Rail Delivery Group

National Rail | BRITAIN RUNS ON RAIL

Timetable Information
Data Feed Interface Specification

Document Ref: RSPS5046
Version: 03-00

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Version History

Version	Date	Author	Comments
00-00-A	24-Jan-14	Edna Kelly	First draft.
00-00-B	21-May-14	Edna Kelly	Reviewed by iBlocks. JIRA STD-612: 'Copyright text to be added'
00-00-C	22-May-14	Edna Kelly Neil Barkham	Addressed internal review comments.
00-00-D	05-Jun-14	Neil Barkham	More internal review comments addressed.
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01-00-A	19-Jan-17	Edna Kelly	Next Review Date reached.
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01-00-C	28-Mar-17	Neil Barkham	External review comments addressed.
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02-00-A	05-Mar-18	Neil Barkham	Updated to include 'Additional Fixed Links File' and the 'TOC Specific Interchange Times File'. General review. Restructure to put example data with the feed definitions.
02-00-B	16-Apr-18	Neil Barkham	Updated after internal review.
02-00-C	22-May-18	Neil Barkham Andrew Tolley Ian Sargent	Updated after external review. Additional statements to clarify usage of specific data feeds. Clarify the usage of the Additional Fixed Links File (ALF) over the Fixed Links File (FLF). Define the Accreditation Requirements.
02-00-D	27-Jun-18	Neil Barkham Ian Sargent	Updated following final external review. Clarify the usage of the Additional Fixed Links File (ALF) over the Fixed Links File (FLF). TIS Suppliers are now encouraged to migrate rather than this being mandated. Accreditation requirements are now removed due to relaxation of implementation of 'Additional Fixed Links File' and 'TOC Specific Interchange File'.
02-00-E	16-Jul-18	Lami Jinadu	Updated following second final external review. Progressed to RSF review.
03-00	01-Aug-18	Lami Jinadu	Issued following RSF approval.

Release Control

The following personnel must formally approve the document prior to assigning a non-draft version number.

Organisation	Role	Name
RSF	Approval of Standards	Retail Systems Forum
RDG	Document Owner	Compliance Standards
RDG	Subject Matter Expert	Andrew Head
RDG	Subject Matter Expert	Ian Sargent

Distribution

Organisation	Role	Name
TIS Accreditation	N/A	N/A
TOCs	N/A	N/A
TIS Suppliers	N/A	N/A

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Glossary

Term	Meaning
ATOC	Association of Train Operating Companies
BTD	Basic Timetable Detail
CAPRI	Computer Analysis of Passenger Revenue Information. (Heritage settlement system)
CATE	Computer Assisted Timetable Enquiries. (Heritage journey planner)
CIF	Common Interface File
CRS	Computerised Reservation System
DTD	Data Transformation and Distribution Service
FLF	Fixed Links File
FTP	File Transfer Protocol
iBlocks	Provider of DTD service
ITPS	Network Rail Integrated Train Planning System
MSED	Master Stations Editor – part of the PMS locations editor
MSNF	Master Station Names File
NLC	National Location Code
PMS	Product Management System
PO MCP	Post Office Location Code
RDG	Rail Delivery Group
RJIS	Rail Journey Information Service
RSF	Retail Systems Forum
RSP	Rail Settlement Plan
SFTP	Secure File Transfer Protocol
STP	Short Term Plan
TIPLOC	Timing Point Location
TOPS	Total Operations Processing System (a list of every vehicle on the railway)
TTIS	Time Table Information Service
UIC	Union Internationale des Chemins de fer (International Union of Railways)
UID	Unique Identifier

1. Acknowledgements

1.1　　The information provided in this document, regarding the Common Interface File (CIF) format, is reproduced from the 'Common Interface File - End User Specification' which is copyright Network Rail.

1.2　　The information provided in this document regarding data content is sourced from the 'Lists of Valid Values' Appendix in the 'Common Interface File - End User Specification' (available from ASSIST under RSPS5004: 'Network Rail Common Interface File - End User Specification').

2. Scope

2.1　　The Rail Delivery Group (RDG) have taken steps to ensure that all necessary actions and permissions are gained from Network Rail and all other parties as necessary to permit iBlocks Ltd to reproduce Network Rail documentation relating to the CIF, and to permit the Data Transformation and Distribution Service (DTD) to take CIF data, manipulate it (including the addition of Bus and Ferry Operator's data), and present the modified data as a Data Feed to external parties in CIF format.

2.2　　The scope of this document is the interface specification of Timetable Information Data Feed provided by the DTD service.

2.3　　This document describes the file structure of all the Timetable files of the Timetable Feed and provides technical details of how these files are made available to registered recipients of the data.

2.4　　The DTD service is responsible for managing and distributing other Data Feeds and the following documents describe the interfaces:

- RSPS5045 Fares and Associated Data Feed Interface Specification

- RSPS5047 National Routeing Guide Data Feed Specification

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3. Approach

3.1   The diagram below is an overview of the 'Feed Processing and Transformation Service', which transforms the imported feed data and generates output feed files. The output feed files are distributed to those registered Data Feed recipients with appropriate entitlements via SFTP Pull, FTP Push or SFTP Push.
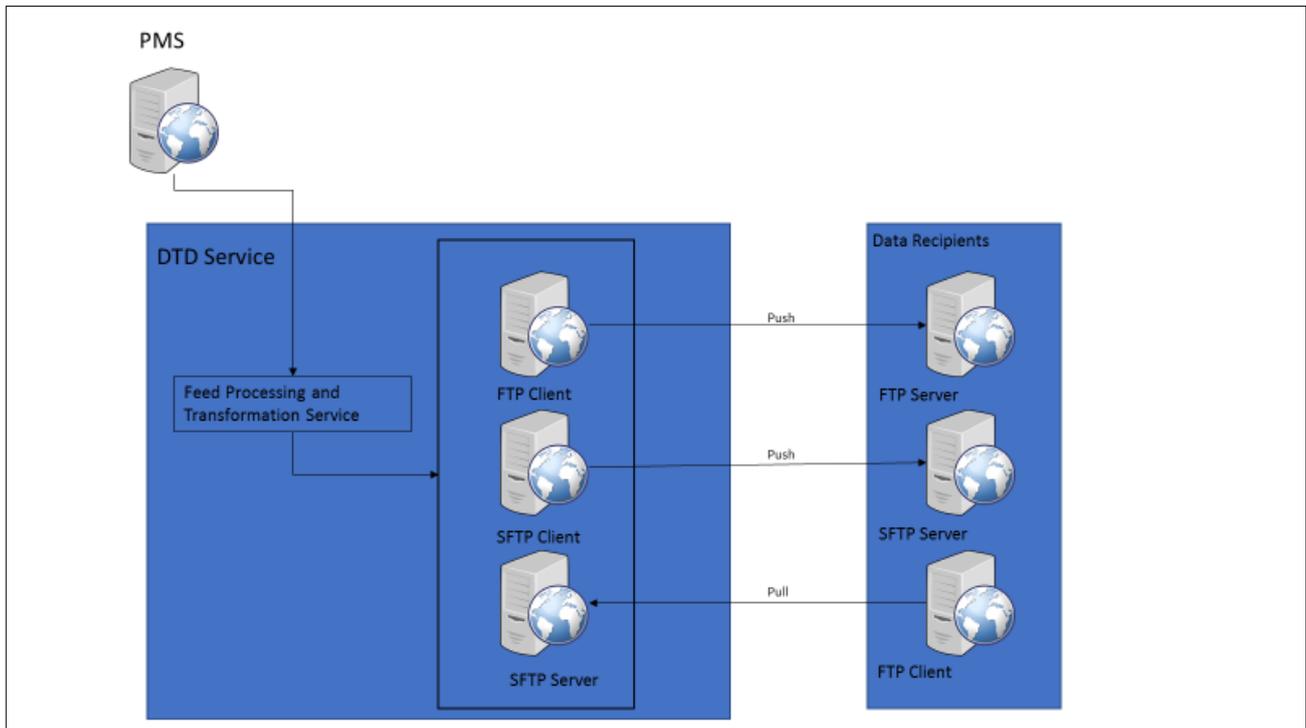
Figure 1 Feed Processing and Transformation Service overview

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4. Data feeds

4.1 The Data Feeds are delivered in fixed format flat text files.

4.2 The following export file types are defined for the DTD CIF Timetable Data Feed.

File type	Contents and notes	Typical Size[1]	Generic filename[2]
Contents	This file lists all the filenames included in the timetable Data Feed, except for the contents file itself.	1Kb 1Kb	RJTTF*nnn*.DAT RJTTC*nnn*.DAT
Full Basic Timetable Detail	Full CIF file containing all timetable details in TTIS CIF format.	500Mb	RJTTF*nnn*.MCA
Daily Updates to Timetable Detail	File of updates to be applied to Full Basic Timetable Detail.	5Mb	RJTTC*nnn*.CFA
TTIS Reject	File contains records that have been rejected by the TTIS team before sending the CIF data to DTD.	1Mb	RJTTF*nnn*.REJ
Z-trains	Quasi-CIF format file containing details of bus and ferry transportation. Refresh Only File. The 'Z-trains' data (bus, ferry etc.) is always a full file in Quasi-CIF format and applies to the currently Live CIF data only. This file is supplied separately to avoid mixing daily updates with full files of 'Z-trains' data and to avoid mixing CIF format and Quasi-CIF format files.	2Mb	RJTTF*nnn*.ZTR
CIF Set Details	File is effectively redundant and permanently fixed at UCFCATE.	< 1Kb	RJTTF*nnn*.SET
Fixed Links	Fixed Links file containing details of links between stations involving transfer by other than train. The file is always a full file and applies to the currently Live CIF data only	65Kb	RJTTF*nnn*.FLF
Additional Fixed Links	Fixed links between stations and includes details of transfer times (minutes) and mode, e.g. Walk, Bus, Taxi, Tube.	130Kb	TTISF*nnn*.ALF or YYYYMMDD.ALF
TOC Specific Interchange Times	Minimum interchange times at stations at which different minimum interchange times apply, depending on the TOC(s).	3Kb	TTISF*nnn*.TSI or YYYYMMDD.TSI
Master Station Names	Details about stations including such data as map reference etc. The file is always a full file and applies to the currently Live CIF data only.	600Kb	RJTTF*nnn*.MSN
ZIP files	Compressed files containing the full and update only files respectively.	35Mb 2Mb	RJTTF*nnn*.ZIP RJTTC*nnn*.ZIP

4.2.1 The format of the files used in the Timetable Data Feed is defined in the next section.

4.2.2 RSPS5044: 'IPTIS Data Management Service Reference Data', contains additional timetable data.

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[1] The typical size is for guidance only. The CIF file size for example may vary from 2Mb to 300Mb.
[2] Within the 'Generic Filename' *nnn* is a sequence number defined by DTD. (999 'rolls over' to 001).

5. Key Technical Details

5.1 Structure

5.1.1   The Timetable Data Feed comprises several separate files containing data records. Each file is comprised of an informational header, followed by an ordered sequence of records, followed by a terminator. The records are fixed format; each record contains fields of the length described in the body of this document.

5.1.2   Every line of every file is either a comment (introduced by a leading '/' character) or a record.

5.1.3   The Contents, Fixed Links, Master Station Names and CIF Set Details files commence with the following sequence of comments.

```
/!! Start of file
/!! Content type:  type
/!! Sequence:      nnn
/!! Generated:     dd/mm/yyyy
/!! Exporter:      DTD_module version
```

where `type` matches the file extension as per the table in section 4.

5.1.4   The sequence number listed in the header will match that in the filename.

5.1.5   The Contents, Fixed Links, Master Station Names and CIF Set Details files terminate with a comment to provide some protection against inadvertent file truncation:

```
/!! End of file (x records) (dd/mm/yyyy)
```

`x` contains the number of records reported. The figure does not include comments.

5.2 Contents file

5.2.1 Description

5.2.1.1 This file lists all the filenames included in the timetable Data Feed set, except for the Contents file itself. Two of these files exist; one for customers receiving a full Data Feed, one for customers receiving an update only feed.

5.2.2 Example data

```
/!! Start of file
/!! Content type:  DAT
/!! Sequence:      956
/!! Generated:     09/04/2018
/!! Exporter:      RjEhrTTT
RJTTF956.ZTR
RJTTF956.REJ
RJTTF956.SET
RJTTF956.FLF
RJTTF956.MCA
RJTTF956.MSN
RJTTF956.ALF
RJTTF956.TSI
/!! End of file (8 records) (09/04/2018)
```

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5.3 Basic Timetable Detail File

5.3.1 The Basic Timetable Detail (BTD) record formats are the same as the CIF record formats. Information about CIF contents and formats are reproduced here for information (see section 1, 'Acknowledgements' for source references). RDG will issue technical documentation of this sort as part of the end-user license agreement. The record layouts may change over time.

5.3.2 It should be noted that the CIF Data Feed to the DTD data factory is a subset of the data held on the Network Rail Integrated Train Planning System (ITPS). The DTD timetable Data Feed is not a replacement of the CIF mechanism provided by Network Rail, it is a timetable Data Feed supplemented with additional information (such as Bus and Ferry details). For example, DTD does not receive information about empty rolling stock, freight movements, etc. and cannot therefore pass such information forward to other users.

5.3.3 Schedule Records

5.3.3.1 The file contains a set of train schedules. A train schedule is an image of a train where all the train's details are constant for the dates the schedule applies.

5.3.3.2 Only schedules for totally valid trains are generated on the extract file. Should a valid train be edited and in consequence become invalid, the user will be left with the last valid schedule(s) for the train. When the train is again declared valid, the new set of schedules will become available for the user.

5.3.3.3 A train schedule can be uniquely identified by UID, Start-date & Overlay indicator.

5.3.4 Associations Records

5.3.4.1 The file also contains train association records. These document the link between a pair of trains. Associations are passed independently of train schedules.

5.3.4.2 CIF will document when an association occurs by holding the dates for which the association applies, not the schedules it applies to. The user will have to establish the schedules involved in the association.

5.3.4.3 Associations between 2 trains do not necessarily occur on exactly the same set of dates as far as the train schedule dates are concerned. This situation arises either: (a) when one train runs over midnight and the other does not, and the first train associates with the second after midnight: or (b) where a train terminating late one day is associated with a train which runs early the following day e.g. train A runs 29/05/17 – 21/09/17 FSX. Train B runs 30/05/17 – 22/09/17 MSX. A & B are associated with each other. The Association applies from 29/05/17 – 21/09/17 FSX.

5.3.4.4 The association dates refer to those of the Base UID. Where the dates of the associated train schedules will either be 1 day ahead or behind those of the Base UID schedules this is indicated by Association-type. In this case Association-type would be set to 'N' (see later in the document for the list of association types).

5.3.4.5 In the case of Join & Divide Associations, the Base UID will always be the 'through' train. For Previous/Next Associations, the Base UID will be the train that has a 'next' working. (Previous/Next associations are for Operating purposes only).

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5.3.4.6   An association record is identified as:

- Base-UID/Assoc-UID/Start-date/Diagram Type/
- Location (Assoc-Location/Base-loc-suff/Assoc-loc-suff)

5.3.5   TIPLOC Codes

5.3.5.1   Details of TIPLOC location codes are included in the file. No UIC Codes are included..

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5.4 Basic Timetable Detail File Format

5.4.1 The file is a sequential text file containing fixed length 80-character records, padded with trailing spaces as necessary. Records are terminated by carriage return line feed. The file contains different record types which can be identified by the 'record identity', the first two bytes of a record.

5.4.2 The following applies to all CIF format files namely the 'Full Basic Timetable Detail and 'Daily Updates to Timetable Detail'.

5.4.3 The sequence of records on the file is significant. The following sequence laws apply (the record identity is given in brackets ( )):

    i. Header record (HD)
    ii. TIPLOC insert records (TI)
    iii. TIPLOC amend records (TA – 'update' files only)
    iv. TIPLOC delete records (TD – 'update' files only)
    v. All association records in Start-date sequence (AA)
    vi. All train schedules in Start-date/UID sequence[3]
    A train schedule comprises a set of records, output in the following order:
- A basic schedule record (BS)
- A basic schedule extra details record (BX)
- An origin location record (LO)
- All intermediate location records (LI) in journey sequence
- Preceded by a Change in Route, if present, for the station (CR)
- Terminating location record (LT)

    vii. Trailer record (ZZ)

5.4.4 Therefore, the record:

```
BSNY53290980524 9809200000001 POO2T07    124207004 EMU319 100D      B            P
```
    would appear in the file before the record
```
BSNC43290990624 9909200000001 POO2T07    124207004 EMU319 100D      B            P
```

5.4.5 Where a train schedule deletion or cancellation is raised, only a basic schedule record (BS) is output. Otherwise the schedule will consist of at least record types BS, BX, LO and LT.

5.4.6 If the situation arises whereby there are no updates for a particular day, it is possible that an "empty" file will be generated. The "empty" file consists of a header (HD) and trailer (ZZ) record only.

5.4.7 Two other record types – Train Specific Notes (TN) and Location Specific Notes (LN) are identified in CIF but are not implemented. When these are implemented in CIF, this DTD Data Feed will also implement them.

5.4.8 If a train is updated, new schedules will be passed on the BTD file via CIF.

5.4.9 Only valid trains are passed to DTD (and hence to BTD users); this is also true of associations. Only valid associations are passed to DTD. Valid associations are those where both trains are valid and the association itself is valid.

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[3] BS Records are sorted in ascending order of date, so records with the start date 161030 would appear before records with the start date 170101 (i.e. it is not an ASCII sort sequence). Note that in the BS record the UID field appears before the start date field, but the start date field is the first sort key, and UID is the secondary sort key

5.4.10   If either of a pair of associated trains is cancelled on an STP basis for some days/dates, this is interpreted as also cancelling the association. A cancellation record for the association will be produced for the appropriate days/dates.

5.4.11   Full STP facilities are available, including the ability to STP cancel an association without cancelling the trains, or to STP amend an association. Also, it is possible to have an STP association defined, where no permanent association exists. In addition, it is possible for a train to have more than one join or split at a location.

5.4.12   A specific location may occur on each schedule up to nine times. These are distinguished by Unique suffix values (either 'blank' or in the range 2-9 inclusive) following the TIPLOC in the 'LOCATION' field of the LO, LI OT LT records. If present, the suffix value will always appear as the eighth character, even if the TIPLOC has less than seven characters.

5.4.13   Journey planners must display the public times in all passenger enquiries. In most case the scheduled and public times will be identical, or will be rounded up/down by ½ minute. However, there are instances where the discrepancy between the two will be several minutes. In such cases it is the public times that should be displayed, and used to calculate minimum connection times for changing trains.

5.5   Basic Timetable Detail Record Layouts

5.5.1   Header Record

5.5.1.1   The Header Record contains the following data fields:

Field	Field description	Length	Position	Notes
1	Record Identity	2	1-2	With the constant value 'HD'.
2	File Identity	20	3-22	
3	Date of Extract	6	23-28	Format ddmmyy defining the date that the BTD extract file was created.
4	Time of Extract	4	29-32	hhmm defining the time that the BTD extract file was created.
5	Current File Reference	7	33-40	Unique file reference.
6	Last-file-reference	7	41-47	Unique file reference.
7	Update Indicator	1	48	'U'=Update. 'F'=Full extract.
8	Version	1	49	Version identifier of CIF software.
9	Extract start date	6	50-55	Same as Field 3 above.
10	Extract end date	6	56-61	
11	Spare	20	62-81	

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5.5.2 Basic Schedule

5.5.2.1 The Basic Schedule Record contains the following data fields:

Field	Field description	Length	Position	Notes
1	Record Identity	2	1-2	With the constant value 'BS'.
2	Transaction Type	1	3-3	'N' = New. 'D' = Delete. 'R' = Revise.
3	Train UID	6	4-9	Unique train Identifier.
4	Date Runs From	6	10-15	yymmdd
5	Date Runs To	6	16-21	yymmdd
6	Days Run	7	22-28	
7	Bank Holiday Running	1	29-29	
8	Train Status	1	30-30	
9	Train Category	2	31-32	
10	Train Identity	4	33-36	
11	Headcode	4	37-40	
12	Course Indicator	1	41-41	
13	Profit Centre Code/ Train Service Code	8	42-49	
14	Business Sector	1	50-50	Now used to contain the portion suffix for RSID
15	Power Type	3	51-53	
16	Timing Load	4	54-57	
17	Speed	3	58-60	
18	Operating Chars	6	61-66	
19	Train Class	1	67-67	
20	Sleepers	1	68-68	
21	Reservations	1	69-69	
22	Connect Indicator	1	70-70	
23	Catering Code	4	71-74	
24	Service Branding	4	75-78	
25	Spare	1	79-79	
26	STP indicator	1	80-80	'C' = STP cancellation of permanent schedule. 'N' = New STP schedule. 'O' = STP overlay of permanent schedule. 'P' = Permanent. Read in association with the Transaction Type in Field 2

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5.5.3 Basic Schedule Extra Details

5.5.3.1 The Basic Schedule Extra Details Record contains the following data fields:

Field	Field description	Length	Position	Notes
1	Record Identity	2	1-2	With the constant value 'BX'.
2	Traction Class	4	3-6	Not used - always blank.
3	UIC Code	5	7-11	Only populated for trains travelling to/from Europe via the Channel Tunnel, otherwise blank.
4	ATOC Code	2	12-13	
5	Applicable Timetable Code	1	14-14	
6	Retail Service ID	8	15-22	
7	Source	1	23-23	Not used – always blank.
8	Spare	57	24-80	

5.5.4 Origin Location

5.5.4.1 The Origin Location Record contains the following data fields:

Field	Field description	Length	Position	Notes
1	Record Identity	2	1-2	With the constant value 'LO'.
2	Location	8	3-10	TIPLOC + Suffix.
3	Scheduled Departure Time	5	11-15	
4	Public Departure Time	4	16-19	
5	Platform	3	20-22	
6	Line	3	23-25	
7	Engineering Allowance	2	26-27	
8	Pathing Allowance	2	28-29	
9	Activity	12	30-41	
10	Performance Allowance	2	42-43	
11	Spare	37	44-80	

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5.5.5　　　Intermediate Location

5.5.5.1　　　The Intermediate Location Record contains the following data fields:

Field	Field description	Length	Position	Notes
1	Record Identity	2	1-2	With the constant value 'LI'.
2	Location	8	3-10	TIPLOC + Suffix.
3	Scheduled Arrival Time	5	11-15	
4	Scheduled Departure Time	5	16-20	
5	Scheduled Pass	5	21-25	
6	Public Arrival	4	26-29	
7	Public Departure	4	30-33	
8	Platform	3	34-36	
9	Line	3	37-39	
10	Path	3	40-42	
11	Activity	12	43-54	
12	Engineering Allowance	2	55-56	
13	Pathing Allowance	2	57-58	
14	Performance Allowance	2	59-60	
15	Spare	20	61-80	

5.5.6　　　Changes En Route

5.5.6.1　　　The Changes En Route Record contains the following data fields:

5.5.6.2　　　This will precede the LI record of the location to which it applies.

Field	Field description	Length	Position	Notes
1	Record Identity	2	1-2	With the constant value 'CR'.
2	Location	8	3-10	TIPLOC + Suffix.
3	Train Category	2	11-12	
4	Train Identity	4	13-16	
5	Headcode	4	17-20	
6	Course Indicator	1	21-21	
7	Profit Centre Code/ Train Service Code	8	22-29	
8	Business Sector	1	30-30	
9	Power Type	3	31-33	
10	Timing Load	4	34-37	
11	Speed	3	38-40	
12	Operating Chars	6	41-46	
13	Train Class	1	47-47	
14	Sleepers	1	48-48	
15	Reservations	1	49-49	
16	Connect Indicator	1	50-50	
17	Catering Code	4	51-54	
18	Service Branding	4	55-58	
19	Traction Class	4	59-62	
20	UIC Code	5	63-67	Only populated for trains travelling to/from Europe via the Channel Tunnel, otherwise blank.

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Field	Field description	Length	Position	Notes
21	Retail Service ID	8	68-75	
22	Spare	5	76-80	

5.5.7   Terminating Location

5.5.7.1   The Terminating Location Record contains the following data fields:

Field	Field description	Length	Position	Notes
1	Record Identity	2	1-2	With the constant value 'LT'.
2	Location	8	3-10	TIPLOC +Suffix.
3	Scheduled Arrival Time	5	11-15	
4	Public Arrival Time	4	16-19	
5	Platform	3	20-22	
6	Path	3	23-25	
7	Activity	12	26-37	
8	Spare	43	38-80	

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5.5.8 Association

5.5.8.1 The Association Record contains the following data fields:

Field	Field description	Length	Pos	Notes
1	Record Identity	2	1-2	With the constant value 'AA'.
2	Transaction Type	1	3-3	'N' = New. 'D' = Delete. 'R' = Revise.
3	Base UID	6	4-9	One of the trains involved in the association. This will always be the through train, not the splitting/joining portion.
4	Assoc UID	6	10-15	The other train involved.
5	Assoc Start date	6	16-21	yymmdd
6	Assoc End date	6	22-27	yymmdd.
7	Assoc Days	7	28-34	
8	Assoc Cat	2	35-36	The ASSOC-CAT for the base UID (first byte), followed by the ASSOC-CAT for the assoc. UID (second byte). Note: Although this field isn't specified as having blanks in the Network Rail CIF specification, if blanks are supplied they will be carried forward. (Blanks are used to override the permanent value in overlays and cancellations). 'JJ' for Joining trains and 'VV' for Dividing trains. 'NP' for Next/Previous Associations may also be displayed but as this is an Operating association it should be ignored by journey planners.
9	Assoc Date Ind	1	37-37	'S' = Standard. 'N' = Over-next-midnight. 'P' = Over-previous-midnight. Note: Although this field isn't specified as having blanks in the Network Rail CIF specification, if blanks are supplied they will be carried forward. (Blanks are used to override the permanent value in overlays and cancellations).
10	Assoc Location	7	38-44	TIPLOC where association occurs.
11	Base Location Suffix	1	45-45	Values are space or 2.
12	Assoc Location Suffix	1	46-46	Values are space or 2.
13	Diagram Type	1	47-47	With the constant value 'T'.
14	Association Type	1	48-48	'P' = Passenger use. 'O' = Operating use. Note: Although this field isn't specified as having blanks in the Network Rail CIF specification, if blanks are supplied they will be carried forward. (If blank then association defaults to Operating and should be ignored by journey planners).
15	Filler	31	49-79	
16	STP indicator	1	80-80	'C' = STP cancellation of permanent schedule. 'N' = New STP schedule. 'O' = STP overlay of permanent schedule. 'P' = Permanent.

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5.5.9   TIPLOC Insert

5.5.9.1   The TIPLOC Insert Record contains the following data fields:

Field	Field description	Length	Position	Notes
1	Record Identity	2	1-2	With the constant value 'TI'.
2	TIPLOC code	7	3-9	
3	Capitals	2	10-11	Defines capitalisation of TIPLOC.
4	NALCO	6	12-17	
5	NLC Check Character	1	18-18	
6	TPS Description	26	19-44	
7	STANOX	5	45-49	TOPS location code.
8	PO MCP Code	4	50-53	Post Office Location Code. (Not used but may contain historic data).
9	CRS Code	3	54-56	
10	Description	16	57-72	Description used in CAPRI.
11	Spare	8	73-80	

5.5.10   TIPLOC Amend

5.5.10.1   The TIPLOC Amend Record contains the following data fields:

Field	Field description	Length	Position	Notes
1	Record Identity	2	1-2	With the constant value 'TA'.
2	TIPLOC code	7	3-9	
3	Capitals	2	10-11	Defines capitalisation of TIPLOC.
4	NALCO	6	12-17	
5	NLC Check Character	1	18-18	
6	TPS Description	26	19-44	
7	STANOX	5	45-49	TOPS location code.
8	PO MCP Code	4	50-53	Post Office Location Code. (Not used but may contain historic data).
9	CRS Code	3	54-56	
10	Description	16	57-72	Description used in CAPRI.
11	New TIPLOC	7	73-79	Only present if TIPLOC change.
12	Spare	1	80-80	

5.5.11   TIPLOC Delete

5.5.11.1   The TIPLOC Delete record contains the following data fields:

Field	Field description	Length	Position	Notes
1	Record Identity	2	1-2	With the constant value 'TD'.
2	TIPLOC code	7	3-9	
3	Spare	71	10-80	

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5.5.12 Trailer Record

5.5.12.1 The Trailer Record contains the following data fields:

Field	Field description	Length	Position	Notes
1	Record Identity	2	1-2	With the constant value 'ZZ'.
2	Spare	78	3-80	

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5.6   Example Basic Timetable Detail data

5.6.1   The data presented below has been extracted from a CIF file and is reproduced for illustration purposes only.

```
/ Association between P39948 and P39725 occurring at Paddington

AANP39948P3972598083098083000000001   PADTON   T                                C

/ Train schedule for Train C53290 between Bedford and Croydon

BSNC5329017052417092000000001 POO2T07    124207004 EMU319 100D     B          P
BX         TLYTL123400
LOBEDFDM  0841 08411  SL     TBH
LIBEDFDS        0843 00000000
LIFLITWCK 0850 0850H     08500850        T
LIHRLG    0854 0854H     08540854        T
LILEAGRVE 0859H0900      09000900        T          1
LILUTON   0904 0905      090409041       T            1H
LIHRPNDN  0912H0913      09120912        T          1
LISTALBCY 0919 0920      091809181       T
LIHDON          0930H00000000
LIWHMPSTM       0933 00000000
LIKNTSHTN       0935H00000000   MOL              2
LIKNSXMCL 0941H0943      09420943A       T
CRFRNDNLT OO2T07    124612004 EMU319 100D     B
LIFRNDNLT 0945H0946H     094609463       T
LICTMSLNK       0947H000000002
LIBLFR    0949 0950      094909504       T
LIMTRPLTJ       0953H00000000
LILNDNBDE 0955 0956      095509565 5     T
LISPAROAD       0958H00000000
LIBRCKLAJ       1000 00000000   FL               3
LINORWDJ        1010 000000004
LINORWDFJ       1011 00000000   SL
LIWNDMLBJ       1011H00000000   SL
LTECROYDN 1013 10136     TF
```

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5.7 TTIS Rejects File

5.7.1 Description

5.7.1.1 This file contains details of train schedules that were rejected by TTIS validation software prior to transfer of the file set to iBlocks. Examples of the reasons for rejection are schedules being incomplete or geographically inconsistent, or the train having the operating characteristic of 'Q' ("runs as required").

5.7.1.2 The file has a header record of 'Start of rejected trains file' and a trailer record 'End of rejected trains file'.

5.7.1.3 The data records consist of a line containing the description of why the schedule was rejected, followed by several lines containing the complete train schedule from the source CIF file (Normal CIF format).

5.7.1.4 The TTIS Rejects file record contains the following data fields:

1. Blank line.
2. Rejection Error Message.
3. LO CIF record type.
4. LI CIF record type.
5. LT CIF record type.

5.7.2 Example data

5.7.2.1 The data presented below has been extracted from a TTIS Rejects file and is reproduced for illustration purposes only.

```
Start of rejected trains file

No stations found between Gobowen and Cardiff Central (158 km)
BSNC1463703083003083000000010 1XX1Z32    125434000 D  385 095
N
BX          WBY
LOCREWE   0745 074512        TB
LICREWESW         0748 00000000
LIBESTTSB         0756H00000000
LICHST    0806H0809      080708094        T
LICHSTRSJ         0810 00000000
LISLNYJN          0812 00000000
LIWREXHMG 0825H0827      082608271        T
LIGOBOWEN 0841 0842      08410842         T
LTCRDFCEN 1059 1059      TF
```

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5.8   'Z-trains' File

5.8.1   The 'Z-trains' file is in the same format as for a normal CIF file, with exception of the header record which is almost empty, except that an asterisk is substituted for the last character in the current file reference. Its header format is:

1.   Record Identity (2 char identifier with the constant value 'HD')
2.   Reserved (36 spaces)
3.   '*' (1-character asterisk)
4.   Reserved (41 spaces)

End of file is marked with 'ZZ'.

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5.9   Common Interface File Set Details

5.9.1   Description

5.9.1.1   This file contains a single record containing a 7-character field, in the format Uxxxxxx, where xxxxxx is the User Identity in the CIF file header record.

5.9.1.2   File is effectively redundant and permanently fixed at UCFCATE.

5.9.2   Example data

```
/!! Start of file
/!! Content type:  CIF Set Details
/!! Sequence:      788
/!! Generated:     09/01/2018
/!! Exporter:      RjEhrTTT
UCFCATE
/!! End of file (1 records) (09/01/2018)
```

5.10   Fixed Links File

5.10.1   Description

5.10.1.1   The Fixed Links File (FLF) contains textual descriptions of fixed links. Fixed Links define non-timetabled links between Timetable Engine Interchange stations. They provide the Timetable Engine with a means of connecting stations with a variety of modes (see below) where it is either not practical (due to volume or non-availability of data) or logical (e.g. walk links) to supply the Timetable Engine with timetabled data for the link.

5.10.1.2   Note that the Additional Fixed Links File (ALF) supersedes the Fixed Links File (FLF). TIS Suppliers are encouraged to use this data as it provides more detailed information.

5.10.2   File format

5.10.2.1   The file is a sequential text file containing variable length records. Records are terminated by carriage return line feed pairs under windows, and by 'new line' under UNIX.

5.10.2.2   Commands are classified as follows:

- Mandatory program terminates without completing the processing if omitted
- Optional program will not terminate without processing if omitted

5.10.2.3   Only the 'END' command is mandatory; the remainder are optional, and may be used more than once. Within commands, the word/field separator is one blank character. Fixed link commands have 4 parameters: transit mode, transit time, and two CRS codes defining the Timetable Engine Interchange stations bounding the link.

5.10.2.4   Records are presented in the format:

```
ADDITIONAL LINK: WALK BETWEEN AHV AND NCM IN 10 MINUTES
```

5.10.2.5   All text is in upper case. All lines begin 'ADDITIONAL LINK: ' followed by the link method, which is one of 'METRO', 'WALK', 'TUBE', 'BUS', 'FERRY', 'TRANSFER'. Locations are always CRS codes separated by ' AND ', the first is preceded by 'BETWEEN'. The second is followed by 'IN' and the times are always in minutes and followed by the word 'MINUTES'. The times

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are free format, without leading zeros (padded with a leading blank) so two minutes is shown as '`2 MINUTES`', twenty minutes is shown as '`20 MINUTES`'. One minute is shown as '`1 MINUTES`'.

5.10.2.6   The last FLF record is a file terminator, simply '`END`'.

5.10.3   Metro

5.10.3.1   Optional. Defines a Fixed Link of type 'Metro' between the CRS codes, with transit time nnn. ('Metro' is any tram, subway or light rail system other than the London Underground).

5.10.4   Walk

5.10.4.1   Optional. Defines a Fixed Link of type 'Walk' between the CRS codes, with transit time nnn.

5.10.5   Tube

5.10.5.1   Optional. Defines a Fixed Link of type 'Tube' between the CRS codes, with transit time nnn. ('Tube' is any London Underground link on which tickets with the Cross-London marker are valid).

5.10.6   Bus

5.10.6.1   Optional. Defines a Fixed Link of type 'Bus' between the CRS codes, with transit time nnn.

5.10.7   Ferry

5.10.7.1   Optional. Defines a Fixed Link of type 'Ferry' between the CRS codes, with transit time nnn.

5.10.8   Transfer

5.10.8.1   Optional. Defines a Fixed Link of type 'Transfer' between the CRS codes, with transit time nnn. The 'Transfer' mode is normally used where it is inappropriate to dictate whether the transit should be made by bus, walk, taxi etc. ('Transfer" is also used on those occasions when tickets without the Cross-London marker are accepted on the London Underground e.g. for engineering work).

5.10.9   Train

5.10.9.1   Optional. This command is not in common use and may not be fully supported. As for the other Fixed Link modes, it provides the Timetable Engine with an un-timetabled link between two stations, whose mode is defined as 'train'.

5.10.10   Example data

5.10.10.1   The data presented below has been extracted from an FLF and is reproduced for illustration purposes only.

```
ADDITIONAL LINK: WALK BETWEEN AFK AND ASI IN   5 MINUTES
ADDITIONAL LINK: WALK BETWEEN AHS AND ABF IN   6 MINUTES
ADDITIONAL LINK: WALK BETWEEN AHV AND NCM IN  11 MINUTES
ADDITIONAL LINK: METRO BETWEEN ALT AND AMM IN  51 MINUTES
ADDITIONAL LINK: METRO BETWEEN ALT AND AMO IN  62 MINUTES
ADDITIONAL LINK: METRO BETWEEN ALT AND ANH IN  37 MINUTES
```

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```
ADDITIONAL LINK: METRO BETWEEN ALT AND ASM IN  60 MINUTES
ADDITIONAL LINK: METRO BETWEEN ALT AND AUL IN  66 MINUTES
ADDITIONAL LINK: METRO BETWEEN ALT AND AWL IN  64 MINUTES
ADDITIONAL LINK: METRO BETWEEN ALT AND BGK IN  48 MINUTES
ADDITIONAL LINK: METRO BETWEEN ALT AND BKV IN  53 MINUTES
END
```

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5.11 Additional Fixed Links File

5.11.1 Description

5.11.1.1 The Additional Fixed Links File (ALF) describes details of links between two stations, ferry terminals or bus stops, and the method and time of travel between. TIS Suppliers are encouraged to use this feed in preference to the Fixed Links File (FLF).

5.11.1.2 Each pair of stations, ferry terminals or bus stops may be joined by one or more links in this file. Where more than one link joins a pair of stations on a given day/time, then the choice of which link should be used in a journey is determined by the Priority Field.

5.11.2 Record layout

Name	Length	Description
Link	2	"M="
Mode	3, 4, 5 or 8	BUS, TUBE, WALK, FERRY, METRO, TRAM, TAXI or TRANSFER
Comma	1	","
O=	2	"O="
Origin	3	3-Alpha CRS code for location at beginning of link
Comma	1	","
D=	2	"D="
Destination	3	3-Alpha CRS code for location at end of link
Comma	1	","
T=	2	"T="
Time	1 or 2	Minutes (between 1 and 99)
Comma	1	","
S=	2	"S="
Start Time	4	Start Time in hhmm format
Comma	1	","
E=	2	"E="
End Time	4	End Time in hhmm format
Comma	1	","
P=	2	"P="
Priority	1	1 – 7 with 1 being lowest priority
Comma	*1*	*Optional ","*
F=	*2*	*Optional "F="*
Start Date	*10*	*Optional start date dd/mm/yyyy format*
Comma	*1*	*Optional ","*
U=	*2*	*Optional "U="*
End Date	*10*	*Optional end date dd/mm/yyyy format*
Comma	*1*	*Optional ","*
R=	*2*	*Optional "R="*
Days of week	*7*	*Optional NNNNNNN where N is set to 1 for active days, 0 for inactive days, for days Monday to Sunday*

5.11.3 Example data

```
M=TUBE,O=EUS,D=LST,T=13,S=0530,E=2359,P=4,R=1111110

M=METRO,O=MAN,D=MCV,T=8,S=0001,E=2359,P=5,F=07/01/2017,U=28/02/2017
```

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5.12   TOC Specific Interchange Times File

5.12.1   Description

5.12.2   This data overrides the minimum interchange time at a station for a journey when changing from one TOC to another.

5.12.3   Record layout

Name	Length	Description
Station code	3	3-Alpha CRS Code
Comma	1	","
Arriving train TOC	2	TOC code
Comma	1	","
Departing train TOC	2	TOC code
Comma	1	","
Minimum Interchange Time	1 or 2	Minimum Interchange time in minutes 1 – 99
Comma	*1*	*Optional ","*
Comments	*0-100*	*Optional comments*

5.12.4   Example data

```
GLD,GW,GW,4,(Guildford)

GTW,SE,SE,5,(Gatwick Airport)

GTW,SE,SN,5,

GTW,SN,SE,5,
```

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5.13 Master Station Name File Contents

5.13.1 Description

5.13.1.1 The 'Master Station Name File' (MSNF) contains textual descriptions of station names, interchange times and Ordnance Survey reference codes.

5.13.2 File format

5.13.2.1 The file is a sequential text file containing fixed length 82-character records, padded with trailing spaces as necessary. Records are terminated by carriage return line feed. The file contains different record types which can be identified by the 'Record Type', the first byte of a record.

5.13.2.2 Records are presented in the format:

```
A    WOODSMOOR                    0WMOR   WSR   WSR13907E63877 0
```

All text is in upper case. The last record is 'End of File'.

5.13.2.3 The file sequence structure is included below for illustration purposes.

    i.   File header record
    ii.   Physical station definitions
    iii.   Alias definitions
    iv.   Group definitions
    v.   Non-BR location definitions
    vi.   Route identifier definitions
    vii.   File trailer record
    viii.   'Last written by' record
    ix.   Unique string identifier record
    x.   File history record
    xi.   440 CRS usage records
    xii.   End of file record

5.13.3 File header record

5.13.3.1 The Header 'A' record contains the following data fields:

Field	Field description	Length	Position	Notes
1	Record Type	1	1-1	Constant value 'A'.
2	Reserved	29	2-30	
3	File-Specification	12	31-42	Constant value 'FILE-SPEC=05'.
4	Reserved	1	43-43	
5	Version	4	44-47	MSNF Editor program version string, format 'n.nn'.
6	Reserved	1	48-48	
7	Creation Date	8	49-56	Date of run creating this file, format 'dd/mm/yy'.
8	Reserved	1	57-57	
9	Creation Time	8	58-65	Time of run creating this file, format 'hh.mm.ss'.
10	Reserved	1	66-66	
11	Sequence number	5	67-71	File sequence number, format 'nnnnn' that is incremented by each successful editor run.
12	Reserved	11	72-82	

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Physical station definitions

5.13.4.1   The Physical station 'A' record contains the following data fields:

Field	Field description	Length	Position	Notes
1	Record Type	1	1-1	Constant value 'A'.
2	Reserved	4	2-5	
3	Station Name	26	6-31	
4	Reserved	4	32-35	
5	CATE Interchange status	1	36-36	Always populated with '0', '1', '2', '3' or '9'.
6	TIPLOC Code	7	37-43	
7	Minor CRS Code	3	44-46	
8	Reserved	3	47-49	
9	CRS Code	3	50-52	
10	Ordnance Survey Grid Ref East	5	53-57	Values are in 0.1 km units. Format is '1nnnn' where nnnn is the distance in 0.1 km units.
11	Blank/Estimate	1	58-58	Value is blank or 'E' if Grid Reference is an estimate.
12	Ordnance Survey Grid Ref North	5	59-63	Values are in 0.1 km units. Format is '6nnnn' where nnnn is the distance in 0.1 km units.
13	Minimum Change Time	2	64-65	A one or two-digit number, in minutes, in the range 0-99. This is regardless of whether or not Field 5: 'CATE Interchange status' shows the station as an interchange.
14	Reserved	1	66-66	
15	Footnote/Closed/Staff/Not-advertised code	1	67-67	Redundant and not supported in PMS. Will always be blank.
16	Reserved	11	68-78	
17	Sub-sector code	3	79-81	Redundant and not supported in PMS. Will always be blank.

5.13.5   Alias definitions

5.13.5.1   The **Alias** 'L' record contains the following data fields:

Field	Field description	Length	Position	Notes
1	Record Type	1	1-1	Constant value 'L'.
2	Reserved	4	2-5	
3	Station Name	26	6-31	
4	Reserved	5	32-36	
5	Station Alias	26	37-62	
6	Reserved	20	63-82	

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5.13.6 File trailer record

5.13.6.1 The **File Trailer** 'Z' record contains the following data fields:

Field	Field description	Length	Position	Notes
1	Record Type	1	1-1	Constant value 'Z'
2	Reserved	4	2-5	
3	'ZZZZZZZZZZ'	10	6-15	
4	Reserved	15	16-30	
5	'END OF MSNF'	11	31-41	
6	Reserved	40	42-81	

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5.13.7   'Last written by' record

5.13.7.1   The **'Last Written By'** record contains the following data fields:

Field	Field description	Length	Position	Notes
1	Record Type	1	1-1	Constant value 'Z'
2	Reserved	4	2-5	
3	'ZZZZZZZZZZZZZZZ'	15	6-20	
4	Reserved	10	21-30	
5	• 'LAST WRITTEN BY MSED. CRS AMENDMENTS ONLY' or • 'LAST WRITTEN BY MSED. NON-CRS AMENDMENTS ONLY' or • 'LAST WRITTEN BY MSED. PERMIT RUN'	41 or 45 or 32	31-71 or 31-75 or 31-61	
6	Reserved	10 or 6 or 31	72-81 or 76-81 or 51-81	

5.13.8   Unique string identifier record

5.13.8.1   The **'Unique Identifier String'** record contains redundant legacy data of text '0001' followed by padding spaces.

5.13.9   File history record

5.13.9.1   The **'File History'** record contains redundant legacy data with the following data fields:

Field	Field description	Length	Position	Notes
1	'MSED'	4	1-4	
2	Reserved	1	5-5	
3	MSED program version number	4	6-9	
4	Reserved	1	10-10	
5	Date of MSED program run	8	11-18	
6	Reserved	1	19-19	
7	Time of MSED program run	8	20-27	

5.13.10   CRS usage records

5.13.10.1   The **'CRS Usage'** record contains redundant legacy data with 440 records, each holding 40 two-byte values of:

- -1   CRS does not exist
- 0   CRS exists but no trains use it currently
- 1   CRS exists and one or more trains use it currently

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5.13.11   End of file record

5.13.11.1   The **'End of File'** record contains the following data fields:

Field	Field description	Length	Position	Notes
1	'End of File'	11	1-11	
2	Reserved	69	12-80	

5.13.12   Example data

5.13.12.1   The data presented below has been extracted from an MSNF and is reproduced for illustration purposes only.

```
/!! Start of file
/!! Content type:  msnf
/!! Sequence:      788
/!! Generated:     09/01/2018
/!! Exporter:      RjEhrTTT
A                              FILE-SPEC=05 1.00 09/01/18 18.10.32    788
A    ABBEY WOOD                0ABWD    ABW   ABW15473 61790 4
A    ABER                      0ABER    ABE   ABE13148 61870 5
L    ABERDOVEY                  ABERDYFI
L    ABERGAVENNY                Y-FENNI
Z    ZZZZZZZZZZ                END OF MSNF
Z    ZZZZZZZZZZZZZZZ           LAST WRITTEN BY MSED. PERMIT RUN
0001
MSED 1.00 11/01/01 11.12.03
-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1 0-1-1-1 0-1-1-1-1-1-1 0-1 0 0 0-1-1 0-1-1-1 0-1-1
-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1
End of File
/!! End of file (3889 records) (09/01/2018)
```

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6.   System Limits

6.1   Various limits are set on the data which can be extracted to CIF and hence forwarded to DTD. The limits detailed below apply to the data before it reaches the DTD and are reproduced here for information purposes.

- The maximum number of events on a schedule is 150.
- The maximum number of schedules that can be created on CIF for a UID is 200 permanent and 200 STP. This could theoretically lead to more than 400 schedules in total for an STP user due to the interaction of permanent and STP dates.
- The number of associations is limited to 200 permanent and 200 STP associations for a pair of trains with the same diagram type/location.
- The maximum number of changes-en-route for a schedule is 50.
- Within a permanent schedule, STP data must not cause more than 64 different schedules for an STP user. STP trains which have associations, must not have more than 20 sets of dates.
- If any of the system limits are exceeded, the train will be rejected by CIF and a report generated for the System Controller.
- In addition, certain other error conditions can be detected on trains valid on data fed to CIF. These will result in error messages to the System Controller and, in some cases, the train being rejected by CIF.

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7. Data Feed Distribution Service

7.1 General

7.1.1 Timetable Data Feeds are distributed to registered data recipients by the Data Transformation and Distribution Service (DTD). The DTD is a service owned by RDG. The service is built and supported by iBlocks.

7.1.2 The DTD provides the following delivery methods for Registered Data Feed Users to receive their feeds:

- SFTP Pull over the Internet from a publicly addressable and accessible iBlocks provided SFTP server with the domain dtd.atocrsp.org.
- SFTP Push over the Internet from the DTD's SFTP Client to the Data Recipient's SFTP Server
- FTP Push over the internet from the DTD's FTP Client to the Data Recipients FTP Server

7.2 Feed File

7.2.1 The Timetable feed is provided as a compressed zip file in version 2.0 of the zip file format and is readable using common zip applications such as WINZIP and UNZIP.

7.2.2 The following sizes of Timetable Feed Files can be used as a guide for Data Recipients to plan their connectivity resources:

File type	Typical size	Maximum size
Daily File	1 – 2 MB	60 MB
Weekly / Monthly File	30 – 70 MB	100 MB

7.2.3 The Timetable Data Feed file (RJTTCnnn.DAT) is a manifest file for the feed and the Data Recipient should ensure that all files in the manifest file are present in the zip. The order of the files in the manifest file and in the zip file has no meaning and it is the Data Recipients' responsibility to process the files according to their requirements.

7.3 Scheduling

7.3.1 In normal operation of DTD, daily timetable and fares feed will be distributed at around 10.30pm to 1am. Data recipients should schedule checks and processing of the data accordingly. Please note however that the DTD Service does not guarantee to keep within this schedule, as it may not receive its inwards data from other providers until a later time.

7.3.2 The latest time that DTD will distribute feeds is 4pm. This will only happen where a failure has occurred in DTD processing or in upstream systems that provide inwards data to DTD. Where DTD cannot deliver feeds by 4pm, an 'Empty' feed for that day will be provided. This empty feed comprises the Full Refresh files (from the most recent feed) and empty Changes Only Files.

7.4 Resumption of feed delivery after a distribution of 'Empty' feeds

7.4.1 In circumstances where one or more 'Empty' feeds have been distributed, DTD may need to provide more than one feed in a 24-hour period. This will not be done without contacting Data Recipients to arrange the scheduling of feeds in accordance with their systems requirements. Data Recipients that are unable to process more than one feed in a 24-hour period would

resume with a Full Refresh Feed and the sequence number of this Full Refresh will not necessarily be contiguous from the last feed sequence.

7.5 Distribution Configuration

7.5.1 Data Recipients can manage their FTP Server configuration details using the DTD Web Portal at dtdportal.atocrsp.org or by contacting the support email address: dtd.support@iblocks.co.uk.

7.5.2 Data Recipients that require a resilient service can set up two SFTP or FTP servers and the DTD will distribute Fares Data to both servers.

7.5.3 The DTD SFTP service is a resilient service. If the infrastructure on which the service fails, the DTD will automatically start up another SFTP server instance on an alternative server at the same domain and IP address.

7.5.4 Data Recipients should contact dtd.support@iblocks.co.uk for the IP address of the DTD SFTP Server, FTP Client or SFTP Client if firewall configuration is required.

7.6 Daily Feed Distribution

7.6.1 New Daily Recipients that begin the service will be provided with a full refresh of timetable data.

7.7 Weekly and Monthly Feed Distribution

7.7.1 Data Recipients that choose to receive weekly timetable feeds will receive a full refresh of timetable data on at each Wednesday of each week.

7.7.2 Data Recipients that choose to receive monthly timetable feeds will receive a full refresh of timetable data on the first Wednesday of each period.

7.8 Help and Support

7.8.1 Help and Support including how to register for Data Feeds and to log any issues with the Data Feeds can be found on the DTD Portal - https://dtdportal.atocrsp.org/

7.8.2 Support is also available from dtd.support@iblocks.co.uk .

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