



EPIP – XSD/artefacts

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Data4PT website...

Knowledge Database Archieven | x +

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- GUIDELINES**
- FAQ
- TRAINING MATERIAL
- WIKI PAGE

Providing NeTeX as open data on a National Access Point (NAP)

29/01/2021

Ideally all member states will provide NeTeX files according to the European Passenger Information Profile (EPIP) on their respective National Access Point. Data4PT provides some artefacts to simplify producing and quality assure such information.

First of all a simplified and EPIP-adapted version of the full NeTeX XML schema has been produced. A graphic and interactive technical presentation of the adapted schema is available.

Continue to the presentation [HERE](#)

Download the EPIP adapted XML-schema [HERE](#)

Download an EPIP example file [HERE](#)

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Some assets available on Data4PT website...

- A set of adapted XSD files implementing the NeTEx European Passenger Information Profile (EPIP)
- A set of adapted XSD files that covers many real-world NeTEx use-cases
- A first simple EPIP example file based on a modified Luxembourg export



Using Data4PT adapted NeTEx XSD-files :





Assisting with EPIP compliance





Simplifying C# code generation

- Experience shows that it is challenging to try to start from the full NeTEx schema.
- Possible to auto generate C#-code such as Microsoft standard tools and open-source tools such as mgaNSS
- Data4 PT provides two sets of adapted NeTEx XSD-files (partly identical).



Two sets of XSD-files

Name	Date modified	Type	Size
 _content_NeTEx_EPIP.xsd	2021-01-15 11:18	W3C XML Schema	464 KB
 gml_combo_v3_2_1_simplified.xsd	2021-01-15 11:17	W3C XML Schema	16 KB
 NeTEx_publication_EPIP.xsd	2021-01-15 13:04	W3C XML Schema	423 KB
 NeTEx_publication_EPIP-NoConstraint.xsd	2021-01-15 13:04	W3C XML Schema	6 KB

Name	Date modified	Type	Size
 _content_NeTEx_reduced.xsd	2021-01-29 16:32	W3C XML Schema	598 KB
 gml_combo_v3_2_1_simplified.xsd	2021-01-15 11:17	W3C XML Schema	16 KB
 NeTEx_publication_reduced.xsd	2021-01-15 11:20	W3C XML Schema	424 KB
 NeTEx_publication_reduced-NoConstrai...	2021-01-15 11:19	W3C XML Schema	8 KB

- Reduced to four files in one directory respectively
- An unfair comparison: Full NeTEx is 379 files in 31 directories



Set 1: EPIP XSD that is adapted to the TS

- Elements and attributes removed and set as mandatory according to CEN/TS 16614-4:2020



Set 2: A wider XSD for code generation

- Excluding part 3 for now
- Adds VehicleScheduleFrame, and many constructions not included in EPIP such as Calls etcetera.
- Method: Analysed a number of XML-files from Norway, Netherlands and other countries to try to see what parts are of interest to be covered.
- “Flattened” into four files. Copied parts from full schema, Removed certain complexity and rewrote certain constructions.
- Used verification XML-files to assure that XML-files valid according to this XSD are also valid according to the official XSD



A simple first EPIP example document

Altova XMLSpy - [NX-PI-01_LU_NAP_NETWORK_2990-2889_20201012.xml *]

File Edit Project XML JSON DTD/Schema Schema design XSL/XQuery Authentic DB Convert View Browser Tools Window Help

XML

PublicationDelivery

xmlns	http://www.netex.org.uk/netex
version	ntx:1.1
xmlns:xsi	http://www.w3.org/2001/XMLSchema-instance
xsi:schemaLocation	http://www.netex.org.uk/netex file:///C:/Z/CURRENT/%C3%96vrigt/ITxPT/Data4PT/NeTEx_XSD_stuff/EPIPExtendedXSD/NeTEx_EPIP_strict.xsd
PublicationTimestamp	2020-10-14T07:34:41
ParticipantRef	LU
PublicationRequest	
Description	This file describes an extract of a partial delivery for lines Luxemburg
dataObjects	
CompositeFrame	
id	LU::CompositeFrame_EU_PI_NETWORK_OFFER:2990-2890
version	1602653681
responsibilitySetRef	LU::ResponsibilitySet:NAP:
ValidBetween	
TypeOfFrameRef	ref=epip:EU_PI_NETWORK_OFFER versionRef=1.0
codespaces	
FrameDefaults	
frames	
ResourceFrame	id=LU::ResourceFrame_EU_PI_COMMON:NAP version=1602653681
ServiceCalendarFrame	id=LU::ServiceCalendarFrame_EU_PI_CALENDAR:2990-2989 version=1602653681
ServiceFrame	id=LU::ServiceFrame_EU_PI_NETWORK:2990-2989 version=1602653681
SiteFrame	id=LU::SiteFrame_EU_PI_STOP:2990-2989 version=1602653681
TimetableFrame	id=LU::TimetableFrame_EU_PI_TIMETABLE:2990-2989 version=1602653681



How to create and validate EPIP XML

- When creating EPIP XML it will be easier to use this XSD as a starting point compared with using the full schema.
- After an EPIP-file is created it should:
 - Firstly, be validated towards the official NeTEx_publication.xsd
 - Secondly, be validated towards the EPIP xsd.
 - Thirdly, additional tools could be used for advanced validation



Data4PT website and WIKI...

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FAQ concerning generating C# code from NeTeX XSD
1/02/2021
The Data4PT project has developed some separate XSD-files that may be useful when generating C# code. Read more [HERE](#)

FAQ concerning NeTeX (general)
1/02/2021
Continue to NeTeX FAQ [HERE](#)

FAQ concerning Transmodel
28/01/2021 [Privacy & Cookies](#)

FAQ

How do you create C# classes from the NeTeX XSD? [\[edit | edit source \]](#)

Answer: It is possible to create C# classes in different ways.

There are many tools out there, but for instance, you could use the **Microsoft xsd.exe** tool or the **mganss/XMLSchemaClassGenerator** tool available on Github at <https://github.com/mganss/XmlSchemaClassGenerator>. Currently there are some issues if you try to use the official NeTeX XSD as a starting point with either of these tools.

However, the above-mentioned tools work fine if you use them together with an adapted set of XSD-files available from Data4PT. The file set is designed to be compatible with the official NeTeX XSD and to cover many important use cases. It does however not cover all use cases possible with the official schema. There is an interactive graphical presentation of the adapted and reduced XSD available at https://data4pt.org/NeTeX/GraphicKit/Documentation_of_reduced_XSD.html

If you wish to try out this reduced XSD, you can download it at https://data4pt.org/NeTeX/GraphicKit/XSD_reduced.zip

The work steps if you are using the Microsoft tool are:

1. Get the zipped XSD. Extract the ZIP to a folder.
2. Make sure that you have a recent version of the xsd.exe. It is part of the .NET Framework Developer Pack and can be downloaded from <https://dotnet.microsoft.com/download/dotnet-framework>
3. Install the developer pack. The xsd.exe will be placed in a folder with a path similar to `C:\Program Files (x86)\Microsoft SDKs\Windows\v10.0\bin\NETFX 4.8 Tools`
4. Open a command prompt in the same folder as where the NeTeX_publication_reduced-NoConstraint.xsd resides.
5. Execute the following command (you may have to adapt the path to xsd.exe): `"C:\Program Files (x86)\Microsoft SDKs\Windows\v10.0\bin\NETFX 4.8 Tools\xsd.exe" /c /language:C# gml_combo_v3_2_1_simplified.xsd NeTeX_publication_reduced-NoConstraint.xsd`

The work steps if you are using the MGANS tool are:

1. Get the zipped XSD. Extract the ZIP to a folder.
2. Download and extract the binary from <https://github.com/mganss/XmlSchemaClassGenerator/releases> to a separate



Thank you for your attention

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