

ITD eCMR WEB Services

By Allan Wisborg, IT Developer

For the solution eCMR 'The Electronic Consignment Note' a series of public WEB services are offered. This is a description of these services and how they are used.

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Soft Design

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INFORMATION

Contacts: Henning Nørgaard (ITD)
Allan Wisborg (Soft Design)

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INTRODUCTION

The eCMR solution for ITD contains both a WEB portal and a mobile platform in form of an app.

Both parts share a backend with logic and database. The way in which the app communicates with the backend is through WEB services offered publicly.

The offered WEB services has the purpose to support a driver's work, implying that e.g. actions expected performed in a company's office are presently not offered as WEB services.

It will be possible for other units/applications than the app to use these WEB services.

This document describes how these WEB services can be exploited.

WEB SERVICES FOR ITD ECMR

SOAP envelopes is not used in the offered WEB services. Instead, the case here is 'pure' XML based documents containing the relevant data.

All XML forms exist in a zip file, which can be downloaded from the WEB application.

The provided WEB services are all except two protected by user verification. The two non-protected services are Login and Terminal establishment services. The two services are used for acquiring a login. When login is acquired, the remaining services can be used.

Joint elements

All answers contain two attributes in the root element: 'error' and 'status'. The status field can have the values 'OK' or 'ERROR'. If status = 'OK' the error will always be 0. If status is 'ERROR' the error will contain an alphanumeric error number.

All forms, in addition to Login and file handling services, have the element 'request info' on 1. level. The content of this element is parsed through from the inquiry document to the answer document without changing it.

The TransactionID is the terminal/client's own field to use when necessary.

In addition to the specific error codes for the single service there are following general error codes:

- Lacking Input XML element (EC1j7F)
- User is not staff (EC20oF)
- Partner not found (EC219F)
- General error (EC1jpF)
- Unknown error (-1 but can also result in http 500)

Flow for verifying

For better understanding the two services 'Login' and 'Terminal/Klient', the flow is described here for e.g. establishing a consignment note. There will be no details here concerning the single service or process, but exclusively a description of the steps to take to get started. There are two main flows. One for the system client and one for a user using a mobile unit.

The system client must act as follows:

- Perform self-registration on the eCMR WEB portal, and hereby a login is established.
- Contact system administrator and receive a role giving access to confirm WEB service clients and maintaining own user information.
- Call the terminal/client service with user name and an UUID, uniquely identifying the client. The UUID value is the client's unique ID, and every new client/endpoint must have its own UUID.

-
- Logon the WEB portal.
 - Issue a PIN code for the user
 - Find the terminal/client with the stated UUID/code navn and approve it.
 - Call the login service with user name, PIN code and the client's UUID.
 - Save the returned login token.
 - Call basic information service and include the login token in the header. Here you find the UUID for the company for whom you wish to establish the consignment note.
 - Call the service 'Establish consignment note' and include login token in the header and state the company UUID as well as other information.

If you are a client from a mobile unit/terminal, operated by a user, the flow can be build up differently as the login server can inform if the terminal is approved or not.

If the terminal/client is not approved the user must be prompted to establish the terminal and consequently call the terminal service.

Login service

Description

Performed login by submitting a user name and a PIN code as well a terminal ID. The terminal ID is a unique identification of the client using the WEB service. It is recommended to use a GUID.

Successful login is subject to:

1. The existence of the user name
2. PIN code matches the use name PIN code
3. The user through the WEB portal having confirmed to be able to use the terminal in question.

If 1 or 2 fails, a return message is send concerning error by login. There is no differentiation on whether 1 or 2 has failed.

If 3 fails an error message is send. The error message can either be the terminal being unknown or the terminal being known but not approved.

If the terminal is unknow the Terminal service can be consulted to establish the terminal. Then the user must manually log on the WEB portal and approve the terminal, after which the login procedure can be repeated.

By successfull login a login token is returned. This token is a signed value which subsequently must be enclosed when consulting the WEB services further. This issued token is time limited. Expiration also appears from the reply.

URL

/express/site/app/services/ITD/Login

Forms

Login\login_service_request.xsd

Login\login_service_response.xsd

Error codes

- Login error (EC1jnF)
- Unknown terminal (EC1jrF)
- Terminal not confirmed (EC1jqF)
- Input field lacking (EC1ieF)

Subsequently adopting login token

The token obtained by successful login is to be used for subsequently getting access to services requiring the user being authenticated. The obtained token must be enclosed in the http header in the field called "Authorization" and the fields must have the value 'Bearer <token>', where <token> is replaced by the actual token returned in the response.

```
POST http://www.ecmr.dk/express/site/app/services/ITD/FragtbrevOpret HTTP/1.1
Accept-Encoding: gzip,deflate
Content-Type: text/xml
Authorization: Bearer eyJhbGciOiJIUzI1Ni9.eyJleHAiOiJ0NDc5Mjg3MDgsInN1Yi6Ijg0M
Content-Length: 2262
Host: www.ecmr.dk
Connection: Keep-Alive
User-Agent: Apache-HttpClient/4.1.1 (java 1.5)
```

EXAMPLE ON USING LOGIN TOKEN 1

Terminal/Client service

Description

A terminal is a client making use of ITD eCMR WEB services. For a given person to be able to use a terminal the user in question must via the WEB portal confirm that the terminal can be used by the person.

The terminal service is used to establish a terminal for later confirmation on the Web portal. It is not necessary to be logged on to establish a terminal (...in connection with a new terminal it is not possible to be logged in...), but it is required that the user name is established in the system, because the terminal will be attached to the user. The same terminal can be attached to several users.

This service should be contacted if the service replies 'unknown terminal (EC1jrF) and you want to establish the terminal.

In the element 'l request_info', the user ID must/may/can not be completed when the terminal service is contacted.

'User id' is the GUID replied from the login service by successful login, and because you cannot get a successful login without having a confirmed terminal it is a catch22, which is solved by not completing 'user_id' when calling the terminal service.

URL

/express/site/app/services/ITD/TerminalOpret

Forms

TerminalOpret\terminal_request.xsd

TerminalOpret\terminal_response.xsd

Error codes

- Login error (unknown user name) (EC1jnF)
- User name is not found (EC1jnF)
- Terminal is already present for this user (EC1jmF)
- Input field lacking (EC1ieF)

Basic information service**Description**

Returns the basic information concerning a user: Name etc. of the person concerned.

A list with companies (partners) on whose behalf the user can act. The user can be employed in one or several places but can also be entrusted to act on behalf of a company without being employed. The list also includes an attribute stating the user's attachment to the company.

URL

/express/site/app/services/ITD/Stamoplysninger(Basis informations)

Forms

StamoplysningerHent\stamoplysninger_request.xsd

StamoplysningerHent\stamoplysninger_response.xsd

Error codes

(None)

Vehicle list service**Description**

Returns the vehicles, which the user can adopt when handling the freight. The vehicles all have an ID, which can be adopted when using other services.

URL

/express/site/app/services/ITD/KoeretoejListe

Forms

KøretøjListe\koeretoejliste_request.xsd

KøretøjListe\koeretoejliste_response.xsd

Error codes

(None)

Vehicle edit service**Description**

This service is used to edit the list of vehicles attached the logged on user. You can Establish, edit and delete vehicles.

Because vehicles can operate across users, the vehicles are divided in two: Partly there is the vehicle itself partly there is the attachment to the user.

When establishing a vehicle, the vehicle will only be established if it does not exist already and hereafter the vehicle is attached to the user.

Also by deleting, the vehicle will not be deleted, but only the users' attachment to the vehicle.

Choses the user to update the type of vehicle, this will take affect across the users, because this is a quality of the vehicle itself.

URL

/express/site/app/services/ITD/KoeretoejRediger

Forms

KøretøjRediger\koeretoej_request.xsd

KøretøjRediger\koeretoej_response.xsd

Error codes

- Køretøj personale dannes ej (EC1jxF)

Change vehicle service**Description**

Service used to change the vehicle being legal responsible for the transport of several consignment notes.

The legal responsible vehicle is the one stated in the consignment note, contrary to the actual vehicle stated on the single freight line in the consignment note.

The service establishes actions (16 – change legal vehicle) in the single consignment notes.

This service is contacted every time you change legal vehicle (lorry/tractor unit). Thus, you can change tractor unit and keep the semi-trailer as an example.

The legal vehicle is also sent into other actions such as collection and transaction (on the single consignment note).

The change takes place to the stated legal vehicle for all consignment notes belonging to the stated user and falls to the stated partner being in the status 'Fragt' (freight).

URL

/express/site/app/services/ITD/SkiftJuridisk

Forms

SkiftJuridiskKøretøj\skift_juridisk_request.xsd

SkiftJuridiskKøretøj\skift_juridisk_response.xsd

Error codes

(None)

Establish consignment note service**Description**

This description is adopted to establish a consignment note. The structure used for the consignment note is the same as retrieving consignment note(s). Some elements are left out during establishment, such as the list of actions.

Info

The same XML structure is used for both retrieving and establishing consignment notes. Therefore, there are elements in the structure, which are not to be used in connection with contacting the establish consignment note service.

Typically, _id fields (<adresse_id>, <fragtbrev_id>) are in question, because id's are automatically assigned by establishing.

Please note that:

<request_info>/<bruger_id> is completed with correct user id.

<request_info>/<interessent_id> is completed with correct id for the company for whom the consignment note is to be established.

<fragtbrev>/<status> must contain one of the values:

1 (Established)

3 (Confirmed)

Up to 4 addresses can be established. The type of address is stated in <fragtbrev>/<adresse_list>/<adr_type> and can contain following values:

- 1 (Consignor)
- 2 (Consignee)
- 3 (Collection)
- 4 (Delivery)

Driver

As a starting point, a consignment note is attached to the driver who establishes it. In cases with XML integration, it will be the integration endpoint submitting the consignment note which also gets them attached, because this integration endpoint is basically a driver. However, it is possible to state that the consignment note must be attached to another driver.

The driver is identified according to the staff reference being a (not unique) field to be stated for all persons in the eCMR WEB portal.

The staff reference for the driver to get the consignment note attached is stated in <fragtbrev>/<chauf_pers_ref>.

The field <fragtbrev>/<chauf_pers_ref_strict> states how the service act by errors. If <chauf_pers_ref_strict> is not activated with '1' or 'true' the service will always fall back on the on-logged user as driver (the integration endpoint). If the field is activated with 'true' you will receive an error if the staff reference does not exist or the person with the actual reference is no driver. Please note that staff reference is not unique – the first person found with the stated reference will be chosen.

URL

/express/site/app/services/ITD/FragtbrevOpret

Forms

FragtbrevOpret\FragtbrevOpret_request.xsd

FragtbrevOpret\FragtbrevOpret_response.xsd

Error codes

- Status not established or confirmed (EC20gF)
If the send status does not have the values 1 (Established) or 3 (Confirmed)
- Staff reference for driver not found (EC25fF)
If you in the field <chauf_pers_ref> have stated a driver reference not found in the system and you at the same time have stated <chauf_pers_ref_strict> with 'true'.

- Stated driver is no driver (EC25eF)
If the driver reference stated in <chauf_pers_ref> is found, but the person is not stated to be a driver and you at the same time have stated <chauf_pers_ref_strict> with 'true'.

Retrieve single consignment note service

Description

This service returns a single consignment note based on the consignment note's UUID. The consignment note includes freight lines and actions.

The consignment note's status can contain following values:

- 1 (Established)
- 2 (Rejected)
- 3 (Confirmed)
- 4 (Under Transport)
- 5 (Under Transaction)
- 6 (Delivered)

URL

/express/site/app/services/ITD/FragtbrevHent

Forms

FragtbrevHent\fragtbrevhent_request.xsd
FragtbrevHent\fragtbrevhent_response.xsd

Error codes

- Consignment note not found(EC1c0F)
- Lacking input field(EC1ieF)

Retrieve list of consignment notes service

Description

The service retrieves a list of consignment notes for a user. The list contains all consignment notes as of the time of collection being attached the user via the party the user has chosen to work for at present. This means, that the combination of user and party triggers the consignment note list.

The single consignment note is identical to the one retrieved via the service to retrieve single consignment notes.

URL

/express/site/app/services/ITD/FragtbrevListe

Forms

FragtbrevsListe\fragtbrevliste_request.xsd

FragtbrevsListe\ fragtbrevliste_response.xsd

Error codes

- Lacking input field(EC1ieF)

Consignment note address edit service**Description**

A consignment note is retrieved via the consignment note list or as a single consignment note has a list of addresses attached:

- Consignor
- Collection
- Consignee
- Delivery
- Stop (0 - many)

It is possible to change all types of addresses except the consignor address.

It is possible to add stop addresses.

URL

/express/site/app/services/ITD/FragtbrevsAdresse

Forms

FragtbrevsAdresserRediger\fragtbrevsadresse_request.xsd

FragtbrevsAdresserRediger\fragtbrevsadresse_response.xsd

Error codes

- Lacking input field(EC1ieF)
- Illegal action(EC1juF)
- Unknown action(EC1jwF)

Actions service**Description**

This service is used to establish an action on a consignment note. Some actions are automatically established in connection with other services and are triggered by actions in other places in the system.

An action can have files attached such as pictures. If this is the case, these must be uploaded separately after establishing the action via the file establishing service.

Following actions are found in the system:

1. **Establish consignment note:**
Cannot take place via this service. The action is established automatically when a consignment note is established.
2. **Accept consignment note:**
Cannot take place via this service. The action is automatically established when the carrier accepts a customer's consignment note.
3. **Collection:**
When a driver takes over the responsibility of the goods stated in the consignment note.
4. **Transact deliver within eCMR:**
When a driver transacts the freight to another within the eCMR system.
5. **Transact receive within eCMR:**
Cannot take place directly via this service. The action is automatically established when an action 4 takes place.
6. **Transact driver outside eCMR:**
When a driver transacts the freight to a driver not being part of the eCMR system.
7. **Delivery:**
When a driver delivers the freight to the end customer.
8. **Receipt declined:**
If the consignee declines receipt of the freight.
9. **Reservations:**
If there in connection with transaction or delivery are requirements for making reservations concerning e.g. damage to the goods.
10. **Rejected carrier:**
Cannot take place directly via this service. The action is established when a carrier rejects a consignment note established by a customer and attached to the carrier.
11. **Change location:**
The goods changes location to a new vehicle.
12. **Transaction without consignee:**
When the freight is placed without a new consignee to sign for it. The freight is hereafter 'ownerles'.
13. **Establish document:**
Cannot take place directly via this service. Action is established automatically when a file is uploaded.
14. **Delivery without consignee:**
When the freight is delivered at the consignee without anybody to sign for it.
15. **Correction of consignee information:**
Cannot take place directly via this service. The action is established automatically when a consignee address is changed.
16. **Change legal vehicle:**
Cannot take place directly via this service. The action is established automatically when a consignment note changes vehicle.
17. **Change of consignment note information:**
Cannot take place directly via this service. The action is established automatically when ...

18. Change of carrier:

Cannot take place directly via this service. The action is established automatically when ...

19. Change of driver:

Cannot take place directly via this service. The action is established automatically when a carrier attaches a consignment note to a driver.

20. Correction of consignor information:

Cannot take place directly via this service. The action is established automatically when a consignor address is changed.

21. PDF document generated

A PDF document of the consignment note is generated by Establishment, Collection and Delivery.

URL

/express/site/app/services/ITD/Hendelser

Forms

Hændelse\hændelse_service_request.xsd

Hændelse\hændelse_service_response.xsd

Error codes

- All user party lacking(EC1jsF)

File establishment service**Description**

This service is used for attaching enclosures/documents to the action.

The service is special, because input is not a XML sheet but a POST request of the MIME type multipart/formdata. The service can be tested via a normal HTML Form. An example for this is found together with the form for response.

Information to be enclosed in the FORM/POST fields are:

- UploadFile – The binary content of the file and the path from where the file originates
- bruger_id – (user id) the same as in Common.xsd
- dato - (date) the same as in Common.xsd
- transaktions_id - the same as in Common.xsd
- interessent_id - (party id) the same as in Common.xsd
- fragtbrev_id - (consignment id) the same as in Common.xsd
- haendelses_id - (action id) the same as in Common.xsd
- bilag_type – Type of enclosure: 1 = Reservation, 2 = Document
- navntitel – (title name) Text with title of documents

URL

/express/site/app/services/ITD/UploadFileHandler

Forms

BilagUpload\UploadBilag_response.xsd

Error codes

- Action is not found (EC1c1F)
- Type of enclosure not found (EC1bzF)
- Consignment note not found (EC1c0F)

File download service**Description**

This service is used for downloading/enclosing enclosures/documents to actions.

The service is special, because it is not a XML based service.

Input is a parameter based GET or POST request.

Output is the requested binary object with MIME type etc. placed in the header. In the folder with BilagHent (get enclosure) you find an example for a HTML form and a GET request both useable for retrieving a picture (... except that it will err when you are not authenticated...).

URL

/express/site/app/services/file/DownloadFileHandler

Error codes

- http 500 in the case of error.