Scaling National Digital Trust: Kazakhstan's Blueprint for Secure Public Key Infrastructure, Sovereign Identity, and Cross-Border Interoperability

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Projects

National Certification Authority of the Republic of Kazakhstan (NCA RK)

Certification Authority of the Government Agencies of the Republic of Kazakhstan (CAGA RK)

Trusted Third Party of the Republic of Kazakhstan (TTP RK)

National Certification Authority of the RK (NCA RK)

The National Certification Authority of the Republic of Kazakhstan was established on October 29, 2008.

In accordance with the Digital Code of the Republic of Kazakhstan as of January 9, 2026, National Information Technologies JSC provides support and system maintenance for the NCA RK.

The main purpose of creating the NCA RK is to provide individuals and legal entities in the Republic of Kazakhstan with reliable authentication and digital signature tools when using e-government services and the digital systems of various business structures. It also aims to protect e-mail messages.

The NCA RK issues public key certificates for digital signatures (DS) based on the following templates:

- Individual
- Individual – Identity Card
- Legal Entity – First Executive (Head)
- Legal Entity – Employee Authorized to Sign
- Legal Entity – Organization Employee
- Participant of the Treasury Information System
- SSL (Secure Sockets Layer) – Individual
- SSL (Secure Sockets Layer) – Legal Entity

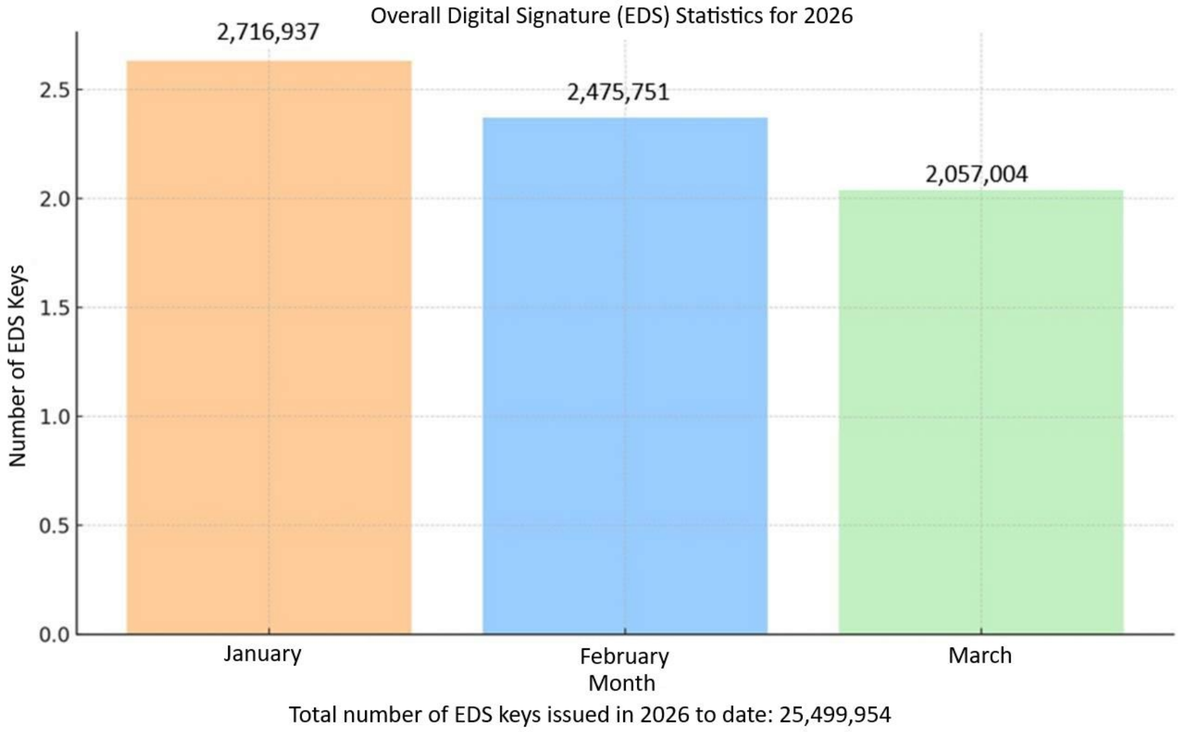


National Certification Authority of the RK (NCA RK)

The National Certification Authority of the Republic of Kazakhstan (NCA RK) provides individuals and legal entities with digital signature (DS) tools and public key certificates for creating electronic documents in government and non-government digital systems.

ACHIEVEMENTS

- DS keys are issued free-of-charge at all Public Service Centers (PSCs) across the Republic of Kazakhstan
- The option to obtain DS keys through remote identity verification has been implemented, eliminating the need to visit a PSC
- DS keys can also be obtained through diplomatic missions and consular offices of the Republic of Kazakhstan in more than **60 countries**, covering over **80 cities** worldwide



Breakdown by Digital Signature (DS) type

- Via the mGov mobile application: 15,338,172
- Via secure storage devices (KazToken, eToken, etc.): 64,229
- Total number of active DS keys: 29,034,567
- Via diplomatic missions of the Republic of Kazakhstan abroad: 2,208

User Identification

- Remote identification of individuals: 23,653,062
- Remote identification of legal entities: 1,044,878

National Certification Authority of the RK (NCA RK)

Prospects and future development of the NCA RK

1. Development of Mobile Technologies:

- Work is ongoing to improve the convenience of obtaining digital signatures (DS), including integration with popular mobile operating systems and platforms such as Android and iOS

2. Cloud Technologies:

- The NCA RK plans to further develop cloud-based services for storing DS and cryptographic keys
- This will improve accessibility and mobility while reducing the costs associated with physical data storage devices

3. Blockchain Technology:

- The implementation of blockchain technology to enhance the security and verification of document authenticity
- This will guarantee the integrity and immutability of signed documents

4. Expansion of International Cooperation:

- The NCA RK is actively developing international cooperation with other countries in the field of digital identification, thereby creating opportunities for the use of Kazakhstan's digital signature (DS) abroad
- Alignment with international standards for digital signatures and certificate exchange

National Certification Authority of the RK (NCA RK)

KEY IMPLEMENTED INITIATIVES

1. Implemented encryption for data stored in the NCA RK database to ensure its confidentiality
2. Implemented the collection and storage of application data, including scanned documents submitted during the provision of NCA RK biometric identification services through Public Service Center (PSC) operators. This enables quality control of NCA RK services through integration with the PSC Information and Communication System (ICS)
3. Migrated the UserAPI and identifier microservices to e-Gov Gateway 2.0 as part of the integration with the state databases of individuals and legal entities
4. Introduced multi-factor authentication for user accounts on pki.gov.kz using an SMS verification code or a digital document
5. Implemented a mechanism to obtain an individual's consent through the Consent Management Platform (CMP) before accessing personal information from the State Database of Individuals
6. The DS issuance application process has been optimized: the Individual Identification Number (IIN) is now only entered once on the did.gov.kz portal, eliminating the need for repeated entry and simplifying the user experience
7. The NCALayer has been updated to expand the functionality of digital signatures, improve key storage management and enhance accessibility to the service
8. The "Policy for application of registration certificates issued by the NCA RK" updated in line with the Digital Code of the Republic of Kazakhstan

PLANNED INITIATIVES

1. A cryptographic provider for electronic signature operations has been developed in Go programming language
2. Certification of methods for verifying and signing archived documents using NCALayer software
3. Implementation of an asynchronous UserAPI service for processing DS issuance applications
4. Certification of the cryptographic provider for compliance with Cryptographic Information Protection Tool (CIPT) requirements

ADVANTAGES OF USING ELECTRONIC DIGITAL SIGNATURE (EDS)

A convenient tool for remotely accessing services and performing legally binding transactions

1. **No queues or travel required**
   Accessing services and signing documents without the need for an in-person visit.

2. **From anywhere in the world**
   Access to electronic services regardless of geographical location.

3. **No paperwork or courier services required**
   Preparation, signing, and submission of documents online.

4. **Cost reduction**
   Reduced costs associated with printing, delivery, and document storage.

5. **Legal validity**
   Electronic documents signed with a DS have legal force in accordance with applicable legislation.

DS helps streamline procedures, reduce costs, and improve access to electronic services

DS – BENEFITS FOR EVERYONE

Practical benefits of digital interaction:

CITIZENS

Time savings when accessing services and processing documents.

BUSINESSES

Faster document workflows and reduced administrative costs.

GOVERNMENT

Automation of processes and reduction of paper-based document workflows.

SOCIETY

Improved access to digital services regardless of the user's region of residence.

DS ensures convenience, accessibility, and efficiency in digital interactions

Certification Authority of the Government Agencies of the Republic of Kazakhstan (CAGA RK)

The Certification Authority of Government Bodies of the Republic of Kazakhstan is a certification authority that provides services to government bodies and their officials within the information systems and other government information resources of the Republic of Kazakhstan.

The project was commissioned for production operation on May 29, 2007.

In accordance with the Rules for the Issuance, Storage and Revocation of Public Key Certificates for Digital Signatures, as well as the Verification of Ownership and Validity of Public Keys of the Certification Authority of Government Agencies of the Republic of Kazakhstan, the Certification Authority of Government Agencies of the Republic of Kazakhstan provides free-of-charge the issuance and revocation of public key certificates.

Key initiatives implemented in 2026:

- Integration with the “IIN and Full Name Verification Service” web service
- Integration with the “Digital Document” web service
- Migration to the e-Gov Gateway 2.0

The total number of DS keys issued by CAGA RK from January to October 2026: 27,276





Trusted Third Party of the Republic of Kazakhstan (TTP RK)

The Trusted Third Party of the Republic of Kazakhstan (TTP RK) ensures the verification of digital signature (DS) authenticity in cross-border electronic interactions. The TTP RK enables the verification of foreign DS in Kazakhstan and facilitates the validation of Kazakhstan's DS when interacting with foreign information systems.

Trusted Third Party of the Republic of Kazakhstan (TTP RK)

- Year of establishment: 2008 — Pursuant to the Resolution of the Government of the Republic of Kazakhstan as of April 17, 2008, Center for Technical Support and Analysis in the field of Telecommunications was established. It subsequently became involved in the development and maintenance of certification authorities, including the TTP RK.

- Roles and functions:
- Registers certification authorities of the Republic of Kazakhstan and foreign certification authorities
- Verifies the authenticity of foreign electronic signatures
- Ensures interaction between various certification authorities to maintain security and trust in electronic document management

Project Objective: To ensure the authenticity of digital signatures (DS) in cross-border electronic interactions between government and non-government information systems.

WHAT HAS BEEN DONE:

1. Development of cross-border cooperation between the TTP RK and foreign Trusted Third Parties and Certification Authorities
2. Implementation of cross-border electronic document management in accordance with international agreements and decisions of the Eurasian Economic Commission (EEC)
3. Enhancement of mechanisms for verifying and recognizing foreign digital signatures (DS) within the Republic of Kazakhstan
4. A Mutual Recognition Agreement on Digital Signatures was signed with the Republic of Uzbekistan, followed by successful joint testing
5. Interoperability testing with the Kyrgyz Republic is currently underway
6. Legal and technical negotiations with the People's Republic of China are ongoing

PLANS:

1. Establishing production-level cross-border data exchange with the Republic of Azerbaijan, the People's Republic of China, the Kyrgyz Republic, and the Republic of Uzbekistan
2. Providing support to users of foreign Certification Authorities registered with the TTP RK
3. Expanding cooperation between the TTP RK and foreign Certification Authorities, Trusted Third Parties, and information systems
4. Further developing bilateral TTP-to-TTP interaction mechanisms