



AP-1.2A

AutoPASS Data Formats Overview

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4.3 - AutoPASS Data Formats Overview

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DOCUMENT REVISION HISTORY

Version	Date	Author	Main changes
1.0	08.10.2019	Statens vegvesen/ NPRA	New document. Part of 4.3 AutoPASS Data Formats
1.01	08.03.2023	Statens vegvesen/ Norwegian Public Roads Administration	Removed HGV, HGC, NSL, NAT and NAC. HGV and HGC moved to AP-3.1 Removed content on EasyGo HUB and ACFC.
1.02	17.07.2024	NPRA	Removed content that is now in the AP-3 document series: OBU Status File, AIT, TR, Picture File, Picture Text File.

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1 About this document

This document is the main document for all information exchange between the different system solutions for toll charge collection in Norway.

The document describes what information is exchanged and refers to all other relevant documents.

Detailed information about specific specifications are found in **AP-1.2B/4.3 AutoPASS Data Formats Appendixes**

Please note:

This document will be gradually phased out. When updated, individual formats will be moved to new documents in the AP-3 series.

All AP- series documents can be found here:

<https://www.autopass.no/en/toll-sector/technical-equipment-requirements-in-autopass-samvirke/>

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2 General system overview

The figure below illustrates AutoPASS community.
Red arrows indicate flow of information/data

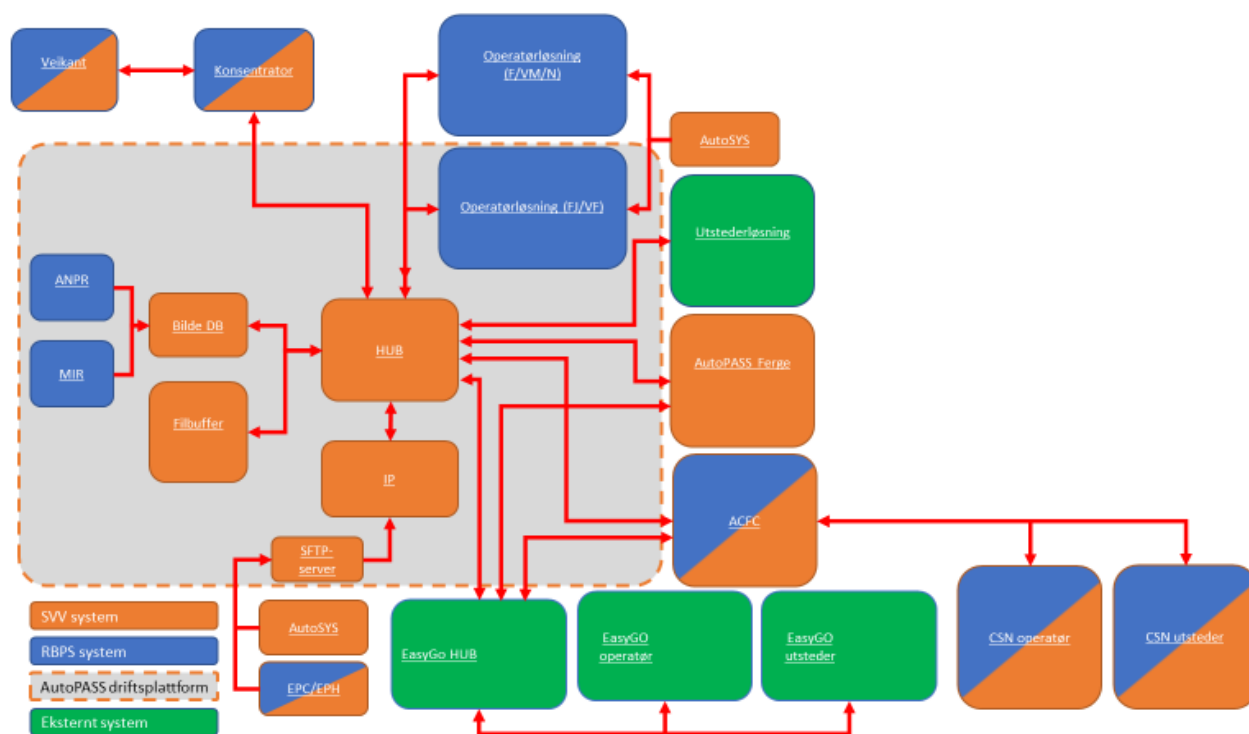


Fig. 1 Flow of information/data

3 General rules

The following general rules for data definition apply:

Character format in all files is ISO 8859-1.

The format of each record is described below.

At the end of each line a LF used. (Based on ANSI (Windows-1252))

The data formats are either numerical (Numeric) or alpha-numerical (AlphaN):

- AlphaN (aligns left with blanks at right) will be filled with blanks if no value. (For some fields it is required to fill with zero according to spec, even when AlphaN)
- Numerical (align right with zeros at left) are filled with zeros if no value
- Fields marked as filler reserved for future use can be filled with zeros as specified regardless of field type
- If the field is a date field it shall be filled with a date according to specification, or filled with zeros

All major data is exchanged through files containing lists of data.

Each file, except files to/from Roadside, contains:

- One header record with information regarding receiver, sender, list name and number of records in the body
- An unlimited number of body records with detailed record information
- One footer record ends the list and with information of sum of records in body when relevant

The file name is a combination of the list name or part of it. The name of the receiver is included when necessary to ensure the unique identity or to ease the communication between Toll Charger (TC) and Toll Service Provider (TSP).

4 Brief information regarding existing formats

The data formats are described either in, AP-1.2/4.3 AutoPASS Data Formats Appendixes or in one of the documents in the AP-3 document series.

4.1 Brief information about the different formats

ACT (Actor table)

Contains information about all actors in AutoPASS (TC and TSP). Example of information in this table: Actor ID, Actor name, Address, Phone, IBAN / BIC. Data is maintained at AutoPASS IP.

TST (Toll station table)

Contains information about all the toll stations in AutoPASS. Example of information: Actor ID, Actor name, Location names.
Data is maintained at AutoPASS IP.

AIT (Accepted issuer table) - Roadside

Contains information about valid issuers and tag series.
Data is maintained by NPRA.

OBU status file (NSL) - Roadside

Contains information about valid Norwegian contracts.
This format is a simpler version of the whitelist (HGV) for use at the roadside.
Example of data in the table: Tag number, registration number.
The file is generated at AutoPASS Core.

Tariff-fil / Price file - Roadside

Contains prices, opening hours / days.
Used primarily to display the right price on VMS signs at the roadside.
The file is generated at AutoPASS Core.

Transaction-file - Roadside

Contains information about registered passages from one or more toll stations.
The file is generated at the roadside.

Picture-file - Roadside

Contains images related to the passages in the Transaction-file.
The file is generated at the roadside. Each picture is a separate file.

Picture-Text file - Roadside

Contains explanation of the different signal codes.
This information is added to the image (Picture-file) on the roadside.
The file is generated by NPRA and distributed to roadside suppliers.

Exception Messages - Roadside

Contains information with exception messages from the roadside.
The file is generated at the roadside.

TIF (Transit information file)

Contains information about transactions (passages) with vehicle/passage/price-data.
Example of data in the table: Actor ID, Tag number, Toll Station/Lane.
The file is generated at AutoPASS IP for AutoPASS road tolling, at "Sentral Tjenestetilbyder for ferger" for Norwegian ferry transactions.

Whitelist (HGV)

Contains information about customers / vehicles that have a contract with an issuer.
Example of data in the table: Actor ID, Tag number, Vehicle Group, Euro Class.
New contracts, not valid contracts as well as changes to contracts are managed by TSP.
The file is generated by each TSP.

Whitelist complete (HGVC)

Same as Whitelist (HGV) but Contains all valid AutoPASS user agreements. The file may be both complete or incremental. The files are generated by AutoPASS Core.

NAT (Not accepted table, Black list)

Blacklist is generated by each TSP and forwarded to EasyGo HUB or any other recipient. This list contains all non valid AutoPASS tags.
Managed by each TSP

ALM (Alarm Format)

Contains information about alarms from AutoPASS IP, Roadside, and AutoPASS HUB

5 Appendix overview

Appendix A-series (AutoPASS HUB formats)		
Appendix name	Format name	Information
A1 - ACT Format	ACT	
A2 - TST Format	TST	
A3 - AIT Format	AIT	
A4 - Whitelist Format	HGV, HGC, HGVC	HGC is a confirmation file
A5 - OBUSatus File	NSL	
A6 - Blacklist Format OBSOLETE	NAT, NOC	HOC is confirmation file
A7 - TIF & TIC Format	TIF, TIC	TIC is a confirmation file
A8 - Transaction File		
A9 - Picture File		
A10 - Picture Text File		
A11 – Tariff File		
A12 - Exception Messages		
A13 - Alarm Messages	ALM, ALC	ALC is a confirmation file

Appendix B-series (Tables)		
Appendix name	Format name	Information
B1 - Tables		

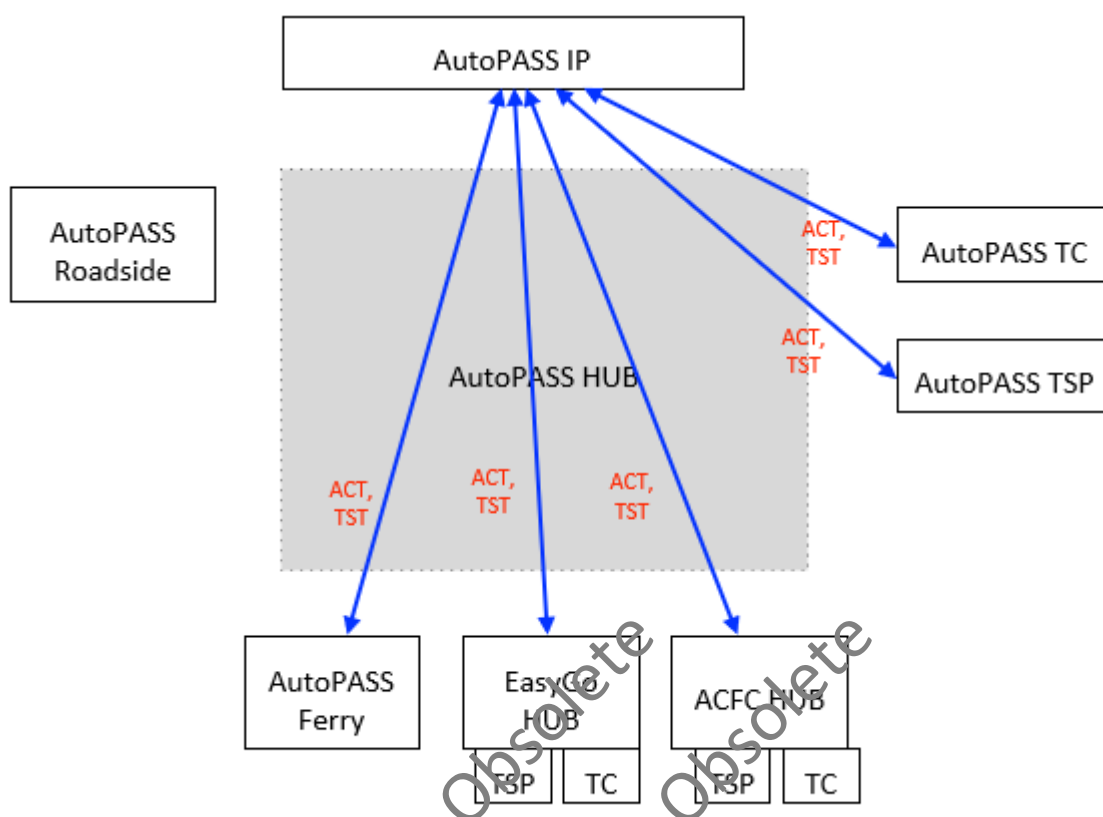
Appendix C-series (Other formats and specifications)		
Appendix name	Format name	Information
C1 – Service layer Interface & Format		
C2 – KDF & KDC Format	KDF, KDC	See doc. 4.5 – Security Architecture for AutoPASS
C3 – OBU Statuslist (CS Norge)	NBS, NBR	-
C4 – ACFC specification (CS Norge)	-	-
C5 – Image processing supplier specification		
C6 – Transaksjonsformat 4.3 for Ferry		Draft

6 Overview of changes

7 Distribution and handling

7.1 Information about ACT and TST

AutoPASS IP generates ACT and TST files when any information about the actors or toll stations change. These files include information about all AutoPASS actors.



7.2 Information about Whitelist (NSL, HGV and HGC)

AutoPASS Core generates NSL-files that contain all valid AutoPASS contracts.

Information on HGV and HGC has been moved to document AP-3.1

All the documents in the AP-series can be found on:

<https://www.autopass.no/en/toll-sector/technical-equipment-requirements-in-autopass-samvirke/>

Replaced by AP-3.1

7.3 Information about Blacklist (NAT and NAC)

Blacklists are no longer in use in AutoPASS.

Obsolete

7.4 Information about Transaction files (TIF, TIC, transaction files)

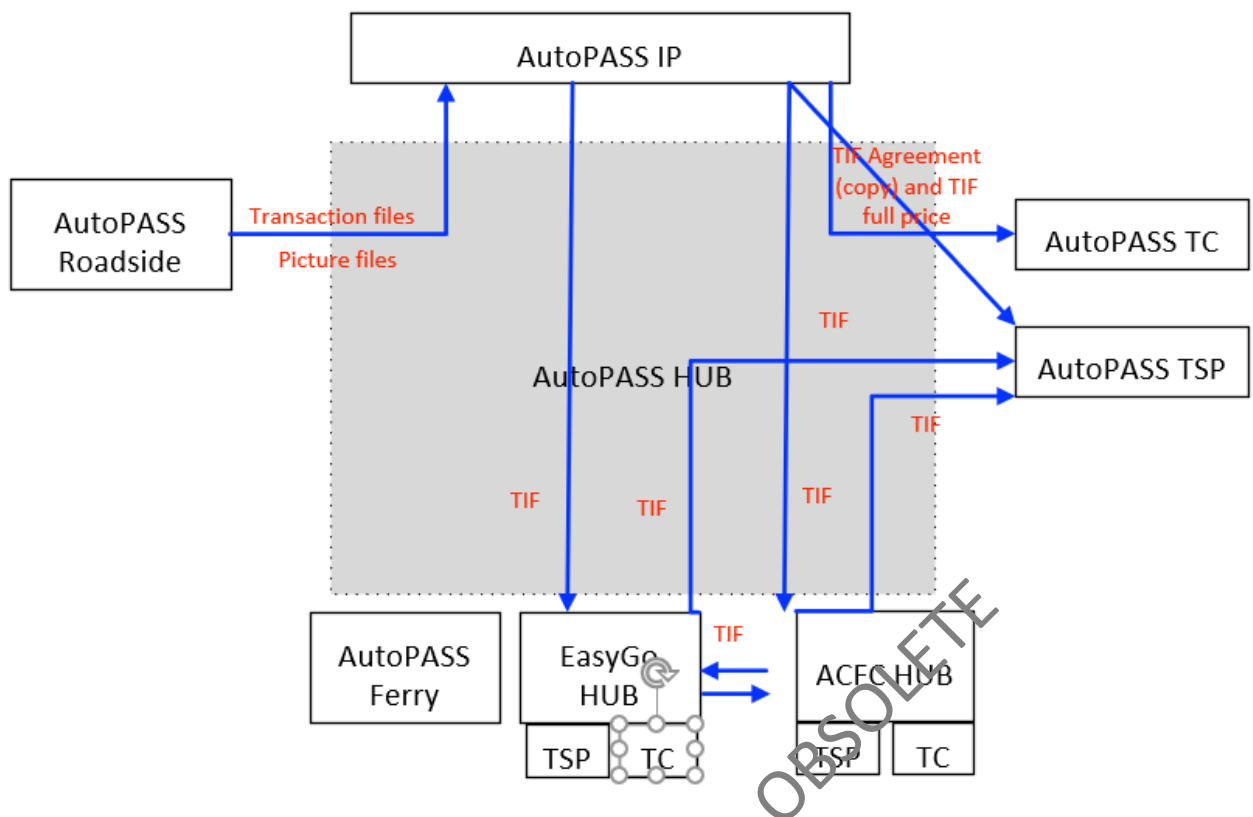
AutoPASS IP receives Transaction-files from Roadside with passage information details.

AutoPASS IP send a TIF file/message to correct recipient (actor) for further handling of the transaction.

AutoPASS IP send a copy of the TIF file/message sent to TSP to the TC that owns the toll project.

AutoPASS IP send a TIF file/message to the TC that owns the toll project for further handling of non-agreement transactions.

Receipts (TIC files) are always sent in opposite direction of TIF files.

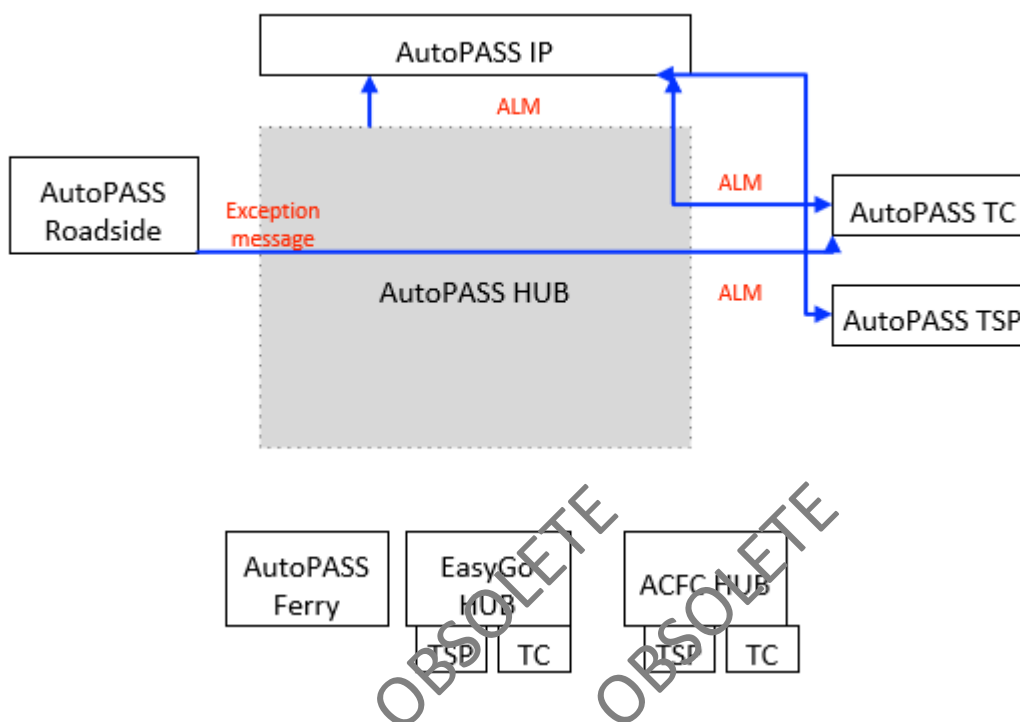


7.5 Information about Alarms/Event messages (ALM, ALC)

AutoPASS IP is the alarm/event-messages central and receives and stores all ALM-messages from all actors. AutoPASS IP sends messages on all important events and alerts according to the alarm table.

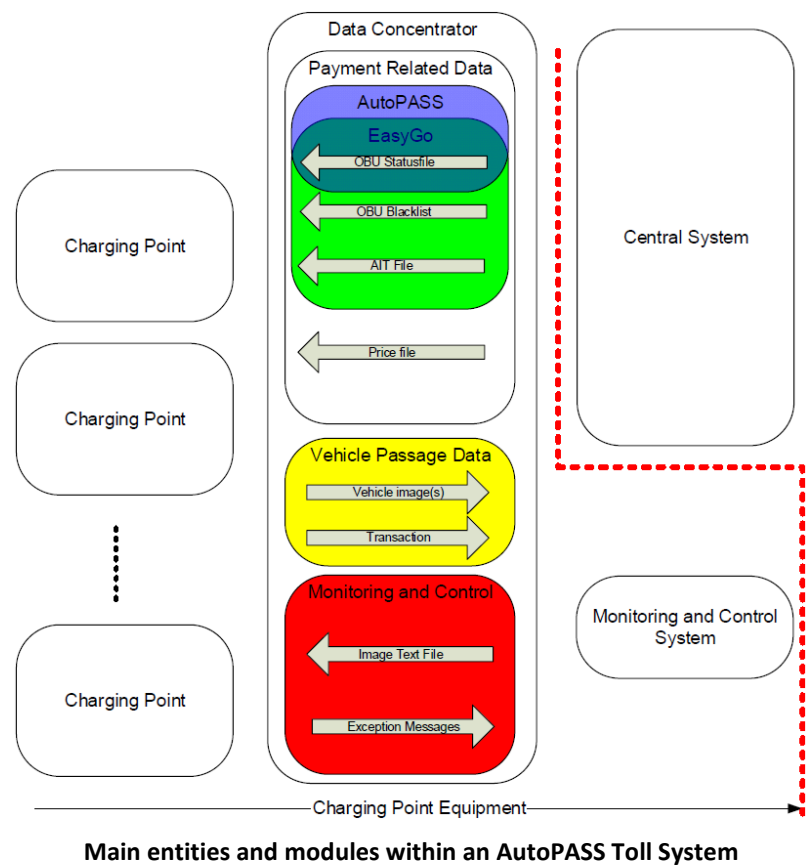
Messages may cause AutoPASS IP to start / stop processes.

Receipts (ALC files) are always sent in opposite direction of ALM files.



8 Roadside

Interface specification



To the right of the dotted line is the Toll Charger’s Central System which is used for registering the toll based on the Vehicle Passage Data. Claims for AutoPASS OBU Customers' passages are then sent to the specific Toll Service Provider.

The other main entity that is part of this specification is the Monitoring and Control System (MCS). The MCS is used for automatic monitoring, control of, and for maintaining the Charging Point Equipment. The MCS shall also offer a service to be used by the customer and Toll Charger for monitoring and controlling the Charging Point Equipment.

The information provided in the interface is split into the types listed in table below. The full details and format of the data exchange is described in this document. Should the Toll System only consist of one CP the Data Concentrator may be a part of the equipment located at the CP.

Brief description of the data content in the information flow between the Roadside and AutoPASS HUB

Type	Overall description	Information flow	General description
Payment Related Data	Covers information about the validity of the OBU and OBU Toll Service Providers that supports the system.	AIT file	List of OBU Toll Service Providers that are accepted within the AutoPASS system.
		OBU Status File (NSL)	A whitelist used at Roadside that gives status about the On Board Unit
	Used for control of variable message signs	Price File	Covers information about hours with toll for the CP and the toll for the vehicle classes.
Vehicle Passage Data	Covers information about the payment at the CP.	Transaction File	Detailed information about the payment passage. Used for carrying various other kind of information related to passages.
		Vehicle Image(s)	JPEG compressed Vehicle Images for the vehicle passage. Mainly used for charging by LPR.
Monitoring and Control	<i>Text that shall be provided in the Vehicle Images.</i>	<i>Image Text File</i>	<i>Distributed to Road Side Suppliers by NPRA</i>
	Equipment/system information	Exception Message	Report of an event on roadside.

8.1 Format specifications - Roadside

ID	TO	FROM	FORMAT NAME	VIA HUB	FORMAT SPECIFICATION
1F	Roadside	AutoPASS IP	Tariff-fil / Price file	AutoPASS HUB	Appendix A11 - Tariff File
2F	Roadside	AutoPASS IP	NSL (OBE status file)	AutoPASS HUB	Appendix A5 - OBUSStatus File
3F	Roadside	AutoPASS IP/NPRA	AIT (Accepted issuer table)	AutoPASS HUB	Appendix A3 - AIT Format

ID	TO	FROM	FORMAT NAME	VIA HUB	FORMAT SPECIFICATION
1T	AutoPASS IP	Roadside	Transaction file	AutoPASS HUB	Appendix A8 - Transaction File
2T	AutoPASS IP	Roadside	Picture file	AutoPASS HUB	Appendix A9 - Picture File
3T	AutoPASS IP	Roadside	Exception Messages	AutoPASS HUB	Appendix A12 - Exception Messages

9 AutoPASS Toll Collector (TC)

Brief description of the data content in the information flow between the TC's and AutoPASS HUB

Type	Overall description	Information flow	General description
Transaction Data	Covers information about the transaction and price.	TIF	Contains information about transactions (passages) with vehicle/passage/price-data.
Information Data	Covers information about Actors, Toll Plazas and system information	ACT	List of all the actors in AutoPASS
		TST	List of all the toll stations in AutoPASS
		ALM	Report/alarm of an event in AutoPASS IP and AutoPASS HUB

9.1 Format specifications – TC

ID	TO	FROM	FORMAT NAME	VIA HUB	FORMAT SPECIFICATION
1F	AutoPASS TC	AutoPASS IP	TIF	AutoPASS HUB	Appendix A7 - TIF & TIC Format
2F	AutoPASS TC	AutoPASS IP	TST	AutoPASS HUB	Appendix A2 - TST Format
3F	AutoPASS TC	AutoPASS IP	ACT	AutoPASS HUB	Appendix A1 - ACT Format
4F	AutoPASS TC	AutoPASS IP	ALM	AutoPASS HUB	Appendix A13 - Alarm Messages
5F	AutoPASS TC	AutoPASS IP	ALC	AutoPASS HUB	Appendix A13 - Alarm Messages

ID	TO	FROM	FORMAT NAME	VIA HUB	FORMAT SPECIFICATION
1T	AutoPASS IP	AutoPASS TC	TIC	AutoPASS HUB	Appendix A7 - TIF & TIC Format
2T	AutoPASS IP	AutoPASS TC	ALC	AutoPASS HUB	Appendix A13 - Alarm Messages
3T	AutoPASS IP	AutoPASS TC	ALM	AutoPASS HUB	Appendix A13 - Alarm Messages

10 AutoPASS Toll Service Provider (TSP)

Brief description of the data content in the information flow between the TSP's and AutoPASS HUB

Type	Overall description	Information flow	General description
Contract Data	Covers information about Contracts	Whitelist/HGV	Contains information about customer / vehicle that have a contract with an issuer. Used to update records in the complete whitelist/register in AutoPASS IP
Transaction Data	Covers information about the transaction and price.	TIF	Contains information about transactions (passages) with vehicle/passage/price-data
Information Data	Covers information about Actors, equipment and system information	ACT	List of all the actors in AutoPASS
		TST	List of all the toll stations in AutoPASS
		AIT	List of OBU Toll Service Providers that are accepted in AutoPASS. Managed by the NPRA.
		ALM	Report/alarm of an event in AutoPASS IP and AutoPASS HUB

10.1 Format specifications – TSP

ID	TO	FROM	FORMAT NAME	VIA HUB	FORMAT SPECIFICATION
1F	AutoPASS TSP	AutoPASS IP	TIF	AutoPASS HUB	Appendix A7 - TIF & TIC Format
4F	AutoPASS TSP	AutoPASS IP	TST	AutoPASS HUB	Appendix A2 - TST Format
5F	AutoPASS TSP	AutoPASS IP	ACT	AutoPASS HUB	Appendix A1 - ACT Format
6F	AutoPASS TSP	AutoPASS IP	ALM	AutoPASS HUB	Appendix A13 - Alarm Messages
7F	AutoPASS TSP	AutoPASS IP	ALC	AutoPASS HUB	Appendix A13 - Alarm Messages

ID	TO	FROM	FORMAT NAME	VIA HUB	FORMAT SPECIFICATION
1T	AutoPASS IP	AutoPASS TSP	TIC	AutoPASS HUB	Appendix A7 - TIF & TIC Format
4T	AutoPASS IP	AutoPASS TSP	Whitelist (HGV)	AutoPASS HUB	Appendix A4 - Whitelist Format
5F	AutoPASS IP	AutoPASS TSP	ALC	AutoPASS HUB	Appendix A13 - Alarm Messages
6F	AutoPASS IP	AutoPASS TSP	ALM	AutoPASS HUB	Appendix A13 - Alarm Messages

11 AutoPASS IP

Brief description of the data content in the information flow to/from AutoPASS HUB

Type	Overall description	Information flow	General description
Contract Data	Covers information about Contracts	Whitelist/HGV	Contains information about customer / vehicle that have a contract with an issuer. Used to update records in the complete whitelist/register in AutoPASS IP
		OBU Status File (NSL)	A whitelist used at Roadside that gives status about the On Board Unit (OBU)
Transaction Data	Covers information about the transaction and price.	Transaction file	Detailed information about the payment passage. Used for carrying various other kind of information related to passages.
		TIF	Contains information about transactions (passages) with vehicle/passage/price-data.
Information Data	Covers information about Actors, equipment and system information	ACT	List of all the actors in AutoPASS
		TST	List of all the toll stations in AutoPASS
		Price File	Covers information about hours with toll for the CP and the toll for the vehicle classes.
		Exception messages	Report of an event on roadside.
		ALM	Report/alarm of an event in AutoPASS IP, AutoPASS HUB

11.1 Format specifications – AutoPASS IP

ID	TO	FROM	FORMAT NAME	VIA HUB	FORMAT SPECIFICATION
1F/T	Roadside	AutoPASS IP	Tariff-fil / Price file	AutoPASS HUB	Appendix A11 - Tariff File
2F/T	Roadside	AutoPASS IP	NSL (OBE status file)	AutoPASS HUB	Appendix A5 - OBUSstatus File
2F/T	AutoPASS IP	Roadside	Transaction file	AutoPASS HUB	Appendix A8 - Transaction File
3F/T	AutoPASS IP	Roadside	Picture file	AutoPASS HUB	Appendix A9 - Picture File
5F/T	AutoPASS IP	Roadside	Exception Messages	AutoPASS HUB	Appendix A12 - Exception Messages
6F/T	AutoPASS TC	AutoPASS IP	TIF	AutoPASS HUB	Appendix A7 - TIF & TIC Format
7F/T	AutoPASS TC	AutoPASS IP	TST	AutoPASS HUB	Appendix A2 - TST Format
8F/T	AutoPASS TC	AutoPASS IP	ACT	AutoPASS HUB	Appendix A1 - ACT Format
9F/T	AutoPASS TC	AutoPASS IP	ALM	AutoPASS HUB	Appendix A13 - Alarm Messages
10F/T	AutoPASS TC	AutoPASS IP	ALC	AutoPASS HUB	Appendix A13 - Alarm Messages
11F/T	AutoPASS TC	AutoPASS IP	TIF	AutoPASS HUB	Appendix A7 - TIF & TIC Format
12F/T	AutoPASS IP	AutoPASS TC	TIC	AutoPASS HUB	Appendix A7 - TIF & TIC Format
13F/T	AutoPASS IP	AutoPASS TC	ALC	AutoPASS HUB	Appendix A13 - Alarm Messages
14F/T	AutoPASS IP	AutoPASS TC	ALM	AutoPASS HUB	Appendix A13 - Alarm Messages
15F/T	AutoPASS TSP	AutoPASS IP	TIF	AutoPASS HUB	Appendix A7 - TIF & TIC Format
16F/T	AutoPASS TSP	AutoPASS IP	Whitelist (HGC)	AutoPASS HUB	Appendix A4 - Whitelist Format
17F/T	AutoPASS TSP	AutoPASS IP	TST	AutoPASS HUB	Appendix A2 - TST Format
18F/T	AutoPASS TSP	AutoPASS IP	ACT	AutoPASS HUB	Appendix A1 - ACT Format
19F/T	AutoPASS TSP	AutoPASS IP	AIT	AutoPASS HUB	Appendix A3 - AIT Format
20F/T	AutoPASS TSP	AutoPASS IP	ALM	AutoPASS HUB	Appendix A13 - Alarm Messages
21F/T	AutoPASS TSP	AutoPASS IP	ALC	AutoPASS HUB	Appendix A13 - Alarm Messages
22F/T	AutoPASS IP	AutoPASS TSP	TIC	AutoPASS HUB	Appendix A7 - TIF & TIC Format
23F/T	AutoPASS IP	AutoPASS TSP	Whitelist (HGV)	AutoPASS HUB	Appendix A4 - Whitelist Format
24F/T	AutoPASS IP	AutoPASS TSP	ALC	AutoPASS HUB	Appendix A13 - Alarm Messages
25F/T	AutoPASS IP	AutoPASS TSP	ALM	AutoPASS HUB	Appendix A13 - Alarm Messages

12 AutoPASS Ferry

Works in the same way as EasyGo HUB but with only these formats: TIF/TIC, OBU Statuslist/NSL

13 AutoPASS HUB

Brief description of the data content in the information flow to/from AutoPASS HUB

Type	Overall description	Information flow	General description
Contract Data	Covers information about Contracts	Whitelist HGV	Contains information about customer / vehicle that have a contract with an issuer. Used to update records in the complete whitelist (HGVC)
		Whitelist HGVC	Contains information about all customers / vehicles that have a contract with an issuer.
		OBU Status File (NSL)	A whitelist used at Roadside that gives status about the On Board Unit (OBU)
Transaction Data	Covers information about the transaction and price.	Transaction file	Detailed information about the payment passage. Also used for carrying various other kind of information related to transactions.
		TIF	Contains information about transactions (passages) with vehicle/passage/price-data.
Information Data	Covers information about Actors, equipment and system information	ACT	List of all the actors in AutoPASS.
		TST	List of all the toll stations in AutoPASS
		AIT	List of OBU Toll Service Providers that are accepted within AutoPASS.
		Price File	Covers information about hours with toll for the CP and the toll for the vehicle classes.
		Exception messages	Report of an event on roadside.
		ALM	Report/alarm of an event in AutoPASS IP and AutoPASS HUB

13.1 Format specifications – AutoPASS HUB

ID	TO	FROM	FORMAT NAME	VIA HUB	FORMAT SPECIFICATION
1F/T	Roadside	AutoPASS IP	Tariff-fil / Price file	AutoPASS HUB	Appendix A11 - Tariff File
2F/T	Roadside	AutoPASS IP	NSL (+OBE status file)	AutoPASS HUB	Appendix A5 - OBUStatus File
3F/T	Roadside	AutoPASS IP/NPRA	AIT (Accepted issuer table)	AutoPASS HUB	Appendix A3 - AIT Format
4F/T	AutoPASS IP	Roadside	Transaction file	AutoPASS HUB	Appendix A8 - Transaction File
5F/T	AutoPASS IP	Roadside	Picture file	AutoPASS HUB	Appendix A9 - Picture File
6F/T	AutoPASS IP	Roadside	Exception Messages	AutoPASS HUB	Appendix A12 - Exception Messages
7F/T	AutoPASS TC	AutoPASS IP	TIF	AutoPASS HUB	Appendix A7 - TIF & TIC Format
8F/T	AutoPASS TC	AutoPASS IP	TST	AutoPASS HUB	Appendix A2 - TST Format
9F/T	AutoPASS TC	AutoPASS IP	ACT	AutoPASS HUB	Appendix A1 - ACT Format
10F/T	AutoPASS TC	AutoPASS IP	ALM	AutoPASS HUB	Appendix A13 - Alarm Messages
114F/T	AutoPASS TC	AutoPASS IP	ALC	AutoPASS HUB	Appendix A13 - Alarm Messages
12F/T	AutoPASS IP	AutoPASS TC	TIC	AutoPASS HUB	Appendix A7 - TIF & TIC Format
13F/T	AutoPASS IP	AutoPASS TC	ALC	AutoPASS HUB	Appendix A13 - Alarm Messages
14F/T	AutoPASS IP	AutoPASS TC	ALM	AutoPASS HUB	Appendix A13 - Alarm Messages
15F/T	AutoPASS TSP	AutoPASS IP	TIF	AutoPASS HUB	Appendix A7 - TIF & TIC Format
18F/T	AutoPASS TSP	AutoPASS IP	TST	AutoPASS HUB	Appendix A2 - TST Format
19F/T	AutoPASS TSP	AutoPASS IP	ACT	AutoPASS HUB	Appendix A1 - ACT Format
20F/T	AutoPASS TSP	AutoPASS IP	ALM	AutoPASS HUB	Appendix A13 - Alarm Messages
21F/T	AutoPASS TSP	AutoPASS IP	ALC	AutoPASS HUB	Appendix A13 - Alarm Messages
22F/T	AutoPASS IP	AutoPASS TSP	TIC	AutoPASS HUB	Appendix A7 - TIF & TIC Format
25F/T	AutoPASS IP	AutoPASS TSP	Whitelist (HGV)	AutoPASS HUB	Appendix A4 - Whitelist Format
26F/T	AutoPASS IP	AutoPASS TSP	ALC	AutoPASS HUB	Appendix A13 - Alarm Messages
27F/T	AutoPASS IP	AutoPASS TSP	ALM	AutoPASS HUB	Appendix A13 - Alarm Messages

42F/T	AutoPASS IP	AutoPASS HUB	ALM	AutoPASS HUB	Appendix A13 - Alarm Messages
43F/T	AutoPASS HUB	AutoPASS IP	ALC	AutoPASS HUB	Appendix A13 - Alarm Messages

14 EasyGo HUB

The EasyGo HUB is no longer used for transfer of data to AutoPASS and has been disconnected from AutoPASS HUB

Obsolete

14.1 Format specifications – EasyGo HUB Interface to AutoPASS/ACFC HUB

Obsolete

15 ACFC HUB

ACFC has been discontinued and is no longer connected to AutoPASS HUB

Obsolete

15.1 Format specifications – ACFC HUB Interface to AutoPASS HUB

Obsolete