

Press release: with the advent of the program MLIS/MNIS TO 1.6 no longer exists the problem of the efficiency of transporting cargo or people by one transport vehicle.

Michael Burlakov - founder of the new information technology of automation of control of discrete technological and information processes (IT AC DTIP), that has a variety of uses, has created on its basis a new *multilingual* software product of version 1.6 under the name "**Transportation optimization (TO 1.6)**". This program, that has conventional (MLIS) and network (MNIS) performances, allows to find optimal strategies of servicing by one transport vehicle up to 18 target points

An important problem of transportations in city is their effectiveness, which is far from always successfully solved in practice. For a number of reasons, only large transport companies can perform calculation of effective strategies of servicing by transport vehicles (TVs) of the given target points (TPs). Small and medium-sized companies, as well as transport services of trading and other companies can not afford it. Therefore, they are forced to perform manual calculations of the TVs travel routes. From this it follows that the efficiency of transportation for such companies is very low.

Now this problem can become a thing of the past for the transportation of cargoes or people by one TV when the number of TPs not exceeding 18. With such limitations, which in practice are carried out very often, it became possible to find the optimal transportation strategies. For this purpose, the author has created the program TO 1.6. To solve in it the tasks of finding optimal strategies for transporting something by one TV over several specified TPs, it is necessary to have the databases of roads networks (DBRN) of the corresponding cities, the creation and import of which are provided in the program.

The program TO 1.6 is *multilingual*, the alternative languages of which interface are stored in separate files, called *language shells*. It includes two such shells: Russian and English, as well as a special program for their generation by users themselves. Two variants of TO 1.6 have been developed: *conventional* (Multilingual local instrumental system of transportation optimization - **MLIS TO 1.6**) and *network* (Multilanguage network instrumental system of transportation optimization - **MNIS TO 1.6/upc**). MLIS TO 1.6 is offline program, designed for a particular user (lite version of this program is free). MNIS TO 1.6/upc is purposed to provide network services to many users. This system consists of two parts: one remote module of optimization (MO), wherein occurs synthesis of optimal strategies for the transportation of cargo or people, and numerous automated work places (AWPs), that are targeted to specific users of MNIS.

MLIS/MNIS TO 1.6 allows to solve various tasks of finding optimal strategies of transporting cargo or people by one vehicle at a given target points, which ensure minimum losses or maximum income from their service. There is provided a possible accounting of the following factors:

- refusals in servicing TPs;
- a time factor when servicing TPs (availability of time windows for their serving);
- holding capacity or cargo capacity of TV;
- return of TV to the initial TP for the remaining cargoes, if their total volume or weight exceeds the capabilities of TV;
- the required order of passing TV via some TPs, which can be specified in three ways: a) by specifying number of a TP, passable next after a current TP; b) by specifying number of a TP, passable after a current TP; c) by setting priorities of passing via TPs.

In the basis of solving these tasks lies the method of numerical optimization of discrete processes of service, as well as a unique scheme to optimize such processes developed by the creator of MLIS/MNIS TO 1.6. Each task is solved in two stages. On the first of them there are found the optimal routes of passing TV between any possible pairs of TPs, and on the second - the optimal order of passage all TPs.

A set of lite version of MLIS TO 1.6 you can download from any of two websites of the author: "Promotion center of IT AC DTIP" (<http://dtip-burlakov.com/en/>) and "Implementation center of IT AC DTIP" (<http://dtip-optim.com/en/main>). There you can solve your tasks in a test mode in full-scale network program MNIS TO 1.6/upc.

The author and creator of MLIS/MNIS TO 1.6 - Michael Burlakov, Doctor of Engineering (Kiev, Ukraine). The term of its entry into operation - April 2018 (the year of MNIS update to version 1.6/upc - the same). The areas of its possible use are **transport, trade and sphere of emergency help**.

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