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Introduction

What is WinTariff?

WinTariff – it's a program to collect and process information about telephone calls. The program receives data from the office PBX about date/time of the phone call, duration, dialled number, etc. WinTariff stores data to the hard disk of the computer and uses it later in course of the processing. Based on duration and dialled number, WinTariff calculates cost of the call and determines the direction (in case of the long-distance calls – the city which has been called). The program builds up various reports – about all calls during the month, calls to a certain internal subscriber, etc. Based on data about the calls the program is able to calculate various statistical data – this data allows the user to analyse usage of the resources of the office PBX and to improve operation of your office.

Basic configuration of WinTariff already includes huge database concerning telephone codes of various cities and countries. However, the user can add tariffs with codes of the town/countries you may need to adjust the scheme for the calculation of the conversation cost.

In addition, WinTariff includes functions, which has simple menus for hotel operation.

To use WinTariff you need an IBM-compatible computer operating under Microsoft Windows 95/98/Me/2000/XP. Recording of the information is also possible with the computer under Linux/FreeBSD – the main program is still installed on an IBM workstation

HOW RELIABLE ARE WINTARIFF REPORTS?

Most apparent issue with WinTariff – is a discrepancy of measuring of the call duration – it can be determined in a different ways by the office PBX versus the Telecom provider. Usually the difference of measured duration is not too large – 2 to 5 seconds, the error can be increased once taking into account the rounding (the rounding is carried out to the bigger value with 1-minute precision – thus, 0:59 and 1:01 will be rounded to 1 and 2 minutes, correspondingly). As a result, the error of 10%-15% would be considered a good result in regard to the reports provided by your Telecom provider.

The issue is usually eliminated when using digital communication channels between the office PBXs and Telecom provider (as an example, ISDN) – actual error can be no more than 0.5%.

There are solutions, as well, for the analogue lines; all of them require specific equipment (on both sides – for the office and for the Telecom provider) – as an example, Metering Pulses and Reverse Polarity signalling.

WinTariff installation

In order to install WinTariff at your computer, run the Install_WinTariff.exe file. After that it is necessary to assign the main parameters of the program – this is done within the main module of the Tariff32.exe program.

Connection to an PBX

WinTariff consists of two main modules:

- ✓ The PbxCollect.exe recording module. This module receives data from the PBX, decodes this data, and records to file on the disk. In order to avoid data losses it is recommended for this module to operate permanently (though a majority of the modern PBX have an internal buffer for temporary data storage, and 10-15 minute long interruptions are normally admissible)
- ✓ The Tariff32.exe processing module. All the setting up of the program and processing of the accumulated data is carried out within this module– this is the main module of the WinTariff.

The majority of office PBX's use RS-232 serial interface for the connection with the computer (for example, external modems use the same way to communicate with the computer). You will need a connection cable (Note: it may differs from the one used for modems) – look in appendix for the layout.

Besides RS-232 it is possible to use TCP/IP network to access some modern PBX.

Attention! All operations related to hook-up of the connection cables it is recommended to carry out after the preliminary power off of the computer.

You need to select the PBX model and to set up communication parameters – speed of the data transfer, the parity check method, word length, and number of stop bits. For this purpose launch the main WinTariff module and select the 'Settings->Main parameters' menu option – all the necessary parameters are located on the main page of the window, it is possible to leave the rest of the parameters without changes, for the time being.

Attention! It is very important to specify the same values for the communication parameters (speed, parity, etc.), which have been specified for the PBX itself - otherwise the program and the PBX will communicate with each other. You can check current values of the parameters with the aid of the PBX programming (see documentation for your PBX model). It is possible to guess the right values of the parameters - for example, for all of the Panasonic PBX the 9600, Mark, 8, 1 set is used by default. For the PBX made by other manufacturers - 9600, none, 8, 1 set is used very often.

Attention! PBX, s are manufactured as different variants for various world regions. As an example, the Panasonic KX-TD1232/816 PBX there are different versions for the European and American markets. Main difference between them is data format: Day/Month/Year or Month/Day/Year, respectively. WinTariff offers two various types for these PBXs - with D/M/Y and M/D/Y data format, correspondingly. You will need to choose the type, which corresponds to your version of the PBX – in case of an error, data either will not be recorded at all, or month and day parameters will be swapped up. You can see which data are supplied by the PBX either using any terminal program (for example, HyperTerminal – it is a part of Windows), or by switching on of the 'Enable view of raw data' mode of the recording PbxCollect.exe module.

Attention! Some telephone PBX models (fortunately, they are rare; normally, this concerns large PBX with hundreds of extensions) do not have a strictly determined data format. Optional format can be selected by the PBX programming, an example of these models are as follows:

- ✓ Lucent Definity
- ✓ Siemens Hicom (Not all models)
- ✓ Tadiran Coral

For the regular WinTariff operation it is necessary to program the PBX in such a way, which ensures an exact compliance with the required format. To get the details - contact the developers of the WinTariff program, please.

Attention! A majority of the office PBXs start to display SMDR data immediately after the hook-up of the connection cable, some modes may require preliminary programming. Examples of these PBXs are as follows:

- ✓ Panasonic KX-T336/KX-TD500
- ✓ Ericsson BP250/MD100
- ✓ Samsung NX1232/SKP36

You can find necessary commands in the documentation, which should accompany your model of the PBX.

If you have correctly set up all the parameters, run the PbxCollect.exe recording module and you will see an increasing list of the made calls in the main window of the program.

For some modern PBX models (LG LDK300 is an example) you can get the smdr data using not just the RS232 serial interface, but through the local network, as well. The PBXs of this model are supplied with the integrated network card (Beware that there is a network connector located at the frame of the PBX itself). In order to use such a connection select the 'TCP/IP' channel and specify the network address and the port number in the set-up window (the 'Settings->Main parameters' option of the menu).

Measures to be taken if you can not get data from the PBX

Most likely reasons:

- ✓ Incorrect cable for hook-up to the PBX (it is recommended to verify the layout with the documentation accompanying your PBX; if you do not have this documentation, it is possible to use the layout specified in the appendix)
- ✓ Selecting the wrong model of the PBX. Check not only the name of the PBX, but the possible variants of the date format (D/M/Y or M/D/Y), as well
- ✓ Incorrect communication parameters (speed, parity, word length and number of stop bits) - program parameters must coincide with the similar parameters of the PBX.
- ✓ Most office PBXs does not display smdr data about internal (inside the office, extension to extension) calls. You should make external calls to a number that answers – to provide a true result
- ✓ Ensure that you have hooked up the cable exactly to the serial port of the computer (COM1 or COM2). There is the 25-contact connector for the printer at the computer, which resembles the serial port – do not use it! (The printer port of the computer is supplied with the 'female'-type connector, and the serial ports have 'male'-type connector)
- ✓ WinTariff may be only recording calls whose duration exceeds a certain value (by default – this is a duration of more than 5 seconds). Wait for at least 15-20 seconds after the number has been dialled before replacing the handset.
- ✓ Various PBXs, by default, do not output information concerning the calls by default (in accordance with the settings as selected by the manufacturer) – it will be necessary to program these PBXs in advance (see the documentation for the PBX).
- ✓ It is possible, that settings of the PBX have been changed in such a way, that only data concerning the Toll Restricted (chargeable) calls are presented for output or that the display of the data concerning the incoming (from the external caller) calls has been restricted - check settings of the PBX. WinTariff does include a similar filter – be sure, that the recording of all the outgoing and incoming calls is allowed (this is the way it should be by default after the program installation).

You can check if the PBX is delivering data as follows:

- ✓ Either switch-on the 'Enable view of raw data' menu option of the PbxCollect.exe recording module. After that, the 'raw' data provided by the PBX will be displayed in the main window of the recording module.
- ✓ Or, launch any terminal program instead of the recording module. For example, you can use the HyperTerminal, which is a part of Windows. You will need to set up the same values of the communication parameters (speed, parity, etc.) for the terminal program, which have been already set up for the PBX.

In any case, you will expect to see the accurately formatted lines where one shall easily find the date/time of the call, the dialled number, etc. For example, the line could look as follows: (the example refers to the Panasonic KX-TA308/616 PBX; for the rest of the models location of certain fields could be different):

```
4/18/03  1:46PM 101 01 2463625          00:02'57"....
```

If you see long lines consisting of the repetitive similar characters or some 'strange' characters, this means, that you have selected values of the communication parameters, which differ from the parameters of the PBX.

Measures to be taken if you need to record data from two PBXs simultaneously

WinTariff provides a possibility to record data simultaneously from two different PBXs to one common file. Some PBX models consist of several individual systems joined as blocks – as an example, you can combine two blocks of the Panasonic KX-TD1232 and you will get the unified PBX. It is not necessary to use the function of the simultaneous recording for these models – you can get common information from the RS232 connector of any of these blocks.

This function is required only for two independent PBXs (which have been hooked up to the two COM-ports of the computer). In order to initiate this function within the first page of the 'Settings->Main parameters' window, it shall be necessary to specify 'Number of the serviced PBXs': if there are two of them – than one more parameter page for the second PBX will be displayed.

The data supplied by two PBXs will be recorded to one common file, than, in order to distinguish calls, the program is going to generate a pseudo-Tenant number: for the calls through the fist of the PBXs the Tenant will be set as '1', and for the calls coming through the second PBX - the Tenant will be set as '2'. The Tenant number is displayed to a separate column of the call-list of the Tariff32.exe module and can be used as a parameter for call selection.

Setting up of call-processing

Local calls

If Wintariff can not identify local calls (i.e. there is an label 'error' in the 'Status' column of the main window of the area call program), then, most likely, the number of digits in the dialled telephone number does not correspond to settings in Wintariff (by default it is assumed that there are 7 digits in the local telephone numbers). In order to assign correct values:

- ✓ Select the 'Tariffs' menu option of the main module of the program.
- ✓ Browse the list for the line which is marked out with red letter **A** – this is an active scheme whose parameters are used to calculate the cost of the call.
- ✓ Select this line and find the 'Local calls' tariff within the included list (in the 'Base tariffs' sub-item).
- ✓ Select this tariff (or press the 'Edit' button) – the window containing parameters for this tariff will be displayed.
- ✓ It is necessary to correct the value of the 'Number of digits in the dialled number should be from N to N' parameter within the 'Main parameters' page. Assign the 6-6 ranges if the 6-digit local numbers are used in your location.

These changes will affect calls recorded after the moment when tariff parameters have been corrected. In order to refresh the 'Status' column for the calls, which have been, recorded earlier use the 'Re-calculate prices' function – see the chapter concerning WinTariff usage.

Long-distance (or international) calls

It is assumed by the WinTariff that long-distance (or international) number looks as follows:

0-49-5551234

Where:

0 – an access code

49 – town/country code

5551234 – telephone number of the subscriber within the area.

The access code - i.e. first digits of the number before the area (country) code - is the most important aspect. This code is checked first by the program and, if it differs from the assumed one, then WinTariff cannot identify the call - as a result, the 'Error' label will appear in the 'Status' column of the call list for the long-distance calls. In order to correct access codes:

- ✓ Select the 'Tariffs' menu option of the main module of the program.
- ✓ Browse through the list for the line which is marked out with red letter **A** – this is an active scheme, whose parameters are used to calculate the cost of the conversation.
- ✓ Select this line and find the 'International calls' tariff or tariff for your country within the included list (in the

'Base tariffs' sub-item).

- ✓ Select this tariff (or press the 'Edit' button) – the window containing parameters for this tariff will be displayed.
- ✓ On the 'Access codes' page insert the access code, which is used in your area.
- ✓ Same operations will need to be repeated for the other long-distance/international tariffs, as well. It is usual that a different access code is used for the international calls.

These changes will affect just the calls recorded after the moment when tariff parameters have been corrected. In order to refresh the 'Status' column for the calls, which have been, recorded earlier use the 'Re-calculate prices' function – see the chapter concerning WinTariff usage.

Company structure and CO-lines names

The PBX outputs information concerning the call in a form representing a set of conventional digits – the internal extension number (i.e. '101') and the external line (CO-line) number (i.e. '05'). This particular form of data will be presented in the WinTariff, as well. However, it is much more convenient to see something more familiar instead of the set of digits - for example, instead '101' - 'John Smith', and '555-1234' instead of '05'. WinTariff provides this facility – for this purpose, fill two tables: one presents a correlation between the internal extension number and the name of the owner (in the 'Settings->Company structure' menu item), the other – presents the CO-line number and its name ('Settings->Names of CO-lines' item). You can specify the Account code in the 'Company structure' item for each user, as well – in this case the user-name will be also reflected in the 'Code' column of the call window.

Filling up of the organization structure has one more advantage. In process of setting up of the organization structure within the WinTariff, you can allocate employees of the certain department in accordance with actual structure of your company, i.e. you can create not just a 'plain' table containing names, but a tree-like one - 'Company->Subdivision->Department->Employee'. In this case, when you will be setting up the parameters of the call selection (let's assume it is necessary to look though all of the calls made by the employees of the advertising department), it is possible instead of inserting of the long list of all the telephone numbers for this department (i.e. '101,102,105-109'), just to Select the name of the department within the 'tree' of the structure and WinTariff will automatically compile the required list of the telephone numbers (there is a button to call up the window containing the company structure which is located within the selection parameters window near the line for the entering of internal telephone numbers - see below).

Even in case of the filled-up company structure (or filled-up table of the CO-line names) it shall be necessary (as it was before) to insert initial numbers - i.e. '101', not 'John Smith' - within the parameters of selection.

Prefix masking

A certain number initial digits of the dialled number are regarded as a prefix. Number of digits within the prefix is not related to the access codes or to the code of the town/country, so masking of the prefixes can be applied to the local calls, as well.

Masking of the prefixes means the replacement (both, at the screen containing the call list and in the reports) of the prefix with a character string, which has been specified in advance. For example, if in case of the '555' prefix the replacement of 'A-' have been specified, the '5551234' number will look at the screen like 'A-1234'.

The 'prefix-substitution line' table is available within the 'Settings->Hide number prefix' window.

Prefix masking can be useful for the following situations:

- ✓ If your company uses the long-distance communication 'through the pin-code'. Usually, this means that before dialling of the area code and the subscriber's number it shall be required to dial additional digits: local number of the operating company and PIN-code of you company. I.e. there will be a long set of digits before the most informative part of the telephone number, which is not going to be subjected to any

changes from one call to another. In some cases, number of these additional digits can amount from 15 to 20. With the aid of the prefix mask these digits can be replaced to the short line 'Operator1-'. It will allow easier browsing through the dialled numbers.

- ✓ Replacing of the prefixes can be used to replace within the call list some certain numbers (for example, telephones of your partners) with their names, for example, 'Our man in Berlin'. In this case, the whole number shall be specified as a prefix.

The replacement of the prefix is just a 'decorative' procedure and does not affect the internal operation of the program. I.e. regardless of the prefixes within the tariff parameters and when setting *selection* parameters (when *selection* is carried out in accordance with initial digits of the dialled number) it is necessary to specify initial digits of the number, not the replacing characters - i.e. 5551234, not 'Our man in Berlin'.

WinTariff in the local network

Organization of the WinTariff operation within the local network could be of help when resolving the following tasks:

- ✓ An allocation of the individual computer for the recording of the data provided by the PBX. Another computer within the local network will carry out data processing.
- ✓ Multiple WinTariff copies are used to access the common data.

The common plan is to specify for each of the WinTariff operating copies the correct routes to the common files. Thus, the first task (individual computer for data recording) will be determined as follows:

1. Initially, it will be necessary to completely set up data recording at the computer connected to the PBX. There are no peculiarities at this stage – this is a regular WinTariff configuration for the individual computer (both, no communication parameters and type of the PBX will be set up).

2. The PbxCollect.exe module stores information about the calls to the Calls.dbf file – Let's suggest that its address is C:\WinTariff32\Calls\Calls.dbf (if WinTariff has been initially installed to the C:\WinTariff32 folder). Before starting of the WinTariff installation at the second computer an access (mapped drive) through the network to the folder which contains this file (on behalf of the second computer) – within the Windows this operation is called the 'sharing (or mapping) the network drive'. It is advantageous, that the mapping operation is automatic when the second computer is powered on. If you have problems with the network operations, ask for the advice of the administrator of your local network.

3. Once the second copy is installed, the initial folder containing the Calls.dbf file will need to be visible for the second computer as F:\WinTariff32\Calls (or, even as F:\Calls; particular letter of the network disk and the complete route to the folder depends on the configuration of your local network). Take a note of this route.

4. Install the second WinTariff copy. After the installation, select the 'Settings->Main parameters' item of main menu and insert the route from the clause 3 for the '**Folder with Calls.dbf file (main file with call information)**' parameter within the 'Folders' page.

The second copy of WinTariff will request data concerning the calls from the Calls.dbf file located at the first computer.

In principle it is not necessary to keep all the WinTariff files at the first ('recording') computer, the recording PbxCollect.exe module and the PbxCollect.ini file containing settings are quite sufficient. All the required settings can be carried out from the menu of the PbxCollect.exe module.

Using the same scheme you can install the third, etc copy of WinTariff at the other computers of your office – all of them will address one and the same file containing information about the calls. If more than 2 WinTariff copies have been installed, it is possible to make open to general usage folders containing prices, forms of the reports, etc, using the similar scheme - all these routes are assigned within the 'Settings->Main parameters' window.

WinTariff and Windows NT/2000/XP

There is a separate recording module in WinTariff, which is designed as the *NT service*. This module can be used only for operation under the systems of the Windows NT/2000/XP family – it cannot be used with Windows 95/98/ME!

Advantage of the services is that they are being launched and are starting operation prior to the moment when the user has been “logged on” (i.e. before the name and password are entered). Thus, if the computer for some reason has been re-loaded and there was no login at that moment to watch it (for example, at night), the service will proceed with call recording normally, while the regular recording PbxCollect.exe module in the similar situation will be launched only after the “logging in” of the user (i.e. in the morning).

Call recording service is located in the **PbxCollect_NTservice.exe** file. Pay attention to the fact, that the PbxCollect_NTservice.exe is just a container for the service, the service itself is called **PbxCollect.exe** - this name is used when operating with the Windows service programs (see below).

Setting up of the service begins with setting of the regular PbxCollect.exe module. The important issue is, that both, the PbxCollect_NTservice.exe service and the PbxCollect.exe are reading the settings out of the same PbxCollect.ini file. That is why, if you have managed to obtain the correct way of recording of the information with the aid of the PbxCollect.exe, the set-up PbxCollect.ini file will contain the correct values of the parameters – in this case, while using the same parameter values, the service will be operating correctly, as well.

Note: The PbxCollect_NTservice.exe and PbxCollect.exe modules are not able to operate simultaneously as they uses one and the same computer COM-port.

In order to initiate the service do as follows:

1. Open the folder where the PbxCollect_NTservice.exe is located and enter the following command in the command line:

```
PbxCollect_NTservice.exe /INSTALL
```

If installation is a success, the window containing the proof of the successful installation will be displayed. However, the installation of the service (it writes some changes in the computer register) does not mean the start of its operation – you need to launch the service. It can be done as follows:

2. Either in the command line: ‘NET START PbxCollect.exe.’ Pay attention for the usage of the real name of the service - PbxCollect.exe. NET.EXE – this is a Windows program used to control services from the command line,
3. Or by usage of the Windows service control program -see ‘Set-up->Control panel’, and further - ‘Administrator tools->Services’

In case of the further re-start of the computer, service will be automatic. However, in some cases it will be necessary to halt temporarily the operation of the recording service - for example, if you need to archive the current file which is containing calls (it is important, that during the archiving no new calls are added to the file), or, if you need to temporarily free the computer COM-port (for example, if this port is being used for the programming of the PBX). This can be done either with the same service control program, or within the command line: ‘NET PAUSE PbxCollect’. In order to resume the service you will need to use the ‘NET CONTINUE PbxCollect’ command.

Temporary halt of the service can be used for initiating of the PbxCollect.exe module, as well. For example, in order to check changes within the recording set-up. However, in order to launch the service with the new parameter values you need to restart the computer – the service is reading the set-up file only during the start-up.

For the complete switch-off of the service use the following command:

```
PbxCollect_NTservice.exe /UNINSTALL
```

In case of any problems, the WinTariff call registering service will add the record to the common Windows log (the Application section) – it can be examined with the aid of the Event Viewer utility which is a part of the

set of the programs for service administration (see 'Control panel' of your computer).

WinTariff and Linux/FreeBSD

WinTariff has a special recording module for operation under Linux.

If you need to use for recording of the data a computer that is operating under Linux, the following sequence of operations shall be recommended:

The following communication parameters are recommended (due to Linux restrictions): **9600, 8, 1, None** (some of the combinations of the parity and number of stop bits are not supported by the Linux) For this purpose, you may need to re-program your PBX (please consult with the documentation which is accompanying your PBX). If, for any reason, it is difficult to do this, you can leave the current values and try to change settings within the WinTariff – in most probability, you will be successful. For example, the PBX parameters have been set up as 9600, 8, 1, Mark (these parameters are typical for the Panasonic PBX), than, for the program you can try 9600, 8, 1, None

1. As, in case of Windows, it easier to use the graphic interface, it is recommended to start particularly with setting of the program for the computer operating under Windows. When data is normally recorded under Windows one have to start the set-up of the computer operating under Linux.
2. Create a folder for the recording module (for example, /WinTariff) and a folder intended for the file, which is containing the calls (for example, /WinTariff/Calls) at the computer under Linux. Check, if the recording module has been allowed to write to the folder contains the calls (check the owner and the access right)
3. Copy **pbxcollect_linux** and **PbxCollect.ini** files to the /WinTariff folder. The PbxCollect.ini file contains the parameter, which will determine the module operation. Main parameters are the PBX model and parameters of the RS232 interface (for the PbxCollect.ini file these parameters are represented by integer numbers, that it why it shall be recommended to start with set-up under Windows). As Linux is letter-case-sensitive, the set-up file shall have just the following name - PbxCollect.ini.
4. You can copy the call containing file to the /WinTariff/Calls folder. File shall be called CALLS.DBF. If the file has not been copied, than, when initiating the pbxcollect_linux module it will automatically create new (empty) file.
5. It is necessary to edit the PbxCollect.ini file. Open this file in your favourite editing program:

In the [Common] section it is necessary to specify the proper name for the folder with the calls file (taking the case of the letters into the account). For example, in our case, it shall be necessary to enter the following line:

```
CallsFileFolder=/WinTariff/Calls
```

Pay attention to the necessity to write here just the folder's address, but not the full path to the calls file (i.e. /WinTariff/Calls/CALLS.DBF)

In the [PBX 1] section you shall specify the device of the sequential port to which the PBX is connected. For example, if the PBX is connected to the COM1 pot of the computer, you need to print the following:

```
LinuxSerialDevice=/dev/ttyS0
```

And if the PBX is connected to the second COM-port:

```
LinuxSerialDevice=/dev/ttyS1
```

(others *unix'es may use different names for serial device – for example, FreeBSD uses /dev/cuad0)

Pay attention to the fact, that normally the access of the sequential ports under Linux is allowed only for the programs, which have been launched by the super-user. If you are not satisfied with this fact, you should change the access right for the corresponding device (otherwise during the start-up the recording module will display a message about the error concerning the device access)

Save the ini-file.

Launch the pbxcollect_linux module. In order to monitor the data flow from the PBX you can launch it using the **--viewraw** key of the command line. To get help, use the key **--help**. Changes of the size of the /WinTariff/Calls/CALLS.DBF file will indicate the fact that data are not just received by the computer, but are properly decoded and written into the calls file.

7. Further, you can make the /WinTariff/Calls accessible for all other computers, which are included in the local network using the regular means. Then, the processing module of WinTariff will get a possibility to address the accumulated information concerning the calls.

WinTariff usage

Main rule of the WinTariff:

All operations (including the reports, as well) shall be carried out in two stages:

1. *At first, you need to select among all the registered calls those, which you are interested in. This stage is called selection. The separate window, which includes only the selected calls, will be displayed after the selection. This window is called just like that - 'Selected calls'.*
2. *You can carry out a range of the operations with the selected calls - for example, generation of the printed version of the report. This stage is called operations (there are various operations existing - report, statistics, etc.)*

All the necessary actions are concentrated within one item of the program menu - *Report*

Pay attention to the fact, that there could be several different *selections* – in this case the result of these *selections* shall be summarized (by default; but sometimes it could be useful to subtract some calls out of the calls selected earlier).

Parameters of selection+operation can be prepared in advance and can be combined into the one single script. This action will simplify the WinTariff usage (in case, when it is often necessary to create similar reports – for example for each month)

Common reports

Example 1: All calls of the subscriber No 101

If the 'Selected calls' window was opened (has been left after the previous *selection*), close this window.

After that, Select the 'Report->1st step - Selection' menu item. The window containing the list of the *selection* prepared before will be displayed – we do not need them, for the time being. To create a new *selection* and to execute it press the 'New' button.

Select the following options within the selection parameters window at the first page:

'Extensions' = 'From list'

And inset below the subscriber's number - '101'

Pay attention to the fact, that the 'plus' character has appeared at the bookmark of the page – it shows that some parameters of the given page have been changed.

To execute *selection*, press the 'Execute' button – the parameters window will be closed, instead the 'Selected calls' window will be displayed – in contains only the calls from the 101 internal telephone.

Besides that, the window containing *selections* prepared before shall be still active – we do not need it any longer, close this window.

Now, let us start compilation of the report (2nd stage) – select the 'Report->2nd step-Operations' of the main menu of the program and, after that, select the 'Report' option. The 'Main report' form shall be selected in the report parameters window (usage of this report gives a possibility to display all the calls from the *selection* grouped in accordance with the internal telephone number - i.e. all the calls (out of the *selection*) for the

telephone number 101 will be presented first, then, will be presented all the calls for the telephone number 102, etc.) In order to have a look at the report at the screen of the computer press the 'Preview', and in order to print it press- 'Print'.

Pay attention to the fact, that the prepared report could be saved to the file (in order to have a possibility to study this report later, by this time without usage of the WinTariff) – for this purpose press the button with the floppy disk image on the toolbar of the preview window and select the *.htm file format. You will be able to open this file later with the Internet Explorer.

When printing of the report is over you can either apply another operation to the selected calls (for example, you can look for statistics for each day of the week), or you can just close the 'Selected calls' window in order to make another selection.

Example 2: long-distance calls for a group of subscribers during the month period

Unlike it was in the example 1, calls for this report shall meet 3 restrictions simultaneously:

- These calls shall be made from the certain internal telephones (let us say, that we are interested in the calls made from the 106 and 121-125 telephones)
- Call type – long-distance (including international)
- We need calls made only during the certain period

This example differs from the example 1 only by assigning of the *selection* parameters. Close the 'Selected calls' window, if it is still opened (after the previous *selection*). After that, it shall be necessary to call again the window with the new *selection* parameters (the 'Report->1st step - Selection' menu item, than the 'New' button). *Selection* parameters shall be changed as follows (all the required parameters are located on the first page of the window):

- Extensions = 'From list'
- The list of the internal numbers = '106,121-125'. Pay attention to the fact, that it is possible to use the button located on the right from the list of the internal numbers. If you have entered into the program our organization structure in advance (see 'Settings-> Company structure' menu item), then you can select the required numbers just from the tree-like list (this is very convenient if the required telephones belong to the same department)
- Call type = 'long-distance'
- Date of the call = 'from/to' and assign the required date interval.

Then, press the 'Execute' button and you can start the review or printing of the report (the 'Report->2nd step-Operations' menu item, and after that – the 'Report' item)

Example 3: calls of the certain telephone numbers.

Let us say, that it is necessary to clarify who has called the 555-0001 and 555-0002. This example is an illustration of a possibility to unify the results of two *selections*.

Close the 'Selected calls' window if it is still opened (after the previous *selection*). After that, it shall be necessary to call again the window with the new *selection* parameters (the 'Report->1st step - Selection' menu item, than the 'New' button). At the first page of the *selection* it is necessary to specify:

- Call type = 'mask'
- On the right there is a field for mask entering– enter '555-0001' within this field

Press the 'Execute' button – the window containing the calls to the specified number will be displayed.

Then, call again the window of the new *selection* parameters (without closing of the 'Selected calls' window!) and repeat these operations for the second telephone number:

- Call type = 'mask'
- Mask value = '555-0002'

Again press the 'Execute' – both, calls to the 555-0001 number and those to the 555-0002 number shall be presented in the window for the selected calls.

Now you can start the review or printing of the report (the 'Report->2nd step-Operations' menu item, and after that – the 'Report' item)

Example 4: just long-distance calls (excluding international) - call exclusion

Let us say, the long-distance calls start with '8', and international - with '810'. The problem is that it is impossible to select only long-distance calls just by one *selection* - international calls will be always selected simultaneously. The following example is demonstrating the possibility for the 'subtraction' of some data out of the previous *selection*.

Main idea is as follows:

1. To select during the first *selection* all the calls starting with '8' (including, in particular, the international calls, as well)
2. To exclude the calls starting with '810' with the aid of the second *selection*

Implementation:

Close the 'Selected calls' window if it is still opened (after the previous *selection*). After that it shall be necessary to call again the window with the new *selection* parameters (the 'Report->1st step - Selection' menu item, than the 'New' button). At the first page of the *selection* it is necessary to specify:

Call type= 'mask'

- ✓ mask = '8'
- ✓ Press the 'Execute' button

All the calls starting with '8' (including those starting with '810') will be presented in the 'Selected calls' window

Second *selection* (do not close the window for the selected calls):

- ✓ Call type = 'mask'
- ✓ Mask = '810'
- ✓ (!) On page 'Name&mode' specify: 'Calls that satisfy given Selection should be – Excluded from selected early'
- ✓ Press the 'Execute' button

Now the calls starting with '810' will be excluded from the list of the selected calls.

Now you can start the review or printing of the report (the 'Report->2nd step-Operations' menu item, and after that – the 'Report' item)

Example 5: report on the area (CO) lines.

So far, all the reports have been grouped before printing in accordance with the internal number - i.e. within the compiled report, first have been displayed all the calls for the first internal number, and after that – all the calls for the second one, etc. However, sometimes it is more convenient to use the different grouping for the call data. For example, to compare the WinTariff data with the data presented by the telephone service provider it will be convenient to obtain the report where the calls will be grouped in accordance with the number of the outer (CO) line – the operators are normally presenting the bills in this particular format (separately for each outer line).

The technique for the grouping is determined by the applied form of the report (you can edit form of the report within the 'Settings->Report forms' item). WinTariff already includes the form with the CO-Line grouping – it is the 'Main report (by CO-lines)'. For example, let us say it is necessary to obtain the report on the calls through the 05-07 outer lines (this are conventional numbers used by the office PBX; actually, each of such conventional numbers corresponds to a certain outer number through which the outside calls are arriving to your office. You can set up the interrelation between the conventional and actual number within the 'Settings-> CO-Line names' menu item). It is supposed that these lines (05-07) are being serviced by the same operator.

- ✓ Close the 'Selected calls' window if it is still opened (after the previous *selection*). After that, it shall be necessary to call again the window with the new *selection* parameters (the 'Report->1st step - Selection' menu item, than the 'New' button). At the 'CO, Trunk, Account' page it is necessary to specify:
- ✓ CO-lines = 'From list'
- ✓ List = '05-07'

Press the 'Execute' button

Now, let us start to compile the report (2nd stage) – select the 'Report->2nd step-Operations' in the main menu of the program and, after that, select the 'Report'. You have to select the 'Main report (by CO-lines)' form in the report parameters window and to press 'Preview' or 'Print'.

Besides of printing of the report, it could be useful to save the selected calls to the separate file of the Microsoft Excel format – for this purpose use the 'Report->2nd step-Operations ->Export' item

Statistics

Besides printing of the reports, WinTariff is also able to carry out an additional statistical treatment. Pay attention to the fact, that as it was in case of preparation of the reports, the treatment is applied to the *selected* calls (i.e. to the result of the *selection* – see above). That is why, when charring out the statistical treatment of the results of various *selections* (for example, at first you can select only long-distance calls, and after that – only the incoming calls) it is possible to analyse various characteristics for the array of the stored calls (for example, who made the majority of the long-distance calls, or who has been answering the incoming calls more often then the others).

All the statistics is located within the 'Report->1st step - Selection -> Statistics' menu item and includes the following functions:

In accordance with the internal numbers (Extensions) – calculates the total number of the calls, total duration and cost for each of the internal numbers (which have been included into the *selection*)

In accordance with CO-lines - calculates the total number of the calls, total duration and cost for each of the area lines. This menu item can be used to evaluate the amount of payment in case of the time rate form of the telephone payment – normally, usage limits (let's say, 600 minutes per month) are assigned to each of the leased area numbers separately (i.e. for each CO-line of the office PBX). However, keep in your mind that the total duration is calculated using the not rounded (up to the minute) values, i.e. two conversations with the duration of 25 seconds and 45 seconds in total will provide the duration of 1 minute and 10 seconds, while summation of the rounded values will provide the value equal to 2 minutes.

In accordance with the Account-code - calculates similar total values for each of the Accounts codes (if your office PBX has been programmed for the Account codes usage).

In accordance with the time of the day - calculates call distribution in accordance with the time of the day.

In accordance with the date - calculates call distribution in accordance with the date.

In accordance with zone – normally, tariffs are not assigned with the accuracy equal to a separate city, and in case of the larger areas with an accuracy equal to the zone. For example, the European counties can be included in one zone, and the Far East to the other one. WinTariff uses the similar scheme for assigning prices - that is why it is possible to calculate the statistics in accordance with the zone – how many calls have

been made to each of the tariff zones, and using these data it will be possible to optimize the expenses used for the telephone communications.

Simultaneous calls – this window is intended for the analysis of workload at the PBX, first of all – it is intended to determine the amount of the required external (CO) lines, which are connecting your office PBX with the area telephone network. Let us say for example, that you have 5 area lines available. In this case, if in a certain moment the situation will occur when all 5 lines are busy (for both, outgoing and incoming calls of the subscribers of your office PBX), then, the 6th subscriber will not be able to call the outer number, and all the attempts to call from the outside to your office will be ended with a 'busy' signal. I.e. the outer lines – it's a 'bottleneck' which is restricting the communication between your office and the rest of the world. This window provides a possibility to evaluate how many times during the day occurs the situation when all area lines are busy and based on this data to make a decision concerning the purchase of the additional lines from the telephone service operator.

Attention! As the peak values, in particular, are of interest for the analyses, before initiating this window it is necessary to carry out selection only for one workday. In course of processing of the data for several days peak values will be smoothed, this can cause false summary (though nothing prevents you from making the sequential selections for several days and from initiating of this window for each of these selections).

In accordance with the duration - calculates call distribution in accordance with duration.

All of the statistics windows have the same structure - tables containing the statistical data are displayed on the first page, same data in the graphic form are presented on the second page. Both data and graphs could be saved to the file (data could be saved either to the files of the *.TXT format (common text file), or to the *.XLS (Microsoft Excel) file), it also could be printed.

Pay attention to the fact, that if the graph cannot fit to window size it is possible:

- ✓ Either to stretch the window to the full-screen size,
- ✓ Or to enlarge part of the graph.

In order to enlarge part of the graph do as follows:

1. Move the mouse cursor to the *upper left* corner of the graph which you need to enlarge
2. Press the left button of the mouse and, keeping this button in the pressed position, pull the *right lower* corner of the area which is being marked-out (the white rectangular frame will be displayed on the screen)
3. After the release of the button of the mouse, the program will 'stretch' the marked-out part of the graph to the full screen.

In order to get back the initial view of the graph, pull the cursor of the mouse (while keeping pressed the left button) into the opposite direction - from the lower right corner to the upper left one.

Scripts

Normally, WinTariff is being used for the multiple repetitions of actions of the same type - for example, for monthly preparation of the bills for long-distance calls, or to compare WinTariff data with the data of the telephone provider. It is possible to simplify the execution of such operations through creating of the *script*. The script is just a simple unification of the *selections* and of the final operation with the selected calls (normally, this is an operation of printing of the report). The WinTariff script is a small program written in Basic, which consists mainly of the sequential calls of the required functions. To simplify creation of the script, WinTariff has a special wizard - it can be initiated from the 'Report->1+2 = Script' menu item, and then press the 'New' button. The generated scripts could be launched for execution in the same window, or could be assigned to the buttons of the toolbar of the main window of the program (4 buttons are envisaged for the quick call of the scripts).

Pay attention to the fact, that before the execution of the main program of the script, WinTariff could display an auxiliary window to get more precise values of some parameters. For example, this window can be used to insert the required data interval, or to insert the list of the internal numbers.

Setting of the calculation scheme for the call cost

All actions to set-up the parameters for cost calculation are executed within the *Tariffs* menu item of the main window of the program.

WinTariff includes a set of separate tariffs for each type of the call (incoming, local, long-distance, etc.). Each tariff contains all the parameters, which are required to calculate the cost of the relevant call. Tariffs are organized into the *scheme* - several different *schemes* could be prepared; however, only one of them (which has been nominated as *active*) is used for calculating of the conversation cost.

Each *scheme* consists of:

- ✓ **Base tariffs** - it is the main element of each *scheme* (particularly the base tariffs are being used most often). They are applied to all calls, which have not been assigned the individual tariffs.
- ✓ **Individual tariffs** - provide a possibility to calculate cost for some groups of the calls in a special way (i.e. in a way which differs from the one assigned by base tariffs). For example, it is possible to create individual tariffs for the calls, which have been made through the certain outer (CO) lines of your PBX (if they are serviced by a separate telephone service provider).
- ✓ **Coefficients** - provide a possibility to introduce changes for the prices, which have been already calculated with the aid of the tariff for the given *scheme*. Coefficients are also bounded to the certain groups of calls (for example, it is possible to provide a small discount for some subscribers of your PBX - binding in accordance with the internal number /Extension/). However, unlike the individual tariffs, the coefficients are just correcting the calculated price, but not replacing the rule for cost calculation completely.

Each subgroup (base and individual tariffs) can contain one tariff for the incoming and area calls and several tariffs for the long-distance (international) calls. Pay attention to the fact, that for long-distance tariffs the order of tariffs inside the subgroup can be important. WinTariff is applying tariffs in a 'top-down' way - tariffs from the top of the list will be checked first. It is possible to raise the priority of a certain tariff by moving it 'up' (with the aid of special buttons on the right from the tariff list)

Local and incoming calls

These are the simplest type of the calls - for their set-up it will be enough to change just the following parameters within the parameters of the relevant tariff (Select the tariff name and the parameters window will be displayed):

- ✓ Cost of one minute conversation (see the 'Price per minute' page)
- ✓ To set-up the amount of digits in the number within the 'Main parameters' page -see the 'Number of digits in the dialled number should be from N1 to N2' parameter. For example, if the 7-digital numeration is being used in your town, it shall be necessary to assign N1=7 and N2=7. You shall not necessarily specify an exact value as an upper limit (N2) - sometimes, to access special services; the users will dial the additional digits after the area number. That is why the 7-40 range is quite admissible.

Long-distance (international calls)

During the analyses of the next call WinTariff will compare the first digits of the number with the **access codes** (see the 'Structure of the long-distance number' chapter) of the relevant long-distance tariff (tariffs for the local and the incoming calls do not contain the access codes). If the access code has been recognized, the program will start to compare the digits of the number, which go after that with the town (country) codes (they are specified for each tariff separately within the 'Codes and prices' page of the tariff parameters window).

Thus, it is extremely important to specify the access codes correctly - otherwise the analysis of the dialled number will be stopped at the very beginning and all long-distance calls will not be recognized! Codes are assigned within the tariff parameters window on the 'Access codes' page.

Be aware that in some cases, there will be no access codes for a certain long-distance tariff - in this case,

searching of the town code will be started just from first digits of the dialled number. This method could be useful to create the 'pseudo-long-distance' tariff, which, in fact, will be used for the processing of the local calls (for example, of the calls to the certain local numbers - the emergency service, chargeable services, etc.) In this case, telephone numbers of the chargeable services shall be specified on the 'Codes and prices' page instead of the town codes.

Check the town (country) codes, as well - they are specified on the 'Codes and prices' page.

When you are creating the new tariff, codes and prices can be imported to the WinTariff from the external source. Files of the XLS (Microsoft Excel) and TXT (simple text file) formats are supported. In order to understand what file format is required, it shall be recommended initially to export data to the file of for the desired format and to review how it is organized (nothing complicated - just separate columns for the code, names and prices, however located in a certain order)

Besides that, as it was with the local calls, it is possible to set-up the amount of digits in the dialled number (the 'Number of digits in the dialled number should be from N1 to N2' parameter) - it will provide a possibility to cut off the calls with the incompletely dialled number.

The details concerning assigning of the tariff parameters and their usage you can find in chapters 'How WinTariff is identifying calls', 'How WinTariff calculates cost of the call' and 'Tariff parameters'

How it is possible to use groups of tariffs?

There is one parameter included in the tariff properties, which does not affect the rule used for calculation of a separate call, but which can be used to simplify operation of the program - the 'Tariff belongs to the tariff group.' Four tariff groups in total are envisaged in the WinTariff, any tariff can be assigned to one of these groups. Main idea is as follows: WinTariff will remember the group number for each of the processed records concerning the call (within a separate field - see Appendix, the structure of the Calls.dbf file). Later on, the information from this field could be used as follows:

- ✓ To select all the calls which have been calculated in compliance with any tariff from the group (number of the tariff group can be assigned as one of the conditions for the call *selection*).
- ✓ Before the preparation of the report, WinTariff calculates the total values of the duration and the cost for each group of calls. These values can be used in the report.

For example, tariff groups can be used in the following situations:

- ✓ If you want within the report to calculate separately total costs of all long-distance and of all international calls. For this purpose it will be enough to classify national tariffs as part of the 1st group of tariffs, and to classify the international ones - as a 2nd group of tariffs (as it is being done by default for the tariffs delivered together with WinTariff). Besides that, such a solution provides a possibility for easy select of the long-distance calls alone (without international) - you will just need to specify within the parameters the 'Tariff group=1' condition. Other decision will require more actions in order to get the same result.
- ✓ Let us say, that your company uses services of the several operators of the telephone communication. Correspondingly, there will be several long-distance and/or international tariffs in the WinTariff. Usage of the tariff grouping will give a possibility to display the total cost of services in the final report separately for each operator.

Work with archives

From time to time you will find it necessary to 'clean' the database which contains the calls - the calls which have been recorded long time ago will become of no practical interest, but are going to slow the processing of the newly recorded calls. In such a situation it makes sense to transfer part of the calls to archive - the 'Archives->Move to archive' menu item serves for this purpose. The following actions will be undertaken:

1. The current file containing the calls will be packed with the aid of the ZIP-compatible compression procedure. The obtained archive will be placed to the WinTariff32\Archives folder (the file name is created in accordance with the current date).

2. After that, all old calls are removed from the current file with the calls. Only the calls for the several last days will be saved. Number of the 'saved' days is determined by the settings of the 'Settings->Archives and hotel' item. 0 days will mean that file with the calls will be cleaned completely.

Attention! Before the start of the archiving, it is necessary to halt temporarily the recording of the new calls. Normally, WinTariff will do it automatically, however, in some cases it will be necessary to shut down the recording module manually:

- If the recording module is operating at the other computer
- The NT service is being used for the recording
- The recording is being carried out at the computer operating under Linux

Besides that, if several WinTariff copies are operating within your local network and all of them are addressing the same file, which is containing calls, it shall be recommended to close temporarily the 'unnecessary' copies.

The archived file can be unpacked lately and can be used for the processing - the 'Archives->Review of archives' menu item serves for this purpose. After the unpacking of the archive, the work with the calls which are located in this archive does not differ from the work with the main file - same operations of election, compiling of the report, statistics, etc. During the work with the archive, the recording of the new calls is not interrupted - they are recorded to the 'hidden' current file. To finish the work with the archive and to be back to the current file with the calls, you should use the 'Archives-> Reset the current data' item.

Pay attention to the fact, that archives could be processed not only one by one, but also simultaneously - in this case, the content of the archives will be combined into one file. In order to select several files, it is necessary to use standard Windows operations within the widow for file selection - you have to press the Ctrl (or Shift) button within the file selection window containing the archive and to click the mouse at the additional files.

There is another possibility within the settings of the archiving mode (see 'Settings->Archives and the hotel') - 'Saving of the calls of the hotel guests'. This mode is of interest only when WinTariff is being used at the hotel - in this case WinTariff will automatically calculate the number of the days, which is necessary to save, in order that the calls of all the guests, which are currently living in the hotel, remain in the file.

WinTariff in a hotel

Two variants are possible:

1. Without registering - to draw the bill it is necessary just to insert the date/time for the beginning and the completion of the period of stay in the hotel (see the 'Hotel->Check In/Out' window). Normally, the given scheme is used in the case when during client's stay at the hotel it is not necessary to monitor cost of his conversations - he is going to pay all the bills at the end of his stay, anyway.
2. More complicated variant - 'with registering':
 - When registering of the client in the hotel his personal data are included into the Win Tariff's base (see 'Hotel->Check In), the client can make prepayment for the conversations (a deposit)
 - When the client is discharging out of the hotel, the bill is printed from the 'Hotel->Check out window.

An advantage of this variant is that WinTariff can monitor the total cost of all the conversations of the given client. If it exceeds the deposit, notification for the program operator will be displayed.

Attention!

- Calculation of the conversation cost and the checkout of the deposits are carried out by the main processing (Tariff32.exe) module of WinTariff. That is why, if the check-out of the deposits is required, this module shall be operating constantly, operation of just one data recording module (PbxCollect.exe) which is recording data from the PBX will not be sufficient.
- When the deposit is expired, WinTariff will just display the notification, no switching of the PBX is

carried out. I.e. WinTariff cannot prohibit conversation for the given client even if the deposit has expired.

Set-up of the hotel function is carried out in the 'Settings->Archives and hotel' window of main menu of the program:

Client's call is identified by- there are two possible modes of work with hotel clients:

- One client resigns in each room of the hotel; thus, calls of this client can be identified in accordance with the number of his room (factually, in accordance with the number of the telephone located in this room). This variant is the most widespread.
- During registering of the client at the hotel he will be informed of his personal code. Before dialling of the number from any telephone, the client will have to insert this code (similar operation scheme requires the preliminary programming of the PBX; in the PBX terminology the personal code is usually called as an Account or an Authorization Code). In this case, it is possible that more than one client resigns in each room and any client can make calls from any telephone - all the same his calls will be identified in accordance with his personal code, but not in accordance with the internal telephone number.

Correspondingly, it is possible in WinTariff to select two modes of operation in a hotel - in accordance with the **room number** and in accordance with the **Account-code**.

Default deposit - during the client's registering he can make a pre-payment (a deposit) for the telephone conversations. The given parameter determines the value, which will be displayed in the registration window by default (so, that the administrator will have to insert less data when registering the client). WinTariff can periodically check the total cost of the conversations of the given client and display a notification for administrator if the deposit has expired (see below the **Periodically check overrun of deposits**).

Copies of report to print- how many copies of the bills for the telephone conversations will be printed by WinTariff during the client's check-out (2 copies are required normally)

Hotel bill will include - when drawing the bill for the client during his checkout of the hotel, WinTariff has two options:

- Either include into the bill all the calls - long-distance and local
- Or it can include just long-distance calls (if the local calls are free of charge)

Show 'Hotel' menu - if this option is "on", the 'Hotel' item will exist within the main menu of the program

Periodically check overrun of deposits - if the scheme with the pre-payment (the deposit) for the telephone conversations is being used, WinTariff can periodically compare the amount of the cost for the already made calls with the deposit. If the deposit has expired, WinTariff will display a notification for the administrator. There is a possibility for the manual check-up of the deposits in the 'Hotel->Exhausted deposits' item.

Printing of the bill means the client departure:

- If this option is disabled, an additional 'Check-out' button will be presented within the window for clients' check-out (see 'Hotel->Check-out'). The client will be completely check-outed of the hotel (i.e. date/time of the check-out will be introduced to database for the given client and further processing of the calls addressed to this client will be stopped) only after pressing of the 'Check-out' button. Until the moment of the checkout you can print any amount of the bills (even of the intermediate ones), the client's name will still stay in the hotel database.
- If this option is enabled, the 'Check-out' button will not be visible. In order to draw the bill just press the 'Print' button in the 'Hotel->Checkout' window - when the bill has been printed, the client is marked-out at being departed.

Show error calls in the report - provides a possibility to include in the report wrong calls (which have not been identified by WinTariff - for example, if no the corresponding town code has been found for the long-distance call). As all wrong calls have zero cost, it shall be necessary to switch on the **Show calls with zero price in the report** option, as well.

Show calls with zero price in the report - switch off this option if you do not want the calls with zero cost to be presented in the bill for the telephone conversations (for example, too short calls - if there are 'free of charge' seconds).

Folder with hotel data file - determines the location of the folder, which contains the Hotel.dbf file (this file contains all the information concerning the registered clients of the hotel). By default, this file is located within the WinTariff32\Hotel folder; the other route can be required in case of the 'multi-user' usage of the program. For example, if several WinTariff copies are being used (at the reception, and on the floors) and all these copies ought to have an access to the common data on the clients. In this case do as follows:

- Create a Hotel folder at the server which is accessible for all the clients' computers where the WinTariff has been installed
- Copy the Hotel.dbf and Hotel.mdx files to this folder
- For all of the client computers ensure the sharing of the network drive within the server
- For all WinTariff copies it shall be necessary to specify the path to this folder (somewhat kind of F:\Hotel; in your case the path can be different)

Editing of the forms for the reports

WinTariff is supplied with several already prepared forms of the report; however, all the forms can be changed in compliance with your requirements. In order to edit the form (or create a new one) use the 'Settings->Report forms' item, select the required form of the report and press the 'Edit' button (or 'New' to create a new form).

By default, files with all the WinTariff forms are located in the Program Files/WinTariff32/Forms folder

Main editing methods

The window used to edit the forms contains several toolbars. Two of them are the most important: panel with the elements of the report (see picture on the right).

The most important here is the second tool from the top. This tool is intended for insertion into the form of the small rectangles, which contain:

- The explanatory text
- Variables from the database.
- Functions used for data processing.

Besides that, the second by significance tool is the one which is located third from the top. It is used to insert separate 'bands' into the form of the report. These very bands bear the information used by the other elements of the report and determine the report structure - whether there will be the title page, how the data will be grouped, etc.

Second important tool set is a regular set for ordinary operation with file:



With the aid of the latter tool it is possible to review the results of the work with the form directly in the editor. If you want this function to operate properly, it is necessary before initiating of the editor to make some *selection* of the calls (better not too big - the report generation will take less time).

Example of the form for the common report

Let us say that it is necessary to create a simple form to display data concerning the calls as the 'unordered' view - i.e. the calls are not being grouped anyhow, but are displayed just in accordance with the



order of their registering by WinTariff. The report will contain just a small title, where the date of the report generation will be displayed besides the title. The lines containing data about the calls shall be sequentially displayed further - the following parameters shall be displayed for each call

- Date
- Time
- Duration of the conversation
- Internal number (Extension)
- Selected number
- Status filed (local/incoming/long-distance)

Sequence of operations:

In the 'Settings->Report forms' menu item press the 'New' button. Window for requesting of the new form name will be displayed. Give it a name a name 'Example of the simple form' and press 'OK'. The new line will be displayed in the list of the forms - 'Example of the simple report'; this is an empty sample for the new form.

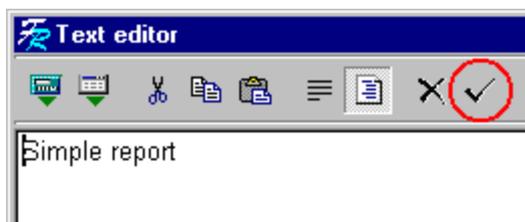
1. Select from the list the 'Example of the simple form' and press the 'Edit' button - the form edit window will be initiated.
2. At first, let us insert the section intended for the title of the reports. For this purpose, first, Select the 'Insertion band' tool (see picture).

After that, click a mouse in the main filed of the form. The window intended for the selection of the band type will be displayed when releasing the button of the mouse - now we need the 'Report title'. This section will be printed once at the beginning of the report. Increase slightly height of the section - for this purpose do as follows:

- First, mark out the band - just click it with the mouse. A frame consisting of small black squares will be displayed around the band. Similarly, it is possible to mark out the other elements of the form, as well.
- Pull the lower square with a mouse.

Now, let us add to this band the title of the report. First Select the 'Insert rectangle object' tool of the toolbar (see picture).

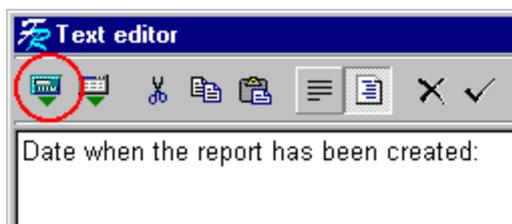
Then, Select the title field. After the releasing of the button of the mouse, the window for insertion of the text will be displayed (further, this window can be initiated by the double-click at the rectangle containing the text). The window is divided into two parts - the upper one is used for the insertion of the text itself, and the lower one - for the insertion of the small script, related to the given rectangle. We do not need the lower half for the time being (in any case, it used rarely). Enter the 'Simple report' into the upper one. In order to save the changes, press the button marked out with a 'checkmark' at the toolbar:



The 'Simple report' inscription shall appear within the form of the report. However, the applied font is too small for the title. In order to increase it, click the right button of the mouse at the rectangle containing the text and select in the displayed menu the 'Font' item - the window for font section shall be displayed. In case, if after changing of the font the text does not any longer fill into the rectangle, which has been assigned, to it,

just 'stretch' it - pull with a mouse small squares located at the rectangle frame.

- Now, let us add the rectangle, in which the date of the report compilation will be inserted. Place one more 'rectangle containing text' element within the title section. Within the text edit window insert the 'Date when the report has been created.' Further, pay attention to the fact, that there is a button for insertion of the expressions located on the toolbar of the text edit window:



Press this button. Then to display additional window press the 'Function' button. List of all the functions accessible will be presented within the next window. Select the 'WinTariff' group of functions within the list on located on the left, and select the DateTimeNow function within the right list. Press OK and go back to the text edit window. Now the text has to look as follows:

Date when the report has been created:[DateTimeNow()]

In principle, it was not necessary to use the intermediate dialog windows; it was possible to insert the required text straight off. For the more complicated functions it will be nevertheless better to use the auxiliary windows – for these windows the program displays the list of the required parameters and a small help. Text in the square brackets has a special sense – in course of the report preparation it is not just being transferred to the form of the report, but is preliminary interpreted by WinTariff. In exactly the same way, as well, will be designed the insertion of the database fields– see below.

Close the text edit window and, if required, enlarge the size of the rectangle containing the text.

- Let us start the insertion of the data concerning the calls. For this purpose first, it shall be necessary to add a new band to the form; this time it shall have the 'Master data' type. Immediately after the release of the button of the mouse, the window which is containing the request of the data source (from where the report generator is going to get data for the given band) will be displayed – it is necessary to select the **frCallsFilteredDataSet** option (it is contacting the selected calls).
- Place the first rectangle containing the text (for the date of the call) within the new section (on the left). Click the button for the insertion of the database field within the displayed text editor – it is the second button of its toolbar. In the displayed window specify the following items:

- Within the left list - **CallsFilteredTbl** (contains the list of the selected calls)
- Within the right list - **c_Date** (contains the date of the call in a form of the character string; 'regular' field **Date** contains the call data in a standard format of the DBF file. Generally, all the fields with the **c_** prefix are specially prepared for usage in the report versions of the database initial fields. See *Appendix* for the complete list of fields for the database)

When the text edit window is closed, text inside the rectangle shall look as follows:

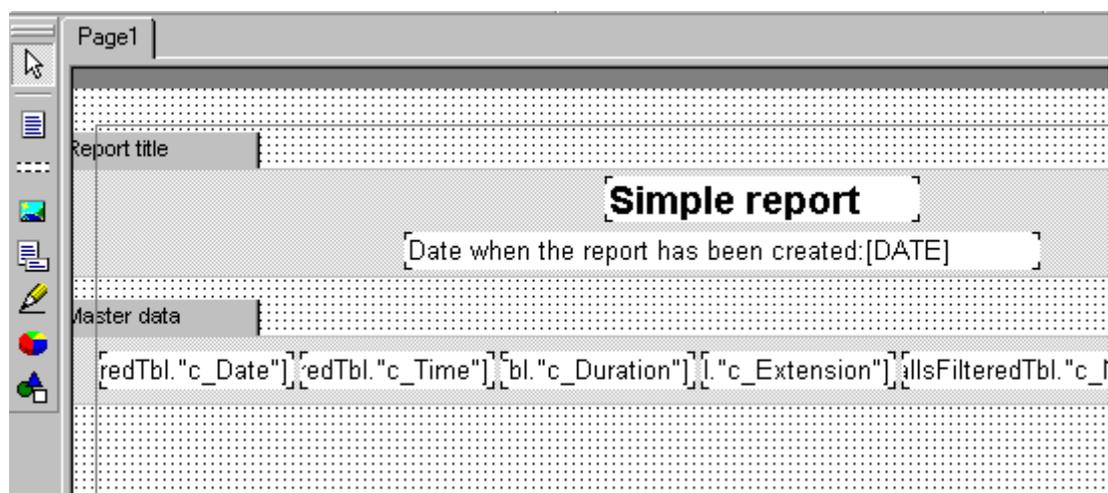
[CallsFilteredTbl."c_Date"]

Repeat all actions described in clause 8 for the following fields – time when the call was made, internal number, etc. For each of the rectangles containing the text it shall be necessary to select, as well, the **CallsFilteredTbl** base and the following fields:

- c_Time
- c_Duration
- c_Extension
- c_Number

- Status (without 'c_!')

When editing is over, save the form (the 'File->Save' menu item, or the relevant button on the toolbar). The prepared form shall look, approximately, as follows:



If before initiating of the form editor you have carried out any *selection*, you can have a look what you have got directly within the form editor. It is possible that some rectangles containing the text will turn out to be too small for the inserted text - in this case, just 'stretch' these rectangles.

Later, you will be able to use the new form of the report along with the other forms – for this purpose it is necessary just to select the 'Example of the simple form' within the 'Report->2nd step-Operations->Report' window, and after that to press either the 'Preview' or the 'Print' button.

Example of the form for the grouping of data

When considering this example we are going to build a more complicated form. It will provide a possibility to illustrate the following abilities of the WinTariff:

Grouping of the displayed data in the report.

- Usage of the built-in functions for the displaying of the total values.
- Usage of the built-in programming language for the calculation of the partial sums in accordance with the call groups.

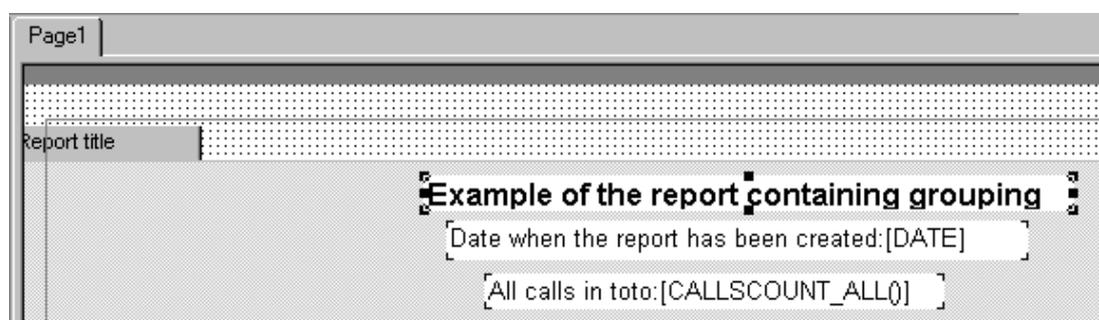
Before you are going to start the work over the report form, it shall be recommended to prepare a small call *selection* – then, just directly in the editor, it will be possible to check how does the form which is being edited works.

1. As it was in the previous example, let us create an empty form (see 'Settings->Report forms', button 'New') – let us call it the 'Example of the report containing grouping'.
 2. By downloading of the form to the editor in a way, which has been described earlier, we are going to create a section for the title of the form. Let us place within the title, the title of the report and the rectangle, which is containing the text intended for the insertion of the current date.
 3. Besides of these already familiar to us elements of the report, let us place into the title of the report one more rectangle containing the text intended for the insertion of the total amount of the calls within the report. This amount is calculated and displayed by the one of the built-in functions of the WinTariff - CALLSCOUNT_ALL().
- First of all pull to the titled section one more rectangle containing the text.
 - When you will pull the rectangle down the section the edit window will be displayed, as usually. Inset in the

upper part of the window the following the text: 'Total number of calls:' and do not close the edit window for the time being.

- Press the button in order to initiate an additional window for the insertion of the expressions (leftmost button on the toolbar of the text editor), after that, press the 'Function' button. Select the '**WinTariff functions**' line within the list of functions (left part of the window), and find the line with the 'CALLSCOUNT_ALL' function within the right list. Apropos, pay attention to the fact, that the given window can be used as a reference book for the accessible functions – during the selection of the next function out of the list, the small help concerning purpose and usage of the selected function will be displayed at the bottom of the window.
- When the window for the insertion of expressions is closed, the text within the edit is expected to look as follows: 'All calls in total:[CALLSCOUNT_ALL()]'. Close the editor (with the aid of the button which is located on the toolbar and is containing the 'checkmark' image).

The title of the report has been compiled completely. The band for the title shall look approximately as follows:



Now, let us start the compiling of the band intended for displaying data concerning the calls. Pull one more band to the form of the report. When the button of the mouse will be released two dialog windows will be displayed, where you have to specify the following parameters:

- Type of the = 'Group header'. This band will be displayed before each group of calls. Settings of this particular band will determine in accordance with which criteria the lines are going to be grouped in the report.
- In the next window it shall be necessary to specify the condition of grouping. Lines of the report will be grouped in compliance with criterion specified here – the call records will be sorted in accordance with the criterion specified and the new group will be formed for each new value of the criterion. In our case, let us select the group in accordance with the internal number, i.e. calls for the 101 internal number will be displayed first, after that will be displayed calls for 102 number, etc. In order to ensure such a group, the '[CallsFilteredTbl."Extension"]' shall be assigned as a group criterion (it is also possible to press the button with the image of the function, which is located on the right from the insertion line and to select the required expression from the list). You can look for information concerning the 'Extension' line in the Appendix, in the section, which describes the structure of the Calls.dbf file.

Besides the grouping in accordance with the internal number, records concerning the calls in the WinTariff reports can be grouped as follows:

In accordance with the number of the outer (CO) line

- In accordance with the number of the Trunk-group/CO-line
- Date of the call
- Dialed number
- The Account-code
- CallerID

Due to the fact that the 'Group header' section can be printed once before the beginning of the next group of calls, it makes sense to allocate within this section the name of the internal telephone (Extension) and titles of the columns containing data about the calls. In order to place within the section the name of the internal telephone, pull the rectangle with the text within the section – it shall contain the following line: 'Name: [CallsFilteredTbl."c_Extension"]' (this expression can be typed using the keyboard, or you can use the 'Insert data field' button – the second button on the toolbar of the text editor).

After that, pull several more rectangles containing the text – they will be used for the column's titles. At this stage the form shall look approximately like this:

Now, it shall be necessary to add the band intended for data concerning the calls – it shall be a band of the 'Master data' type. You have to answer a question about the sources (in a same way, as it was in the previous example with simple form) **frCallsFilteredDataSet**. Pull several rectangles with the text to the band – place them approximately under the titles of the previous band. The following lines shall be specified as a text in each of the rectangles:

- CallsFilteredTbl.["c_Time"]
- CallsFilteredTbl.["c_Date"]
- CallsFilteredTbl.["c_Duration"]
- CallsFilteredTbl.["c_Extension"]
- CallsFilteredTbl.["c_Number"]
- CallsFilteredTbl.["Status"]

Main work to prepare the form is over. Now you can check if everything has been done correctly – there is a button for the preview which is located on the toolbar of the form editor near the 'reading/writing' buttons (it is desirable to carry out some small call *selection* before the beginning of the form editing). You can change the text rectangles' positional relationship, or you can mark out certain blocks of data with the aid of the separating lines, etc.

Attention! Functions of the CALLSCOUNT_ALL() type will display zero values in the preview mode. Actual values are calculated by the WinTariff only during the preparation of the actual report in the 'Report->2nd step Operation->Report' menu item.

The last part of the example has to demonstrate how to calculate some auxiliary parameters directly within the report. Let us say, that after printing of each group of calls it is desirable to calculate and to display the following parameters:

- Total duration of all the calls within the group
- Total value of the rounded (to the bigger value, with an accuracy equal to one minute) call durations.

The second total value will be bigger - for example, for two calls of the duration of 40 seconds and 50

seconds values of this sums will be equal to 1 minute 30 seconds and to 2 minutes exactly, correspondingly.

Pull the fourth band to the form. You have to specify the type of as the 'Group footer'. This band will be printed each time after printing of the data concerning the group.

Pull two rectangles to the section and insert the following text:

Within the first rectangle:

'Total duration:[I2TIME(SUM(IDuration, MasterData1))]'

within the second one:

'Total duration (rounded):[I2TIME(SUM(ROUND((IDuration+59)/60)*60, MasterData1))]'

Explanations for the variables and functions mentioned here are given below:

I2TIME() - accepts only one argument (integer value – number of seconds) and brings back the string in the 'H:MM:SS' format

SUM() – function for summarizing of the group values.

IDuration – duration of the given call (see Appendix, 'Structure of Calls.dbf') - integer number, equal to the amount of seconds.

MasterData1 – refers to the 'Master data' band. SUM demands the group for which it is necessary to calculate the total values as the second argument.

ROUND() – is rounding the argument to the integral value (however, not necessarily to the bigger value, ROUND(1.3)=1). The ROUND((IDuration+59)/60)*60 expression is rounding the value of the duration to the bigger value.

Final version of the form shall look as follows:

The screenshot shows a report form with the following sections and content:

- Report title:**
 - Example of the report containing grouping
 - Date when the report has been created:[DATE]
 - All calls in toto:[CALLSCOUNT_ALL()]
- Group header:**
 - Name:[CallsFilteredTbl."c_Exten'
 - Time
 - Date
 - Duration
 - Dialed number
 - Status
- Master data:**
 - [edTbl."c_Time"
 - [edTbl."c_Date"
 - [bl."c_Duration"
 - [CallsFilteredTbl."c_Number"
 - [CallsFilteredTbl."St
- Group footer:**
 - Total duration:[I2TIME(SUM(IDuration, MasterData1))]
 - Total duration (rounded):[I2TIME(SUM(ROUND((IDuration+59)/60)*60, MasterData1))]

Additional information concerning the form organization you can get while studying WinTariff standard forms, or see the separate file with the documentation concerning functions of the FastReport report generator.

The way WinTariff works

Terminology

Scheme – This is a container for *tariffs* and *coefficients*. Several schemes can be determined within the WinTariff, however, only one of them, which has been selected as Active, will be used for call processing.

Tariff – main element of WinTariff. Each tariff (there can be several of them) has parameters, which allow to identify the call and to calculate its cost. For example, tariff for the long-distance calls contains the following parameters:

- access codes for the long-distance service
- town/country codes
- price for one minute conversation for each area and some auxiliary parameters.

There are tariffs for the local and incoming calls, as well.

Tariffs can be as follows:

- individual (i.e. being effective only for the calls which are included in a certain subgroup - for example, the calls which are being carried out through the certain external (CO) line)
- base – effective for all the calls, except those for which individual tariffs have been determined.

Several tariffs are unified in the tariffication *scheme*

Coefficient – is used along with *tariffs* for calculation of the cost of the telephone conversation. Coefficient is applied to the cost which has been calculated in accordance with the effective tariffs. With the aid of the coefficient it is possible to introduce a correction factor for the calls of a certain group of subscribers. For example, it is possible to assign the correction factor equal to 0.5 for the 101-105 internal telephones (for the owners of the 101-105 telephones all the calls will be twice cheaper than for the rest of the subscribers)

Zone – majority of the telephone services operators are nominating the cost of one minute long-distance calls not separately for each town, but for the large territories, which are unifying many cities and countries located close to each other. Thus, for example, one price is being set for the calls to Europe, the other – for Asian counties, etc. Correspondingly, in WinTariff prices are being assigned to each of such zones.

Access code – see the 'Structure of the long-distance number' chapter.

Metering pulses (metering pulses) – some of the area PBXs (which are rigged with additional equipment) can send special pulses to your office PBX during the conversations. The more often pulses are coming – the more expensive is a minute of conversation. The office PBX is calculating the number of the arrived pulses and is sends their total amount to the tariffication program. This number is in direct proportion to the cost of the conversation (in order to calculate cost of the conversation it necessary just to multiply the number of pulses by the 'price' of one pulse).

Shortcoming of this method is the necessity to use special equipment for the area and for the office PBXs.

Structure of the long-distance number

Assume that in order to call Germany from your city you have to dial:

00-49-5556677

then, within this expression:

00 – is an **access code**. It shall be specified on the 'Access codes' page of the tariff parameters window.

49 – international code of Germany. Codes of the towns (countries) are specified on the 'Codes and prices' page of the tariff parameters window.

5556677 – the subscriber's number in Germany.

I.e. the access code – it is the first digits of the dialed number, which go before the town/country code. If in your case the PIN-codes are used for the access to the long-distance communication, they are also supposed to be referred to as the access codes. For example:

If you have to dial

00-1234-49-5556677

where 1234 - PIN code, than 001234 shall be specified as an access code.

Pay attention to the fact, that though for the majority of the office PBXs in order to access the outer lines it shall be necessary to press an additional button (usually '9'), this additional digit is not send to the tariffication program, and it is not necessary to take it into the account.

How WinTariff is identifying calls

Identification, i.e. determination of the call type (long-distance-local-incoming) is carried out as follows:

The (PbxCollect.exe) WinTariff recording module is determining type of the call in accordance with the data received from the PBX (not all the types of the office PBXs are reporting data concerning internal and transit calls – for the majority of the PBXs the separation will be carried out as incoming-outgoing):

- **incoming** (i.e. the call from outside to one of the subscribers of the PBX; in the 'Dialed number' column the 'incoming' will be written for the calls of this type)
- **transit** (the call has arrived to the PBX through one area (CO) line and immediately have exited through the other line; the 'transit' will be written in the field of the number)
- **internal** (i.e. the call from one subscriber of the PBX to the other subscriber; the call has not exited the PBX)
- **outgoing** (i.e. the call by one of the subscribers of the PBX to the outer area; the dialed number will be written in the column 'Dialed number').

Further analyses of the outgoing calls is carried out by the main WinTariff program. Tariffs from the active *scheme* are being used for the analysis. The tariff, which more precisely complies with the dialed number is the target for the search. The following conditions shall be observed for this purpose:

1. length of the number fits to range which has been assigned for given tariff (this is a rough filter which is required to separate quickly the calls which evidently do not fit)
2. first digits of the number have coincided with the tariff *access codes*
3. if the program have managed to find the access code, the digits which go further shall coincide with one of the town (country) codes which have been assigned for the given tariff. WinTariff will try to find the longest of the pertinent town/country codes. In case when after an searching of all tariffs of the tariff group WinTariff has managed to find the access code from one of the tariffs, however, it was unable to find the town/country code, the call will be designated as erroneous.

Clauses 2 and 3 are being inspected only in case of the long-distance (international) tariffs.

Analysis of the call is being carried out in the following order. The long-distance (international) tariffs are being checked first:

I. the call's compliance with a group of each of the individual tariffs (if such tariffs has been assigned) is checked first of all. For example, if there is an individual tariff for the group of the 101-109 internal telephones and the call has been made from the 105 telephone, the program will start an inspection of the compliance of the dialed number with the parameters of the given tariff (as it has been described earlier), if not – it will start an inspection of the next individual tariff.

II. if none of the individual tariffs has fit, base tariffs will be inspected (in accordance with the same scheme for the tariff inspection).

III. if none of the long-distance (international) tariffs has fit, the call is considered as an local one and tariff for the local calls will be applied to it.

IV. if the length of the number does not fit to the restrictions applied to the local tariff, the call will be considered as erroneous.

If the pertinent tariff has been found, WinTariff will use the tariff parameters to calculate cost of the call.

How WinTariff calculates cost of the call

At first, WinTariff is searching for the tariff which corresponds to the given call (see 'The way WinTariff is identifying calls' above). After that, if the tariff has been found, its parameters are used to calculate the cost of conversation.

The calculation is carried out in accordance with the following rule:

I. If the 'Use Metering Pulses' option is switched on within the 'Multipliers' page (see *tariff parameters*), the program will just multiply the amount of the obtained pulses by the assigned coefficient and the obtained value is being used as a cost of the conversation. This is the most simple (but the least widespread variant).

Further see clause IX.

If the Metering Pulses are not being used, see clause II.

II. If the duration of the call is less than the 'Zero price, if the call is shorter (sec)' parameter, the price is equated with zero. Further go to clause IX.

III. Value of the 'Free of charge initial seconds' parameter shall be subtracted out of the call duration.

IV. If the obtained duration is less than the 'Fixed price before N seconds' value, the price of the conversation will be assigned the value equal to one of the given fixed values. Then go to clause IX.

V. Call duration is rounded (to the bigger value) up to the integral value of the 'Round-up period of the call duration'.

VI. The cost of one minute conversation is being prepared:

- for local and incoming calls it is equal to the value of the 'Price for one minute' parameter on the 'Price per minute' page of the tariff parameters window.

- for long-distance (international) calls it corresponds to the cost of one minute for the zone in which has been included the code of the area where the call has been addressed. Area codes and zone are assigned on the 'Codes and prices' page. Time of the call and parameters assigned on the 'Day time' page (normally the night calls are cheaper) are taken into the account when calculating the price of one minute conversation.

VII. The rounded duration is multiplied by the cost of one minute conversation. If the 'After N minutes apply the coeff. to the minute price' parameter is specified, it shall be taken into the account when calculating the cost of the conversation.

VIII. The calculated cost is added to the 'Prices for the 'tube off-hook' value.

IX. Then the cost is multiplied by the auxiliary coefficients:

- if the call has been made on holidays (see the Weekdays/holidays' page of the tariff parameters), the coefficient for the holidays is being used.

- similarly the days of the week are being taken into the consideration (coefficients for weekdays, Saturday and Sunday).

X. Cost can be multiplied by the coefficient, which is specified on the 'Multipliers' page, or by the currency rate.

XI. Finally, the cost can be rounded up to the integral values (if the 'Round up the calculated price to integral values' option has been switched on within the main page of tariff parameters).

Tariff parameters

All edit operations are concentrated in the 'Tariffs' item of main menu of the program. In order to change parameters of some of the current tariffs, find it on the tariff list and click a mouse (or press the 'Edit' button)

The 'Type' page

Tariff is intending for - determines type of the calls to which this tariff is going to be applied.

Attention! Some types can be blocked (incoming, area, internal, or transit). This means, that tariff for this type of the call has been already presented in the current subgroup of tariffs (either base, or individual). There can be several tariffs for the long-distance (international) calls only.

Currency - specifies, which currency is used to measure cost of the conversation. The list includes names of the currencies which have been assigned in the 'Settings->Currency' window. Type of the assigned currency affects the following aspects:

- ✓ formatting of the prices of the conversation within the call list window - currency name will be added after the price
- ✓ it will be possible to carry out *selection* of the calls on a certain currency (see 'selection parameters')

Tariff belongs to the(1-4) group of tariffs - tariff can be included into one of the 4 tariff groups. For example, it is possible to unify international tariffs into one group and the long-distance tariffs into the other one. Next example - tariffs charged by different telephone service operators. Then, with the aid of the given parameter it will be possible to separate easily all the registered calls in compliance with the required criterion (see *selection* parameters)

Besides that, for the tariffs included into the *Individual* group, it is possible to specify for which subset of the all of the registered calls the given tariffs is applied - the **Tariff is specific for** parameter. For example, it is possible to create a tariff for the calls which are being made through the certain external (CO) lines - if you use the service of two telephone service providers (with different tariffs) and the second operator is servicing all the calls through the some specified outer lines. The list of assignments is inserted in the '01,05-06' format. Pay attention to the fact, that even in case if you have assigned the names for the internal telephones (Extensions) or CO-lines (see 'Settings->Company structure' and 'Setup->CO-line names'), it will be still necessary to enter here the initial numerical identifiers.

The 'Main parameters' page

Round-up period of call duration - before the calculation of the call cost, the duration is rounded to the *bigger value* up to the integral number of the intervals specified here (normally up to integral minutes). For example, for the conversation of the duration of 1 minute and 10 seconds the bill will be drawn up as for 2 minutes.

Price for the 'tube off-hook' - nominates the amount which is always being added to conversation cost regardless of its duration (just as fixed payment for the telephone usage).

Zero price, if call is shorter than (sec) - provides a possibility to null the conversation cost for the call whose duration is too short. Usually, telephone communication operators also does not charge anything for this calls (which are less than 20-30 seconds).

Fixed price before N seconds - applied in the situation, when, for example, the first three minutes of the conversation are paid in accordance with the fixed rate, and after that an increase of the cost proportionally to the duration of the call will be started.

value - you can just insert the rate value.

equals to the price of minute - provides a possibility to join 'smoothly' the fixed rate and cost of one minute which has been assigned on the 'Codes and prices' page.

After N minutes apply coef. to the minute price - sometimes telephone service operators offer benefits

for the long conversations. For example, after 5 minutes of the conversation the price for the subsequent minutes can amount to just 50% of the initial cost (the coefficient is equal to 0.5).

Free time at the beginning of the call - the value which is specified here is deducted from the duration of the conversation even before the rounding of the duration value (and before the application of the fixed rate).

Round up calculated price to integer value - sometimes it is necessary to round off the cost of the conversation to the integral values (if the currency's nominal is too small)

Number of digits in the dialed number should be from N1 to N2 - affects the identification of the call, i.e. determines whether it will be referred to the given tariff. By specifying here of the required interval it will be possible to cut off the deliberately incorrect calls. For example, for the local calls it is possible to specify the 7-7 range (if the 7-digit numeration is being used in your town), and for long-distance ones - the 5-40 interval (hardly the call containing 4 digits within the dialed number was successful, most probably it has been just interrupted even before the dialing of the whole number has been finalized)

The 'Access codes' page

Here you can specify the **access codes** (see 'The way how WinTariff is identifying calls') for the long-distance (international) tariffs. For the other types of tariffs (for example, for the incoming or area calls) the given page is not applied.

The 'Codes and prices/Price per minute' page

For simple tariff (for the incoming and area calls) it is necessary to insert here just one value - cost of one minute of the conversation.

For the long-distance tariffs it shall be necessary to specify the cost of one minute for each of the town/country codes. Zone scheme for cost assigning is used in the WinTariff:

Price per one minute is assigned for the geographical **zone** (there can be several zones), and the cost of one minute conversation for the particular town is determined by the embracing zone.

To edit the list of the towns (countries) use the **Codes of towns or countries** page of the given window. For each area it is necessary to introduce the following parameters:

- town/country code (see '**Structure of the long-distance number**')
- name
- zone, with which this town/country has been affiliated. Zones which have been assigned on the **Zones and prices** page are specified in the list.

It is necessary to specify the following parameters for each zone included in the **Zones and prices** table:

- name
- cost of one minute conversation in the day time (the given value is used only if the 'take the price from the 'Day' column of the table containing zones' option is specified on the **Day time** page, otherwise, the price charged during the daytime is just proportional to the price for one minute conversation charged at night).
- Cost of one minute conversation at night

List of codes and prices can be saved to the file/downloaded from the file with the aid of the toolbar buttons. File can have the *.txt (text) or *.xls (Microsoft Excel) format. In order to clarify the format of the file which is required for the correct importing of the codes, it shall be recommended, first, to export data for some tariff and to look into its structure.

When preparing data for export it is possible not to divide the area codes into zones, it will be enough just to specify the price in the day time period and at night (however, the column intended for the zone title shall be presented, you can just left it empty). In this case, the WinTariff will on its own sort the codes in accordance with zones (zones will be created in accordance with the cost of one minute conversation), and

later you will be able to edit the names of the zones which have been created automatically.

The 'Day time' page

Lasts from/to - determines time of the day when the day price is effective for the conversations (normally it is higher than at night).

To calculate the day-time price, WinTariff can either just multiply the prices which are effective at night by the assigned coefficient, or it can use the value from the 'Price (day)' column of the table containing zones (see the **Codes and prices** page of the present window). The last variant is applicable only for the long-distance (international) tariffs! The first variant shall be used for the incoming, local, and other calls.

With the aid of the '**Difference between day and night prices is used**' switches it is possible to cancel the operation of the daytime price for the certain days during the week and on holidays. In this case the night price is effective during all of the day.

The 'Weekdays/Holidays' page

Coefficients for weekdays - some telephone service operators are introducing the discounts for the calls during the weekend.

Holidays - similarly, it is possible to include the list of holidays and the discount value which is effective during these days.

The 'Multipliers' page

Multiply price with- at the end of the call price calculation WinTariff can multiply the given value by the following values:

- **Currency rate** - the price will be multiplied by the currency rate which is effective during the given data. Currency rate is introduced within the 'Settings->Currency' window.
- **coefficient** - the price is multiplied by the fixed coefficient. This variant is very convenient in order to take into the account taxes, or to charge extra small additional interest above the call cost.

Use Metering Pulses - if both, the area PBX and your office ATE are equipped with special equipment to transmit/receive the **Metering Pulses** (metering pulses or tariffication pulses), it is possible to use this opportunity and to switch WinTariff to the mode of the call cost calculation with the aid of the Metering Pulses data. With the aid of the additional coefficient it is possible to correct the obtained cost.

Appendix

Cable layout for the connection of the PBX

In the majority of cases the zero-modem ('contralateral') cable is being used in order to link the PBX to the computer through the sequential interface, however just in case, it shall be recommended to check the documentation which is accompanying your PBX.

The other side of the cable shall be connected to the free connector of one of the COM-ports (majority of the computers have two COM-ports - they are designated as 'COM1' and 'COM2'). Both, the 25-contact and 9-contact connectors of the 'male' type can be used in the computer.

Attention! The computer is also equipped with a similar 25-contact connector of the 'female' type - this is a connector for the printer, it can not be used for the office PBX.

The 25-contact or 9-contact connectors can be used in the PBX, as well. Connectors of the 'female' type are used in the majority of the PBXs, however, there are some exceptions (for example, Panasonic KX-TA308/616/624 or Panasonic KX-TDA). Besides that, in some of the PBXs (for example, Ericsson and NEC) the non-standard connectors are being used - in this case, you have to ask for the cable the dealer of the

manufacture of your computer

So, then, you need a cable with the connector of the 'female' type (for the hookup to the computer) and you (most probably) need the connector of the 'male' type for the hookup to the PBX:

Cable 9x9:

```
2 <-----> 3
3 <-----> 2
4 <-----> 6
5 <-----> 5
6 <-----> 4
7 <-----> 8
8 <-----> 7
```

Cable 25x9 (left column for the 25-contact connector):

```
2 <-----> 2
3 <-----> 3
4 <-----> 8
5 <-----> 7
6 <-----> 4
7 <-----> 5
20 <-----> 6
```

Cable 25x25:

```
2 <-----> 3
3 <-----> 2
4 <-----> 5
5 <-----> 4
6 <-----> 20
20 <-----> 6
7 <-----> 7
```

Besides that, it shall be recommended to connect the metal bodies of the connectors with the separate wire.

Structure of the Calls.dbf file

DATE (D8:0) - data of the call in a standard date DBF format: YYYYMMDD

CO (C6:0) - number of the external (CO) line which has been used to access the area.

TRUNKGROUP (C4:0) - number of the Trunk-group to which the given CO-line has been assigned (affiliation with the group is determined by the PBX programming). The Trunk-group number is being used only for the PBXs which are sufficiently big (they are servicing dozens of the CO-lines).

EXTENSION (C6:0) - internal telephone number.

ACCOUNT (C6:0) - Account code, if it has been used to make a call.

NUMBER (C35:0) - dialed number (for the outgoing calls) or an expression 'incoming' for the incoming calls.

TENANT (C1:0) - the Tenant number (is being used only for the large PBXs).

TRANSFER (C1:0) - contains marking, if the call has been re-addressed (transferred).

PRICE (N9:3) - the calculated cost of the conversation. Is being filled by the processing module of the WinTariff.

STATUS (C20:0) - contains the description of the call (for example, for the long-distance calls - name of the city where the call has been addressed). Is being filled by the processing module of the WinTariff.

IDURATION (N5:0) - duration of the conversation, in seconds.

ITIME (N5:0) - time when the conversation has been started. Is measured in seconds which have passed since the beginning of the day.

HAND (C1:0) - is not used.

CALLTYPE (C1:0) - contains an identifying-letter for the **type of the call**. Is being filled by the processing module of the WinTariff.

TRFGROUP (N1:0) - number of the group with which is affiliated the tariff used for the calculation of the call cost.

ZONEID (N;6;0) - a unique ID of the zone which has been used to calculate the cost of the conversation (for the long-distance calls).

CURRENCYID (N1:0) - currency code for the given call (is determined by the tariff which has been used to calculate the cost of the call).

PREFLEN1 (N2:0) - is used together with the PREFLEN2 for the formatting of the long-distance number in the form of 8-(095)-5551234 (in the main window of the program). Contains the length of the access code (in the given example PREFLEN1 = 1)

PREFLEN2 (N2:0) - is used together with the PREFLEN1 for the formatting of the long-distance number in the form of 8-(095)-5551234 (in the main window of the program). Contains the length of the access code (in the given example PREFLEN2 = 3)

METERPULSE (N8:2) - the amount of Metering pulses. The value is being provided by the office PBX.

RINGBEFORE (N3:0) - the amount of seconds before the receiver has been picked up for the incoming calls. The value can be absent for some PBX models.

CALLERID (C10:0) - identifier of the calling subscriber for the incoming calls. For the majority of the PBXs the installation of the additional equipment and/or the PBX programming shall be required. In some cases, it is not possible to obtain the identifier.

CALLMODE (C2:0) - the given field is ignored by WinTariff during the processing of the calls. The value can be recorded into this field by the recording module (for some PBX models) if the PBX is providing additional describing information concerning the call type.

Type of the call within the **CALLTYPE** field:

'U' - unknown type of the call

'L' - long-distance

'C' - local call

'I' - incoming call

'N' - internal call

'T', - transit call

'E' - error

Calculated fields

Besides the fields which are physically presented in the Calls.dbf file, there are additional fields in the WinTariff - their values are calculated ('on the fly') based on physical data. For example, the c_Duration field (represents call duration in a form of a line in the H:MM:SS format) is calculated in accordance with data contained in the Duration field (call duration expressed as an amount of seconds). Thus, it is convenient to use the calculated fields in the reports (as part of the CallsFilteredTbl database; it contains the selected calls

and is being used for compilation of the reports. Structure of this database is similar to the structure of the Calls.dbf file - see above).

c_Time - contains the formatted time when the call has been started (the initial Time field contains the amount of seconds which have passed since the beginning of the day). Format of the displayed string is determined by the regional settings of the computer.

c_Date - the formatted date of the call. Format of the displayed line is determined by the regional settings of the computer.

c_Duration - call duration in the H:MM:SS format. The original Duration field contains the integral number which is equal to the call duration expressed in seconds.

c_CO - if the table containing the CO-line names has been filled up (in the 'Settings->CO lines names' item), then the given field contains the line name which corresponds to its code in the CO field. If the name of the given CO-line has not been found, the c_CO field will just repeat the value of the CO line.

c_Extension - if the company structure has been filled up (in the 'Settings->Company structure' item, i.e. if the number of the internal telephone has been tied up with the name of the employee who is the telephone's owner), the c_Extension field contains the name of the employee which corresponds to the code of the Extension field. If the name for the given internal telephone has not been found out, the c_Extension field will just repeat the value for the Extension field.

c_Account - uses the data concerning the company structure similarly to the c_Extension, however, tiers up the Account field and the name of the employee.

c_Price - contains the cost of the conversation together with the currency name - for example, '10.0 \$'

c_Number - formatted dialed number with the separation of the access code and the area code, for example '8 (812) 5551234'.

c_RingBefore - time before picking up of the receiver in the MM:SS format (for the incoming calls).

Structure of the WinTariff directories

Main WinTariff folder (by default - 'Program Files\WinTariff32') contains the following main elements:

the **Archives** folder - contains zip-Archives with the data of old calls

the **Calls** folder - contains main Calls.dbf file. To this very file current information concerning the calls which have been made is recorded.

the **Forms** folder - contains forms of the reports.

the **Hotel** folder - contains files with the information concerning the registered clients of the hotel.

the **Prices** folder - contains files with tariffs.

the **Scripts** folder - contains files with scripts.

Tools which have been used to create a program

Main development framework — Borland Delphi, <http://www.borland.com>

Linux development — Free Pascal, <http://www.freepascal.org>

Components used for the work with the DBF-files — Halcyon, <http://www.grifsolu.com>

Generator of the reports — FastReport, <http://www.fast-report.com>

Components used for the work with the RS232 interface — Varian ASYNC32 component, Varian Software Services, NL

Library of the components — RX Library, <http://www.rplib.com>

Work with Microsoft Excel files — XLSReadWrite, <http://www.axolot.com>

ZIP-Archives — Info-Zip, <http://www.cdrom.com/pub/infozip/>

Skins — AlphaControls, <http://www.alphaskins.com>

Internet components — ICS, <http://http://www.overbyte.be>