# LKDSDisp: Client-Server Solution for LMDS

## Configuration & Usage Guide

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The manual contains description of client-server approach to upper-level software architecture of LMDS (Lift Monitoring and Diagnostics System)

# Contents

## Introduction

Using MPultPro utility is an easy and convenient way of monitoring lifts. Growing in business as well as the need to get rid of existing restrictions explains the tendency of today to have more clients (it means a computer with MPultPro running).

The use of LKDSDrv, of course, does not have limitations on the number of clients on the LMDS network, however, it entails serious inconveniences:

1. Clients collect information (log, gear operation statistics, sensors state at damages, etc.) separately from each other. To obtain an inseparable array of data, MPultPro must be executed permanently which might be problematic, and the information volume transferred would become a value.
2. Network configuration changes should be performed on each client's computer.
3. All changes in lift's (Lift Unit) description/parameters (i.e. user's inputs and outputs definitions, a Lift Unit's reserved state reassignment) should be performed on each client's computer as well.
4. There is no possibility to differentiate the rights of clients to access the lift itself and the type of access to lifts, for example, adjusting the Lift Unit or firmware updating.

The client-server solution being described in this manual is free from drawback above. The only data collector (server) is connected to all Lift Units, while other computers connect to the server to obtain and present the collected information.

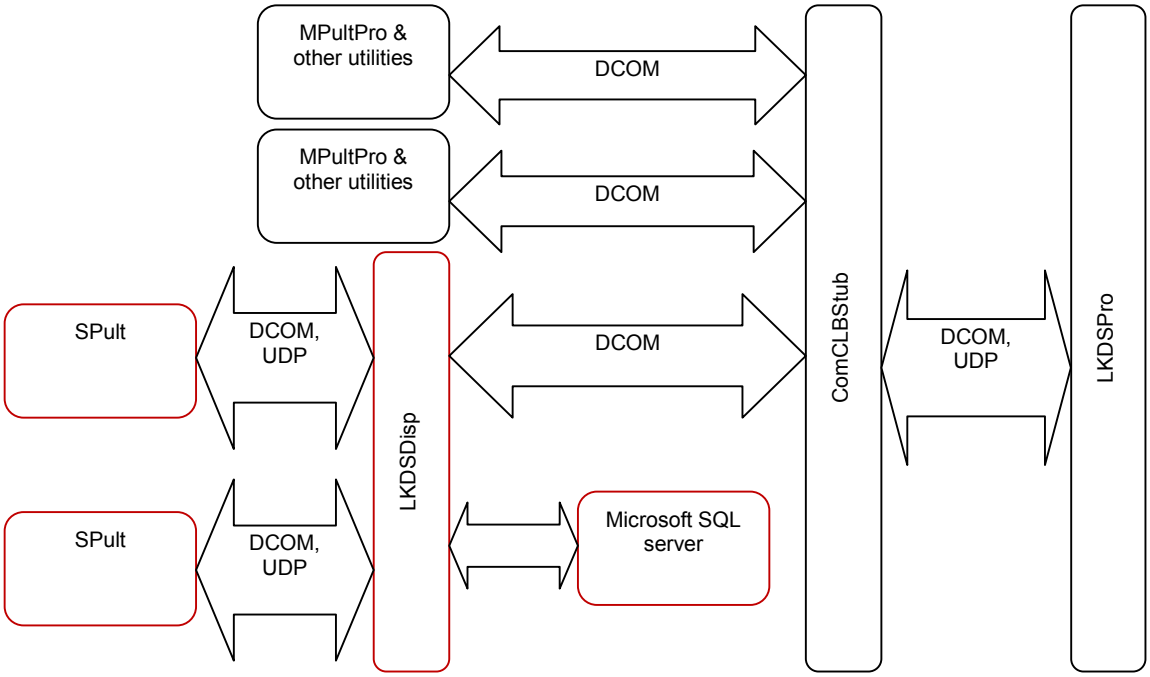
## Primary requirements

The server that collects information should meet the following requirements:

1. Use existing software if possible;
2. Secure storage of collected data, allowing quick access to data and making a selection;
3. Support remote connection via the Internet;
4. Simple and clear access rights policy.

## Inside of data collection server

The server for collecting information (LKDSDisp) from the monitoring system equipment has been implemented as OS Windows service. LKDSDisp does not directly interact with the equipment of the LMDS. Information is exchanged through the LKDSDrv service. LKDSDisp connects to the ComCLBStub server, the way other applications do (MPultPro, etc.). Actually, LKDSDisp performs the same activities as MPultPro utility when logging and exchanging data with lift units; user interface of MPultPro utility (visualizing data) is located to Spult utility. Interaction of the software components of the system is shown in the figure below:

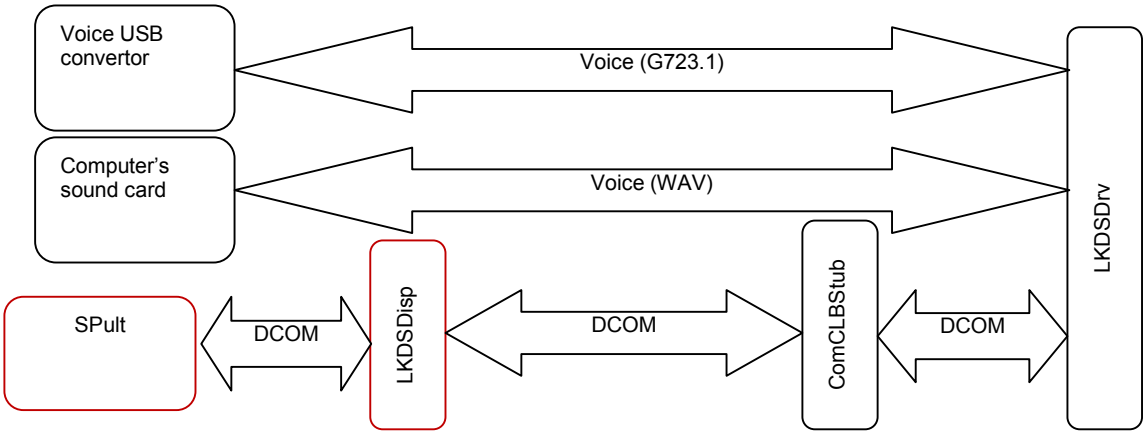



Microsoft SQL Server is used by LKDSDisp for logging and store data.

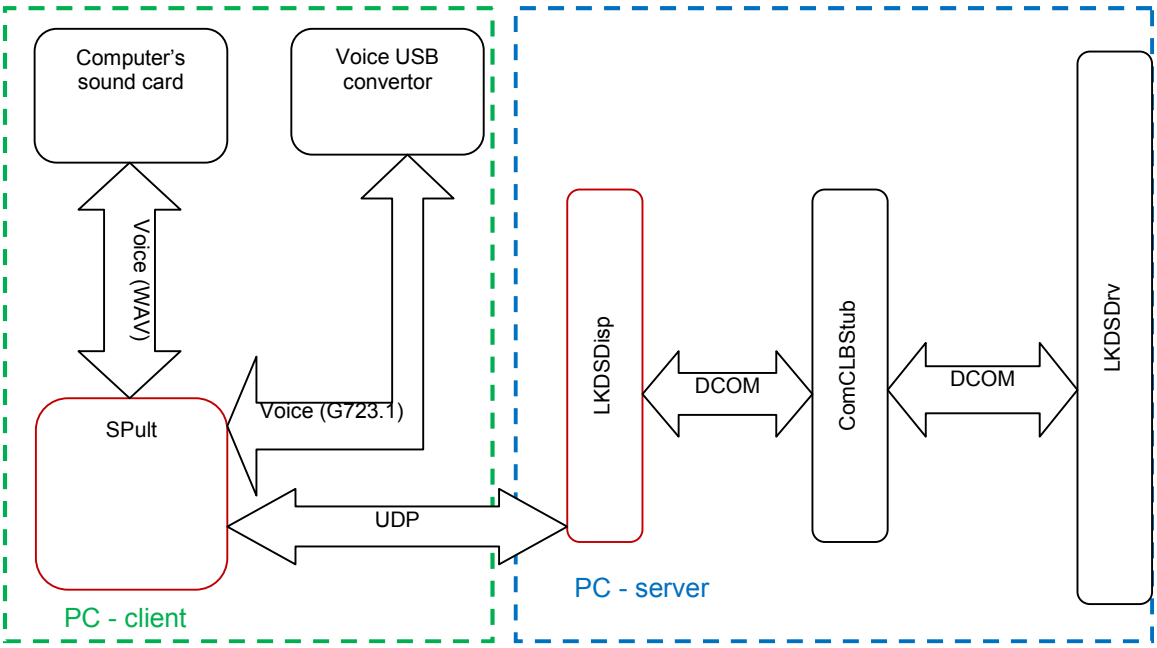
Using MS SQL Server:

- provides secure information storage;
- increases overall performance of the system;
- provides a standard interface used by other programs to obtain and process information.

SPult utility connects only to LKDSDisp. If SPult and LKDSDisp run on the same computer and SPult interacts with LKDSDrv using DCOM protocol, the interaction of the software modules will be as follows:



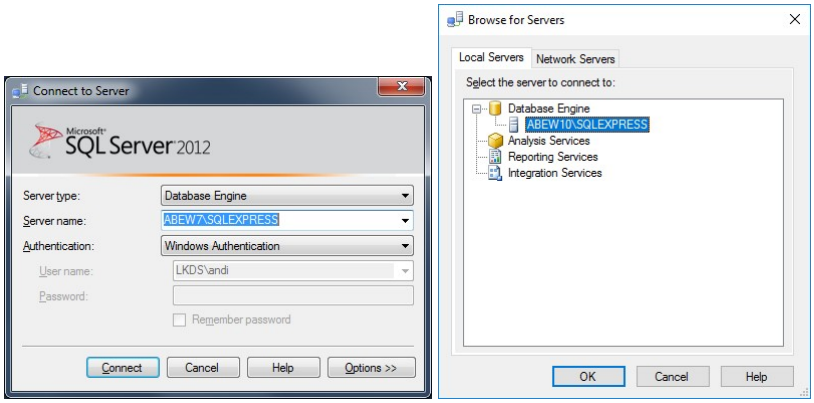

If SPult and LKDSDisp are run on different computers and SPult interacts with LKDSDisp using UDP protocol, the interaction of the software modules is shown below:



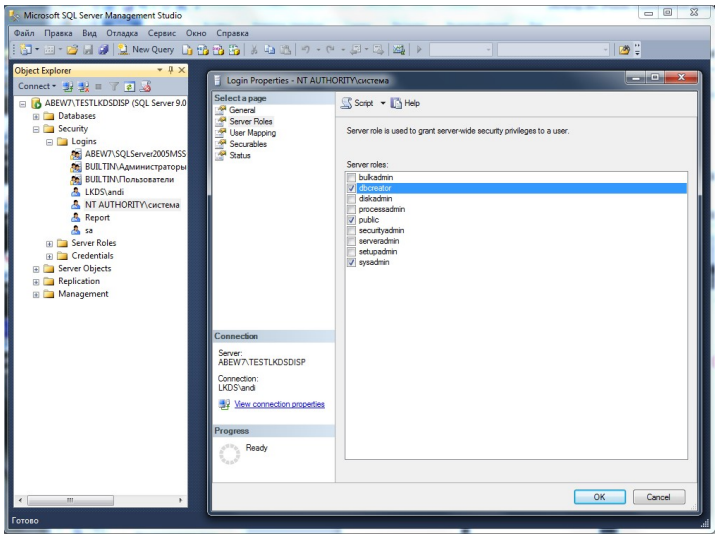

## Installing server software

The server software is in the distributive package LKDSDrv.msi.

Note the MS SQL server should be installed before LKDSDisp software. When installation is completed, start Microsoft SQL Server Management Studio to get the name of the installed SQL server. This name will be used in LKDSDisp configuring procedures.

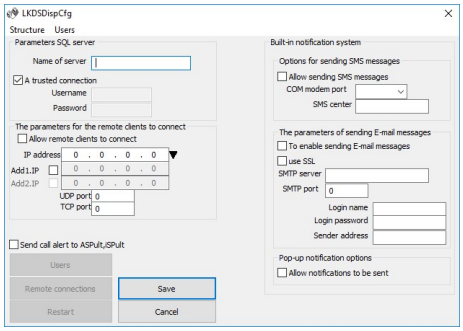



Additional settings are also available.




## Installing and configuring data collection server

The server software is in the distributive package LKDSDrv.msi. After installing software the initial configuration should be performed. The initial setting is to set the name of SQL server as well as user name with administrator rights on behalf of which the further configuration will be performed. Execute the LKDSDispCfg. exe utility and the window below opens.




Enter SQL server name into field “Name of server”. Filling in other fields of the “Parameters SQL server” group depends on the way to connect to the server:

- If SQL server and LKDSDisp are running on the same computer, leave the “A trusted connection” field checked.
- If SQL server and LKDSDisp are running on different computers, uncheck the “A trusted connection” box and enter Username/Password of the administrator into available fields.

There are two types of connection available to LKDSDisp server:

1. Using DCOM protocol-a client and the LKDSDisp are running on the same computer;
2. Using UDP protocol-a client and the LKDSDisp are running on different computers connected via IP.

The group “The parameters for the remote clients to connect” of fields is used to set up UDP connection.

Check “Allow remote clients to connect” box to make UDP connection available and enter UDP port number into the correspondent field.

In most cases “IP address” field could be left by default (0.0.0.0 value), which means the LKDSDisp server will receive UDP packets from all network interfaces of the computer. Though, if several WAN interfaces are used on the computer it would be better to enter their IP addresses explicitly.

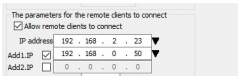
*Example 1.*

*There are two Ethernet boards installed in a computer:*

*- one of them supports LAN connection and has got IP address of 192.168.002.023. The gateway has got IP address of 192.168.002.001;*

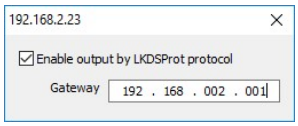
*-the second board has got the IP address of 192.168.000.050, and connected to a router with access to the Internet via 4G net. The router is the gateway, its IP address 192.168.000.001.*

*Thus, we should setup the following:*

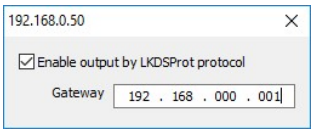



*Additional settings are available via left-mouse click the arrow symbol from the right of the IP address field.*

*For the first board it looks like*




*For the second board it looks like*



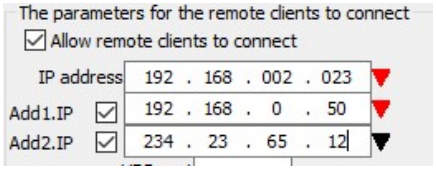

*Setting output via LKDSProt available changes the color of the arrows from black to red.*

Using the LKDSProt protocol ensures that data exchange (receiving and sending) is performed via exactly the same network interface (network card) and the gateway; standard MS Windows TCP/IP protocol can’t ensure it. That means that in some occurances the reply might be not received.

The LKDSProt protocol works only with Ethernet interfaces. However, this network interface description scheme is also possible for remote access adapters.

*Example 2.*

*Let’s add to the computer from Example 1 a 3G USB modem having static IP address 234.023.065.012. Note the “Use default gateway on the remote network” parameter for TCP/IP protocol of the 3G USB remote connection should be set up. Thus, we have the following*




*Note the black arrow symbol near the IP address 234.23.65.12. That means that LKDSProt for USB modem is not used. So, the reply on request received via Ethernet cards is sent via that Ethernet card, while the request received via USB modem is replied via the USB modem.*

The "TCP port" field allows you to assign a TCP port, which will be used to quickly transfer the equipment structure as well as the initial state of the lifts to the remote client. If the fast transfer is not used (TCP port = 0), then the hardware structure and the initial state will be transmitted to a client via the UDP port, but slower than using the TCP port.

Setting the "Send call alert to ASPult, iSPult" flag allows mobile devices to receive pop-up notifications about the dispatcher calls. On devices working under OS Android (ASPult application),

clicking on the notification immediately activates the voice connection with the lift, from which the call initiated. Builtin notification system also has the ability to send pop-up notifications to devices working under iOS.

Press “Save” button to store configuration. After configuration is saved the database LKDSDisp is created in SQL server. You can see database structure executing MS SQL Server Management Studio.

The user ADMIN (password ADMIN) is created simultaneously with database. One can use this account for the first login in SPult. You should change this account later on.

You can then enter as many users (operators) as necessary starting LKDSDispCfg.exe again. After utility starts buttons for the purpose are available.

Save your changes. Restart your computer or at least LKDSDisp service. This completes the initial setup.

## Customizing monitoring

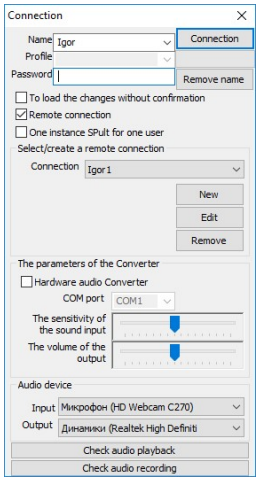
Further configuration activities on LKDSDisp will be performed with the help of SPult utility.

SPult utility has three modes:

1. Administrator mode – meant for configuring LKDSDisp;
2. Interface setting mode – meant to adjust the image (panel size, status bar display) for a specific user on a particular computer;
3. Operator mode – meant for monitoring center operators.

Depending on the user rights, on behalf of which SPult is executed, one of operating modes is used.

Start the utility and you get the screen below:




NOTE! The following description is valid for the local launching SPult, remote connection is not considered.

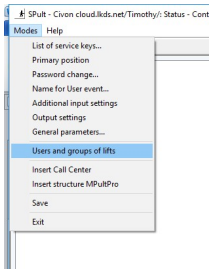
After entering the user name and password with administrator rights, click the "Connect" button - the SPult window with empty panels will appear. The meaning of the "Profile" field will be explained later. Working with SPult is similar to working with MPultPro, i.e. you can manually insert monitoring centers, streets, buildings and elevators.

If you have done the description of monitored lifts in MpultPro earlier and this description has been saved (in XML-format), you can import this file. To do so, right-click over the panel of the geographical structure and select the "Insert MPultPro structure" item.

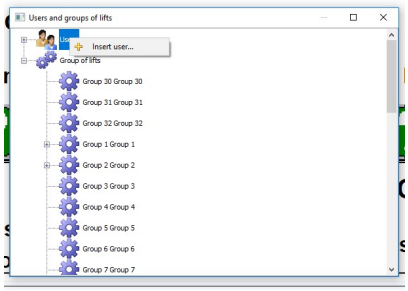
The following rules and assumptions should be taken into account before you continue working:

- ✓ A user with administrator's rights can't monitor lifts. He enters users and lifts, grants rights etc., but can't monitor. That is why users with operator's rights should be entered. No limit on number of users exist.
- ✓ There is a possibility to group lifts. Criterion for combining lifts into a group is selected as desired. Up to 32 groups are supported.
- ✓ Any elevator could be a member of one or several groups.
- ✓ User rights to access are not provided on the lift, but lift group.
- ✓ A user's access to a lift group gives the user the right to only view information about lift's status.

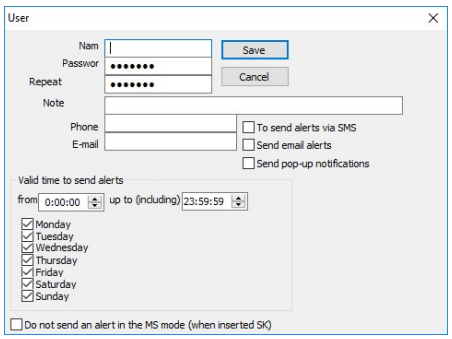
Entering Users and groups is available via "Modes"-> "Users and groups of lifts" menu.



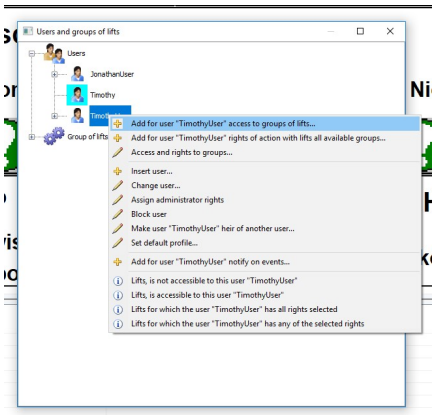

To add user right-click in an opened window



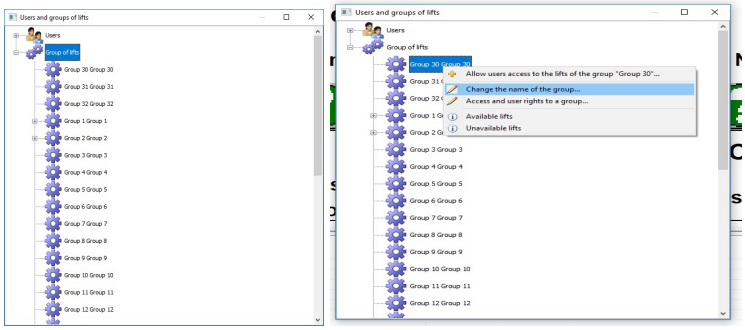

And fill in the fields with information on user




After user has been entered the access rights should be granted.

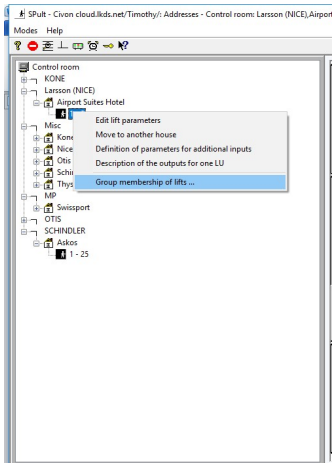


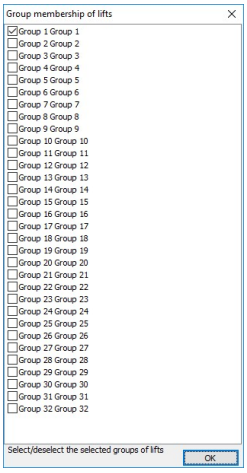

One can expand the group of lifts list



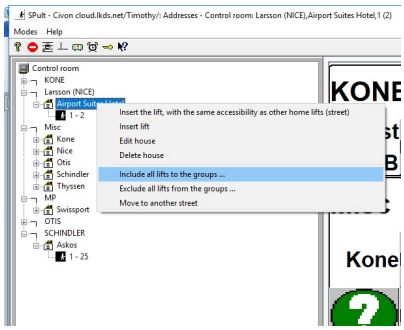

The name of a group as well as access rights could be changed clicking by right-mouse button.

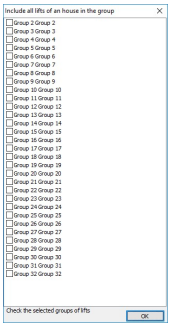
Screenshots below show how the lift could be added to a group.




If all lifts of the building belong to the same group, this could be done as shown below



There are additional user rights that could be granted to a user:

- ✓ Using voice communication;
- ✓ Controlling (Turn ON/Turn OFF) OUTPUT1;
- ✓ Controlling (Turn ON/Turn OFF) OUTPUT2;
- ✓ The lift Switch ON/OFF;
- ✓ Using builtin Service tool to view lift parameters;
- ✓ Using builtin Service tool to modify lift parameters;
- ✓ Using Lift Unit adjustment tool to view parameters;
- ✓ Using Lift Unit adjustment tool to modify parameters;
- ✓ Viewing results of voice path's last test and its details;
- ✓ To permit/prohibit self-testing of the voice path and to force the execution of the voice path test;
- ✓ Viewing test results of the rescue battery;
- ✓ To force executing the test of the rescue battery;
- ✓ Viewing firmware pages of the Lift Unit;
- ✓ Modifying firmware pages of the Lift Unit;
- ✓ Exporting Lift Unit's NVRAM;
- ✓ Importing Lift Unit's NVRAM;
- ✓ Viewing control points at accident;
- ✓ Stored voice negotiation's playback;
- ✓ Resetting Lift Unit errors.

There are two complex rights:

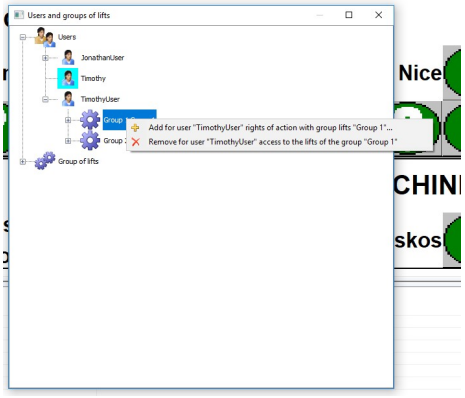
- Controlling rights;
- Customizing rights.

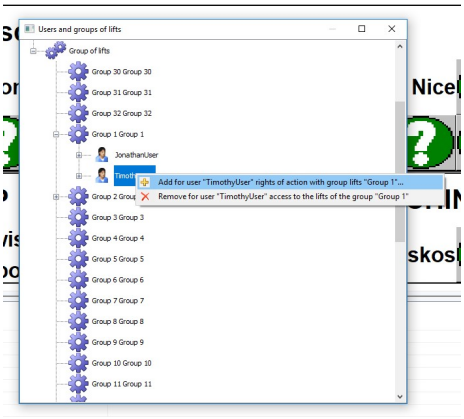
Controlling collects the following:

- Using voice communication;
- Controlling (Turn ON/Turn OFF) OUTPUT1;
- Controlling (Turn ON/Turn OFF) OUTPUT2;
- The lift Switch ON/OFF;
- Using builtin Service tool to view lift parameters;
- Using Lift Unit adjustment tool to view parameters;
- Viewing results of voice path's last test and its details;
- Viewing test results of the rescue battery;
- Viewing firmware pages of the Lift Unit;
- Exporting Lift Unit's NVRAM;
- Viewing control points at accident;
- Stored voice negotiation's playback;
- Resetting Lift Unit errors.

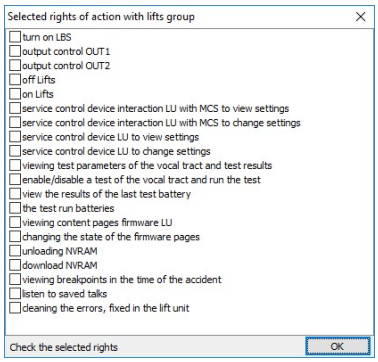
Customizing collects all additional user rights.

Additional user rights could be granted either from User or from Lift Groups extensions



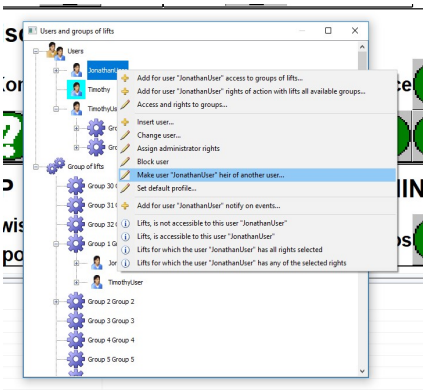

Then select rights to add from window




Press “OK” button and the selected rights will be applied.

Groups of users with the same rights can not be grouped together. However, the system provides a mechanism for inheriting rights from one user to another. Any user can be declared the heir of another user. In this case, all changes in the rights of the prototype user are synchronized with the rights of the user-heir.

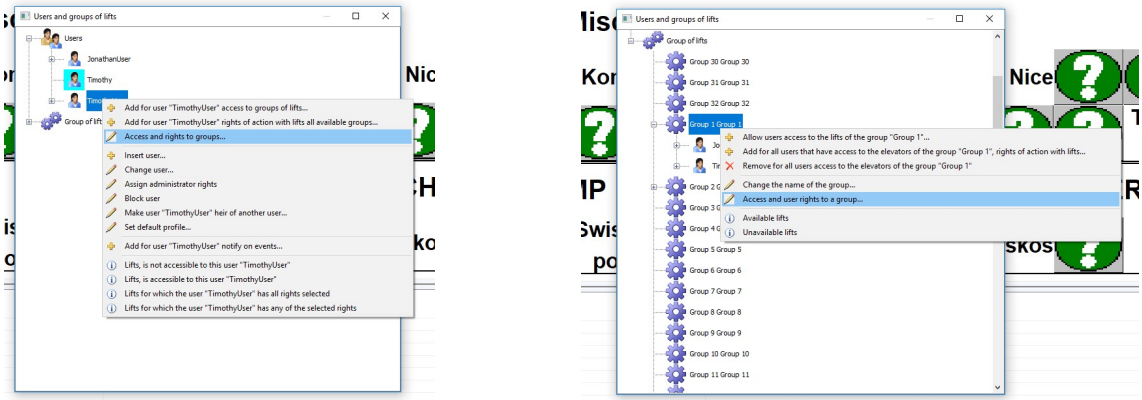
In the window below we declare “JonathanUser” a heir of another user.




Inherited rights are displayed on a gray background, while their rights are displayed on a white background. Inherited rights could not be deleted.

The user-heir can be made an independent user. The user-heir can be made an independent user. After that, the user will have the rights of the former user - the prototype plus their rights and in the future the changes to the rights of the former user - the prototype will not affect the individual user.
The user-heir may in turn be a prototype for another user.

Access right and additional rights to a user could be changed for all lift groups in table form. The same way could be changed access right and additional rights to a lift group for all users.




In opened window just select/unselect rights as necessary.

## Editing Lifts, buildings and streets

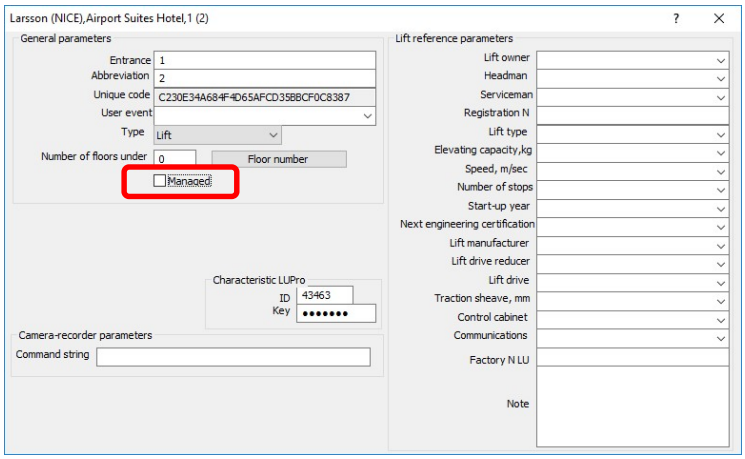
During operation, it might happen to change the current structure due to different reasons. To move the lift/building/street from one place to another, you need to right-click on the relocated object and select the "Move to another building/street/monitoring center" item. Pressing “OK” in confirmation window applies relocation.

Any structure object can be deleted if it does not contain nested objects.The only exclusion is unused lift.

## Unused lifts

Lifts entered in the current session of the Administrator and not saved in the database can be deleted. Lifts stored in the database can not be deleted. If there is a need to remove stored lift, it is possible to replace it to a separate street, for example, called "Unused", or to a separate control room, again having, for example, the name "Unused" as described.

Also, you need to reset the sign of "Managed" in the elevator parameters and remove access to the lift from all groups:




## Using SPult by users (excluding Administrators)

Users can make use of SPult in one of two modes:

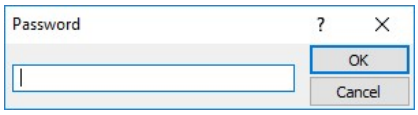
1. Operator mode
2. Interface setting mode.

Operator mode is meant for lift monitoring and is almost the same as that implemented in the utility MPultPro.

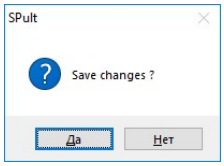
Interface setting mode is designed to adjust screen depending on the computer and some interface parameters :

- Windows size;
- Panels size and placement;
- Status bar mapping;
- Arrangement of lifts in a group and lift groups on a panel;
- Monitoring center parameters:
  - Sound and visual effects on new events;
  - Automatically turn ON voice intercom from the panel.
- General interface parameters:
  - Voice intercom duration;
  - Duration of the LB management dialogue;
  - Permission Switch lift ON;
  - Prohibit exit the program;
  - Set an alarm clock ;
  - Unobserved faults list automatic opening;
  - Unobserved faults list automatic closing;
  - Prohibit of lift's group smooth shutdown;
  - Service key's list browse prohibit;
  - Lift identification type in the event log-using an abbreviated name of the lift or using geographical address.

To switch SPult utility into interface setting mode a user should press  icon. A window for entering password opens.




The default password is 123456. Confirm password and then you can change panels. To save changes press  again and confirm saving in an opened window.




As mentioned above, MPultPro utility uses configuration file stored on a local disk named MPultPro.XML. However, SPult utility works with configuration files which are stored on server and on local disk. It is obvious that access right and structure are stored on server, while as interface settings are stored locally.

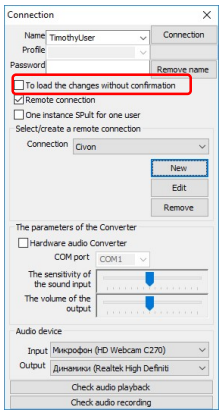
If you start SPult on LKDSDisp computer, the configuration file <User_name>.XML is created. Starting Spult remotely (checkbox “Remote connection” is selected-see initial screen) results in creation of the file named <Connection_name>_<User_name>.XML on local computer.

Below is the explanation of the synchronization algorithm for configurations stored on server and locally:

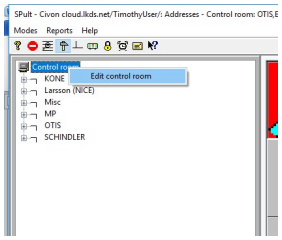
1. SPult sends a request to LKDSDisp with structure checksum and number of lifts available for the logged user.
2. SPult is looking for configuration file <User_name>.XML (<Connection_name>_<User_name>.XML for remote connection).
3. If the configuration file is not found, the structure is uploaded from LKDSDisp, then SPult switches into Operator mode.
4. If the configuration file has found, then checksum and number of lifts will be read from it.
5. If information read from file coincides with the one from the request, so SPult uploads configuration from this file (with all the additional settings) and then switches into Operator mode.
6. If information read from file and the one from the request differs, a window with the request for updating configuration opens. Pressing “Cancel” button exits utility. Pressing “No” button means the utility continues to work with settings stored in local configuration file. If “Yes” button pressed, so the refreshed configuration is uploaded from LKDSDisp.

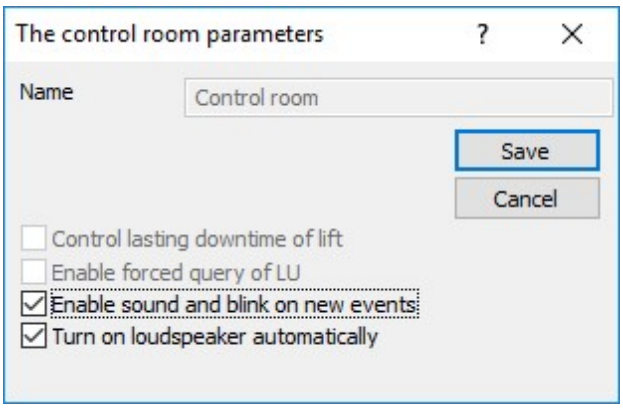
Then SPult switches into Operation mode.

The above algorithm could be omitted if checkbox “To load the changes without confirmation” is selected.




A few Monitoring center settings could be stored locally. Turn SPult into Interface setting mode and right-mouse click on monitoring center




There are two parameters which can not be changed (those changes could only be made from LKDSDisp configuration) and the others two have the following meanings:

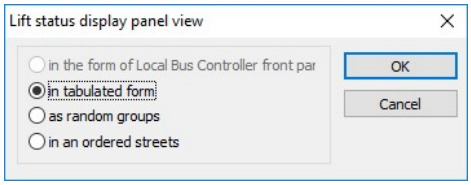
"Enable sound and blink on new events"- when a lift unit's state changes, an icon of a lift that caused this change starts flashing and user hears the alarm sound.

"Turn on loudspeaker automatically" – when user opens "View detailed lift information" window voice intercom turns on automatically if this parameter is set.

All available lift units can be displayed in one of the following ways:

- Table cells;
- As groups;
- As ordered streets.

Press  icon on tool panel and select the desired option from window:




Groups can be created in Administrator mode and saved on server LKDSDisp. Thus, all users get the access to those groups. The user certainly can modify groups and save this info on local disk. On subsequent SPult starts, if the checksum of the structure has not changed, the saved structure from the file is used, and the modified group descriptions are used accordingly. If the checksum has changed, i.e. the structure on the server has changed, then when loading the group description from the server, the information from the file of the saved structure is used to make maximum use of the settings made on the client machine.

Displaying as ordered streets have no additional settings-only background colors should be set.

## Using profiles

As described above, there are two types of configuration parameters that are stored: structure description stored on server and interface settings stored on local disk. The algorithm of merging these configuration parameters is also explained.

One can see this approach has two disadvantages:

1. A user should create XML file on each computer he is intended to use.
2. There is a problem with merging XML files when information on server (adding new lifts or groups on server by Administrator) changes.

The last disadvantage more critical as it destroys the structure while receiving information from server.

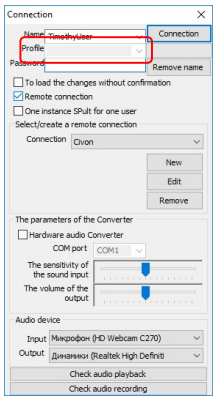
That is the reason why using profiles mechanism is developed.

Let us call information stored in XML file a profile. A profile can be created by a user as well as by the administrator.

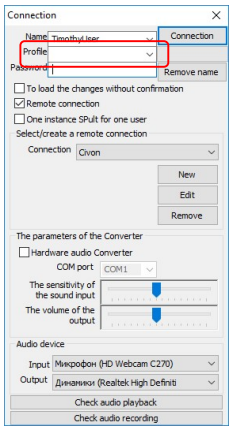
There are three types of profiles used in the system:

1. User profile. This profile is created by a user and available to him only.
2. Common profile. This profile is created by a user who is not the heir of another user and available to all not heirs users.
3. Group profile. This profile is created by a user and available to all heirs of any level of this user.

The profile that you want to use for the user is indicated on the initial screen of the SPult utility in the "Profile" field.

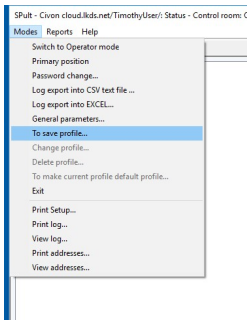



To activate using profile mechanism execute SPult with a “-p” parameter: “Spult –p”. This case the field “Profile” becomes available.

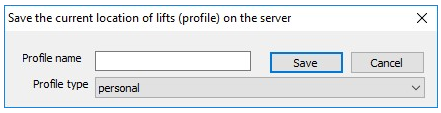



To create a profile SPult should be switched into interface setting mode pressing  button.

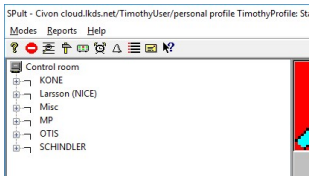
When profile is created a user should send it selecting “To save profile” option from “Modes” menu.



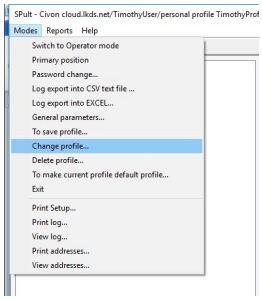

The Name and the Type of the profile should be entered in the next opened window.



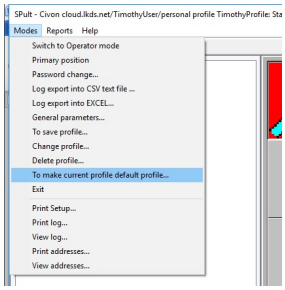

The fact of using profile is indicated in a main window title. The type of the profile is also shown.



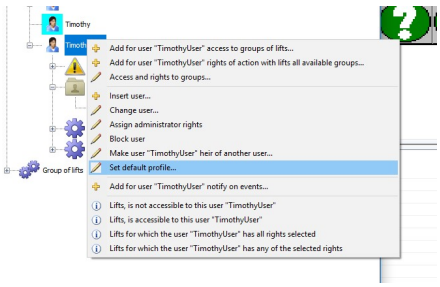

Any profile can be edited (modified) or deleted either by Administrator or by User himself. Just select change/delete options from the menu.




A profile can be used as default profile. Select the item from the menu (see picture below):




The default profile can be set up by Administrator:




If the default profile is set, so the connection is performed using this profile, and no necessity to explicitly specify a profile.

Here are conclusion statements on using rules:

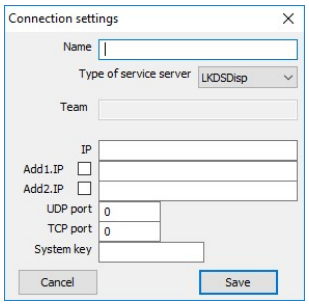
- If User and Common profiles are of the same name, the Common profile is used to connect.
- The Administrator can create, change/delete user profiles as well as make them as default profile.
- When connecting with the user profile of the heirs, the profile search is done first among the user profiles of the prototype of the highest hierarchy, if not found, it is searched among the user profiles of the prototype user below the hierarchy, if the profile is not found among all prototype users, then it is searched among the profiles the user of the heir.

## Remote connection of SPult to LKDSDisp

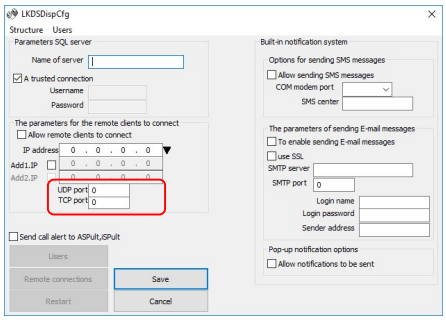
As shown above, SPult can connect to LKDSDisp server using DCOM or UDP protocol. DCOM protocol is used when SPult and LKDSDisp are running on the same computer where as UDP is used when SPult and LKDS Disp are running on different computers connected wia IP. Although, using UDP is also possible when SPult and LKDSDisp are running on the same computer.

When “Remote connection” box is clear DCOM protocol is used by SPult, when the checkbox is selected the remote connection fields become available to create/modify connection.

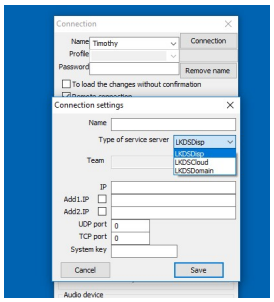
The remote server description should be made before first connection established. Press “New” button and the window opens:




Enter IP address of the LKDSDisp server or its domain name. Then enter UDP port number (to send data to the server) and TCP port number (to download structure). These port numbers should be the same as entered in LKDSDispCfg utility (see below).




Spult utility can connect not only to LKDSDisp server, but also to LKDSCloud. The appropriate item should be selected.



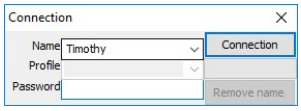

Selecting LKDSCloud as a service server the additional settings should be made (see manual on using cloud solution).

When connection settings are made and saved SPult can be connected to LKDSDisp.

NOTE! On using the Remote connection SPult can't work in Administrator mode even if connected as user with Administrator rights.

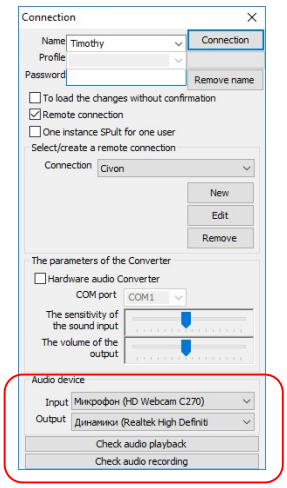
## Simplified SPult initial screen

To hide connection settings from operator the simplified initial screen could be used. Issue the command "SPult –s" to use this feature.




## Using sound devices for voice negotiation and error indicating

If more than one sound output devices are installed in computer, so the one (set as default in MS Windows) could be used for error indicating, and the other one could be used for voice negotiation with the monitoring center operator. Selecting devices is possible via the initial screen.

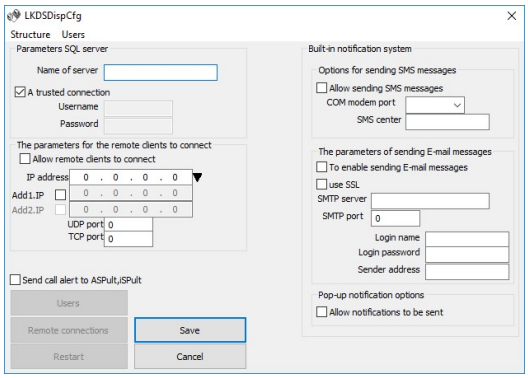



Selected audio input/output devices could also be tested from the screen.

## Sending notification via builtin subsystem

LKDSDisp server functionality has been expanded so the builtin notification subsystem appeared. Additionally to informing on LMDS events, the new subsystem sends information on LKDSDisp server status as well as pop-up notifications for mobile applications.

Necessary parameters for subsystem operation should be entered in LKDSDispCfg utility.



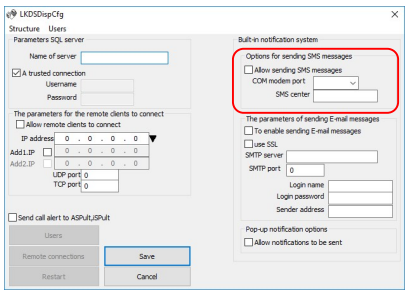

Allowing pop-up notifications and call alerts is set when checkboxes are selected (see picture above).

Start SPult utility in Administrator mode to grant user an access to receive pop-up notification and call alerts.

NOTE! Mobile application should be started on smartphone/tablet PC to receive notifications.

## Before using SMS notification

Enter necessary information in fields (see below):



SIM card with SMS service available is needed. GSM modem installed in MS Windows should be connected to PC. Make sure the COM port is assigned to the modem.

Fill in the field “SMS center” with the cell number of SMS center.

NOTE! It would not be desirable to use the same GSM modem for sending SMS and for Internet connection.

## Before using E-mail notification

Before start using E-mail notification feature checkup and configuring procedures should be performed. Either an external SMTP or SMTP server working in the same LAN as monitoring PC can be used for E-mail notification.

At any case:

The mail client software should be installed on PC;

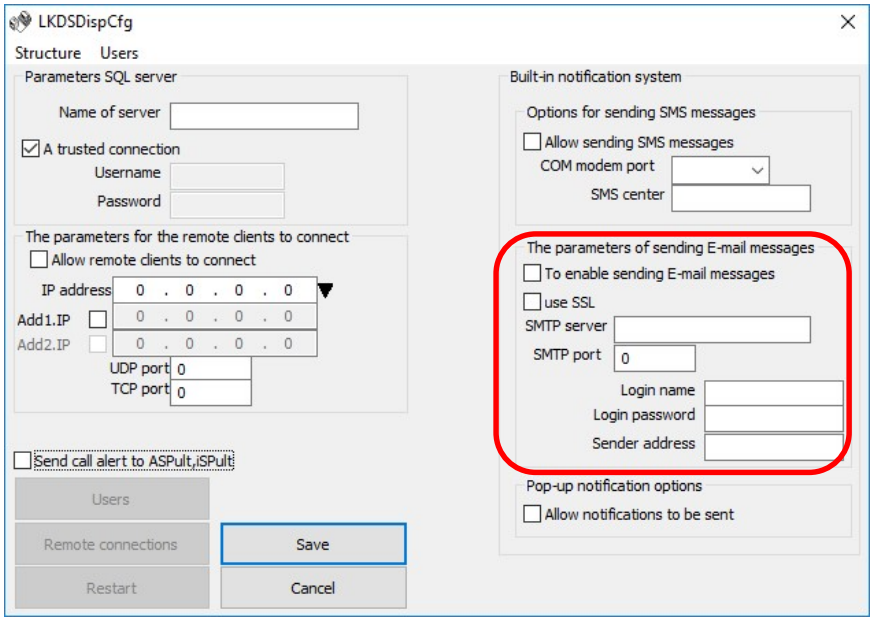
The name and password to access to SMTP server should be obtained;

The mailbox should be registered.

Ensure email messages are being sent out and received.

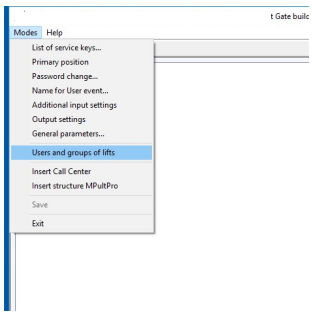
## Configuring E-mail notification

Execute LKDSDispCfg utility and enter parameters in the fields inside the selected section (see below).

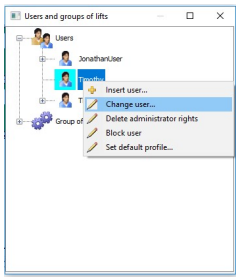



Press **Save** button to apply changes.

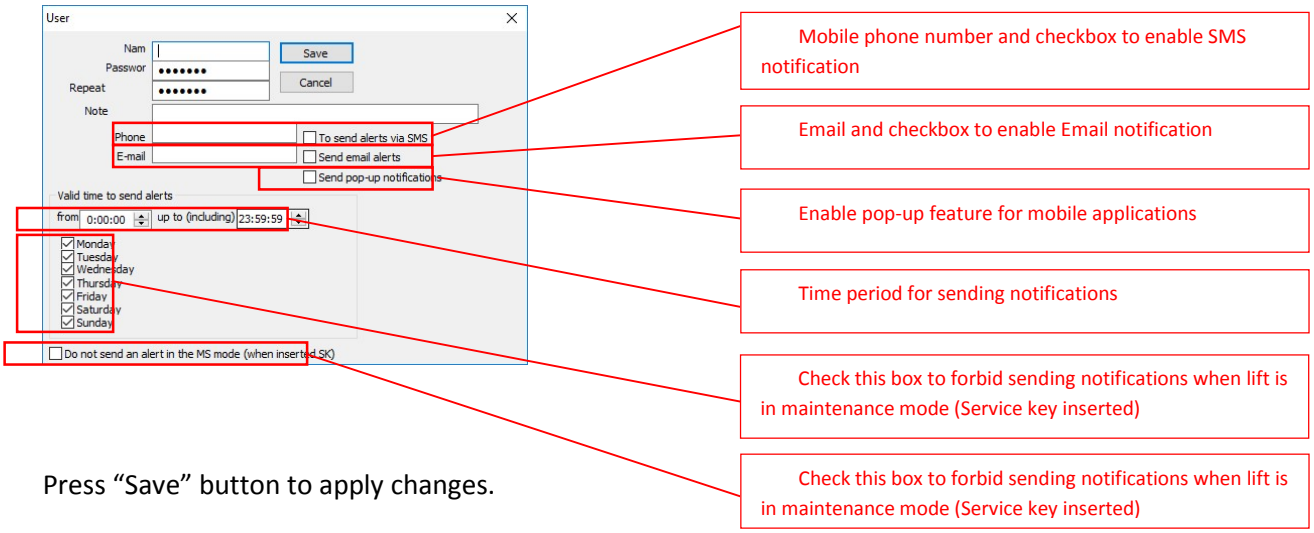
Start **Spult** with the rights of Administrator and select “Users and groups of lifts” from menu.




Select User and press right mouse button. Select “Change User” from context menu.

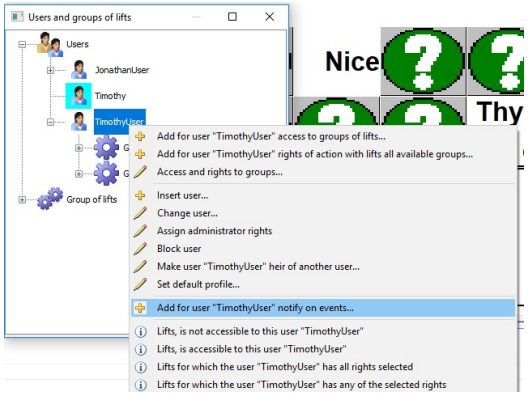


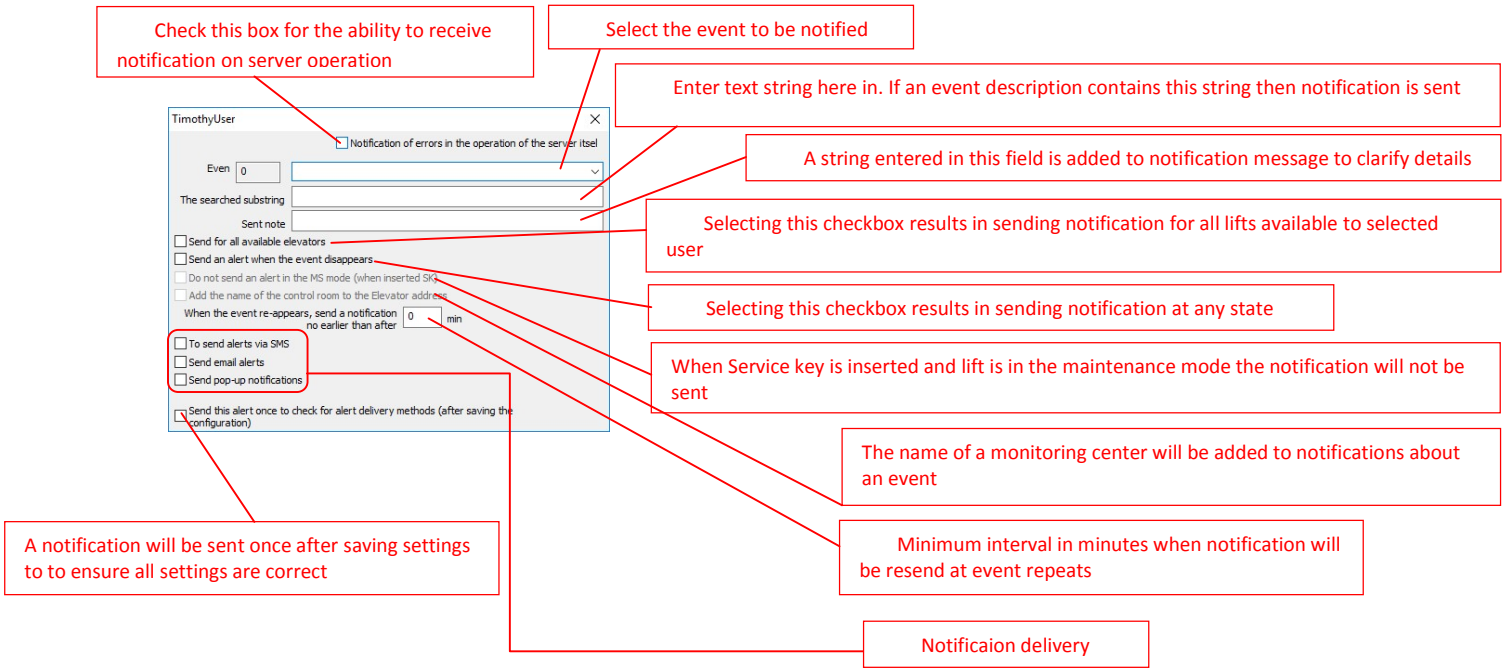

In User profile window fill in fields as shown below.



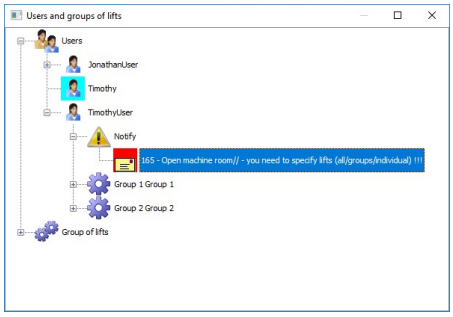

Press “Save” button to apply changes.

Select User and press right mouse button. Selecting “Add user … notify on event” from context menu defines additional notification criteria.

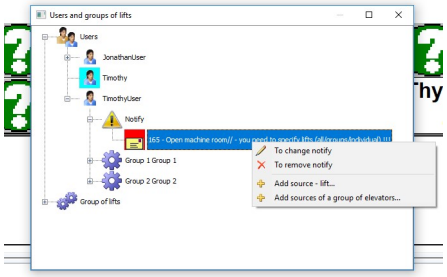




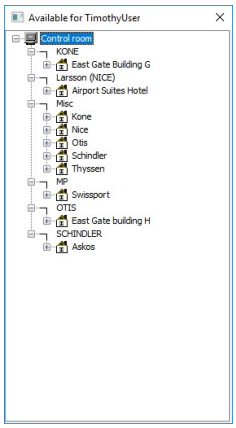

After saving the notification becomes a part of a structure.

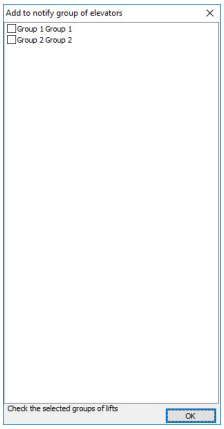



The number of the event for notification as well as description is shown. The red background means additional info should be entered (information needed is also shown).



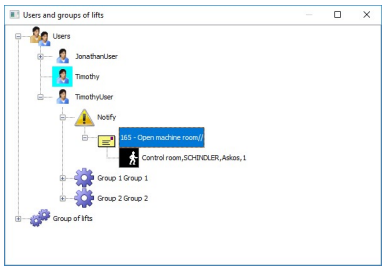

Context sensitive menu available via right mouse click containing a list of possible options.



The list of lifts (according to user rights) or lift groups appear in opened windows.

The result of making a selection is shown below.




The heir-user receives all notifications from his testator. Inheritable notifications have a gray background color for the icon

## Database backup, database recovery, database transfer to another PC

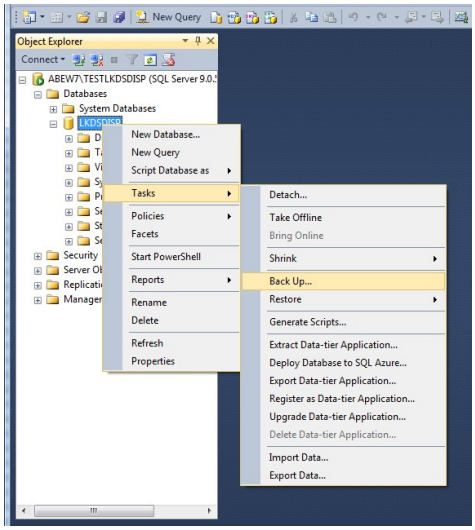
As noted above, all data stored in LKDSDisp database. In the process of operation there may arise the need to backup the database. Such backup copy will be needed when:

1. A crashed database must be restored on an operational computer;
2. Software must be transferred to a different computer;
3. Data must be transferred to a different computer to make reports and analyze data.

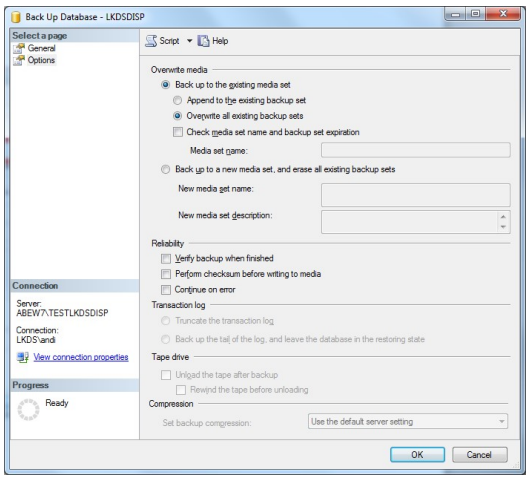
Below, the process of making a database backup and the database recovery process using a backup in "SQL Server Management Studio Express" are described.

### Making database backup

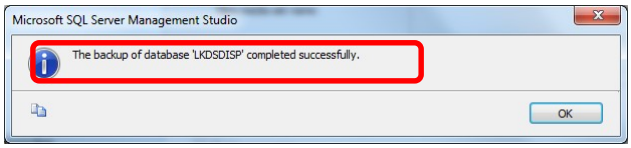
Press right mouse button when in LKDSDsip database and choose "Tasks"\ "Back Up …":



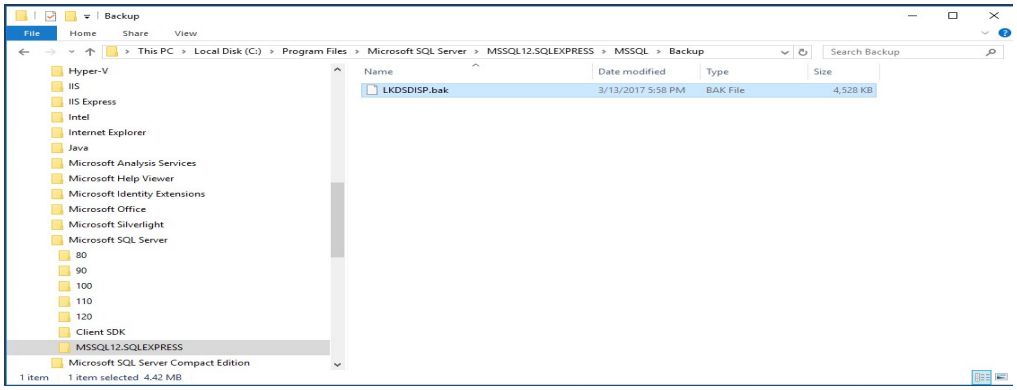

In the next window go to "Parameters" and choose "Overwrite all existing backup sets.":




Pres OK. When successful, the following message will appear:



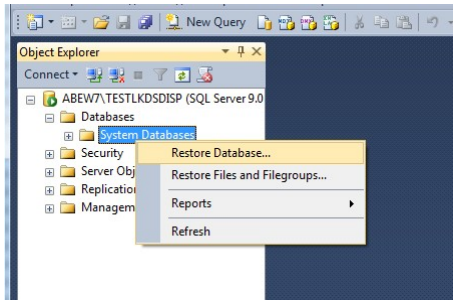

And the following file will be created:



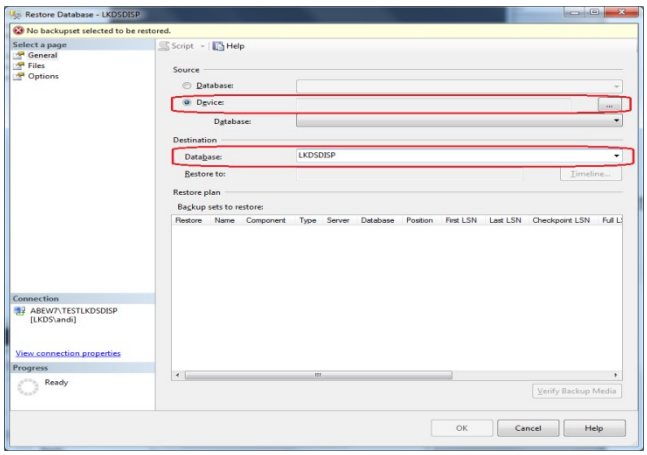

LKDSDISP.bak is the backup database copy.

## Database recovery using database backup

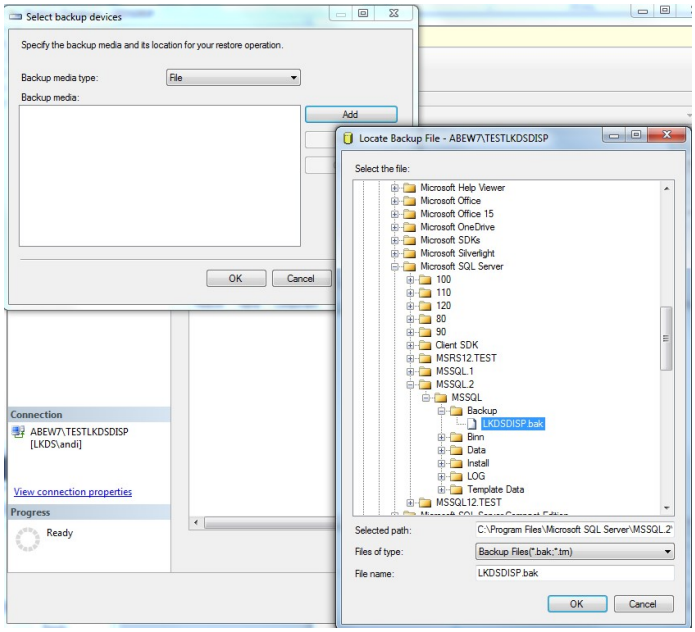
Choose "Restore Database…":



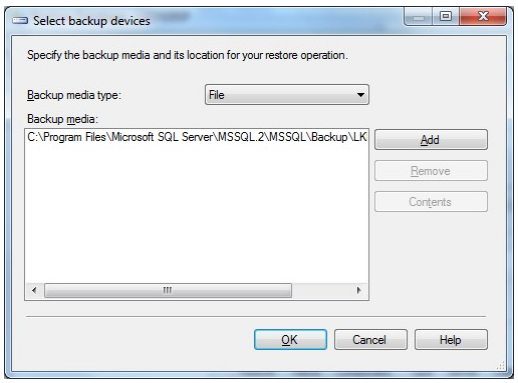

In the field "Database" of "Destination" enter LKDSDisp, in "Source" choose "Device" and press "…":



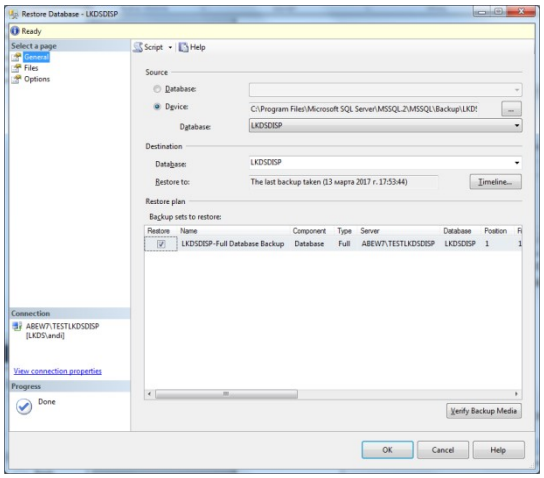

In the new window press "Add" and choose LKDSDISP.bak which is the backup database copy:



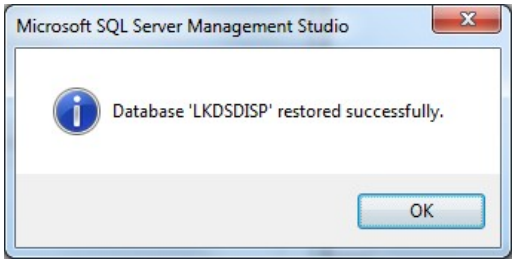

Press "OK":



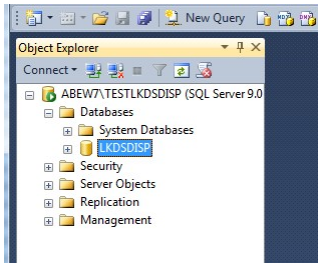

Press "OK"




When successful, the following message will pop up:




And the recovered database:




The backup process can be made automatic by means of MSSQL server. You can configure autosave, e.g. at night, in between queries for drives operation statistics.

## Software failures analysis

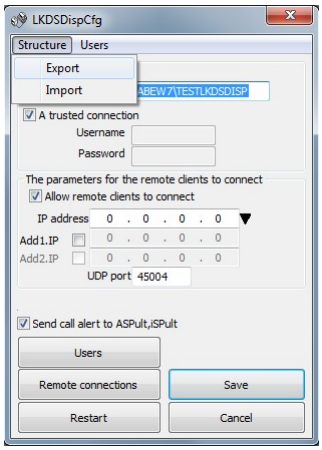
In order to pinpoint faults in operation, program modules can log their activities in text files. Such logs may be required to correct the errors. Creating a set of data to provide to technical support can be done if you follow the menu "LMDS"\"Creating data for technical support (SaveLog.exe)".

**SPult** creates and runs two logs:

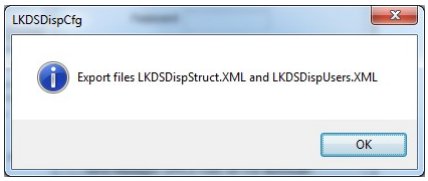
1. Errors log – SPult.Bad file
2. Exchange with LKDSDisp log when connecting via UDP –LKDSProEN\SPult\LogSpultRmt folder.

SPult/LKDSDisp exchange log will be started when SPult is run with parameter –l, i.e. SPult.exe –l

Description of managed lifts and the users table are stored in SQL server database; LKDSDispCfg configurator allows extracting these data in two files and downloading the files to an empty database. Such export can be done by following the menu: "Structure"\ "Export".



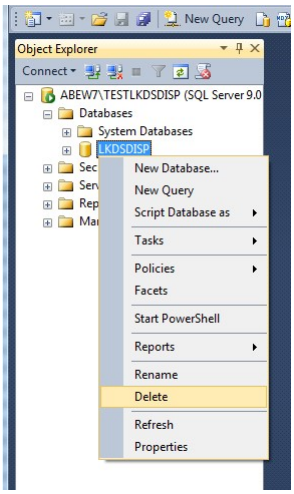

When successful, the following message will pop up:




The following files will be created: LKDSProEN\LKDSDisp\LKDSDispStruct.XML, LKDSProEN\LKDSDisp\LKDSDispUsers.XML. These files can be imported into an empty database: "Structure"\ "Import".

Export of structure may be used to create a backup copy, but it is preferable to use the tools of SQL server to make backup copies of databases. In that case not only structures, but also logs, drives operation statistics and errors logs are saved.

To restart operations, the previous LKDSDISP database must be deleted. Before that, close LKDSDispCfg and SPult programs and stop LKDSDisp service. After that in "Microsoft SQL Server Management Studio Express" delete LKDSDISP database:




At next start of LKDSDisp service an empty LKDSDISP database will be created.