



Operation Manual

Mastercard Interchange Interface

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One of the most important functions of Way4 is interaction with payment systems that is necessary for settlements between issuers and acquirers. Interaction is also required to provide and get auxiliary information required for settlements.

This document gives an overview of interchange between Way4 and Mastercard and describes rules for working with the Mastercard interface.

This document is intended for Way4 users, bank or processing center employees responsible for interchange with payment systems.

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

- "Documents"
- "SAFE Support"
- "DB Manager Manual"
- "Interchange Routing"
- "Daily Procedures"
- "Way4 Dispute Management"
- "Switching to Stand-by NetServer"
- "Way4 Stop Lists"
- "Payment System Settlement in Way4"
- "Mastercard Interface Configuration".

The following notation is used in the document:

- Screen form field labels are shown in *italics*.
- Screen form button labels are shown in square brackets; for example [Approve].
- Sequences for selecting user menu items are shown using arrows as follows: "Issuing → Contracts Input & Update".
- Sequences for selecting system menu items are shown using arrows as follows: "Database => Change password".
- Key combinations in DB Manager are shown in angular brackets, for example <Ctrl>+<F3>.
- Variables that differ for each local instance, for example, directory and file names, as well as file paths, are shown in angular brackets; for example, <OWS_HOME>.



Warnings about potentially hazardous situations or actions.



Information about important features, additional options, or the best use of certain system functions.

1 Interchange between Way4 and Mastercard

Interchange between Way4 and Mastercard occurs:

- Through special-format files containing data on bankcard transactions, interbank settlements, additional information, information on suspicious transactions, etc.
- Through online messages containing data on authorizations and cards added to payment system exception and stop lists.

Information of various types is exchanged through payment system specialized channels.

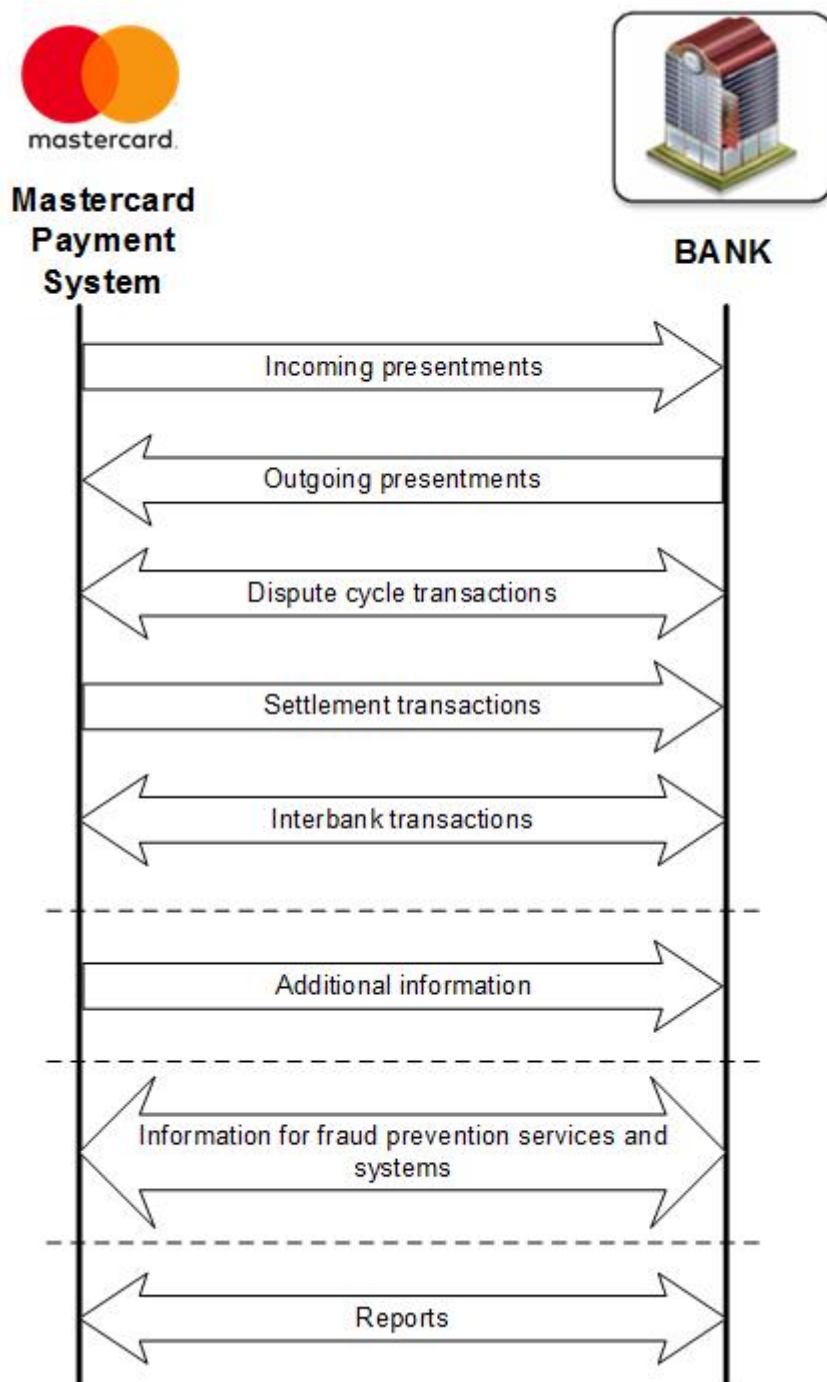


This document describes interchange with the Mastercard payment system in file exchange mode.

1.1 Mastercard interchange interface functionality

Way4 exchanges information with the Mastercard payment system through the Mastercard Interchange interface (Mastercard interface). The Mastercard interface is used to:

- Exchange information about completed transactions:
- Exchange clearing information – outgoing and incoming presentments.
- Exchange information about dispute transactions that occur when resolving disputes between payment system members.
- Get settlement information from JCB.
- Exchange information about interbank transactions.
- Receive additional information from the payment system, for example, BIN tables, stop lists, currency dictionary, merchant category dictionary (SIC codes), etc.
- Exchange information with fraud prevention services and systems; for example, provide and receive information on merchants, suspicious transactions, etc.
- Prepare reports: both statistics that are regularly provided to payment systems and reports used inside a financial institution for reconciliation.



Mastercard interface functionality

1.2 Principles of transaction information exchange with Mastercard

Way4 exchanges files with Mastercard through the Inward Processing and Outward Processing procedures.

1.2.1 Support of Mastercard release requirements

Twice a year, in April and October, Mastercard's new transaction processing requirements come into effect.

Mastercard's corresponding release documents notify member banks about changes in requirements.

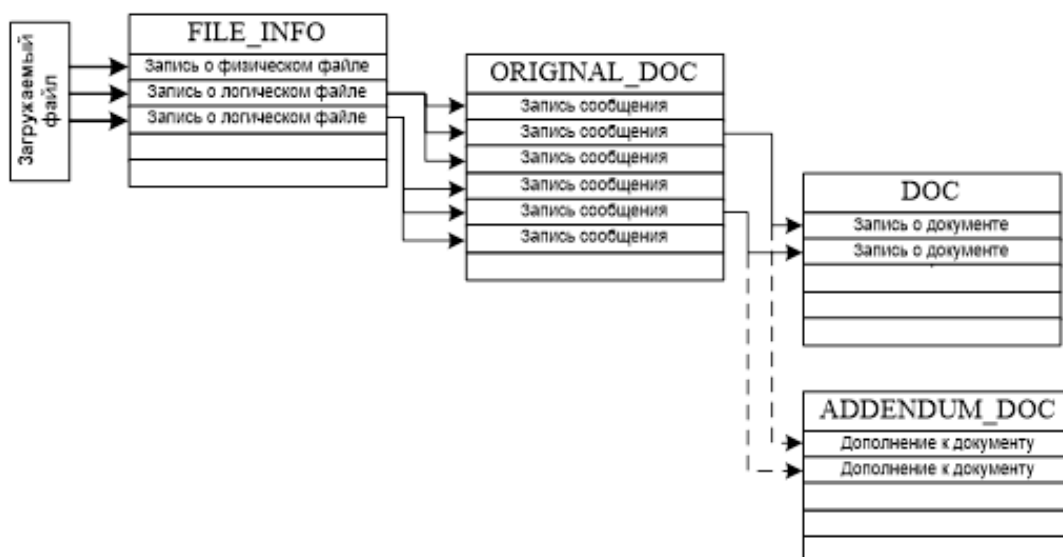
These requirements are supported in Way4 by the corresponding changes in procedures, import/export pipes, etc. For more information, see the section "Support of payment system release requirements" of the document "Interchange Routing".

1.2.2 Importing transaction information into Way4

A logical file contains information grouped in messages each of which takes up one or several lines of the logical file. A logical file's messages can contain information on financial operations (presentments, chargebacks, etc.), non-financial operations (for example, retrieval requests), settlements, as well as service information (file header and trailer or message batch) and other data.

For each message, including headers and trailers, a record is generated in the ORIGINAL_DOC table. In these records, all message fields are stored in a special packed format. If necessary, these records can be unpacked and used for detailed manual analysis.

Depending on their type, messages can generate records in the DOC (documents) and ADDENDUM_DOC (additional document parameters) tables, as well as records containing various reference information in the corresponding service tables.



Importing transaction information into Way4

1.2.3 Exporting transaction information to Mastercard

During data export, Way4 processes document that were assigned the "To be Sent" status during document processing. The creation of an export file is accompanied by the generation of records in the FILE_INFO table – for the file that is being exported (physical) and for logical files included this file.



In the current version, an export file contains only one logical file.

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

2 Mastercard interface description

This section contains a description of the payment system's formats and services as well as files types used by Mastercard.

2.1 Description of Mastercard formats and services

Mastercard provides interchange interfaces for transaction information exchange through the GCMS (Global Clearing Management System) in IPM (Integrated Product Messages) format.

2.2 Mastercard file types

Mastercard file types

File name	Production database file type / test file type	Encoding	Menu item for import/export
IPM Mastercard Generated File	T112 / T120	EBCDIC (layout 1014)	MasterCard → MC.Daily Procedures → MC.Inward Processing → IPM Inward Processing
IPM Customer Generated File	R111 / R119	EBCDIC (layout 1014)	MasterCard → MC.Daily Procedures → MC.Outward Processing → IPM Outward Processing
Early Reconciliation File	T113 / T121	EBCDIC (layout 1014)	MasterCard → MC.Daily Procedures → MC.Inward Processing → IPM Inward Processing
IPM MPE Daily Update File	T067 / T167	ASCII	MasterCard → MC.Daily Procedures → MC.Load BIN Table and Handbooks → Load MPE Daily Files

File name	Production database file type / test file type	Encoding	Menu item for import/export
IPM MPE Full File Replacement	T068 / T168	ASCII	MasterCard → MC.Daily Procedures → MC.Load BIN Table and Handbooks → MC. Full Replacement → Load MPE Replacement Files
Currency Rate File	T057 / T058	ASCII	MasterCard → MC.Daily Procedures → MC.Load BIN Table and Handbooks → Load MC Rates
SAFE Transactions	R847 / R877	ASCII	MasterCard → MC.Daily Procedures → MC.Outward Processing → SAFE Outward Processing
SAFE Confirmation Data	T848 / T878	ASCII	MasterCard → MC.Daily Procedures → MC.Inward Processing → SAFE Inward Processing
SAFE Transactions Data – Monthly	T849 / N/A	ASCII	MasterCard → MC.Daily Procedures → MC.Inward Processing → SAFE Inward Processing
Electronic Warning Bulletin File	T314, T316 / N/A	ASCII	MasterCard → MC.Daily Procedures → MC. Load Stop List → Load MC Stop List



Note that when Russian rubles with the code 810, corresponding to the Russian ruble before devaluation in 1998 are used by banks and processing centers in settlements, additional settings are required before importing/exporting data. To make the settings, it is recommended to use the technology described in the section "Redefining currency parameters" of the document "Currency Conversion". It is also possible to do so using the following import/export pipe parameters:

- "CHANGE_CURR_OUT=810643" for export pipes. In this case, the currency code will be changed from "810" to "643" in all documents being exported.
- "CHANGE_CURR_IN=643810" for import pipes. In this case, the currency code will be changed from "643" to "810" in all documents being imported from the payment system.

These pipe parameters have a higher priority than the recommended settings described in the section "Redefining currency parameters" of the document "Currency Conversion".

If settings for redefining currencies have not been made, exported and imported files will be processed incorrectly.

3 Processing incoming transactions and exporting outgoing transactions

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

3.1 Processing incoming transactions



Incoming transactions are processed during daily procedures.

In processing incoming Mastercard transactions, the following procedures accessed from the "MasterCard → MC.Daily Procedures → MC.Inward Processing" user menu folder are executed:

- "IPM Inward Processing" menu item – processing incoming Mastercard clearing files. These files contain clearing and settlement information as well as information about interbank documents. Before executing this menu item, the file received from Mastercard with the name mask "IPM*.i*" must be copied to the "<OWS_WORK>\Data\Interchange\IPM_Inc" directory. Executing this menu item opens the "Open IPM Incoming File" window, in which users should select files for import. As part of this menu item's execution, debit or credit amounts are calculated for incoming clearing messages (Accept Clearing). This procedure makes it possible to process clearing documents from incoming JCB files separately from the general document processing procedure (see the section "Posting Documents and Solving Typical Problems" of the document "Documents").
- "SAFE Inward Processing" menu item – processing incoming SAFE files (see the section "[Processing information from fraud prevention systems and services](#)"). Before executing this menu item, the file received from SAFE with the name mask "safe?????.i??" must be copied to the "<OWS_WORK>\Data\Interchange\SAFE_Inc" directory. Executing this menu item opens the "Load Files" window with a list of files for import, in which users should select files for import.

3.2 Exporting outgoing transactions



Outgoing transactions are exported during daily procedures.

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

- "IPM Outward Processing" menu item – preparing outgoing clearing files for Mastercard. These files are generated on the basis of documents for transactions made on the bank's own devices or the devices of affiliate banks with the cards of other payment system members, and on the basis of dispute and interbank documents.

Way4 puts exported files into the directory "<OWS_WORK>\Data\Interchange\IPM_Out".

- "IPM IntraProcessor Transactions Export" menu item – preparing information on transactions executed with "our own" cards on "our own" devices.

Way4 puts exported files into the directory "<OWS_WORK>\Data\Interchange\IPM_Out".

- "SAFE Outward Processing" menu item – preparing outgoing SAFE documents (for more information, see the section "General SAFE principles" of the document "SAFE Support").

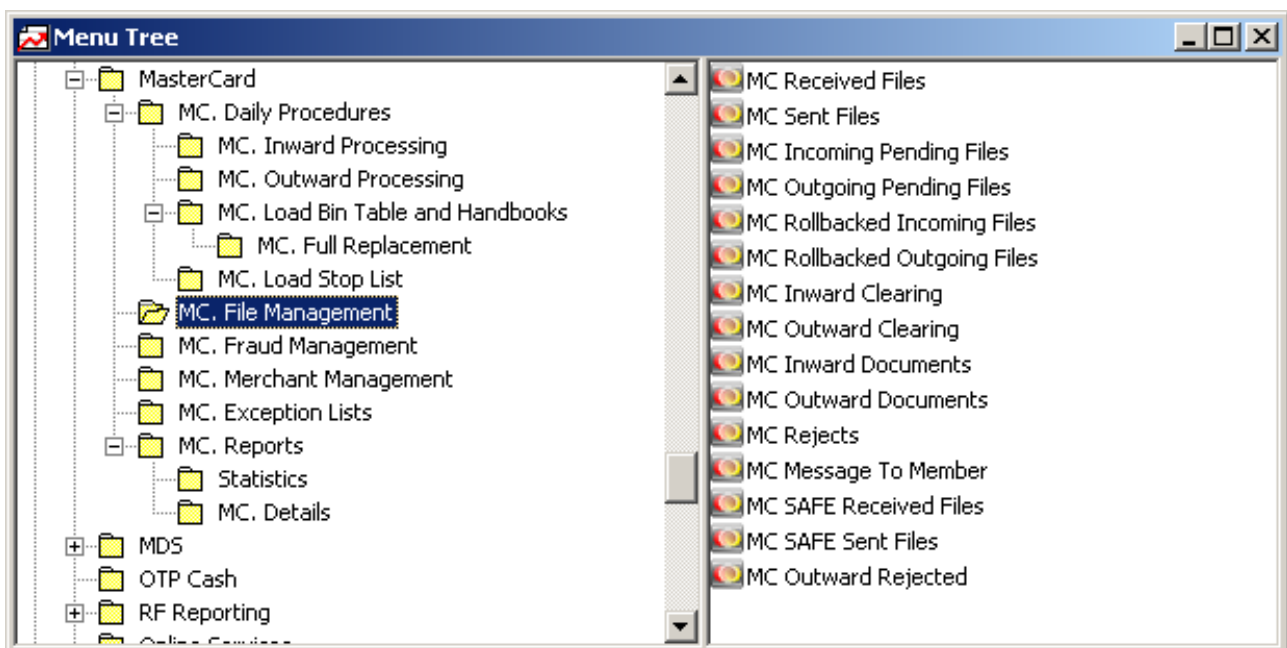
Way4 puts exported files into the directory "<OWS_WORK>\Data\Interchange\SAFE_Out".

- "Generate SAFE Negative Responses" menu item – preparing outgoing files informing that no messages on fraudulent operations have been received from the bank's customers for a calendar month (for more information, see the section "Creating a Fraud Negative Report" of the document "SAFE Support").

Way4 puts exported files into the directory "<OWS_WORK>\Data\Interchange\SAFE_Out".

3.3 Monitoring imported and exported files

Items from the menu folder "MasterCard → MC.File Management" are used to monitor imported and exported Mastercard files:



User menu folder for monitoring imported and exported Mastercard files

3.3.1 Imported files

Imported files are monitored in the "MC Received Files" form, opened by selecting the menu item "MasterCard → MC.File Management → MC Received Files".

This form uses information from the FILE_INFO database table (see the section "[Importing transaction information into Way4](#)").

MC Received Files												<< < > >>				1 of 5		X
	Receiving Date	Bank Date	File Type	Received By	File Name	N of Received	Status	Result	File ID	Parms	Response File Name							
→	22/08/12 10:39:59	20/08/2012	INET Incoming	SUPERUSER	IPM1240206.ipm	0	Received											
	22/08/12 10:39:59	20/08/2012	INET Incoming	SUPERUSER	IPM1442451.ipm	0	Received											
	22/08/12 10:39:59	20/08/2012	INET Incoming	SUPERUSER	IPM1442452.ipm	0	Received											
	22/08/12 10:39:59	20/08/2012	INET Incoming	SUPERUSER	IPM1644604.ipm	0	Received											
	22/08/12 10:39:59	20/08/2012	INET Incoming	SUPERUSER	IPM1240201.ipm	0	Received											

The "Original Docs for <logical file name>" form will open with information about messages in the logical file. The form uses information from the ORIGINAL_DOC database table (see the section "[Importing transaction information into Way4](#)").

Original Docs for IPM1442451.ipm											<< < > >>		1 of 3	b x
Creation Date	Channel	Direction	File ID	Batch ID	Message ID	Message Code	Source Member ID	Target Member ID	Level	Status	File Info			
20/08/2012	MasterCard (IP)Inward		001-120811		00000002	144245000	000265	006027	1 Chargeback	Closed	IPM1442451.ipm			
20/08/2012	MasterCard (IP)Inward		001-120811		00000003	1644695			Administrative	Closed	IPM1442451.ipm			
20/08/2012	MasterCard (IP)Inward		001-120811		00000001	1644697			Administrative	Closed	IPM1442451.ipm			

Information about a logical file's messages

Form fields:

- *Creation Date* – bank date of file import.
- *Channel* – name of clearing channel.
- *Direction* – this field contains the "Inward" (import) value.
- *File ID* – logical file ID.
- *Batch ID* – batch ID, if messages are grouped in batches.
- *Message ID* – message sequence number.
- *Message Code* – message code.
- *Source Member ID* – sender's identifier according to JCB rules.
- *Target Member ID* – recipient's identifier according to JCB rules.
- *Level* – message type, for example, "Presentment", "1 Chargeback". The "Administrative" value will be specified in this field for a logical file's header and trailer.
- *Status* – message status.
- *File Info* – name of the imported file.

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

A logical file's 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.

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. The process of unpacking messages will be started and a progress bar will be displayed.

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

Log Fields for Original Data for IPM1442451.ipm, [Empty], IPM1442451.ipm		<< < > >>	1 of 60	b x
Item	Value			
→ 001 Additional Second Bit Map	1			
003 Processing Code	000000			
003.01 Type of Transaction	00			
003.02 Type of "FROM" Account	00			
003.03 Type of "TO" Account	00			
004 Amount Transaction	000000007500			
012 Date and Time, Local Transa	120812000000			
012.01 Local Transaction Date Y	120812			
012.02 Local Transaction Time H	000000			
014 Expiration Date YYMM	1302			
022 Point of Service Data Code	299101254021			
022.01 Card Data Input Capabili	2			
022.02 Cardholder Auth Capabili	9			
022.03 Card Capture Capability	9			
022.04 Operating environment	1			
022.05 Cardholder present	0			
022.06 Card present	1			
022.07 Card data input mode	2			
022.08 Cardholder authenticatio	5			
022.09 Cardholder authenticatio	4			

Information about message field values

3.3.2 Exported files

Exported files are monitored in the "MC Sent Files" form, opened by selecting the menu item "MasterCard → MC.File Management → MC Sent Files":

MC Sent Files							<< < > >>		1 of 2		X
	Sending Date	Bank Date	File Type	Sent By	File Name	II of Sent	Status	Response	File ID		
→	22/08/12 15:41:26	20/08/2012	INET Outgoing	SUPERUSER	000199VPM_2235.000003	0	Sent				
	22/08/12 13:48:18	20/08/2012	INET Outgoing	SUPERUSER	000199VPM_2235.000002	0	Sent				
<div>◀</div>											
Ins Del Query Processing Logical Files Original Docs Messages											

List of files that were exported to the payment system

This form's fields are the same as those of the "MC Received Files" form (see the section "[Imported files](#)"), with the following exceptions:

- *Sending Date* – calendar date and time when file export started.
- *File Type* – file type; this field contains the value "INET Outgoing".
- *Sent By* – user who exported the file.
- *Status* – file status; for exported files, the value of this field will be "Sent".

For access to logical files contained in an exported file, select the required exported file and click the [Logical Files] button. Clicking this button opens the "Logical Files for <name of exported file>" form:

Logical Files for 000199\IPM_2235.000002							<< < > >>		1 of 1		b x		
	Sending Date	Bank Date	File Type	Sent By	File Name	II of Sent	Status	Response	File ID				
→	22/08/12 13:48:18	20/08/2012	INET Outgoing	SUPERUSER	000199\IPM_2235.000002	4	Sent		002-120822-00000000199-00002				
<div>◀</div>												<div>▶</div>	
Ins		Del		Query		Processing		Original Docs		Messages			

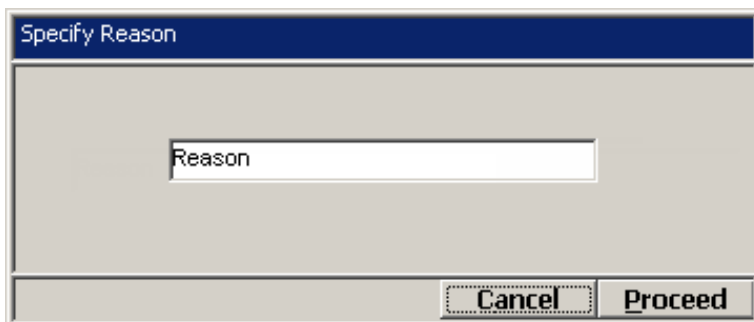
Information about logical files in an exported file

This form's fields are used in the same way as "Logical Files for <name of imported file>" form fields (see the section "[Imported files](#)").

3.3.3 File rollback

To roll back file export, select the required file in the "MC Sent Files" form (see the section "[Exported files](#)"), click the [Processing] button and select the "Rollback" item from the context menu.

The "Specify Reason" form will open. This form is used to enter the reason for file rollback.



The "Specify Reason" form is a simple dialog box with a title bar. It contains a single text input field labeled "Reason". At the bottom right, there are two buttons: "Cancel" and "Proceed".

Form for entering the reason for file rollback

After entering the required data, click [Proceed], to cancel the activity, click [Cancel].

When the process finishes, the message "1 Files Rolled Back" will be displayed. 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 rollback, the file will remain on the hard disk and documents that were to be exported in this file will be reassigned the "To be Sent" status. Therefore, after rolling back a file, it is recommended to manually delete it.

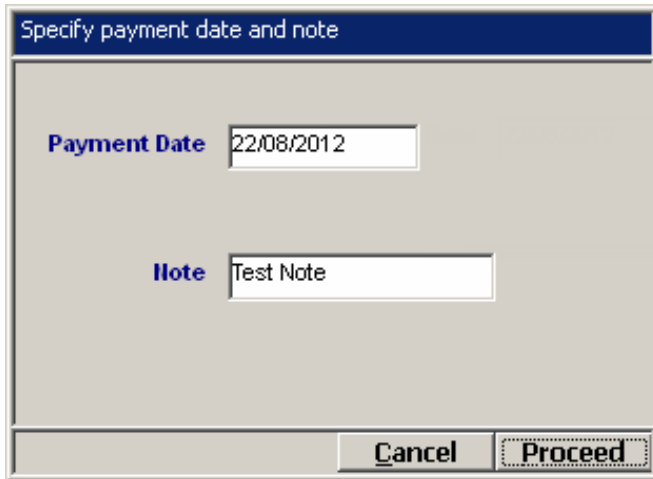
Also note that when re-exporting a file for the same bank date, the new exported file will have the same ID.. Therefore, if a file was rolled back and re-exported because it was totally rejected by the payment system (for example, due to an error on the recipient's end), the file should be re-exported for another bank date.

3.3.4 Marking documents for which settlement information has been received

In Way4, it is possible to mark documents from a file that was not declined by Mastercard when settlement information was received from the payment system for these documents.

To do so, select the required logical file in the "Logical Files for <name of exported file>" form (see the section "[Exported files](#)"), click the [Processing] button, and select the "Paid" item from the context menu.

The "Specify payment date and note" form will be displayed:



Form for entering payment date and a comment

In the *Payment Date* field, enter the date settlement information was received from the payment system, and in the *Note* field, enter a comment.

After entering the required data, click [Proceed], to cancel the activity, click [Cancel].



Note that if settlement information was not received from the payment system for documents in a file, an error message will be displayed: "File with File ID <file ID> not settled yet".

If the process is completed successfully, all documents in the logical file will be assigned the status for export to an external system (Outward Status) "Accounted" (compensation received or the corresponding funds were debited from the bank).

3.4 Troubleshooting file import/export

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 accompanied by "Oracle SQL Error" messages. If this kind of error occurs, see Oracle documentation and/or contact OpenWay 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](#)").

3.4.1 Technical problems

If this kind of error occurs during file import or export, it is recommended to do the following after the hardware has been restored:

- Terminate the active import or export process (see the section "Active Processes" menu item" of the document "DB Manager Manual").
- Roll back file import/export (see the section "[Monitoring files that are being processed](#)").
- Repeat the import/export procedure.

3.4.2 File logical control errors

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

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

- "Member ID <member> not on file" – there are no Interchange routing settings in Way4 for the bank with this *Member ID*.
- "File ID <File ID> from <file name> Already Processed" – the specified file has already been imported.
- "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 allowed for a production database.
- "Missing logical file header" – it is recommended to contact the payment system to correct the imported data.
- "Unexpected file header message. Possibly trailer missing" – it is recommended to contact the payment system to correct the imported data.
- "Invalid message sequence number detected in file header message" and "Invalid message sequence number detected" – error in the value of the *IPM 071 Message Sequence Number* field. It is recommended to contact the payment system to correct the imported data.
- "Field <FIELD NUMBER> (Data Record) contains binary zero in pos" – message that the imported file contains binary zeros; the file is successfully imported. It is recommended to contact the payment system to correct data in files received in the future.

If any other error messages are received, it is recommended to contact OpenWay Support.

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

- "Addendums requested in TRANS_CONDITION but not present" – it is recommended to change the value in the *Transaction Condition* field and repost the document.
- "Mapper: Unknown message type" – if this message is displayed, it is recommended to contact OpenWay Support.
- "Unknown Processing Class ID" – the document's *Processing Class* field contains an invalid value. It is recommended to check BIN table data (see the section "Configuring the BIN Table" of the document "Interchange Routing").
- "Illegal transaction condition <condition code> for EDCM transaction" – the acquirer's device type is not allowed for this transaction type. It is recommended to correct the document and repost it.

- "Illegal SIC code <SIC> for ECHA transaction." – the SIC code value is not allowed for this transaction type. It is recommended to correct the document and repost it.
- "Posting date <date/time=23.59.59> less than transaction date <date/time>" – it is recommended to repost the document and send it with a later banking date.
- "IRI in ARN <Acquirer Ref Number> Not valid for ECRD" – message that for this value of *Processing Class* (ECRD), a limited number of *Interchange Rate Indicators* is allowed (first two positions of Acquirer Ref. Number); it is recommended to make changes to Service Package parameters for the corresponding contract, repost the document, and then send it to the payment system again.
- "AID in ARN Not valid for ECRD" – if this message is displayed, contact OpenWay Support.
- "Transaction was downgraded. Use Repost" – if this message is displayed, the document should be reposted and re-exported to the payment system.
- "SIC Code incompatible with transaction type" – it is recommended to check and correct the SIC or transaction type of the document and repost the document. If this error occurs when processing a merchant device document, contact OpenWay Support.
- "Unexpected addendum type detected" – the SIC is incompatible with the additional information type (Addendum Doc). It is recommended to check the document and correct the SIC or change the value in the *Transaction Condition* field, and then repost the document.
- "Chip Data not present" – if this message is received, check whether the *Transaction Condition* field is filled in correctly and repost the document.
- "Warning: Test mode detected some errors. Invalid messages are skipped. See process log" – during file export testing, some documents were assigned the "Suspended" and were not exported. It is recommended to analyze the process log.
- "Transaction Attributes and Internal Attributes are NULL. Impossible situation. Contact support." – the exported document does not contain information about transaction conditions, which is not allowed for original documents.

If any other error messages are received, it is recommended to contact OpenWay Support.

3.4.3 File format control errors

Way4 uses the following messages to notify users about file format control errors:

- "File <name of file to be imported> validation failed"
- "Some file(s) were rejected during Interchange Engine Prevalidation"
- "Interchange engine reported error".

If these messages are displayed, analyze the process log as recommended in the section "Recommendations for the timely identification of disputes" of the document "Way4 Dispute Management" and send the process information to OpenWay Support.

3.4.4 Physical file errors

Way4 uses the following messages to notify users about physical file errors:

- "Could not create directory" – a directory could not be created for the file that is being exported.

- "Error opening audit counter file" – error while working with the NetServer audit counter file (see the section "Audit Counters" of the document "Switching to Stand-by NetServer").
- "Could not open Engine requested file" – error while working with the file the pipe is trying to call

If these errors are caused by operating system problems, the messages are accompanied by system error messages (see the section "[List of operating system errors while working with files](#)"). Otherwise, or if other messages are displayed, contact OpenWay Support.

3.4.5 List of operating system errors while working with files

If operating system errors occur while working with files, contact the system administrator. These errors are accompanied 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 ..."

3.4.6 Monitoring files that are being processed

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

- Incoming – the "MasterCard → MC.File Management → MC Incoming Pending Files" menu item.
- Outgoing – the "MasterCard → MC.File Management → MC Outgoing Pending Files" menu item.

Selecting one of these menu items opens the "MC Outgoing/Incoming Pending Files" forms containing lists of files of the corresponding type.

To access information contained in a file, select the required file's record from the list and click the [Logical Files] button. Click the [Rollback] button to roll back import or export of a file.



Note that a file's import/export cannot be rolled back after the documents in the file have been processed.

4 Reference information

This section describes exchange of reference information with the payment system.

4.1 Importing the BIN table

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

There are two modes of loading Mastercard BIN table:

- Complete BIN table update. This must be performed according to the payment system regulations.
- Partial BIN table update. This must be performed daily. Partial update cannot be performed if full update (import) of BIN tables has never been performed.



During this operation, information for updating currency, country and MCC handbooks is also imported into Way4.



Note that to work with Mastercard files containing BIN Table data, a record corresponding to the latest Mastercard release must have been created in the "IPS Release Changes" table and must be effective (see the section "Support of payment system release requirements" of the document "Interchange Routing").

4.1.1 Complete update of Mastercard BIN table

For a complete update of the BIN table, proceed as follows:


- Load MPE files from the payment system (for more information about file types, see the section "[Mastercard file types](#)"). To load files of this format, it is necessary to use a special application, e.g. "Inter.Pel".
- Copy the loaded file with the "t068?????./ t168?????." mask name to the "<OWS_WORK>\Data\Interchange\MPE_INC" directory.
- Convert the format of the loaded file using the "fileconv.exe" program located in the "<OW_HOME>\client\shared\tools\exe\" directory. To do so, execute the command:
- For ASCII files:

```
fileconv.exe <name_of_initial_file> <name_of_converted_file>
```

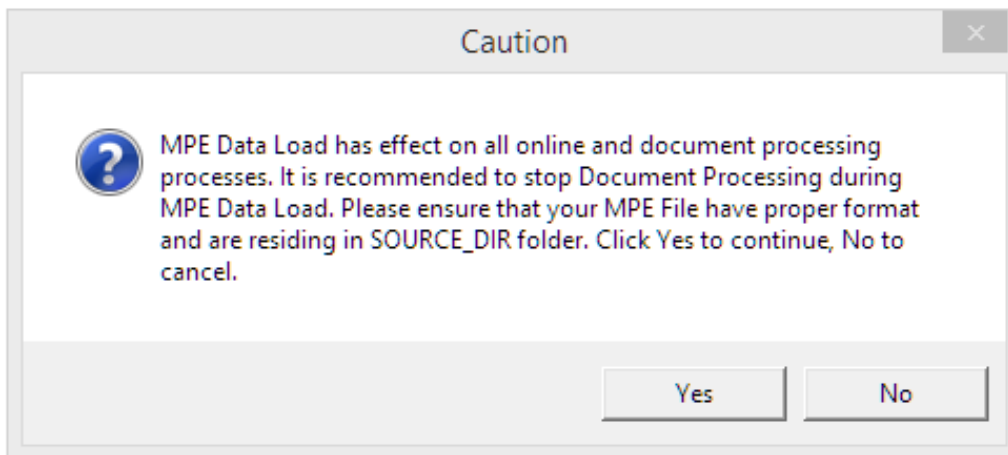
- For EBCDIC (layout 1014) files:

```
fileconv.exe -e <name_of_initial_file> <name_of_converted_file>
```

- Execute the "Mastercard → MC.Daily Procedures → MC.Load Bin Table and Handbooks → MC.Full Replacement → MC MPE Full Files Import" menu item.

 Note that the menu item "Mastercard → MC.Daily Procedures → MC.Load Bin Table and Handbooks → MC.Full Replacement → MC MPE Full Files Import with Conversion" is similar to the item "MC MPE Full Files Import", but when this item is executed the format of the received file will be automatically converted. In this case, it is not necessary to manually convert the format, it is sufficient to put the file received from the payment system in the directory "<OWS_WORK>\Data\Interchange\MPE_INC".

A warning will be displayed immediately after one of these menu items ("MC MPE Full Files Import" or "MC MPE Full Files Import with Conversion") is started. Click [Yes] to continue execution, click [No] to cancel.

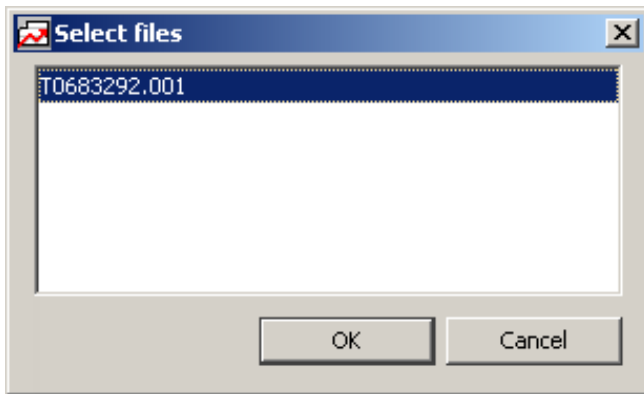


Warning before executing a full update of the Mastercard BIN table

The execution of this menu item consists of two steps:

- In the first step, data from the payment system file is processed and data is written to staging tables (MPE_IP00xxT1, for a detailed description of tables, see the document "GCMS Parameter Table Layouts" offered by Mastercard). First, data from the previous update is deleted from these tables and then the new data is written.

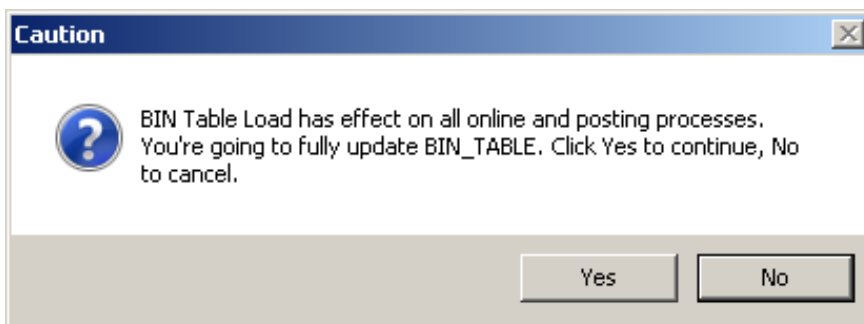
At this step, a window for selecting a file to be processed will be displayed:



Window for selecting a Mastercard data file to be loaded into the BIN table

In this window, select the required file and click the [OK] button.

When the first import step is over, a message to this effect will be displayed. To execute the second step, click the [Yes] button; to terminate the process, click [No].



Message indicating that the first step of loading the BIN table has been executed



If an error occurred during the first step of import, it is not recommended to execute the second step.

- In the second step, data is directly loaded from staging tables (MPE_IP00xxT1) into the BIN table.

When executing this procedure, the following actions are executed:

- Every BIN table record related to the Mastercard payment system is assigned the "Inactive" status.
- Every BIN table record that has the same range in the new file is assigned the "Active" status.



If the list of BIN groups contains Mastercard Intra-Country member groups (see the section "Configuring BIN Groups" of the document "Interchange Routing"), when data is loaded into the BIN table, this data will automatically be structured according to these BIN groups.

4.1.2 Partial update of Mastercard BIN table

To partially update the BIN table, proceed as follows:

- Load MPE files from the payment system. To load files of this format, it is necessary to use a special application, e.g. "Inter.Pel".
- Copy the loaded file with the "t067?????.???/ t167?????.???" mask name to the "<OWS_WORK>\Data\Interchange\MPE_INC" directory.
- Convert the format of the loaded file using the "fileconv.exe" program located in the "<OW_HOME>\client\shared\tools\exe\" directory. To do so, execute the command:
- For ASCII files:

```
fileconv.exe <name_of_initial_file> <name_of_converted_file>
```

- For EBCDIC (layout 1014) files:

```
fileconv.exe -e <name_of_initial_file> <name_of_converted_file>
```

- Execute the "Mastercard → MC.Daily Procedures → Load BIN Tables and Handbooks → MC MPE Daily Files Import" menu item.



Note that the menu item "Mastercard → MC.Daily Procedures → Load BIN Tables and Handbooks → MC MPE Daily Files Import with Conversion" is similar to the item "MC MPE Daily Files Import", but when this item is executed the format of the received file will be automatically converted. In this case, it is not necessary to manually convert the format, it is sufficient to put the file received from the payment system in the directory "<OWS_WORK>\Data\Interchange\MPE_INC".

The process of partially updating the BIN table is the same as the process for full update (see the section "[Complete update of Mastercard BIN table](#)").



If the list of BIN groups contains Mastercard Intra-Country member groups (see the section "Configuring BIN Groups" of the document "Interchange Routing"), when data is loaded into the BIN table, this data will automatically be structured according to these BIN groups.

4.2 Importing information to a stop list

The payment system provides banks information about bank cards that require special treatment. For example, a stolen card must be confiscated if an attempt is made to use it for a transaction.

Data is imported from Mastercard stop lists using the menu item "MasterCard → MC.Daily Procedures → MC.Load Stop List → Load MC Stop List".

Before executing this menu item, the file received from Mastercard with the name mask "T*.*" must be copied to the "<OWS_WORK>\Data\Interchange\MC_Stop" directory.

To delete obsolete records from a stop list, use the menu item "MasterCard → MC. Daily Procedures → MC. Load Stop List → Close Inactive MC Stop List Records".

For more information about working with stop lists, see the document "Way4 Stop Lists".

4.3 Loading FX rates

To load information for updating payment system FX rates, use the menu item "MasterCard → MC.Daily Procedures → MC.Load Bin Table and Handbooks → Load MC Rates".

Before executing this menu item, copy the file received from Mastercard with the name mask "T05?????.???" to the "<OWS_WORK>\Data\Interchange\MPE_Inc" directory.

Information about loaded FX rates can be viewed using the menu group "Full → Daily Procedures → Load BIN Tables and Handbooks → FX Channel Rates" (see the section "Loading channel rates" of the document "Currency Conversion").

5 Processing information from fraud prevention systems and services

In Mastercard, information on suspicious transactions is recorded using the System to Avoid Fraud Effectively (SAFE).

Rules for working with the System to Avoid Fraud Effectively in Way4 are described in the document "SAFE Support".

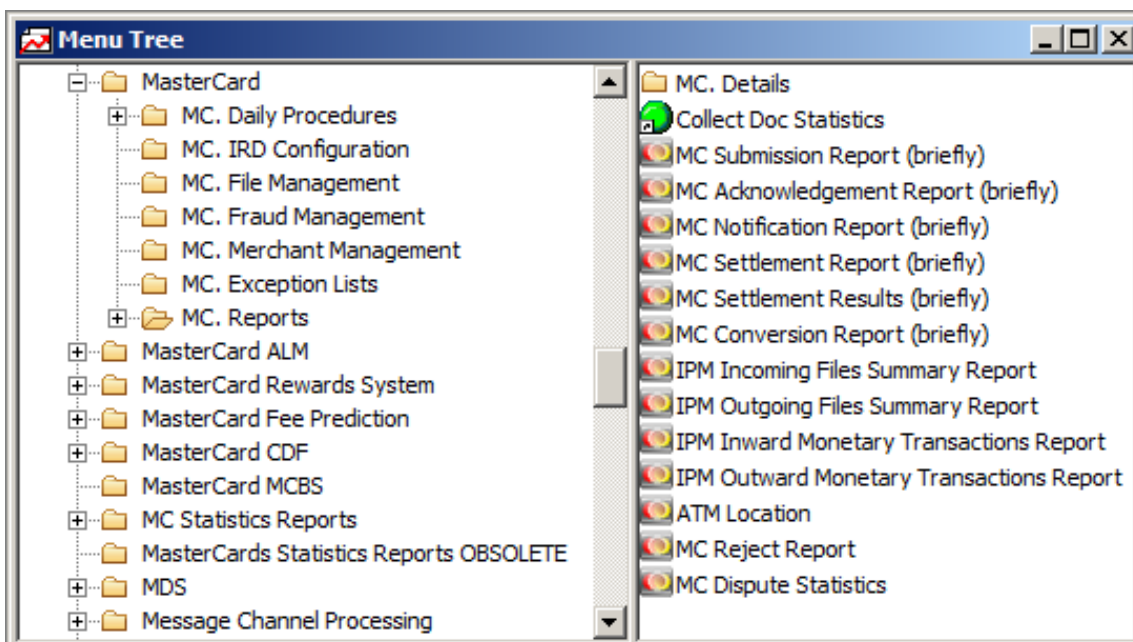
6 Generating reports

The following report types are required for interaction with Mastercard:

- Statistical reports regularly presented to payment systems.
- Internal reconciliation reports used by the financial institution's staff.

An overview of working with Mastercard statistical reports is presented in the document "Mastercard Statistical Reports".

To generate internal reconciliation reports used by the financial institution's employees, use the "MasterCard → MC.Reports" menu folder:



Menu folder for generating internal reconciliation reports

This menu folder contains the following items:

- "MC Submission Report (briefly)". The report contains information on payment system settlement for outgoing transactions. Data in the report is grouped by currency, by files and by transaction types. In the report, the difference between data on transaction settlements and transaction acceptance is shown.
- "MC Acknowledgement Report (briefly)". The report contains information on outgoing transactions accepted by the payment system and messages on financial settlement corresponding to them for a selected period. Data in the report is grouped by currency, by files, and by financial settlement operation types. In the report, the difference is shown between data on transaction settlements and data on transaction acceptance for each currency. This report also contains information about messages sent earlier by the bank and declined by the payment system.
- "MC Notification Report (briefly)". This report is used for reconciliation of incoming transactions and financial settlements for them. The report consists of two parts:

- "Inward Notification" – contains data on incoming clearing messages grouped by files, transaction types and currency.
- "Inward Reconciliation" – contains information on settlements made by the payment system for incoming clearing messages.

At the end of the report, the difference between clearing data and settlement data is calculated for each currency.

- "MC Settlement Report (briefly)". The report contains data on settlements made by the payment system for one day. The report consists of two parts:
 - "Reconciliation" – contains data on settlements by transaction types.
 - "Settlement" – contains data on the payment system's total settlement for this Member Id.
- "MC Settlement Result (briefly)". The report contains data on the payment system's total settlement for this Member Id for one day.
- "MC Conversion Report (briefly)". The report shows total transaction amounts for all sent transactions for a certain period. Report data is grouped by file number, by transaction currency and by settlement currency.
- "IPM Incoming Files Summary Report". Technical summary for a specified time interval for each IPM file accepted by Mastercard that was sent by a specified *Member Id*. The report provides the number and amount of transactions for all transaction types and various transaction conditions (*Transaction Condition*).
- "IPM Outgoing Files Summary Report". Technical summary for a specified time interval for each IPM file sent by Mastercard that was accepted by a specified *Member Id*. The report provides the number and amount of transactions for all transaction types and various transaction conditions (*Transaction Condition*).
- "IPM Inward Monetary Transactions Report". A journal of all IPM transactions for a specified time interval accepted Mastercard by a specified *Member Id*. Report data is grouped by settlement currency and clearing file number.
- "IPM Outward Monetary Transactions Report". A journal of all IPM transactions for a specified time interval sent to Mastercard by a specified *Member Id*. Report data is grouped by settlement currency and clearing file number.
- "ATM Location". The report contains information about the location of ATM networks and technical information about the ATMs. The generated report ("ATM_LOCATION.txt" file) must be sent to Mastercard.
- "MC Reject Report". The report contains information about outgoing transactions rejected by the payment system.
- "MC Dispute Statistics". Used to show statistics for secondary documents. Report data is grouped according to the name of financial institution and document type (inward or outward).

7 Exporting PIN verification data to the payment system

The payment system can pre-validate a PIN entered by a cardholder during an operation.

This feature can be used, for example, when STIP (Stand-In Processing) is activated on the payment system side, i.e., if the issuer's production database is unavailable or in other cases when the issuer's ability to verify a PIN is restricted.

PIN verification by the payment system can be set up for a specific range of card numbers, for example, for VIP clients. This ensures uninterrupted processing of operations with these cards, even in the absence of a connection with the issuer.

To provide this feature, the corresponding settings must be made in Way4, and information about changes in card PINs must also be exported to the payment system.

Export of this information to the payment system is enabled by the global parameter SEND_PVV_2_PS (see the document "Way4 Global Parameters"). When the value of this global parameter is "Y", messages about changes in card PINs will be generated in Way4. The parameter's default value is "N" (messages are not generated).

The value of the global parameter SEND_PVV_2_PS for a card range can be redefined at the card contract subtype level. To do so, use the tag SEND_PVV_2_PS=Y/N; in the contract subtype's *Add Params* field.

The pipe "PIN PVV Offset Export" (mc.pin_pvv_offset_export.jar) exports information about changes in card PINs.

To start this pipe, use the menu item "MasterCard → MC. Daily Procedures → MC. Outward Processing → MC PVV PIN Offset Export".

Export is run during daily procedures (see the document "Daily Procedures"). The recommended frequency is once a day.

"PIN PVV Offset Export" pipe parameters.

Parameter	Description
FILTER/[compatible_escaped_xml]	WHERE clause fragment added to a SELECT statement. By default, all records from the REMOTE_FILE_REQ table that have the "MPVV" type and are ready for sending are selected. The condition is only required if some records do not have to be sent. However, creation of records that do not have to be sent is not recommended. This is regulated by the setting of the global parameter "SEND_PVV_2_PS" and the tag of the same name in a contract subtype's <i>Add Params</i> field. Default value: "1=1".
OUTPUT_DIRECTORY	Exported file directory. Mandatory parameter.