Spring Days

ATLAS

Master location Management in Rail Freight The webinar starts at 11 o'clock

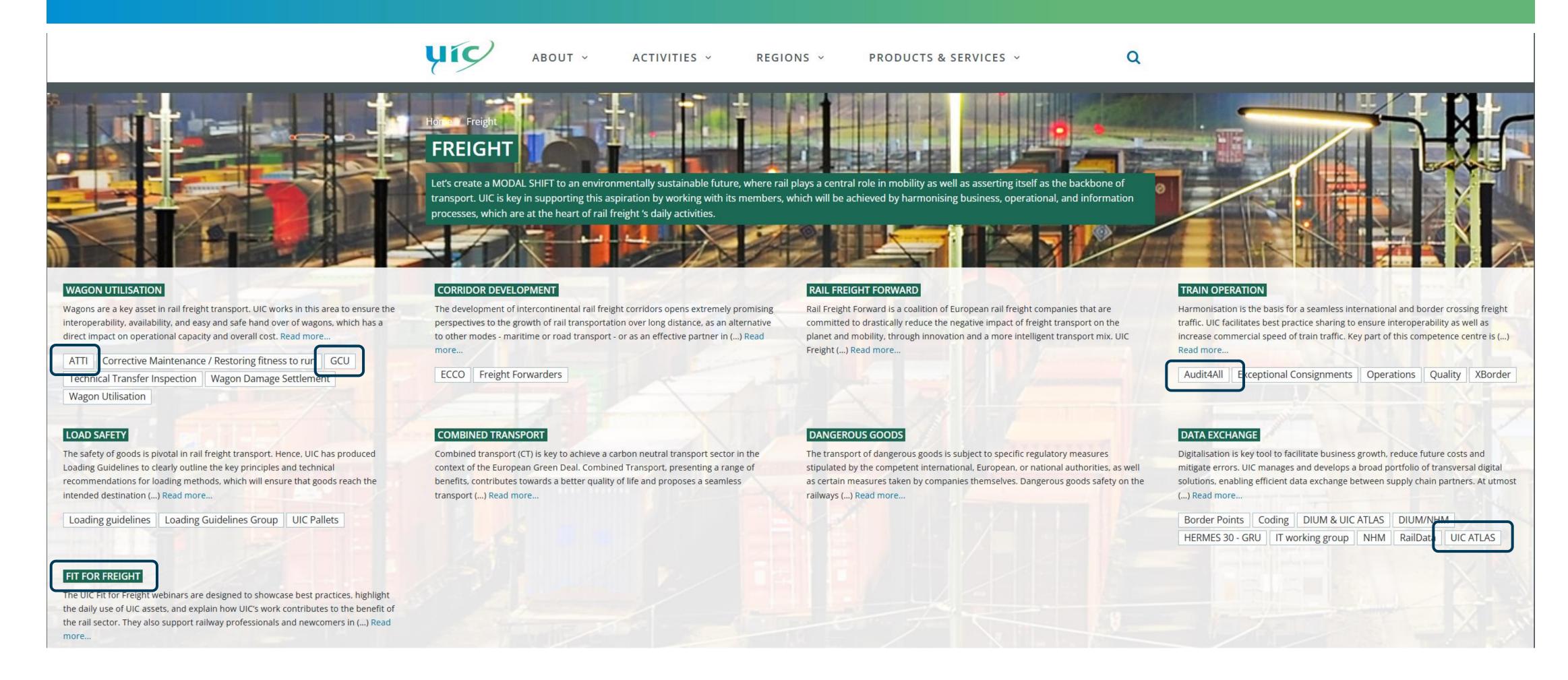


HOUSE RULES

The webinar is being recorded. The Q & A will start after each presentation / topic. Please raise your hand und and the host will invite you to speak. Thank you for your cooperation!



UIC Freight – The competence center overview



UIC Freight continues the journey towards Service development as a value driver for the members



Speakers



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ATLAS

Advanced Train Location Administration System

> Tom Thijs Parinaz Bazeghi

Agenda

- Introduction & context
 - What is TAF-TSI and what is new location structure defined by TAF-TSI
 - What are PLC and SLC s
 - What is the CRD
 - What different types of SLC are there
- Legacy codes vs TAF TSI codes in messages
 - H30 example
 - Orfeus example
- Challenges in Implementing the TAF TSI Location Structure
 - Current issues in the sector
 - Concrete examples of implementation challenges
- Atlas
 - What existed before ATLAS?
 - Why did UIC develop ATLAS, and how does it address the sector's challenges?
 - How does ATLAS work, and what are its benefits? (demo)
 - How can I become a user?

TAF TSI

Location codes

TAF TSI A set of European Union standards aimed at harmonizing communication and data exchange among railway undertakings, infrastructure managers, and other stakeholders in freight transport.

PLC

is a standardized and unique identifier used to represent a specific location in the railway network, such as a station, terminal, yard, or other freight-related point.

Description			Prima	ry Location	Code			Validity Start Date	Validity End Date	Name		Compar	ny Code	
	Country	ISO Code		N	umeric Coo	fe								
Туре	A1	A2	N1	N2	N3	N4	N5	Date	Date	Text max 255	AN1	AN2	AN3	AN4
Example	S	E	1	0	0	0	1	2013-04-30		Aleholm	0	0	7	4
	A	Т	0	1	0	0	1	2013-01-01		Wien Westbf (in Ws)	0	0	8	1

SLC

is an alias or extension of the Primary Location Code (PLC) used to specify a more granular subdivision of a primary location. It can identify specific facilities or operational points within a larger location

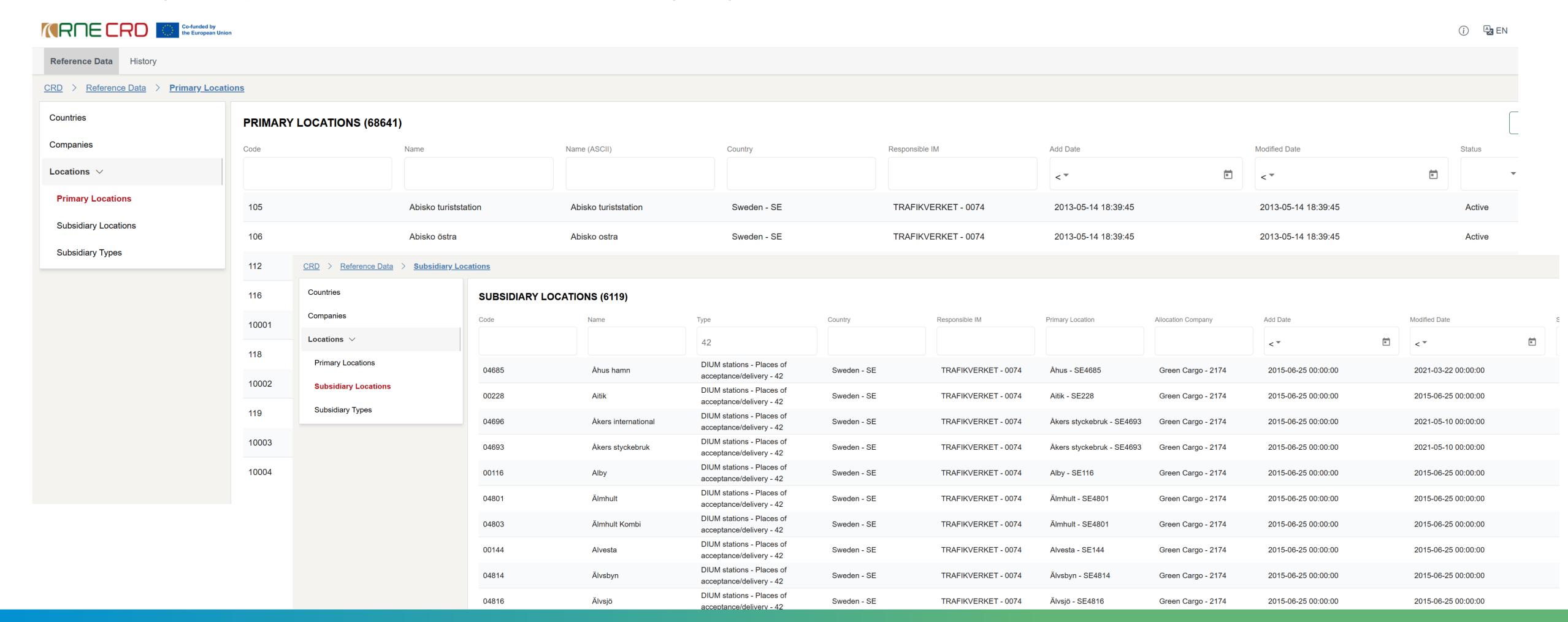
Can also provide a detailed referencing for areas like platforms, sidings, warehouses, or loading/unloading zones within a station, yard, or terminal.

Description	P	rimary	Loc	atio	n Co	ode		Subsi	idiary Code				Locati	on Sub	sidiary	Code				Validity Start Date	Validity End Date	Name	Co	mpan	ny Cod	de
	Cou																								\neg	
	ISO Code Numeric Code		e																							
Type	A1	A2	N1	N2	N3	N4	N5	N1	N1	AN1	AN2	AN3	AN4	AN5	AN6	AN7	AN8	AN9	AN10	Date	Date	Text max 255	AN1	AN2	AN3	AN4
Example	A	T	0	1	0	0	1	3	6	0	1	0	0	2	0	1	0	0	2	2013-01-01		Wien Westbahnhof Fbf	2	1	8	1



https://newcrd.rne.eu

Also containing company RICS codes (for example Lineas 2188, DB Cargo Belgium 3609, Railtraxx 3273, ...)



What different types of locations are RUs using?

In freight communication RU's communicate on

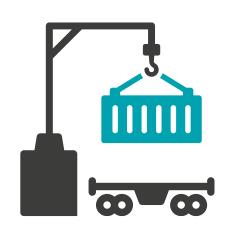
- PLC level with IM (rail path centric)
- SLC level with RU's (train, wagon, consignment note, track & trace centric)

In freight communication freight RU's only use 4 different SLC types:



42 (DIUM):

this is the commercial station mentioned on the consignment note. A loading point or siding (SLC 37) is a detail of a DIUM station.

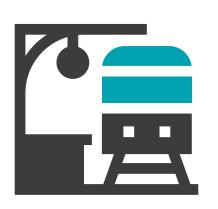


37 (Loading point): this is the siding or station used for wagon operations (pulled, delivered, wagon damage, ...)



03 (Border Point):

this is the border point used on the consignment note to indicate the international route of a transport. In combination with a DIUM or Loading point, distances in the DIUM-table can be calculated.



36 (Freight yard):

this is the operational station. Used for train operations (departure, arrival). It's the "legacy UIC" alias of a PLC. Wagon damage events can occur on these locations too.

TAF TSI

Location codes

Legacy UIC vs SLC usage

Train handover message part H30 in an old version 1.04

	G5_A_2_3_2	SpecialInterchange Station	Sonderijnerdanenannnot	Gare de transition spéciale	_	С	С	01
\perp	I5_A_2_3_2_1	Country	Land	Pays	n2	M	M	1
\prod	I5_A_2_3_2_2	Station	Bahnhof (Infrastrukturbahnstelle)	Gare (d'infrastructure)	n5	M	M	1
Т	/G5_A_2_3_2							

Train handover message part H30 in the new version 2.1

GT2_BC	Group CRD Code	Gruppe CRD Code	Groupe CRD Code		m1			
T2_BC_1	Country Code	Ländercode	Code Pays	an2	М	1		CRD
T2_BC_2	Primary Location Code	Primary Location Code	Primary Location Code	n5	М	1	1 - 99999	CRD
T2_BC_3	Primary Location name	Primary Location Name	Primary Location Nom	an255	С	01		CRD
T2_BC_4	Subsidiary location type	Subsidiary Location Typ	Subsidiary location type	n2	М	1	03	CRD
T2_BC_5	Subsidiary location code	Subsidiary Location Code	Subsidiary location code	n2	М	1	01 - 99	CRD
T2_BC_6	Allocation company	Vergebendes Unternehmen	Entité d'attribution	an4	С	01	0001 - 9999 (see additional information)	CompanyCode
T2_BC_7	Subsidiary location name	Subsidiary location Name	Subsidiary location Nom	an255	С	01		CRD

TAF TSI

Location codes

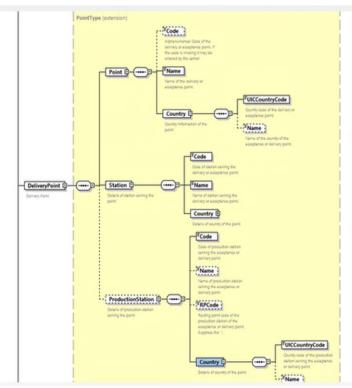
Legacy UIC vs SLC usage

We need to cover following information in Consignment Note:

- Commercial station (SLC 42 pos)
- Production station (SLC 37 5 pos)
- Loading Points (SLC 37 10 pos)
- Border Points (SLC 03 4 pos)

Focus on consignment note (COM)

Destination of the consignment in 1.4 has 3 "levels"



- Level 1: DeliveryPoint.Station.code: this is the commercial station of a consignment – box 12+10 on CN (Mandatory)
- Level 2:
 DeliveryPoint.ProductionStation.
 code: this is the production
 station of a consignment
- Level 3:
 DeliveryPoint.Point.code: this is
 the place code, detail of the
 production station box 11 on
 CN (Optional)

Old to new > < new to old

yic/

Focus on consignment note (COM)

- The commercial order message (COM) contains information of the consignment note towards consecutive or subcontracting carries making them able to handle the handed over wagons in a correct manner
- Orfeus is intended to be COM compliant 1.6
- Orfeus 1.5 and 1.6 contain SLC codes
- Orfeus 1.4 and earlier contain legacy codes
- Communication between RU's with different versions must be possible (includes backward compatibility) – 1.6 must be translatable towards 1.4

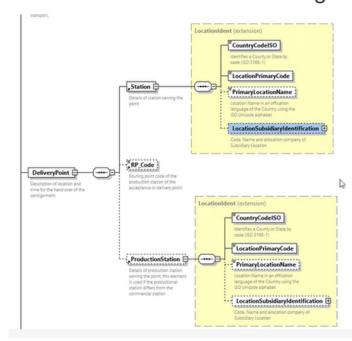
6

yic/

yic/

Focus on consignment note (COM)

Destination of the consignment in 1.6 has 2 "levels"



- Level 1: DeliveryPoint.Station.LocationIdent this is the commercial station of a consignment – box 12+10 on CN (Mandatory)
- Level 2:
 DeliveryPoint.ProductionStation.
 LocationIdent: this is the production
 station of a consignment box 11 on
 CN (Optional)

Level 3 is omitted as the place code is incorporated into Level 2 (the production station can contain the place codes), see further

8

Decentralised management of codes

What are the issues?

- Multiple RU's can create a SLC within a single PLC
 - We need to prevent double SLC codes (type 36,37,42)
- Sidings created by certain RU's expose public relationships between RU and Customer
 - We need a sector 'neutral' and uniform codification standard for SLC codes (type 36,37,42) to limit exposure of commercial sensitive information
 - And it need to be aligned with all involved RU's
- Not a single RU has a system that fully supports these codes, so we need to have a backward compatible code to fall back on
- Provide RU backward compatibility in systems and communications using new TAF/TSI PLC/SLC codes by limiting changes to legacy systems incorporate legacy "UIC codes" into the new CRD structure.

What is the issue?

Prevent double SLC codes (type 36,37,42) from multiple RUs within a single PLC.

Customer Oiltanking wants to transport goods between its production plant in Antwerp and two sites in Germany.

The customer has two RUs as suppliers:

- Lineas for traffic from Antwerp to the Marl-Hüls (DE) site in Germany
- and DB Cargo for the traffic from Antwerp to the Dormagen (DE) site in Germany.

Example

Prevent double SLC codes (type 36,37,42) from multiple RUs within a single PLC.

DB Cargo doesn't have local production means in Belgium, and since it's daughter is not active in the specific zone (Lineas is), DB Cargo subcontracts the first and last mile in Antwerp to Lineas.

Lineas and DB Cargo (and it's affiliates) will need to communicate with each other. For example:

- Customer sends consignment note (CN) to DB Cargo
- DB Cargo need to tell Lineas where to pick up these wagons and transport them to (SLC type used in CN = 42,37).
- Train handover (H30) between DB Cargo Belgium and Lineas tells where the wagons are coming from and where they need to go to (SLC type used in H30 = 36,37)
- → All RU's will need to communicate with each other about the Antwerp site as a location.

Example: Oiltanking

- The PLC/SLC structure of the CRD implies the necessity of a first level = PLC.
- PLCs are codes that define the infrastructure of an infrastructure manager.
- Oiltanking has private infrastructure (pink area in the figure) → doesn't have PLC codes.
- The main track is public (Infrabel) → The first/last point on the network is PLC 1747



Example: Oiltanking

CRD structure

- PLC (created by Infrabel 0088)
 - Code 1747
 - IM = 0088

Description			Prima	ry Location	Code			Validity Start Date	Validity End Date			Compar	ny Code	
	Country	ISO Code		N	umeric Cod	de								
Туре	A1	A2	N1	N2	N3	N4	N5	Date	Date	Text max 255	AN1	AN2	AN3	AN4
Example	S	E	1	0	0	0	1	2013-04-30		Aleholm	0	0	7	4
	A	T	0	1	0	0	1	2013-01-01		Wien Westbf (in Ws)	0	0	8	1

B E 0 1 7 4 7

2015-01-01

VERB.EVONIK DEGUSSA ANTWERPE 0 0 8 8

Example: Oiltanking

Any RUs can create SLCs!

• But PLC 1747 gives access to a multitude of various locations on the customers private siding (light gray tracks within the pink area), so detailing the PLC into more SLC's is required, so

Lineas (2188) creates a location code of type 37 for siding Oiltanking

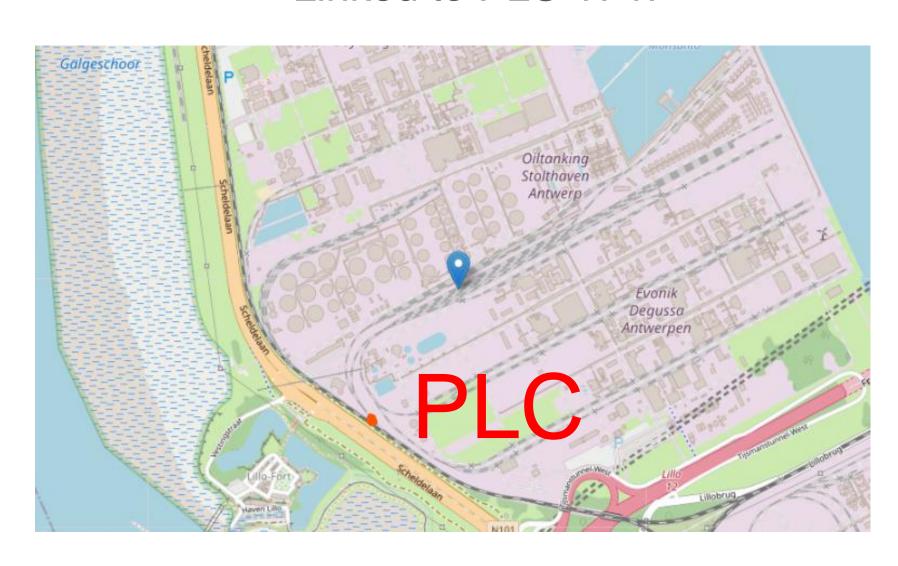
- OILTNK
- Linked to PLC 1747



DB Cargo (2180) creates a location code of type 37 for siding Oiltanking

- ÖLTANK
- Linked to PLC 1747





Still one issue remains:

The RU's have all their legacy systems, mostly custom made (so heavy investments made over the years).

Location is a fair central object in an RU's application landscape, so this is used on a lot of screens, tables,

messages, etc.

We want to introduce a translation layer:

Translation Layer uses CRD to translate in and outbound messages between legacy and the outside world (based on TAF-TSI)

Legacy core

• It doesn't matter for parties other than RU's how an SLC-code is structured, from the RU community we want to propose a single standard to be able to continue working with the same codes, but with CRD as intermediate layer. All legacy systems of RU's know today this siding as 88 24963 so we can perfectly talk to each other using this SLC.

Description	P	rima	ry Lo	catio	on Cod	de	Su	ocation ubsidia pe Cod	ry				Locati	on Sub	sidian	/ Code					Validity Start Date	Validi End Da			Co	omp	any C	ode
		intry Code		Num	eric C	ode																						
Type	A1	A2	N1	l N2	N3 N	14 N	5 N	11 N	1 A/	V1	AN2	AN3	AN4	AN5	AN6	AN7	AN8	AN	9 AI	N10	Date	Date	Text max 255		AN1	AN	2 AN	3 AN
Example	Α	Т	0	1	0	0 1	L i	3 6	(0	1	0	0	2	0	1	0	0		2	2013-01-01		Wien Westbahnhof	Fbf	2	1	8	1
	В	Е	0	1	7	,	1	7 3	7	2	2 4	9	6	3	0	I	L	1		20	022-07- 5		Antwerpen Kanaaldok Oiltanking 1	3	3 (0	1	1

How was the world of RUs location coding before ATLAS?

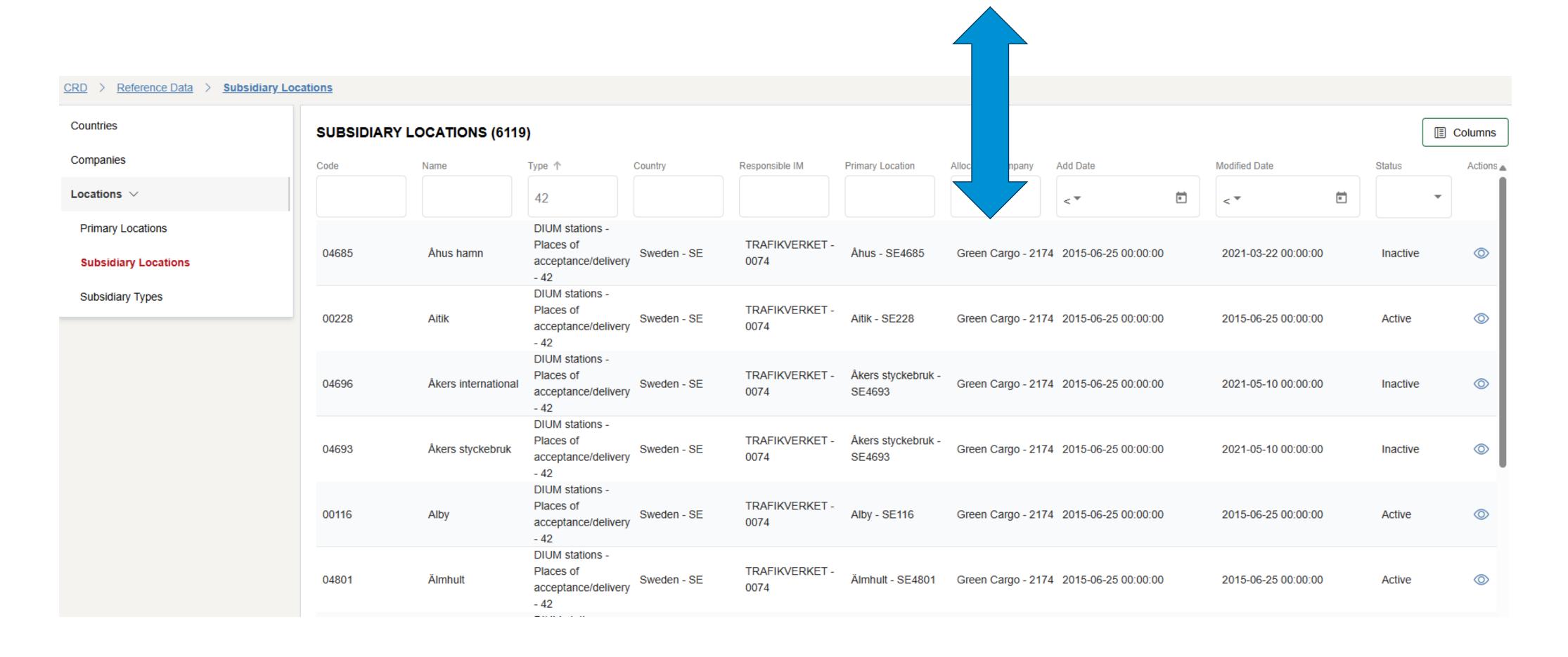
DIUM | UIC - International union of railways

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How was the world of RUs location coding before ATLAS?

https://newcrd.rne.eu

RU's can upload SLC codes into CRD themselves



How was the world of RUs location coding before ATLAS?

Old system	Consequence
Previously known as "National RU" took care of the quality of location data and collect information of all operation RUs in the country.	 Not in line with liberalization of market Certain RUs had problem to have their operational points in the DIUM table. Lot of work for the responsible RU to coordinate with others.
Information was updated two times per year in December and July in Pdf for public and excel for UIC members.	Manual work, takes a lot of time.Not up to date.
RUs were publishing DIUM and Loading point information in CRD themselves.	 Individual interpretation of TAF TSI structure results in an unharmonized coding of DIUM in CRD. Double codes and quality problem.
Certain commercial sensitive information were visible in CRD, and RUs didn't want to provide their RICS code.	For example, the siding information (revealing customer-RU relation).
Distance information in DIUM table was based on the Previously known as "National RU" information.	RUs should have defined separately their distance information and agreement with clients.

This is why we digitalised the DIUM data base and created ATLAS

Atlas

Advantages of Atlas

- Central application that store the location codes for RUs. (SLC codes 42 (DIUM) and 03 (Border Point) and 37 (loading point)). Later also 36 (Freight Yard)
- Centralize legacy codes and translate these to the TAF TSI mandatory SLC structure and feed CRD

What added value does Atlas bring?

- → Harmonizing RUs SLC code's structure and understanding (by centralization)
- → Save time and facilitate management of DIUM station codes by RUs and feeding CRD.
- → Application of TAF TSI after years of delay.
- →Ensure better quality of data (avoid duplicates and wrong codifications) to CRD.
- → Easier to inform RUs about changes in their network.
- → Backward compatibility ensured between legacy codes and taf codes
- → Enabling the multi-RU setup. [making it no longer needed to have one 'national' RU managing a country.]

Atlas How does it work

In ATLAS any RU (and only the RU itself) can provide information of its operation in another country by uploading the location information in defined format.

There are mechanism defined in ATLAS to check quality of data, uniqueness of locations.

ATLAS handles SLC 42: DIUM, 03: Border points and soon SLC 37: Loading points and later SLC 36: Freight yards

ATLAS provides:

- Information required to update Central Repository Data (CRD) of the sector based on this information to create/modify/delete SLCs.
- PDF information of the locations and distances publicly available.
- APIs are being built to interface with Atlas

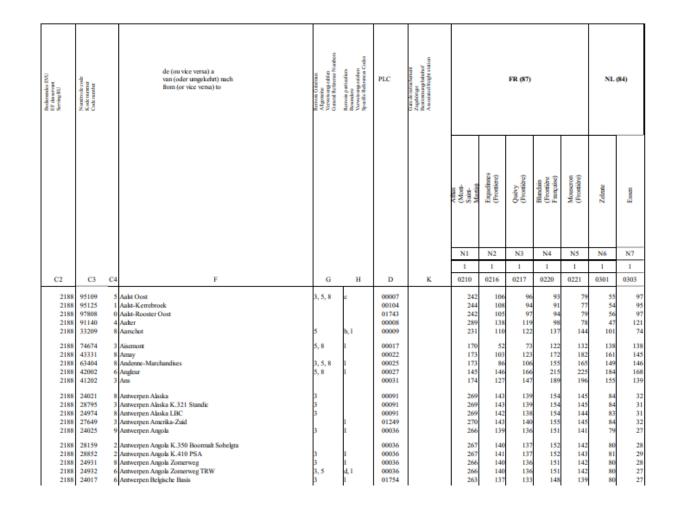
Atlas

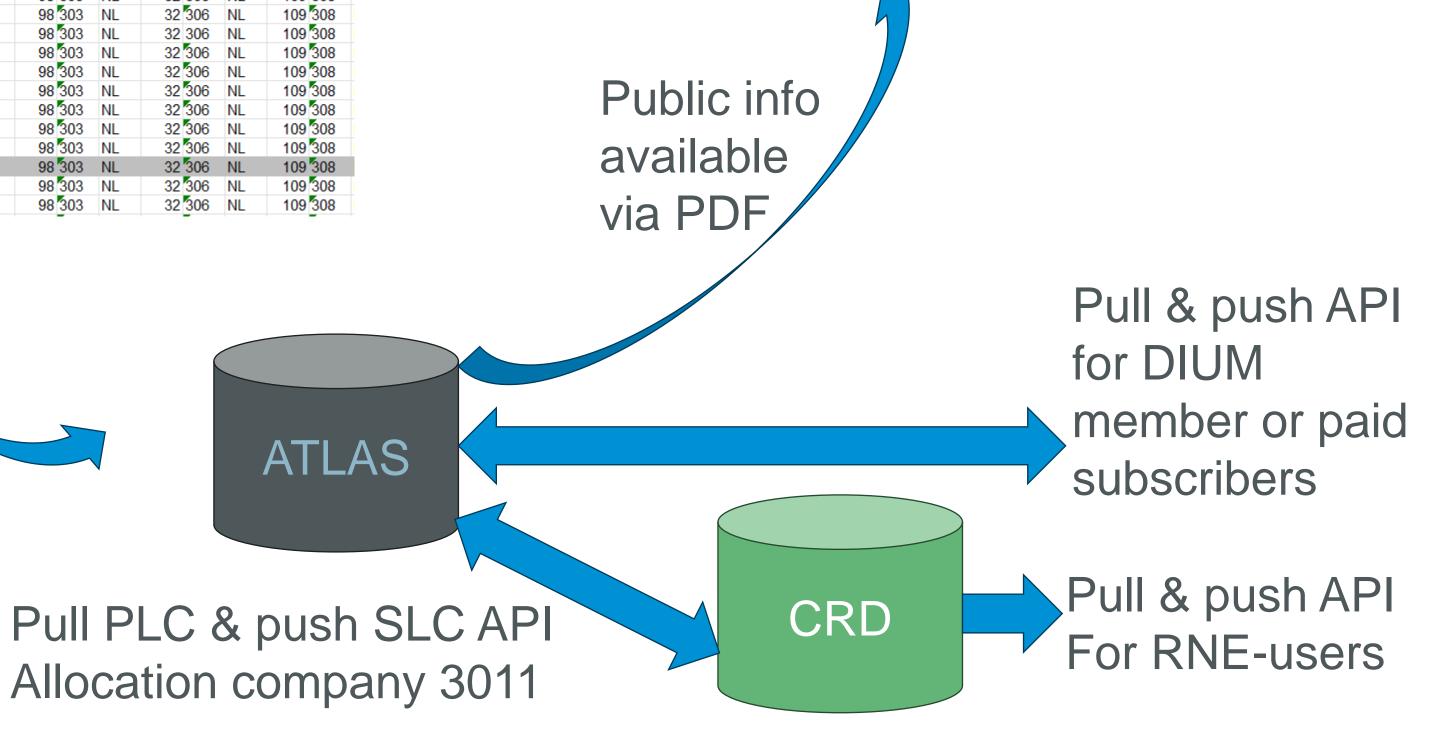
https://atlas.uic.org/

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Manual update via Excel remain but effective immediately

ATLAS





Demo: https://atlas.uic.org/en/



Home



V

Welcome to ATLAS

ATLAS is a master location Database provided by UIC that enables Railway undertakings to manage station codes related to their daily business operation and in transport documents. ATLAS currently supports DIUM station codes and the distance table contains the distance between the stations to the stations situated in the border of each country. From this master data Subsidiary Location Codes (type 42 DIUM, 37 sidings and 03 borderpoints) can be uploaded to CRD. Subsidiary location is a reference data defined by Telematics Applications for Freight Service TSI (TAF TSI). In the near future ATLAS will also support operational stations (SLC type 36 freight yard).

Login for full data >

Download DIUM

A country's DIUM (Uniform Distance Table for International Freight Traffic) comprises various data concerning international rail freight transport. It is used by Railway Undertakings (RU) and customers to complete the CIM consignment note/CUV wagon note in order to calculate the tariffs on these transports.

Country

Sel	ect	cour	ntry
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Download PDF-file



ATLAS catalogue



ATLAS FreeView

Free of Charge

ATLAS data set in PDF format including (DIUM, Loading points, border points, operational information and distance)



ATLAS ProTrack

Railway Undertakings

€ 3200

Yearly Subscription (excluding Taxes)

- 3 ATLAS user accounts*.
- Manage location data. (upload and download location data) through APIs or manual upload.
- Data format and quality check.
- Feed CRD with TAF TSI structure locations.



ATLAS Connect non-Railway Undertakings

€ 8000

Yearly Subscription (excluding Taxes)

- 1 ATLAS user account*.
- Access to latest Location codes, station operational information and distance data.

How can I become a user?

If you have location data to manage you can use ATLAS proTrack.

- Data Provider Agreement
- ATLAS subscription request and agreement with General Terms and Condition

If you are interested in RUs location data base, you need ATLAS Connect

 ATLAS subscription request and agreement with General Terms and Condition

Send your request to ATLAS@uic.org or Bazeghi@uic.org

Thank you!

Q&A



Stay in touch with UIC: www.uic.org











#UICrail

Thank you for your attention.