

Chapter 02

This documents (part of Developer's guide)

contains only (differencies) specifics for each coutry.

All others chapters are common for all SEE countries.

MetaLINK

Developer's Guide

specifics

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Chapter 02 MNE - How to Sell & Pay

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Before Starting.

Before we introduce data structures you should prepare & send to MetaLINK, let us describe some characteristics - features in this country:

- Every line of sale (goods / services) can have item description of max. 32 characters.
- Every line of payment can have description of max. 50 (2 x 25 characters) first line 25 characters, next line 25 characters.
- Discount (-) / Surcharge (+) in % on item is allowed, calculated as percent of SALE-TOTAL..
- Discount (-) / Surcharge (+) in absolute on item is NOT allowed, calculated as absolute value of SALE-TOTAL.
- STORNO-ITEMS in FISCAL-RECEIPT are allowed as »negative quantity«
- Printing duplicate of last FISCAL-RECEIPT is allowed.
- Printing EANCODE (barcode) is NOT allowed within both FISCAL-RECEIPT and NON-FISCAL-RECEIPT.
- TAX-GROUPs (0, 1, 2) are allowed.
- Payments in Cheque, Debit Card, Cash, Credit (1, 2, 3, 4) are allowed. No additional way of payments are allowed.
- RECLAMATION-RECEIPT is NOT allowed, except on Information Desk as a NI formulars.
- NON-FISCAL-TEXT is allowed.
- Max. number of items (sales) in FISCAL-RECEIPT is 250 lines.
- Max. number of daily closure (Daily reports) is 1898.
- Max. number of cashiers is 8.
- Max. number of article in WORKING-MEMORY is around 64.000 PLU-s .

Bon

All data needed to generate and print FISCAL-RECEIPT must be part of file ABC_nnn.DAT, with unique name ABC_nnn. (CSV, DBF, TXT, XML), using a format (ABC_nnn.DAT). containing information what to sell (goods / services) ? what quantities ? what prices ? how to pay ?

Table ABC_nnn.DAT

ART_ID	Varchar(20),	COL-01
TAX_ID	Varchar(1),	COL-02
ART_DESC	Varchar(50),	COL-03
SALE_PRICE	Numeric(10,2),	COL-04
SALE_QTY	Numeric(10,3),	COL-05
DISC_PERC	Numeric(10,2),	COL-06
DISC_ABS	Numeric(10,2),	COL-07
IND_SALE	Varchar(10),	COL-08

Field format limits are database limits, described as varchar or numeric values.
Value format limits are usage limits, described for each field separately.

PART 1. SALES OF ARTICLES – GOODS / SERVICES

ART_ID **Varchar(20), COL-01**

is ID of article – goods / services in your programme (database).
The only usage of this field is to help a MetaLINK to „recognize“ a new article, and to make a decision to add it or not in Working memory of FP-550.
It is also used in a data files MetaLINK return to you (see: Export Tables) as a proof of sales transaction.

TAX_ID **Varchar(1), COL-02**

is numerical code (TAX-NO) of TAX-GROUP which article belongs. (see Fiscal Law, Trade Law)
Every TAX-NO (You send) has corresponding TAX-LETTER (Cyrillic letter), TAX-PERC (applicable percent), TAX-DESC (examples: High – General Tax, Low Tax, Free Tax, No Tax, Specific Tax.

TAX_NO	0	1	2	3	4	5	6	7	8
TAX_LETTER (Latin)	A A	B B	C C	D D	E E	F F	G G	H H	
TAX_PERC	17 %	17 %	17 %	17 %	7 %	0 %			
TAX_DESC	High	Free	Low	N/A	N/A	N/A	N/A	N/A	N/A

ART_DESC **Varchar(50), COL-03**

is article name or description used in printing a FISCAL-RECEIPT

Remarks COL-03 ART_DESC !

According to MNE Law & Regulation and protocol limitation
article description is **max. 32** characters, and must be UNIQUE
First row contains 32 ch (or less)

See SRB - CodePage –for allowed character in article description.

SALE_PRICE Numeric(10,2), COL-04

is RETAIL-PRICE including VAT.

Remarks COL-04 SALE_PRICE !

According to MNE Law & Regulation and protocol limitation sales price can have **UP TO 8 significant digits with max. 2 decimals. i.e. max 999999,99**

SALE_QTY Numeric(10,3), COL-05

is sales quantity of article in this item. The same article can appear in many other items.

If SALE_QTY is NEGATIVE, that means this item is STORNO-ITEM („STORNO“ of some previous item). You can STORNO only a whole items, not some quantity of item.

DISC_PERC Numeric(10,2) COL-06

is a percent of discount (-) / surcharge (+) applicable to this item (article). DISC_PERC if exists, is used to correct SALE_PRICE (round on 2 decimals)
Discount / surcharge (if exists) is NOT printed as a separate row of data.

Remarks COL_06 DISC_PERC !

According to Law & Regulation and protocol limitation discount / surcharge percent must be: **between (-99.00 and +99.00).**

DISC_ABS Numeric(10,2) COL-07

is a percent of discount (-) / surcharge (+) applicable to this item (article). DISC_PERC is based on SALE-TOTAL
Discount / surcharge (if exists) is printed as a separate row of data.

Remarks COL-07 DISC_ABS ! (is NOT allowed)

IND_SALE Varchar(10) COL-08

this is a special indicator used by programme. Not in use.

PART 2. PAYMENTS

For payments only columns: COL-01, COL-03, COL-04 are used.

ART_ID **Varchar(20), COL-01**

Allowed values are:

PAY_CHEQUE (C – 1), PAY_DEBIT (D – 2), PAY_CASH (P – 3), PAY_CREDIT (N – 4)

First three ways of payment are automatically available.

You can have multiple payments of the same kind. i.e. two Debit cards.

ART_DESC **Varchar(50), COL-03**

is additional text max. 2 x 25 characters (optional) corresponding to each row of payments.

For example: Card Type: (MASTER, VISA; DINERS, AMERICAN, Loyalty – Club Card), Card-Number, Cheque Bank, Cheque Number, Voucher Number, Customer Credit Number, .Invoice Number ,..

Remarks COL-03 ART_DESC PAYMENTS ! (is NOT allowed)

SALE_PRICE **Numeric(10,2), COL-04**

is amount of payments corresponds to this way of payments.

Remarks COL-04 SALE_PRICE PAYMENTS !

According to MNE Law & Regulation and protocol limitation
Payment can have UP TO 8 significant digits. i.e. 999999.99

PART 3. FREE PART OF A BON

For free part only columns: COL-01, COL-03 are used. All data are optional.

ART_ID **Varchar(20), COL-01**

Remarks COL-01 ART_ID FREE PART !

Allowed values: USER_ID, USER_NAME,
FOOTER_1, FOOTER_2

See. Samples ABC_nnn.DAT

ART_DESC **Varchar(50), COL-03**

for USER_ID values are (1 – 8)

for USER_NAME (max. 24 characters)

for FOOTER_n (max. 30 characters)

Sample ABC_nnn.DAT

COL-01	COL-02	COL-03	COL-04	COL-05	COL-06
ART_ID	TAX_ID	ART_DESC	SALE_PRICE	SALE_QTY	DISC_PERCENT
C (20)	C (1)	C (50)	N 10.2	N 10.3	N 10.2
100	3	Description 2 x 25	100.00	5.000	-5.00
200	3	Description 2 x 25	150.00	123.400	0.00
300	3	Description 2 x 25	200.00	12.340	0.00
XQX-FREETXT		Sales description			
400	3	Description 2 x 25	250.00	1.234	-7.00
500	3	Description 2 x 25	300.00	0.123	0.00
600	3	Description 2 x 25	400.00	1.000	-8.00
END_OF_SALE		End of sale mark			
PAY_CHEQUE		Payment desc 2 x 25	200.00		
PAY_DEBIT		Payment desc 2 x 25	300.00		
PAY_CASH		Payment desc 2 x 25	800.00		
PAY_CREDIT		Payment desc 2 x 25	100.00		
END_OF_PAY		End of sale mark			
USER_ID		Values (1 – 8)			
USER_NAME		max 24 characters			
FOOTER_1		Footer line 1 desc.			
FOOTER_2		Footer line 2 desc.			

Processing

Programme analyzes ABC_nnn.DAT file and If the file's syntax is correct, Programme accepts ABC_nnn.DAT, does logical check, and

Folder	If OK	If not OK
/TO_FP	Open Fiscal Receipt	Returns ABC_nnnn.ERR
	Send sales data to FP	
	Send pay data to FP	
	Close Fiscal Receipt	
	Signal to open a cash drawer	
	Deletes file	
/FROM_FP	Returns ABC_nnnn.OK	Returns ABC_nnnn.ERR

In .OK. and .ERR files are textual data. In TXT_nnn.ERR is a error description.
Content of file ABC_nnn.OK is «Total Sale Amount « Sample: 1020.50, *

COMM.ERR – Interrupted Communication

If during input files processing: (ABC_nnn.DAT, CMD_nnn.DAT, TXT_nnn.DAT) communication with FP-550 gets interrupted (FP-550 no response) (power interrupt, cables disconnected ...), immediately after detecting the break, MetaLINK returns a file COMM_nnn.ERR containing error description, simultaneously displaying this messages on screen for cashier's information.

After that, programme MetaLINK will automatically shutdown.

After restarting MetaLINK again, programme will continue with processing of input files and send responses. (.ERR or .OK).

We recommend than after receiving COMM.ERR messages, you immediately warn cashier and STOP execution of Your POS programme.

Remarks: All messages which appear in COMM.ERR file are sent automatically to LINK_LOG.txt, too.

NOPAPER.ERR – No paper on bon and/or journal tape

if during input files processing: ABC_nnn.DAT, CMD_nnn.DAT, TXT_nnn.DAT there is a lack of paper on bon or journal tape immediately after detecting lack of paper, MetaLINK returns file NOPAPER.ERR containing date and time, simultaneously displaying this message on screen for cashier's information.

After paper tape is replaced (it make take a few seconds to a few minutes) MetaLINK will continue with processing and send responses ABC_nnn.OK or ABC_nnn.ERR.

Remarks: In the folder will always be only one file NOPAPER.ERR and next file will overwrite existing one (only date and time within a file will change).

We recommend do not take any action regarding this message from your programme, but simply deletes a message from folder.

This message only means that you have to wait for a while until you get an »expected message« - confirmation of sucesfull / unsucesfull processing of ABC_nnn.DAT file.

Remarks: All messages written in NOPAPER.ERR file are automatically written in LINK_LOG.txt, too.

Reclamation Bon

According to MNE Country Law & Regulation in the case when customer after Buy & Pay process, in the next few days, wants to return goods / services which do not fit to Specification, Warranty, etc, he can return some or all goods to retailers.

This process is done on Information desk in the presence of Store Manager using a special Law procedure filling special paper document called "NI obrazac".

Non fiscal text

You can send before or after BON (ABC_nnn.DAT), a file with non fiscal text. Examples: vouchers, special receipts for return bottles, Information on non-working days for Holidays, etc.

Table TXT_nnn.DAT

TEXT_DESC Varchar(30) NOT NULL

Attribute description:

TEXT_DESC Varchar(30)

One row of free user-defined text.

Processing

Your programme sends a file: TXT_nnn.(CSV, DBF, TXT, XML). according to a format (TXT_nnn.DAT).

Folder	If OK	If ERROR
	Open non fiscal text	
	Print row by row	
	Close non fiscal text	
	Delete a file	
In /TO_FP		Delete a file
In /FROM_FP returns	TXT_nnnn.OK	TXT_nnnn.ERR

In .OK. and .ERR files are textual data.
In TXT_nnn.ERR is a error description.

Loading Article with/ without quantities

You can load articles with initial quantities sending ART-N_xxxx.DAT (structure as ABC_xxxx.DAT until END-OF-SALE but without this clause).
You can increase quantities of existing article sending ART-K_xxx.DAT (structure as ABC_xxxx.DAT until END-OF-SALE but without this clause).

If you are not shure about correct quantities, at the Eof-Of_Day erase all articles, and send ART-N_xxxx.DAT with correct quantities.

Commands

Beside ABC_nnn.DAT (before or after it) your programme can send some additional commands i.e. CMD_nnn.DAT file.

MetaLINK besides »listening« to your files, has an additional MetaLINK -Menu (independent programme) used for sending different commands.

So it is not necessary to »do programming« and calling command, end user can simply execute them using MetaLINK –Menu programme.

Remarks !

You can send many commands, row by row, one by one.

Commands can be send anytime before or after ABC_nnn.DAT

Table CMD_nnn.DAT

CMD_ID	Varchar(10)	NOT NULL
CMD_DESC	Varchar(30)	

Remarks !

Max. Length of row of text is 30 characters.

Text will be printed exactly as entered (from left to right)

You can have (print) as many rows of text as you want.

It is not allowed to send a text that "LOOKS LIKE" a FISCAL-RECEIPT

Attribute description:

CMD_ID	Varchar(10)
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Command ID.

CMD_DESC	Varchar(30)
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Command description or blank.

Link	Show text in upper display row up to 20 ch	FP-550	role
DSP47	some text	(47)	Developer
	Show text in lower display row up to 20 ch		
DSP35	some text	(35)	Developer
	Deposit in- plus (200)		
CMD70P	200	(70)	Cashier
	Deposit out - minus (100)		
CMD70M	100	(70)	Cashier
	Open a cash drawer		
CMD106	NO PARAM	(106)	Cashier

	Delete articles from fiskal printer		
DEL-ART	NO PARAM	(N/A)	Cashier
	Send sound signal – Beep		
BEEP	NO PARAM	OK	Developer
	returns file FP_STATUS.OK		
STATUS	NO PARAM		Developer
	Fiscal Receipt Copy		
SLIP-COPY	NO PARAM		Developer

Samples

DSP47, show in upper row on display

DSP35, show in lower row on display

FP_STATUS.OK contains:

FISCALIZED	/ or NONFISCALIZED
"1.50SR 26JUL2004 1000, BA46"	/ FW firmware version
2005-03-30 09:11:17	/ date and time from FP
010110000	/ Tax group set AGDĐEŽIJK
123450	/ IBFM , i.e. DT number
123456789	/ VAT number
100	/ # of articles in FP
100	/ # of articles in DB
DAY CLOSED	/or DAY OPEN

	Print (X report) Current Status		role
REP-X	NO PARAM	(69) "3"	Cashier
	Print (Z report) i.e. Daily Closure		
REP-Z	NO PARAM	(69) "1"	Manager
	Print periodical report (day – day)		
REP79	DDMMYY-DDMMYY	(79)	TaxAuth
	Print all Tax group changes		
REP50	NO PARAM	(50)	TaxAuth
	Print articles sold in a day		
REP11 1	NO PARAM	(111)	TaxAuth
	Print articles sold in a day with inventory		
REP11 1-2	NO PARAM	(111)	TaxAuth

Processing

Your programme sends files: CMD_00000.(CSV, DBF, TXT, XML).

According to the format (CMD_nnn.DAT).

folder	If OK	If not OK
	Read command row by row	
	Execute commands row by row	
In /TO_FP	Delete a file	Delete a file
in /FROM_FP returns	CMD_nnn.OK	CMD_nnn.ERR

Files .OK and/or .ERR contain only textual data
 Programme returns file CMD_nnn.OK if OK, and file CMD_nnn.ERR if there are some
 errors.

File CMD_nnn.ERR contains textual error description.

MetaLINK – Menu

After starting programme MetaLINK appears in SysTray (as »CAPITAL RED letter« **L**).

Without the interface – starting form, we make it even more difficult to stop a programme by accident.

Therefore all options available previously through Menu – Administration have been extracted to a standalone executable MetaLINK-Menu.

This splitting was necessary because we moved programme MetaLINK to SysTray.

MetaLINK-Menu can be started independently (MetaLINK must be started before).

Also developer can send and execute all options needed by their customers from their POS programme.

// A. Titles on button in MetaLINK-Menu programme

Link		(nn)
REP-X	1. Current Sale Report – X	(69)
REP-Z	2. Daily Report – Z	(69)
REP79	3. Monthly Report	(79)
REP79	4. Periodical Report	(79)
REP111	5. Articles sold in day	(111)
DEL-ART	6. Delete article from FP-550	(107)
Internal	7. Save articles in file	N/A
REP111-2	5. Articles sold in day	(111)
	9. ----	
CMD70P	A. Deposit in cash drawer	(70)
CMD70M	B. Deposit out cash drawer	(70)
SLIP-COPY	C. Fiscal Receipt duplicate	
internal	E. View a log file	N/A
N/A	F. Free command	N/A
	G. ---	
	H. ---	
	I. ---	
CMD106	J. Open cash drawer	(106)
internal	K. Check customer display	(100)
internal	L. Set footer	(43) (53)
STATUS	M. Printer status	
	N. ---	
REP50	P. Tax changes in period	(50)
	R.	
	S.	
	T. ---	
	X. EXIT	