Software Projects and Innovations

Tariscope 4.x

Administrator's Guide

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Contents

Purpose

This document provides administrator guidance for how to set up, configure and maintain the **Tariscope Enterprise 4.x** or **Tariscope Provider 4.x** editions. Further in the text, if there is not need to clarify the edition, the **Tariscope** name is used.

Introduction

Tariscope Enterprise 4.x is a call accounting software that is intended for companies which use telephone systems (PBXs) and Internet equipment for internal needs.

Tariscope Provider 4.x is a telecommunications billing system that is intended for telecommunications service providers.

Tariscope administrator must have knowledge of the operating system Windows 10/8.1/8/2012/2008 R2/7/ (specifically the one used) at the advanced user, to have a basic level of knowledge in database management systems, particularly Microsoft SQL Server.

Chapter 1 Installation

Advance preparation

Before the Tariscope installation, perform the following steps:

- Define what the Microsoft SQL edition we will use as a core of Tariscope.
- Select the option to install the system.
- Select the appropriate server (computer), you will install the system.

Additional dependencies

The **Microsoft .Net Framework 4.5.2** is used to Tariscope. If the computer, on which you install Tariscope, does not have this Framework but the computer has a connection to the Internet, Tariscope will automatically install this Framework. In case of the Framework is absent and the computer does not have a connection to the Internet before you install Tariscope, download and install Microsoft .Net Framework 4.5.2.

The Tariscope installation package includes Microsoft SQL Server 2008 R2 Express. You can connect the Tariscope database to any other Microsoft SQL Server versions such as Microsoft SQL Server 2014/2012 and use different editions.

Installation

Tariscope contains different installation packages for Tariscope desktop applications, Web applications and Tariscope Personal Area.

1.1 Installation of the Tariscope desktop applications

To install the Tariscope desktop applications you must have administrator rights.

You can find the latest release of Tariscope 4.x at the Tariscope site.

Start **ts40setup.exe** file.

The **Installer Language** window appears as shown in Figure 1.1.1.

Choose the application language. Now the software is available in the following languages:

- English,
- Belorussian,
- Dutch,
- German,
- Russian,
- Ukrainian.

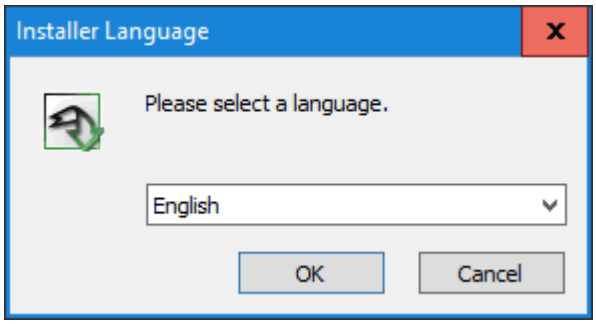


Figure 1.1.1

Click **OK**. The License Agreement window appears as shown in Figure 1.1.2.

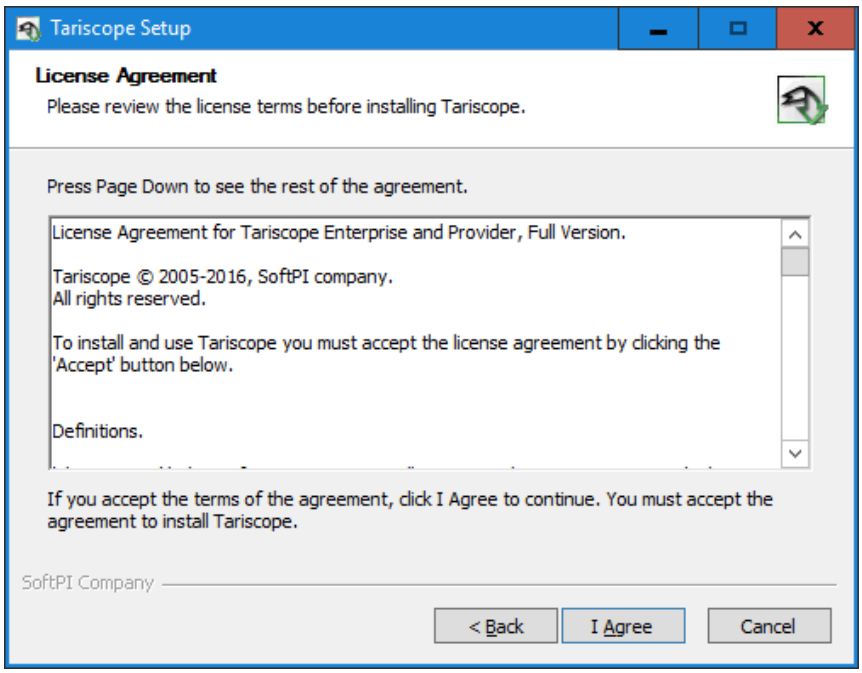


Figure 1.1.2

Read the license agreement and if you accept the terms of the agreement, click **I Agree**. Otherwise, click **Cancel** to stop the installation.

When you choose **I Agree**, the next program window appears as shown in Figure 1.1.3.

Select one of the options for installing the Tariscope applications:

- **Tariscope server with internal Microsoft SQL Server Express.**
- **Tariscope server without SQL Server installation.**
- **Client applications only or Tariscope version update.**

When you select **Tariscope server with internal Microsoft SQL Server Express**, the following applications are installed:

- Microsoft SQL Server 2008 Express edition,
- Tariscope database,
- Tariscope Server (the TSMain service),
- all other applications of the Tariscope system.

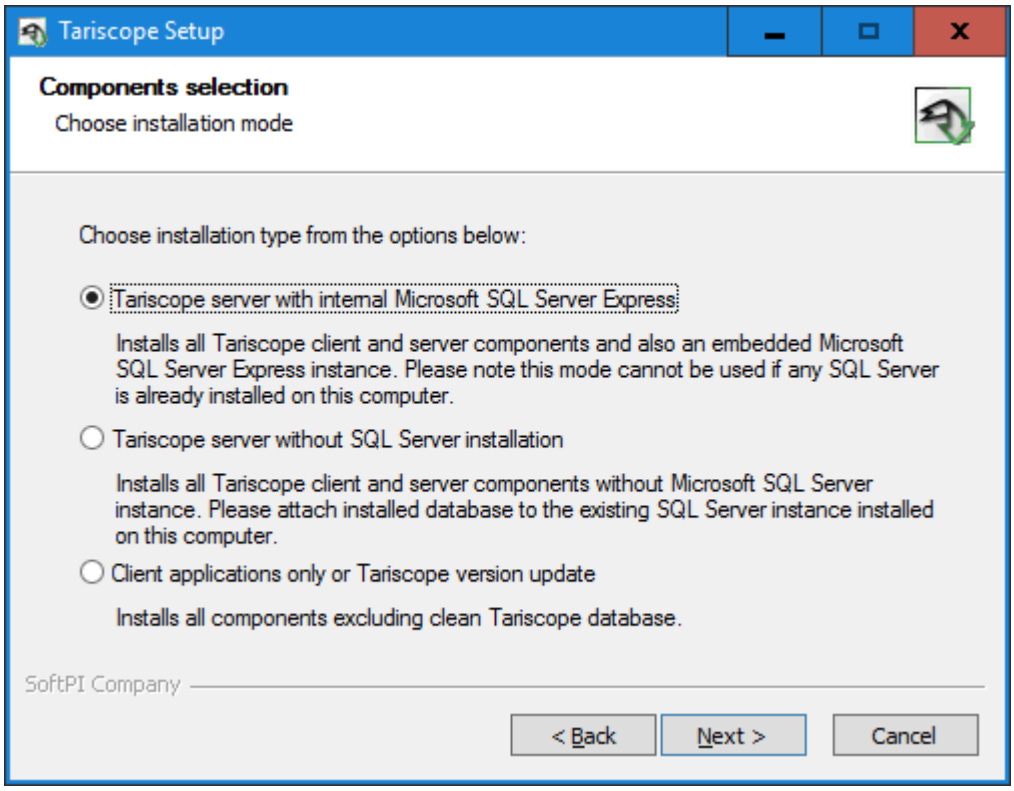


Figure 1.1.3

Do not use this choice when the computer has previously installed Microsoft SQL Server or you will use Microsoft SQL Server on another server.

When you select **Tariscope server without SQL Server installation**, the following applications are installed:

- Tariscope Server (the TSMain service),
- Tariscope database,
- all other applications of the Tariscope system.

The empty Tariscope database is connected to a pre-set Microsoft SQL Server. This choice does not involve installing Microsoft SQL Server during installation of Tariscope.

When you select **Client applications only or Tariscope version update**, the following applications are installed:

- only the Tariscope applications.

Installing the Tariscope database and Microsoft SQL Server are not executed. This option is recommended when installing a newer Tariscope version on the server where a previously Tariscope version was installed, or when a distributed architecture of the Tariscope system is used and you need to install only specific Tariscope application on a computer.

After selecting the appropriate installation option of Tariscope, click **Next**. The installation window takes a form as shown in Figure 1.1.4.

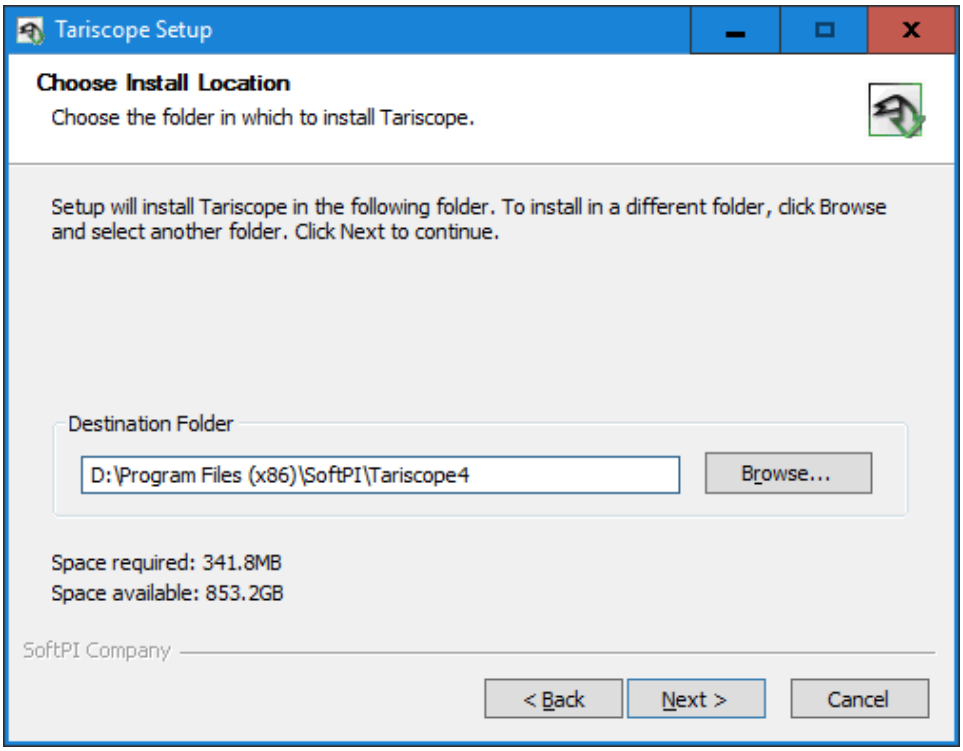


Figure 1.1.4.

This window allows you to specify a folder for installation. By default, the folder is located: **\Program Files (x86)\SoftPI\Tariscope4** .

If necessary, you can change the folder to another. And then click **Next**. The program window takes a form as shown in Figure 1.1.5.

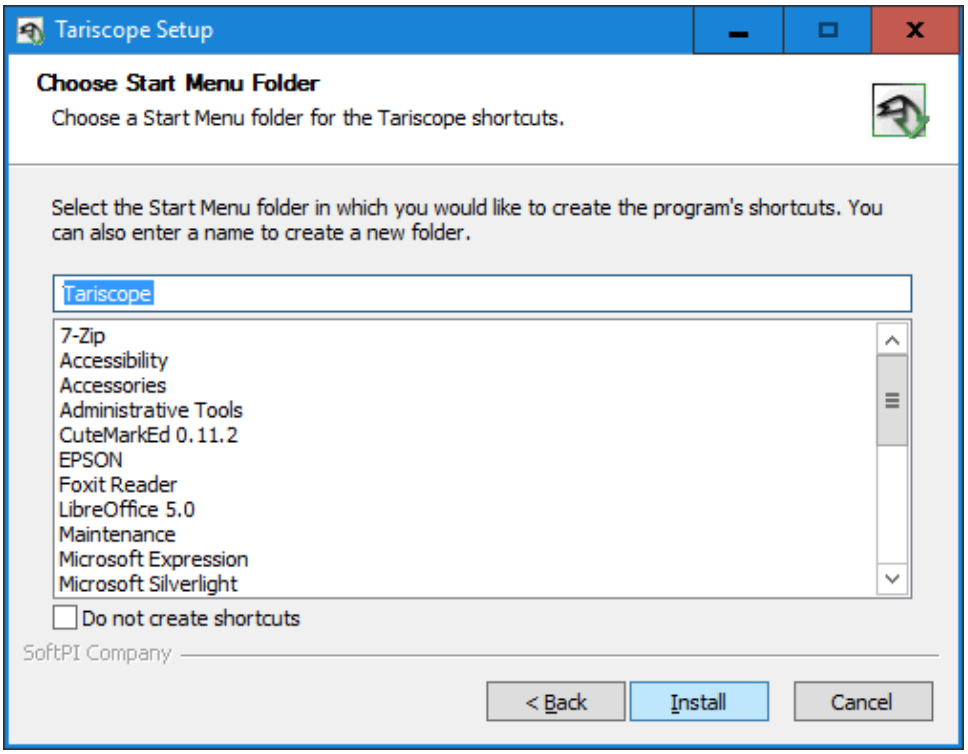


Figure 1.1.5

This window allows you to specify the folder name in the **Start** menu of Windows. By default, the **Tariscope** folder is used. Click the **Install** button. The installation process begins. It can take some time.

If you had selected one of the following options: **Tariscope server with internal Microsoft SQL Server Express** or **Tariscope server without SQL Server installation**, during installation of Tariscope, the empty Tariscope database is connected to Microsoft SQL server. This **Connect to database server** window appears. It allows to enter the parameters for connection to the database. The window is shown in Figure 1.1.6.

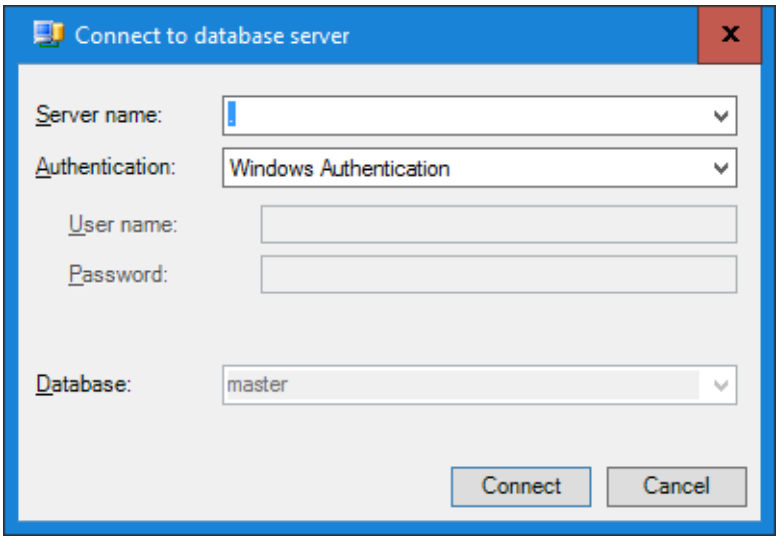


Figure 1.1.6

The **Server name** list displays the name of the computer. Click on this list, and the program will automatically search for Microsoft SQL Server on the local computer. If the program finds the SQL Server, it displays its name in the list. Select this name. If the search was unsuccessful, or SQL server is located on another computer, enter the name of the computer (or IP address) and the name of the SQL server in the list.

From the **Authentication** list, select the type of authentication that will be used to connect to the SQL Server:

- **Windows Authentication,**
- **SQL Server Authentication**.

For the **Windows Authentication**, enter a login and password, which are used for Windows Logon.

In the second case, the you must enter a name and password with which you connected to the SQL Server.

Next, click **Connect**. The process of connecting the Tariscope database to the SQL Server is started.

The final window of installation announces the completion of the installation process, and you can immediately start the Tariscope system (the **Run Tariscope** check box is selected by default). If you want to view the **ReadMe** file, select the **Show ReadMe** check box.

Click **Finish.** The installation process is completed.

1.2 Installation of the Tariscope Personal Area

The **Tariscope Personal Area** (hereinafter Personal Area) allows customers (subscribers) to have a Web access to personal accounts, call information, network traffic information, etc. The Personal Area can be used with the Tariscope Enterprise and Tariscope Provider editions.

The Personal Area may be installed on any computer where Microsoft IIS 7 or above was installed. This computer must have a network access to the server where the Microsoft SQL Server with the Tariscope database works. This computer must have .Net Framework 4.0 or above.

The Personal Area is not included in the Tariscope installation package. It is contained in the file: **ts.35.web.exe**. The installation package can be applied to both Tariscope 4.x and Tariscope 3.5.

Start the file. The installation window appears as shown in the Figure 1.2.1.

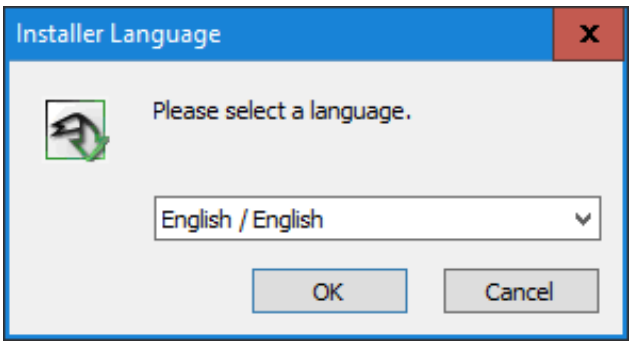


Figure 1.2.1

The Personal Area supports four languages:

- English;
- German;
- Russian;
- Ukrainian.

Select the required language and click **OK**. The installation window will be as shown in Figure 1.2.2.

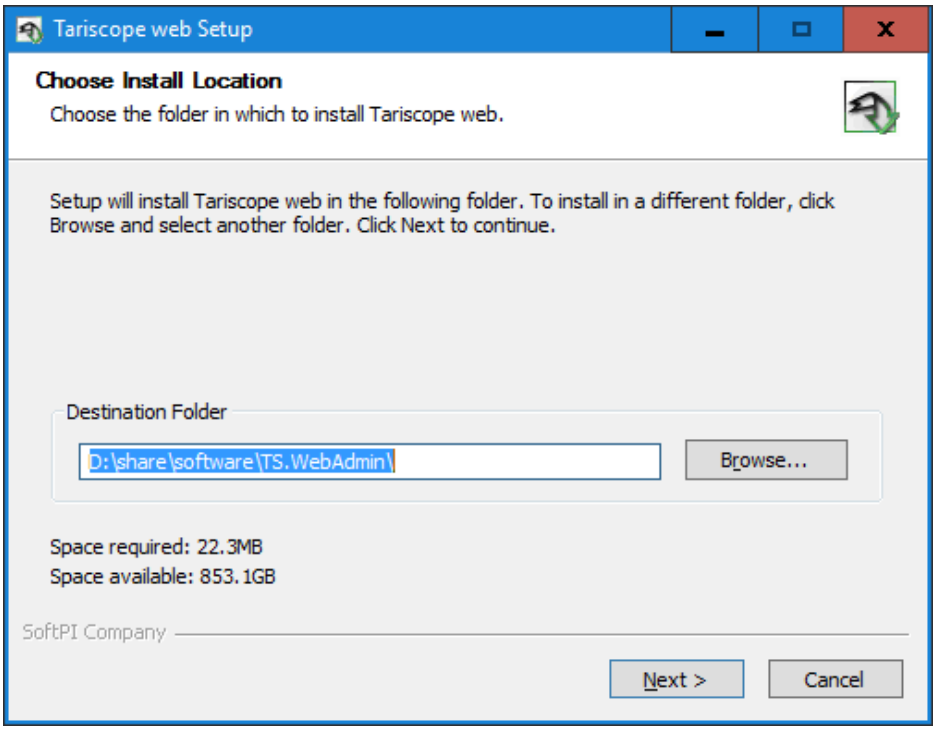


Figure 1.2.2

By default, as an installation folder is offered a folder that Microsoft IIS uses. You can select any folder, but in this case a path to the folder must be adjusted in IIS.

Click **Next**. The installation window will be as shown in Figure 1.2.3.

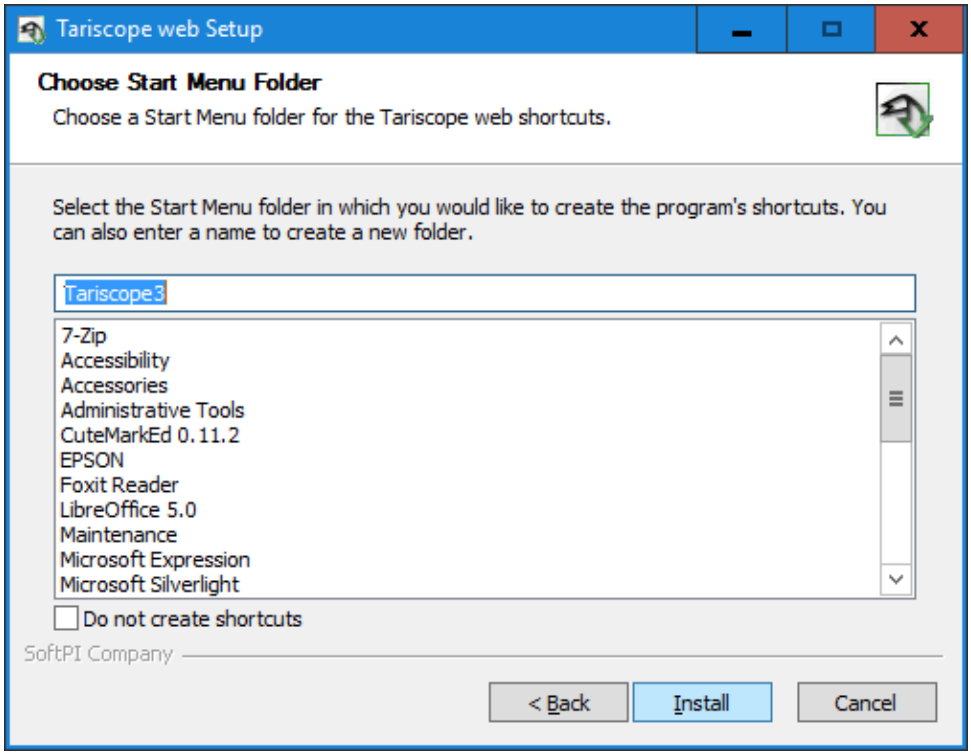


Figure 1.2.3

The window offers the choice of the Windows Start Menu folder. By default, the **Tariscope3** folder is offered. Leave this name or enter a new one, and click **Install**. The installation process starts and the installation window appears as shown in Figure 1.2.4.

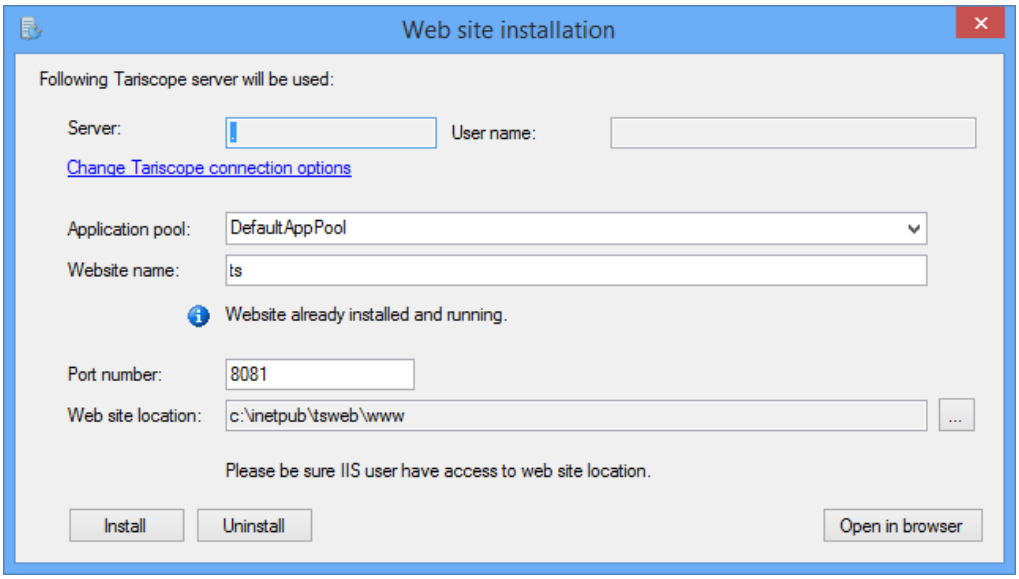


Figure 1.2.4

The **Server box** displays a name of SQL server. The "dot" in the box means that SQL server is located on the same computer where the Tariscope Persoan Area was installed.

The **User name** box displays a user name which is used to connect to SQL server.

To change these parameters, click on the **Change Tariscope connection options** link. As a result, the **Connect to database server** window appears as shown in Figure 1.2.5.

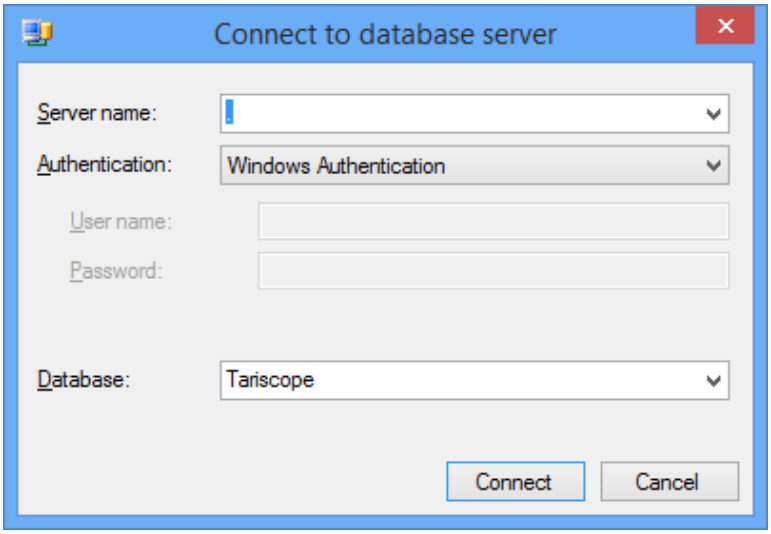


Figure 1.2.5

In the **Server name** list, type a server name or its IP address.

In the **Authentication** list, select the required type of authentication. There are options:

- **Windows Authentication;**
- **SQL Server Authentication**.

The parameters of Windows Authentication are used for the first option. You do not need to enter any parameters.

For second option, type the required parameters.

Click **OK**. The entered parameters are displayed in the window shown in Figure 1.2.4.

In the **Web site installation** window (Figure 1.2.4), in the **Application pool** box, select a pool in which the Web site will started. By default, **DefaultAppPool** is offered. If necessary, change this pool on any other from the list.

The **Website name** box displays the name of Web site. By default, this name is "**ts**". Change the name on other one, if necessary. It is an internal name of the site.

An access to the site is determined by the port number that is specified in the **Port number** box.

The path to the files of the site is specified in the **Web site location** box. If necessary, change it. The basic condition is that the path should be available to the user of IIS.

Click on the **Install** button. The installation process is started.

1.3 Installation of the Tariscope Web administration

The **Tariscope Web administration** application is a part of the Tariscope system. It is a Web application intended to the Tariscope administrators, users and customer managers of telecommunications service providers. It allows to configure some parameters of Tariscope, manage customers (subscribers), analyze calls, keep records of payments from customers and more. Now Tariscope Web administration does not fully support all features of the Tariscope desktop applications.

Tariscope Web administration can be used with the Tariscope Enterprise edition and Tariscope Provider edition.

To install the Tariscope Web administration you must have administrator rights.

Start ts40-webadmin-setup.exe file. The installation window appears as shown in Figure 1.3.1.

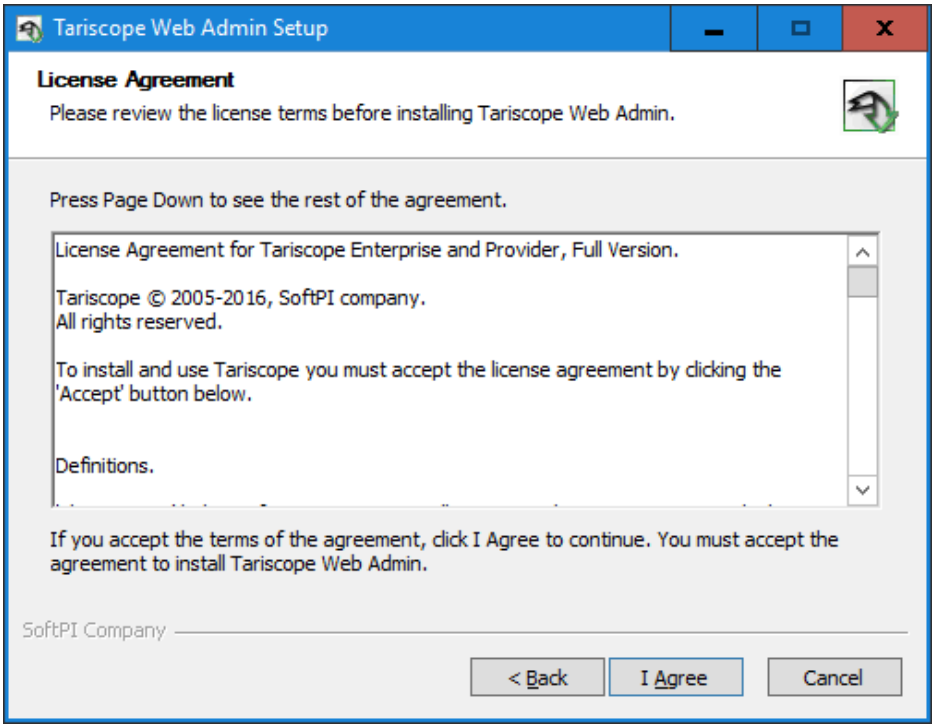


Figure 1.3.1

This window contains a license agreement. You must read the agreement. If you accept the terms of the agreement, click **I Agree**. The installation window will be as shown in Figure 1.3.2.

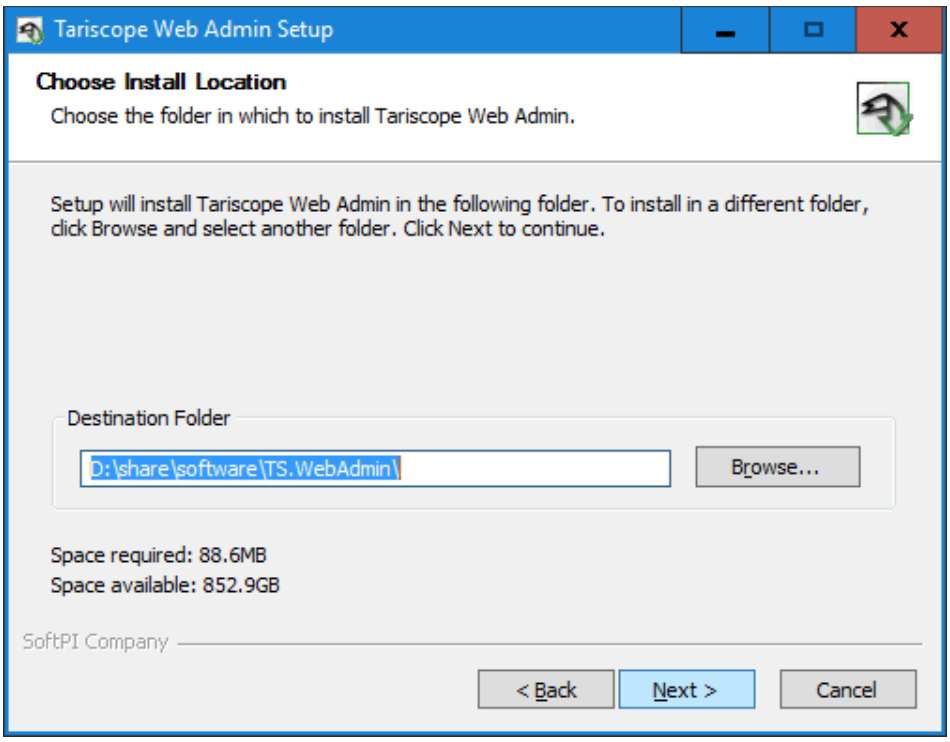


Figure 1.3.2

Select a destination folder and click **Next**. The installation window will be as shown in Figure 1.3.3.

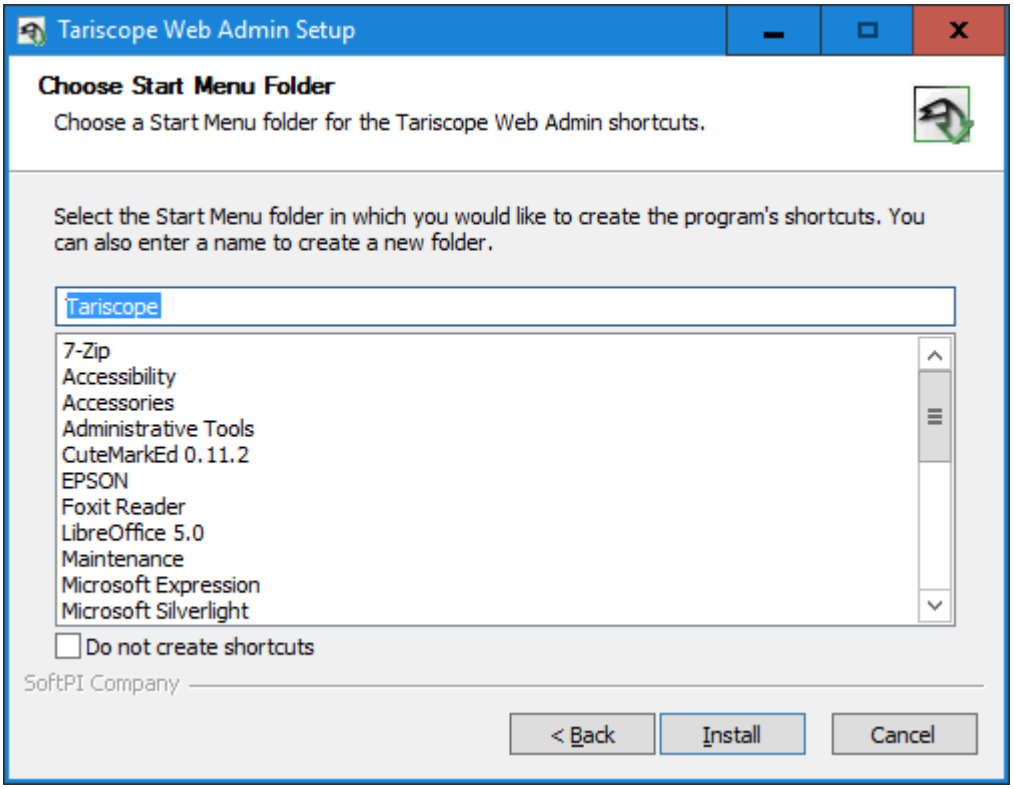


Figure 1.3.3

Select the **Start Menu folder** in which you would like to create the the program's shortcuts. Click **Install**. The installation process is started.

Chapter 2 Activation

The installation package of Tariscope contains a trial activation key for the Tariscope Provider edition. The key provides a support for 15 telephone numbers (extensions) or IP addresses and works for 15 days. The Tariscope Provider edition includes all features of the Tariscope Enterprise edition and some additional features.

If you purchased the Tariscope licence, you should activate the license.

If you have not yet purchased Tariscope, but you want to try it with a required number of subscribers (for the Tariscope Enterprise edition) or telephone numbers and IP addresses (for the Tariscope Provider edition) for one month, you should create a test activation request and send one to the support service.

To obtain the Tariscope activation key you should generate an activation request on a server where the Tariscope core is located. The Tariscope Main server is the Tariscope core. The Tariscope activation key should be applied only for this server. If the server has a connection to the Internet, it sends the request automatically.

To create a request and apply a permanent or test activation key, use the **Activation wizard**. The Activation Wizard is available from the following programs: Tariscope or Tariscope Management.

In any of these programs, click on the menu: **Help** → **Activate**. The window appears as shown in Figure 2.1.

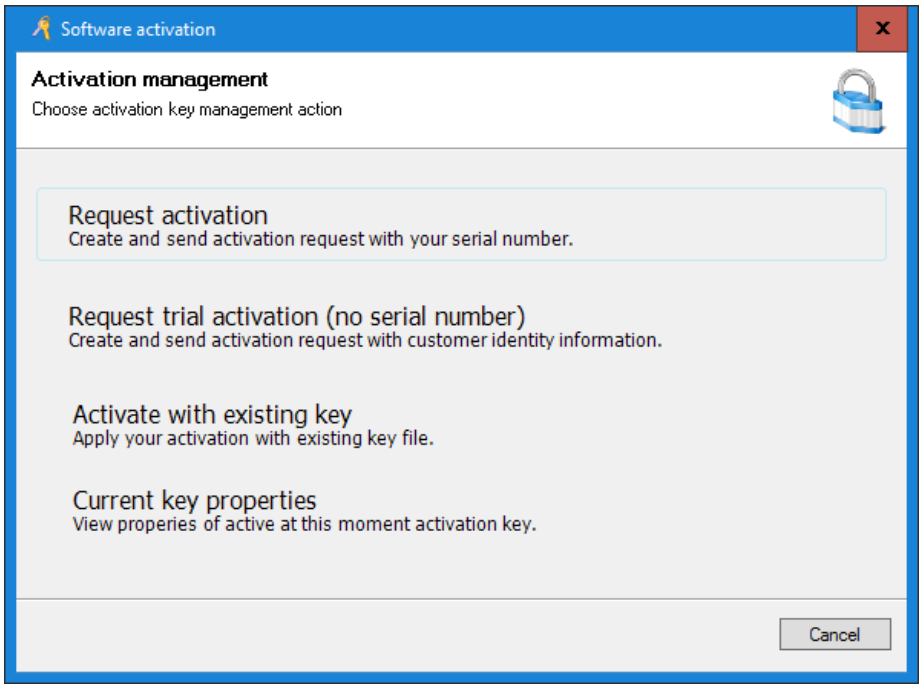


Figure 2.1

The Tariscope activation consists of the following steps:

1. Creating and sending an activation request file.
2. Applying an activation key.

If the computer, where the request is generated, has a connection to the Internet, sending a request, receiving and applying an activation key are performed

automatically by Tariscope. The automatic generation and applying the key are performed by the Tariscope Main service.

In case this server has no Internet connection, the Tariscope administrator should send the request and get the activation key himself by e-mail, and then apply it using the Activation Wizard.

Activation request

If you purchased the Tariscope license, click on the **Request activation** in the window shown in Figure 2.1. The **Wizard** window will be as shown in Figure 2.2

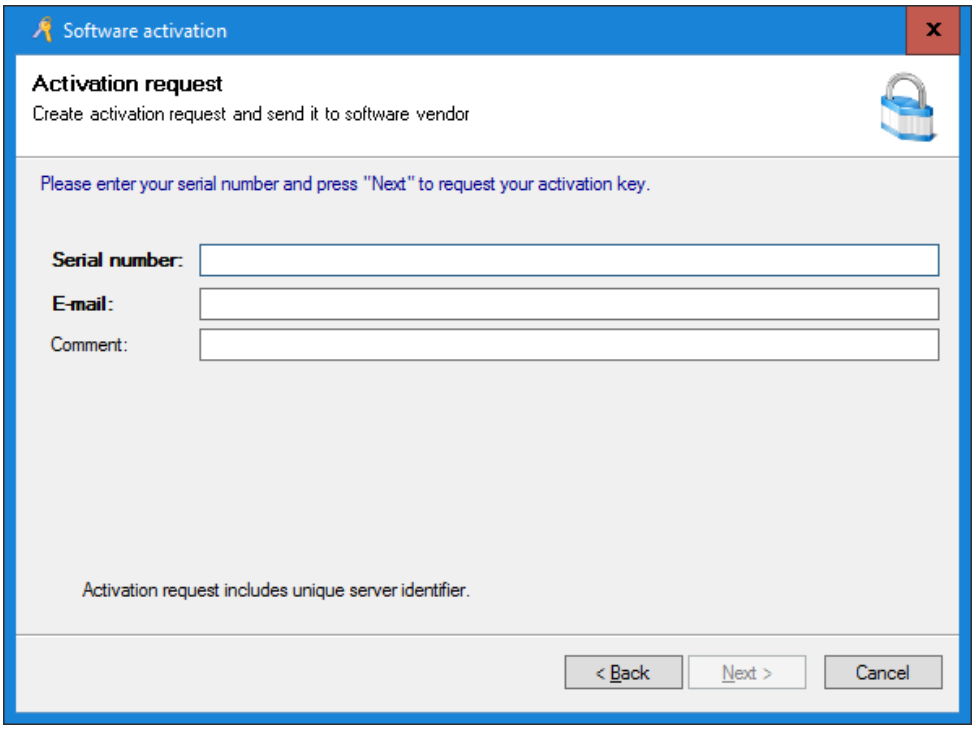


Figure 2.2

In the **Serial number** box, type a serial number of your license.

In the **E-mail** box, type your e-mail address. If there is no possibility to send the activation key directly to Tariscope, the key will be sent on your e-mail address.

If necessary to send any additional information for SoftPI, you can type it in the **Comment** box.

After you have filled the **Serial number** and **E-Mail** boxes, the **Next** button becomes active.

Click this button. The registration information will be sent to SoftPI, if the server has a connection to the Internet.

If Tariscope determines that the Internet connection is not available, a message appears as shown in Figure 2.3.

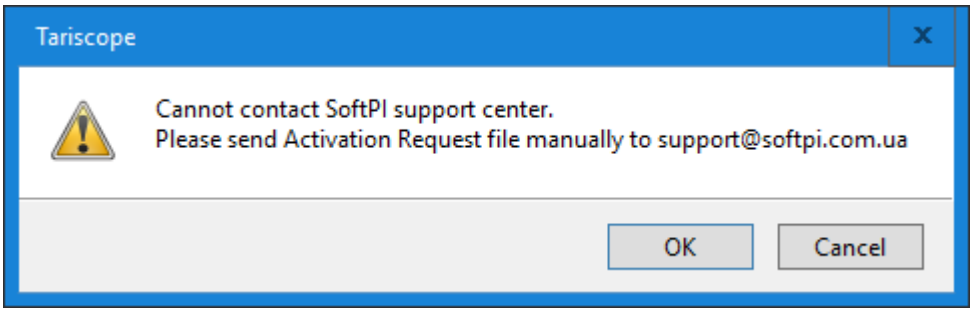


Figure 2.3

Click OK and select a folder to save the request file.

Send this file to the email address: **support@softpiua.com**.

In case you wish to try Tariscope for one month, click on **the Request trial activation (no serial number)** (Figure 2.1). The window will be as shown in Figure 2.4.

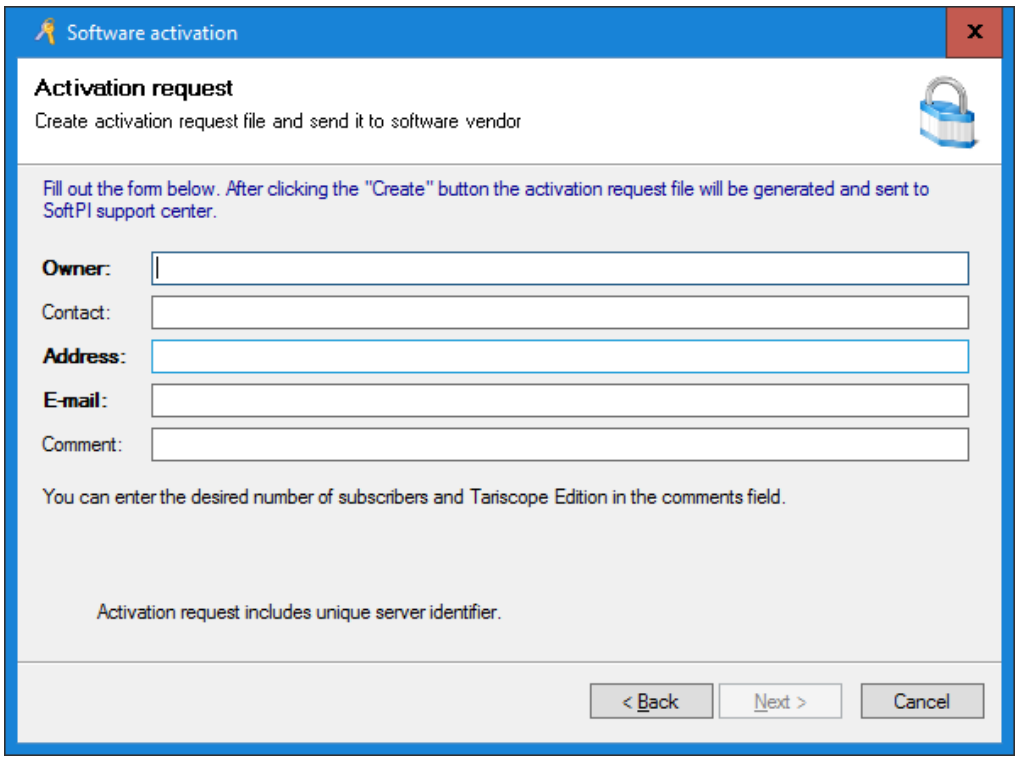


Figure 2.4

In the **Owner** box, type the full company name.

In the **Contact** box, type the contact phone numbers.

In the **Address** box, type the company address.

In the **E-mail** box, type the e-mail address on which the activation key will be send, if the computer has no Internet connection.

In the **Comment** box, type the required Tariscope edition (Enterprise or Provider) and the required number of subscribers or telephone numbers (extensions).

Click **Next**. The request information is sent to SoftPI, if a computer with Tariscope has the Internet connection.

If Tariscope determines that the Internet connection is not available, a message appears as shown in Figure 2.3. Follow the steps mentioned in the window.

Applying of the activation key

If the request file is sent automatically, receiving the activation key and applying it are performed automatically.

To verify that the activation key has been obtained, start the Activation Wizard (Figure 2.1) and select the **Current key** properties. The Activation Wizard window will be like shown in Figure 2.5.

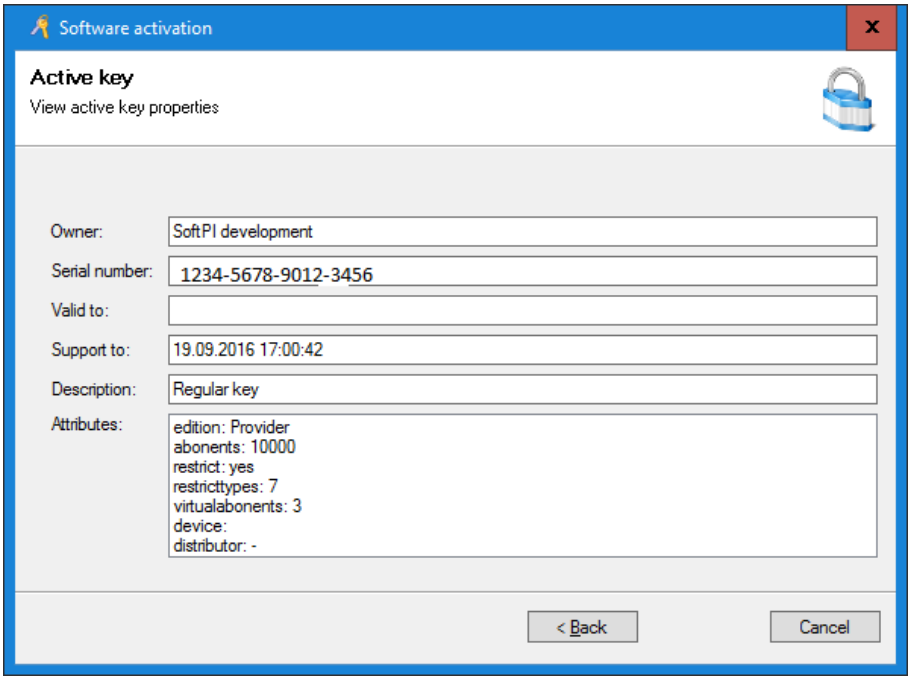


Figure 2.5

If you have recieved the activation key by e-mail, click on **Activate with existing key** (Figure 2.1). The wizard will be as shown in Figure 2.6.

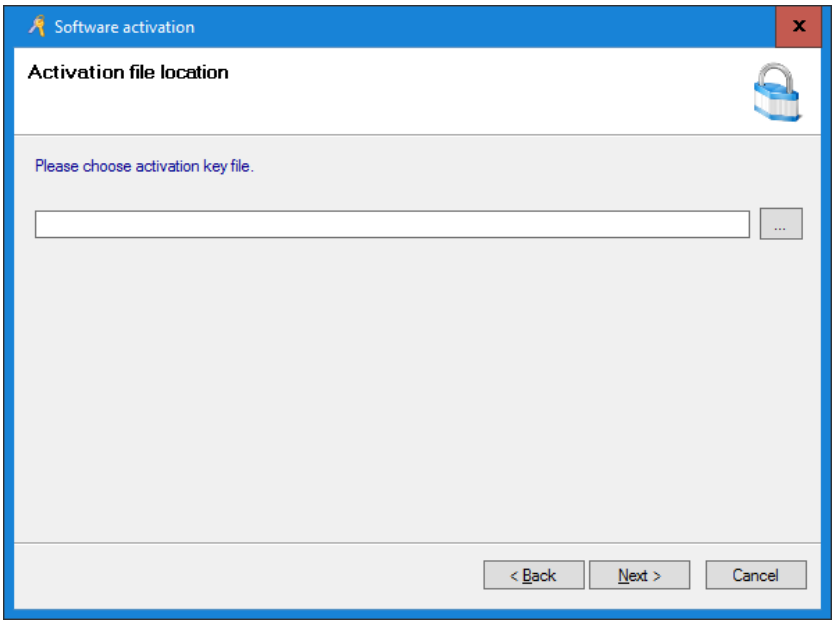


Figure 2.6

Click the **"..."** button and select a file with the activation key. Click **Next**. The window dispalys parameters of the activation key. An example of this is shown in Figure 2.5.

Click **Cancel** to finish off the activation of Tariscope.

Chapter 3 Tariscope configuration

The Tariscope configuration can be implemented in a number of programs that are included in the Tariscope system. In depending on your configuration of Tariscope, the configuration may be limited by one computer or be implemented on several computers. After the installation and the initial start, Tariscope automatically starts **Initial configuration wizard**.

3.1 Initial configuration wizard

The Tariscope Initial configuration wizard provides a basic configuration of the system, facilitating and accelerating this process.

The wizard allows to configure:

- Country and area codes.
- Telecommunications node name (company name).
- VAT percent.
- Main currency.
- Currency profile and a service for automatic update of currency rates.
- Telecommunications equipment type.
- Advanced settings of telecommunications equipment.
- Long distance dialing and international dialing prefixes.
- The data source through which the data will be collected (a serial port, TCP server/client, FTP server/client, etc.), and its parameters.
- Service provider, through which telephone system is connected to the telephone network (PSTN).
- Access code to PSTN.
- The internal numbering plan.
- Prefixes.
- Parameters of Flow collector if Tariscope works with a router, access server, etc.
- Import of subscribers' (customers') parameters.
- Parameters of the database backup, archiving and optimizing.

In addition, the wizard allows to activate your Tariscope license.

After completing the initial configuration, if necessary the Tariscope administrator can change these settings at any time or configure the new parameters that are not available in the wizard. For this purpose you can use one of the programs:

- Tariscope (**Service** menu → **Tariscope Management**),
- Tariscope Management,
- Tariscope Web administration.

Start

The Tariscope initial configuration wizard is automatically started after installation and initial startup of the Tariscope program (Figure 3.1.1). In the Tariscope Management program the wizard is not available. The administrator can omit any of the steps of the wizard and continue a configuration of these parameters at any later time, or opt out of this configuration.

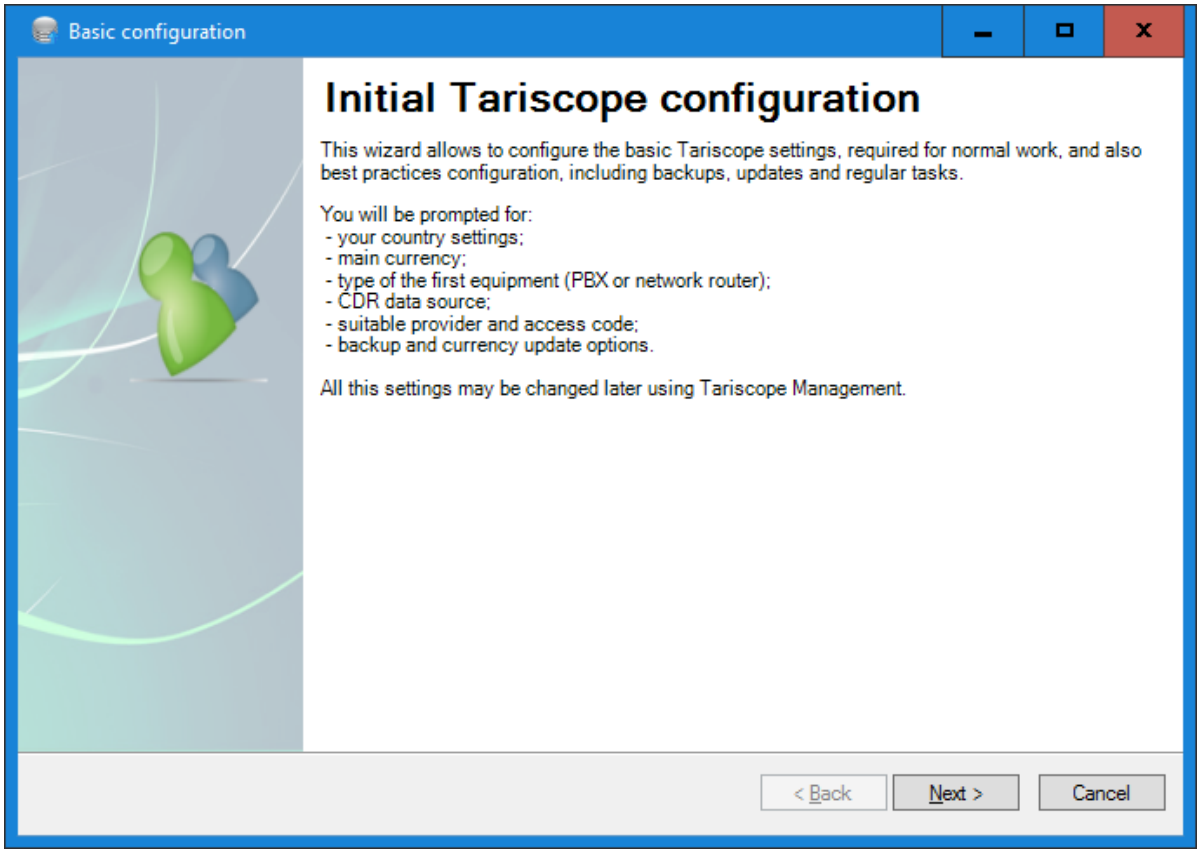


Figure 3.1.1

The first window of wizard is an information window.
After acquaintance with contents of the first window, click **Next**.

Configuration steps

Step 1. Activation of Tariscope

The first step offers to activate Tariscope (Figure 3.1.2).

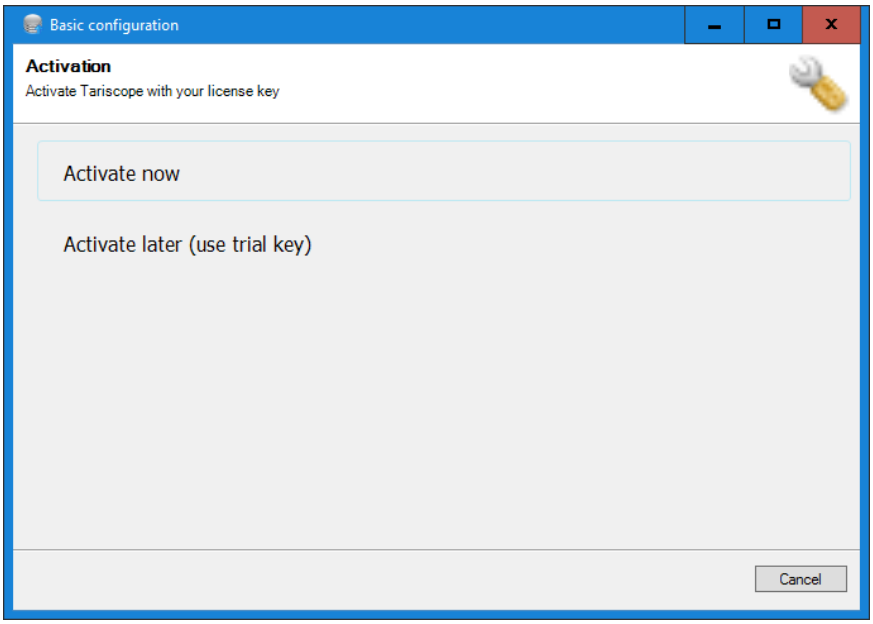


Figure 3.1.2

If you are just testing Tariscope, click **Activate later (use trial key**). As a result, you pass on to the next step of the configuration.

If you purchased Tariscope, click **Activate now**. Tariscope Activation Wizard appears as it is described in the Activation article. Follow the steps considered in the article, and then go to the next configuration step.

Step 2. Input of country and area codes

The **Location settings** window appears (Figure 3.1.3). It allows to point out a location of telecommunications equipment (PBX or telephone exchange).

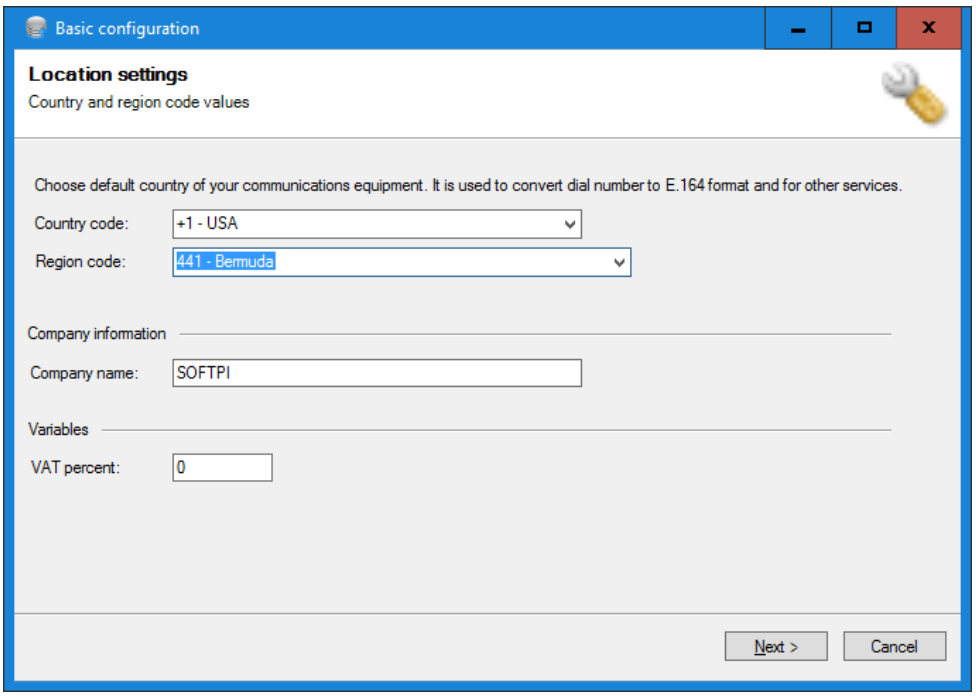


Figure 3.1.3

Settings of this windows are used for proper recognition of local, long distance and international calls.

In the **Country code** list, select a desired item.

In the **Region code** list, select on a desired item.

In the **Company name** box, type a company name or any other name. This name will be used as name of telecommunications node.

*The listed above parameters can be changed later in the **All nodes** page of the Tariscope Management program or in the **Tariscope Management -> All node** page of the Tariscope program.*

You can type percent of VAT in the **VAT percent** box, which can be used when you create reports on the cost of calls.

*In the future, this parameter can be changed in the **System variables** page of the Tariscope Management program or in the **Tariscope Management -> System variables** page of the Tariscope program.*

Click **Next**.

Step 3. Currency settings

The next window of the wizard lets you specify a main currency of the system. The currency will be used to calculate the cost of services (Figure 3.1.4).

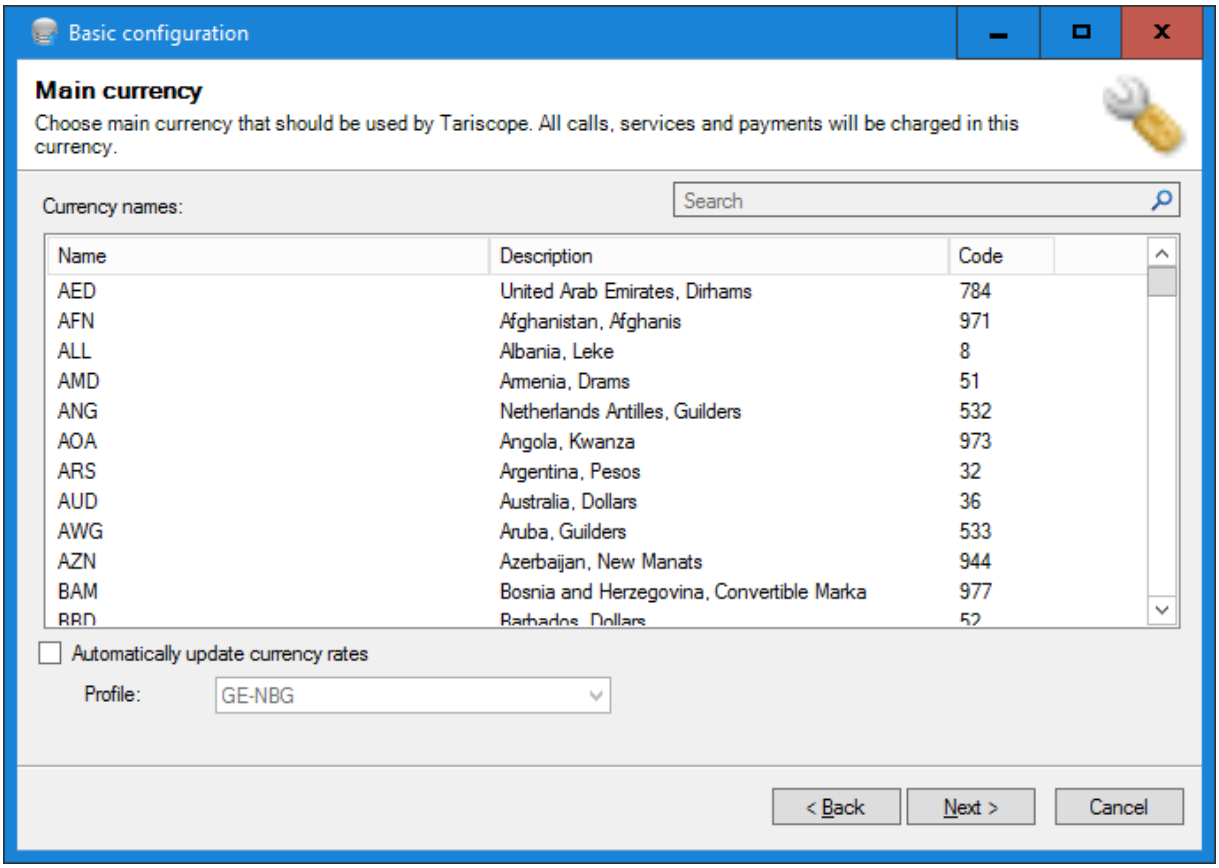


Figure 3.1.4

Not always you should choose as the main currency that is used in the settlements for communications services. For example, in Uzbekistan, rates of the Beeline service provider are set in U.S. dollars, and a payment is made in Uzbek sum

defined on the currency rate of the payment day. Therefore, if you set as the main currency - Uzbek sum, each call will be immediately calculated in Uzbek sums corresponding to the current rate. As a result, charges of the provider will not coincide with the data of Tariscope, since the provider calculates the total amount at the rate of the payment day. Therefore, in this case would be to choose as the main currency, U.S. dollar, and the recalculation to carry out in the Uzbek sums by the Tariscope report on the payment day.

There is another example. Let's consider the rates of Ukrtelecom (Ukrainian service provider). It has local and long distance rates are given in UAH (hryvnia), and international calls - in U.S. dollars, which are converted into hryvnia at the current rate on the date of the call. In this case, the correct choice of the main currency is the hryvnia. But for this provider you must daily type the rate of the current U.S. dollar to hryvnia in Tariscope. This input is possible, either manually or automatically using the ***Tariscope Jobs*** *mode.*

You can use a search to quickly find a currency. In the **Search** box, type either a currency code, or its name, or name of your country. Any of these options allows to quickly find the required currency.

When there are rates, for example, for the international calls, which are given in different currencies than the main currency, and it should be converted into the main currency at the current rate of the currency, check the Automatically update currency rates check box and select the appropriate profile. With this choice, the Tariscope Jobs mode will be daily automatically executed the task to update the currency rate.

Currently profiles are available for Ukraine, Russia, Georgia and Kazakhstan:

- **UA-NBU** — currency rates in relation to the UAH according to the National Bank of Ukraine.
- **UA-PIB** — currency rates in relation to the UAH according to the Prominvestbank of Ukraine.
- **GE-NBG** — currency rates in relation to the GEL according to the National Bank of Georgia.
- **RU-CBR** — currency rates in relation to the RUB according to the Central Bank of Russian Federation.
- **KZ-NB** - currency rates in relation to the KZT according to the National Bank of Kazakhstan.

If the profile for your country is absent, do not check this box. You can contact SoftPI support for help to create a currency profile.

You can change the main currency in the **Currency rates** mode of the Tariscope Management program or in the **Tariscope Management -> Currency rates** mode of the Tariscope program. In this mode you can also perform a manual input of currency rates. To automatically update currency rates, use the corresponding task in the **Tariscope Jobs** mode.

Click **Next**.

Step 4. Choice of telephone system type

The next window (Figure 3.1.5) allows to set a telephone system (PBX or telephone exchange) type.

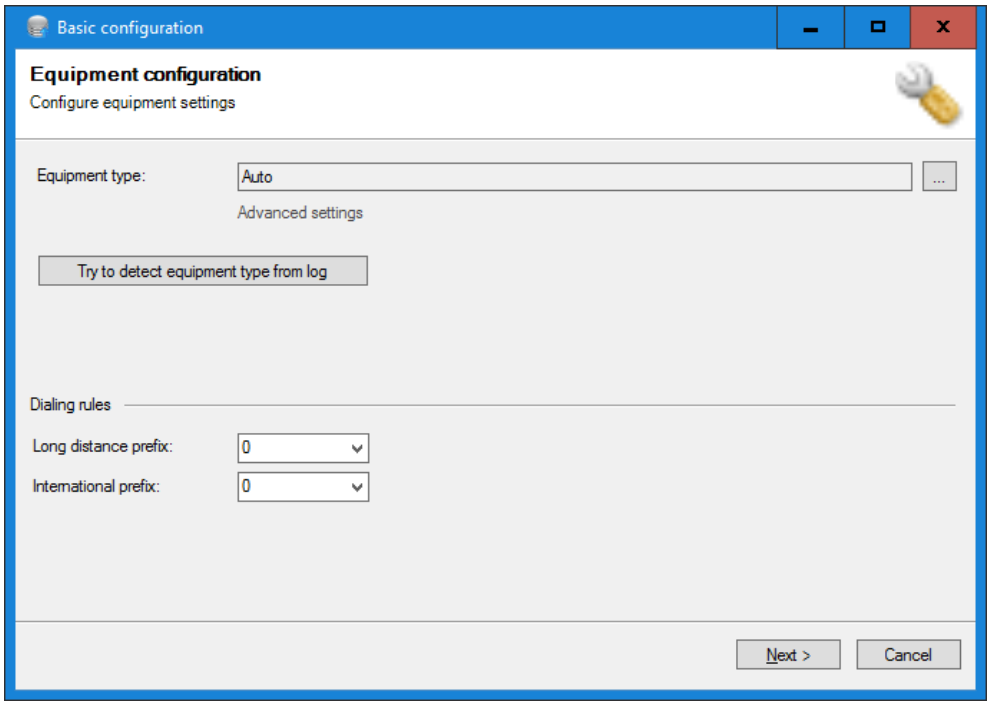


Figure 3.1.5

A choice of the telephone system type affects on the correctness of processing call information. When the choice is wrong, the processing of call information will not be executed or it will be executed with mistakes.

The choice of the desired type of telephone system is executed in the **Equipment type** box.

To install a specific type, click on the "..." button. The **Choose equipment type** window opens as shown in Figure 3.1.6.

Select the equipment type from the list, either directly or through a search box. After this choice, a telephone system name will be displayed in the **Equipment type** box of the window shown in Figure 3.1.5.

It is possible to specify additional parameters for some telephone systems. In this case, the **Advanced settings** link becomes active (Figure 3.1.5). If the link is active, click on it. As a result, the **CDR configuration** window appears. It is specific one for each type of telephone system. The example of the window for Cisco Unified Communications Manager is show in Figure 3.1.7.

If necessary, select the desired parameters in this configuration window.

If you do not know exactly the type of your telephone system, Tariscope can determine it himself in most cases.

Leave the **Auto** value in the **Equipment type** box. In this case Tariscope automatically determines the type of telephone system when it will process CDR. But for a number of PBXs (Alcatel OmniPCX Office, Aura, S8800, S8700, S8500, S8400, S8300, Definity) due to the fact that they have a custom CDR format it cannot be used the automatic recognition.

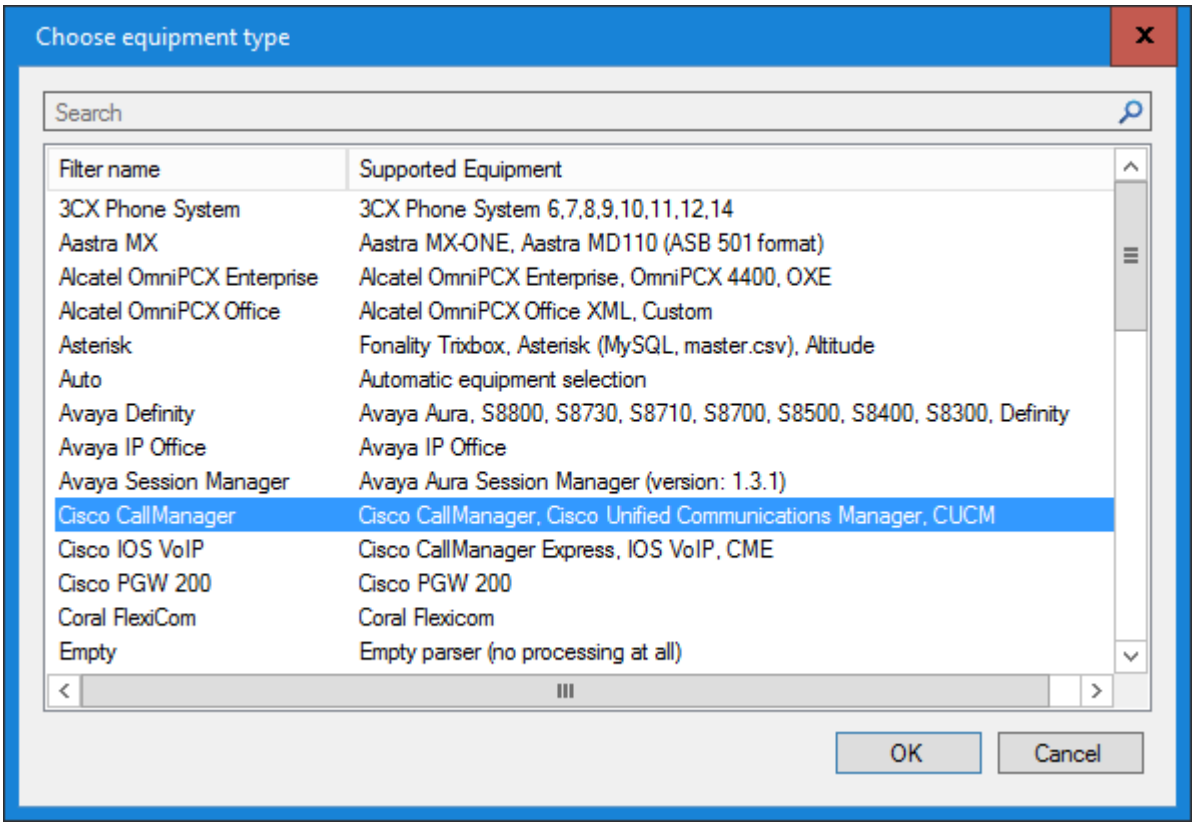


Figure 3.1.6

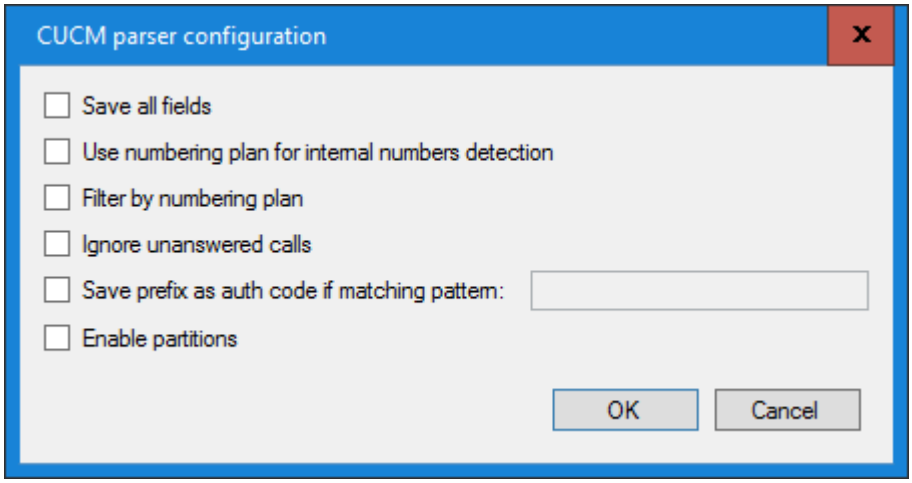


Figure 3.1.7

Then, in the **Equipment configuration** window (Figure 3.1.5), specify a long distance dialing prefix (the **National code** box) and international dialing prefix (the **International code** box). This information affects the correctness of the detection of the long-distance and international calls.

In the future you can change the type of telephone system and use the long distance and international prefixes in the following mode: ***All nodes*** → *required node* → ***Equipment*** → *specific equipment.*

Click **Next**.

Step 5. Choice of a data source

The **Call Detail Recording data source** window appears (Figure 3.1.8).

Select a source of information which is used to collect information about calls.

Configure parameters of the data source.

To define which a data source is used in your telephone system, see the documentation on your telephone system. Improper selection or improper configuration of source parameters will not allow receiving information from the telephone system.

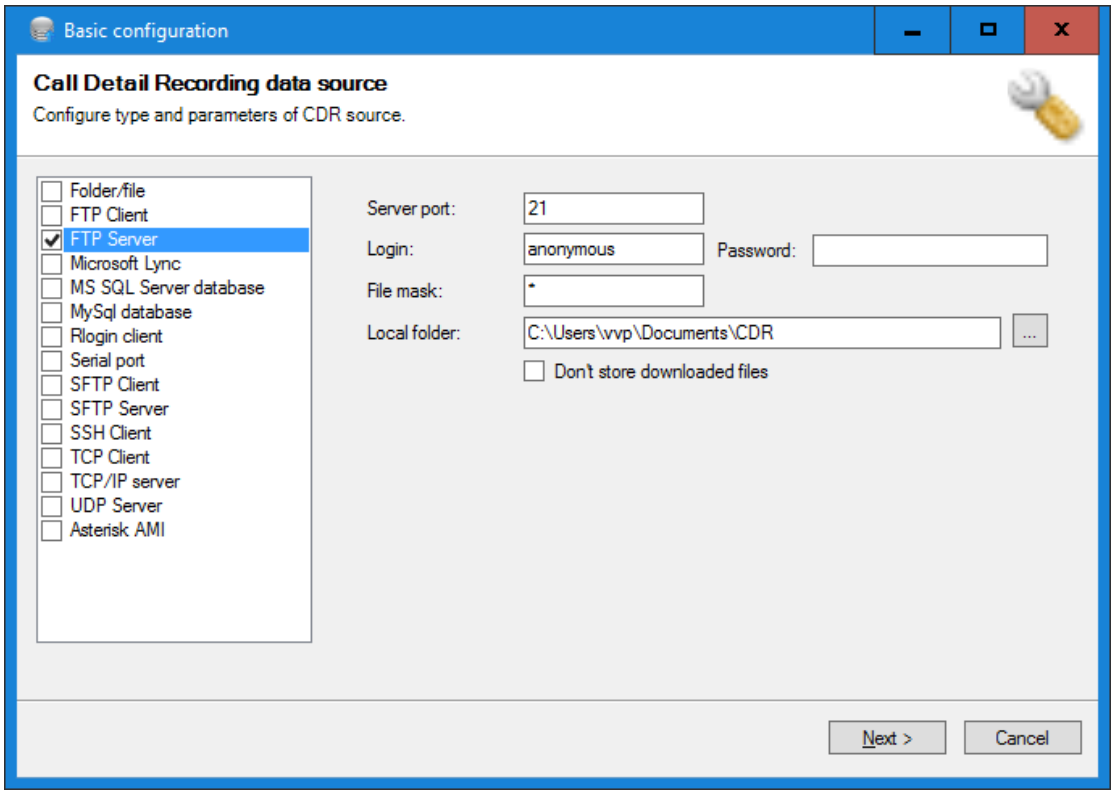


Figure 3.1.8

You can find a detailed description of all parameters for each type of data source in the Tariscope documentation or articles of the site.

As a result of the data source choice and assignment of its parameters, the profile will be created, which will be displayed in the **Data collection/CDR Observer** mode of Tariscope or Tariscope Management programs. At the same time the appropriate Windows service will be started.

*To make further changes to the data source profile, select the **Data collection/CDR Observer** mode in Tariscope or Tariscope Management programs. Profile will be named: "name_equipment type", where "name" takes the value entered in the **Company name** box in Figure 4.1.3, and "equipment type" takes name from the corresponding item in Figure 3.1.5. Click on the **Stop Service** link, the **Configure** link will become active. Click on this link and make the the desired changes*.

Click **Next**.

Step 6. Scripts

The Wizard window will be as shown in Figure 3.1.9.

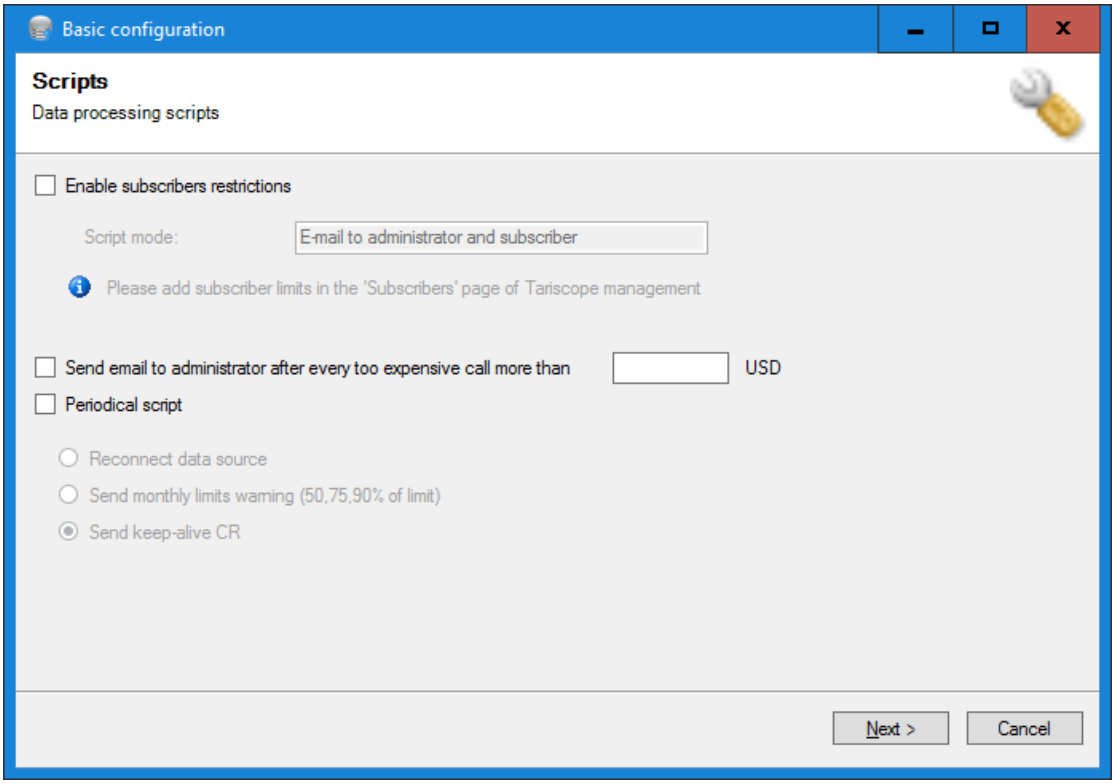


Figure 3.1.9

The **Scripts** window allows you to enable the performance of certain scripts when one of the following events occur:

- Exceeding the set limit for a subscriber if the Tariscope license contains the restriction feature of "Subscribers only";
- A subscriber made a call the cost of which is more than a predetermined value;
- The onset of a predetermined time.

If there are not events that you are interested in, click **Next**.

To enable a script to change a subscriber access to the PSTN, select the **Enable subscribers' restrictions** check box. The restriction feature has several options. This setting is applied only for the case of "Subscribers only". For complete configuration of the restriction feature after the Tariscope initial configuration, you should set specific restrictions for each subscriber.

To fully set the restriction feature after the Initial configuration, you should configure the restriction classes and set limits for subscribers.

If you want the system automatically sends an e-mail notification for each call with cost over a specific value, select the **Send email to administrator after every too expensive call more then** check box and type the maximum cost value of such calls. In the case, when the call data is processed in the off-line mode, do not use this setting.

Tariscope can perform one of the following actions:

- to reconnect the data source,

- to send limits warning (50, 75, 90% of limit). (This item is actual only if you have the license with the restriction feature),
- to send character CR to keep alive the connection with PBX.

Select **the Periodical script** check box. The period of performance of such script is 5 minutes.
Click **Next.**

Step 7. Choice a provider and rates

The Wizard window will be as shown in Figure 3.1.10.

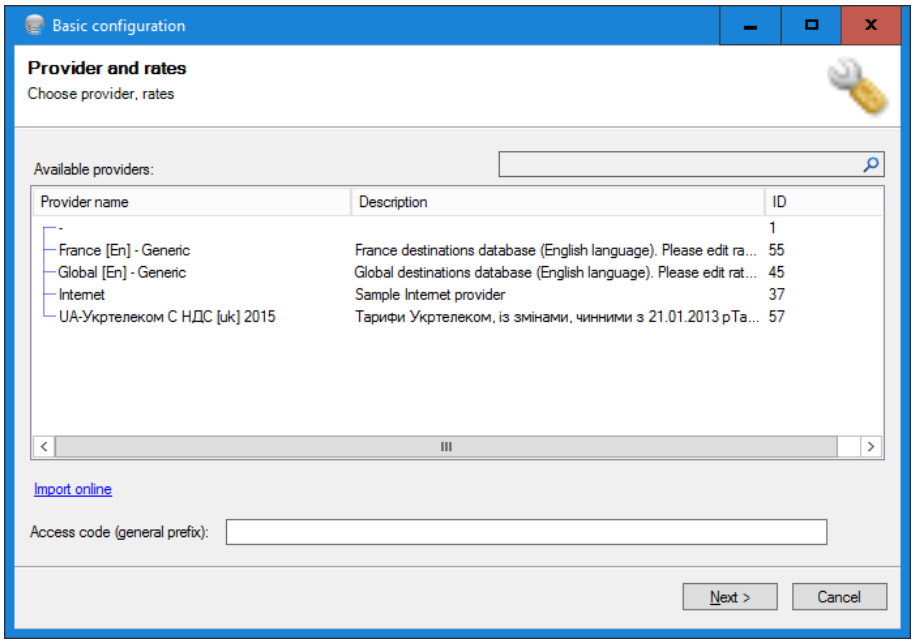


Figure 3.1.10

The **Provider and rates** window is intended to select a telecommunications service provider through which your telephone system is connected to the PSTN, if the parameters of this provider are present in Tariscope. The selected provider is associated with all routes (groups of lines), which the telephone system has. As a result, all calls are made through the telephone system, will be charged at rates of the selected provider. If your telephone system has several routes that are connected to different providers using different rates, then you can either pass through this configuration step or after the initial configuration you should correct parameters of routes.

The list of providers that are included in the installation package is shown in the window. In addition to them there are several providers that can be imported from the SoftPI Web-site. To get the list of providers, click on the Import online link. This list is shown in Figure 3.1.11.

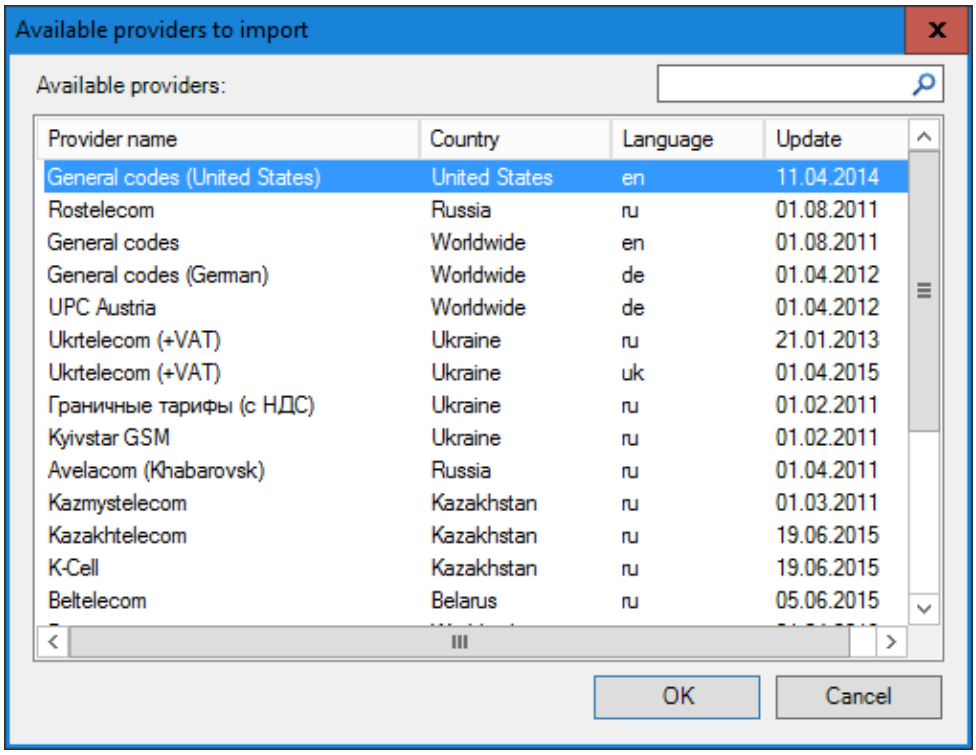


Figure 3.1.11

We recommend to select the **General codes** item which contains telephone area codes in English. Then you must configure rates as described in the documentation.

If necessary, in the **Access code** (general prefix) box, type an access code to a route, which is used in CDR (SMDR) in the dialed phone number.

For further adjustment of providers' parameters, use the ***Providers and rates*** *mode.*

To link a specific route of your telephone system with a service provider and change an access code to the route, select the ***All nodes*** *mode → specific node →* ***Equipment*** *items→ specific equipment →* ***Routes and gateways****.*

Click **Next.**

Step 8. Internal numbering plan

The Internal extensions window allows to set an internal numbering plan (Figure 3.1.12).

This setting can be useful when you must manually enter the large number of extensions in the Tariscope database, as well as you have telephone systems in which the definition of extension is difficult without a numbering plan. These are such telephone systems:

- Asterisk,
- Cisco IOS VoIP (CallManager Express - CME),
- Cisco Unified Communications Manager (CUCM),
- Microsoft IAS,
- Elcom.

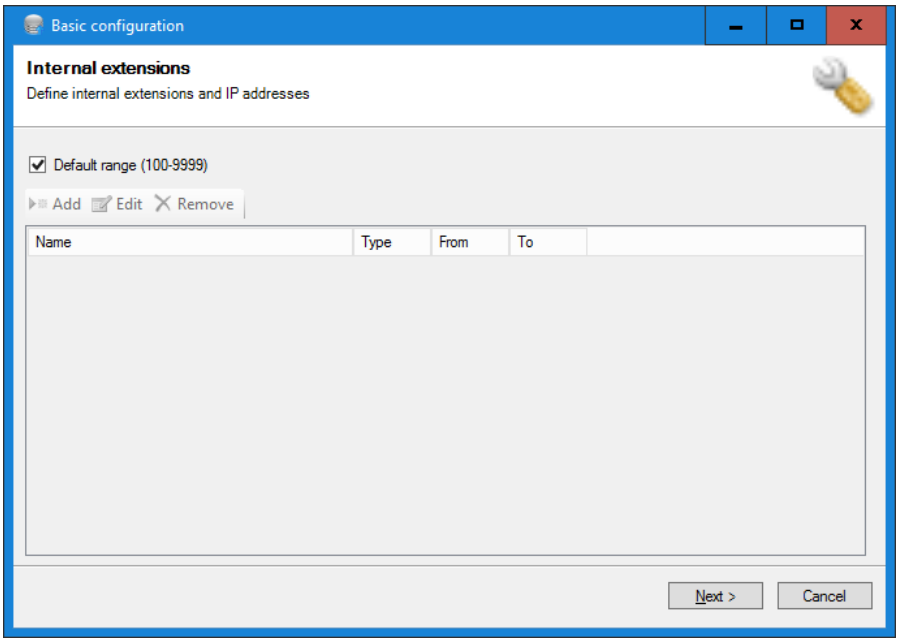


Figure 3.1.12

By default, it is assumed that the extensions can range from 100 to 9999.

To change this numbering plan, clear the **Default range (100-9999)** check box. Click **Add**, the **Numbering plan** window appears as shown in Figure 3.1.13.

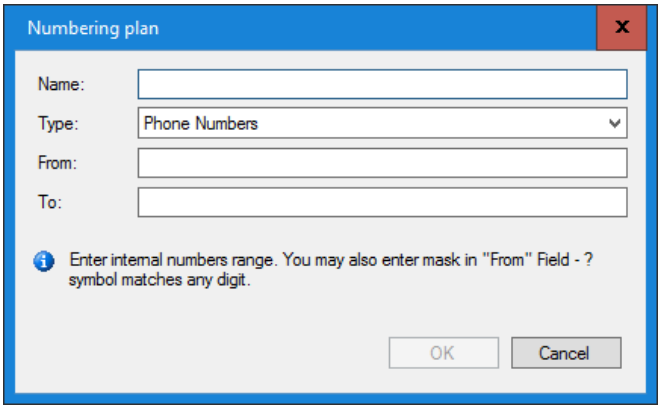


Figure 3.1.13

In the **Name** box, type the name of a numbering plan.

From the **Type** list, select the Phone Numbers item.

In the **From** box, type a telephone number from which the numbering range begins.

In the **To** box, type a telephone number which the numbering range ends.

Click OK.

If necessary, repeat the procedure.

To change the numbering plan in the future, use All nodes mode → specific node → ***Equipment*** *items → specific equipment →* ***Numbering plan****.*

After input, click **Next** in the window as shown in Figure 3.1.12.

Step 9. Configuration of prefixes

The **Prefixes** window (Figure 3.1.14) is used to change a prefix in dialed numbers for outgoing calls or telephone numbers of calling party for incoming calls.

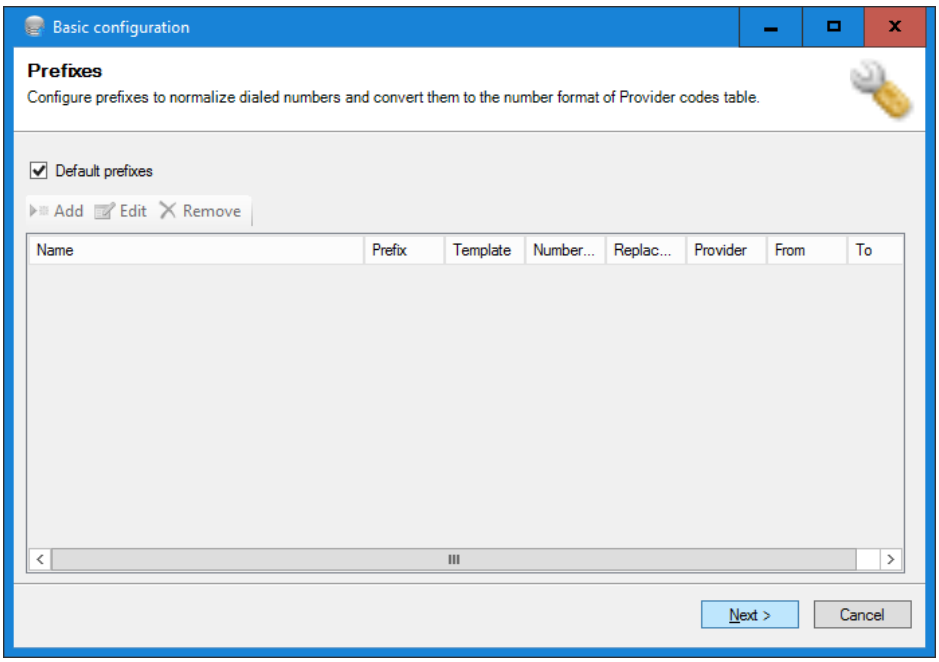


Figure 3.1.14

If you do not use prefixes, click **Next** and go to the next **Wizard** window.

To specify a prefix, clear the **Default prefixes** check box and click **Add**. The **Prefix** window appears as shown in Figure 3.1.15.

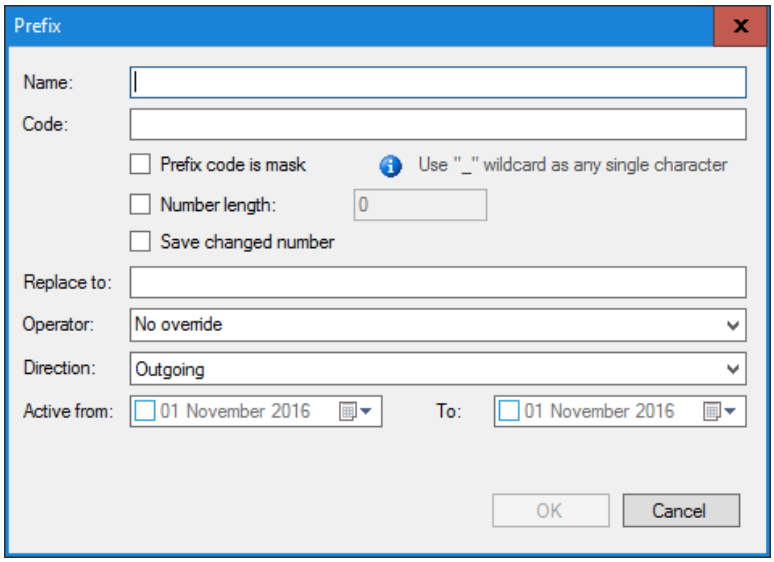


Figure 3.1.15

In the **Name** box, type a rule name to change prefixes. This is an information field.

In the **Code** box, type a code (prefix) which you want to change on another code.

If you wish to use this rule to group of prefixes, which have different digits in the same position, select the **Prefix code is mask** check box. In this case, in the **Replace to** box, you should type the underscore character ("_") in the required position.

When the rule should be appled only to a certain length of telephone number, select the **Number length** check box and specify its length.

If you want to change a telephoen number in the Tariscope database after application of the prefix rule, select the **Save changed number** check box.

In the **Replace to** box, type a value of prefix, which should replace the beginning of the dialed phone number.

If you wish to rate calls that contain this prefix using specific rates, select a telecom provider name from **the Operator list**, which provides such rates.

The prefixes can be set to dialed numbers or the telephone numbers of calling party from which incoming calls were made. Depending on which type of phone numbers you want to use a prefix, in the **Direction** list, select: **Outgoing** or **Incoming**.

The **Active from** and **To** boxes allow you to specify a valid period of the prefix rule.

*To change the prefixes in the future, use the **All nodes** mode → specific node → **Equipment** items → specific equipment → **Prefixes**.*

Click **Next**.

Step 10. Settings for IP traffic collection

The next Wizard window is **IP traffic collection**. It is shown in Figure 3.1.16.

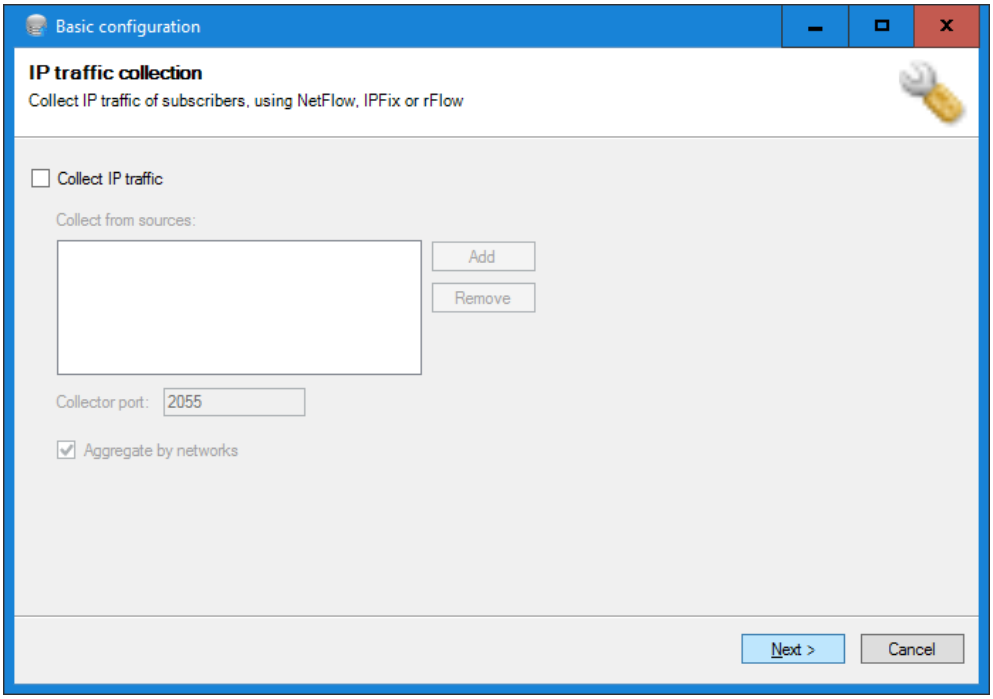


Figure 3.1.16

If you do not use Tariscope to collect data about IP traffic, skip this Wizard window. To collect IP traffic using NetFlow, IPFIX, rFlow or cFlow, select the **Collect IP traffic** check box, and click **Add.**

In a new window that appears, type the IP address of the telecommunications device from which you will receive a traffic data flow.

By default, the flow collector, which is a part of Tariscope, has the IP port: 2055. If necessary, you can change it.

By default, the **Aggregate by networks** check box has selected that reduces the load on the SQL server and significantly reduce the amount of stored data. The list of IP networks you should adjust after the completion of the wizard.

To change the settings of the Flow collector you should select the **Collector NetFlow/IPFIX/rFlow** mode → Configure link.

Click **Next**.

Step 11. Import of subscribers' data

The **Subscribers** window allows importing subscribers' data (Figure 3.1.17).

Tariscope supports several different options of the customer (subscriber) data entry. In the wizard, you can enter the data only in automatic modes:

- **Import from file**. The subscriber data are imported from files of the following formats: Microsoft Excel, Excel 2007, Access, Access 2007, CSV, TabText, dBase.
- **Import from Active Directory**. The subscriber data are imported from Microsoft Active Directory or LDAP catalog.
- **Automatically create subscribers.** The subscriber data are created in the time of processing of CDR data. A subscriber has name the same as his phone number with 'a' prefix.

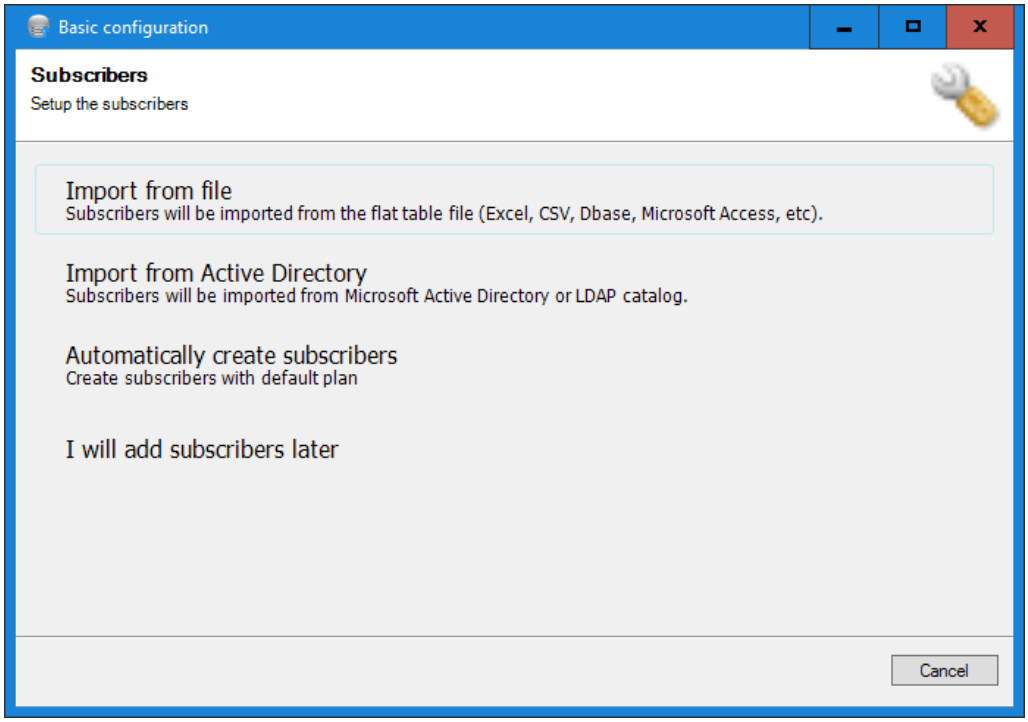


Figure 3.1.17

Select the desired option and import the subscriber data.

If you wish to input the subscriber data into the Tariscope database later, select the **I will add subscribers later** option.

Step 12. SMTP configuration

The next Wizard window (Figure 3.1.18) allows to specify notifications about events in the Tariscope system.

The window provides a choice: to specify parameters of notifications for the Tariscope administrator about the system events or to skip this configuration.

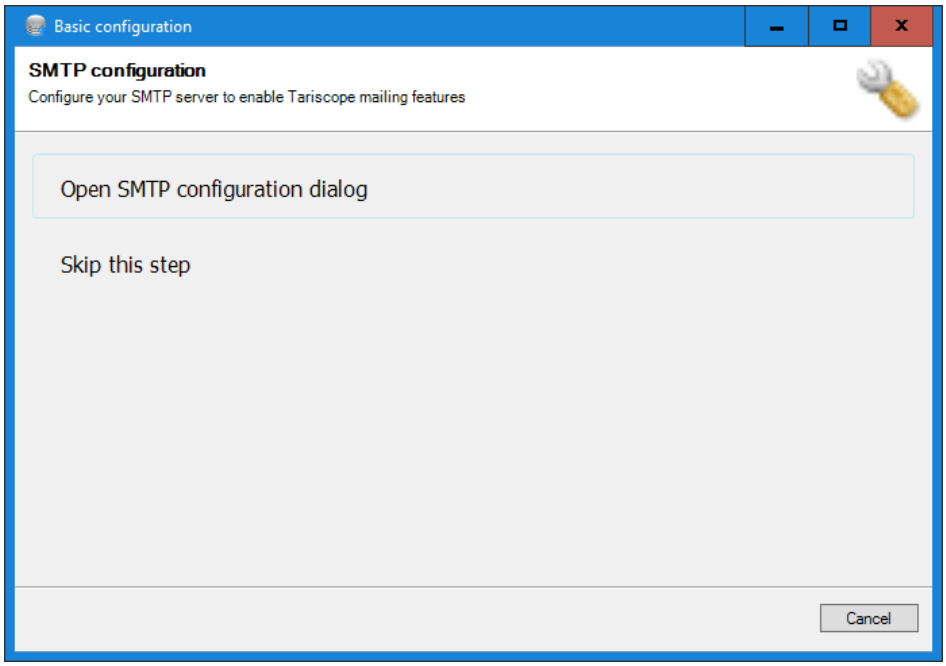


Figure 3.1.18

Select the **Open SMNP configuration** dialog option, if on the sixth step of the configuration you have selected item requiring notifications.

In case you selected the **Open SMNP configuration** dialog option, the **Mailing configuration** window appears, which is used to configure notifications about Tariscope events (Figure 3.1.19).

In the **SMTP Server** box, type a domain name or IP address of SMTP server.

In the **Port** box, type a IP port which is used by the SMTP server. By default: 25.

If the authentication is required to connect to the SMTP server, select the **SMTP server requires authentication** check box.

In the **User** and **Password** boxes, type a user name and password that will be used to authenticate to the mail server.

In the **Sender** partition, in the **Email Address** box, type an email address from which will be executed sending emails.

In the **Name** box, type a user name from whose name will be executed sending emails.

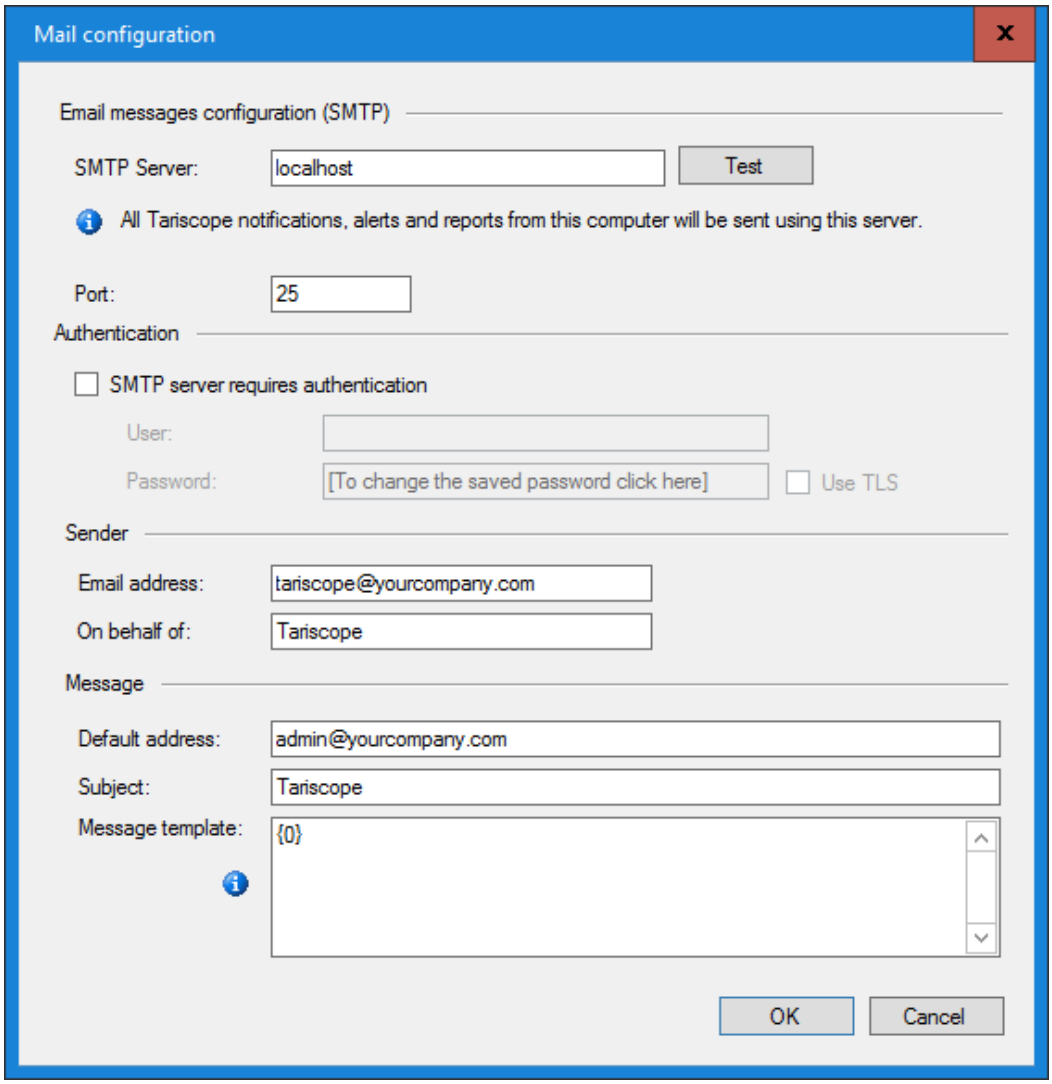


Figure 3.1.19

In the **Message** partition type the following information:

- in the **Default** address box, type an email address on which messages will be sent;
- in the **Subject** box, type a subject of the message. By default: Tariscope;
- in the **Message template** box, type a specific part of the message, which will display in the beginning of the message. A position of message is specified by the template {0}.

To verify the settings, click **Test**.

*You can change the configuration of email parameters in the **Notifications and mailing** configuration page.*

Step 13. Configuration of maintenance

The final configuration step is a configuration of data of the system maintenance (Figure 3.1.20).

The window allows setting the procedures of database backup, archiving and optimization of the database. All these processes can be performed automatically on a predetermined schedule when using the **Tariscope Tasks** configuration page.

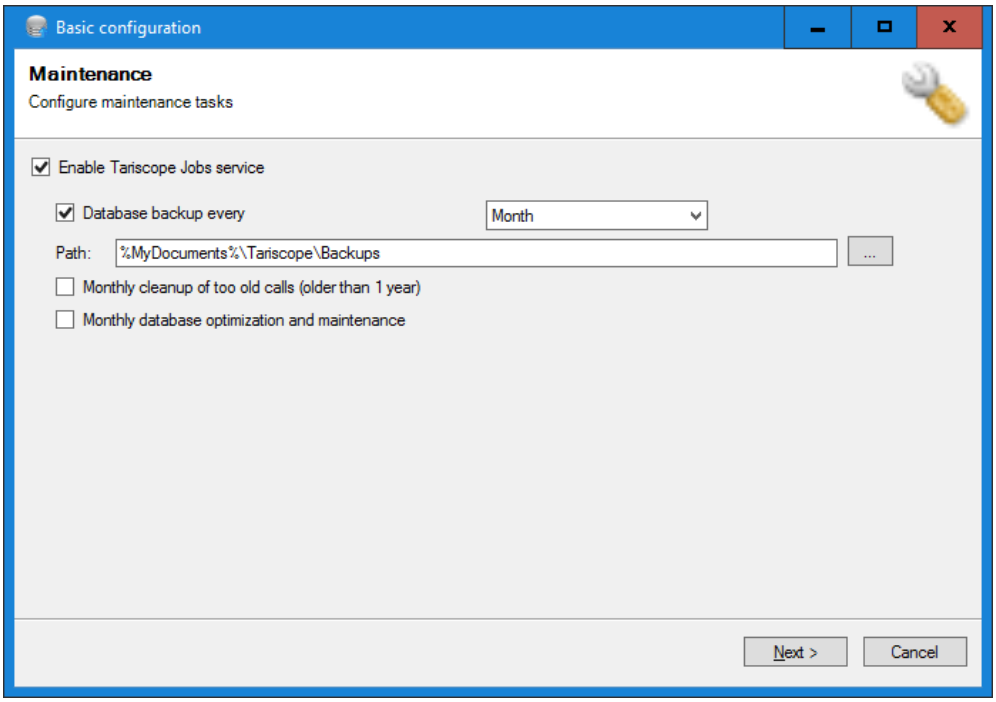


Figure 3.1.20

To use the **Tariscope Jobs** mode, select the **Enable Tariscope Jobs service** check box.

To automatically run the backup, select the **Database backup every** check box and select a period from the list, after which the backup will be created.

To automatically delete calls more than one year from the database, select the **Monthly cleanup of too old calls (older then 1 year)** check box.

To automatically perform the database optimization, select the **Monthly database optimization and maintenance** check box.

*In the future, to change the settings, select **Tariscope Jobs** → **Tariscope Jobs** → the required task. You can also create other periodic tasks.*

At this the initial configuration is completed.

3.2 Applications for configuration

Configuration of the Tariscope system is performed in the following applications:

- Tariscope program;
- Tariscope Management program;
- Report Designer program;
- Tariscope Personal Area.

Basic configuration of the Tariscope system are performed either in the **Tariscope Management** mode of the Tariscope program, or in the **Tariscope Management** program. To configure the Tariscope system you equally can use both applications. Because the Tariscope program supports all configuration modes of the

Tariscope Management program and in addition it allows to analyse call information, has a more user-friendly interface and more, we recommend to use the Tariscope program.

In the Tariscope program you can configure the data of:

- telecommunications nodes,
- telephone systems (PBXs or telephone exchanges),
- data devices;
- subscribers (customers);
- routes, trunks;
- rate plans;
- names of cities, mobile providers and appropriate area or telephone codes;
- IP networks;
- currency rates;
- services;
- prefixes;
- categories of calls;
- automatically performed tasks;
- the Tariscope Observer services;
- the Tariscope NetFlow Collector service;
- notifications;
- interaction with hotel systems;
- Tariscope users.

In addition to these parameters, you can adjust the CDR (SMDR) formats for telephone systems, which are uses reconfigurable formats.

A collection of the detailed information about calls is performed in the Tariscope Observer program. As mentioned above, configuration of Tariscope Observer is performed in the Tariscope program or Tariscope Management program.

To collect information about IP traffic of Cisco routers or routers of other vendors, which support NetFlow v5 or v9, IPFIX, rFlow, cFlow, the NetFlow Collector program is used. Configuration of NetFlow Collector is performed in the same programs.

The main work with Tariscope system is executed in the Tariscope program. This program has several configurable parameters that are associated with the display of information in this program and printing of documents.

In case when a Tariscope user is not satisfied for any reason a list of report forms provided in the installation package, he can upgrade any of these forms or create new ones. The user can use the Report Designer program for this purpose.

Features of a subscriber access to the Tariscope data through the Website are configured in the Tariscope Personal Area.

The Tariscope configuration can be started with any of the programs: Tariscope Management or Tariscope (using the Tariscope Management mode).

Consider the settings in these programs.

3.3 Tariscope Management. Overview

When you start the Tariscope Management program or the Tariscope programs the **Connect to the Tariscope server** window appears as shown in Figure 3.3.1.

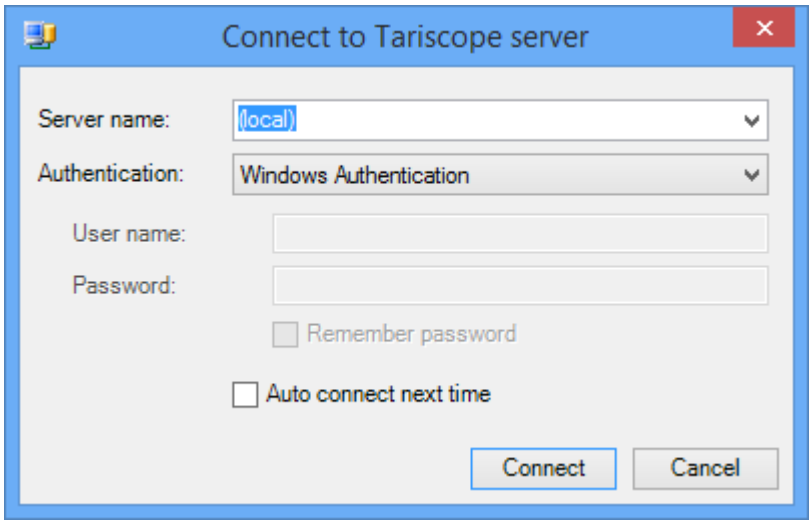


Figure 3.3.1

In the **Server name** boxtype the computer name or its IP address where the Tariscope server was installed.

In the **Authentication** list, select the desired option:

- **Windows Authentication;**
- **SQL Server Authentication.**

You should not enter user name and password for the first option. The authentication is executed using the Windows user name and password.

If you have selected the **SQL Server Authentication** option, type the user name and password in appropriate boxes. By default, the user name and password are used in Tariscope: **sa** and **Tariscope123** correspondingly. After login, you can change these parameters or create new users. If you no longer wish to enter data in this window at start of the program, select the **Auto connect next time** check box.

Not recommended to select this box if several different users have an access to the computer.

After the connection to the Tariscope server, window of the Tariscope Management program appears as shown in Figure 3.3.2.

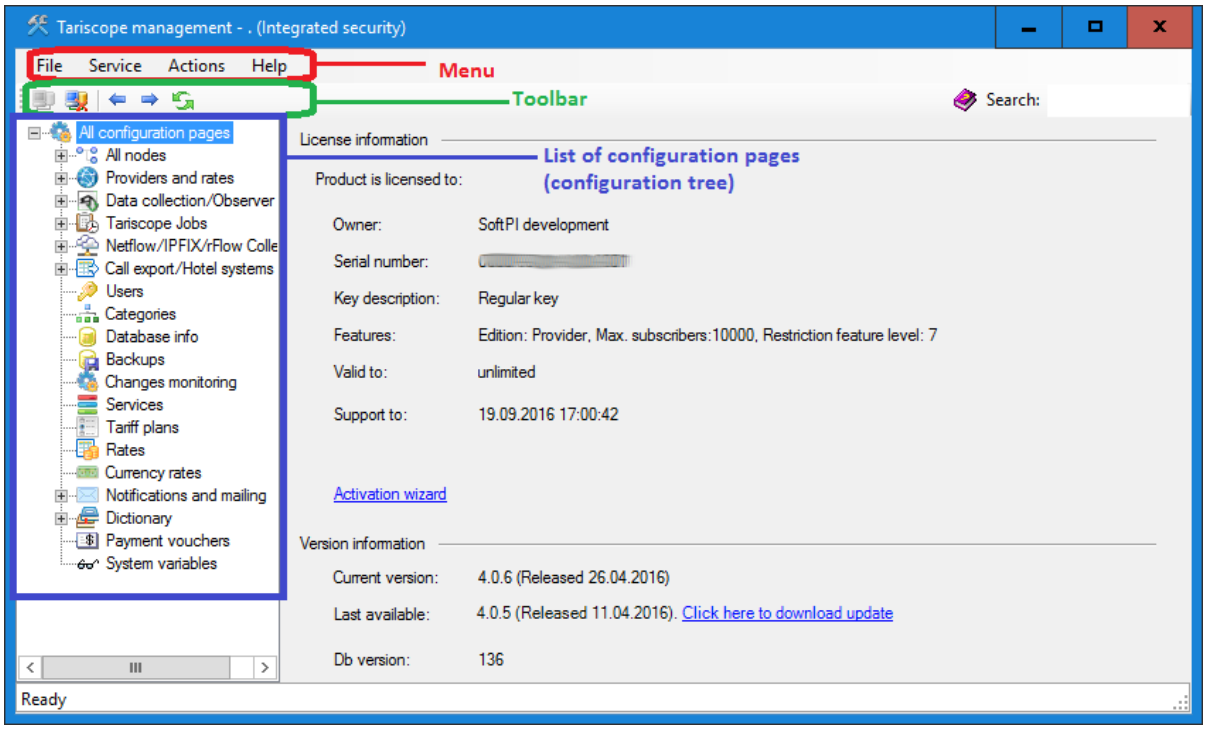


Figure 3.3.2

The program window contains:

- Menu;
- Toolbar;
- List of configuration pages (configuration tree).

Contents of the menu and toolbar depends on the selected configuration page.

When you select any branch of the configuration tree, the configuration page for this branch opens on the right of the tree.

When you select the **Tariscope Management** menu item or the **Management** icon on the toolbar of the Tariscope program, the **All configuration pages** view appears as shown in Figure 3.3.3.

Before starting the description of the configuration pages of Tariscope, let's consider the general properties of the configuration pages, where the data is displayed in tabular form.

There are two menus in all tables of configuration pages.

The first menu is called when you right-click anywhere on the table except the table header. An upper part of the menu contains items, which are like icons on the toolbar of each configuration page. This part of menu is specific to each configuration mode. A lower part of the menu contains items that allow to copy, delete, edit data and export the data from table in one of the following formats:

- Excel,
- HTML,
- CSV,
- PDF.

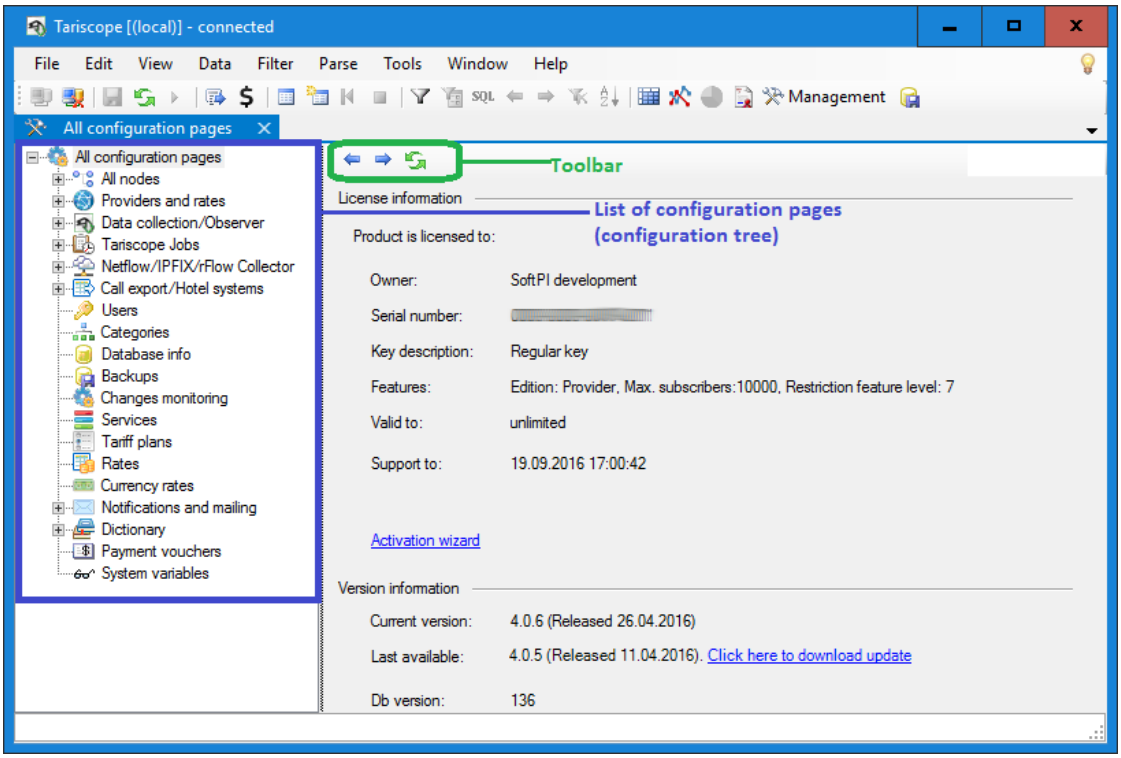


Figure 3.3.3

This part of the menu is a common one for all configuration pages. An example of such menu you can see in Figure 3.3.4.

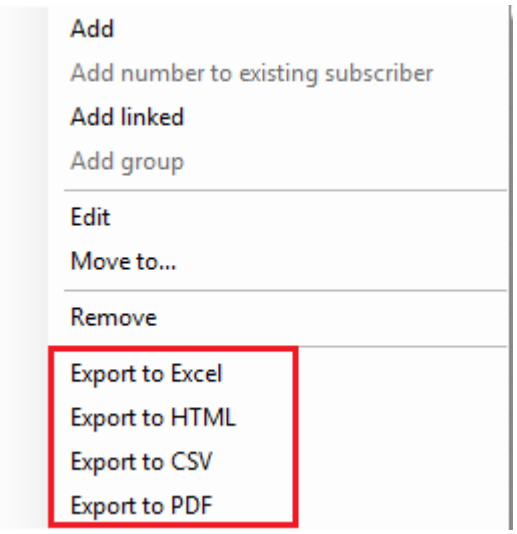


Figure 3.3.4

The **Add** item is similar the **Add** icon on the toolbar. It allows to add a new object.

The **Edit** item is similar the **Edit** icon on the toolbar. It allows to edit a selected object.

The **Remov**e item is similar the **Delete** icon on the toolbar. It allows to delete a selected object.

The second type of menu appears when you click on the table header. An example of such menu is shown in Figure 3.3.5.

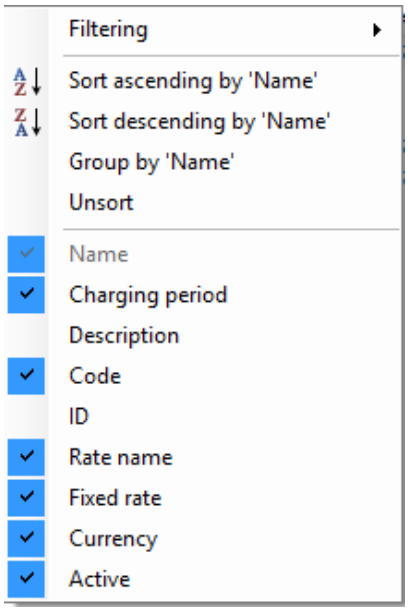


Figure 3.3.5

The menu contains three sections:

- **Filtering.** When you focus on the **Filtering** item, a sub-menu opens. It contains items which are used to filter information in the table. Select the desired check boxes in this sub-menu and click **Apply**. Data in the table will be filtered. Sub-menu items depend on the column header from which menu is called.
- **Sorting.** The section contains the following items:
    - **Sort ascending by** 'name of selected column',
    - **Sort descending by** 'name of selected column',
    - **Group by** 'name of selected column',
    - **Unsort** (remove sorting).

For example, you wish to sort the table data in descending order in the **Name** column. Set the focus on the header of the **Name** column, right-click and select item: **Sort descending by 'Name'**.

- A list of columns that can be displayed in the table. Select the fields that you want to see in the table.

There is a **Search** box which is located on the right side oh the toolbar. It provides a search of information by entered characters. The search is performed on all columns of the table.

To quickly find information on the first characters in the desired column of the table you can use the contextual search. To use it, should click on any cell in the column of interest and start typing the first characters of interest data. With the availability of such data in the table, focus will be set on the appropriate line.

3.4 Configuration steps

The Tariscope configuration can be executed in any sequence. The main requirement for correct work of Tariscope is that all required data must be entered and determined.

After the first start of Tariscope the **Tariscope Initial Configuration** wizard is started.

If you have entered all the necessary data using the Initial Configuration wizard, you can skip a further description of the configuration steps and get to work.

If the initial configuration page has been omitted, or not all the necessary data have been entered, we offer to configure Tariscope using the next step-by-step guide.

Step 1	In the **Currency rates** mode, select a main currency.
Step 2	Is more than one currency used in rates? If YES go to Step 3 otherwise go to Step 4.
Step 3	Type the currency rates in the Currency rates page.
Step 4	Is more than one a rate plan used for customers (subscribers)? If YES, go to Step 5. Otherwise, go to Step 6.
Step 5	Type names of rate plans in the **Rate plans** page.
Step 6	Do you wish divide calls by categories? If YES, go to Step 7. Otherwise, go to Step 8.
Step 7	Type a list of categories in the **Categories** page.
Step 8	Are you a telecommunications provider (You use Tariscope Provider)? If YES, go to Step 9. Otherwise, go to Step 10.
Step 9	Type a list of services and their parameters in the **Services** page.
Step 10	Does Tariscope contain the information about your providers? If NO, go to Step 11. Otherwise, go to Step 17.
Step 11	Add a new provider in the **Providers and rates** page.
Step 12	Add the new rates for outgoing calls and type their parameters in the **Provider and rates** → new provider → **Outgoing** → **Rates page**.
Step 13	Add the new rates for incoming calls, if it needs, and type their parameters in the **Provider and rates** → new provider → **Incoming** → **Rates page**.
Step 14	If the provider provides telephone service, add the area codes, telephone numbers and their parameters in the **Provider and rates** → new provider → **Destination codes** or **Destinations table**.
Step 15	If provider provides an access to Internet, add the IP networks in the **Provider and rates** → new provider → **IP networks** page.
Step 16	If necessary, add or change day types in the **Provider and rates** → new provider → **Day types** page.
Step 17	Create a new telecommunication node in the **All nodes** page.
Step 18	Rename the **New equipment** name as you wish and, configure parameters of this equipment in the Your node → **Equipment items** page.
Step 19	If necessary, create numbering (dialing) plan in the Your node → Your

	equipment → **Numbering plan** page.
Step 20	Type parameters of routes, trunks or gateways in the Your node → Your equipment → **Routes and gateways** page.
Step 21	If necessary, type prefixes and its parameters in the Your node → Your equipment → **Prefixes** page.
Step 22	If you have Tariscope with the restriction feature, add the restriction classes in the Your node → Your equipment → **Restriction classes** page.
Step 23	If you need to add a new equipment for the node, create one in the **Equipment items** page and, go to Step 18. Otherwise, go to Step 24.
Step 24	Type parameters of subscribers (customers) in the Your node → **Subscribers** page.
Step 25	Create a profile of the Tariscope Observer service and configure its parameters in the **Data collection/Observer** page.
Step 26	Start the Tariscope Observer service using the page: **Data collection/Observer** → Your profile → **Start service**
Step 27	Do you need notifications about events in Tariscope? If YES, type parameters of notifications in the **Notifications and mailing** page. Otherwise, go to Step 28.
Step 28	Should Tariscope interact with a hotel system? If YES, configure data for the interaction in the **Call export/Hotel systems** page. Otherwise, go to Step 29.
Step 29	Should Tariscope automatically execute the following actions: a generation of reports, backup of the database, and others? If YES, create a new job in the **Tariscope Jobs → Tariscope Jobs** page, configure its parameters, and start the **Tariscope Jobs service** in the **Tariscope Jobs → Start service**. Otherwise, go to Step 30.
Step 30	Do you want to account for IP traffic from a network equipment using NetFlow (v5 or v9), IPFIX, rFlow, cFlow protocols? If YES, configure parameters of **NetFlow collector** in the page: **NetFlow/IPFIX/rFlow Collector → Configuration**, and start the service: **NetFlow/IPFIX/rFlow Collector → Start service**. Otherwise, go to Step 31.
Step 31	Will more than one user work with Tariscope? If YES, create the new users and set their parameters in the **Users** page. Otherwise, go to Step 32.
Step 32	Should Tariscope keep track changing in the tables? If YES, configure the tracing in the **Changes monitoring** page.
Step 33	Finish.

3.5 Currency rates

Tariscope provides a work with data of several telecommunications service providers which can have the rates in different currencies. In this case, all calculations are executed in the currency that is a main currency. For conversion of

all used currencies to the main currency you need to enter currency rates in Tariscope. For this purpose, the **Currency rates configuration** page is used.

Click on the **Currency** rates branch in the configuration tree of Tariscope Management, the **Currency rates** page is opened as shown in Figure 3.5.1.

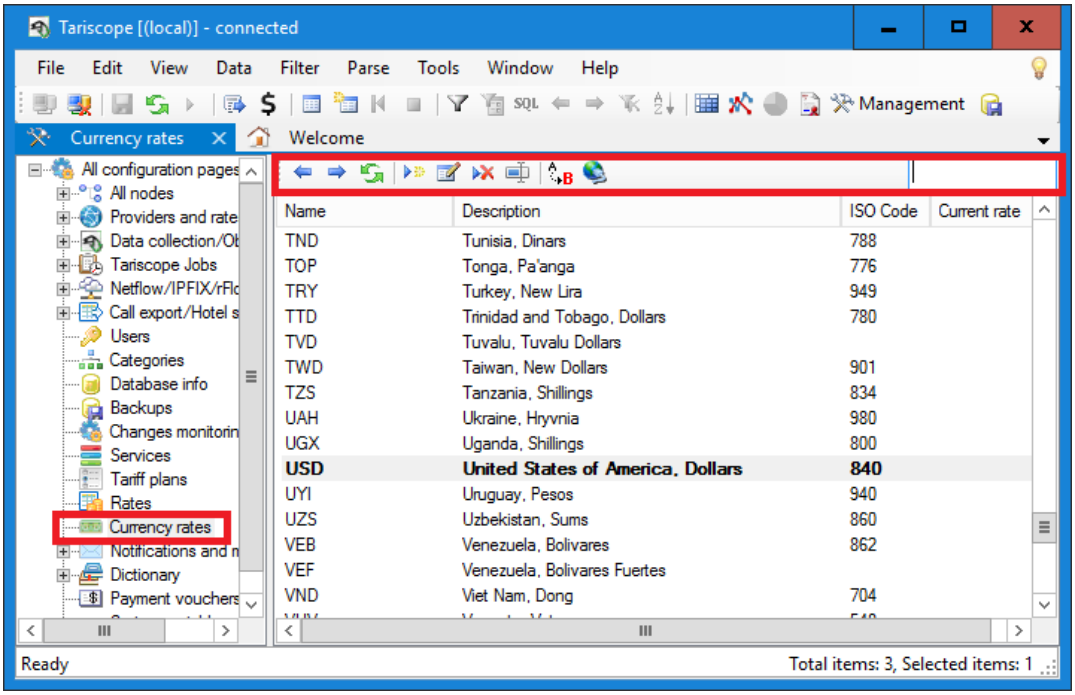


Figure 3.5.1

The configuration page contains a list of all the currencies of the world.

This page allows to execute actions that are available using the icons on the toolbar or items of a menu that appears when right click on the currency table except its header:

- **Add**. Provides an addition of a new currency.
- **Edit**. Allows to edit the currency parameters.
- **Delete**. Allows to delete a selected currency from the list.
- **Rename**. Allows to rename a selected currency.
- **Set Main Currency**. Allows to set a selected currency as a main one.

A currency that was selected as a main one is marked by the **bold** font. The Tariscope administrator can change the main currency any time. Select the required currency. To quick search, use the Search box located on the right side of the toolbar. The search is performed on all columns of the table. Next, click on the **Set Main Currency** icon.

In that case, when the rates are given in two or more currencies, you should set exchange rates in relation to the main currency. For example, in Ukraine, the domestic rates are specified in UAH, and rates for international calls are specified in U.S. dollars. Therefore, you must set a exchange rate of U.S. dollars to hryvnia.

To set an exchange rate, select a currency that you will need to recalculate to the main currency. Press **Enter** or double-click on this line, or click the **Edit** icon on the toolbar. The **Edit** window appears as shown in Figure 3.5.2.

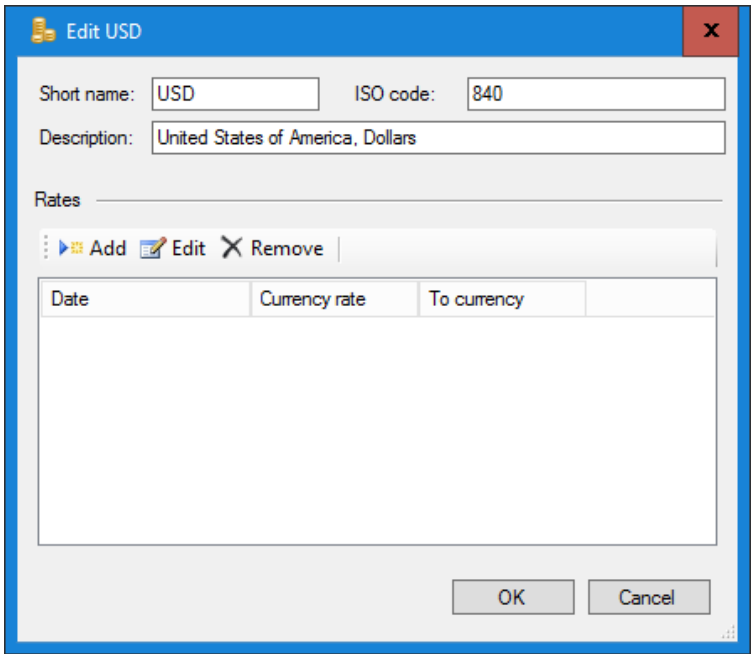


Figure 3.5.2

Click **Add** to type a new currency rate. The **Currency rate** window appears as shown in Figure 3.5.3.

In the **From date** box, select date of the currency rate.

In the **Rate** box, type the currency rate and click OK.

The line with the entered rate is displayed in the table of the **Edit** window (Figure 3.5.2).

If you need to correct any currency rate in the table, select the required line and click **Edit**. The **Currency rate** window appears (Figure 3.5.3). Edit a value in the **Rate** box and click **OK**.

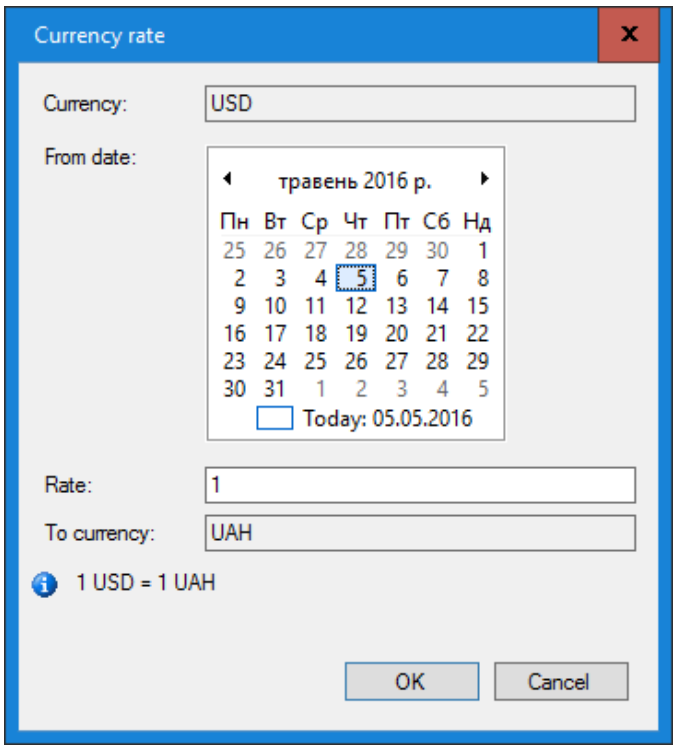


Figure 3.5.3

If you need to remove any currency rate from the table, select the required line and click **Remove**. The line will be removed.

If you need a periodic input of the currency rates, we recommend using the **Tariscope Tasks** configuration page from the Tariscope Management program, which provides automatic receiving of currency rates on a schedule. A configuration of the **Tariscope Tasks** service is described later.

3.6 Rate plans

In Tariscope a rate plan (tariff plan) means a set of rates from one or more telecommunications service providers, which are applied to one or group of customers (subscribers) to charge the cost of calls, telecommunications services and Internet traffic. A rate can be included in more than one rate plan.

At the simplest case and primarily for users of the Tariscope Enterprise edition, a single rate plan can be used for all subscribers of a single telephone system or data device.

To select a rate plan, click on the **Rate plans** branch of the configuration tree. As a result, the **Rate plans** configuration page is opened as shown in Figure 3.6.1.

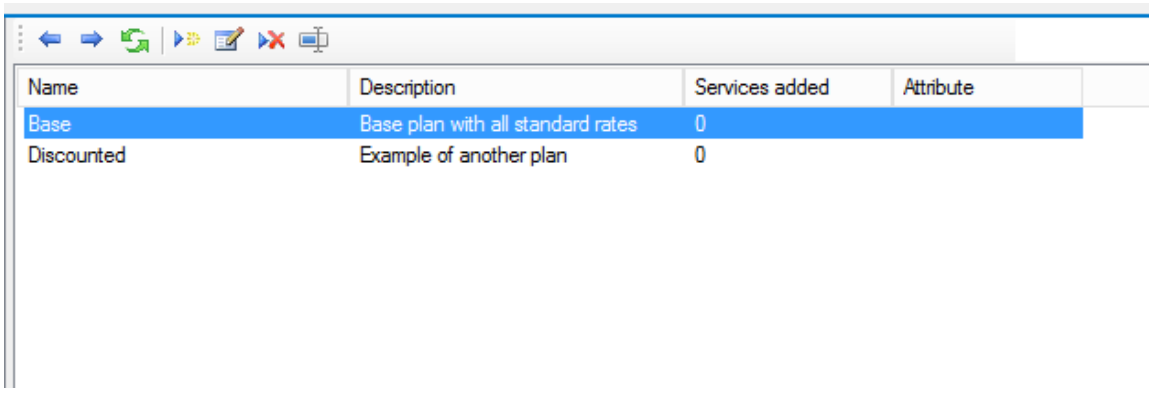


Figure 3.6.1

By default, the Tariscope installation includes two rate plans: **Base** and **Discounted**. The administrator can change these names or deletes the rate plans. A name of a rate plan can be arbitrary and comprehensible for the Tariscope administrator.

As mentioned above, usually the **Base** rate plan suffices for a configuration of the Tariscope Enterprise edition. Other rate plans are not necessary in this case.

Primarily this configuration page is necessary for telecommunications service providers.

To create a new name of rate plan you should click on the **Add** icon on the toolbar or right-click on the list of rate plans and select the **Add** item in the appeared menu. As a result, the New rate plan name appears in the table of rate plans.

Change this name on any other one and double-click on this line or click on the **Edit** icon on the toolbar. The **Edit plan** window appears as shown in Figure 3.6.2.

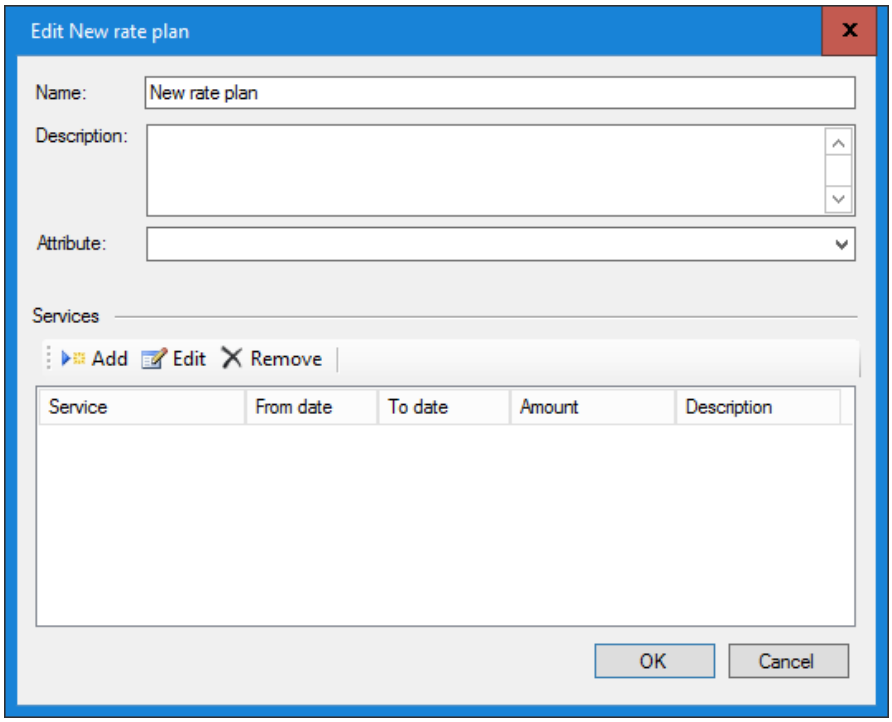


Figure 3.6.2

You can change the name in the **Name** box and type a description of rate plan in the **Description** box. The description is an optional parameter but it helps the administrator to quickly understand a purpose of a rate plan.

In the **Attribute** box, you can enter any attributes that can be used for the rate plan. For example, these can be attributes of RADIUS server to set restrictions for subscribers, in case Tariscope interacts with the RADIUS server.

If a rate plan must include the fixed services, for example, the monthly subscriber charge, you should add these services into the rate plan. Click **Add** (Figure 3.6.2). The Service window appears as shown in Figure 3.6.3.

In the **Service type** list, select the required service name. If the required service is absent in the list, type the service name. How to create a new service see in the appropriate section of the documentation.

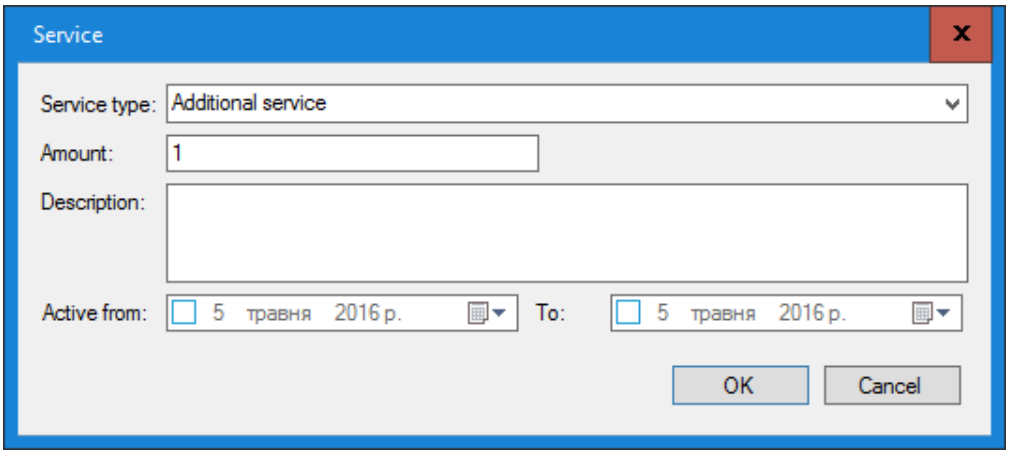


Figure 3.6.3

In the **Amount** box, type the amount of services. By default, value "1" is set.

In the **Description** box, you can type a description of the service.

In the **Active from** and **To** boxes you can set dates when the service will be used. If these dates aren't set, it is considered that the service is used permanently.

Click **OK**. The service will add to list of services (Figure 3.6.2).

After entering the data for all services, click **OK** in the **Edit plan** window.

3.7. Categories

This configuration page allows the Tariscope administrators to type the names of categories of calls in the Tariscope database. The categories are associated with specific country codes, area codes, telephone numbers. The categories apply both outgoing and incoming calls. They are assigned to calls during processing CDR. The categories can have a hierarchical structure.

You can filter call information, generate reports by categories or set restrictions for subscribers using categories.

Relations between country codes, area codes, telephone numbers and categories are set up in the **Providers and rates mode** → specific provider → **Destinations codes** or **Destinations table**.

The example of the **Categories configuration** page is shown in Figure 3.7.1.

The Tariscope installation package can include the following categories:

- **Private**. You can assign this category to the calls made in private purposes.
- **Clients**. You can assign this category to the calls made to clients of your company.
- **Restricted**. You can assign this category to the calls for which your company restricts or denies an access.
- **Official.** You can assign this category to the calls made on official matters.

The proposed categories are only samples. You can use theirs as you wish. You can delete, edit these categories or create own categories.

If it is not enough these categories for you, create new categories. For example, you wish to select calls to partners, specific company or calls made within a particular project, etc.

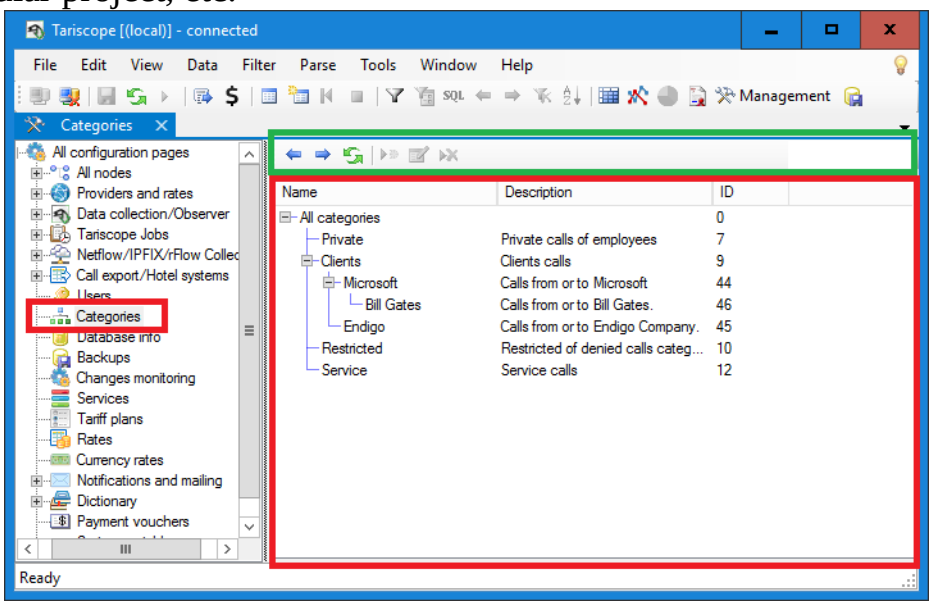


Figure 3.7.1

To create a new category, click on the **Add** icon. The **Edit category** window appears as shown in Figure 3.7.2.

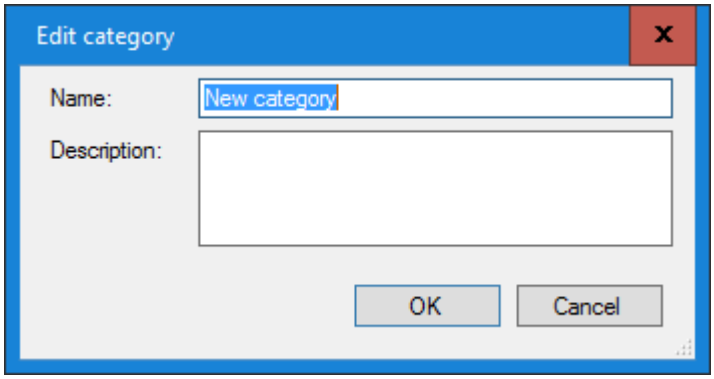


Figure 3.7.2

In the **Name** box, type a name of a new category.

In the **Description** box, type a description of this category. The **Description** box is optional.

Click **OK**.

To delete some category, select this category and click on the **Delete** icon.

As seen in Figure 3.7.1, categories have a hierarchical structure, the top of which is the **All Categories**. You can create different subcategories. For example, for the **Clients** category, you can create subcategories: Banks, Hotels, Enterprises, etc. Such structure of categories can be useful when filtering calls, create reports, etc.

To create a subcategory, select the desired category and click the **Add** icon on the toolbar. Next, follow the steps as described above.

3.8. Services

The **Services setting** mode is used to create services provided to customers (subscribers). The configuration page is urgent for telecommunications service providers. Therefore, if you use the Tariscope Enterprise edition, you can skip this configuration page.

Click on **the Services** branch in the configuration tree to select this configuration page (Figure 3.8.1).

The Tariscope installation package can include examples of services. You can edit, delete these services or create new ones.

To create a new service, click on the **Add** icon on the toolbar. The **Edit New service** window appears as shown in Figure 3.8.2.

In the **Name** box, type a name of a service instead of "New service".

If you wish, you can type a description of the service in the **Description** box.

If you use codes for services, type a service code in the **Code** box.

In the **Charge period** list, select the desired period.

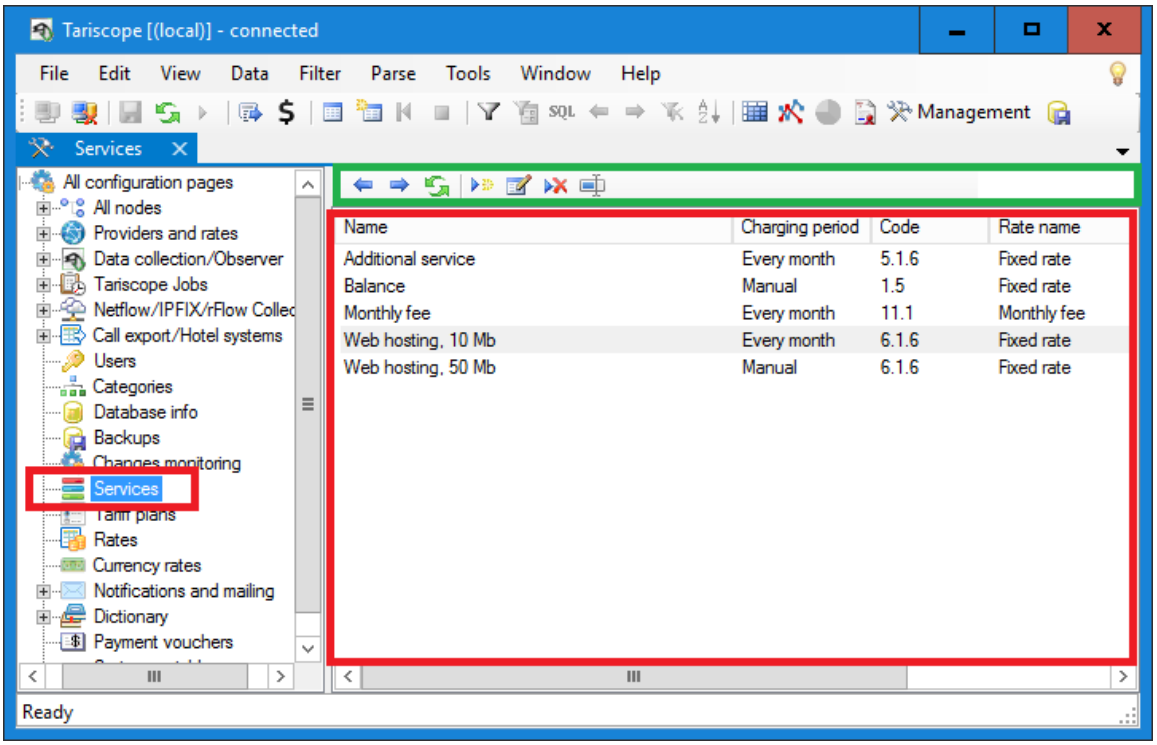


Figure 3.8.1

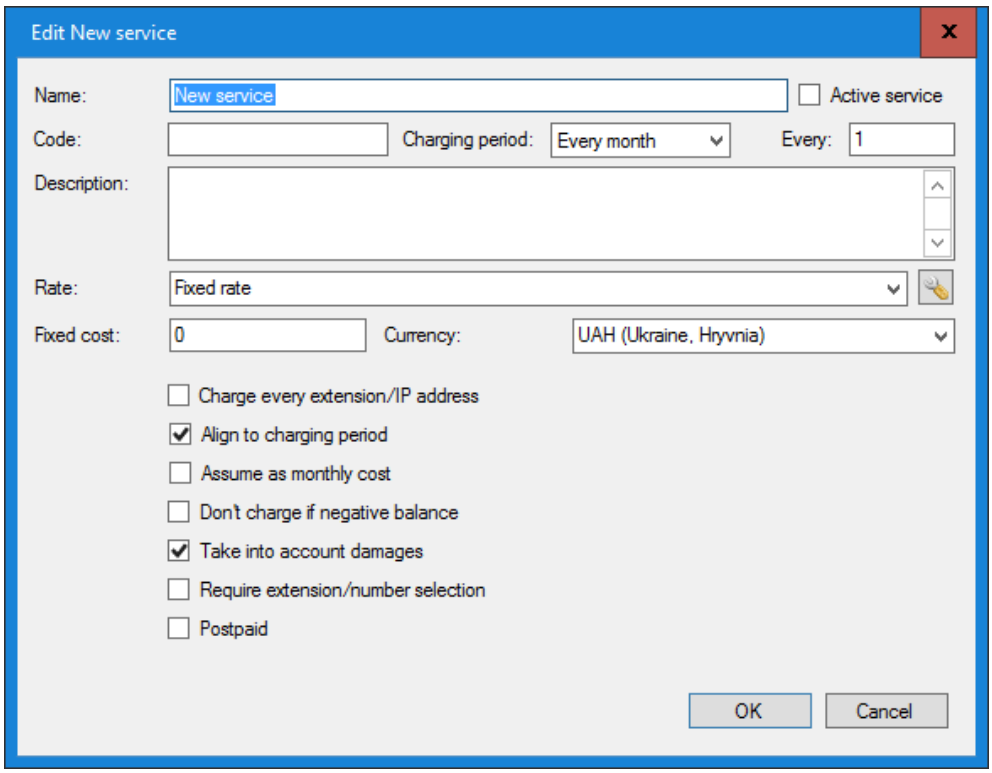


Figure 3.8.2

There are options:

- **Manual**. A service cost is charged manually in the Tariscope program → the **Subscriber accounting** mode.
- **Every day**. A service cost is automatically charged in the beginning of every day.
- **Every week**. A service cost is automatically charged in the beginning of every week.

- **Every month**. A service cost is automatically charged in the beginning of every month.

- **Annually.** A service cost is automatically charged in the beginning of every year.
- **Application defined**. The option is applied for services for which a cost is charged by an execution of a procedure or generation of report. The execution of a procedure or generation of report can be automatically performed by the Tariscope Tasks servise on the schedule or manually by selection in the Tariscope program → the **Data** menu → **New report**. Such option can be used for calculating the costs for city calls when to calculate the cost of the calls is not considered N-th number of seconds.

The **Rate** list provides a selection of a rate that can be applied to the service. In this case the rate is used as a service. In Tariscope the rates with the same names can have different values for the different rate plans (tariff plans). This provides to use a single service name in different rate plans but these services will have different rates.

For example, there are several types of subscription fee: base, privileged, and others, which you should type in Tariscope. Tariscope has two options to create such services. First, you can create the required number of services with different names on the **Services** configuration page. Another option, in the **Rates** configuration page you can create a service-rate named, for example, "Subscriber fee" and for different rate plans you should type their appropriate values. After that, in the **Service** page → the **Rate** list you should select this service-rate. In this case, no need to select service for each subscriber, but you only should assign the "Subscriber fee" service to all subscribers or a group of subscribers. A choice of the service cost for a subscriber will be determined by assigned rate plan.

To view or edit the data of the rate, click on the button located on the right of the **Rate** list.

When you select a rate for the service, the **Fixed cost** box and the **Currency** list will be inactive since the service cost and currency are defined by the rate parameters.

If you do not want to use a rate as a service, leave the **Fixed rate** item in the **Rate** list. In this case, type a cost of the service in the **Fixed cost** box and select a currency from the **Currency** box.

Next, select the check boxes for parameters that will be applied to the service:

- **Charge every extension/IP address.** This parameter allows to charge the service cost on every phone number or IP address for customers (subscribers) having several etensions or/and IP addresses. If the box is not selected, the service cost will be charged the customer only one time.
- **Align to charging period.** The parameter allows to charge the service cost for the period of service provision. For example, a customer was connected from the 13th day of month and you need to charge the "Subscription fee" service which has monthly period. When the box is selected, only part of the service cost will be charged for the customer that is proportional to the period from the 13th to the end of the month.

- **Assume as monthly cost.** A selection of this check box means that the service cost specified in the **Fixed cost** box is a cost per month. And if the charging period is different from the month, the service cost is calculated.
- **Don't charge if negative balance.** The checked box means that if a customer has a negative balance, the service cost is not charged.
- **Respect damages.** The checked box means that if an extension or IP address has damage and Tariscope has information about this, the service cost is not charged.
- **Require extension/number selection.** The checked box means that the service is assigned only to a specific extension or IP address, but not to a customer.
- **Postpaid.** The checked box means that the service cost is charged with a delay of one period.

After you set all parameters in the **Edit** service window, click **OK**.

To change the previously entered parameters any of the services, select the service, and click the **Edit** icon.

To remove unnecessary service, you should select it in the list of services and click the **Delete** icon.

To change only the name of the service, select it in the list of services and click on the **Rename** icon, and then type a new service name.

3.9. Rates

Tariscope provides a flexible call rating that takes into account a currency, day type, time of day, different types of rounding, free seconds and many others.
Entering and editing rate data are available in two places:

- in a root of the Tariscope configuration tree,
- in data of a specific telecommunications service provider.

Both options are intended for creating and editing rates. The Tariscope administrator can type and edit data of rates that are used for any telecom providers in the **Rates** configuration page of the configuration tree root. Accordingly, this page contains all rates of all providers included in Tariscope. The **Rates** configuration page from data of a specific provider provides entering and editing rates that are used just for this provider. In the rest, these two options are identical. Therefore, we describe only the **Rates** page located in the root of the configuration tree.

Click on the **Rates** branch of the configuration tree. The program will be as shown in Figure 3.9.1.

The right part of the window displays a rate table and a list of rate plans.

The rate names can be the same for all rate plans. All other parameters of rates can be completely different. The user can create individual name for every rate plan. In this case, rates that are not used in a rate plan will be displayed but will not contain any data.

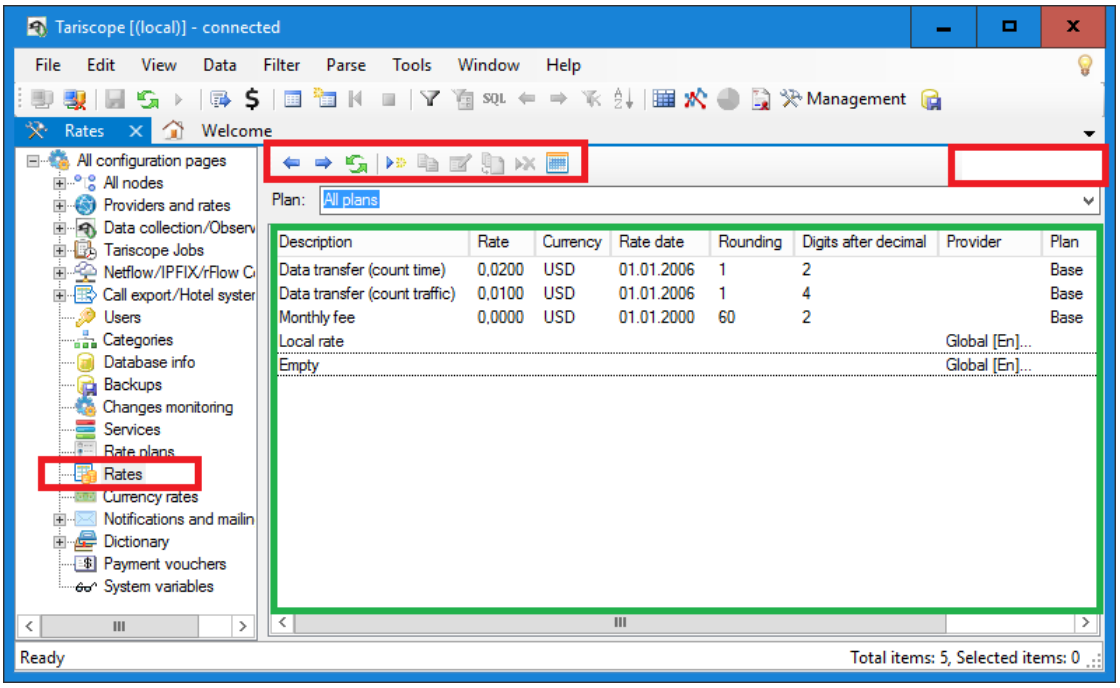


Figure 3.9.1

To create a new rate, click the **Add** icon on the toolbar. As a result, the **Edit rate** window appears as shown in Figure 3.9.2.

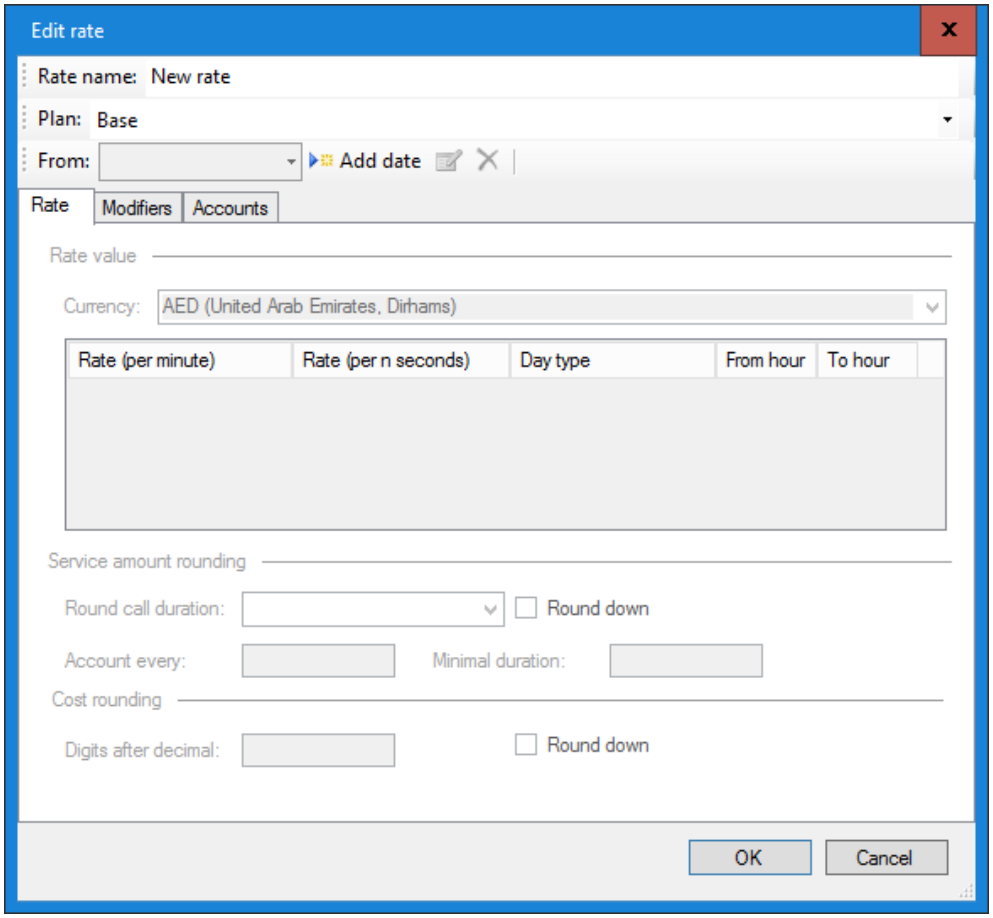


Figure 3.9.2

From the **Plan** list, select a rate plan, for which parameters will be set. By default, the rate plan is set, which has been selected in the rate table (Figure 3.9.1).

For users of the Tariscope Enterprise edition a concept of rate plan is usually not used. As a rule, for the Tariscope Enterprise edition is enough to use only the **Base** rate plan.

Next, in the Edit rate window, click **Add** date and select the date from which a new rate takes effect.

You must correctly set the rate date, since if a call will have a date earlier than the rate date, the cost calculation of such call will not be performed or performed incorrectly.

You can also add a new date to the existent rate. This allows to edit its parameters or type a new rate value which will be used from this date.

After entering the date, entering other rate parameters becomes available, as shown in Figure 3.9.3.

In the **Rate name** box, change the **New rate** name on any other one.

If necessary to change the rate date, click on the **Edit date** icon and select a new date.

If necessary to remove the rate date, click on the **Remove date** icon and add a new date.

The **Edit rate** window includes three tabs: **Rate**, **Modifiers**, and **Accounts**.

The **Rate** tab is used to type the main rate parameters.

In the **Currency** list, select a currency for this rate.

A table of rate parameters contains at least one row if a rate value does not depend on the day type and time of day. In this case the values of the **Day type**, **Rate factor**, **From hour** and **To hour** columns are not edited. If a rate value depends on the day type and (or) time of day, you should add rows to the table with the appropriate parameters.

In the case where the rate value is appied for 1 minute, in the **Round call duration** list, select the **Round to minutes** values (this is the default value). In this case, the second column of the rate table is called the **Rate per 60 seconds**. In the case, where the rate value is applied for 1 second, in the **Round call duration** list, select the **Round to seconds**. In this case, the second column of the table is called the **Rate per 1 second**.

To type a rate value, double-click on the **Rate (per minute)** or **Rate per 60 seconds** (**Rate per 1 second**) cell depending on what time interval is used in the rate. Next, type a rate value.

To add a new row to the table of rates, edit or delete a row, right-click on any place in the rate table, except the header. The menu appears as shown in Figure 3.9.4.

To add a new value of a rate, select **Add**. The **Rate edit** window appears as shown in Figure 3.9.5.

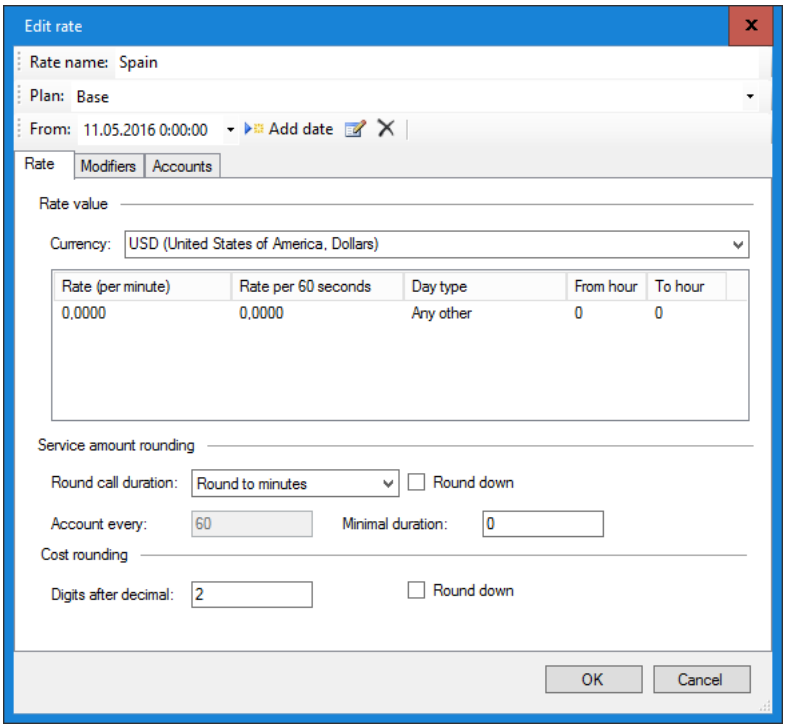


Figure 3.9.3

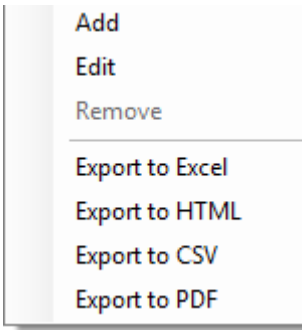


Figure 3.9.4

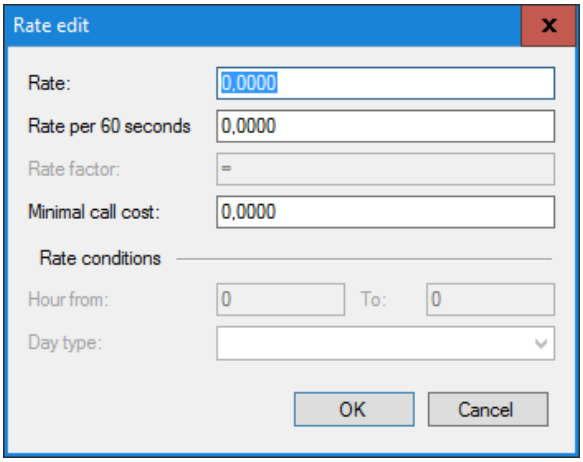


Figure 3.9.5

This window allows you to type the main parameters of the rate.

In the case where this window is opened for the first row of the table, the following boxes are not edited: **Rate factor**, **Hour from**, **To**, **Day type**.

When you have a rate per 1 minute, in the **Rate** box, type the rate value. The **Rate per 1 second (Rate per 60 seconds)** box will display the appropriate value. The **Rate per 1 second** (**Rate per 60 seconds**) box is intended for entering the appropriate rate value. Note that this box name is determined by the selected value in the **Round call duration** list (Figure 3.9.3).

When you have a rate per 1 second, you can type its value in the **Rate per 1 second** box.

When you enter a value in this box, the value of the **Rate** box is automatically recalculated.

If the rate cost may not be less than a minimal specific value, you should type this value in the **Minimal call cost** box. All call costs that are less than this value will be rounded up to the value.

The **Rate factor**, **Hour from**, **To,** and **Day type** boxes are available for editing only for the second and subsequent rows of the rate table (Figure 3.9.3). These parameters are used when a rate is changed in dependence of the time.

The **Rate factor** box allows to set a rate value using a factor with respect to the base value of the rate, i.e. the rate value that has been entered in the first row of the rate table. When you type a value in this box, the values of the **Rate** and **Rate per 1 second** (**Rate per 60 seconds**) boxes are automatically recalculated.

The **Hour from** and **To** boxes allows you to set the time range when the rate value is applied. You can enter only integer values of hours in these boxes.

The **Day type** box specifies the type of the day for which the rate value is applied. Select from the following:

- Workday,
- Saturday,
- Sunday,
- Holiday.

After entering all data, click **OK**. A new row will be added in the rate table (Figure 3.9.3).

To change the rate parameters excepting the first rate date, select the required row in the rate table and right-click. In the appeared menu (Figure 3.9.4), select **Edit**.

To remove the rate parameters from the rate table, select the required row in the table and right-click. In the appeared menu (Figure 3.9.4), select **Remove**.

You can export the rate parameters to an external file of the following formats: Excel, HTML, CSV, PDF.

As described above, you may specify various options of the period of rounding. To do this, use the **Round call duration** list (Figure 3.9.3), which contains the following options:

- **Round to seconds**.
- **Round to minutes**. In this case, if the **Round down** box is not selected, the call duration is rounded to the minute. For example, a call duration of 1 minute 8 seconds will be rounded to 2 minutes. Accordingly, when the **Round down** box is selected, the call duration of 1 minute 51 seconds will be rounded to 1 minute. Similarly, when using a rate for data, the received / transmitted data will be rounded to a megabyte.

- **Custom rounding**. If you select this option, the **Account every** box is active. In this box, you should specify the desired number of seconds to which a call duration will be rounded. For example, if rounding will be set to 6 seconds, the call duration of 13 seconds will be rounded to 18 seconds.

The **Minimal duration** box (Figure 3.9.3) allows you to specify a value to which all calls with duration less than this value will be rounded. For example, if you specify to round to minutes and a value of the **Minimal duration** box is 1, then all calls less than 1 minute will be calculated as calls with duration of 1 minute.

To specify number of digits after decimal point in a call cost or traffic cost, use the **Digits after decimal** box.

The **Modifiers** tab of the **Edit rate** window is shown in Figure 3.9.6.

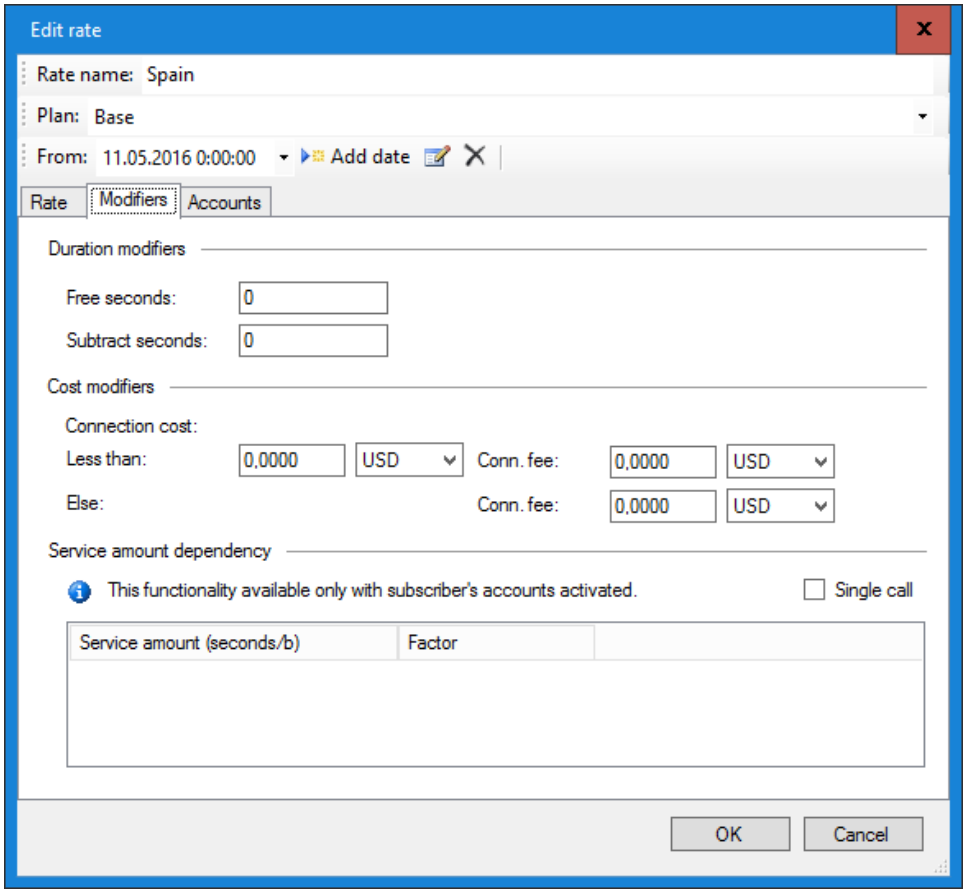


Figure 3.9.6

The **Modifiers** tab allows to modifies the call costs in dependence of number of parameters.

The **Free seconds** box allows you to specify the number of call seconds, which will be taken into account in some situations. When a call duration is less than a value is specified in this box, the call duration shall be deemed null, When a call duration is longer than the value, all call seconds will be accounted in in the call duration.

The **Subtract seconds** box allows you to specify the number of call seconds that will be deducted from the call duration and the cost of these seconds will not be charged.

In the **Cost modifiers** partition you can set parameters which will change the call cost by adding a connection cost.

This setting is applied only to the Tariscope Provider edition.

In the Less then box you can specify the value of the call cost which affects the calculation of the connection cost value. If the call cost is less then this value, the connection cost value is applied from the Conn. fee box which is located on the right from the **Less then** box. Otherwise the connection cost value is applied from the **Conn. fee** box which is located on the right from the **Else** position.

Tariscope allows to change a rate depending on the duration of each call or all calls for one month. This modification is specified in the **Service amount dependency** partition.

For example, the rate value is equal to **X** should be used for each call with duration to 600 seconds. If a call duration is in the range from 600 to 1200 seconds, you should use the rate value is equal to **Y.** Finally, the rate value is equal to **Z** should be used for a call duration more than 1200 seconds. A similar approach can be applied to all calls for one calendar month. If the **Single call** box is not selected, the rate modification parameters defined in this partition will be applied to all calls for one calendar month. To specify parameters of the rate modification, right-click anywhere in the table, except for its title, and from the appeared menu, select **Add**. As a result, the window shown in Figure 3.9.7.

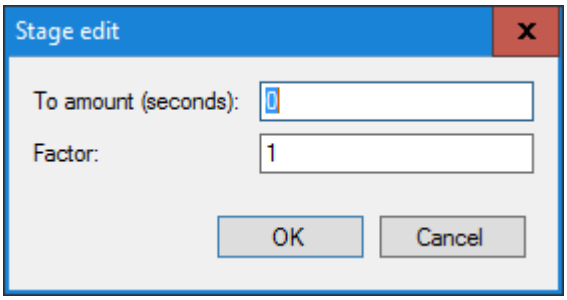


Figure 3.9.7

In the **To amount (seconds)** box, type a value of seconds to which will be applied a factor.

In the **Factor** box, type a factor value that is applied to the base rate.

Click **OK**. A new row with entered parameters will be displayed in the table (Figure 3.9.6).

Repeat the above steps to enter new parameters.

The entered data for the above example is shown in Figure 3.9.8, where the rate of **X** is calculated as the base rate, multiplied by a factor of 1, the rate of **Y** as the base rate, multiplied by a factor of 0.9, and the rate of **Z** as the base rate, multiplied by the factor of 0.7.

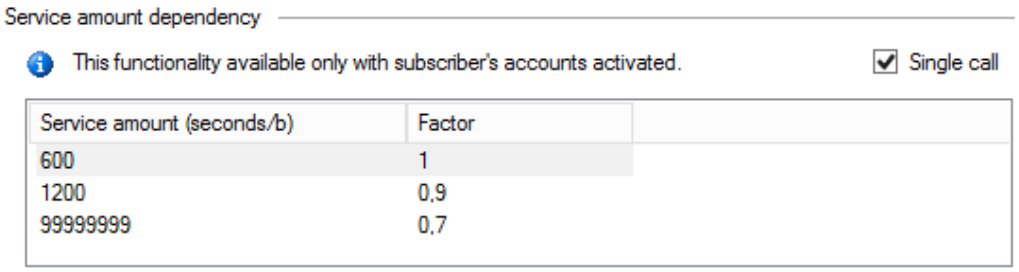


Figure 3.9.8

The Accounts tab is used to set the parameters associated with the charging of service cost to a customer's (subscriber's) account. This tab is used only for the Tariscope Provider edition. An example of this tab is shown in Figure 3.9.9.

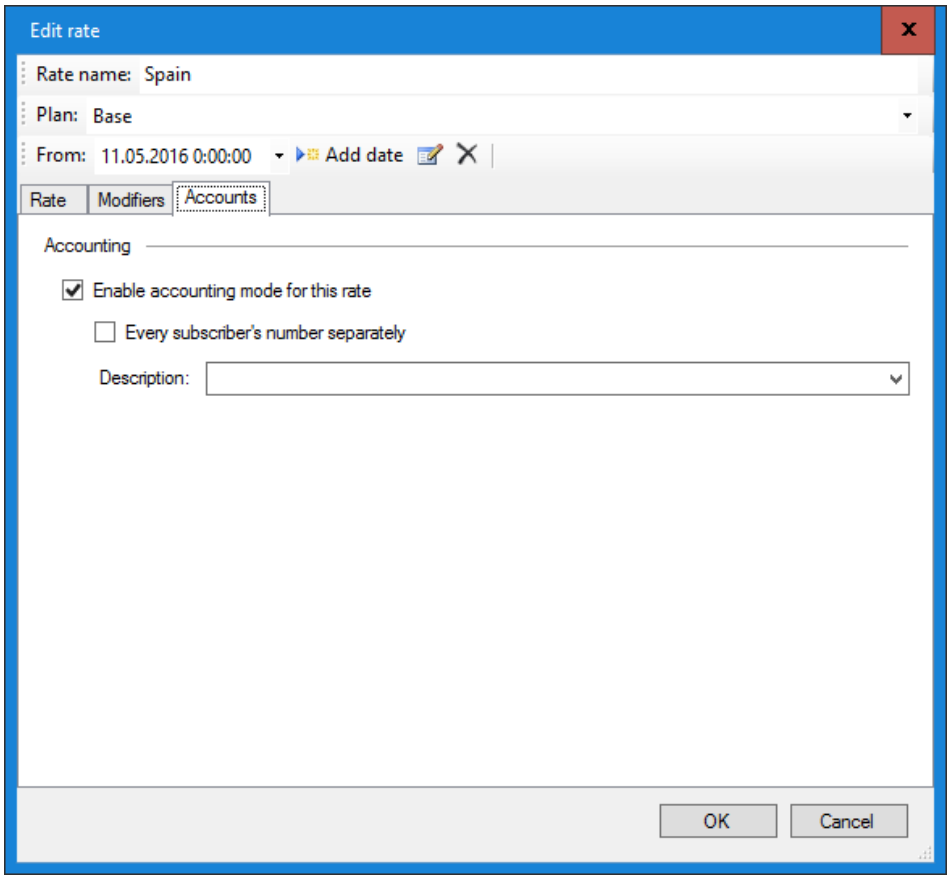


Figure 3.9.9

If the call costs are not required to charge to the accounts of customers, clear the **Enable accounting mode for this rate** box.

If a customer has multiple phone numbers / IP addresses and you want to perform the charging of call cost / IP traffic to each telephone number / IP address separately, select the **Every subscriber's number separately** box. By default, the box is clear.

In the **Description** list you can select or type a name, which will be used in the customer's account when charging the call cost is executed. Accordingly, this name will be used at formation of billing documents and reports.

When you have entered all the parameters of the rate, click **OK**. In the table of rates (Figure 3.9.1), a new line with the entered data is appeared.

Except of the addition rate, the rate table (Figure 3.9.1) allows to perform actions, which are available either from the toolbar or from the context menu (it appears when right-click on the table):

- **Refresh.** Refreshes the table information.
- **Add copy.** Allows you to create a copy of a selected rate. It is recommended to use this action when you enter a rate that is not significantly different from the selected rate.
- **Edit.** Allows to edit the parameters of a selected rate.
- **Copy from plan.** This item is used when there are multiple rate plans (for the Tariscope Provider edition). Allows you to copy all parameters of a selected rate to another rate plan.
- **Delete.** Removes the selected rate.
- **Show all date entered.** When you select this action, the rate table will be displayed all existing rates and also those which are inactive in the current time and was replaced by the new rates.
- **Rename.** Allows to rename a selected rate.
- **Set provider.** It allows you to bind to a selected rate to a provider.
- **Clean dates.** Cleans dates and all data from a selected rate.
- **Multiple rates.** The item allows to multiply a rate values on the desired factor and save these changes in the rate.

3.10 Telecommunications service providers

This configuration page is used to configure data of telecommunications service providers, to which telephone system or Internet equipment is connected. The configuration page should be applied when the appropriate settings have not been entered at the Tariscope Initial configuration, or you need to enter parameters of other telecommunications providers.

Providers

The Tariscope installation package includes data of some providers. In order to determine whether is the data of a desired telecommunications provider in Tariscope, click the **Providers and rates** branch of the configuration tree. The program window will be as shown in Figure 3.10.1.

In the right pane of the window a table is displayed that contains a list of providers. Except of providers that are displayed in the table there is a possibility to import other providers from the SoftPI website. To get a list of providers from the website, click on the **Import online** icon on the toolbar. The **Available providers to import** window appears, as shown in Figure 3.10.2.

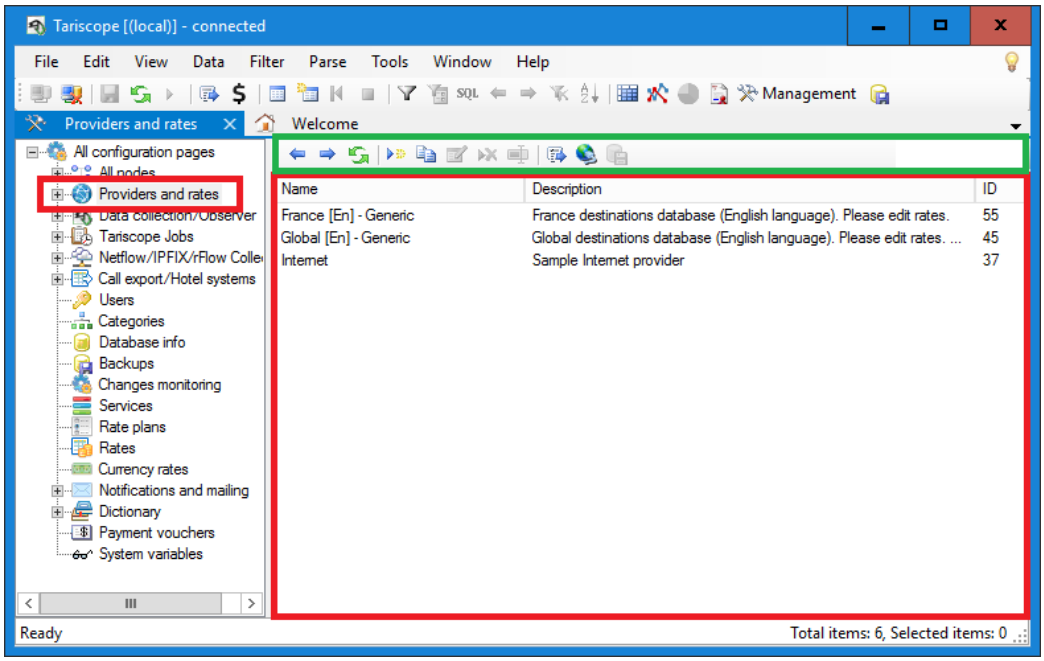


Figure 3.10.1

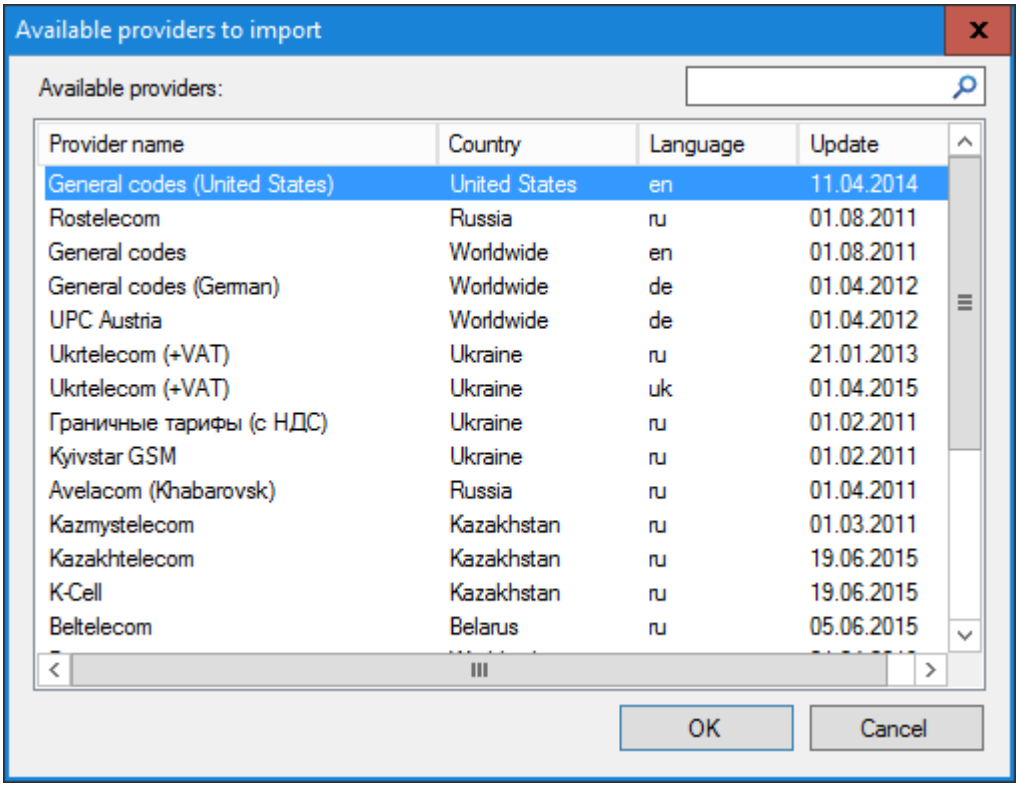


Figure 3.10.2

If this list contains the desired provider, select it and click **OK**. Parameters of the selected provider will be imported into the Tariscope database and a new row appears in the provider table (Figure 3.10.1).

If the desired provider is absent in the list, you shoud add it.

To add a new provider, set focus on the **Providers and rates** branch of the configuration tree and right-click. The menu appears that contains the following items:

- **Add**. Allows to add a new provider.
- **Add copy**. Allows you to add a new provider on the basis of data of an existing provider in Tariscope.

- **Import**. Provides an import of data from the XML file. The file can be created by exporting data from Tariscope, either by the Tariscope administrator.
- **Import online**. Allows to import data of provider from the SoftPI website.
- **Refresh**. Allows to refresh data in the provider table.

To add a new provider, select the **Add** item. As a result, the **New provider** subbranch is appeared in the **Providers and rates** branch. The subbranch contains the **Outgoing** and **Incoming** subbranches. Each of these subbranches contains the following configuration pages:

- **Destination codes**;
- **Destination table**;
- **IP networks**;
- **Day types**;
- **Rates**.

In the right pane of the configuration page two boxes appears.

In the **Name** box, type a real name of a provider instead of the "**New provider**" name.

The **Description** box is used for reference purposes and it is not required.

To store the data, click the **Save** icon on the toolbar.

If you do not need data of any provider, you can remove it using the **Delete** item from menu, or the **Delete this provider** link, or the **Delete** icon on the toolbar.

When you have added a new provider, its data of destination codes are empty. In some cases, it is possible easier to add a new provider based on data of a provider that are contained in the Tariscope database. In this case, select a desired provider - prototype, right-click on the line, and select **Add copy** item the in the appeared menu. The other way, select the **Providers and** rates branch, right-click, and in the appeared menu, select the **Add copy** item. As a result, a window appears that is similar shown in Figure 3.10.3.

The window contains a list of available providers which can be used as a copy.

From the list, select the provider that is used as the prototype. Click **OK**. The data of the provider - prototype will be copied. Copying may take some time. Further, it is only necessary to adjust the parameters of the provider.

If the data of a telecommunications provider was previously exported to a file, you can import this information into Tariscope. To do this, select the **Import** menu item. In the appeared window, select a file with information on a desired provider. The file should have the XML extension. The data of the telecommunications provider will be imported. Further, if necessary, you can change parameters of the provider.

After creating a new provider, execute the addition or correction parameters of the provider.

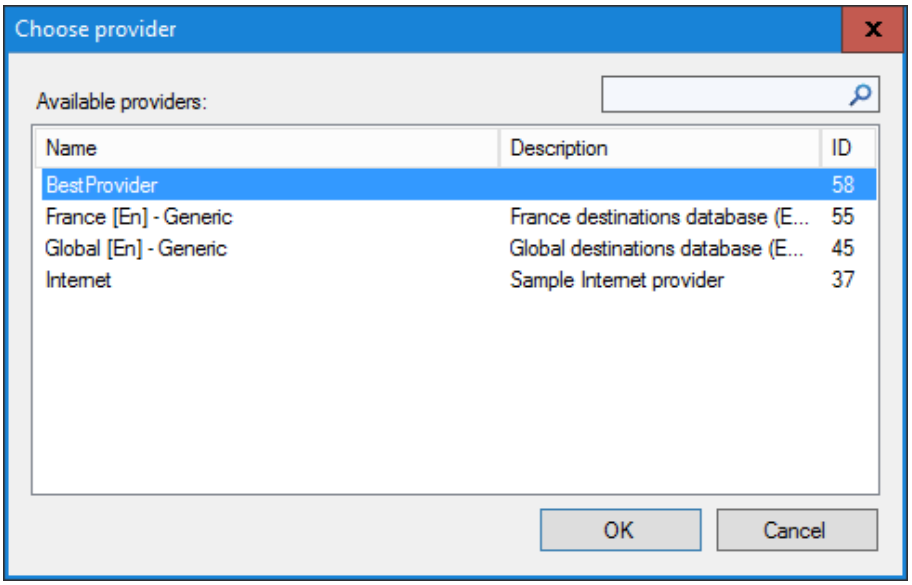


Figure 3.10.3

Area and country codes, IP address

Creation and editing of the area and county codes can be implemented either in **Providers and rates** → specific provider → **Outgoing** or **Incoming** → **Destination codes** page or **Providers and rates** → specific provider → **Outgoing** or **Incoming** → **Destinations table** page.

Creation and editing of the IP addresses can be implemented in the **Providers and rates** → specific provider → **Outgoing** or **Incoming** → **IP networks** page.

Destination codes

This configuration page is intended for addition, deletion and editing of area codes, country codes, telephone numbers of individuals, companies and organizations, which are displayed in a hierarchical tree.

Select the **Destination codes** page. The program window will be as shown in Figure 3.10.4.

In this page you can perform actions that are available using the context menu or by clicking the icons on the toolbar. List of possible actions:

- **Add**. Allows to add a new item in the destination tree.
- **Add copy**. Allows to create a new item using the duplication data of an existent item.
- **Edit**. Allows to edit data.
- **Move to**. Allows to move a branch of the destination tree in another location.
- **Delete**. Allows to delete a tree item.
- **Rename**. Allows to rename an item.
- **Import**. Allows to import destination codes and their parameters from external files.
- **Query info**. Allows to request the geographical coordinates of the city, if the Internet is accessible.
- **Starting coordinates**. Specifies the starting geographic coordinates of the city, with respect to which is calculated the distance to the other cities.

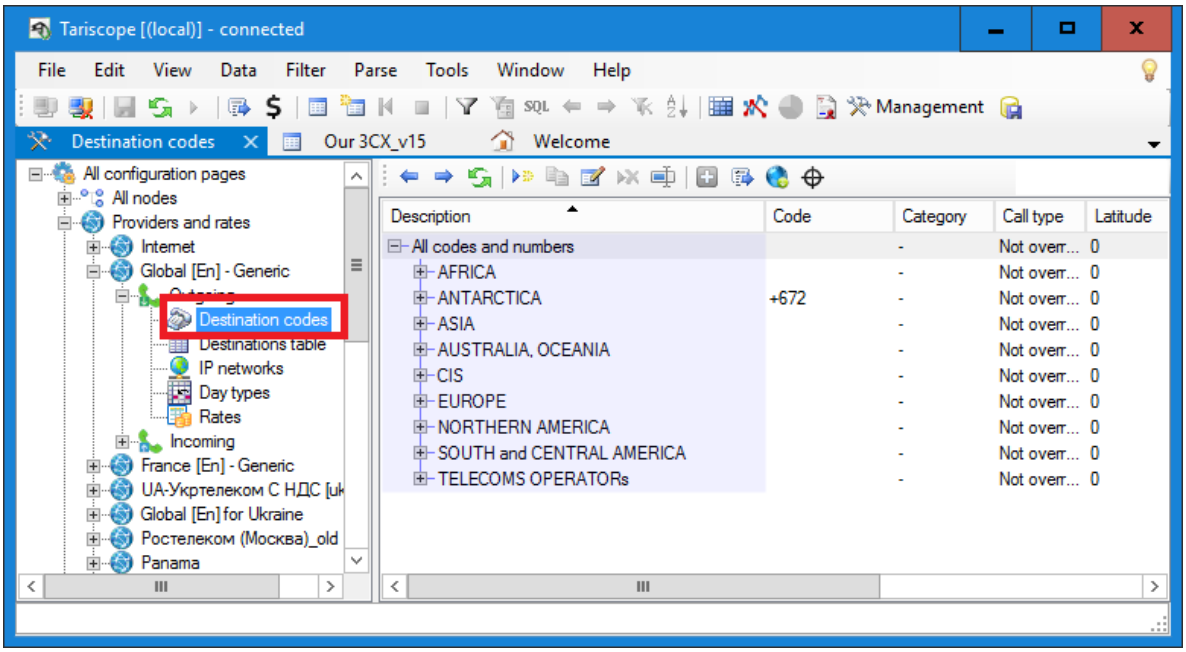


Figure 3.10.4

The Tariscope administrator can change the tree structure as desired. The names of tree branches can be arbitrary. If there is a area code, which is a typical one for the entire branch of the destination codes, enter it for this branch. Then, if an appropriate area code is not found in subbranches, then the branch name will be applied for a call destination. If the code is found, the call destination will get the name of the relevant subbranch of the tree.

Manual addition of code

We recommend to use this mode only when you need to add some area codes. If necessary to add a large number of area codes, use the data import. Nevertheless we recommend to read the next text to get information about parameters of a area code.

To add a new area code into the destination tree, select a branch of the tree to which a new code will belong. Click **Add**. The window appears as shown in Figure 3.10.5.

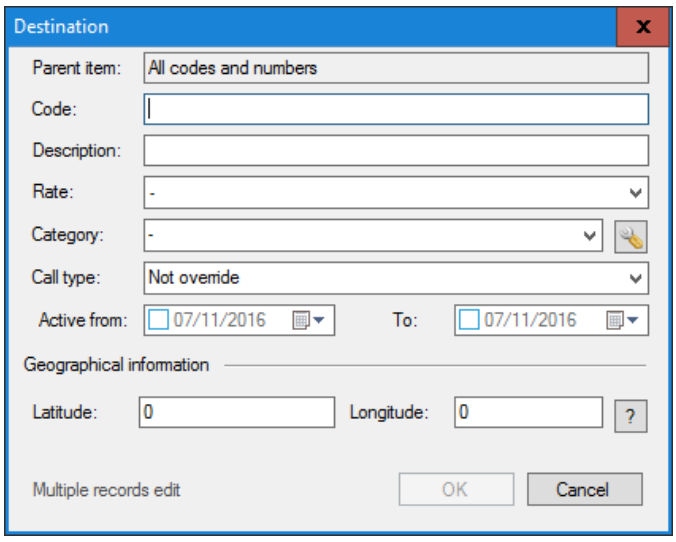


Figure 3.10.5

In the **Code** box, type the country (area, phone) code with the long distance dialing prefix and international dialing prefix. For example, you need to enter the information about the the BestSoft Company, which located in Chicago, and that has a phone number: 2223333.

To do this, type the following code: **001708**2223333, where:

- **0** is a long distance dialing prefix,
- **0** is an international dialing prefix,
- **1** is a country code of U.S.,
- **708** is an area code of Chicago,
- 2223333 is a telephone number of the Company.

The **Description** box is usually used to enter a city name. If you have typed a destination code that is a specific phone number, type a user-friendly description, for example: SoftPI company, Chief, 911 or other. For outgoing calls the information entered in **Description** box will be displayed in the **To destination** column of a call view of the Tariscope program. The same information will be displayed for incoming calls. In this case, the information will be displayed in the **From destination** column of a call view of the Tariscope program.

The **Rate** list is used to select a rate which should be used to calculate the cost of call. If the telephone code will not correspond to any rate, the call to this telephone number will not be rated.

The **Category** list is used to select a category of calls that will be linked with this code. Typically, this field is used for codes that contain the particular telephone numbers. Phone codes to specific phone numbers are absent in the provider data that are supplied with the database. If necessary, the administrator must enter these phone numbers. For example, you can enter the codes of your partners, customers, or competitors. When the call information is processed, the belonging to a particular category will be determined using a category of the phone code. The category name is displayed in the **Category** column of the Tariscope view for calls.

The **Call type** list is used to determine the call types. Firstly this list can be used to determine calls on mobile providers. Dialed numbers to mobile providers have the same structure as the long distance or international calls. But often the user want to select such calls in a separate group. For this purpose the **Call type** list can be used. However, the administrator can use this field to assign any call type for any dialed number. Note that the field does not affect the call rating. It only means that a specific call will belong to a certain group: mobile, long distance, and others. If the **Call type** field is not defined for code, the call definition is executed automatically by Tariscope.

The **Active from** and **To** boxes allow to specify a time preiod when the rate is applied to the area code.

The **Latitude** and **Longitude** boxes can be used to calculate the distance to a specific destination in the case a provider uses rates depending on the distance. If you enter the coordinates of a destination and would like to see its location on the map, click on the "**?**" button, which is located right on the **Longitude** box. If you have access to the Internet, a browser opens with a map from Google, where the

destination will be shown. It is recommended not to specially search for the coordinates of a desired city. Use the **Query info** service of Tariscope.

When you use the Tariscope program to work with call information, the program allows to filter data on any fields of the database, including the mentioned above fields: **To destination**, **From destination**, **Category**, **Call type**.

Import

The easiest way to enter data on the codes and rates is to import this information from an external file using the Import Wizard. This requires that information on the codes is contained in the file of one of the following formats:

- Microsoft Excel,
- Microsoft Excel 2007,
- Microsoft Access,
- Microsoft Access 2007,
- CSV,
- a tab delimited text file,
- DBF,
- Tariscope 2.x

On the toolbar, click **Import**, or in the program menu, select **Actions** → **Import**. The Import Wizard window appears as shown in Figure 3.10.6.

Figure 3.10.6

Click **Next**. Import Wizard window will be as shown in Figure 3.10.7.

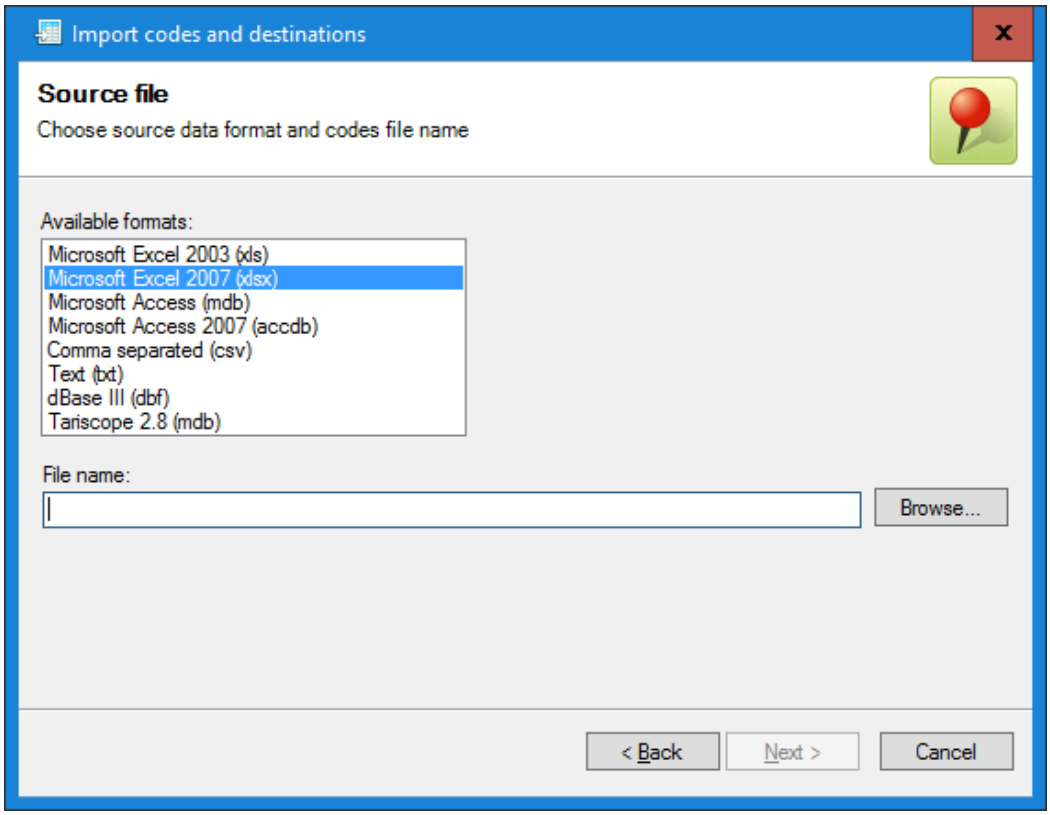


Figure 3.10.7

From the **Available formats** list, select a desired format. Click **Browse** and select a file that contains information with codes. Click **Next**. The Wizard window will be as shown in Figure 3.10.8.

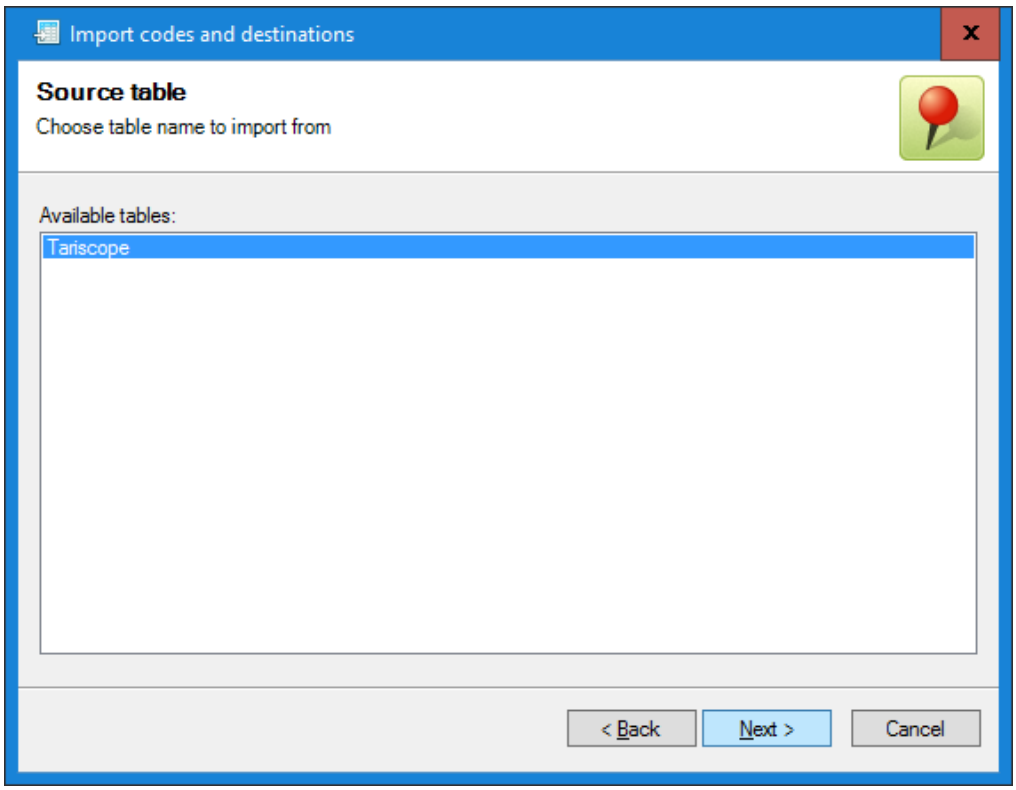


Figure 3.10.8

For Excel file, this window displays the available sheets in the file. Select a desired sheet and click **Next**. The Wizard window will be as shown in Figure 3.10.9.

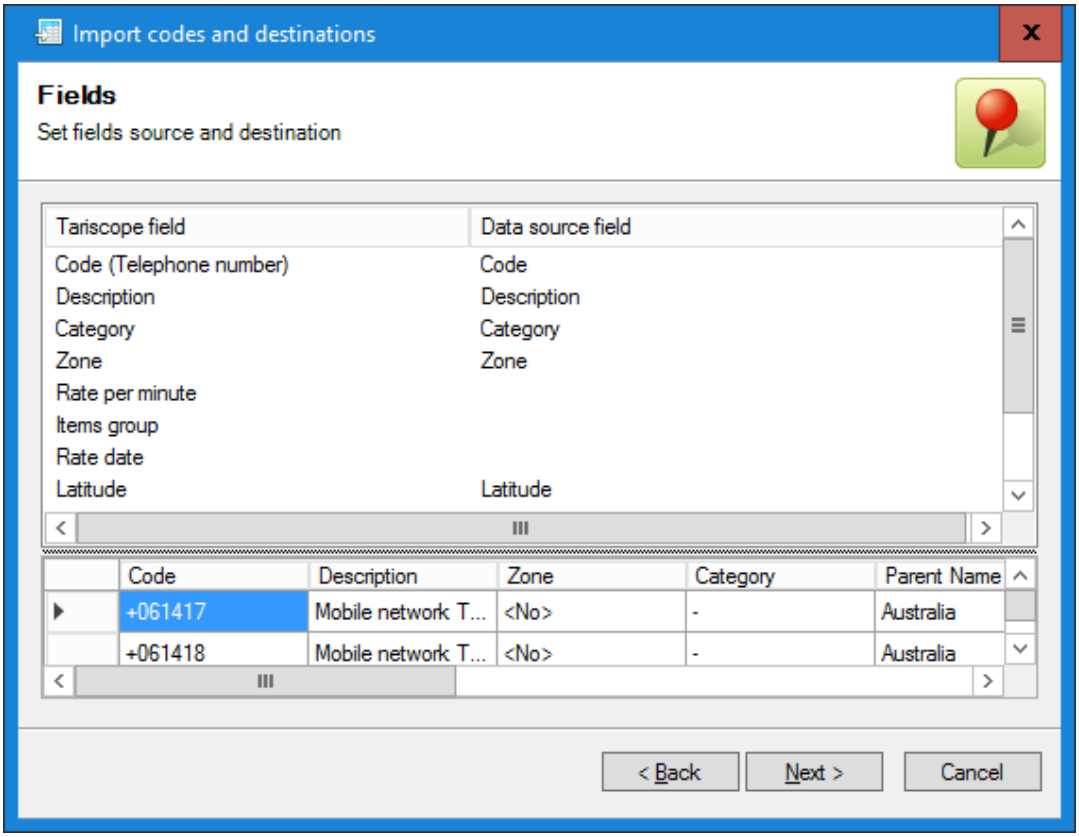


Figure 3.10.9

At the top of the window, the table is displayed that shows the correspondence between the field of the Tariscope database (the Tariscope field) and a column name of the selected table of the external file (the Data source field).

At the bottom of the window, the table of the external file with the data to import is displayed.

To set the correspondence between the Tariscope field and the Data source field, double-click on any cell of the **Data source field** column. In the appeared list that contains all fields of the file, select the corresponding field of the data source for every field of the Tariscope database.

Then, click **Next**.

The Wizard window will be as shown in Figure 3.10.10.

This window allows to select a primary key to import in the Tariscope database.

There are the following options:

- **Code (Telephone number)**. The equal telephone area codes are looked for in the original data. A single record is created in the Tariscope database. This record contains data from the last found code.
- **Description – exact match**. Similar descriptions (names of destinations) are looked for in the original data. A single record is created in the Tariscope database. This record contains the last found description.
- **Every row as new item**. In this case, a new record is created for each line of the original file.

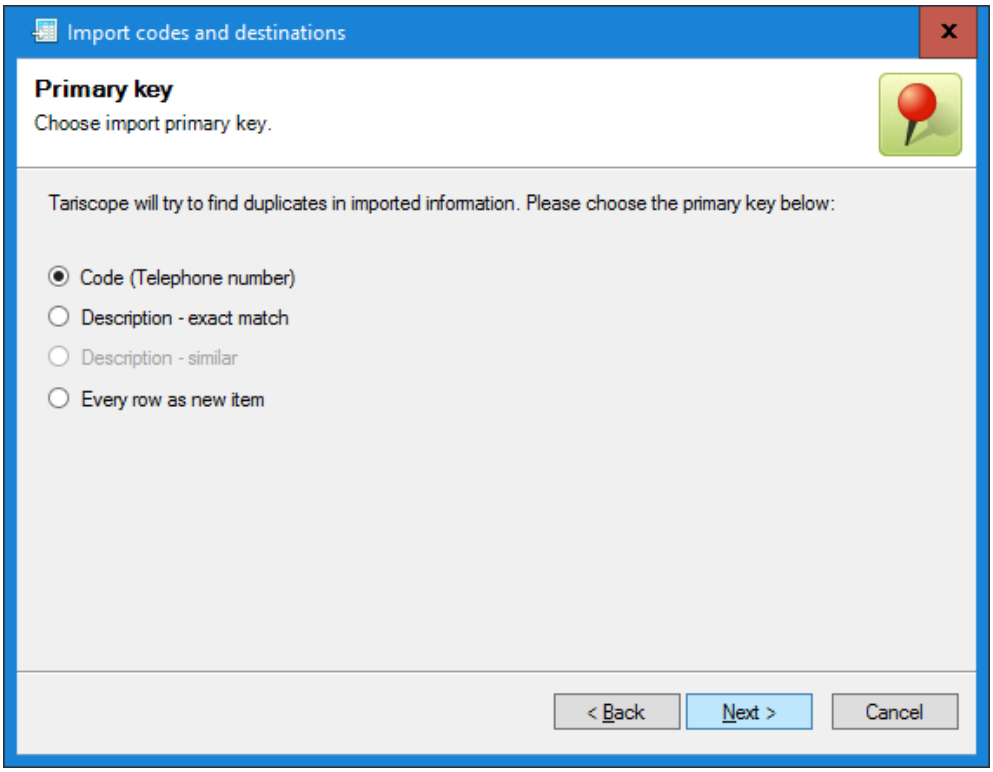


Figure 3.10.10

Select the desired option and click **Next**. The window will be as shown in Figure 3.10.11.

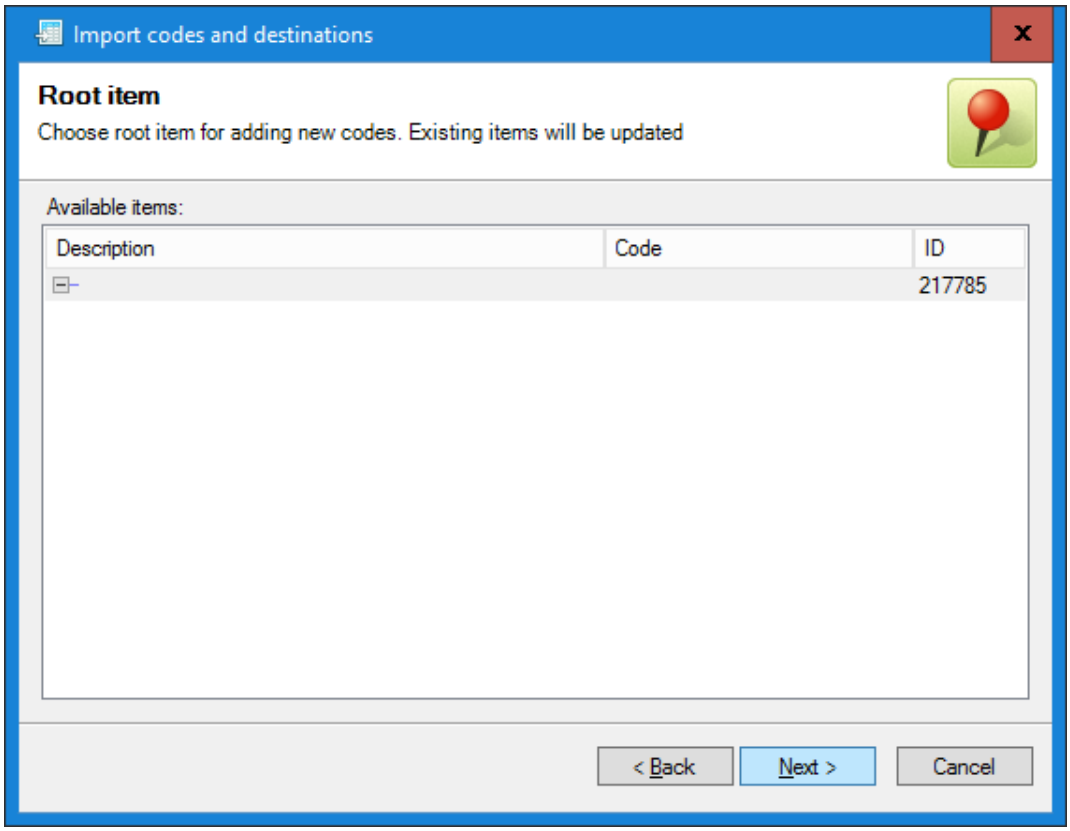


Figure 3.10.11

In this window, select the item, in which the data will be imported. If you have the empty tree of codes, no choice at this stage. In the case, the data is imported into an existing tree, for example, add this to one or more countries, you should select the

root element in the tree. Click **Next**. In the window, select the branch of tree where data will be imported. If your code tree is empty, skip this import step. Click **Next**. The Import Wizard window will be as shown in Figure 3.10.12.

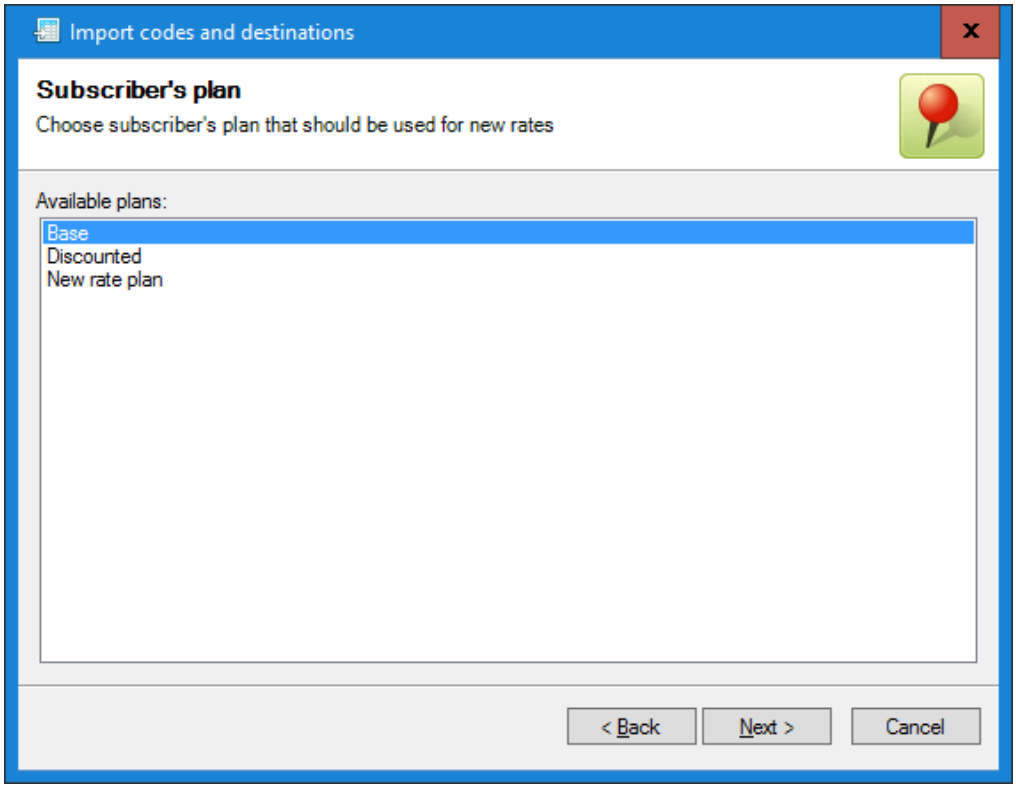


Figure 3.10.12

This window displays a list of available plans in Tariscope. As a rule, only the **Base** plan is used for the Tariscope Enterprise edition. Select the plan for which rates will be created and click **Next**. Start the process of importing data. Upon completion of this process the last window of Import Wizard appears, which reports the results of the import information.

Changing the settings

If you wish to change any parameters of an area code or city, select the desired code or city and click on the **Edit** icon on the toolbar. The **Telephone** window appears as shown in Figure 3.10.5. The next actions are the same as in the **Add** mode.

If you want to make multiple replacement in multiple records of one level of the tree, you want to select these records and click on the **Edit** icon on the toolbar. In this case the **Telephone multiple items** window appears as shown in Figure 3.10.13.

If you want to replace the first N digits in an area code, in the **Replace first** box, type those digits (for example: 007**095**), and in the **digits to** box, type digits which will be the new area code (for example: 007**495**). Click **OK**.

If necessary to replace descriptions in all selected records, type a new name in the **Description** box.

If you want to change the information in the brackets contained in the **Description** box (for example, to change the name of the country), type the new text in the **Text in brackets** box.

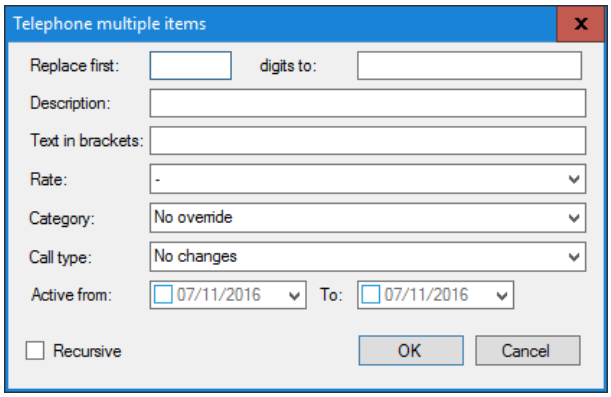


Figure 3.10.13

If you need to replace the rate in all selected records, select a desired rate in the **Rate** list.

You can make similar replacements for the category, call type, or active period of the code.

If you have selected branches of codes for editing, and you want also to edit subbranches, select the **Recursive** check box. By default, this check box is clear.

Creation of copy

If necessary to create a new code which is only slightly different from the existing code, use the **Add copy** mode. In this case the **Telephone** windows appears as shown in Figure 3.10.5. Change the required parameters in the window.

Moving code to another branch

If you need to move a code from one branch to another, you should use the **Move to** item of the menu that appears when you right-click anywhere on the table except for its title. As a result, the **Move codes to** window appears as shown in Figure 3.10.14.

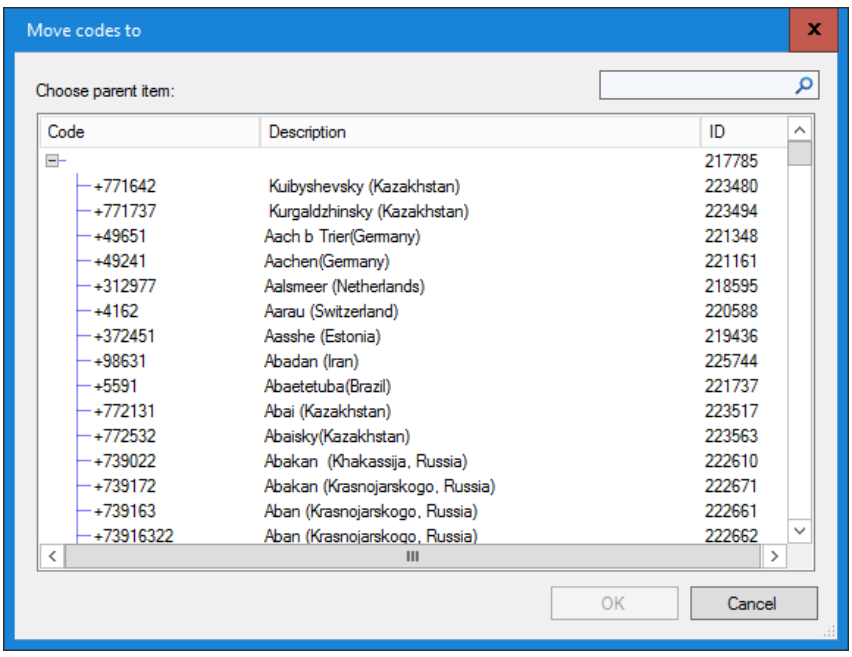


Figure 3.10.14

Select a desired branch, and click **OK**.

Configuration of rates depending on the distance

As mentioned above, some providers use rates, which depend on the distance between the city from where the call was made to the city, where the call was received. Tariscope allows you to set such rates in the automated mode. For these purposes the calculation of the distance based on geographic coordinates of cities is used.

To set such rates, perform the following actions:

- define coordinates of cities for which calls should be charged depending on the distance;
- set the city from which will be calculated distance;
- select the group of cities (codes) corresponding to the distance for a certain rate;
- perform the multiple change of parameters by setting for these cities the required rate.

Consider in detail these actions.

From the **Destination codes** or the **Destinations table**, which is described below, select a group of cities, for which should determine the geographical coordinates. Coordinates should be also defined for the city, from which must be calculated the distance. It should be borne in mind that when the **Destination codes** mode is used, selecting the branch that contains subbranches and which are not open, the search for geographical coordinates will be provided only for the branch. For example, if the search should be made for the cities of the Moscow region, it should be chosen all the cities, not just one branch of the Moscow region. You can search directly for the geographical coordinates of the entire database, but it may take more time. Besides not guarantee the correctness of finding the coordinates of all cities, so there are cities in different countries, in different regions of country, with identical names. For this reason, it is recommended to choose cities by region.

Finding information about the geographical coordinates is performed via internet, respectively, the computer must have an access to it.

After selecting all required cities, click on the **Query info** icon on the toolbar. The **Choose query options** window appears. In the window, type the required parameters.

The value of the **Restrict country** box allows to restrict search coordinates for cities only specified country. The cities with similar names from different countries will be ignored. In this position you must enter a code in accordance with ISO-639-1. For example, for Germany: de, for Spanish: es, and so on. If you do not specify any code in the box, searching will be given the coordinates of the first found of the city.

The **Prefer language** box allows to specify the language in which names of cities will be entered in the database. Type the country code in accordance with ISO 3166-1. For example, Brazil: br, Czech Republic: cz, Germany: de, etc. The absence of the code entered in this box still allows you to search the geographical coordinates.
Click **OK**.

Tariscope searches geographical coordinates of cities and automatically calculates the distance relative to the starting coordinates. If previously you did not select cities with the starting coordinates, then default coordinates are applied: 0° latitude, 0° longitude.

To install the starting coordinates, select the desired city, right-click and from the menu select **Distance from this point**. Tariscope automatically recalculates the distance from the selected city to all the cities for that are defined geographical coordinates. You can also type manually these coordinates. On the toolbar, click on the **Starting coordinates** icon and in the appeared window, type them.

If there is any doubt in the correctness of the distance (geographical coordinates) for some city, select the city, right-click and in the menu that appears, select **Correct location**. As a result the **Choose location** window appears with the revised data for this city.

Next, select cities in the table by sorting by distance that meet the criteria of the specific rate and click the **Edit** icon on the toolbar. The **Telephone multiple items** window appears (Figure 3.10.13), in which you should set the desired rate.

The **Destination codes** mode has a number of features that are available when you right-click on the header of the table. A menu appears that is the similar to menu that is used in all modes.

Destination table

This configuration page is used to add, delete, and edit area codes, phone codes of individuals, companies and organizations. It is similar to the **Destination codes** page, however, information is displayed as a table (Figure 3.10.15).

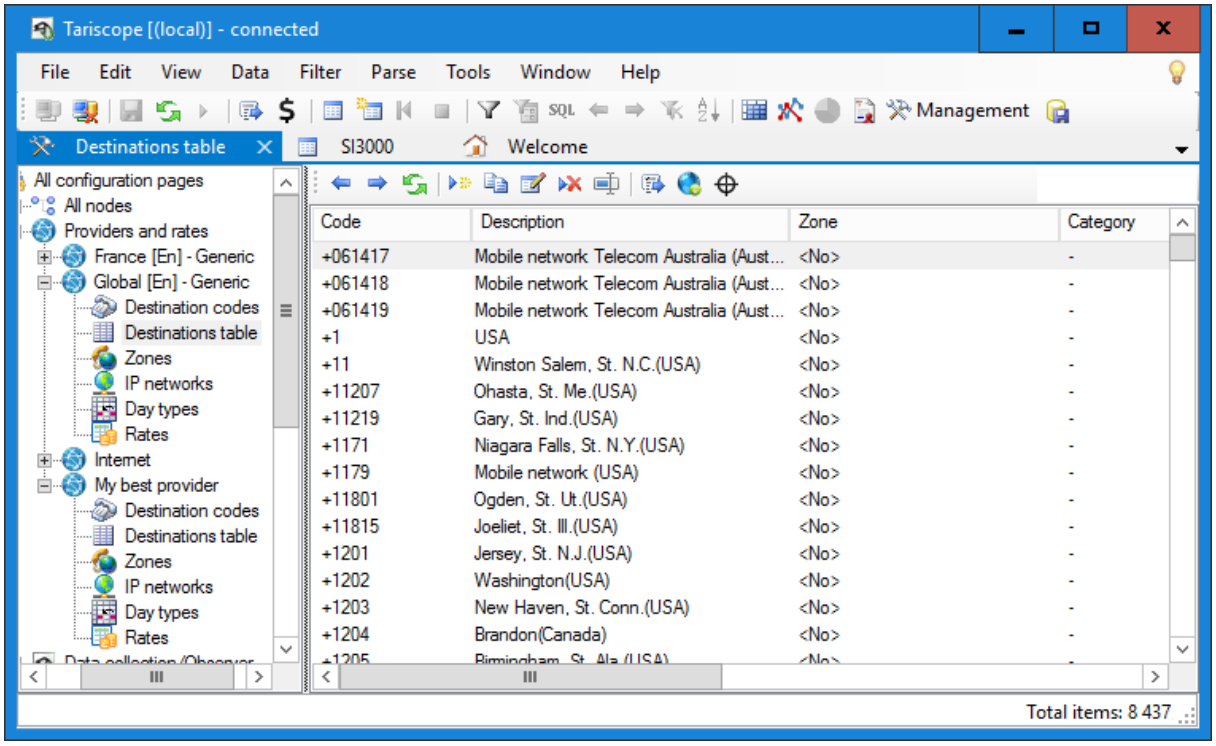


Figure 3.10.15

Besides columns that present in the **Destination codes** page, there is the **Parent Name** column. This column shows the membership of a particular row in a particular branch of the tree.

All actions for adding, editing, moving, or deleting items are the same as described for the **Destination codes** page.

The main advantage of this mode is a quick search for information, which is operated across the entire table, not just in open branches of the tree.

IP networks

The **IP networks** page is designed primarily for internet services providers. This page is similar to the **Destinations table** page. Only IP networks are used instead of telephone area codes. An example of the window for this page is shown in Figure 3.10.16.

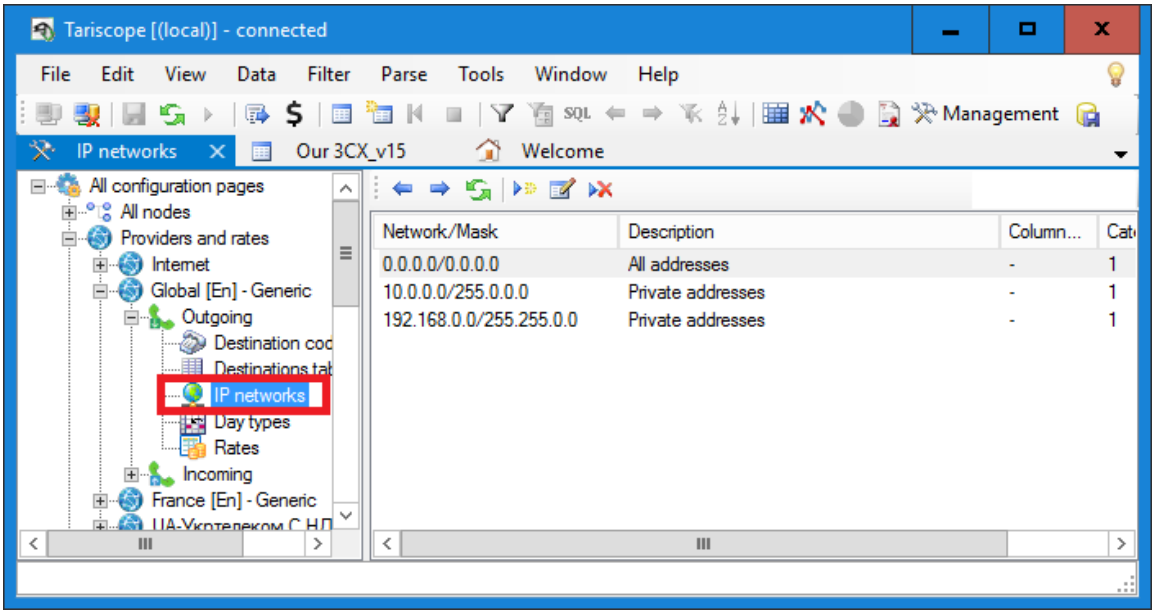


Figure 3.10.16

To add parameters of a new IP network, click **Add** on the toolbar. As a result the **IP Network** window appears as shown in Figure 3.10.17.

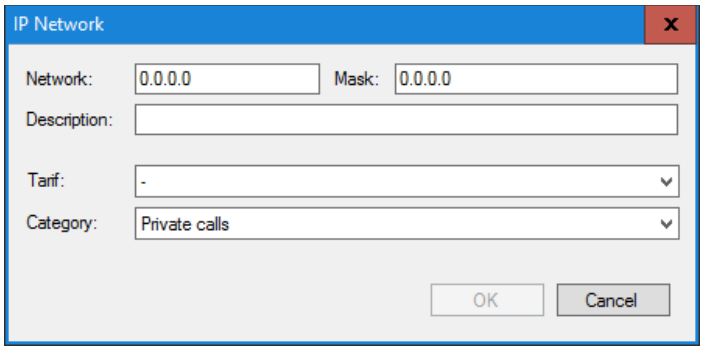


Figure 3.10.17

In the **Network** box, type a IP address of the network.

In the **Mask** box, type a mask of the network.

In the **Description** box, type a description for the network.
In the **Tarif** list, select a rate that will be applied to rate traffic for the network.
If you need, in the **Category** list, select the required name of category.

Rates

The **Rates** configuration page is intended to cnfigure rates that belong to a specific provider. In contrast to the general **Rates** mode described in the Section 3.9 where there are rates of all providers, rates here are unique to a specific provider. All actions on entering, editing, removing rates are completely analogous to similar actions described in the Section 3.9.

3.11. Telecommunications node

In Tariscope the subscribers (customers) belong to a telecommunications node, which can contain some telephone systems or routers. A subscriber can have some extensions (phone numbers) or IP addresses of any telecommunications equipment which is a member of a specific telecommunications node.

There are global parameters that are applied to all telecommunications nodes. To set them, click on the **All nodes** branch of the configuration tree as shown in Figure 3.11.1.

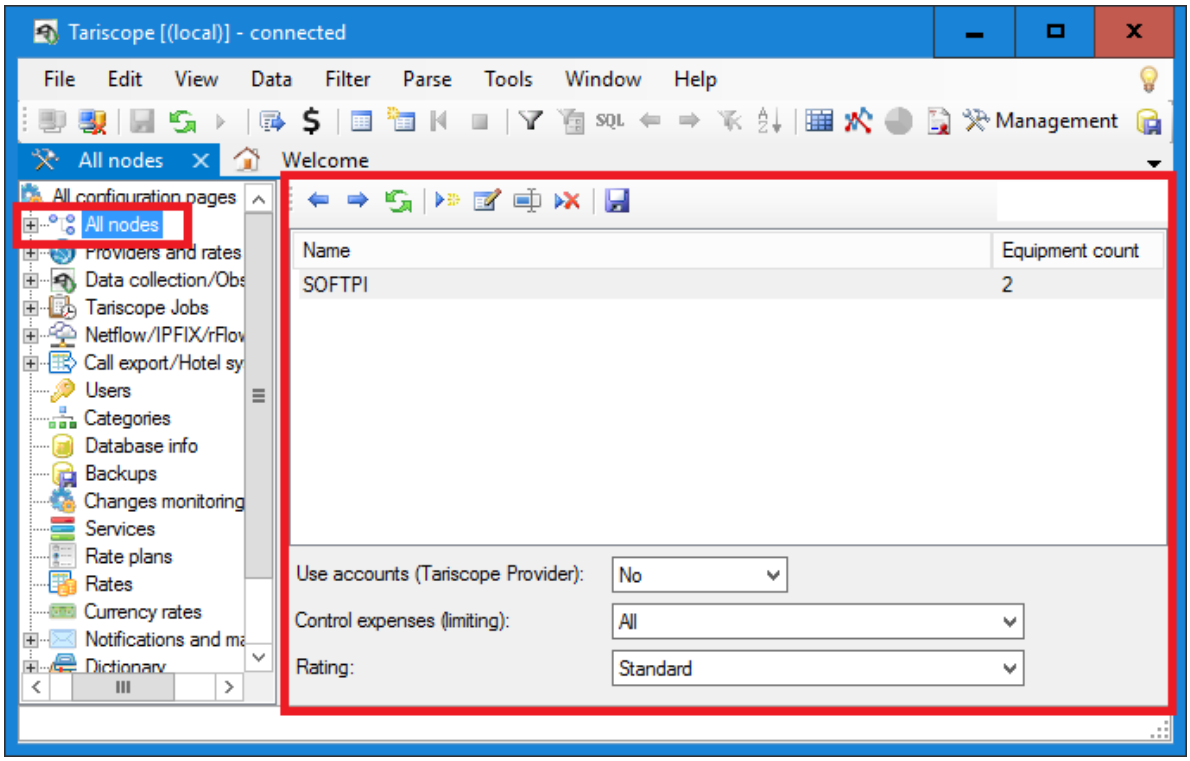


Figure 3.11.1

The **Use accounts** list allows to turn on or off subscribers' accounts. This list is applied only to the Tariscope Provider edition. If you are the Tariscope Provider user, select the **Yes** option.

If your Taiscope license contains the restriction feature, you should set an option of the restriction feature that you bought. In the **Control expenses** list, select this option.

Tariscope allows you to rate calls using two rates. Usually, one rate is used. This value (**Standard**) is set by default in the **Rating** list. If you want to use two rates from different telecom provides, select the **Standard and secondary** option in the list.

To create a new node, select the **All nodes** branch of the configuration tree. The program window will be as shown in Figure 3.11.1.

In the example shown in Figure 3.11.1 the SoftPI telecommunications node has been created, which is displayed in the table in the right part of the window.

To create a new telecommunications node, click **Add**. The **New node** is created and this name is displayed in the **Node name** box (Figure 3.11.2).

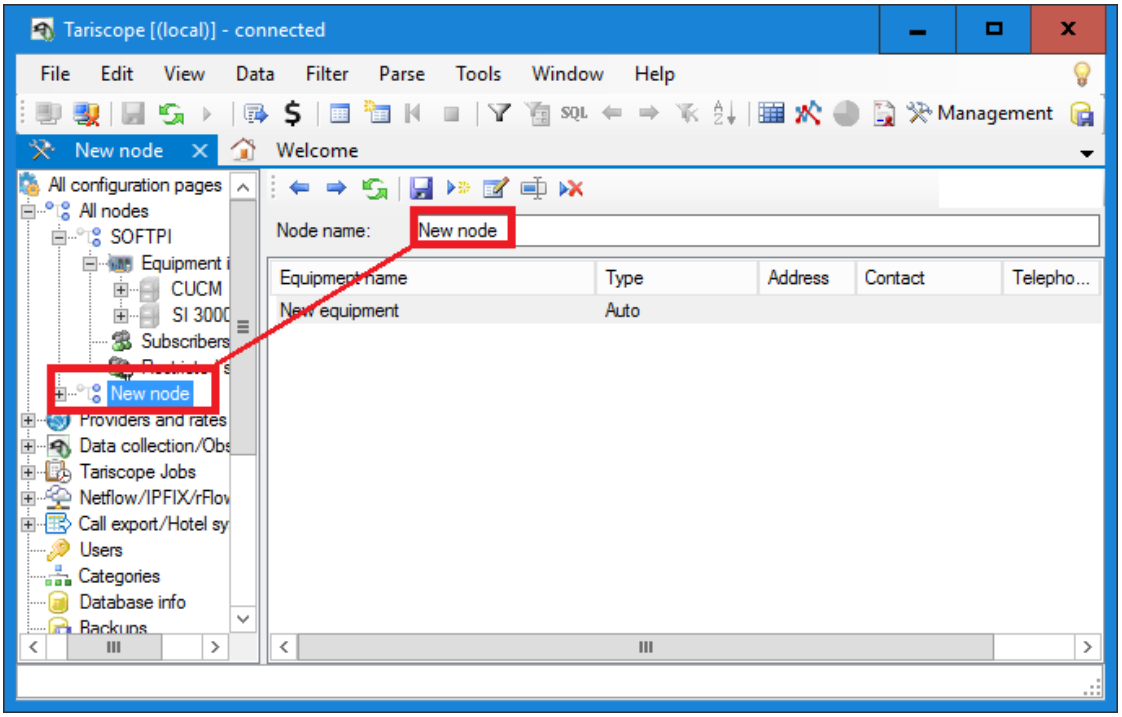


Figure 3.11.2

In the **Node name** box, change the **New node** name on any other name. For example, it can be your company name.

On the toolbar, select the **Save** icon to store this change.

3.12. Adding a new telephone system

An input of parameters of a new telephone system is a step of a telecommunications node configuration.

When you create a new telecommunications node, a new equipment (a new telephone system) is automatically created as you can see in Figure 3.11.2. Next, you should set parameters for this telephone system.

Double-click on the **New equipment** row (Figure 3.11.2). The right part of the program will be as shown in Figure 3.12.1.

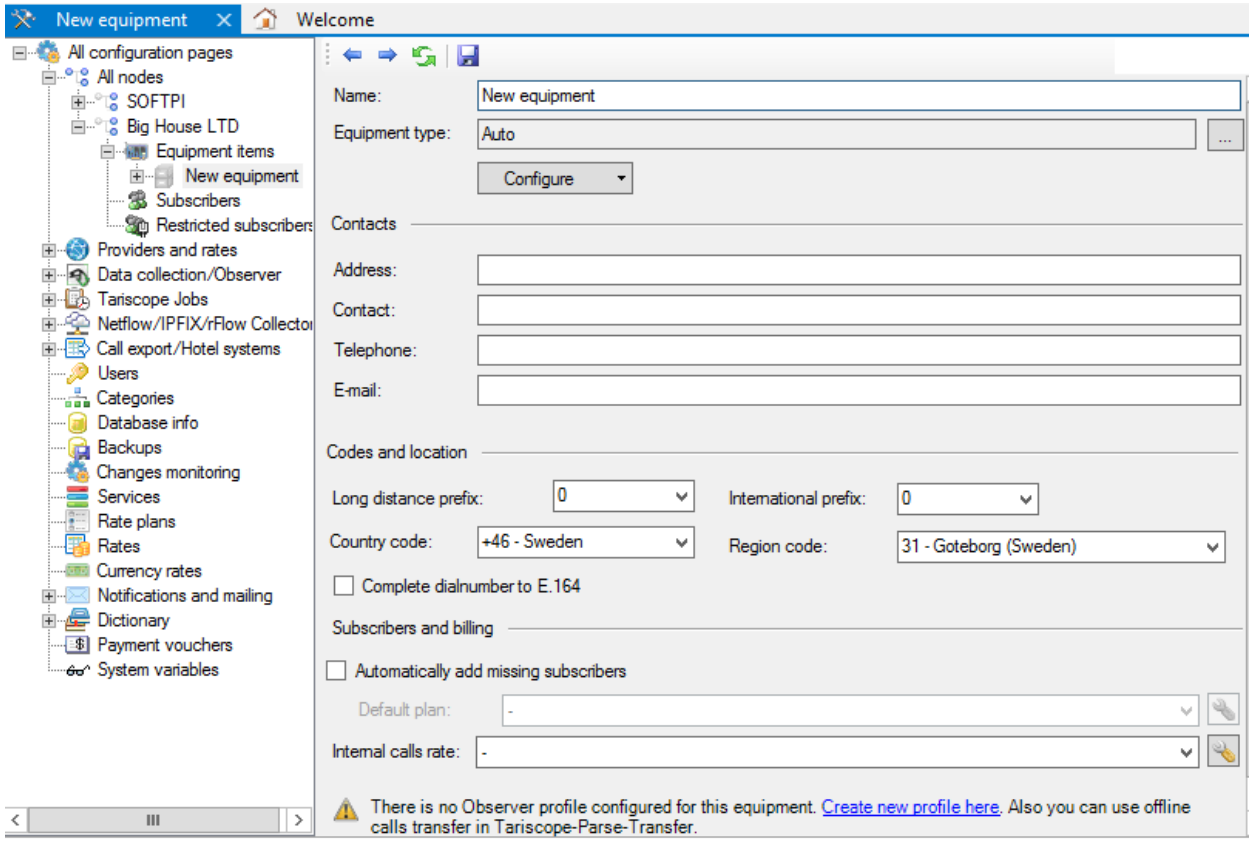


Figure 3.12.1

In the **Name** box, change the **New equipment** name on any other name. For example, it can be a real name of your telephone system.

Click on the button located on the right from the **Equipment type** box. Select a type of your telephone system from a list or use the **Search** line to find a desired telephone system name. The list contains the following telephone systems:

- 3CX Phone System,
- Aastra MX,
- Alcatel OmniPCX Enterprise,
- Alcatel OmniPCX Office (Alcatel OmniPCX Office XML, Custom),
- Asterisk,
- Auto,
- Avaya Aura, S8800, S8730, S8710, S8700, S8500, S8400, S8300, Definity,
- Avaya IP Office,
- Avaya Session Manager,
- Cisco Unified Communications Manager (CUCM),
- Cisco CallManager Express (CME),
- Cisco PGW 2200,
- Coral FlexiCom,
- Epygi QX1000,
- Ericsson Business Phone 250,
- Erricsson MD110,
- Farlep F-1500,

- Grandstream UCM6100, UCM6510,
- Informtekhnika Minicom DX-500,
- Iskratel SI-2000,
- Karel DS200,
- Kvant,
- LG GHX-46,
- LG LDK 100/300,
- LG-Ericsson iPECS-LIK,
- MfiSoft RTU,
- Microsoft Lync 2013,
- Mitel 330, SX2000,
- NEC NEAX / UNIVERGE,
- NetFlow sensor,
- Nortel Meridian 1 / CS1000,
- Nortel Norstar / BCM,
- Panasonic KX-xxx,
- Platon PBX Server Libra,
- Profinfotech Billion Softswitch,
- Rustelcom Elcom,
- Rus Tex AGAT UX,
- Samsung iDCS500 / OfficeServ,
- Siemens HiPath 4000,
- Siemens HiPath / HiCom,
- Siemens OpenScape Office,
- Telsystems Oktell,
- Wyatts DK2000.

The selected equipment type will be displayed in the **Equipment type** box (Figure 3.12.1).

Click on the **Configure** button, the menu appears. Select **Advanced equipment parser settings**. The different windows can appear in dependence on the telephone system type. Next, we consider the features of settings for each telephone system

Now we return to other settings of telephone system that are shown in Figure 3.12.1.

If you click on the **Configure** button, the menu appears which except the **Advanced equipment parser settings** item contains the following items:

- **Numbering plan,**
- **Routes and gateways,**
- **Prefixes,**
- **Restriction classes,**
- **Accounting data collection.**

Configuration pages that are linked with these menu items are also available from the configuration tree when you open the contents of a particular telephone system. These settings will be discussed later.

The **Contacts** section of the window shown in Figure 3.12.1 contains the following boxes:

- **Address**. It is used to input an address where the telephone system is located. This is the optional parameter.
- **Contact**. This box is intended to type a name and surname of the person who is responsible for this telephone system. This is the optional parameter.
- **Telephone**. This box is intended to type a telephone number of the person who is responsible for this telephone system. This is the optional parameter.
- **E-mail**. This box is intended to type an email address of the person who is responsible for this telephone system. This is the optional parameter.

The **Codes and location** section of the window contains the following boxes:

- **Long distance prefix**. The Long distance prefix is a prefix that allows to make telephone call outside a specific local area, usually to another city. In most countries it is equal 0. If this prefix is another, change it.
- **International prefix**. The International prefix is a prefix that allows to make call from your country to another country. In most countries it is equal 0. If this prefix is another, change it.
- **Country code**. The Country code is a numeric code which allows to make call to a specific country or area. Select the code of your country. This code can be used to convert the dialed telephone number in full format, when the **Complete dialnumber to E.164** check box is selected.
- **Region code**. This is an area code. Select your area.

The **Long distance prefix** and **International prefix** affect the correct recognition of long-distance and international calls, and consequently on their rating.

The **Subscribers and billing** section of the window contains the following settings:

- **Automatically add missing subscribers**. The selection of the check box allows to automatically add subscribers into the Tariscope database during the CDR processing, if subscribers are absent in the database. The system automatically assigns subscriber's name using subscriber's extension number and the 'a' prefix. For example, the subscriber with the name of a.7777 will be added to the Tariscope database when Tariscope processes a call made from the extension of 7777. The Tariscope administrator can change these code names on the real names later. If you select this box this allows to rate calls from all subscribers. Calls from the phone numbers that do not belong to any subscriber will not be rated.
- The **Default plan** list becomes active only when the **Automatically add missing subscribers** box is selected. In this case, select the desired rate plan for automatically created subscribers. If the plan is not selected, calls from these subscribers will not be rated.
- The **Internal calls rate** list is applies if you want to rate internal calls. In this case, select the desired rate. If the desired rate is absent, you should create it. If you want to modify a selected rate, click on the icon located on the right from the list.

If you have not created a profile to get CDR from your telephone system, the prompt in the bottom of the window displays an offer to create this profile. Before moving on to create and configure this profile we recommend to set up such parameters as numbering plan, routes and gateways, prefixes and restriction classes. On the toolbar, click on the **Save** icon to save the settings and then go to the other configuration pages.

If Tariscope is used to simultaneously process information from multiple telephone systems, the steps above should be performed for each of them.

3.12.1. CDR format for 3CX Phone System

If you have selected the **3CX Phone System** item in the **Equipment type** list (Figure 3.12.1) and you have 3CX Phone System version 14 or 15, click on the **Configure** button (Figure 3.12.1) and select the **Advanced equipment parser settings** item. The **3CX parser configuration** window appears as shown in Figure 3.12.1.1.

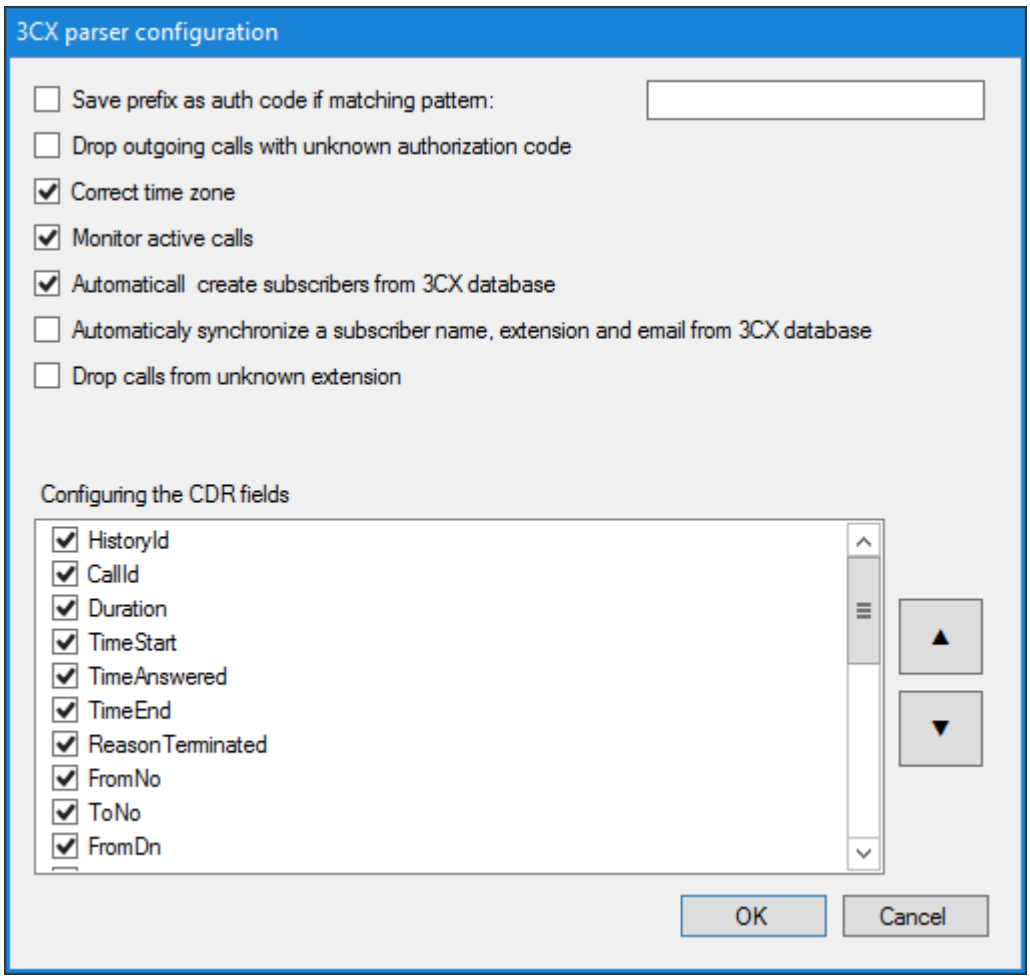


Figure 3.12.1.1

If you have 3CX Phone System version 6-12, skip this configuration. Tariscope automatically defines CDR format for these versions.

First two check boxes are used only when Tariscope is applied to implement authorization codes in 3CX Phone System. How to implement such feature in 3CX

Phone System, find out in a special article on the Tariscope site. To use this feature the Tariscope license must include the restriction feature.

If you use authorization codes in 3CX Phone System, select the **Save prefix as auth code if matching pattern** check box. In the text box located on the right from this check box, type a mask for authorization codes. For example: **1###**. It means that all authorization codes must contain 4 digits and the first digit in them must be started from 1. You must perform the appropriate settings in the **Outbound rules** page of 3CX Phone System and, type the authorization codes for subscribers on the **Subscribers** page (Section 3.13).

If you want to forbid calls, where authentication codes are absent, select the **Drop outgoing calls with unknown authorization code** check box.

If your 3CX Phone System uses time of UTC + 0 in CDR, but you are located in another time zone, to change the time zone in call data, select the **Correct time zone** check box.

To monitor calls information in the real time, select the **Monitor active calls** check box. A prerequisite for using this feature is to install the client part of **Tariscope** on the same computer where 3CX Phone System works.

Tariscope provides feature to automatically create subscriber's information in the Tariscope database when the processing of information about calls is executed and if a subscriber is absent in the database. In this case, Tariscope gets subscriber's information from the 3CX Phone System database. To implement this feature, select the **Automatically create subscribers from 3CX database** check box.

Tariscope allows to automatically synchronize the subscriber's information such as a subscriber name, extension and email address with the 3CX Phone System database. To implement this feature, select the **Automatically synchronize a subscriber name, extension and email from 3CX database** check box.

If you have not selected the **Automatically create subscribers from 3CX database** check box, you can use the opportunity to drop all calls made from extensions that are absent in the Tariscope database. To do this, select the **Drop calls from unknown extension** check box.

The **3CX v14 CDR fields** list specifies a list of the flields of CDR and their order. By default, the default CDR format of 3CX Phone Systems is used. If you have another CDR format, check the required fields in the list, and specify the order of the fileds.

To use the features such as the automatic creation of subscribers, data synchronization, drop the outgoing calls from telephone numbers that are unknown in Tariscope, as well as for the features listed below, it is necessary to select the ***Monitor active calls*** *check box.*

Except of the settings of the 3CX parser configuration window, Tariscope contains still some settings that are specific for 3CX Phone System and which provide the execution of the following features:

- Disable calls, the duration of which exceeds a predetermined value.
- Disable calls, the cost of which exceeds a predetermined value.

- Disable calls on the telephone numbers that correspond the predetermined pattern.
- Disable calls for customers who have balance less than the set value (only for the Tariscope Provider edition).

All these features are accessible for the Tariscope users who have the license with the restriction feature.

The configuration of the features are executed by setting a certain value in the **main.xml** file located in the folder: …/ProgramData/Tariscope.

To disconnect a call that has a duration more than a certain value, change the value of 0 on a desired value in the tags:
<DropCallDurationThreshold>0**</DropCallDurationThreshold>**

To disconnect a call that has a cost more than a certain value, change the value of 0 on a desired value in the tags:
<DropCallCostThreshold>0**</DropCallCostThreshold>**
The value is specified in the currency that was set as the main currency in Tariscope. The value of 0 in these tags means that Tariscope does not monitor calls on their cost.

To disconnect calls made to telephone numbers that correspond to the pattern, it should specify the pattern in the following tags:
<DropCallRulesNumberPattern>*</DropCallRulesNumberPattern>**.
The value of '*' means that the disconnection does not execute for this case.

If you want to forbid calls for customers who have an account balance less than a certain value, change the value of 'false' on 'true' in the tags:
<LimitSubscribersByBalance>false**</LimitSubscribersByBalance>**.
And change the value of 0 in the tags: **<BalanceThreshold>**0**</BalanceThreshold>** on a desired value. The value of 0 means that when an account balance is equal 0, all calls will be forbidden till the balance will be more than 0.

3.12.2. CDR format for Aastra MX-ONE and Aastra MD110

If you have selected the **Aastra MX** item in the **Equipment type** list (Figure 3.12.1), click on the **Configure** button (Figure 3.12.1) and select the **Advanced equipment parser settings** item. The **Equipment parser configuration** window appears as shown in Figure 3.12.2.1.

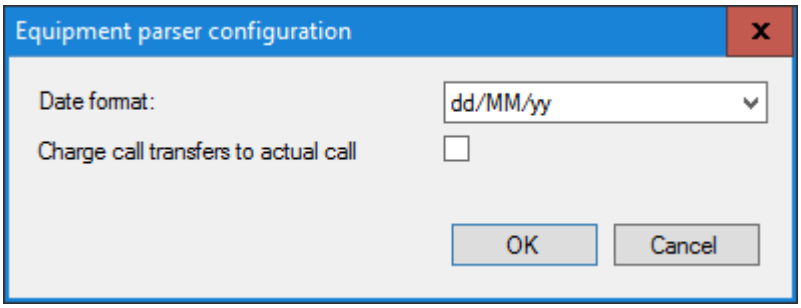


Figure 3.12.2.1

The window allows to select the required date format. Select it from the **Data format** list.

When processing a call transfer, by default, Tariscope charges a total cost of the call on a subscriber who made the call transfer. If you wish to divide the call cost between subscribers who took part in the call, select **Charge call transfer to actual call paties**.

3.12.3. CDR format for Alcatel OmniPCX Enterprise

If you have selected the **Alcatel OmniPCX Enterprise** item in the **Equipment type** list (Figure 3.12.1), click on the **Configure** button (Figure 3.12.1) and select the **Advanced equipment parser settings** item. The **Equipment parser configuration** window appears as shown in Figure 3.12.3.1.

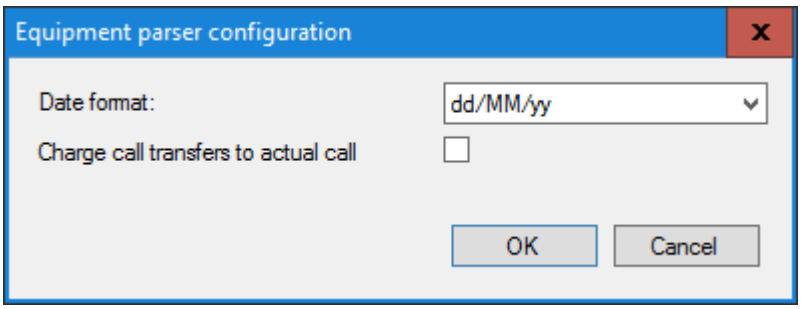


Figure 3.12.3.1

The window allows to select the required date format. Select it from the **Data format** list.

When processing a call transfer, by default, Tariscope charges a total cost of the call on a subscriber who made the call transfer. If you wish to divide the call cost between subscribers who took part in the call, select **Charge call transfer to actual call paties**.

3.12.4. CDR format for Alcatel OmniPCX Office

If you have selected the **Alcatel OmniPCX Office** item in the **Equipment type** list (Figure 3.12.1), click on the **Configure** button (Figure 3.12.1) and select the **Advanced equipment parser settings** item. The **File format** window appears as shown in Figure 3.12.4.1.

The window allows to select fields and their order in which they were specified in PBX.

The window contains:

- The **Name** box. It displays the **Aclatel OmniPCX Office** name. You can change this name.
- The **Extensions** box. It contains a list of extensions of CDR files. By default, the TXT, LOG and CDR extensions are offered.
- The **Encoding**, **Row Delimiter**, **File reader**, **First row contains** and **Column delimiter** lists are not used.

There is a table with columns:

- **Name**. Displays field names that are used for configuration.
- **Start position**. Displays a start position of fields.

- **Length**. Displays a field length in characters.
- **End position**. Displays a position of the end character of the field.
- **Enabled**. A sign of use this field in CDR format.
- **Description**. A brief description of the field.

To change the data of a field, double-click on the appropriate line. The **Field format** window appears, as shown in Figure 3.12.4.2.

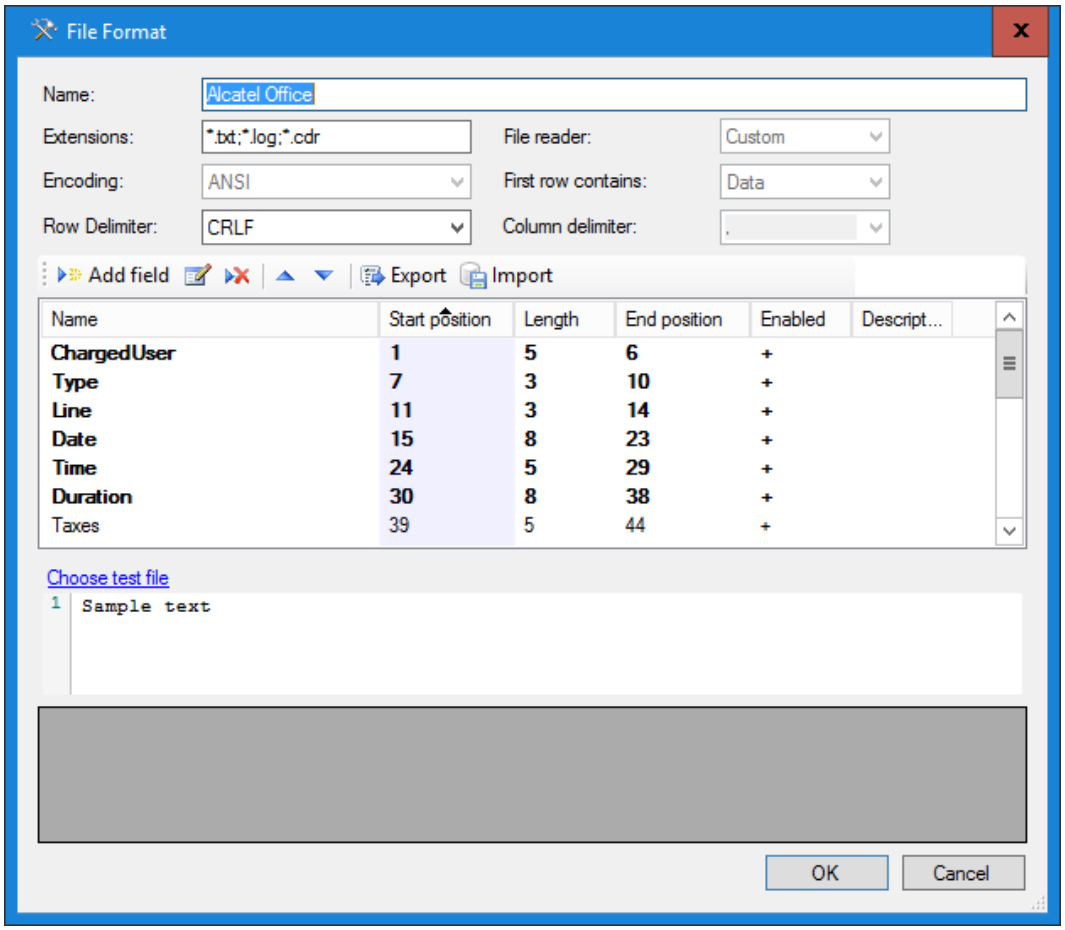


Figure 3.12.4.1

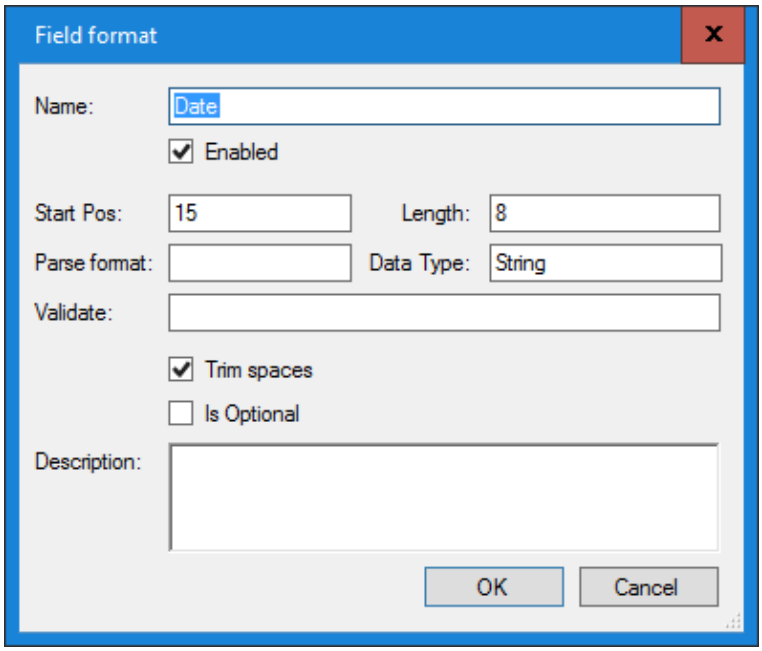


Figure 3.12.4.2

In the **Name** box the field name is displayed that is used in Alcatel documentation. If you wish, you can change it.

If Tariscope must process this field, select the **Enabled** box.

The **Start Pos** box displays a start position of field. You can change the value.

The **Length** box displays a field length. You can change the value.

The **Parse format** box allows to specify format for the field. It can apply, for example, for the **Date** field, where you should specify a date format that is used in CDR.

The **Validate** box is used to verify the correctness of the field. You can type a regular expression in the box.

To correct process CDR, Tariscope must delete spaces in CDR. By default, the **Trim spaces** check box is selected. Don't clear the check box

If the original string of CDR data needs to be processed only if it contains this field, select the **Is Optional** check box. If this check box is selected, the CDR string will be processed, but this field will be blank. The required fields for processing are shown in bold in the table.

To save parameters of the field, click **OK**.

Repeat this action for all fields.

If you have an example of CDR file, to verify the configuration parameters of CDR format, click on the **Choose test file** link (Figure 3.12.4.1), and select the CDR file. Processing will be performed and its results are displayed in the table at the bottom of the fields table. If some data was not processed or processed incorrectly, repeat the configuration of fields.

3.12.5. CDR format for Asterisk

If you have selected the **Asterisk** item in the **Equipment type** list (Figure 3.12.1), click on the **Configure** button (Figure 3.12.1) and select the **Advanced equipment parser settings** item. The **CDR configuration** window appears as shown in Figure 3.12.5.1.

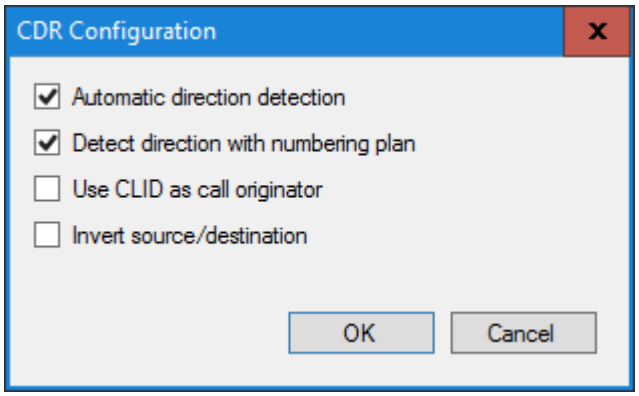


Figure 3.12.5.1

This configuration is applied to Asterisk with CDR that is contained in MySQL database or **master.csv** file.

CDR format of Asterisk does not contain information about call direction therefore a call direction can be automatically defined by Tariscope or based on the numbering plan.

When the CDR is processed, the telephone numbers with number of digits is equal to or less than 4 is considered as internal ones (extensions). To use this method of definition, select the **Automatic direction detection** box.

For using numbering plan to define internal and external phone numbers, select the **Detect direction with numbering plan** box.

If you have problem with detection of a call originator, select the **Use CLID as call originator** box.

If after processing CDR, you find that a call source and call destination should be inverted, select the **Invert source/destination** check box.

3.12.6. Automatically definition of CDR format

Tariscope provides an automatically definition of CDR format for most of telephone systems during CDR processing. If you don't know a type of your telephone system, you can try to process CDR files using automatically definition. To do this, select the Auto item in the **Equipment type** list (Figure 3.12.1).

If you know a type of your telephone system, we recommend to select this type in the **Equipment type** list.

3.12.7. CDR format for Avaya Aura, S8800, S87xx, S8600, S8400, S8300, and Definity

If you have selected the **Avaya Definity** item in the **Equipment type** list (Figure 3.12.1), click on the **Configure** button (Figure 3.12.1) and select the **Advanced equipment parser settings** item. The **File format** window appears as shown in Figure 3.12.7.1.

The window allows to select fields and their order in which they were specified in PBX.

The window contains:

- The **Name** box. It displays the **Aclatel OmniPCX Office** name. You can change this name.
- The **Extensions** box. It contains a list of extensions of CDR files. By default, the TXT, LOG and CDR extensions are offered.
- The **Encoding**, **Row Delimiter**, **File reader**, **First row contains** and **Column delimiter** lists are not used.

There is a table with columns:

- **Name**. Displays field names that are used for configuration.
- **Start position**. Displays a start position of fields.
- **Length**. Displays a field length in characters.
- **End position**. Displays a position of the end character of the field.
- **Enabled**. A sign of use this field in CDR format.
- **Description**. A brief description of the field.

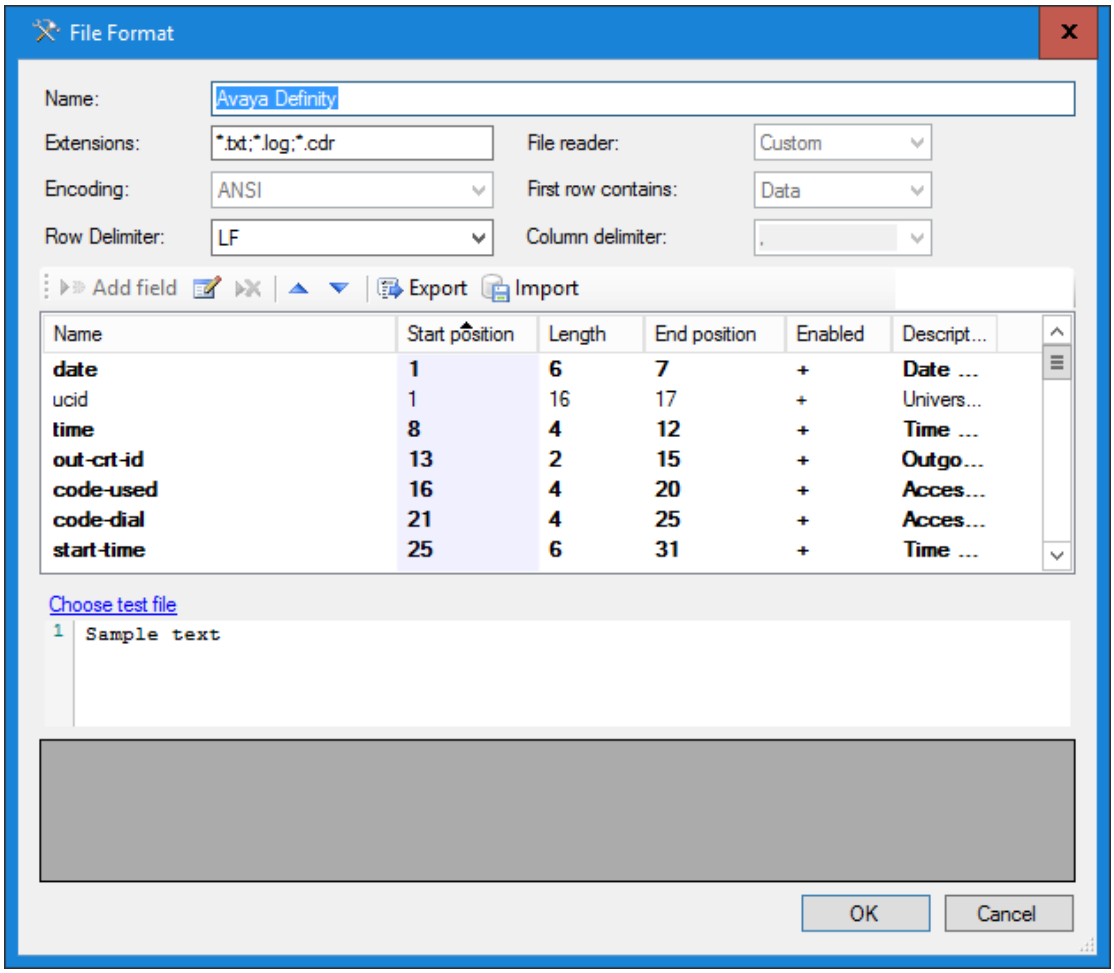


Figure 3.12.7.1

To change the data of a field, double-click on the appropriate line. The **Field format** window appears, as shown in Figure 3.12.7.2.

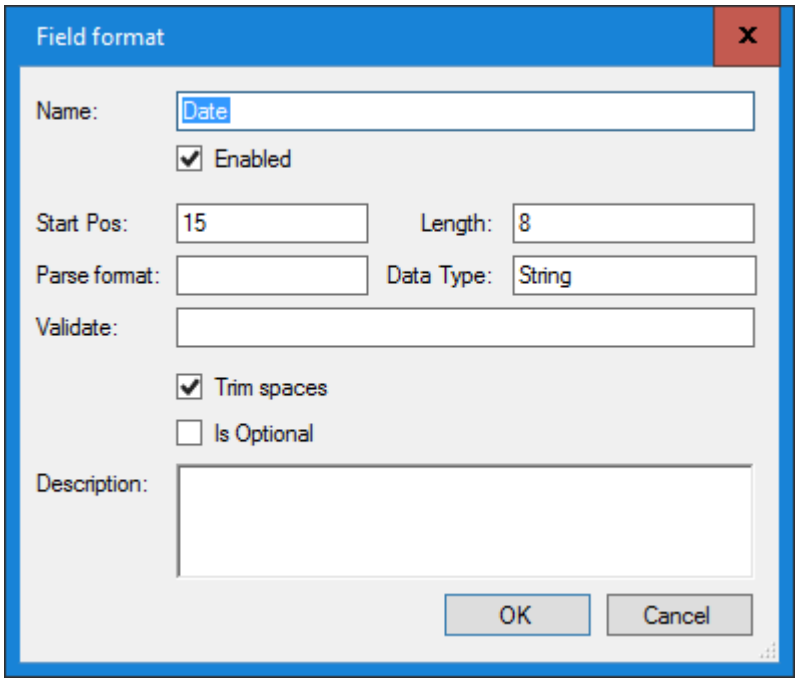


Figure 3.12.7.2

In the **Name** box the field name is displayed that is used in Alcatel documentation. If you wish, you can change it.

If Tariscope must process this field, select the **Enabled** box.

The **Start Pos** box displays a start position of field. You can change the value.

The **Length** box displays a field length. You can change the value.

The **Parse format** box allows to specify format for the field. It can apply, for example, for the **Date** field, where you should specify a date format that is used in CDR.

The **Validate** box is used to verify the correctness of the field. You can type a regular expression in the box.

To correct process CDR, Tariscope must delete spaces in CDR. By default, the **Trim spaces** check box is selected. Don't clear the check box

If the original string of CDR data needs to be processed only if it contains this field, select the **Is Optional** check box. If this check box is selected, the CDR string will be processed, but this field will be blank. The required fields for processing are shown in bold in the table.

To save parameters of the field, click **OK**.

Repeat this action for all fields.

If you have an example of CDR file, to verify the configuration parameters of CDR format, click on the **Choose test file** link (Figure 3.12.7.1), and select the CDR file. Processing will be performed and its results are displayed in the table at the bottom of the fields table. If some data was not processed or processed incorrectly, repeat the configuration of fields.

3.12.8. CDR format for Avaya IP Office

If you have selected the **Avaya IP Office** item in the **Equipment type** list (Figure 3.12.1), you do not need to perform any settings for CDR format of this telephone system.

3.12.9. CDR format for Avaya Session Manager

If you have selected the **Avaya Session Manager** item in the **Equipment type** list (Figure 3.12.1), you do not need to perform any settings for CDR format of this telephone system.

3.12.10. CDR format for Cisco Unified Communications Manager

If you have selected the **Cisco CallManager** item in the **Equipment type** list (Figure 3.12.1), click on the **Configure** button (Figure 3.12.1) and select the **Advanced equipment parser settings** item. The **CUCM parser configuration** window appears as shown in Figure 3.12.10.1.

CDR format of CUCM contains hundreds of different fields. Some of the fields are not used to call rating. They are complementary. Therefore, by default, only those fields, which are used for call rating, are processed and saved in the Tariscope database. In order to all fields of CDR file are processed and saved in the Tariscope database, check the **Save all fields** check box. It should be borne in mind that the storage of all fields requires more disk space.

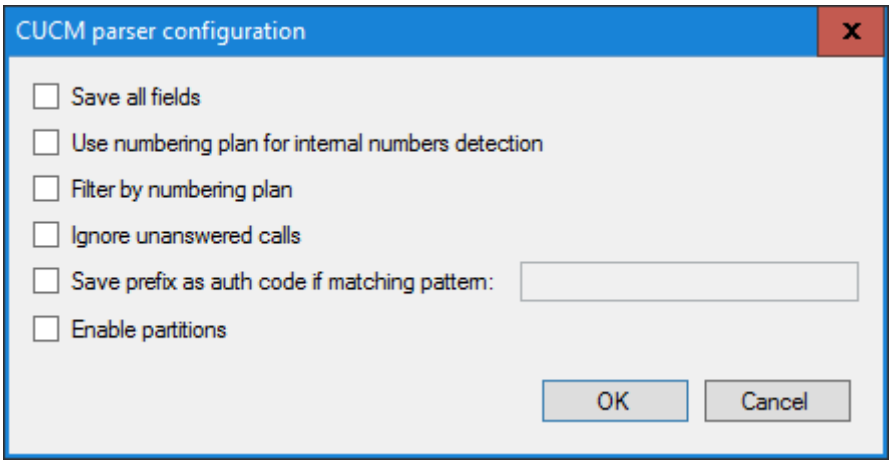


Figure 3.12.10.1

To correctly determine the internal and external telephone numbers we recommend you to use a numbering plan. To do this, select the **Use numbering plan for internal numbers detection** check box.

If you use a numbering plan, but you do not want to handle calls that do not belong to the numbering plan, select the **Filter by numbering plan** check box. This saves disk space and increases the productivity.

If you do not want to process information about unanswered calls, select the **Ignore unanswered calls** check box.

To take into account authorization codes, select the **Save prefix as auth code if matching pattern** check box, and enter a pattern, which will be used to define the authorization codes.

If you have more than one partition in CUCM, select the **Enable partitions** check box. This allows to correctly define a subscriber who made a call.

3.12.11. CDR format for Cisco CallManager Express

If you have selected the **Cisco IOS VoIP** item in the **Equipment type** list (Figure 3.12.1), click on the **Configure** button (Figure 3.12.1) and select the **Advanced equipment parser settings** item. The **Cisco IOS parser configuration** window appears as shown in Figure 3.12.11.1.

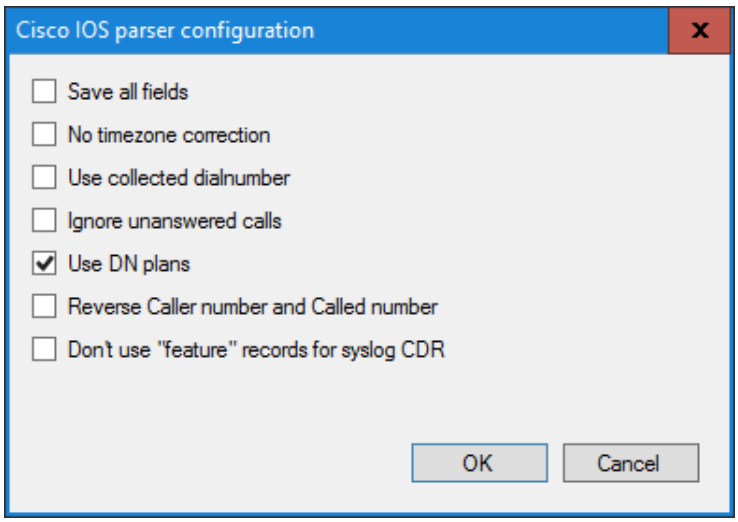


Figure 3.12.11.1

If you wish to analyze all CDR fields, select the **Save all fields** check box. It should be borne in mind that it will require additional memory on the hard disk and the productivity of a server will be lower. If you do not select this check box, Tariscope will process only fields that are used for calls rating.

If you do not select the **No timezone correction**check box, Tariscope will adjust a time from CDR to a time zone that was set on your computer.

If CDR file contains information about a dialed number in the "gw_collected_cdn (103)" field, select the **Use collected dialnumber** check box. If youdo not know this information, do not select this check box. Process the CDRinformation and check whether there is a dialed number for outgoing calls. If it is absence, select this check box.

If you do not wish to process unanswered calls, select the **Ignore unanswered** calls box.

To correctly determine the internal and external telephone numbers we recommend to use a numbering plan, and select the **Use DN plans** check box. By default, it is selected.

The **Reverse Caller number and Called number** check box allows to change places the following CDR fields: **Caller number** and **Called number**.

If your CallManager Express (CME) has an old syslog format that does not contain the feature records, select the **Don't use "feature" records for syslog CDR** check box.

3.12.12. CDR format for Cisco PGW 2200

If you have selected the **Cisco PGW 2200** item in the **Equipment type** list (Figure 3.12.1), you do not need to perform any settings for CDR format of this telephone system.

3.12.13. CDR format for Coral FlexiCom

If you have selected the **Coral FlexiCom** item in the **Equipment type** list (Figure 3.12.1), you do not need to perform any settings for CDR format of this telephone system.

3.12.14. CDR format for Epygi QX1000

If you have selected the **Epygi QX1000** item in the **Equipment type** list (Figure 3.12.1), you do not need to perform any settings for CDR format of this telephone system.

3.12.15. CDR format for Ericsson Business Phone 250

If you have selected the **Ericsson Business Phone 250** item in the **Equipment type** list (Figure 3.12.1), you do not need to perform any settings for CDR format of this telephone system.

3.12.16. CDR format for Aastra (Ericsson) MD110

If you have selected the **Ericsson MD110** item in the **Equipment type** list (Figure 3.12.1), you do not need to perform any settings for CDR format of this telephone system.

3.12.17. CDR format for Farlep F-1500

If you have selected the **Farlep F-1500** item in the **Equipment type** list (Figure 3.12.1), click on the **Configure** button and select the **Advanced equipment parser settings** item. The **Equipment parser configuration** window appears as shown in Figure 3.12.17.1.

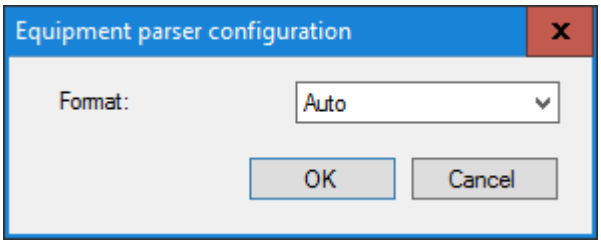


Figure 3.12.17.1

The window allows to select a CDR format that is used in the telephone system. There are the following options:

- Auto.
- Record296.
- Record306.
- Record476.

Select the required format and click **OK**.

3.12.18. CDR format for Informtekhnika Minicom DX-500

If you have selected the **Informtekhnika Minicom DX-500** item in the **Equipment type** list (Figure 3.12.1), you do not need to perform any settings for CDR format of this telephone system.

3.12.19. CDR format for Iskratel SI3000, SI2000

If you have selected the **Iskratel SI-2000** item in the **Equipment type** list (Figure 3.12.1), click on the **Cofigure** button and select the **Advanced equipment parser settings** item. The **Equipment parser configuration** window appears as shown in FIgure 3.12.19.1.

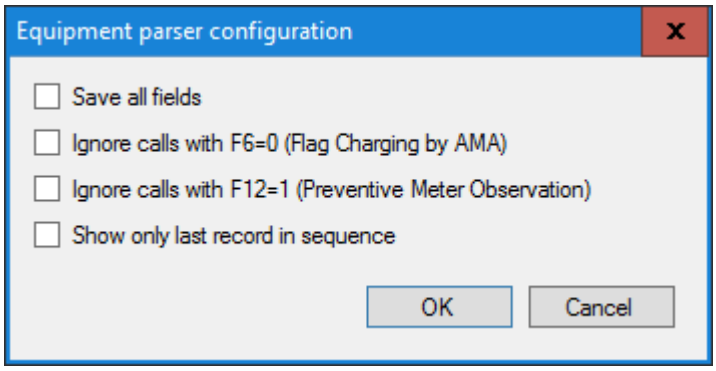


Figure 3.12.19.1

Select the **Save all fields** check box, if you wish to save all AMA fields in the Tariscope database. By default, Tariscope saves only those fields that are used to rate calls.

In SI3000 (SI2000) the intermediate AMA records are formed every 30 minutes of a call for calls with duration more than 30 minutes. This can lead to double rating such calls. To avoid this, select the **Ignore calls with F6=0 (Flag Charging by AMA)** and **Ignore calls with F12=1 (Preventive Meter Observation)** check boxes.

If the SI3000 settings provide a receiving of the last record for calls with duration more than 30 minutes that contains a result information about these calls, select the **Show only last record in sequence** check box, and don't select the **Ignore calls with F6=0 (Flag Charging by AMA)** and **Ignore calls with F12=1 (Preventive Meter Observation)** check boxes.

3.12.20. CDR format for Karel DS200

If you have selected the **Karel DS200** item in the **Equipment type** list (Figure 3.12.1), you do not need to perform any settings for CDR format of this telephone system.

3.12.21. CDR format for Kvant

If you have selected the **Kvant** item in the **Equipment type** list (Figure 3.12.1), click on the **Configure** button and select the **Advanced equipment parser settings** item. The **Equipment parser configuration** window appears as shown in FIgure 3.12.21.1.

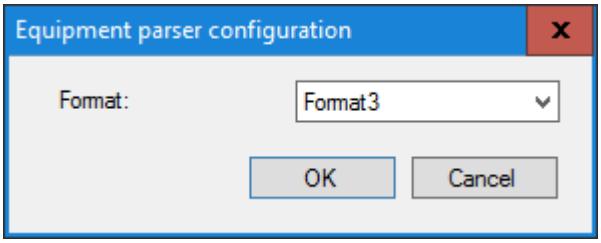


Figure 3.12.21.1

The window allows to select a CDR format that is used in the telephone system. There are the following options:

- Format1.

- Format2.
- Format3.

  Select the required format and click **OK**.

3.12.22. CDR format for LG GHX-46

If you have selected the **LG GHX-46** item in the **Equipment type** list (Figure 3.12.1), you do not need to perform any settings for CDR format of this telephone system.

3.12.23. SMDR format for LG LDK 100/300/600 and LG iPECS-MG

If you have selected the **LG LDK 100/300** item in the **Equipment type** list (Figure 3.12.1), click on the **Configure** button (Figure 3.12.1) and select the **Advanced equipment parser settings** item. The **Equipment parser configuration** window appears as shown in Figure 3.12.23.1.

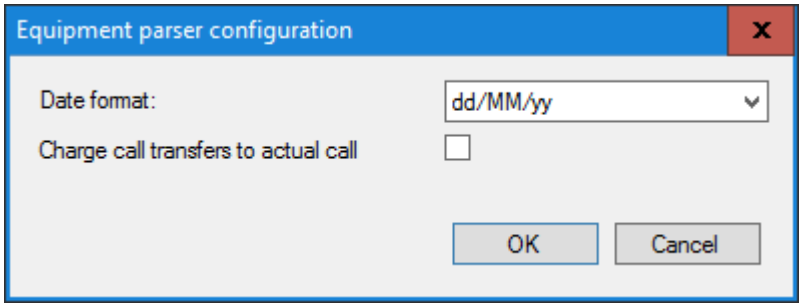


Figure 3.12.23.1

The window allows to select the required date format. Select it from the **Data format** list.

When processing a call transfer, by default, Tariscope charges a total cost of the call on a subscriber who made the call transfer. If you wish to divide the call cost between subscribers who took part in the call, select **Charge call transfer to actual call paties**.

3.12.24. SMDR format for LG-Ericsson iPECS-LIK 100/300/600/1200

If you have selected the **LG-Ericsson iPECS-LIK** item in the **Equipment type** list (Figure 3.12.1), click on the **Configure** button (Figure 3.12.1) and select the **Advanced equipment parser settings** item. The **Equipment parser configuration** window appears as shown in Figure 3.12.24.1.

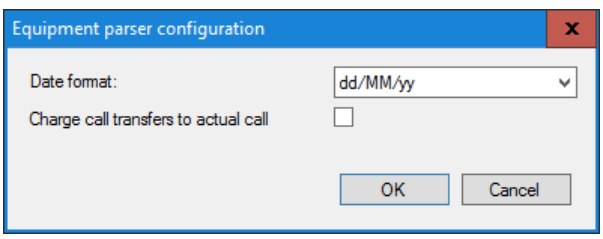


Figure 3.12.24.1

The window allows to select the required date format. Select it from the **Data format** list.

When processing a call transfer, by default, Tariscope charges a total cost of the call on a subscriber who made the call transfer. If you wish to divide the call cost between subscribers who took part in the call, select **Charge call transfer to actual call paties**.

3.12.25. CDR format for MfiSoft RTU

If you have selected the **MfiSoft RTU** item in the **Equipment type** list (Figure 3.12.1), you do not need to perform any settings for CDR format of this telephone system.

3.12.26. CDR format for Microsoft Lync 2013

If you have selected the **Microsoft Lync 2013** item in the **Equipment type** list (Figure 3.12.1), click on the **Configure** button (Figure 3.12.1) and select the **Advanced equipment parser settings** item. The **CDR configuration** window appears as shown in Figure 3.12.26.1.

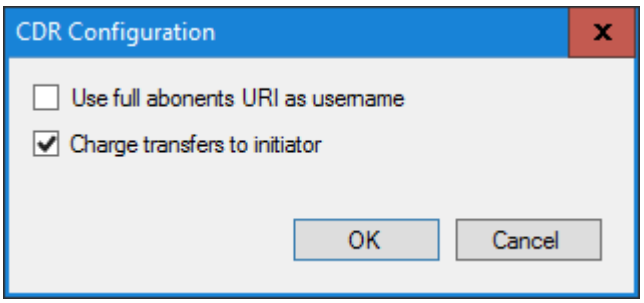


Figure 3.12.26.1

By default, Tariscope saves a subscriber's URI without a domain name. For example, manager@softpiua.com will be saves as 'manager'. If you desire to save a full URI, select the **Use full subscriber's URI as username** check box.

The **Charge transfers to initiator** check box is used to specify how the call tranfer cost will be charged. If the check box is clear, the call transfer cost charges to all subscribers who took part in such call. If the check box is selected, the call transer cost charges to the originator of the call transfer.

3.12.27. SMDR format for Mitel SX-2000 and 3300 ICP

If you have selected the **Mitel 3300** item in the **Equipment type** list (Figure 3.12.1), click on the **Configure** button (Figure 3.12.1) and select the **Advanced equipment parser settings** item. The **CDR configuration** window appears as shown in Figure 3.12.27.1.

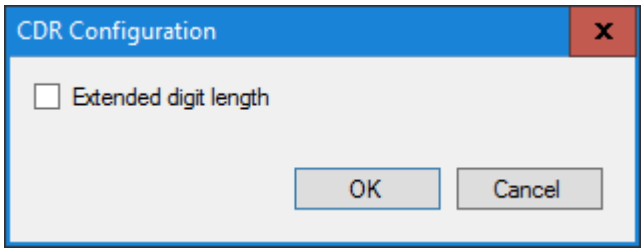


Figure 3.12.27.1

If your PBX has an extended telephone numbers for extensions, select the **Extended digit length** check box. Click **OK**.

3.12.28. SMDR format for NEC NEAX 2000, NEAX 2400 IMS, Univerge SV8100/SV8300

If you have selected the **NEC NEAX\UNIVERGE** item in the **Equipment type** list (Figure 3.12.1), click on the **Configure** button (Figure 3.12.1) and select the **Advanced equipment parser settings** item. The **CDR configuration** window appears as shown in Figure 3.12.28.1.

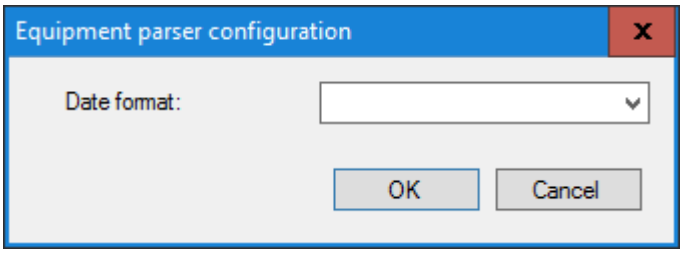


Figure 3.12.28.1

In the **Data format** list, select the format that is used in PBX. Click **OK**.

3.12.29. NetFlow collector settings

If you have selected the **NetFlow sensor** item in the **Equipment type** list (Figure 3.12.1), click on the **Configure** button (Figure 3.12.1) and select the **Advanced equipment parser settings** item. The **NetFlow configuration** window appears as shown in Figure 3.12.29.1.

The window allows to specify IP addresses of network devices from which NetFlow information will be collected.

Click **Add**. The window appears where you should enter the IP address of source of NetFlow (IPFIX, rFlow). If you have some source of NetFlow, repeat the input for other sources.

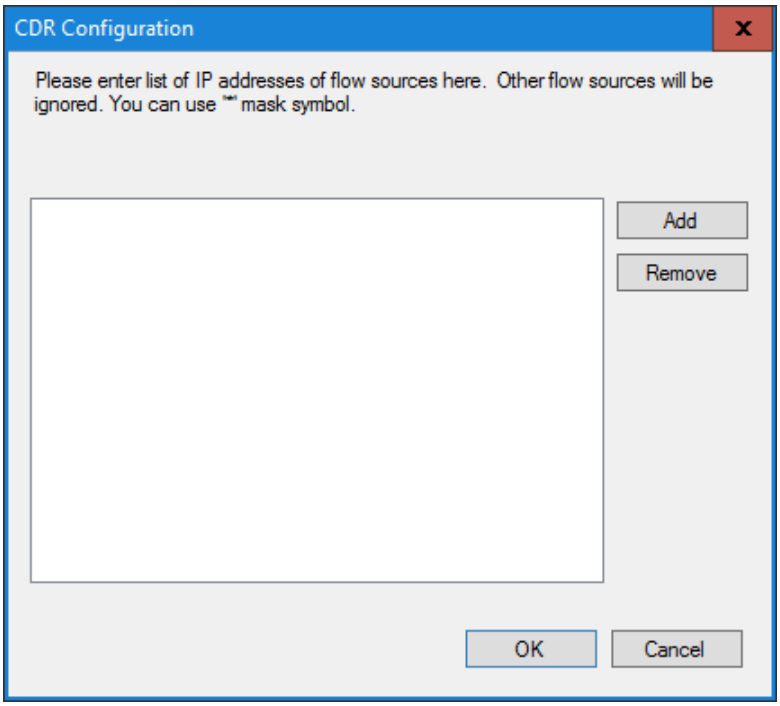


Figure 3.12.29.1

3.12.30. CDR format for Avaya (Nortel) CS1000, Meridian 1, BCM 50, 200, 400 and 450 (SL1)

This option is applied to Avaya (earlier Nortel, Kapsch) Communications Server 1000 (CS1000), Meridian 1, and Business Communications Manager 50/200/400/450 (BCM 50/200/400/450). For BCM 50/200/400/450 this setting is applied only in case when SL 1 format is used.

If you have selected the **Nortel Meridian 1/CS 1000** item in the **Equipment type** list (Figure 3.12.1), click on the **Configure** button (Figure 3.12.1) and select the **Advanced equipment parser settings** item. The **CDR configuration** window appears as shown in Figure 3.12.30.1.

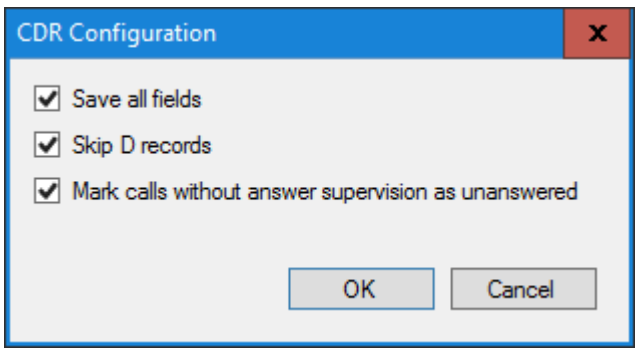


Figure 3.12.30.1

To save all fields, which CDR contains, select the **Save all fields** check box.

If CDR data contains D records and you do not want to process these records, select the **Skip D records** check box. If D records will be processed, the call cost will be double, since the N records also contain the same CDR information.

If you handle incoming calls and want to concider the calls without answer of supervisor as unanswered calls, select the **Mark calls without answer supervision as unanswered** check box.

3.12.31. CDR format for Avaya (Nortel) BCM (Norstar format)

This choice is applied for Business Communications Manager (BCM) 50, 200, 400 and 450, when Norstar format of CDR was set in PBX.

If you have selected the **Nortel Norstar/BCM** item in the **Equipment type** list (Figure 3.12.1), you do not need to perform any settings for CDR format of this telephone system.

3.12.32. CDR format for Panasonic KX-TD and KX-TDA

If you have selected the **Panasonic KX-xxx** item in the **Equipment type** list (Figure 3.12.1), click on the **Configure** button (Figure 3.12.1) and select the **Advanced equipment parser settings** item. The **Equipment parser configuration** window appears as shown in Figure 3.12.32.1.

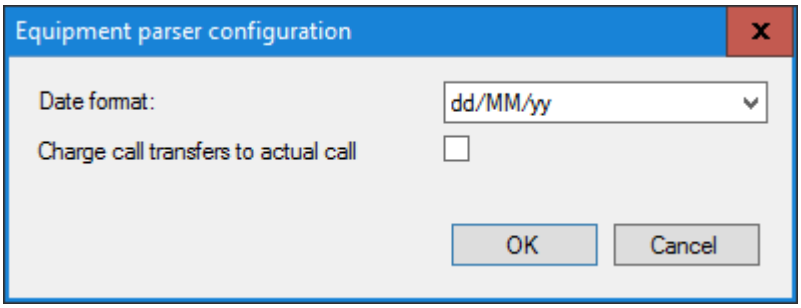


Figure 3.12.32.1

The window allows to select the required date format. Select it from the **Data format** list.

When processing a call transfer, by default, Tariscope charges a total cost of the call on a subscriber who made the call transfer. If you wish to divide the call cost between subscribers who took part in the call, select **Charge call transfer to actual call paties**.

3.12.33. CDR format for Platan PBX Server Libra

If you have selected the **Platan PBX Server Libra** item in the **Equipment type** list (Figure 3.12.1), you do not need to perform any settings for CDR format of this telephone system.

3.12.34. CDR format for Profinfotech Billion Softswitch

Profinfotech Billion Softswitch has the same CDR format as 3CX Phone System. So if you have selected the **Profinfotech Billion Softswitch** item in the **Equipment type** list (Figure 3.12.1), click on the **Configure** button (Figure 3.12.1)

and select the **Advanced equipment parser settings** item. The **3CX parser configuration** window appears as shown in Figure 3.12.34.1.

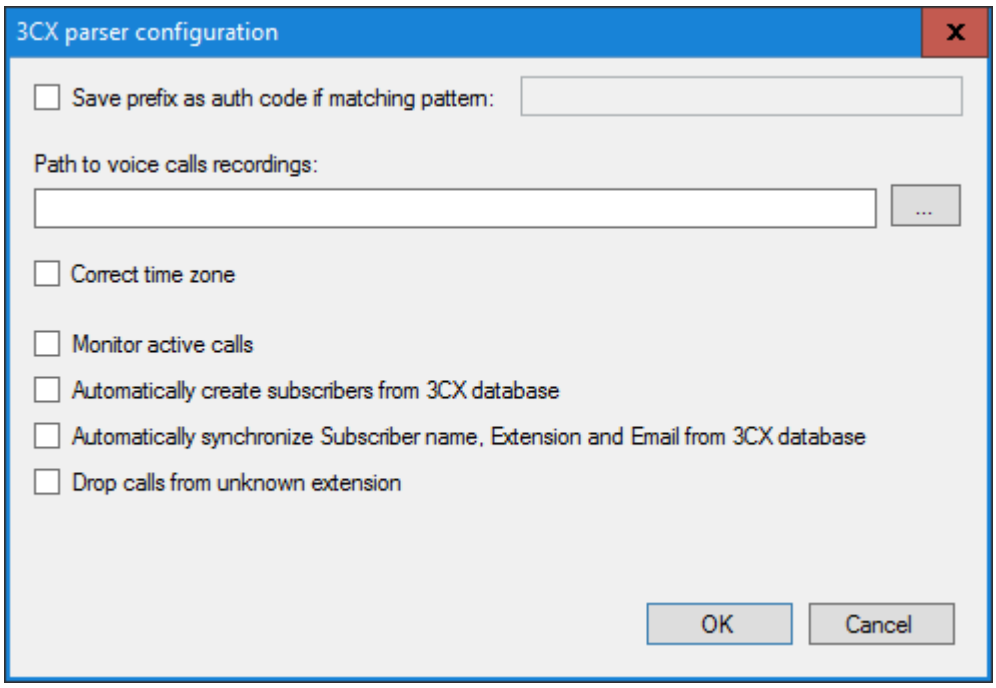


Figure 3.12.34.1

If the dialed number contains a prefix, select the **Save prefix as auth code if matching pattern** check box and type a pattern that will determine how many first digits in the dialed number is considered as a prefix. For example, **1???** - will mean that all dialed numbers that begin with "one" plus three digits will be considered as a prefix. Another example, **###** - will mean that the first three digits in the dialed number will be considered as a prefix. This prefix will be placed in the **Authorization Code** field of the database during processing CDR.

PBX uses time in CDR in UTC + 0. To correct time using a time zone of the Tariscope server, select the **Correct time zone** check box.

To monitor calls information in the real time, select the **Monitor active calls** check box. A prerequisite for using this feature is to install the client part of **Tariscope** on the same computer where 3CX Phone System works.

Tariscope provides feature to automatically create subscriber's information in the Tariscope database when the processing of information about calls is executed and if a subscriber is absent in the database. In this case Tariscope gets subscriber's information from the 3CX Phone System database. To implement this feature, select the **Automatically create subscribers from 3CX database** check box.

Tariscope allows to automatically synchronize the subscriber's information such as subscriber name, extension and email address with the 3CX Phone System database.

To implement this feature, select the **Automatically synchronize a subscriber name, extension and email from 3CX database** check box.

If you have not selected the **Automatically create subscribers from 3CX database** check box, you can use the opportunity to drop all calls made from

extensions that are absent in the Tariscope database. To do this, select the **Drop calls from unknown extension** check box.

3.12.35. CDR format for Rustelecom Elcom

If you have selected the **Rustelecom Elcom** item in the **Equipment type** list (Figure 3.12.1), you do not need to perform any settings for CDR format of this telephone system.

3.12.36. CDR format for Rus Tex Agat UX

If you have selected the **Rus Tex Agat UX** item in the **Equipment type** list (Figure 3.12.1), you do not need to perform any settings for CDR format of this telephone system.

3.12.37. CDR format for Samsung iDSC-500 and OfficeServ

If you have selected the **Samsung iDSC500/OfficeServ** item in the **Equipment type** list (Figure 3.12.1), click on the **Configure** button (Figure 3.12.1) and select the **Advanced equipment parser settings** item. The **Equipment parser configuration** window appears as shown in Figure 3.12.37.1.

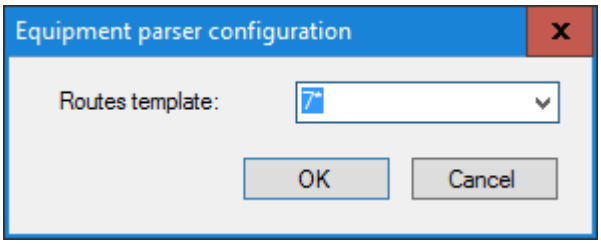


Figure3.12.37.1

You can set the pattern to differ telephone numbers of subscribers and trunks. By default, the pattern of 7* is used. It means that the telephone numbers begun on 7 are reserved for trunks.

If you use another digit for trunks, type it in the **Route template** box.

3.12.38. CDR format for Siemens HiPath 4000

If you have selected the **Siemens HiPath 4000** item in the **Equipment type** list (Figure 3.12.1), click on the **Configure** button (Figure 3.12.1) and select the **Advanced equipment parser settings** item. The **File format** window appears as shown in Figure 3.12.38.1.

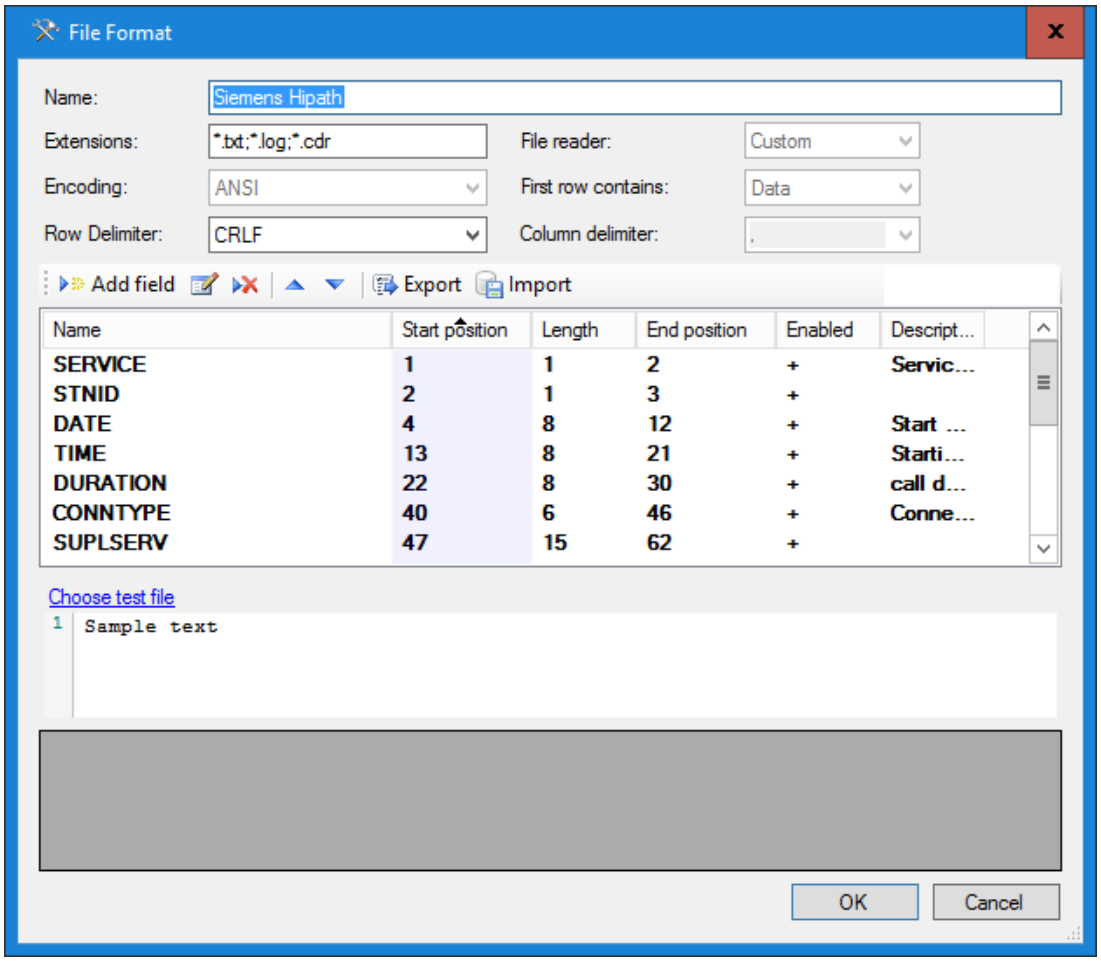


Figure 3.12.38.1

The window allows to select fields and their order in which they were specified in PBX.

The window contains:

- The **Name** box. It displays the **Aclatel OmniPCX Office** name. You can change this name.
- The **Extensions** box. It contains a list of extensions of CDR files. By default, the TXT, LOG and CDR extensions are offered.
- The **Encoding**, **Row Delimiter**, **File reader**, **First row contains** and **Column delimiter** lists are not used.

There is a table with columns:

- **Name**. Displays field names that are used for configuration.
- **Start position**. Displays a start position of fields.
- **Length**. Displays a field length in characters.
- **End position**. Displays a position of the end character of the field.
- **Enabled**. A sign of use this field in CDR format.
- **Description**. A brief description of the field.

To change the data of a field, double-click on the appropriate line. The **Field format** window appears, as shown in Figure 3.12.38.2.

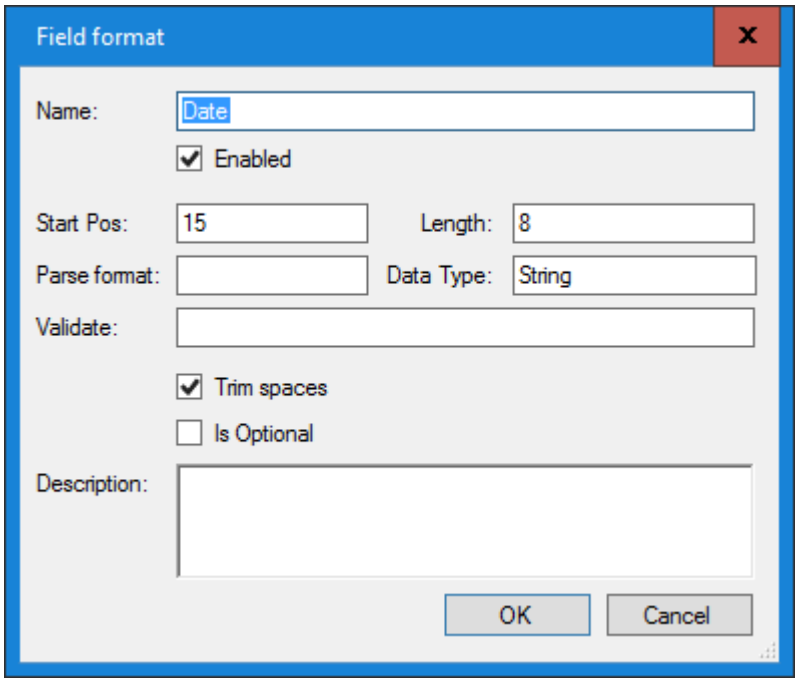


Figure 3.12.38.2

In the **Name** box the field name is displayed that is used in Alcatel documentation. If you wish, you can change it.

If Tariscope must process this field, select the **Enabled** box.

The **Start Pos** box displays a start position of field. You can change the value.

The **Length** box displays a field length. You can change the value.

The **Parse format** box allows to specify format for the field. It can apply, for example, for the **Date** field, where you should specify a date format that is used in CDR.

The **Validate** box is used to verify the correctness of the field. You can type a regular expression in the box.

To correct process CDR, Tariscope must delete spaces in CDR. By default, the **Trim spaces** check box is selected. Don't clear the check box

If the original string of CDR data needs to be processed only if it contains this field, select the **Is Optional** check box. If this check box is selected, the CDR string will be processed, but this field will be blank. The required fields for processing are shown in bold in the table.

To save parameters of the field, click **OK**.

Repeat this action for all fields.

If you have an example of CDR file, to verify the configuration parameters of CDR format, click on the **Choose test file** link (Figure 3.12.38.1), and select the CDR file. Processing will be performed and its results are displayed in the table at the bottom of the fields table. If some data was not processed or processed incorrectly, repeat the configuration of fields.

3.12.39. CDR format for Siemens HiPath 3000 and Hicom

If you have selected the **Siemens HiPath/Hicom** item in the **Equipment type** list (Figure 3.12.1), you do not need to perform any settings for CDR format of this telephone system.

3.12.40. CDR format for Siemens OpenScape Office

If you have selected the **Siemens OpenScape Office** item in the **Equipment type** list (Figure 3.12.1), you do not need to perform any settings for CDR format of this telephone system.

3.12.41. CDR format for Telsystems Oktell

If you have selected the **Telsystems Oktell** item in the **Equipment type** list (Figure 3.12.1), you do not need to perform any settings for CDR format of this telephone system.

3.12.42. CDR format for Wyatts DK2000, Reuters Voice System DK2000/SNX/MRX

If you have selected the **Wyatts DK2000** item in the **Equipment type** list (Figure 3.12.1), you do not need to perform any settings for CDR format of this telephone system.

3.12.43. CDR format for Grandstream UCM6100 / UCM6510

If you have selected the **Grandstream** item in the **Equipment type** list (Figure 3.12.1) that is applied for Grandstream UCM6100 and UCM6510, you do not need to perform any settings for CDR format of this telephone system.

3.12.44. CDR format for Audio Codes Mediant Gateways

If you have selected the **Audio Codes Mediant** item in the **Equipment type** list (Figure 3.12.1), that is applied for Audio Codes Mediant 800B and 1000B Gateway & E-SBC, you do not need to perform any settings for CDR format of this telephone system.

3.12.45. Numbering plan

A **numbering plan** is a type of numbering scheme used in telecommunications to assign telephone numbers or IP addresses to subscriber. Creating a numbering plan facilitates further manual input of information on subscribers. Therefore, if you plan to manually enter a large number of subscribers' data, it is recommended to enter a numbering plan. A numbering plan is also necessary when there are a number of PBXs. In this case Tariscope can correctly distinguish an extension number from an external telephone number using the numbering plan.

A numbering plan is entered individually for each telephone system. To do this, select a specific telephone system and click "+", which is located near to the systemt name. As a result, the configurations tree opens. It contains the following sub-branches:

- **Numbering plan**;

- **Routes and gateways**;
- **Prefixes**;
- **Restriction classes**.

Select the **Numbering plan** sub-branch. The program window takes a form as shown in Figure 3.12.45.1.

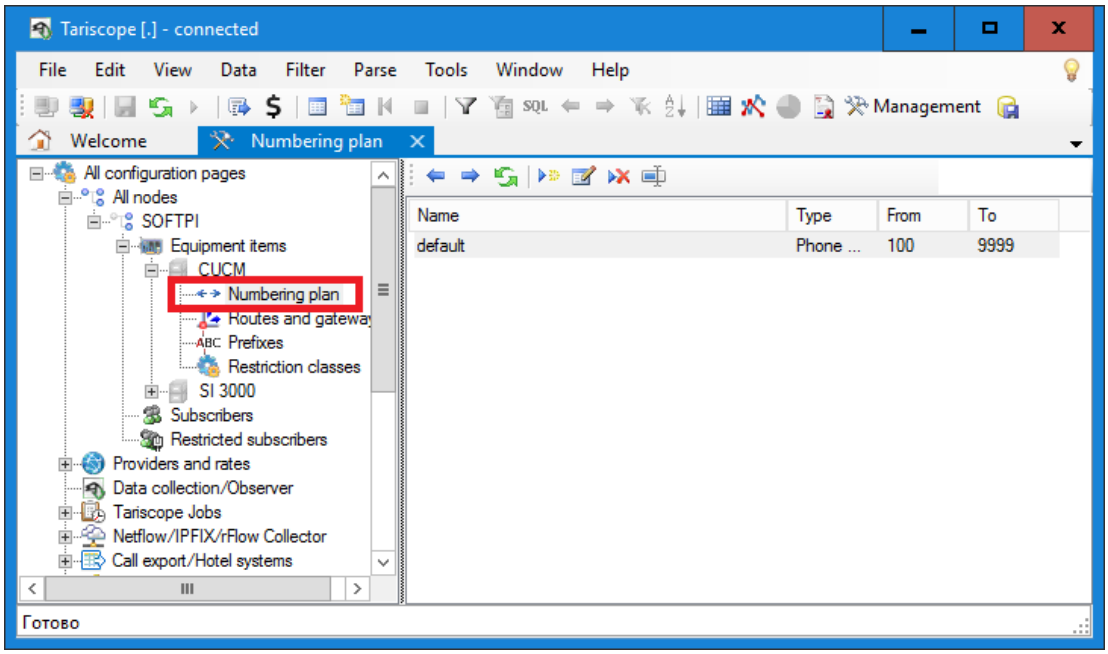


Figure 3.12.45.1

On the toolbar, click on the **Add** icon. The **Numbering plan** window appears as shown in Figure 3.12.45.2.

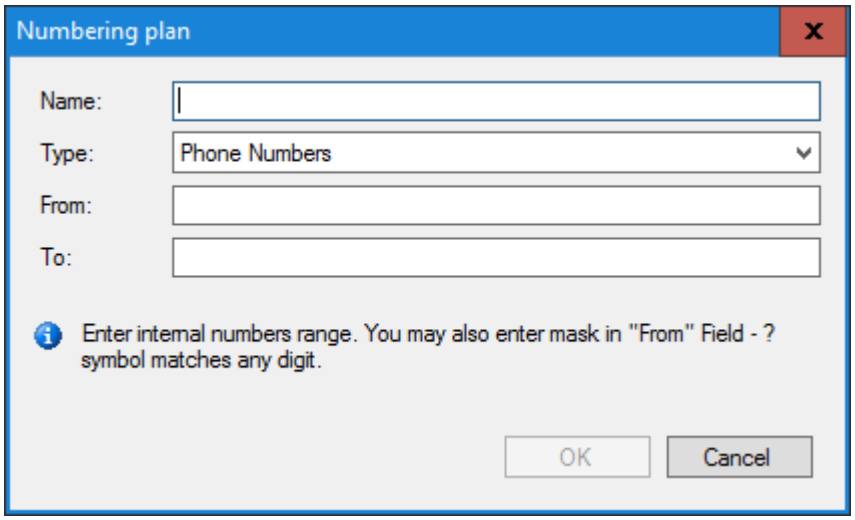


Figure 3.12.45.2

In the **Name** box, type a range name of telephone numbers or IP addresses. For example, if you want to enter the range from 4900 to 4999, you can assign the name: 49xx.

If you enter a numbering plan for telephone system, in the **Type** list, select **Phone Numbers**.

If you enter a numbering plan for IP addresses, in the **Type** list, select **IPv4 Addresses** or **IPv6 Addresses**.

In the **From** box, type a telephone number (IP address) that is the first one in the range.

In the **To** box, type a telephone number (IP address) that is the last one in the range.

Repeat these actions for other ranges.

3.12.46. Routes and gateways

A route is a group of trunks which connects your telephone system with a telephone exchange of telecommunications service provider. The notion of gateway is used in Voice over IP networks (VoIP). A gateway provides connectivity between IP networks and traditional telecommunications channels.

To enter the route and gateway parameters, the **Routes and gateways** configuration page is used. This page allows to specify:

- an access code to a specific route that ensures the correct definition of the dialed number,
- a main telecommunications service provider, whose rates are used for calls throgh the route or gateway,
- an additional telecommunications service provider, whose rates are used for alternative rating,
- a virtual subscriber that is used for charging calls of the route,
- an access code to properly recognize calls made from the PBX, that is a remote PBX,
- a configuration of limits on the route or gateway.

An example of the program window for this cofiguration page is shown in Figure 3.12.46.1.

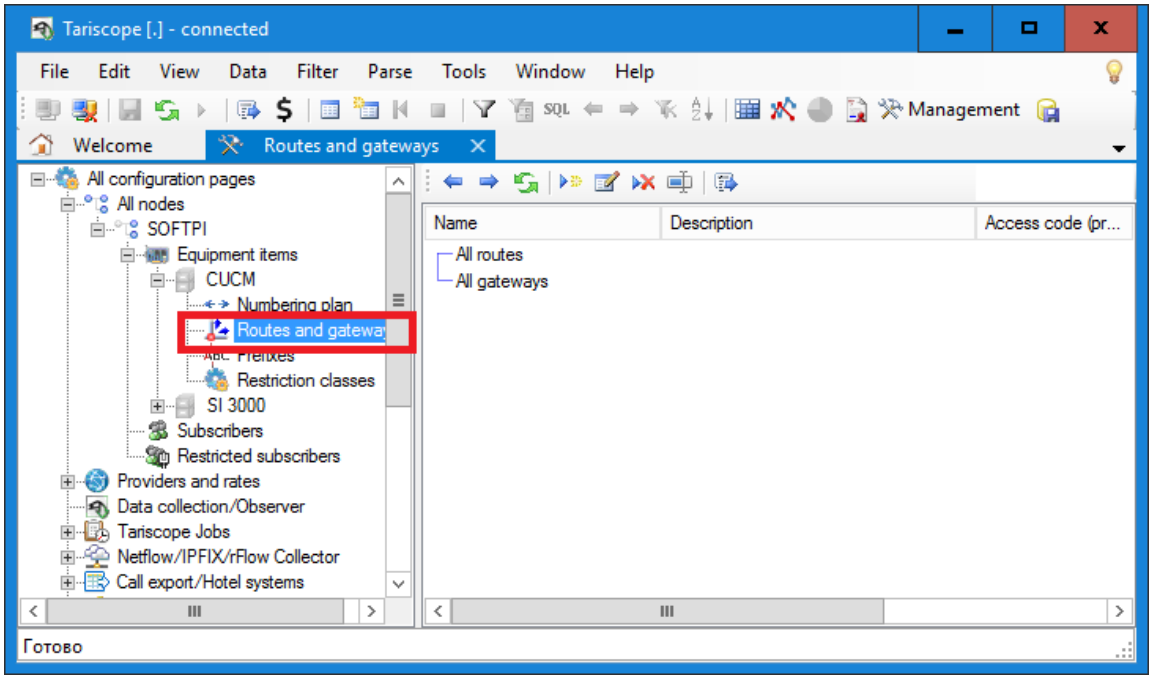


Figure 3.12.46.1

If you want to specify general data for all routes, double-click on the **All routes** line.

If you want to specify general data for all gateways, double-click on the **All gateways** line.

To specify data for specific route, select the **All routes** line, and click on the **Add** icon on the toolbar.

To specify data for specific gateways, select the **All gateways** line, and click on the **Add** icon on the toolbar.

In all these options the **Route** windows appeas as shown in Figure 3.12.46.2.

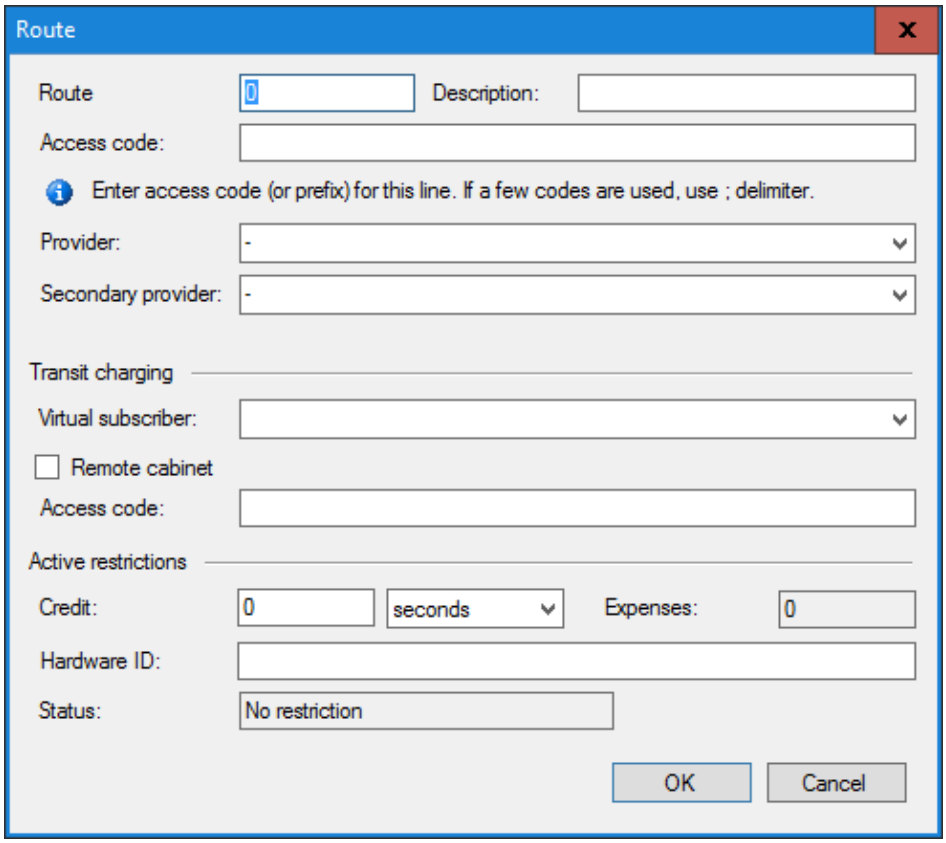


Figure 3.12.46.2

In case when you edit parameters of all routes, the **All routes** name is displayed instead of the **Route** box in this window. You can not change this name.

When you create a new route, in the **Route** box, type a route number. This number must match the number of the route (trunks group), which is present in CDR records received from the PBX.

The **Description** box is auxiliary. In the box you can, for example, specify the name of the provider to that the route is connected. This information can be used, for example, in the Tariscope reports.

If in the CDR data an access code is present in the dialed number, enter the code in the **Access code** box. This information is necessary for the proper determination of the type of call and, accordingly, to rate the call.

Some PBXs, for example, Communications Server 1000 or Meridian 1 (Avaya or Nortel), can have a few different access codes to single route. In this case you must enter all access codes in the **Access code** box separating them via semicolons. For

example, the following codes are used: 9, 7001 and 7002. In the **Access code** box you must enter: 9;7001;7002

In the **Provider** list, select the a telecommunications service provider the rates of which will be used to rating. Tariscope contains parameters of a few telecommunications service providers from different countries. If the required provider is absent in this list, you can try to import the desired provider from the SoftPI Web-site or enter its parameter in the **Providers and rates** configuration page.

If you need also to rate calls using an alternative rating, in the **Secondary provider** list, select the desired provider.

If you need to rate the transit calls, in the **Virtual** subscriber list, select the desired virtual subscriber on which will be charged the cost of such calls. If the virtual subscriber has not been created, go to the **Subscribers** congifuration page and create a new subscriber, for example, with the **Route_N** name. On the toolbar of subscriber's window, click **Details** and select the **Virtual subscriber** check box. Save the changes. If the virtual subscriber already exists in the system, it will be listed in the **Virtual subscriber** list (Figure 3.12.46.2). The base license of Tariscope can support up to three virtual subscribers. If you need more numbers of virtual subscribes, get a proper license.

When you have the network of PBXs (telephone exchanges) and only single PBX is used to access to PSTN, and CDR data is collected from this PBX, to configure a route to another PBX of your telephone network you should select the **Remote cabinet** check box and type the proper access code in the **Access code** box of the **Transit charging** partition. For outgoing calls from a remote PBX, Tariscope writes data from the **CLID** field, which contains a phone number of remote PBX, instead of the numbers of the incoming route and trunk.

If you wish to manage a specific route, for example, to disable it when the route credit was exhausted, in the **Credit** box, type a value of credit in the seconds or money. Money is specified in the main currency. This feature is applied only for Tariscope with the restriction feature (the **Routes** or **All** options).

The **Expenses** box is used for informational purposes. It is filled by Tariscope when it charges the call cost or duration for this route. Clearing of the box is automatically executed in a given period of time.

In the **Hardware ID** box, type parameters that will be transferred in a script to apply the restriction feature. It may be a single character that will be analyzed by the script and depending on its value the appropriate command will be performed.

The **Status** box is displayed the current status of restriction: **No restriction** or **With restriction**.

After entering the data, click **OK**. In the table of routes (Figure 3.12.46.1), the row appears with parameters of the created route.

If you have a few routes with different parameters, repeat the input for other routes.

If a specific route contains trunks which need to rate using other rates than for the route, create a new trunk and enter its parameters.

To create a new trunk, in the table of routes, select the required route and, on the toolbar click **Add**. The **Route** window (Figure 3.12.46.2) appears where the

Trunk box is displayed instead of the **Route** box. All settings in this window are similar to that described above.

For IP telephony devices such as Cisco Unified Communications Manager, Asterisk and others, in the **Route** window (Figure 3.12.46.2) the **Gateway** box is displayed instead of the **Route** box. All settings for gateways are similar to settings of routes.

If necessary to delete the route or trunk or gateway, select it and, on the toolbar, click **Delete**.

To change parameters of route or gateways, select the required item and click **Edit**.

If you already have the processed database of calls in Tariscope, but has not yet been configured routes / gateways, you can use the automatic determination feature of route (gateways) and access codes to them. To do this, on the toolbar, click the **Auto fill Routes and Gateways** icon.

3.12.47. Prefixes

This configuration page (Figure 3.12.47.1) allows to determine the phone numbers for which call rating must be executed using individual rates.

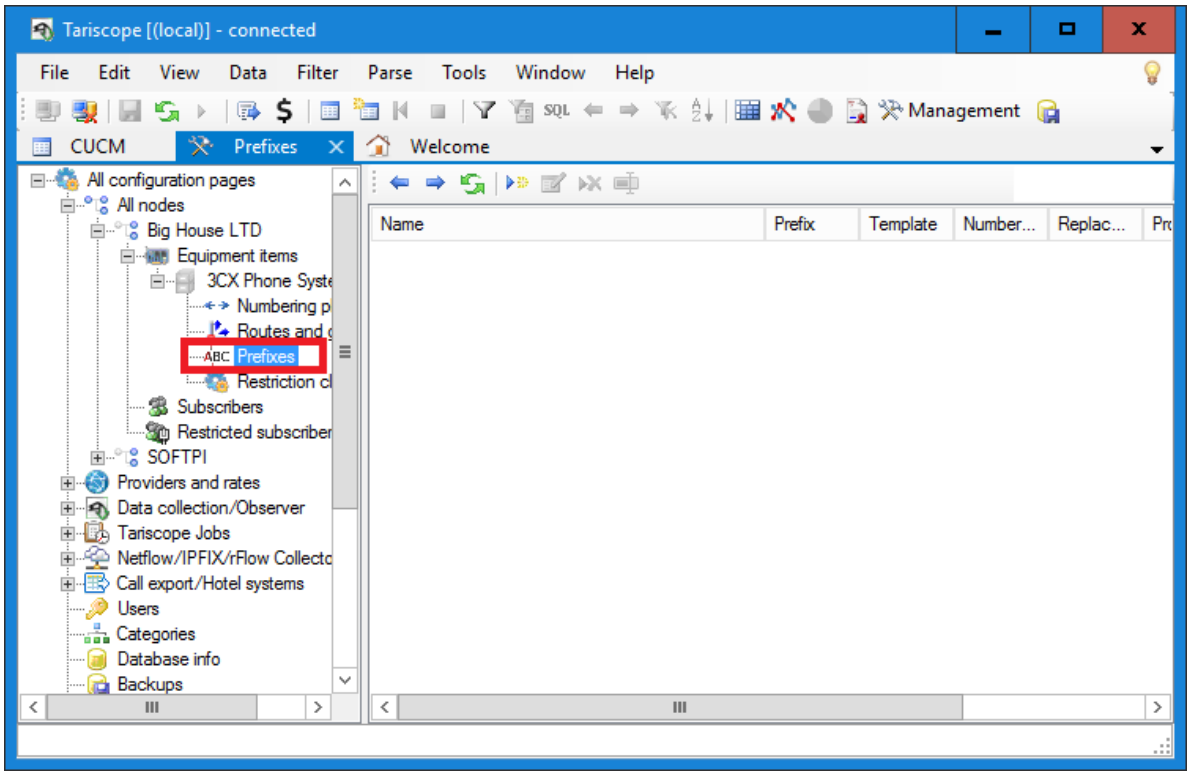


Figure 3.12.47.1

This may be necessary, for example, when it is necessary to rate calls on a VoIP provider. When you select the **Prefixes** page, icons appears on the toolbar that are similar to other configuration pages. There are the following icons: **Add**, **Edit**, **Delete**, and **Rename**.

To create a new prefix, click **Add**. The **Prefix** window appears as shown in Figure 3.12.47.2.

In the **Name** box, type a name that will be assigned for the prefix.

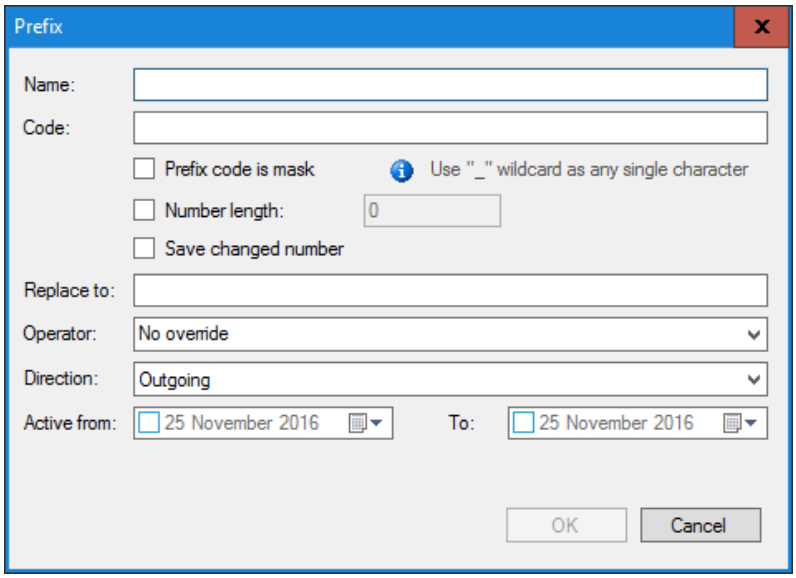


Figure 3.12.47.2

In the **Code** box, type a set of digits (code or prefix), which is located at the beginning of the dialed telephone number, and which should be replaced by the code that is entered in the **Replace to** box.

To select a group of codes you can use templates. In this case, select the **Prefix code is mask** check box.

If necessary to use the prefix only to the dialed phone number of a certain length, select the **Number length** check box and specify the desired length.

If you want to store the phone number in the Tariscope database in that form as it is located in CDR, do not select the **Save changed number** check box. Otherwise, select the check box.

In the **Replace to** box, type a set of digits that will be used to change the prefix entered in the **Code** box.

If necessary to rate calls made with the use of this prefix on a specific rate plan, in the **Operator** list, select a required telecommunications service provider. If the provider is absent, you should create it.

To define for which type of telephone numbers the prefix rule will be applied, the **Direction** list is used. If the **Outgoing** item is selected in the list, the prefix rule will be applied to dialed numbers of outgouing calls. If the **Incoming** item is selected in the list, the rule is applied to telephone number of caller for incoming calls.

To specify the time period of the prefix, specify the desired dates in the **Active from** and **To** calendar boxes. If the prefix should be permanent, do not specify dates in these boxes.

By default, when the **Apply to incoming** check box is clear, the parameters of the prefix will be appled only to the dialed numbers of outgoing calls. If you want to handle phone numbers from which incoming calls were made, select the **Apply to incoming** check box. **In this case, the prefix is applied only to incoming calls**.

To change prefix parameters, select the required row in the prefix table and click **Edit**.

To delete a prefix, select the required row in the prefix table and click **Delete**.

3.12.48. Restriction classes

This configuration page is applied only for Tariscope with the restriction feature. If your Tariscope license has not the restriction feature, skip this article. The **Restriction classes** page allows to set the restriction group, classes of service, and their links to the call categories for each telephone system.

Before performing settings on this configuration page, enable the restriction feature. To do this, on the **All nodes** configuration page, in the **Control expenses (limiting)** list, select an option that corresponds to your license.

An example of the **Restriction classes** configuration page is shown in Figure 3.12.48.1.

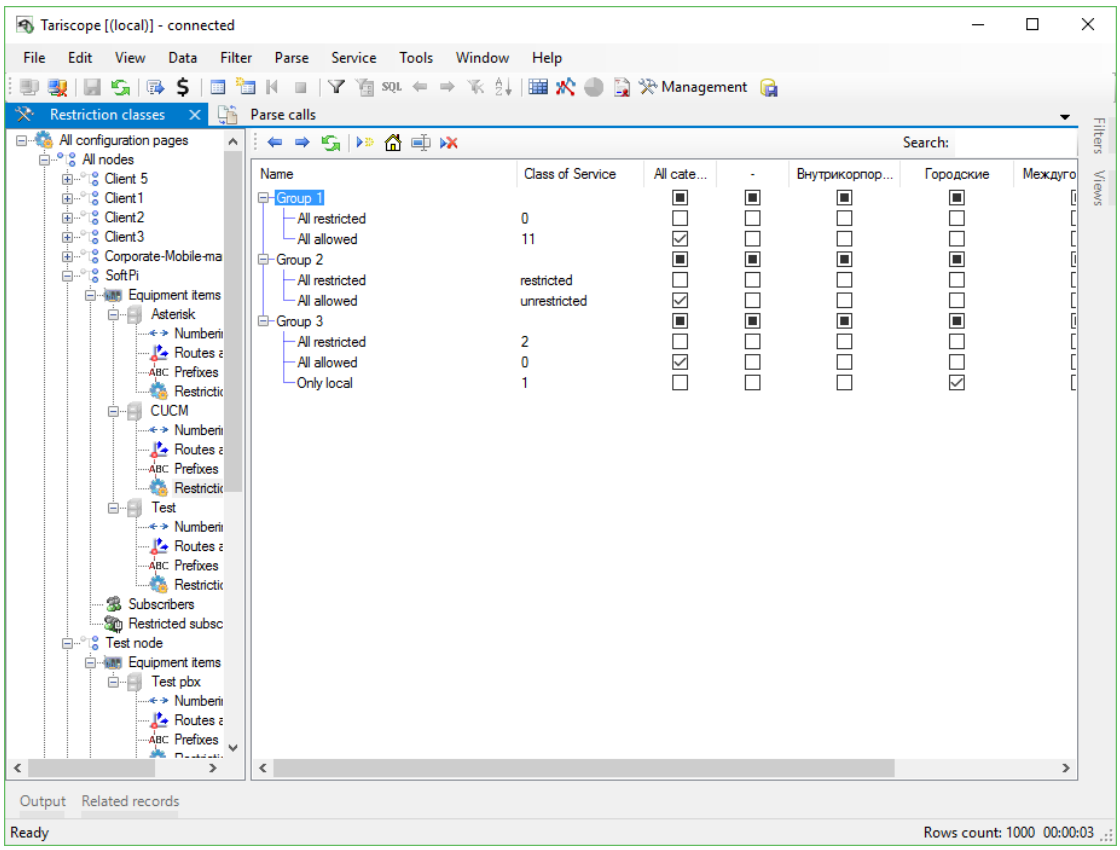


Figure 3.12.48.1

The following concepts are used for this configuration page:

Restriction group. This is a set of rules, according to which a class of service is selected, depending on the limitations set for a subscriber, and the status of expense for this limitations. A list of the restriction groups is common to all PBXs of communication node. But the elements of a group and their corresponding classes of service are tied to a particular PBX. You must create at least two elements of a restriction group. For example, one element includes the class of service that permits phone calls, and another element that prohibits such calls. Groups of restrictions are tied to the subscribers.

Class of service (COS). This is an identifier that is used by a particular type of telepone system to determine the access rights to various areas of a call. COS is passed to the restriction script, which uses it in the process of performance. The format and value of COS are depended on the type of PBX.

For example: The Calling Search Space (CSS) is used as COS in Cisco Unified Communications Manager (CUCM).

For Communications Server 1000 (CS1000) by Avaya - Nortel you can use COS, NCOS, TGAR.

Call category. This is a parameter that is assigned to each call by the rating module of Tariscope in accordance with the direction of a call. One of purposes of the categories is to define a type of telephone traffic, which should be considered to set the restrictions. A list of categories can be obtained from the **Tariscope Management** -> **Categories**. You can tie country codes, area codes or telephone codes with categories using **Tariscope Management** -> **Providers and rates** -> your provider -> Destination codes or Destinations table.

The **Restriction classes** page allows to configure COS for each combination of available categories of calls to subscribers. In the simplest case, each group of classes contains two elements: "everything is enabled" with a selection of **All categories** and "everything is disabled" when no categories where selected. If you want to restrict the various categories of calls individually, you need to create the elements of restriction group with all possible combinations of categories and corresponding COS. Tariscope automatically selects an element that is suitable for the current status of the subscriber restrictions, and pass it to the script.

To add a new element group of the restriction classes, select the **All categories** row in the table and click on the **Add** icon on the toolbar. A new row appears in the table.

To add a new element in a group, select a row of the group and click on the **Add** icon on the toolbar. A new row appears in the table.

You can assign any name for each group and element. Double-click on the **Name** cell of the desired row and type a name.

For each group and element of a group, select categories that relate to the group or element.

3.13. Subscribers

A subscriber (or customer) is bound to a particular telecommunications node in Tariscope. The telecommunications node can contain one or more telecommunications equipment. Minimally telecommunications node can consist of a single telecommunications equipment. PBX, telephone exchange or data transfer device can be considered as the telecommunications equipment. A subscriber can have one or more phone numbers or IP addresses belonging to one or more telephone system. A subscriber can have minimally one phone number or one IP address.

On initial start of Tariscope the **Initial configuration wizard** (Section 3.1) starts. One of the steps of the wizard is intended to type subscriber data. Tariscope supports several different options for input of subscriber data. In the initial settings wizard, you can enter only the data using automated methods:

- **Import from file**. The subscriber data are imported from files of following formats: Microsoft Excel or Access, CSV, dBase, Text, database of Tariscope 2.x.

- **Import from Active Directory**. The subscriber data are imported from Microsoft Active Directory or LDAP directory.
- **Automatically create subscribers**. Some subscriber data are automatically created during CDR processing. A subscriber phone number with 'a' prefix is used as a subscriber name.

Since all of these methods are available during work with the Tariscope or Tariscope Management programs, they will be discussed later.

Start the Tariscope program. On the menu, select: **Service → Tariscope Management**. The new tab opens. It is the same to the Tariscope Management program. You can also open this tab by click on the **F8** key or click on the **Management** icon on the toolbar.

If you have not created a telecommunications node, create it in accordance with the recommendations contained in this document. If you already have a telecommunications node, double-click on the name of the node. The program window will be as shown in Figure 3.13.1.

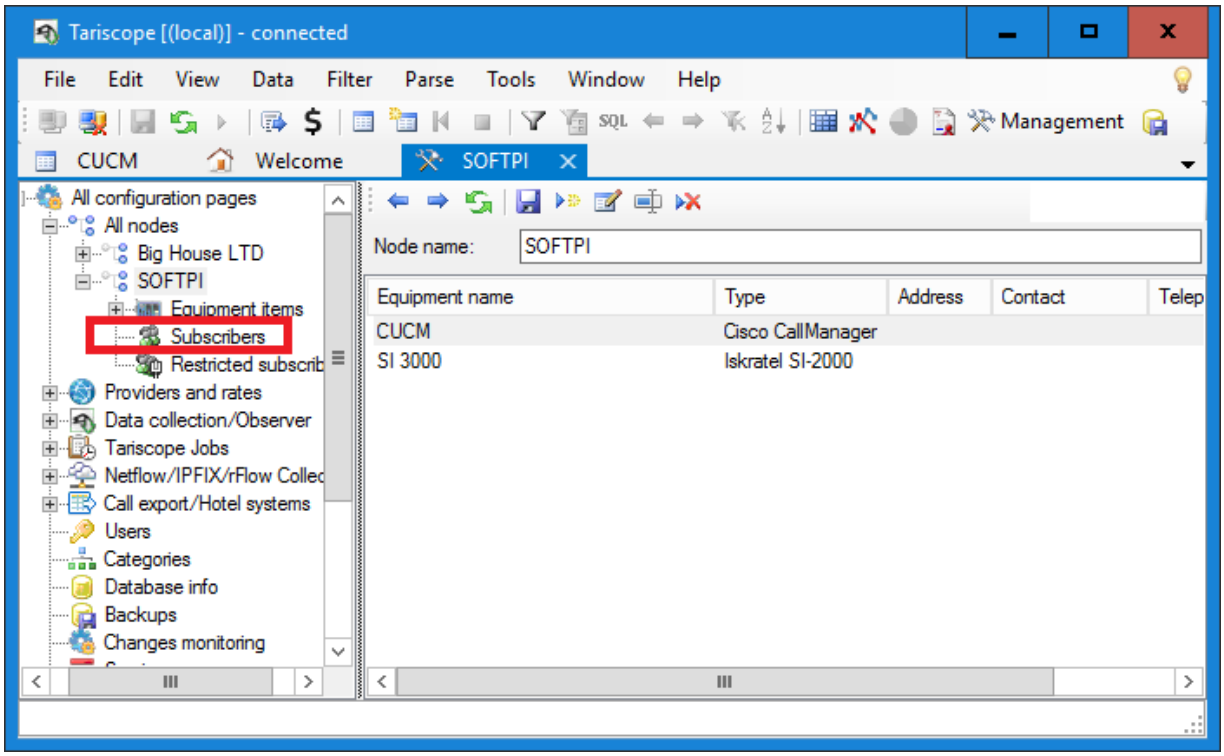


Figure 3.13.1

Every communications node contains the following sub-settings: **Equipment items**, **Subscribers** and **Restricted subscribers**. Click on the **Subscribers** configuration branch. The program will be as shown in Figure 3.13.2.

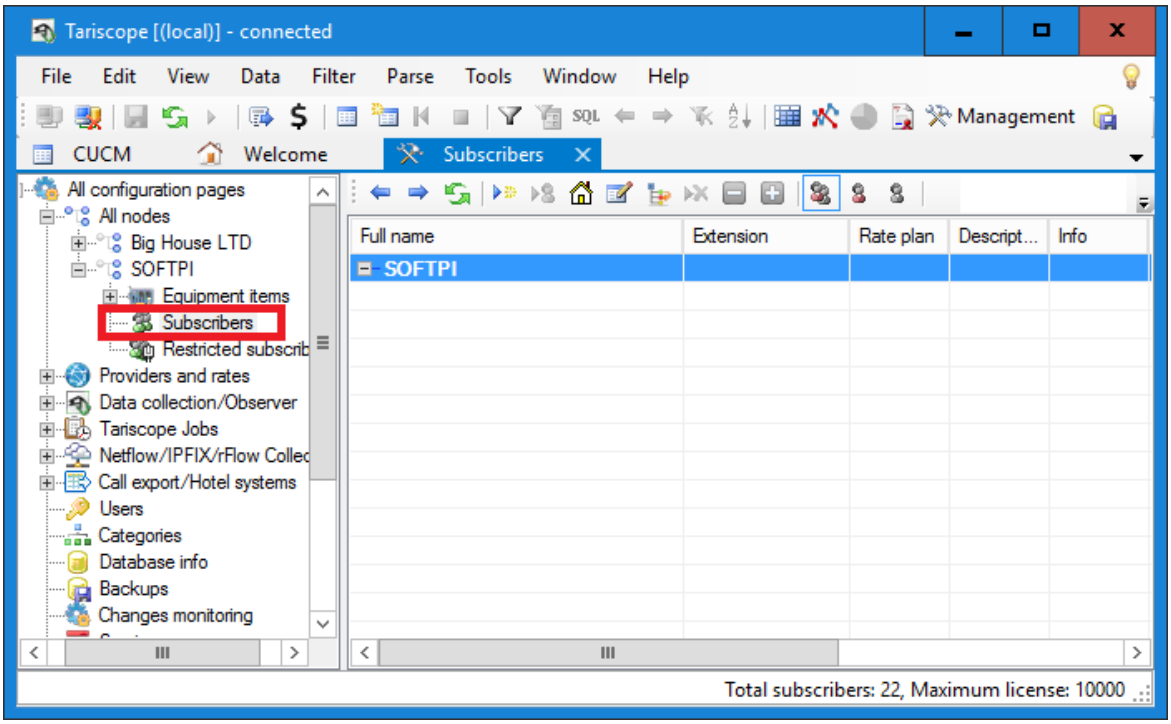


Figure 3.13.2

3.13.1. Subscriber data input from Active Directory

Active Directory (AD) is a hierarchical arrangement of information about objects created by Microsoft for Windows domain networks. Active Directory makes use of Lightweight Directory Access Protocol (LDAP) versions 2 and 3, Microsoft's version of Kerberos, and DNS. The objects fall into two broad categories: resources and security principals (user or computer accounts and groups).

Tariscope allows you to import and synchronize the directory of subscribers from the enterprise Active Directory, eliminating the need for a separate maintaining the subscribers database. All changes to the structure of departments, internal phone numbers, contact information of the subscribers made in Active Directory will be reflected in an appropriate table of Tariscope database and immediately taken into account in the processing of new CDRs.

An example of Active Directory is shown in Figure 3.13.1.1.

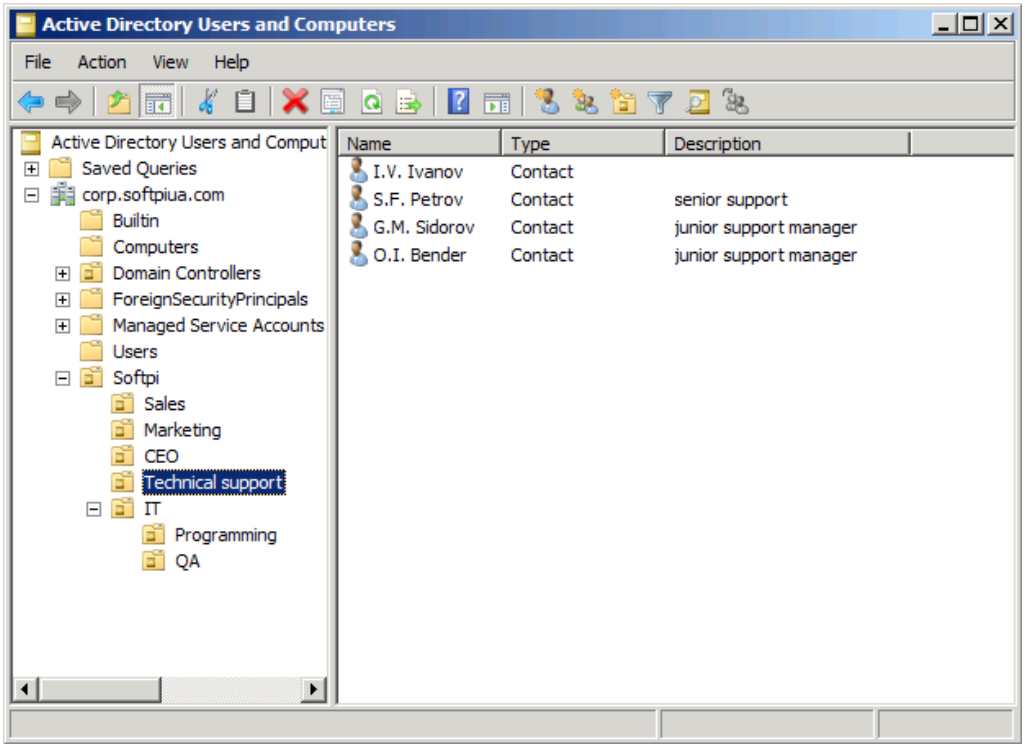


Figure 3.13.1.1

For all subscribers in the Active Directory are given surname, first name (second name if it is necessary), and a list of phone numbers belonging to a subscriber. The list of major fields of Active Directory used for synchronization with Tariscope is given in the table below.

#	**Name**	**Description**
1	sn	Surname
2	givenName	First name
3	postalCode	Postal Code
4	I	City
5	streetAddress	Street
6	physicalDeliveryOfficeName	Office name
7	mail	Email
8	whenCreated	When created
9	Phone	Phone number
10	Mobile	Mobile number
11	telephoneNumber	Second phone number

The Tariscope wizard is used to configure synchronization. To strat the Tariscope wizard, click on the **Import from Active Directory** icon on the toolbar. The Tariscope wizard appears as shown in Figure 3.12.1.2.

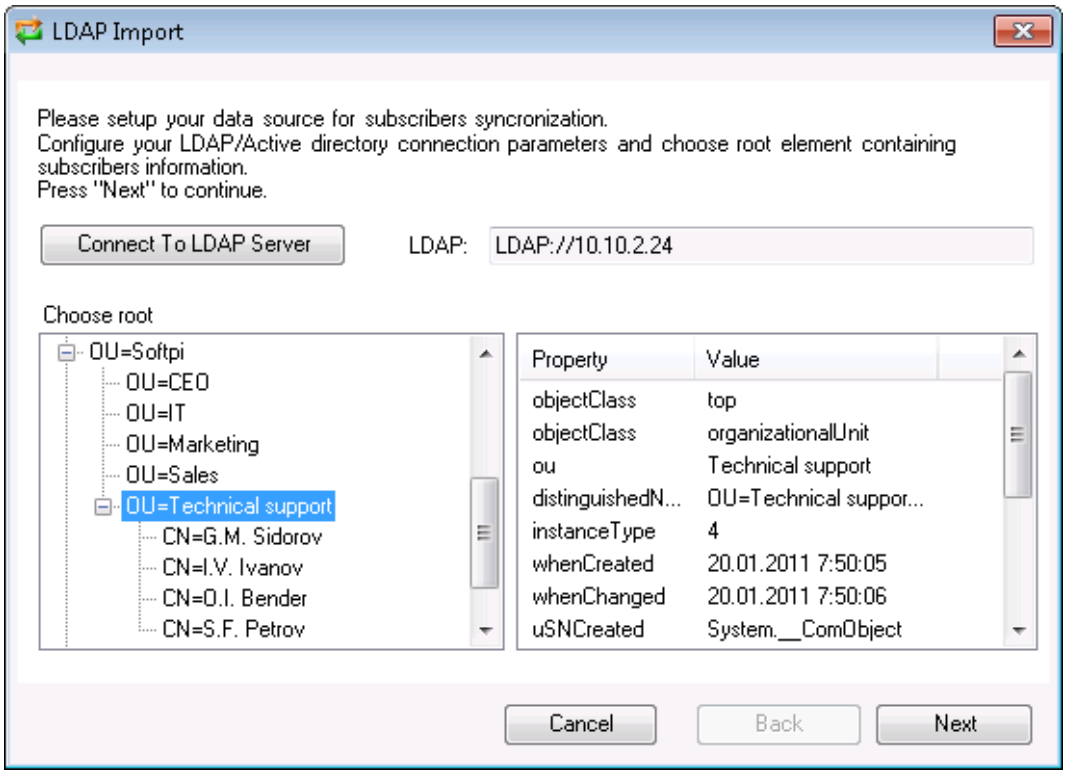


Figure 3.13.1.2

You must specify the connection credentials to the Tariscope database, connection to the Active Directory server, and the root element of the catalog. Click **Next**. Thereafter the synchronization profile will be generated and all the departments and subscribers are imported into the Tariscope database.

Thus, the use of Active Directory can significantly simplify the Tariscope administration, eliminating the need to enter and maintain the subscriber database in Tariscope.

In addition, using the **Tariscope Tasks** configuration page you can set the schedule of synchronization. For example, it can be executed on a daily basis at night. This will fully automate the replenishment of the subscribers database in Tariscope.

3.13.2. Subscriber data import from an external file

To import the subscriber data from external files, on the toolbar of **Subscribers** configuration page, click on the **Import** icon. The import wizard is started (Figure 3.13.2.1).

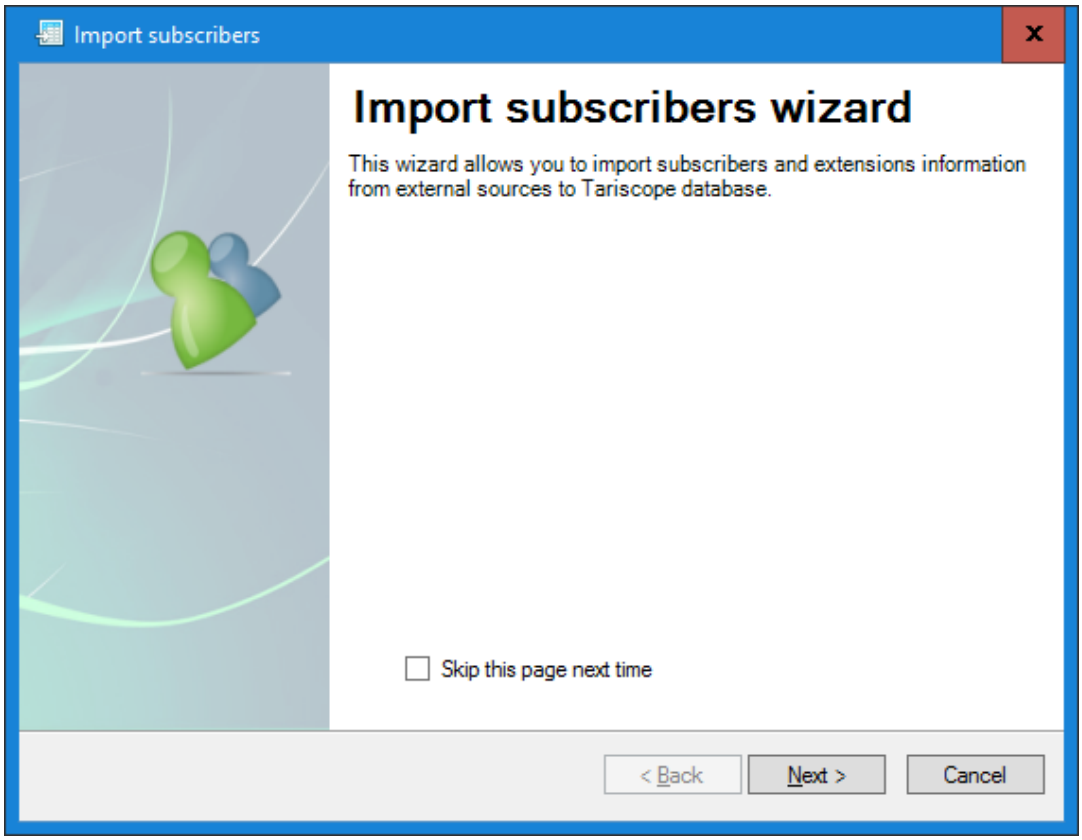


Figure 3.13.2.1

Click **Next**. The wizard window will be as shown in Figure 3.13.2.2.

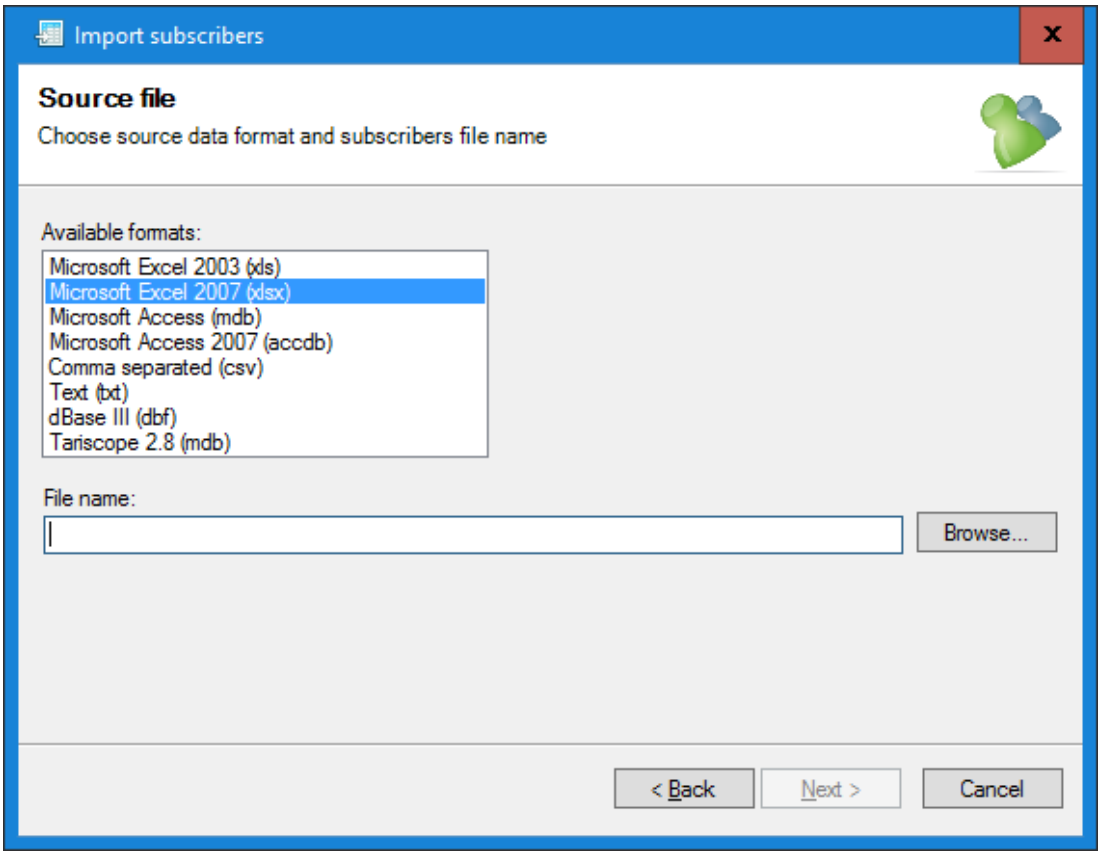


Figure 3.13.2.2

This step provides a selection of import format of the external file that contains information about subscribers and this file. The import is available from the following file formats:

- Microsoft Excel 2003 (xls);
- Microsoft Excel 2007 (xlsx);
- Microsoft Access (mdb);
- Microsoft Access 2007 (accdb);
- Comma separated (csv);
- Text (txt). This is text format where a tab is a field separator;
- dBase III (dbf);
- Tariscope 2.8 (mdf).

After selecting the desired file format, click on the **Browse** button to select the required file. Click **Next**. The wizard will be as shown in Figure 3.13.2.3.

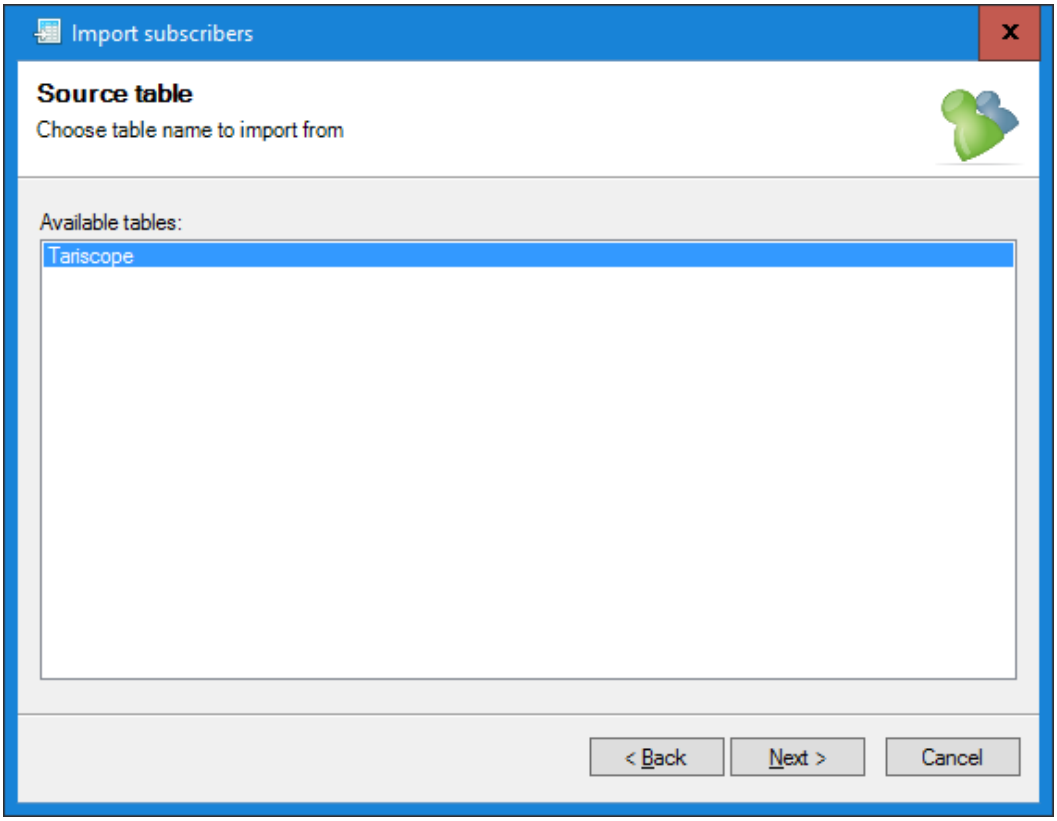


Figure 3.13.2.3

In the **Source file** window (Figure 3.13.2.2) we have selected Microsoft Excel file, so the wizard window in Figure 3.132.3 displays a list of available tables this file. Select the table that contains information about subscribers and click **Next**. The wizard window will be as as shown in Figure 3.13.2.4.

The **Fields** window is divided on two parts. The top part contains a table where the first column displays a list of Tariscope fields and the second column displays a list of source fields that correspond to the Tariscope fields. The bottom part displays the source file contents.

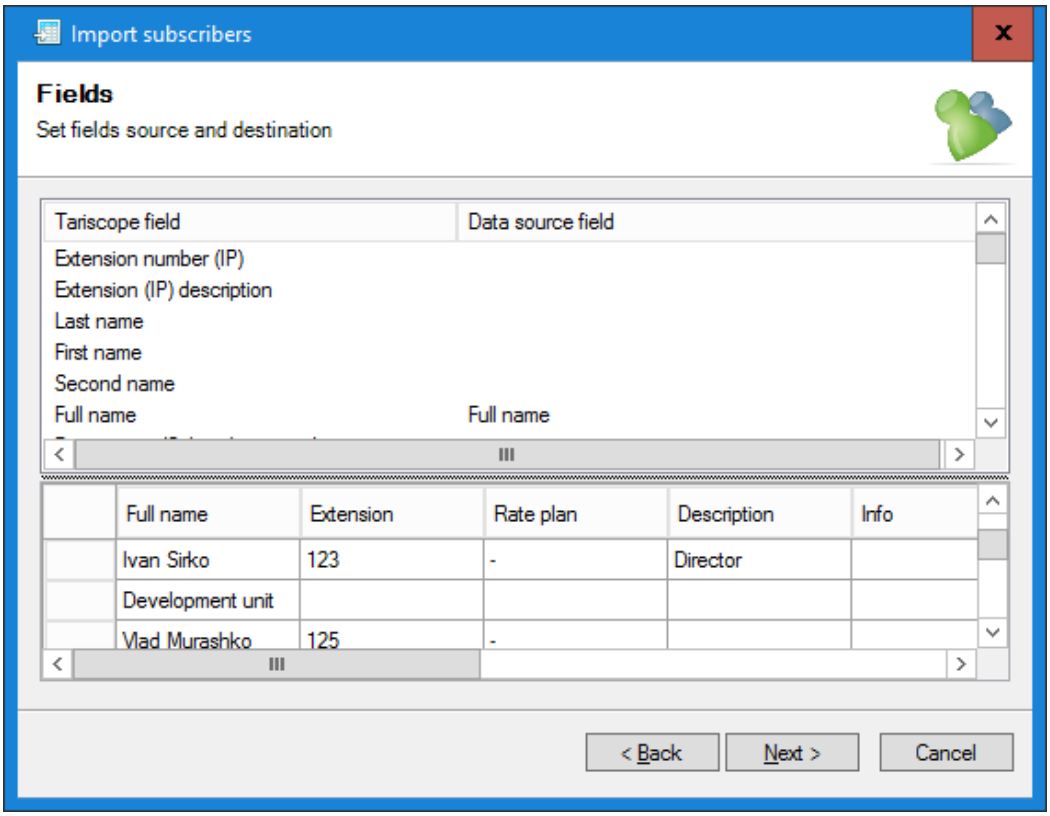


Figure 3.13.2.4

The wizard allows to import the following fields:

- **Extension number (IP)**. Phone number or IP address of subscriber.
- **Extension (IP) description**. Description of the phone number or IP address of the subscriber.
- **Last name**.
- **First name**.
- **Second name**.
- **Full name**.
- **Department (Subscriber group)**. Name of a group to which the subscriber belongs.
- **Extension number (IP) 2**. The second phone number or IP address of the subscriber.
- **Extension number (IP) 3**. The third phone number or IP address of the subscriber.
- **Legal entity**. A sign that the subscriber (customer) is a legal entity.
- **Auxiliary ID (TN)**. It is an auxiliary identification that allows to uniquely determine a subscriber. In particular, for CS1000 and Meridian 1 (Avaya - Nortel) this parameter can be used as a terminal number (TN).
- **Telephone type**. This parameter is applied if the Tariscope is used with the restriction feature. In this case, for example, for CS1000 and Meridian 1 (Avaya - Nortel) to set the restriction, Tariscope should transfer a command that contains the type of phone.
- **Equipment name**. The name of telecommunications equipment to which belongs a phone number or IP address.

- **Description**. Some additional information about the subscriber or his data that can be used, for example, when you create reports.
- **Information**. The second field for additional information.
- **Full firm name**. A full name of a legal entity.
- **Code**. This a code that allows to identify a subscriber.
- **Personal code**.
- **Tax code**.
- **Bank account**.
- **Bank code**.
- **Contract ID**. This is an identification of contract with the subscriber. It is used in the Tariscope Provider edition.
- **Contract date**. The parameter is used in the Tariscope Provider edition.
- **Privileges info**. Information about privileges of subscriber. The parameter is used in the Tariscope Provider edition.
- **Connection date**. It is the date from which subscriber phone number or IP address is active.
- **Disconnection date**. It is the date from which subscriber's phone number or IP address is inactive.
- **City**.
- **Area**.
- **Street**.
- **House**.
- **Flat (Office)**.
- **Zip code**.
- **E-mail**.
- **Authorization code**. It is a authorization code that is used in the telephone system to identify a subscriber.
- **Initial balance**. This parameter is used only to the Tariscope Provider edition.
- **Rate plan**. The rate plan that subscriber uses.
- **Password**. This data is used to the subscriber access to his Personal Area.
- **Credit**. THis value is used when the Tariscope license contains the restriction feature.

The wizard tries to automatically identify by column names of an external file the appropriate field in the Tariscope database. If wizard does not find the correspondence but the required field is in the source file, click on the required row of the table in the **Data source field** column. A list appears that contains all fields of the source file. Select the field that corresponds to the Tariscope field. Repeat this action for all desired fields and click **Next**. The wizard window will be as shown in Figure 3.13.2.5.

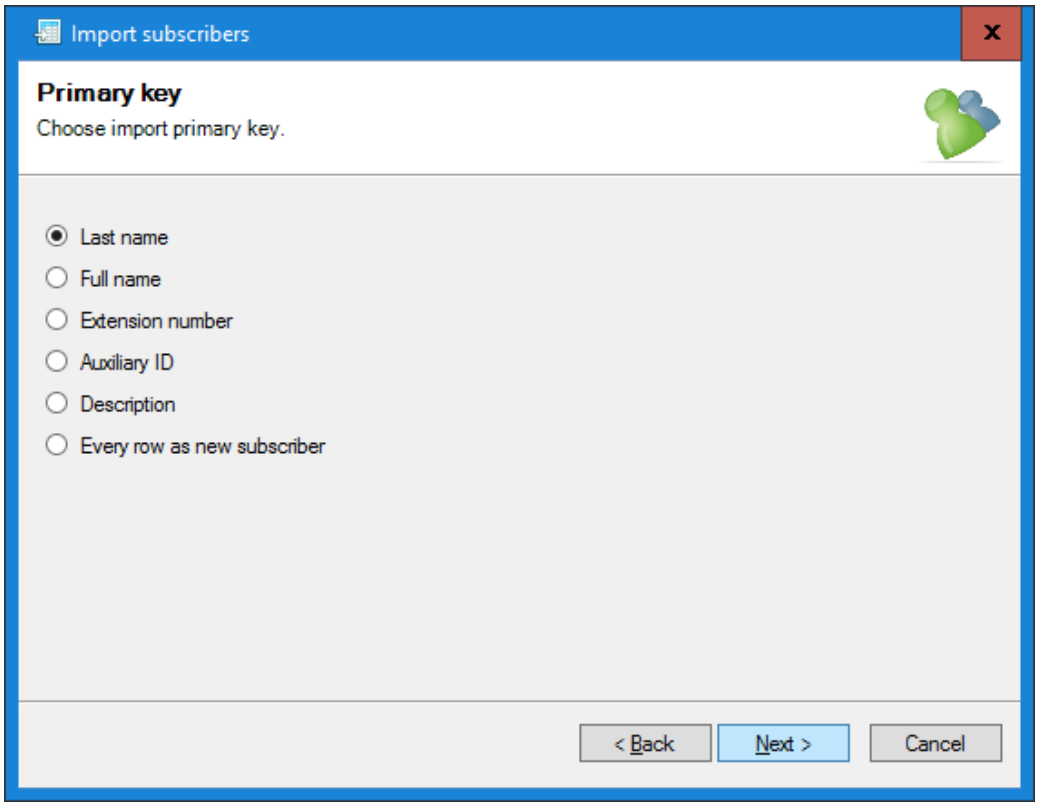


Figure 3.13.2.5

Select a parameter that will uniquely identify the subscriber. Click **Next**. The wizard window will be as shown in Figure 3.13.2.6.

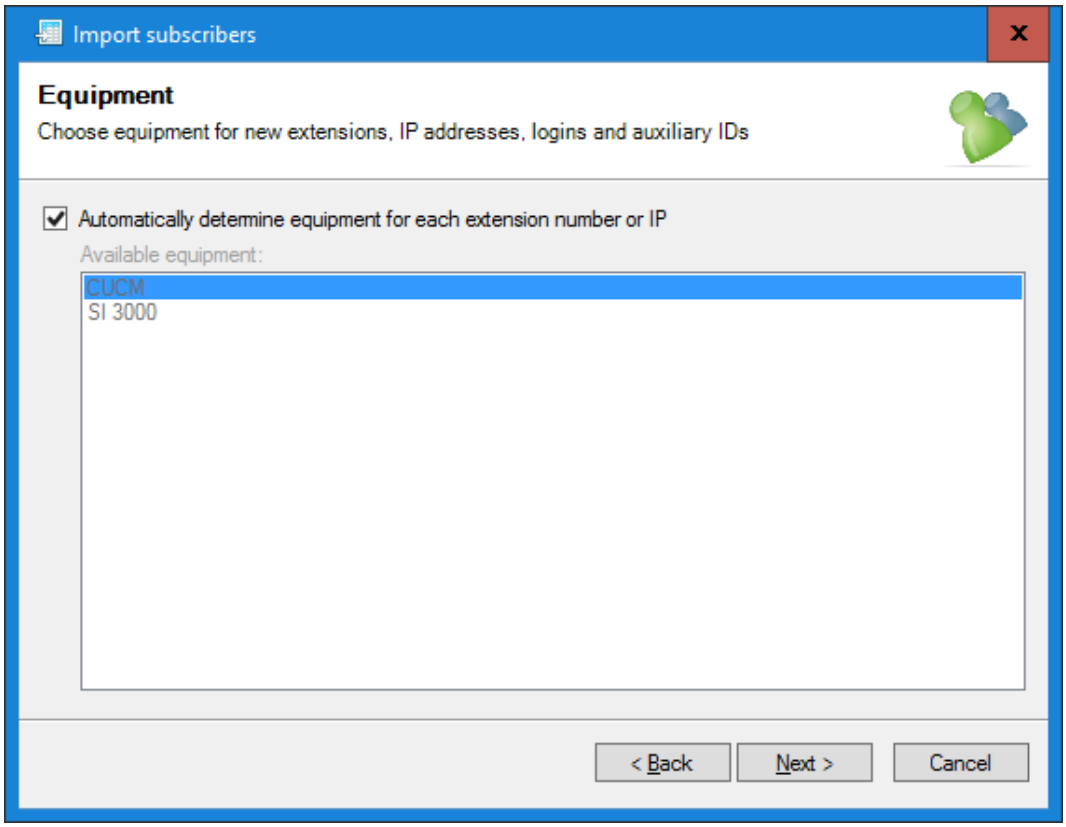


Figure 3.13.2.6

Select the telecommunications equipment (telephone system, router, etc.), where subscribers have phone numbers or IP addresses. On the example (Figure

3.13.2.6) the list contains two telecommunications devices. If the **Automatically determine equipment for each extension number or IP** box is selected, Tariscope will automatically sедуce telecommunications equipment for each phone number or IP address using the numbering plans of equipment. This method of determining the telecommunication equipment is recommended only in cases where there are multiple telecommunications equipment and for each of them there is numbering plan and these plans do not overlap. In other cases, we recommend to clear the check box, and select the desired telecommunications equipment by himself from the list. Click **Next** to continue.

The next window is shown in Figure 3.13.2.7. It offers a selection of the root group of subscribers (department), where the data will be imported.

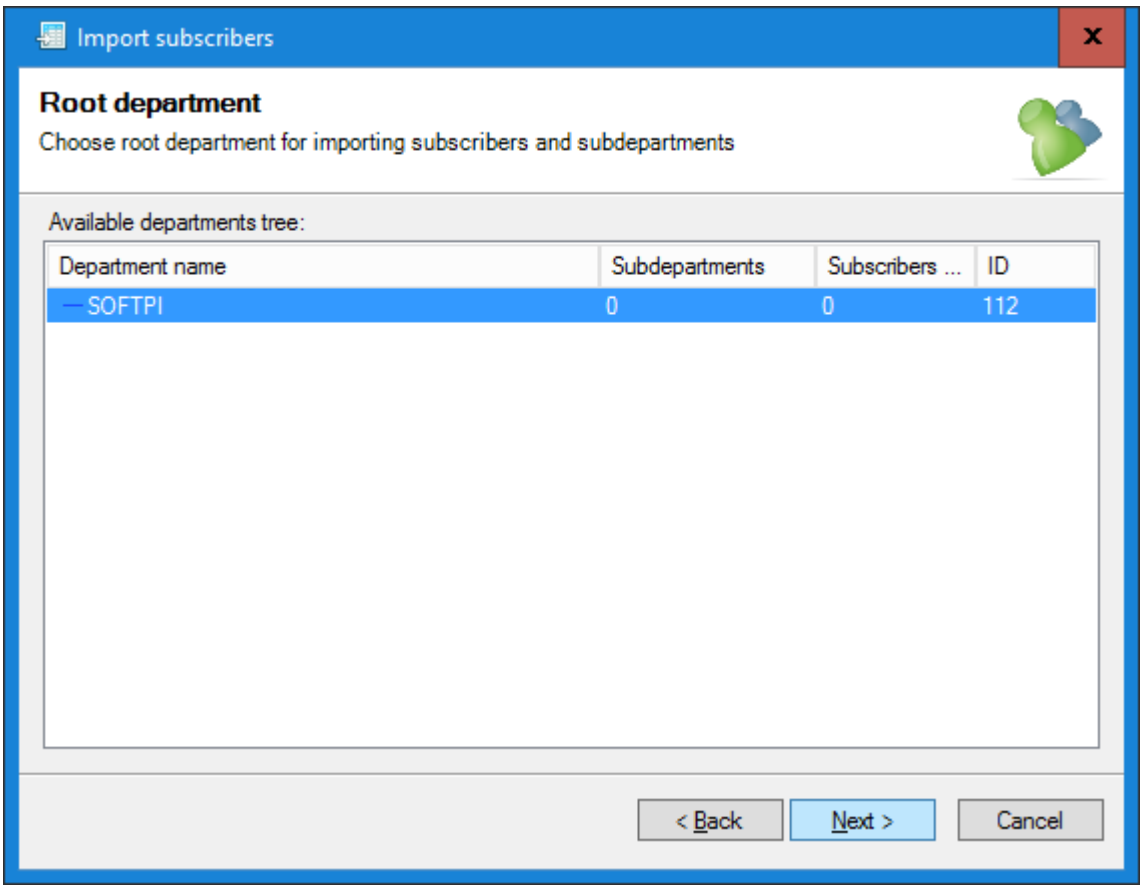


Figure 3.13.2.7

If before the start importing the group have not been created, the window displays only one group named "Company". Click **Next**. When the import is finished, the Wizard window displays the import results. An example of the window is shown in Figure 3.13.2.8.

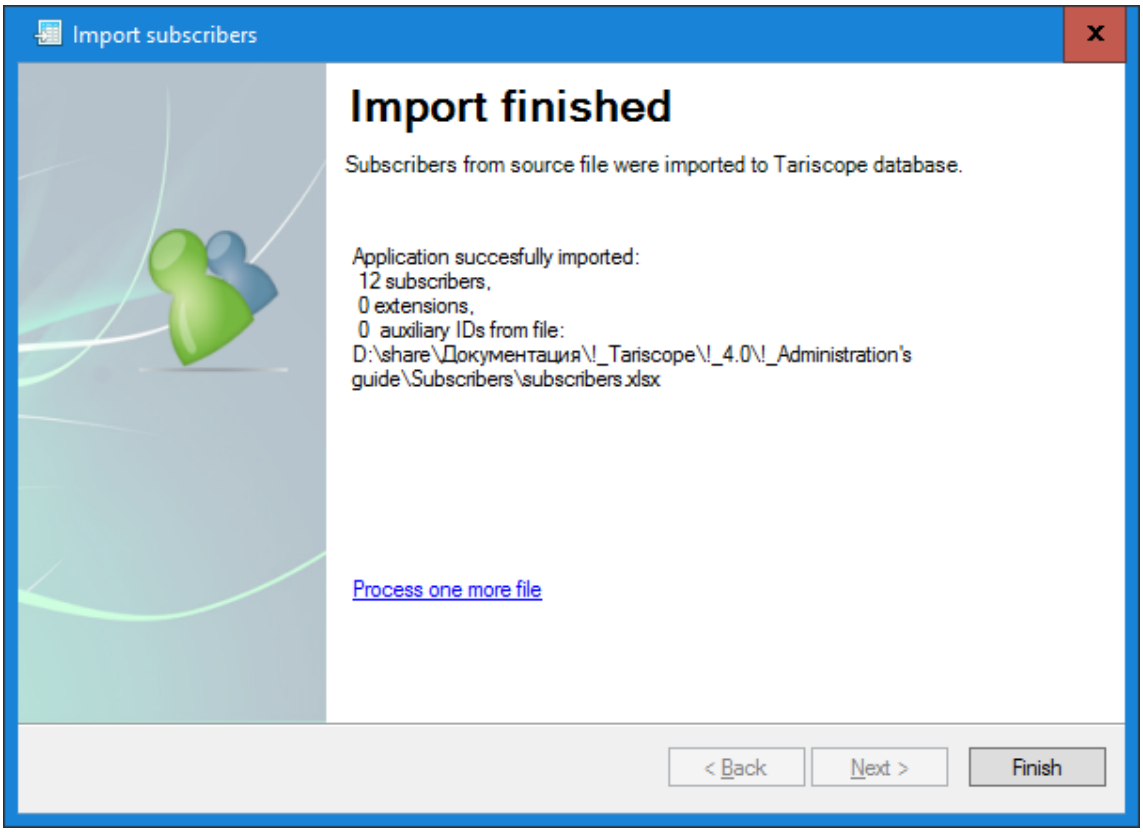


Figure 3.13.2.8

If you want to import data from another file yet, click the **Process one more file** link. Otherwise, click **Finish**. The **Subscribers** tab displays a table with the imported data.

3.13.3. Creation of subscriber data from CDR

Another option of subscriber data creation is the conditional filling of the subscriber database based on information about calls (CDR, SMDR, AMA and others). In this case, the subscriber name (surname) specifies the conditional name corresponding to the subscriber phone number with the "a" prefix. For example, when Tariscope processes a call that was made from the "7777" extension number, the subscriber name will be created as 'a7777'. When the subscriber names are created by such way, the Numbering Plan is considered in Tariscope, and if it exists, Tariscope creates subscribers groups corresponding to the ranges of Numbering Plan. Conditional names of subscribers can later be replaced by the real names using the manual editing or importing data from an external file.

We recommend to create the subscriber database using this methord only for quick and total estimation of call expenses to process previously saved log files with call information (CDR, SMDR, AMA and others) because Tariscope does not rate the calls if subscriber data is absent in the database.

To use this method of the subscriber data creation you should create the telecommunications equipment (telephone system). In the Tariscope configuration tree, select the telecommunications equipment to which subscribers will be added. An example of a choice of the telecommunications equipment with the **CUCM** name belonging to the **SoftPI** telecommunications node is shown in Figure 3.13.3.1.

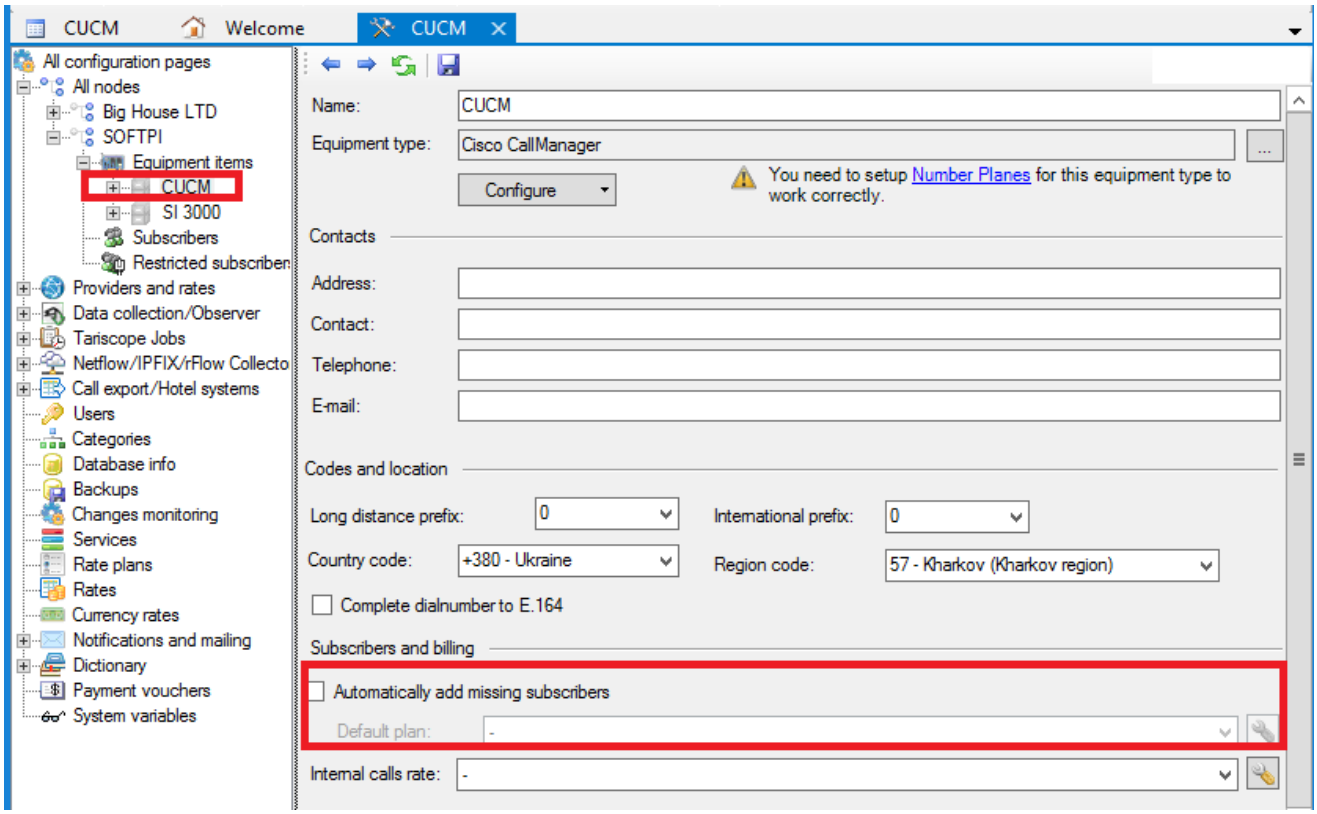


Figure 3.13.3.1

Check the **Automatically add missing subscribers** box and, select a rate plan for subscribers from the **Default plan** list. On the toolbar, click on the **Save** icon.

Note. *If the required rate plan is absent, create it.*

In the Tariscope program, open a new view using the program menu: **Data → New data view**. The **Filter** window opens as shown in Figure 3.13.3.2.

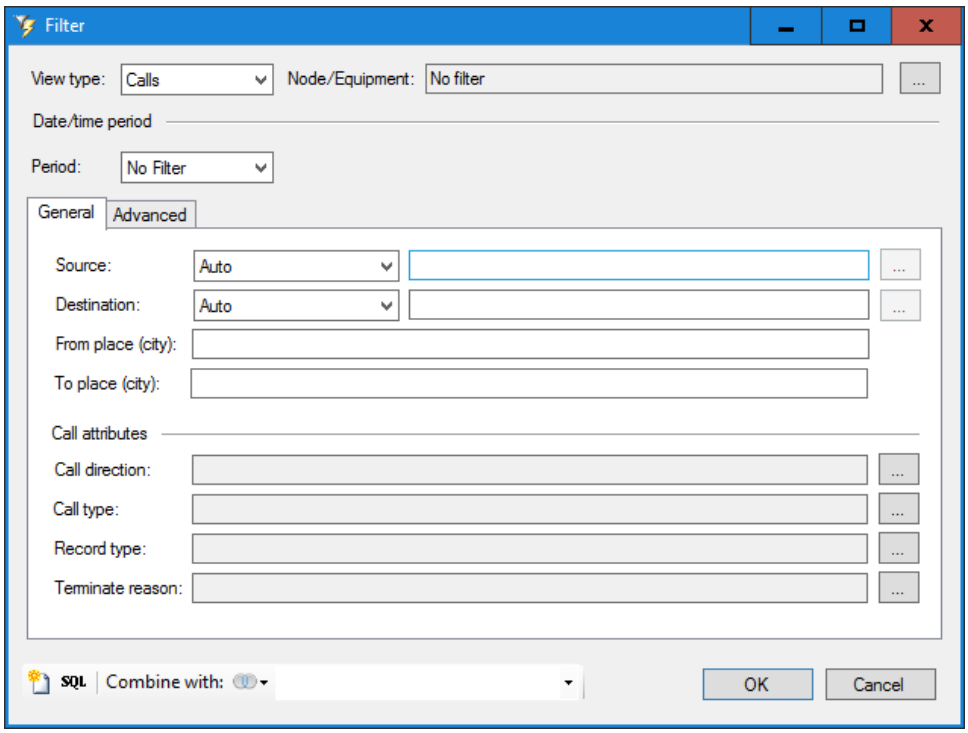


Figure 3.13.3.2

Click on the "**...**" button located to the right of the **Node/Equipment** box. In the **Equipment selection** window shown in Figure 3.13.3.3, select the required telephone system.

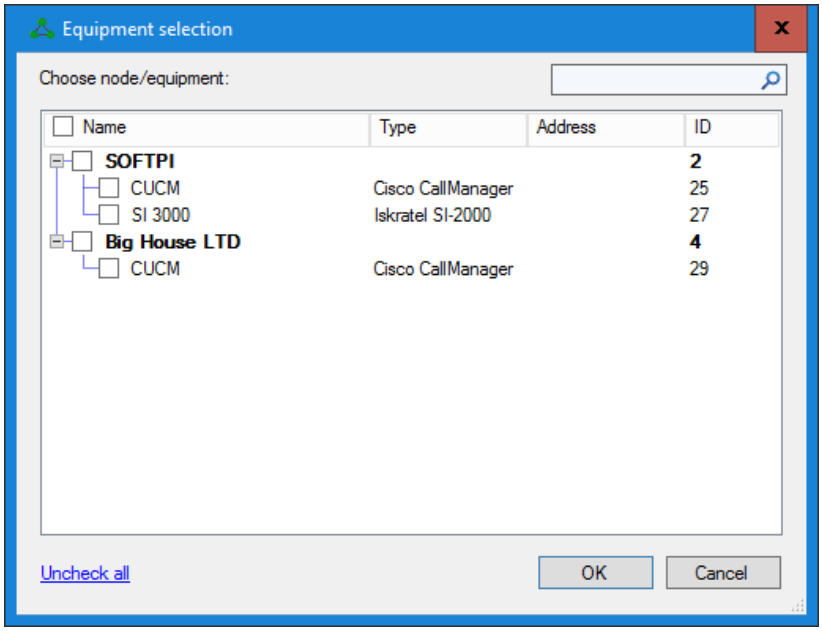


Figure 3.13.3.3

Click **OK** and then, click **OK** in the **Filter** window. A new view is opened with the selected filter criteria.

Note. *Configuration of the filter data is not required to process the file, especially in the case when you have only single telephone system. If necessary, the filter parameters can be set after processing.*

To process the call log file, select the menu: **Parse** → **Transfer**. The **Equipment selection** window appears as shown in Figure 3.13.3.3.

In the window, select the required telephone system and, click **OK**. The **Parse calls** view appears in the Tariscope program as shown in Figure 3.13.3.4.

If you ned to change telephone system, click on the "**…**" button located to the right of the **Equipment** box.

Click on the **Add** button and select a file that contains call information (CDR, SMDR, AMA or others). Repeat this action if you want to process some files located in the different folders.

Click **Start**. Processing of call information begins.

Note*. For telephone systems where a CDR file does not contain information about year, Tariscope requests to type the year of calls before processing CDR.*

Note*. This is assumed that all the parameters for telephone system should be configured to beginning of processing files.*

At the end of processing, click on the **Show parsed call** link in the window that is shown in Figure 3.13.3.4. The calls view opens as shown in Figure 3.13.3.5.

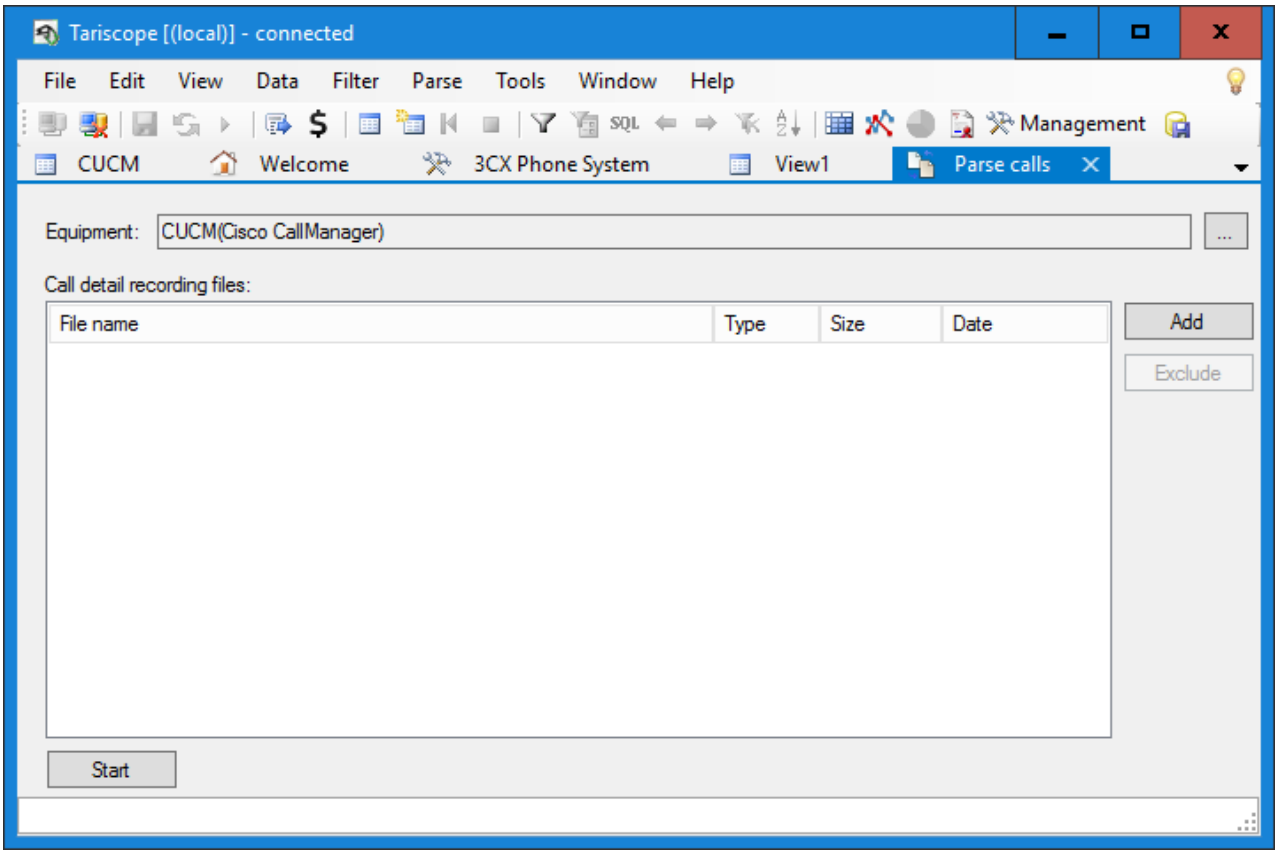


Figure 3.13.3.4

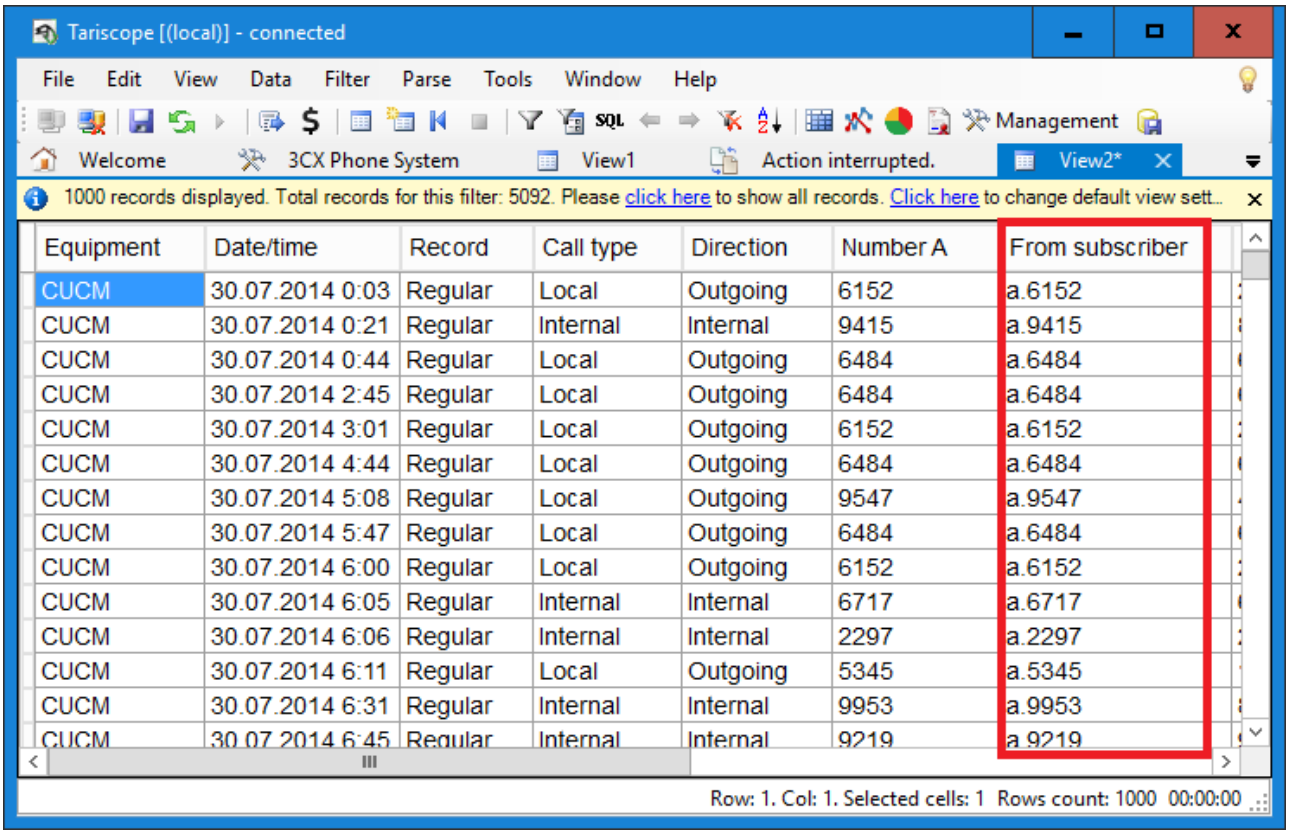


Figure 3.13.3.5

As you see all subscribers have names which correspond to their phone numbers. Now if you return to the **Subscribers** mode you will see that all subscribers were created.

For all subscribers the rate plan is set, which was set in Tariscope as default plan.

Now you can edit the subscriber data.

3.13.4. Manual input and editing of subscriber data

We recommend to begin a manual input of subscriber data from a creation of structure of the subscriber database, which reflects the enterprise structure for most users of the Tariscope Enterprise edition.

A customer database structure for telecommunications providers (users of the Tariscope Provider edition) can be divided on areas, streets or other groups of customers, which are easy-to-use for administration and generation of reports on groups.

To display the hierarchical structure of the subscriber database, on the toolbar of the **Subscribers** tab, click on the **Display tree** icon.

When a telecommunications node is created the root group with the **Company** name is created. We recommend to change this name, for example, on the your company name. To do this, select the row with this name and right-click. In the appeared menu, select the **Edit** item. The **Group edit** window appears as shown in Figure 3.13.4.1.

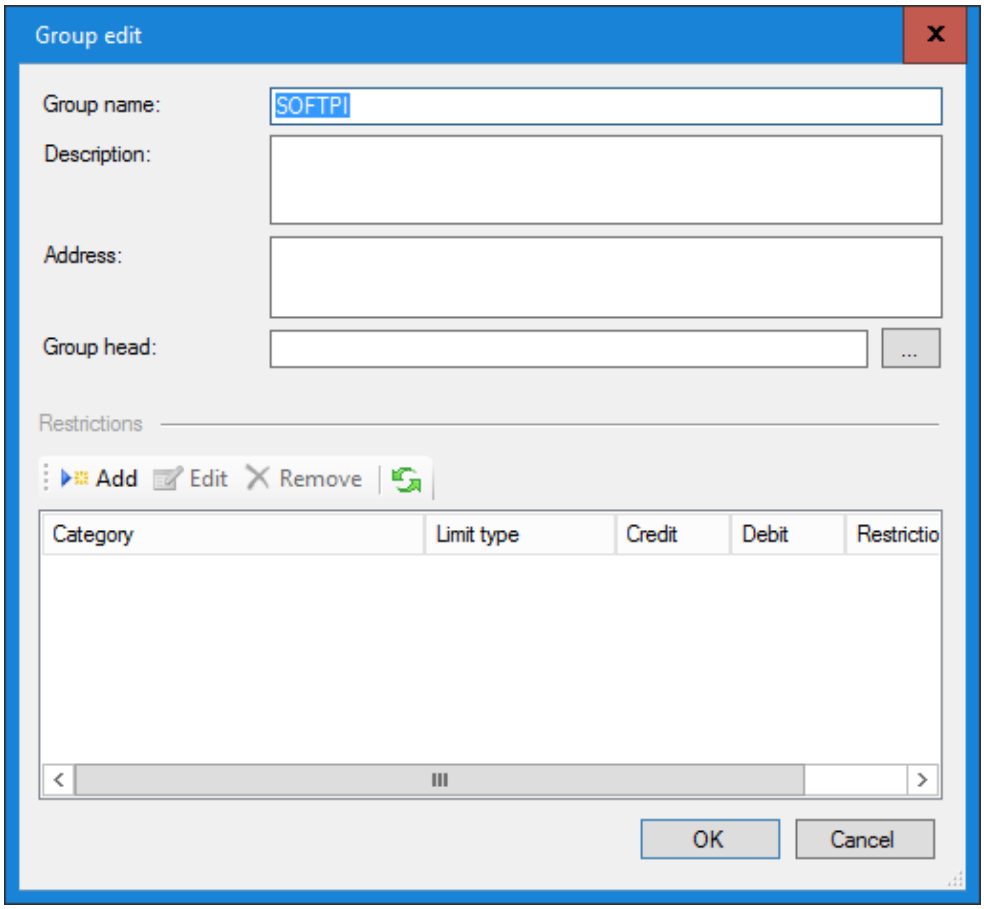


Figure 3.13.4.1

In the **Group name** box, change the **Company** name on the desired one. If necessary you can type comments in the **Description** box and address in the **Address** box. Click **OK**.

To refresh data in the subscriber table, on the toolbar, click on the **Refresh** icon.

To create a new group of subscribers (customers), on the toolbar, click on the **Add group** icon. The window shown in Figure 3.13.4.1 appears. Type the required data in the window. An input of a group manager in the **Group head** box ought to perform after input of subscribers data. The **Restrictions** section is applied only for Tariscope license with the restriction feature.

Type the other groups. If the newly created group must be part of a group previously entered, select the line with the group and follow the steps to add a new group the same way as described above.

The subscriber structure will be created, an example of which is shown in Figure 3.13.4.2.

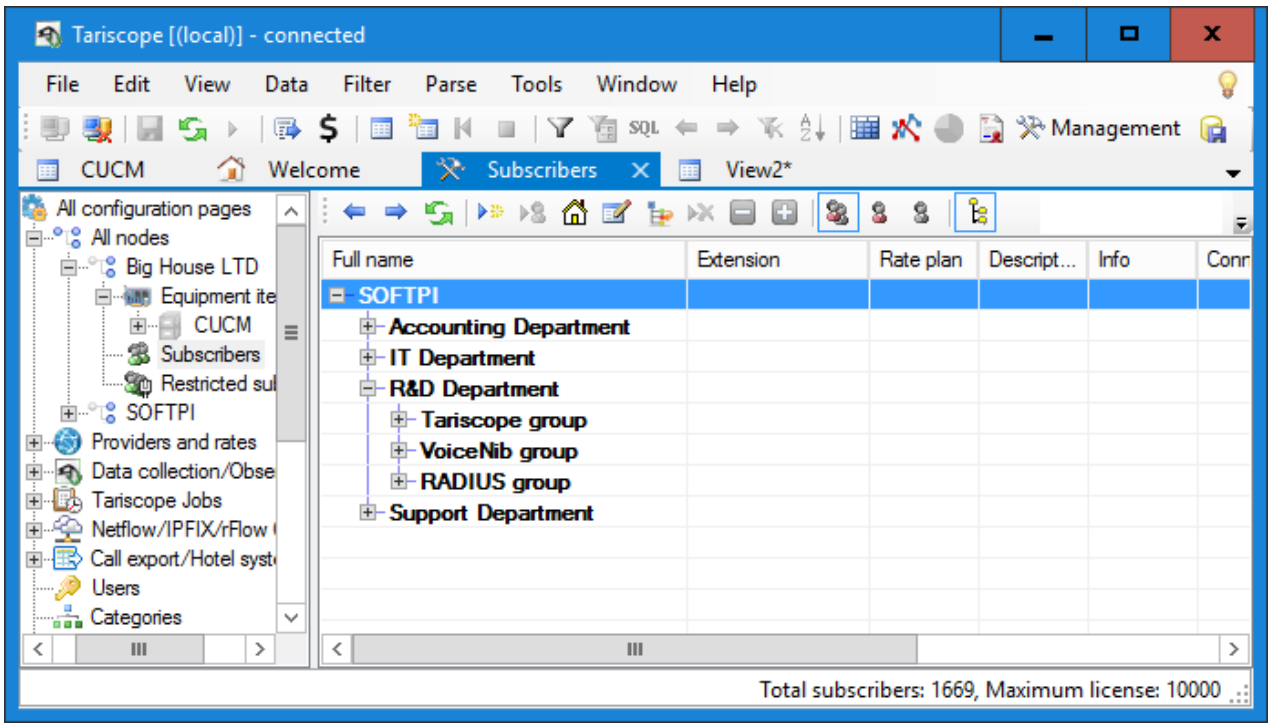


Figure 3.13.4.2

To manually add subscribers, select a row of a desired group and click the **Add** icon on the toolbar. As a result, the window appears as shown in Figure 3.13.4.3.

A toolbar is located in the upper part of the window. It allows you to toggle the window to enter various types of parameters using the corresponding buttons:

- **General**,
- **Details**,
- **Services**,
- **Documents**,
- **Account**,
- **Damages.**

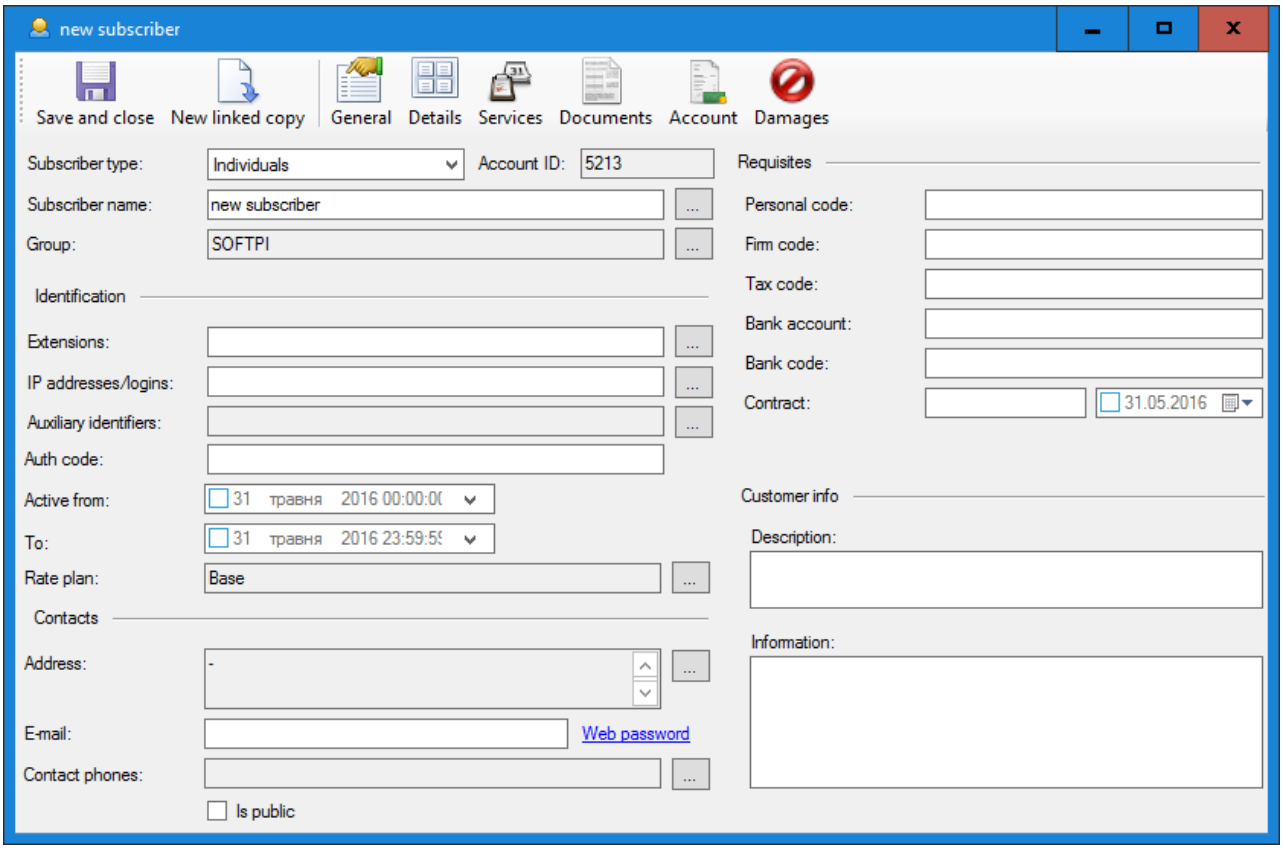


Figure 3.13.4.3

As well as you can create the linked copy using the **New linked copy** button and save the entered data using the **Save and close** button.

General parameters of subscriber

The **Subscriber type** list allows to set one from following subscriber types:

- **Individuals**. Select this item for customers who are individuals.
- **Legal entity**. Select this item, if the customer is a legal entity.
- **Service**. Recommends to select the item for employees of your company.
- **Budget**. Select the item, if the customer is a budget institution.
- **Privileges**. Select the item, if the customer has privileges.

A choice of the subscriber type (customer type) is relevant only for telecommunications providers. Corporate users of Tariscope can skip this choice.

By default, in the **Subscriber name** box the **New subscriber** value is displayed. To enter the real name of the subscriber, click on the "..." button to the right of this box. The **Subscriber name** window opens, an example of which is shown in Figure 3.13.4.4. This window displays in case the **Individuals** type of subscriber was selected.

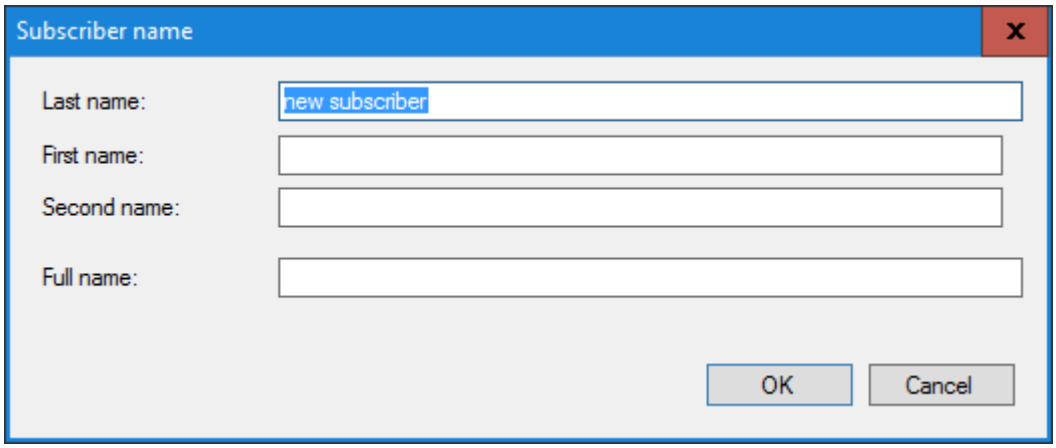


Figure 3.13.4.4

The window allows to enter: **Last name**, **First name, Second name** and **Full name**.

If you selected the **Legal entity** type of subscriber, the **Subscriber name** window allows to enter the following parameters: **Firm name** (a short company name) and **Full name**. After input these data they will be displayed in the **Subscriber name** box (Figure 3.13.4.3).

The **Group** box allows to set membership of the subscriber to one of the preset subscriber groups. In the box the name of the group is displayed that was chosen before the creation of the subscriber. If you need to change the group, click the "..." button to the right of this box. The **Select group** window appears where you can select the desired group and click **OK**.

To set a list of extensions (telephone numbers) that belong to the subscriber, click on the "…" button that is located on the right from the **Extensions** box (Figure 3.13.4.3). The **Extensions edit** window appears as shown in Figure 3.13.4.5.

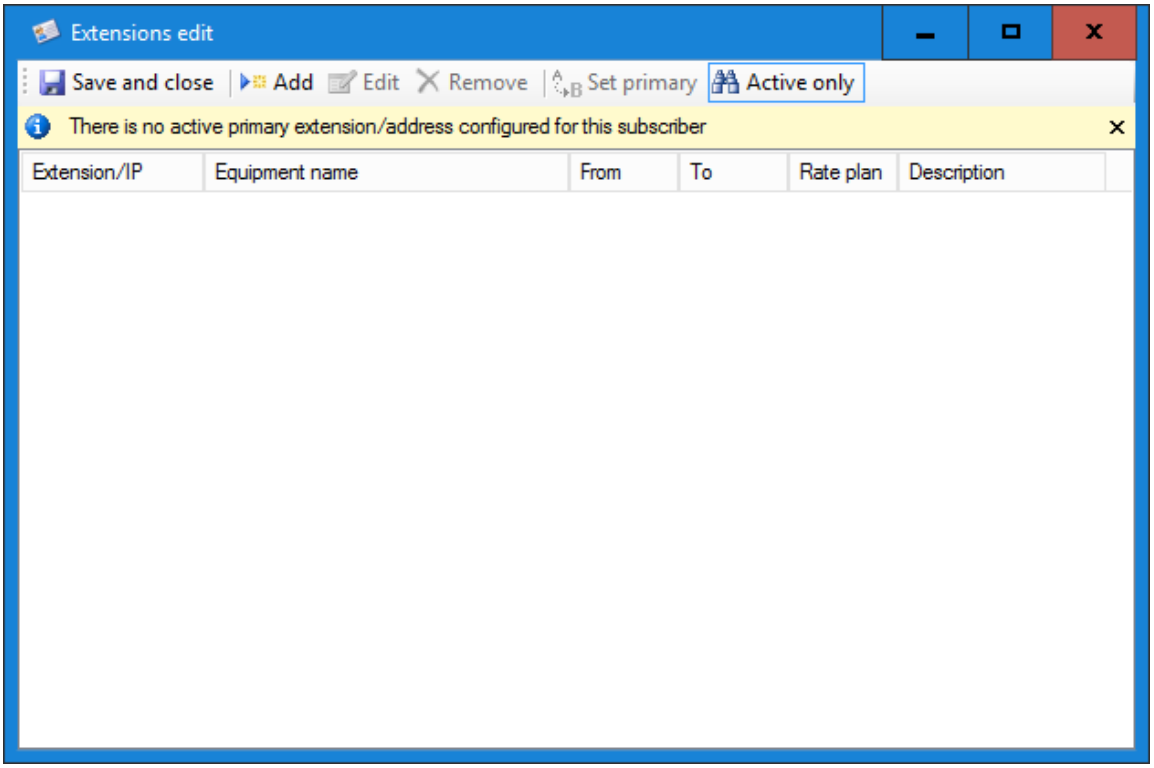


Figure 3.13.4.5

On the toolbar of the window, click **Add**. The **Extension/IP address** window appears as shown in Figure 3.13.4.6.

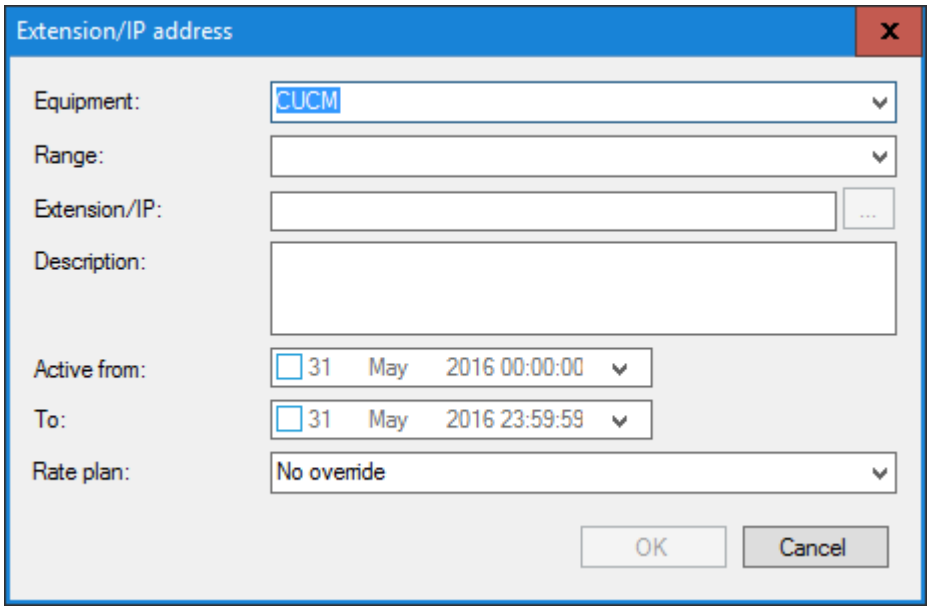


Figure 3.13.4.6

In the **Equipment** list, select a telephone system to which the extension belongs.

If the numbering plan was created for the telephone systeme earlier, you can select a range of extensions which contains the required extension. To select, use the **Range** list.

In the **Extension/IP** box, type the required extension.

If you wish to make a description for this extension, type it in the **Description** box.

In the **Active from** calendar list, select the date from which costs will be charged to the subscriber for this extension.

***Note**. If the extension will be applied from the same date when the subscriber is valid, the input of this parameter is not necessary. For this case, the date should be specify in the **Active from** list of the **Subscriber** window (Figure 3.13.4.3).*

In the **Tariff plan** list, select the rate plan that will apply to the extension.

***Note**. If the rate plan for the extension is applied the same as the plan for the subscriber, the input of this parameter is not necessary. In the case, you should specify the rate plan in the Subscriber window.*

Click **OK**. The entered number is displayed in the table of the **Extensions edit** window (Figure 3.13.4.5).

To input the next extension, repeat the mentioned above actions.

To edit parameters of an earlier entered extension, in the **Extensions edit** window (Figure 3.13.4.5), select the required extension and click on the **Edit** icon. The **Extension/IP address** window (Figure 3.13.4.6) appears, where you can edit the required parameters.

To delete a extension, in the table of the **Extensions edit** window (Figure 3.13.4.5), select the required row and click on the **Remove** icon.

If subscriber has more than one extension, select the primary extension that will be displayed in the table of subscribers and be presented in a report where only one extension is shown. To do this, select the required row in the table of extensions and, click on the **Set primary** icon.

All mentioned above actions are accessible not only from the toolbar of the **Extensions edit** window (Figure 3.13.4.5), but when you select any row of table and right-click. As a result, the menu appears as shown in Figure 3.13.4.7.

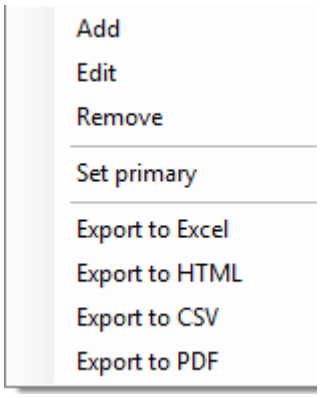


Figure 3.13.4.7

In addition to discussed modes, this menu also allows you to export the extensions to an external file. There are the following export options:

- **Export to Excel**,
- **Export to HTML**,
- **Export to CSV**,
- **Export to PDF**.

If a subscriber has a few extensions, and you need to sort the data in the table or data filtering, point to the table header, and right-click . As a result, the menu appears as shown in Figure 3.13.4.8.

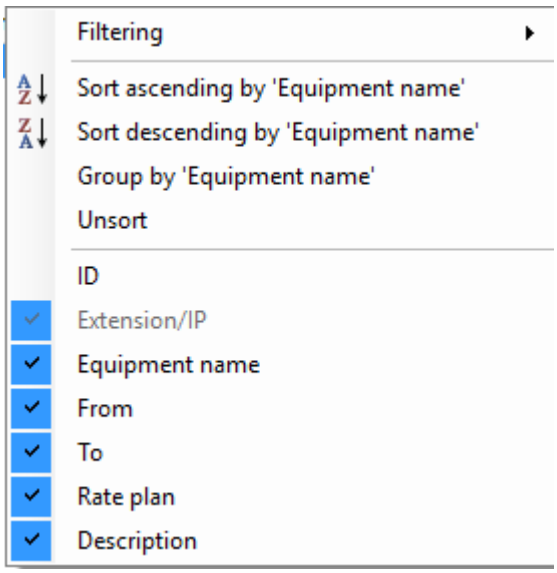


Figure 3.13.4.8

In addition, this menu allows to select the columns to display.

The **Filtering** item of the menu allows to filter data on the values of a column where the cursor is located. An example of the menu when the cursor was located on the header of the **Extension/IP** column is shown in Figure 3.13.4.9.

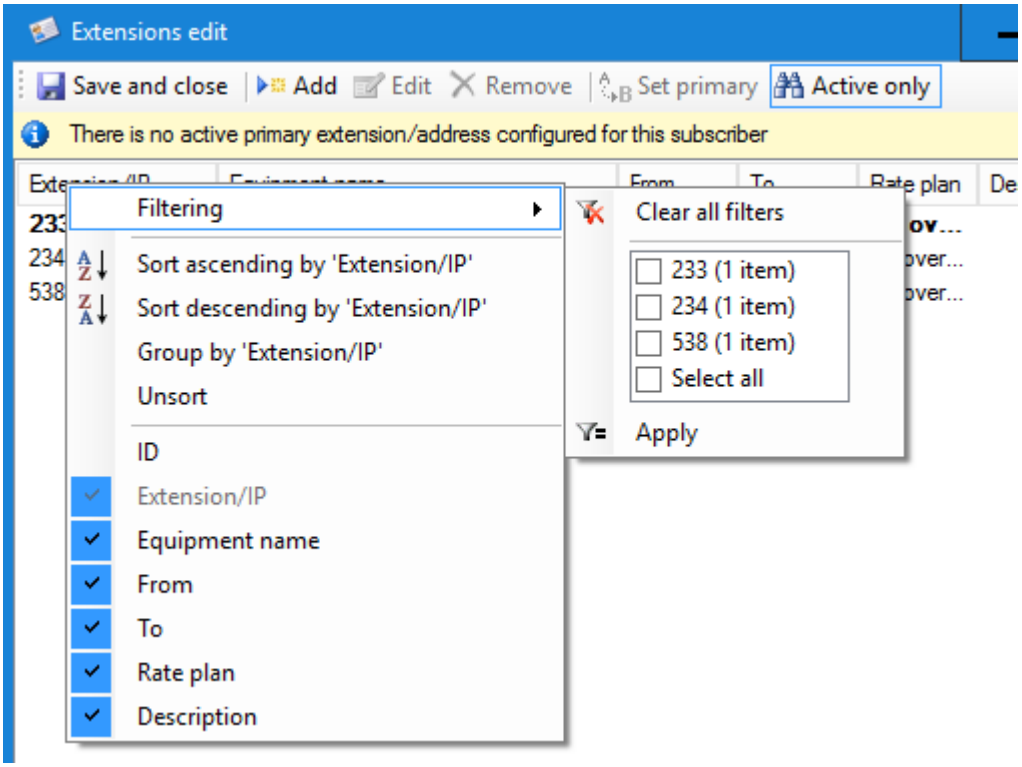


Figure 3.13.4.9

As you see on the Figure 3.13.4.9, the **Filtering** list contains the permanent items:

- **Clear all filters**. It allows to clear previously installed filter conditions.
- **Apply**. It allows to apply filtering conditions.

In addition to these items, there is a list of the values the selected column. Select the required values and click **Apply**.

The sorting items of the menu (Figure 3.13.4.8) allows to sort the information in the table either ascending values or descending.

To remove a previously installed sorting sorting, select the **Unsort** menu item.

The **Group by** menu item also apply to selected column. It provides the data grouping. An example of such groups when extension belonging to a particular telecommunications equipment is shown in Figure 3.13.4.10.

If you have applied the grouping, the menu shown in Figure 3.13.4.8 contains the **Turn off groups** item. Select it, if you wish to remove the grouping.

The menu (Figure 3.13.4.8) allows to select the required columns to display. To do this, select or clear the required name of columns.

When you finish the input of extension parameters, click on the **Save and close** item on the toolbar.

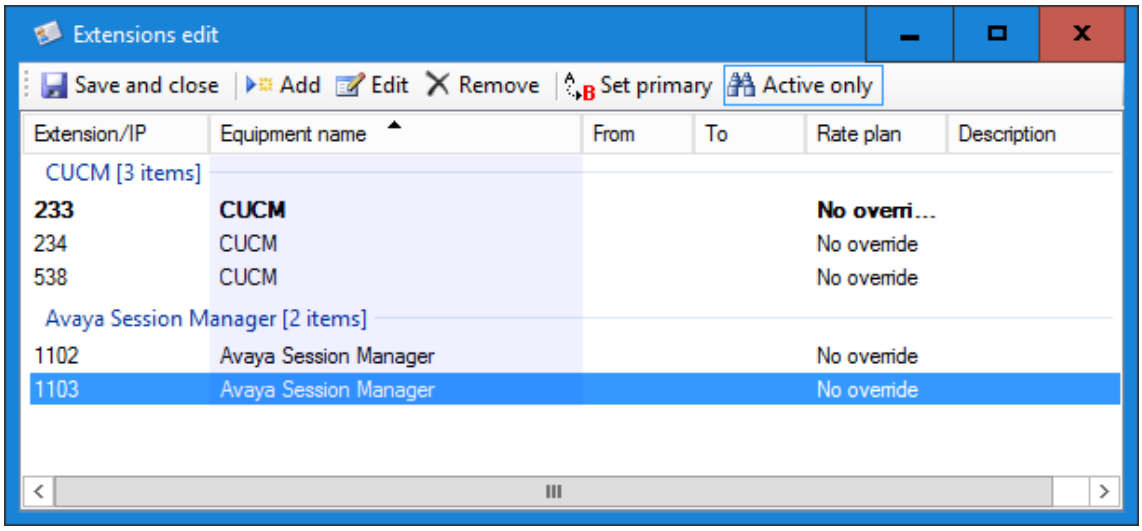


Figure 3.13.4.10

The list of the entered extensions will be displayed in the **Extensions** box of the **Subscriber** window (Figure 3.13.4.3).

The **IP addresses/logins** box allows to type IP addresses that belong to the subscriber. To add, edit or delete IP addresses, perform actions that the same actions for extension described above.

In addition to the mentioned above parameters the **General** window allows also to enter:

- **Auxiliary identifiers**. The auxiliary identifiers allows to uniquely identify a subscriber in the case, his extension is used by multiple parties. This situation is valid to a number of PBXs, in particular, CS1000 and Meridian 1 (Avaya - Nortel). For these PBXs the terminal numbers (TN) are used as such identifiers.
- **Auth code**. A code that is used to authorize a subscriber during call is made.
- **Active from**. A date in the **Active from** box defines when the charging for the subscriber is begun. If you has specified the such dates for every extensions (or IP addresses) and services, the selection of the date in the box is not necessary. If charging for all subscriber's extensions, IP addresses, and services begins from the same date, we recommend to set the date only in the box. If this date was not set for the subscriber and it was not set for extensions, IP addresses, and servises, the calls and services for any date will be charged to this subscriber.
- **To**. A date in the **To** box defines a final date to which charging for the subscriber is performed. Also as for date from **Active from** box, an alternative to this date are the dates of close of an extension (IP address or service) belonging to the subscriber.
- **Rate plan**. This box defines the rate plan which is applied to the subscriber. The rate plan can be specified on every extension, IP address, and service. The individual setting is recommended only when different communication services are charged using different rate plans. If a rate plan was not specified in the box and it was not specified for a particular service, call rating and charging services are not performed. To select a rate plan, click on the "..." button to the right of the **Rate plan** box. A window appears containing a list of

all rate plans in Tariscope. Select the required plan. If the required plan is absent, create it.

- **Address**. This box allows to enter a aubscriber's address. To enter an address, click on the "…" button located on the right from the **Address** box. The **Address** window appears as shown in Figure 3.13.4.11.

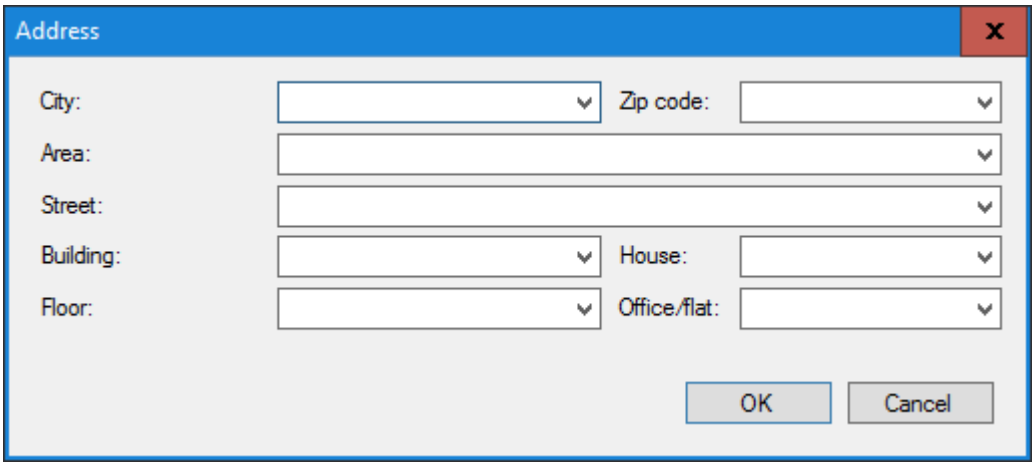


Figure 3.13.4.11

In the window, type the required parameters and click **OK**.

- **Email**. The box allows to specify an email address of the subscriber that can be used to sending of reports, invoices and other documents.
- **Web password** link. It allows to set a password for the subscriber which is used for access to the Personal area.
- **Contact phones**. Shows and allows to enter phone numbers, ICQ, Skype address using for contact with the subscriber. As a rule, this information is usful for administrators (managers) of the Tariscope Provider edition. To enter the contact phone numbers, click on the "…" button located on the right from the **Contact phones** box. The **Contacts edit** window appears. To add a new contact phone number, click on the **Add** icon. The **Contact** window appears. In the **Contact** box of the window, type a phone number or Skype address or another information. In the **Type** box, select the required type of contact. In the **Description** box you can enter any additional information. To edit or delete contacts, use the **Edit** or **Remove** icons respectively in the **Contacts edit** window.
- **Personal code**. The code is a national identification number that is used by the governments of many countries as a means of tracking their citizens, permanent residents, and temporary residents.
- **Firm code**. The code is an identification number of company. In various countries, these codes may have a different name.
- **Tax code**. Specifies a tax code of the customer (subscriber).
- **Bank account**. Specifies a bank account of the customer (subscriber).
- **Bank code**. Code of the bank where the account of the subscriber.
- **Contract**. A number and date of the agreement according to which the provision of telecommunications services is carried out.
- **Description**. The additional information field that you can use for their own purposes.

- **Information**. The additional information field that you can use for their own purposes.

If you do not suppose to enter any additional parameters in the **Details**, **Services**, **Documents**, **Account**, and **Damages** modes for the subscriber, click **Save and close** to save the data entered or edited. Otherwise, go to the desired mode.

Details on subscriber

To enter additional settings for a subscriber, such as the restriction parameters, the second address, the type of mail delivery, or preferential subscriber options, click the **Details** button on the Subscriber window (Figure 3.13.4.3). This window will be as shown in Figure 3.13.4.12.

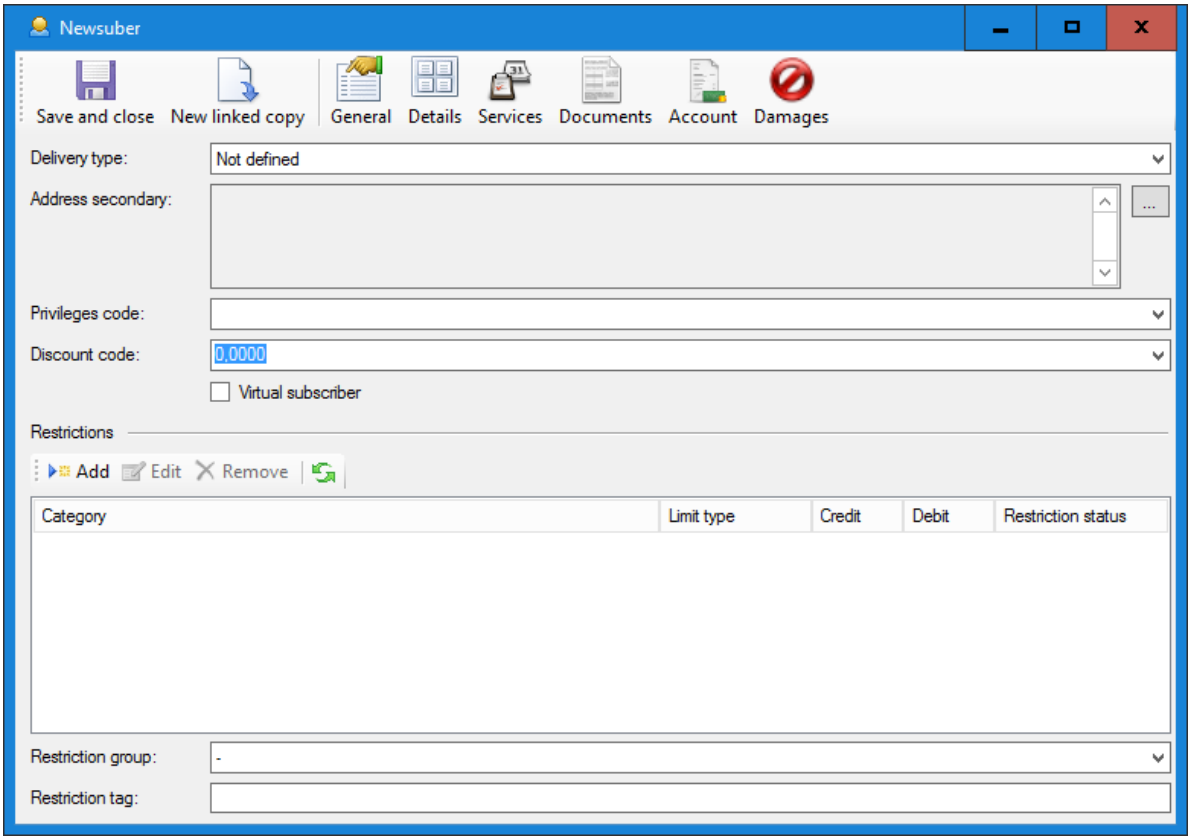


Figure 3.13.4.12

If you use the Tariscope Enterprise edition with the restriction feature, this window can be used to enter the restriction parameters. The other parameters of the window are actual only for the Tariscope Provider edition.

In the **Delivery type** list, select the required type. There are the following options:

- **Not defined**;
- **By mail**;
- **Courier**;
- **Self pickup**;
- **Email**.

If customer (subscriber) uses two addresses, you can enter a second address in the **Address secondary** box. To do this, click on the "…" button located on the right of

the **Address secondary** box. The **Address** box appears (Figure 3.13.4.11). Type the second address.

If the subscriber has privileges for telecommunications services, then:

- in the **Privileges code** list, type or select a suitable code that is assigned to this category of privilege. This field is informational and can be used in reports;
- in the **Discount code** list, type or select a factor to be applied to a rate plan of subscriber. This is an informational field and is not used in calculations of cost of telecommunications services. It can be used in reports.

One of the addition features in Tariscope is a virtual subscriber. This feature is recommended to use if necessary to charge costs of calls to the transit routes, gateways or channels. If editable subscriber is a virtual one, check the **Virtual subscriber** check box.

In case Tariscope comprises the restriction feature you can set restrictions for the current subscriber. Before to set restrictions for the subscriber you must set the restriction feature for Tariscope.

To add the restriction for the subscriber, click on the **Add** button in window shown in Figure 3.13.4.12. The **Category credit** window appears as shown in Figure 3.13.4.13.

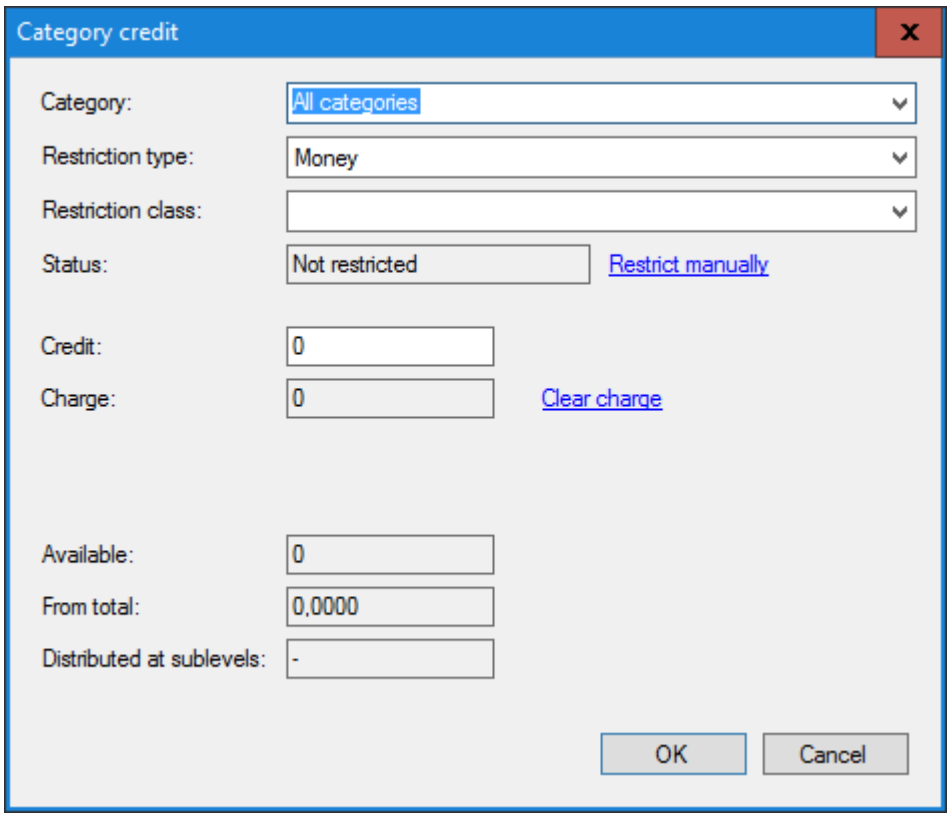


Figure 3.13.4.13

In the**Category** list, select a category to which the restriction will be applied. This list contains all categories that was created in Tariscope regardless of the purpose of their use.

In the **Restriction type** list, select a desired type. There are two types:

- **Money**. The restrictions on the calls are assigned in money.
- **Seconds**. The restrictions on the calls are assigned in seconds.

The **Restriction class** box does not used in most cases. Skip it.

In the **Credit** box, type a credit value.

The **Charge** box displays the value of the charged cost of calls. Tariscope automatically clears this value. If you wish to clear it, click on the **Clear charge** link.

The **From total** box displays a credit value that was set for the subscriber group to which the subscriber belongs.

The **Available** box display a value that is equil the value of the **From total** box minus the value of the **Credit** box. The value of this box means how many money or seconds is available to distribute.

The **Distributed at sublevels** box is not applied to a subscriber. It is used for a subscriber group.

After entering, click **OK**.

Services of subscriber

Configuring services is relevant only for the Tariscope Provider edition. To set the parameters of services installed for the subscriber, click on the **Services** button of the Subscriber window (Figure 3.13.4.3). The window will be as shown in Figure 3.13.4.14.

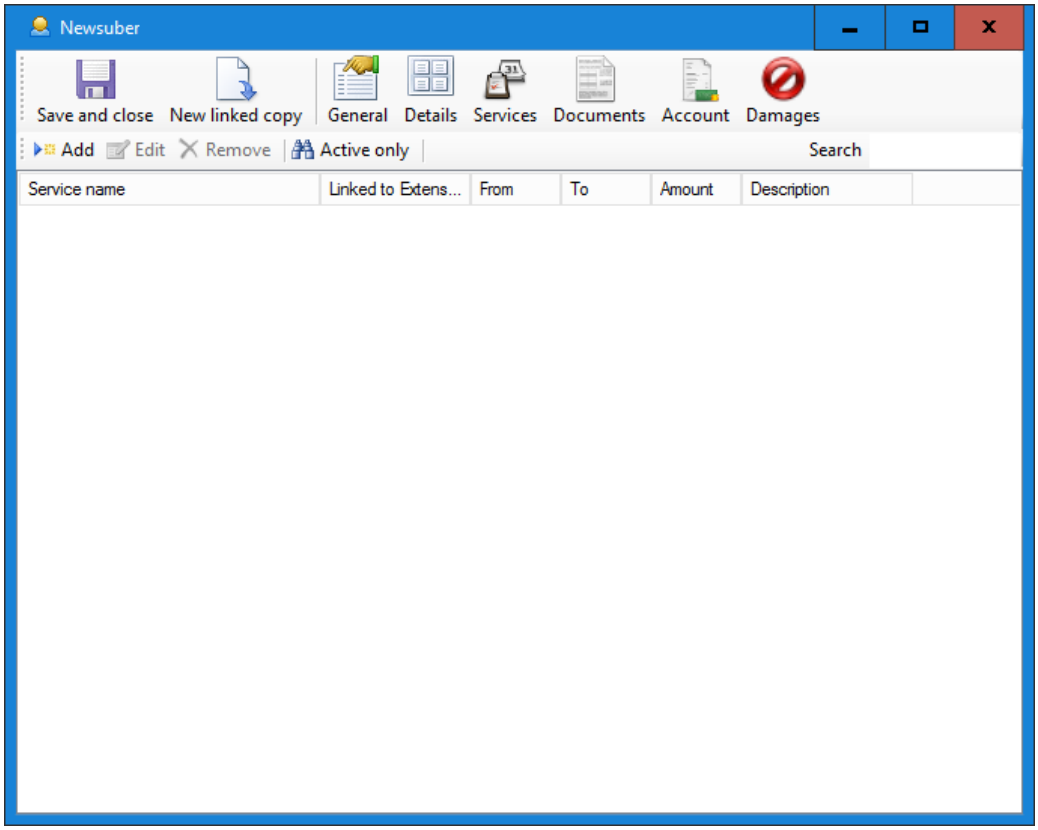


Figure 3.13.4.14

This configuration mode assumes that the list of services was previously created. To add a new service, click on the **Add** icon. As a result, the **Subscriber service** window opens as shown in Figure 3.13.4.15.

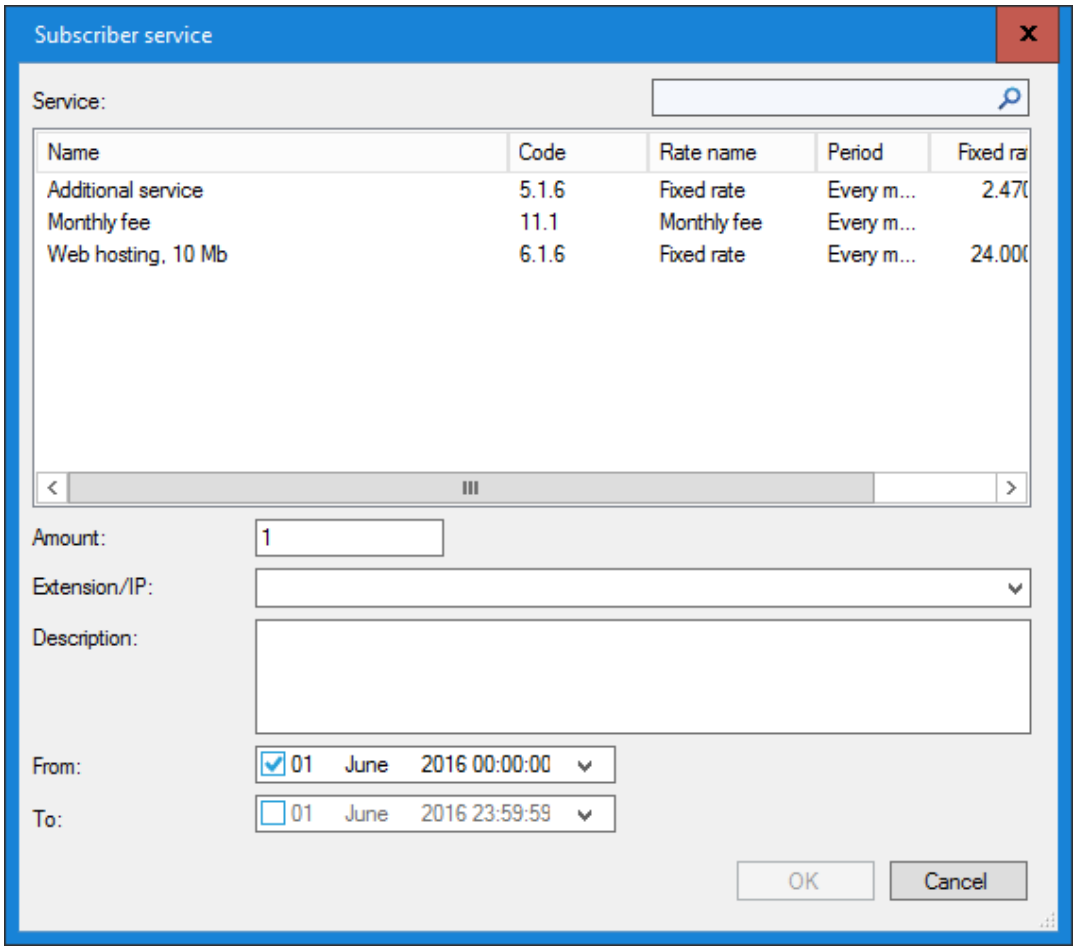


Figure 3.13.4.15

In the **Service** list, select the desired service.

In the **Amount** box, set the number of the such type of services that will be charged to the subscriber.

If the service is tied to a particular phone number (extension) or IP address, in the **Extension/IP** list, select the required extension or IP address.

If any comments are necessary to this service, you can enter them in the **Description** box.

In the **From** calendar list, select the date from which the service will be charged to the subscriber.

To stop charging services, in the **To** box, select the desired date.

If a charge of the service starts from the date that was specified in the **Active from** calendar list (Figure 3.13.4.3), it is possible not to set the date in the **From** box of this window.

After entering the service, click **OK**.

To set other services, repeat these steps.

In the Subscriber window (Figure 3.13.4.14) a list of the entered services will be displayed.

***Note**. Services may include in a rate plan. In this case, individual assignation of these services to each subscriber is not required. Enough to assign a rate plan for a subscriber.*

Subscriber documents

To enter, view or edit documents that are associated with a particular subscriber, click on the **Documents** button of the Subscriber window (Figure 3.13.4.3). The Subscriber window will be as shown in Figure 3.13.4.16.

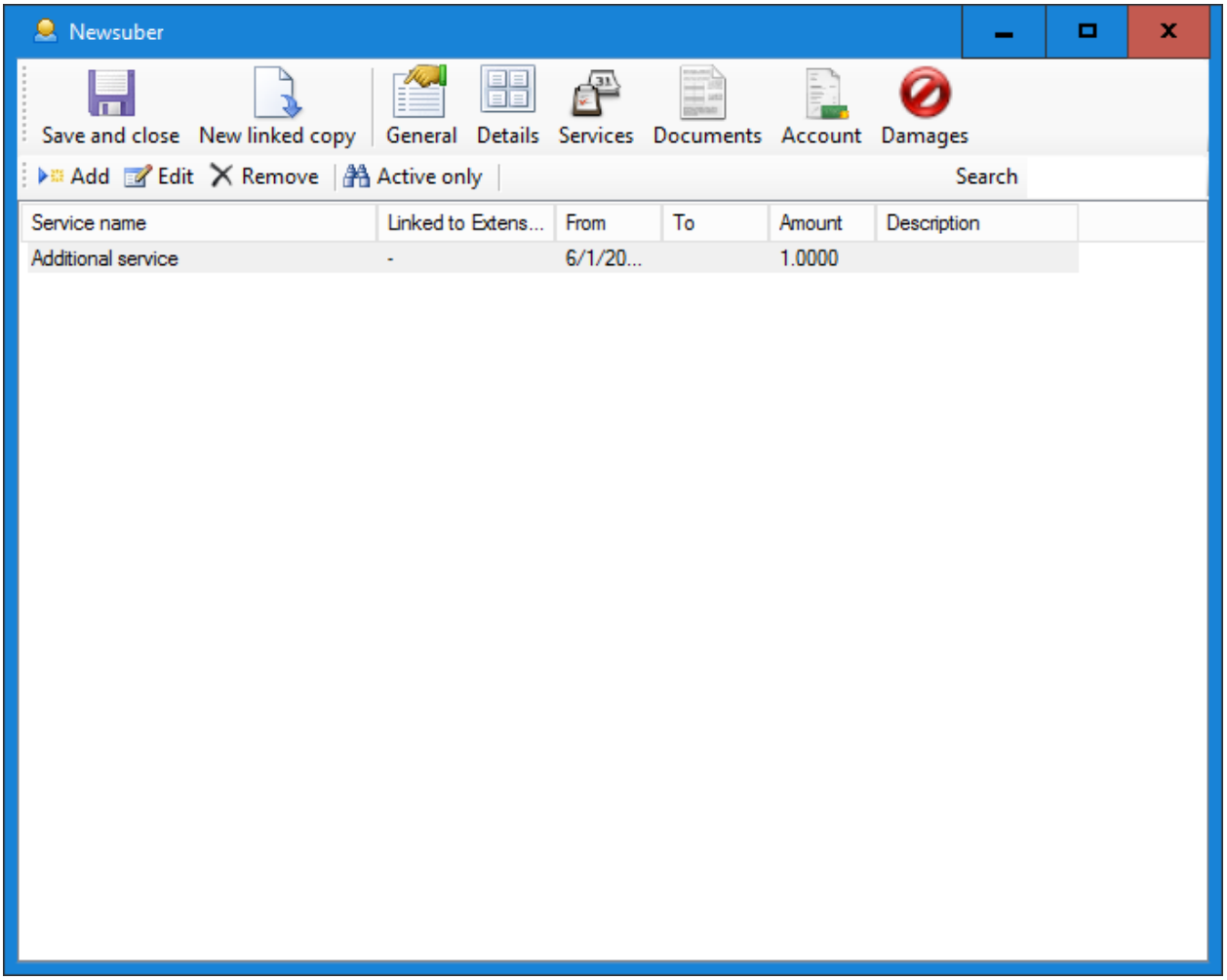


Figure 3.13.4.16

This window allows you to enter, view, edit all documents that relate to a particular subscriber, which greatly simplifies the process of subscriber management.

Before adding documents we recommend to create an initial list of possible types of documents that can be used in Tariscope. For example: agreements, contracts, invoices, receipts, reports, etc. To do this, on the toolbar of the window (Figure 3.13.4.16), click on the **Document types** icon. A window with the same name opens. The window has three modes: **Add**, **Edit**, **Remove**, which are accessible through icons on the toolbar.

Click the **Add** icon to enter a new document type. In the table a new record will be created. Double-click on this line, and replace the "new type" name with the required name. Repeat this step to add other types of documents.

To edit a document type, select the desired line and either double-click in the **Name** column, or click the **Edit** icon. Then, make the corrections.

To add a new document to the subscriber, click on the **Add** icon on the Documents window (Figure 3.13.4.16). The **Document** window appears as shown in Figure 3.13.4.17.

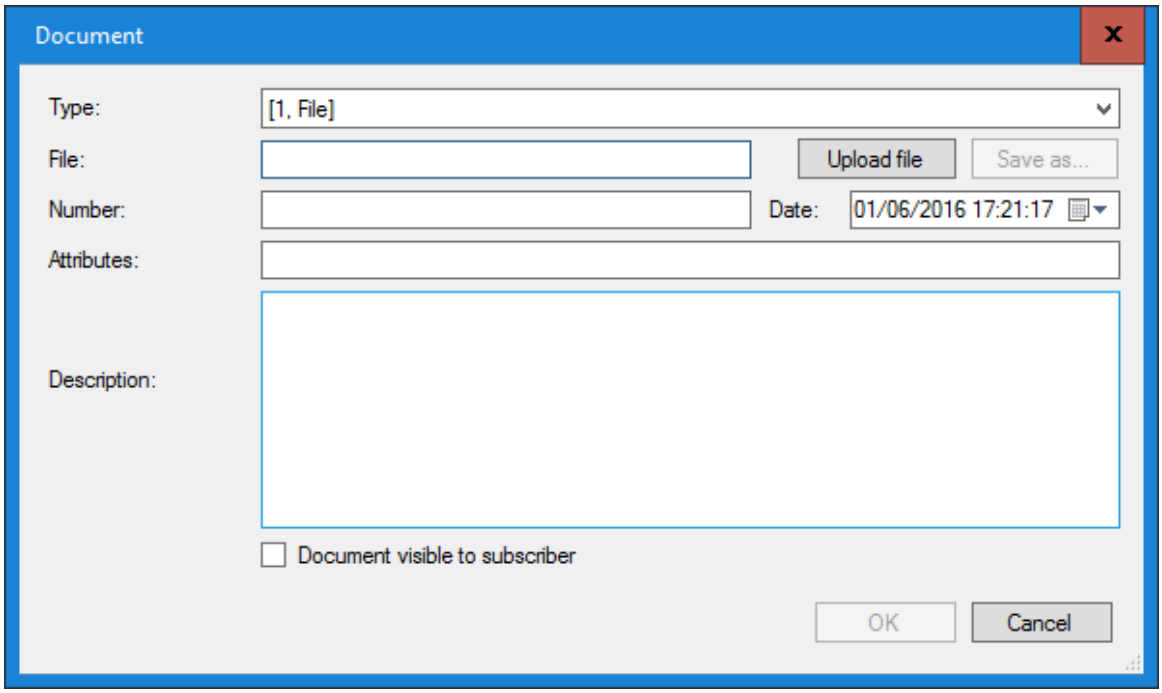


Figure 3.13.4.17

In the **Type** list, select the document type.

Click the **Upload file** button, the **Open** window appears. Select the desired file.

In the **Number** box, type the number of the document.

In the **Date** box, select the date of the document.

In the **Attributes** box you may set additional parameters of the document.

In the **Description** box, if necessary, you can enter a short description of the document. It can be used to quickly find the document.

If subscriber can have an access to this document in the Personal Area, select the **Document visible to subscriber** check box.

Click **OK**.

To quickly add a file without entering its parameters, you can use the **Upload** icon in the Documents window (Figure 3.13.4.16). Click this icon to open the **Open** window and select the required file. After uploading the file, a new row is added in the document table (Figure 3.13.4.16). In the future, you can change the document data.

To open a document of a subscriber, select the appropriate line in the table of documents and click **Open**. If Windows contains application which opens the file, it will be opened.

To search the required document you can use the **Search** box (Figure 3.13.4.16).

Account

In the Tariscope Provider edition the Tariscope program has a specific mode for working with the subscribers' accounts (the program menu: **Tools** → **Subscriber accounting**). However, the Subscriber window also has an easy mode, allowing only to view the status of the subscriber's account.

To view the subscriber's account in the Subscriber window, click on the **Account** button. The Subscriber window will be as shown in Figure 3.13.4.18.

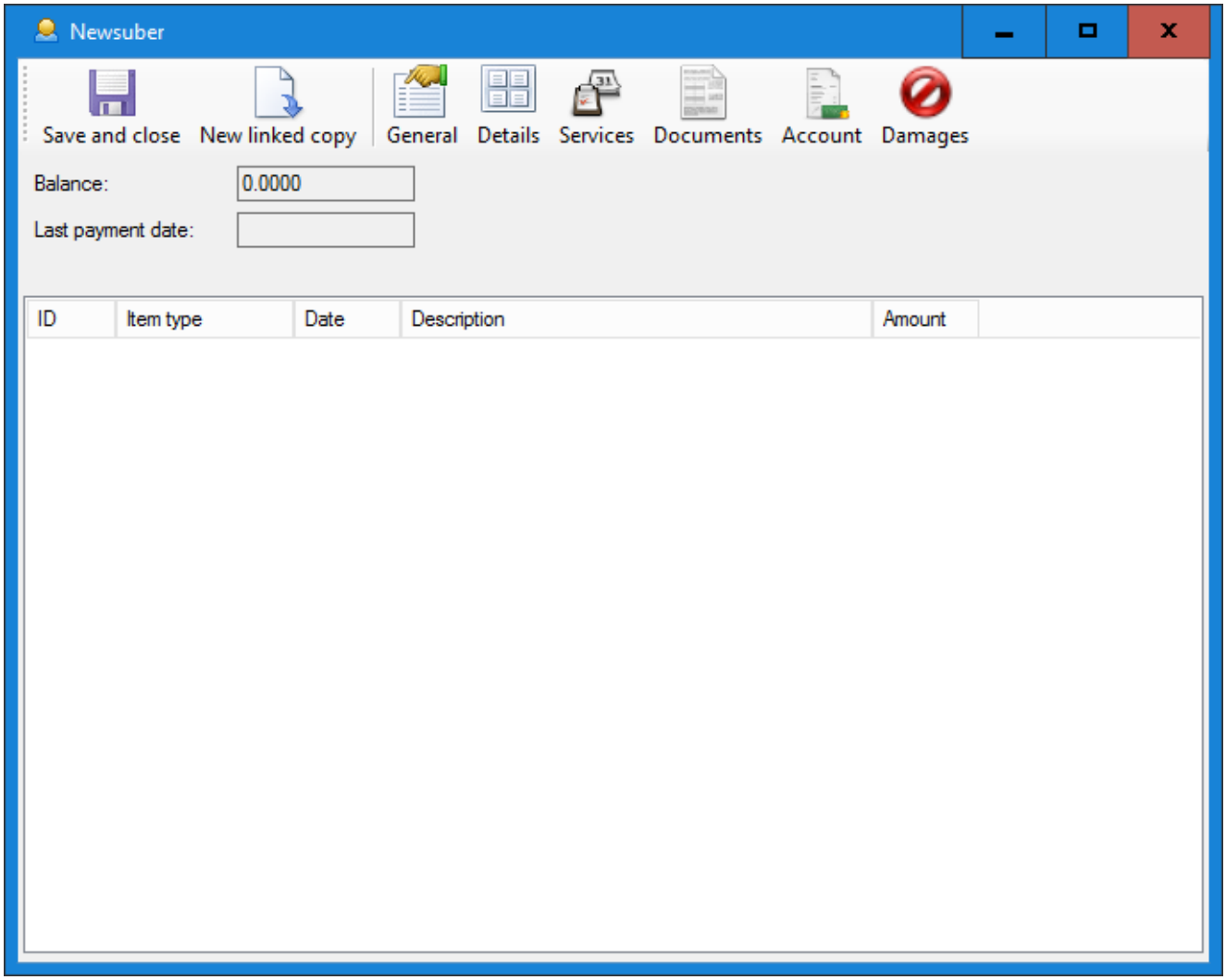


Figure 3.13.4.18

The **Balance** box displays a balance of the subscriber account.

The **Last payment date** box displays the last date when the subscriber paid for the telecommunications services.

The table of the window displays data of the charged services and the received payments.

Damages

Tariscope enables you to record damages of telephone equipment or data transmission equipment. Information about damages can be used to account for them in the charges of the services. The setting of this is performed on the **Services** configuration page.

To enter data on damages click **Damage** button on the toolbar of the Subscriber window. As a result, the Subscriber window will be as shown in Figure 3.13.4.19.

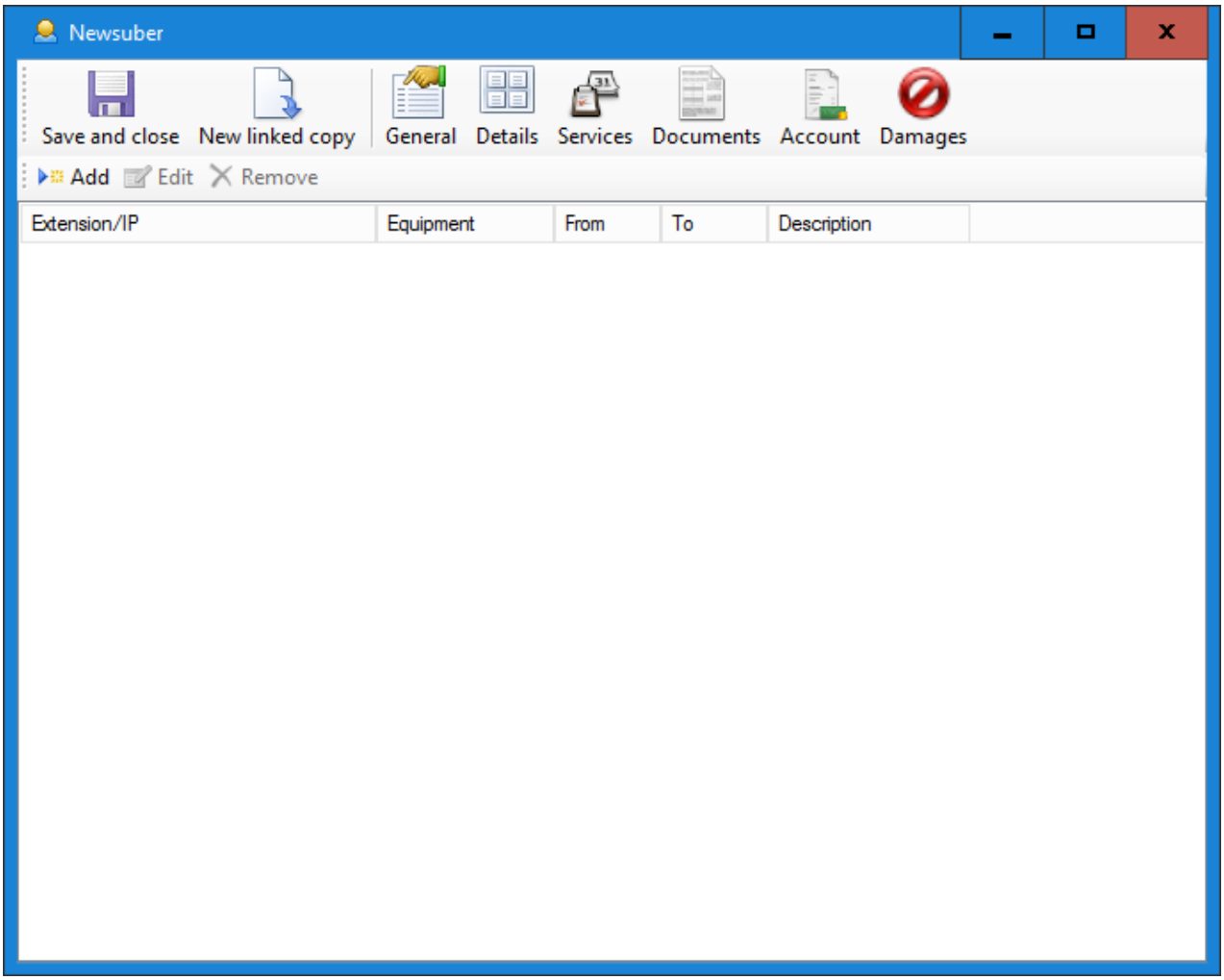


Figure 3.13.4.19

This window allows the administrator to enter information about a damage (the **Add** icon), change this information (the **Edit** icon) and remove unnecessary information (the **Remove** icon).

To add a new information, click on the **Add** icon. The **Extension/IP damage** window appears as shown in Figure 3.13.4.20.

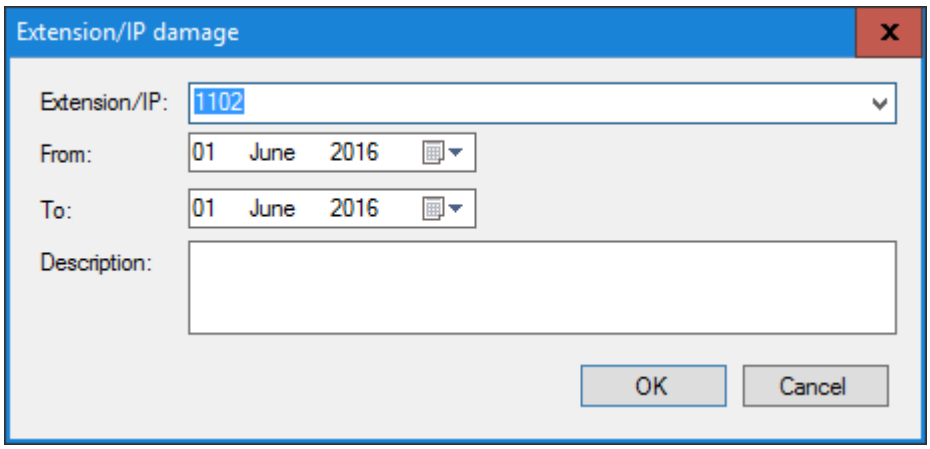


Figure 3.13.4.20

In the **Extension/IP** box, select an extension (telephone number) or IP address for which the information about damage belongs.

In the **From** and **To** calendar boxes, specify a period when the extension or IP address was not operational. With the proper settings on the **Services** configuration page the certain services during this period can not be charged.

In the **Description** box, type a description of the damage, as well as any other information associated with it, such as who troubleshoots and etc.

Click **OK**.

A list of damages of the subscriber is displayed in the table of the window, shown in Figure 3.13.4.19.

Creation of a linked copy

If necessary to change separate parameters of a subscriber, retaining the other previous settings, you should use a linked copy of the subscriber. The current subscriber will be closed and a new subscriber with data of the current subscriber will be created. You may change extensions (phone numbers), IP addresses, rate plan, a list of services, etc. for the new subscriber.

To create a linked copy, in the Subscriber window, click on the **New linked copy** button. The **Add linked subscriber** window appeaers as shown in Figure 3.13.4.21.

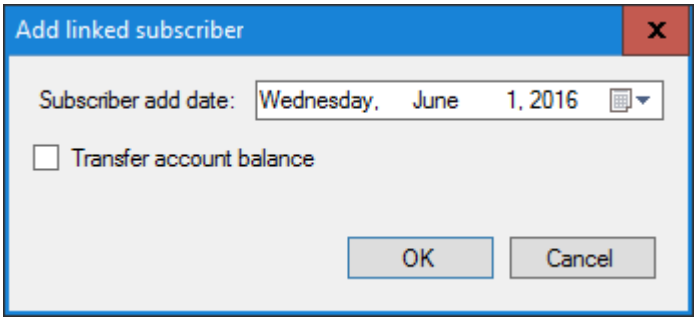


Figure 3.13.4.21

In the **Subscriber add date** list, select a date from which the current subscriber will be closed and a new subscriber will be created.

If necessary, transfer the subscriber's balance to the account of the new subscriber, select the **Transfer account balance** check box. This action is applied only for the Tariscope Provider edition.

3.14. Tariscope Observer

The Tariscope Observer service (or the Observer service) was designed for collecting information about calls from a telephone system, telephone exchange, or buffer device and its initial processing.

A profile of this service must be set individually for each telecommunications equipment. To start a new profile creation of the service you can use two options:

- in the window of parameters of specific telephone system (Figure 3.12.1), click on the **Create new profile here** link,

- in the Tariscope configuration tree, select the **Data collection/Observer** branch and, right-click on it. In the appeared menu, select **New profile**.

In both cases a new branch of the configuration tree is created as a subbranch of the **Data collection/Observer** branch. But in the first case the name of the profile has the same name as the telephone system, and in the second case the profile has the **Profile** name. In the second case you must rename it to a desired name. All other settings in both cases are the same. An example of the Tariscope window when the profile is created from the configuration page titled "CUCM" is shown in Figure 3.14.1.

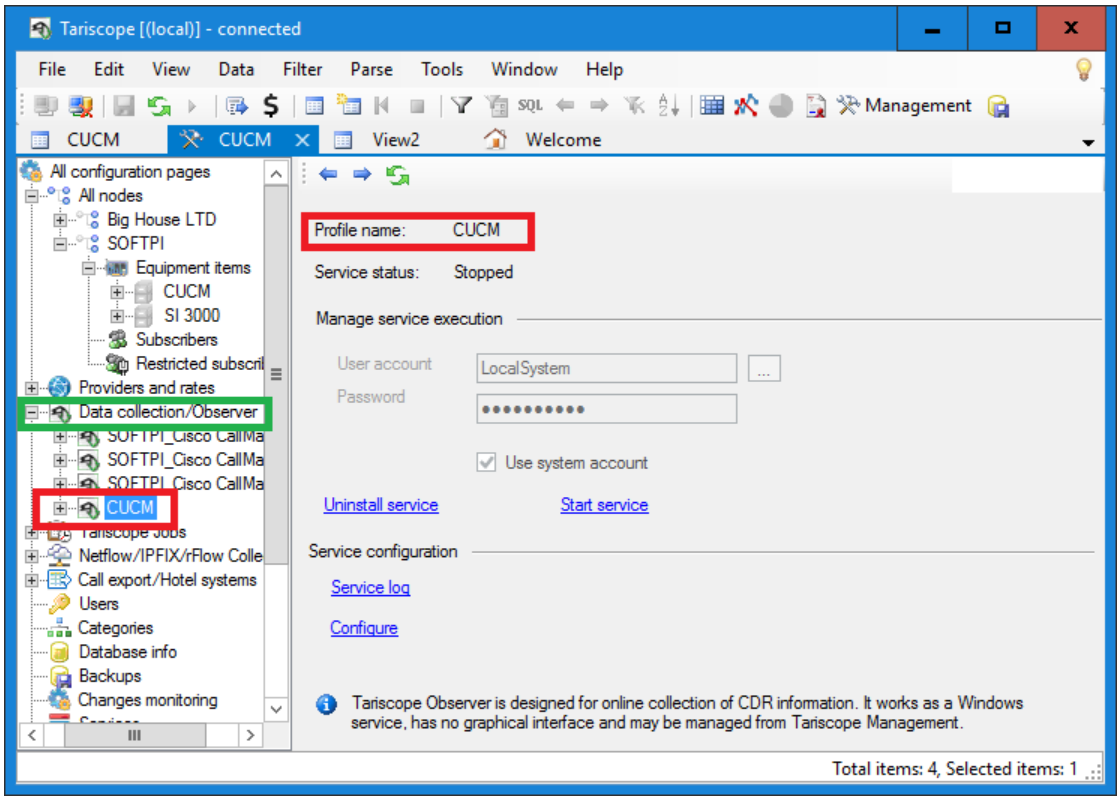


Figure 3.14.1

To configure the profile, click the **Configure** link (Figure 3.14.1) or, opend the profile branch and, click on the **Configuration** subbranch. The window will be as shown in Figure 3.14.2.

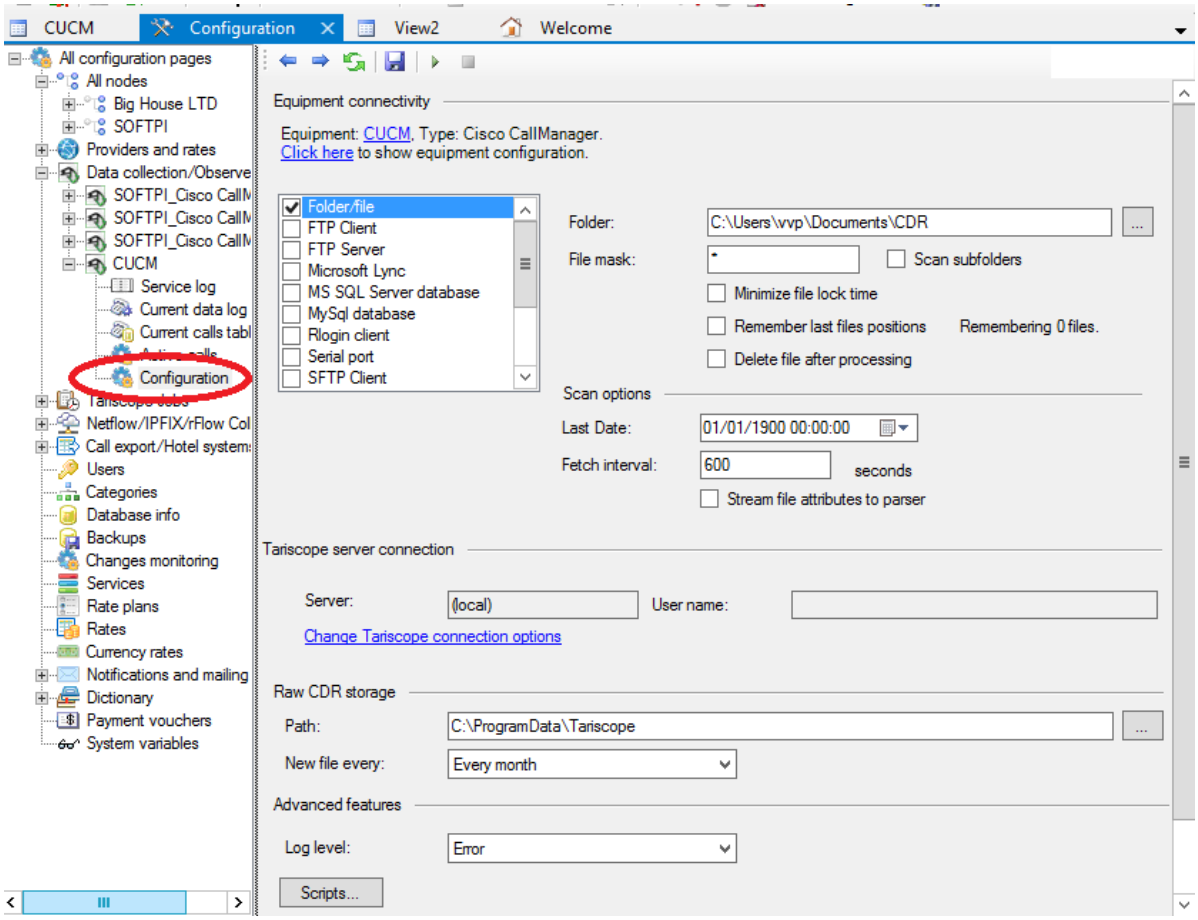


Figure 3.14.2

In the **Equipment** position the equipment name and type are displayed as links. In Figure 3.14.2 the equipment name is 'CUCM' and the equipment type is 'Cisco CallManager'. If you click on the 'CUCM' link you move on the appropriate window of the equipment configuration.

Under the **Equipment** position there is a list of CDR data sources. There are the following source:

- **Folder/file**. The data is contained in a file that may be in a local or network folder.
- **FTP Client**. The Observer service works with telephone system as a FTP client.
- **FTP Server**. The Observer service works with telephone system as a FTP server.
- **Microsoft Lync**. The Observer service collects CDR from Microsoft Lync.
- **MS SQL Server database**. The Observer service gets the data from Microsoft SQL Server database.
- **MySQL database**. Tariscope gets the data from MySQL database.
- **Rlogin client**. The Observer service works as Rlogin client to collect CDR.
- **Serial port**. The service gets CDR through a serial port.
- **SFTP client**. The Observer service works with telephone system as a SFTP client.
- **SFTP server.** The Observer service works with telephone system as a SFTP server.
- **SSH client**. The Observer service works with telephone system as a SSH client.
- **TCP client**. The Observer service works with telephone system as a TCP client.

- **TCP/IP server**. The Observer service works with telephone system as a TCP server.
- **UDP Server**. The Observer service works with telephone system as a UDP server.
- **Asterisk AMI**. The Observer wokrs with Asterisk using Asterisk Manager Interface (AMI).

The part of the window on the right from the list varies depending on the data source. Descriptions of the Tariscope Observer service for each data source, see in the following sections.

After configuring the CDR data source, in the **Tariscope server connection** section of the configuration page (Figure 3.14.2), set the Observer connection parameters to the Tariscope server. If it is assumed that Observer will work with the same rights that the Tariscope administrator has, skip this setting. Otherwise, click the **Change Tariscope connection options** link. The **Connect to Tariscope server** window appears as shown in Figure 3.14.3.

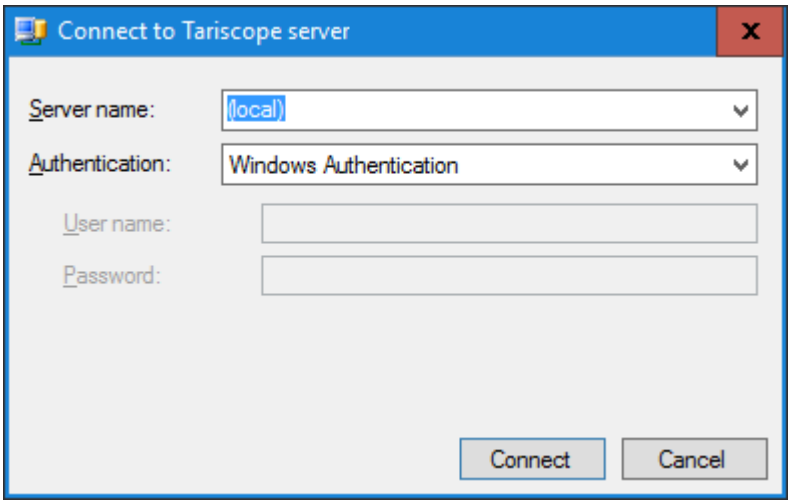


Figure 3.14.3

When you open this window, it reflects the current connection parameters of the Tariscope administrator. If necessary, replace them with the required parameters and click **Connect**.

In the **Raw CDR storage** section of the configuration page of Observer (Figure 3.14.2), in the **Path** box, select or type a path to folder where the source files with CDR data will be stored.

In the **New file every** list, select he period of time that Tariscope will automatically create a new file to store the original call information. There are options:

- **Single file**. All data will be written into a single file.
- **Every day**.
- **Every week**.
- **Every month**.
- **Every year**.
- **Don't create.** Initial CDR data will not be recorded in a special file.

A choice of option depends on the number of calls per day, internal requirements of your company to archive data, the free space on the drive, and others.

We recommend to keep the original CDR data, because it can be useful when you want to reprocess the data.

In the **Advanced features** section of the configuration page of Observer (Figure 3.14.2), you can choose a logging level of Observer and specify the parameters of scripts on the specific events in the Tariscope system.

In the **Log level** list, select a desired logging level of Observer. There are following options, where each following option increases logging level:

- **Status**,
- **Critical error**,
- **Error**,
- **Warning**,
- **Information**,
- **Advice**,
- **Debug**.

The log is needed to identify the causes of malfunction of Tariscope Observer. If you using the log have not identified the cause of an incorrect operation of the service, send the log to the technical support service of SoftPI. A log file is located in the folder: **...\ProgramData\Tariscope**

It has a name similar to the name of the Tariscope Observer service with the '**log**' file extention.

To view the log of the Tariscope Observer service in Tariscope, click on the **Service log** link of the window shown in Figure 3.14.1, or choose the **Service log** subbranch of the configuration tree.

If you want that the Tariscope Observer service reacts to specific events that occur in the processing of CDR data, click on the **Scripts** button on the configuration page (3.14.2). The **Tariscope Observer scripts** window opens as shown in Figure 3.14.4.

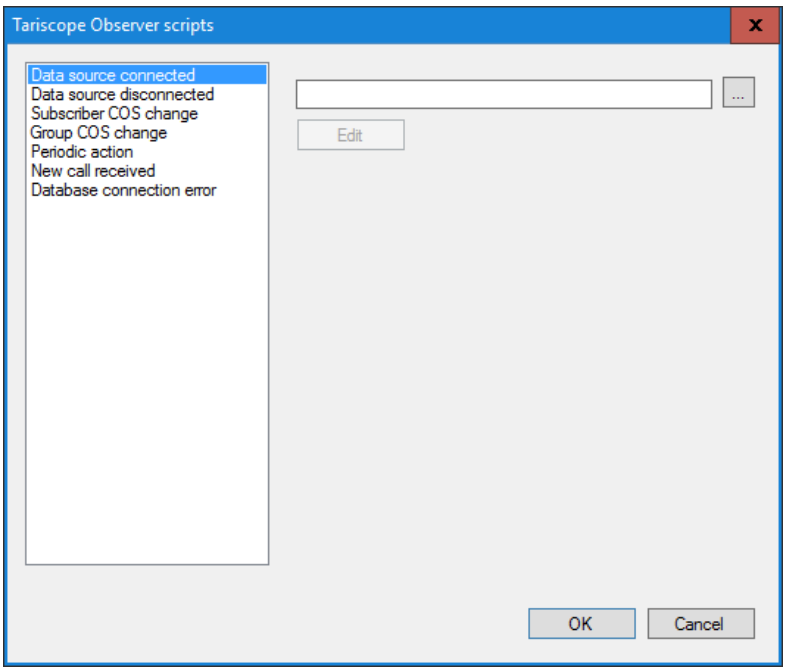


Figure 3.14.4

The window contains a list of events for which you can associate an execution of a specific script.

There are following possible events:

- **Data source connected.** Means that there was a connection to the telephone system. Using this event can be helpful when the Data source disconnected event is occurred. Tracking such events you can always know about connecting Tariscope Observer to the telephone system.
- **Data source disconnected**. Means that Tariscope Observer was disconnected from the telephone system. This event can lead to stop receiving CDR data, and respectively, to the loss of information about the calls made during this period, while the port is closed. Use this event in conjunction with the **Data source connected** event. Tracking these events you can always know about connecting Tariscope Observer to the telephone system.
- **Subscriber COS change**. This event is relevant only for the Tariscope licenses with the restriction feature. It is used to change phone port parameters of a subscriber, channel, line, or route using a script. The script can change, for example, COS, disable, enable subscriner's port, etc.
- **Group COS change**. This event is relevant only for the Tariscope licenses with the restriction feature. It is used to change phone port parameters of a subscriber group. The script can change, for example, COS of a group of subscribers, disable, enable subscriners' ports, etc.
- **New call was received.** This event occurs when information about a new call is processed. It can be used, for example, to perform certain actions, such as sending e-mails when the call cost is more than a specific value, a call duration is more than a certain duration, the call was made to a specific phone numbers, etc.
- **Periodic action**. This event is intended to periodically execute a script. When you select this event, in the **Tariscope Observer script** window the **Periodic script interval** box appears, where you must set the interval in milliseconds after which the script will be executed. The default value is 60000. This event you can use, for example, when Tariscope Observer connects to a telephone system using a FTP client to get CDR files at specified time intervals.
- **Database connection error**. This event occurs when Tariscope gets the database connection error.

To bind any of these events to a specific script, select a desired event from the list and click the "..." button. Then, select a desired script. By default, the scripts are stored in the folder: **\Program Files (x86)\SoftPI\Tariscope4\Scripts**

Tariscope allows to edit a script. To do this, in the Tariscope menu, select **File -> Open file**. In the **Open** window, select a file.

How to start or stop the Tariscope Observer service, see in the Section 3.14.16.

3.14.1. Folder and file

If you select the **Folder/file** data source, the program window will be as shown in Figure 3.14.1.1.

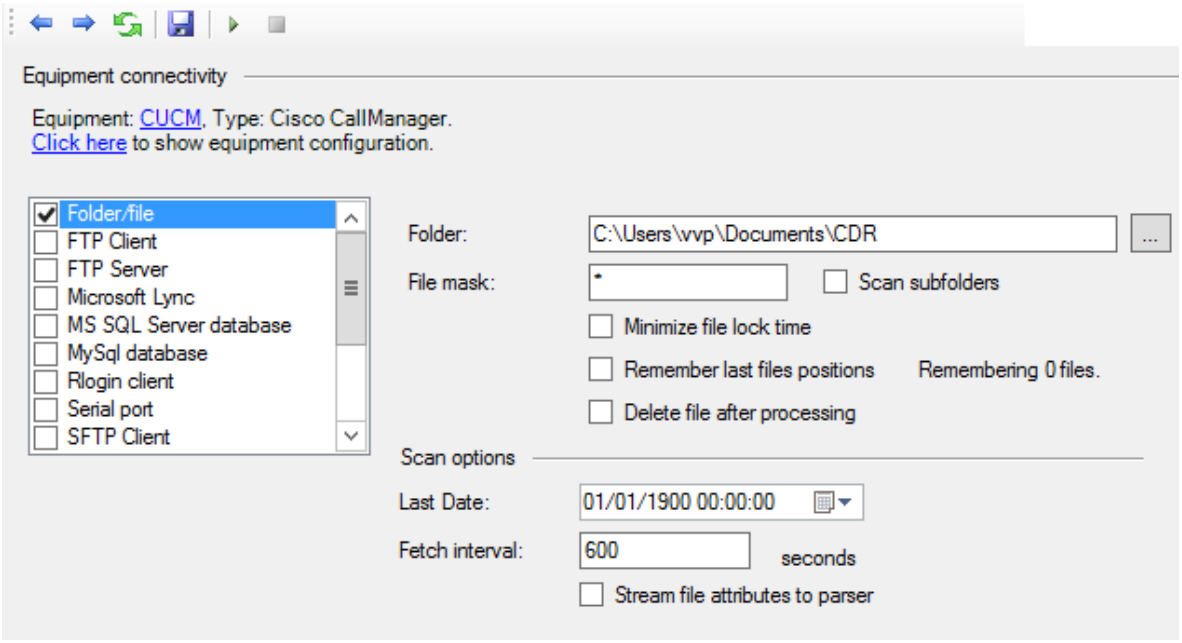


Figure 3.14.1.1

In the **Folder** box, type the path to a folder that the Tariscope Observer service will scan to collect CDR. Or, click on the "…" button that is located on the right from the **Folder** box and select a desired folder.

In the **File mask** box, type a pattern to select files from the folder. For example, if you wish to choose only files with CDR extension, type: *.cdr

By default, the * pattern is set. It means that Tariscope Observer will process all files from the folder.

If the selected folder contains subfolders and it requires to scan them, select the **Scan subfolders** check box.

In case when other programs can have an access to files that are handled by Tariscope, in order to avoid a long absence of access to these files, select the **Minimize file lock time** check box.

If the data to be processed is taken from a file in which the telephone system constantly adds information, select the **Remember last files positions** check box.
If you wish to delete the files from the folder after theirs processing, select the **Delete file after processing** check box.

In the **Scan options** section the following service parameters of Tariscope Observer are set:

- Date, from which the scan of the folders is started. This date is specified in the **Last Date** calendar list. The date and time of the last scan will be displayed in the calendar list when the service is working.
- Scan period that is specified in the **Fetch interval** box. The value in the box is specified in seconds.
- When the CDR format does not contain information about the year of the calls, select the **Steam file attributes to parser** check box. In this case the information about year will get from attributes of a processing file.

Click on the**Save** icon on the toolbar to save settings.

3.14.2. FTP client

If you select the **FTP Client** data source, the program window will be as shown in Figure 3.14.2.1.

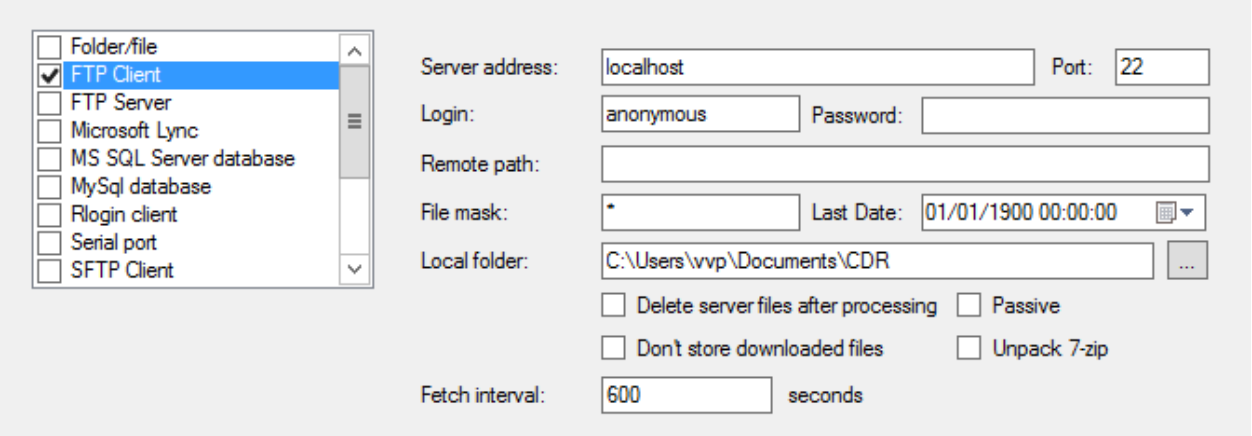


Figure 3.14.2.1

In the **Server address** box, type a domain name or IP address of the FTP server from which Tariscope Observer will receive files. The default name: localhost.

In the **Login** box, type a name, and in the **Password** box, type a password with which Tariscope Observer will be connected to the FTP server.

In **Remote path** box, type a path to a folder of the FTP server where CDR files are located.

If necessary, in the **File mask** box, specify a template to select the required files in the folder. The default pattern is "*", which provides a choice of all the files in the folder.

Type a date from which the scan of folder is started. The date is specified in the **Last Date** calendar list.

In the **Local folder** box, specify a path to the folder where the original files received from the FTP server will be stored.

If you want to delete files on the FTP server after downloading them, select the **Delete server files after processing** check box.

If you want the FTP client works in the passive mode, select the **Passive** check box.

If there is no need to store the downloaded files in the folder specified in the **Local folder** box, select the **Don't store the downloaded files** check box.

If the source files on the FTP server are stored as 7-zip archives, that is applied in the Alcatel-Lucent OmniPCX Enterprise, select the **Unpack 7-zip** check box.

In the **Fetch interval** box, set the interval time in seconds through that Tariscope Observer will be connected to the FTP server for checking for new files. The default value is 600 seconds.

3.14.3. FTP server

If you select the **FTP Server** data source, the program window will be as shown in Figure 3.14.3.1.

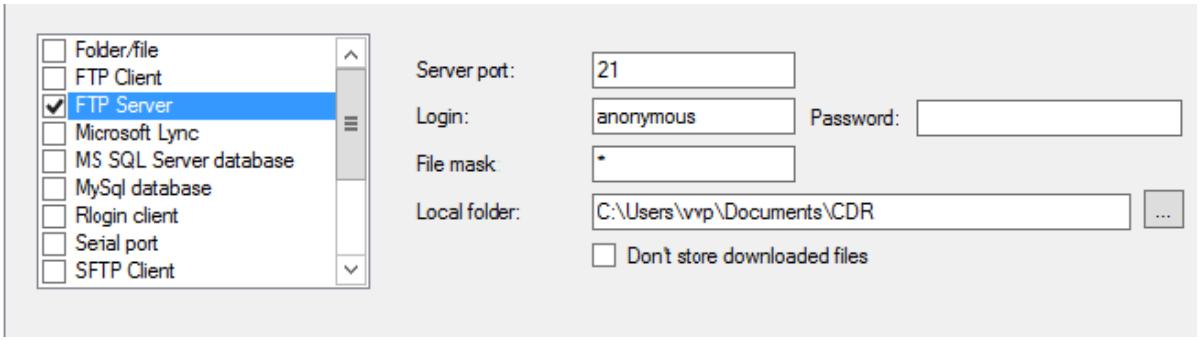


Figure 3.14.3.1

In the **Server port** box, type IP port of the FTP server to which a FTP client of telephone system will be connected. By default: 21.

In the **Login** box, type a name, and in the **Password** box, type a password with which the FTP client of telephone system will be connected to the FTP server.

If necessary, in the **File mask** box, specify a template to select the required files by Tariscope Observer. The default pattern is "*", which provides a choice of all the files in a folder.

In the **Local** folder box, type or select, using the "…" button on the right from the box, the path to a folder where a FTP client will write CDR files.

If there is no need to store the downloaded files in the folder specified in the **Local folder** box, select the **Don't store the downloaded files** check box.

3.14.4. Microsoft Lync

If you select the **Microsoft Lync** data source, the program window will be as shown in Figure 3.14.4.1.

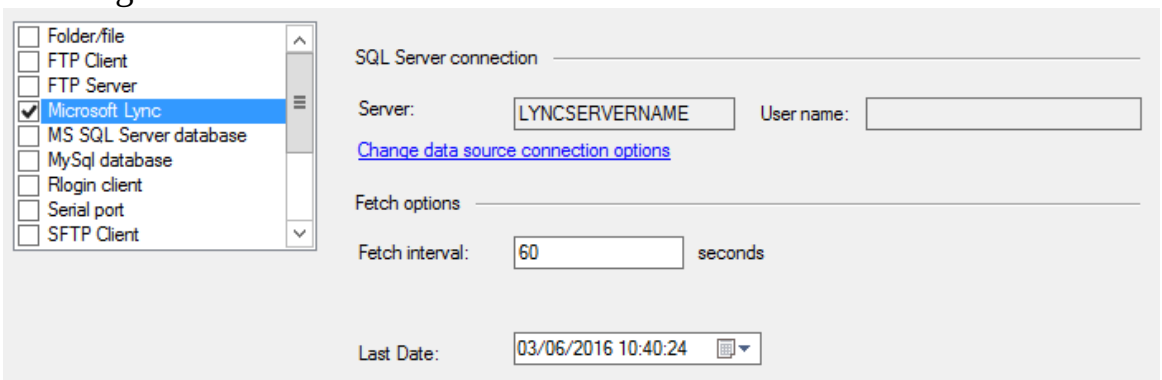


Figure 3.14.4.1

The **Server** box displays a server name that is used in Microsoft Lync by default.

Click on the **Change data source connection options** link. The **Connect to database server** window appears as shown in Figure 3.14.4.2.

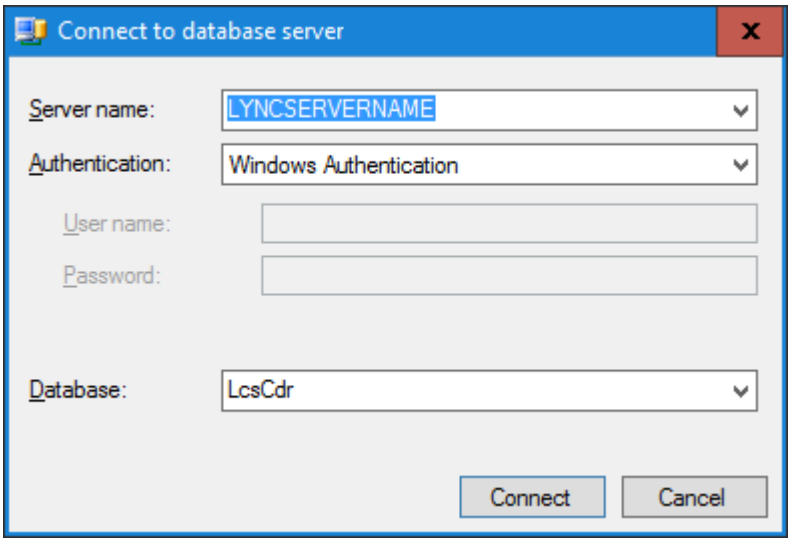


Figure 3.14.4.2

In the **Fetch interval** box (Figure 3.14.4.1), set the interval time in seconds through that Tariscope Observer will be connected to the Microsoft Lync for checking new CDR data. The default value is 60 seconds.

Type a date from which Tariscope Observer will start to connect to Microsoft Lync. The date is specified in the **Last Date** calendar list.

3.14.5. MS SQL Server database

If you select the **MS SQL Server database** data source, the Tariscope window will be as shown in Figure 3.14.5.1.

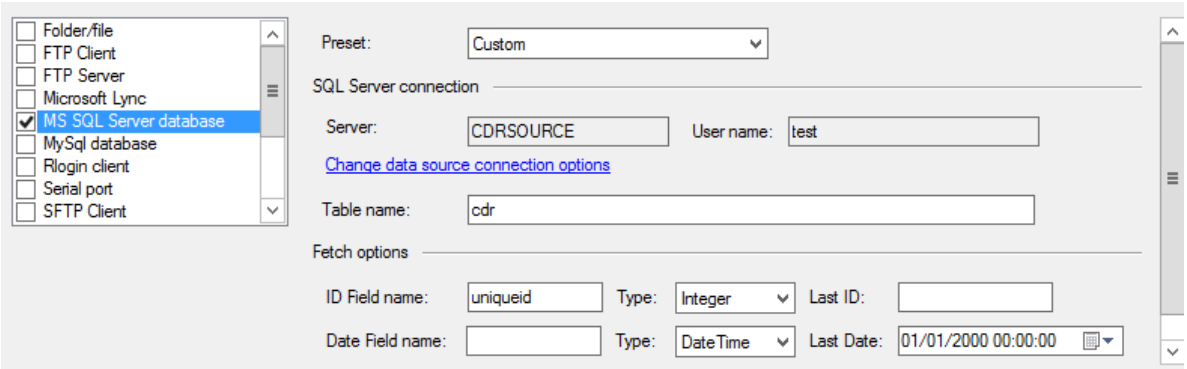


Figure 3.14.5.1

Now this setting is applied only to received the CDR data from Cisco Unified CallManager version 4.0 (herein "CUCM v4") or Telesystems Oktell.

The **Preset** list allows to select a preset for telephone system. Now the list contains the following options:

- **Custom**,
- **Cisco CallManager 4**,
- **Telesystems Oktell**.

The **Custom** option requires from the Tariscope administrator to manually set all parameters.

If you need to setup Tariscope Observer to working with CUCM v4:

- select the **Cisco CallManager 4** item,
- click on the **Change data source connection options** link,
- in the appeared **Connect to database server** window (Figure 3.14.4.2), in the **Authentication** list, select the required type of authentication. If you use the Window Authentication, click **Connect**. If you use the SQL Server Authentication, type a user name and password in the **User name** and **Password** boxes, and click **Connect**.

On this the configuration of parameters for CUCM v4 is finished.

You need execute the same actions, if you select the **Telesystems Oktell** item in the **Preset** list.

For the **Custom** item from the list, click on the **Change data source connection options** link. In the appeared **Connect to database server** window (Figure 3.14.4.2), setup parameters.

In the **Server name** box, type a name of Microsoft SQL Server to which the Tariscope Observer service will be connected.

In the **Authentication** list, select the type of authentication as mentioned above.

In the **Database** box, type a database name that contains CDR data.

Click **Connect**.

In the window shown in Figure 3.14.5.1, in the **Table name** box, type a name of the table with CDR data.

Specify the required parameters in the **Fetch options** section.

In the **ID Field name** box, type a name of the field used in the table as a unique identifier.

If necessary, in the **Last ID** box, type an identifier of record from which will be read the following table entries.

In the **Data Field name** box, type a name of the date field in the table of calls stored in the MS SQL server.

In the **Last Date** calendar box, select the time and date from which the data will be taken in handling.

In the **Fetch interval** box, set the interval time in seconds through that Tariscope Observer will be connected to MySQL server to check new CDR. The default value is 30 seconds.

3.14.6. MySQL database

If you select the **MySQL database** data source, the Tariscope window will be as shown in Figure 3.14.6.1.

Now this setting is applied only to received the CDR data from Asterisk.

In the **Server name** box, type a name of MySQL Server to which the Tariscope Observer service will be connected.

In the **User** and **Password** boxes, type accordingly a user name and password which are used to connect to MySQL Server.

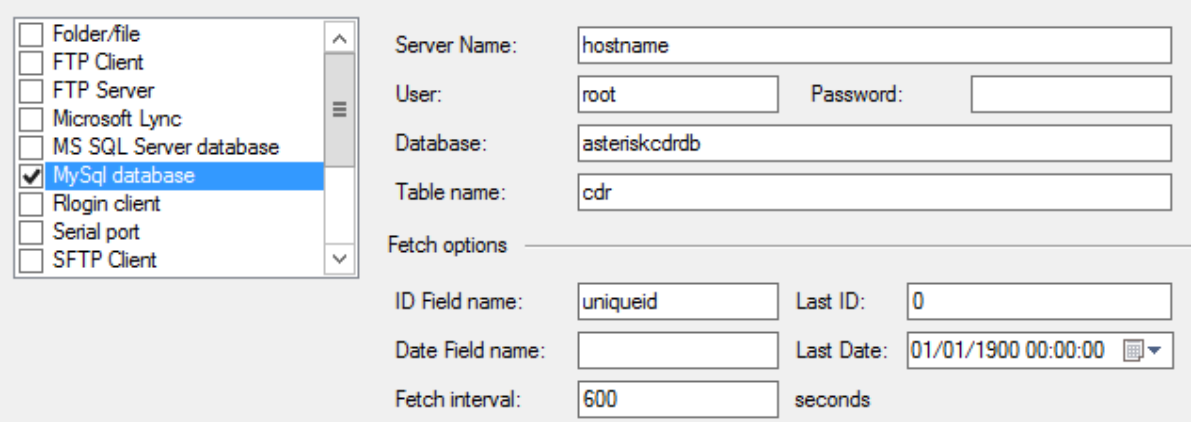


Figure 3.14.6.1

In the **Database** box, type a database name that contains CDR data.

In the **Table name** box, type a name of table with CDR data.

In the **ID Field name** box, type a name of the field used in the table as a unique identifier.

If necessary, in the **Last ID** box, type an identifier of record from which will be read the following table entries.

In the **Data Field name** box, type a name of the date field in the table of calls stored in the MySQL database.

In the **Last Date** calendar box, select the time and date from which the data will be taken in handling.

In the **Fetch interval** box, set the interval time in seconds through that Tariscope Observer will be connected to MySQL server to check new CDR. The default value is 600 seconds.

3.14.7. Rlogin client

If you select the **Rlogin Client** data source, the Tariscope window will be as shown in Figure 3.14.7.1.

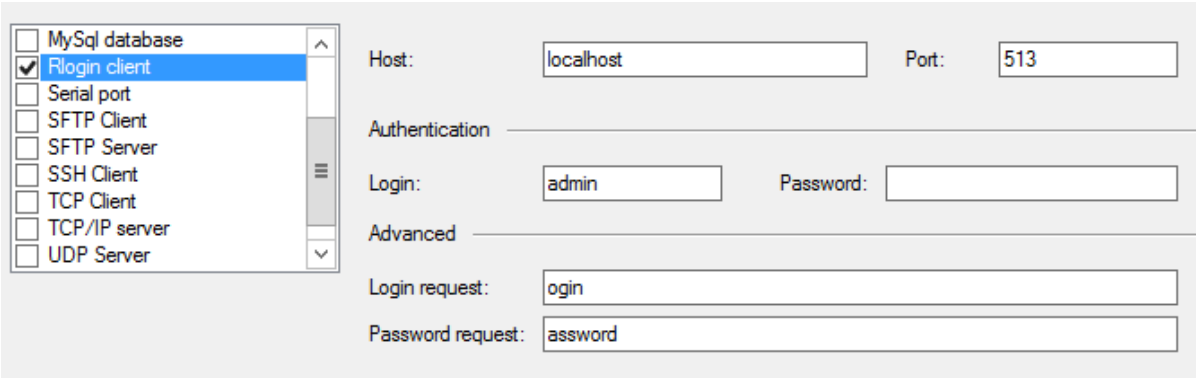


Figure 3.14.7.1

In the **Host** box, leave the value of 'localhost', if Tariscope was installed on the same computer where PBX works. Otherwise, type IP address of PBX.

In the **Port** box, type IP port number of a Rlogin Server of PBX. By default: 513.

In the **Login** and **Password** boxes, type accordingly a user name and password which are used to connect to Rlogin Server of PBX.

If necessary, specify the values in the **Login request** and **Password request** boxes.

3.14.8. Serial port

If you select the **Serial port** data source in the Tariscope Observer profile, the Tariscope window will be as shown in Figure 3.14.8.1.

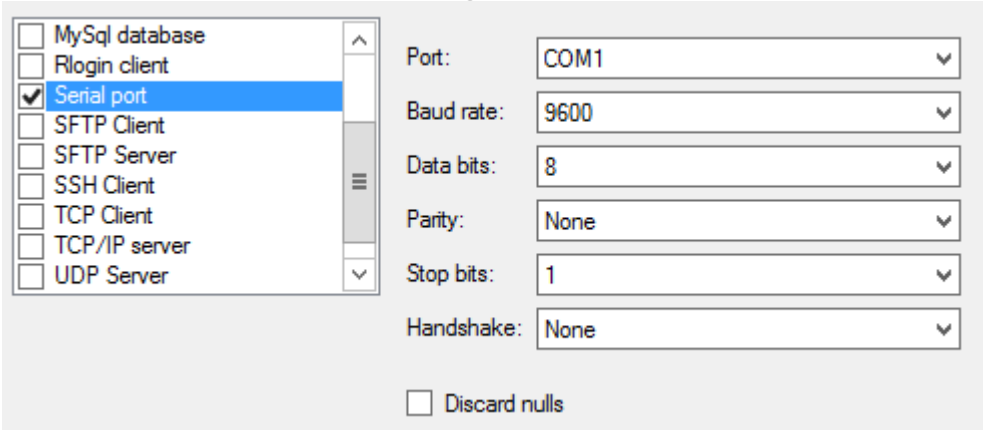


Figure 3.14.8.1

In the **Port** list, select a port number via which the Tariscope Observer service will collect CDR data.

In the following lists, specify parameters of the serial port which must correspond to PBX parameters:

- **Baud rate**,
- **Data bits**,
- **Parity**,
- **Stop bit**,
- **Handshake**.

If CDR format contains null charecters, select the **Discard nulls** check box.

3.14.9. SFTP client

If you select the **SFTP Client** data source in Tariscope Observer, the Tariscope window will be as shown in Figure 3.14.9.1.

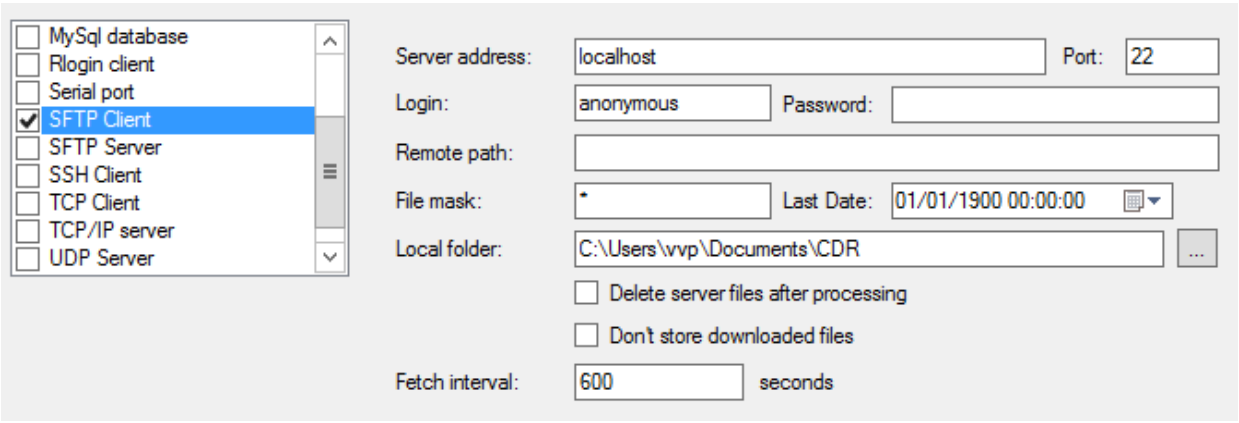


Figure 3.14.9.1

In the **Server address** box, type a domain name or IP address of the SFTP server from which Tariscope Observer will receive files. The default name: localhost.
In the **Login** box, type a name, and in the **Password** box, type a password with which Tariscope Observer will be connected to the SFTP server.

In **Remote path** box, type a path to a folder of the SFTP server where CDR files are located.

If necessary, in the **File mask** box, specify a template to select the required files in the folder. The default pattern is "*", which provides a choice of all the files in the folder.

Type a date from which the scan of folder is started. The date is specified in the **Last Date** calendar list.

In the **Local folder** box, specify a path to the folder where the original files received from the SFTP server will be stored.

If you want to delete files on the SFTP server after downloading them, select the **Delete server files after processing** check box.
If there is no need to store the downloaded files in the folder specified in the **Local folder** box, select the **Don't store the downloaded files** check box.

In the **Fetch interval** box, set the interval time in seconds through that Tariscope Observer will be connected to the SFTP server for checking for new files. The default value is 600 seconds.

3.14.10. SFTP server

If you select the **SFTP Server** data source during the Tariscope Observer configuration, the Tariscope window will be as shown in Figure 3.14.10.1.

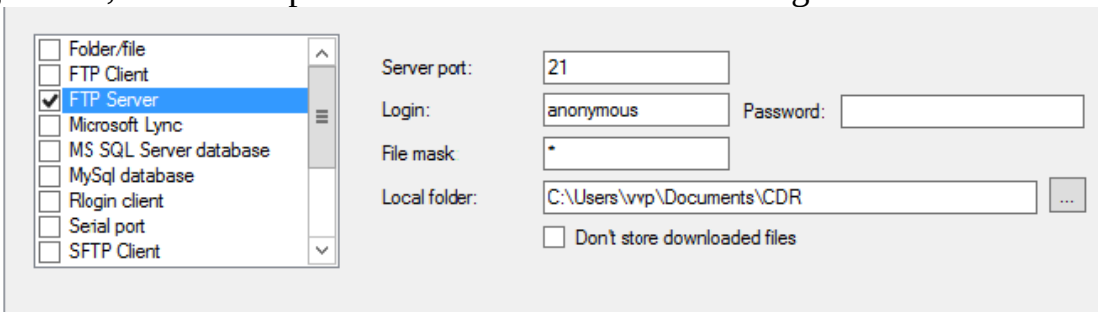


Figure 3.14.10.1

In the **Server port** box, type IP port of the SFTP server to which a SFTP client of telephone system will be connected. By default: 21.

In the **Login** box, type a name, and in the **Password** box, type a password with which the SFTP client of telephone system will be connected to the SFTP server.

If necessary, in the **File mask** box, specify a template to select the required files by Tariscope Observer. The default pattern is "*", which provides a choice of all the files in a folder.

In the **Local** folder box, type or select, using the "…" button on the right from the box, the path to a folder where a SFTP client will write CDR files.

If there is no need to store the downloaded files in the folder specified in the **Local folder** box, select the **Don't store the downloaded files** check box.

3.14.11. SSH client

If you select the **SSH Client** data source during the Tariscope Observer configuration, the Tariscope window will be as shown in Figure 3.14.11.1.

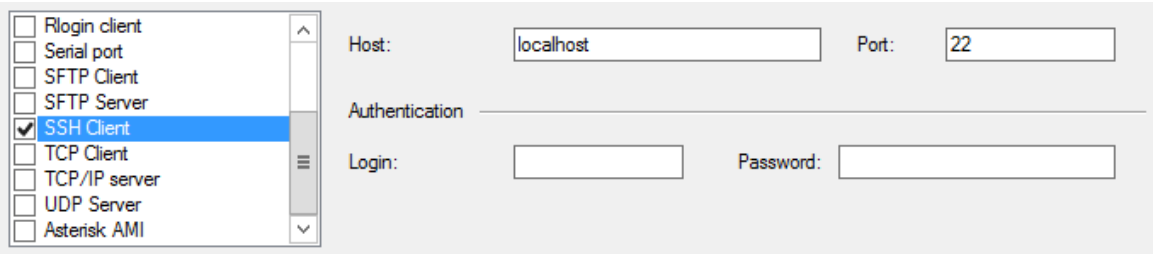


Figure 3.14.11.1

In the **Host** box, leave the value of 'localhost', if Tariscope was installed on the same computer where your telephone system works. Otherwise, type IP address of PBX.

In the **Port** box, type IP port number of SSH Server of the telephone system. By default: 22.

In the **Login** and **Password** boxes, type accordingly a user name and password which are used to connect to SSH Server of the telephone system.

3.14.12. TCP client

If you select the **TCP/IP Client** data source during the Tariscope Observer configuration, the Tariscope window lwill be as shown in Figure 3.14.12.1.

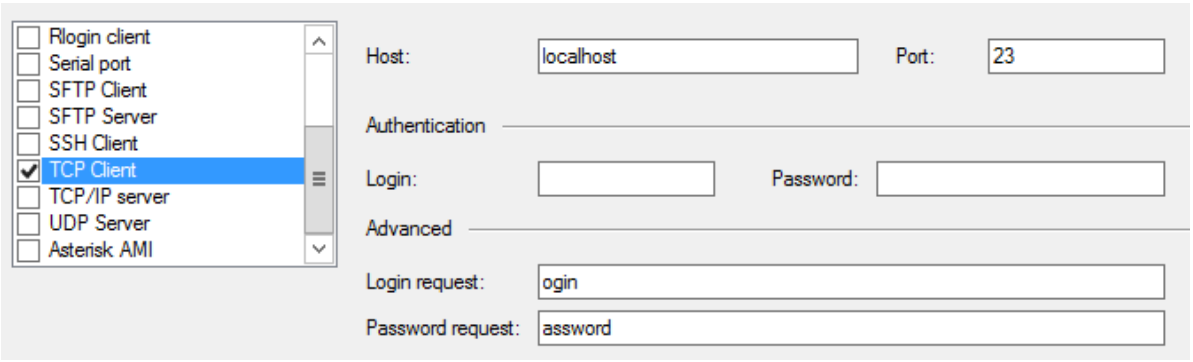


Figure 3.14.12.1

In the **Host** box, leave the value of 'localhost', if Tariscope was installed on the same computer where your telephone system works. Otherwise, type the IP address of the telephone system.

In the **Port** box, type IP port number of TCP Server of the telephone system. By default: 23.

In the **Login** and **Password** boxes, type accordingly a user name and password which are used to connect to TCP Server of the telephone system.

If necessary, specify the values in the **Login request** and **Password request** boxes.

3.14.13. TCP/IP server

If you select the **TCP/IP Client** data source during the Tariscope Observer configuration, the Tariscope window will be as shown in Figure 3.14.13.1.

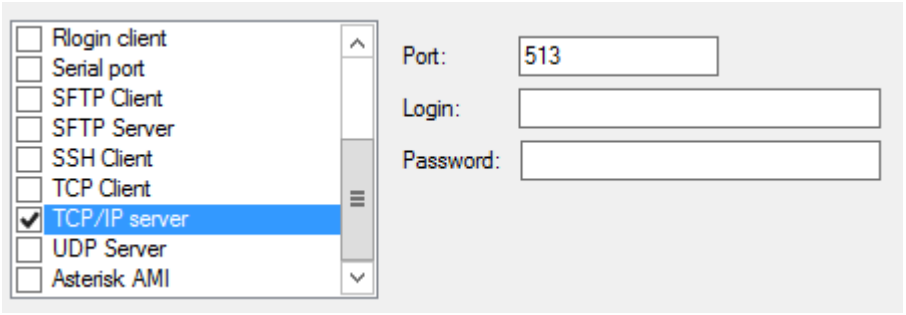


Figure 3.14.13.1

In the **Port** box, type IP port number to which a TCP client of your telephone system will be connected. By default: 513.

In the **Login** and **Password** boxes, type accordingly a user name and password which will use by the TCP client to connect.

3.14.14. UPD server

If you select the **UDP Server** data source during the Tariscope Observer configuration, the Tariscope window will be as shown in Figure 3.14.14.1.

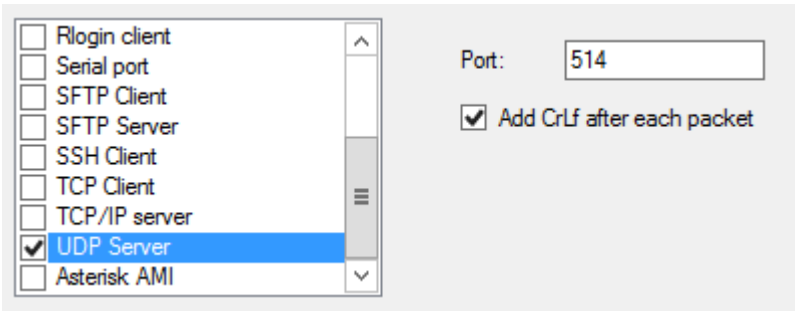


Figure 3.14.14.1

In the **Port** box, type IP port number to which UDP client of your telephone system will be connected. By default: 514.

If CDR information in UDP packets does not contain characters of the end or beginning of the string (such as for the syslog protocol), select the **Add CrLf after each packet** box. By default, this box is selected.

3.14.15. Asterisk AMI

This configuration is applied only to Asterisk, when Asterisk Manager Interface (AMI) is used.

If you select the **Asterisk AMI** data source during the Tariscope Observer configuration, the Tariscope window lwill be as shown in Figure 3.14.15.1.

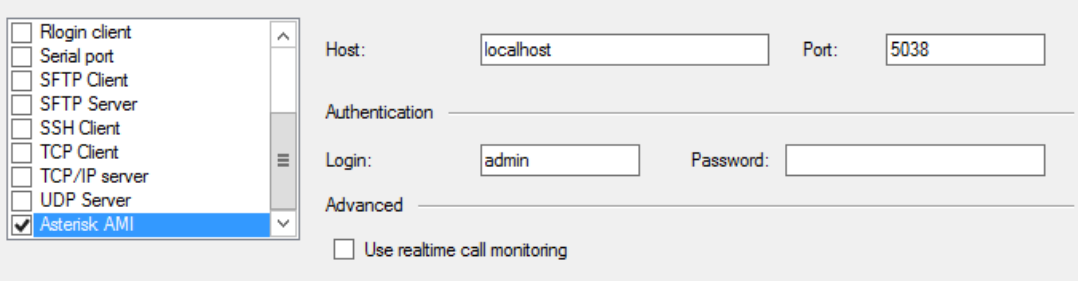


Figure 3.14.15.1

In the **Host** box, leave the value of 'localhost', if Tariscope was installed on the same computer where your telephone system works. Otherwise, type the IP address of the telephone system.

In the **Port** box, type IP port number of TCP Server of the telephone system. By default: 5038.

In the **Login** box, type a user name used to connect to Asterisk.

In the **Password** box, type a password.

If you need a real-time monitoring of calls made through Asterisk, select the **Use realtime call monitoring** check box.

3.14.16. Start and stop of Tariscope Observer

To install, start, stop, disable the Tariscope Observer service, in the configuration tree, select the **Data collection/Observer** configuration page and then the specific service. The Tariscope window will be as shown in Figure 3.14.1.

In the window the **Service status** position displays the current status of the service. Initially, in this position, the status of service: "Not installed".

In the **User account** and **Password** boxes you can enter a user name and his password that are used in Windows. The user rights will be used by Tariscope Observer.. By default, the system administrator rights are applied (the **Use system account** check box is selected). To enter other user account and password, clear the check box.

To install the service, click on the **Install service** link. In the **Service status** position the value of "Stopped" is displayed "Stopped" in case of a normal installation. The **Install service** link replaces to the **Uninstall service** link and the **Start service** link is active.

To start the service, click on the **Start service** link. In the **Service status** position the value of "Running" is displayed. The **Start service** link replaces to the **Stop service** link. The **Uninstall service** link is inactive.

After the service start we recommend to click on the **Service log** link or select on the same branch in the configuration tree and make sure there are no errors. If the log contains errors, stop the service, return to the setting and validate the configuration parameters. After that, try to start the service.

To track the results of the processing the CDR, select the **Current calls table** page where a table with calls is displayed.

To stop the service, click on the **Stop service** link. The **Stop service** link will be replaced to the **Start service** link and the **Uninstall service** link is active. The **Service status** position will display "Stopped".

To uninstall the service, click on the **Uninstall service** link.

Tariscope Observer has a log. You can view it, if you click on the **Service log** link (Figure 3.14.1) or select the **Service log** branch in the configuration tree.

3.15. Day types

This configuration is not common. It is relevant when a telecommunications provider applies different rates for different days of the week (weekday, weekend, holiday) and there are a transfer of days, for example, working day on the weekend, and vice versa.

Redefining a day type is executed individually during the configuration of each telecommunications provider.

If you select the **Day type** page (Figure 3.15.1), on the toolbar of Tariscope the following icons appears: **Add**, **Edit**, **Delete**. There are such icons also on other configuration pages.

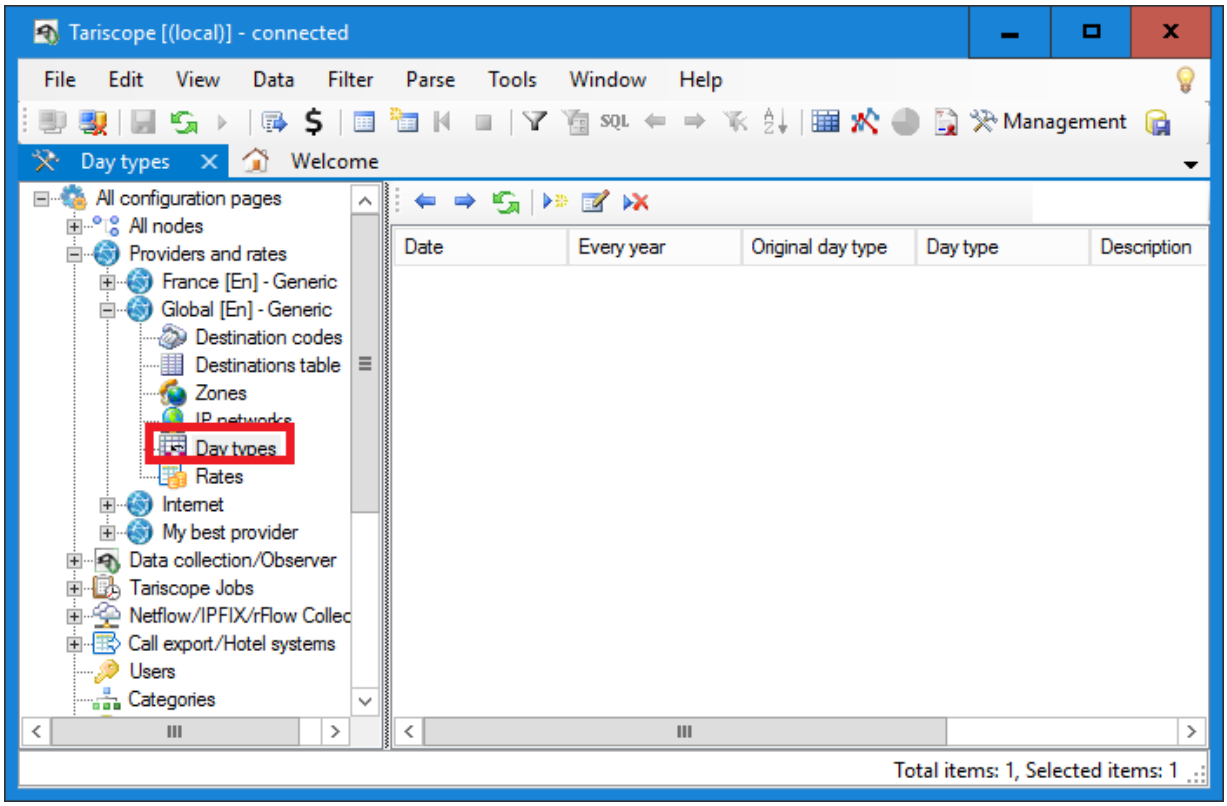


Figure 3.15.1

If you need to add a day type, click on the **Add** icon. The **Day type** window appears as shown in Figure 3.15.2.

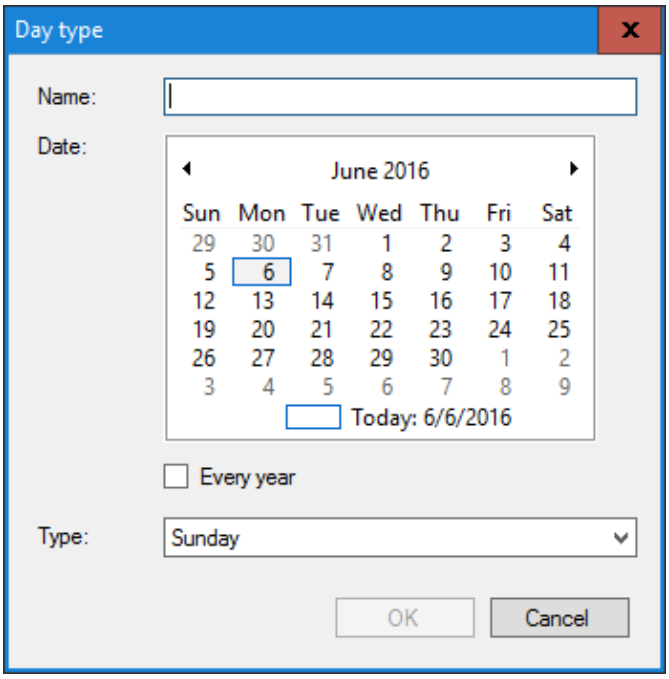


Figure 3.15.2

In the **Name** box, type a name of the specific date. For example, New Year.

In the **Date** calendar box, select the required date. It is January 1 for the New Year.

If this date repeats every year, select the **Every year** check box.

In the **Type** list, select the required day type. The list contains the following options:

- Workday.
- Saturday.
- Sunday.
- Holiday.

Click **OK**.

Repeat these actions for other days.

3.16. Notifications and email data

This configuration page provides the configuration of notifications and email data which are used to send notifications about specific events in Tariscope. The page settings is also used by Tariscope Tasks for sending reports or other documents.

A person for whom will be sent emails, may be, for example, an Tariscope administrator, manager of security service or another person. If you do not plan to send any email messages, the configuration described in this section is not required.

To configure these data, click on the **Notifications and mailing** branch of the configuration tree. The Tariscope window will be as shown in Figure 3.16.1

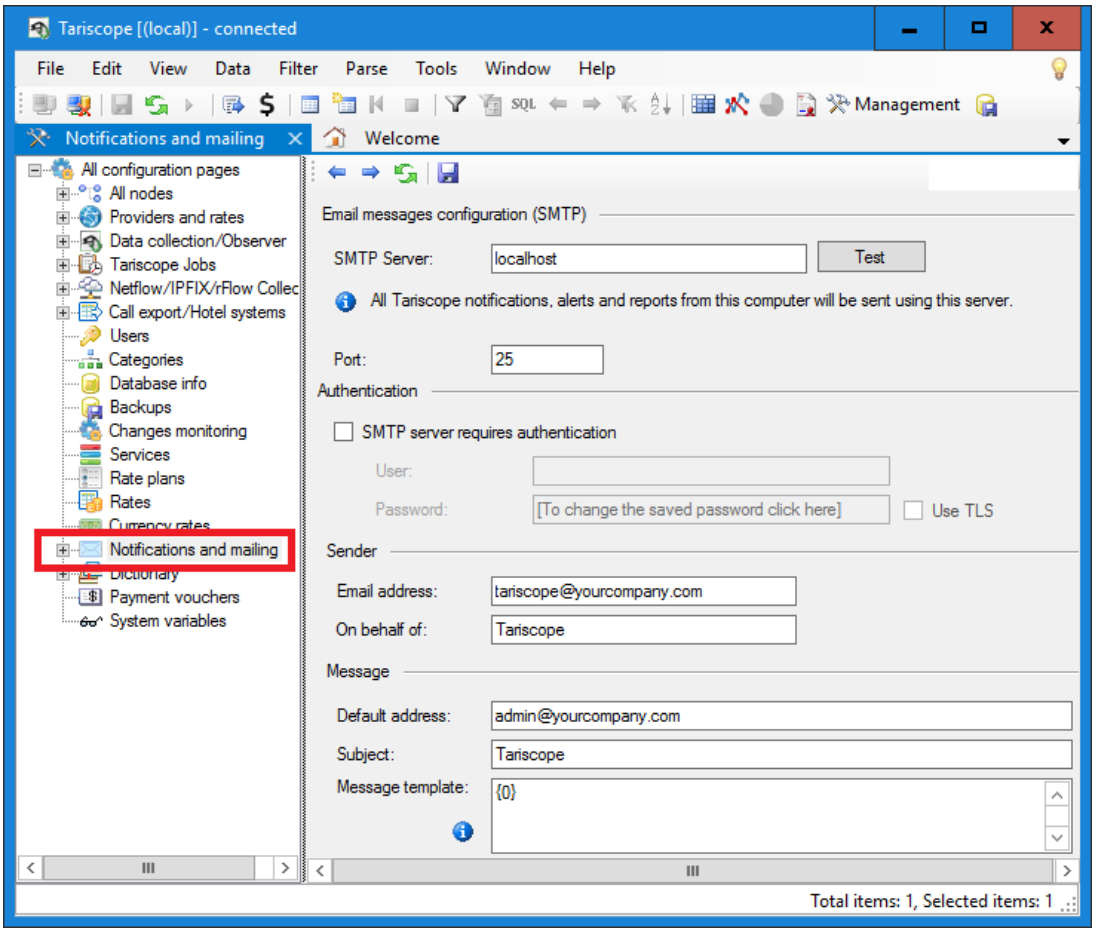


Figure 3.16.1

In the **SMPT Server** box, type a name of the SMTP mail server.

In the **Port** box, type a port number of the SMTP server. By default: 25.

If an authentication is required to connect to your mail server, select the **SMTP server requires authentication** check box. And in the **User** and **Password** boxes, type respectively a user name and password, which will be used to connect to the mail server.

If the connection to the mail server should be done with TLS protocol, select the **Use TLS** check box.

In the **Email Address** box, type a email address from which sending will be executed.

In the **On behalf of** box, type a name which will be used to sending.

In the **Message** section in the **Default address** box, type an email address on which will be sent notifications. For example, it may be the email address of the Tariscope administrator.

In the **Subject** box, type a subject of message. By default is used: Tariscope.

In the **Message template** box, type a message text that will be displayed at the beginning of the message body. For example, it may be the following: "Notification on the events in Tariscope".

To verify the correctness of sending a notification by email, click on the **Test** button. In case of malfunction, check the correctness of the data. To determine the errors when sending email messages, you can use the log, which is written to a file **mailer.log** located in the folder: **\ProgramData\Tariscope**.

3.17. Call export and Hotel systems

If you wish to use Tariscope together with a hotel system or export the call information to another system, select the **Call export/Hotel systems** configuration page. The Tariscope window will be shown in Figure 3.17.1.

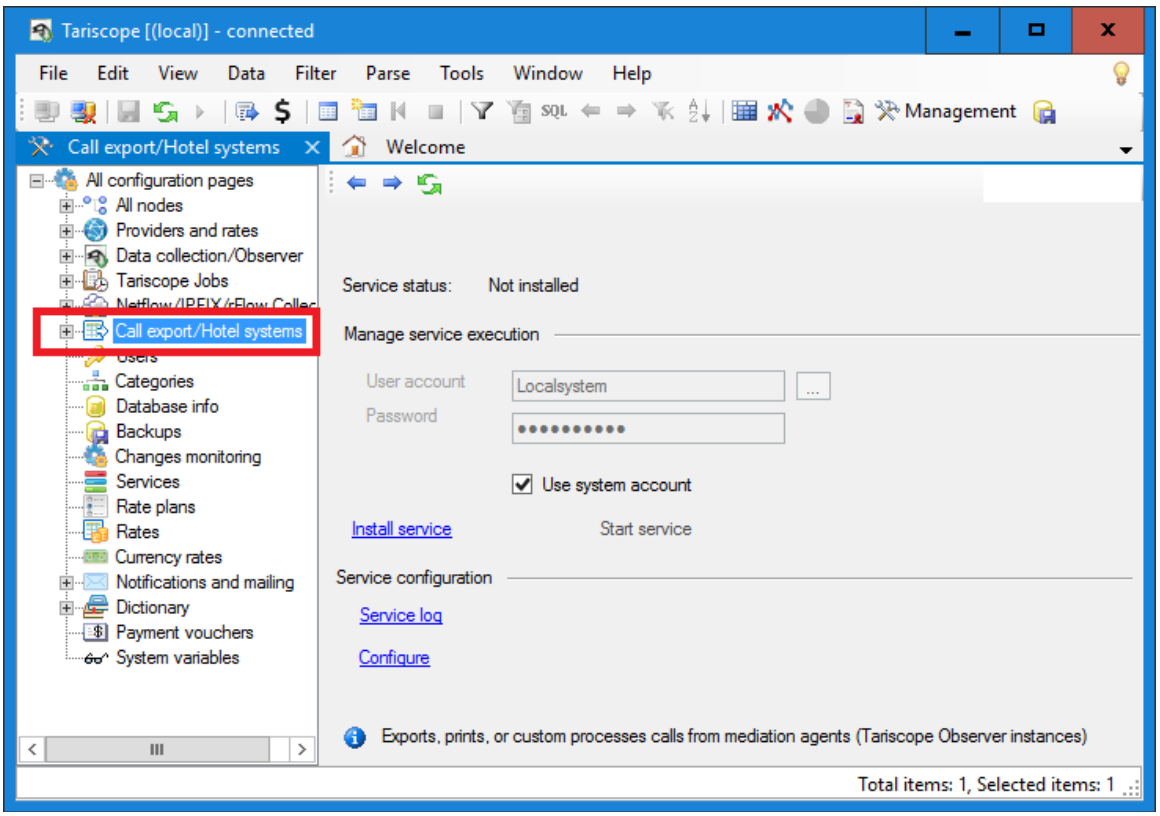


Figure 3.17.1

If the program works without the administrator rights and in Windows the User Account Control (UAC) is enable, Windows displays the **UAC is blocking this applet. Restart application elevated** link. Click on the link. The program will restart. Click on the **Configure** link. The Tariscope window willbe as shown in Figure 3.17.2.

In the **Tariscope connection** section, specify a name of computer where the Tariscope server service works and if necessary, enter a user name which the rights will be used to connect. If necessary, change these settings by clicking the **Change Tariscope connection options** link.

In the **External system connection type** list, select a desired option. There are the following options of the connection:

- **Rlogin client**. Information from Tariscope is sent to an external system using Rlogin client.
- **Serial port**. Tariscope connects to a hotel system through serial port.
- **SSH Client**. Tariscope connects to a hotel system using SSH protocol.
- **TCP/IP Client**. Tariscope connects to TCP/IP server of a hotel system.
- **TCP/IP Server**. Tariscope works as TCP/IP server, to which a hotel stystem connects using TCP/IP client.
- **Asterisk AMI.** Tariscope uses the Asterisk Manager Interface to interect with Asterick.

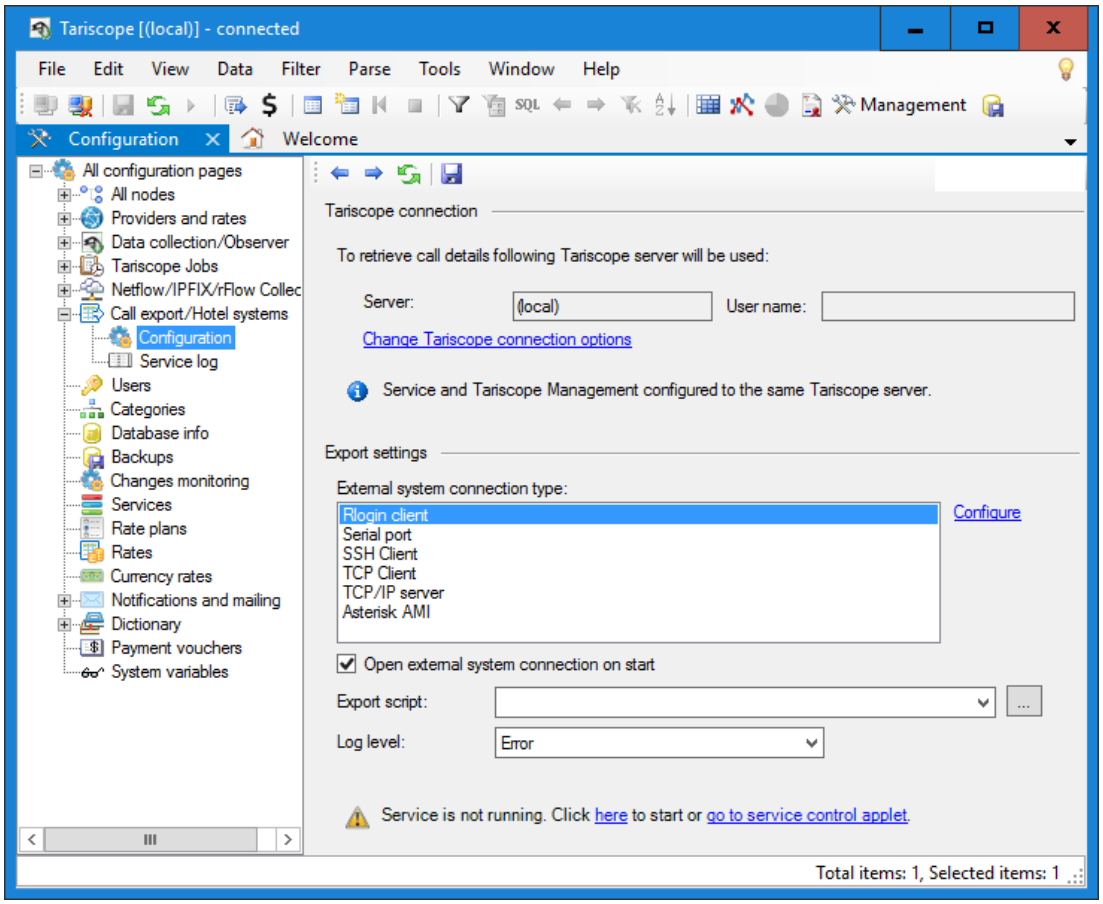


Figure 3.17.2

Click on the **Configure** link. As a result, the **Data source configuration** window appears where you should specify the connection data. The configuration of any type of connection is the same as described in section for the Tariscope Observer configuration.

If you need the Call export service connects to a hotel system at once on the service start, select the **Open external system connection on start** check box. By default the check box is selected. If the check box is not selected, the time of connection will be defined with the script.

Tariscope can interact with any hotel system, if you know the interaction protocol with the system. The implementation of this protocol is executed in the script, written in the language of VB Script or C# (Microsoft). Tariscope contains several predefined scripts:

- **hotel-uni-reference2.vb**,
- **hotel-uni.vb**,
- **print.vb**,
- **savefile.vb**.

These scripts are located in the folder: **...\Prgogram Files (x86)\SoftPI\Tariscope4\CallExport**

The first two scripts are similar and they are intended to interact with a hotel system using UNI interface. This interface can be used to interaction with the following hotel systems: Opera, Fidelio v.8 (Micros), epitome PMS (Libra Hospitality) and others.

The **print.vb** script allows to print calls information on a local or remote printer.

The **savefile.vb** script saves calls data in a file.

If these are no scripts that suit for your hotel system, you can develop the script yourself or, please, contact the technical support of SoftPI.

Before starting the service you can select one of the following levels of logging of the service, where every next option increases the level of details:

- **Status**,
- **Critical error**,
- **Error**,
- **Warning**,
- **Information**,
- **Advice**,
- **Debug**.

The log is needed to identify the causes of malfunction of the Call export service. If you using the log have not identified the cause of incorrect operation of the service and resolve this problem, send the log to the technical support service of SoftPI. THe log file is located in the folder: **...\ProgramData\Tariscope** and has a name: **callexport.log**

To save settings, click on the **Save** icon on the toolbar.

To install the service, click on the **Install service** link. The **Service status** position is displayed "Stopped" in the case of a normal installation. The **Install service** link is replaced to the **Uninstall service** link and the **Start service** link is active.

To start the service, click on the **Start service** link. The **Service status** position is displayed "Running". The **Start service** link is replaced to the **Stop service** link. The **Uninstall service** link is inactive.

After the service start we recommend to click on the **Service log** link or select on the same branch in the configuration tree and make sure there are no errors. If the log contains errors, stop the service, return to the configuration and validate the configuration data. After that, start the service.

To stop the service, click on the **Stop service** link. The **Stop service** link will be replaced to the **Start service** link and the **Uninstall service** link is active. The **Service status** position will be displayed: "Stopped".

3.18. Tariscope Tasks configuration

The Tariscope Tasks configuration page is intended to configure the automatic performance of the following tasks by schedule:

- generation of reports;
- synchronization of subscribers' data with Active Directory;
- receiving of the currency rates;
- full backup of the Tariscope database;
- differential backup of the Tariscope database;
- charging of periodic services;

- archiving of the calls database;
- execution of a program.

In the **Tariscope Tasks** page you can perform the configuration of these tasks and to install, start or stop the TSSchedule service that executes these tasks.

To use this configuration page, select the **Tariscope Tasks** branch in the configuration tree. The Tariscope window will be as shown in Figure 3.18.1.

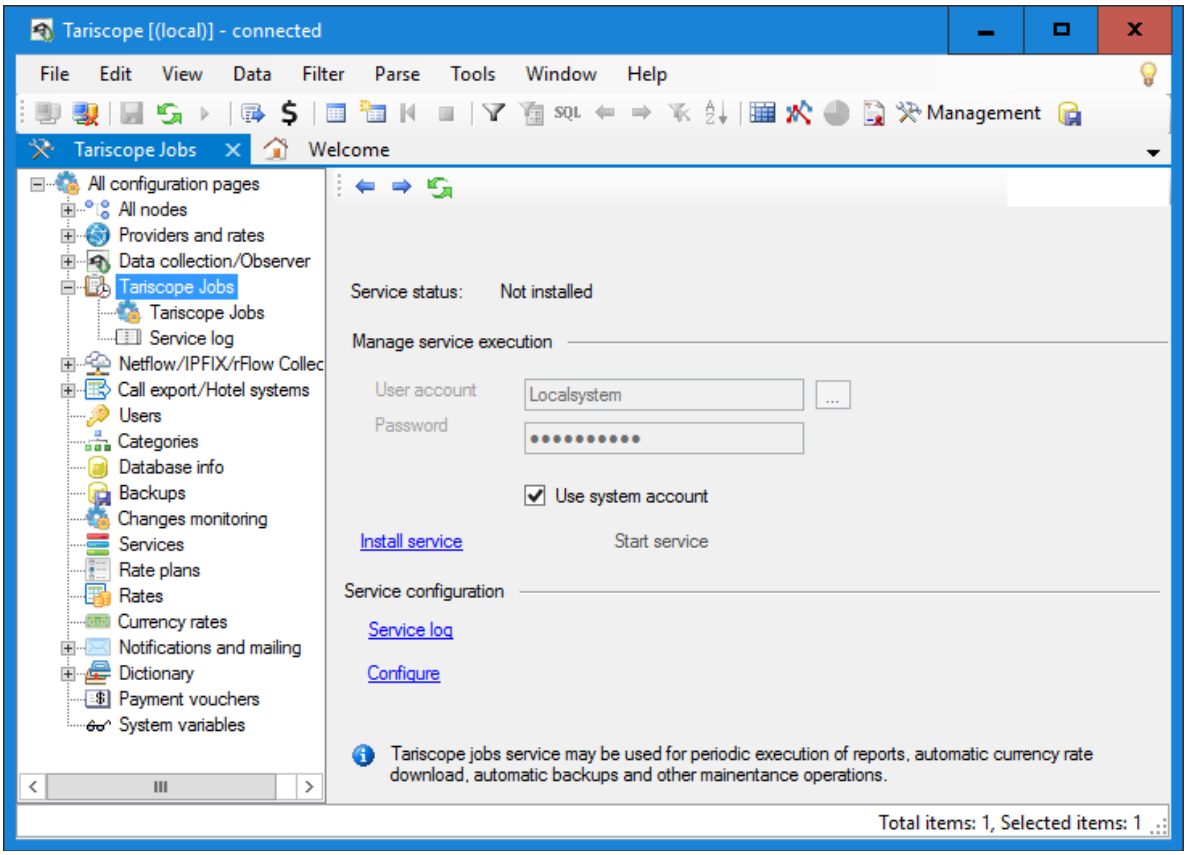


Figure 3.18.1

Initially, create the desired tasks. To do this, click on the **Configure** link. The program window will be as shown in Figure 3.18.2.

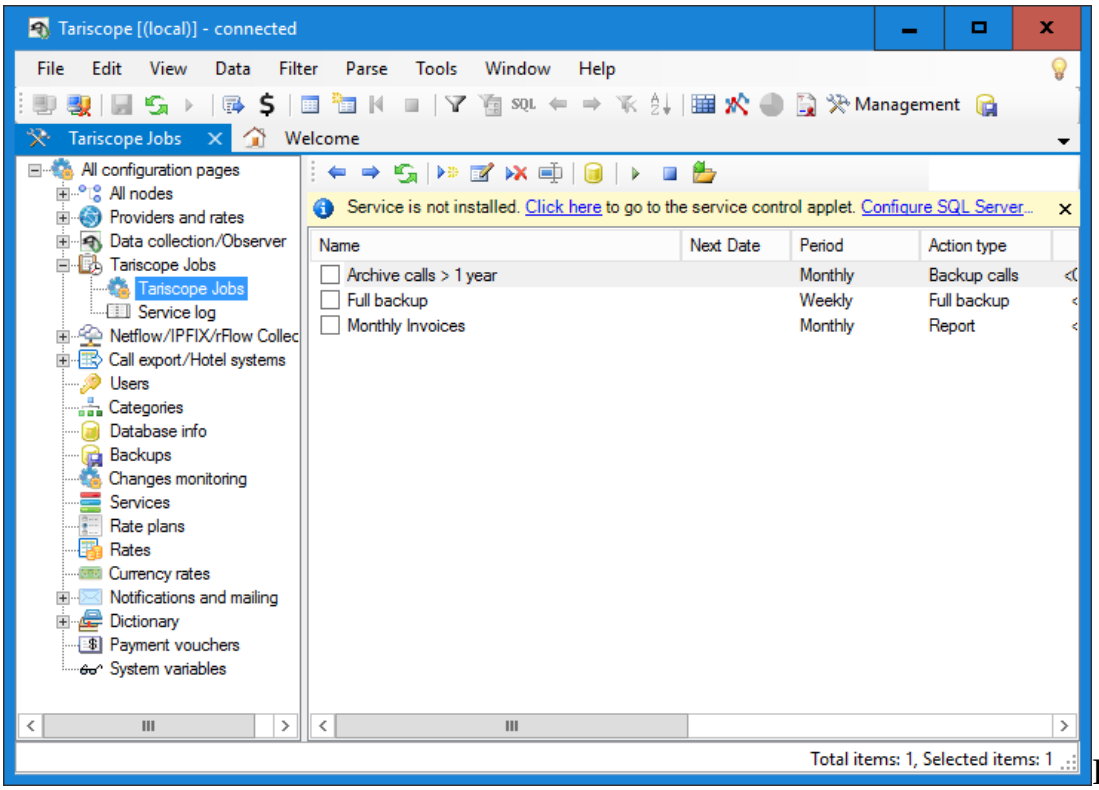


Figure 3.18.2

Create a new task. To do this, on the toolbar, click on the **Add** icon. The **Edit new task** window appears as shown in Figure 3.18.3.

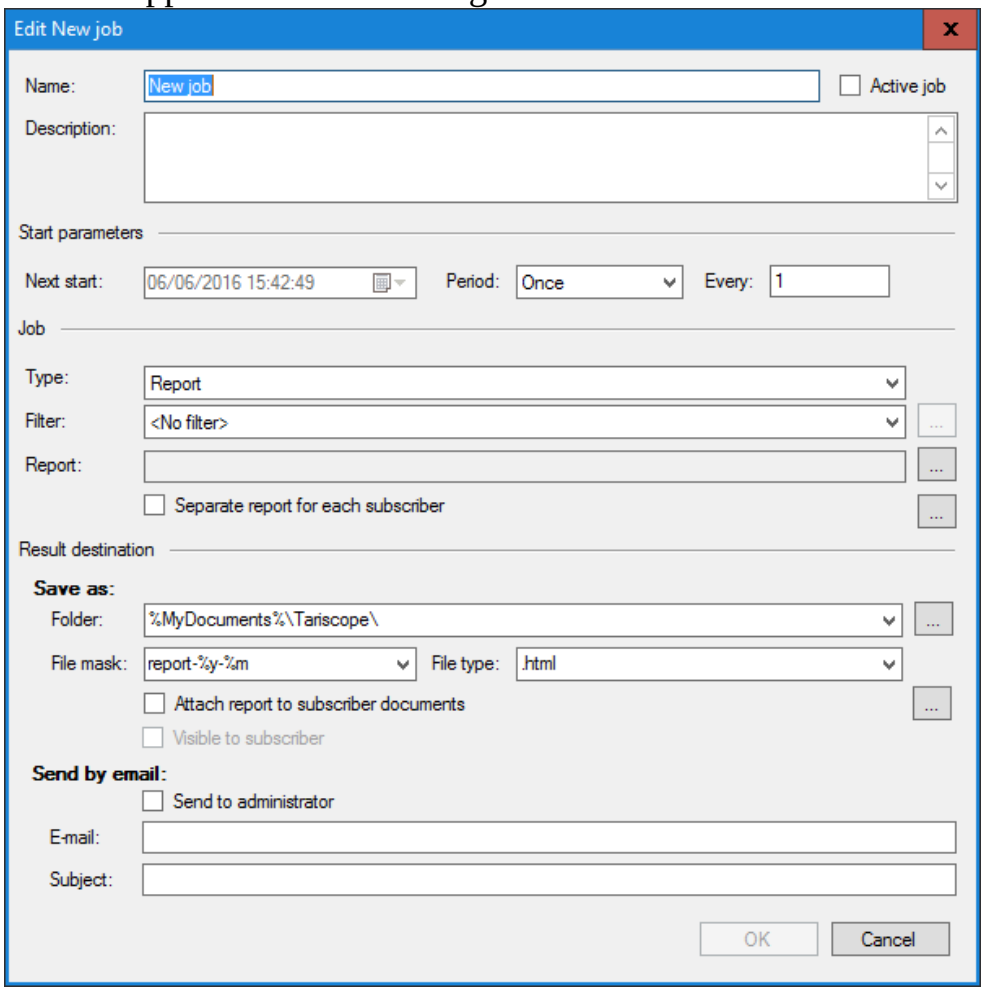


Figure 3.18.3

In the **Name** box, type the name of the task. This name is displayed in the task table (Figure 3.18.2) and it allows to identify the purpose of a specific task.

If necessary, in the **Description** box, type a description of the task. This can be especially useful when tasks are created by several persons.

The **Start parameters** section (Figure 3.18.3) is used to specify the activity or inactivity of the task, the date and time of its initial start and periodicity of its execution.

In the **Next start** calendar box, select the date and time of the initial start of the task.

For task execution in the specific time and date, select the **Active job** check box after configuration of all data.

In the **Period** list, select a period of the task execution. There are the following options:

- **Once**. The task will be performed only once at the time specified in the **Next start** calendar list, and then it becomes inactive. If necessary to execute this task once more, you need to define a new date and time of task execution and select the **Active job** check box.
- **Every hour**. The task will be executed at intervals of multiple N hours specified in the **Every** box.
- **Daily**. The task will be executed at intervals of multiple N days specified in the **Every** box.
- **Weekly**. The task will be executed at intervals of multiple N weeks specified in the **Every** box.
- **Monthly**. The task will be executed at intervals of multiple N months specified in the **Every** box.
- **Annual**. The task will be executed at intervals of multiple N years specified in the **Every** box.
- **Every minute**. The task will be executed at intervals of multiple N minutes specified in the **Every** box.
- **On service start**. The task will be executed once, immediately after the Tariscope Tasks service starts, regardless of the value of the **Next start** box.

In the **Type** list, select the required type of task. There are the following options:

- **Report**. One from the reports, which Tariscope contains or the Tariscope administrator was created, is generated. Or a procedure is performed for working with the Tariscope database.
- **Full backup**. The full backup of the Tariscope database is executed.
- **Differential backup**. This task creates backup only a part of the Tariscope database which was changed from the last backup. This option requires less time and computer resources to perform than a full backup.
- **Backup calls**. The archiving of the call database is executed and the appropriated call records are deleted from the database.
- **Currency update**. The automatic receiving of the required currency rates are executed.
- **Synchronize subscribers from Active Directory**. Synchronization of subscribers' database with Active Directory of enterprise is performed.

Previously you should create a profile for synchronization with Active Directory.

- **Charge periodic services**. The service costs are charged for subscribers. The task is useed only for the Tariscope Provider edition.
- **Execute program**. The specific program is started.

The **Filter** box is active only if you have selected tasks: **Report** or **Backup calls**. It allows to select a set of rows with calls information for which the task will be performed. The list contains two fix values:

- **No filter**.
- **Customer filter**.

Also the list contains the filter names that were created in the call views or IP traffic views of Tariscope.

If your task must be applied to the whole of the calls database, select the **No filter** item. This is default item.

If you need a filter that its parameters have been previously saved with any name, select the name from the list.

If the list has a filter, which is generally suitable, but requires a small correction, select the desired name from the list and click the "..." button on the right of the list. The **Edit SQL** window opens, an example of which is shown in Figure 3.18.4.

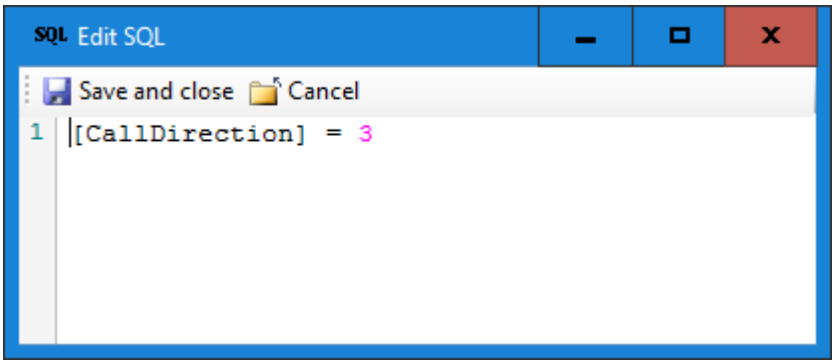


Figure 3.18.4

Modify the query and click **Save and close**.

If you desire manually set the filtering options, select the **Customer filter** option and click the "..." button to the right of the list. The **Edit SQL** window opens, as shown in Figure 3.18.4, where you shoud type a query condition. The query must comply with a part of SQL query, which is written after WHERE. Click **Save and close**.

If you have chosen the **Report** item in the **Type** list box, you must select the report or procedure in the **Report** box. To do this, click on the "**…**" button, which is located on the right of the **Report** box. The **Choose report** window appears where you must choose a required report. This window contains the list of reports and procedures which was included in the Tariscope installation. If this list doesn't contain the required report or procedure you can create one using the Tariscope Report Designer program. After a choice of the report in the window, the report name will displayed in the **Report** box.

If you wish to generate a report for each subscriber, select the **Separate report for every subscriber** check box. When you select this check box, the filter is set which selects all subscribers in the Tariscope database. If necessary, make changes to the data of the filter by clicking on the "..." button to the right of the check box.
In the **Folder** list, enter or choose a folder, where reports, backups or archives will be written. Use the "**…**" button, which is located to the right of the box. The folder can be located on the local computer or remote computer. By default the folder is: %MyDocuments%\Tariscope\

In the **File mask** list, type or select a file name template. The file name supports the following templates:

- **%d** – day;
- **%m** – month;
- **%y** – year;
- **%h** – hour;
- **%M** – minute;
- **%s** – second;
- **%a** – subscriber account number;
- **%e** – main telephone number or IP address;
- **%n** – subscriber name.

By default the template is offered: **report-% y-% m**, which means that reports will be generated in files with names such as: ***report-2016-05***, ***report-2013-06*** and so on. The **File mask** list contains also other samples of file names that the Tariscope administrator can change at will.

In the **File type** list, select a file type in which a report will be written. The following file types are suppoted:

- **xlsx**,
- **xls**,
- **xml**,
- **mdb**,
- **csv**,
- **txt**,
- **htm**,
- **html**,
- **pdf**,
- **prt**.

The **prt** file type means that the file will be automatically sent on a printer.
By default the **html** file type is offered.

If you selected the **Separate report for every subscriber** check box, the **Attach report to subscriber documents** check box becomes active. If you select this check box, this allows you to automatically sort the documents for subscribers. In this case the documents will be saved in the folder specified in the **Folder** list, and in the Tariscope database. Documents from the database can be available to the administrator when he selects a specific subscriber in the Subscribers page. The subscriber may view such documents through his Personal Area, if it is allowed. If necessary, select the **Attach report to subscriber documents** check box.

To automatically send a report for a subscriber by email, select the **Send to each subscriber** check box. In this case, make sure that the subscribers' data contain their email addresses.

Reports, as well as notifications about the completion of tasks will be sent to the email address that is specified in **E-mail** box. It may be, for example, the email address of the Tariscope administrator. If you want to send reports or notifications to multiple addresses, enter them in the **E-mail** box, separating addresses with a semicolon.

In the **Subject** box, type a subject of the email message. For example: "Tariscope notification".

When in the **Type** list, the **Currency update** item was selected, the **Report** box is replaced to the **Profile** list. The **Profile** list contains a list of currently available profiles:

- **GE-NBG**. The profile is used to receive the currency rates from the site of National Bank of Georgia.
- **KZ-NB**. The profile is used to receive the currency rates from the site of National Bank of the Republic of Kazakhstan.
- **RU-CBR**. The profile is used to receive the currency rates from the site of Central Bank of the Russian Federation.
- **UA-NBU**. The profile is used to receive the currency rates from the site of National Bank of Ukraine.
- **UA-PIB**. The profile is used to receive the currency rates from the site of Prominvestbank (Ukraine).

The above profiles are stored in the folder: **...\Program files (x86)\SoftPI\Tariscope4\CurrencyProfile**. They have a structure of the XML file. The administrator can edit any of the profiles or create your own.
In the profile file, you can create or change the following settings:

- a name and settings of a proxy server;
- Web page, where it is necessary to obtain information on currency rates;
- a list of required currencies and parameters of search of a currency rate.

Also you can change a profile data by clicking on the "..." button located on the right of the **Profile** box. An example of the **Currency update profile** window is shown in Figure 3.18.5.

Since the information to update the currency rates is taken from an external site, the computer, where **Tariscope Tasks** will run, must have an access to the relevant site. If your network uses a proxy server, you must specify its parameters. Click on the **Use proxy** check box (Figure 3.18.5) and, type values in the **Proxy server**, **Login**, **Password** boxes.

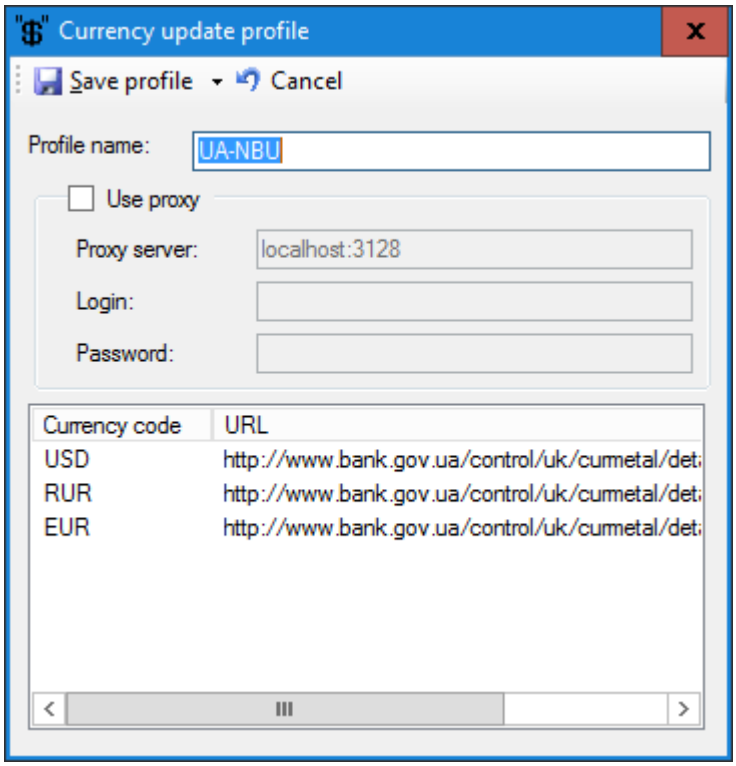


Figure 3.18.5

To add a new currency and a site that contains currency rates, right-click on the table of currency codes (Figure 3.18.5). In appeared menu, select the **Add** item. The **Edit profile** window appears as shown in Figure 3.18.6.

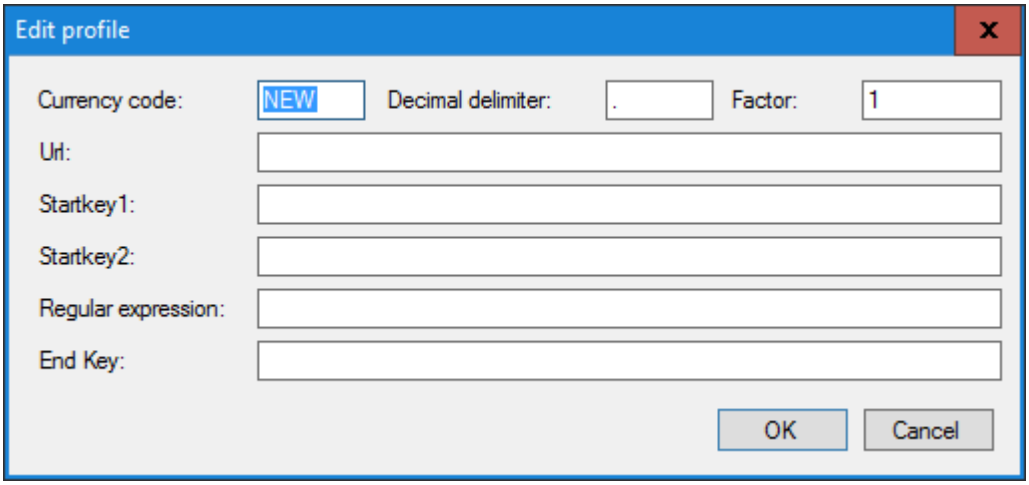


Figure 3.18.6

Type the value in the boxes of the window. An example of such input is shown below:
Currency code: **USD**
Decimal delimiter:**.**
Factor:**0.01**
Url:**http://www.bank.gov.ua/control/uk/curmetal/detail/currency?period=daily**
Startkey1:**<td class="cell">United State Dollar</td>**
Startkey2**<td class="cell_c">**
Regular expression:

EndKey:</**td**>

Start or stop of Tariscope Tasks

Before starting the **Tariscope Tasks** service, configure the service connection to SQL Server. To do this, on the toolbar, click on the **SQL Server connection configuration** icon or the **Configure SQL Server connection here** link, which is located in the notification line of the Tariscope Tasks window (Figure 3.18.2). The **Connect to Tariscope server** window appears as shown in Figure 3.18.7.

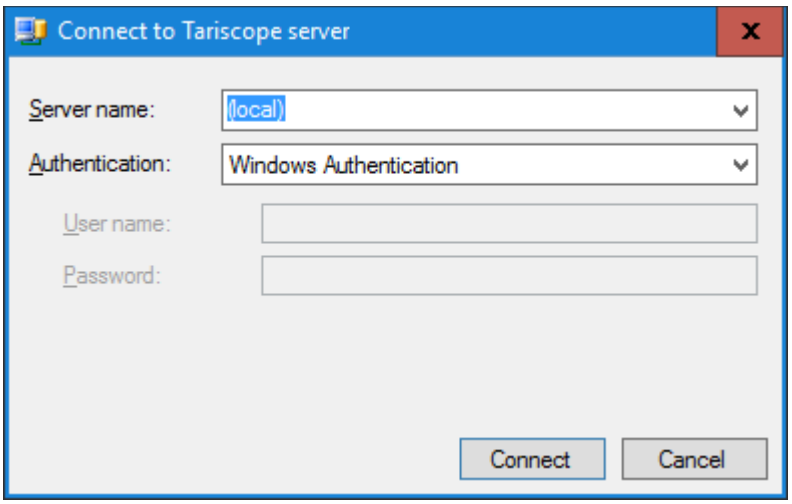


Figure 3.18.7

In the **Server name** list, specify a name of server, where the Tariscope server is located.

In the **Authentication** list, select a required option from the followings:

- **SQL Server Authentication**. A validation is performed by Microsoft SQL Server.
- **Windows Authentication**. A validation is performed by Windows.

In the **User name** box, type a user name whose rights the Tariscope Tasks service will use to connect to the Tariscope server. To see the list of available Tariscope users or create a new user you can in the **Users** configuration page.

In the **Password** box, type a password for the selected user.

Click **Connect**.

To install, uninstall, start, stop the Tariscope Tasks service you should select the Tariscope Tasks configuration branch in the configuration tree (Figure 3.18.1).

The **Service status** position the current status of the Tariscope Tasks service is displayed. When this page is opened initially, the value of the position is "Not installed".

To install the service, click on the **Install service** link. In the case of a normal installation the **Service status** position is displayed "Stopped". The **Install service** link is replaced to the **Uninstall service** link, and the **Start service** link is active.

To start the service, click on the **Start service** link. In the **Service status** position is displayed "Running". The **Start service** link is replaced to the **Stop service** link. The **Uninstall service** link is inactive.

After the service start we recommend to click on the **Service log** link or select on the same branch in the configuration tree and make sure there are no errors. If the log contains errors, stop the service, return to the configuration and, validate the configuration data. After that, start the service.

To stop the service, click on the **Stop service** link. The **Stop service** link is replaced to the **Start service** link, and the **Uninstall service** link is active. The **Service status** position is displayed: "Stopped".

The Tariscope Tasks service keeps a log of its work. To see this log, select in the configuration tree: **Tariscope Tasks → Service log**.

3.19. NetFlow / IPFIX / rFlow collector

The NetFlow / IPFIX / rFlow collector (hereinafter "Collector") is intended for collection of information about IP traffic from the data transfer devices that use the following protocols: NetFlow v.5 or v.9, IPFIX, rFlow.

The Collector can be installed on any computer that has a connection to the Tariscope server. As one option, the Collector can be installed on the same computer where the Tariscope server is located.

To configure the Collector, in the configuration tree, select the **NetFlow/IPFIX/rFlow Collector** branch. The Tariscope window will be as shown in Figure 3.19.1.

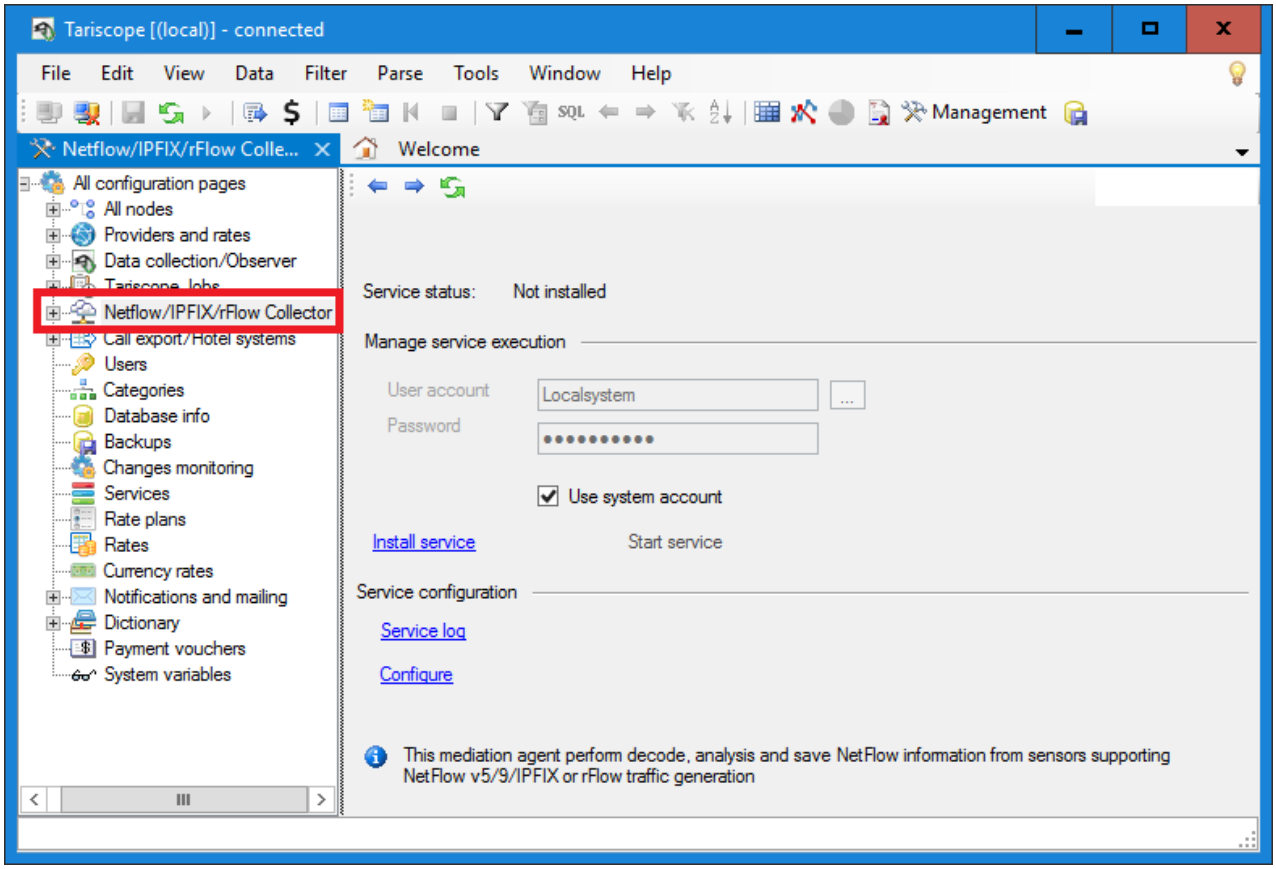


Figure 3.19.1

Click on the **Configure** link. The program window will be as shown in Figure 3.19.2.

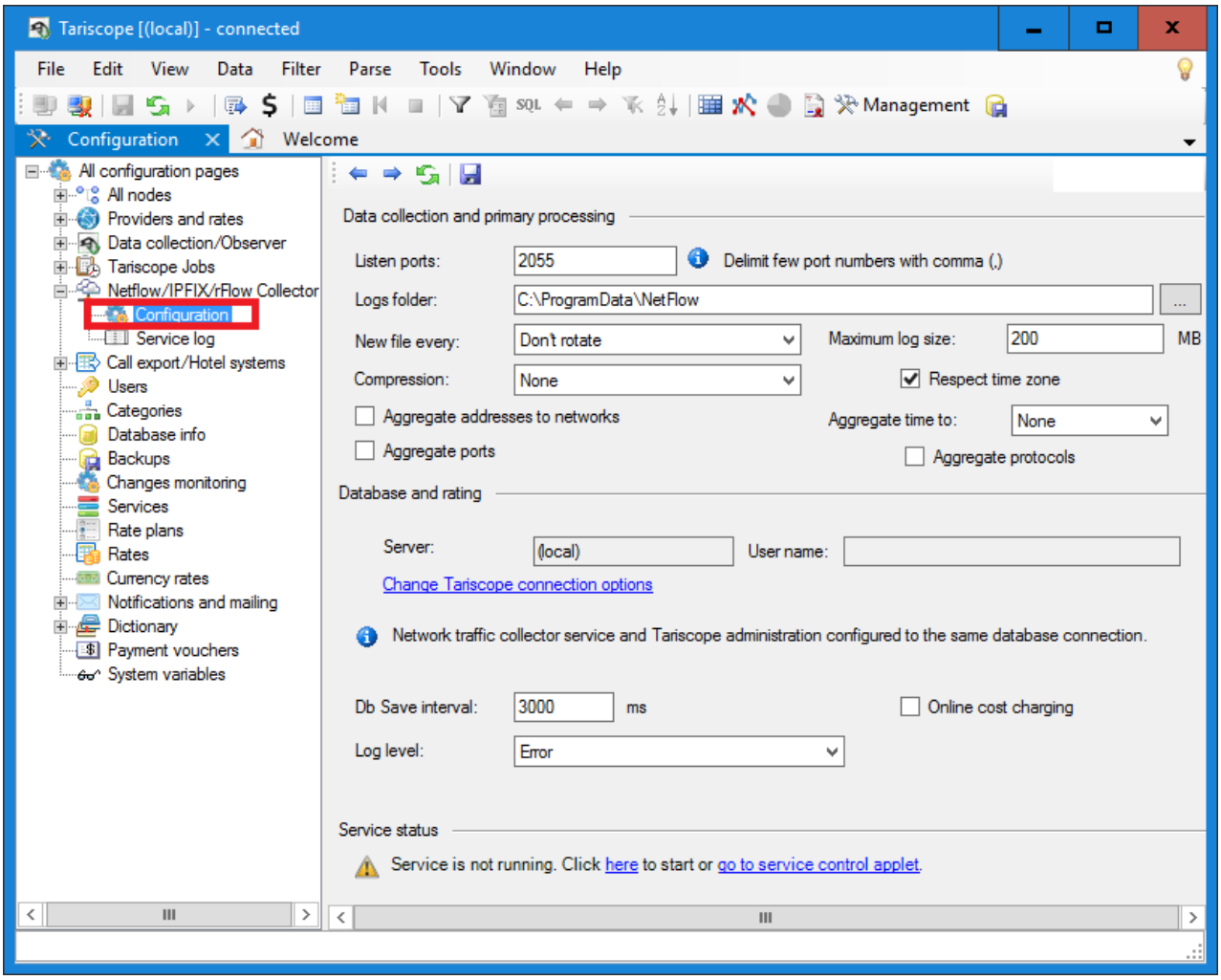


Figure 3.19.2

The **Data collection and primary processing** section of the window defines parameters, which affect on the amount of data in the Tariscope database and log files.

In the **Listen ports** box, type a port number of TCP/IP through which the Collector will get the IP traffic data. By default: 2055. The same port number should be set in the data transmission device. If you use more than one port their numbers must be entered separated by commas.

The Collector, except processing the incoming data stream and writing it to the Tariscope database, backs up the data stream into a binary file in the format in which the it received data.

In the **Log folder** box, specify a path to folder where logs will be stored.

In the **New file every** list, select the required period to create a new log. There the following options:

- **Don't rotate**. The data will be permanently stored in the single file if its size does not exceed the value specified in the **Maximum log size** box.
- **Every hour**. A new log file will be created every hour, if its size does not exceed the value specified in the **Maximum log size** box.
- **Every day**. A new log file will be created every day, if its size does not exceed the value specified in the **Maximum log size** box.
- **Every month**. A new log file will be created every month, if its size does not exceed the value specified in the **Maximum log size** box.

Another parameter that affects the period of the creation of a new log file is its size, which is set in the **Maximum log size** box. When the specified size is reached the current log file closes and a new one creates. Enter a desired value in the box. By default: 200 MB.

To reduce the size of the log file on disk, you can use its compression. To configure compression, in the **Compression** list, select an option from the following ones:

- **None**. The compression is not used.
- **Zip**. It is used to compress into the Zip archive.
- **Bzip**. It is used to compress into the Bzip archive.
- **Zlib**. It is used to compress into the Zlib archive.

The Collector may use a time zone, which is installed on a computer with Tariscope, during processing the received data. For this purpose, select the **Respect time zone** check box.

To reduce the amount of the Tariscope database with information about network traffic, if there is no need for full detail, specify the required level of a data aggregation.

Select the **Aggregate addresses to networks** check box, when sufficient data is grouped to the level of IP networks specified in the **Provider and rates** → a particular provider → **IP networks**. Selecting this check box reduces the load on SQL Server, and therefore improves performance of Tariscope.

You can specify the aggregation to the level of IP ports. To do this, select the **Aggregate ports** check box.

You can specify the aggregation to the level of IP protocols. To do this, select the **Aggregate protocols** check box.

You can specify the aggregation for a certain period of time, which is set in the **Aggregate time to** list. The list contains the following options:

- **None**. The aggregation for the time period is not applied.
- **Second**. Aggregating the data received during one second.
- **Minute**. Aggregating the data received during one minute.
- **Ten minute**. Aggregating the data received during ten minutes.
- **Hour**. Aggregating the data received during one hour.
- **Day**. Aggregating the data received during one day.

To store the processed data in the Tariscope database, you should configure parameters that are specified in the **Database and rating** section.

To change the connection data to the Tariscope server, click on the **Change Tariscope connection options** link. In the appeared window, specify a server name, its IP address and select an option of authentication. If you select the **Windows Authentication** option, not have to specify any more parameters. If you select the **SQL Server Authentication** option, type a name and password of user.

In the **Db Save interval** box, type a time period through which the processed data will be recorded in the Tariscope database. The load on the server increases with short time period. The default value is 3000 ms.

When the need for rating immediately upon receipt of the traffic data, select the **Online cost charging** check box. If rating is not specified, it can be done at any convenient time.

The Collector can write a log with varying degrees of detail. The level of detail is determined by the value specified in the **Log level** list. There are the following options:

- **Status**,
- **Critical error**,
- **Error**,
- **Warning**,
- **Information**,
- **Advice**,
- **Debug**.

Status is the least detailed level, and Debug is the most detailed level of logging.

At the end of the configuration, click on the **Save** icon on the toolbar.

Start and stop of the Netflow/IPFIX/rFlow collector

To start the Collector service, click on the **here** link in the window shown in Figure 3.19.2, or click on the **NetFlow/IPFIX/rFlow Collector** branch in the configuration tree. As a result, the program window will be as shown in Figure 3.19.1.

The current status of the service is displayed the **Service status** position. When the page is opened initially, the value of the position is "Not installed".

To install the service, click on the **Install service** link. The **Service status** position displays "Stopped" in case of a normal installation. The **Install service** link is replaced to the **Uninstall service** link and the **Start service** link is active.

To start the service, click on the **Start service** link. The **Service status** position displays "Running". The **Start service** link is replaced to the **Stop service** link. The **Uninstall service** link is inactive.

After the service start we recommend to click on the **Service log** link or select on the same branch in the configuration tree and make sure there are no errors. If the log contains errors, stop the service, return to the configuration and, validate the configuration data. After that, start the service.

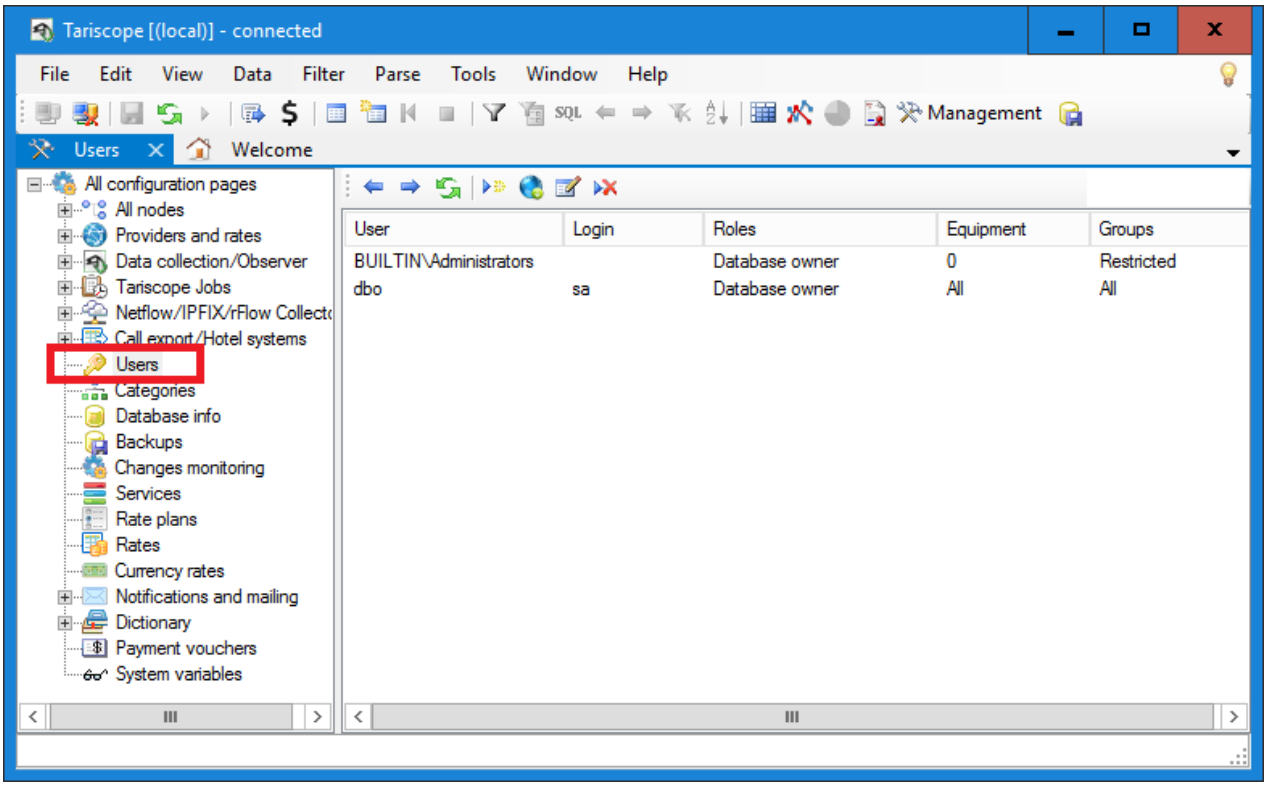
To stop the service, click on the **Stop service** link. The **Stop service** link is replaced to the **Start service** link, and the **Uninstall service** link is active. The **Service status** position displays "Stopped".

The service keeps a log of its work. To see this log, select in the configuration tree: **NetFlow/IPFIX/rFlow Collector → Service log**.

3.20. User management

A User management system allows to create, edit and delete user accounts in Tariscope. Tariscope users can have different access rights to Tariscope. It is possible to limit a user access to various telecommunication equipment, as well as to restrict the actions that a user can perform with the different subscriber groups.

To create a new user, select the **Users** page in the configuration tree. In this case the Tariscope window will be as shown in Figure 3.20.1.



Fugire 3.20.1

In the user table the following columns are displayed:

- **User**. The column displays a user name. On initial installation, there are two user accounts: 'BUILTIN\Administrators' and 'dbo'.
- **Login**. The column displays a user login with which the user is connected to Tariscope.
- **Roles**. A list of roles that were assigned to the user.
- **Equipment**. The colunm displays names telecommunications equipment to which the user has an access.
- **Groups**. It displays group names to which the user has an access.

To add a new user, on the toolbar, click on the **Add** icon. The **Edit window** appears as shown in Figure 3.20.2.

In the **User login** box, type a user login that is used to connecting to Tariscope. You can use the same login that the user uses to enter in the Windows, if the **Windows authentication** check box is selected. In this case, click on the "…" button which is located on the right of the **User login** box. In the appeared window, select a required user.

In the **User name** box, type the user name that allows to uniquely identify the user. For example, it may be a name and surname of the user.

If you select the **SQL Server authentication** check box, type a password in the **Password** and **Confirm password** boxes.

When you select the **SQL Server authentication** check box, the **Login disable** check box is active. The selection of the check box allows to block the user.

The **Database role membership** list contains a list of roles which you can assign for a user.

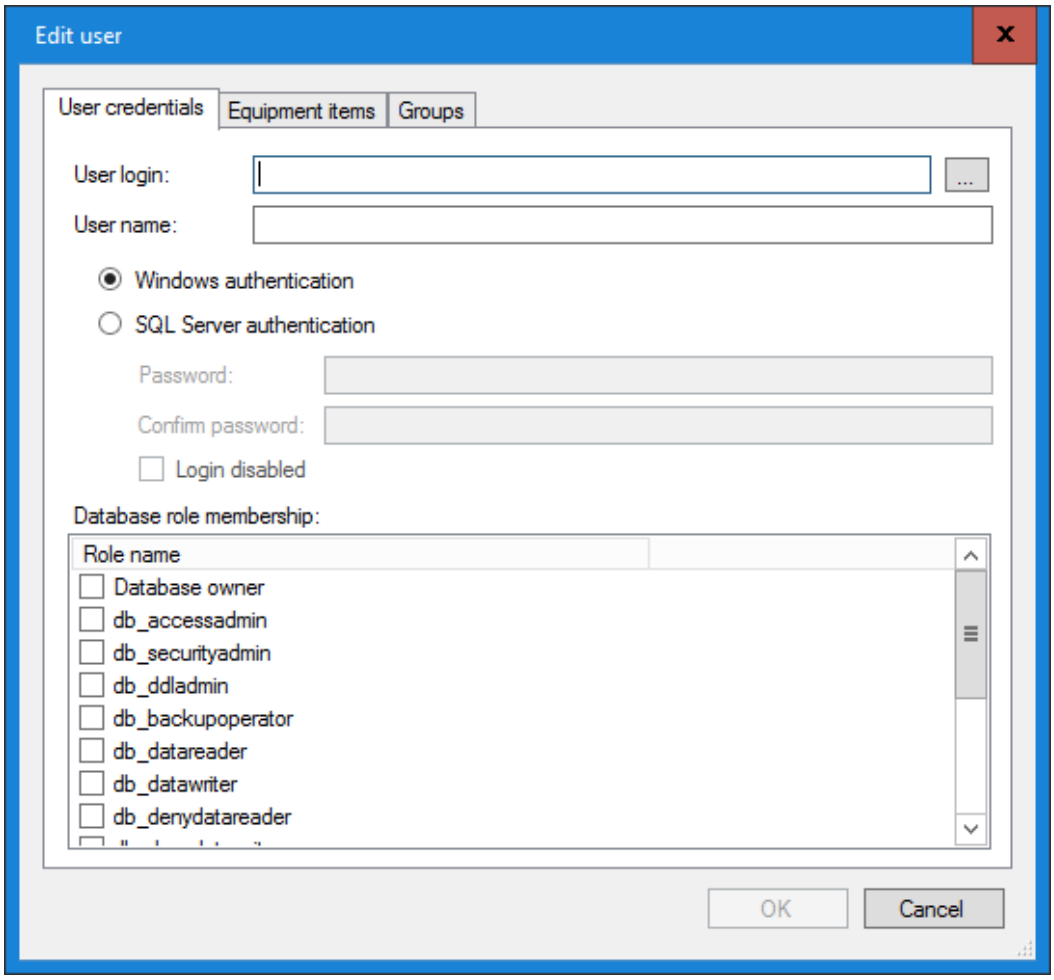


Figure 3.20.2

For reference. *Microsoft SQL Server uses the concept of the Role for association of users in the conditional group with the same rights. Roles can be predetermined, and can also be created by users with this right. There are two types of roles: server (dbcreatir, diskadmin, processadmin, securityadmin, serveradmin, setupadmin, sysadmin); databases (public, db_owner, db_accessadmin, db_ddladmin, db_securityadmin, db_backupoperator, db_datareader, db_datawriter, db_denydatareader, db_denydatawriter).*

There are fixed roles to work with the Tariscope database: public, db_owner, db_accessadmin, db_securityadmin, db_ddladmin, db_backupoperator, db_datareader, db_datawriter, db_denydatareader, db_denydatawriter. They are defined by Microsoft SQL Server Fixed functions for these roles are presented in the table below.

Fixed database role	Resolution at the database level	Resolution at the server level
db_accessadmin	Allow: ALTER ANY USER, CREATE SCHEMA	Allow: VIEW ANY DATABASE
db_accessadmin	Allow with GRANT parameter: CONNECT	
db_backupoperator	Allow: BACKUP DATABASE, BACKUP LOG, CHECKPOINT	Allow: VIEW ANY DATABASE
db_datareader	Allow: SELECT	Allow: VIEW ANY

		DATABASE
db_datawriter	Allow: DELETE, INSERT, UPDATE	Allow: VIEW ANY DATABASE
db_ddladmin	Allow: ALTER ANY ASSEMBLY, ALTER ANY ASYMMETRIC KEY, ALTER ANY CERTIFICATE, ALTER ANY CONTRACT, ALTER ANY DATABASE DDL TRIGGER, ALTER ANY DATABASE EVENT, NOTIFICATION, ALTER ANY DATASPACE, ALTER ANY FULLTEXT CATALOG, ALTER ANY MESSAGE TYPE, ALTER ANY REMOTE SERVICE BINDING, ALTER ANY ROUTE, ALTER ANY SCHEMA, ALTER ANY SERVICE, ALTER ANY SYMMETRIC KEY, CHECKPOINT, CREATE AGGREGATE, CREATE DEFAULT, CREATE FUNCTION, CREATE PROCEDURE, CREATE QUEUE, CREATE RULE, CREATE SYNONYM, CREATE TABLE, CREATE TYPE, CREATE VIEW, CREATE XML SCHEMA COLLECTION, REFERENCES	Allow: VIEW ANY DATABASE
db_denydatareader	Deny: SELECT	Allow: VIEW ANY DATABASE
db_denydatawriter	Deny: DELETE, INSERT, UPDATE	
db_owner	Allow GRANT parameter: CONTROL	Allow: VIEW ANY DATABASE

A list of roles which are accessible for Tariscope user:

- **Database owner**. The role provides a full access to the Tariscope database.
- **Call parse**. The role allows to process a calls information.
- **Reports and configuration view**. The role allows to generate reports and view the Tariscope settings.
- **Full access**. The role provides a full access to Tariscope.
- **Subscriber accounts**. A user who has this role can work with subscribers accounts (It is applies only to the Tariscope Provider edition).
- **Edit subscribers**. The role allows to create, edit and delete subscribers.
- **Deny information removal**. This role denies the user to delete of data from Tariscope.

To choose the telecommunications equipment to which a user can have an access, select the **Equipment items** tab. The windows will be as shown in Figure 3.20.3.

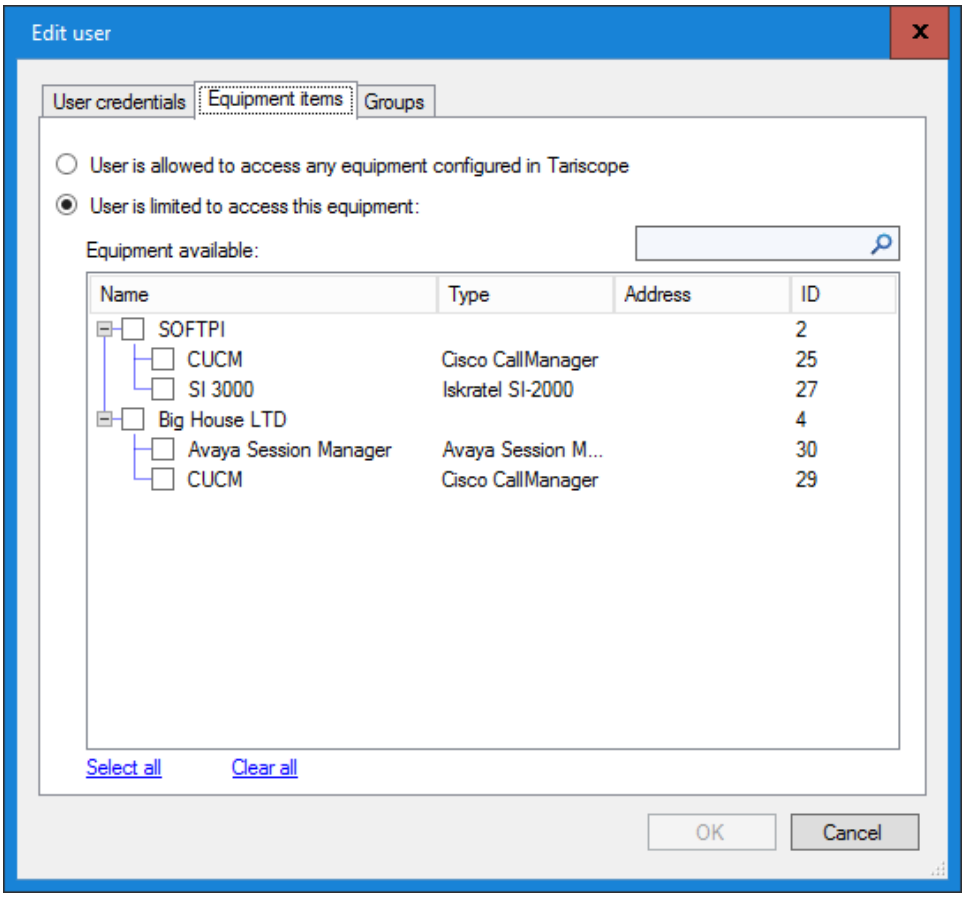


Figure 3.20.3

If the user should have an access to all equipment, select the **User is allowed to access any equipment configured in Tariscope** check box. Otherwise, select the **User is limited to access this equipment** check box and in the **Equipment available** list, select telephone systems to which the user can have an access.
If a user must have an access to most of the telephone systems, click on the **Select all** link and then, clear the unnecessary telephone systems.

To quickly clear all check boxes, click on the **Clear all** link.

To choose subscriber groups to which a user can have an access, select the **Groups** tab (Figure 3.20.4).

This tab displays a list of all user groups entered in Tariscope. If the user should have an access to all groups, select the **User is allowed to access all subscriber groups** check box. Otherwise, check the **User is limited to access only groups checked** check box and in the **Subscriber groups available** list, select the groups to which the access is allowed.

After the configuration of user data, click **OK**.

To edit the parameters of any previously created user, double-click on a desired row in the user table (Figure 3.20.1) or, select a desired row and click on the **Edit** icon on the toolbar.

To remove a user, select a desired row in the user table and, click on the **Delete** icon on the toolbar. Tariscope does not allow to delete the **dbo** account.

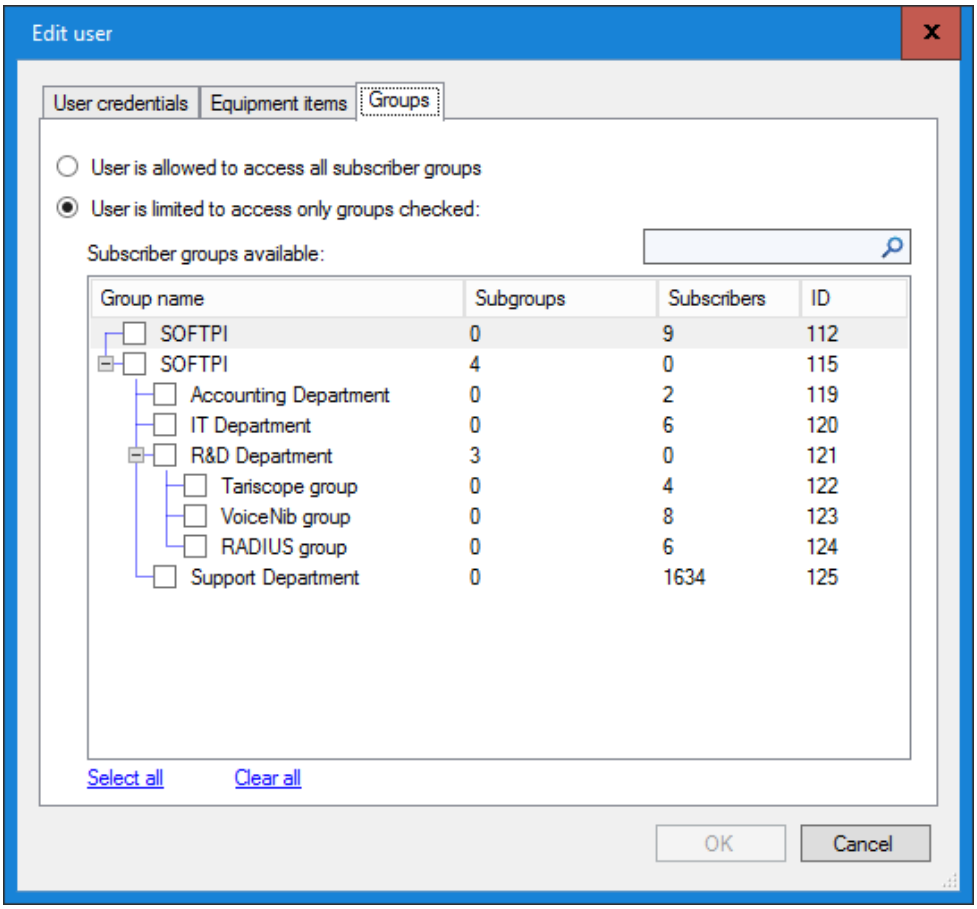


Figure 3.20.4

3.21. Monitoring changes in the database tables

Tariscope can monitor changes in any table of the Tariscope database. To do this, you must determine which of the tables in the database you want to monitor and select the **Change monitoring** configuration page. The Tariscope window will be as shown in Figure 3.21.1.

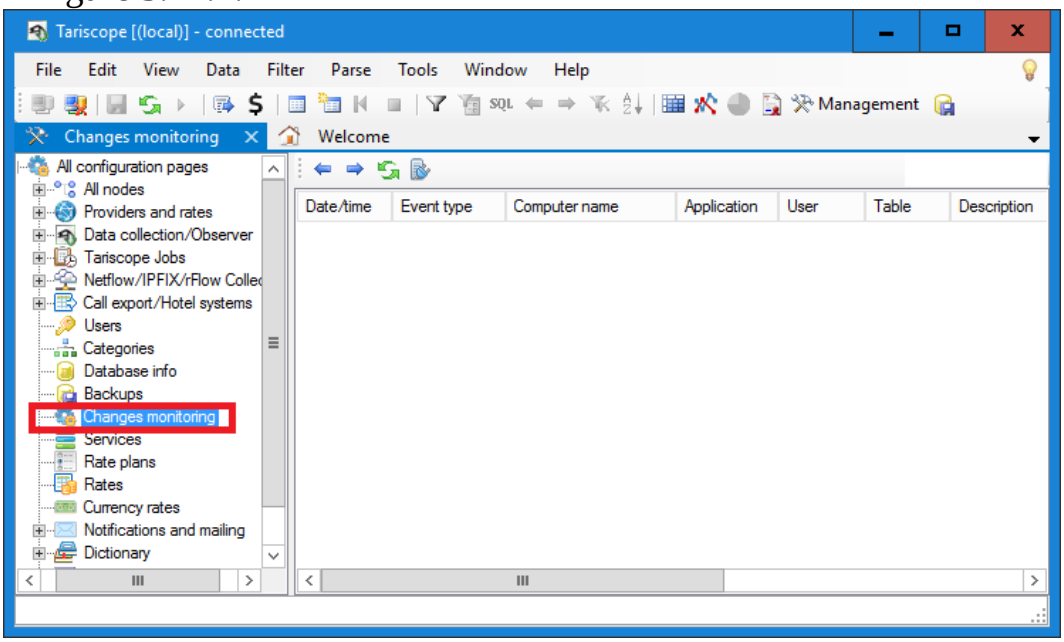


Figure 3.21.1

A list of all tables, their purpose and description are given in the document "Tariscope 4.x Database schema".

Typically, Tariscope administrators are interested the following tables: subscribers, rate plans and rates.

Do not recommend to set monitoring on the tables of calls or IP traffic, since adding each call records (IP traffic data) will be monitored by that will lead to a substantial increase of the log of monitoring and increase the load on the processor.

The monitoring log is stored in the **History** table of the Tariscope database. The **Change monitoring** page displays only the last 1000 entries in this log, although the log contains all the data. If you need to search information across the entire **History** table, create the appropriate report form or use Microsoft SQL Server Management Studio. You can clear this table the same ways.

The right part of the window (Figure 3.21.1) the table is displayed that contains a list of events associated with changes of tracked database tables. When you initially enter this mode, this table will be empty.

To set the monitoring, click on the **Install audit trigger for table** icon on the toolbar. A window appears where you should enter a table name you need to monitor. Then click **OK**.

Repeat these actions for all tables you want to monitor.

3.22. Configuration of Tariscope program

The Tariscope program is a main application of the Tariscope system.

If the Tariscope program must be installed on a computer where the Tariscope server was not set, then after installing the program you should connect the Tariscope program to the Tariscope server.

To configure the Tariscope program, select in the program menu: **Tools** → **Options**. The **Options** window appears as shown in Figure 3.22.1.

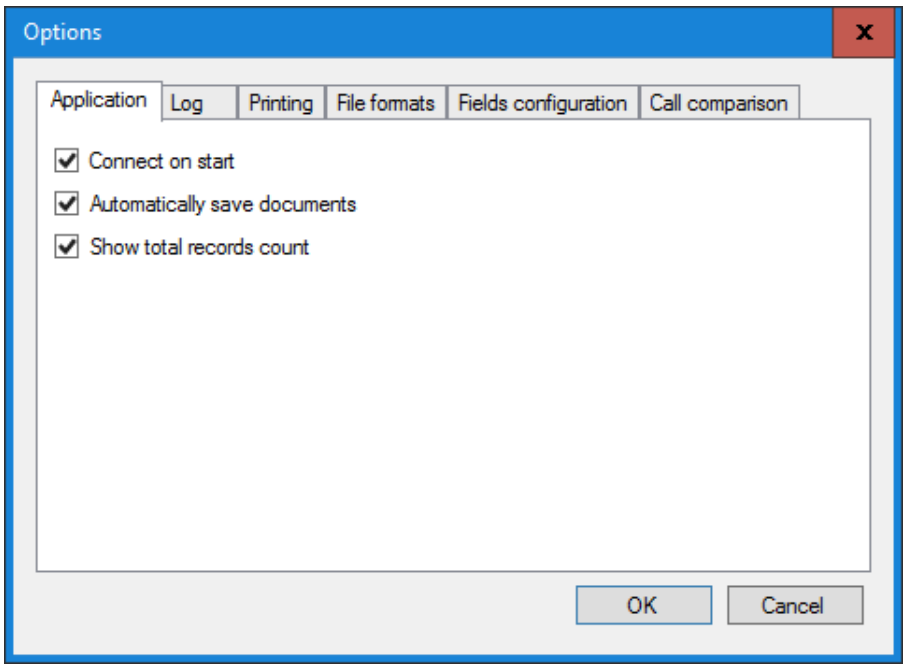


Figure 3.22.1

The window contains six tabs. The **Application** tab is showed in Figure 3.22.1.

If the **Connect on start** check box is selected it means the Tariscope program will be connected to the Tariscope server on start. By default the check box is selected.

If the **Automatically save documents** check box is selected this means that any document (view) after it closing will be automatically saved. By default the check box is selected.

To decrease a load on the processor, by default, a Tariscope view is opened with displaying only 1000 rows. To display a count of all rows that the view contains, select the **Show total records count** check box. By default the check box is selected.

The **Log** tab is shown in Figure 3.22.2.

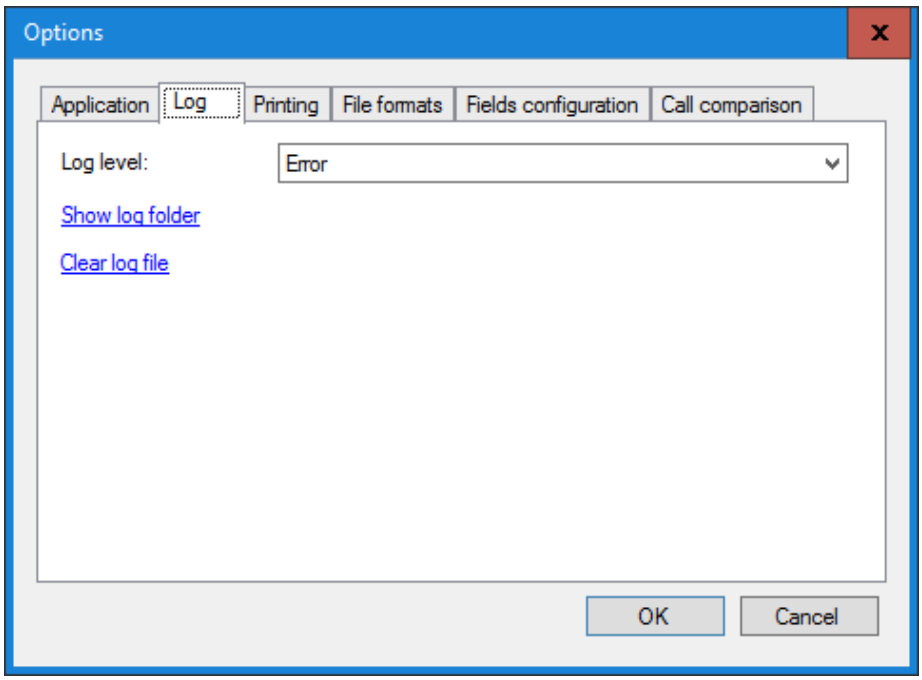


Figure 3.22.2

The log allows to find problems in the Tariscope program.

This tab allows to set a log level, show a log folder, and clear log file.

To set a log level, select a desired item in the **Log level** list.

The **Status** level is a least log level. The **Debug** level is a most detailed log level. By default, the **Error** level is set. Don't set the **Debug** level, if this is not necessary. It may slow down the program.

Click the **Show log folder** link to open this folder. The log is contained in the file: **App.log**.

To clear the log, click on the **Clear log file** link.

The **Printing** tab of the **Options** window is shown in Figure 3.22.3.

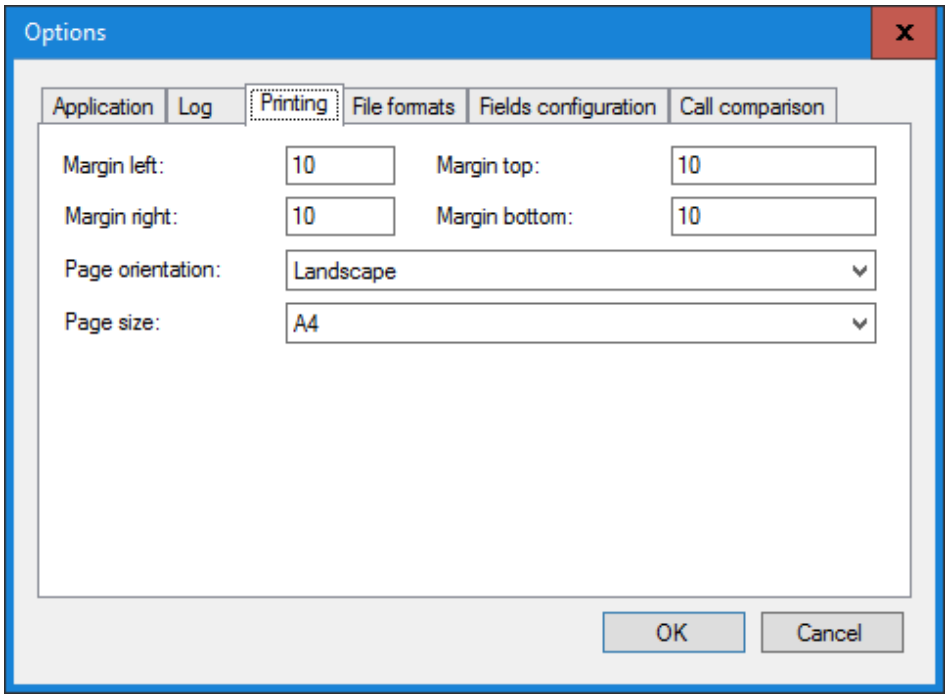


Figure 3.22.3

In the **Printing** tab you can set margins that will be used when printing a document, and select a page orientation and page size.

The **File formats** tab is shown in Figure 3.22.4.

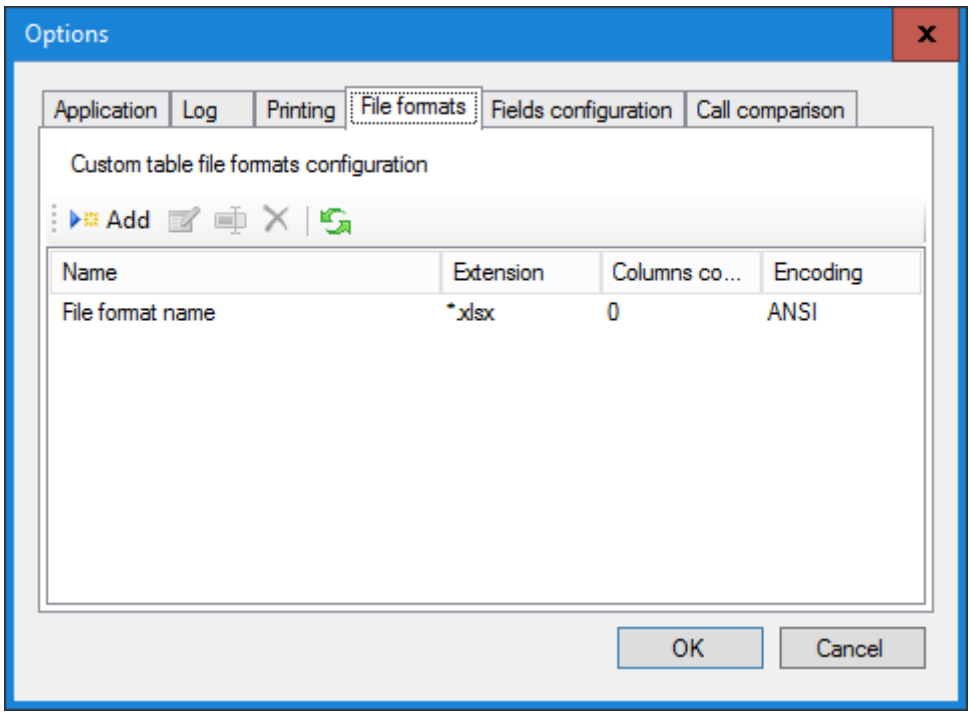


Figure 3.22.4

The tab is intended to configure Tariscope to open different external files. If you want to open by Tariscope, for example, the Excel file with XLSX extension, click on the Add icon on the toolbar of the tab. The **File format** window opens as shown in Figure 3.22.5.

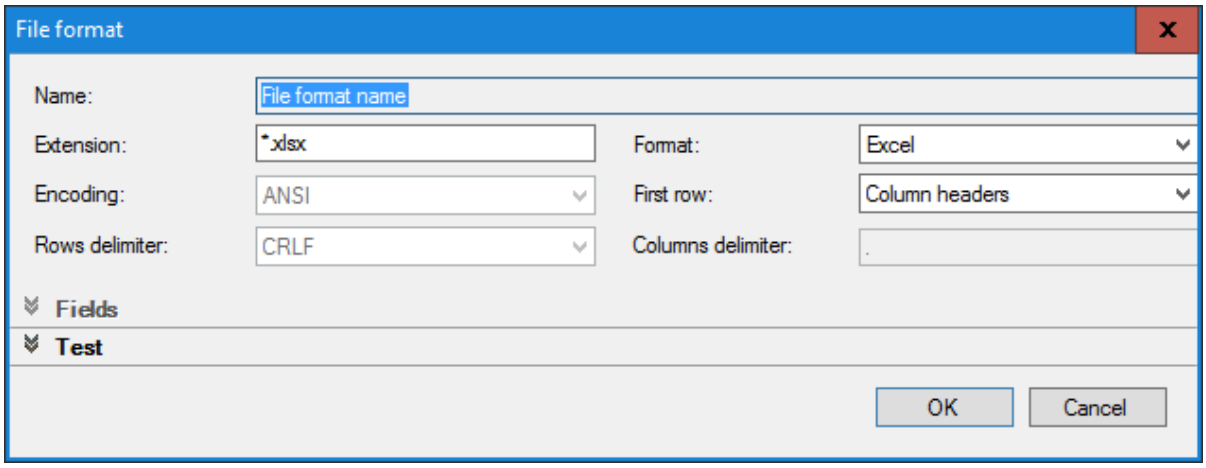


Figure 3.22.5

In the **Name** box, type a rule name that is applied to open a specific file.

In the **Extension** box, specify the required file extension. The **xlsx** extension is specified in Figure 3.22.5.

In the **Encoding** list, select a desired encoding. For example: Unicode.

In the **Format** list, select a file type. The list contains the following options:

- CSV.
- Custom.
- DBF.
- Excel.
- MDF.
- Text.

In the **First row** list, select wthat type of information is contained in the first row of the file. There are two options:

- Column headers.
- Data.

The **Row delimiter** list is available only when the **Custom** item was selected in the **Format** list. The **Row delimiter** list contains the following options:

- CRLF.
- CR.
- LF.
- NULL.

If you create rules for a customer file, select the delimiter that is used in the file.

The **Column delimiter** box is available only when the **CSV** item was selected in the **Format** list.

In case you create rules for opening file of a customer format, you should describe its fields. To do this, click on the **Fields** button (Figure 3.22.5). The **File format** window will be as shown in Figure 3.22.6.

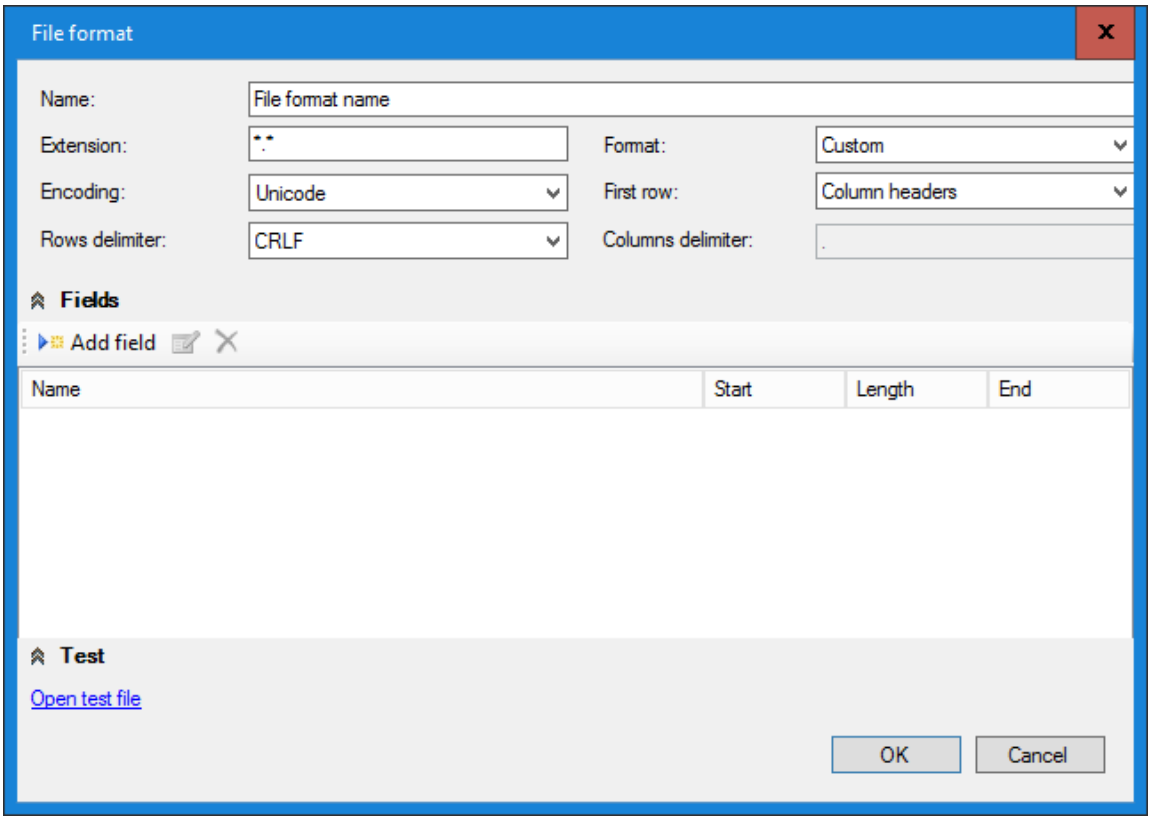


Figure 3.22.6

Click **Add field** icon on the toolbar. The **Field** window appears as shown in Figure 3.22.7.

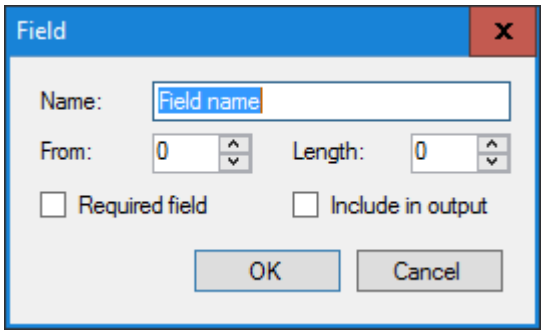


Figure 3.22.7

In the **Name** box, type a field name.

In the **From** box, specify a position from which the field is begun.

In the **Length** box, specify a field length.

If the field is required to process, select the **Required field** check box.

If you wish to display the field when the file is opened, select the **Include in output** check box.

Click **OK**.

Repeat these actions to add description of other fields of the file.

To verify the correctness of the entered data for any file format, clcik on the **Test** button (Figure 3.22.5). The **Open test file** link appears. Click the link and select a desired file. If data format was specified correctly, the file date will be displayed in the window.

The **Fields configuration** tab is shown in Figure 3.22.8.

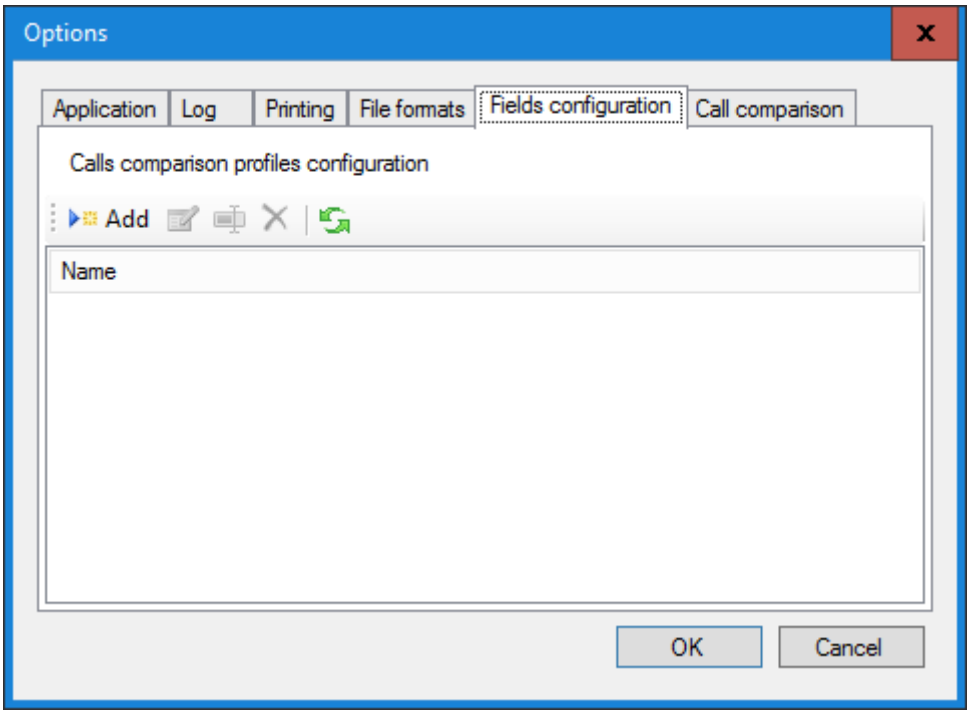


Figure 3.22.8

This tab is used to configure data for comparison of the Tariscope data with corresponding data from telecommunications service provider. To specify data that is used to process a file from the provider, open this file in Tariscope, select the **Options** item in the Tariscope menu, select the **Fields configuration** tab. Click on the **Add** icon on the toolbar. The **Comparison profile** window appears as shown in Figure 3.22.9.

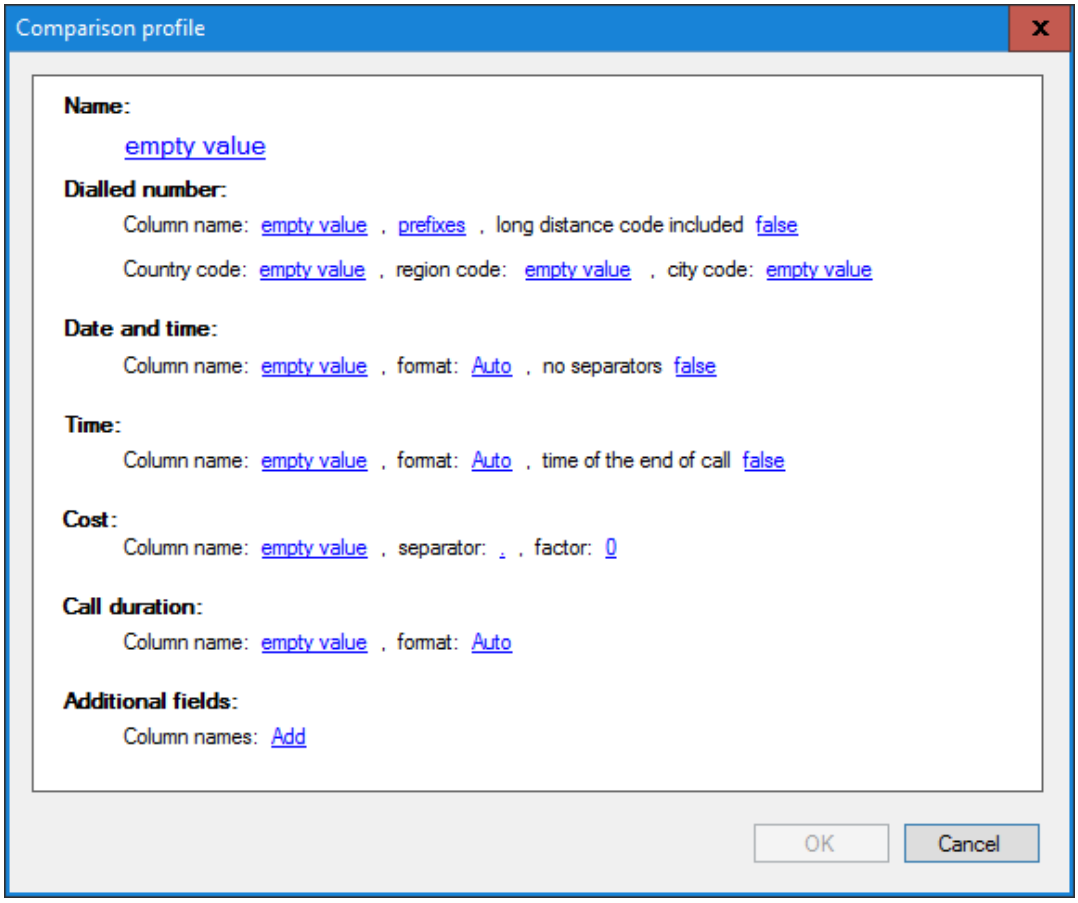


Figure 3.22.8

The window contains a list of parameters that allows to tie the Tariscope fields with corresponding fields of the provider's file. The **Name** is a profile name.

Click on the each link of window and, select from the appeared list or type data.

Click **OK**. A new row in the table of the **Fields configuration** tab appears.

The **Call comparison** tab of the **Options** window is shown in Figure 3.22.9.

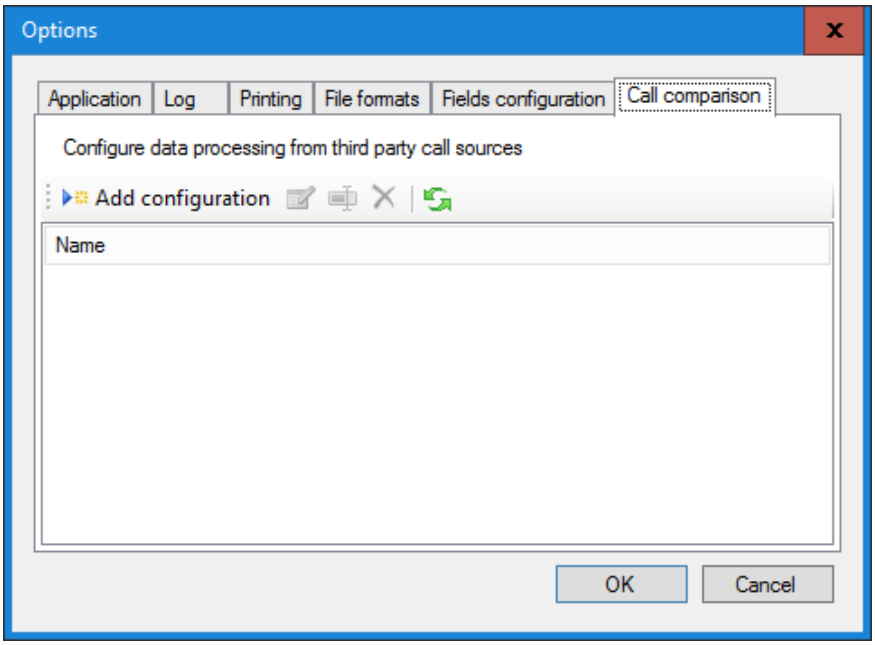


Figure 3.22.9

This tab is apply to configure the comparison data if you desire to compare the Tariscope data with corresponding data of telecommunications service provider. To do this, click on the **Add configuration** icon on the toolbar. The **Profile of comparison** window appeas as shown in Figure 3.22.10.

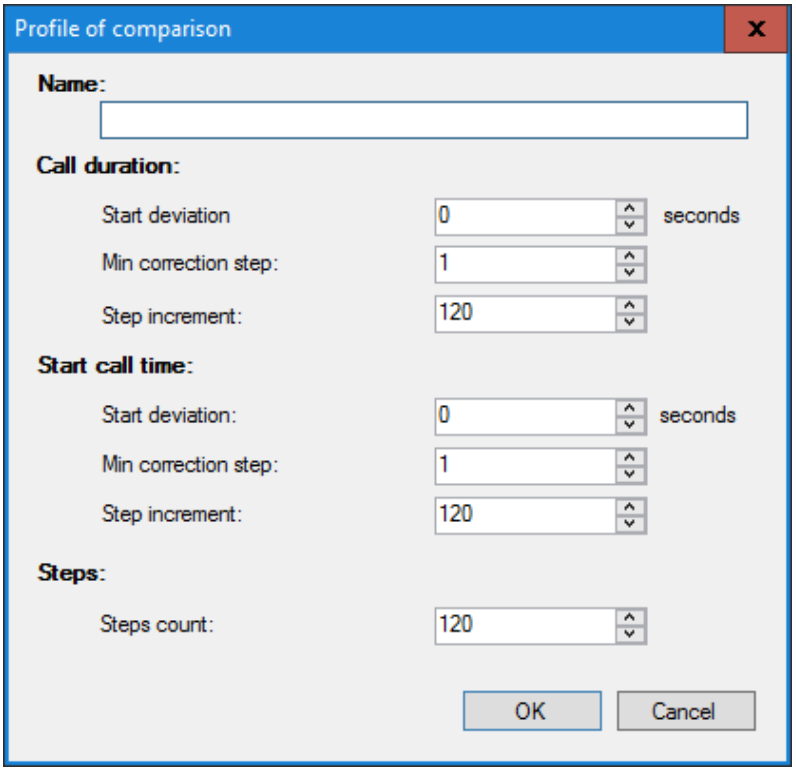


Figure 3.22.10

In the **Name** box, type a profile name.

The window contains three parameters that influence on the comparison results:

- **Call duration**.
- **Start call time**.
- **Steps**.

For **Call duration** and **Start call time** there are the following parameters:

- **Start deviation**. It means a deviation of parameter which Tariscope takes into account when it looks for data in a provider's file. If you know that the call durations (start call times) of provider always more then call duration (start call time) in Tariscope, for example on 2 seconds, type 2 in the box.
- **Min correction step**. It is a value on which a call duration or start call time is increased on the first step of search.
- **Step increment**. It is a value on which a call duration or start call time is increased if the previous step was unsuccessful.

Specify these parameters and click **OK**.

3.23. Tariscope Personal Area configuration

The Tariscope Personal Area (hereinafter Personal Area) allows customers (subscribers) to have a Web access to personal accounts, call information, network traffic information, etc.

How to install Personal Area, see in the section 1.2.

The Tariscope administrator can set up parameters of the site which are general for all subscribers:

- an authentication method to login in Personal Area;
- a payment system which are used to pay for telecommunications services;
- what sections of the site may be available to subscribers;
- the site preferences.

To configure Personal Area, start the site using URL: http://localhost:8081/webconfig

Instead of the 8081 port, use a port that was specified during the installation.

The browser opens the page shown in Figure 3.23.1.

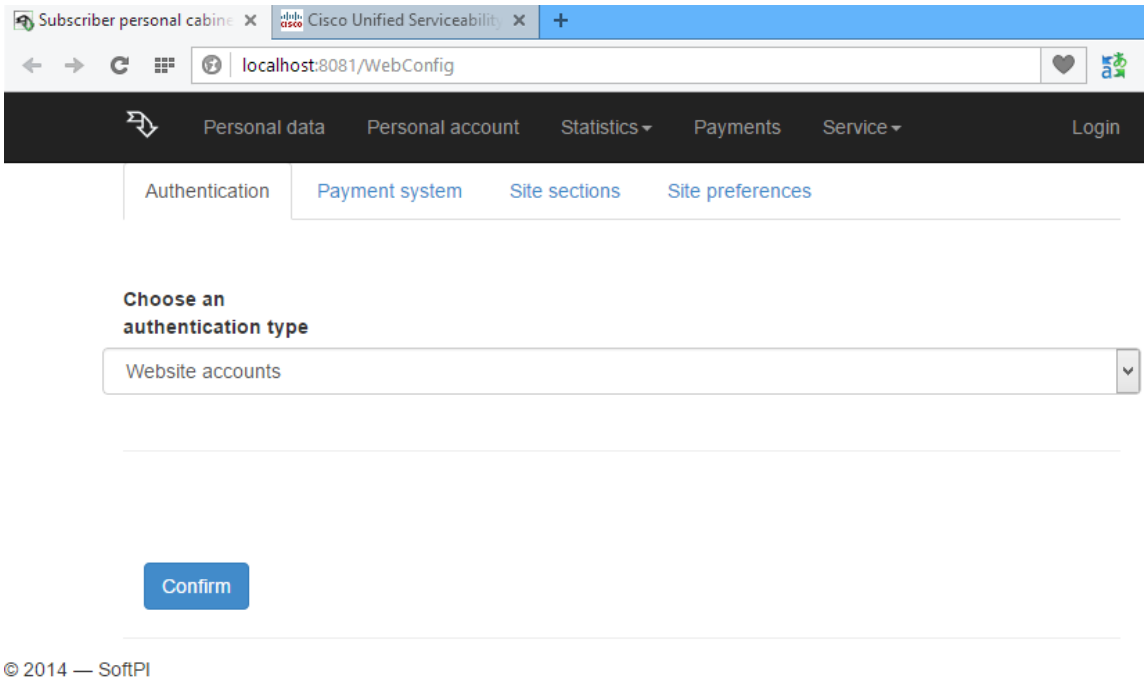


Figure 3.23.1

This page contains the following tabs:

- **Authentication**. The tab is used to select the method of subscriber authentication at login.
- **Payment system**. The tab is used to select the types of payment systems, which will be available to subscribers to perform payments for telecommunications services.
- **Site sections**. The tab is used to define available sections of the site to subscribers.
- **Site preference**. The tab is primarily used to enable subscribers edit their data in the Tariscope system.
- **Statisics**. The tab allows to set a list of the call categories, which subscribers can set for calls.

Let's consider each mode in the following sections.

3.23.1. Configuration of authentication methods

The configuration of the subscriber authentication method in Tariscope Personal Area is performed on the **Authentication** tab of the WebConfig page.

In the **Choose an authentication type** list, there are the following options:

- **Website account**. An subscriber email address and his password that were set in subscriber's data are used as authentication parameters. In the case this tab configuration is not required.
- **Active Directory accounts**. The configuration is described below.
- **Windows accounts**. The configuration is described below.

Active Directory accounts

In the **Choose an authentication page** list, select the **Active directory accounts** item.

The configuration page is shown in Figure 3.23.1.1.

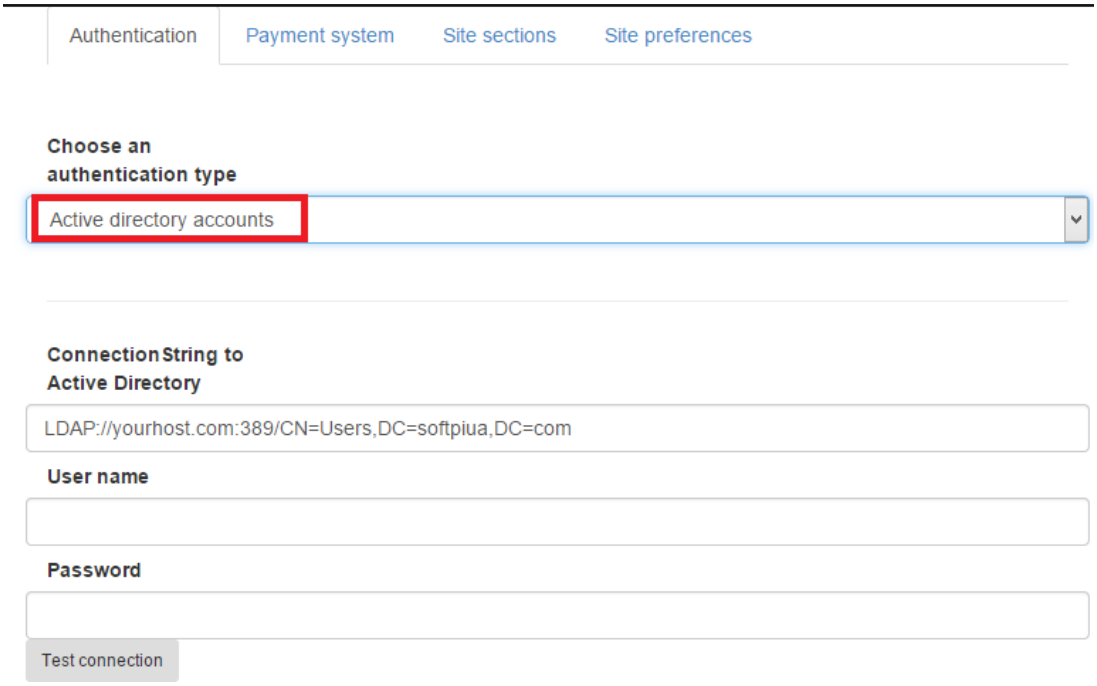


Figure 3.23.1.1

In the **Connection String to Active Directory** box, type a connection string.

In the **User name** box, type a name of a user which has an access to subscribers' accounts.

In the **Password** box, type a password for the user.

Before you confirm the entered data, check the entered data for correctness by clicking **Test connection**.

If the test connection is successful, click on the **Confirm** button to save the data.

Windows accounts

In the **Choose an authentication type** list, select the **Windows accounts** item. The configuration window will be as shown in Figure 3.23.1.2.

In the **Domain address** box, type an address of the Active Directory server.

In the **User Name** box, type a user name.

In the **Password** box, type a password.

Check the correctness of the data, by clicking on the **Test connection** button.

If you get a connection error, check the settings and re-check the connection. If the parameters have been entered wrong, the Personal Area site will not work, and the WebConfig page of the site will not be available. In this case, the data can be corrected only by editing the Web.config file, located by default: C:\inetpub\tsweb\www\Web.config).

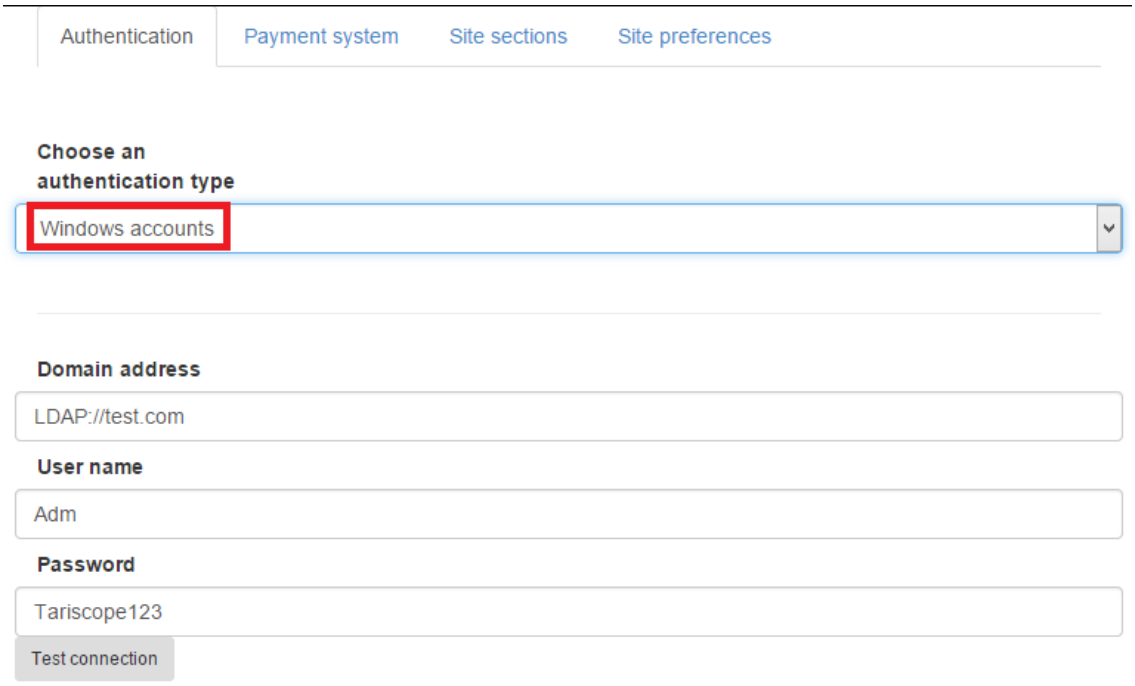


Figure 3.23.1.2

After checking the authentication settings, click **Confirm**. The **Web.config** file will have been generated and a message appears on the Web page as shown in Figure 3.23.1.3.

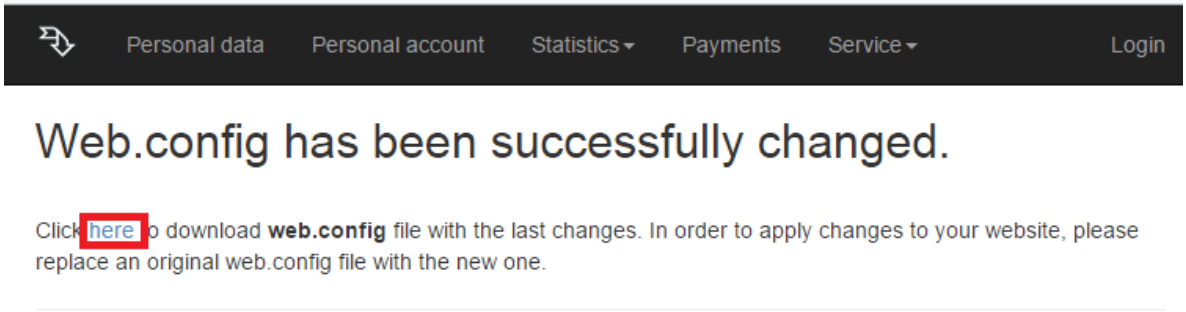


Figure 3.23.1.3

On this page, click on the **here** link and in the appeared window, save the file. Copy this file instead of the original. By default, the file is located of the following path: C:\inetpub\tsweb\www\Web.config.

Configuration of IIS

1. Open **Internet Information Services Manager**. The window appears as shown in Figure 3.23.1.4.

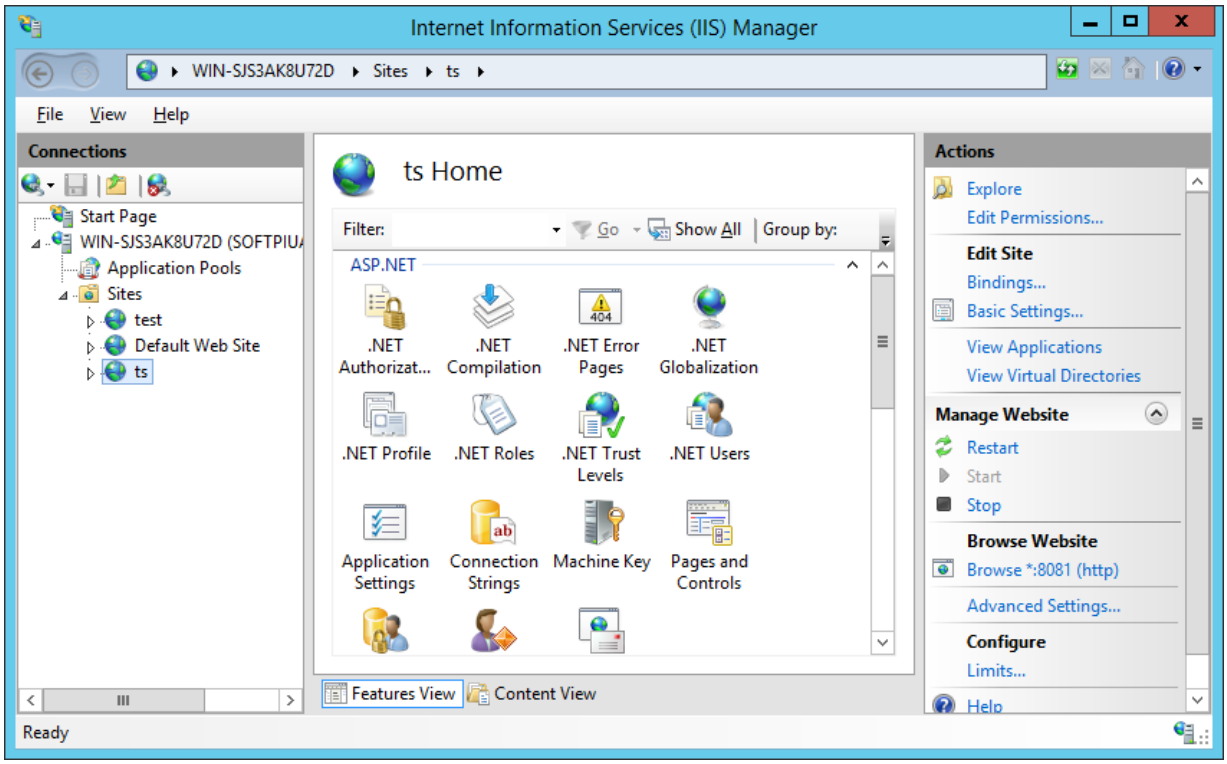


Figure 3.23.1.4

2. Open **Sites\Your_Site_Name**, and select **Authentication**. The window will be as shown in Figure 3.23.1.5.

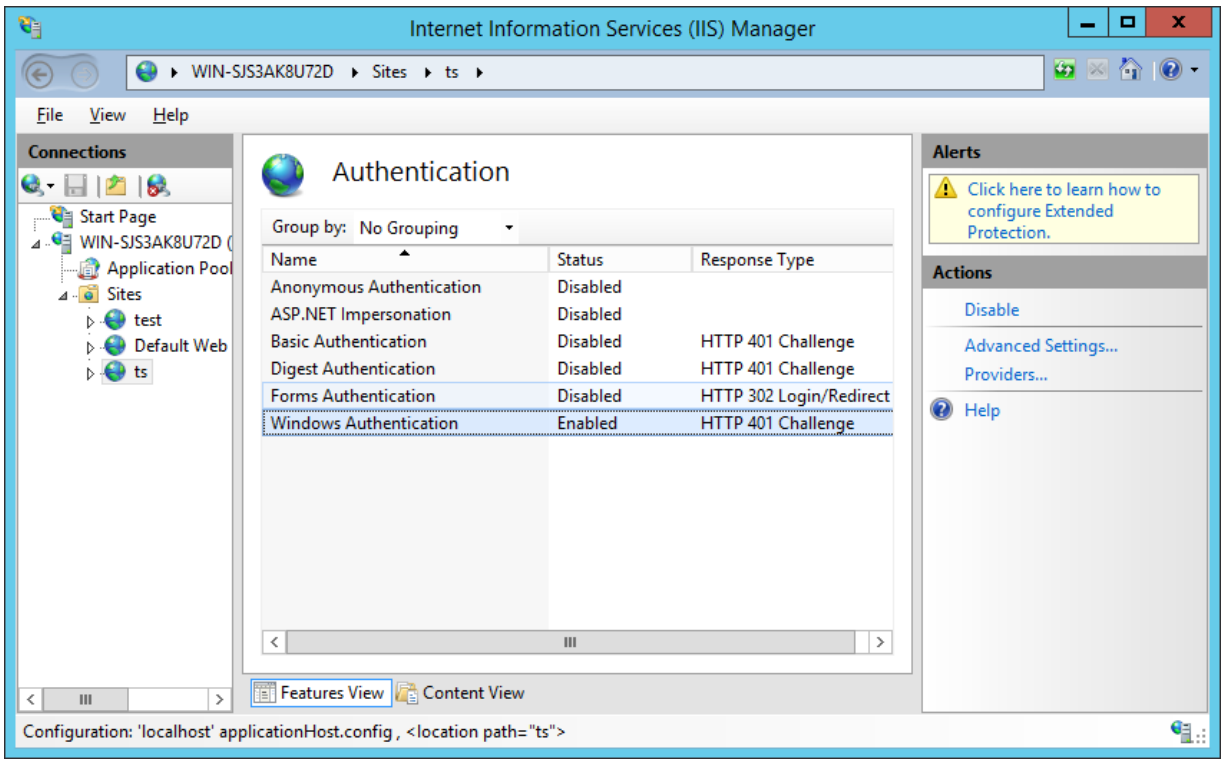


Figure 3.23.1.5

3. In the list of authentication types, disable all type except **Windows authentication**. If Windows authentication is not listed, use the **Server Manager** -> **Add Roles and features**, to add this authentication type.

4. Now your subscribers can work with Tariscope Personal Area using Windows authentication. In the case of a subscriber uses Internet Explorer, the Personal Area will not require a login, password. For other browsers subscribers must enter a user name and password.

3.23.2. Configuration of the supported payment systems

The **Payment system** tab on the WebConfig page of the Personal Area is relevant only for the Tariscope Provider edition where you can provide the ability for subscribers to perform payments for telecommunications services using the Personal Area.

When you select the tab, the page will be as shown in Figure 3.23.2.1.

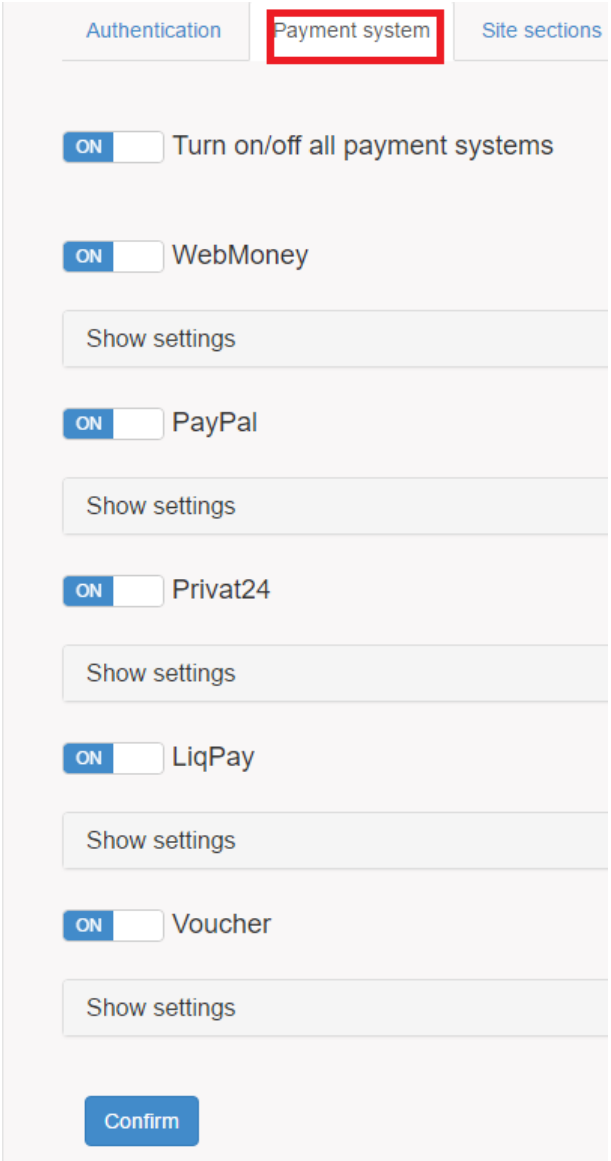


Figure 3.23.2.1

The Personal Area allows to use the following payment systems:

- WebMoney,
- PayPal,
- Privat24,
- LiqPay,

- Voucher (prepaid cards).

To enable or disable all options, select or disselect the **Turn on/off all payment systems** check box.

You can select or disselect a specific payment system.

To view and edit the data of any payment system, click **Show settings** located below the payment system name.

3.23.3. Configuration of the site sections

The **Site sections** tab of the WebConfig page allows you to set only those sections which should be displayed in the Personal Area.

When you select the tab, the WebConfig page will be as shown in Figure 3.23.3.1.

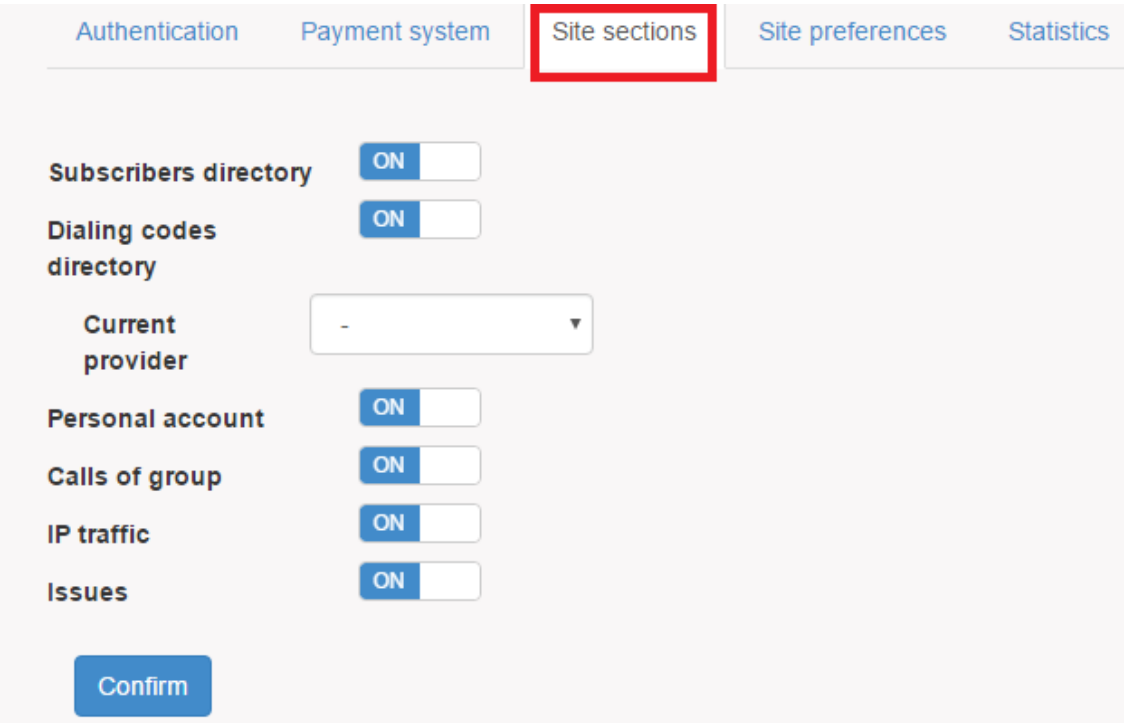


Figure 3.23.3.1

By default, all sections are selected. Disable those sections, which should not be displayed in the Personal Area.

If you enable the **Dialing code directory** section, from the **Current provider** list, select a name of a provider of dialing codes of which will be displayed in the directory.

3.23.4. Configuration of the site preferences

The **Site preferences** tab of the WebConfig page provides the ability for customer to change the Tariscope Personal Area name and enables or disables subscribers to edit their profiles.

When you select the tab, the WebConfig page will be as shown in Figure 3.23.4.1.

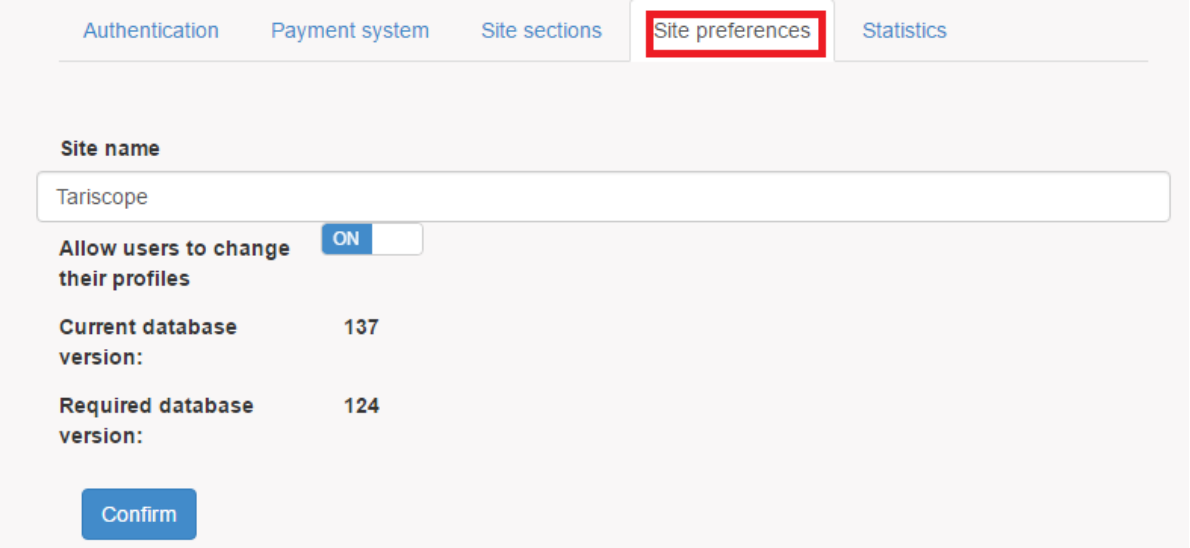


Figure 3.23.4.1

If you wish to change the Tariscope name that is displayed on the Personal Area pages, for example, on the your company name, type a new name in the **Site name** box.

To enable subscribers to edit their personal profiles, which are displayed on the Personal data page, enable the **Allow users to change their profiles** box. By default, the box is switched on.

3.23.5. Configuration of statistics parameters

The Tariscope Personal Area provides the ability for subscribers to set a category for their calls. This is useful for customers of the Tariscope Enterprise edition.

The **Statistics** tab of the WebConfig page allows you to set a list of call categories, which subscribers can set for calls.

When you select the tab, the WebConfig page will be as shown in Figure 3.23.5.1.

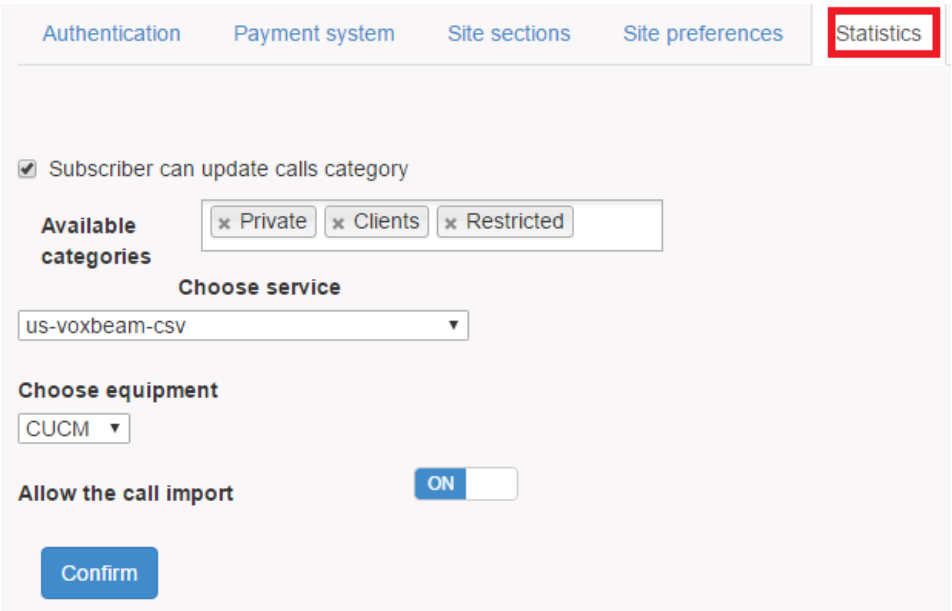


Figure 3.23.5.1

To enable subscribers to set categories for their calls, check the **Subscriber can update calls category** check box, and select the list of the allowed categories from the **Available categories** list.

If you want to enable the call import to Tariscope, select **ON** in the **Allow the call import** box. Then in the **Choose equipment** list, select a desired telephone system and, in the **Choose service** list, select a desired service.

3.23.6. Saving settings of Tariscope Personal Area

After entering all data of the Tariscope Personal Area, click **Confirm**. The **Web.config** file will have been generated and a message appears on the page as shown in Figure 3.23.6.1.

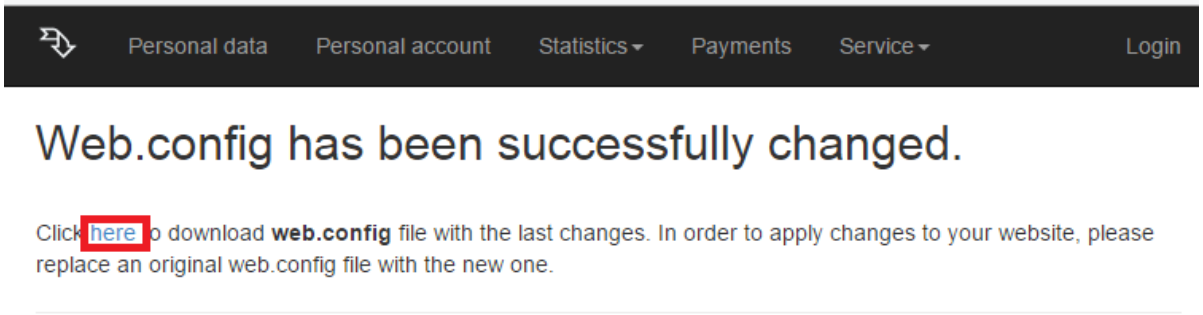


Figure 3.23.6.1

On this page, click on the **here** link and in the appeared window, save the file. Copy this file instead of the original, which, by default, is located on the following path: **C:\inetpub\tsweb\www\Web.config**.

Chapter 4 Tariscope Maintenance

Tariscope Maintenance includes the following actions:

- the control over work of the Tariscope applications;
- the Tariscope database backup;
- the recovery the Tariscope database from the backup;
- the backup of the Tariscope call database;
- Restoring the calls data from archive;
- the deletion of calls data from the Tariscope database;
- the deletion of duplicate call records;
- the maintenance of payment vouchers.

4.1. Control over work of the Tariscope applications

Tariscope has a high degree of reliability. However, it works on computers that have a probability of hardware and software failures, and there is some probability of failures in interfaces that connect computers with Tariscope among themselves, as well as with telecommunications equipment (telephone systems, routers, buffer devices, etc). Therefore, the Tariscope administrator must perform monitoring the work of the hardware and software involved in the work of the Tariscope system.

The control over the work can be divided into following main tasks:

- the control over the Tariscope database;
- the control over the collection of call information;
- the control over the automatic execution of tasks;
- the control over the changing in the Tariscope database.

4.1.1. Control over the Tariscope database

The Tariscope database and Tariscope server are the core of the Tariscope system. The Tariscope Management program and the same mode of the Tariscope program allows to monitor a status of the Tariscope database, a list of users and applications which interact with the system.

For this monitoring, in the mentioned above programs, select the **Database info** branch of the configuration tree. The window of the Tariscope program will be as shown in Figure 4.1.1.1.

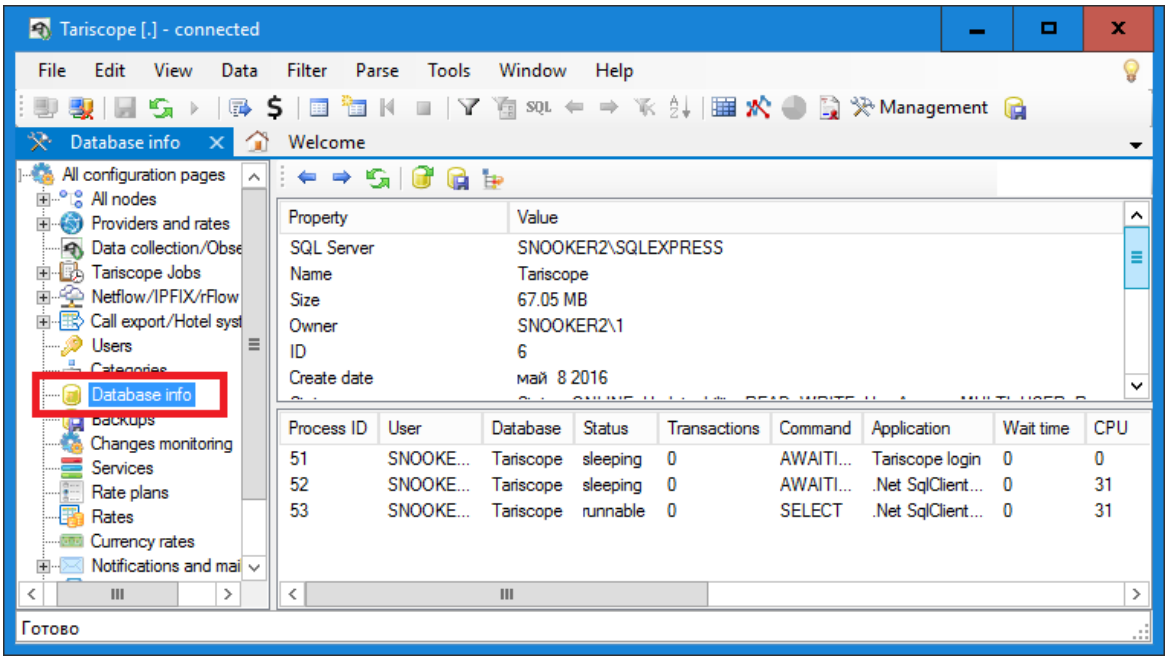


Figure 4.1.1.1

The right part of the program window is divided on the two parts:

- the upper part shows the current state of the Tariscope database,
- the lower part shows the Tariscope users who are currently connected to the Tariscope database, and the applications that they use.

The current state of the database contains the following information:

- **SQL Server**. Displays a SQL Server name where the Tariscope database is located.
- **Name**. Displays the Tariscope database name.
- **Size**. Displays the size of the database in megabytes. The administrator should periodically monitor this size. A version of SQL Server 2008 R2, which the Tariscope installation includes, has restrictions on the database size: 10 GB. If the current database size is approaching this boundary, you should do one of the following actions: to archive the call database, or purchase and install a version of Microsoft SQL Server, which has no restrictions on the size of the database.
- **Owner**. Displays a name of the computer on which the SQL Server is located and your user name used to log into Windows.
- **ID**. Displays a database identifier.
- **Create date**. Displays the creation date of the database.
- **Status**. Displays the current status of the database.
- **Compatibility**. Displays the code that corresponds to the database compatibility with SQL Server.
- **Name1**. Displays the file name containing the Tariscope database.
- **File path1**. The path to the Tariscope.mdf file.
- **Size1**. Displays the size of the file containing the Tariscope database.
- **Name2**. Displays the file name containing the transaction to SQL Server: Tariscope_log.
- **File path2**. Displays the path to the Tariscope_log.ldf file.

- **Size2**. Displays size of the Tariscope_log.ldf file.

Information about users working with Tariscope is displayed in tabular form with the following columns:

- **Process ID**. Displays a process identifier.
- **User**. Displays a name of user who is currently working with the Tariscope database.
- **Database**. Displays the database name with which the user is working.
- **Status**. Displays a current status of the process interacting with the database.
- **Transactions**. Displays the number of executed transactions to the database.
- **Command**. Displays a command that is being executed.
- **Application**. Displays a name of the Tariscope application that is used by user.
- **Wait time**. Displays a wait time of unlocking the process. If the wait time is equal 0, the process is not locked.
- **CPU**. Displays the total processor time for the process.
- **IO**. Displays the total number of requests to read and write data.
- **Memory**. Displays number of pages in the procedure cache that are currently taken for the process. A negative number means that the process is being released from memory, which is allocated to another process.
- **Login time**. Displays the date and time when the process was connected to the database.
- **Last batch**. Displays the date and time of the last executed query to the database.
- **Host**. Displays a name of computer from which the connection to the database was performed.
- **Net Library**. Displays the protocol used by the client to connect to the database.
- **MAC address**. Displays MAC address of the computer from which the connection to the database was performed.

The information of the **Database info** mode is updated periodically. To update information at any desired time, click the **Refresh** icon on the toolbar or press "**F5**" on your keyboard.

4.1.2. Control over the collection of call information

The collection of call information is performed using the Tariscope Observer services. To control the services, in the configuration tree, select the **Data collection/Observer** branch. The program window will be as shown in Figure 4.1.2.1.

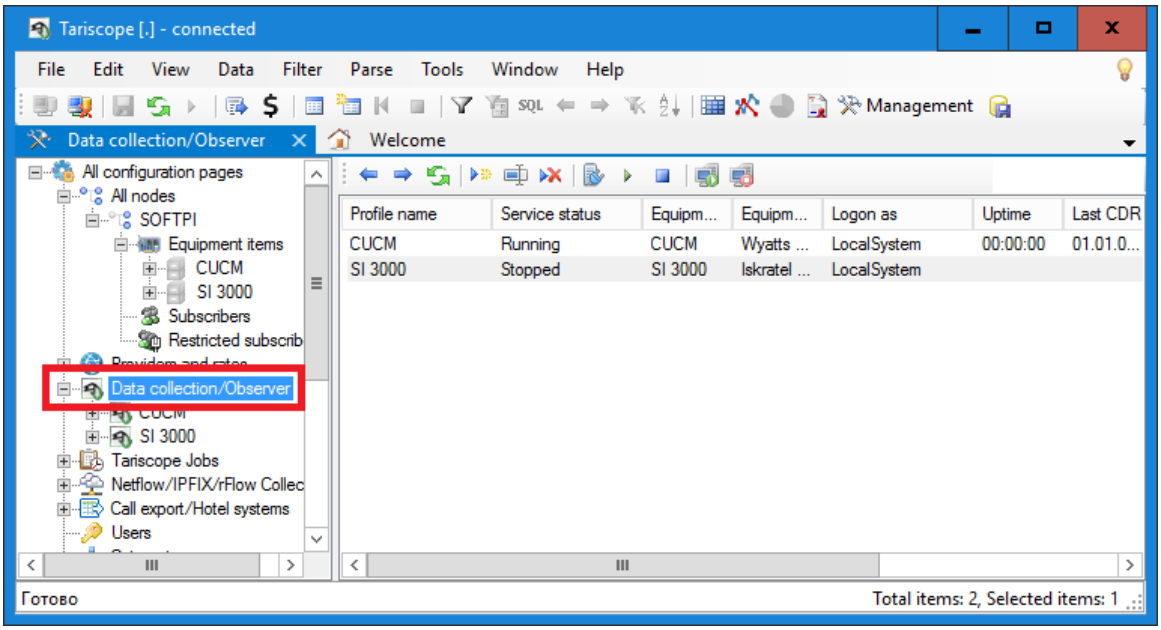


Figure 4.1.2.1

In the window the information about all Tariscope Observer services is displayed in a tabular form. The table contains the following columns:

- **Profile name**. Displays a profile name of the service. As a rule, it is a name of telephone system with which Tariscope interacts.
- **Service status**. Displays the current service status.
- **Equipment name**. Displays a telephone system name from which Tariscope collects the call information.
- **Equipment type**. Displays an equipment type which was selected from a list of supported telephone systems.
- **Logon as**. Displays a user name from which the service was started.
- **Uptime**. Displays the time from service start to the current moment.
- **Last report**. Displays the last date and time when service reported his status.
- **Database**. Displays the status of the service connection to the database: "True" means that the service was connected to the database, "False" means that the service was disconnected from the database. The column displays 'True' for normal operation.
- **Data source**. Displays a result of connection to the data source: "True" means that the service was connected to the data source, "False" means that the service was disconnected from the data source. The column displays 'True' for normal operation.
- **Last CDR**. Displays the last date and time when the service received call data from the data source.
- **Last call**. Displays the last date and time when the service received data from the data source with call information.

It should pay attention to the **Service status** column. The status should be "Running" for normal running service.

Next, define the values of the **Database** and **Data source** columns. The values of these columns should be "True". If you see "False", define the reason for the lack of connection.

We recommend also to estimate the values of the **Last CDR** and **Last call** columns. If the time in the **Last CDR** column is significantly different from the current time, this means that a long time the service has not received any data from the telephone system. If the time in the **Last call** column is significantly different from the current time, this means that a long time the service has not received data from the telephone system.

4.1.3. Control over the changing in the Tariscope database

In some cases, when multiple users work with the Tariscope database, it is important to keep track who of them made changes to the database. For this purpose, the **Changes monitoring** page was designed, which is available from the Tariscope Management or Tariscope programs.

Choice of the page leads to opening the program window as shown in Figure 3.21.1. Description of configuration of the **Changes monitoring** page in the section 3.21.

The **Changes monitoring** page displays the table that contains the following columns:

- **Date/time**. Displays the date and time of any changes in the table.
- **Event type**. Displays an event name that changes the table: deletion, updating, adding, and etc.
- **Computer name**. Displays the name of the computer or its IP address from which the change was performed.
- **Application**. Displays the application name that was used to change the table data.
- **User**. Displays the user name who changed the table data.
- **Table**. Displays the name of the table that is monitored.
- **Description**. Displays a brief description of the changes in the table.
- **ID**. Displays the identifier of record in the **History** table of the Tariscope database.

The table displays only the last 1000 records of the History table. If you need to analyse a larger number of records, use the Microsoft SQL Server Management Studio.

In the table that is displayed in the **Changes monitoring** page you can hide unnecessary fields, sort information on interesting columns, filter the data. To perform these actions, right-click anywhere on the table header. Menu appears. Select the desired item.

4.1.4. Control over the automatic task execution

Tariscope Tasks automatically performs a wide range of tasks. Therefore one of the tasks of the Tariscope administrator is a tracking of the results of the Tariscope Tasks work. For this purpose, in the configuration tree, select **Tariscope Tasks → Tariscope Tasks**. The program window will be as shown in Figure 4.1.4.1.

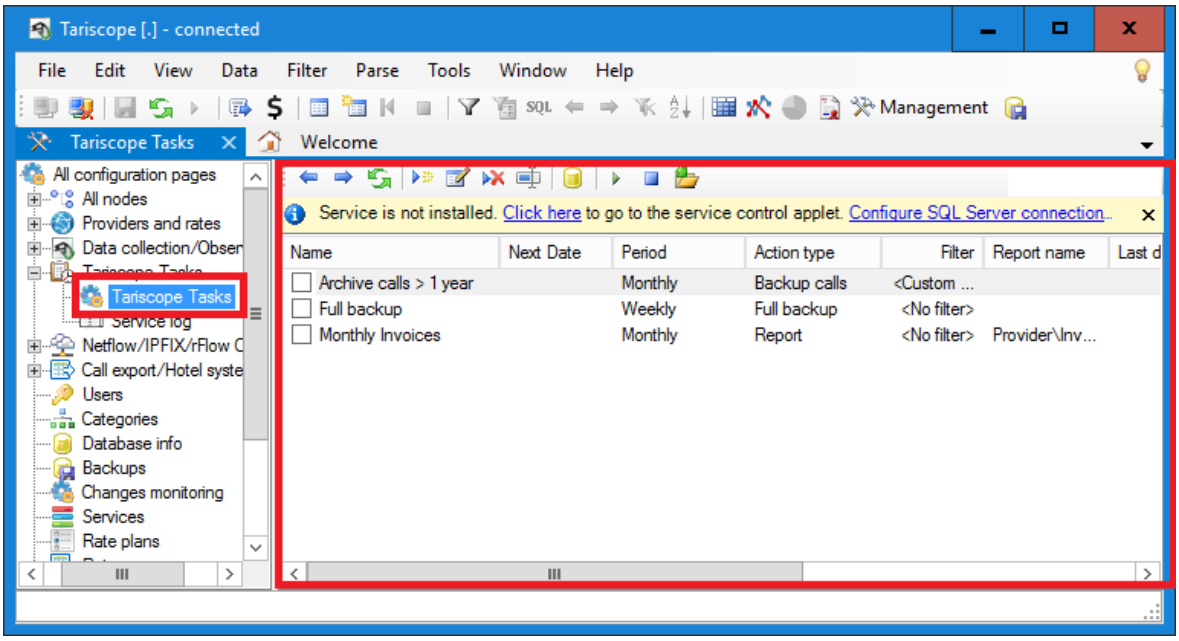


Figure 4.1.4.1

The right part of the window displays a list of all task that were specified in the Tariscope Tasks. The table contains the following columns:

- **Name**. Displays a task name, as well as it is used to select or clear the check box that allows to enable or disable the task. An inactive task will never run. To activate any inactive task, select the appropriate check box.
- **Next Date**. Displays the date and time of the next task execution.
- **Period**. Displays the next date and time when the task should be executed.
- **Action type**. Displays a task type (Backup calls, generation of report, etc.).
- **Filter**. Displays a filter name if it is used for the task.
- **Report name**. Displays a report name, if the task is used to report generation.
- **Last date**. Displays the date and time of the last task execution.
- **Last result**. Displays the result of the task execution.
- **Status**. Displays the current status of the task: Running, Not running.
- **File path**. Displays a path to the folder where the result of the task execution is saved.
- **File mask**. Displays a template that is applied to the file name.
- **Send mail**. Specifies whether to send the report or notice of the task execution via email.
- **Email**. Displays an email address for tasks, if delivery by email is used.

Among these columns, pay attention to the data in the **Last result** column. If it contains the "Task failed" value you should select the **Service log** of Tariscope Tasks, and analyze its data to eliminate the causes of execution failure. To the result of the problem was immediately visible when you open a table with a list of tasks, you can drag the **Last result** column, for example, to the second position, after the **Name** column. To do this, place the cursor over the title of this column, click the left mouse button and hold it down, drag the column to the desired position.

If necessary you can hide unwanted columns, sort the table according to any column, group or filter the data.

To perform these actions, right-click anywhere on the table header. Menu appears as shown in Figure 4.1.4.2. In the menu, select the desired item.

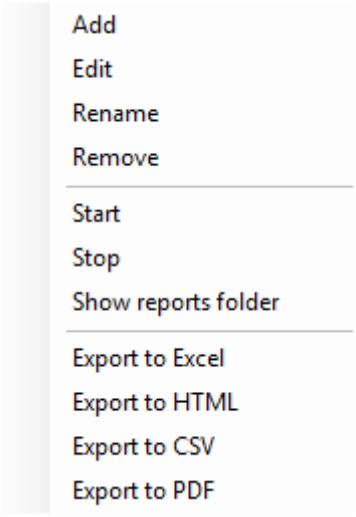


Figure 4.1.4.2

4.2. The Tariscope database backup

This Tariscope feature provides the Tariscope database backup into an external file.

The backup can be used either automatically on schedule, or manually at any time. There are two possible options to backup:

- Full backup, when the entire Tariscope database is copied,
- Differential backup, when only the data that is changed is copied.

The differential backup is faster then the full backup and the backup file has less volume.

To perform the manual backup, use the Tariscope program. In the configuration tree, select the **Backups** branch. As a result, the program window will be as shown in Figure 4.2.1.

For choice of backup option, click on the right part on the **Create database backup (Full)** button. Menu appears that contains two items:

- **Create full backup**,
- **Create differential backup**.

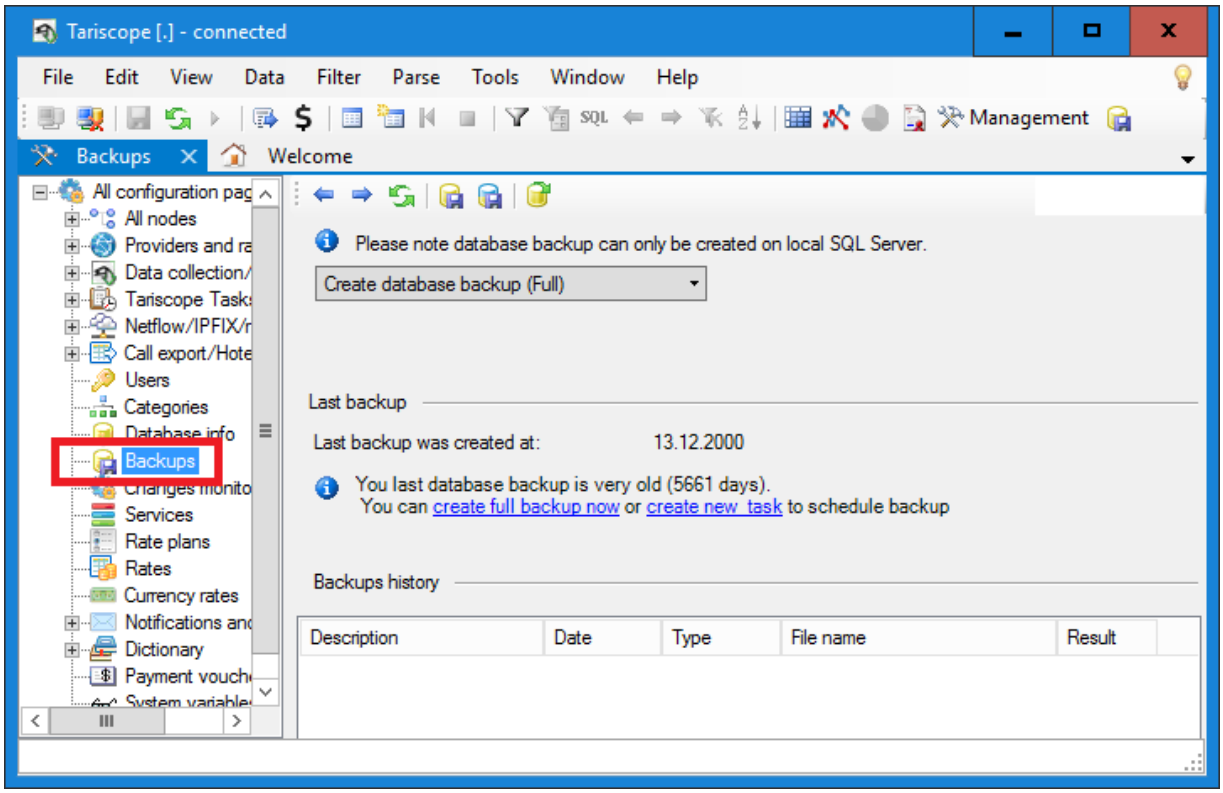


Figure 4.2.1

Select the required item. The **Save as** window appears where you should choose a folder to save the backup. By default, the file name is offered in the following format: **YYYYMMDD_HhmmSS**, where:

YYYY is the current year,
MM is the current month,
DD is the current day,
HH is the current hour,
mm is the current minute,
SS is the current second.

If you wish you can change the file name.

Select the desired folder and, click **Save.**

The results of the backup and restore of the database are displayed in the **Backup history** table. The table contains the following columns:

- **Description**. Displays a brief description of the performed action.
- **Date**. Displays the date and time when the action was performed.
- **Type**. For backup the operation type is displayed: full or differential.
- **File name**. Displays a path and file name of the backup.
- **Result**. The operation result is displayed.

You can change the value of the **Description** column. To do this, place the cursor on the desired entry and right-click. Menu appears as shown in Figure 4.2.2. Select the **Edit description** item. Change the description.

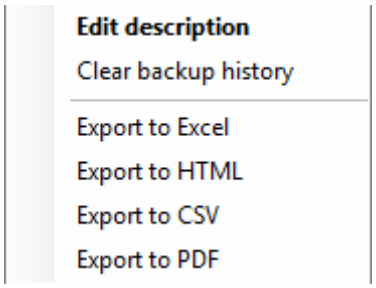


Figure 4.2.2

To clear the backup history, select **Clear backup history** menu item.

If necessary, you can export the backup history to an external file using one of the formats shown in the figure 4.2.2.

For automatic backup, create a task in the Tariscope Tasks page (see the section 3.18).

The Tariscope administrator depending on the operating conditions should itself decide on the periodicity of the backup operation. In general, we recommend to carry out daily backup.

4.3. Restore the database from backup

If you already have the Tariscope database, to recover information from a full backup, or a group of files containing full backup and differential backups, select the **Backups** branch of the Tariscope configuration tree. On the **Backups** page, click on the **Restore database** icon on the toolbar. The **Restore database** window appeares as shown in Figure 4.3.1.

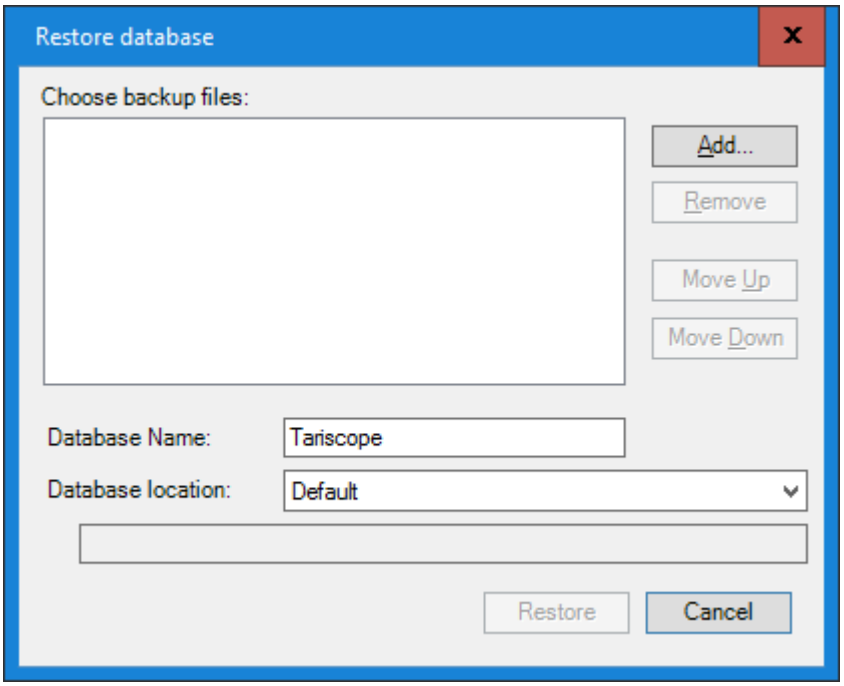


Figure 4.3.1

In case you do not have the Tariscope database connected to the system, you can restore the database from backup using the **Restore database** utility.

Since the **Restore database** icon causes the **Restore database** utility, consider recovering the database, which executes using the **Restore database** icon.

Attention. *It should be remembered that the Restore database utility replaces the entire current Tariscope database to that which is stored in the backup.*

Click on the **Add** button. The **Open** window appears. Select files that contains backups of the Tariscope database. The selected files will be displayed in the list of the **Restore database** window. In that case, when the restore of the database is performed from several files at the beginning of the file list should be a full backup and then the differential backups in order of their creation. To organize your files like this, use the **Move Up** and **Move Down** buttons. To exclude a file from the list, use the **Remove** button

In the **Database location** list, select a location to unpack database backup. There are following options:

- **Default**. The database will be restored to a folder where it was when the backup was created.
- **Backup file folder**. The database will be restored to a folder where the backup file is located.
- **Custom**. The administrator is prompted to choose a folder to store the database. Click **OK**. The database restore will be executed.

4.4. Archiving the call database

Archiving the call database can be made for backup only the calls data, as well as for reducing the size of the Tariscope database and, consequently, to improve the Tariscope performance. It should be remembered that the Microsoft SQL Server Express Edition is limited to a database size: 10 GB. Archiving can be done on the initiative of the administrator at any time using the Tariscope program or automatically at specified intervals. In the second case, use the Tariscope Tasks configuration page (section 3.18).

To do archiving on the initiative of the administrator, in the Tariscope program menu, select **Tools → Archive**. The **Calls archive** window appears as shown in Figure 4.4.1.

You can choose one from the following actions:

- **Move to archive**. Data with call information is archived in an external file and removed from the database.
- **Restore calls**. Call information is restored in the Tariscope database from a previously generated backup file.
- **Delete calls**. The selected call information is deleted from from the database.

To archive call information, click on the **Move to archive** button. The **Calls archive** window will be as shown in Figure 4.4.2.

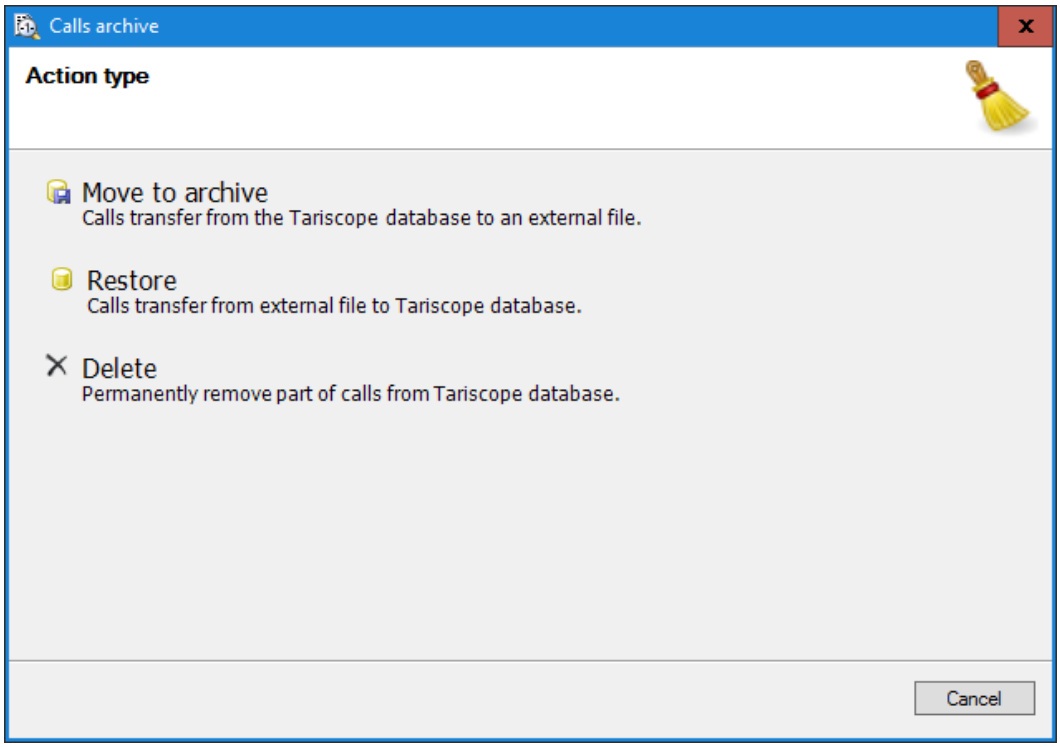


Figure 4.4.1

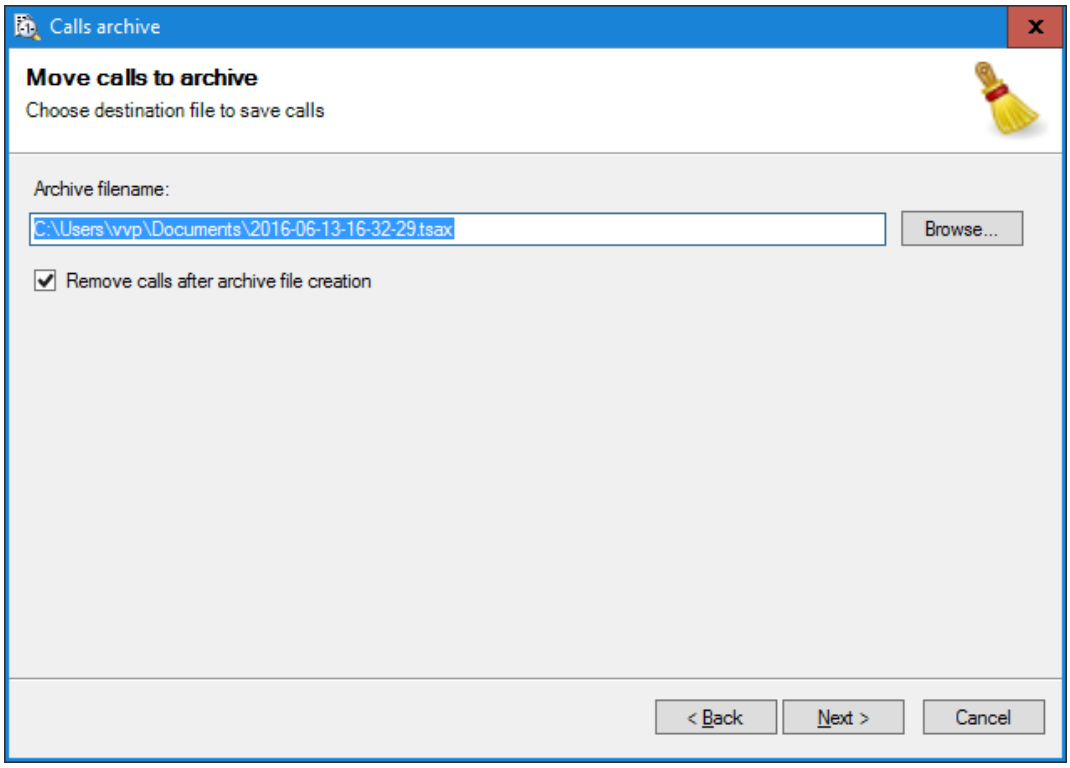


Figure 4.4.2

Using the **Browse** button, select a folder to save the archive. By default, the system offers the next folder "...\Users\current_user\Documents\" and a file name "YYYY-MM-DD-HH-mm-SS.tsax" where:
YYYY – current year;
MM – current month;
DD – current day;
HH – current hour;
mm – current minute;

SS – current second.

You may change this name.

If you want to archive data without deleting them from the database, clear the **Remove calls after archive file creation** check box.

Click **Next**. An example of the **Calls archive** window is shown in Figure 4.4.3.

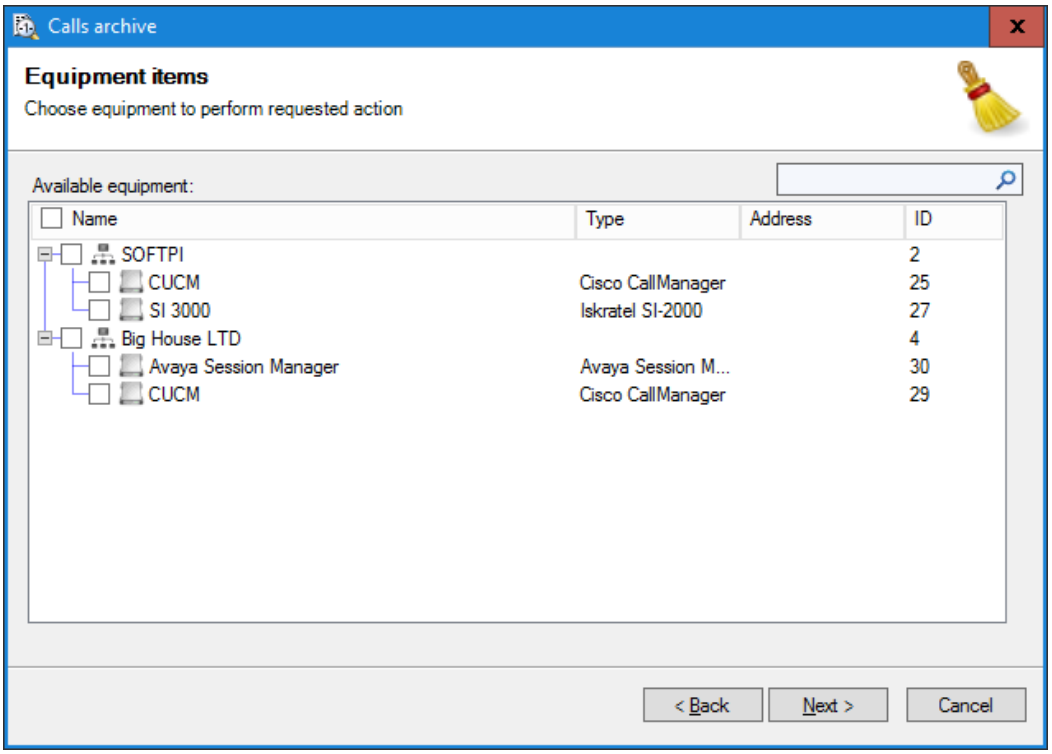


Figure 4.4.3

Select telecommunication nodes or specific telephone system, for which calls data will be archived. Click **Next**. The window will be as shown in in Figure 4.4.4.

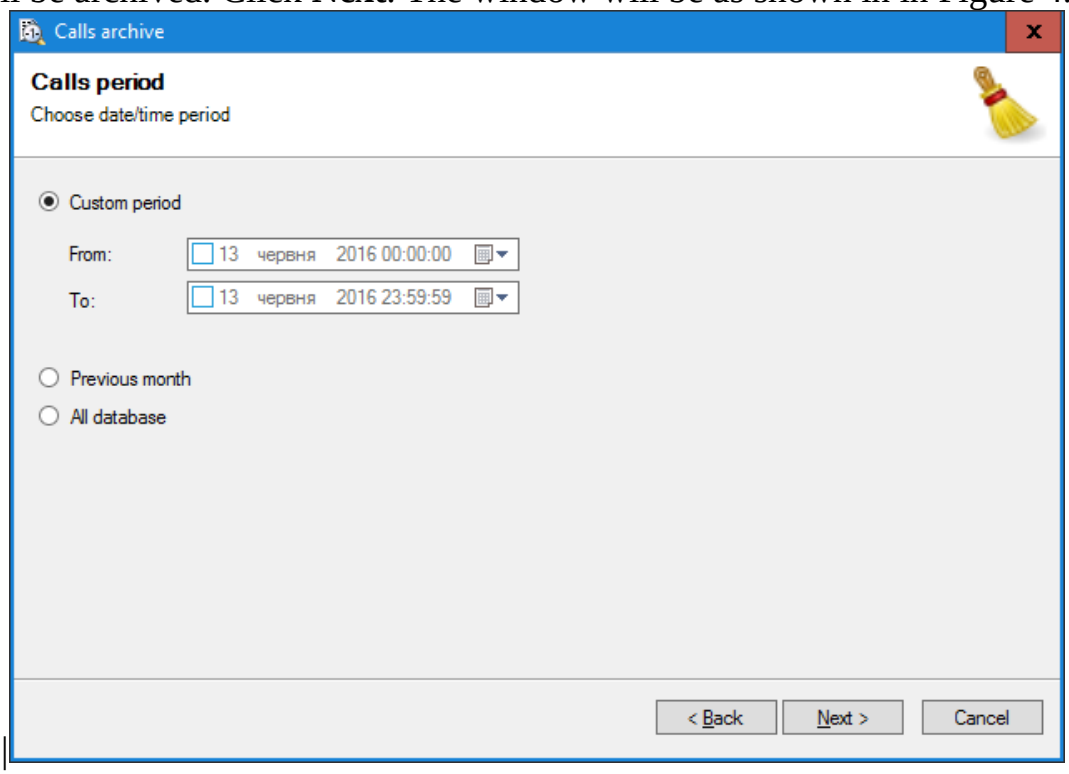


Figure 4.4.4

Select the time period for which data must be archived. There are options:

- **Custom period**. You can specify a time period.
- **Previous month**.
- **All database**.

Click **Next**.

The program will perform archiving of the data.

4.5. Restore calls data from archive

In the case when you need to restore calls data from previously made archive, choose in the Tariscope program menu: **Tools** → **Archive**. In the **Calls archive** window (Figure 4.4.1), click **Restore calls** button. The window appears as shown in Figure 4.5.1.

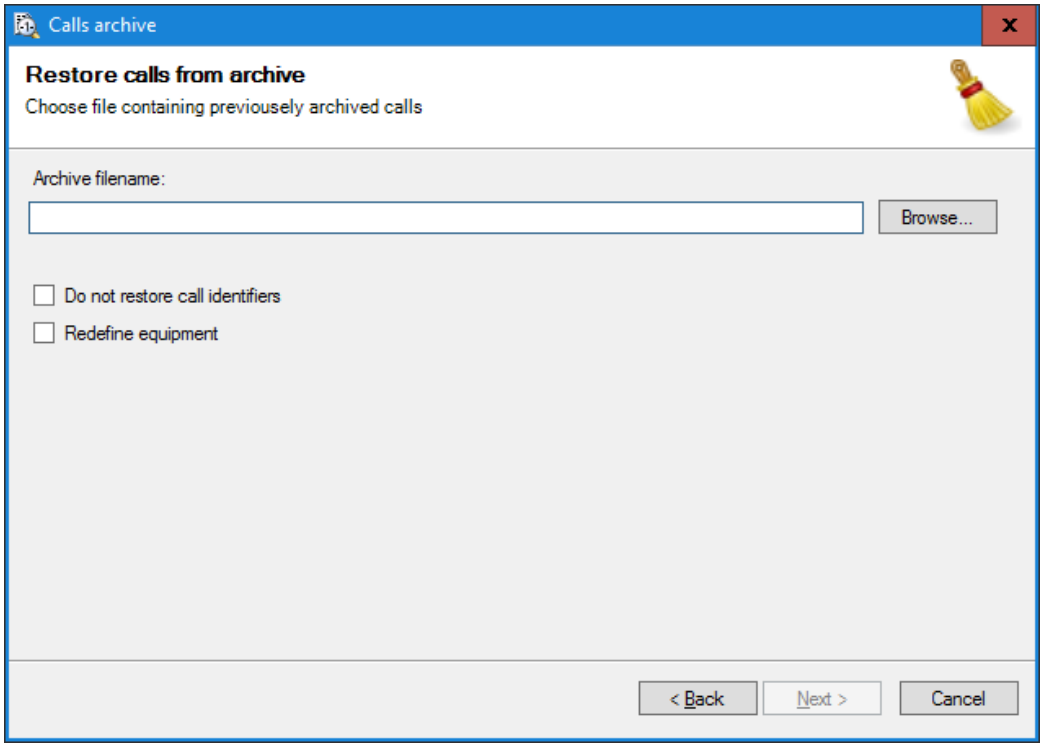


Figure 4.5.1

Click on the **Browse** button and select a desired archive file.

By default, records with information about calls are restored with their original identifiers. If that information is restored on a computer where the archiving was not performed, then it is possible a conflict of identifiers in the database with identifiers from archive. In this case, select the **Do not restore call identifiers** check box. In this case, the new identifiers will be assigned for the recoverable records.

Select the **Redefine equipment** check box if you want to retrieve information about calls in another telephone system than for which the information was created. This selection may be relevant, for example, in case where the archive contains data about calls made through PBX that has been removed from Tariscope.

Click **Next**. Data from archive will be restored.

4.6. Deletion of the call information from the database

If you wish to delete calls data from the Tariscope database, in the Tariscope program, choose menu: **Tools** → **Archive**. In the **Calls archive** window (Figure 4.4.1), click **Delete** button. The window appears as shown in Figure 4.4.3. Select the required telephone system for which you wish to delete calls data.

Click **Next**. The window appears as shown in Figure 4.4.4. Specify the desired time period for which calls should be deleted.

Click **Next**. Information about the selected calls will be deleted from the Tariscope database.

***Note**. The use of this mode completely removes the selected calls without the possibility to recover. Recovery is possible only if you have the corresponding archive with these calls data or when you re-process the original CDR file with these call information.*

If the deletion of calls data is caused by the presence of duplicate records, instead of the considered mode, use the **Find duplicate records** mode.

4.7. Deletion of duplicate records

The duplicate records can appears in the Tariscope database, for example, when incorrect double processing of call information was executed.

To delete such duplicate records, select in the Tariscope menu: **Parse** → **Find duplicate records**. The **Action parameters** window appears as shown in Figure 4.7.1.

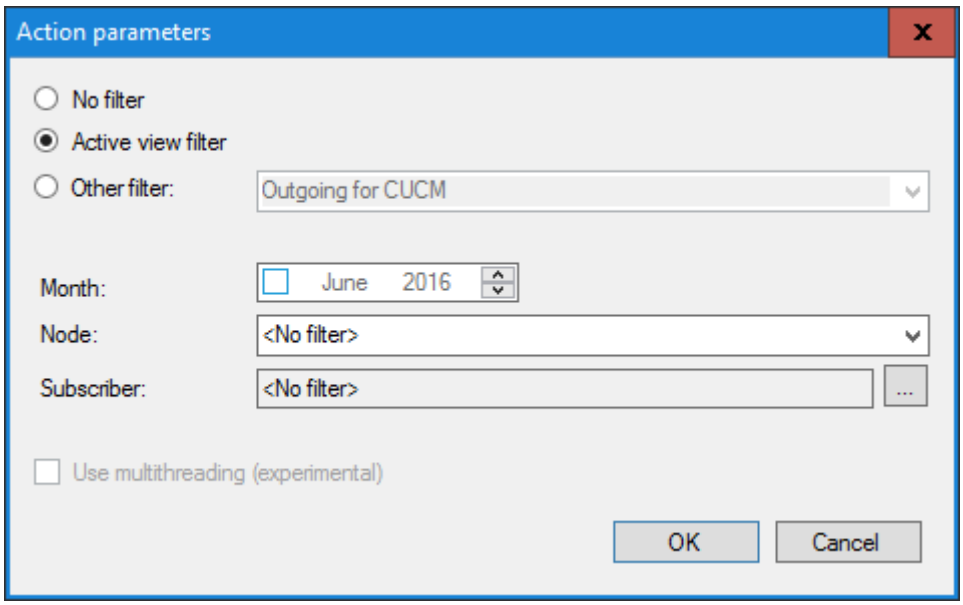


Figure 4.7.1

This action can be executed for the entire database of calls or only the data of the current view of calls. It is defined by selection of one from the following check boxes:

- **No filter**. The search and deletion of the duplicate records are performed for the entire calls database.
- **Active view filter**. The search and deletion of the duplicate records are performed only for records displayed in the current calls view. This check box is selected by default.
- **Other filter**. The search and deletion of the duplicate records are performed on the part of the database which is defined by the specified filter.

If necessary, the deletion will be performed only for a particular month, select the **Month** box and specify the desired month and year.

If you have several telecommunications nodes and you wish that the deletion will be performed only on a particular telecommunications node, select the required node from the **Node** list.

If you wish to delete calls data of a specified subscriber, click on the "…" button located on the right from the **Subscriber** box. The **Choose subscriber** window appears. Select a desired subscriber in the window and, click **OK**..

Filtering conditions specified in the **Month**, **Node**, **Subscriber** parameters will be applied jointly with the parameters of the current view filter.

Click **OK** to start the search for duplicate records. If they are present in the database, the window with information about their number appears.

This window also asks about the need to remove duplicate records from the database. If you are sure you need this operation, click **Yes**. As a result, chosen duplicate records will be removed.

Update data in the call view.

4.8. Payment vouchers

This section is useful for users of the Tariscope Provider edition and who need to use payment vouchers.

Tariscope allows to:

- generate a series of payment vouchers of a specific denomination,
- delete a series of payment vouchers,
- lock a specific voucher,
- unlock previously locked voucher.

For these actions, select the **Payment vouchers** configuration page in the Tariscope programs. When you select this page the program window will be as shown in Figure 4.8.1.

The right pane of the program window is divided into two parts:

- information about the generated series of payment vouchers is displayed in the upper part;
- information on a particular series of payment vouchers is displayed in the bottom part.

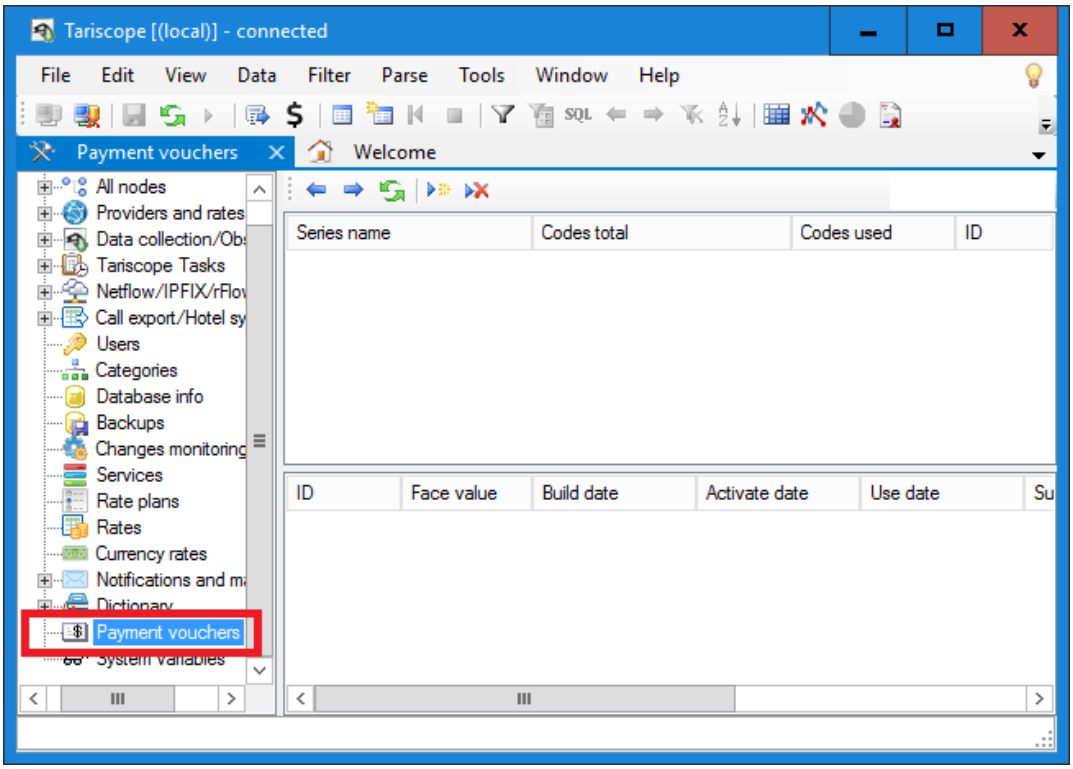


Figure 4.8.1

Generation of a new voucher series

To generate a new series of vouchers, on the toolbar, click on the **Add** icon (Figure 4.8.1). The **Generate vouchers** window appears as shown in Figure 4.8.2.

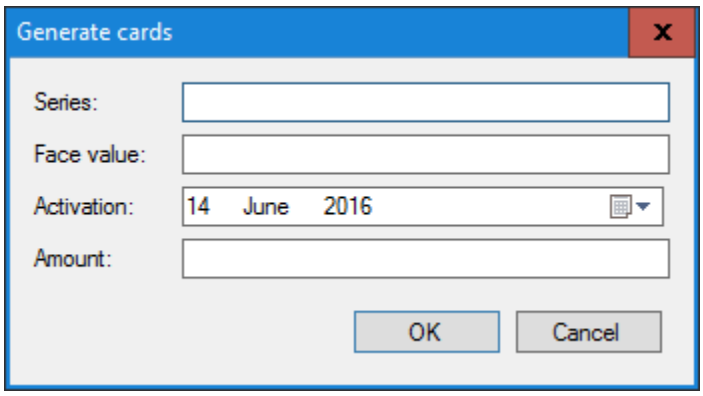


Figure 4.8.2

In the **Series** box, type a series number.
In the **Face value** box, type a face value of the voucher series.
In the **Activation** calendar box, select the date from which this series is active.
In the **Quantity** box, type the required quantity of vouchers of the series.

Click **OK**. As a result, the voucher data of the series will be generated. These parameters are displayed in the table at the bottom part of the window (Figure 4.8.1). The table contains the following columns:

- **ID**. Displays the voucher identifier.
- **Face value**. Displays the face value of the voucher.

- **Build date**. Displays the date and time of generation of vouchers.
- **Activate date**. Displays the date and time from which the voucher becomes active.
- **Use date**. Displays the date from which a subscriber has began to use the voucher.
- **Subscriber ID**. Displays a subscriber's account (identifier).
- **Block**. Displays a voucher status: True (the voucher is locked) or False (the voucher is active).
- **PIN**. Displays PIN code of the voucher. It consists of 16 digits.
- **Deletion of a voucher series.**

To delete a voucher series, select the line with of specific series and click on the **Delete** icon on the toolbar. The prompt appears to confirm the action. After confirmation, the series will be deleted.

Blocking of a specific voucher

To block a specific voucher, select the row with the parameters of this voucher and right-click. Menu appears where, select the **Block** item. As a result, the value in the **Block** column will be set to **True**.

Unblocking a specific voucher

To unblock a specific voucher, select the row with the parameters of this voucher and right-click. Menu appears where, select the **Unblock** item. As a result, the value in the **Block** column will be set to **False**.