Operation Manual

Interchange Routing

03.50.30

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Contents

This document describes the basic principles of Interchange routing and the functions of routing contracts as well as instructions for configuration and use of Interchange routing tables in Way4™.

The document contains recommendations on configuring Interchange routing mechanisms for interaction with international payment systems.

This document is intended for Way4 users, bank or processing centre employees responsible for the configuration of Interchange routing.

While working with this document, it is recommended that users refer to the following reference material from OpenWay's documentation series:

- DB Manager Manual
- Documents
- Issuing Module User Manual
- Acquiring Module User Manual
- Configuring Way4™ System for Magnetic Stripe Card Issuing
- Way4™ Dictionaries

The following conventions are used throughout this document:

- Field labels in screen forms are shown in *italics*.
- Button labels used in screen forms are enclosed in square brackets, such as [Approve].
- Sequences for selecting user menu items are shown with arrows, such as Issuing →Contracts Input & Update.
- Sequences for selecting system menu items are shown with the use of different arrows, such as Database => Change password.
- Key combinations used while working with DB Manager are shown in angular brackets such as <Ctrl>+<F3>.
- The names of directories and/or files that vary for each local instance of the program are also displayed in angular brackets, like <OWS_HOME>.


Warnings about potentially hazardous situations or actions.


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

1 Basic Principles of Way4 Interchange Routing

This chapter describes the principles of Interchange routing in Way4. The principles are the same for all payment system interfaces.

1.1 Purpose of Interchange Routing Contracts

Every financial document is processed in Way4 through two contracts – the source contract and the target contract (see "Sources and Targets of Transaction Data" in the Documents Administrator Manual).

When a bankcard registered in Way4 is used to execute an operation on a on a device also registered in Way4, an On-Us Presentment document for the operation is processed using the card contract and the device contract registered in the system (see Fig. 1).

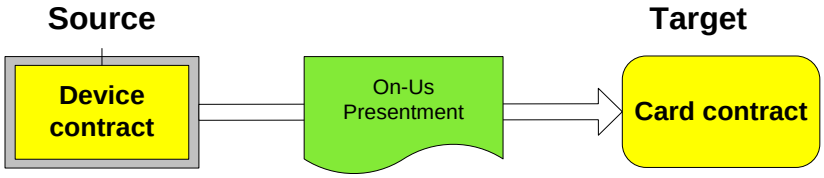


Fig. 1. Contract use when processing On-Us Presentments

In this case, the contract search is based on the device and card numbers specified in the document.

A situation may occur when an operation is executed on a device registered in Way4 using a bankcard not registered in Way4. In this case, the system does not have a contract for the card, so when processing the document (Outward Presentment), the device contract is used as the transaction information source and an Interchange routing contract as the information target. This routing contract serves as a kind of generalised contract for all "foreign" bankcards (see Fig. 2).

Interchange Routing Contracts are used in Way4 as counterparty contracts when processing documents generated as a result of operations with cards, devices or financial institutions not registered in Way4.

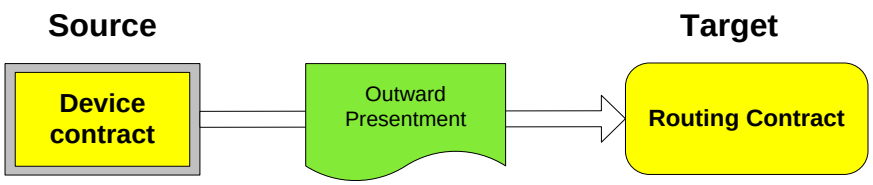


Fig. 2. Outward Presentment processing

A similar situation may also occur when processing an Inward Presentment resulting from the use of a bankcard registered in Way4 on a device belonging to another payment system member (see Fig. 3).

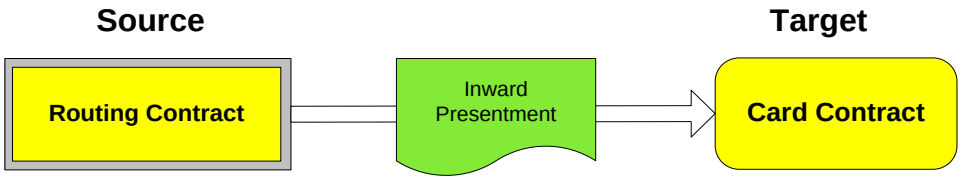


Fig. 3. Inward Presentment processing

In this case, Way4 does not have a contract for the given device. Therefore, the document is processed using an Interchange routing contract as the transaction information source. This Interchange routing contract serves as a generalised contract for all "foreign" devices in a payment system. The card contract registered in Way4 is used as the information target.

Interchange routing contracts are also used in the following situations:

- When processing fee collection documents for payments to other payment system members
- When carrying out settlement transactions
- When a card, account or device contract is registered in Way4 but belongs to a financial institution with which there are no direct financial relationships (i.e. Interbranch routing is not configured).

1.2 Purpose of Interchange Routing Tables

Interchange routing tables are used in Way4 to:

- Determine the routing contract to be used in document processing when
  - one of the counterparties is not registered in Way4.
  - no Interbranch routing is configured between the transaction counterparties.
- Determine the message channel to be used in document processing (see the section ""Message Channels" Dictionary" in the document "Way4™ Dictionaries").

Three routing tables are used in Way4 to execute these tasks:

- The BIN Table is a table of BINs (Bank Identification Number) containing issuer identifiers (card number ranges) and acquirer identifiers (member IDs). The BIN table contains information on card ranges and other card

product properties of financial institutions that may act as counterparties in operations processed in Way4.

- The BIN Group Table is a table of bank ID (BIN) groups. BIN groups are used in Way4 to classify Interchange routing information. Each BIN group defines a list of payment system members as counterparties with whom operations are processed according to the same rules. The BIN group also defines the processing rules themselves. The list of counterparties is defined by the BIN table records belonging to the BIN group. The set of rules is defined by corresponding records in the Interchange Routing table.

  BIN groups allow for certain BIN ranges to be matched with information from the Interchange Routing table. It should be noted that one card number range specified in the BIN table may belong to several BIN groups differentiated by different classification principles. In this case, a BIN group is searched for and an Interchange routing contract is selected as follows:

  - The routing contract of the BIN group with the highest absolute priority value is used (*Absolute Routing Priority* field, see Fig. 14 in the section "Configuring BIN Groups").
  - If the card number range specified in the BIN table belongs to two BIN groups with the same absolute priority (or if no absolute priority is set, i.e. the "0" value is specified), the routing contract corresponding to the BIN group with the smaller (by length) card number range will be used.
  - If the card number range specified in the BIN table belongs to several BIN groups with the same absolute priority and the same (by length) card number range, the routing contract of the BIN group with the highest priority value will be used (*Routing Priority* field, see Fig. 14 in the section "Configuring BIN Groups").
  - If the card number range specified in the BIN table belongs to several BIN groups with the same absolute priority (*Absolute Routing Priority*), priority (*Routing Priority*) and same (by length) card number range, the routing specified in the first BIN group found will be used as the routing contract.

- The Interchange Routing table contains data used to select an Interchange routing contract and determine message sending parameters depending on the financial institution and counterparty category.

1.2.1 Searching for Data with Interchange Routing Tables

Depending on whether a document is incoming or outgoing and its counterparty type, document acceptance may give rise to the following typical tasks:

- Search for the target contract and determine the outgoing message parameters through the card number (see "Algorithm for Searching for Routing Contracts by Card Number").
- Search for the target financial institution and the source contract through the incoming message parameters ("Algorithm for Searching for Routing Contracts by Counterparty Bank Identifier").

When carrying out the tasks, Interchange routing tables are used in the following ways (see Fig. 4):

- The parameters of the outgoing document (another payment system member's bankcard number) or incoming message (Member ID) are used to determine the best fit among the BIN table records for a given set of criteria.
- The record found in the BIN table is used to determine the corresponding group in the BIN group table.
- This BIN group is used to find the best fit according to a given set of criteria among routing contracts in the Interchange routing table. The parameters of the contract are used to process the incoming or outgoing document.

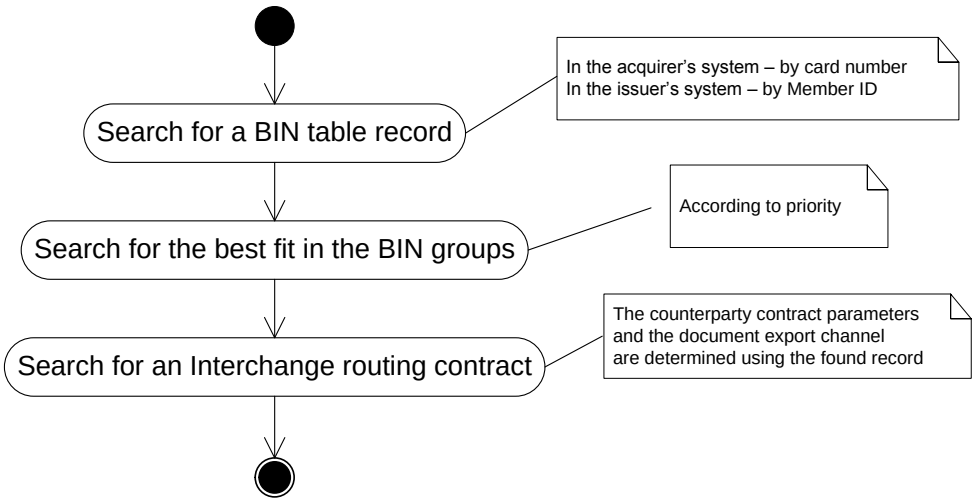


Fig. 4. Use of Interchange routing tables

1.2.2 Algorithm for Searching for Routing Contracts by Counterparty Bank Identifier

This section describes the algorithm for searching for a target financial institution and a source contract by incoming message parameters (see Fig. 5).

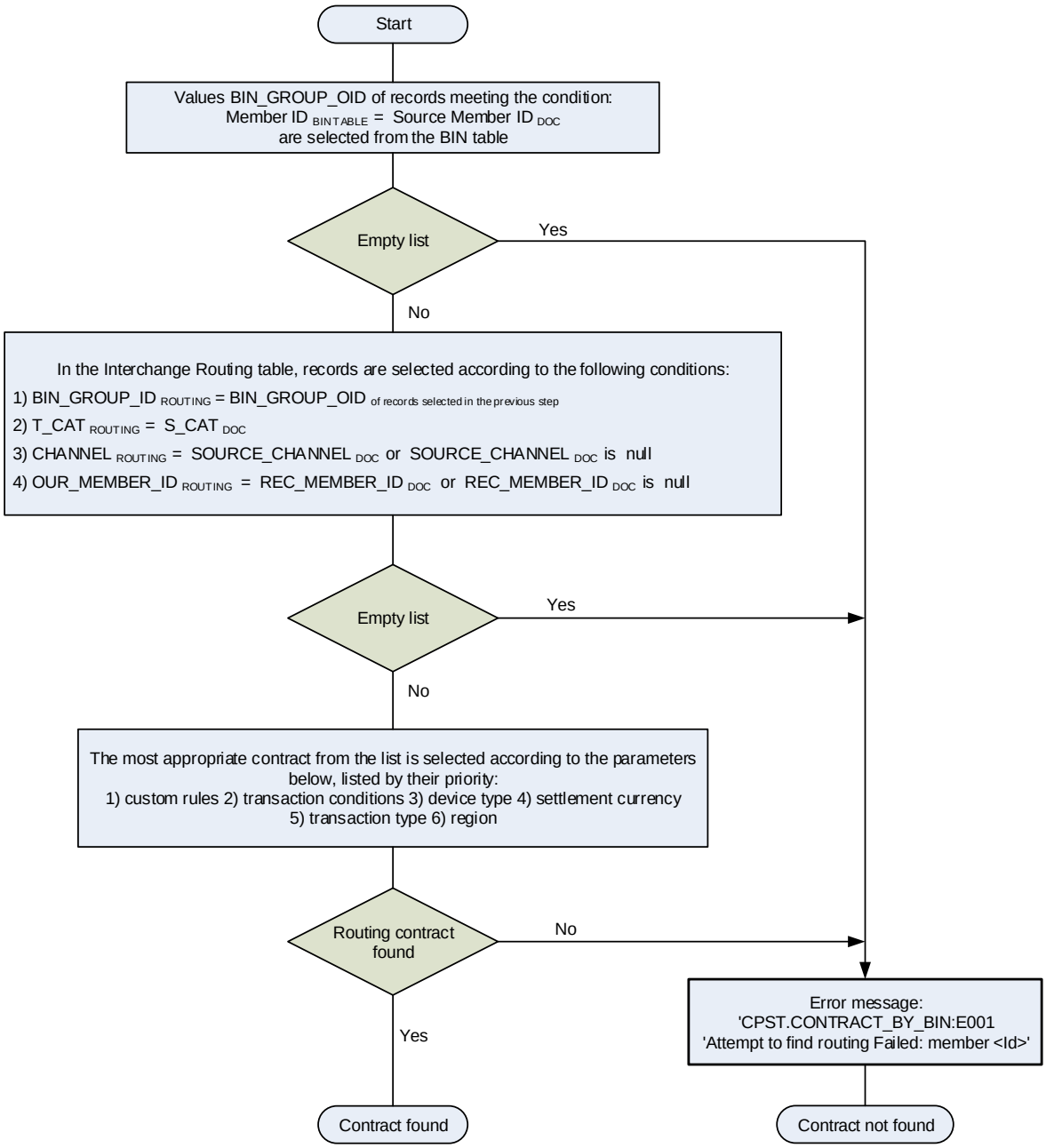


Fig. 5. Algorithm for searching for a target financial institution and a source contract by incoming message parameter (BIN TABLE is a BIN table record, ROUTING is an Interchange routing contract, DOC is the inward document, SOURCE CONTRACT is the source contract registered in Way4)

When the routing contract search procedure has been successfully executed, the routing contract parameters are used as the source contract parameters for further document processing.

1.2.3 Algorithm for Searching for Routing Contracts by Card Number

This section describes the algorithm for searching for a target contract and determining outgoing message parameters by card number (see Fig. 6).

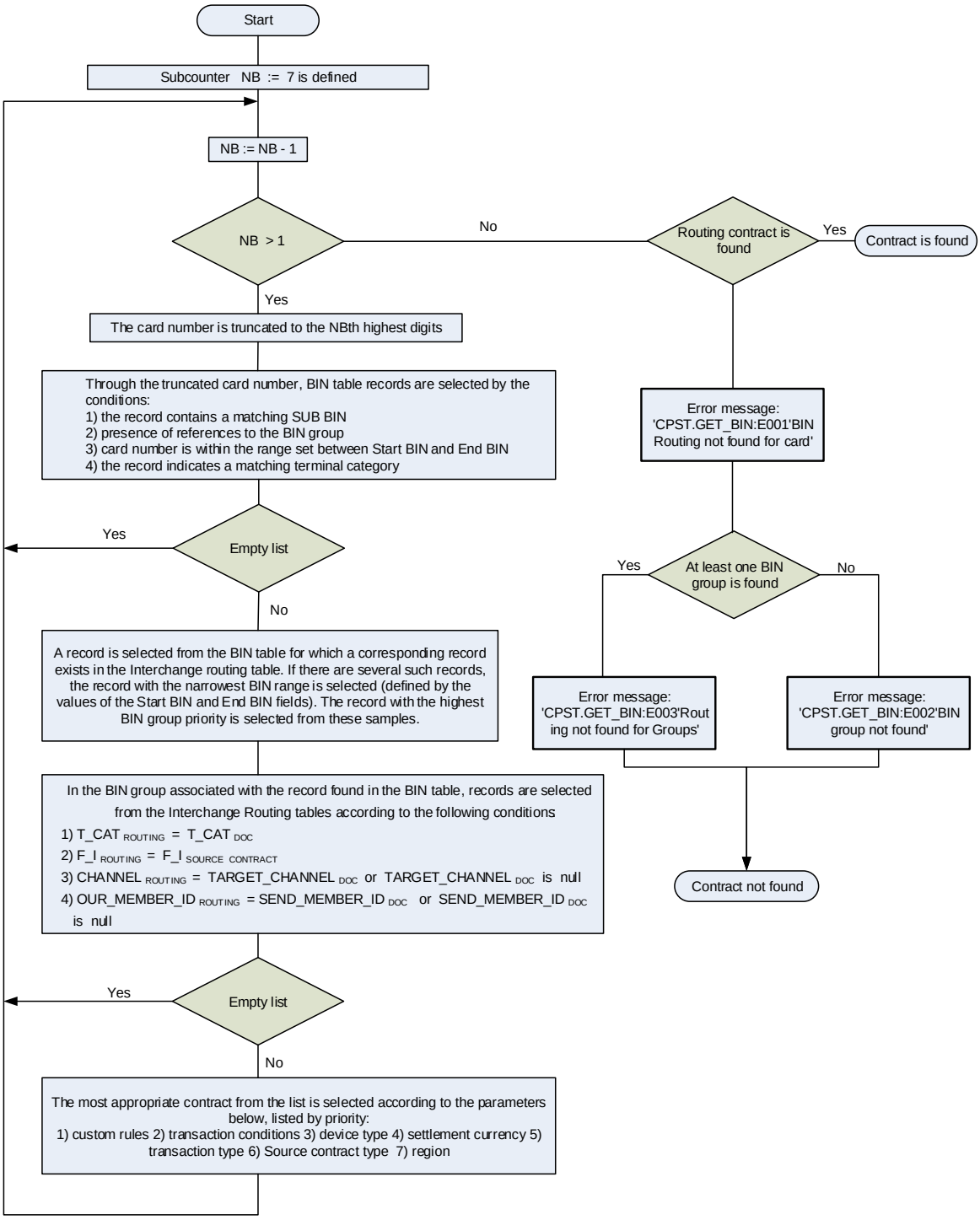


Fig. 6. Algorithm for searching for a contract and outgoing message parameters by card number (ROUTING is the required Interchange routing contract, DOC is the outward document, SOURCE CONTRACT is the source contract registered in Way4)

- When the routing contract search procedure has been successfully executed, the routing contract parameters are used as the target contract parameters for further document processing.

In a search for a routing contract for Cirrus/Maestro cards when a cash dispensing operation is executed on a POS terminal with PIN entry (PBT), ATM will be used as the device type; i.e. for these transactions TERM_CAT="ATM".

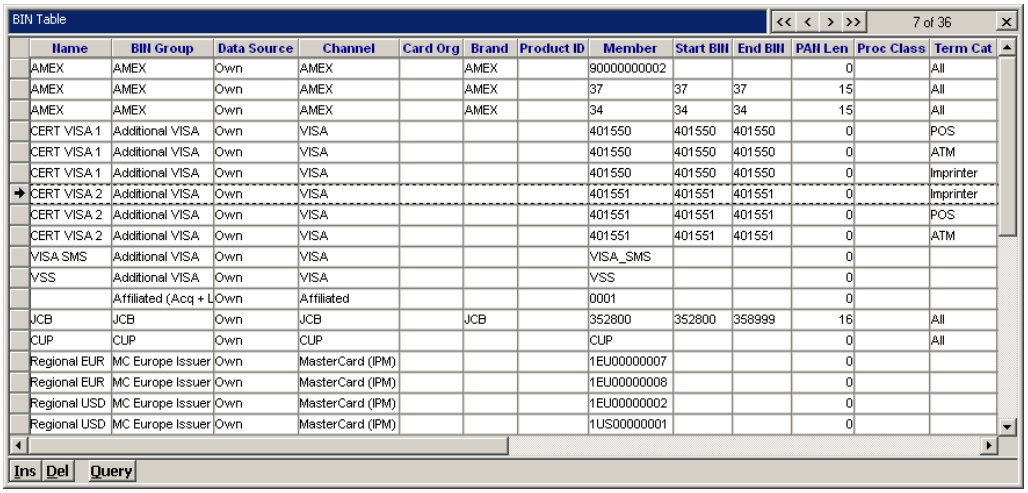
2 Configuring Way4 Interchange Routing

Interchange routing tables are set up in a standard configuration by the system vendor. To enable interaction with payment systems, bank or processing centre employees must proceed as follows:

- Set up custom configurations. This is done once during system installation or during updates imposed by payment system regulations.
- Update the BIN table on a regular basis according to payment system regulations (see "Loading Data into BIN Table").
- Perform routine setups according to payment system regulations.

2.1 Configuring the BIN Table

The BIN table is configured in the "BIN Table" form (see Fig. 7). To access it, select the "Full →Configuration Setup →Routing →BIN Table" menu item.



Name	BIN Group	Data Source	Channel	Card Org	Brand	Product ID	Member	Start BIN	End BIN	PAN Len	Proc Class	Term Cat
AMEX	AMEX	Own	AMEX		AMEX		90000000002			0		All
AMEX	AMEX	Own	AMEX		AMEX		37	37	37	15		All
AMEX	AMEX	Own	AMEX		AMEX		34	34	34	15		All
CERT VISA 1	Additional VISA	Own	VISA				401550	401550	401550	0		POS
CERT VISA 1	Additional VISA	Own	VISA				401550	401550	401550	0		ATM
CERT VISA 1	Additional VISA	Own	VISA				401550	401550	401550	0		Imprinter
CERT VISA 2	Additional VISA	Own	VISA				401551	401551	401551	0		Imprinter
CERT VISA 2	Additional VISA	Own	VISA				401551	401551	401551	0		POS
CERT VISA 2	Additional VISA	Own	VISA				401551	401551	401551	0		ATM
VISA SMS	Additional VISA	Own	VISA				VISA_SMS			0		
VSS	Additional VISA	Own	VISA				VSS			0		
	Affiliated (Acq + L	Own	Affiliated				0001			0		
JCB	JCB	Own	JCB		JCB		352800	352800	358999	16		All
CUP	CUP	Own	CUP				CUP			0		All
Regional EUR	MC Europe Issuer	Own	MasterCard (IPM)				1EU00000007			0		
Regional EUR	MC Europe Issuer	Own	MasterCard (IPM)				1EU00000008			0		
Regional USD	MC Europe Issuer	Own	MasterCard (IPM)				1EU00000002			0		
Regional USD	MC Europe Issuer	Own	MasterCard (IPM)				1US00000001			0		

Fig. 7. Form for configuring the BIN table

Note that the BIN table usually contains a large amount of data (hundreds of thousands of records). Therefore, it is recommended that preliminary data selection be used when working with the "BIN Table" form (see the section "Preliminary Selection of Records according to Arbitrary Criteria" section in the document DB Manager Manual), where data may be selected by the values of the following fields: *BIN Group*, *Member ID*, *Start BIN*, or *Sub BIN*.

The "BIN Table" form contains the following fields (for rules on filling in the table fields, also refer to the section "Overview of Data Loaded into the BIN Table"):

- *Name* – the name of the record in the BIN table.

- *BIN Group* – the BIN group associated with the record (see the section "Configuring BIN Groups").
- *Data Source* – the data source for the table record. If the record has been entered manually, this field contains "Own". If the information has been imported into the BIN table from a payment system, the field contains the abbreviated name of the payment system (e.g. "VISA" or "MC").
- *Channel* – payment system to which the BIN table record belongs (see the section ""Message Channels" Dictionary" section in the document Way4™ Dictionaries).
- *Card Org* – the payment system ID.
- *Brand* – the ID of the payment system product licensed for the region; for example, Mastercard has, among others, the following IDs: Maestro (MSI), Cirrus (CIR).
- *Product ID* – the payment system product ID.

Note that at the time of processing an operation when the source or target is not registered in the system, the tag "PRODUCT_ID=<value>;" will be automatically generated in the *Add Data* field. For VISA this tag is displayed as "PRODUCT_ID=<*Product ID* field value><*Usage* field value>;", for all other payment systems - "PRODUCT_ID=<*Product ID* field value>;".

- *Member* – the financial institution identifier in the payment system.

Note that when entering a record manually for test purposes, it makes sense to indicate an identifier that is not already contained in the payment system tables to avoid conflict.

- *Start BIN* – the beginning of the card number range (for rules for filling in this field when entering a record manually, see the section "Rules for Filling in the *Start BIN*, *End BIN* and *Sub BIN*").
- *End BIN* – the end of the card number range (for rules for filling in this field when entering a record manually, see the section "Rules for Filling in the *Start BIN*, *End BIN* and *Sub BIN*" section).
- *PAN Len* – the number of decimal places in the card number.
- *Proc Class* – the transaction processing type identifier.
- *Term Cat* – the device type; if a card can be acquired on devices of several types, more than one record is specified in the BIN table.
- *ICA#* – the financial institution identifier according to the ICA classification

- *Domain* – the domain where cards within the current range can be acquired. This parameter helps determine whether a card can be used within domestic or regional boundaries, or the domain can be defined by other parameters.
- *Country* – the issuer country code.
- *CDV Alg* – this parameter specifies if card numbers for transactions with manual key entry must be checked using a Luhn digit algorithm. If "1" is specified in this field, the check will be executed when generating documents; if a card number has not passed the check, the operation with the card is declined.
- *Region* – the issuer region code according to the payment system classification.
- *Usage* – card use features.
- *Serv. Ind* – additional card characteristics indicating that cards within the current range can be used to make payments for additional services.
- *Card Technology* – contains the symbol "A" if the range is used for smart cards; otherwise, this field is left blank.
- *Status* – indicates the status of the current BIN table record. It can be either "Active" or "Inactive".
- *Sub Bin* – the card number range ID (for rules for filling in the *Sub BIN* field when entering records manually, see the section "Rules for Filling in the Start BIN, End BIN and Sub BIN").
- *Bin Details* – field for specifying additional information about a BIN table record. When the "CAN_BE_ONUS;" tag is specified in this field, first a search for the contract registered in Way4 will be made according to the contract number specified in the document (Source Number or Target Number); if a contract registered in Way4 is not found, a search will be made for the routing contract.

  In addition, the "CAN_BE_ONUS;" tag should be specified for records whose financial institution identifiers (Member ID) belong to this bank or processing centre. In this case, interbank documents (Fee Collection and Fund Disbursement) will be processed in Way4.

To add a new record to the BIN table, click the [Ins] button, to delete a record, the [Del] button.

Note that users may only edit the BIN table manually when configuring routing between financial institutions having an additional agreement (e.g. a sponsor bank and an affiliated bank). Otherwise, the BIN table must be imported

according to payment system regulations (see the section "Loading Data into BIN Table").

2.1.1 Rules for Filling in the *Start BIN*, *End BIN* and *Sub BIN* Fields

When manually entering records in the BIN table, the values of the *Start BIN*, *End BIN* and *Sub BIN* fields are determined as follows:

- Determine the starting and ending card numbers of the given range. The numbers should contain the same number of decimal places.
- When the following conditions occur at the same time: the last digit of the starting card number is 0, and the last digit of the ending card number is 9, eliminate the last digit from both numbers. This is done until the last digit of the starting number is not 0 and/or the last digit of the ending number is not 9.
- Enter the starting and ending card number values indicating the range into the *Start BIN* and *End BIN* fields, respectively.
- The digits occurring in both *Start BIN* and *End BIN* form the value of the *Sub BIN* field.

Note that the length of the *Sub BIN* field must not exceed 6 characters. If the length of the *Sub BIN* field exceeds 6 characters, this BIN table record will not participate in the search for a routing contract.

An example of filling in the fields is given in the Table 1.

Table 1. Example of filling in the Start BIN, End BIN and Sub BIN fields

Starting number of card range	5678010000000000
End number of card range	5678018999999999
Elimination of last digits	5678010~~0000000000~~
	5678018~~9999999999~~
Result of elimination	
Start BIN	5678010
End BIN	5678018
Sub BIN	567801

2.2 Loading Data into BIN Tables

This section describes the technology used in Way4 for importing data into payment system BIN tables.

2.2.1 Loading the Mastercard BIN Table

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.


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").

2.2.1.1 Complete Update of the 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" of the document "Mastercard Interchange Interface". 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????.???" name mask 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, the following command must be executed:
  - 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 (see Fig. 8) will be displayed immediately after one of these menu items is started ("MC MPE Full Files Import" or "MC MPE Full Files Import with Conversion"). To continue executing the procedure, click [Yes]; to terminate execution, click [No].

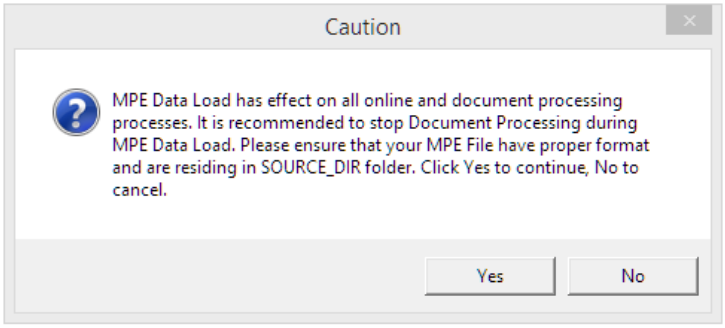


Fig. 8. Warning before executing a full update of the Mastercard BIN table

The execution of this menu item consists of two steps:

- In the first step, data from the payment system file is processed and data are 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 are deleted from these tables and then the new data are written.

  At this step, a window for selecting a file to be processed will be displayed (see Fig. 9).

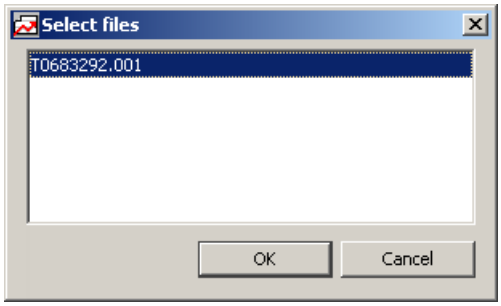


Fig. 9. Window for selecting a Mastercard data file to be loaded into the BIN table

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 (see Fig. 10). To execute the second step, click the [Yes] button; to terminate the process, click [No].

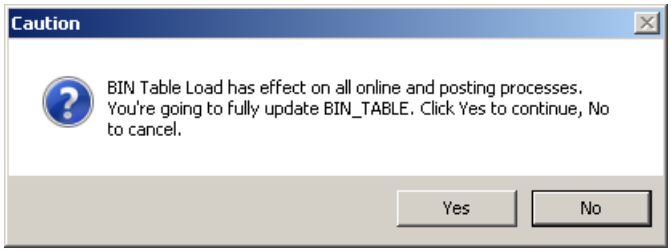


Fig. 10. Message indicating that the first step of loading the BIN table has been executed

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"), when data is loaded into the BIN table, this data will automatically be structured according to these BIN groups.

2.2.1.2 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, use a special application, e.g. "Inter.Pel".
- Copy the loaded file with the "t067????.???/t167????.???" name mask 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 this, the following command must be executed:
  - For ASCII files

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

  - For EBCDIC files (layout 1014):

```
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 "Complete Update of the Mastercard BIN Table").

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

2.2.2 Loading the Visa BIN Table

This section describes loading of Visa BIN tables in different formats.

2.2.2.1 Loading BIN tables in BINARD format

Starting from version 03.48.30, Way4 supports loading of BIN tables in BINARD format. For a description of the format, see the section "B.18 BINARD Extract File" in Visa document "BASE II Clearing Edit Package (Release 4) Operations Guide".

This is the preferred option for loading BIN tables, which is recommended by OpenWay.

Files in a new format are loaded using the menu item "VISA →VISA. Daily Procedures →VISA. Load Bin Table and Handbooks →VISA BINARD Table Import".

The directory for loaded files is set using the "source_dir" parameter of the "visa.binard_table_import.jar" import pipe.

2.2.2.2 Loading the VISA BIN / ARDEF Table

Before update, delete the auxiliary files "VISABIN.TXT" and "VISABIN1.TXT" remaining in the "<OWS_WORK>\Data\OW_Table" directory since the previous update.

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

To load data from the VISA BIN/ARDEF table into the BIN table, proceed as follows:

- Data from the Visa payment system is received and processed through the Edit Package application. Files created during processing must be copied to the "<OWS_WORK>\Data\OW_Table" directory with the required names.

  For example, to use Edit Package for DOS to receive and process files, the following operations must be executed:

  - Select the "Controls and Utilities / History And Table Utils / Report on Edit Package Files/ Table Files" menu item.
  - In the "Output Type Desired" field, specify "FILE", in the "Table Name" field, specify "BIN".
  - Copy the file created in the "<EP_Dir>\Data" directory to the "<OWS_WORK>\Data\OW_Table\VISABIN1.TXT" file.
  - Select the "Controls and Utilities / History And Table Utils / Report on Edit Package Files/ Table Files" menu item.
  - In the "Output Type Desired" field, specify "FILE", in the "Table Name" field, specify "ARDEF".
  - Copy the file created in the "<EP_Dir>\Data" directory to the "<OWS_Work>\Data\OW_Table\VISABIN.TXT" file.

- Select the "VISA → VISA.Daily Procedures → VISA. Load Bin Table and Handbooks →VISA & PLUS BIN Tables Import" menu item.

  Immediately before the menu item is executed, a warning will be displayed (see Fig. 11). Click [Yes] to continue execution, click [No] to cancel.

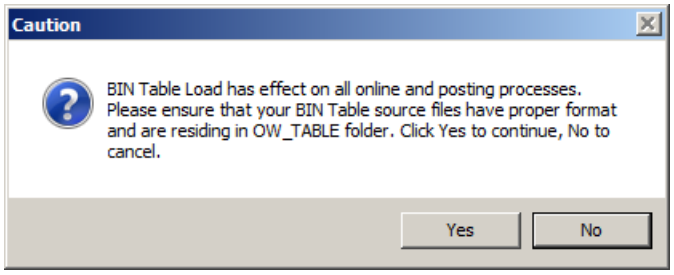


Fig. 11. Warning before starting loading of VISA BIN / ARDEF Table

When loading data, the following actions are executed:

- All records contained in the BIN table before loading and associated with Visa are 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 Visa Intra-Country member groups (see the section "Configuring BIN Groups"), when data is loaded into the BIN

table, this data will automatically be structured according to these BIN groups.

2.2.2.3 Loading the VISA PLUS BIN Table

Before update, delete the auxiliary files "VISABIN.TXT", "VISABIN1.TXT" and "VISABINP.TXT" remaining in the "<OWS_WORK>/Data/OW_Table" directory since the previous update.

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

If a file received from Visa contains PLUS BIN table information (the file contains records with Transaction Code 33), a file named "VPB?????.INC" will be automatically generated in the "<OWS_WORK>\Data\Interchange\PlusBIN" directory after receiving and processing the file. To transfer information from the VISA PLUS BIN table to the Way4 BIN table:

- Copy the "<OWS_WORK>\Data\Interchange\PlusBIN\ VPB?????.INC" file to "<OWS_WORK>\Data\OW_Table\VISABINP.TXT".
- Delete the header and trailer from the file.
- Select the menu item "VISA →VISA.Daily Procedures →VISA. Load Bin Table and Handbooks →VISA & PLUS BIN Tables Import".

  Immediately before the menu item is executed, a warning will be displayed (see Fig. 11 in the section "Loading the VISA BIN / ARDEF Table"). When loading data, the following actions are executed:

  - All current records in the BIN table associated with the VISA PLUS payment system are 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 Visa Intra-Country member groups (see the section "Configuring BIN Groups"), when data is loaded into the BIN table, this data will automatically be structured according to these BIN groups.

2.2.3 Loading the Diners Club BIN Table

To load Diners Club BIN tables, do as follows:

- Ensure (and if necessary, add the record) that in the "BIN Groups" form (see Fig. 14 in the section "Configuring BIN Groups") a BIN group is

registered that has the "Diners Club" value in the *Default Channel* field and the "C" value in the *Group Code* field.

- Copy the file received from the payment system with the "C*.txt" name mask to the "<OWS_WORK>\Data\Interchange\DCI_BIN" directory.
- Execute the menu item "Diners Club Acquiring →DCI. Daily Procedures → DCI. Load Bin Table and Handbooks →DCI BIN Table Import". Execution of this menu item is accompanied by display of the "Select Files" window in which files for loading must be selected.

When loading data, the following actions are executed:

- All pre-existing BIN table records belonging to Diners Club are assigned the "Inactive" status.
- Each BIN table record for which the same range is found in the new file is assigned the "Active" status.

2.2.4 Loading the Union Pay International BIN Table

To load Union Pay International (UPI) BIN tables, do as follows:

- Ensure (and if necessary, add the record) that in the "BIN Groups" form (see Fig. 14 in the section "Configuring BIN Groups") a BIN group is registered that has the "CUP" value in the *Default Channel* field and the "H" value in the *Group Code* field.
- Copy the file received from the payment system with the "IFO????????BIN" name mask to the "<OWS_WORK>\Data\Interchange\CUP_INC" directory.
- Execute the menu item "UPI →UPI. Daily Procedures →UPI. Load Bin Table and Handbooks →UPI BIN Table Import". After the menu item is started, a warning will be displayed (see Fig. 11 in the section "Loading the VISA BIN / ARDEF Table"). Clicking [Yes] continues execution and the "Select Files" window will be displayed, in which files for loading must be selected.

When loading data, the following actions are executed:

- All pre-existing BIN table records belonging to UPI are assigned the "Inactive" status.
- Each BIN table record for which the same range is found in the new file is assigned the "Active" status.

2.2.5 American Express BIN Table

The BIN Table for American Express (AMEX) is generated manually. To generate the BIN table, do as follows:

- In the "BIN Groups" form (see Fig. 14 in the section "Configuring BIN Groups"), register a BIN group, specifying "AMEX" in the *Default Channel* field and the "X" value in the *Group Code* field.
- In the "BIN Groups" form, click the [BIN Table] button, and in the "BIN Table for <...>" form that opens, create a record with the values "34", "34*", "37", "37*" and "90000000002" in the *Member ID* field (see Fig. 12).

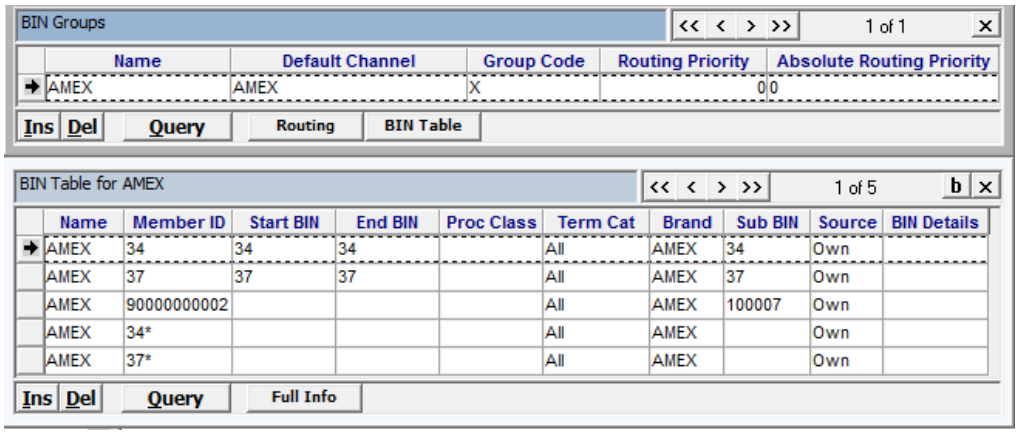


Fig. 12. AMEX BIN table

2.2.6 Loading the Union Card BIN Table

To load the Union Card BIN table, do as follows:

- Ensure (and if necessary, add the record) that in the "BIN Groups" form (see Fig. 14 in the section "Configuring BIN Groups") a BIN group is registered that has the "Union Card" value in the *Default Channel* field and the "U" value in the *Group Code* field.
- Copy the "ucb89.txt" file received from the payment system to the "<OWS_WORK>\Data\OW_Table" directory.
- Execute the menu item "Union Card →UC. Daily Procedures →UC. Load Bin Table and Handbooks →Union Card BIN Table Import".

When loading data, the following actions are executed:

- All pre-existing BIN table records belonging to Union Card are assigned the "Inactive" status.
- Each BIN table record for which the same range is found in the new file is assigned the "Active" status.

2.2.7 Loading the STB Card BIN Table

To load the STB card BIN table, do as follows:

- Ensure (and if necessary, add the record) that in the "BIN Groups" form (see Fig. 14 in the section "Configuring BIN Groups") a BIN group is

registered that has the "STB" value in the *Default Channel* field and the "STB" value in the *Group Code* field.

- Copy the "stb_acq.txt" and "stb_iss.txt" files received from the payment system to the "<OWS_WORK>\Data\OW_Table" directory.
- Execute the menu item "STB →STB. Daily Procedures →STB. Load Bin Table and Handbooks →STB BIN Table Import".

When loading data, the following actions are executed:

- All pre-existing BIN table records belonging to STB Card are assigned the "Inactive" status.
- Each BIN table record for which the same range is found in the new file is assigned the "Active" status.

2.2.8 Overview of Data Loaded into the BIN Table

Sets of BIN table fields differ in different payment systems. The Way4 BIN table is an aggregated table where data received from all payment systems are stored.

Data loaded into the Way4 BIN table are shown in the Table 2.

Table 2. Information loaded into the Way4 BIN table

Way4 BIN Table Field	Data Imported from Payment Systems						
	MPE BIN / MBR Table	**VISA BIN / ARDEF Table**	**VISA PLUS BIN Table**	**Diners Club**	**CUP**	**Union Card**	**STB Card**
BIN_GROUP	BIN group identifier	BIN group identifier	BIN group identifier	BIN group identifier	BIN group identifier	BIN group identifier	BIN group identifier
CARD_BRAND	"Acceptance Brand " field of table IP0040 (for example, "CIR", "MSI", "MCC", "DMC", "PVL")	"VISA" if the source is the ARDEF table	"PLUS"	-	"CUP"	"UCST"	-
CARD_ORG	Calculated from the values of the "Member ID" and "Region" fields in table IP0072	"EL" if "Type of card"="E", otherwise, "V"	"EP"	-	"H"	"UCST"	-
PRODUCT_ID	"Product Id" field in table IP0040	"Card Type" field from the ARDEF table	"Account Type field"	-	"Card Level" field	-	-
CHANNEL	"E"	"V"	"V"	"C"	"H"	"U"	"I"
MEMBER_ID	"Member ID" field from table IP0040 or IP0072	"Reporting BIN" field from the BIN table	"BIN Number Account Range" field	"Issuer IICDXS" field	"Member Code" field	"Member ID" field	"Member ID" field

Way4 BIN Table Field	Data Imported from Payment Systems						
	MPE BIN / MBR Table	**VISA BIN / ARDEF Table**	**VISA PLUS BIN Table**	**Diners Club**	**CUP**	**Union Card**	**STB Card**
START_BIN	"Range Low" field from table IP0040	"Start BIN" field from the ARDEF table	"BIN Number Account Range" field	"Cycle Range" field	"BIN" field	"BIN" field	"BIN" field
END_BIN	"Range High" field from table IP0040	"End BIN" field from the ARDEF table	"BIN Number Account Range" field	"Cycle Range" field	"BIN" field	"BIN" field	"BIN" field
START_BIN_4	Calculated from values of the "Range Low" and "Range High" field in table IP0040	Common prefix (up to 6 characters) of "Start BIN" and "End BIN" fields from the ARDEF table	"BIN Number Account Range" field (6 or fewer characters)	"Cycle Range" field (up to 6 characters)	"BIN" field (up to 6 characters)	"BIN" field (up to 6 characters)	"BIN" field(up to 6 characters)
PROCESSING_CLASS	Converted according to the value of "CARD_BRAND": "MAST" – "ECRD"; "MAES" – "EDCM"; "CRUS" – "ECHA"	-	-	-	-	Concatenation of "Processing Class" and "Curr" fields	-

Way4 BIN Table Field	Data Imported from Payment Systems						
	MPE BIN / MBR Table	**VISA BIN / ARDEF Table**	**VISA PLUS BIN Table**	**Diners Club**	**CUP**	**Union Card**	**STB Card**
TERMINAL_CATEGORY	Converted according to the value of "CARD_BRAND": "MAST" – "A" (ATM), "P" (POS), "N" (Imprinter) "MAES" – "A", "P" "CRUS" – "A"	"A" if "Type of card"="A", otherwise, "0"	"A"	"0"	"0"	"0"	"0"
BIN_STATUS	"A"	"A"	"A"	"A"	"A"	"A"	"A"
USAGE_DOMAIN	-	"Domain" field from the ARDEF table	"W"	"W" or "D"	-	-	-
NAME	"Member Name" field from table IP0072	-	-	"Issuer Name" field	"Member Name" field	"Member ID" field	"Description" field
ICA_NUMBER	-	"Processor BIN" field from the BIN table	-	-	-	-	-
REGION_FOR_ISSUER	"Region" field from table IP0040	"Region" field from the BIN table	-	-	-	-	-

Way4 BIN Table Field	Data Imported from Payment Systems						
	MPE BIN / MBR Table	**VISA BIN / ARDEF Table**	**VISA PLUS BIN Table**	**Diners Club**	**CUP**	**Union Card**	**STB Card**
USAGE	-	Field "Usage" from the BIN table	-	-	"Card Type" field	-	-
COUNTRY	"Country" field from table IP0072	"Country" field from the BIN table	-	"Issuer Country" field	-	"Country Code" field, if not filled in - "643"	-
CDV_ALGORITHM	"1"	Field "Check Digit Indicator" from the ARDEF table	"1"	-	-	"CDV Alg", if not filled in – "1"	-
PAN_LENGTH	"0"	"PAN Length " field from the ARDEF table	"PAN Length" field	"PAN Length" field	"PAN Length" field	"PAN Length" field, if not filled in – "16"	-

The payment system determines the list of possible field values for the BIN table that it sends. The Table 3 presents the list of possible field values for the Way4 BIN table.

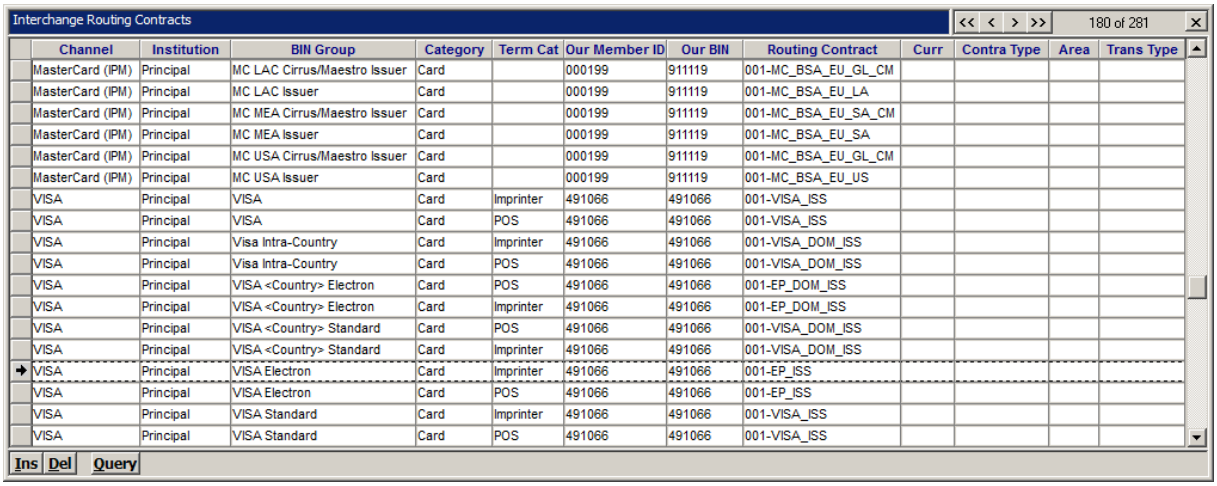
Table 3. List of possible field values for the Way4 BIN table

Way4 BIN Table Field	Possible Values	Description of Possible Values	Notes
CARD_BRAND	CIR	Cirrus	
	MSI	Maestro	
	MCC	Mastercard	
	DMC	Debit Mastercard	
	VISA	Visa	
	PLUS	Plus	
	CUP	CUP	
	UCST	Union Card	
PROCESSING_CLASS	ECRD	Pay Later (Eurocard-Mastercard)	For EPI compliance
	EDCM	Pay Now Retail (Maestro)	
	ECHA	Pay Now ATM and Manual Cash Advance (Eurocheque Pictogram, Cirrus, Maestro)	
TERMINAL_CATEGORY	A	ATM	
	P	POS	
	N	No Terminal	
	0	Any	
BIN_STATUS	A	Active	
	I	Inactive	To be deleted
USAGE_DOMAIN	D	Domestic	
	N	National	Data from VISA
	R	Regional	Data from VISA
	W	World-wide	
CARD_ORG	MC	Mastercard	
	MD	Mastercard Debit Switch	
	V	VISA	
	EL	Electron	
	EP	PLUS	
	H	CUP	

Way4 BIN Table Field	Possible Values	Description of Possible Values	Notes
	UCST	Union Card	
REGION_FOR_ISSUER	Values are given in the "Country Area" form (Full → Configuration Setup → Main Tables → Country Area)	Values from payment system	
USAGE	C	Credit Card	Diners Club, JCB, Mastercard, UPI, Visa
	D	Debit Card	
	H	Charge Card	Visa
	N	Non-Mastercard product	Mastercard
	O	Other	JCB
	P	Prepaid Card	Diners Club, JCB, Mastercard, Visa
	R	Deferred Debit	Visa
CDV_ALGORITHM	1	VISA Modulus 10 performed	
	0	No check digit validation performed	
CHANNEL	E	Mastercard (IPM)	
	V	VISA	
	C	Diners Club	
	H	CUP	
	U	Union Card	
	I	STB Card	

2.3 Configuring Interchange Routing Contracts Table

The "Interchange Routing Contracts" form (see Fig. 13) is used to configure Interchange routing contract parameters. To access this form, select the "Full → Configuration Setup →Routing →Interchange Routing Contracts" menu item.



Channel	Institution	BIN Group	Category	Term Cat	Our Member ID	Our BIN	Routing Contract	Curr	Contra Type	Area	Trans Type
MasterCard (IPM)	Principal	MC LAC Cirrus/Maestro Issuer	Card		000199	911119	001-MC_BSA_EU_GL_CM				
MasterCard (IPM)	Principal	MC LAC Issuer	Card		000199	911119	001-MC_BSA_EU_LA				
MasterCard (IPM)	Principal	MC MEA Cirrus/Maestro Issuer	Card		000199	911119	001-MC_BSA_EU_SA_CM				
MasterCard (IPM)	Principal	MC MEA Issuer	Card		000199	911119	001-MC_BSA_EU_SA				
MasterCard (IPM)	Principal	MC USA Cirrus/Maestro Issuer	Card		000199	911119	001-MC_BSA_EU_GL_CM				
MasterCard (IPM)	Principal	MC USA Issuer	Card		000199	911119	001-MC_BSA_EU_US				
VISA	Principal	VISA	Card	Imprinter	491066	491066	001-VISA_ISS				
VISA	Principal	VISA	Card	POS	491066	491066	001-VISA_ISS				
VISA	Principal	Visa Intra-Country	Card	Imprinter	491066	491066	001-VISA_DOM_ISS				
VISA	Principal	Visa Intra-Country	Card	POS	491066	491066	001-VISA_DOM_ISS				
VISA	Principal	VISA <Country> Electron	Card	POS	491066	491066	001-EP_DOM_ISS				
VISA	Principal	VISA <Country> Electron	Card	Imprinter	491066	491066	001-EP_DOM_ISS				
VISA	Principal	VISA <Country> Standard	Card	POS	491066	491066	001-VISA_DOM_ISS				
VISA	Principal	VISA <Country> Standard	Card	Imprinter	491066	491066	001-VISA_DOM_ISS				
VISA	Principal	VISA Electron	Card	Imprinter	491066	491066	001-EP_ISS				
VISA	Principal	VISA Electron	Card	POS	491066	491066	001-EP_ISS				
VISA	Principal	VISA Standard	Card	Imprinter	491066	491066	001-VISA_ISS				
VISA	Principal	VISA Standard	Card	POS	491066	491066	001-VISA_ISS				

Fig. 13. Form for configuring Interchange routing contracts

The "Interchange Routing Contract" form (see Fig. 13) contains the following fields:

- *Channel* – the channel through which the financial institution exchanges data with the payment system (see the section""Message Channels" Dictionary" in the document "Way4™ Dictionaries").
- *Institution* – the financial institution associated with the contract of the counterparty registered in Way4.
- *BIN Group* – the BIN group associated with the record.
- *Category* – the category of the counterparty contract not registered in Way4; a card contract, an account contract, or a device contract.
- *Term Cat* – the type of the device for bankcard acquiring; an ATM, a POS terminal, or an imprinter.
- *Our Member ID* – the identifier of the financial institution associated with the contract registered in Way4. It is specified according to the classification of the corresponding payment system (ICA for Mastercard, Center Processing BIN for VISA, etc.)
- *Our BIN* – the BIN assigned by the payment system to the acquirer associated with the contract registered in Way4.
- *Routing Contract* – the Interchange Routing contract used as a counterparty for transaction information.
- *Curr* – the settlement currency.
- *Contra Type* – the type of the contract registered in Way4 used as a counterparty for this transaction.
- *Area* – the area where the given routing contract is valid. Areas are defined in the Country Area dictionary (see section "Country Area Support" section in the document "Way4™ Dictionaries").

- *Trans Type* – the transaction type for which data from the current routing contract can be used.

2.4 Configuring BIN Groups

Way4 is supplied with preconfigured standard BIN groups. They allow for BIN table records to be associated with a minimal mandatory set of Interchange routing contracts (see the section "Typical Interchange Routing Contracts") used to correctly generate clearing and settlement files, to analyse fund transfers in Nostro accounts and to carry out reconciliation.

To analyse fund transfer in more detail, custom BIN groups may be added. They must be configured in the same way as typical BIN groups (see the section "Principles for Generating Typical BIN Groups" section).

BIN groups are configured in the "BIN Groups" form (see Fig. 14). To access it, select the "Full →Configuration Setup →Routing →BIN Groups" menu item.

BIN Groups

<< < > >> 20 of 48

Name	Default Channel	Group Code	Routing Priority	Absolute Routing Priority
Additional EC	MasterCard (IPM)	EC_	30	0
Additional EC Cirrus/Maestro	MasterCard (IPM)	ECM_	30	0
Additional MC	MasterCard (IPM)	MC_	30	0
Additional MC Cirrus/Maestro	MasterCard (IPM)	MCM_	30	0
Additional VISA	VISA	V_	30	0
Affiliated (Acq + Local Card)	Affiliated	m	20	0
Affiliated Cirrus / Maestro	Affiliated	ACM	20	0
Affiliated EC / MC	Affiliated	AEC	20	0
Affiliated Electron / Plus	Affiliated	AEP	20	0
Affiliated VISA	Affiliated	AV	20	0
AMEX	AMEX	X	0	0
BIC Directory (RKC)	RKC	RKC	0	0
BIC Directory (SWIFT)	SWIFT	SWIFT	0	0
Cirrus/Maestro Intra-Country	MasterCard (IPM)	CXX	10	0
CUP	CUP	H	0	0
DCI	Diners Club	C	0	0
EC Intra-Country	MasterCard (IPM)	EXX	10	0
Electron/Plus	VISA	EP	0	0
Electron/Plus Intra-Country	VISA	P000	10	0
JCB	JCB	J	0	0
MC	MasterCard (IPM)	MCS	0	0
MC <Country> Cirrus/Maestro Issuer	MasterCard (IPM)	MCxxxM	0	0
MC <Country> Issuer	MasterCard (IPM)	MCxxxS	0	0
MC Asia Pacific Cirrus/Maestro Issuer	MasterCard (IPM)	MRCM	0	0
MC Asia Pacific Issuer	MasterCard (IPM)	MRCS	0	0
MC Canada Cirrus/Maestro Issuer	MasterCard (IPM)	MRAM	0	0

Ins Del Query Routing BIN Table

Fig. 14. Form for configuring BIN groups

This form contains the following fields:

- *Name* – the group name.
- *Default Channel* – the default channel for transmitting transaction information (see the section ""Message Channels" Dictionary" in the document "Way4™ Dictionaries").

- *Group Code* – the group code used when loading the BIN table and generating reports.

  When manually creating a BIN group used to determine routing contracts within a country, users must follow these rules for entering group codes:

  - The first code character should be one of the following: "MC" for Mastercard and Cirrus/Maestro cards, "V" for Visa cards, and "P" for Electron/Plus cards, etc.
  - The next three code characters should be the three-character country identifier specified in field *Code (3 bites)* of the "Country Table" form (Full → Configuration Setup → Main Tables → Country table).
  - The last code character for Mastercard must be the card contract type ("S" – Mastercard, "M" – Cirrus/Maestro).

  For example, to configure domestic clearing within Germany, the *Group Code* field for a Cirrus/Maestro card should contain "MCDEUM".

- *Routing Priority* and *Absolute Routing Priority* – the priority of the group and absolute priority of the group. These fields are used to select from several BIN table records associated with different BIN groups (see "Priorities").

Clicking the [Routing] button opens the "Routing for <group name>" form (see Fig. 15).

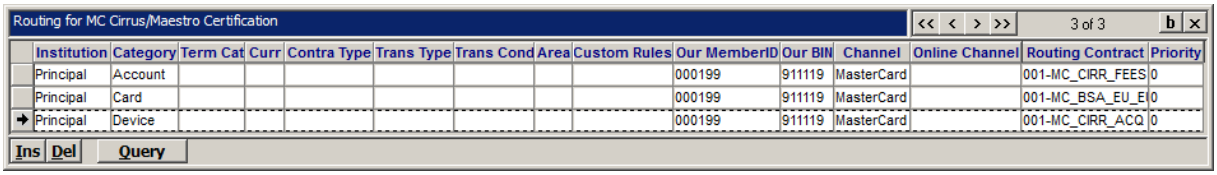


Fig. 15. List of Interchange routing contracts associated with a BIN group

This form is used to configure the list of Interchange routing contracts associated with this group. The form's fields are the same as the fields of the same names in the "Interchange Routing Contract" form (see Fig. 13 in the section "Configuring Interchange Routing Contracts Table") with the exception of the following fields:

- *Trans Cond* – drop-down list to specify Transaction Conditions.
- *Custom Rules* – additional contract information, shown as a tag.
- *Online Channel* – name of the channel used for online routing in the Way4 acquiring host.
- *Priority* – contract priority. This is used to select from several BIN table records associated with different BIN groups.

Clicking the [BIN Table] button opens the "BIN Table for <group name>" form. It is used to configure BIN table records associated with this group (see the "Configuring the BIN Table" section).

2.4.1 Principles for Generating Typical BIN Groups

In the system, BIN groups are created according to several principles:

- By affiliation with a payment system (e.g. Mastercard or Visa).
- To analyse the bank's acquiring operations, BIN table records may be further classified according to the card program type (e.g. for Visa cards: VISA, Electron/Plus).
- By regional attributes (region, country).

  For example, transactions involving Mastercard cards are divided into the following types:

  - MRDS, MRDM – transactions are processed by rules set for Europe.
  - MRCS, MRCM – transactions are processed by rules set for the "Asia Pacific" region.
- For further analysis of issuer operations, contracts may be further broken down within one BIN group according to various device categories (ATM, POS terminal, imprinter).
- For interaction of a sponsor bank with an affiliated bank (Host-to-Host).

Principles used in the Way4 for automatic generation of typical groups are presented below.

2.4.1.1 MPE BIN / MBR Table

Note that Mastercard BIN groups are generated only according to regional attributes (region, country).

Standard BIN groups are represented in the section "Registering BIN Groups and Importing the BIN Table" of the document "Configuring Way4™ for Calculation of Mastercard IRD".

For the BIN table loading pipe started using the menu items "Mastercard → MC.Daily Procedures → MC.Load Bin Table and Handbooks → MC.Full Replacement → MC MPE Full Files Import" and "Mastercard → MC.Daily Procedures →Load BIN Tables and Handbooks →MC MPE Daily Files Import" to execute loading with consideration of registered BIN groups, set the "M=CIR,MSI;" value for the MC_CPI_GROUPS global parameter.

2.4.1.2 VISA BIN/ARDEF Table and VISA PLUS BIN Table

All records are loaded, with the exception of those with the "D" value in the *Domain* field.

Visa BIN groups are generated according to geographical attributes (region, country).

For the BIN table import pipe started using the menu item "VISA →VISA.Daily Procedures →VISA. Load Bin Table and Handbooks →VISA & PLUS BIN Tables Import" to execute loading with consideration of registered BIN groups, set the "E=L;" parameter for the VISA_PRODUCT_GROUPS global parameter.

Moreover, the following parameters can be specified for the BIN table import pipe:

- "EXCLUDE_BIN=<Value_1>,<Value_2>,..." – exclude records corresponding to identifiers of financial institutions in the payment system (Member ID) listed using six-digit numbers <Value_1>, <Value_2>, etc. This parameter is used to exclude identifiers of other payment systems from import. For example, if the parameter "EXCLUDE_BIN=400087," is specified, data corresponding to the identifier "400087" will not be imported to the BIN Table; i.e. records will be excluded that exist in the VISA BIN table, but belong to Mastercard. For the BIN table loading pipe started using the menu item "VISA →VISA.Daily Procedures →VISA. Load Bin Table and Handbooks → VISA & PLUS BIN Tables Import", the "EXCLUDE_BIN" parameter will have the value "400087"
- "EXCLUDE_PRODUCT_ID=<Value_1>,<Value_2>,..." – exclude records corresponding to payment system products listed using <Value_1>, <Value_2>, etc. For example, "EXCLUDE_PRODUCT_ID=Q,Q1,M,R".

The groups shown in the Table 4 can be used for Visa.

Table 4. Configuring BIN groups for Visa

Name	Channel	Group Code	Priority
VISA Electron	VISA	VRW-E	0
VISA Standard	VISA	VRW-S	0
VISA Group for Routing Table	VISA	VV	0
VISA <Country> Electron	VISA	VCWxxxE*	10
VISA <Country> Standard	VISA	VCWxxxS*	10
VISA <Region> Electron	VISA	VRWzE**	5
VISA <Region> Standard	VISA	VRWzS**	5

*) Instead of "xxx", specify the three-letter country code from the "Country Table" handbook "Country Table" (Full →Configuration Setup →Main Tables →Country Table), for example "DNK" (for Denmark).

**) Instead of "z", specify the number (from 1 to 6) of the region from the "Country Area" handbook (Full →Configuration Setup →Main Tables →Country Area) for which the "VISA" value is specified in the *Classifier Type* field:

- "1" – U.S.A.
- "2" – Canada.
- "3" – Visa Europe.
- "4" – Asia-Pacific.
- "5" – Latin America and Caribbean.
- "6" – Central and Eastern Europe, Middle East, and Africa.

BIN groups with the codes "VRW-E" and "VRW-S" are mandatory. The remaining BIN groups are optional and are registered if it is necessary to separate Visa members by country/region. In doing so two groups should be registered for each country/region: for Visa Electron and Visa Standard. The group with the "VV" code is also optional and is used to load data from the Visa Routing Table

2.4.2 Characteristics of Typical BIN Groups

BIN groups can be divided into two types:

- BIN groups for records that are automatically loaded into the BIN table when loading data from payment system. The list of these groups is shown in the Table 5.

Table 5. BIN groups for records that are automatically loaded into the BIN table

Group name	Group code	Description
MC <Country> Cirrus/Maestro Issuer	MCxxxM	All ranges of Cirrus/Maestro cards belonging to the country <Country> whose three-letter code is specified instead of the "xxx" characters.
MC <Country> Issuer	MCxxxS	All ranges of Mastercard/Debit Mastercard cards belonging to the country <Country> whose three-letter code is specified instead of the "xxx" characters.
MC Asia Pacific Cirrus/Maestro Issuer	MRCM	All ranges of Cirrus/Maestro cards belonging to the "Asia Pacific" region.

Group name	Group code	Description
MC Asia Pacific Issuer	MRCS	All ranges of Mastercard/Debit Mastercard cards belonging to the "Asia Pacific" region.
MC Canada Cirrus/Maestro Issuer	MRAM	All ranges of Cirrus/Maestro cards belonging to the "Canada" region.
MC Canada Issuer	MRAS	All ranges of Mastercard/Debit Mastercard cards belonging to the "Canada" region.
MC Europe Cirrus/Maestro Issuer	MRDM	All ranges of Cirrus/Maestro cards belonging to the "Europe" region.
MC Europe Issuer	MRDS	All ranges of Mastercard/Debit Mastercard cards belonging to the "Europe" region.
MC LAC Cirrus/Maestro Issuer	MRBM	All ranges of Cirrus/Maestro cards belonging to the "LAC" region (Latin America and Caribbean).
MC LAC Issuer	MRBS	All ranges of Mastercard/Debit Mastercard cards belonging to the "LAC" region (Latin America and Caribbean).
MC MEA Cirrus/Maestro Issuer	MREM	All ranges of Cirrus/Maestro cards belonging to the "MEA" region (Middle East, Africa).
MC MEA Issuer	MRES	All ranges of Mastercard/Debit Mastercard cards belonging to the "MEA" region (Middle East, Africa).
MC USA Cirrus/Maestro Issuer	MR1M	All ranges of Cirrus/Maestro cards belonging to the "USA" region.
MC USA Issuer	MR1S	All ranges of Mastercard/Debit Mastercard cards belonging to the "USA" region.
VISA Electron	VRW-E	All ranges of Visa Electron cards.
VISA Standard	VRW-S	All ranges of cards that are not Visa Electron.
VISA Group for Routing Table	VV	All ranges of cards loaded from the Visa Routing Table file.
VISA <Country> Electron	VCWxxxE	All ranges of Visa Electron cards belonging to <Country> whose three-letter code is specified instead of "xxx".

Group name	Group code	Description
VISA <Country> Standard	VCWxxxS	All ranges of cards that are not Visa Electron belonging to <Country> whose three-letter code is specified instead of "xxx".
VISA <Region> Electron	VRWzE	All ranges of Visa Electron cards belonging to <Region> whose number (from 1 to 6) is specified instead of "z".
VISA <Region> Standard	VRWzS	All ranges of cards that are not Visa Electron belonging to <Region> whose number (from 1 to 6) is specified instead of "z".

- BIN groups for records that are manually entered into the BIN table. This type includes BIN groups required to process documents involving counterparties not associated with international payment systems and not registered in Way4, e.g. for processing merchant batches on devices for which no contracts are created in Way4. The list of BIN groups of the second type is presented in the Table 6.

Table 6. BIN groups for records that are manually entered into the BIN table

Group Name	Group Code	Description of data contained in the BIN table and/or the Interchange Routing Contract table included in the group
Affiliated (Acq+Local Card)	m	Member IDs of "our own" financial institutions used to receive external files for merchant slips, payments, etc. The Member ID data needs to be both indicated in the BIN table and described in the Interchange Routing contract table. E.g. transactions from merchant batch files will be posted through the routing contract for the "Device" contract category, and payments to cards and accounts, through the routing contract for the "Account" contract category.
Affiliated VISA	AV	VISA cards of financial institutions with which an additional contract of the "sponsor – affiliate" type has been made.
Affiliated Electron / Plus	AEP	Electron/Plus cards of financial institutions with which an additional contract of the "sponsor – affiliate" type has been made.
Affiliated Cirrus / Maestro	ACM	Cirrus/Maestro cards of financial institutions with which an additional contract of the "sponsor – affiliate" type has been made.

Group Name	Group Code	Description of data contained in the BIN table and/or the Interchange Routing Contract table included in the group
Affiliated MC	AEC	Mastercard cards of financial institutions with whom an additional contract of the "sponsor – affiliate" type has been made.
Additional VISA	V_	This group includes BIN table records for VISA cards and devices missing from the standard VISA BIN Table (in general, used for tests)

3 Typical Interchange Routing Contracts

Interchange routing contracts are subcontracts of a payment system's NOSTRO contract.

3.1 Subcontracts of the Contract "001-MC_NOSTRO"

The contract "001-MC NOSTRO" (MC Nostro) has the following subcontracts, shown in the Table 7:

Note that the bank or processing center does not use all the contracts shown in this table. For example, if the acquirer is in the "Europe" region, the following routing contracts may be used: "001-MC_BSA_DOM", "001-MC_BSA_DOM_CM", "001-MC_BSA_EU_AP", "001-MC_BSA_EU_CA", "001-MC_BSA_EU_EU", "001-MC_BSA_EU_EU_CM", "001-MC_BSA_EU_GL_CM", "001-MC_BSA_EU_LA", "001-MC_BSA_EU_SA", "001-MC_BSA_EU_SA_CM" и "001-MC_BSA_EU_US".

Table 7. Subcontracts of the "001-MC_NOSTRO" contract

Subcontract	Description
001-MC_ACQ (MC Acq)	Contract for "foreign" Mastercard devices.
001-MC_BSA_AP_AP (MC BSA AP AP Intra-Regional Asia Pacific Acq)	Contract for transactions made with Mastercard cards if the acquirer and issuer region is "Asia Pacific".
001-MC_BSA_AP_CA (MC BSA AP CA Inter-Regional Asia Pacific Acq Canada Iss)	Contract for transactions made with Mastercard cards if the acquirer region is "Asia Pacific" and the issuer region is "Canada".
001-MC_BSA_AP_EU (MC BSA AP EU Inter-Regional Asia Pacific Acq Europe Iss)	Contract for transactions made with Mastercard cards if the acquirer region is "Asia Pacific" and the issuer region is "Europe".
001-MC_BSA_AP_EU_CM (MC BSA AP EU Inter-Regional Maestro Asia Pacific Acq Europe Iss)	Contract for transactions made with Cirrus/Maestro cards if the acquirer region is "Asia Pacific" and the issuer region is "Europe".
001-MC_BSA_AP_LA (MC BSA AP LA Inter-Regional Asia Pacific Acq LAC Iss)	Contract for transactions made with Mastercard cards if the acquirer region is "Asia Pacific" and the issuer region is "Latin America and Caribbean".
001-MC_BSA_AP_SA (MC BSA AP SA Inter-Regional Asia Pacific Acq MEA Iss)	Contract for transactions made with Mastercard cards if the acquirer region is "Asia Pacific" and the issuer region is "Middle East, Africa".
001-MC_BSA_AP_US (MC BSA AP US Inter-Regional Asia Pacific Acq USA Iss)	Contract for transactions made with Mastercard cards if the acquirer region is "Asia Pacific" and the issuer region is "USA".

Subcontract	Description
001-MC_BSA_DOM (MC BSA DOM Intra-Country Acq)	Contract for transactions made with Mastercard cards within national clearing.
001-MC_BSA_DOM_CM (MC BSA DOM Intra-Country Maestro Acq)	Contract for transactions made with Cirrus/Maestro within national clearing.
001-MC_BSA_EU_AP (MC BSA EU AP Inter-Regional Europe Acq Asia Pacific Iss)	Contract for transactions made with Mastercard cards if the acquirer region is "Europe and the issuer region is "Asia Pacific".
001-MC_BSA_EU_CA (MC BSA EU CA Inter-Regional Europe Acq Canada Iss)	Contract for transactions made with Mastercard cards if the acquirer region is "Europe" and the issuer region is "Canada".
001-MC_BSA_EU_EU (MC BSA EU EU Intra-Regional Europe Acq)	Contract for transactions made with Mastercard cards if the acquirer and issuer region is "Europe".
001-MC_BSA_EU_EU_CM (MC BSA EU EU Intra-Regional Maestro Europe Acq)	Contract for transactions made with Cirrus/Maestro cards if the acquirer and issuer region is "Europe".
001-MC_BSA_EU_GL_CM (MC BSA EU GL Inter-Regional Maestro Europe Acq)	Contract for transactions made with Cirrus/Maestro cards if the acquirer region is "Europe" and the issuer region is any with the exception of "Europe" and "Middle East, Africa".
001-MC_BSA_EU_LA (MC BSA EU LA Inter-Regional Europe Acq LAC Iss)	Contract for transactions made with Mastercard cards if the acquirer region is "Europe" and the issuer region is "Latin America and Caribbean".
001-MC_BSA_EU_SA (MC BSA EU SA Inter-Regional Europe Acq MEA Iss)	Contract for transactions made with Mastercard cards if the acquirer region is "Europe" and the issuer region is "Middle East, Africa".
001-MC_BSA_EU_SA_CM (MC BSA EU SA Inter-Regional Maestro Europe Acq MEA Iss)	Contract for transactions made with Cirrus/Maestro cards if the acquirer region is "Europe" and the issuer region is "Middle East, Africa".
001-MC_BSA_EU_US (MC BSA EU US Inter-Regional Europe Acq USA Iss)	Contract for transactions made with Mastercard cards if the acquirer region is "Europe" and the issuer region is "USA".
001-MC_BSA_IR_GL_CM (MC BSA IR GL Inter-, Intra- Regional Intra-Country Maestro Standard)	Contract for transactions made with Cirrus/Maestro cards for those issuers and acquirers that do not have special routing contracts.
001-MC_BSA_SA_AP (MC BSA SA AP Inter-Regional MEA Acq Asia Pacific Iss)	Contract for transactions made with Mastercard cards if the acquirer region is "Middle East, Africa" and the issuer region is "Asia Pacific".
001-MC_BSA_SA_CA (MC BSA SA CA Inter-Regional MEA Acq Canada Iss)	Contract for transactions made with Mastercard cards if the acquirer region is "Middle East, Africa" and the issuer region is "Canada".
001-MC_BSA_SA_EU (MC BSA SA EU Inter-Regional MEA Acq Europe Iss)	Contract for transactions made with Mastercard cards if the acquirer region is "Middle East, Africa" and the issuer region is "Europe".

Subcontract	Description
001-MC_BSA_SA_EU_CM (MC BSA SA EU Inter-Regional Maestro MEA Acq Europe Iss)	Contract for transactions made with Cirrus/Maestro cards if the acquirer region is "Middle East, Africa" and the issuer region is "Europe".
001-MC_BSA_SA_LA (MC BSA SA LA Inter-Regional MEA Acq LAC Iss)	Contract for transactions made with Mastercard cards if the acquirer region is "Middle East, Africa" and the issuer region is "Latin America and Caribbean".
001-MC_BSA_SA_SA (MC BSA SA SA Intra-Regional MEA Acq)	Contract for transactions made with Mastercard cards if the acquirer and issuer region is "Middle East, Africa".
001-MC_BSA_SA_US (MC BSA SA US Inter-Regional MEA Acq USA Iss)	Contract for transactions made with Mastercard cards if the acquirer region is "Middle East, Africa" and the issuer region is "USA".
001-MC_CIRR_ACQ (MC Cirrus/Maestro Acq)	Contract for "foreign" Mastercard devices for transactions made with "our own" Cirrus/Maestro cards.
001-MC_CIRR_FEES (MC Cirrus/Maestro Fees)	Contract used to show settlement information and payment system fees for transactions made with "our own" and "foreign" Cirrus/Maestro, cards.
001-MC_FEES (MC Fees)	Contract used to show settlement information and payment system fees for transactions made with "our own" and "foreign" Mastercard cards.

3.2 Subcontracts of the Contract "001-VISA_NOSTRO"

The contract "001-VISA NOSTRO" (VISA Nostro) has the following subcontracts, shown in the Table 8:

Table 8. Subcontracts of the "001-VISA_NOSTRO" contract

Subcontract	Description
001-EP_ACQ (Electron/Plus Acq)	Contract for "foreign" VISA devices used to process transactions with "our own" Electron/Plus cards.
001-EP_DOM_ISS (Electron/Plus Intra-Country)	Contract for "foreign" Electron/Plus cards used to process transactions executed within domestic clearing.
001-EP_FEES (Electron/Plus Fees)	Contract used to show settlement information and payment system for transactions executed with Electron/Plus cards, both "our own" and "foreign".
001-EP_ISS (Electron/Plus Iss)	Contract for "foreign" Electron/Plus cards.
001-EP_SMS_DOM_ISS (Electron/Plus SMS Intra-Country)	Contract for "foreign" Electron/Plus cards used to process transactions executed within domestic clearing in SMS (Single Message System) mode.

Subcontract	Description
001-EP_SMS_ISS (Electron/Plus SMS Iss)	Contract for "foreign" Electron/Plus cards used to process transactions in SMS (Single Message System) mode.
001-VISA_ACQ (VISA Acq)	Contract for "foreign" VISA devices.
001-VISA_DOM_ACQ (VISA Intra-Country Acq)	Contract for "foreign" VISA devices used to process transactions executed within domestic clearing.
001-VISA_DOM_ISS (VISA Intra-Country)	Contract for "foreign" VISA cards used to process transactions executed within domestic clearing.
001-VISA_FEES (VISA Fees)	Contract used to show settlement information and payment system fees for transactions executed with VISA cards, both "our own" and "foreign".
001-VISA_ISS (VISA Iss)	Contract for "foreign" VISA cards.
001-VISA_SMS (VISA SMS)	Contract for "foreign" VISA cards used to process transactions in SMS (Single Message System) mode.
001-VISA_SMS_DOM (VISA SMS Intra-Country)	Contract for "foreign" VISA cards used to process transactions executed within domestic clearing in SMS (Single Message System) mode.
001-VISA_SMS_FEES (VISA SMS Fees)	Contract used to show settlement information and payment system fees for transactions executed with VISA cards, both "ours" and "foreign", in Single Message System mode.

4 Support of payment system release requirements

Twice a year, in April and October, payment systems' new requirements for processing transactions become effective.

Payment system member banks are notified about changed requirements in the corresponding release documents issued by the payment systems.

These requirements are supported in Way4 by the corresponding changes in procedures, import/export pipes, etc.

Before Way4 version 03.47.30, switches to operation under the new requirements were regulated by global parameters <payment system name>_RELEASE=<release number>, for example, MC_RELEASE=18.1.

Starting from Way4 version 03.47.30 and Transaction Switch version 1.1.297-3111, a new technology is used to enable support of all payment systems' release requirements, except for Diners Club.

Diners Club release requirements are supported using the new technology starting from Way4 version 03.50.30 and Transaction Switch version 1.1.419-7899.

Transaction Switch configuration file parameters and Way4 global parameters are no longer used to enable support of new release requirements. Now support of new release requirements is enabled using records in the database table IPS_RELEASE.

To access this table, run the user menu item "Full →Configuration Setup →Main Tables →IPS Release Changes". The "IPS Release Changes" form will be displayed on the screen (see Fig. 16).

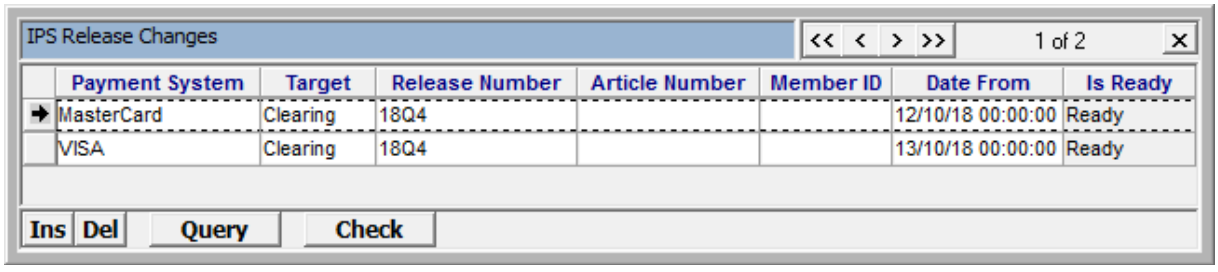


Fig. 16. Example of the records

The "IPS Release Changes" form contains the following fields:

- *Payment System* – field with a list of payment systems from which to select the payment system for the record.
- *Target* – field with a list to specify the Way4 component to which the record belongs:
  - "Clearing" – file interfaces for interacting with the payment system.

  - "Online" – online interfaces for interacting with the payment system (Transaction Switch).
  - "Dispute" – interface for interaction of the Dispute Assistant R2 module with VROL (Visa service).
- *Release Number* – payment system release number in <YY><NN> format, where:
  - YY is the year of the release.
  - NN is the release number; Q2 for April releases and Q4 for October releases.
- *Article Number* – code provided by the Way4 vendor for an article in the payment system's release document; this field is filled in by bank or processing centre employees if a special record is being created for a specific article whose requirements do not become effective at the same time as the release's general requirements.
- *Member ID* – identifier assigned by the payment system to the financial institution; this field is filled in if the release's requirements must be observed only for a specific financial institution; the field is reserved for forward compatibility.
- *Date From* – date and time (GMT) the release requirement becomes effective.
- *Is Ready* – this field contains the "Ready" value if the check that the record's fields are filled in correctly was passed. The check is performed by clicking the [Check] button.

These settings can made in advance, before the payment system's requirements become effective.

To implement the new technology for supporting payment system requirements in Transaction Switch, the following string must be added to payment system configuration files:

```
<dependency service="IssDB"/>
```

Note that for NetServer, support of payment system release requirements is still enabled using configuration file parameters.