Digital Photogrammetric System

PHOTOMOD AutoUAS

Version 8.1

USER MANUAL

Linux preconfiguration and PHOTOMOD AutoUAS installation (RED OS 8.0)

RACURS

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1. General information

The current document describes the *PHOTOMOD AutoUAS* distribution that was developed for the interaction with the *RED OS 8.0* operating system.

A hallmark of *Linux* operating system is that performance features of its distributions may differ significantly from each other.

Accordingly, for the different *Linux* distributions (and for the appropriate *PHOTOMOD AutoUAS* distributions too), the certain operations may not be required (or they may be performed in different ways, depending on the particular distribution).

This manual is intended for a qualified system manager who has full knowledge of current *Linux* distributions installed on particular workstations.

Configuring a *Linux* distribution and further *PHOTOMOD AutoUAS* installation requires administrator privileges.

Preliminary configurations of the operating system, user accounts, and parameters of the file system are strongly recommended to be performed *before* installing *PHOTOMOD AutoUAS*.

Before configuring the operating system, make sure that secure remote connection to your computer via the SSH protocol is available. Remote connection allows you to fix errors that may occur during *Linux* setup, without having to reinstall the operating system.

As a rule, advanced customization of operating system parameters concerns issues of the following functional capabilities:

- Installing *PHOTOMOD AutoUAS*;
- Using a hardware key;
- Network mode;
- Distributed processing mode;
- Increasing the system performance through graphic processing unit (GPU) resources.

After making changes to the operating system parameters, the restart of the operating system is strongly recommended. It is necessary to take into account that restarting the operating system may require remounting the connected devices (see Section 2.1.1).

Detailed information about the features of the *RED OS 8.0* operating system can be found in the appropriate User Manual.

2. Linux pre-configuration

2.1. Network mode provisioning

2.1.1. Mounting a file system

For data management, it's necessary to consider the feature of *Linux* that hard drive partitions, USB drives, network drives, and other data carriers connected to the workstations are to be *mounted*.

Mounting a file system is a system process to prepare a disk partition for the operating system. As the case may be, this operation can be performed either manually or automatically.

Data stored on a *connected* but not *mounted* device will not be accessible.

Re-mounting of a connected device may be required, for example, after an operating system reset.

Mounting shared SMB resources

When organizing joint networks between *Windows* and *Linux* systems, the latter provide the ability to mount shared SMB resources directly to the file system.

The *cifs-utils* package is used for this.

If such storages are used to place processed data, then, to ensure correct *PHOTOMOD AutoUAS* operation, the following additional parameters must be used when mounting them:

- `actimeo=0`
- `closetimeo=0`

2.2. Video adapter setup

Preparation for work involves installing and configuring video card drivers.

The need to perform these actions is due to the fact that most *Linux* distributions involve the use of *Nouveau* drivers for *NVidia* video cards, which are not suitable for increasing the system performance through graphic processing unit resources.

In general, this process includes the following steps:

1. Searching, loading, and installing video card drivers;

The methods for installing drivers may vary significantly depending on the *Linux* distribution used.

2. Creating the restriction rule for the *Nouveau* drivers usage;

3. Restarting the system;

2.2.1. Loading and installing video card drivers

To install *NVidia* drivers for *RED OS 8.0*, run the following command from the console:

```
dns install nvidia-drivers
```

Wait until the operation is complete. Restart the workstation after driver installation.

Installation of *NVidia* drivers for *RED OS 8.0* is described in detail in appropriate *RED OS 8.0* User Manual.

2.2.2. Creating the restriction rule for the “Nouveau” drivers usage

To create the restriction rule for the *Nouveau* drivers usage, add to the */etc/modprobe.d/blacklist.conf* file the following strings:

```
blacklist nouveau
```

```
options nouveau modeset=0
```

Restart the workstation.

3. System installation

3.1. Distribution kit

License software distribute in a branded box. The company name is place on the front. On the reverse side are placed address, technical support service phone and e-mail, web-site of company.

The system distribution kit includes:

- CD-ROM containing the system setup files, hardware lock key drivers and the documentation files in PDF format;
- System installation Manual;
- Hardware lock key (see the “Protection of the system” chapter in “General information” User Manual in the main *PHOTOMOD* documentation set).

3.2. Security hardlock key drivers installation

The last version of security key drivers could be downloaded here.

To do this, perform the following:

1. Launch a **Terminal** window;

2. In **Terminal** window move to the folder containing security key drivers installation file;

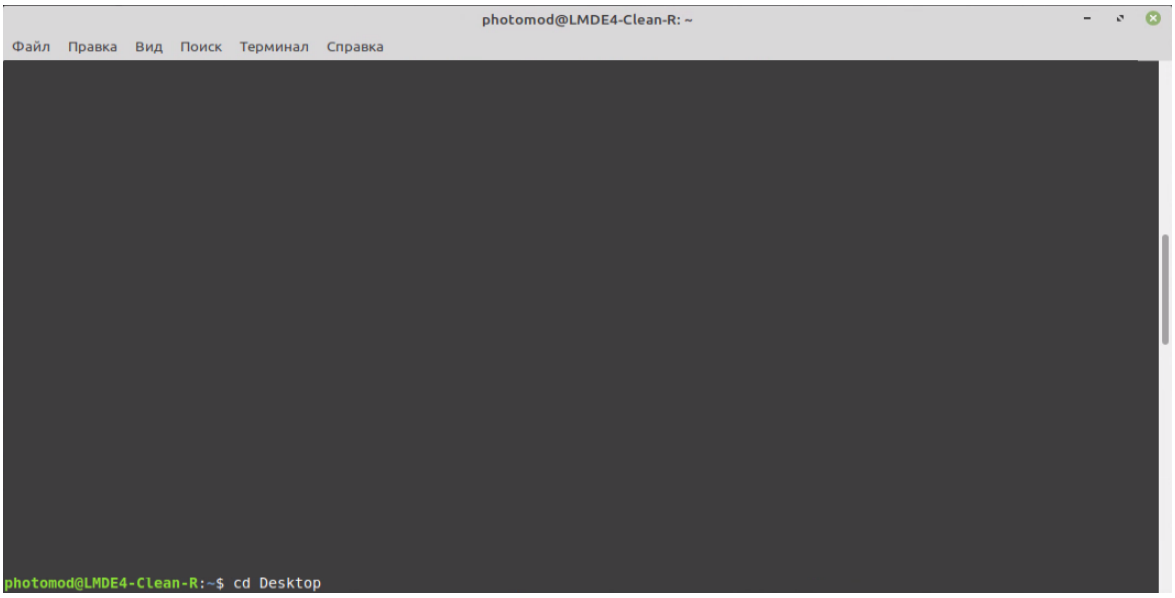

Fig. 1. The Terminal window

3. Type the installation command in the **Terminal** prompt, for example:

   ```
   dnf install ./aksusbd-9.15-1.x86_64.rpm
   ```

   Press **Enter** to execute it.

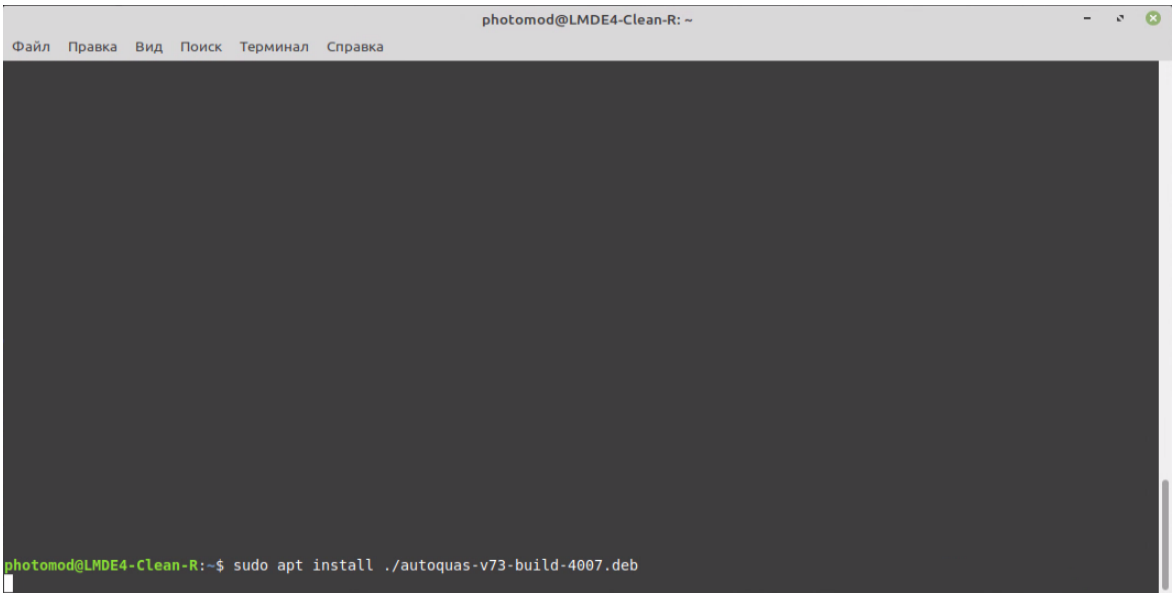

Fig. 2. The Terminal window

4. [optional] Confirm your action by entering your account password:

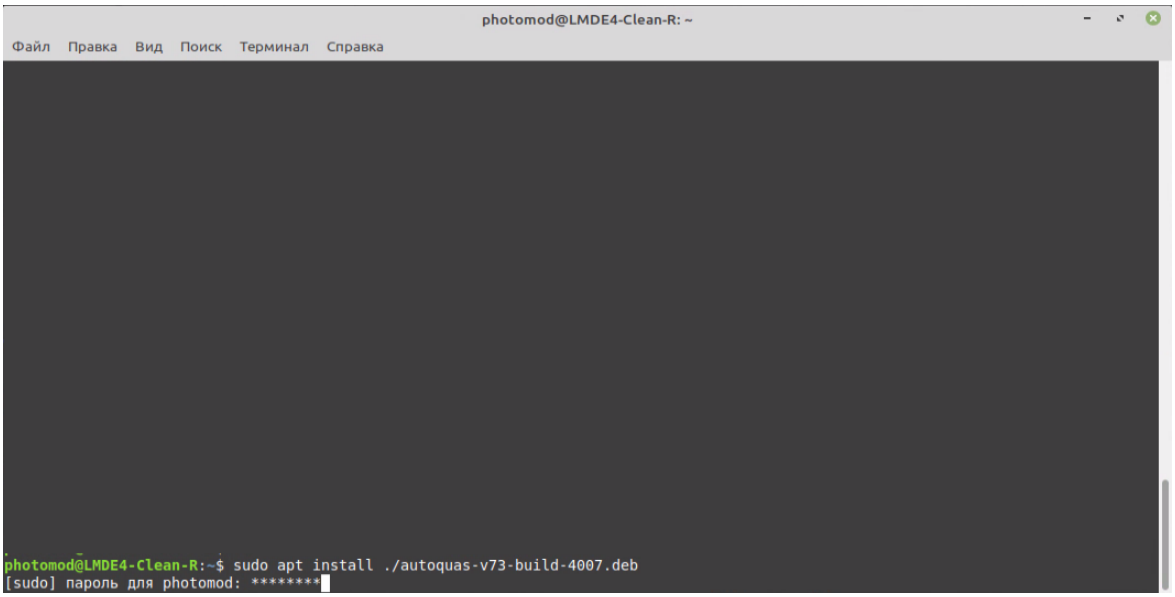

Fig. 3. The Terminal window

5. Wait until operation is completed.

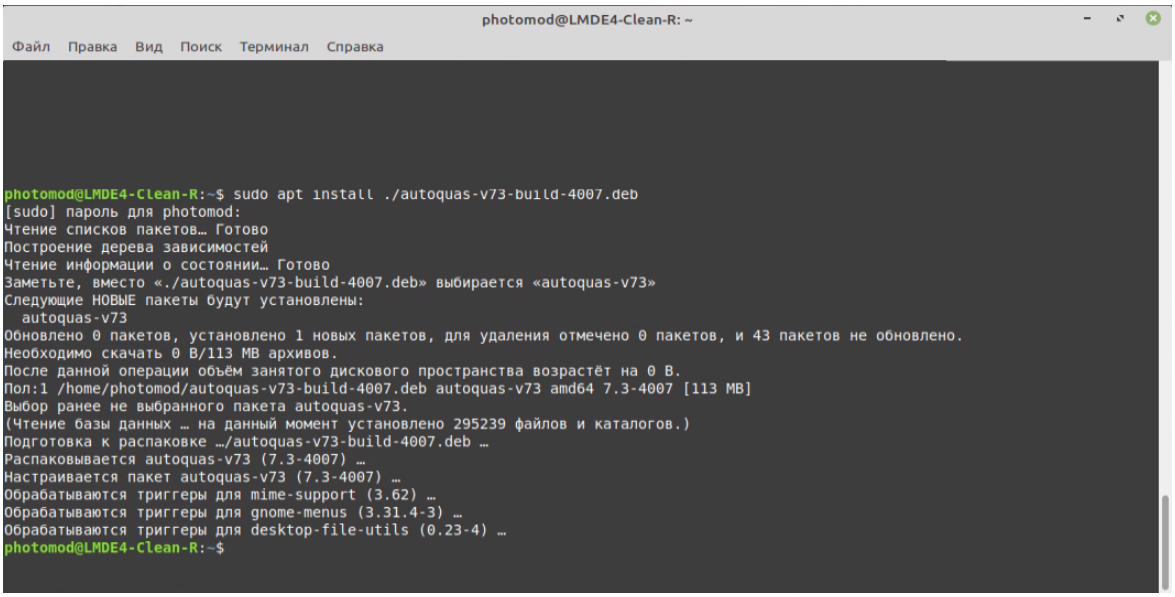

Fig. 4. The Terminal window

3.3. PHOTOMOD AutoUAS installation

Prior to the system installation it is desirable to insert *Sentinel HL* security key into the USB-socket of the workstation (see the “Protection of the system” chapter in “General information” User Manual in the main *PHOTOMOD* documentation set).

Administrator privileges are required to install *PHOTOMOD AutoUAS*.

The *PHOTOMOD AutoUAS* program requires 64 bit operating system.

If the program is to be installed on a workstation with a network profile and with preinstalled *PHOTOMOD*, *PHOTOMOD UAS* or *PHOTOMOD Conveyor* system (hereinafter referred to as the *system*), close all system’s modules on each workstation before installation.

To search the pre-installed *Racurs* software, run `dnf search photomod` from the console.

To install *PHOTOMOD AutoUAS* perform the following:

1. Launch a **Terminal** window;
2. In **Terminal** window move to the folder containing *PHOTOMOD AutoUAS* installation file (`autouas-vNN-build-CCCC.rpm`, where **N** is the version number, **CCCC** is the build number);

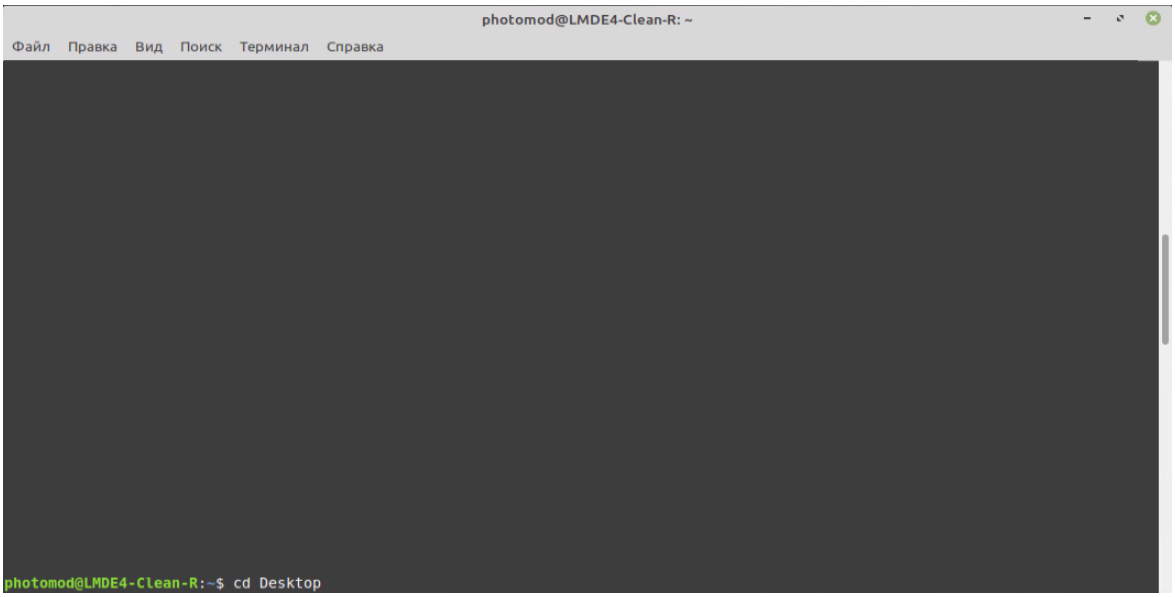

Fig. 5. The Terminal window

3. Type the following command in the **Terminal** prompt:

   `sudo dnf install ./autouas-vNN-build-CCCC.rpm`

   where **N** is the version number, **CCCC** is the build number. For example:

   `sudo dnf install ./autouas-v80-build-4563.rpm`

   Press **Enter** to execute it.

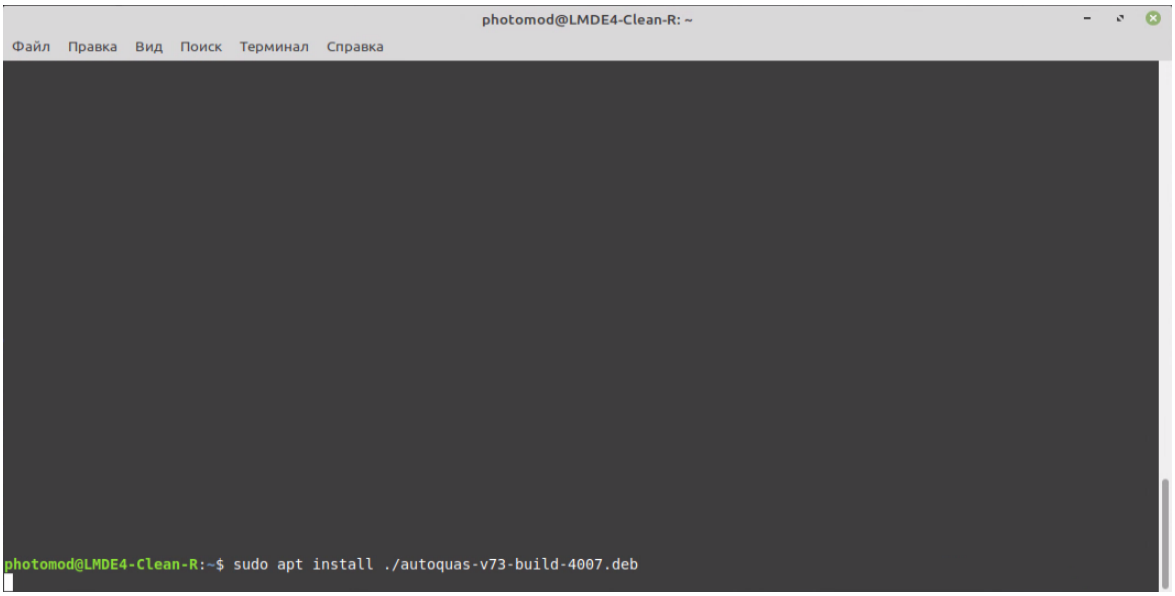

Fig. 6. The Terminal window

4. [optional] Confirm your action by entering your account password:

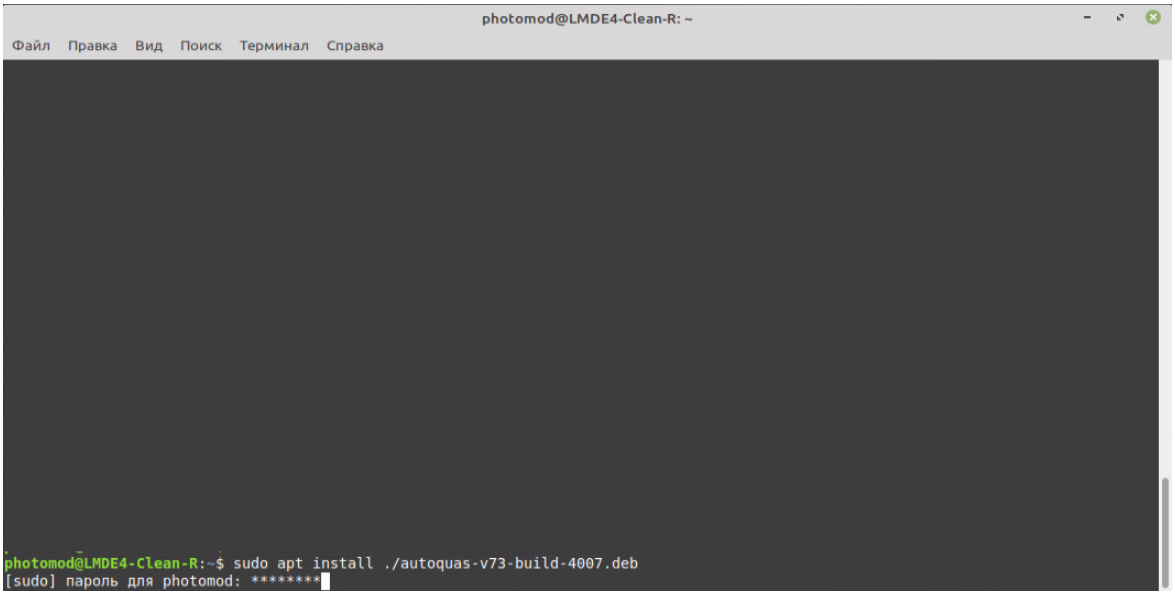

Fig. 7. The Terminal window

5. Wait until operation is completed;

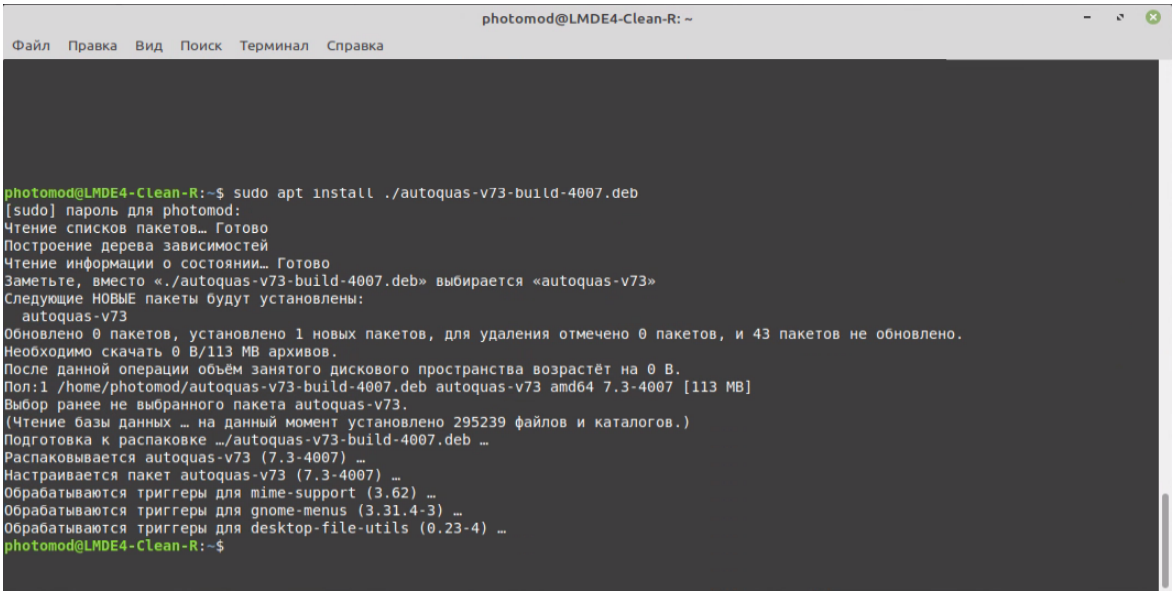

Fig. 8. The Terminal window

By default *PHOTOMOD AutoUAS* is installed in */opt/photomod-autouas-NN/bin* folder, where **N** is the version number.

4. Program deinstallation

To search the pre-installed *Racurs* software, run `dnf search photomod` from the console.

To remove the system from computer, perform the following:

1. Close all modules of the system;
2. Choose **Start › Science › PHOTOMOD AutoUAS 8.0 Uninstall**;
3. Confirm your action by entering your account password:

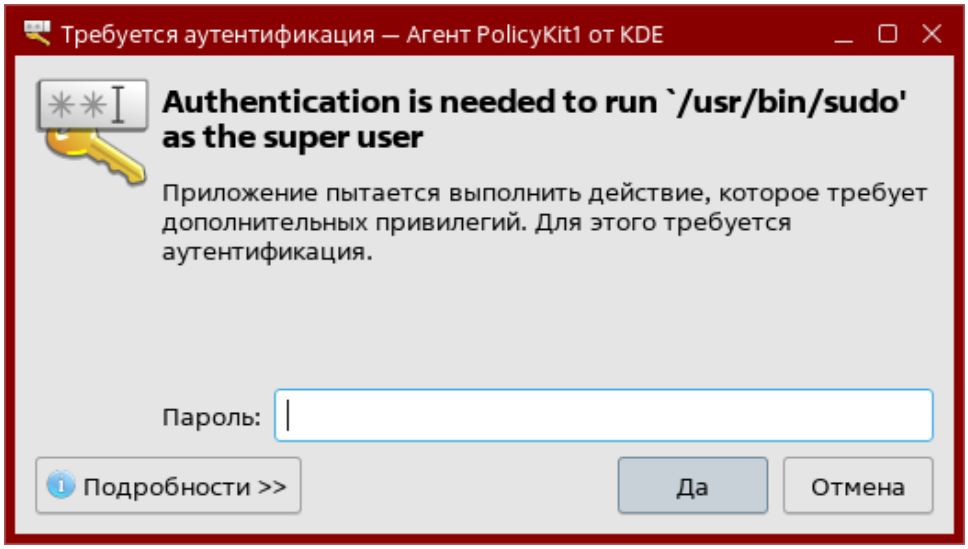

Fig. 9. The confirmation window

The **Start › Science › PHOTOMOD AutoUAS 8.0 Uninstall** command is strongly recommended for system uninstallation. If you uninstall the system using the appropriate commands entered in the **Terminal** window, it is strongly recommended to restart the workstation after completing the operation.

The *PHOTOMODAutoUAS8.VAR* folder is not removed during uninstallation.