Installation and Configuration Manual

Configuring Way4 for Mastercard PayPass Card Issuing

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This document is intended for bank or processing centre employees responsible for configuring the data preparation system parameters for Mastercard PayPass card personalisation.

It is recommended to use the following resources when working with this document:

- "Configuring Way4 for Smart Card Issuing"
- "Configuring Way4 for Magnetic Stripe Card Issuing"
- "Importing and Exporting Card Production Tasks in XML Format"

The following notation can be used in the document:

- Field labels in screen forms are shown in *italics.*
- Key combinations are shown in angular brackets, for example, <Ctrl>+<F3>.
- Names of screen form buttons and tabs are shown in square brackets, for example, [Approve].
- Sequences for selecting user menu items or context 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.
- Variables that differ for each local instance, such as directory and file names, as well as file paths are shown in angular brackets, as in <OWS_HOME>.

Warnings and information are marked as follows:

Warnings about potentially hazardous situations or actions.

Messages with information about important features, additional options, or the best use of certain system functions.

1 Configuring Mastercard PayPass Card Issuing Parameters

Mastercard PayPass is EMV-compatible contactless technology providing Mastercard PayPass and Maestro PayPass cardholders a payment method that involves tapping a card on a payment terminal instead of swiping it or inserting it in a terminal. Moreover, it is possible to make a contact transaction with a Mastercard PayPass card.

Parameters for issuing Mastercard PayPass bank cards are configured in Way4 in the following stages:

- Configuration of card production parameters (see "Mastercard PayPass Card Production Parameters"). At this stage, two sets of parameters are created – for the contact and contactless (applet) parts. For contact, cryptographic keys must be generated (3-DES and RSA); keys for contactless are inherited from the contact part. In addition, main and additional parameters of the card application must be specified for contact and contactless.
- Configuration of Risk Scheme parameters (see "Creating Risk Schemes").
- Configuration of a Product. An additional card application (applet) is configured without creation of a Product hierarchy (see "Configuring Applets without Creating Product Hierarch").

Note that "Configuring Way4™ for Smart Card Issuing" is the main document for configuring production parameters. This document contains information on configuration specific to Mastercard PayPass cards that is not included in the main document.

Parameter settings shown in figures in this document are used as examples only. Actual settings are determined by the client's regulations and by Mastercard requirements.

2 Mastercard PayPass Card Production Parameters

To configure card production parameters, two sets of parameters must be configured – for the contact and contactless (applet) parts. To do so, in the "Bank Production Parameters" form (Full → Configuration Setup → Card Production Setup → Bank Production Parameters) click the [Parameters] button. The "Parameters for <financial institution name>" form will open in which two records must be added:

- A record for the contact part; when filling in the form's fields the following recommendations should be considered:
- In the *Code* field, specify the identifier of the production parameter set that must correspond to the *PM Code* field value of the contract subtype created for the card contract subtype (see the section "Card Contract Subtypes Form" of the document "Products and Contract Subtypes"). For example, "PAYPASSCONTACT" may be specified as the value.
- In the *Card Type* field, specify the "MCHIP" value.
- In the *Encoding Method* field, specify the "MC" value.
- In the *PVKI* field, specify "1".
- A record for the contactless part (applet); when filling in the form's fields the following recommendations should be considered:
- In the *Code* field, specify the identifier of the production parameter set that must correspond to the *PM Code* field value of the applet subtype (see the section "Card Contract Subtypes Form" of the document "Products and Contract Subtypes"). For example, "PAYPASSCONTACT" may be specified as the value.
- In the *Card Type* field, specify the "MCHIP" value.
- In the *Encoding Method* field, specify the "MC PayPass" value.
- In the *PVKI* field, specify "1".

The remaining fields of the form must be filled in according to the description provided in the section "Smart Card Production Parameters" of the document "Configuring Way4™ for Smart Card Issuing".

An example of a form with contact and contactless parameter sets is shown in Fig. 1.

Parameters for Test Bank 1 — << < > >> 2 of 2

	Name	Code	PAN MIN	PAN MAX	PIN Len	ICA	Card Type	Encoding Method	PVKI	Is Ready	Ready Till	Bank
	MC PayPass Contact	PAYPASSCONTACT	5442180000000000	5442189999999999	4	11937	MCHIP	MC	1	Ready	00/00/0000	1
→	MC PayPass with Applet	PAYPASSAPPLET	5442180000000000	5442189999999999	4	11937	MCHIP	MC PayPass	1	Ready	00/00/0000	1

Ins | Del | Query | Manage | PIN Mailer | EMV | IBM3624 | DES Keys | 3-DES Keys | RSA Keys | Certificates | Options | PIN2 Mailer | Commands

Fig. 1. Sets of contact and contactless parameters for MasterCard PayPass cards

2.1 Configuring Contact Parameters

2.1.1 Contact Cryptographic Keys

> When producing Mastercard PayPass cards, 3-DES and RSA keys must be generated. For more information, see the sections "3-DES Keys" and "RSA Keys" of the document "Configuring Way4™ for Smart Card Issuing".

In addition to the standard set of cryptographic keys, 3-DES master keys (types are shown in Table 1) should be generated for Mastercard PayPass cards.

Table 1. Key types depending on hardware security module

HSM for personalisation	Preparation of data for personalisation
SafeNet ProtectServer	PayPass Dynamic CVC3 Master Key (Type 709)
Thales HSM 8000 / Thales payShield 9000	PayPass Dynamic CVC3 Master Key for Production (Type 509)
Thales payShield 9000 with additional RSA license and Card Issuance Firmware	PayPass Dynamic CVC3 Master Key (Type 709)

Only Thales hardware security modules (HSM) are used to check cryptographic values online, and to do so a key with the type "PayPass Dynamic CVC3 Master Key" (Type 709) must be registered for the contact part.

To generate these keys, in the "Parameters for <financial institution name>" select the record corresponding to the contact parameter set (in the example in Fig. 1 this is the record with the code "PAYPASSCONTACT"), and click on the [3-DES Keys] button. In the "3-DES for <...>" form that opens, the following records may be added, depending on the HSM:

- The first record in the *Key Type* field contains the value "PayPass Dynamic CVC3 Master Key" (the value "OWSeM / Host / Hex" is specified in the *Storage Form* field) or "PayPass Dynamic CVC3 Master Key for Production" (and the value "HSM / Host / Hex" is specified in the *Storage Form* field).

  > It is not necessary to create this record for the Thales payShield 9000 HSM with an additional RSA license and Card Issuance Firmware.

- The second record in the *Key Type* field contains the value "PayPass Dynamic CVC3 Master Key" (the value "HSM / Host / Hex" is specified in the *Storage Form* field).

> If keys are generated using the HSM "CG" console command, specify the type "709" for "PayPass Dynamic CVC3 Master Key" and type "509" for "PayPass Dynamic CVC3 Master Key for Production".

An example of the "3-DES for <...>" form with "PayPass Dynamic CVC3 Master Key" and "PayPass Dynamic CVC3 Master Key for Production" keys is shown in Fig. 2.

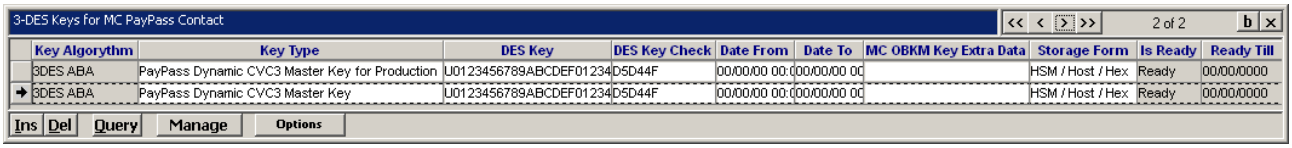

Fig. 2. Example of form with 3-DES keys for the contact part of a Mastercard PayPass card

2.1.2 Additional Contact Parameters

For the contact part of Mastercard PayPass cards, setup of additional parameters is not required.

Additional parameters for Mastervard PayPass cards with MSD support are configured in the contactless part (see the section "Additional parameters for cards with MSD support").

2.2 Configuring Contactless (Applet) Parameters

2.2.1 Applet Cryptographic Keys

The contactless part of a Mastercard PayPass card is a child application (applet) of the main card application (contact part). Therefore, cryptographic keys do not have to be separately generated for this application, 3-DES keys for the applet are automatically inherited from the contact part.

2.2.2 Additional Applet Parameters

To specify additional card production parameters, in the "Parameters for <financial institution name>" select the record corresponding to the contactless parameter set (in the example in Fig. 1 this is the record with the "PAYPASSAPPLET" code), and click the [Options] button. As a result, the "Options for <...>" form will open. In the *Option* field of this form, select the name of the additional parameter from the list, and specify the parameter value in the *Value* field.

2.2.2.1 Additional parameters for cards without MSD support

For Mastercard PayPass cards without MSD support, specify the following additional parameters (for a detailed description of tags corresponding to parameters, see the section "Card Production Parameters" of the document "Importing and Exporting Card Production Jobs in XML Format"):

- "PP UDOL / PW Crd Auth Rel Data". In the EMV standard, the tag "9F69" corresponds to this parameter.
- "PayPass Mag Stripe Appl Version". In the EMV standard, the tag "9F6C" corresponds to this parameter. Set the value "FFFF" for this parameter.
- "PayPass AIP". In the EMV standard, the tag "D8" corresponds to this parameter. In the current version, this parameter is usually configured in the Risk Scheme.
- "PayPass Service Code" – the parameter value redefines the card's service code and is used to calculate PayPass CVC.

For more information about setting up EMV contactless parameters, see the section "Card Production Parameter Categories" of the document "Configuring Way4™ for Smart Card Issuing".

2.2.2.2 Additional parameters for cards with MSD support

For Mastercard PayPass with MSD support, set up the same additional parameters as for cards without MSD support see the section "Additional parameters for cards without MSD support"). The following parameters should also be set up:

- "PayPass PCVC3 Track1". In the EMV standard, the tag "9F62" corresponds to this parameter.
- "PP PUNATC T1/PW Offl Cnt IV". In the EMV standard, the tag "9F63" corresponds to this parameter.
- "PayPass NATC Track1". In the EMV standard, the tag "9F64" corresponds to this parameter.
- "PayPass PCVC3 Track2". In the EMV standard, the tag "9F65" corresponds to this parameter.
- "PayPass PUNATC Track2". In the EMV standard, the tag "9F66" corresponds to this parameter.
- "PP NATC Track2 / PW MSD Offset". In the EMV standard, the tag "9F67" corresponds to this parameter.
- "PP MS CVM List/ PW Card Add Pr". In the EMV standard, the tag "9F68" corresponds to this parameter.
- "Dynamic CVC/CVV Scheme" – specify "M" as this parameter's value.
- "Dynamic CVC/CVV Scheme Version" – specify "2" as this parameter's value.

For MSD (Magnetic Strip Device) mode, the parameter "Use Zero PSN for Dynamic CVC" with the "Yes" value (DCVV_ZERO_PSN = "Yes") makes it possible to issue cards with a null PSN value (PAN Sequence Number = 00). This setting is effective for both the contact and contactless part.

> It is not recommended to use the settings that are shown in Fig. 3. The actual values of parameters should be agreed with Mastercard; for example, current requirements to the minimum length of UN and ATC in the track for MSD (Magnetic Strip Device).

Options for MC PayPass with Applet << < > >> 25 of 25 b ×

Option	Value
PP MS CVM List/ PW Card Add Pr	0000000000000000042031E031F03
PayPass PCVC3 Track1	00000000000E
PP PUNATC T1/PW Offl Cnt lV	0000000000F0
PayPass Mag Stripe Appl Version	0001
PayPass PCVC3 Track2	000E
PayPass PUNATC Track2	00F0
9F11 - Issuer Code Table Index	01
EMV Appl Priority Ind (tag 87)	01
PayPass NATC Track1	03
9F4D - Log Entry	0B0A
PayPass AIP	1980
Dynamic CVC/CVV Scheme Version	2
PayPass Service Code	202
PP NATC Track2 / PW MSD Offset	3
Dest. PIN Fmt For PIN Change	34
9F12 - Appl Preffered Name	4D617374657243617264
9F4F - Log Format	9F27019F02065F2A029A039F36029F5206DF3E019F21039F7C14
PP UDOL / PW Crd Auth Rel Data	9F6A
Inherit Tags	ICCK,ICCC,ICC2,ICCF,XKRC:ICC_KEY,XKRM:ICC_KEY,XKRP:ICC_KEY
Dynamic CVC/CVV Scheme	M
ICC Key Format	PQ
Track 1 Discr. Data Format	PVKI+PVV+"0000"+CVC1+"0"
Track 2 Discr. Data Format	PVKI+PVV+"0000"+CVC1+"0"
Chip CVC Present	Y
Use Zero PSN for Dynamic CVC	Y

Ins Del Query Long Value

Fig. 3. Example of settings for additional production parameters for the contactless part

3 Creating Risk Schemes

General information about Risk Schemes is provided in the section "Smart Card Risk Schemes" of the document "Configuring Way4™ for Smart Card Issuing".

One Risk Scheme can be used for the contact and contactless (applet) part.

To create a Risk Scheme for Mastercard PayPass cards, do as follows:

- Select the user menu item "EMV Smart Cards → Configuration → Chip Schemes".
- In the "Chip Schemes" form that opens, add a new record by clicking the [Ins] button. Then select this record and click the [Edit] button.
- In the "Edit for <...>" form that opens, specify the name (*Name* field) and code (*Code* field) of the Risk Scheme. In the *Scheme Template* field select the value "MCHIP 4 Generic with PayPass" (see Fig. 4).

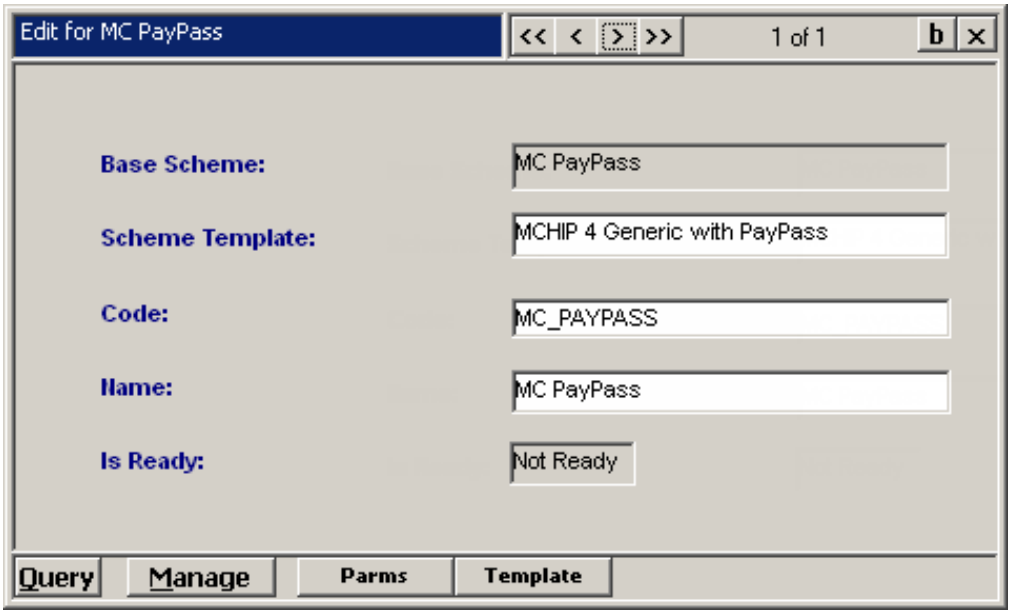

Fig. 4. Creating a Risk Scheme for Mastercard PayPass

- In the "Edit for <...>" form, click the [Parms] button and in the "Parms for <name of Risk Scheme>" form that opens, specify the following parameters. Parameters can be imported from a parameter template file (profile) or set manually. The first characters of a parameter name are the code of the EMV tag corresponding to this parameter (with the exception of the "PIN Try Limit" parameter). For example, the tag "5F28" corresponds to the "5F28 Issuer Country Code" parameter. For a detailed description of tags, see the section "Card Production Parameters" of the document "Importing and Exporting Card Production Jobs in XML Format".
- "9F14-Lower Consecutive Offline".

- "9F23-Upper Consecutive Offline".
- "CA-MCHIP Lower Cumul Amount".
- "CB-MCHIP Upper Cumul Amount".
- "PIN Try Limit".
- "5F28 Issuer Country Code".
- "C7-MCHIP4 CDOL1 Data Len".
- "9F42-Appl Curr Code for CVM".
- "C8-MCHIP4 CRM Country". The value of this parameter must correspond to the value of the "5F28 Issuer Country Code" parameter.
- "C9-MCHIP4 CRM Curr". The value of this parameter must correspond to the value of the "9F42-Appl Curr Code for CVM" parameter.
- "D6-MCHIP4 Default ARPC RC".
- "D1-MCHIP4 Curr Conv Table".
- "D3-MCHIP4 Add Check Table - h36".
- "5F2D-Language Preference".
- "CD MC4 PP CIAC Default".
- "CE MC4 PP CIAC Online".
- "CF MC4 PP CIAC Denial".

An example of the "Edit for <...>" form with Risk Scheme parameters is shown in Fig. 5.

Parms for MC PayPass — << < > >> 22 of 22

Risk Factor Min	Risk Factor Max	Parm Type	Parm Value	Parm Value Out	Is Ready	To OnLine
0,00	999,00	SCR & IssuerScriptOK RC00	20	20	Not Ready	Yes
0,00	999,00	SCR & ScriptCmndCount RC00	0F	0F	Not Ready	Yes
0,00	999,00	OAC CVR & ScriptCmndCount RC00	0000F0000000	0000F0000000	Not Ready	Yes
0,00	999,00	OAC CVR & Script Fail	000000000100	000000000100	Not Ready	Yes
0,00	999,99	5F2D-Language Preference	ruen	7275656E	Not Ready	Yes
0,00	999,99	5F28 Issuer Country Code	643	0643	Not Ready	Yes
0,00	999,99	9F14-Lower Consecutive Offline	00	00	Not Ready	Yes
0,00	999,99	9F23-Upper Consecutive Offline	01	01	Not Ready	Yes
0,00	999,99	9F42-Appl Curr Code for CVM	643	0643	Not Ready	Yes
0,00	999,99	CA-MCHIP Lower Cumul Amount	000000000000	000000000000	Not Ready	Yes
0,00	999,99	CB-MCHIP Upper Cumul Amount	000000100000	000000100000	Not Ready	Yes
0,00	999,99	PIN Try Limit	03	03	Not Ready	Yes
0,00	999,99	C7 - MCHIP4 CDOL1 Data Len	42	42	Not Ready	Yes
0,00	999,99	9F44-Appl Curr Exponent for CVM	2	02	Not Ready	Yes
0,00	999,99	C9-MCHIP4 CRM Curr	643	0643	Not Ready	Yes
0,00	999,99	C8-MCHIP4 CRM Country	643	0643	Not Ready	Yes
0,00	999,99	CD MC4 PP CIAC Default	005800	005800	Not Ready	Yes
0,00	999,99	D6-MCHIP4 Default ARPC RC	0010	0010	Not Ready	Yes
0,00	999,99	CF MC4 PP CIAC Denial	080800	080800	Not Ready	Yes
0,00	999,99	D1-MCHIP4 Curr Conv Table	0643000000064300000006430000000643000000064300000	064300000006430000	Not Ready	Yes
0,00	999,99	D3-MCHIP4 Add Check Table - h36	000000FFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFF	000000FFFFFFFFFFFF	Not Ready	Yes
0,00	999,99	CE MC4 PP CIAC Online	00F800	00F800	Not Ready	Yes

Ins Del Query ParmType

Fig. 5. Example of Risk Scheme parameters

4 Configuring Applets without Creating Product Hierarchies

To configure a Product for Mastercard PayPass, an additional card application (applet) must be created without creating a Product hierarchy. This functionality can only be used if the application (for which no contract is created) is not used in Way4 to create and process documents.

To create an additional card application, do as follows:

- For each range of card numbers, configure a hierarchical structure of card contract subtypes (see the section "Contract Types and Subtypes" of the document "Products and Contract Subtypes"). To do so, select a subtype in the "SubTypes for <name of card contract type >" form (Full → Configuration Setup → Contract Types → Card Contract Types → [SubTypes]). Ensure that for the selected subtype the *PM Code* field of the "SubTypes for <...>" form specifies a value corresponding to the value of the *Code* field of the contact production parameter set (in Fig. 1 in the section "Mastercard PayPass Card Production Parameters" this is the record with the code "PAYPASSCONTACT").
- For the selected subtype, click the [Applets] button in the "SubTypes for <...>" form. The "Applets for <subtype name>" form will open.
  In this form, add the record about the subordinate subtype. In the *PM Code* field, specify the value that corresponds with the value of the *Code* field contactless production parameter set (in Fig. 1 in the section "Mastercard PayPass Card Production Parameters" this is the record with the code "PAYPASSAPPLET"). In the *Chip Scheme* field, specify the value of the card application's Risk Scheme code (in Fig. 4 in the section "Creating Risk Schemes", MC_PAYPASS is shown as the example of a code). In the *Add Parms* field , specify the tag PAN=MAIN;. This indicates that the number of the card for the applet is inherited from the main card application (contact part).
  An example of forms with contract subtype settings is shown in Fig. 6.

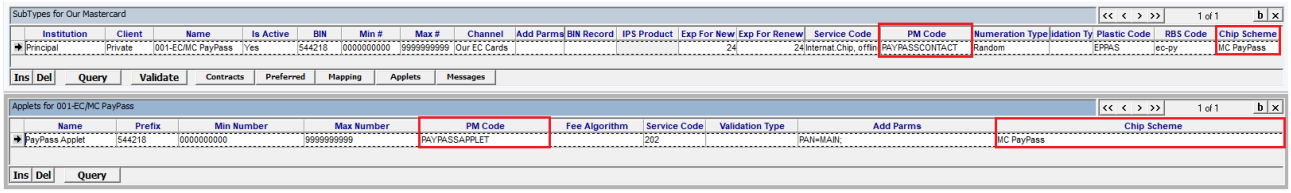

Fig. 6. Configuring a card contract subtype hierarchy

- Create a Product with the main subtype in the contract subtype hierarchy specified as the subtype. Note that on the level of the Service Package set for the Product, the Risk Scheme created earlier must be specified in the *Chip Scheme* field (see "Creating Risk Schemes").
  For more information about creating Products, see the section "Entering Product Data" of the document "Products and Contract Subtypes". An example of a registered Product is shown in Fig. 7.

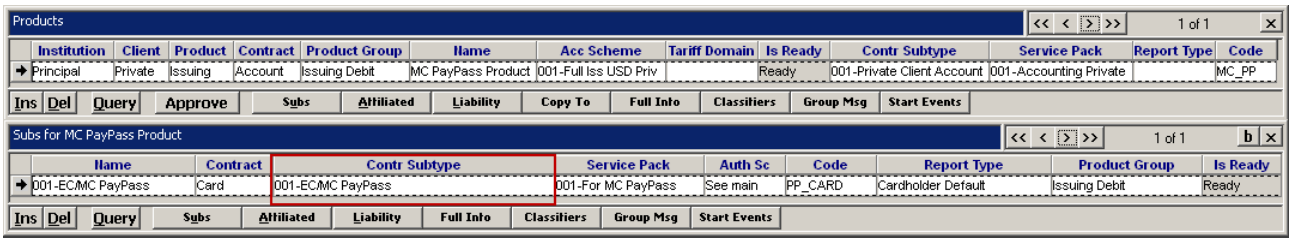

Fig. 7. Creating a Product

As a result, when marking cards created on the basis of this Product, a record will be created about the additional card application.

> Note that the "CHILD_CARD_INFO_SUPPORT" parameter should be specified for the "PM File Export" pipe for exporting card production tasks. When the value of this parameter is "Y", the mode will be enabled for exporting applets created without an additional card contract. The default value of the parameter is "N".