

MDelivery Integration Guide (CAIET DE SARCINI)

Change Log

Version	Date	Description
0.1	26.04.2021	MDelivery integration Guide. Initial version
0.2	06.05.2021	Adjusted version
1.0	21.12.2021	Updated version: <ul style="list-style-type: none"> - glossary updated - interaction scenarios adjusted - integration type differences - redirect rules - GET delivery details method - samples of integration scenarios for different technologies - results from Swager
1.1	10.01.21	Added: <ul style="list-style-type: none"> - Interaction diagrams - Service profile management - Details to statuses description - .net sample (link to wiki) Updated <ul style="list-style-type: none"> - Integration methods - Results from swager
1.2		Adjusted <ul style="list-style-type: none"> - Changes to chapters regarding authentication (6.1, 6.2, 7.1) - Samples
1.3		Adjusted <ul style="list-style-type: none"> - Details regarding Add delivery option
1.4		Adjusted <ul style="list-style-type: none"> - Details regarding statuses
1.5		Adjusted <ul style="list-style-type: none"> - Response parameters description - Get order details adjusted.
1.6		Adjusted <ul style="list-style-type: none"> - Details regarding statuses - Details regarding weight format Added <ul style="list-style-type: none"> - definitions in Glossary - notes for payment scenarios implementation - details regarding API methods usage during the process - hyperlinks to references in the document
1.7		Adjusted <ul style="list-style-type: none"> - Glossary - GET order details method

Table of Contents

1.	Glossary	4
2.	Introduction	5
2.1	Scope and target audience	5
2.2	Document Structure	5
2.3	Notations	5
3	Organizational context	5
4	System context	6
5	Interaction scenarios	6
5.1	Redirect to MPay	6
5.1.1	Redirect to MPay [true]	6
5.1.2	Redirect to MPay [false]	8
5.2	Request delivery	9
5.3	Delivery order creation	9
5.4	Payment scenarios	10
5.4.1	Redirect to MPay from MDelivery	10
5.4.2	Redirect to MPay Service Provider system	10
5.5	Get orders' status changes	10
5.6	Delivery status tracking	11
6	Integration development	11
6.1	Client configuration in MPass	11
6.2	System registration and network access	11
6.3	Service environments	12
7	Security considerations	12
7.1	Authentication	12
7.2	Encryption	12
8	MDelivery profile	12
8.1	Profile registration	12
8.2	Profile management	12
9	API Reference	13
9.1	Error handling rules	13
9.2	Service operations for Service providers	13
9.2.1	GET order details	13
9.2.2	PUT delivery status	15
9.2.3	GET delivery changes	15
10	Samples	17
10.1.	.NET Sample	17

11 Received Results from swagger	17
11.1. GET {link}/auth/api/v1/delivery/services/{serviceID}/orders/{orderID}/delivery/details	17
11. 2. PUT /{serviceID}/orders/{orderID}/delivery/status	18
11.3 GET /{serviceID}/delivery/changes	18
12 Statuses	19

1. Glossary

name	description
IDNP	RM citizen personal identity number, containing 13 figures.
MDelivery Administrator	MDelivery user, responsible to perform technical administration tasks, acting on behalf of E-Governance Agency.
Customer	The MDelivery user who applies for delivery services for a registered Order of goods or services provided by Service Providers.
Receiver	The final identity receiving the Order from a Service Provider through MDelivery. He/she can be the same person identified as Customer, or a different one.
Holder	The person the document was issued for. He/she can be the same person as the Receiver, or a different one. <i>Example: The parent receiving via MDelivery the document issued for his/her child is considered Receiver of the Order and the child is the document Holder.</i>
Service Provider	A public or commercial service provider and owner of an information system who will integrate with, or use MDelivery to add the delivery of the Customers' Orders.
Service	A public service provided by the Service Provider resulting in one or more Products ordered by the Customers. For the integration with MDelivery is identified by a Service unique identification number – Service ID. A Service Provider can have more than one Service integrated with MDelivery. The assigned Services with relevant details are registered in the Service provider profile on MDelivery.
Product	A good or a service offered by the Service Provider to the Customers.
Order	The order to acquire a product, registered in the Service Provider information system. Is identified by an Order unique identification number generated by the Service Provider– <i>OrderID</i> .
Carrier	An entity that transports physical products and is responsible for pick-up, sort, store, ship, drop-off and tracking of parcels with various delivery options.
Delivery	The delivery order created on MDelivery for a delivery request for an order received from a Service Provider. Is identified by a Delivery unique identification number generated by MDelivery – <i>DeliveryID</i> .
AWB	The shipment document assigned to a delivery order in the Carrier's information system when the delivery order is transmitted from MDelivery via API. Is identified by unique AWB number.
Status	The Delivery order situation at a particular time during the process. The statuses in MDelivery reflect the delivery process.

Pick-up point	The location where the prepared for delivery (Ready status) orders will be picked up by the responsible Carrier to be delivered to the Receivers.
Redirect to MPay attribute	The attribute assigned to a Service in MPass to define the integration scenario with MDelivery.
Aggregated payment	The combined payment formed by adding together two or more amounts: the order price(s) received from Service Provider and delivery services price selected on MDelivery.

2. Introduction

2.1 Scope and target audience

This document describes the technical interfaces exposed by MDelivery for Service Providers systems that will use MDelivery and technical details explaining the interaction.

The target audience are the development teams responsible for integration and system administration.

2.2 Document Structure

This document contains the relevant information required for a complete understanding of MDelivery system from the integration point of view. It includes samples of integration scenarios for different technologies.

2.3 Notations

This document contains several notation styles; the following details the styles that have a degree of significance beyond the purpose of communicating information:

Yellow Highlighted Text – Text highlighted in yellow irrespective of font attributes (font type, italics, bold, underlined, etc.) means that the text is waiting for clarification or verification.

Red Bold Text – Text in red in color and bold, defines an important piece of information that needs special attention.

Grey Highlighted Text – Text highlighted in grey represents received information or scripts that need to be executed, created, and copied from or to.

3 Organizational context

Service Owner	
Organization	e-Governance Agency
Point of Contact	
Name	Elena Croitor

Position	Project Manager
E-mail	Elena.Croitor@egov.md

4 System context

MDelivery is a governmental electronic service designed to provide a unified and integrated delivery mechanism in order to improve the logistic capability of Public Service Providers to deliver, sort and track physical goods (resulted from provided public services) to individuals and legal entities.

To enable the delivery process, MDelivery is integrated with Service Providers (to receive orders to be delivered) and Carriers systems (to order delivery services) and other governmental electronic services facilitating the process (MPass, MPay, MNotify).

5 Interaction scenarios

5.1 Redirect to MPay

The payment via MPay is required to confirm the delivery order and to proceed with the processing. In order to make the payment the Customer is redirected to MPay either from MDelivery page or Service Provider system, depending on the process set during the integration.

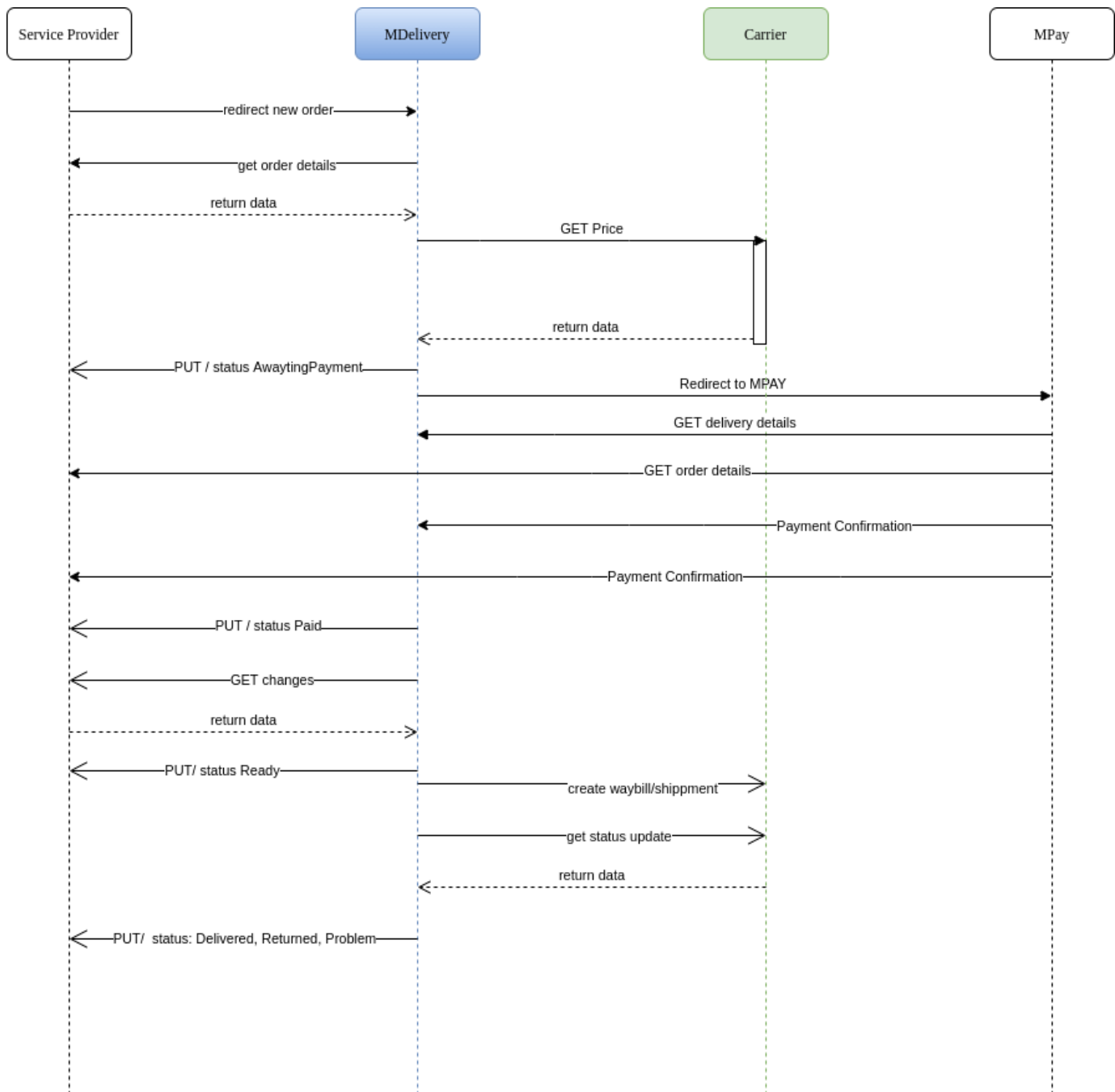
The selected scenario is set using the attribute *Redirect to MPay* set in MPass configurations for the integrated service.

5.1.1 Redirect to MPay [true]

The attribute **Redirect to MPay=true** supposes the interaction scenario when the delivery order is confirmed on MDelivery page and the redirect to MPay for aggregated payment is made from MDelivery.

Note! To implement this scenario the Service Provider has to implement only the redirect to MDelivery and the methods to exchange the statuses during the delivery process. The [delivery order creation](#), including the display of the [aggregated order](#) summary for confirmation and the [redirect to MPay](#) for payment are made on MDelivery.

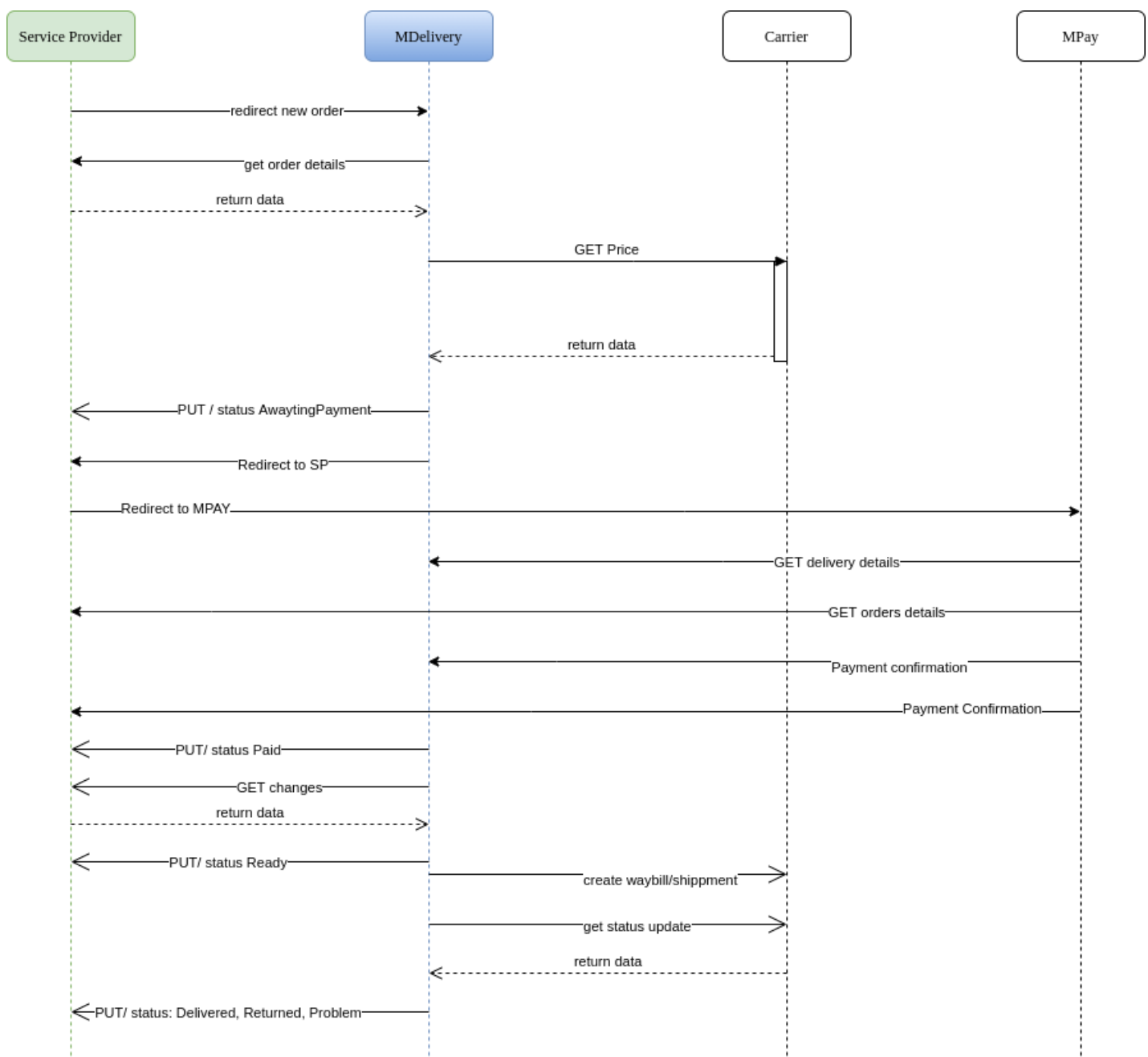
MDelivery Integration Guide



5.1.2 Redirect to MPay [false]

The attribute **Redirect to MPay=false** supposes the interaction scenario when the order with delivery is confirmed on Service Provider page and the redirect to MPay of the aggregated payment is made from the Service Provider system.

Note! To implement this scenario the Service Provider has to develop the interface for [delivery order creation](#) displaying the aggregated order summary and options to confirm the delivery order [redirecting the aggregated payment to MPay](#).



5.2 Request delivery

When a Customer requests a delivery for an ordered Product, the Service Provider's system redirects the Customer to MDelivery to fill in the delivery details and select delivery option from the available list provided by the integrated Carriers.

MDelivery receives the Order ID in the redirect URL and [requests the Order details](#) from the Service Provider information system via API (to send them to Carriers to obtain delivery options).

Redirect rules

- **Passive authentication**

The fact that the Receiver is already authenticated on the Service Provider system via MPass, will be indicated by the parameter `mpass = true`, or `mpass = 1`.

- **Language**

The redirect will be performed by applying the same language selected by the user.

Example: if the RO version was selected on the System Provider system, on MDelivery the user will be redirected on the RO version.

The parameter used to indicate the language is "lang" (ex: `lang = ro`)

Example URL:

`https://mdelivery.staging.egov.md/public/shipping?orderId=o7515871605102109999&serviceId=1&lang=ro&returUrl=https:%2F%2Fsp-mdelivery.staging.egov.md%2F`

5.3 Delivery order creation

When the Customer selects and confirms a delivery option, a Delivery order is created on MDelivery assigned to the Order received from Service Provider.

The delivery order can be initiated on:

- **SP system** – with redirect to MDelivery to fill in delivery details and select the delivery option.

Note! Depending on the payment scenario selected by the Service Provider and registered in the Service Provider profile on MDelivery, the created Delivery is returned to the Service Provider system, or the process is continued with redirecting to MPay from MDelivery.

- **MDelivery page** - via *Add delivery* option, completing the relevant Order ID to add the delivery.

Note! The option to add the delivery on MDelivery page for an existing order is available only for the services with the relevant attribute in SP profile (`Add delivery = true`).

When the delivery order is confirmed, MDelivery [sends the delivery data](#) to inform the Service Provider that a delivery order was assigned by the customer to an order.

Delivery status at this stage

AwaitingPayment – the Receiver confirms the Delivery order creation, but the order is still not paid.

5.4 Payment scenarios

The Integration type attribute assigned to the Service determines where the payment phase will start: on MDelivery, or on Service Provider system.

Note! Both scenarios requests the Service Provider integration with MPay, to enable the Order payment.

5.4.1 Redirect to MPay from MDelivery

The attribute **Redirect to MPay=true** supposes the Customer, when confirming the delivery on MDelivery page is redirected to MPay for payment.

MDelivery sends to MPay both DeliveryID and OrderID.

5.4.2 Redirect to MPay Service Provider system

The attribute **Redirect to MPay=false** supposes that the Customer, when confirming the delivery on MDelivery will be redirected back to his order on Service Provider page to confirm consolidated order with delivery.

The Service Provider system sends to MPay both OrderID and DeliveryID.

When the delivery order payment confirmation is received from MPay, MDelivery [sends the delivery data](#) to inform the Service Provider that a delivery order was paid by the customer and the order should be prepared for delivery.

Delivery status at this stage

Paid – set in MDelivery when the payment confirmation for the delivery order is received from MPay.

5.5 Get orders' status changes

The orders [status changes are checked](#) from the Service Provider system via MDelivery API.

Delivery statuses at this stage

Processing – returned by the Service provider during the period of order processing, meaning the order will be prepared for delivery, but is still not ready.

Cancelled – returned by the Service Provider if the order is cancelled in the Service provider system and no delivery will be needed.

Expired - returned by the Service Provider if the order is expired in the Service provider system Service provider and no delivery will be needed.

Ready - returned by the Service Provider or set manually by the Operator in MDelivery when the order is ready at the pickup point to be transmitted to the Carrier's representative.

Note! When the delivery order status becomes *ready*, the delivery order is sent by MDelivery to the

Carrier's information system to create the shipment document (AWB) and prepare delivery process and also the delivery status is the [delivery status is sent](#) to Service Provider to confirm it.

5.6 Delivery status tracking

During the processing and delivery process, to track the Delivery, the [statuses](#) are [send to](#) and [checked from](#) the Service Provider system via MDelivery API based on the OrderID and ServiceID.

Delivery statuses at this stage

AwaitingPickup – sent by MDelivery to inform the Service provider the AWB was created in the Carrier system and Carrier pickup is awaited.

Delivering - sent by MDelivery to inform the Service provider the Carrier picked up the order and the delivery process is started.

Delivered - sent by MDelivery to inform the Service provider the Carrier finished the delivery process and the order is delivered to the Receiver.

Confirmed - sent by MDelivery to inform the Service provider the Receiver confirmed the order is delivered.

Problem - sent by MDelivery to inform the Service provider that a delivery problem occurred during the shipment. The details explaining the problem can be seen in the Message.

Returning - sent by MDelivery to inform the Service provider that the order was not delivered and is on the way to be returned to the pickup point.

Returned - sent by MDelivery to inform the Service provider that the order was not delivered and was already returned to the pickup point.

Note! MDelivery notifies the Customer via MNotify regarding relevant delivery statuses.

Notifications regarding Order payment and/or other Order processing steps can be sent by the System Provider via MNotify if necessary.

6 Integration development

6.1 Client configuration in MPass

The Service Provider will request the configuration of the client service in MPass before starting the integration with Mdelivery.

6.2 System registration and network access

MDelivery clients must be registered in MDelivery before being able to call the API. The System Provider profile is created by the MDelivery Administrator.

6.3 Service environments

There are 2 services environments available: a testing and a production environment.

Environment	MDelivery service URL
Testing	https://mdelivery.staging.egov.md
Production	-----

It is mandatory to develop the integrations and perform tests with the testing environment.

7 Security considerations

7.1 Authentication

MDelivery calls to Service Providers are authenticated. The authentication is performed by using the client certificate used for HTTPS transport.

7.2 Encryption

All communication with SOAP service is encrypted by using standard TLS protocol (HTTPS). The client certificate used to initiate the encrypted transport is also used for Authentication.

8 MDelivery profile

8.1 Profile registration

For a successful integration, the MDelivery Administrator creates a Service provider profile where are added and managed data relevant for interaction with MDelivery system: general information about the Service provider organization, integrated services, products and pick-up points.

8.2 Profile management

The Service Provider administrator (role assigned in MPass) can view and update the information available in MDelivery profile.

Only a Service registered in the MDelivery profile can interact with MDelivery.

Client ID - filled in the Profile->Services is the client ID assigned in MPass.

Product data - are relevant for cost calculation.

Pick-up point - data are requested by Carriers to organize the shipment process.

9 API Reference

9.1 Error handling rules

For errors resulted for SOAP interface invocations, MDelivery returns SOAP faults with fault codes and fault reasons describing the fault in plain English.

Fault Code	Description
AuthenticationFailed	Service consumer authentication process failed. See Authentication
InvalidParameter	Some input parameter is invalid. Please review the returned Fault Reason text and called operation description.
200	Success
400	Bad request, Validation failed. Check validation rules compliance
401	Unauthorized Access. Check authorization requirements
403	Forbidden. The requested action is not allowed for the transmitted ID
404	Not found. Check sent request data
500	A server error occurred. Missing connection with DB from other reasons than: 400 / 401 . Contact the Administrator.

Note! For the consumers using programming languages that support try... catch blocks, catching framework specific SOAP Fault exceptions is the correct way to handle service invocation errors.

9.2 Service operations for Service providers

9.2.1 GET order details

MDelivery API requests the Order details from the Service Provider information system.

Signature	GET /api/v1/delivery/services/{serviceID}/orders/{orderID}/delivery/details		
Description	MDelivery calls the Service Provider system to view details by orderID and serviceID.		
Returns	Details by orderID: status, message, receiver, pickupPointCode, orderSubmittedAt, deliveryAcceptedUntil, estimatedReadyAt, products, isPaid		
Input parameters			
Name	Type	Mandatory	Description
serviceID	string	Yes	Service unique identification number.
orderID	string	Yes	Order identification number.
Response			
Name	Type	Mandatory	Description

MDelivery Integration Guide



id	string	Yes	Order identification number.
isPaid		Yes	Order payment status. Values: <i>True</i> – the order was already paid. <i>False</i> – the order was not paid and aggregated payment needs to be sent to MPay from MDelivery.
status	string	Yes	Current order status according to statuses enum.
message	string	No	Status details.
receiver			The person who will receive the delivery.
type	string	Yes	Receiver type. Values: <i>Person</i> - private individual <i>Organization</i> – legal entity
id	string	Yes	Receiver IDNP or IDNO depending on the type.
name	string	No	
first name	string	No	
email	string	No	
phone	string	No	
pickupPointCode	string	No	The identification code of the pickup point where the order will be prepared to be picked up by the carrier. Note! If the Service Provider has more than 1 pickup point registered in MDelivery, the code is mandatory.
orderSubmittedAt	data	Yes	Order registration date.
deliveryAcceptedUntil	data	Yes	Time limit until when the delivery can be added to the order.
estimatedReadyAt	data	Yes	Estimated date when the order will be ready for pickup.
products			The product to be delivered.
code	string	No	The product ID registered in MDelivery profile. Note! If the Service Provider has more than 1 product registered in MDelivery, the code is mandatory.
description	string	No	Product description
price	number	Yes	Order price
quantity	integer	Yes	Products quantity included the order.
length	number	Yes	Parcel length in cm.
width	number	Yes	Parcel width in cm.
height	number	Yes	Parcel height in cm.
weight	number	Yes	Parcel weight in kg. Can be expressed in decimals (ex 0.25)
holderID	string	No	The IDNP of the person the document was issued for (holder)
holderName	string	No	The name of the person the document was issued for.
holderFirstName	string	No	The first name of the holder the document was issued for.
Faults			
Code		Reason	
200		Success	
400		Bad Request	
404		Not found	
500		A server error occurred.	

9.2.2 PUT delivery status

In order to inform the Service Provider about the delivery order and to track the delivery order the delivery [statuses](#) are updated via MDelivery API:

- when the delivery order is confirmed by the Receiver (delivery order status - *AwaytingPayment*)
- when the delivery order is paid via MPay (delivery order status - *Paid*)
- when the delivery order status Ready is received from Service provider system, or set manually in MDelivery register (delivery order status – *Ready*)
- when the final delivery status is received from the Carrier side (delivery order status –*Delivered, Returned, Problem*)

Signature	PUT /{serviceID}/orders/{orderID}/delivery/status		
Description	MDelivery requests the Service Provider to change the delivery status		
Returns	Code response: 200,400,401,404,500		
Input parameters			
Name	Type	Mandatory	Description
serviceID	string	Yes	Service unique identification number.
orderID	string	Yes	Order identification number.
status	string	Yes	Statuses enum.
message	string	No	Additional details related to status.
carrierName	string	Yes	The name of the carrier in charge with the delivery.
trackingID	string	Yes	The ID assigned to the order for tracking. trackingID=deliveryID
Faults			
Code		Reason	
204		Success	
400		Bad Request	
404		Not found	
500		A server error occurred.	

9.2.3 GET delivery changes

MDelivery requests the orders statuses changed from the previous request (ex. processing, canceled, ready for shipment) from the Service Provider system to be sent to Carrier's information system and to track the order.

Signature	GET /{serviceID}/delivery/changes		
Description	MDelivery calls Service Provider to get updated orders’ statuses.		
Returns	Orders array list.		
Input parameters			
Name	Type	Mandatory	Description
serviceID	string	Yes	Service unique identification number.

Response			
Name	Type	Mandatory	Description
serviceID	string	Yes	Service unique identification number.
orderID	string	Yes	Order identification number.
status	string	Yes	Current order status according to statuses enum.
Faults			
Code		Reason	
200		Success	
400		Bad Request	
404		Not found	
500		A server error occurred.	

10 Samples

10.1. .NET Sample

<https://dev.azure.com/egalab/MDelivery/wiki/wikis/MDelivery.wiki/804/SP-integration-guide>

11 Received Results from swagger

11.1. GET {link}/auth/api/v1/delivery/services/{serviceID}/orders/{orderID}/delivery/details

CURL:

```
curl -X GET "https://{link}/auth/api/v1/delivery/services/1/orders/o7741072598796449999/delivery/details" -H "accept: text/plain"
```

Request URL:

<https://{link}/auth/api/v1/delivery/services/1/orders/o7741072598796449999/delivery/details>

Server response

Code: 200

Response body:

```
{
  "id": "string",
  "isPaid": true,
  "status": "AwaitingPayment",
  "message": "string",
  "receiver": {
    "type": "Person",
    "id": "string",
    "name": "string",
    "firstName": "string",
    "email": "string",
    "phone": "string"
  },
  "pickupPointCode": "string",
  "orderSubmittedAt": "2022-04-18T20:03:38.005Z",
  "deliveryAcceptedUntil": "2022-04-19T20:03:38.005Z",
  "estimatedReadyAt": "2022-04-25T20:03:38.005Z",
  "products": [
    {
      "code": "string",
      "description": "string",
      "price": 50,
      "quantity": 1,
      "length": 0,
      "width": 0,
      "height": 0,
      "weight": 0,
      "holderID": "string",
      "holderName": "string",
      "holderFirstName": "string"
    }
  ]
}
```

```
}  
]  
}
```

11.2. PUT `/api/v1/delivery/services/{serviceID}/orders/{orderID}/delivery/status`

CURL:

```
curl -X PUT "{link}/auth/api/v1/delivery/services/1/orders/o7741072598796449999/delivery/status" -H  
"accept: */*" -H "Content-Type: application/json" -d  
{"status":"Ready","message":"test","carrierName":"Muvi  
Express","trackingID":"0220106997753968","carrierEstimatedDeliveryStart":"2022-01-  
20T15:20:52.923Z","carrierEstimatedDeliveryEnd":"2022-01-20T15:20:52.923Z","carrierCost":65}
```

Request URL:

`https://{link}/auth/api/v1/delivery/services/1/orders/0220106997753968/delivery/status`

Server response

Code: 204

11.3 GET `/api/v1/delivery/services/{serviceID}/delivery/changes`

CURL:

```
curl -X GET "https://{link}/auth/api/v1/delivery/services/1/delivery/changes" -H "accept: text/plain"
```

Request URL:

`https://{link}/auth/api/v1/delivery/services/1/delivery/changes`

Server response

Code: 200

Response body:

```
[
```

```
[  
{  
  "serviceID": "1",  
  "orderID": "o5581066056252949999",  
  "status": "Ready"  
},  
{  
  "serviceID": "1",  
  "orderID": "o5581309365303909999",  
  "status": "Ready"  
}  
]
```

12 Statuses

Delivery statuses used in the system during the delivery process are defining the stage of the delivery and requested actions to be triggered.

The delivery statuses in MDelivery may not reflect the order processing status in the Service Provider system or the AWB status in the Carriers systems. During the integration works the relevant statuses should be mapped in order to reflect the appropriate actions/stages.

nr	name	description	comments
1	AwaitingPayment	Delivery is awaiting payment	The delivery order is created, but not yet paid. The status is generated by MDelivery when the Receiver confirms the Delivery order, but the order is still not paid.
2	Paid	Delivery is paid	The previous status (<i>AwaitingPayment</i>) is changed in MDelivery when the payment confirmation is received from MPay.
3	Processing	The Service provider is processing the Order.	The status is received from the Service Provider system via GET delivery/changes.
4	Cancelled	The order is cancelled in the Service provider system. No delivery can be made.	The status is received from the Service Provider system via GET delivery/changes.
5	Expired	Service provider order is expired. No delivery changes can be made.	The status is received from the Service Provider system via GET delivery/changes.
6	Ready	Products are ready for shipment.	The status is received from the Service Provider system via GET delivery/changes. Based on this status MDelivery makes the request to the assigned Carrier to create the waybill.
7	AwaitingPickup	Carrier pickup is awaited.	The status is changed on MDelivery side after the successful request sent to the Carrier to create the waybill.
8	Delivering	Delivery is in progress.	The status is received from the Carrier confirming the order was picked up from the Service provider.
9	Delivered	Delivery is finished.	The status is received from the Carrier.
10	Confirmed	Delivery is confirmed by the final Receiver.	
11	Problem	Delivery problem occurred.	Details can be seen in the Message.
12	Returning	Products are being returned.	The order was not delivered and is returning to Service Provider.
13	Returned	Products returned.	The order is returned to Service Provider.
14	Unknown	Delivery status is unknown, i.e. the Order does not include delivery.	



- statuses set in MDelivery related to delivery order creation and payment, until the order processing starts.



- statuses received from Service Provider related to order processing and preparation for shipment process.



- statuses received from the Carrier after the order pickup and during the shipment process.