

Hit Rail: Support to Interoperability

7th Regional TAF TSI Workshop – Romania, Bulgaria, Greece
7th - 8th March 2018
Bucuresti

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Hit Rail's presentation

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Hit Rail : born to interconnect railways

Enabling Connectivity and Interoperability for the European Railways

Interconnecting the main actors within the European Railways Community, HIT Rail is a foundation for international passenger, freight and infrastructure railway services.



- is a **non-profit making** company, expert in rail **connectivity** and **interoperability** issues
- was created in 1990 to professionally manage the Hermes network already in use for railways **since 1978**.
- is a **railway sector organization**, observer in the main international EUAR/TSI groups (TAF/TAP CCM, TAF/TAP implementation Cooperation Groups, TAF regional workshops).
- cooperates with all other sector organizations (**UIC, Raildata, RNE, UIP, UNIFE, etc.**) in order to jointly provide services to the freight railway sector.
- has developed an international prestige in guaranteeing a **reliable** and **up to date application to application data transfer service**.
- has constantly stayed in the **vanguard of international data communication** technologies, migrating to the newest ones (IP, MPLS) as soon as consolidated.
- provides a **cyber secure network** for critical inter railway data exchange.
- open to all and applying **fair cost recovery pricing** system.

A company owned by Railways: IMs, RUs

ADIF - Spain

CD – Czech Republic

DSB - Denmark

EVRY - Sweden

FSI - Italy

MAV - Hungary

ÖBB - Austria

SBB CFF FFS - Switzerland

SNCB - Belgium

SNCF- France

SZ - Slovenia

ZSR - Slovakia



Hit Rail services are used by more than 50 small and large RUs/IMs, newcomers and incumbents, making up the Hermes community

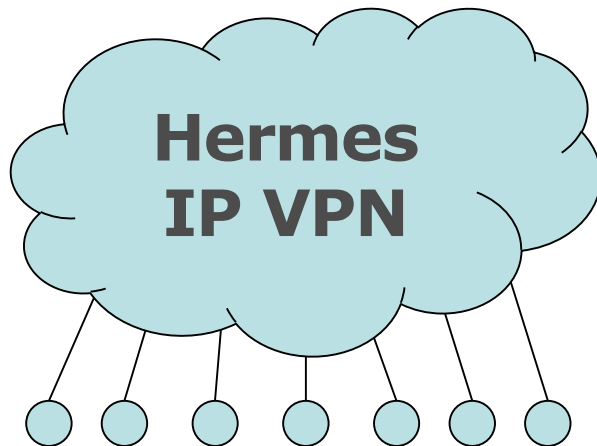
Adif, BLS, Captrain DE, Captrain IT, CD, CD Cargo, CFL, **CFR**, DB, DB Netz, DB Cargo, DB Cargo Nederland, Eurostar, HZ Cargo, HZPP, Infrabel, Inrail, Lineas, Lokomotion, MAV Start, Network Rail, NMBS/SNCB, NS International, ÖBB, PKP Cargo, PKP Intercity, ProRAIL, Raildata, Rotterdam Rail Feeding, RCA, RCH, Renfe, RFI, RhB, RNE, RZD, SBB, SBB Cargo International, SJ, SNCF, SNCF Fret, SZ, TCDD, THALYS, Trenitalia, UIC, UZ, VR, ZS, ZSR, ZSSK, ZSSK Cargo.



Connectivity and Interoperability

Hit Rail offers to the Hermes community an ecosystem composed of two main services:

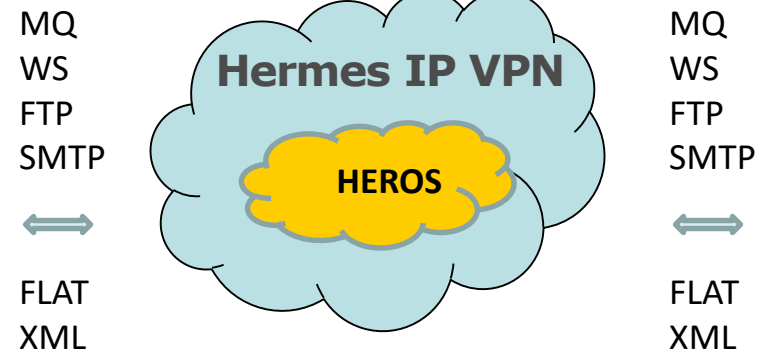
Connectivity



One connection connects to all

Interoperability

HEROS (HERmes Open Services)



**Members can use their own
channel protocols, file formats, versions**

IP VPN network is our connectivity model

- For **international business critical applications**, the IP Virtual Private Network (VPN) model is the best connectivity option especially if you wish for protection against cyber threats.
- The Hermes IP VPN model provides guaranteed **response times**, high **performance** and **reliability** and specific **Service Level Agreements (SLA)** for the customers.
- For non-business critical applications or small users, access to the Hermes IP VPN via Internet using **IPSec** protocol is the norm.
- The Hermes IP VPN is also a model example of the use of **cloud technology**. The combination of a secure network and a protected virtual environment where data and applications can be stored and reached from everywhere offers a **flexible and scalable** solution.
- The Hermes IP VPN is a very secure environment with a proven **record of no external intrusion**. To make its customers aware of the cyber-crime risks, Hit Rail hosted on **4th October 2017 in Brussels** a conference for rail specific cyber security. See <https://www.hitrail.com/events/cyber-security-for-railways-2017-programme>

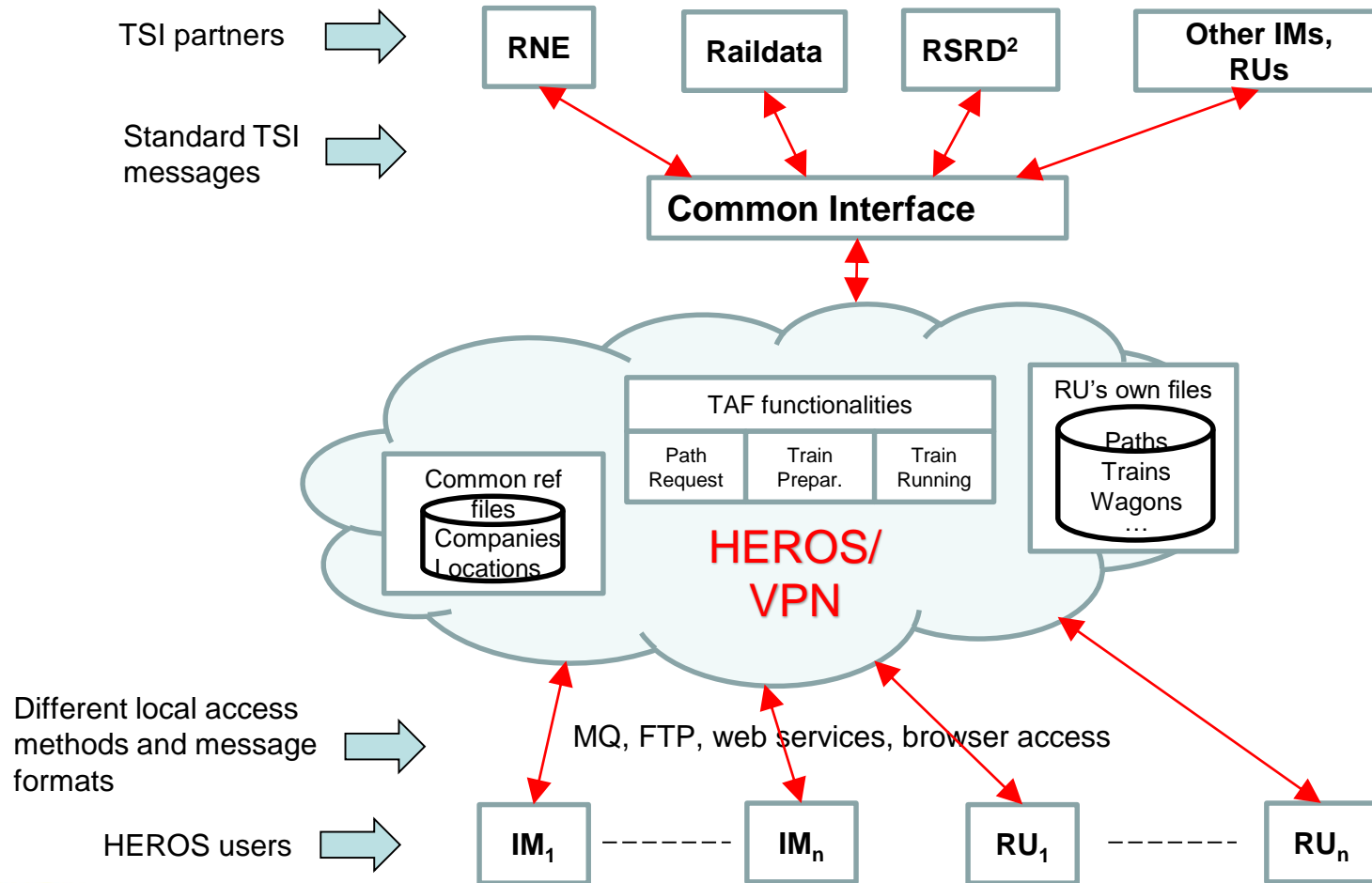


The HEROS Interoperability Solutions

- HEROS is a **value added set of interoperability solutions** integrated in the Hermes Ecosystem, designed to help users achieve **interoperability** and **compliance** with **TAF** and **TAP TSI**
- It connects systems using different technologies **transparently** and in **real time**, ensuring **integration** with the tools of other key actors and sector organisations (e.g. **RNE, Raildata** and **UIP**)
- HEROS offers a **cloud based platform**, accessible via a simple web access tool, allowing freight RUs to:
 - Communicate with IMs (national traffic) and RNE (international traffic) for RU to IM data exchanges.
 - Interact with the larger freight RUs (specially Raildata members) at national and international level for RU to RU data exchanges.
- HEROS is **Hit Rail's proposal for the RUs** who are subject to the TAF TSI Regulation, but do not have the expertise, time or money to develop their own full IT solution.



TAF in the Cloud concept



RUs - IMs interaction services

HEROS offers **three** solutions for the exchange of data between RUs and IMs, and between RUs and RUs:

- **HEROS Path Request** application (**PR**) allowing RUs to perform the entire four stage bid and offer process for the **request of paths from any IM** (who supports TAF)
- **HEROS Train Running** application (**TR**) providing the RUs with a continuous update of services on the day based on information from IMs
- **HEROS Train Preparation** application (**TP**) creating the TSI **Train Composition** to be sent to the IM (and/or next RU) as required

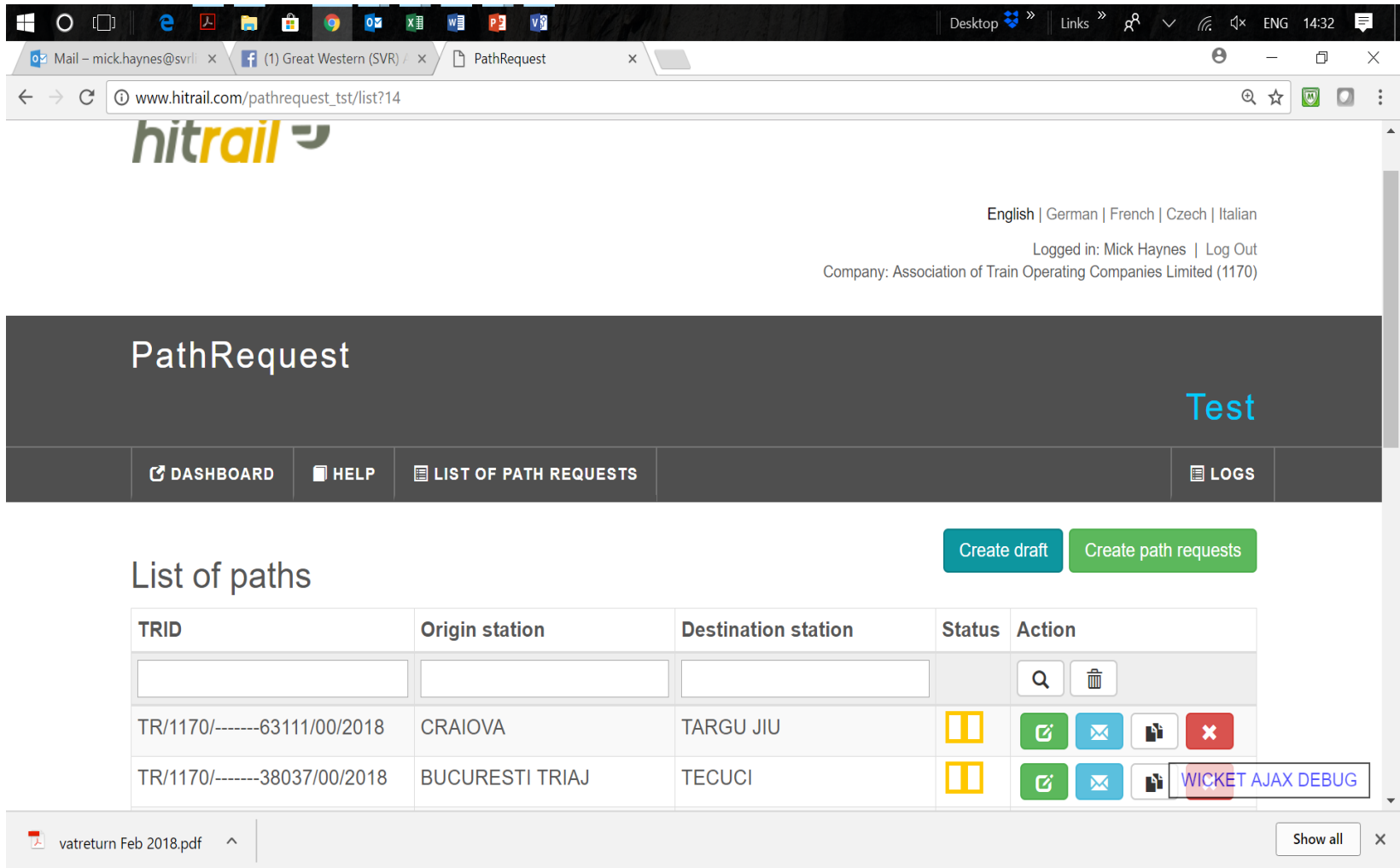
In addition to the TAF compliant Train Composition message, HEROS can also manage, in integrated way, the similar UIC **Hermes 30 message (H30)**, used to **pre-advise** the train **consist data** for international freight trains, offering in this way a solution to the **RU – RU** interaction too.

HEROS Path Request App

This application **allows an RU to request paths** from an IM. It is currently available in 5 languages but others can be added simply

- It allows RUs to bid in TSI format to any connected IM, and allows IMs to become TSI compliant by connection to their path allocation systems
- It learns about the paths and routes you need as it is being used
- It's compliant with the TSI **four stage bid and offer process** (request, offer, acceptance, confirmation)
- It uses the **TAF messages** for path request, path details, path details refused, path confirmed, path cancelled, path not available and receipt confirmation, path details with status 'booked'
- It allows for configuration of additional data elements as required by each IM
- **Compliance of HEROS messages with the official TAF TSI data catalogue has been assessed and verified by the EUAR**











List of Paths for reviewing status and editing



The screenshot shows a web browser window displaying the hitrail PathRequest application. The browser's address bar shows the URL `www.hitrail.com/pathrequest_tst/list?14`. The application header includes the hitrail logo, language options (English | German | French | Czech | Italian), and user information (Logged in: Mick Haynes | Log Out, Company: Association of Train Operating Companies Limited (1170)).

The main content area features a dark navigation bar with the title "PathRequest" and a "Test" button. Below this is a menu with options: DASHBOARD, HELP, LIST OF PATH REQUESTS (selected), and LOGS. Two buttons, "Create draft" and "Create path requests", are positioned above the "List of paths" section.

The "List of paths" section contains a table with the following data:

TRID	Origin station	Destination station	Status	Action
TR/1170/-----63111/00/2018	CRAIOVA	TARGU JIU		   
TR/1170/-----38037/00/2018	BUCURESTI TRIAJ	TECUCI		   

At the bottom of the browser window, a PDF file named "vatreturn Feb 2018.pdf" is open in a sidebar, and a "Show all" button is visible in the bottom right corner.

Select days of operation

Windows taskbar: Desktop, Links, ENG 14:33

Browser tabs: Mail - mick.haynes@svrli, (1) Great Western (SVR), PathRequest

Browser address bar: www.hitrail.com/pathrequest_tst/editTrain?15

TR/1170/-----38037/00/2018

2018

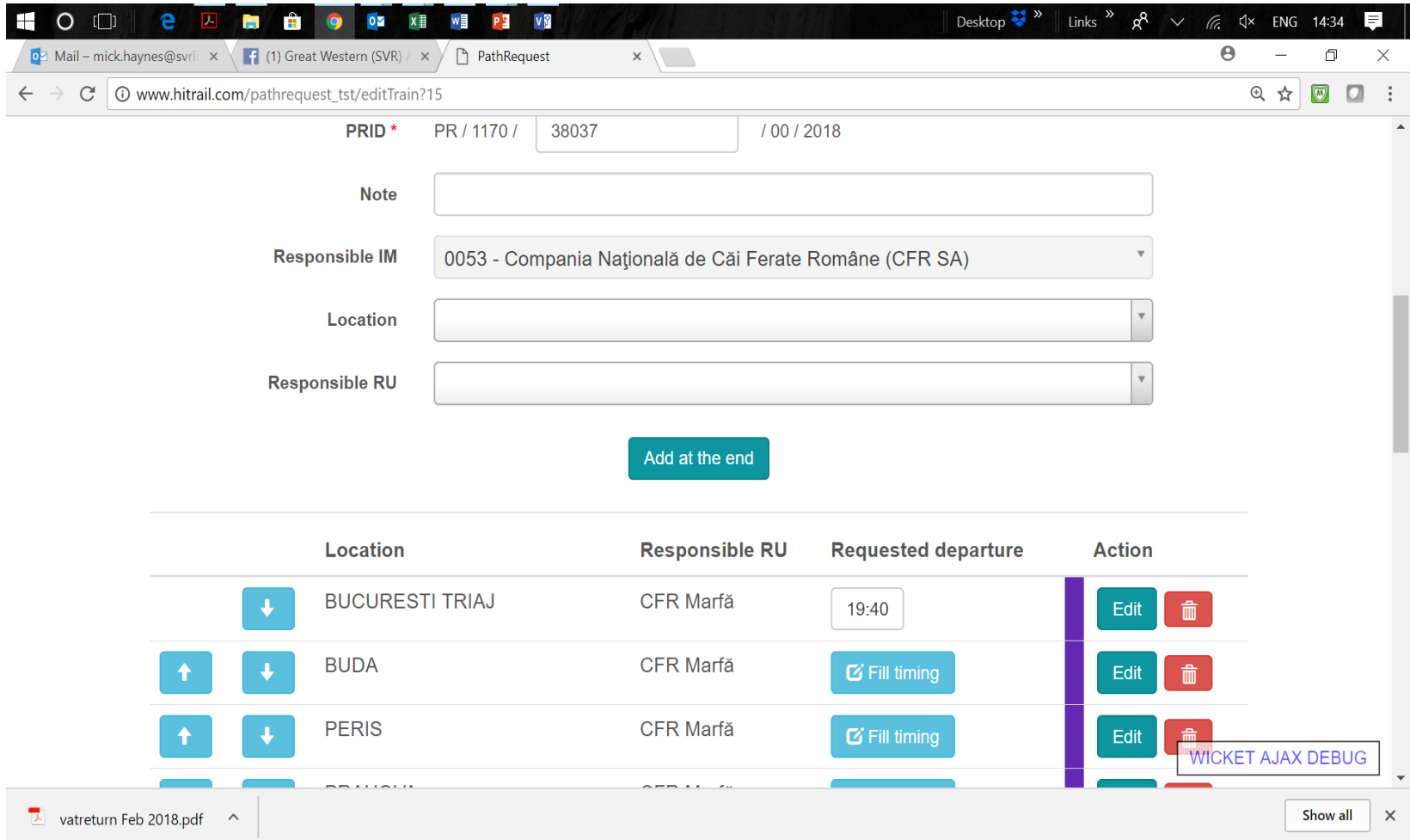
	Mo	Tu	We	Th	Fr	Sa	Su	Mo	Tu	We	Th	Fr	Sa	Su	Mo	Tu	We	Th	Fr	Sa	Su	Mo	Tu	We	Th	Fr	Sa	Su	Mo	Tu							
December 2017	27	28	29	30	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	1	2
January 2018	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	1	2	3	4	5	6
February 2018	29	30	31	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	1	2	3	4	5	6
March 2018	26	27	28	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	1	2	3
April 2018	26	27	28	29	30	31	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	1
May 2018	30	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	1	2	3	4	5
June 2018	28	29	30	31	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	1	2	3
July 2018	25	26	27	28	29	30	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
August 2018	30	31	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	1	2	3	4
September 2018	27	28	29	30	31	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	1	2
October	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	1	2	3	4	5	6

WICKET AJAX DEBUG

vatreturn Feb 2018.pdf

Show all

Create path request from new or a saved one



The screenshot shows a web browser window with the URL `www.hitrail.com/pathrequest_tst/editTrain?15`. The page contains a form for creating a path request with the following fields:

- PRID ***: PR / 1170 / 38037 / 00 / 2018
- Note**:
- Responsible IM**: 0053 - Compania Națională de Căi Ferate Române (CFR SA)
- Location**:
- Responsible RU**:

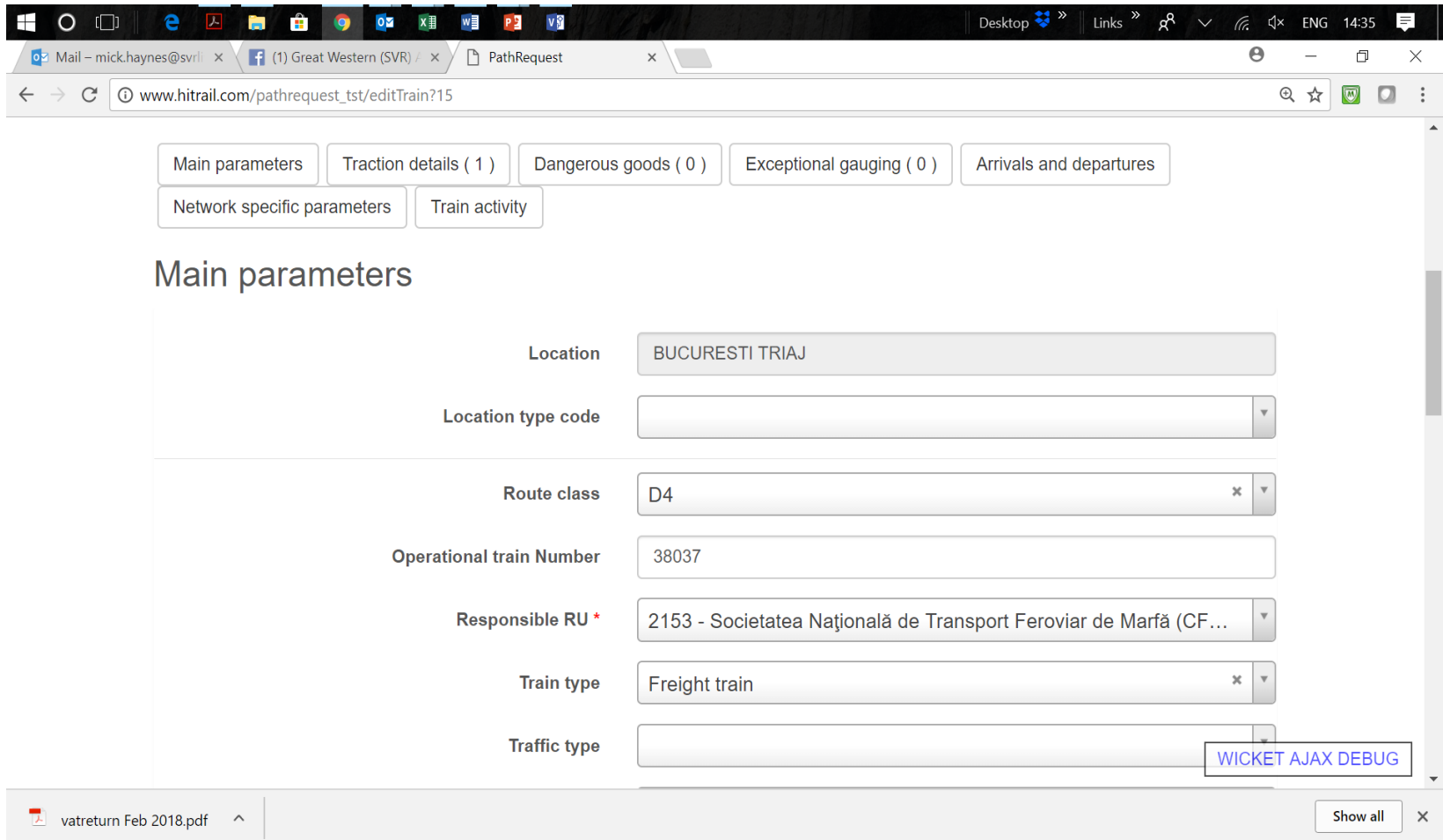
Below the form is a teal button labeled "Add at the end".

Underneath is a table with the following columns: Location, Responsible RU, Requested departure, and Action.

Location	Responsible RU	Requested departure	Action
<input type="button" value="↓"/> BUCURESTI TRIAJ	CFR Marfă	19:40	<input type="button" value="Edit"/> <input type="button" value="Delete"/>
<input type="button" value="↑"/> <input type="button" value="↓"/> BUDA	CFR Marfă	<input type="button" value="Fill timing"/>	<input type="button" value="Edit"/> <input type="button" value="Delete"/>
<input type="button" value="↑"/> <input type="button" value="↓"/> PERIS	CFR Marfă	<input type="button" value="Fill timing"/>	<input type="button" value="Edit"/> <input type="button" value="Delete"/>

A tooltip "WICKET AJAX DEBUG" is visible over the bottom right of the table. At the bottom of the browser window, there is a taskbar with a PDF file "vatreturn Feb 2018.pdf" and a "Show all" button.

Enter characteristics and traction and other requirements



Mail - mick.haynes@svr... (1) Great Western (SVR) PathRequest

www.hitrail.com/pathrequest_tst/editTrain?15

Main parameters Traction details (1) Dangerous goods (0) Exceptional gauging (0) Arrivals and departures

Network specific parameters Train activity

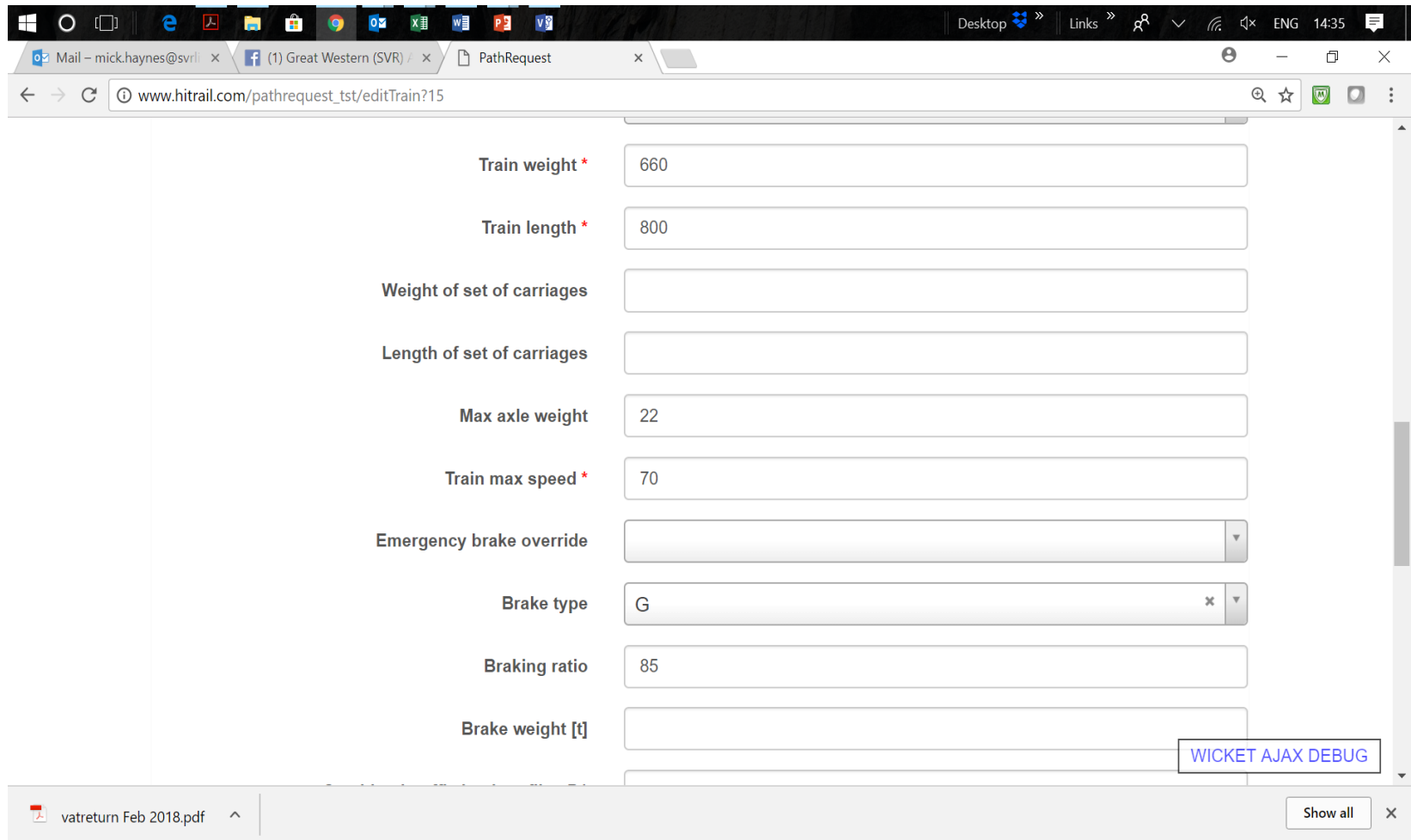
Main parameters

Location	BUCURESTI TRIAJ
Location type code	
Route class	D4
Operational train Number	38037
Responsible RU *	2153 - Societatea Națională de Transport Feroviar de Marfă (CF...)
Train type	Freight train
Traffic type	

WICKET AJAX DEBUG

vatreturn Feb 2018.pdf Show all

Enter length weight brake weight etc



The screenshot shows a web browser window with the URL `www.hitrail.com/pathrequest_tst/editTrain?15`. The browser's taskbar at the top shows several open applications including Mail, a Facebook page for 'Great Western (SVR)', and a 'PathRequest' window. The main content area displays a form with the following fields:

Train weight *	660
Train length *	800
Weight of set of carriages	
Length of set of carriages	
Max axle weight	22
Train max speed *	70
Emergency brake override	
Brake type	G
Braking ratio	85
Brake weight [t]	

A blue box labeled 'WICKET AJAX DEBUG' is positioned over the bottom right of the form. At the bottom of the browser window, a taskbar shows a PDF file named 'vatreturn Feb 2018.pdf' and a 'Show all' button.

HEROS Train Running App

HEROS Train Running application provides the RUs with a **continuous update of services** on the day.

The App performs the following functionalities:

- It automatically creates a copy of the **train timetable** of the day from the paths agreed
- The RU receives **reports on the running** of its international trains from RNE TIS, and of its domestic trains directly from the local IM
- The RU receives **reports on the delays** of its trains from the same actors as above
- When an IM becomes aware of **service disruption**, the App receives the **Train Running Interruption message** and updates the App with details
- A **map display of the services** is under preparation



HEROS Train Preparation

- HEROS Train Preparation app is already able to process H30 (standard train consist data) and it is being extended to create the TAF **Train Composition** message at the same time
- It combines the **H30 data** (received from previous RU or captured) with **Path Request data**, and Train Composition will be sent to respective IM
- **Version 2 of the message H30** will make the transformation into Train Composition much easier
- In addition, Hit Rail has developed a **converter of Hermes H30 messages** between the different XML versions in use and different communication protocols
- UIC's H30 message structure is used by about 40 RUs, both national and private. **Different versions** of H30 messages are in use (1.01, 1.03, 1.04b etc)
- Maintaining different versions is expensive and source of possible errors. The **HEROS H30 converter** can help an RU wishing to support only one version.

Works and projects under way (1)

- Since 2016 Hit Rail is providing **consultancy to Almoviva**, the Italian SW house implementing certain areas of the EU's **TAF** regulation (Common Interface, Train Running, Short term Path request) in the systems of **RFI** (Rete Ferroviaria Italiana).
- Based on this positive collaboration, Hit Rail and Almoviva signed a **strategic cooperation agreement**, in order to work together on joint customer projects to develop, implement and test systems that enable compliance with the TAP and TAF Regulations.
- A similar strategic cooperation agreement is in place between Hit Rail and Raildata, where Raildata concentrates mainly on **RU to RU** interaction, and Hit Rail on **RU to IM**.



Works and projects under way (2)

- In 2016 Hit Rail and Informatica Feroviara, daughter company of the Romanian IM CFR, submitted to INEA a project intended to **implement the whole set of TAF TSI messages** in the Romanian rail environment.
- The proposal was approved, but unfortunately before signature of the Grant Agreement Informatica Feroviara withdrew, due to internal organizational changes.
- Hit Rail is **discussing the implementation of locally adapted national TAF TSI solutions** in Greece (OSE), Italy (Mercitalia), Belgium (Lineas) and France (SNCF Fret).
- The intention is to **cover all the processes** involved in the rail freight business.
- **Partnership will be needed** with the local Infrastructure Manager, the incumbent freight operator and the small or medium local freight operators.



Thank you for your attention

I will be glad to meet you at the end of the workshop, for a **Real life demonstrator** of our solutions

Website www.hitrail.com

Contact info@hitrail.com

