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### **VTB "the world's first" money transfer authorization using fingerprint**

VTB Bank will provide its customers with the opportunity to authorize payment transactions from its mobile application using fingerprint. Such a verification method is not yet available in any other bank of the world. With the fingerprint the keychain in the phone is unlocked and the key to decrypt the master-key is retrieved. This is a unique key which cannot be intercepted, like an SMS OTP, since it is only stored in the memory.

### **Secret key to retrieve the master key**

VTB Bank launches this authorization of money transfer through its mobile banking application using the smartphone's fingerprint scanner. This method of payment authorization, the bank believes, is more reliable than the standard technology of sending text messages with a one-time code that could be intercepted.

Payment authorization using the customer's fingerprint starts as a pilot in January 2017, full implementation is planned for February. The new release of the mobile banking application will be distributed via App Store and Google Play. This new feature is an extension of the current technology used in the mobile banking application for individual VTB Bank customers. Test pilot audience will be composed of employees of the bank. The test will consist of a group of several dozen people.



The project was born back in the Bank of Moscow, which became part of VTB in May 2016, but the final implementation of functionality with support for biometric authentication shall be available for the entire VTB Bank. The new feature is available for all mobile applications VTB users.

VTB announced that it is the first bank in the world, which enables the authorization of a payment transaction via fingerprint. A similar system, using a unique key that is only stored in the user's smartphone - but without the usage of the fingerprint - was developed by Gemalto and is currently piloted at BNP Paribas, an European bank. The solution is called Ezio Mobile Protector.

Authorization of a transaction by using fingerprint should not be mixed up with the biometric user identification via video and voice, which already is in operation in the VTB24 bank. The new functionality was integrated directly into VTB's mobile banking app and offers customers to authorize a transaction, while VTB24 is only allowing biometric identity authentication when entering the mobile application, whereas the authorization of the transaction remains the traditional way, explained representatives of the bank.

## **PLA Technology**

Authorization of a transaction by means of a fingerprint is based on PLA technology (PIN less Authentication) - developed by MasterCard - which is used by the bank in its mobile application since December 2015. Initially this particular MasterCard technology has been designed for the use of bank card authentication capabilities with the payment application meeting EMV standards. The concept is that a banking card calculates a transaction cryptogram which value is read out and displayed to the customer by a CAP reader (OTP reader) as a one-time-password. The value of the CAP token forms part of the transaction data in the same way as would be the value obtained by SMS, and thus provides two-factor authentication (presence of the card and knowledge of the PIN-code).

VTB PLA technology has been adapted for the use in the bank's mobile app. Based on these Mastercard standards, an EMV card applet is emulated inside the mobile device. The application keys are stored in the software crypto-container on the phone. The technology enables authentication without PIN, meaning that, instead of checking the PIN-code, which is usually stored on the device or the bank host, a special code (passcode) is introduced, the value of which is only known by the user. It also utilizes so-called end-to-end encryption, that is, the authentication between the mobile application and the authentication system is conducted through a secured communication channel (instead of SMS channel).

## **How does the authentication and transaction authorization work**

VTB explained Cnews how the authentication and transaction authorization via PLA technology works. In the process of authenticating, the client launches the application on his phone, it sends a request to the Mobile Authentication Application cryptographic library (MAA). The user enters the passcode, MAA key decrypts the authentication application, calculates a set of cryptograms, and then generates a CAP-token.

Thereafter MAA diversifies session keys to be used for creating a secure connection between the application server and the authentication system. Then the app on the smartphone sends the generated CAP token to the authentication system. As the next step the authentication system performs its own calculation of the CAP token and compares the received and the calculated value of the tokens. If the values match the authentication is considered complete and a secure connection is established.

Upon authorization of a transaction the authentication system sends the encrypted command to the MAA. Then the MAA securely generates and displays a screen on the smartphone with the details of the operation and prompts the user to confirm it with the passcode, known only to the customer. Thereafter, using the entered value of the passcode the MAA decrypts the authentication key and by using it calculates the cryptogram and generates a CAP token with critical transaction data (TDS). The application sends the encrypted value of the token to the authentication system. The authentication system conducts its own calculation of the CAP token and compares it with the value received from the application. If the values match, the transaction is considered valid.

## **Bank Moscow and VTB Bank**

Bank of Moscow, which originally conceived the idea of authentication by fingerprint, existed from 1995 to 2016. The bank had 267 offices serving approximately 114 thousand corporate and 9 million private customers. It was considered a reference bank of Moscow authorities during the tenure of Yuri Luzhkov at the post of the city mayor.