

**Press release: With the advent of the program MLIS/MNIS GAO 2.2 no longer exists the problem of compromise between cost and time of achieving the set goal.**

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 2.2 under the name "**Goal achievement optimization (GAO 2.2)**". This program, that has conventional (MLIS) and network (MNIS) fulfillments, allows to optimize the strategy of achieving the goal, described by the network graph of arbitrary structure, when is reached the minimum of cost (or time) of its performance at a given restriction on the time (cost) of performing it.

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As is known, when planning the design or construction of some object or a business transaction arises the problem of choosing the necessary resources to fulfill separate operations (works) of this process with the aim of its best realization. At that are used existing methods and software tools of network planning. The best known of the first ones is the *method of critical path*, which is realized in particular in the popular program of network planning *Microsoft Project*. When performing optimization by this method, there is a redistribution of resources between the operations located in non-critical branches of the network graph (NG) and the operations of its initial critical path.

The method of critical path has a number of drawbacks and restrictions. Firstly, it does not guarantees to obtain the best (optimal) solution. Secondly, during its use is made the assumption, that is not always takes place in reality, that any operation can be speeded by bringing excessive resources from another operation, located on a non-critical way. And third, to apply this method to NG with many cross-links is rather problematic. Thus, the well-known method of critical path and the software of network planning based on it do not allow to successfully solve in practice many tasks of optimizing achievement of the goal, described by NG of arbitrary structure.

Now this has become possible due to the release of the program, "Goal achievement optimization, version 2.2 (GAO 2.2)", which is a *multilingual* one. Alternative interface languages of the program 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.

GAO 2.2 is designed to find optimal compromise between the cost and time of performing NG, which presents a specified set of chains (ordinary and nested) of linked operations, aimed at achieving the set goal. Each of these operations is characterized by different options of values of cost and net time of its execution, inherent to appropriate resources, some of which may be temporarily unavailable. The program also provides a mode of realization accompaniment for the existing network graph, the calculated optimal parameters of which have been found earlier. It follows that GAO 2.2 possesses all features for solving tasks of project management, where a plan of project creation is presented in the form of a network graph of arbitrary structure.

Program GAO2.2 allows to minimize the cost (or time) of executing NG under set restrictions on the time (cost) of its execution, which is achieved by finding the optimal options of executing all its operations. The basis of solving in it of the tasks of goal achievement optimization is the method of numerical optimization of discrete processes of service, as well as the method of decomposition. A task solution result, presented in a tabular form, is a set of optimal options of executing all NG operations for each given time/cost threshold of its execution. In particular, for each operation of the graph are specified all its parameters, including a time range within which can vary the start of its execution.

Two variants of MBO 1.0 were developed: *conventional* (Multilingual local instrumental system of goal achievement optimization - **MLIS GAO 2.2**) and *network* (Multilanguage network instrumental system of goal achievement optimization - **MNIS GAO 2.2/upc**). MLIS GAO 2.2 is offline program, designed for a particular user (lite version of this program is free). MNIS GAO 2.2/upc is purposed to provide network services to many users.

A set of lite version of MLIS GAO 2.2 you can download from any of two websites of the author: "Promotion center of IT AC DTIP" (<http://promo.dtip-optim.com/en>) and "Implement. 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 GAO 2.2/upc.

The author and creator of MLIS/MNIS GAO 2.2 - Michael Burlakov, Doctor of Engineering (Kiev, Ukraine). This program was put into operation in August 2016 (the term of MNIS update to version 2.2/upc - 2018). The areas of its possible use are **designing, construction, industrial production and business**.

Contacts:

e-mail: [michael.burlakov@gmail.com](mailto:michael.burlakov@gmail.com)

tel.: (+38) 099-012-09-77