JCB Interchange Interface

Contents

Introduction

One of the most important WAY4™ functions is interchange with payment systems to perform settlements between issuers and acquirers, as well as to provide and receive additional information required to do so.

This document examines general mechanisms for interchange with JCB and describes rules for working with the interface to this payment system.

This document is intended for WAY4 users (bank or processing centre employees) responsible for interchange with JCB.

When working with this document, it is recommended to use the following reference material from the OpenWay documentation series:

- Documents

- DB Manager Manual

- Interchange Routing

- Daily Procedures

- WAY4™ Dispute Management

- WAY4™ Stop Lists

The following conventions are used throughout this document:

- Field labels in screen forms are shown in *italics*.

- Button labels in screen forms are enclosed in square brackets, such as [Approve].

- User menu item selection sequences are shown using arrows, as follows: "Issuing → Contracts Input & Update".

- System menu item selection sequences are shown using another kind of arrow, as in: "Database => Change password".

- Key combinations used while working with DB Manager are shown in angular brackets, such as <Ctrl>+<F3>;

- The names of directories, files and file paths that vary for each local machine are enclosed in angular brackets; for example, <OWS_HOME>;

- Warnings that there is an increased chance of making an action that will have undesirable results are marked with the ⚠ sign.

- Messages marked with the ⓘ sign contain information about important features, additional facilities or the optimal use of certain system functions.

Chapter 1. Interchange between WAY4 and JCB

Interchange between WAY4 and JCB may occur:

- Through special-format files containing data on bankcard transactions, interbank settlements, additional information, information on suspicious transactions, etc.

- Through exchange of online messages containing authorization data and data on cards added to payment system exception and stop lists.

Various types of information are exchanged on specialized payment system channels.

- This document describes interchange with the JCB payment system in file exchange mode.

JCB Interface Functionality

WAY4 exchanges information with JCB through the JCB interchange interface (JCB Interface). This interface is used to (see Fig. 1):

- Exchange information on executed transactions:

  - Exchange clearing information (outgoing and incoming presentments).

  - Exchange information on dispute transactions arising when resolving disputes between payment system members.

  - Receive settlement information from the payment system.

  - Exchange information on interbank transactions.

- Receive additional information from the payment system, for example, stop lists.

- Register merchants in the JCB payment system.

- Prepare reports: both statistics that are regularly provided to payment systems and reports used inside a financial institution for reconciliation.
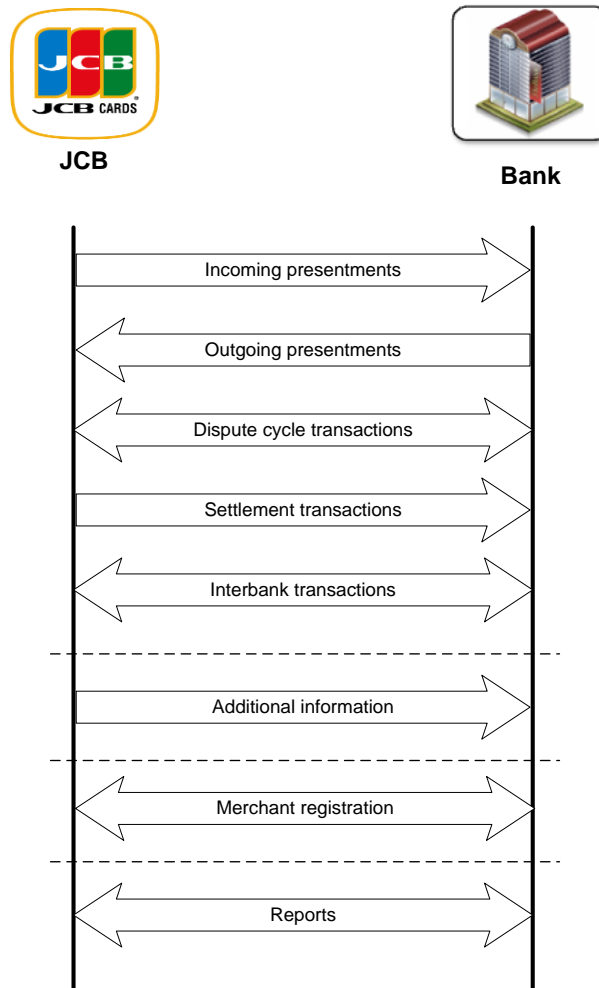
Fig. 1. JCB interface functionality

Principles of Transaction Information Exchange with JCB

WAY4 exchanges files with JCB through the Inward Processing and Outward Processing procedures.

Importing Transaction Information into WAY4

Data imported to WAY4 are physical files whose format is regulated by the payment system. For each imported file, a record is created in the FILE_INFO table. A physical file contains one or more logical files. Each logical file is located in a physical file between its header and trailer.

A logical file contains information grouped in messages, each of which takes up one or several lines of the logical file. Logical file messages may contain information on financial transactions (presentments, chargebacks, etc.), non-financial operations (for example, retrieval requests), settlement information, service information (the file header and trailer or message batch) and other information.

For each message, including headers and trailers, a record in the ORIGINAL_DOC table is generated. In these records, all message fields are

stored in a special packed format. If required, these records can be unpacked and used for detailed manual analysis.

According to their type, messages can generate records in the DOC (documents) and ADDENDUM_DOC (additional document parameters) tables, as well as records with additional information in the corresponding service tables (see Fig. 2).
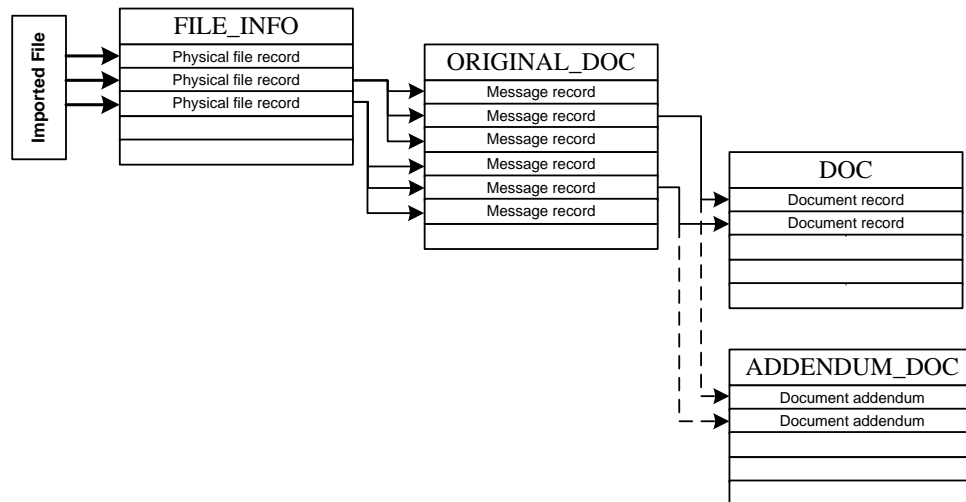
Fig. 2. Importing transaction information into WAY4

Exporting Transaction Information to JCB

During data export, WAY4 processes documents that have been assigned the "To be Sent" status during document processing. The creation of an export file also generates records in the FILE_INFO table for the file to be exported (physical), and for logical files included in it.

In the current version, a file to be exported contains only one logical file.

During export, records in the ORIGINAL_DOC table are generated for all the messages in a logical file.

Chapter 2. Processing Incoming and Exporting Outgoing JCB Transactions

This chapter provides basic rules for processing incoming transactions and exporting outgoing transactions when working with JCB.

⚠ Note that for banks and processing centres using Russian roubles in settlements, before importing/exporting date, additional setup is required. For import/export pipes, the following parameters must be specified:

- "CHANGE_CURR_OUT=810643" for export pipes. In this case, in all exported documents, the currency code will be changed from "810" to "643".

- "CHANGE_CURR_IN=643810" for import pipes. In this case, in all documents imported from the payment system, the currency code will be changed from "643" to "810".

If these pipe parameters are missing, exported and imported files will be processed incorrectly.

Processing Incoming Transactions

ⓘ Incoming transactions are processed during execution of daily procedures.

Incoming JCB transactions are processed using the menu item "JCB → JCB.Daily Procedures → JCB.Inward Processing → JCB.Inward Processing ". Incoming JCB clearing files are processed. These files contain clearing and settlement information, as well as information about interbank documents.

Executing this menu item opens the "Open Inward File for JCB_CHANNEL" window, in which a file for import must be selected.

Moreover, in executing this menu item, write-off amounts for incoming clearing messages are calculated (Accept Clearing). This procedure allows clearing documents received from payment system incoming files to be processed separately from the general document processing procedure (see the section "Posting Documents and Solving Typical Problems" of the document "Documents").

Exporting Outgoing Transactions

ⓘ Outgoing transactions are exported during execution of daily procedures.

In exporting outgoing transactions to JCB, the following procedures accessed from the user menu folder "JCB → JCB.Daily Procedures → JCB.Outward Processing" are executed:

- "JCB Outward Processing" menu item– preparing outgoing clearing files for JCB. These files are generated from documents for transactions executed on

the bank's own devices or on those of affiliated banks with cards of other payment system members, and from dispute and interbank documents.

- "JCB Merchants Export" menu item – export of a file containing documents to register, change or delete a merchant in the JCB payment system.

Monitoring Imported and Exported Files

Items from the menu folder "JCB → JCB.File Management" are used to monitor imported and exported JCB files (see Fig. 3).
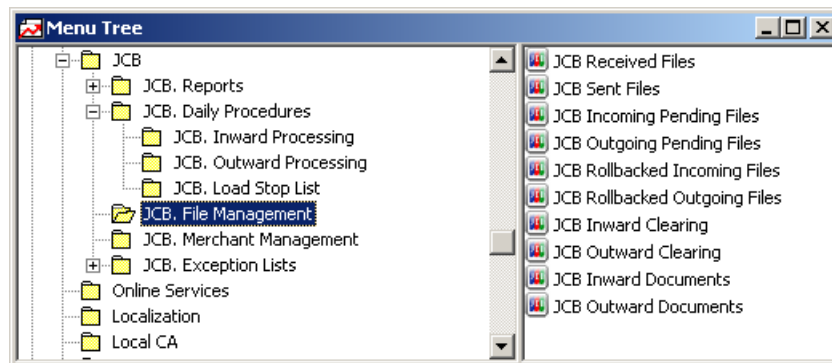

Fig. 3. User menu folder for monitoring imported and exported JCB files

Imported Files

Imported files are monitored using the "JCB Received Files" form (see Fig. 4), opened by selecting the menu item "JCB → JCB.File Management → JCB Received Files.

Data from the FILE_INFO table of the database is used in this form (see the section "Importing Transaction Information into WAY4").

Fig. 4. List of files imported from the payment system

This form contains the following fields:

- *Receiving Date* – calendar date and time file import started.

- *Bank Date* – banking date of file import.

- *File Type* – file type; this field contains the value "JCB_INC".

- *Received By* – user who imported the file.

- *File Name* – file name.

- *N of Received* – number of documents contained in the file.

- *Status* – file status; for imported files this field will have the "Received" status.

- *Result* – result of file processing; this field is not filled in for JCB.

- *File ID* – file ID

- *Parms* – this field is reserved for use in future versions.

The [Messages] button is used to view messages generated in the process of importing files.

For access to messages contained in a file, select the row corresponding to the required file and click the [Original Docs] button.

Clicking this button opens the "Original Docs for <file name>" form (see Fig. 5) with information about messages contained in the file. Data from the ORIGINAL_DOC table of the database is used in this form (see the section "Importing Transaction Information into WAY4").

Creation Date	Channel	Direction	File ID	Batch ID	Message ID	Message Code	Source Member ID	Target Member ID	Level	Status	File Info
11/10/2012	JCB	Inward	13127-000000-001		00000001	FH			Administrative	Closed	
11/10/2012	JCB	Inward	13127-000000-001		00000002	DT01101	160301	127001	Presentment	Closed	
11/10/2012	JCB	Inward	13127-000000-001		00000003	FT			Administrative	Closed	

Fig. 5. Information about file messages

This form contains the following fields:

- *Creation Date* – banking date on which the file was imported.

- *Channel* – name of clearing channel.

- *Direction* – this field contains the "Inward" value (import).

- *File ID* – logical file ID.

- *Batch ID* – batch ID, if the message is part of a batch.

- *Message ID* – message sequence number.

- *Message Code* – message code.

- *Source Member ID* – sender's identifier according to payment system rules.

- *Target Member ID* – recipient's identifier according to payment system rules.

- *Level* – message type, for example, "Presentment", "1 Chargeback". The "Administrative" value will be specified in this field for logical file headers and trailers.

- *Status* – message status.

- *File Info* – name of imported file.

Clicking the [Doc] button in the "Original Docs for <file name>" form opens the "Doc for <…>" form, containing information about the document corresponding to the selected file message.

Logical file messages are stored in the database in packed form. To access a message's data, select the user menu item "Full → DB Administrator Utilities → Special OpenWay Utilities → Interchange → All Files"; in the "All Files" form that opens, select the required file and click the [Original Data] button.

As a result, the "Original Data for <…>" form will open. This form's fields are the same as those of the "Original Docs for <name of logical file>" form. In the "Original Data for <…>" form, click the [Unpack All] button, after which the process of unpacking the messages will be started and a progress bar will be displayed.

When the process finishes, click the [Log Fields] button in the "Original Data for <…>" form. The "Log Fields for Original Data for <…>" form will open (see Fig. 6). This form contains information about message fields and their values.

Name	Value
001	1
Record Type	DT
Record Format	01
Transaction Type	101
Transaction Date	12182009
FMS Data Flag	0
Reserved 1	
Source Licensee ID	160301
Destination Licensee ID	000000
Card Number	5569990012118922
PAN Entry Mode	01
Electronic Commerce Indicator	
Transaction Amount	000000061340
Transaction Currency	EUR
Number of Installment	00
Reference Number	1234567312734567891 2346
Approval Code	500981
Merchant Number	182928591108094

Fig. 6. Information on message field values

Exported Files

The form "JCB Sent Files" (see Fig. 7) is used to monitor files exported to the payment system. This form is opened by selecting the menu item "JCB → JCB.File Management → JCB Sent Files".

Sending Date	Bank Date	File Type	Sended By	File Name	N of Sent	Status	Response	File ID
17/06/13 14:19:56	11/10/2012	JCB_OUT	SUPERUSER	456545\JCB-456545-3168.O01	1	Sent		13168-456545-001

Fig. 7. List of files exported to the payment system

This form's fields are the same as those of the "JCB Received Files" form (see figure Fig. 4 of the section "Imported Files"), with the following exceptions:

- *Sending Date* – calendar date and time file export was started.

- *File Type* – file type; this field contains the value "JCB_OUT".

- *SendedBy* – user who exported the file.

- *Status* – file status; for exported files, the "Sent" value will be specified in this field.

The next fields in this form are only filled in for rollback of file export (see Fig. 8):

- *Rollback Date* – date of rollback.

- *Rolled back by* – user who performed rollback.

- *Rollback Reason* – reason for rollback.

Messages contained in a logical file that belongs to an exported file are accessed in the same way as for imported files (see the section "Imported Files").

To roll back file export, in the "JCB Sent Files" form select the required file and click the [Rollback] button.

As a result, the "Specify Reason" form will be displayed (see Fig. 8), used to enter the reason for rollback of file export.
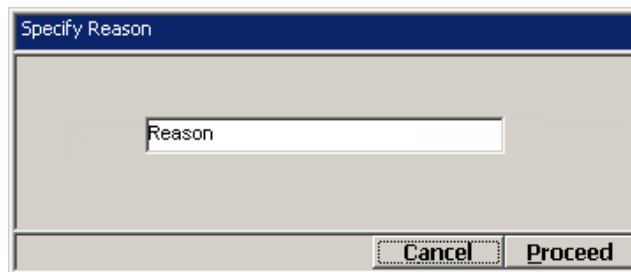

Fig. 8. Form for entering the reason for rollback of file export

After the required data has been entered, click the [Proceed] button; to cancel the operation, click the [Cancel] button.

When the process finishes, a message will be displayed "1 Files Rolled Back". In forms with file information, the *Rollback Date*, *Rolled back by* and *Rollback Reason* fields will be filled in for this file.

⚠ Note that after export is rolled back, a file exported earlier will remain on the hard disk and documents that were to be exported in this file are reassigned the "To be Sent" status. Therefore, after executing this operation, it is recommended to manually delete this file.

⚠ It should also be noted that when re-exporting a file for the same banking date, the new exported file will have the same ID. Therefore, if export rollback and file re-export is executed because a file was completely declined by the payment system (for example, because of an error on the recipient's end), the file should be re-exported on another banking date.

Troubleshooting Typical File Import/Export Problems

Typical problems that occur during file import and export can be classified as follows:

- Errors caused by hardware problems like a server or local network failure (see the section "Technical Problems").

- Database errors followed by "Oracle SQL Error" messages. If an error of this kind occurs, please refer to Oracle documentation and/or contact WAY4 customer support.

- File logical control errors (see the section "File Logical Control Errors").

- File format control errors (see the section "File Format Control Errors").

- Physical file errors (see the section "Physical File Errors").

Technical Problems

If errors of this kind occur during file import/export, it is recommended that users perform the following actions after the hardware has been restored:

- Interrupt the active import/export process (see the section "Active Processes Menu Item" of the document "DB Manager Manual").

- Cancel file import/export (see the section "Monitoring Files being Processed").

- Repeat the import/export procedure.

File Logical Control Errors

Messages about logical file control errors depend on the file transfer direction (import or export) and the format used in the clearing channel.

When importing these files, the following error messages may be generated:

- "Unexpected file header message. Possibly trailer missing" – message that a trailer is missing in a logical file; it is recommended to contact the payment system to correct the imported data.

- "File ID <File ID> from <file name> Already Processed" – the specified file has already been imported.

- "Missing logical file header" – message that the header is missing in a logical file; it is recommended to contact the payment system to correct the imported data.

- "Warning: <FILE NAME> is a test file. Do you want to continue?" – warning that the file being imported is a test file, which is not permitted for a production database.

- "Invalid processing BIN in file trailer" – no Interchange routing settings in WAY4 for the bank with the specified *Member ID*.

- "Invalid sequence number" – when this message is received it is recommended to contact the payment system to correct the imported data.

- "Invalid total TCR count:<real number> -> <specified number>" – an incorrect number of TCR (Transaction Component Records) was found in the logical file's trailer; it is recommended to contact the payment system to correct the imported data.

- "Invalid total monetary transactions count" – an incorrect total amount of financial transactions was found in the trailer of the logical file; it is recommended to contact the payment system to correct the imported data.

- "Invalid total TC count" – an incorrect number of transactions was found in the trailer of the logical file; it is recommended to contact the payment system to correct the imported data.

- "Invalid total source amount" – an incorrect total amount of transactions (Source Amount) was found in the trailer of the logical file; it is recommended to contact the payment system to correct the imported data.

- "Invalid total destination amount" – an incorrect total amount of transactions (Destination Amount) was found in the trailer of the logical file; it is recommended to contact the payment system to correct the imported data.

If any other error messages are displayed, it is recommended to contact WAY4 customer support.

When exporting these files, the following error messages may be generated:

- "File sequence counter overflow. Try on next local date" – the file counter for this bank (Sending Member) exceeded JCB limits; it is recommended to send the document on a later banking date after reposting.

- "Batch sequence counter overflow. Try on next local date" – the batch counter for this bank pair (Sending/Target Member) exceeded JCB limits; it is recommended to send the document on a later banking date after reposting.

- "SIC Code incompatible with transaction type" – SIC code value not permitted for this transaction type; it is recommended to correct and repost the document.

- "Error in CPS Data format" – if this error message is received, contact WAY4 customer support.

- "Chip Data not present" – if this message is displayed, check whether the *Transaction Condition* field is filled in correctly, and then repost the document.

If any other error messages are displayed, it is recommended to contact WAY4 customer support.

File Format Control Errors

WAY4 informs users of file format control errors by the following messages:

- "File <name of file being imported> validation failed".

- "Some file(s) were rejected during Interchange Engine Prevalidation".

- "Interchange engine reported error".

If these messages are displayed, the process log should be analysed as recommended in the section "Recommendations on Timely Identification of Dispute Situations" of the document "WAY4 Dispute Management" and information about the process should be sent to WAY4 customer support.

Physical File Errors

WAY4 informs users of physical file errors by the following messages:

- Could not create directory" – WAY4 cannot create a directory for the file to be imported.

- "Error opening audit counter file" – error while working with the NetServer audit counter file.

- "Could not open Engine requested file" – error while working with the file the pipe is trying to call.

If an error is due to an operating system problem, these messages are followed by a system error message (see the section "Operating System Errors when Working with Files"). Otherwise, or if any other messages are displayed, contact WAY4 customer support.

Operating System Errors when Working with Files

If operating system errors occur when working with files, contact the system administrator. Operating system errors are indicated by the following messages:

- "No such file or directory"

- "Argument list too big"

- "Exec format error"

- "Bad file number"

- "Not enough memory"

- "Permission denied"

- "File exists"

- "Cross-device link"

- "Invalid argument"

- "File Table overflow"

- "Too many open files"

- "No space left on device"

- "Argument too large"

- "Result too large"

- "Resource deadlock would occur"

- "System reported error …"

Monitoring Files being Processed

To monitor the status of files that are being processed, use the forms opened with the following menu items:

- For incoming files – "JCB → JCB.File Management → JCB Incoming Pending Files"

- For outgoing files – "JCB → JCB.File Management → JCB Outgoing Pending Files".

Selecting one of these menu items opens the "JCB Outgoing/Incoming Pending Files" forms containing lists of the respective types of files.

To access information contained in a file, select the record corresponding to the required file and click the [Original Docs]. To roll back file import/export, click the [Rollback] button.

⚠ Note that it is impossible to roll back file import/export once the documents contained in the file have been processed.

Chapter 3. Importing reference information

Information to update a financial institution's internal stop lists and BIN tables must be imported to WAY4 from JCB.

Loading stop lists

The import procedure is the same as the procedure described in the section "Stop List" of the document "Working with Stop Lists in WAY4". To import information, use the menu item "JCB → JCB.Daily Procedures → JCB.Load Stop List → Load JCB Stop List"; to delete obsolete records from an internal stop list, use the menu item "JCB → JCB.Daily Procedures → JCB.Load Stop List → Close Inactive JCB Stop List Records".

Loading BIN tables

BIN tables are covered in the document "Interchange Routing".

To load data into a BIN table, do as follows:

- Make sure the "BIN Groups" form (Full → Configuration Setup → Routing → BIN Groups) contains a record with "JCB" in the *Default Channel* field and "J" in the *Group Code* field. If this record is missing, add it.

- Copy the file from the payment system to the "<OWS_WORK>\Data\Interchange\JCB_BIN" directory. The directory for importing files is defined by the import pipe's "SOURCE_DIR" parameter.

- Execute the menu item "JCB → JCB. Daily Procedures → JCB. Load Bin Table and Handbooks → JCB BIN Table Import". Execution of this menu item is accompanied by a warning that it is necessary to ensure the file being imported is correct (see Fig. 9).
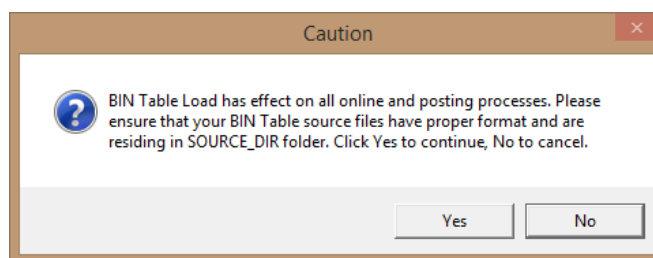

Fig. 9. Warning that it is necessary to ensure the imported file is correct

If the import procedure is continued, the "Select Files" window will be displayed. In this window, select files for import.

BIN Table import pipe parameters

The pipe for importing the JCB BIN table (com.openwaygroup.pipe.jcb.bin_table_import.jar) is used with the following parameters.

Parameter	Value	Description
SOURCE_DIR	string	Incoming file directory. This parameter is mandatory.
MODE	string	Import mode. Possible values: - "FULL" – import the full data file. This is the default value. - "UPDATE" – import the update file (Maintenance Data File).
FILE_MASK		File filtering mask. The default value is IN083*
BIN_GROUP_CODE	character	BIN group code. The default value is "J".
PROCESSED_DIR	string	Specifies the processed file directory name.
ERROR_DIR	string	Specifies the name of the error file directory.
COMMIT_INTERVAL	number	Determines the number of processed records after which the commit SQL operator is executed. The default value is "100".

Chapter 4. Generating Reports for Payment Systems

The following types of reports are necessary for interaction with JCB:

- Statistic reports regularly presented to payment systems.

- Internal reconciliation reports used by the financial institution's staff.

To generate statistic reports, use the menu folder "JCB → JCB.Reports → Statistics" which contains the following items:

- "JCB Issuing Business Report". This report is used to generate quarterly reports for JCB on an issuing bank's transaction activity, as well as to reflect accrued fees.

- "JCB Acquiring Business Report". This report is used to generate quarterly reports for JCB on an acquiring bank's transaction activity.

- "JCB Dispute Statistics". This report is used to show statistics for secondary documents.

To generate internal reconciliation reports used by the financial institution's staff, use the "JCB → JCB.Reports" menu folder containing the following items:

- "JCB Incoming Files Summary Report". This report provides a technical summary for a specified period for each file accepted by JCB that was sent by a particular *Member Id*. The report gives the number and amount of transactions for all transaction types and various transaction conditions.

- "JCB Outgoing Files Summary Report". This report provides a technical summary for a specified period for each file sent by JCB and accepted by a particular *Member Id.* The report gives the number and amount of transactions for all transaction types and various transaction conditions.

- "JCB Inward Monetary Transactions Report". A journal of all transactions for a specified period accepted from JCB by a particular *Member Id*. Report data are grouped by settlement currency and clearing file number.

- "JCB Outward Monetary Transactions Report". A journal of all transactions for a specified period sent to JCB by a particular *Member Id*. Report data are grouped by settlement currency and clearing file number.