

Instruction manual of lite version of the program "Multilingual local instrumental system of Ministry's budget optimization, version 1.0" (LVP MLIS MBO 1.0)

Installing LVP MLIS MBO 1.0

1. Copy to a separate folder of your computer disk space a set of files of LVP MLIS MBO 1.0.
2. Check the composition of this set, which should include the following files:
 - boot file **Lite_MLIS_MBO.exe** of this program;
 - boot file **GLS.exe** of utility program of version 1.0 under the name "**Генератор языковых оболочек (ГЯО 1.0)** (Generator of language shells (GLS 1.0))", which allows creating language shells for LVP MLIS MBO 1.0 interface;
 - contents of the folder **Data** — data files (with extension dat) for one solved demonstration task, near to it will be placed data files for tasks to be solved by the user;

Note

The installation set of LVP MLIS MBO 1.0 includes one solved demonstration task, not available for removal, which is presented in two options: Russian ("DEMR01. ОПТИМИЗАЦИЯ бюджета министерства") и English ("DEME01. Optimization of the Ministry's budget"). Input and output data of this task you can look through at the screen, as well as bring out to Excel-files or print.

- contents of the folder **Excel documents** (it includes two subfolders: **rus** and **eng**) — files of table format Excel (with extension xls), in which can be stored input data of any tasks, as well as output data of solved tasks;

Note

The installation set of LVP MLIS MBO 1.0 includes per two files in Russian and English with input and output data of the demonstration task. Files of this type with input data of already created tasks you can not only view and edit in the program Microsoft Excel, but import to LVP MLIS when creating new tasks.

- contents of the folder **Shells** — files of language shells for the current program interface;

Note

The installation set of LVP MLIS MBO 1.0 includes two files of shells for Russian and English languages: **Shell (MBO 1.0).rus** and **Shell (MBO 1.0).eng**.

- contents of the folder **Solving** — in this initially empty folder temporarily are placed data files for the tasks which are in the stage of solving;
 - contents of the folder **System**:
 - **info** — a text file containing three main parameters of your computer: processor type, clock rate and the volume of operative memory;
 - **protocol.prm** — file of a protocol of tasks, being solved by the user, which holds general information about all existing tasks and their current state;
 - **Languages.txt** — a text file containing a list of possible language shells for the interface of this program;
 - **Programs.txt** — a text file containing names of those programs (including this one), for which may be created language shells by using the utility program ГЯО 1.0 (GLS 1.0);
 - contents of the folder **User documents**:
 - files of three Russian-language documents in the subfolder **rus**:
 - **Инструкция по эксплуатации ГЯО 1.0.pdf**;
 - **Инструкция по эксплуатации ОВП МЛИС ОБМ 1.0.pdf**;
 - **Технические характеристики МЛИС-МСИС ОБМ 1.0.pdf**;
 - files of three such English-language documents in the subfolder **eng**:
 - **Instruction manual of GLS 1.0.pdf**;
 - **Instruction manual of LVP MLIS MBO 1.0.pdf** — file of this manual;
 - **Technical characteristics of MLIS-MNIS MBO 1.0.pdf**.
3. For ease of launching the program LVP MLIS MBO 1.0, create a shortcut for its file **Lite_MLIS_MBO.exe** and place it on the desktop of your computer.

Run the program in operation

1. Click on the boot file **Lite_MLIS_MBO.exe** of the program or on its label. At that happens the following:
 - in the absence in the folder **Shells** of any language shells files appears on the screen a warning message that the work in the program LVP MLIS MBO 1.0 for this reason is impossible and it emergency closes;
 - in the presence in this folder of only one language shell file is launched the program, which interface is presented by the language of this shell;

- in the presence there of two or more files of language shells happens transition to the next instruction item.
2. On the screen opens the window of the program LVP MLIS MBO 1.0 without any records of its interface, and in its center appears a small dialog under the name **Selection of program interface language**. From the drop-down list of this dialog select desired language of program interface and click the button **OK**. At that, the dialog closes and in the program window, which becomes available to work, appear necessary records in language that you just selected. In the same language will be output any text entries in all windows of the program, as well as all information provided in it.

Creating a new task with unique parameters

If in a new task of Ministry's budget optimization the parameters of goods and services will differ from the similar parameters of any existing task, do the following:

1. Choose the command **Input⇒Input of a new task**, opening the dialog **Input of task data (step 1 of 11)**, where do the following:
 - enter a six-digit code of a new task that may include Latin characters and digits (first field of the dialog);
 - enter a name of this task (second field).
2. Click the button **Forth** in the current dialog, going to the dialog **Input of task data (step 2 of 11)**, where set the following parameters:
 - number of set goals (first field of the dialog);
 - total number of action items on achieving all goals (second field);
 - number of expense items (third field);
 - units of measurement for cost (drop-down list).
3. Click the button **Forth** in the current dialog, going to the dialog **Input of task data (step 3 of 11)**, where set the parameters of goals, which include:
 - description of a goal (second field of the table);
 - weighting factor of a goal (third field of the table).
4. Click the button **Forth** in the current dialog, going to the dialog **Input of task data (step 4 of 11)**, where set the parameters of expense items, which include:
 - purpose of an expense item (second field of the table);
 - financing amount by this item (third field of the table);
 - number of action items on this item (fourth field of the table).
5. Click the button **Forth** in the current dialog, going to the dialog **Input of task data (step 5 of 11)**, where set the first group of parameters of action items, which include:
 - description of an action item (third field of the table);
 - number of types of goods (fourth field of the table);

- number of types of services (fifth field of the table).
6. Click the button **Forth** in the current dialog, going to the dialog **Input of task data (step 6 of 11)**, where set the second group of parameters of action items, which include:
 - degree of influence at a goal (fifth field of the table).
 7. Click the button **Forth** in the current dialog. At that happens either transition to the dialog **Input of task data (step 9 of 11)**, if goods are absent completely (in the field "Number of goods types" of the dialog **Input of task data (step 5 of 11)** table are set all zeros), or transition to the dialog **Input of task data (step 7 of 11)**, if any goods are present. In the latter case, set the first group of parameters of goods, which include:
 - description of a goods sample (fourth field of the table);
 - number of alternative varieties of goods (fifth field of the table).
 8. Click the button **Forth** in the current dialog, going to the dialog **Input of task data (step 8 of 11)**, where set the second group of parameters of goods, which include:
 - code of alternative variety of goods (sixth field of the table);
 - cost of a sample of goods (seventh field of the table);
 - minimum number of samples of goods (eighth field of the table);
 - degree of influence at action item by minimum number of samples of goods (ninth field of the table);
 - maximum number of samples of goods (tenth field of the table);
 - degree of influence at action item by maximum number of samples of goods (eleventh field of the table).
 9. Click the button **Forth** in the current dialog. At that happens either transition to the dialog **Input of task data (step 9 of 11)**, if services are absent completely (in the field "Number of serv. types" of the dialog **Input of task data (step 5 of 11)** table are set all zeros), or transition to the dialog **Input of task data (step 9 of 11)**, if any services are present. In the latter case, set the first group of parameters of services, which include:
 - description of a service (fourth field of the table);
 - number of alternative varieties of services (fifth field of the table).
 10. Click the button **Forth** in the current dialog, going to the dialog **Input of task data (step 10 of 11)**, where set the second group of parameters of services, which include:
 - code of alternative variety of a service (sixth field of the table);
 - minimum cost of a service (seventh field of the table);
 - degree of influence at action item by a service of minimum cost (eighth field of the table);
 - maximum cost of a service (ninth field of the table);
 - degree of influence at action item by a service of maximum cost (tenth field of the table).

11. Click the button **Forth** in the current dialog, going to the dialog **Input of task data (step 11 of 11)**, where set the parameters of expense items, which include:
 - rounding type of cost parameters: **on minimum** (left switch), **on middle** (middle) or **on maximum** (right);
 - rounding step of financing amount of goods and services (first field of the dialog);
 - maximum number of increments of a cost of one service (second field);
 - security scaling factor for cost, which provides protection of the cost parameters from possible unauthorized access to them by third parties in case of performing calculations for some tasks on another computer with the purpose of accelerating their processing (third field).
12. Click the button **Forth** in the current dialog, going to the dialog **Input of task data**. Look through in it the main input data of the task and if you are not satisfied by them, then using the button **Back** go to the desired previous dialog and make there necessary correction of the tasks input data. Otherwise, do one of two things:
 - at selected by default the switch **later** (it is located at the bottom right) click the button **Ready**, causing the program to form two files in the folder **Data**: a common file of the task (**mbo_<six-digit task cipher>.dat**) and its input file (**mbo_<task cipher >_in.dat**);
 - select the switch **at once** (bottom left) and click the button **Ready**, causing this task to be solved at once without using stipulated for this aim the next commands: **Control**⇒**Work with a task protocol** и **Solving**⇒**Execution of optimization**.

Creating a new task with repetitive parameters

If a new task has the same parameters of goods and services as some existing task, do the following:

1. Choose the command **Input**⇒**Input of a new task by data import**, opening the dialog **Input of task data (step 1 of 11)**, where do the following:
 - enter a six-digit code of a new task (the first field);
 - enter a name of this task (second field);
 - select format of a file to be imported which contains input data of another task: own format of the program (left switch **DAT**) or standard format Excel (right switch **XLS**);

Note

Mode of import into a new task of input data of another task, been stored in Excel-file, was introduced due to the fact that the program has a mode of export input data of existing tasks into files of Excel type (command **Export of data to Excel-table** of menu **Output**).

- when selecting **DAT** do the following:

- in the drop-down list select such existing task, which input data should be copied to the current task;
 - click the button **Import**;
 - when selecting **XLS** do the following:
 - click the button **Import of Excel-file**;
 - in the opened dialog **Open** select on the disk required file (with the extension xls), and click the button of the same name.
2. Moving with the button **Forth** from the current dialog to a next one, look through in all twelve dialogs the input data of a current task and make necessary changes in them (see above Sec. "Creating a new task with unique parameters").
 3. Click the button **Ready** in the last dialog. At that, in the folder **Data** are created two files of the task: general and input.

Correction of task input data

This operation can be performed in two ways:

- during the operation to create a new task (see above).
- by using the command **Input⇒Correction of input data of unsolved task**, that is available for use to such unsolved tasks, which input files have not been copied to the folder **Solving** for their solution (selection of a task for correcting its input data is made in the dialog **List of tasks**, which is opened on the screen by this command).

Uploading a file with input data of a new task

After creating a new task, you need to copy its input file (with input data of the task) to the folder **Solving** for its subsequent solution (see below). This operation is performed in the following order:

Note

After completing the operation in question concerning to some unsolved task you can not correct its input data.

1. Choose the command **Control⇒Work with a task protocol**, opening the dialog **Protocol of tasks**.
2. Select in the dialog upper list the required task, for which the operation in question was not fulfilled (this is indicated by the record "A stage of data input" in line "Task state" of the protocol table).
3. Click the button **Upload the file of task input data**, which in this case becomes unlocked. At that happens the following:
 - in the folder **Solving** appears a duplicate of the input file of current task;
 - in line "Task state" of the protocol table appears record "Waiting for solution";

- the button **Upload the file of task input data** becomes locked.

Solving tasks

Operation of solving tasks, which input files are placed in the folder **Solving**, is performed in the following order:

1. Choose the command **Solving**⇒**Execution of optimization**, opening the dialog **Optimization module of MLIS MBO 1.0**.
2. Set the desired mode of processing: *batch* (for solving all group of tasks) or *individual* (for solving only one task), and then click the button **Next**.
3. When working in batch mode, do the following:
 - if necessary, adjust specified parameters of optimization, and then click the button **Next**;
 - click the button **START** at the bottom, resulting in a process of successive solving the tasks of this group, when a name of this button changes to **WORK**;
 - after this button again be called **START**, which indicates the completion of solving the entire group of tasks, close the dialog **Optimization module of MLIS MBO 1.0** by clicking the button **EXIT** (bottom right).
4. When working in individual mode, do the following:
 - type in the dialog field a six-digit cipher code of a solvable task and click the button **Next**;
 - if necessary, adjust the parameters of optimization scheme, and then click the button **Next**;
 - click the button **START** at the bottom, resulting in a process of solving selected task, when a name of this button changes to **WORK**;
 - after this button again be called **START**, which indicates the completion of solving the current task, close the dialog **Optimization module of MLIS MBO 1.0** (button **EXIT**).

Connecting a file with task solving results

After performing the operation of solving tasks you should transfer files with results of their solution (**mbo_<task cipher>.out.dat**) from the folder **Solving** to the folder **Data**. This operation is performed in the following order:

Note

After performing this operation concerning some solved task it is impossible its repeated processing. That may be required, in particular, in case of absence of its successful solution due to wrong choice of values of the optimization schemes parameters.

1. Choose the command **Control**⇒**Work with a task protocol**, opening the dialog **Protocol of tasks**.

2. Select in the upper dialog list the required task, which input file was copied to the folder **Solving** (this is indicated by the record "Waiting for solution" in line "Task state" of the protocol table).
3. Click the button **Load the file of task solving results**, which in this case becomes unlocked. At that happens the following:
 - input file of the current task is removed from the folder **Solving**, and its output file is moved from this folder to the folder **Data**;
 - in line "Task state" of the protocol table appears record "Task is solved";
 - the button **Load the file of task solving results** becomes locked.

Working with a tasks protocol

A protocol of tasks contains general information about existing tasks of Ministry's budget optimization, being solved by LVP MLIS MBO 1.0 (these data are stored in the file **protocol .prm** placed in the folder **System**). On the screen displays in tabular form such part of the protocol, which refers to a user-selected task. It contains the following formation:

- cipher and name of this task;
- current state of the task, which can be one of three: " A stage of data input", "Waiting for solution" or "Task is solved";
- dates and times of occurrence for the four different event.

Transition to the mode of work with a tasks protocol is performed by the command **Control⇒Work with a task protocol**, which opens the dialog **Protocol of tasks**. In this window, the following operations can be performed:

- viewing general information about the existing tasks;
- upload the input file a new task, that contains its input data (see above);
- connecting the output file of the task containing the results of its solution (see above);
- removal of those tasks that are no longer necessary for the user (button **Delete the task**).

Output of task input data

Input data for any existing task of Ministry's budget optimization may be brought out to screen, Excel-file and print. This operation is performed in the following order:

1. Choose the command **Output⇒Viewing input data of any task**.
2. In the opened dialog **List of all tasks** select the desired task and click the button **OK**. At that, the current dialog is closed and opens the window **Viewing input data of the task "<task name>"** with tabular input data of the task chosen by you, which can be looked through.

3. To bring out these data to a new Excel document, run the command **Export of data to Excel-table** of menu **Output**, to print them — the command **Printing of data** of the same menu.

Output of task solving results

Output for any solved task of Ministry's budget optimization may be brought out to screen, Excel-file and print. This operation is performed in the following order:

1. Choose the command **Output⇒Viewing data of solved task**.
2. In the opened dialog **List of solved tasks** select the desired task and click the button **OK**. At that, the current dialog is closed and on the screen appears the control panel **Selection of expense items for output on them the output information of solved task**", that contains checkboxes with numbers of all set expense items.
3. On this panel set checkboxes for which you want to bring out the results of calculating, and then close it by the button **OK**. At that, opens the window **Viewing solution result of the task "<task name>"** with tabular output data of the task chosen by you and for selected by you the expense items.
4. To bring out these data to a new Excel document, run the command **Export of data to Excel-table** of menu **Output**, to print them — the command **Printing of data** of the same menu.