, if the current driver is installed, but the operating system uses the Nouveau driver, you need to add it to the exclusions list and restart the computer. Below is an example of Ubuntu commands to add the Nouveau driver to the exclusion list:

```
sudo bash -c "echo blacklist nouveau > /etc/modprobe.d/blacklist-nvidia-nouveau.conf"
sudo bash -c "echo options nouveau modeset=0 >> /etc/modprobe.d/blacklist-nvidia-nouveau.conf"
```

After restarting, the operating system will use the installed NVIDIA driver.

4 https://docs.axxonsoft.com/confluence/display/one20en/Configuring+detection+tools

6.2.4 Problem with incorrect CPU load when decoding on Intel GPU in detection tool configuration

When enabling decoding on Intel GPU in detection tool configuration, the AVDetector and Decoder processes may cause incorrect CPU load. To solve this problem, do the following:

1. Change the package configuration using the command:

```
sudo dpkg-reconfigure axxon-one-core
```

2. In the groups selection dialog box, set the checkbox next to the **render** group.

6.2.5 Peculiarities of database operation when the PostgreSQL service is stopped

If you stop the PostgreSQL service and then start it, the EventDatabase won't connect to PostgreSQL until the service is restarted manually.

To restore the database operation when manually stopping the PostgreSQL service, you must manually restart the EventDatabase service using the command:

- via service:

```
service axxon-one-db restart
```

- via systemctl:

```
systemctl restart axxon-one-db.service
```

You can also restart the device to restore the database operation.

6.3 Limitations of Axxon One in Linux OS

> **Attention!**
>
> To install, upgrade or modify *Axxon One* in Linux OS, it is necessary to use the programs and commands described in this document. If you use third-party programs, *Axxon One* may not work correctly. For more information, see Features and potential problems with Linux OS(see page 8).

The following features are currently not available in *Axxon One* in Linux OS:

1. Working with POS devices (see Configuring POS devices[5]).
2. Working with Web Boards (see Working with Web Boards[6]).
3. Upgrading Servers within a cluster via the supervisor Web-interface (see Updating Servers within a cluster[7]).
4. *Axxon One* Tray Tool[8].
5. The basic Face detection cannot work in Debian 9 (see Configuring Face detection[9]).

5 https://docs.axxonsoft.com/confluence/display/one20en/Configuring+POS+devices
6 https://docs.axxonsoft.com/confluence/display/one20en/Working+with+Web+Boards
7 https://docs.axxonsoft.com/confluence/display/one20en/Updating+Servers+within+a+cluster
8 https://docs.axxonsoft.com/confluence/display/one20en/Axxon+One+Tray+Tool
9 https://docs.axxonsoft.com/confluence/display/one20en/Configuring+Face+detection

7 Installing Axxon One in Linux OS

Attention!

All *Axxon One* installation steps must be performed in the terminal using the root user, who has administrative access to the system.
The sudo software is used for installing *Axxon One*. Sudo commands are described in this guide. If you use third-party programs, such as the Discover Update Center, this may result in you having to reinstall *Axxon One*.

7.1 Axxon One quick installation in Linux OS

For quick installation of the *Axxon One* Server and Client in Linux OS, do the following:

1. Add the repositories by sequentially running the following commands:

```
echo 'deb http://download.axxonsoft.com/debian-repository stable main' | sudo tee -a /etc/
apt/sources.list.d/axxonsoft.list
echo 'deb http://download.axxonsoft.com/debian-repository stretch backports/main' | sudo
tee -a /etc/apt/sources.list.d/axxonsoft.list
wget --quiet -O - "http://download.axxonsoft.com/debian-repository/
info@axxonsoft.com.gpg.key" | sudo apt-key --keyring /etc/apt/trusted.gpg.d/axxonsoft.gpg
add - && sudo apt-get update
```

2. Install the *Axxon One* Server:

```
sudo apt-get install axxon-one
```

3. If you use Ubuntu 20.04, Debian 11 or above, then install the mono-complete from the stretch repository:

```
sudo apt-get install mono-complete -t stretch
```

4. Install the *Axxon One* Client:

```
sudo apt-get install axxon-one-client
```

The Server and Client installation is complete.

7.2 Installing the Axxon One Server in Linux OS

7.2.1 Installing from repository

Installation from the repository is performed automatically, including all the system components.

To install from the repository, do the following:

1. Sequentially run the commands:

```
echo 'deb http://download.axxonsoft.com/debian-repository stable main' | sudo tee -a /etc/
apt/sources.list.d/axxonsoft.list
echo 'deb http://download.axxonsoft.com/debian-repository stretch backports/main' | sudo
tee -a /etc/apt/sources.list.d/axxonsoft.list
```

```
wget --quiet -O - "http://download.axxonsoft.com/debian-repository/
info@axxonsoft.com.gpg.key" | sudo apt-key --keyring /etc/apt/trusted.gpg.d/axxonsoft.gpg
add - && sudo apt-get update
```

Note

If the distribution packages based on Debian 10 are used, it may be necessary to install additional packages:

```
sudo apt-get install wget
sudo apt-get install gnupg
```

2. To install *Axxon One* Server, run the following command:

```
sudo apt install axxon-one
```

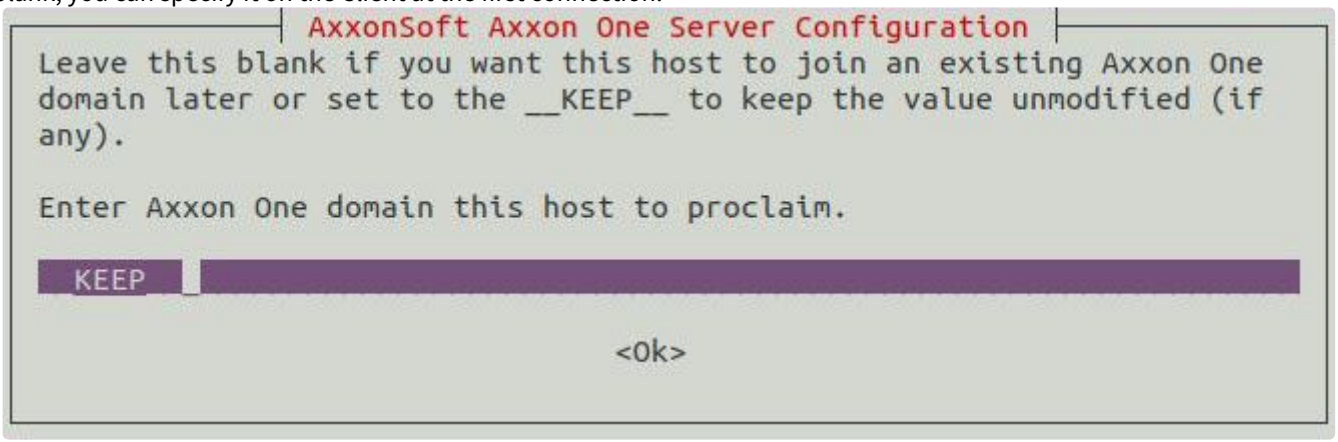
To install the FailOver Server, run the following command:

```
sudo apt install axxon-one-raft
```

Attention!

It is not allowed to simultaneously install the regular Server and the FailOver Server.

During the installation, the installer will request the name of the domain for the *Axxon One* Server. If you leave this field blank, you can specify it on the Client at the first connection.



7.2.2 Manual installation

To install the *Axxon One* Server manually, do the following:

1. Add the repositories by sequentially running the following commands:

```
echo 'deb http://download.axxonsoft.com/debian-repository stable main' | sudo tee -a /etc/
apt/sources.list.d/axxonsoft.list
echo 'deb http://download.axxonsoft.com/debian-repository stretch backports/main' | sudo
tee -a /etc/apt/sources.list.d/axxonsoft.list
wget --quiet -O - "http://download.axxonsoft.com/debian-repository/
info@axxonsoft.com.gpg.key" | sudo apt-key --keyring /etc/apt/trusted.gpg.d/axxonsoft.gpg
add - && sudo apt-get update
```

2. Download the necessary archive with packages to install *Axxon One*: https://www.axxonsoft.com/support/downloads/axxon-one-vms. You need either **Server** or **Failover Server** from the **Linux 64-bit.deb** section. The difference between **Se**

rver and **Failover Server** is described in General information about installation in Linux OS(see page 26).
The archive contains all necessary packages to install the Server:

Package name	Description
axxon-drivers-pack_%version.number%_amd64.deb	*DriversPack* is required for IP devices support in *Axxon One*
axxon-detector-pack_%version.number%_amd64.deb	Basic *DetectorPack* package includes only Object Tracker[10], Tampering Detection[11], Signal Detection[12], Noise Detection[13], Audio Loss[14], and Motion detection[15]
axxon-one-core_%version.number%_amd64.deb	Required package to install the Server
axxon-one_%version.number%_all.deb or axxon-one-raft_%version.number%_amd64.deb	Package for the **Server** installation type or package for the **Failover Server** installation type

3. Download video analytics packages if you plan to use them: https://www.axxonsoft.com/support/downloads/detector-pack (the **Add-ons** list in the **Linux 64-bit.deb** section).
4. Unzip the downloaded files.
5. Install *DriverPack*, *DetectorPack* and additional packages (if available) using the following command:

```
sudo dpkg -i /home/user/Downloads/axxon-d*.deb || sudo apt-get install -f -y
```

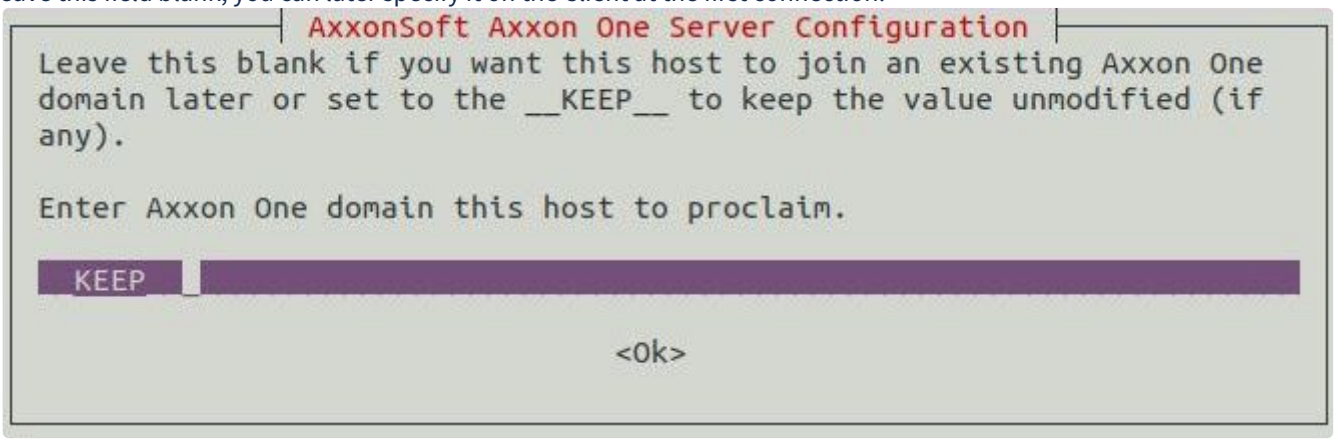
where instead of **/home/user/Downloads** specify the actual path to the packages.

6. Install *Axxon One* using the following command:

```
sudo dpkg -i /home/user/Downloads/axxon-one*.deb || sudo apt-get install -f -y
```

> **Attention!**
>
> You cannot simultaneously install the **regular Server** and the **Failover Server**.

7. During the *Axxon One* **Server** installation, the installer will request the name of the domain for the *Axxon One* Server. If you leave this field blank, you can later specify it on the Client at the first connection.



8. If necessary, you can change the Server configuration after installation (see Changing the configuration of the Axxon One Server in Linux OS(see page 36)).

10 https://docs.axxonsoft.com/confluence/display/one20en/Object+Tracker
11 https://docs.axxonsoft.com/confluence/display/one20en/Tampering+Detection
12 https://docs.axxonsoft.com/confluence/display/one20en/Configuring+Signal+Detection
13 https://docs.axxonsoft.com/confluence/display/one20en/Configuring+Noise+Detection
14 https://docs.axxonsoft.com/confluence/display/one20en/Configuring+Audio+Loss+detection
15 https://docs.axxonsoft.com/confluence/pages/viewpage.action?pageId=246484638

Installation is complete.

7.2.3 Best practices for installing the Axxon One Server on Ubuntu

This is a manual for installing the *Axxon One* 2.0 Server on Ubuntu OS 18 version and later. The manual describes the silent installation from the repository.

7.2.3.1 Before the installation

All actions are performed in the terminal as the root user. If you use third-party programs, for example, Discover, you may need to reinstall *Axxon One*.

7.2.3.2 Installing the Axxon One Server

To install the *Axxon One* Server, do the following:

1. Add the AxxonSoft repositories by sequentially running the commands:

```
echo 'deb http://download.axxonsoft.com/debian-repository stable main' | sudo tee -a /etc/
apt/sources.list.d/axxonsoft.list
echo 'deb http://download.axxonsoft.com/debian-repository stretch backports/main' | sudo
tee -a /etc/apt/sources.list.d/axxonsoft.list
wget --quiet -O - "http://download.axxonsoft.com/debian-repository/
info@axxonsoft.com.gpg.key" | sudo apt-key --keyring /etc/apt/trusted.gpg.d/axxonsoft.gpg
add - && sudo apt-get update
```

2. Install the required version of *Axxon One*.

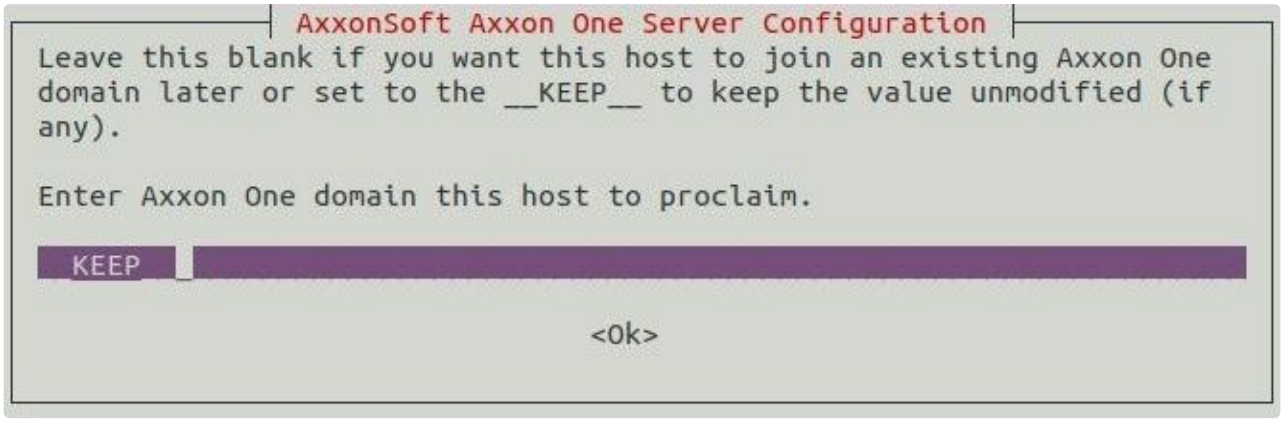
> **Attention!**
>
> The installation command depends on your variant of the software package: either the Server or the Failover Server. These are two different types of the software package. You should install only one of them. Both variants are described below (for more information about the installation types, see Installation[16], General information about a failover system[17]).

   a. If you need to install only the Server part of *Axxon One*, sequentially run the commands:

```
sudo apt install axxon-one
sudo apt-get install -f -y
```

   During the installation, the installer will request the name of the Axxon-domain for the *Axxon One* Server. If you leave this field blank, you can specify the name on the Client at the first connection.

16 https://docs.axxonsoft.com/confluence/display/one20en/Installation
17 https://docs.axxonsoft.com/confluence/display/one20en/General+information+about+a+failover+system



b. If you need to install the Failover Server, sequentially run the commands:

```
sudo apt install axxon-one-raft
sudo apt-get install -f -y
```

7.2.3.3 After the installation

7.2.3.3.1 Basic commands for checking the installation

Check the versions of the installed *Axxon One* modules:

```
sudo dpkg -l | grep axxon
```

Check the server status:

```
sudo systemctl status axxon-one
sudo systemctl status axxon-one-raft # for Failover Server
```

Start and stop of the *Axxon One* Server (if it was installed):

```
sudo systemctl stop axxon-one
sudo systemctl start axxon-one
```

Start and stop of the *Axxon One* Failover Server (if it was installed):

```
sudo systemctl start axxon-one-raft
sudo systemctl stop axxon-one-raft
```

7.2.3.3.2 Next steps

For *Axxon One* Server: Configuring domains[18]

For *Axxon One* Failover Server: Creating a cluster[19] and Configure a Failover System Cluster[20]

18 https://docs.axxonsoft.com/confluence/display/one20en/Configuring+domains
19 https://docs.axxonsoft.com/confluence/display/one20en/Creating+a+cluster
20 https://docs.axxonsoft.com/confluence/display/one20en/Configure+a+Failover+System+Cluster

7.2.3.4 Possible errors during installation

Packages from the unsigned repositories aren't loaded

Add [trusted=yes] to the repository path. Example:

```
deb [trusted=yes] http://download.axxonsoft.com/debian-repository stretch main backports/main
```

The repository key isn't added

Load the key. Run the command:

```
sudo apt-key add key_file_name
```

7.2.3.5 Additional commands for the Server

Use the required command depending on the version of the installed software package: only the Server (axxon-one) or the Failover Server (axxon-one-raft).

```
# display of the package dependencies
apt-cache depends
# display of the repositories with the package
apt-cache policy
# build reconfiguration
sudo dpkg-reconfigure axxon-one
sudo dpkg-reconfigure axxon-one-raft
```

7.2.3.6 Default folders

The following folders are used by default:

1. Logs and Client configuration: /home/USER/.local/share/AxxonSoft/
2. Server configuration: /opt/AxxonSoft/AxxonOne/

The path to the Support log collection utility: /opt/AxxonSoft/AxxonOne/bin/support

Manual installation of the *Axxon One* Server is described here: Manual installation(see page 12).
The section about *Axxon One* on Linux: Linux OS Administrator's Guide(see page 4).

7.3 Installing the Axxon One Client in Linux OS

On the page:

General information about installation in Linux OS(see page 26)

7.3.1 Installing the Client

Attention!

- The stable operation of the Client is not guaranteed on Ubuntu 18 and 19. We recommend installing only the *Axxon One* Server (see Installing the Axxon One Server in Linux OS(see page 11)). Both the Client and the *Axxon One* Server are supported on Ubuntu 20 and newer versions.
- The Client and Server versions must match.

To install the *Axxon One* Client in Linux OS, do the following:

1. Add the repositories by sequentially running the following commands:

```
echo 'deb http://download.axxonsoft.com/debian-repository stretch backports/main' | sudo
tee -a /etc/apt/sources.list.d/axxonsoft.list
echo 'deb http://download.axxonsoft.com/debian-repository weekly main backports/main' |
sudo tee -a /etc/apt/sources.list.d/axxonsoft.list
wget --quiet -O - "http://download.axxonsoft.com/debian-repository/
info@axxonsoft.com.gpg.key" | sudo apt-key --keyring /etc/apt/trusted.gpg.d/axxonsoft.gpg
add - && sudo apt-get update
```

2. If you use Ubuntu 20.04, Debian 11 or higher, then install the mono-complete from the stretch repository:

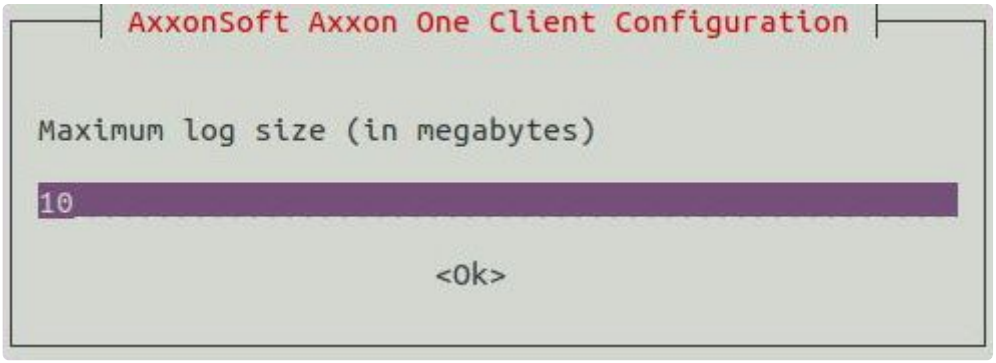
```
sudo apt-get install mono-complete -t stretch
```

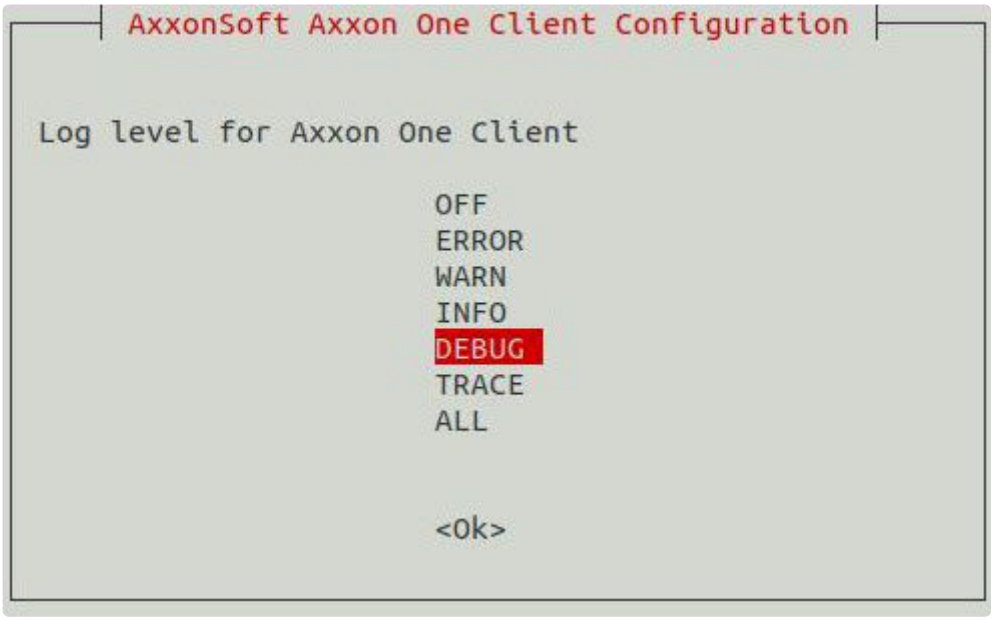
3. Download the *Axxon One* Client installation package from the AxxonSoft website[21] (the **Client** line in the **Linux 64-bit.deb** section).
4. Install the *Axxon One* Client by sequentially running the following commands:

```
sudo dpkg -i axxon-one-client-bin*.deb || sudo apt-get install -f -y
sudo dpkg -i axxon-one-client_*all.deb || sudo apt-get install -f -y
```

5. During installation, you must specify the maximum size of the log files in megabytes and the log level.

21 https://www.axxonsoft.com/support/downloads/axxon-one-vms





Note

Later you can change the specified value (see Configuring the logging parameters of the Axxon One Client in Linux OS(see page 31)). To do this, run the command:

```
sudo dpkg-reconfigure axxon-one-client
```

Installation of the *Axxon One* Client in Linux OS is complete. When the installation is complete, the Client icon will be displayed in the application menu.

7.3.2 Installing the Axxon One Client without Server

In Linux OS, you can install the *Axxon One* Client without installing the Server. To do this, do the folloiwng:

1. Add repositories as described in the Installing the Client(see page 0) section.
2. Download the archive with packages to install the *Axxon One* Client from the AxxonSoft website[22] (the **Client** line in the **Linux 64-bit.deb** section).
   The archive contains all necessary packages to install the Client:

Package name	Description
axxon-drivers-pack_%version.number%_amd64.deb	*DriversPack* is required for IP devices support in *Axxon One*

22 https://www.axxonsoft.com/support/downloads/axxon-one-vms

Package name	Description
axxon-detector-pack_%version.number%_amd64.deb	Basic *DetectorPack* package includes only Object Tracker[23], Tampering Detection[24], Signal Detection[25], Noise Detection[26], Audio Loss[27], and Motion detection[28]
axxon-one-core_%version.number%_amd64.deb	The **Client** installation packages
axxon-one-client_%version.number%_all.deb	
axxon-one-client-bin_%version.number%_amd64.deb	

3. Go to the folder with the downloaded archive and unzip it.
4. Install *DriverPack* and *DetectorPack* using the following command:

```
sudo dpkg -i /home/user/Downloads/axxon-d*.deb || sudo apt-get install -f -y
```

   where instead of **/home/user/Downloads** it is necessary to specify the actual path to the packages.
5. Install the axxon-one-core_%version.number%_amd64.deb package using the following command:

```
sudo dpkg -i /home/user/Downloads/axxon-one-core*.deb || sudo apt-get install -f -y
```

6. Install the Client packages using the commands described in the Installing the Client(see page 0) section up to the last step.

Installation of the *Axxon One* Client without Server in Linux OS is complete.

7.3.3 Running the Client

Attention!

- You cannot run the *Axxon One* Client as a Linux user with the root rights.
- You can authorize in the Client as any *Axxon One* user.

By default, at the first Client start, the OS interface language will be used. To change the language of the Client interface at the first start, do the following:

1. Run the command:

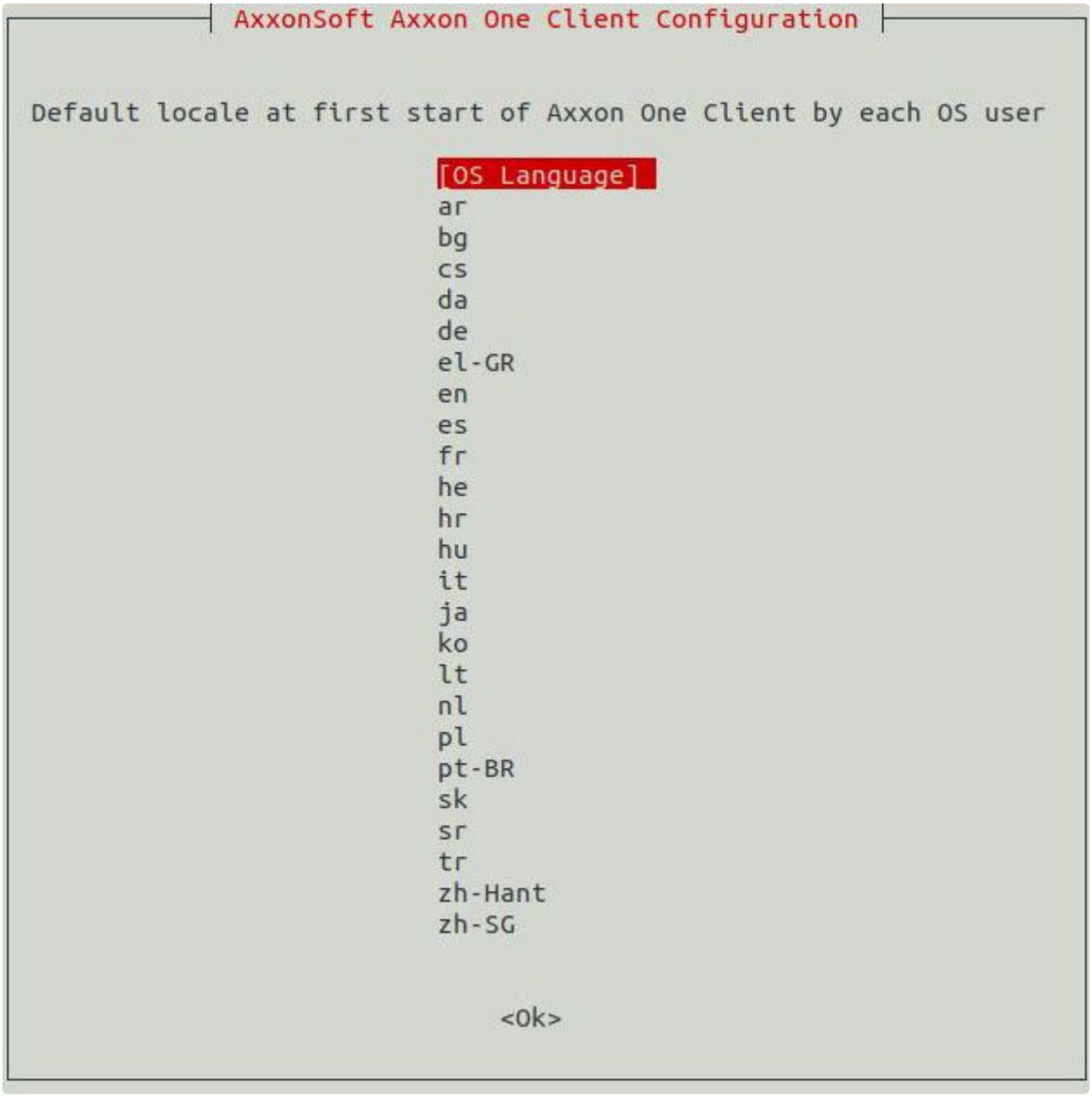
```
sudo dpkg-reconfigure axxon-one-client
```

2. Select the required language:

Attention!

- This setting must configured for each OS user separately.
- On the next launches the interface language can be changed in the Client settings (see Selecting the interface language[29]).

23 https://docs.axxonsoft.com/confluence/display/one20en/Object+Tracker
24 https://docs.axxonsoft.com/confluence/display/one20en/Tampering+Detection
25 https://docs.axxonsoft.com/confluence/display/one20en/Configuring+Signal+Detection
26 https://docs.axxonsoft.com/confluence/display/one20en/Configuring+Noise+Detection
27 https://docs.axxonsoft.com/confluence/display/one20en/Configuring+Audio+Loss+detection
28 https://docs.axxonsoft.com/confluence/pages/viewpage.action?pageId=246484638
29 https://docs.axxonsoft.com/confluence/display/one20en/Selecting+the+interface+language



7.3.4 Installing the Axxon One Client from repository

To install the *Axxon One* Client in from repository, do the following:

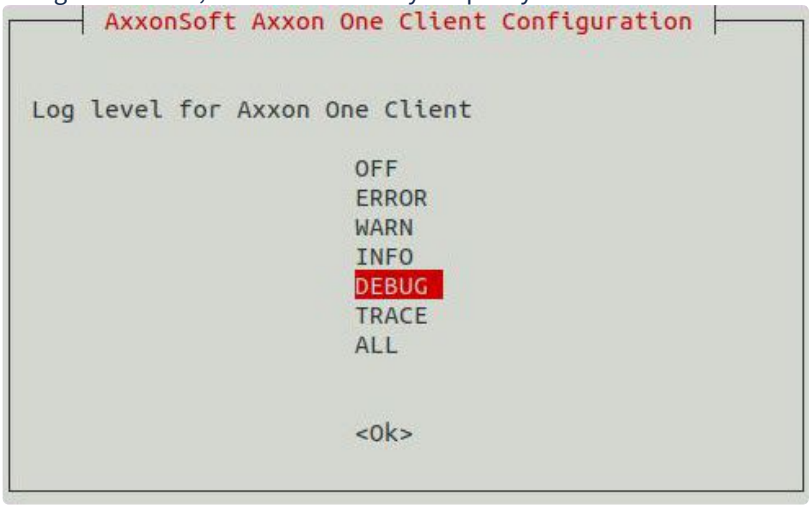
1. Install *Axxon One* Server (see Installing from repository(see page 11), Manual installation(see page 12)).
2. If you use Ubuntu 20.04, Debian 11 or above, then install the mono-complete from the stretch repository:

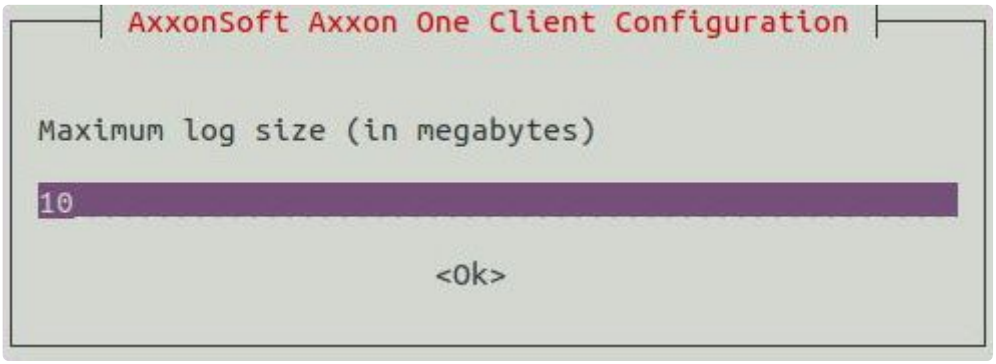
```
sudo apt-get install mono-complete -t stretch
```

3. To install *Axxon One* Client, run the following command:

```
sudo apt install axxon-one-client
```

4. During installation, it will be necessary to specify the maximum size of the log files in megabytes and the log level.





> **Note**
>
> Later you can change the specified value (see Configuring the logging parameters of the Axxon One Client in Linux OS(see page 31)). To do this, run the command:
> sudo dpkg-reconfigure axxon-one-client

Installation of the *Axxon One* in Linux OS is complete. When the installation is complete, the Client icon will be displayed in the application menu.

7.4 Installing add-ons to the basic DetectorPack in Linux OS

By default, *Axxon One* distribution package comes with only the basic *DetectorPack* (see Installing DetectorPack add-ons[30]).

To install the add-ons to the basic *DetectorPack* in Linux OS, do the following:

1. Run the command to get a list of *DetectorPack* add-ons:

```
apt-cache show axxon-detector* | grep -i Package
```

A list with the names of *DetectorPack* add-ons will be displayed.

30 https://docs.axxonsoft.com/confluence/display/one20en/Installing+DetectorPack+add-ons

```
tester@ubuntu-d:~/Desktop$ apt-cache show axxon-detector* | grep -i Package
Package: axxon-detector-pack
Package: axxon-detector-pack-plugin-frs-tv
Package: axxon-detector-pack-plugin-frs-vl
Package: axxon-detector-pack-plugin-sdk-vl
Package: axxon-detector-pack-plugin-huaweiascendacl
Package: axxon-detector-pack-plugin-huaweiascendmatrix
Package: axxon-detector-pack-plugin-lpr-iv
Package: axxon-detector-pack-plugin-lpr-rr
Package: axxon-detector-pack-plugin-lpr-vt
Package: axxon-detector-pack-plugin-neuro-pack
Package: axxon-detector-pack-plugin-ppe-vl
Package: axxon-detector-pack-plugin-vi-detector
tester@ubuntu-d:~/Desktop$
```

2. Run the following command to install the necessary add-ons:

```
apt-get install %add-on name%
```

For example, to install the Neuro Pack add-on, run the command:

```
apt-get install axxon-detector-pack-plugin-neuro-pack
```

3. After installing the necessary add-ons, restart the Server:

```
service axxon-one restart
```

Attention!

It is required that the versions of the basic *DetectorPack* and the *DetectorPack* add-ons are the same. If the versions differ, it is necessary to update the version of the basic *DetectorPack* so it matches the version of the *DetectorPack* add-on.

7.5 Installing and launching Axxon One using Docker

7.5.1 Installing the Docker Server

To install and launch *Axxon One* using Docker, do the following:

1. Install Docker using the official manuals:
   - Debian: https://docs.docker.com/engine/install/debian/.
   - Ubuntu: https://docs.docker.com/engine/install/ubuntu/.

     Note

     Minimum requirements to launch *Axxon One* using Docker on Ubuntu:
     - dual-core CPU;
     - 4 GB RAM;
     - 200 GB HDD.

   - Other distribution packages: https://docs.docker.com/engine/install/.

2. Open the link[31] to select the required *Axxon One* Docker image.
3. Next to the required Docker image, click the button to copy the command.
   Example of the command:

   ```
   docker pull axxonsoft/axxon-one:2.0.2.210
   ```
4. Paste the copied command into the terminal and run it.
5. Launch Docker using the following command:

   ```
   docker run <image version>
   ```
   For example:

   ```
   docker run axxonsoft/axxon-one:2.0.2.210
   ```

7.5.2 Starting Axxon One

After installation, you can connect to the Docker Server with the separately installed *Axxon One* Client. To do this, when staring the Client, enter the IP address of the Docker Server, login and password in the authorization window (when you start *Axxon One* for the first time, enter the following login and password: root/root).

Commands that you might need:

- Determine the IP address to connect to:

  ```
  docker inspect <container id> | grep "IPAddress"
  ```
- Learn <container id> as well as the container name and other information:

  ```
  docker ps
  ```
  or

  ```
  docker container ls
  ```
- Check the availability of the Server:

  ```
  ping <ip address>
  ```
- View the running processes:

  ```
  docker top <container name>
  ```

Installing and starting *Axxon One* using Docker is complete.

7.5.3 Working with the Axxon One container

- The list of containers.

31 https://hub.docker.com/r/axxonsoft/axxon-one/tags

```
./axxon-one.sh list
```

- Launching the container.

```
./axxon-one.sh start 1.0.2.25
```

- Viewing the container status.

```
./axxon-one.sh status
```

- Stopping the container.

```
./axxon-one.sh stop
```

- Collecting the system data.

```
./axxon-one.sh support
```

The file will be saved in the '~/axxonone.docker/one/data/' directory.

- Viewing the installed packages version.

```
./axxon-one.sh versions
```

7.6 Updating Axxon One in Linux OS

> **Attention!**
>
> Updating the OS doesn't affect the performance of *Axxon One*. However, before updating the OS, we recommend backing up the configuration (see Configuration backup[32]).

There are two options to update *Axxon One* in Linux OS: from the repository and from the folder.

1. To update *Axxon One* from the repository, sequentially run the commands as a **root**:

```
sudo apt-get update
sudo apt-get install <package name>
```

Example of packages:

- axxon-one (for the Server side);
- axxon-one-raft (for the Server in the Failover mode);
- axxon-one-client (for the Server and Client type).

For example:

```
sudo apt-get update
sudo apt-get install axxon-one
```

2. To update *Axxon One* from the folder, do the following:
   a. Go to the folder with the downloaded packages.
   b. Run the following command:

32 https://docs.axxonsoft.com/confluence/display/one20en/Configuration+backup

```
sudo dpkg -i *
```

Package examples

Example of packages required to update the Server side:

```
axxon-drivers-pack_3.73_amd64.deb
axxon-detector-pack_3.8_amd64.deb
axxon-one-core_1.9.0_amd64.deb
axxon-one_1.9.0_all.deb
```

Example of packages required to update the Server in the Failover mode:

```
axxon-drivers-pack_3.73_amd64.deb
axxon-detector-pack_3.8_amd64.deb
axxon-one-core_1.9.0_amd64.deb
axxon-one-raft_1.9.0_amd64.deb
```

Example of packages required for the Server and Client updating type:

```
axxon-drivers-pack_3.73_amd64.deb
axxon-detector-pack_3.8_amd64.deb
axxon-one_1.9.0_all.deb
axxon-one-core_1.9.0_amd64.deb
axxon-one-client-bin_1.9.0_amd64.deb
axxon-one-client_1.9.0_all.deb
```

These options describe an update within one version of *Axxon One* (for example, from 1.0 to 1.9). If you want to update from *Axxon One* 1.0 to *Axxon One* 2.0, you must first update the repositories. The repositories and the commands are specified in the step 1 on the page Installing from repository(see page 11).

Attention!

After the update is completed, you must check the access permissions of the archive file and the folder where it is stored.
The **ngp** user must be specified as the owner of both the file and the folder.

7.7 Removing Axxon One in Linux OS

To remove *Axxon One* but save the configuration, run the following command:

```
sudo apt remove axxon-*
```

To completely remove *Axxon One*, run the following commands in sequence:

```
sudo apt --purge remove axxon-* -y
```

```
sudo apt autoremove -y
```

```
sudo rm -r /opt/AxxonSoft/
```

7.8 General information about installation in Linux OS

Attention!

You must perform all steps to install *Axxon One* in the terminal as the **root** user, who has administrative access to the system.
You must use the **sudo** program and the commands described in this manual to install *Axxon One*. If you use third-party programs, such as Discover software center, you may have to reinstall *Axxon One*.

Axxon One installation types:

1. **Server**—installation of the Server and additional services. This installation option is described in Manual installation(see page 12).
   The Server is required for:
   a. Interacting with devices (cameras, microphones, sensors, relays, and so on) that constitute the security system.
   b. Storing the archive data on its own disk space and interacting with archives located in network or cloud storages.
   c. Storing the database of events and metadata of object movement.
   d. Analyzing incoming video images by detection tools.
   e. Storing the security system configuration, user parameters, layouts created in the system, macros, and so on.
2. **Server in Docker container**—installation of the Server using Docker image (see Installing and launching Axxon One using Docker(see page 22)).
3. **Failover Server**—installation of the Server and additional services with FailOver technology. In case of emergency (Server power failure, loss of network connection), the configuration of the Server with FailOver technology is restored on another Server of the system. This option is described in Manual installation(see page 12).
4. **Client**—installation of the Client application only that allows the user to connect to any Server and perform administrative/management/monitoring operations with the protected facility based on the permissions granted by the administrator. This option is described in Installing the Axxon One Client in Linux OS(see page 16).
5. **Server and Client**—first you must install the Server (see Manual installation(see page 12)), then you must install the Client (see Installing the Axxon One Client in Linux OS(see page 16)).
6. **Failover Server and Client**—first you must install the Failover Server (see Manual installation(see page 12)), then you must install the Client (see Installing the Axxon One Client in Linux OS(see page 16)).

Note

You can install the **Client** only after installing the **Server** of the same version.

Updating Axxon One in Linux OS(see page 24)
Removing Axxon One in Linux OS(see page 25)
Limitations of Axxon One in Linux OS(see page 10)

8 Starting and stopping Axxon One in Linux OS

8.1 Starting and stopping the Axxon One Server in Linux OS

> **Note**
>
> The *Axxon One* Server starts automatically when the operating system starts.

Server start:

```
sudo service axxon-one start
```

Server stop:

```
sudo service axxon-one stop
```

Server restart:

```
sudo service axxon-one restart
```

Server status check:

```
sudo service axxon-one status
```

8.2 Starting and stopping the Axxon One self-diagnostics service in Linux OS

> **Note**
>
> The *Axxon One* self-diagnostics service is running by default.

Controlling the self-diagnostics service via service

Start the service:

```
service axxon-one-selfdiag start
```

Stop the service:

```
service axxon-one-selfdiag stop
```

Restart the service:

```
service axxon-one-selfdiag restart
```

Controlling the self-diagnostics service via systemctl

Start the service:

```
systemctl start axxon-one-selfdiag.service
```

Stop the service:

```
systemctl stop axxon-one-selfdiag.service
```

Restart the service:

```
systemctl restart axxon-one-selfdiag.service
```

Enable the automatic start of the service:

```
systemctl enable axxon-one-selfdiag.service
```

Disable the automatic start of the service:

```
systemctl disable axxon-one-selfdiag.service
```

9 Configuring Axxon One in Linux OS

9.1 Features of creating an archive in Linux OS

9.1.1 Features of creating an archive as a disk in Linux OS

To allocate the disk for recording, run the command as a root.

```
sudo su
```

```
fdisk -l
```

where

- /dev/sd**a**—the first physical disk;
- /dev/sda**1**—the first partition of the first physical disk;
- /dev/sda**2**—the second partition of the first physical disk;
- dev/sd**b**—the second physical disk.

To delete the disk partition, do the following:

1. Go to the disk on which you want to delete a partition.

   ```
   fdisk /dev/sdb
   ```

2. Delete the partition.

   ```
   d
   ```

3. Specify the partition number.

   ```
   2
   ```

4. Save the changes.

   ```
   w
   ```

To create apartition, do the following:

1. Go to the disk on which you want to create a partition.

   ```
   fdisk /dev/sdb
   ```

2. Create the partition.

   ```
   n
   ```

3. Specify the partition type: primary (p) or extended (e).

   ```
   p
   ```

4. Specify the partition number.

```
1
```

5. Specify the partition size. G—gigabytes, M—megabytes, K—kilobytes.

```
+5G
```

6. Save the changes.

```
w
```

To create the archive as a disk, do the following:

1. Create a new archive in the *Axxon One* Client (see Creating a local archive[33]).
2. Select the archive volume.
3. Specify the path to partition in the address window. For example: /dev/sdb1. If it is required to use the whole disk as an archive, specify the /dev/sdc, /dev/sdd, and so on.
4. Set the **Format** checkbox and click the **Apply** button.

> **Attention!**
>
> At this point you cannot change the archive size.

9.1.2 Features of creating an archive as a file in Linux OS

By default, in Linux OS, the **ngp** user has rights to record only in the /opt/AxxonSoft/AxxonOne/ directory.

To create an archive in another directory, do the following:

1. Create a folder with write permissions.

```
sudo mkdir -m755 /home/archive
```

2. Change the folder owner to **npg** user.

```
sudo chown -R ngp:ngp /home/archive/
```

3. Check the permissions on the created folder.

```
ls -lt /home/
```

If there is a string with the ngp user permissions in the result, it is now possible to create an archive as a file in this directory.

```
drwxr-xr-x   2 ngp    ngp    4096 aug.   8 15:18 archive
```

9.1.3 Features of archives with ext and xfs file systems

When you work with archives (both local and network) in the ext and xfs file systems, take into account the following features:

33 https://docs.axxonsoft.com/confluence/display/one20en/Creating+a+local+archive

1. When you create an archive (see Creating archive[34]), the displayed free disk space is calculated based on the actual used space.

   Note

   For example, the disk size is 60 GB, and a 10 GB archive is created on it, but it is only 1 GB full.
   When you try to create a second archive on this disk, 59 GB of free space will be displayed, not 50 GB.

2. Availability of the entire archive file size is not guaranteed in cases when other files run out of available space.

   Note

   Due to the ext and xfs file systems features, it is possible to create archives whose total size exceeds the free disk space.

   Attention!

   In such cases, it is necessary for the system administrator to control the free disk space.

9.1.4 Features of NAS archives

To connect to the NAS server, use the following versions of protocols:

- SMB2/SMB3 (2.02, 2.10, 3.00, 3.02, 3.1.1);
- NFSv3, NFSv4.

It is also possible to use the CIFS and iSCSI protocols.

9.2 Configuration and log folders

The following folders are used by default:

1. Logs and Client configuration: /home/USER/.local/share/AxxonSoft/
2. Server configuration: /opt/AxxonSoft/AxxonOne/

9.3 Configuring the logging parameters of the Axxon One Client in Linux OS

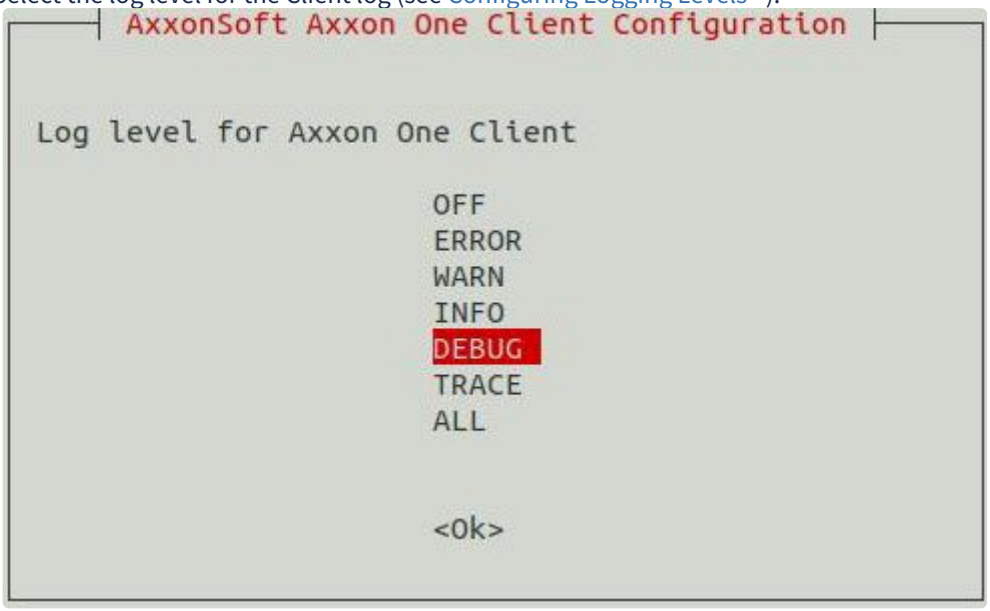
To change the logging parameters of the *Axxon One* Client, do the following:

1. Run the following command.

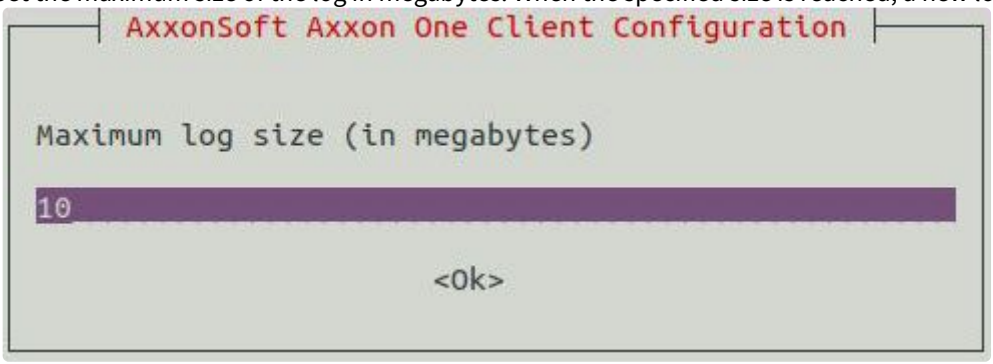
```
sudo dpkg-reconfigure axxon-one-client
```

34 https://docs.axxonsoft.com/confluence/display/one20en/Creating+archive

2. Select the log level for the Client log (see Configuring Logging Levels[35]).



3. Set the maximum size of the log in megabytes. When the specified size is reached, a new log will be created.



9.4 Collecting system data in Linux OS

To collect the system data in Linux OS, run the following command:

```
sudo /opt/AxxonSoft/AxxonOne/bin/support /home/user
```

where

- /opt/AxxonSoft/AxxonOne/bin/support—the utility location directory;
- /home/user—the user's home directory.

If you do not want to delete the temporary repository, run the following command:

```
--debug
```

If you want to include dumps from currently running NGP processes, run the following command:

```
--dump-processes
```

If you want to collect process dumps and logs for a specific node, run the following command:

35 https://docs.axxonsoft.com/confluence/display/one20en/Configuring+the+logging+levels

```
--node <node-name>
```

This can be used multiple times to specify multiple nodes. If a node is not specified, dumps and logs will be collected for all available nodes.

If you want to use a limited number of threads (N) to collect dumps of Server processes, run the following command:

```
--jobs N
```

If N = 0, then all available threads will be used to collect dumps. By default, N = 1.

By default, the system data report includes information from Linux OS log. To exclude this information from the report, run the following command:

```
--skip-journalctl
```

If you want the report not to include the information on the self-diagnostics service (see Self-diagnostics service[36]), run the following command:

```
--skip-prometheus
```

If errors occur, you can run the following command to try to resolve them:

```
--fix
```

If you want to see the list with all built-in commands, run the following command:

```
--help
```

9.5 Configuring the metadata storage in NAS in Linux OS

To store the metadata in a network attached storage (NAS), do the following:

1. Create a shared network folder.
2. On the Server in Linux OS, create the **netdir** folder. For example, in the **/media** folder:

   ```
   sudo mkdir /media/netdir
   ```

3. Install the **cifs-utils** utility.

   ```
   sudo apt-get install cifs-utils
   ```

4. Attach the shared network folder to the created **netdir** folder.

   ```
   sudo mount -t cifs //IP address/common /media/netdir -o
   user=User,password=123,uid=1001,gid=1002,vers=2.0
   ```

   where,
   a. **IP address**—NAS address,
   b. **common**—shared network folder,

36 https://docs.axxonsoft.com/confluence/display/one20en/Self-diagnostics+service

c. **user**, **password**—NAS access credentials,
d. **uid**, **gid**—id of the user and ngp group. They can be obtained using the following command:

```
id ngp
```

5. In the *Axxon One* metadata storage settings, specify the /media/netdir path (see Configuring storage of the system log and metadata[37]).

After you restart Linux OS, the attached folder will be deleted. To configure the network folder to be attached on the OS loading, do the following:

1. Open the /etc/fstab file.

```
sudo nano /etc/fstab
```

2. Add the following string to the file:

```
//IP address/common /media/netdir cifs user=User,password=123,uid=1001,gid=1002,vers=2.0 0
0
```

3. Save the file.

9.6 Optimizing the operation of neural analytics on GPU in Linux OS

It can take several minutes to launch neural analytics algorithms on NVIDIA GPU after Server restart. Meanwhile, the neural models are optimized for the current GPU type.

You can use the caching function to ensure that this operation is performed only once. Caching saves the optimization results on the hard drive and uses it for the subsequent analytics runs.

Starting with *DetectorPack* 3.11, a utility was added to the Neuro Pack add-ons (see Installing DetectorPack add-ons[38]), which allows you to create GPU neural network caches without using *Axxon One*. The presence of the cache speeds up the initialization and optimizes video memory consumption.

To optimize the operation of the neural analytics on GPU, do the following:

1. Stop the Server (see Starting and stopping Axxon One in Linux OS(see page 27)).

> **Attention!**
>
> If the system has the software running on GPU, it is necessary to stop its operation.

2. Login as **root** superuser:
   a. Execute the following command in the terminal:

```
sudo -i
```

   b. Enter the password for the **root** superuser.
3. Create a folder with a custom name to store the cache. For example:

```
mkdir /opt/AxxonSoft/AxxonOne/gpucache
```

4. Change folder permissions:

37 https://docs.axxonsoft.com/confluence/display/one20en/Configuring+storage+of+the+system+log+and+metadata
38 https://docs.axxonsoft.com/confluence/display/one20en/Installing+DetectorPack+add-ons

```
chmod -R 777 /opt/AxxonSoft/AxxonOne/gpucache
```

5. Create the **GPU_CACHE** system variable:
   a. Go to the **/opt/AxxonSoft/AxxonOne/** folder:

   ```
   cd /opt/AxxonSoft/AxxonOne
   ```

   b. Open the **instance.conf** file for editing:

   ```
   nano instance.conf
   ```

   c. Add the following line to the file:

   ```
   export GPU_CACHE_DIR="/opt/AxxonSoft/AxxonOne/gpucache"
   ```

   d. Save the file using the **Ctrl+O** keyboard shortcut.
   e. Exit file editing mode using the **Ctrl+X** keyboard shortcut.
   f. Execute the following command in the terminal:

   ```
   export GPU_CACHE_DIR="/opt/AxxonSoft/AxxonOne/gpucache"
   ```

6. Go to the **/opt/AxxonSoft/DetectorPack/** folder:

```
cd /opt/AxxonSoft/DetectorPack
```

7. Execute the following command:

```
./NeuroPackGpuCacheGenerator
```

> **Attention!**
>
> If more than one NVIDIA GPU is available, you will be able to select one. To do this, specify a number from 0 to 3 which corresponds to the required device in the list.

Optimizing the operation of the neural analytics on GPU is complete. The utility will create the caches of four neural networks included in the Neuro Pack add-ons:

- GeneralNMHuman_v1.0GPU_onnx.ann—human;
- smokeScanned_v1_onnx.ann—smoke detection;
- fireScanned_v1_onnx.ann—fire detection;
- reid_15_0_256__osnetfpn_segmentation_noise_20_common_29_onnx.ann—search for the similar in the Neural Tracker (see Image search[39]).

Creating GPU neural network caches using parameters:

1. **-p** is a parameter to create a cache for a particular neural network.
   Command example:

```
./NeuroPackGpuCacheGenerator -p /opt/AxxonSoft/DetectorPack/NeuroSDK/
GeneralNMHumanAndVehicle_Nano_v1.0_GPU_onnx.ann
```

39 https://docs.axxonsoft.com/confluence/display/one20en/Image+search

2. **-v** is a parameter to output the procedure log to the console during cache generation.
   Command example to automatically create caches of four neural networks included in the Neuro Pack add-ons with log output:

   ```
   ./NeuroPackGpuCacheGenerator -v
   ```

3. **--int8=1** is a parameter to create a quantized version of the cache for those neural networks for which quantization is available. By default, the **--int8=0** parameter is disabled.
   Command example:

   ```
   ./NeuroPackGpuCacheGenerator -p /opt/AxxonSoft/DetectorPack/NeuroSDK/
   GeneralNMHumanAndVehicle_Nano_v1.0_GPU_onnx.ann --int8=1
   ```

   > **Attention!**
   >
   > The neural networks for which the quantization mode is available are included in the Neuro Pack add-ons together with the *.info file.

   The neural networks for which the quantization mode is available (see Configuring Neurotracker[40]):
   - GeneralNMCar_v1.0GPU_onnx.ann—vehicles.
   - GeneralNMHuman_v1.0GPU_onnx.ann—human.
   - GeneralNMHumanTopView_v0.8GPU_onnx.ann—human, top view.

Starting with *DetectorPack* 3.11, the following neural networks were added:

- GeneralNMHumanAndVehicle_Nano_v1.0_GPU_onnx.ann—human and vehicle (Nano).
- GeneralNMHumanAndVehicle_Medium_v1.0_GPU_onnx.ann—human and vehicle (Medium).
- GeneralNMHumanAndVehicle_Large_v1.0_GPU_onnx.ann—human and vehicle (Large).

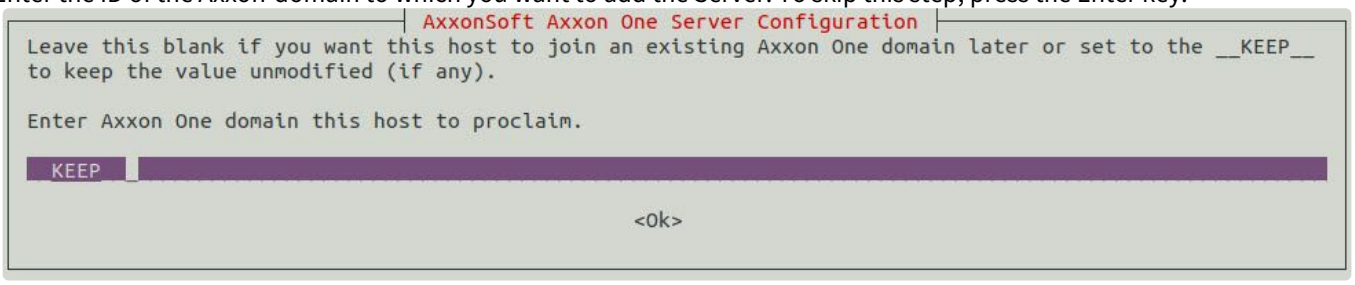
9.7 Changing the configuration of the Axxon One Server in Linux OS

To change the configuration of the Server, do the following:

1. Run the following command.

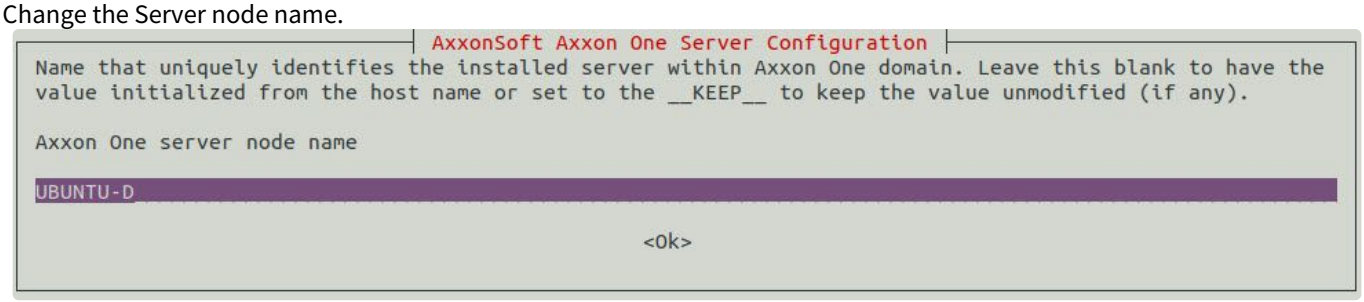
   ```
   sudo dpkg-reconfigure axxon-one
   ```

2. Enter the ID of the Axxon-domain to which you want to add the Server. To skip this step, press the Enter key.

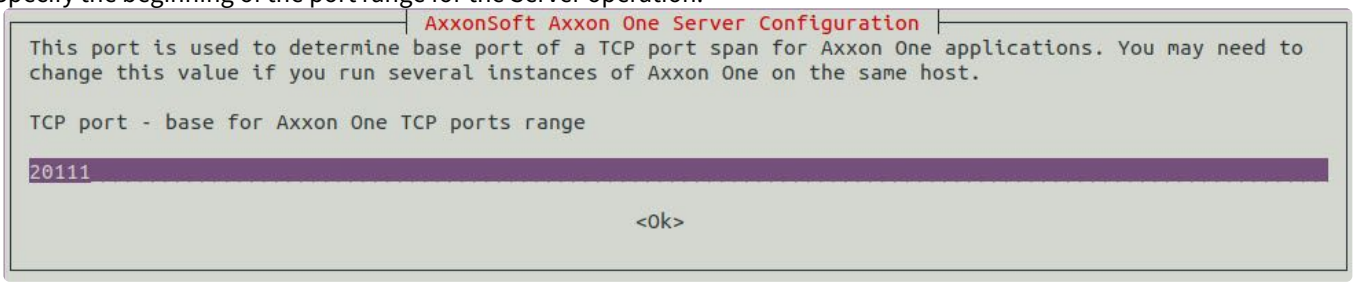


40 https://docs.axxonsoft.com/confluence/display/one20en/Configuring+Neurotracker

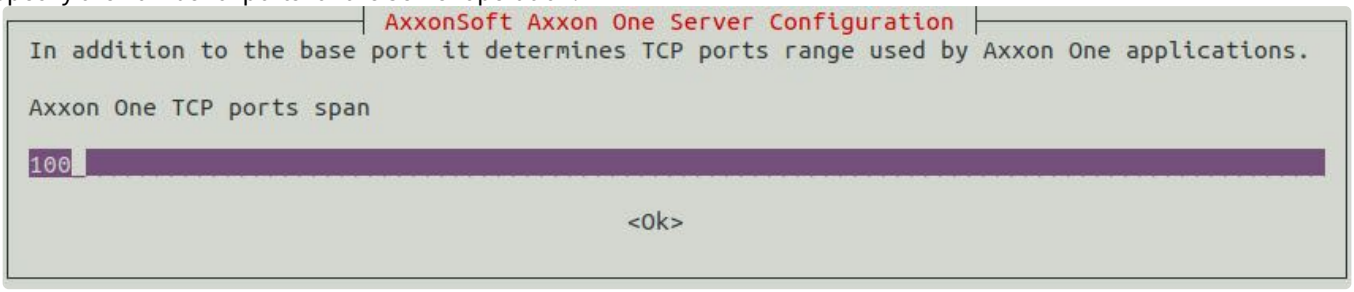
3. Change the Server node name.



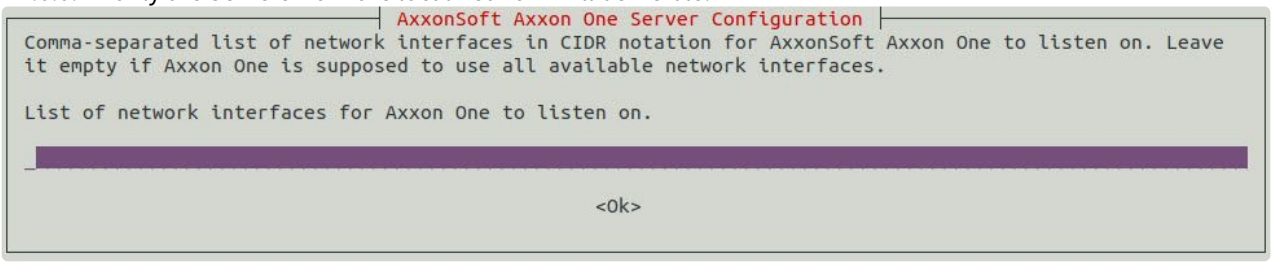
4. Specify the beginning of the port range for the Server operation.



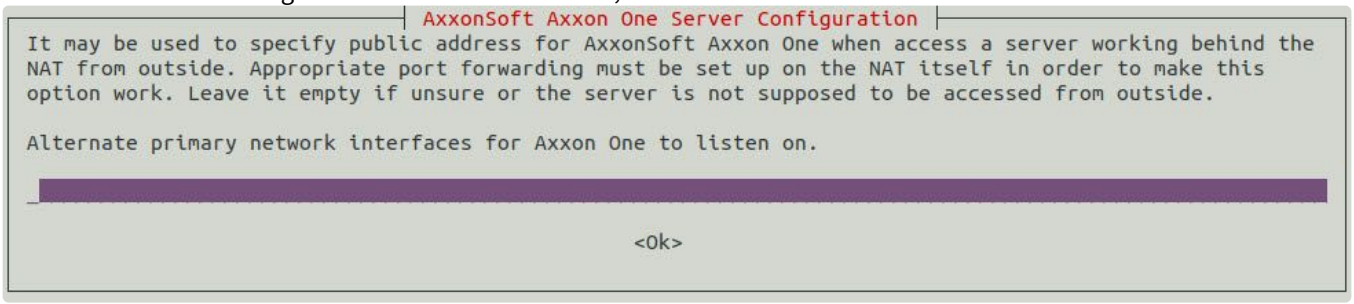
5. Specify the number of ports for the Server operation.



6. Restrict the visibility of Servers from various networks in the Servers list during *Axxon One* configuration. Possible values:
   a. 0.0.0.0/0—Servers from all networks will be visible.
   b. 10.0.1.23/32,192.168.0.7/32—only the Servers from the specified networks will be visible.
   c. 127.0.0.1—only the Servers from the local network will be visible.

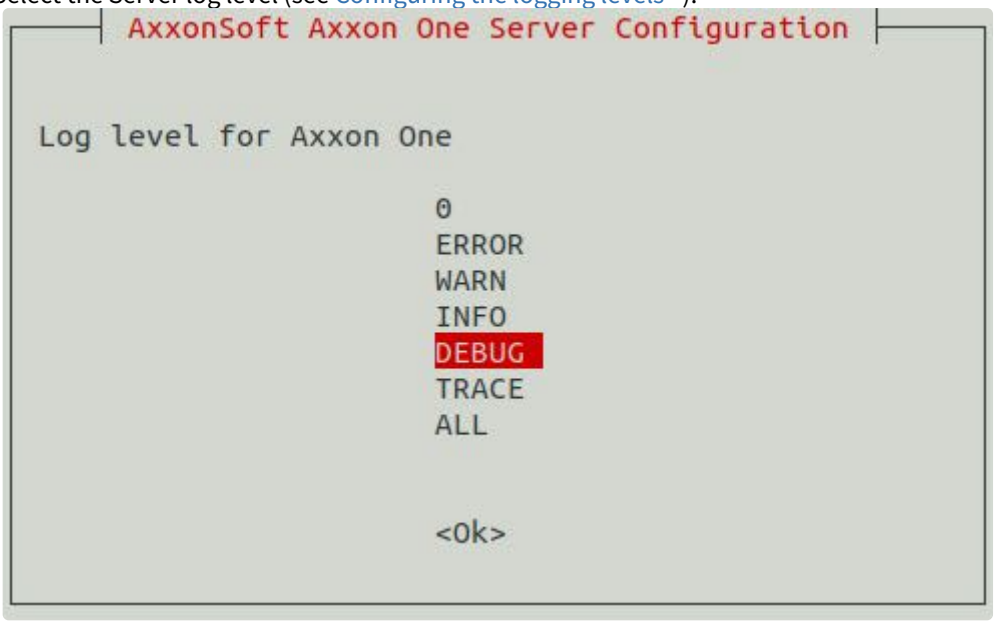


7. Specify the alternative Server address—the external address of the switch if the Server is located behind the NAT[41]. The format of interfaces setting: "IP Address1 or DNS Name1, IP Address2 or DNS Name2".

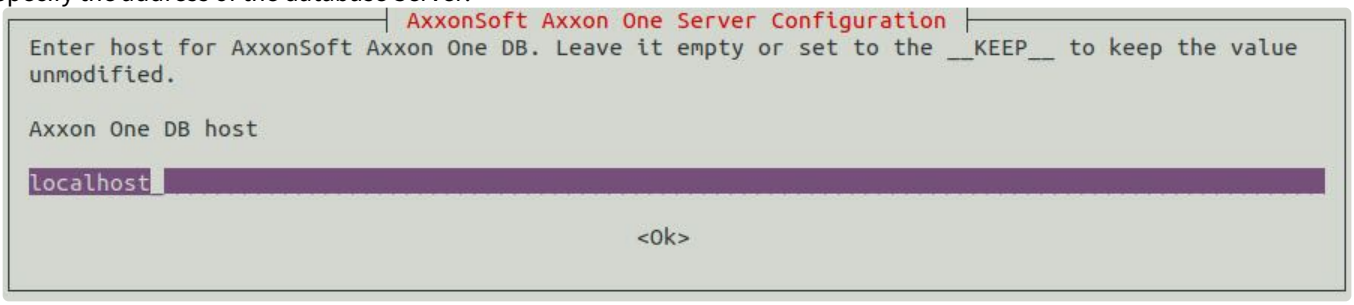


41 https://en.wikipedia.org/wiki/Network_address_translation

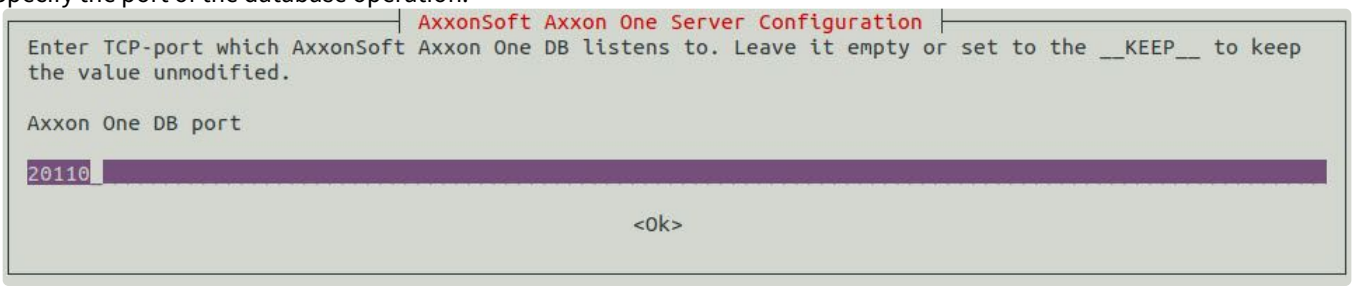
8. Select the Server log level (see Configuring the logging levels[42]).



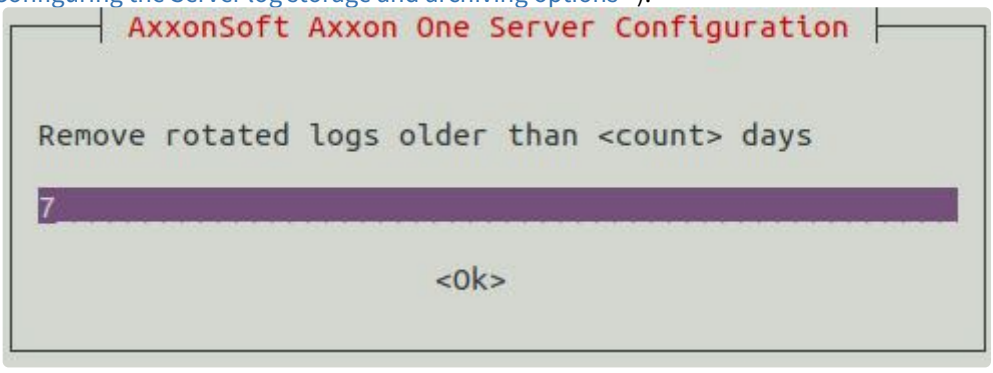
9. Specify the address of the database Server.



10. Specify the port of the database operation.

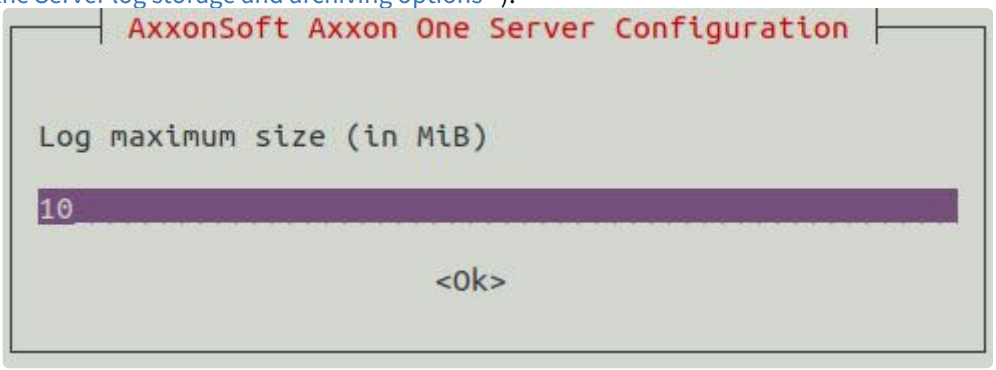


11. Specify the maximum time in days the log will be stored in the archive. After that time, the log will be deleted (see Configuring the Server log storage and archiving options[43]).

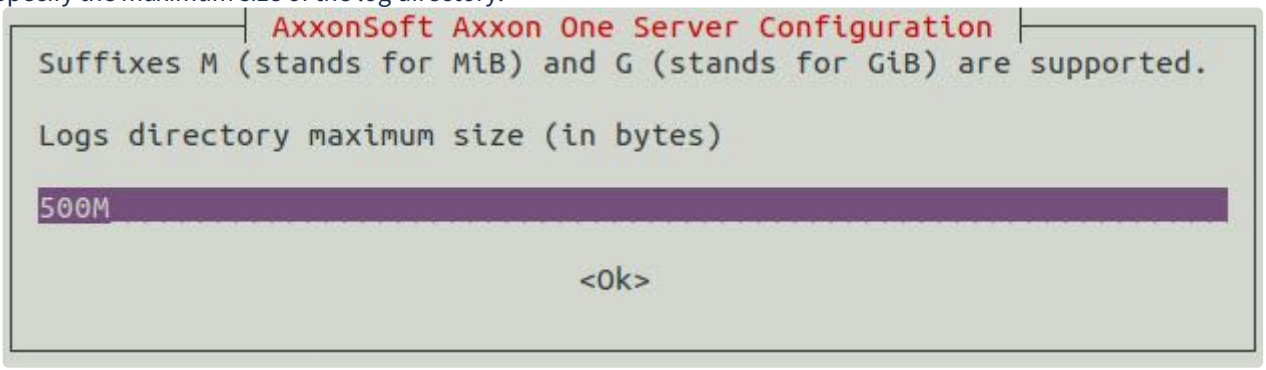


42 https://docs.axxonsoft.com/confluence/display/one20en/Configuring+the+logging+levels
43 https://docs.axxonsoft.com/confluence/display/one20en/Configuring+the+Server+log+storage+and+archiving+options

12. Specify the maximum size of the archive, above which the earliest logs will be deleted from the archive (see Configuring the Server log storage and archiving options[44]).



13. Specify the maximum size of the log directory.



Server configuration change is complete.

9.8 Transferring the Axxon One configuration from Windows OS to Linux OS

To transfer the *Axxon One* configuration from Windows OS to Linux OS, do the following:

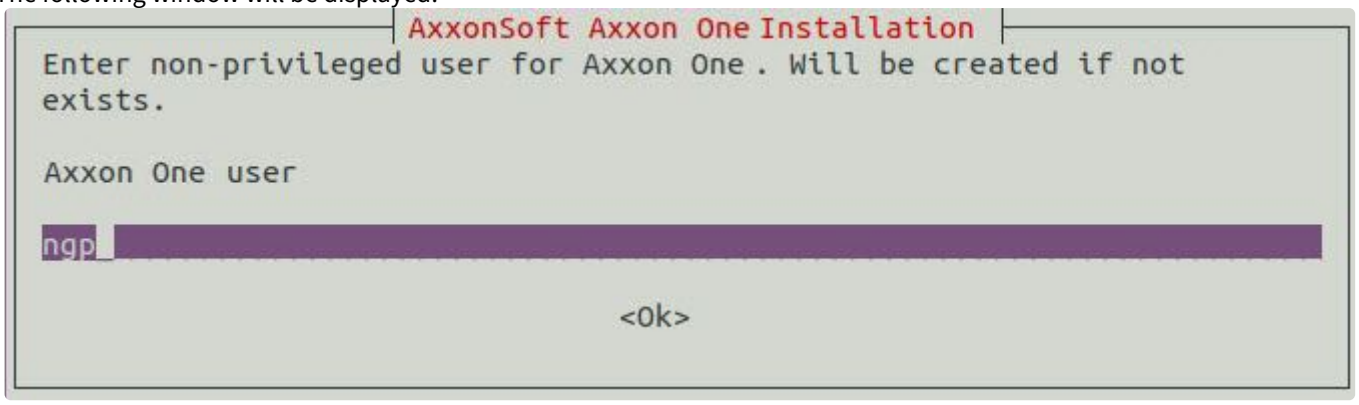
1. Create the backup configuration in Windows OS (see Configuration backup[45]).
2. Run the following command in Linux OS:

```
sudo dpkg-reconfigure axxon-one
```

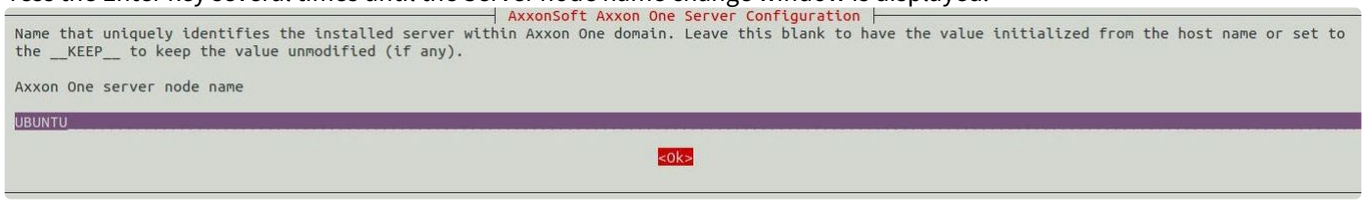
> **Attention!**
>
> The Server in Linux OS must belong to some Axxon-domain.

44 https://docs.axxonsoft.com/confluence/display/one20en/Configuring+the+Server+log+storage+and+archiving+options
45 https://docs.axxonsoft.com/confluence/display/one20en/Configuration+backup

The following window will be displayed.



3. Press the Enter key several times until the Server node name change window is displayed.



4. Enter the Server node name which is used in Windows OS.
5. Run the backup and configuration recovery utility (see Backup and Restore Utility[46]) and select the specified Server on its launch.
6. Restore the configuration by selecting the saved backup.
7. Deactivate the license (see Deactivating a license[47]) and distribute the license file again (see Activation by applying license file[48]).

46 https://docs.axxonsoft.com/confluence/display/one20en/Backup+and+Restore+Utility
47 https://docs.axxonsoft.com/confluence/display/one20en/Deactivating+a+license
48 https://docs.axxonsoft.com/confluence/display/one20en/Activation+by+applying+license+file