

1. General

The Transport Data is supplied as eXtensible Markup Language (XML) document(s) that contain the current Transport Data available to and used by the 131500 Transport InfoLine.

The data in the XML documents is supplied in the Transport Exchange (TransXChange) format (version 2.1) and is validated to the schemas applicable for this format prior to release. Documentation, Tools, Schemas etc are available at <http://www.transxchange.org.uk>.

The data is supplied in multiple documents – one document per Operator. Refer to 4.5 and 4.2 for information relating to multiple Operator 'instances'.

2. 131500 TransXChange Data Update Frequency

131500 TransXChange Data is updated on a weekly basis based on an export from 131500 data systems. Therefore the 131500 TransXChange data may be up to a week behind compared to the internal data systems. This means that the 131500 web-site may hold slightly differing data than the 131500 TransXChange document. Hence the web-site cannot be guaranteed to produce the same information as that in the TransXChange data.

3. Non-Compliant Attributes / Elements

While the data supplied is schematically valid to the TransXChange schema, there are several areas where the 131500 data uses set (dummy) values. These elements or attributes relate to UK or NapTan specific values which do not have a correlation in Australia. The elements / attributes that are 'non-compliant' values are as follows:

- \NpTgLocalities\AnnotatedNptgLocalityRef\NptgLocalityRef
 - This is set to 'ES000000'
- \StopPoints\StopPoint\Place\NptgLocalityRef
 - This will always reference \NpTgLocalities\AnnotatedNptgLocalityRef\NptgLocalityRef hence will be set to 'ES000000'
- \StopPoints\StopPoint\AtcoCode
 - According to the TransXChange Standard this should be a NapTan identifier. As NapTan is not applicable to NSW, this is a 131500 internal identifier and will be referenced throughout the document as required. This identifier is not consistent across documents / document releases.
- \StopPoints\StopPoint\AdministrativeAreaRef
 - This is set to '000' in all cases.

4. Recent Changes

4.1. TimingStatus Elements

The JourneyPatternSections/JourneyPatternSection/JourneyPatternTimingLink/From and JourneyPatternSections/JourneyPatternSection/JourneyPatternTimingLink/To elements allow an optional sub-element of *TimingStatus* to allow indication of whether the stop is a TimingPoint or otherwise.

In the Sample release data, all To & From elements included the TimingStatus sub-element.

The TimingStatus element has been updated to reflect the underlying data within 131500. Hence now not all StopPoints will be shown as TimingPoints, but should match those shown on 131500.

4.2. WaitTime Elements

TransXChange allows for the indication of wait or hold time at a Stop – i.e. where a vehicle may arrive at a StopPoint at 10:00, but not depart until 10:05 to allow passenger boarding.

This information is now indicated within the TransXChange data through the use of the WaitTime element. The WaitTime element is an (optional) sub-element of JourneyPatternSections/JourneyPatternSection/JourneyPatternTimingLink/From and JourneyPatternSections/JourneyPatternSection/JourneyPatternTimingLink/To elements. This element must be considered when calculating Timetables or Stop passing times, as the Stop to Stop time is a combination of the RunTime *and* the WaitTime. Hence for a JourneyPatternTimingLink as follows:

```
<JourneyPatternTimingLink id="3150400">  
<From><StopPointRef>A</StopPointRef></From>  
<To><StopPointRef>B</StopPointRef></To>  
<RunTime>PT2M</RunTime>  
</JourneyPatternTimingLink>
```

if the vehicle arrives at **A** at 10:00, then the next stop will be at **B** at 10:02.
Conversely for the following:

```
<JourneyPatternTimingLink id="3150401">  
<From><WaitTime>PT1M</WaitTime><StopPointRef>A</StopPointRef></From>  
<To><StopPointRef>B</StopPointRef></To>  
<RunTime>PT2M</RunTime></JourneyPatternTimingLink>
```

if the vehicle arrives at **A** at 10:00, then the next stop will be at **B** at 10:03, due to the 1 minute hold at A.

5. General Usage Tips

5.1. Cross Version Consistency

Each version of the data should be considered stand-alone and a full replacement for previous versions. That is, different versions (releases) of data documents cannot (and should not) be related to each other.

5.2. Information duplication (Operating Dates / Operator / StopPoints)

131500 Transport information is broadly divided into groupings based on the Operator and/or Region of operation (refer to <http://www.131500.com.au/maps/bus/> for information on regions).

However in some cases there is further delineation based on Operating Dates for schedules. This is most common in terms of Sydney Buses, Newcastle Buses and Ferries, Liverpool – Parramatta T-Way and CityRail and leads to multiple 'instances' of these operators being presented – therefore there may be multiple documents for a single Operator.

These scenarios can lead to an apparent duplication of StopPoints, Operators and other elements – however each element will relate to a specific 'instance' of the Operator. For example, if multiple instances of Sydney Buses are available, there may be two 'Railway Square' StopPoints – one related to each 'instance'. Equally there may be two (or more) documents with similar Operator elements ('Sydney Buses', Operator Code 101 and 'Sydney Buses', Operator Code 806).

Care should be taken when leveraging this information – it is usually indicative of a Scheduling change – this change may take place before, after or *during* another instance of the Operator.

For example, CityRail generally has a 'baseline' schedule that is valid for the foreseeable future (instance '1'). However there may be special scheduling for the coming weekend (instance '2'). In this case there will be two documents, which will contain data such that:

Instance (Document) 1:

Operating Profile Start Date: 1 Jan 2009

Operating Profile End Date: 31 Dec 2009

Operating Days: All Days **EXCEPT** 19th-20th October 2009

Instance (Document) 2:

Operating Profile Start Date: 19 October 2009

Operating Profile End Date: 20 October 2009

Operating Days: Weekend

Each 'Instance' of the CityRail data will contain all the applicable StopPoints, Journeys etc. for the associated period.

Variations of this example will be encountered and should be checked (e.g. Instance 1 may contain an End Date of 31 Dec however all days after 30th June may be marked invalid).

5.3. OperatingPeriod overlap & OperatingProfile RegularDayType

As mentioned in 5.2, there are circumstances where there will be multiple operator 'instances' that may include overlapping OperatingPeriod(s).

It should be noted that depending on the degree of overlap, the OperatingProfile may be presented such that there are no RegularDayType (including DaysOfWeek) elements presented – all day level scheduling information will be presented in the SpecialDaysOperation element.

This situation will tend to occur where there is a large degree of overlap and where it is more efficient to indicate several specific days of operation than invalidate many inactive days.

5.4. Identifiers

There are many Identity attributes or values utilised within the TransXChange document. As per 5.1, these values can only be considered consistent within the scope of each document. These values may change between releases and should not be relied upon to be consistent – many values are dynamically generated. For example a StopPoint (e.g. Central Station) may have a designated AtcoCode of '123456'. This AtcoCode may be different within the next TransXChange document (e.g. '654123') – hence each document should be considered a 'replacement' of previous data – relationships between different documents are not maintained. As mentioned above this applies to many identifiers – including Operator(s) – for example 'CityRail' may have an identifier of 500 in one document release and 501 in the next release.

5.5. StopPoints

StopPoint(s) are representations of an actual Bus, Train or Ferry Stop and contain the geo-spatial co-ordinates (Longitude and Latitude) for the stop.

The AtcoCode element is a dynamically generated identifier and is not associated with a NapTan identifier. The CommonName Element represents the descriptive name for the Stop. However note that this Element is limited to 48 characters and has character encoding for special characters (refer to Schema), hence the full description is also included within the Notes element.

5.6. Operators

As per 5.1 & 5.2, cross-document consistency is not guaranteed and should not be relied upon. This includes Operator identifiers. Also bear in mind that as per 3.2 there may be multiple Operator 'instances' available, each representing a schedule for a specific period (or subset of another 'Instances' period).

5.7. Operating Dates

Vehicle Journeys that are 'late night' and commences after midnight are technically scheduled on the previous day. For example there may be a Vehicle Journey for the '123' service which operates late Friday night (technically 1:00am Saturday morning).

In the data feed, these Journeys will have their own operating days different than those of the parent service (one day forward).

5.8. Service & JourneyPatternSection Elements

Generally, a Service is a container of a group of JourneyPatterns that will be referenced by one or more VehicleJourneys. Generally the grouping is based on LineName (Route Number e.g. E50), OperatingProfile (Scheduled operating days) and Direction. However some services will be further divided due to upstream data constraints.

It should be noted that while a Service is generally a group of similar VehicleJourneys, there is no guarantee that the physical or logical traversal of stops will be consistent across the Service. For example a Service may have a VehicleJourney that stops at Central, Chatswood and Hornsby – whilst also containing another VehicleJourney that stops at Central, Strathfield and Penrith. Hence modelling physical Route paths at a Service level may be difficult or impossible.

5.9. VehicleJourney & LineName in CityRail data

It should be noted that CityRail data is not directly comparable to paper timetables in terms of LineName and the included stops.

CityRail VehicleJourneys are divided on the basis of continuous Journeys that it is possible to *travel upon*, rather than that published in a paper timetable (in essence the data is similar to that seen upon a Station departure monitor).

Hence a single VehicleJourney may commence at Liverpool Station, loop through Bankstown and the City several times, before terminating at Macarthur. Some Journeys may have in excess of 100 stops and may traverse several 'Lines' – the example above traverses Bankstown, Inner West and Airport & East Hills lines.

This construction means that the LineName will not always represent the correct line designation for the entirety of the Trip. Data consumers should perform their own interpretation of the LineName & VehicleJourney when leveraging the data.

5.10. Service/LineName Duplication

There may be circumstances where there is an apparent duplication of Services (within a specific instance) based on the re-occurrence of a similar LineName. There are several reasons for this occurring:

- Directional change (inbound / outbound)
- Scheduling change (varied operating days)
- Route variation (journey pathing variations)

Note that there may be instances of Services with identical LineName's *not* being related routes. It is suggested that a combination of LineName, Service/Description and similar VehicleJourney patterns be used to identify similar Services for grouping if required.