Rail Delivery Group

National Rail

Timetable Comparator Interface

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Documentation Management

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Version History

Version	Comments
P-01-01	Various updates following Internal Review, various technical text. Add email address to Timetable Comparator Service document Update RDG's registered/postal address Add a missing space character Amend an incorrect link Clarifications to section 2.1.4.1 and 2.1.4.2 Address a comment raised in section 2.1.4

Table of contents

1. Introduction 5
1.1 Overview 5
1.2 Scope 5
2. The Timetable Comparator Interface 6
2.1 Overview 6
2.2 RDG Developer Portal 7
3. Functional Structure 7
3.1 Overview 7
3.2 Request API 7
3.2.1 Service Changes Request 7
3.2.2 Daily Delta Request 8
4. Timetable Comparator Interface Business Rules 9
4.1 Overview 9
4.2 Detailed Business Rules 9
5. Accreditation Requirements ..... Error! Bookmark not defined.

Terms and Definitions

Term	Definition
API	Application Programming Interface.
AWS	Amazon Web Services.
RSPS5046 Timetable	Timetable data feed provided by RDG.
GET and Post Method	The GET method refers to a HyperText Transfer Protocol (HTTP) method that is applied while requesting information from a particular source. It is also used to get a specific variable derived from a group. The HTTP POST asks for input of information from the supplying browser into the server's message system. Structures of HyperText Markup Language (HTML) come in either POST method or GET method. The method applied, be it the POST method or the GET method, settles on how form data shall be presented before the server.
HTTP	Hypertext Transfer Protocol.
RDG Developer Portal	The online portal through which RDG provided APIs will be consumed. the single source of associated API user guides and detailed technical guidance.
RDG	Rail Delivery Group.
REST	Representational state transfer.
TCS	Timetable Comparator Service.
TIS	Ticket Issuing System.
TOC	Train Operating Company.
URL	Uniform Resource Locator.

1. Introduction

1.1 Overview

1.1.1 This document describes the purpose and function of the Timetable Comparator Interface and contains the business rules and additional guidance.

1.1.2 This document is one of three core components designed to assist with and manage the utilisation of the Timetable Comparator Interface.

Component	Description
RSPS5240: 'Timetable Comparator Interface' (this document)	See 1.2
RSPS5200: 'RDG Developer Portal'	RDG documentation to support the use of the RDG Developer Portal and associated interface/API capability.
RDG Developer Portal	RDG's service offering: a suite of interface/API capabilities

1.1.3 All three components (RSPS5240, RSPS5200 and the Developer Portal), alongside any other referenced documents, must be considered by all Timetable Comparator Interface Clients.

1.2 Scope

This document:

- Explains the purpose and functional structure of the Timetable Comparator Interface.
- Points to and gives some background to the RDG's Developer Portal.
- Articulates specific business rules to be adhered to.

2. The Timetable Comparator Interface

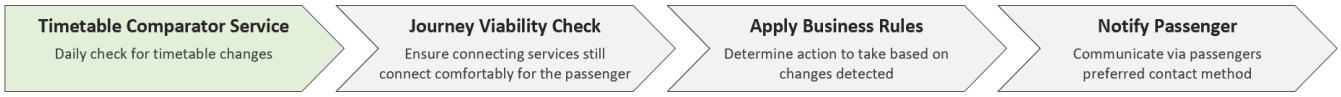
2.1 Overview

2.1.1 The Timetable Comparator Service was built to store current and historical RSPS5046 timetable data files and then report on the differences that occur each day.

2.1.2 The Timetable Comparator Interface is accessible through the RDG Developer Portal.

2.1.3 The Timetable Comparator Interface allows Clients to:

- Retrieve updates for a single service or a list of services, using a customer comparison range that may span multiple days (Service Changes Request)
- Retrieve a daily delta file showing the differences between two consecutive RSPS5046 timetable files (Daily Delta Request).



2.1.4 Timetable Stability Buffer: Sometimes when timetables are updated, they may receive several updates over several days. Usually this is to work around further scheduling issues or to further refine the recent updates. To prevent passengers from being notified too frequently of partially completed changes, a timetable stability buffer is used to ensure the timetable is stable before being reported as changed. The following rules are applied within the timetable comparator service.

2.1.4.1

2.1.4.2 Any changes detected to a service that is 12 days or more from departure will be held onto until that service has had no further changes for 2 consecutive days.

2.1.4.3 Any changes detected to a service that is 11 days from departure will be held until day 10 where changes will be released via the Timetable Comparator Service.

2.1.4.4 Any changes detected to a service that is 10 days or fewer from departure will be released via the Timetable Comparator Service immediately, i.e. no stability buffer will be applied.

2.1.4.5 Note: These rules are configurable within the Timetable Comparator Service and are subject to change in the future.

2.1.4.6 Note: The stability buffer process is applied in both Daily Delta and Service Change Request API.

2.1.5 This service will only report on changes to fields within the RSPS5046 data that may impact a passenger's journey. Fields that have limited or no impact on a passenger's journey, such as train speed, power type, timing load, etc, will not be reported on.

2.1.6 To request access to the Timetable Comparator Interface APIs please log a service ticket with the Timetable Comparator Service Desk via Email:

- Timetable.comparator@raildeliverygroup.com

2.2 RDG Developer Portal

2.2.1 The aim of the RDG Developer Portal is to be the primary source for GB rail APIs and data feeds.

2.2.2 The RDG Developer Portal will be used by RDG as a single interface/API access point connecting multiple RDG systems to support rail services.

2.2.3 Full details of the RDG Developer Portal are documented in RSPS5200: 'RDG Developer Portal'.

2.2.4 RSPS5200 is compulsory reading alongside this document.

3. Functional Structure

3.1 Overview

3.1.1 The Timetable Comparator Service was built to store current and historical RSPS5046 timetable data files and then report on the differences that occur each day.

3.1.2 The Timetable Comparator Interface provides two RESTful API request types:

- Service Changes Request: retrieve updates for a single service or a list of services, using a customer comparison range that may span multiple days.
- Daily Delta Request: retrieve a daily delta file showing the differences between two consecutive RSPS5046 timetable files.

3.1.3 The Timetable Comparator Interface was built to fit into a larger product workflow, one where travelling customers are notified of any changes that may impact their travel plans.

3.1.4 The API definition, example code and documentation can be found on the RDG Developer Portal at https://anypoint.mulesoft.com/exchange/portals/rail-delivery-group-1/ (click / find "tcs-eapi" for Timetable Comparator API documentation).

3.2 Request API

3.2.1 Service Changes Request

3.2.1.1 The Service Changes Request allows you to retrieve timetable changes for one or more services between a base date and 'today' – allowing the comparison range to span multiple days. The base date is often the booking date or the date when the service was last checked for changes.

3.2.1.2 This request is ideal for TIS that would prefer to check for timetable changes periodically, such as all bookings that are 5 days before departure, or on an ad-hoc basis. Alternatively, if the TIS simply doesn't want to work with a daily delta.

3.2.1.3 This request supports both GET and POST methods.

- The GET request allows you to retrieve timetable changes for 1 service for 1 or more travel dates.
- The POST request allows you to bulk retrieve timetable changes for 1 or more services using various travel dates and base dates. This method essentially allows you to dump the list of distinct services within your active bookings database. A maximum of 100 services per request will be supported. Large requests will result in slower response times.

3.2.1.4 The format of this request consists of an array of Service objects. Each of these Services will allow you to define the parameters for which changes will be retrieved.

3.2.2 Daily Delta Request

3.2.2.1 The Daily Delta request returns all differences found within the RSPS5046 timetable data between ‘yesterday’ and ‘today’.

3.2.2.2 This request is ideal for TIS that would prefer to pull all changes and process the data locally.

3.2.2.3 This request does not support a base date, so users of this request type would need to query the service daily. The daily delta file can be requested for a particular date using the Date field in the request. If the date is omitted, the latest file will always be returned.

3.2.2.4 The response to this request will include a pre-signed, time sensitive URL where the daily delta can be downloaded. If the daily delta does not exist for the requested date then a HTTP 404 ‘Not Found’ will be returned.

3.2.2.5 Services that are held onto by the timetable stability check will not be included in the daily delta. Instead, these services will be included in the delta on a subsequent day, depending on which parameters are defined within the timetable stability check.

3.2.2.6 The format of this request consists of an optional date field that allows you to specify which delta you would like to retrieve.

4. Timetable Comparator Interface Business Rules

4.1 Overview

4.1.1 The Timetable Comparator Interface has various business rules that must be complied with by Clients.

4.1.2 These business rules describe how the Timetable Comparator Interface must be utilised to complete certain operations and/or what limits or constraints must be applied.

4.1.3 These business rules have been compiled with reference to the underlying logic of the new technology platform upon which Timetable Comparator has been built.

4.1.4 As an overarching rule, any API call within the Timetable Comparator Interface can be made at any time. A Client's use case will define the order of API calls.

4.1.5 The Timetable Comparator APIs will be held to certain rate limiting and throttling measures to ensure both fair usage and optimum performance of the Interface itself.

4.1.6 All API calls will have mandatory fields which must be valid entries for a successful outcome. These mandatory fields are explained fully in the RDG Developer Portal.

4.1.7 Invalid API requests will return error messages. Error messages are detailed in the RDG Developer Portal.

4.2 Detailed Business Rules

4.2.1 The following Business Rules apply to Clients using the Timetable Comparator Interface:

Business Rule ID	Description
Authentication	
AU-01	Only authorised clients will be able to access and utilise the Timetable Comparator Interface.
Availability	
BR-01	Once successfully downloaded for a specific day, the Daily Delta file must not be downloaded again.

Note: Business rules will be added after the performance test.

End.