

## AUTOMATIC CONTROL OF RAILWAY AUTOMATION AND TELEMECHANICS DEVICES

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### Abstract:

Transport processes, especially from the point of view of the analysis of functioning of the automated technological complexes, including management and control of systems and devices of railway automation and telemechanics, are naturally formalized with application of schemes of mass service. The methodology of description of electronic document flow of technical documentation (EDMTD) in automation and telemechanics economy is based on allocation of the following components: control levels, technological chains according to the selected levels of hierarchy and algorithms of technological processes (TP) of the studied EDMTD.

### Keywords:

Railway automation and telemechanics, electronic document management of technical documentation, model of electronic document management, communication, software.

In modern conditions, the following trends are observed in the development of electronic document management of system railway automation and telemechanics: expansion of functionality, increased requirements for information security, reduction of time for processing technical documentation, etc. These new qualities of electronic document management systems can be achieved through the use of modern techniques and information systems.

The use of information and communication technologies allows to significantly expand the channels of interaction of the automation and telemechanics service with the involved organizations, thereby contributing to the strengthening of cooperation between enterprises based on mutual understanding, taking into account the interests of each.

Automated system of accounting and control of railway automation and telemechanics (ASA-CRAT) is, on the one hand, an extensive database that stores complete information about the installed equipment, including its history. On the other hand, ASA-CRAT is a client part that works with this database and implements the needs of various services.

Figure 1 shows a diagram of the architecture of the ASA-CRAT software package. This system complex will be distributed through the Repair and Technological Sections (RTS) of the signaling and communication distance of Uzbekistan railways using the ASA-CRAT servers and the database.

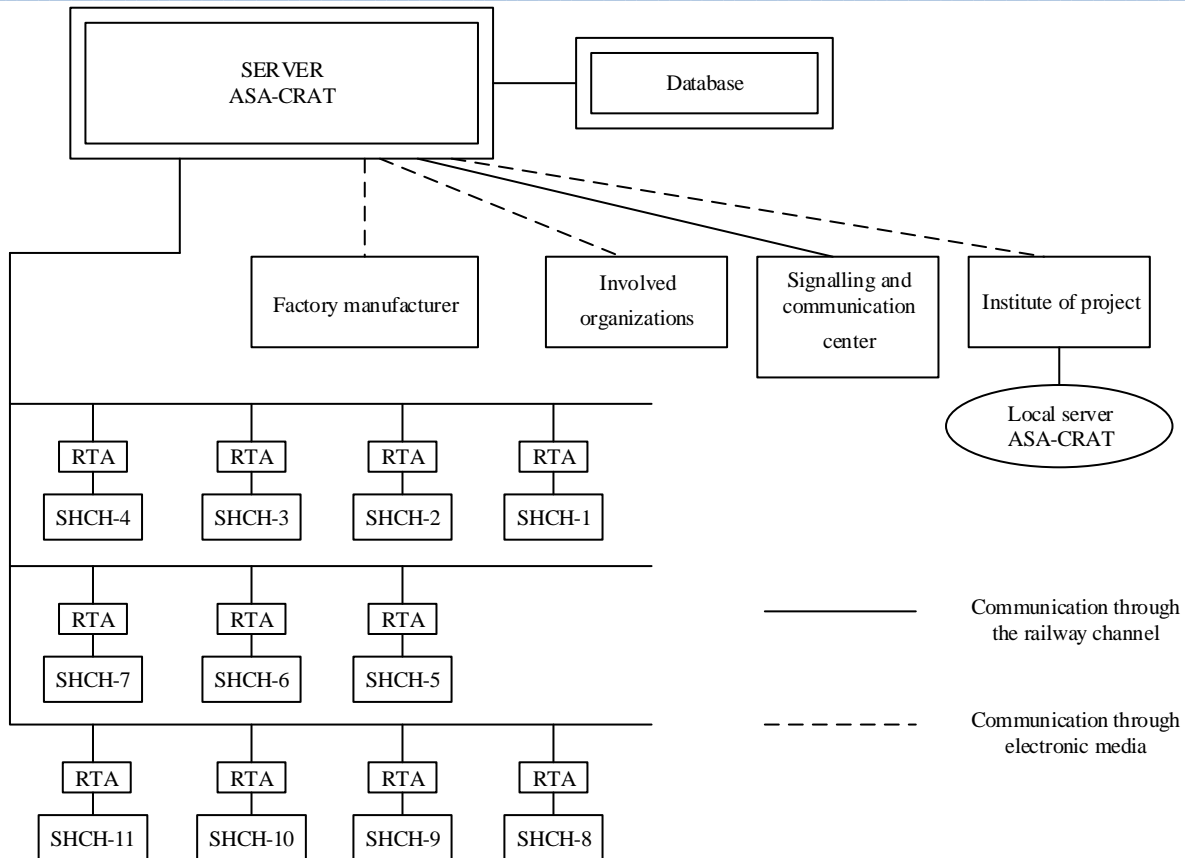


Fig.1. Architecture diagram of the ASA-CRAT program

It is proposed to use ASA-CRAT in the general structure of the electronic document management system for technical documentation.

The proposed technological structure takes into account the possibilities of existing communication lines, data transmission technologies. The database for monitoring and accounting of railway automation and telemechanics devices is organized on the ASA-CRAT server. In turn, the ASA-CRAT server interacts with the database.

It should be borne in mind that the traditional paper flow of control and accounting of railway automation and telemechanics devices will not soon lose its importance - in the coming years, important documents will still be published, approved and delivered in paper form.

Nevertheless, there are (and a number of organizations are already operating) integrated paper and electronic technologies, in which the control and accounting of railway automation and telemechanics devices is carried out in electronic form, and it is with the electronic copy that work is going on, and the paper copy is transmitted in the usual way.

Experience shows that the modern volume of work on the construction and repair of railways is no longer conceivable without the use of information technology. Paper carriers do not allow fast data exchange, accumulation, processing and analysis of information. It is quite obvious that most of the work (especially well-algorithmic) performed by a person can be transferred to a computer. Currently, in connection with the organization of an association of factories that produce signaling, centralization and blocking (SCB) equipment for railway transport, the task of allocating resources to ensure timely and high-quality execution of plans for overhaul, capital construction and operation of signaling devices becomes especially urgent. Such a task can be performed on the basis of databases of technical documentation generated in the distances of automation and telemechanics in electronic form using a set of tasks "Automated system of accounting and control of railway automation and telemechanics devices".

ASA-CRAT is intended for automation of accounting and control of devices for railway automation and telemechanics, as well as for planning the work of a repair and technological section and forming various options for replacement cards for devices.

The program is used in the distances of railway automation and telemechanics.

The main functions of the program:

- creation and maintenance of a database, including passports of specific devices and information about the place of their installation;
- tracking the movement of devices in connection with periodic replacements, write-offs, receipts, etc.;
- planning the replacement of devices with the issuance of technologically necessary information;
- monitoring the implementation of plans for replacing devices;
- analysis of failures of devices of alarm devices, centralization and blocking;
- planning the work of repair and technological areas;
- issuance of output documents, the ability to search for devices in the database for arbitrary requests.

In addition, ASA-CRAT allows automated accounting of equipment replacement and movement. ASA-CRAT is, on the one hand, an extensive database that stores complete information about the installed equipment, including its history. On the other hand, ASA-CRAT is a client part that works with this database and implements the needs of various services.

The purpose of the ASA-CRAT is to increase the efficiency of the processes of maintaining a database for monitoring and accounting for railway automation and telemechanics devices, maintaining signaling, centralization and blocking at the station and remote level of management of the economy through the use of computer technologies for its receipt, storage and processing.

Electronic document flow for control and accounting of railway automation and telemechanics devices in the form of ASA-CRAT can significantly increase the efficiency of the automation and telemechanics service, and enterprises associated with this document flow.

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