Application *zeiss_obj_list* brief guide

The application runs as 3 windows:

- **Zeiss_Obj_List** - the main window, to control two other windows and to operate with Zeiss TCS
  Including:
  - Choosing username
  - Entering password
  - Control buttons
  - Object fields
  - Telescope shifting
  - Menus
- **Zeiss List** - window for the objects list
- **Zeiss Sky** - window for visual representation of the objects list

The last two windows are scalable. You can change the size or hide it altogether to save space on the screen.

Main window

Most of the buttons and fields in this window have *tooltips*, i.e. pop up assistances.

Remote networking

This application does not use any special interfaces to communicate with the Zeiss TCS, but work over *HTTP* through Zeiss Web-site, which have appropriated CGI support (***zts_get.cgi*** and ***zts_send.cgi***).
At the bottom of the window there is a field ***Zeiss Web-host***. In addition to the name of site, it shows (by analogy with ***zgui***) the presence of a connection with it and control mode (software simulation or real hardware control).

Choosing username

To operate with TCS Zeiss-1000, one must select the name of the user registered in the system. When the program starts, users list is downloaded from the Zeiss website and presented as a menu. By default, the user *guest* is selected.

Entering password

After selecting a user, one need to set their password to get the access level. By default, it is equal to 1, i.e. only receiving data from Zeiss.
The password is entered "invisibly", but near this field there is a button to show the entered password.
Then you need to click **Set** button to connect to the control system.
During operations the user can be changed at any time.

Telescope control

The telescope control buttons are located below the coordinates of the object:

Get from Zeiss - getting the current object from the Zeiss TCS,
always works if there is a connection with Web server. *Note:* the received coordinates are automatically adjusted to the Epoch 2000.0.

Send Object to Zeiss - only send the object coordinates and name,
this button works at access levels **2 - 5**.

Stopping Zeiss - stop the current observation for the next slewing,

Send and Slew Zeiss - sending the object coordinates and start slewing,
these buttons only work at access levels **3 - 5**. *Note:* it is not necessary to stop telescope - it will stop and start slewing itself.

Zeiss Object

This is a set of transit fields for object parameters. They are entered either manually, or by selecting from a list, or from Zeiss TCS.

Obj.name - the name of the object (optional) is transmitted to the Zeiss TCS along with the coordinates.
R.A. - the right ascension of the object in the format dd:dd:dd.dd
Decl. - declination of the object in the format +-dd:dd:dd.d
Epoch - the date (in dddd.dd format) or Equinox (e.g. 2000.0) for R.A. and Decl. coordinates.

Telescope shifting

The HA and Decl offset fields are located below the control buttons. One can record here the values (in seconds and arcseconds, respectively) to which the telescope needs to be shifted during tracking (or slewing).
It can also be used to accurately point at an "invisible" object. To do this, calculate the average displacement of neighboring stars with exact coordinates.
Using the **Get** button, the accumulated shift during the previous guidance can be read from the Zeiss TCS.

Zeiss TCS state

If there is a connection with Zeiss Web-server and the name+password are entered correctly, the current operating mode is shown in the color field in the same manner as in ***zgui*** program. Next to it is the field of the current user and it access level (from 1 to 5).

File menu

Designed to work with *.lst files:

Read and Add list - opens the file browser window to search and download a new list, which is added to the current one
Clear list - if you need to load a new list instead of the current one
Save list - opens the file browser window to save the newly created or edited list
Quit - application shutdown

Windows menu

Designed to manipulate windows, i.e. to save space on the screen:

Show/Hide Zeiss_List - remove the object list window from the screen or display it again
Show/Hide Zeiss_Sky - the same applies to the window for graphical representation of the objects list
View as BTA (or AllSky) - switching the view type in the "Zeiss Sky" window: as in the BTA operator interface (south at the top) or on AllSky cameras (south at the bottom)
A/Z Grid (or HA/Decl) - switching the type of coordinate grid in the "Zeiss Sky" window

ObjList menu

It is intended for creating or editing a list of objects:

Add Object - form a string with object parameters from the fields of the main window and add it to the end of the objects list
Insert Object - is the same, but the generated line is inserted before the current (highlighted) line of the objects list
Insert Comment - insert the contents of the "Obj.Name" field before the current line as a comment (i.e. with a # at the beginning of the line)
Remove line - remove the current (highlighted) line from the objects list

Help menu

This is the menu for calling up help information:

in Russian - this is toggle menu line to switch to the national language the entire application interface and reference information, at the moment, the Russian language is implemented for Russified OS
Help - opening a window with the text of the application description, removed by the **Close** button at the bottom of the window
About - brief information about the main features of the application, removed by the **Close** button at the bottom of the window
About Qt - standard help about the Qt version that used for generating the application

Objects list window

It is designed for convenient work with a list of objects from the usual xxx.lst file format (as in previous programs i.g. ***zeiss_list*** and ***telescope***).
Working with object list files is performed either through the **File** menu of the main window, or by using duplicate buttons at the top of this window:

Clear list - if you need to load a new list instead of the current one
Read .lst file - opens the file browser window to search and download a new list, which is added to the current one

The list line is highlighted and made current with a mouse click. In this case, the position of the object in the sky is marked in the graphic window with a blue cross.
To move an object to the main window for sending to the Zeiss TCS, click the current line a second time. You can also double-click on any line to do this.
Note: editing the list by **ObjList** menu of the main window is performed relative to the current line.

Window for graphical representation of objects in the sky

Implements the principle previously used in the programs ***zeiss_list*** and ***bta_list***. It graphically shows the distribution of objects from the list by coordinates HA и Decl (or A and Z). At the start of the application, the cardinal directions in the figure correspond to the images of AllSky cameras: North at the top; South at the bottom; East on the left; West on the right (i.e. "the top view").
The type of view in this window can be switched in the **Windows** menu of main window.
You can also select a list line here by clicking on the object's circle. The selected object is marked with a blue cross. At the same time, the corresponding line is highlighted in the objects list window. And in the upper-left corner of this window, the object parameters are displayed.
If you click the selected object a second time, its parameters will be transferred to the main window for sending to the Zeiss TCS. You can also double-click on any object to do this.
If there is a connection with the Zeiss TCS-server, the current position of the telescope is shown with a red cross, and its physical (encoders) coordinates are shown in the upper-right corner.
The closed red line limits the area available for telescope observations. The actual data for it is downloaded from the Zeiss-1000 website at the start of the program.