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Technical specifications on bankcard interoperability - Part 5: Communication interface

银行卡联网联合技术规范

第 5 部分：通信接口

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Foreword

JR/T 0055 *Technical specifications on bankcard interoperability* consists of the following five parts:

- Part 1: Transaction processing;
- Part 2: Message interface;
- Part 3: File data format;
- Part 4: Data secure transmission control;
- Part 5: Communication interface.

This Part is Part 5 of JR/T 0055.

This Part was proposed by People's Bank of China.

This Part shall be under the jurisdiction of National Technical Committee on Finance of Standardization Administration of China.

Main drafting organizations of this Part: People's Bank of China Science and Technology Division, China UnionPay Co., Ltd.

The drafting organizations of this Part: Industrial and Commercial Bank of China, Agricultural Bank of China, Bank of China, China Construction Bank, HSBC Bank, China Financial Computerization Corporation, Bank Card Testing Center.

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Technical specifications on bankcard interoperability

- Part 5: Communication interface

1 Scope

This Part of this Standard specifies the requirements of which the online transaction and file transfer communication interface shall meet in inter-bank transaction network of bank card.

This Part of this Standard applies to the switching center, the acquirer, the issuer who conduct the inter-bank transaction of bank card.

2 Terms and definitions

For the purpose of this document, the following terms and definitions apply.

2.1 digital data network (DDN)

It is a digital data transmission network that uses digital transmission channels such as optical fiber, digital microwave or satellite and digital cross-multiplexing nodes to provide users with a variety of high-speed digital special-purpose circuits and other services, so as to meet the needs of users of multimedia communications and the formation of high-speed computer communications network.

2.2 frame relay (FR)

a fast packet switched data service to accommodate LAN interconnects or host-to-host communications; it provides high speed, high efficiency, high throughput, low latency data services; frame relay combines packet multiplexing statistical multiplexing, port sharing, reasonable allocation of bandwidth and high-speed circuit switching, low latency features; it sends, receives and processes information in frame

2.3 transport control protocol (TCP)

a reliable transmission control protocol; in addition to transmission control protocol, it also specifically refers to the protocol stack to achieve TCP in each system in this Standard

2.4 Communication host

4.3.3 File transfer connection number and mode [should be subclause 4.3.3]

The file transfer between agency and switching center shall be in full-duplex, transitory link way. Both parties can set up one or more full-duplex connections. After the connection is established, both parties send and receive requests and responses on the same connection. When the file transfer is completed, both parties close the connection.

4.4 Basic provisions on communication interface

The communication interface involved in this Part shall have the following characteristics.

- (1) All data transmitted between switching center and agency are binary data in bytes (8 bits), without special meaning and control characters.
- (2) Communication interface is irrelevant with business flow, i.e., the communication interface program does not identify the type of transaction message nor deal with the content of the message. Therefore, any changes in the business process have no effect on the communication interface program, and vice versa.

4.5 Online transaction control

4.5.1 Connection establishment

The switching center and agency shall use Client-Server mode and use TCP / IP three-way handshake mechanism to establish connection.

4.5.2 Data transmission control

The switching center and agency use asynchronous transmission method to transfer transaction message, i.e., after one party sends a transaction request, it does not have to wait for the reply from the other party and continue to send the next transaction request.

The business process flow at the application level shall match the request with the reply (see 10.1 of Part 2 of this Standard).

After the sender sends a transaction request, the sender shall not be able to ensure that the receiver can receive the message data because of a broken communication link or other communication anomalies. Abnormal communication often refers to transaction time-out, so there shall be a corresponding time-out control on the business flow of application layer.

4.5.3 Connection closing

When switching center or agency needs to close a sending connection, it shall

If the receiver receives the message, the connection between the two parties is normal. If the other party's "idle connection inquiry" message is not received within a certain period of time B (the duration can be agreed by the parties involved in the transaction, $B > A$), the connection has been interrupted.

For duplex communication, if a connection is idle for more than A (duration may be agreed upon by the parties involved in the transaction), the switching center shall send an idle test message to the agency via the connection. The agency discards the message as soon as it is received. If the agency fails to receive the idle connection test message sent by the switching center within the time B (the duration can be agreed upon by the parties involved in the transaction), close this connection.

4.6 Data transmission control

This Standard only defines the communication protocol used to transmit files by means of messages. The format of the application layer message used to transmit file data is not within the scope of this Standard and may be agreed upon by the parties involved in the transaction.

4.6.1 Connection establishment

File transfers between switching center and agency use full duplex connections. It can establish multiple connections at one time. Each connection can transfer multiple files in turn. If the switching center sends the file to the agency, the switching center acts as a client to initiate a connection request to the network access agency. The agency shall, as a server, monitor the connection request of switching center.

On the contrary, if it is the agency to send files to the switching center, the agency shall, as a client, initiate a connection request to the switching center. The switching center shall, as a server, monitor the connection request of agency.

4.6.2 Connection closing

After the sender of the file finishes sending, it shall send a request for disconnection and proactively close the connection. After the receiver of the file receives the disconnect request, it shall close this connection.

4.6.3 Message format

At the communication layer, the format of the message that uses message format to transfer file is similar with the message format used by online transaction. It consists of four bytes recording message length and message data, see 4.5.4.

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