

# SHATELmobile SIM OTA/AOTA Solutions

Revolutionizing SIM Management



- Communicate with the SIM card and send commands remotely
- Add/Remove/Update and reinstalling applications on the SIM card
- Remotely manage SIM cards through Over-The-Air (OTA) technology
- Enable active management of customer SIM cards remotely, without the need for physical access to the SIM card

The SIM OTA module can update any file on the card's file system, provided it is permitted for OTA modification. Examples include:

- MSISDN update dialing number lists XDN (such as ADN, FDN, SDN,...) list
- Service Provider Name (SPN)
- PLMN selection
- Forbidden PLMN
- SIM service table
- Access control class file
- Short message service parameters (SMSP)



## Why SHATELmobile SIM-OTA?

**Effortless OTA Update:** Keep your network's SIM cards updated with the latest software, applet, configuration and services without physical access to sim, ensuring continuous innovation and security.

**Enhanced Security Measures:** Secure your mobile ecosystem with state-of-the-art encryption, authentication, and data protection features, safeguarding against threats and vulnerabilities.

**Scalable and Flexible:** Designed to accommodate networks of any size, our solutions grow with your needs, providing flexibility and scalability.

**Insightful Analytics:** Monitor and analyze device performance, usage patterns, and network efficiency to make informed decisions and optimize operations.

**SHATELmobile** has innovated the smart SIM card technology, which continuously analyzes available networks to automatically connect users to the best RAN (Radio Access Network) for optimal 3G, 4G, and 5G coverage. This ensures a seamless and high-quality mobile experience for subscribers.

In addition, Shatel Mobile offers Advanced OTA (Over-The-Air) for SIM cards referring to an enhanced set of capabilities that allow mobile network operators and service providers to manage, update, and configure SIM cards remotely and more efficiently. This technology is especially crucial for managing large fleets of SIM cards, such as in IoT devices, smartphones, and other mobile-enabled gadgets.

## Advance Over-The-Air (OTA/AOTA) Technology

Over-The-Air (OTA) is a standard for transmitting and receiving application-related information in wireless systems. Often used with SMS, OTA allows the transfer of small files like subscription activation data, banking transactions, ringtones, and WAP settings. These messages can be encrypted for enhanced privacy and security. Over-The-Air (OTA) and Advanced OTA (AOTA) technologies allow mobile network operators to remotely manage SIM cards by sending encrypted updates and instructions via SMS or IP-based channels like HTTP/S. OTA enables operators to update SIM settings, install Java applets, and manage user profiles through Remote File Management (RFM) without physical access. AOTA enhances this by offering faster, more secure updates using LTE and enabling bulk management of SIM cards, including dynamic profile switching and roaming preferences. These technologies ensure seamless service updates, improved security, and efficient large-scale SIM management.

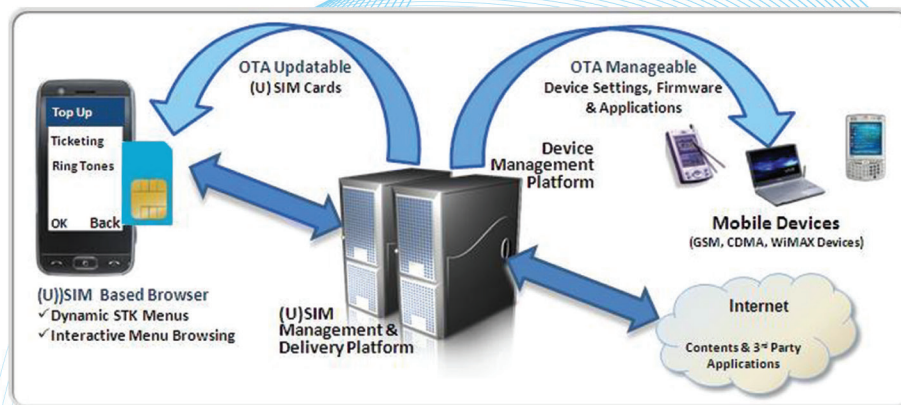


## Common OTA/AOTA Applications:

- Subscription activation and deactivation
- Mobile banking transactions
- Mobile ID
- Mobile connect
- Secure delivery of ringtones and content updates
- OTA services are integral to modern mobile networks, ensuring efficient and secure data communication

## The OTA/AOTA Engine: Ensuring Seamless Service

At the heart of **SHATELmobile's** OTA system is the OTA Engine, a powerful backend system connected to mobile networks. It receives service requests such as updates and configurations, which are then transmitted securely to subscriber devices.



## The process involves

1. Receiving service requests through the Engine API
2. Formatting service requests into messages for different SIM brands
3. Securely transmitting messages via SMS to fulfill requests
4. Ensuring the integrity and security of the process at all stages

## Comprehensive Card Profile and Remote Management

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## OTA/AOTA SIM Management:

- **Transmission of Updates:** Through OTA technology, mobile network operators can transmit small data packets like software updates, application installations, or security patches directly to the SIM card. This is typically done via the Short Message Service (SMS) or more advanced channels like HTTP/S.
- **Remote File Management (RFM):** OTA systems can remotely modify files stored on the SIM card using the RFM protocol. This allows operators to update settings, manage user profiles, or modify service configurations without requiring physical access to the SIM.
- **Remote Applet Management (RAM):** Operators can install or update Java applets on the SIM card, which may provide new services, enhance security, or manage network features. These applets are often used for value-added services and are updated using SMS-PP (Point-to-Point) or HTTP/S.
- **Security:** OTA messages can be encrypted using standardized encryption methods (like GSM 03.48) to ensure the confidentiality and integrity of the data. This guarantees that unauthorized parties cannot intercept or modify the updates being sent to the SIM.
- **Campaign Management:** Through OTA platforms, operators can schedule large-scale updates for multiple SIM cards at once, distributing new features or bug fixes across their entire user base efficiently. Operators monitor and report on the success of each campaign.

SHATELmobile's AOTA technology enhances traditional OTA capabilities by introducing high-speed IP-based technologies, such as LTE, for faster and more reliable SIM management. It supports dynamic profile management, allowing operators to switch a SIM's network profile, which is useful for functions like steering roaming. AOTA also enables secure bulk updates to millions of SIM cards simultaneously, utilizing advanced security protocols like TLS-PSK for authentication.

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