

**INSTITUTE OF INFORMATION TECHNOLOGIES**

**Software package**

**Optical fiber monitoring system FIBERTEST 2.0**

**Installation and configuration guide**

**Software component Server,**

**Software component Web Server**

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# INTRODUCTION

Software components Server and Web Server are central part of optical fibers monitoring system FIBERTEST 2.0. These software components could be installed on computers with OS: Windows 8.1 Pro, Windows 10 Pro, Windows Server 2012, Windows Server 2016, Windows Server 2019.

For the monitoring system to work on the server, you must install the following software components of the system:

* Windows update packages which will update .Net up to version needed for Fibertest 2.0;
* Windows component IIS service (optional);
* DBMS MySQL;
* Software package Fibertest Server – server part of monitoring system software.
* Software package Fibertest Web Server – service which allows to connect monitoring system software through the Internet.

The specified software is shipped on CD-ROM or USB flash-drive «Optical fiber monitoring system FIBERTEST 2.0. Software package Server» in folder Software, files «Ft\_2.x.x.x.exe» and «mysql-installer-community-5.7.21.0.msi». Before installation copy folder content to the server hard drive.

*Attention! Install the software in the following order!*

# OS Configuration

* 1. **OS configuration for software package «Server».**
     1. On Windows 8.1 Pro, Windows 10, Windows Server 2012 R2, Windows Server 2016, Windows Server 2019 install update packages in the following order:

1. **dotNetFx40\_Full\_x86\_x64.** If package has been installed already installation will be denied.
2. **NDP40-KB2468871-v2-x64** or **NDP40-KB2468871-v2-x86.** If package has been installed already installation will be denied.

1. **NDP472-KB4054530-x86-x64-AllOS-ENU.** If package has been installed already installation will be denied.

The specified packages could be found on installation drive « Optical fiber monitoring system FIBERTEST 2.0. Software package Server » in folder «Software».

* + 1. Install service MSMQ(«Message Queuing Service)

1. In OS Windows 8.1 Pro, Windows 10 open «Control Panel», select item «Programs and Features», Select option Turn Windows features on or off. Find component «Microsoft Message Queue (MSMQ) Server» and select it, Fig. 1‑1.

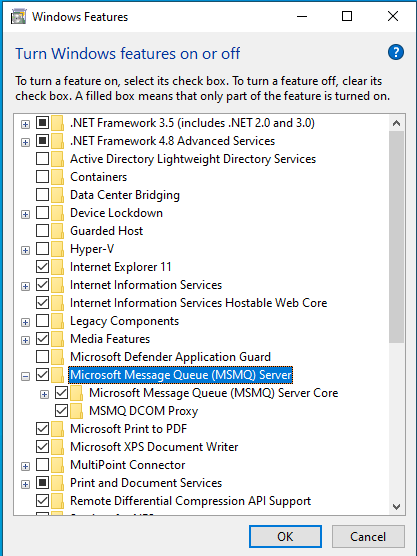


Fig. 1‑1

1. On Windows Server 2008, Windows Server 2012, Windows Server 2016, Windows Server 2019 In server dispatcher add role «Message Queuing» (Fig. 1‑2 made on Windows Server 2016).

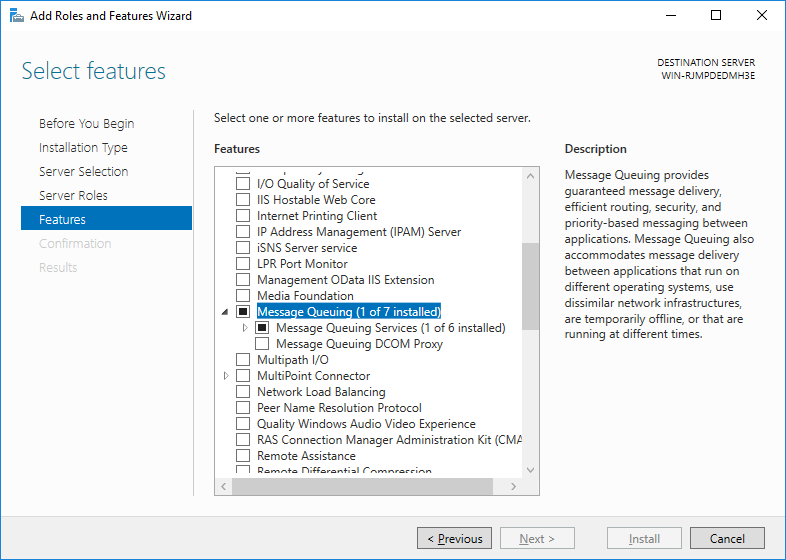


Рисунок 1‑2

* + 1. Start «Control Panel», select item «Administrative Tools» and then select «Computer Management». Select «Message Queuing» - «Private Queues» Fig. 1‑3.

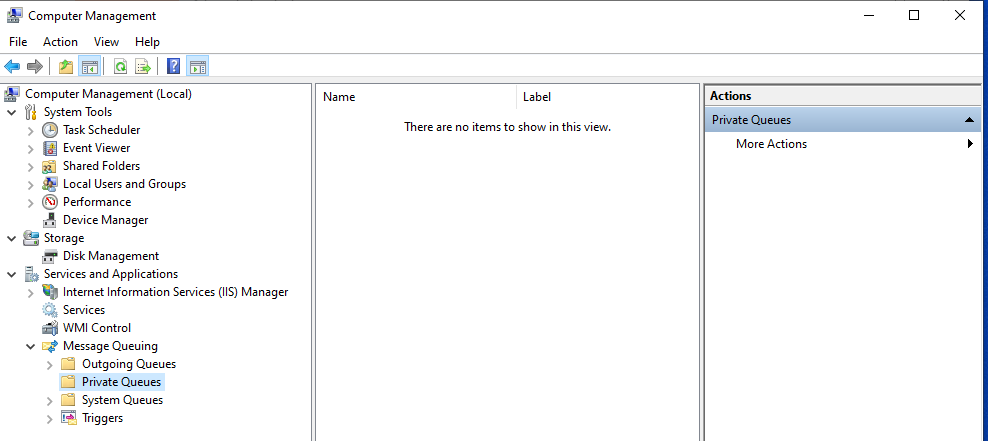


Fig. 1‑3

* + 1. Select «Private Queues» and in context menu select «New → Private Queue». Fig. 1‑4.

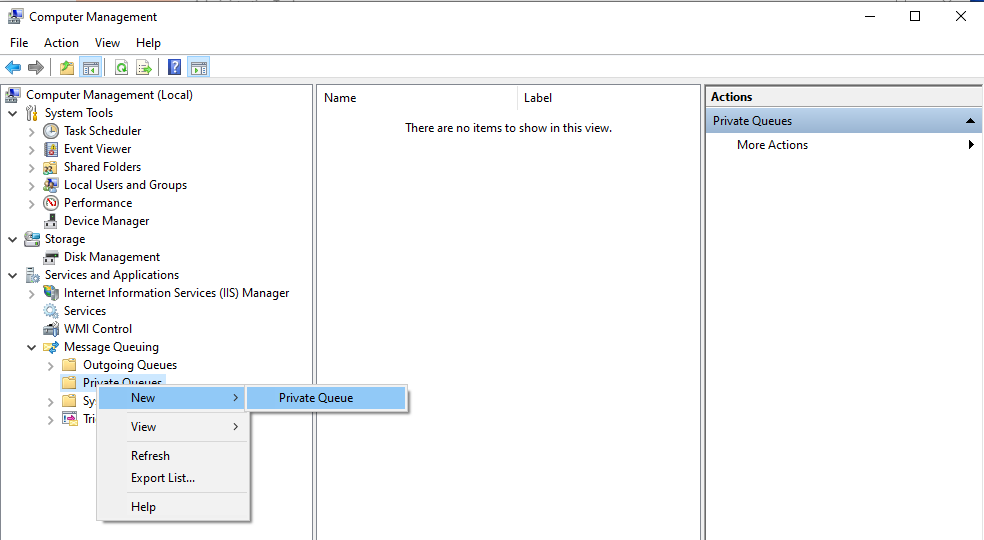


Fig. 1‑4

* + 1. In appeared window enter queue name «**Fibertest20**» and set flag «Transactional», press «ОК». Fig. 1‑5

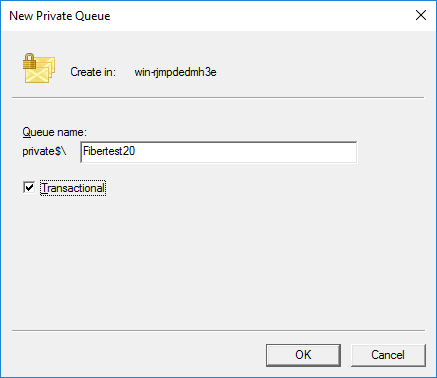


Fig. 1‑5

* + 1. In window Fig 1‑6 double click on line «Fibertest20», will appear Fig 1‑7

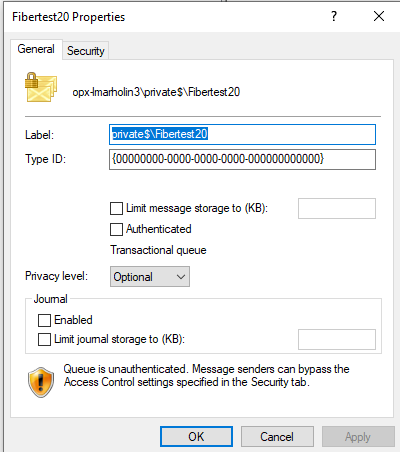
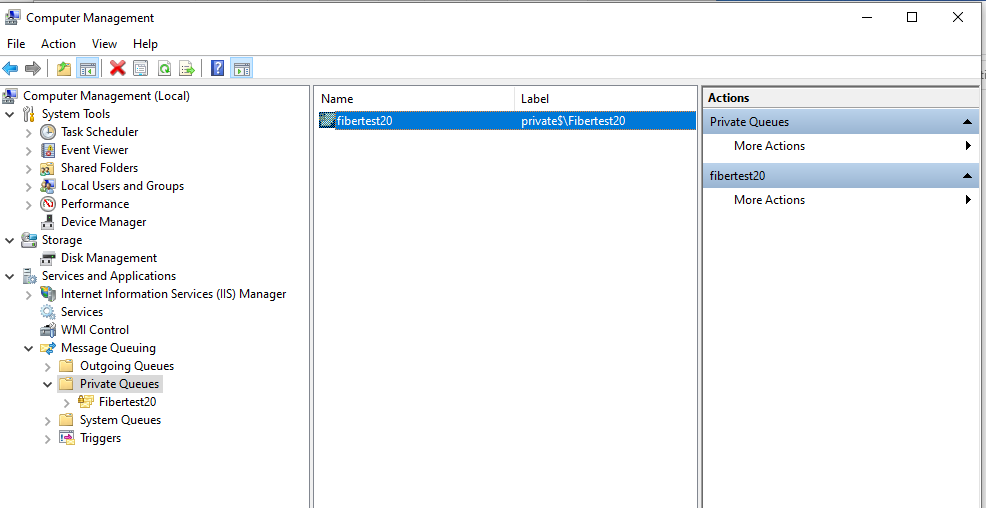


Fig. 1‑6 Fig. 1‑7

Choose tab «Security», in block «Group or user names» select «Everyone» and in block «Permissions for Everyone» set flag for «Full control and press «ОК» Fig. 1‑8.

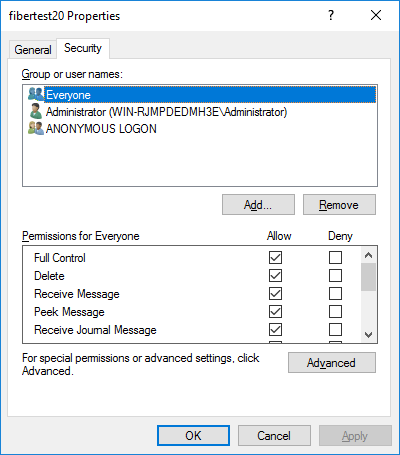


Fig. 1‑8

* 1. **OS settings for webserver component**

*Attention! Apply these settings if you have license to use WebClient component!*

* + 1. On Windows 10 open Control Panel and select Programs and Features component. Select option Turn Windows features on or off.

1. Find component «Internet Information Services», Fig 1‑9.

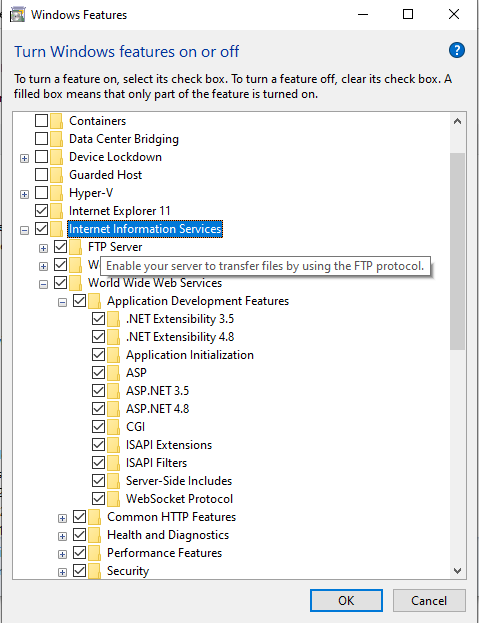


Fig 1‑9

1. Turn on component Internet Information Services -> World Wide Web Services -> Application Development Features -> Application, Fig 1‑10.

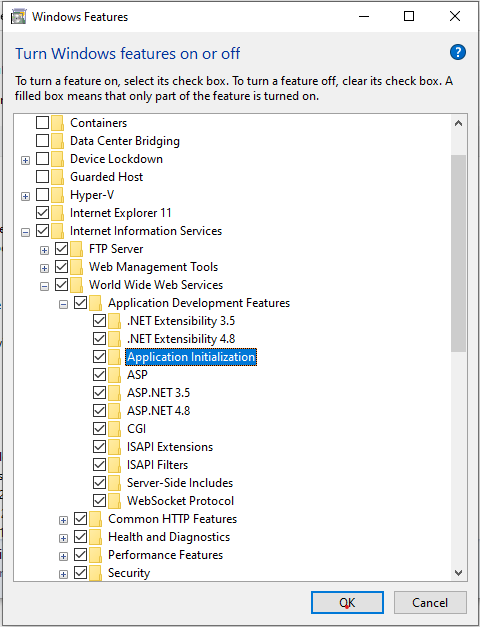


Fig 1‑10

* + 1. On Windows Server 2012, Windows Server 2016, Windows Server 2019.

1. In server dispatcher add role «Web Server (IIS)», Fig. 1‑11.

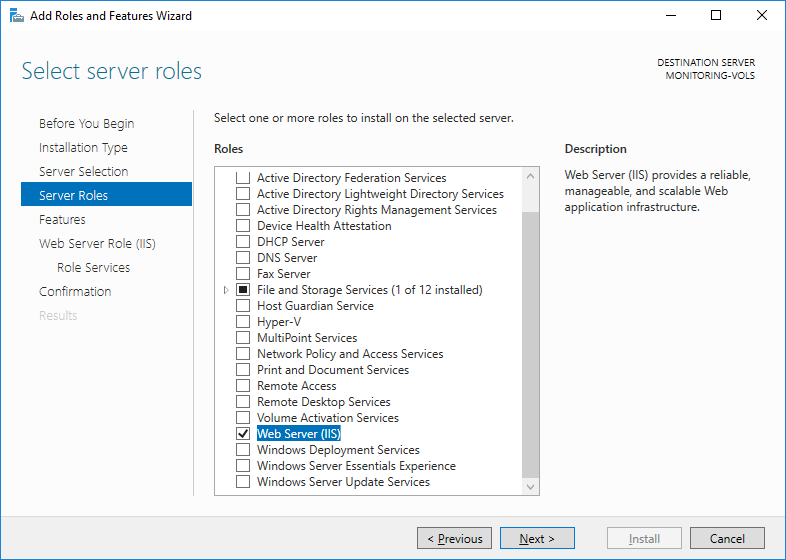


Fig. 1‑11

1. Add role «Web Server (IIS)» -> Web Server -> Application Development -> «Application Initialization»

(Fig 1‑12) and then pressing buttons «Next» и «Install», install chosen components.

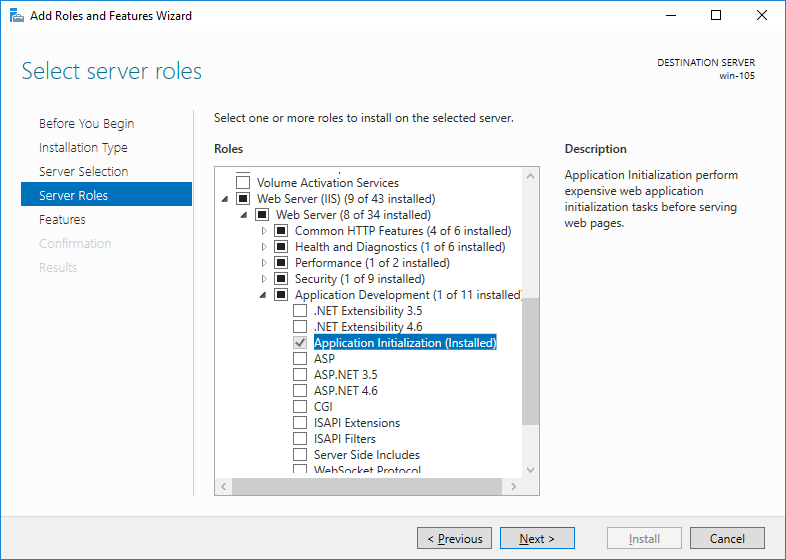


Fig. 1‑12

* + 1. Open «**Control Panel**») → «**Administrative Tools**» → «**Internet Information Services (IIS) Manager**» and stop site «**Default Web Site**», Fig. 1‑13.

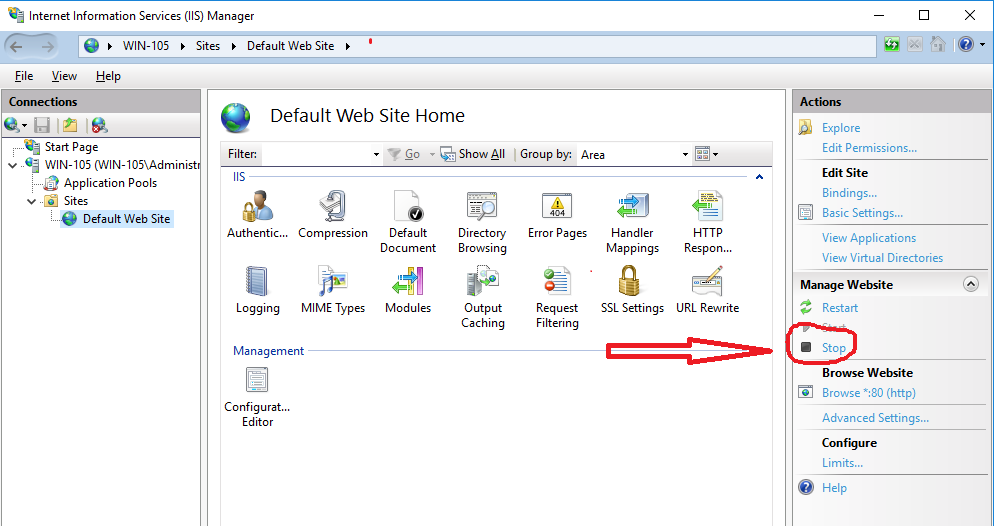


Рисунок 1‑13

* + 1. On Windows 10, Windows Server 2012 R2, Windows Server 2016, Windows Server 2019 install packets **rewrite\_amd64.msi, dotnet-runtime-3.1.11-win-x64.exe, aspnetcore-runtime-3.1.11-win-x64.exe** (shipped on CD-Rom or flash-drive «ПК Server» in folder «Software\IIS Update»).

1. **rewrite\_amd64.msi.** If package has been installed already you see the window shown on Fig 1‑14.

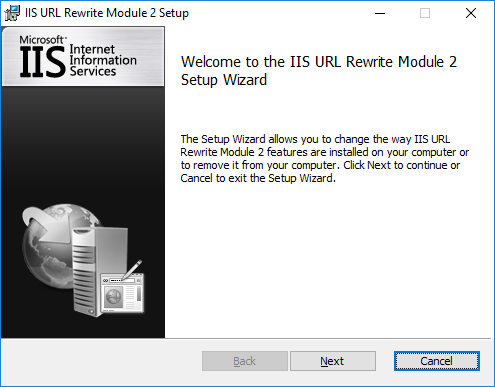


Fig 1‑14

1. **dotnet-runtime-3.1.11-win-x64.exe.** If package has been installed already you see the window shown on Fig 1‑15.

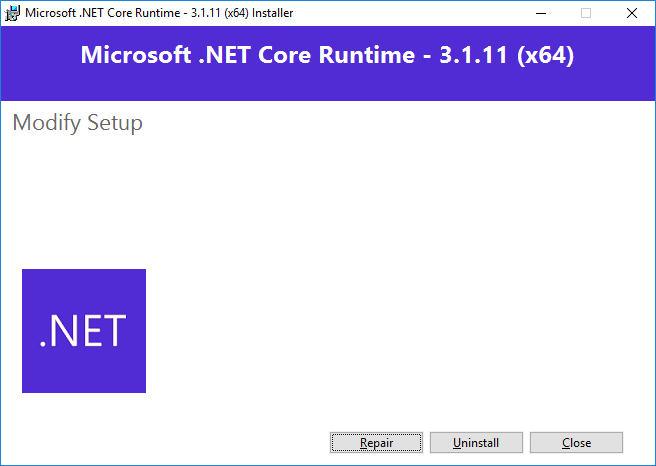


Fig. 1‑15

1. **aspnetcore-runtime-3.1.11-win-x64.exe.** If package has been installed already you see the window shown on Fig 1‑16.

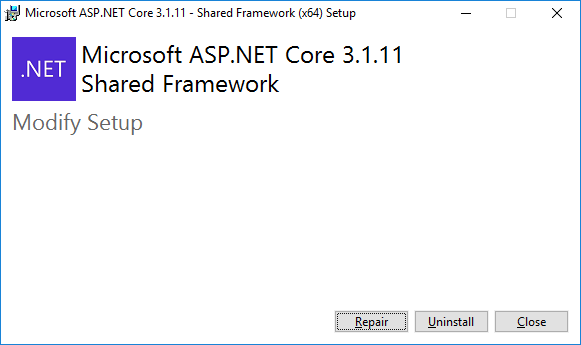


Fig. 1‑16

# DBMS MySQL Installation

* 1. Start installer package «**mysql-installer-community-5.7.21.0.msi»**, check «I accept the license terms» and press button «Next».Fig. 2‑1.

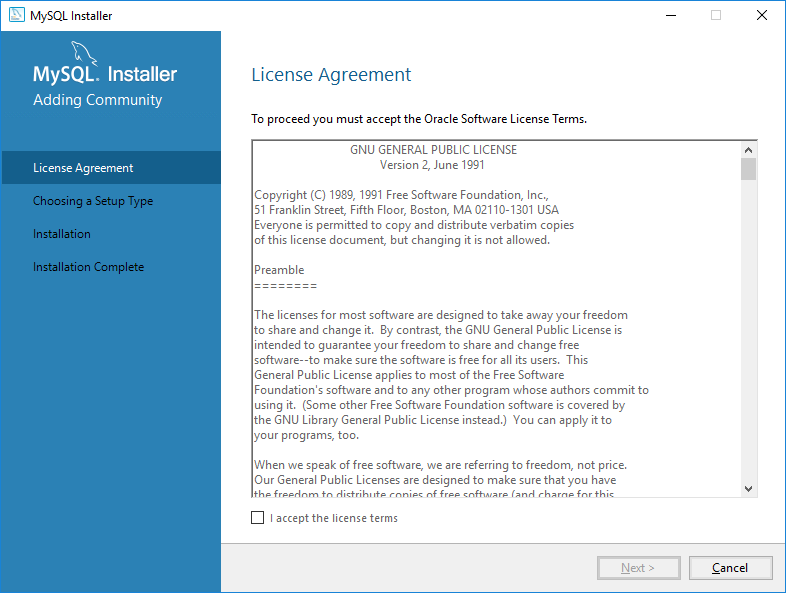


Fig 2‑1

* 1. Select option «Custom» and press «Next». Fig. 2‑2.

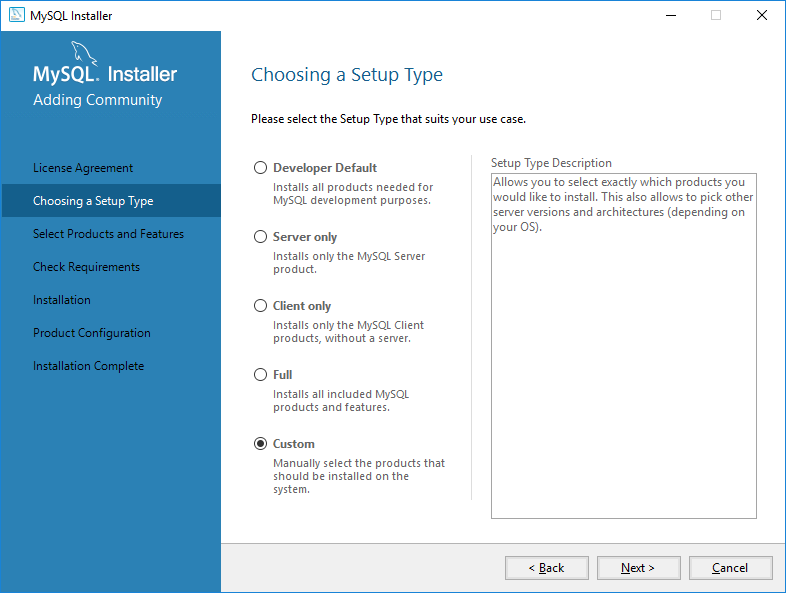


Fig 2‑2

* 1. Among suggested components select «MySQL Server 5.7.21 – X64» when install on x64 OS or «MySQL Server 5.7.21 – X86» when install on x86 OS, then select «Connector/NET 6.10.5-86» Fig. 2‑3.

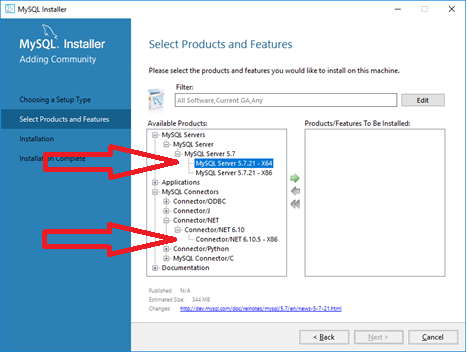


Рисунок 2‑3

* 1. Press button , to place selected elements into right box, Fig. 2‑4, Then press «**Next**».

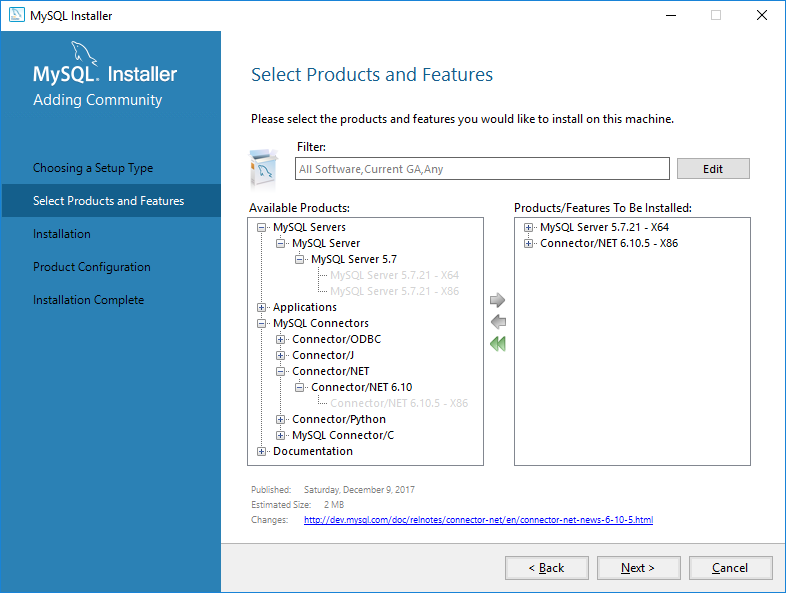


Fig. 2‑4

* 1. Then, might be offered to install missing components as on Fig 2‑5. In this case press button «**Execute**». Component installation process will start. Fig. 2‑6, confirm your agreement with license terms and conditions press «**Install**». When component successfully installed press «**Next**» Fig. 2‑7.

If component installation failed, try to install it manually. Components are shipped on installation drive «ПК Server» in folder «Software».

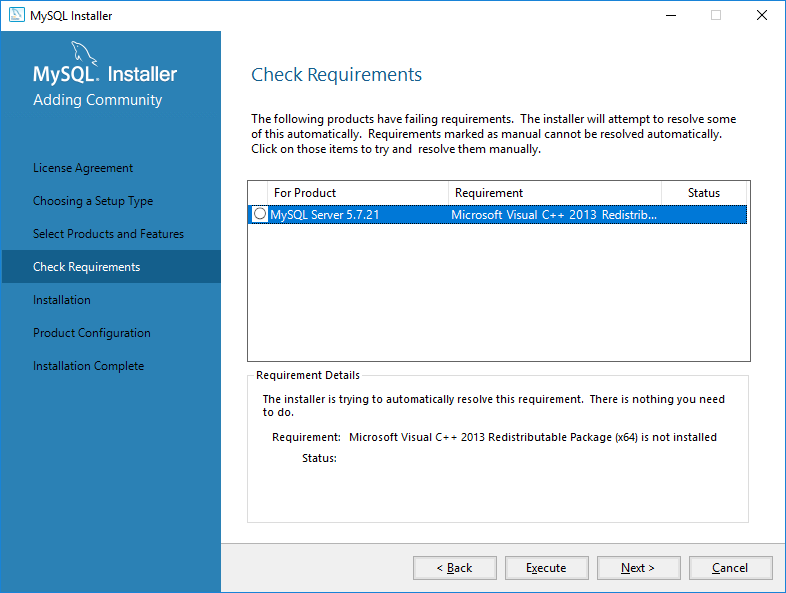
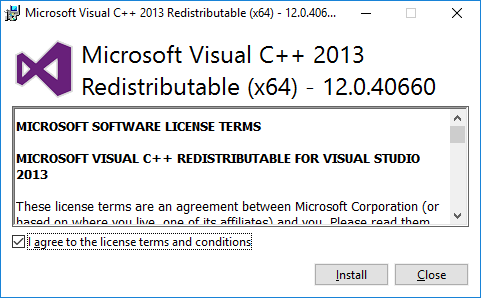


Fig 2‑5 Fig 2‑6

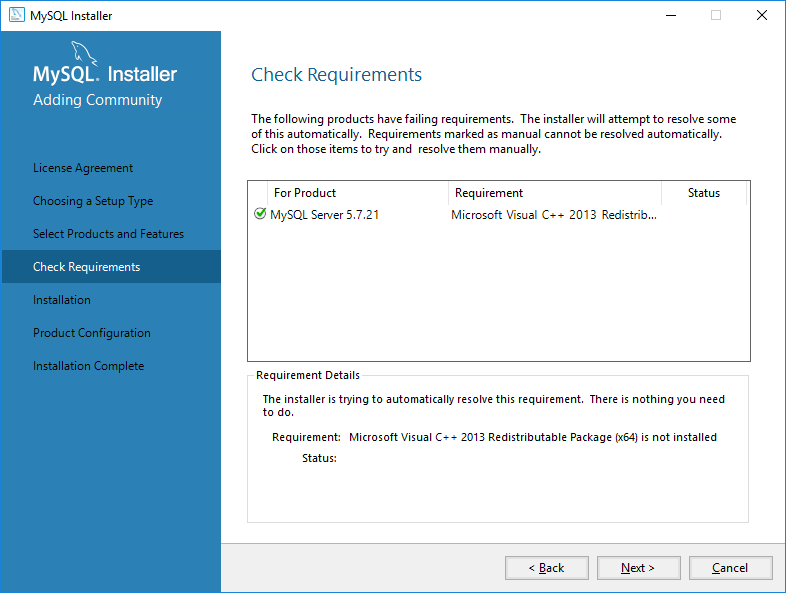


Fig 2‑7

* 1. Window on Fig 2‑8 offers to start installation of «**MySQL Server 5.7.21**» and «**Connector/NET 6.10.5-86**» themselves, press «**Execute**». After successful installation will appear window shown on Fig 2‑9, press «**Next**» and you will be offered to configure installed software

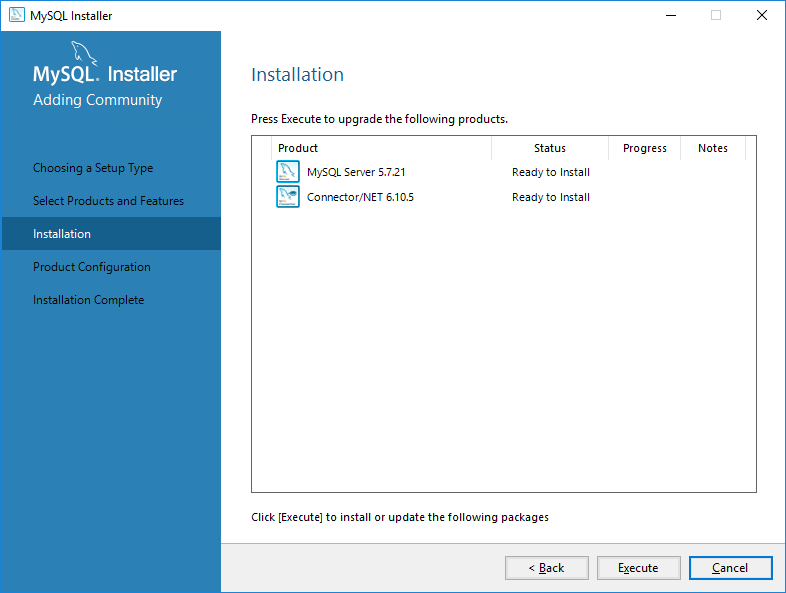
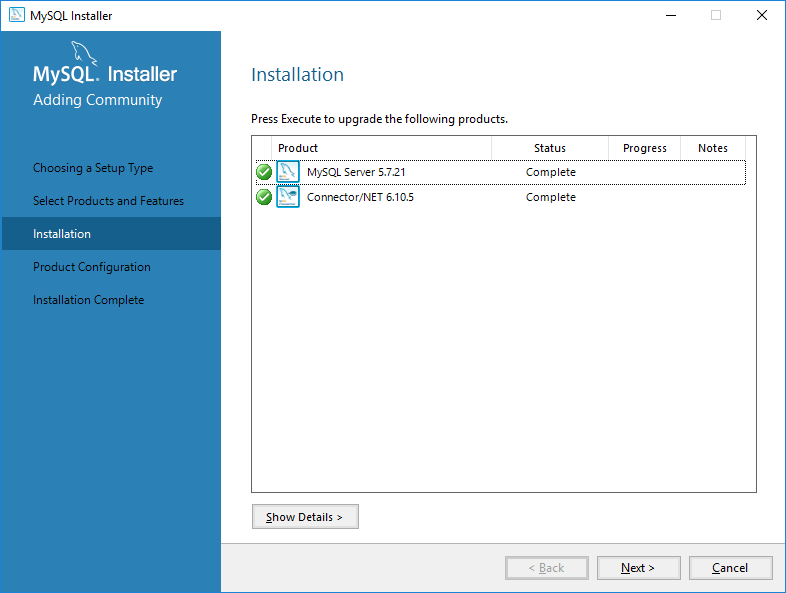
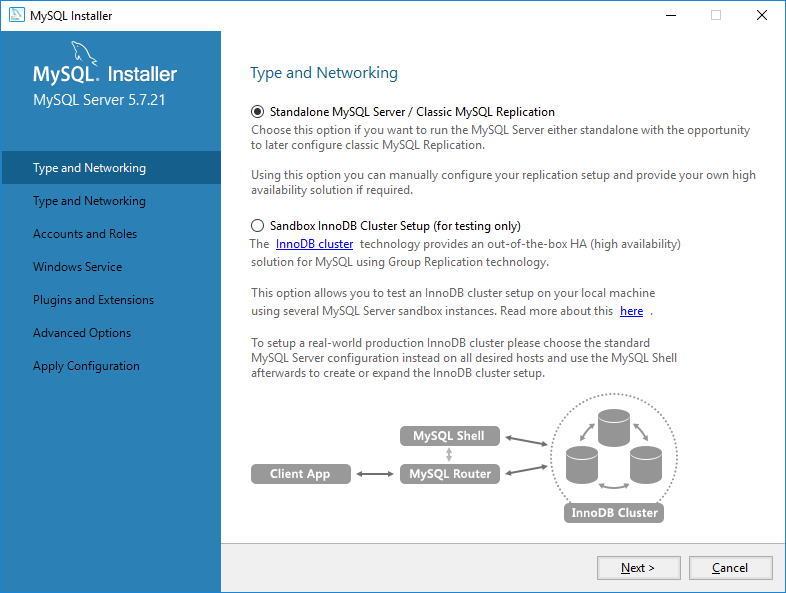
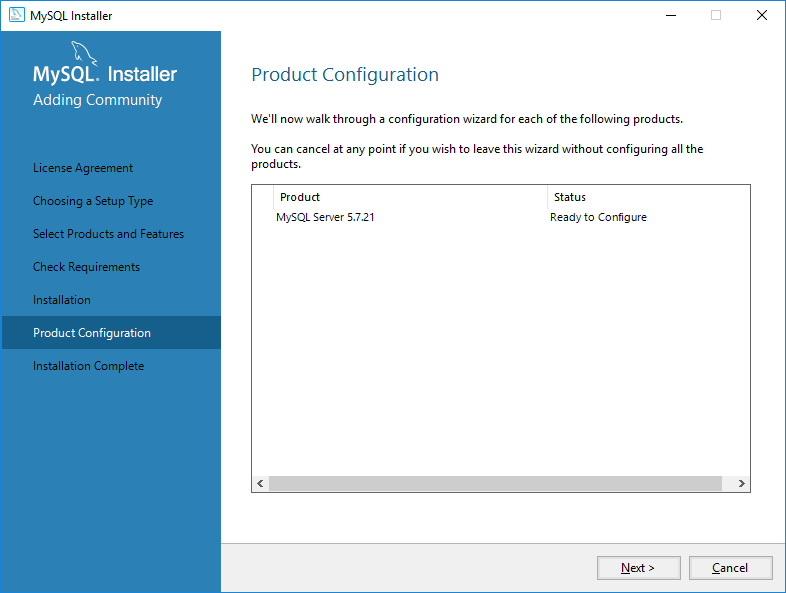


Fig 2‑8 Fig 2‑9



# dbms MySQL configuration

* 1.  Press «**Next**» on window shown on Fig 3‑1 and then again «**Next**» on window shown on Fig. 3‑2 (do not change nothing)

Fig. 3‑1 Fig. 3‑2

* 1. On window shown on Fig. 3‑3 in drop list «**Config Type**» select «**Server Machine**» and press «**Next**». Fix the program «P**ort Number**» if needed, default value **3306**.

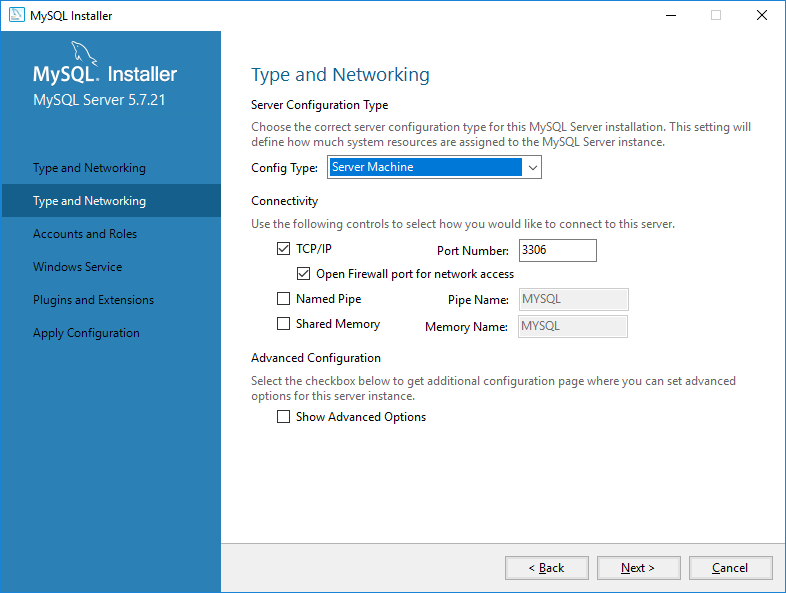
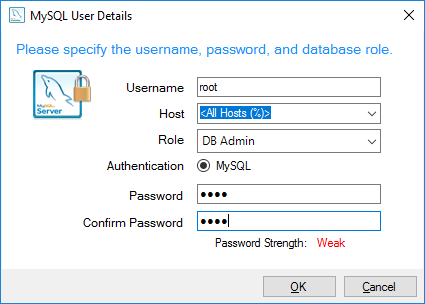
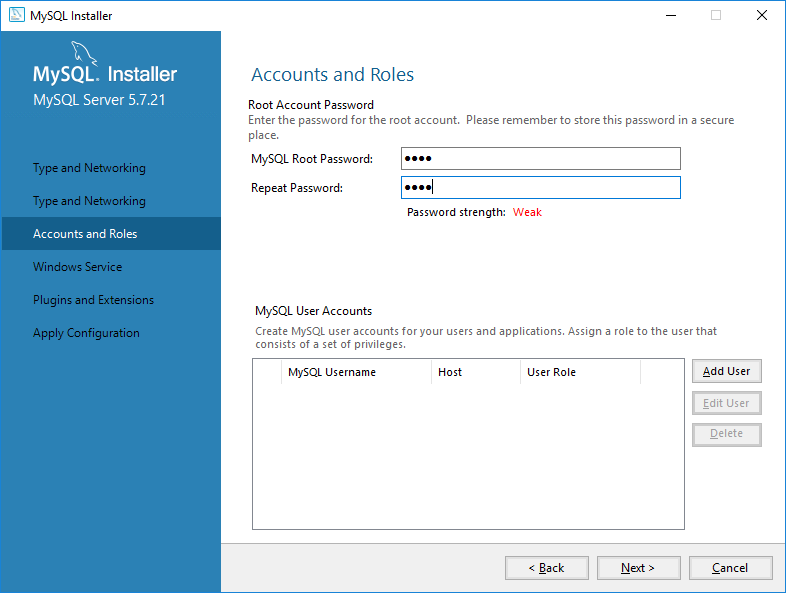
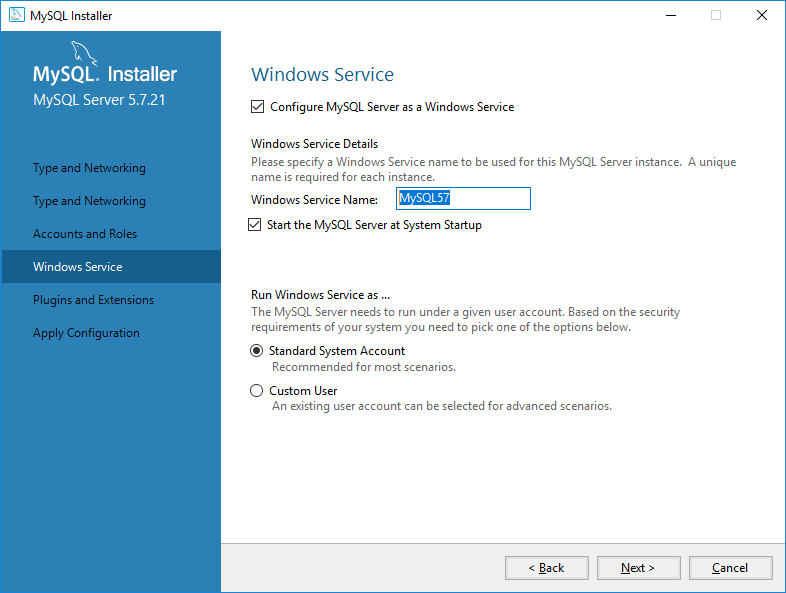


Fig. 3‑3

* 1. On window shown on Fig. 3‑4 in the relevant lines input password and it’s confirmation, by default «**root**». Then press «**Add User**» and window shown on Fig. 3‑5 appears. Input there (change nothing else): **Username – «root»; Password - «root»; Confirm Password – «root»** and press «**Ок**».

Then press «Next» to proceed to windows on Fig. 3‑6, and Fig 3‑7. Do change nothing.



Fig. 3‑4 Fig. 3‑5

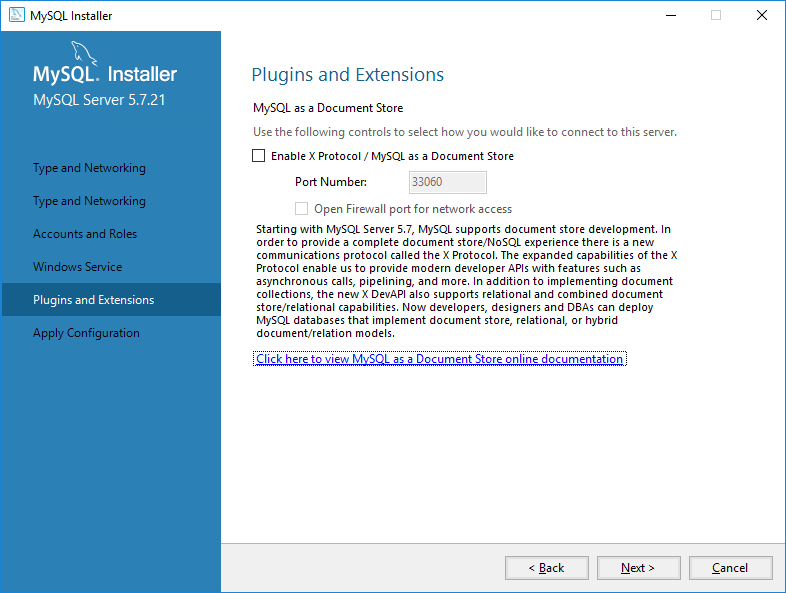


Fig. 3‑6 Fig. 3‑7

* 1. On window shown on Fig 3‑8 press «**Execute**». The process of applying configuration settings and MySQL service starting will begin. If successful window shown on Fig. 3‑9 appears. Then press «**Next**» on windows Fig. 3‑10. Fig. 3‑11, finishes installation process. процесс установки.

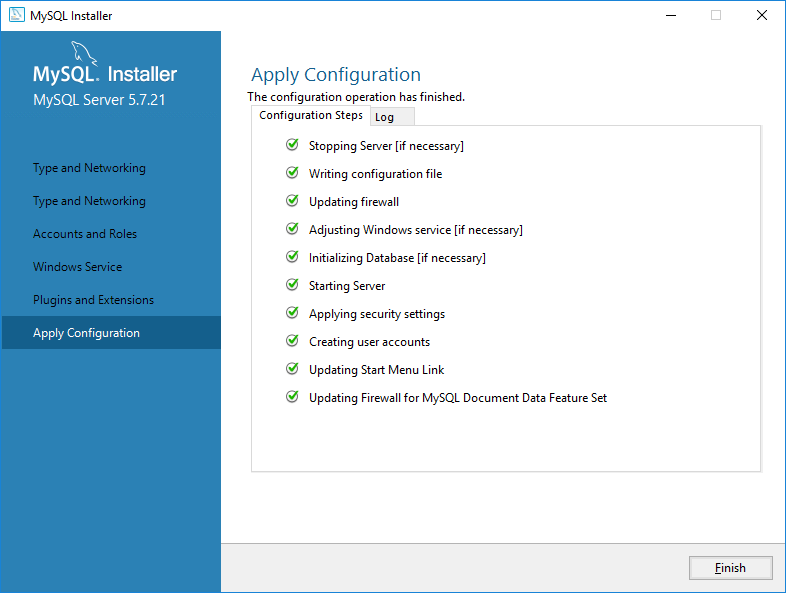
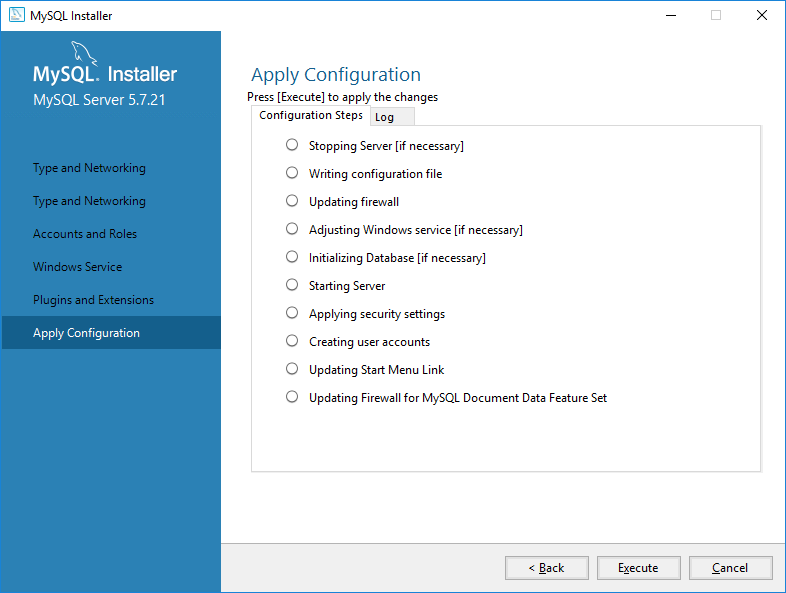
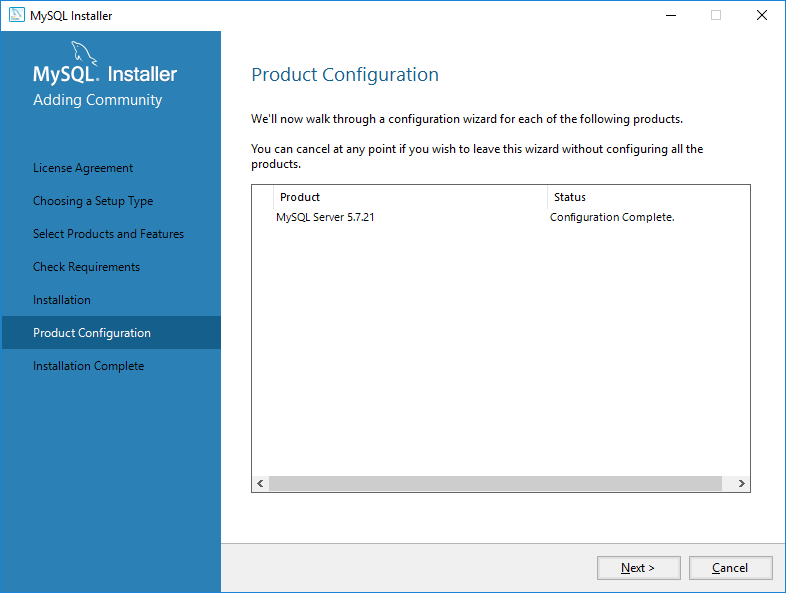


Fig. 3‑8 Fig.3‑9



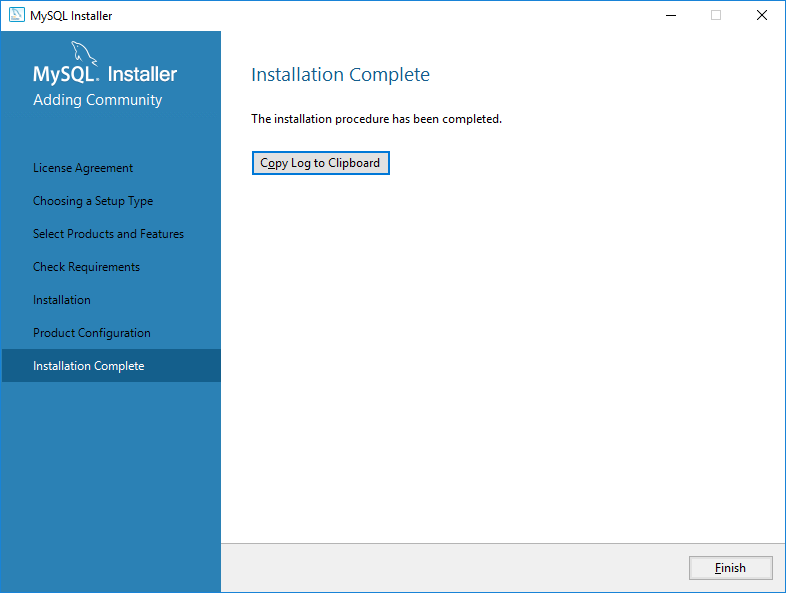


Fig. 3‑10 Fig. 3‑11

# software components server and web server installation.

1. 1. Run a file «Ft\_2.x.x.x.exe». Extracting files process will start. Fig. 4‑1.

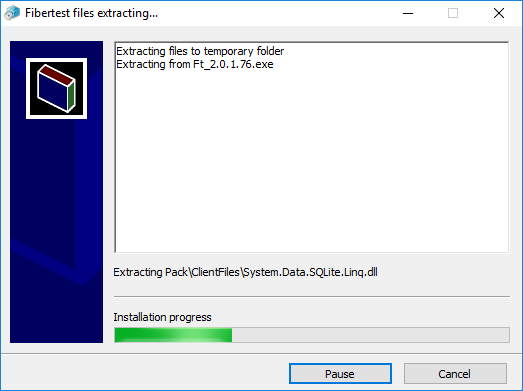


Fig. 4‑1

* 1. Select installation language. Fig. 4‑2. Your can choose between English and Russian.

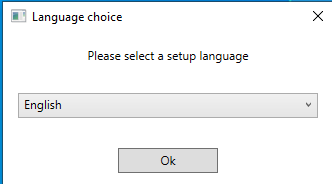


Fig. 4‑2

Then read the license agreement and if you agree press «**I agree**» on form Fig. 4‑3. On form Fig. 4‑4. you can change default installation folder and press «**Next**».

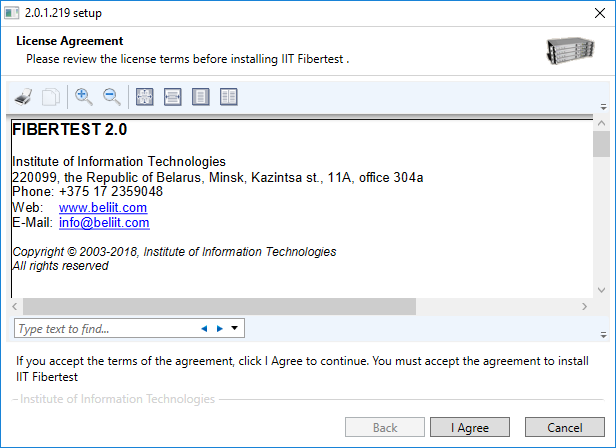


Fig. 4‑3

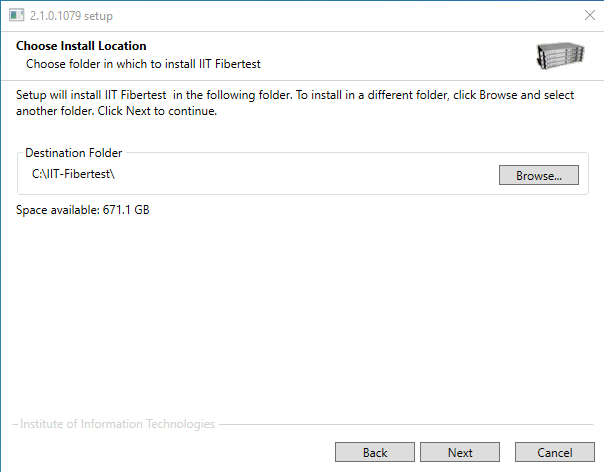


Fig. 4‑4

4.3. On form Fig. 4‑5 select installation option **«Data Center»**, edit, if necessary, the software port number of the installed DBMS MySQL, it should match with value specified in clause **3.2** and press «**Next**».

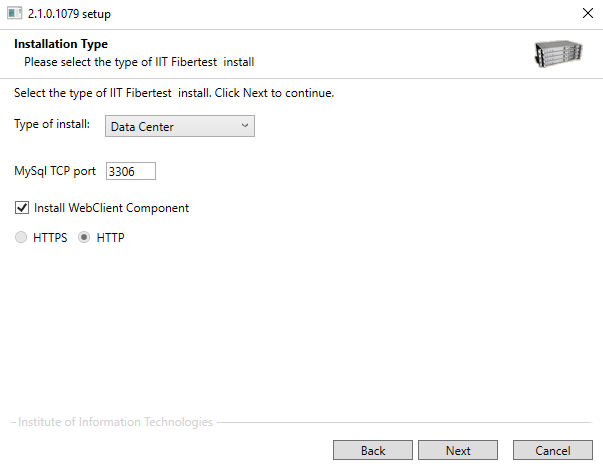


Fig. 4‑5

* 1. *If you have a license to use, install* Software component **«Web Server»**, on form Fig. 4‑5 check the box next to **«Install Web Server Component»** and click «Next».
  2. After successful installation window will look like Fig. 4‑6, press «**Done**». Installation is finished.

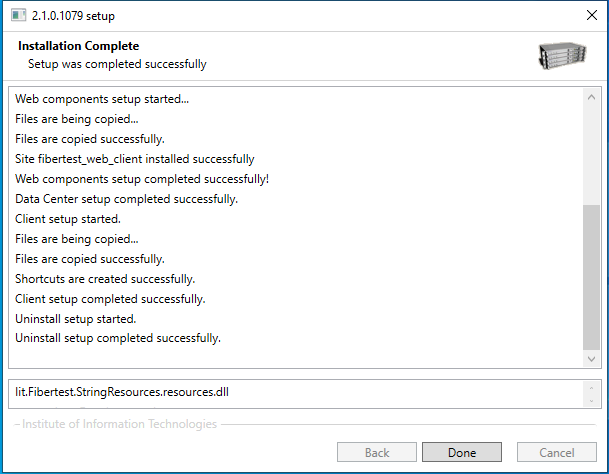


Fig. 4‑6

# software component Server start

* 1. Start «**Control Panel**». Select item **«Administration tools»** and run **«Services».**
  2. Run service **«Fibertest 2.0 DataCenter Server Service».**
  3. Open folder «**C:/** **IIT-Fibertest/DataCenter/Ini/»** and file «**DataCenter.ini**» for edit.

1. In section **[ServerMainAddress]** find parameter «IP», change it if necessary to the IP address of server.
2. If server has reserve channel, in section [**ServerReserveAddress**] set parameter «**IP**» to the reserve IP address of server, and in section [**Server**] set parameter «**HasReserveAddress**» to the «**true**».
3. In section [**MySql**] set parameter «**Reset DB**» to «**true».** 
   1. Restart service **«Fibertest 2.0 DataCenter Server».**

# software component web Server start

*Attention! Start this component if it was installed accordingly clause 4 of this guide (you have license to use).*

* 1. Start «**Control Panel**». Select item **«Administration tools»** and run **«Services».**
  2. Run service «**Fibertest 2.0 DataCenter WebApi Service».**

# using the license key for the first time

* 1. **Standard license.**

1. * 1. Run the software component «**Client**» using an account «**root**» (login - “root”, password - “root”). Window fig 7‑1. appears.

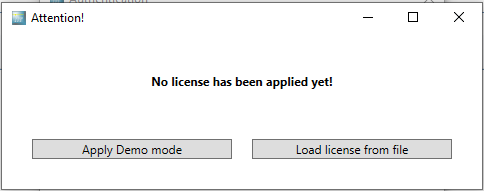


Fig. 7‑1

* + 1. Press «**Load license from file**» and enter path to the license file. If license applied successfully following message will be shown:

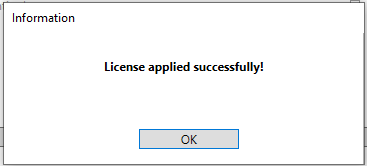


Fig. 7‑2

* + 1. Select in main menu «**Help → License**», and in window Fig. 7‑3 make sure license applied correctly.

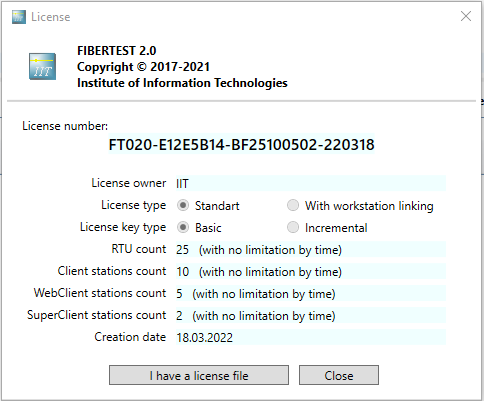


Fig. 7‑3

* 1. **License with linking user account to the workplace.**
     1. Run the software component «**Client**» using an account «**root**» (login - “root”, password - “root”) at the workplace to which it is supposed to be “attached”. Press «**Load license from file**» and enter path to the license file.
     2. In window Fig. 7‑4 enter security administrator password, that comes with license certificate.

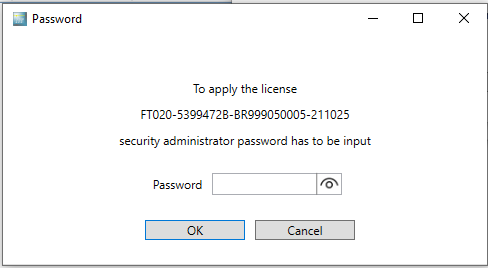


Fig. 7‑4

If license applied successfully Fig. 7‑2.will be shown. Now user account «**root**» is linked to the workplace. You can check license parameters as described in clause 7.1.3.

*Attention! After applying license with linking to the workplace it is recommended to change security administrator password (account «admin»)!*



# Configuration of time synchronization of the internal clock of the monitoring system server and mak100 modules

To correctly display the date and time of a new event occurrence in the table of system events and statistics on the trace, it is necessary to periodically synchronize the system clock of the PC modules with the system clock of the server.

Setting up time synchronization between the monitoring system server and the module consists of two stages:

1. Configuring the server of the FIBERTEST monitoring system as a time server;
2. Setting up synchronization of the internal clock of MAK100 modules using the Advanced Time Synchronizer program, which is installed on the modules.

* 1. Configuring the server of the FIBERTEST monitoring system as a time server

Press **«Start» → «Run»,** enter command **«regedit»** and run it, Fig. 8‑1.

*Attention! Incorrect editing of the registry can lead to a loss of server performance!*

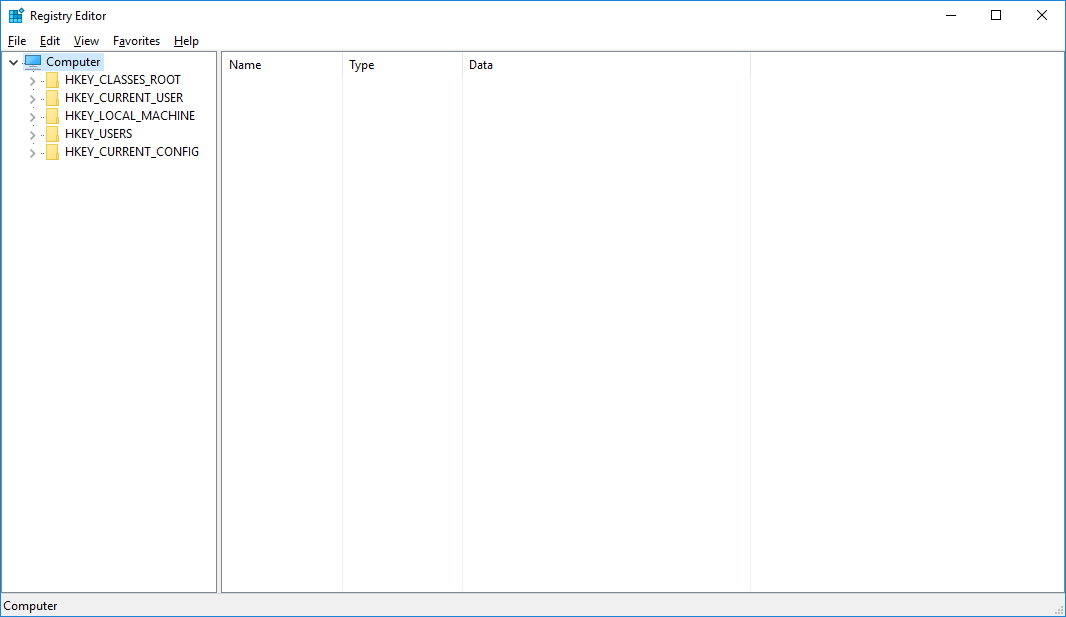


Fig 8‑1

1. Select registry key:

**HKEY\_LOCAL\_MACHINE\SYSTEM\CurrentControlSet\Services\W32Time\TimeProviders\NtpServer**

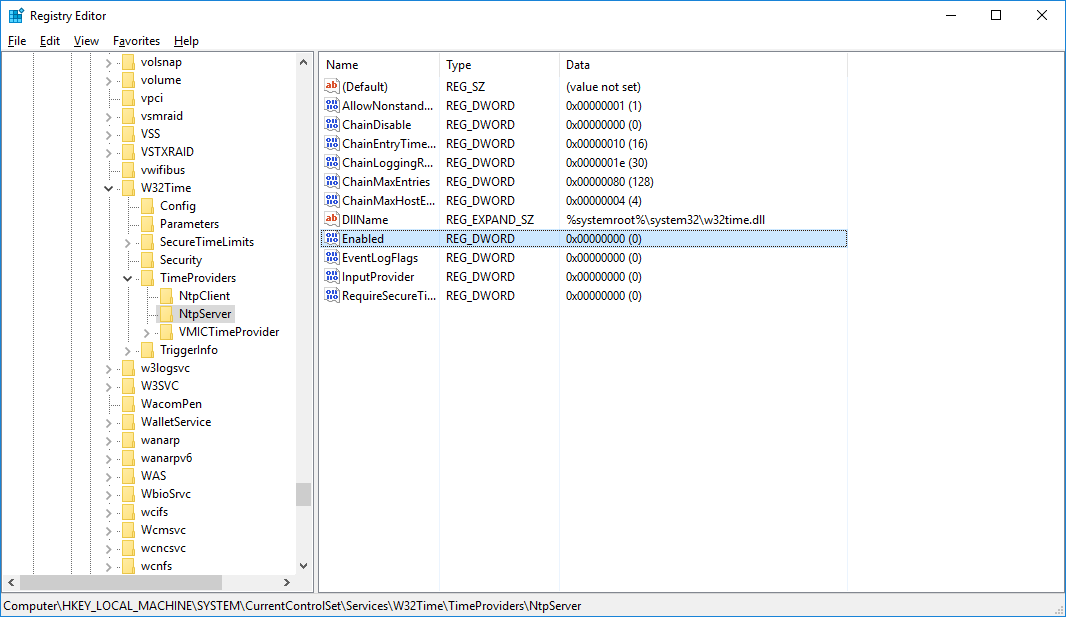


Fig. 8‑2

1. Select parameter **«Enabled»**, click on it, Fig. 8‑3

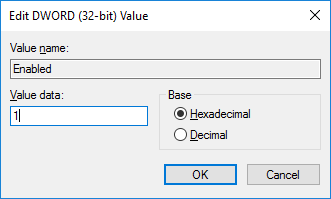


Fig. 8‑3

1. Set the value to the **«1»** and press «OK»**.**
2. Restart server.
   1. Setting up synchronization of the internal clock of MAK100 modules using the Advanced Time Synchronizer program, which is installed on the modules.
3. Connect to the module using RDP. Press «**Start**» and run program **Advanced Time Synchronizer**, Fig. 8‑4.

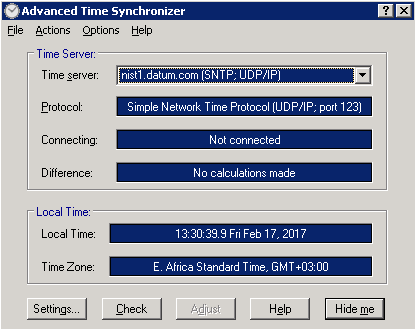


Рисунок 8‑4

1. Press button  and in window (Fig. 8‑5) on the tab **«Run»** leave all settings without changes.

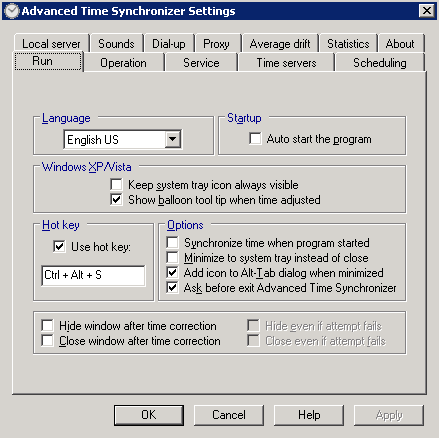


Fig. 8‑5

1. Select tab **«Operation»** and in block **«Check time adjustment»** choose **«accept it»** (Fig. 8‑6). Leave other settings without changes.

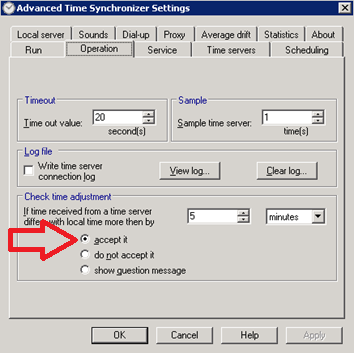


Рисунок 8‑6

1. On tab **«Service»** press button **«Install service»** (Fig. 8‑7)**.** Wait while service will run. (Fig. 8‑8).

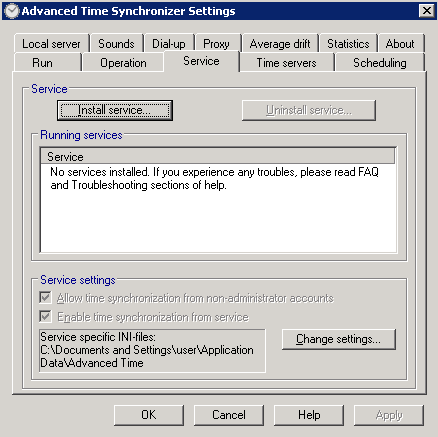


Fig. 8‑7

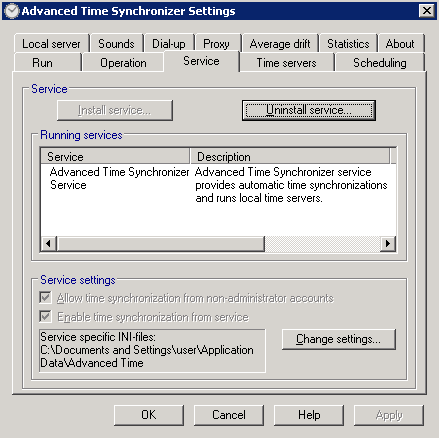


Fig. 8‑8

1. Select tab **«Time servers»** (Fig. 8‑9). Remove or disable addresses of all servers in the list, then press button . In new window (Fig. 8‑10) enter IP-address of FIBERTEST monitoring system server in line **«Time server address»** and in drop box **«Time server protocol»** select **“Simple Network Time Protocol (порт 123)”,** and press .
2. Then it is necessary to check connection with server so press  If connected successfully following message appears Fig. 8‑11.

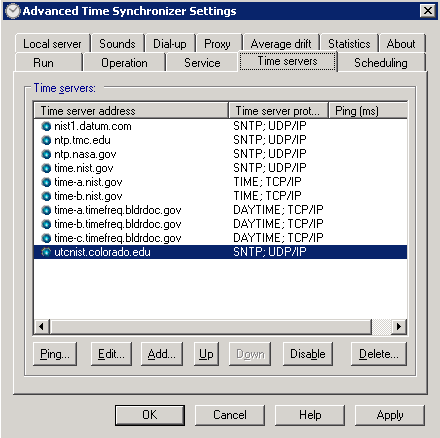


Fig. 8‑9

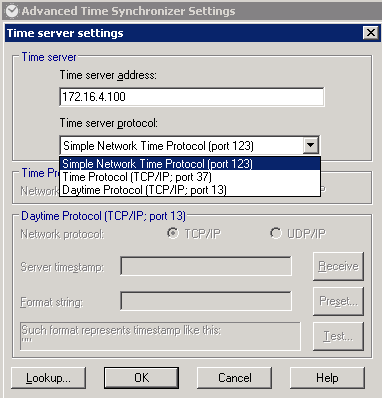


Fig. 8‑10

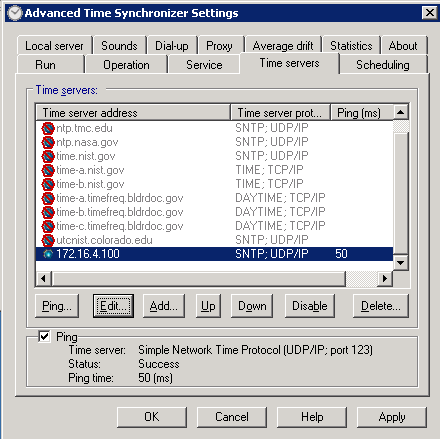


Fig. 8‑11

1. Select tab **«Scheduling»** and in block **«Auto start time correction»** in dropbox choose **«every day»** (recommended value) (Fig. 8‑12). Press .

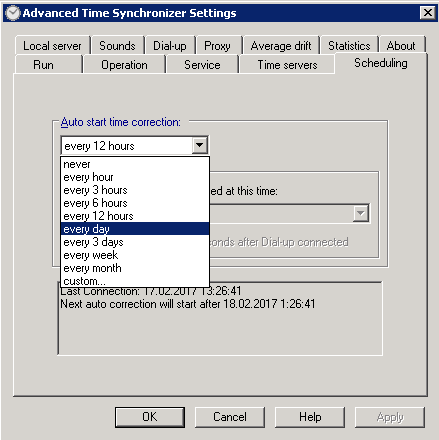


Fig. 8‑12

1. In the main window of the program press . In block **«Time server»** will appear FIBERTEST monitoring system server time and difference between it and module system time. Press button  and module system time will be fixed. (Fig. 8‑13). Close the program.

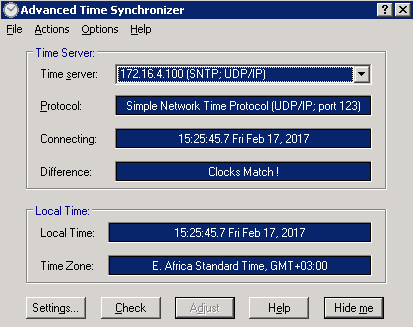


Fig. 8‑13

1. It is recommended to monitor time synchronization process within a few days after the configuration. To do this, in the window **«Setting»** of the program select tab «**Statistics»** and make sure there are records of past synchronizations (Fig 8‑14). Then you can turn off the saving of statistics by checking the box next to the “Do not save statistics” item.

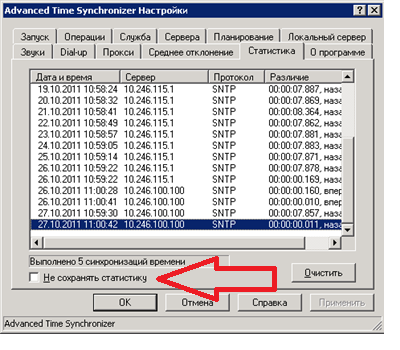


Fig. 8‑14