Data exchange protocol

Contents

1. ACRONYMS

Acronym	Definition
ACK	Acknowledge
BO	Back office
CRM	Customer Relationship Management
DB	Database
DSRC	Dedicated Short Range Communication
EETS	European Electronic Toll Service
EFC	Electronic Fee Collection
FE	Front End
ID	Identifier
IFS	Interface Functional Specification
IT	Information Technology
OBU	On Board Unit
PA	Payment Announcement file
PAN	Personal Account Number
SW	Software
TC	Toll Charger
TF	Transit file
TD	Toll Domain
URL	Uniform Resource Locator
USB	Universal Serial Bus
VAT	Value Added Tax
VST	Vehicle Service Table
WL	Whitelist

2. INTRODUCTION

This section provides a short overview of the Interface Functional Specifications between EETS provider and BINA.

The current document provides a breakdown of the main three interfaces:

- WhiteList file and ACK Whitelist file

- Transaction file and ACK Transaction file

- Payment Announcement file (synonym of *aggregated List of Passages*) and ACKPayment Announcement file

3. WHITELIST FILE (WL)

3.1. WL Description

The Whitelist (hereinafter referred to as WL) has the following purpose:

- Identify the devices that can be accepted and can transit and pass the gates at BINA motorway network

An EETS provider equipped vehicle is allowed to transit in BINA only if present in the WL.

The "local" WL file is generated by EETS provider and BINA will process this file and compile a "Global" WL based on the latest received WL file from EETS provider at the time of compilation.

This "global" WL is sent to all BINA toll plazas to secure that the broadcast is automatically distributed.

- Format of file name according to ISO 12855:

FSSsssssTRRrrrrr.BIN.WLWL.nnnnnnnnnn.txt

F	From (Sender)
SS	nationality of the sender company (HR for BINA)
sssss	is the code that identifies the sender (00003 for BINA)
T	to (destination)
RR	nationality of the receiver company (HR for BINA)
rrrrr	is the code that identifies the receiver (00003 for BINA)
BIN	Fixed
FILETYPE	WL for white list, TF for transits, AK for Acknowledgement
"nnnnnnnnnn"	ID Unique number (sequence), for each flow. It is a Progressive number starting from "0000000001" The "ACK" files will contain the same "nnnnnnnnnn" of the relative WL or TF file.

Table 1- Naming File Rule

3.2. WL Format file

The WL file name will be as follow:

FSSsssssTRRrrrrr.BIN.WLWL.nnnnnnnnnn.txt

Sending direction EETS provider -> BINA

The WL file is a fixed field length lines/records, is exchanged via SFTP protocol.

There is no limitation of records in the WL, BINA can manage every dimension.

Below the general rule of padding:

- performed by blank spaces in the case of alphanumeric characters

- with zeros on the left in the case of digits.

The fields "License plate number", "License plate country", "Emission Class" and "Number of axels" can be nullable.

Field description	Format	Madatory	Field content	Notes	Value if Nothing

Header

Field description	Format	Madatory	Field content	Notes	Value if Nothing
Record Type	9(2)	Y	10	Fixed value	
Transmitter Code Country Code Transmitter	X(7) X(2) 9(5)	Y		Fixed value	
Receiver Code Country Code Receiver	X(7) X(2) 9(5)	Y	HR00003	Fixed value	
File number	9(10)	Y	**nnnnnnnnnn** The value filled in is defined in the description of the file name	Es.: '000000007'	
Creation Date of the file	9(8)	Y	UTC Current Date - Format yyyyMMdd	Es. '20220120'	
Release N° of the file format	9(6)	Y	Starting from 000001 The value filled in is a sequence number related with the versioning of the documentation or after a release in PROD	Es.: '000001'	
Filler	X(60)	Y	Reserved for future use	Left with blanks and the last digit "0"	0

Body

Field description	Format	Madatory	Field content	Notes	Value if Nothing
Record Type	9(2)	Y	20	Fixed value	
Manufacturer ID	X(5)	Y	E.g : 00012	Only 2 digits relevant	
Serial number	X(30)	Y		Only 10 digits relevant	
PAN	X(19)	Y			
Emission class	X(2)	N	See Table 3 – Emission Classes E.g: 5	Note: not used on the BINA lanes	

Local Veichle Class	X(2)	N	See Table 4 -Croatia Vehicle Class E.g: "01"	Croatia Local vehicle Class Left with blanks	Spaces
Number of axels	9(2)	N		Note: not used on the BINA lanes.	00
License plate country	X(2)	Y	ISO 3166-1 alpha-2	Note: not used on the BINA lanes	
License plate number	X(14)	Y		Note: not used on the BINA lanes	
Filler	X(22)	Y	Reserved for future use, filled with 0	Left with blanks	0

Footer					
Record Type	9(2)	Y	30	Fixed value	
Transmitter Code Country Code Transmitter	X(7) X(2) 9(5)	Y		Fixed value	
Receiver Code Country Code Receiver	X(7) X(2) 9(5)	Y	HR00003	Fixed value	
File number	9(10)	Y	**nnnnnnnnnn** The value filled in is defined in the description of the file name	Es.: '0000000037'	
Creation Date of the file	9(8)	Y	UTC Current Date - Format yyyyMMdd	Es. '20220120'	
Number of detail records	9(8)	Y		Number of detail record (Record Type = "20") in the file body.	
Filler	X(58)	Y	Reserved for future use	Left with blanks and the last digit "0"	0

Table 2 - White List format

Table 3 – Emission Classes (Not used at BINA)	
Code	**Description**
0	0 (Meaning no information / entry)
1	Euro1
2	Euro2
3	Euro3
4	Euro4
5	Euro5
6	Euro6
15	EEV

Table 3 - Emission Class

Croatia Local Class	Code for Local Class in the WL file
IA	09/05
I	01
II	02
III	03
IV	04

Table 4 - Croatia Local Vehicle Class

Figure 1 - Croatia Local Vehicle Class

3.3.   WL Modification

There are two business rules for manage the variation of the whitelist during time.

1. Add a new record in the WL (e.g: each time that there is a new customer/device registered)
2. Delete or Modify a record in the WL (e.g: by deleting a record that no more satisfy the requirements of the WL's rules)

In both cases, EETS provider sends to BINA the full updated WL not only the variation, through SFTP protocol.

WL file is sent to BINA every day even if no changes have been made on the EETS provider's side (in this case there will no modification in the WL respect to the one of the day before).

3.4. ACK WL Description

Each time BINA receives a new "local" WL from EETS provider, the file is checked, to ensure that the general content and numbers of records are correct.

A confirmation file, the ACK WL file, is produced and sent back to EETS provider when the file is totally accepted or totally rejected.

3.5. ACK WL format file

For the ACK WL the file naming will be as follow

FSSssssssTRRrrrrr.BIN.WLAK.nnnnnnnnnn.txt

Sending direction BINA -> EETS provider

The ACK WL file is a fixed field length lines/records, is exchanged via SFTP protocol. There is no limitation of records in the ACK WL, BINA can manage every dimension.

Below the general rule of padding:

- performed by blank spaces in the case of alphanumeric characters
- with zeros on the left in the case of digits

Field description	Format	Madatory	Field content	Notes	Value if Nothing
Header					
Record Type	9(2)	Y	10	Fixed value	
Transmitter Code Country Code Transmitter	X(7) X(2) 9(5)	Y	HR00003	Fixed value	
Receiver Code Country Code Receiver	X(7) X(2) 9(5)	Y		Fixed value	
File number	9(10)	Y	**nnnnnnnnnn** The value filled in is defined in the description of the file name	Es.: '0000000037'	
Creation Dateof the file	9(8)	Y	UTC Current Date - Format yyyyMMdd	Es. '20220120'	

Release N° of the file format	9(6)	Y	Starting from 000001 The value filled in is a sequence number related with the versioning of the documentation or after a release in PROD		
Number of records Processed	X(15)	Y	Number of all rows processed. This field will be populated only in case of Full acceptance of the file. It will be empty in case of total rejection.		
File acceptance	X(2)	Y	Code for acceptance or rejection of received WL list: 00: Full acceptance (all records OK) 01: Full Rejected (e.g file currupted, number of digits in the PAN not correct ...)		
Filler	X(43)	Y	Reserved for future use	Left with blanks andthe last digit "0"	

Footer					
Record Type	9(2)	Y	30	Fixed value	
Transmitt erCode	X(7) X(2) 9(5)	Y	HR00003	Fixed value	
Receiver Code	X(7) X(2) 9(5)	Y		Fixed value	
File number	9(10)	Y	nnnnnnnnnn	Sequential number	
Creation Dateof the file	9(8)	Y		Format **yyyyMMdd** - UTC Date	
Filler	X(66)	Y	Reserved for future use	Left with blanks and the last digit "0"	

4. SCHEDULE FOR DATA EXCHANGE WL AND ACK WL

A time shedule for data exchange, including alert messages will be defined with EETS provider.

5. TRANSIT FILE (TFTF)

5.1. TRANSIT Description

The Transit file (hereinafter referred to as TFTF) contains the information concerning the transactions performed by the Service Users on the toll facilities managed by BINA.

The name of the file and the list follow the same principle of the WL.

A progressive number is included in the file name to ensure the unique identity of the file.

- Format of file name according to ISO 12855:

FSSsssssTRRrrrrr.BIN.TFTF.nnnnnnnnnn.txt

F	From (Sender)
SS	nationality of the sender company (HR for BINA)
sssss	is the code that identifies the sender (00003 for BINA)
T	to (destination)
RR	nationality of the receiver company (HR for BINA)
rrrrr	is the code that identifies the receiver (00003 for BINA)
BIN	Fixed
FILETYPE	WL for whitelist, TF for transits, AK for Acknowledgement
"nnnnnnnnnn"	ID Unique number (sequence), for each flow. It is a Progressive number starting from "0000000001" The "ACK" files will contain the same "nnnnnnnnnn" of the relative WL or TFTF file.

Table 5 - Naming File Rule

5.2. Principles of transfer

All transactions stored in BINA will be transferred via TFTF file to EETS provider.

Transactions list:

A list containing transactions from one Toll Charger (here BINA) to be sent to a final destination of one specific EETS provider.

A transaction list is embraced by a header and a footer.

A list shall contain transactions in the same currency.

The combination of TFTF name list and the "File Number" ("**nnnnnnnnnn**") in the header gives the list unique identity.

Transaction file contains only one Transaction List in the file.

EETS provider returns a transaction list confirmation file to BINA, following the same principles as described above.

Each TFTF list shall be confirmed by exactly one Acknowledge Transit file list (hereinafter referred to as TFAK).

The file name of each TFAK is the same of the relative TFTF list, only the direction changed.

The header of each TFAK list contains the same "File Number" ("**nnnnnnnnnn**") of TFTF list, receiver and transmitter which identifies the TFTF file it is related to.

The TFTF file of today refers to the transits of the day before.

5.3.   Transit file TFT Format

The TFTF file naming will be as follow:

FSSssssssTRRrrrrr.BIN.TFTF.nnnnnnnnnnn.txt

Sending direction BINA -> EETS provider

The TFTF file is a fixed field length lines/records, is exchanged via SFTP protocol.

BINA sends the transit file always even if there are no transit the day before.

There is no limitation of records in the TFTF, BINA can manage every dimension.

Below the general rule of padding:

- performed by blank spaces in the case of alphanumeric characters
- with zeros on the left in the case of digits.

It is mandatory to send always in the transit file the OBU-ID and the PAN.

The oldest transaction accepted by EETS provider is **3 Months old**. Transits older than 3 Months will be rejected.

Particular Case (Client Claim):

In case of Client Claim this constraint of 3 months will be removed in order to provide time for managing the Operational procedure with the Client.

A EETS provider customer has 60 days to issue a claim from the date of transmission of list of passages from BINA to EETS provider.

HEADER					
No.	**Field description**	**Format**	**Position**	**Field contents**	**Notes**
1.	Record type	Char 2	1 .. 2	Constant 'M0'	
2.	Transmitter Code	Char 7	3 .. 9	Constant 'HR00003'	
3.	Receiver Code	Char 7	10 .. 16	Constant 'XXXX'	
4.	File number	Char 10	17 .. 26	File number (same as inthe file title).	
				Right aligned, paddedwith zero.	
5.	Creation date	Char 8	27 .. 34	Format: YYYYMMDD	
6.	Transaction date 'from' Format: YYYYMMDD	Char 8	35 .. 42	Date of the oldest transaction transmittedwithin the file. YYYYMMDD	The oldest transaction accepted by EETS provider is **3 Months old**
7.	Transaction date 'to'Format: YYYYMMDD	Char 8	43 .. 50	Date of the most recent transaction transmitted within the file. YYYYMMDD	
8.	Reserve Empty	Char 210	51 .. 260	Filled with blanks, only the last digit "0"	

BODY					
No.	**Field description**	**Format**	**Position**	**Field contents**	**Note**
1.	Record type	Char 2	1 .. 2	Constant 'M5'	
2.	Transaction type	Char 4	3 .. 6	Toll payment = 0533	
				Additional toll payment = 0534	
3.	OBU-ID	Char 12	7 .. 18	OBU number. Left aligned, padded with spaces.	
				12 digits: 2 digits manufacturer code + 10 digits serial number	
4.	PAN	Char 19	19 .. 37	Product account number	
5.	Transaction ID	Char 10	38 .. 47	Unique identification feature of a transaction, ID of transaction in BINA system. Right aligned, padded with zero	
6.	Transaction date	Char 8	48 .. 55	Format: YYYYMMDD	Date exit station
7.	Transaction time	Char 6	56 .. 61	Format: HHMMSS	Time exit station
8.	Exit lane	Char 3	62 .. 64	Exit lane ID (for example '003')	
9.	Exit station	Char 25	65 .. 89	Exit station name. Left aligned, padded with spaces	
10.	Entry date	Char 8	90 .. 97	Format: YYYYMMDD	
11.	Entry time	Char 6	98 .. 103	Format: HHMMSS	
12.	Entry lane	Char 3	104 .. 106	Entry lane ID (for example '053')	

13.	Entry station	Char 25	107 .. 131	Entry station name. Left aligned, padded with spaces	
14.	Vehicle category	Char 2	132 .. 133	'01','02','03','04','09'	*See Table 4*
15.	Licence plate number	Char 14	134 .. 147	Licence plate number copied from the whitelist if present and not used. Left aligned, padded with spaces	
16.	Licence plate country	Char 2	148 .. 149	Licence plate country number copied from the whitelist if present and not used. **ISO 3166-1 alpha-2**	
17.	Indicator	Char 1	150 .. 150	Reverse indicator: "+" = Normal transaction; "-" = cancel;	
18.	Currency ISO code	Char 3	151 .. 153	Currency ISO code for the transaction, e.g. 'EUR' for Euro, 'HRK' for Croatian Kunas	
				Fixed 'EURO'	
19.	Transaction amount	Char 13	154 .. 166	Full amount of the transaction, VAT included.	
				Format: n(11)Vn(2); 11 digits before and 2 after the decimal point, e.g. 128.95 = 0000000012895.	
20.	VAT percentage	Char 4	167 .. 170	Percentage of the VAT contained in the amount (field 19)	
				Format: n(2)Vn(2), 2 digits before and 2 after the decimal point, e.g. 25.00 = '2500'.	
21.	Discount percentage	Char 4	171 .. 174	Discount in percentage Percentage of the discount included in the amount (field 19)	**No discount**
				Format: n(2)Vn(2), 2 digits before and 2 after the decimal point, e.g. 25.00 = '2500'	
22.	Vehicle category detected	Char 2	175 .. 176	Vehicle category that was actually used for transaction	
23.	Licence plate number detected	Char 14	177 .. 190	Licence plate copied from the whitelist if present	
24.	Licence plate country detected	Char 2	191 .. 192	Licence plate country copied from the whitelist if present	
25.	Reference transaction ID	Char 10	193 .. 202	Unique identification of related transaction – used for additional charges and transaction corrections.	

No.		Format	Position		Note
				In case of transaction correction (not related to incorrect usage of the OBU), fields 22-24 will be empty, only this field will be filled.	
26.	ClientClaim	Char 1	203 .. 203	This field will be filled with Y only in case of a Client Claim that need a modifications in the transaction amount agreed between BINA and EETS provider (in this scenario will be removed the constraint of _ months), in all the other cases it will be always filled with N	Y/N
27.	Reserve Empty	Char 57	204 .. 260	Filled with blanks, only the last digit "0"	

FOOTER					
No.	**Field description**	**Format**	**Position**	**Field contents**	**Note**
1.	Record type	Char 2	1 .. 2	M9 (constant)	
2.	Number of M5 records	Char 8	3 .. 10	Number of detailed M5 records, right aligned, zero padded	
3.	Total amount of M5 Records	Char 15	11 .. 25	n(13)Vn(2), 13 digits before and 2 after the decimal point	
				Sum of the amounts of all M5 records (field 19 "transaction amount"); amounts with reverse indicator (Field No. 17) '-' will be subtracted	
				Right aligned, zero padded	
4.	Reserve	Char 235	26 .. 260	Filled with blanks, only the last digit "0"	

Table 6 - TFTF List format proposal

Note:

- For charging, the vehicle class used by the lane will be the one manually entered in manual lane or the one detected by the PreDAC in automatic lanes.

5.4.   Transit file TFTF Modification

Transaction correction

For the management of additional charges, it will be used the "**Revoke**" mode, here under described.

Every transaction has a new ID Transaction in BINA system, so it is not possible to repeat ID's for different transactions.

The solution is to insert the ID transaction to be modified (for manage an additional charges) in the field "Reference transaction ID", in this way it is possible to track the history of the corrections referred to the same transit.

The Corrections for a transit are made:

- deleting the old transit amount, with the same old ID transaction inserted in the reference transaction ID and Toll payment indicator=0534 and Indicator =- for subtracted the total original amount
- and issuing a new transit, with a new ID Transaction but with the old reference transaction ID (the original one) with the correct charge (Toll payment indicator=0533 and Indicator =+)

Use Case A

"Revoke Mode"						
Creation file Date	Transaction identification	Toll payment	Indicator	Amount	Transit	Reference Transaction ID
19/10/2021	1	0533	+	100	X	
20/10/2021	2	0534	-	100	X	1
20/10/2021	3	0533	+	20	X	1
21/10/2021	4	0534	-	20	X	3
21/10/2021	5	0533	+	10	X	3

The transit is uniquely identified by the fields: OBU-ID and entry station, Date entry station, Time entry station and the exit station, Date exit station, Time exit station.

Additional Charge for Incorrect usage of the OBU

In case of a transaction correction due to an incorrect usage of the OBU (e.g vehicle class) here under in the table listed 4 cases and the way are populated some fields in the transit filed by BINA.

Each of the scenario here under foresees a correct communication between the OBU and the lane.

Scenarios\ Fields	Vehicle category	Licence plate number	Licence plate country	Vehicle category detected	Licence plate number detected	Licence plate country detected	Reference Transaction ID	Transaction ID	OBU-ID	PAN
no additional charges needed	Filled with theinfo of the WL	Filled with the info of the WL	Filled with the info of the WL	EMPTY	EMPTY	EMPTY	EMPTY	Filled	Filled with theinfo of the WL	Filled with the info of the WL
additional charge needed because of wrong vehicle category was used	Filled with theInfo of the WL	Filled with the info of the WL	Filled with the info of the WL	Filled with the info retrieved from photo in the lane	EMPTY	EMPTY	Filled	Filled	Filled with theinfo of the WL	Filled with the infoof the WL
additional charge needed because of wrong license plate/country was used	Filled with theinfo of the WL	Filled with the info of the WL	Filled with the info of the WL	EMPTY	The 1st phase this field will be empty, once BINA upgrades its system it will be populated	The 1st phase this field will beempty, once BINA upgrades its system it will be populated.	Filled	Filled	Filled with theinfo of the WL	Filled with the infoof the WL
additional charge needed no related to incorrect usage of the OBU (e.g some mistakes)	Filled with theinfo of the WL	Filled with the info of the WL	Filled with the info of the WL	EMPTY	EMPTY	EMPTY	Filled	Filled	Filled with theinfo of the WL	Filled with the infoof the WL

6. ACK TRANSIT (TFAK)

6.1. ACK Transit Description

Each time EETS provider receives a new Transit file (TFTF list) from BINA, the structure and the content of the file are checked and a confirmation list TFAK (Transit confirmation list) is produced and send back in a file.

One TFAK list is produced for each TFTF list from EETS provider.

This file contains only the transactions, which are refused by EETS provider.

The TFAK file will, in case of no rejected transits only (Full Acceptance – all records OK), be composed by header and footer.

EETS provider sends the TFAK file always even if there are no refused records (in this case the file body will be empty).

The name of the file and list follow the same principles.

Each TFTF list shall be confirmed by one and only one TFAK list.

The header of each TFAK list contains the same "File Number" ("**nnnnnnnnnn**") of TFTF list, receiver and transmitter which identifies the TFTF file it is related to.

6.2. ACK Transit file format

The ACK Transit (TFAK list) file name will be as follow

FSSssssssTRRrrrrr.BIN.TFAK.nnnnnnnnnn.txt

Sending direction EETS provider -> BINA

The ACK transit file (TFAK) file is a fixed field length lines/records, is exchanged via SFTP protocol. There is no limitation of records in the ACK WL, BINA can manage every dimension.

Below the general rule of padding:

- performed by blank spaces in the case of alphanumeric characters
- with zeros on the left in the case of digits

Field description	Format	Madatory	Field content	Notes	Value if Nothing
Header					
Record type	9(2)	Y	Constant 'M0'	Fixed value	
Transmitter Code Country Code Transmitter	X(7) X(2) 9(5)	Y		Fixed value	
Receiver Code Country Code Receiver	X(7) X(2) 9(5)	Y	HR00003	Fixed value	
File number	9(10)	Y	**nnnnnnnnnn** The value filled in is defined in the description of the file name		
Creation Date of the file	X(8)	Y	Format: YYYYMMDD - UTC Date		

Release N° of the file format	9(6)	Y	Starting from 000001 The value filled in is a sequence number related with the versioning of the documentation orafter a release in PROD	Es.: '000001'	
Number of accepted records in body	X(15)	Y	Number of accepted lines in body of transit file		
Number of rejected records in body	X(15)	Y	Number of rejected lines in body of transit file		
File Acceptance	X(2)	Y	00: Full Acceptance (all records OK)01:Partial Acceptance 02:No total -transaction file is rejected becausethe same file name is previously received. 03: Not accepted total - Transaction file is rejected because the field "Number of M5 records" in footer is not corresponding to the number of records or transactions in the body. 04:Not accepted total - Transaction file is rejected because total claimed amount in footer"Total amount of M5 Records" is not corresponding to the summarized amounts for each transaction 05: Miscellaneous		
Filler	X(228)	Y	Reserved for future use	Left with blanks, lastdigit "0"	

Body					
Record type	X(2)	Y	Constant 'M5'	Fixed value	
Copy of Transit file body line	X(260)	Y	In case of rejected body line, the line betweenthe "Record Type" and the "Filler" from the transit file is copied and inserted in this position		
Reason of rejection	X(2)	Y	Indicates the reason to reject the transit (*): "01" Transaction has an OBU-ID that is registerednot valid at the time of passing (excluded from the WL) "02" Transaction is too old, that means sent toEETS provider later then the limit for clearing "03" transaction has a PAN that is not registeredfor a user of EETS provider "04" Transaction record has not a valid format ora mandatory field is not filled "05" Miscellaneous	**For point "02" EETS provider canaccept transit latest _ Months old**	
Filler	X(36)	Y	Reserved for future use	Left with blanks, lastdigit "0"	

Footer					
Record Type	9(2)	Y	M9 (constant)	Fixed value	
Transmitter Code Country Code Transmitter	X(7) X(2) 9(5)	Y		Fixed value	
Receiver Code Country Code Receiver	X(7) X(2) 9(5)	Y	HR00003	Fixed value	
File number	9(10)	Y	**nnnnnnnnnn** The value filled in is defined in the description of the file name		

Creation Date of the file	X(8)	Y	Format: YYYYMMDD – UTC Date		
Total amount of M5 Records EETS provider Accepted	X(15)	Y	In the smallest unit, e.g euro cents if euro is the currency (fee VAT included and discount)		
Total amount of M5 Records EETS provider Rejected	X(15)	Y	In the smallest unit, e.g euro cents if euro is the currency (fee VAT included and discount)		
Filler	X(236)	Y	Reserved for future use	Left with blanks, last digit "0"	0

(*) Only in case of a partial acceptance shall there be the rejected body line/s included. It shall include all lines in a file stating the individual reason of rejection for each of the lines. Note that in case all lines in a valid TFTF are rejected with a reason it will be marked as a partial rejection. Note that in case of rejection of a complete file shall be no bodylines included.

7.   SHEDULE FOR DATA EXCHANGE TFTF AND TFAK

A time shedule for data exchange will be defined with EETS provider.

8.   PAYMENT ANNOUNCEMENT (PA)

8.1.   PA Description

The Payment Announcement, synonym of aggregated List of Passages (hereinafter referred to as PA) has the following purpose:

- summarize all the transits for a Settlement period (15 days) by BINA

The Recap Transit file or Payment Announcement is a list containing the transactions considered valid from BINA to be paid by EETS provider for the relevant Settlement Period.

The PA is sent by BINA twice a month to EETS provider.

It contains the information concerning the recap of all the validated transactions (only the ones accepted in the ACK Transit file from EETS provider) referred to a period of 15 days (Settlement Period).

The PA contains all transactions sent to EETS provider in the period for which the invoice is issued, regardless of the date of the transaction (It may include also transits older than the reference period but no older than 3 months).

Invoicing periods are:

- 1st to 15th day of the month
- 16th day of the month until the last day of the month

The first PA will include transits from day 1 to day 15 of the referred month, the second one will include transits from day 16 to last day of the month.

- The first PA is sent by BINA to EETS provider the day after the end of the first invoicing period, the 16th of the month (also no working days).
- The second PA is sent by BINA to EETS provider the day after the end of the second invoicing period, the 1st of the month (also no working days).

Invoicing will be twice a month and its final gross amount will be equal to the sum of each gross amounts of the transits in the relative PA that were accepted by EETS provider by the relative ACK PA file (PAAK). Only the ones accepted.

- The first invoice is sent by BINA to EETS provider 2 working days after the first PAAK.
- The second invoice is sent by BINA to EETS provider 2 working day after the second PAAK.

Format of file name according to ISO 12855:

FSSsssssTRRrrrrr.BIN.PAPA.nnnnnnnnnn.txt

F	From (Sender)
SS	nationality of the sender company (HR for BINA)
sssss	is the code that identifies the sender (00003 for BINA)
T	to (destination)
RR	nationality of the receiver company (HR for BINA)
rrrrr	is the code that identifies the receiver (00003 for BINA)
BIN	Fixed
FILETYPE	WL for white list, TF for transits, AK for Acknowledgement, PA Payment Announcement

"nnnnnnnnnn"	ID Unique number (sequence), for each flow. It is a Progressive number starting from "0000000001" The "ACK" files will contain the same "nnnnnnnnnn" of the relative PAPA file.

<div align="center">Table 7- Naming File Rule</div>

8.2. PA Format file

The PA file name will be as follow

FSSssssssTRRrrrrr.BIN.PAPA.nnnnnnnnnn.txt

Sending direction BINA → EETS provider

The PA file is a fixed field length lines/records, is exchanged via SFTP protocol.

There is no limitation of records in the PA, BINA can manage every dimension.

Below the general rule of padding:

- performed by blank spaces in the case of alphanumeric characters
- with zeros on the left in the case of digits.

HEADER					
No.	**Field description**	**Format**	**Position**	**Field contents**	**Notes**
1.	Record type	Char 2	1 .. 2	Constant 'M0'	
2.	Transmitter Code	Char 7	3 .. 9	Constant 'HR00003'	
3.	Receiver Code	Char 7	10 .. 16		
4.	File number	Char 10	17 .. 26	File number (same as in the file title) **nnnnnnnnnn** The value filled in is defined in the description of the file name. Right aligned, padded with zero.	
5.	Creation date	Char 8	27 .. 34	Format: YYYYMMDD	
6.	Start Settlement period	Char 8	35..42	Date of begin settlement period of the file. YYYYMMDD (e.g 20211201)	
7.	End Settlement period	Char 8	43..50	Date of the end settlement period of the file. YYYYMMDD (e.g 20211215)	
8.	Reserve Empty	Char 50	51 .. 120	Filled with blanks, last digit "0"	

					BODY	

No.	Field description	Format	Position	Field contents	Note
1.	Record type	Char 2	1 .. 2	Constant 'M5'	
2.	Transaction ID	Char 10	3 .. 12	Unique identification feature of a transaction, ID of transaction in BINA system. Right aligned, padded with zero	
3.	FIELD Indicator	Char 1	13	Reverse indicator: "+" = Normal transaction; "-" = cancel;	
4.	Transaction amount (Absolute)	Char 13	14 .. 26	Full amount of the transaction, VAT included. Format: n(11)Vn(2); 11 digits before and 2 after the decimal point, e.g. 128.95 = 0000000012895.	
5.	OBU-ID	Char 12	27 .. 38	OBU number. Left aligned, padded with spaces. 12 digits: 2 digits manufacturer code + 10 digits serial number	
6.	Transaction date	Char 8	39 .. 46	Format: YYYYMMDD	Date exit station
7.	Transaction time	Char 6	47 .. 52	Format: HHMMSS	Time exit station
8.	Transaction amount Calc.(Included Indicator)	Char 13	53 .. 65	Full amount of the transaction, VAT included. Format: n(11)Vn(2); 11 digits before and 2 after the decimal point, e.g. 128.95 = 0000000012895.	
9.	Transaction file Name	Char 37	66…102	The file name relative to the transaction e.g **FSSsssssTRRrrrrr.BIN.TFTF.nnnnnnnnnn**	
10.	Reserve Empty	Char 18	103 .. 120	Filled with blanks	

					FOOTER	

No.	Field description	Format	Position	Field contents	Note
1.	Record type	Char 2	1 .. 2	M9 (constant)	
2.	Number of M5 records	Char 8	3 .. 10	Number of detailed M5 records, right aligned, zero padded	
3.	Total amount of M5 Records	Char 15	11 ..25	n(13)Vn(2), 13 digits before and 2 after the decimal point	
				Sum of the amounts of all M5 records (field 8 "transaction amount Calc."); amounts with reverse indicator (Field No. 3) '-' will be subtracted	
				Right aligned, zero padded	
4.	Reserve	Char 95	26 .. 120	Filled with blanks, last digit "0"	

9. ACKNOWLEDGEMENT PA FILE (PAAK)

9.1. ACK PA Description

Each time EETS provider receives a new PA file from BINA, the structure and the content of the file are checked and a Payment Announcement confirmation file (hereinafter referred to as PAAK file) is produced and send back in a file.

This control is made by EETS provider to ensure that in the PA were inserted by BINA only the transits that were previously accepted by EETS provider in the TFAK file (or not already paid).

One PAAK file is produced for each PA file from EETS provider.

The PAAK body file contains only the transactions, which are refused by EETS provider.

The PAAK file will, in case of no rejected records only (Full Acceptance – all records OK), be composed by header and footer.

EETS provider sends the PAAK file always even if there are no refused records.

The header of each PAAK list contains the same "File Number" ("**nnnnnnnnnn**") of PA file, received and transmitter which identifies the PAPA file it is related to.

9.2. ACK PA format file

For the ACK PA the file naming will be as follow

FSSssssssTRRrrrrr.BIN.PAAK.nnnnnnnnnn.txt

Sending direction EETS provider → BINA

The ACK PA file is a fixed field length lines/records, is exchanged via SFTP protocol.

There is no limitation of records in the PA WL, BINA can manage every dimension.

Below the general rule of padding:

- performed by blank spaces in the case of alphanumeric characters
- with zeros on the left in the case of digits.

Field description	Format	Madatory	Field content	Notes	Value if Nothing
			Header		
Record type	9(2)	Y	Constant 'M0'	Fixed value	
Transmitter Code Country Code Transmitter	X(7) X(2) 9(5)	Y		Fixed value	
Receiver Code Country Code Receiver	X(7) X(2) 9(5)	Y	HR00003	Fixed value	
File number	9(10)	Y	nnnnnnnnnn The value filled in is defined in the description of the file name		
Creation Date of the file	X(8)	Y	Format: **YYYYMMDD** - UTC Date		

Release N° of the file format	9(6)	Y	Starting from 000001 The value filled in is a sequence number related with the versioning of the documentation or after a release in PROD	Es.: '000001'	27
Number of accepted records in PA	X(15)	Y	Number of accepted lines in body of PA file		
Number of rejected records in PA	X(15)	Y	Number of rejected lines in body of PA file		
File Acceptance	X(2)	Y	00: Full Acceptance (all records OK) 01: Partial Acceptance 02: Not accepted total - (PA file is rejected because e.g the same file name is previously received, file currupted,…)		
Filler	X(48)	Y	Reserved for future use	Left with blanks, last digit with "0"	

Body					
Record type	X(2)	Y	Constant 'M5'	Fixed value	
Rejected ID transactions	X(10)	Y	In case of rejected body line, the "Transaction ID" of transaction rejected is copied and inserted in this position		
Reason of rejection	X(2)	Y	Indicates the reason to reject the line (*): "01" Tranasction ID unknown "02" Transaction was rejected in the relative ACK transit file "03" Transaction was already paid in the past		
Filler	X(106)	Y	Reserved for future use	Left with blanks, last digit with "0"	

Footer					
Record Type	9(2)	Y	M9 (constant)	Fixed value	
Transmitter Code	X(7) X(2) 9(5)	Y		Fixed value	
Receiver Code	X(7) X(2) 9(5)	Y	HR00003	Fixed value	
File number	9(10)	Y	**nnnnnnnnnn** The value filled in is defined in the description of the file name		
Creation Date of the file	9(8)	Y	Format **yyyyMMdd** - UTC Date		

Total amount of M5 Records EETS providerAccepted	X(15)	Y	In the smallest unit, e.g euro cents if euro is the currency (fee VAT included)		
Total amount of M5 Records EETS providerRejected	X(15)	Y	In the smallest unit, e.g euro cents if euro is the currency (fee VAT included)		
Filler	X(56)	Y	Reserved for future use	Left with blanks, last digit with "0"	

(*) Only in case of a partial acceptance shall there be the rejected ID transaction included. It shall include all Transaction ID in a file stating the individual reason of rejection for each of the lines. Note that in case all lines in a valid PAPA are rejected with a reason it will be marked as a partial rejection. Note that in case of rejection of a complete file shall be no bodylines included.

10.   SCHEDULE FOR DATA EXCHANGE PA AND ACK PA

A time shedule for data exchange will be defined with EETS provider.

11. ETC DATA SPECIFICATION

The technology used for communication between devices on the toll road and devices in the vehicle is based on DSRC technology with a range of 5.8 GHz and compiles with the technologies prescribed by Commission Implementing Regulation (EU) 2020/204 of November 28, 2019.

Communication standards: Physical Layer ENV 12795, ENV 12253

Data Link Layer ENV 12834, ENV 13372

Application standards: Application Layer ISO14906 EFC

Transaction models: In the application of PISTA and TIS

The EETS provider is obliged to provide the record format on the ETC device. Details of the record format and attributes of system and EFC elements as well as coding details will be agreed with the EETS provider.