UK Fares and NeTEx Profile – Suppliers Workshop

CPT London 29 August 2019

<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
</tr>
</thead>
<tbody>
<tr>
<td>11:00 – 11:30</td>
<td>Intro &amp; Initial Q&amp;A</td>
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<tr>
<td>11:30 – 12:00</td>
<td>NeTEx Overview -</td>
</tr>
<tr>
<td>12:00 – 13:00</td>
<td>Common Profile features: UML &amp; examples -</td>
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<td>13:00 - 13:45</td>
<td>Lunch Break</td>
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<td>13:45 - 14:15</td>
<td>Basic Profile: Stop &amp; Timetable UML &amp; examples</td>
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<td>14:30 - 14:45</td>
<td>Tea Break</td>
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<td>14:45 - 16:30</td>
<td>Fare Profile: Basic Fares : UML &amp; examples</td>
</tr>
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<td>16:30 – 17:00</td>
<td>Supplier Q&amp;A</td>
</tr>
</tbody>
</table>
Objective: Facilitate Technical engagement with NeTEx, especially for Fares

- Intro & Initial Q&A
- Quick overview of NeTEx
- UML & XML Examples
  1. Common Framework
  2. Stops & Timetables
  3. Fares
- End Q & A
Initial Q&A - Supplier Interests & Concerns?

- **Areas of Interest:**
  - Timetables, fares?
  - Timescales for engaging with NeTEx?
- **Areas of Uncertainty?**
  - Specific issues/questions
- **Areas of Concern?**
  - Gaps?
  - Unnecessary Features
  - Ways of simplifying?
- **How to engage**
  - Shared Validation processes?
  - Future requirements?
NeTEx & UK Standards
A Brief Overview
In order to create useful information services, we need to integrate data of many different types…
from many different providers…
that changes constantly – some of it in real-time

This needs to be done
Precisely…
Repeatedly..
Cheaply…
Scaleably
Coherent standards give Interoperability
- The “Transmodel ecosystem”

- Complementary formats & protocols:
  - Bulk exchange of static data (NeTEx)
  - Dynamic APIs for data (SIRI, DJP)
- Flexibility: adaptations to local needs
  - National Standards & profiles
- Coherent “Bridges” to standards for other domains
  - GIS – eg Inspire
  - Road – Eg DATEX

Flags Indicative, not Exhaustive

Transmodel European Conceptual Model
What is NeTEx?

- A CEN standard format for the exchange of PT data for Passenger Information
  - Networks, Timetables, Fares
- Based on CEN Transmodel conceptual model for PT data (NeTEx is a subset)
  - Concepts evolved over 20 years from real PT systems across Europe. (Now on Version 6.0)
  - Now mandated for widespread EU use
- Uses a modular XML schema
  - Model driven design from conceptual model in UML
  - Free to use under a GPL License
NeTEx is for bulk static data
(SIRI is for real-time data)

- Data must fit together via any route!
Integrating data from different sources to create PI services

Transmodel European Conceptual Model
Transmodel and the EC ACT/ ITS MMTIS Regulation

- Phased requirement to make data available
- EC investing in PT standards support
NeTEx – Evolution from National Standards

2000 - Transmodel v1.0 to v5.1
2011 - Transmodel v6.0
2012 - Transmodel v6.0 (P1, P2, P3)
2016 - Transmodel v6.0 (P4, P5, P6)
2018 - Transmodel v6.0 (P7, P8)

- Trident/NEPTUNE
- VDV452
- TransXChange, etc
- Bison, Noptis, etc
- IFOPT
- NeTEx v1.0 Part1
- NeTEx v1.0 Part2
- NeTEx v1.0 Part3
- NeTEx v1.1

Legacy.fr
Legacy.de
Legacy.uk
Legacy.nl
NaPTAN, etc

SIRI
UIC leaflets
GTFS,

TAP TSI (Rail fares)

NeTEx EU PROFILE Timetables
NeTEx EU PROFILE Fares

.de profile
.fr profile
.nl profile
.no profile

Moving Britain Ahead
What is a NeTEx Profile?
Public Transport data - Functional Activity vs Time of Travel

Before Planning Operations

Functional Area

INFRASTRUCTURE

Pre-trip planning

Network, Scheduling

Asset & Fleet Management

Planning

During

On trip, real-time

Sales, Validation & Control

Preparation, Movement, Signalling, etc

Operations

After

Historic & Query Stats

Historic Transaction Settlement

Historic Usage

History

Transmodel
Standards Scope
Transmodel subdomains

PASSENGER INFORMATION
FARE MANAGEMENT
TRANSPORTATION
INFRASTRUCTURE

Network, Scheduling
Vehicle monitoring & control
Historic Transaction Settlement
Historic Operation
Historic Usage

Before
During
After

NeTEx UK Fare Profile - Introduction
Simplifying implementation
Aspects of a NeTEx Profile

- **Profile - Scope?**
  - Relevant subset of NeTEx data elements for specific local business requirements.
  - Mapping of legacy data elements to NeTEx.

- **Profile - Local Technical Details?**
  - Use of identifiers & codespaces (NPTG, NaPTAN, NOC).
  - Use of coordinate systems (O/S, WGS85..), Time zones, etc..
  - Grouping of elements in document

- **Profile - Use in National Context**
  - Granularity of NeTEx data files
  - Participants & Workflow of data exchange
  - Validation & Verification processes

- **Profile Management**
  - Stakeholders engaged in profile revision process
  - Governance of processes for future evolution
Scope of Profiles

- POI & Accessibility data Profile
- Stop & Timetable PI Profile
- Fare Profile
- Infrastructure data Profile
- Timing data Profile
- Validation & Control data Profile
European Passenger Information Profile (EPIP)

- Final draft for country review May 2019
  - Draft available on Netex.uk website
- Minimal profile for Basic Passenger Information
  - Covers localities, stops and timetables
  - Timetables are basic - Passing times only (no timings)
  - No Fares
- Intended for international and cross-regional exchange
  - E.g. National Access Points can convert existing data
- Shorter, implementation focused specification
  - Includes validation rules and other implementation details
  - Pan-European identifier system for frames & documents

- Model for UK Base profile
  - How to map a minimum set of UK timetable data
  - Presentation Conventions also used Fare profile documentation
UK NeTEx Profile Project

- Develop a **UK PI Profile** that shows how UK Timetable data can be made available in NeTEx to conform to common EU Profile
  - Subset of existing TransXChange capability

- Develop a **UK Fare Profile**
  - New UK standard for exchanging fares
  - Focus on buses
Conformance to a Profile

- **Strict Conformance**
  - Use only the identifier **codespaces, values, groupings**, etc of the profile.
  - Use **only** the XML elements, and attributes in the profile.
  - A consumer system **must** interpret all elements and values.

- **Augmented conformance**
  - Use only the identifier **codespaces, values, groupings**, etc for the profile elements.
  - Allow **additional** NeTEx XML attributes and elements to be present.
  - A consumer system must interpret and consume **all strict profile** elements and values.
  - A consumer system **can ignore** any augmented elements.

- **Extended conformance**
  - Use only the **identifier codespaces, values, groupings**, etc for the profile elements.
  - Allow **embedding** of user defined **extensions** to NeTEx.
    - Simple keylistt (value sets associated with elements),
    - Embedded user schemas
  - A consumer system must interpret and consume **all strict profile** elements and values.
  - A consumer system **can ignore** any augmentations and extensions.
Degrees of Conformance

Any NeTEx XML element

Profile elements only

STRICT

NeTex Elements only
AUGMENTED +

User Extensions
EXTENDED

Codespaces/Identifiers,
Values,
Grouping conventions, etc
EPIP vs UK Profiles - comparison

UK Basic profile extends EPIP

Codespaces/Identifiers, Values, Grouping conventions, etc.

European Stop & Timetable Profile (EPIP) STRICT
Strict (FXCP-1)
AUGMENTED +

UK Fare Profile s (FXCP-2)
STRICT
AUGMENTED +

EXTENDED
NeTEx Resources

1. NeTEx
2. Fare Profile
NeTEx & Transmodel CEN Specifications Documents

2. UK Basic Profile

NeTEx EPIP Profile

NeTEx Part 1
Common Framework & Network definition

NeTEx Part 2
Timetables etc

Transmodel Part 1
Common Framework

Transmodel Part 2
Network definition

Transmodel Part 3
Timetables

Transmodel Part 4
Operations & Control

Transmodel Part 5
Fares & Validation

3. UK Fare Profile

NeTEx Part 2
Fares etc

TM 6, 7, 8
MODEL DRIVEN DESIGN

- Conceptual Model is implementation independent
  - Use to design
  - Described in UML

- May have alternative Physical Models for different target implementations
  - XML Physical design as UML

- Implementation is derived from physical model.
  - NeTEx XML Schema
Designing a CEN Exchange format - Package & Element level traceability

- Traceability
  - Equivalent elements can be found at each level
  - Physical design and Implementation each add further detail and constraints

- Tool support (EA, XML SPY, OXYGEN, etc)
NeTEx Deliverables & IPR

- **CEN specification documents** (Modular)
  - P1: *Network*, P2: *Timetables*, P3: *Fares*
  - Available from BSI **£ Buy**, Copyright CEN

- **UML Models** (Modular). **£ Free**, GPL
  - Conceptual, Physical

- **NeTEx XML schema** (Modular). **£ Free**, GPL
  - Uniform grouping & versioning mechanisms to support large scale integration

- **XML Examples** (Modular). **£ Free**, GPL
  - By Topic and Subject

- **Website, white papers**. **£ Free**, GPL
UK NeTEx Deliverables & IPR

- UK Profile(s) £ Free, GPL
  - Basic Timetable,
  - Basic Fares, Additional Fares
  - Full Timetable,

- UML Models of UK Profile. £ Free, GPL
  - Conceptual, Physical

- XML Examples (Modular). £ Free, GPL
  - Fares
## FareXChange documentation

<table>
<thead>
<tr>
<th>Part1 Introduction</th>
<th>Audience</th>
<th>Contents</th>
<th>FXCP Status</th>
<th>EPIP Status</th>
<th>XML Examples</th>
</tr>
</thead>
</table>
| Overview, +Technical Intro | • NeTEx intro.  
• Scope of profile, Rationale for scope.  
• Examples of UK Bus fare products in scope. | Review Draft 5/2019 | | |

| Part2 Framework, Stops & Timetable | Technical detail | • Common profile elements.  
• Basic Stop elements; Basic Timetable elements.  
• Use of UK data sets & identifiers.  
• Coding, validation and data quality rules.  
• Mapping from NPTG, NaPTAN, TransXChange.  

| Part3 Fares | Technical detail | • Basic model elements for UK Bus Fares.  
• Advanced model elements for UK Bus Fares.  
• Coding, Validation and data quality rules.  
• Use of NaPTAN and NOC data  
Netex.uk mirror site

NetEx  Network Timetable Exchange -
CEN/TS 16614

UK Mirror site

NetEx is a CEN/ Technical Standard for exchanging Public Transport schedules, fares and related data.

The official NetEx site is at http://netex-cen.eu/

This is a UK development site to assist the use of NetEx formats for UK data.

NetEx is intended to provide a European wide standard for exchanging Public Transport data for Passenger Information;

- NetEx is a general purpose format capable of exchanging timetables and fares for Rail, Bus, Coach, Ferry, Air or any other mode of public transport. It includes full support for rail services and can be used to exchange UIC (International Union Of Railways) data

- NetEx is based on the CEN Transmodel standard which specifies a Conceptual model for Public Transport data.

NetEx uses a fully articulated model that represents PT concepts as well characterised, layered abstractions; the format is designed for the efficient, updateable exchange of complex transport data between distributed systems. This allows the data to be used in modern web services architectures and to support a wide range of passenger information and operational applications.

- The NetEx schema is free to use and its development is managed by the CEN standards process.

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Page last Updated 2019/07/12
Resource - UK profile “FareXChange”

FareXChange - Downloads

Downloads

UK NeTEx Fare Profile

  1. NeTEx UK Profile 1 - Intro pdf (2019.06.17-v0.09)
  2. NeTEx UK Base Profile 2 - Base profile pdf (2019.06.30-v0.14)
  3. NeTEx UK Fare Profile 3 - Fares pdf (2019.06.17-v0.17)
  1. NeTEx UK Profile 1 - Intro pdf (2019.06.17-v0.09)

Presentations

- Summary December 2018
  1. NeTEx UK Fare Profile Summary of Basic Scope - PPT/pdf
- Workshops - London & Manchester November 2018
  1. NeTEx Introduction - PPT/pdf
  2. NeTEx UK Fare Profile Basic Fares Scope - PPT/pdf
  3. NeTEx UK Profile Stop & Timetable scope - PPT/pdf
  4. NeTEx UK Fare Profile Advanced Profile requirements - PPT/pdf
Scope of UK NeTEx Bus Fare profile
Main UK use case is Fare & Price distribution – i.e. Downstream

NPTG, NaPTAN

TransXChange

Data Creation: Planning & Integration

Data Creation: Operations, Retail

Fares Build Tool

NeTEx

Networks

Maps

NPTG, NaPTAN

UK NeTEx Bus Profile

Data Integration & Build

Engines

APIs

Fares

Dynamic Fares

User Applications

Data Creation:
Planning & Integration
<table>
<thead>
<tr>
<th>Aspect</th>
<th>UK Legacy</th>
<th>Basic UK profile</th>
<th>Advanced UK Fare Profile</th>
<th>Future / Further?</th>
</tr>
</thead>
</table>
| Common Framework   | (nptg, naptan txc) | • Versioning & Validity  
• Frames & grouping  
• Identifiers & references                                                   | same                     |                   |
| Localities         | NPTG             | • Locations &  
• Plus Bus Zones                                                                  | same                     | Accessibility, POI? |
| Stops              | NaPTAN           | • Stops, Tariff ones                                                              | same                     |                   |
| Timetables         | TXC              | • Simple EU timetables  
• (no timings, no op data)                                                          | n/a                      | Full TXC, Rail features? |
| Fares              | new              | • Basic Bus Fares                                                                 | More Complex Bus Fares   | Long distance Fares? |

- Basic Profile
- Advanced Profile
- Out of current scope / For Future roadmap?
UK Profile scope - Modes

- Can be covered by Basic Products
  - Bus
  - Bus as add-on to Rail etc (e.g. Plus bus)
  - Ferry
  - Light Rail, Tram?

- Require additional Advanced Features
  - Bus supplements to Rail (PlusBus)
  - Metro / London Underground, PAYG, Capped fares

- Require additional complex features
  - Coach? (Seat Reservations, luggage, Routing?....)
  - Rail (routing, complex times of travel, etc)
“What is the minimum set of products needed to describe all common UK bus fares?”
Basic Product Types - terminology

- **Trip**
  The product gives the right to make a one-off journey

- **Pass**
  The product combines access rights to make repeated journeys within a time interval (Day, Week, Month etc)

- **Carnet**
  The product comprises a number of Trips or Passes sold as a bundle at a discount. They must be used within a given period.
Tariff Structures - Spatial aspects:

- **Flat** – There is only one price for the fare or product regardless of distance.

- **Point-to-point, Zone-to-Zone.** The fare gives the right to travel between two named stops. A discrete fare price can be given for each origin/destination pair.
  - Usually the fare prices increase progressively with increasing distance travelled, but the increase is not necessarily a strict linear function (further may be cheaper, and individual O/D prices may be adjusted arbitrarily to optimize yields, traffic, competitive advantage, etc).
  - Both Zone/Stage count and distance fares can be expressed as Z2Z/ P2P.

- **Named Zone(s):** The fare gives the right to travel in one or more identified zones. A fare price can be given for any allowed combination of zones.
  - If the zones are disjoint, then this is in effect “Zone to Zone” If the zones overlap or are nested then the topology is more complex,

- **Stage / Section count.** The fare gives the right to travel a certain number of sections or “stages” regardless of which specific sections they are. There is a price per zone used. The resulting fare prices are inherently progressive.
Moving Britain Ahead

P2P / Z2Z Tariff Structure

1

Bewbush West - Crawley - Broadfield/Pease Pottage

Adult Single Fares

<table>
<thead>
<tr>
<th>Bewbush West (loop)</th>
<th>160 Bewbush Neighbourhood Centre</th>
<th>240 160 Gossops Green Shops</th>
</tr>
</thead>
<tbody>
<tr>
<td>240 240 160 West Green</td>
<td>Crawley Hospital/Apple Tree</td>
<td>240 240 240 160 Southgate Avenue North</td>
</tr>
<tr>
<td>240 240 240 240 160 Southgate Wensleydale</td>
<td>240 240 240 240 240 Broadfield (all stops)</td>
<td></td>
</tr>
<tr>
<td>240 240 240 240 160 Pease Pottage Black Swan</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Fares are shown in pence. Eg. 170 = £1.70

To calculate your fare, find your location, and your destination, where the row and the column cross is your fare.

Return Fares

Not available on this service.

Child Fares

Child Fares are available on this route at half the adult fare on single journeys.

Crawley Area Metrorider
Metrovoyager
Discovery Ticket
Gatwick Travelcard

Accepted throughout.

PlusBus
Crawley, Three Bridges, Gatwick Airport, Ifield and Horley PlusBus tickets are valid throughout. Please see www.plusbus.info for further information.

Concessionary Passes
Concessionary passes are valid throughout from 0930-2300 Mon-Fri, and anytime at weekends and public holidays.

© Metrobus 2018

https://www.metrobus.co.uk/route-information/1
Zonal Pass with choice of durations –

TIME INTERVALS

FARE ZONE

FARE PRICE

Moving Britain Ahead
Stage /Section Count Fares

➢ Does not matter which section, just the number of sections.

How is your single fare calculated?

Distance-based fares for the West of England

In the West of England (excluding Bath Inner and Weston-super-Mare Town Zones – see pages 6 and 14) your single fare is worked out based on the route distance you are travelling.

Distances are calculated using fare stage sections rather than individual bus stops, with each section being approximately one mile long.

If you travel in 1-3 mile long sections it will be £1.50, 4-6 mile long sections will be £2.50 and so on.

Here is an example of one route and some of the fares along it:

Emersons Green, Sainsbury’s to Long Close would be £1.50 as you are travelling in three sections (numbers 1, 2 and 3, Long Close is classed as section 3 in this example as it’s where you are getting off the bus).

Long Close to Narrowways Road would be £2.50 as you are travelling in four sections (4, 5, 6, 7, Long Close is counted as section 4 in this example as it’s your boarding point).

Blackberry Hospital to Downend, The Leap would be £2.50 as you are travelling in four sections (5, 4, 3, 2).
# Basic UK Bus fare products

## Access rights

<table>
<thead>
<tr>
<th>Type of Product</th>
<th>TRIP (&quot;single ride&quot;)</th>
<th>PASS</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>PREASSIGNED FARE PRODUCT</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Short hop</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Single trip</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Time-limited (&quot;Hopper&quot;)</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Period Return</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Day return</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Day pass</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Termtime</td>
<td>-</td>
<td>?</td>
</tr>
<tr>
<td>Season pass</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>

## Tariff Structure

<table>
<thead>
<tr>
<th></th>
<th>Flat</th>
<th>Point to point</th>
<th>Named Zones</th>
<th>Zone/Stage Count</th>
<th>Peak / Off Peak</th>
<th>Group Ticket</th>
<th>Temporal Conditions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Short hop</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>-</td>
<td>-</td>
<td>No journey break</td>
</tr>
<tr>
<td>Single trip</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>Has use by date?</td>
</tr>
<tr>
<td>Time-limited (&quot;Hopper&quot;)</td>
<td>-</td>
<td>-</td>
<td>✓</td>
<td>-</td>
<td>✓</td>
<td>✓</td>
<td>Max trip duration, Can interchange</td>
</tr>
<tr>
<td>Period Return</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>Has use by date?</td>
</tr>
<tr>
<td>Day return</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>Must use same day</td>
</tr>
<tr>
<td>Day pass</td>
<td>-</td>
<td>-</td>
<td>✓</td>
<td>-</td>
<td>✓</td>
<td>✓</td>
<td>1 Day(elapsed or calendar)</td>
</tr>
<tr>
<td>Termtime</td>
<td>-</td>
<td>?</td>
<td>✓</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>Use during term 1 Y</td>
</tr>
<tr>
<td>Season pass</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>-</td>
<td>-</td>
<td>✓</td>
<td>n x D,W,M, 1 Y</td>
</tr>
</tbody>
</table>
## Carnets: Multi-trip / Multi-pass offers

<table>
<thead>
<tr>
<th>Type of Product</th>
<th>Quantity</th>
<th>Related tariff structure</th>
<th>Temporal Conditions</th>
</tr>
</thead>
</table>
| **Multi-trip**   | ✔️       | Any individual Trip      | Trips have use-by date  
|                 |          |                          | Trips can be time limited |
| **Multi-Day pass** | ✔️ | Day Pass                  | Passes have specified duration  
|                 |          |                          | Passes have use-by date |

### Access rights

<table>
<thead>
<tr>
<th>FARE PRODUCT (AMOUNT OF PRICE UNIT)</th>
<th>CARNET</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>
UK NeTEx Bus Fare Profile
Advanced features
Some types of Complexity found of fares

- **Products supported by multiple operators**
  - Tariff structures covering large networks
    - E.g. *Plusbus*
  - Compound products / offers:
    - Multiple products in one package
      - E.g. Oyster, Plusbus
    - Products that are available both as separate offers and as single purchase
      - E.g. *Plusbus*
    - Local variation in rules & participation?

- **More complex Products & Tariff structures**
  - E.g. Capped Pay as You Go (Oyster)

- **Complex rules for a fare product, notably**
  - Day types / Timebands / Fare demand types
    - E.g. *Metro & rail peak/offpeak into London*
    - Plusbus exceptions Night buses after 11.30
  - Exclusions / inclusions of services
    - E.g. all Metrobus in Crawley region except and line 4
  - Eligibility conditions

- **Combining rules specified at different levels**
  - E.g. Temporal Validity conditions on tariff, product, sales offer
Peak and Offpeak – Fares

- E.g. Concessionary Pass product has use restrictions

**FARE DEMAND FACTOR**

**Peak**: DT-Weekdays 0:00-09:30, 23:00-00:00
**Off-Peak**: DT-Weekdays 09:30-23:00, + DT-Weekend

---

**Serviced Calendar**

<table>
<thead>
<tr>
<th>Date</th>
<th>Day Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>2018/01/01</td>
<td>DT-Holiday</td>
</tr>
<tr>
<td>2018/01/02</td>
<td>DT-Weekday</td>
</tr>
<tr>
<td>2018/01/03</td>
<td>DT-Weekday</td>
</tr>
<tr>
<td>2018/01/04</td>
<td>DT-Weekend</td>
</tr>
</tbody>
</table>

---

**Fare Validity**

2018/01/01;
00:00-24:00 Off-Peak
2018/01/02;
• 00:00-08:30 Off-Peak
• 08:30-09:30 Peak
• 09:30-17:00 Off-Peak
ETC, ETC

---

**DAY TYPES**

**TIMEBANDS**

---

**Concessionary Passes**

Concessionary passes are valid throughout from 0930-2300 Mon-Fri, and anytime at weekends and public holidays.
Interoperating fares – eg Plus Bus: Zonal add on for rail tickets

- Multiple participating Bus operators
- Exceptions in each zone
- Sold via rail sales channels
UK Rail card products

- Single FARE PRODUCT
- Multiple SALES OFFER PACKAGES
  - Different USER PROFILEs
- Shared properties defined by GROUP OF SALES OFFER PACKAGES

**FARE PRODUCT**

**USER PROFILEs**

**SALES OFFER PACKAGES**

- Single FARE PRODUCT
- Multiple SALES OFFER PACKAGES
  - Different USER PROFILEs
- Shared properties defined by GROUP OF SALES OFFER PACKAGES

**NeTEx UK Fare Profile - Complex Fares**

48 Moving Britain Ahead
## Complex UK Bus Fare Products

Discount cards, etc

<table>
<thead>
<tr>
<th>FARE PRODUCT</th>
<th>Peak / Off Peak</th>
<th>(Can) or Must be Account Based</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>SALES DISCOUNT</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SALES DISCOUNT RIGHT</td>
<td>✔</td>
<td>✔</td>
<td>E.g. like a Railcard</td>
</tr>
<tr>
<td>CAPPED SALES DISCOUNT RIGHT</td>
<td>✔</td>
<td>✔</td>
<td>PAYG e.g. Oyster</td>
</tr>
<tr>
<td><strong>USAGE DISCOUNT</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>USAGE DISCOUNT RIGHT</td>
<td>✔</td>
<td>✔</td>
<td>Rebate for use, e.g. mileage</td>
</tr>
<tr>
<td><strong>STORED VALUE</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AMOUNT OF PRICE UNIT</td>
<td>-</td>
<td>✔</td>
<td>Stored value</td>
</tr>
<tr>
<td><strong>ENTITLING PRODUCT</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>THIRD PARTY PRODUCT</td>
<td>-</td>
<td>-</td>
<td>E.g. Military Pass</td>
</tr>
</tbody>
</table>

### NeTEx UK Fare Profile - Additional Scope
Additional Product Types - terminology

- **Discount Right**
  The product gives the right to purchase other fare products for travel at a discount, but is not itself a ticket. (e.g. Rail card, Oyster card).

- **Capped Discount Right**
  If there are multiple purchases, the purchase price is capped within a given time period (e.g. Oyster Card).

- **Usage Discount**
  The product gives a discount or rebate based on access rights consumed within a given period. Requires an account.

- **Amount Of Price Unit**
  The product holds an amount of stored value which can be used to purchase. May be linked to an account.
# UK Fare profile: Basic vs Advanced Fare features

<table>
<thead>
<tr>
<th>Aspect</th>
<th>Basic Fare profile</th>
<th>Advanced Fare profile</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Tariff Structure</strong></td>
<td><strong>Spatial</strong></td>
<td><strong>Composite tariffs</strong></td>
</tr>
<tr>
<td></td>
<td>• Point-to-Point, Zone-to-Zone</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Zonal</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Stage fare / unit section</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Flat</td>
<td></td>
</tr>
<tr>
<td><strong>Tariff - Temporal</strong></td>
<td><strong>Time intervals</strong></td>
<td><strong>+ Peak/ off-peak etc conditions</strong></td>
</tr>
<tr>
<td><strong>Products</strong></td>
<td><strong>Trip,</strong></td>
<td><strong>+Sale Discounts, Capping</strong></td>
</tr>
<tr>
<td></td>
<td><strong>Pass,</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Carnet</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Product options</strong></td>
<td><strong>User Types, Group Tickets</strong></td>
<td><strong>+Complex travel constraints</strong></td>
</tr>
<tr>
<td></td>
<td><strong>Simple travel constraints</strong></td>
<td><strong>+Complex commercial conditions</strong></td>
</tr>
<tr>
<td><strong>Sales Offers</strong></td>
<td><strong>Media, Distribution Channel</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Scaling</strong></td>
<td><strong>Line, Network, Operator(s)</strong></td>
<td><strong>+Complex Multi-operator, National, modular</strong></td>
</tr>
<tr>
<td><strong>Prices</strong></td>
<td><strong>Absolute prices</strong></td>
<td><strong>+ Derived prices</strong></td>
</tr>
</tbody>
</table>