

# TPPS Operation

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# Introduction



This document describes operation of the Transport Payment Processing Solution (TPPS) for the acquiring module, and also describes activities for viewing the states of cards and documents processed by the TPPS.

This document is intended for WAY4 users (bank or processing centre employees) responsible for operation of the TPPS.

When working with this document, it is recommended to use the following resources from the OpenWay documentation series:

- "Transport Payment Processing Solution Setup" (TPPS\_Setup.pdf).
- "Transport Payment Processing Solution" (Transport\_Solution\_Functional\_Specification.pdf).
- "DB Manager Manual".

The following notation is used in the document:

- Field labels in screen forms are shown in *italics*.
- Screen form button labels are encased in square brackets, such as [Approve].
- Sequences for selecting user menu items are shown with arrows, as in: "Issuing → Contracts Input & Update".
- Sequences for selecting system menu items are shown with arrows, like "Database => Change password".
- Key combinations used to work with DB Manager are shown in angular brackets, for example, <Ctrl>+<F3>.
- Variables such as directory and file names, file paths that differ for each local computer are shown in angular brackets, for example, <OWS\_HOME>.
- Warnings about the danger of making errors are marked with the  sign.
- Messages marked with the  sign contain information about important features, additional facilities or the optimal use of certain system functions.

## Terminology

*Transport Payment Processing Solution (TPPS)* – transit solution with issuing of digital wallets based on reloadable Visa prepaid products.

*Validator* – POS terminal technically connected to a turnstile.

*Service request* – a cardholder's attempt to receive a transit service and pay at a validator.

*Authorization* – an attempt by the TPPS to get authorization from the card's issuer for the volume of services provided, including for services to be paid with On-Us cards.

*Online authorization* – authorization of a single service request performed at the same time the service is provided (if the issuer's response is negative, the validator will be sent a message that entry is not permitted).

*Deferred authorization* – authorization of a single service performed after the service has been provided (the validator is sent a message from the acquirer that entry is permitted, before a response to the authorization request is received from the issuer).

*Aggregated authorization* – a single authorization for several services provided, made for one card. This authorization's amount includes the amounts of several services that were provided. Aggregated authorization is performed after the services have been provided – the acquirer sends the validator a message that entry is permitted and authorization is performed when specific values are reached for the total amount, number and period of services provided.

*Quarantine* – additional limit on the generation of deferred authorizations; in a quarantine period, all card service requests are processed online. A quarantine can be defined:

- Unconditionally, for a certain period.
- For the number of successful authorizations that must be approved by the issuer online; the quarantine will be removed, for example, after three successful online authorizations.

 In general descriptions (not regarding form factor issues) the term "card" applies to all available form factors used for payment.

## Chapter 1. Viewing and managing cards

To create a system of trust levels for cards presented in the process of providing transit services, the acquirer keeps a table with the history of these cards, their statuses, and current counter values for card authorizations requested.


### Viewing card information

Card statuses are viewed in the "TPPS Cards" window, menu item "TPPS → TPPS Cards" (see Fig. 1).

Amendment Date	PAN	Expiry Date	Card Status	In Progress TRX Count	In Progress TRX Amount	Declined TRX Count	Declined TRX Amount	Settled TRX Count	Settled TRX Amount	Last Successful TRX	Last Declined TRX	End of Quarantine	Quarantine TRX Count	Add Info	Record Created
21/08/18 19:11:19	4015013656412856	20-05	GREEN	0	0.000	0	0.000	0	0.000	0.0021/08/2018	00/00/0000	00/00/0000	0	IS_ODA+Y	21/08/2018
21/08/18 18:48:41	4015013526772487	20-01	GRAY	0	0.000	0	0.000	0	0.000	0.0021/08/2018	00/00/0000	00/00/0000	0	IS_ODA+Y	21/08/2018
21/08/18 10:41:40	4015010148772365	22-06	GRAY	0	0.000	0	0.000	0	0.000	0.0021/08/2018	00/00/0000	00/00/0000	0	IS_ODA+Y	21/08/2018
21/08/18 18:26:44	4015003968412856	22-06	GRAY	0	0.000	0	0.000	0	0.000	0.0021/08/2018	00/00/0000	00/00/0000	0	IS_ODA+Y	21/08/2018
20/08/18 17:10:40	4100033968412856	19-06	GRAY	0	0.000	0	0.000	0	0.000	0.0000/00/0000	21/08/2018	00/00/0000	0	IS_ODA+Y	20/08/2018

Fig. 1. "TPPS Cards" form

Field descriptions:

- **PAN** – PAN of the card (or the identifier of a different payment method) processed by the TPPS (shown when paying for transportation).
  - **Expiry date** – expiry date of the card processed by the TPPS. In the TPPS, cards with the same PANs but with different expiry dates are considered separate payment instruments. These cards have independent statuses, counter values, dates of status changes, etc.
  - **Card Status** – the payment instrument's current status in the TPPS system; may have the following values:
    - **DENY** – the card cannot be processed in the TPPS, the status may only be assigned when statuses are initially assigned to cards (see the section "Initial assignment of card status" of the document "WAY4™ Transport Payment Processing Solution Setup"). This is because when processing is prohibited due to the card's presence in a stop lists or card range stop list, a record for the card is not created in the "TPPS\_CARD" table, and if a response from the issuer is received prohibiting all transactions with this card, the card is put into a stop list, but its status does not change.
    - **GRAY** – only online authorization is allowed for this card.
    - **GREEN** – single deferred authorizations are allowed for the card (the validator is sent an order to allow the transportation service before a response from the issuer is received).
-  Counter values also influence the logic of generating responses for cards with the "green" status:
- ♦ **In Progress TRX Count** – when the value is not zero, the current service request will be processed online.

- ♦ *Declined TRX Count* – when the value is not zero, the current service request will be processed online.
- ♦ *Quarantine TRX Count* – when the value is not zero, the current service request will be processed online.
- ♦ *End of quarantine* – when the value is greater than the current date/time, the service request will be processed online.
- **WHITE** – aggregated authorizations are permitted for the card: the validator is set an order to allow the transportation service; services provided are totaled within the limits allowed by system settings (see the section "Global Parameters" of the document "WAY4™ Transport Payment Processing Solution Setup") and are then periodically sent to the issuer at times defined by settings.



Counter values also influence the logic of generating responses for cards with the "white" status:

- ♦ *Declined TRX Count* – when the value is not zero, the current service request will be processed online.
- ♦ *Quarantine TRX Count* – when the value is not zero, the current service request will be processed online.
- ♦ *End of quarantine* – when the value is greater than the current date/time, the service request will be processed online.
- *In Progress TRX Count* – number of service requests currently in the issuer authorization phase or in the aggregation phase in the TPPS.
- *In Progress TRX Amount* – amount of services provided (in the provider's currency), that are currently with the issuer in the authorization phase or in the aggregation phase in the TPPS; the counter amount (*In Progress TRX Amount* + *In Declined TRX Amount*) is the difference between the volumes of provided and paid services for this card.
- *Declined TRX Count* – number of service requests for which a negative response was received from the issuer. This response causes a cardholder debt to the transportation service provider.
- *Declined TRX Amount* – amount of services provided (in the provider's currency) for which a negative response was received from the issuer (cardholder's debt to the transportation service provider); the counter amount (*In Progress TRX Amount* + *In Declined TRX Amount*) is the difference between the volumes of provided and paid services for this card.
- *Netted TRX Count* – number of service requests for which aggregated authorizations were generated that have not yet received a response from the issuer. When a response is received from the issuer, this counter decreases by the number of aggregated service requests that were processed. A negative response causes the *Declined TRX Count* and *Declined TRX Amount* counters to increase.

- *Netted TRX Amount* – amount of services provided (in the provider's currency) for which authorizations were generated that have not yet received a response from the issuer.
- *Last successful TRX* – date/time of the last successful authorization by the issuer (online or deferred), if any; the parameter is used to check the quarantine for a card with the "green" status and to check a change from "green" to "white" status.
- *Last declined TRX* – date/time of the last unsuccessful authorization by the issuer (online or deferred), if any; the parameter is used to check a change from the "green" to "white" status.
- *End of quarantine* – end date/time of the quarantine (unconditional requirement for online authorizations) for this card; the parameter can be used for forced assignment of the "gray" status to certain cards for a period.
- *Quarantine TRX Count* – number of service requests that must be successfully authorized online for a card to be processed according to the logic for its status; the parameter can be applied to cards with the "green" and "white" statuses to force assignment of the "gray" status to certain cards according to the number of authorizations.
- *Add Info* – additional information about a card (in "tag name"="tag value" format).  
  
Currently, the IS\_ODA=Y; tag is supported – a card supports the Offline Data Authentication (ODA) protocol. Support of this protocol increases the level of trust in a card.
- *Record created* – date/time the card was first presented in the TPPS (with the exception of refusals the first time the card was presented due to it being in a card stop list or stop list of card ranges).

The "TPPS Cards" form supports the following:

- Viewing information about requested services for this card. To get information, click on the [Docs] button in the "TPPS Cards" form (see Fig. 1).
- Viewing information about the presence of this card in the transportation service provider's stop list. To get information, click on the [Stop List] button in the "TPPS Cards" form (see Fig. 1).

## Removing a card from a service provider's stop list

To perform the operation, select the menu item "TPPS → Card Stop List (Merchant-specific)".

In the "Card Stop List (Merchant-specific)" form that opens, select the required card and use the [Del] button to delete it from the stop list (see Fig. 2).

Card Stop List (Merchant-specific)									<< < > >>	1 of 1	X
	Channel	Card Number	Resp Code	Date From	Date To	Is Active	Comment Text	CBK Date From	Merchant Contract		
→		4100033956412656	Transaction not permitted to terminal	21/08/2018	00/00/0000	Yes		00/00/0000	001-C-999998		
Ins Del Query											

Fig. 2. The provider's stop list

## Viewing information about the current state of a stop list with card ranges for a service provider

Information about the current state of a service provider's card range stop list can be viewed in the "Card BIN Stop List (Merchant-specific) form, menu item "TPPS → Card BIN Stop List (Merchant-specific)".



## Chapter 2. Viewing and managing documents

When processing service requests, documents for the requests are generated in the WAY4 documents table. Depending on the level of trust in a card, these documents may reflect authorization requests (financial documents) or retain service request status (if aggregating documents were created on their basis). For cards with a "white" status, several service requests can be joined in one financial document – an aggregating authorization that will be sent to the issuer.



If there was only one service request for a card when conditions for aggregating by period arise, a separate aggregating document is not created.

### Viewing information about requested services

Information about requested services, and about aggregated authorizations that were created can be viewed in the "TPPS Docs" form (see Fig. 3). The form can be opened directly from the menu item "TPPS → TPPS Docs" with the necessary filtering conditions. It can also be opened as a subordinate form for the "TPPS Cards" form – in this case, the "Docs for ..." form shows requested services and authorizations only for cards selected in the parent form.

Amendment Date	Source Code	Source Channel	Is Authorisation	Request Category	Trans Type	Source Ref Num	Ref Ref Number	Acc Ref Number	Auth Code	Target Member ID	Target Number	Card Expiry	Source Member ID	Source Number	Merchant ID	Trans Location	Trans Details	36
21/08/18 19:19:19	Our POS	VISA	Fin	Advice	Retail	32301004LQ	32301000003		000003	401051	401551395641265625-05	0001	99999911	123456789	123456789	BUS STATION 1	BUS LINE	4131
21/08/18 19:18:57	Our POS	VISA	Fin	Advice	Retail	32301004LP	32301000002		000002	401051	401551395641265625-05	0001	99999911	123456789	123456789	BUS STATION 1	BUS LINE	4131
21/08/18 19:13:01	Our POS	VISA	Fin	Advice	Retail	32301004LQ	32301000001		000001	401051	401551395641265625-05	0001	99999911	123456789	123456789	BUS STATION 1	BUS LINE	4131
21/08/18 19:01:53	Our POS	VISA	Fin	Advice	Retail	32301004VQ	32301007002		000002	401051	401551395677246720-01	0001	99999911	123456789	123456789	BUS STATION 1	BUS LINE	4131
21/08/18 18:48:26	Our POS	VISA	Fin	Advice	Retail	32301004VQ	32301007001		000001	401051	401551395677246720-01	0001	99999911	123456789	123456789	BUS STATION 1	BUS LINE	4131
21/08/18 18:41:37	Our POS	VISA	Fin	Advice	Retail	32301007KQ	32301008001		007001	401051	401551014877236022-06	0001	99999911	123456789	123456789	BUS STATION 1	BUS LINE	4131
21/08/18 18:27:39	Our POS	VISA	Fin	Advice	Retail	323010003Q	32301005002		000002	401050	401550395641265622-06	0001	99999911	123456789	123456789	BUS STATION 1	BUS LINE	4131
21/08/18 18:25:42	Our POS	VISA	Fin	Advice	Retail	323010003A	32301005001		000001	401050	401550395641265622-06	0001	99999911	123456789	123456789	BUS STATION 1	BUS LINE	4131
21/08/18 18:41:19	Our POS	Our VISA Cards	Fin	Advice	Retail	32301004HQ	32301004001				410003395641265619-06	0001	99999911	123456789	123456789	BUS STATION 1	BUS LINE	4131
21/08/18 13:11:36	Our POS	Our VISA Cards	Fin	Advice	Retail	323010071A	32301003001				410003395641265619-06	0001	99999911	123456789	123456789	BUS STATION 1	BUS LINE	4131
20/08/18 17:10:38	Our POS	Our VISA Cards	Fin	Advice	Retail	32301001GB	32301002001				410003395641265619-06	0001	99999911	123456789	123456789	BUS STATION 1	BUS LINE	4131

Fig. 3. "TPPS Docs" form

Description of fields that are specific to the TPPS:

- **Posting Status** – document approval status. The following document statuses are used in the transport solution:
  - **Suspended** – authorization has been sent to the issuer, no response has been received.
  - **Waiting** – a positive response to the authorization request was received from the issuer; the document is waiting for approval.
  - **Posted** – the document has been successfully approved.
  - **Rejected** – a negative response to the authorization request was received from the issuer.
  - **Postponed** – a service request caused deferred authorization that will be processed later; the status can be applied to service requests for cards with the "green" and "white" statuses.
  - **Under workflow** – a service request for a card with the "white" status was aggregated with other service requests; from the time of aggregation it will not be considered a separate financial document.

- *Trans Location* – location of validator.
- *Card status* – card status when the document was generated (see the description of statuses in the section "Viewing card information").
- *Deferred* – indicates that an authorization was transformed from chip to "Card-Not-Present".
- *Aggregation* – description of a document's aggregation status; the following values are possible:
  - (empty) – the document did not currently participate in aggregation (cannot be aggregated or can be aggregated, but aggregation conditions for it have not yet occurred).
  - "Aggregated" – the document is included as an aggregated document in another (consolidating) document.
  - "Aggregate N docs" – the document is an aggregation of N other documents.
- *AddInfo* – additional information about a card (in "tag name = tag value" format).
- *TPPS Card ID* – identifier of the card for which this document was created, in the "TPPS Cards" table.
- *TPPS Queue ID* – identifier of the last record in the table of queues for this document (debugging information).

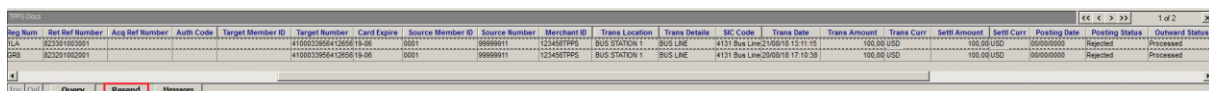
The "TPPS Docs" form supports the following:

- Resending (manually) a rejected authorization.
- Diagnostic (debugging) information about a document. The debugging information can be viewed in the "TPPS Docs" → [Messages] form.

## Resending (manually) a rejected authorization

To perform the operation:

1. In the "TPPS Docs" form (menu item "TPPS → TPPS Docs"), select the required service request or aggregated authorization rejected earlier by the issuer (see the section "Viewing information about requested services").
2. Click on the [Resend] button (see Fig. 4).



Doc Num	Ref Ref Number	Acq Ref Number	Auth Code	Target Member ID	Target Number	Card Expiry	Source Member ID	Source Number	Merchant ID	Trans Location	Trans Details	SC Code	Trans Date	Trans Amount	Trans Curr	Settl Amount	Settl Curr	Posting Date	Posting Status	Outward Status
1	10000000000000000000				410003305641205619-00	0001	00000001	00000001	123456789	BUS STATION 1	BUS LINE	4131 Bus Line 20060910 17:10:30		100.00 USD	USD	100.00 USD	USD	20060910	Rejected	Processed

Fig. 4. Resending (manually) a rejected authorization

## Unscheduled aggregating and sending authorizations

The process for scheduled aggregation of transactions is described in detail in the document "TPPS Solution Setup".

In addition to scheduled aggregation, it is possible to aggregate transactions that are currently accumulated and to immediately send an authorization request for the aggregated transactions to the issuer without considering the interval set by the `TPPS_NETTING_MAX_POSTPONE` parameter and the period for performing the job. In this case, transactions are aggregated using the menu item "TPPS → Start Jobs (emergency)".



Note that it is not recommended to run emergency aggregation frequently, since this may negatively impact the acquirers economic benefit.