

# Operating Regulations

## Information System "Tekhzor"

When operating the Information System "Tekhnadmor" ("Tekhzor") (hereinafter — the System, IS "Tekhzor"), standard methods of protection against mechanical, thermal, electromagnetic and other impacts, data protection, including protection against unauthorized access, must be used.

### 1. Conditions for Ensuring the Use of Automation Tools in Accordance with Their Intended Purpose

The condition for the System application is a deployed complex of software and technical means of the System.

The table below (Table 1) presents the components of the software and technical means complex necessary for system operation:

No.	Type of Software	Name
1	Intermediate web-servers	nginx 1.14.0; ingress-nginx in K8S
2	DBMS	MongoDB 4.4, Redis 7, PostgreSQL 17
3	Operating system of user workstations	OS Microsoft Windows 10 and higher
4	Browser	Chrome 95 or higher; Firefox 93 or higher; Safari 15.1 or higher; Edge 95 or higher; Yandex 21.11 or higher

Table 1: Table 1 -- Complex of Software and Technical Means

A mandatory condition for the System's operability is the deployment and configuration of server and client-side components.

## 1.1 Requirements for the Technical Means of the Server Part

The technical means of the server part have the characteristics presented below (Table 2).

<b>Server</b>	<b>vCPU Count</b>	<b>RAM, GB</b>	<b>SSD, GB</b>	<b>HDD, GB</b>
Application Server	1	8	32	200
Database Server	1	8	32	100
File Server	1	4	8	100
Monitoring Server	1	4	8	100
Update Server	1	2	4	100

Table 2: Table 2 -- Characteristics of Technical Means of the Server Part

## 1.2 Requirements for the Technical Means of the Client Part

The technical means of the client part of the System have the minimum characteristics indicated below (Table 3).

<b>No.</b>	<b>User Workstations</b>	<b>Hardware Specifications</b>
1	Processor	Intel Core i3 2.7 GHz or equivalent
2	RAM Volume	4 GB
3	Free Hard Drive Space	5 GB
4	Network Adapter	100 Mbps

Table 3: Table 3 -- Characteristics of Technical Means of the Client Part of the System

## 2. System Maintenance

System maintenance includes the following list of works:

- Data backup;
- System software updates;
- Carrying out routine System operability checks;
- Consultative and technical support for System users to resolve issues that arise during System operation.

### 2.1 Data Backup

System maintenance includes the following works:

- Database recovery in case of data corruption or destruction;
- Preventive monitoring of the condition of disk storage devices and data on them.

Performing these actions ensures continuous System operation. In this case, data backup is carried out in the mode of creating a full database copy.

Data backup must be performed using automated backup tools according to a schedule configured by the System administrator in accordance with the backup plan.

Full backup of System databases is recommended to be performed daily.

Creating a full database copy is accomplished by completely copying all files of the specified database to a backup drive.

When saving changes made since the creation of the last archive copy, only those database changes that were made since the last archiving operation (full or incremental) are transferred to the backup drive.

Control of the results of all backup procedures must be carried out by the system administrator.

If an error is detected, it is necessary to identify the cause of the error and eliminate it, then run the backup procedure and verify the execution of the procedure again.

During the period when the backup system is in an emergency state, it is recommended to perform daily copying of information subject to backup using file system tools of servers that have the necessary disk space for its storage.

When restoring information from archive copies from archive media, the state of the database is restored as of the time of the last full backup operation.

Monthly, it is recommended to perform a test recovery of the System from a backup copy.

Backup service security is ensured by the following:

- Backup and restore permissions are granted only to authorized employees;
- The backup drive is located on a separate server.

## **2.2 System Software Updates**

During System operation, the system software included in its composition must comply with the manufacturer's recommendations.

The rules of operation of System components must be observed, and timely installation of software updates recommended by manufacturers must be carried out.

During System operation, system and application software included in its composition must be updated.

The Customer provides technical means for the operation of the industrial platform of the System.

## **2.3 Carrying out Routine System Operability Checks**

To prevent emergency situations, continuous monitoring of the condition of software and hardware components of the System is carried out using built-in tools.

As part of monitoring, the following functions are performed:

1. Collection and analysis of diagnostic data on system operation, including:
  - Component performance;

- Quality of interaction between elements;
  - Overall system operability.
2. Formation of warnings about potential critical situations.

The System maintains a monitoring log where the following are recorded:

- Unique record identifier;
- Date and time of the event;
- Name of the event that occurred.

All entries in the log are protected from changes, including administrative access.