

**292361 v1.0**

Aptean Ltd  
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1 292361



DHL C-TMS

# Resource Diary

FUNCTIONAL SPECIFICATION - 10.7

7/11/11 - 1.0

Reference: FS 292361 PM8LZN4D



## 1.1 Client Requirement

Briefing. Resource Diary. Upload of availability, unavailability, VOR, shift plan.

Maintenance in C-TMS.

Resource allocation/briefing to be constrained by resource availability from diary.

Function to remember combination of driver, tractor, and trailer as briefed and offer as default next time.

## 1.2 Solution

### Resource Available Table

A new table will be created to store resource availability (Tractor, Trailer and Driver) to every hour within a day.

The table will include the following fields:

Resource Type (?DRIVER?, ?TRACTOR? or ?TRAILER?), Resource ID, Date (not including time), Hour (1 to 24), Available (?Y?,?N?)

### Import

A new C-TMS data import procedure will be developed to allow the resource availability table to be populated from CSV format (managed as spreadsheet files off-line). This will define driver shifts, sickness, trailer maintenance and MOT periods of unavailability.

The fields mentioned in the table above will be included in the import configuration and must all be provided.

If a record for the given resource and hour already exists on file then the ?Available? flag will updated on the record to match the new value provided on the import file.

Each record in the import upload file will be validated against the resource information in C-TMS. The drivers and tractors and trailers must already exist in C-TMS resource master tables for the availability data to be successfully uploaded. Any failures will be notified in a results file and a failures CSV format will be created. This ?failures? file can be reworked on the user?s desktop and/or reloaded once missing resources are added into C-TMS master tables manually.

### Manual Data Maintenance

A new tab will be added to the ?RESOURCE? maintenance screen to allow resource availability data to be viewed and changed.

The ?Resource Availability? screen will be made up of a header section for the following selection fields:

Depot (can be left blank to show trailers not associated to tractors and so not associated to a specific depot), Date Range (mandatory or a default for today only), Resource Type (?DRIVER?, ?TRACTOR?, ?TRAILER? or ?ALL?), Resource ID (Validated against existing resource tables and as belonging to the specified depot)

The detail of the screen will then show the availability flags by hour of day in a format similar to the requirements design provided by DHL shown below.





Driver	Previous	Available From	Available To	Next
Robert Jones	Off Shift	17/10/11 06:00	17/10/11 15:00	Off Shift
Sally Jenkins	Off Shift	17/10/11 07:00	17/10/11 11:30	PLU-00007910
Mike Smith	Off Shift	17/10/11 07:00	17/10/11 16:00	Off Shift
Keith Davies	PLU?00007860	17/10/11 07:45	17/10/11 12:00	Off Shift
Steve James	PLU-00007865	17/10/11 08:30	17/10/11 12:30	Off Shift

N.B. Driver ?Sally Jenkins? is greyed out because she is not available for the full duration of the trip because the start of the next trip ?PLU-00007910? is before the planned end of the trip being resourced.

N.B. Driver ?Steve James? is greyed out because he is not available for the full duration of the trip because the end of the previous trip ?PLU-00007865? is after the planned start of the trip being resourced.

The previous and next activity of the driver will be displayed for reference. The previous and next activity could be another trip or Off shift (Inactive). Drivers that are not available for any of the planned duration of the trip either unavailable in resource diary or allocated to another trip will not be displayed at all.

Tractor	Previous	Available From	Available To	Next
DG09 TGH	No Previous			Available
HJ57 GHD	VOR	16/10/11 18:00		Available
KD11 DFW	PLU-00007950	17/10/11 06:00	17/10/11 18:00	PLU-00008001
BK10 VFT	PLU-00007865	17/10/11 08:00		Available
FG10 HGR	PLU-00007999	17/10/11 08:00	18/10/11 08:00	VOR
KJ09 WRD	PLU-00008010	17/10/11 09:00		Available

Note that blank fields means no constraint for future resource planning in ?Available To?

If a resource is available for the entire period (of the trip being resource planned), the fields (row) will be white - if not available for the entire period they will be grey - if not available for any of the period they won't show at all.

Note the date and time of availability (rather than just time) is displayed to better make visible the scenarios. For Drivers the previous and next constraint will be Off Shift or another trip. For Tractor and Trailer previous and next constraint will be VOR or another trip. If ?No Previous? record exists (new to fleet for example) and nothing future is planned for the resource so ?Available?, these values will show in the Previous and Next columns respectively. The available resource lookup lists will be sorted to show the earliest previous availability first.

Note that tractors available for the duration of the trip or part of the duration of the trip will be displayed in the lookup list. The previous and next activity of the tractor will be displayed for reference. The previous and next activity could be another trip, VOR (inactive by diary) or available. The same format will be displayed for trailer lookup.

Note that if no records exist in the resource availability diary, it will be assumed that the resource is available by default (not withstanding being allocated to another trip at the same time of course as described above).

## Combinations

C-TMS will be developed to remember the last combination of driver and tractor and trailer used and offer this combination when any one of the three is selected in lookup lists or value keyed directly into driver or tractor or trailer field. Each of the three resources will be independently checked for availability against the diary for the duration of the current trip being resourced and appropriate warnings provided if any conflicts occur.

## 1.3 Scope

This change will be applied to system version 10.7.0.



## 2 Set-up

### 2.1 Pre-requisites

None.

### 2.2 Menu Structure

Unchanged.

### 2.3 Data

The new database table ?RES\_AVAILABILITY? will be created.

The new system parameter ?RES\_AVAILABILITY\_ALLOC? will be created.

The new tab page ?Resource Availability? will be available using access control for the user group.

The new import record types will be created for the inbound CSV files.

### 2.4 Implementation Advice

Scripts will be run to create the new database table, system parameter and access control.



## 3 Functional Description

### 3.1 Resource Available Table

A new table will be created to store the resource availability data for the tractor, trailer and driver for every hour within a day.

A new database table called 'RES\_AVAILABILITY' will be created to include the following columns:

NAME	TYPE	NULLABLE
RESOURCE_TYPE	VARCHAR2(12)	N
RESOURCE_ID	VARCHAR2(12)	N
DATE	DATE	N
HOUR	NUMBER(2)	N
AVAILABLE	VARCHAR2(1)	N

A unique primary index will exist for the following columns:

1. RESOURCE\_TYPE
2. RESOURCE\_ID

N.B. If the resource type is 'DRIVER' then the resource ID will need to be converted to a number for the forename and surname of the driver to be obtained: this is because the driver ID is stored as a numeric and not a character data type.

It is expected that the data will be stored as follows:

NAME	VALUE
RESOURCE_TYPE	'DRIVER', 'TRACTOR' or 'TRAILER'
RESOURCE_ID	'RES_PERSON.ID', 'RES_TRACTOR.TRACTOR_ID' or 'RES_TRAILER.TRAILER_ID'
DATE	YYYYMMDD
HOUR	'1' to '24'
AVAILABLE	'Y' or 'N'

A record will be created for each hour in the day although the import file will contain all 24 hours for the resource in the same line.

### 3.2 Import

A new C-TMS data import procedure will be developed to allow the resource availability table to be populated from a CSV format (managed as spreadsheet files off-line). This will define driver shifts, sickness, trailer maintenance and MOT periods of unavailability.

The fields mentioned in the table in section 3.1 will be included in the import configuration and must all be provided.

The 'Import Maintenance' screen will store the setup for the import files, for example:

NAME	VALUE
FORMAT_NAME	RES_AVAIL
IMPORT_TYPE	RES_AVAIL
DEFAULT_PATH	C:\temp\
DEFAULT_FILENAME	res_avail.csv
TRANSFER_TYPE	ASCII
MAX_UPLOADS_PER_PERIOD	100
DEFAULT_REC_TYPE	RES_AVAIL

A new import type and a record type of 'RES\_AVAIL' will be used.

The fields in the files to be uploaded will be delimited using a comma (i.e. ',').

The record type will have the following fields available for selection:







For example:



N.B. The background colour will be ?Red? if the resource is unavailable for that hour time window; or ?Green? if it is available.

- Clicking 'Previous Day' will display the resources for the previous calendar day.
- Clicking 'Next Day' will display the resources for the next calendar day.
- Clicking 'Summary' will display the summary section.
- Clicking 'Refresh' will perform a new query for the selection criteria set.
- Clicking ?Save? will update any changes made.
- Clicking 'Close' will return the user to the menus.

The ?RES\_AVAILABILITY? database table will be used to set 24 temporary items in the Oracle Form for the resource for the date displayed.

All of the temporary items in the screen will be displayed initially as available unless there is a database record for the resource for the date displayed: then the temporary items for that resource will be set based on the ?AVAILABLE? flag for the corresponding hour of the day.

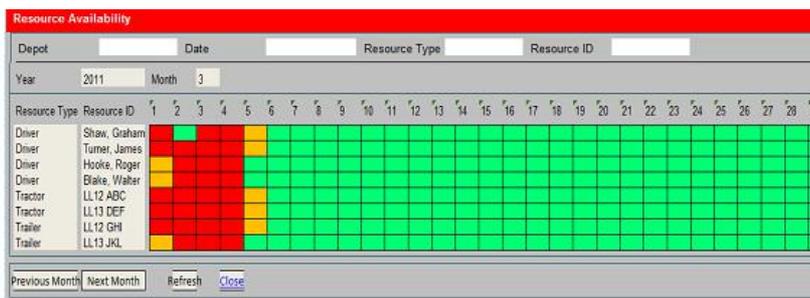
The selection criteria will be used to select the records from the database table and the first date in the range, if specified, will be used to display the first records.

A vertical scrollbar will be present to display more resources.

**N.B. The user will not be able to assign resources to trips in the new tab page but will be able to make a resource available or unavailable by clicking in the box for the hour of the day. If the user clicks in a box that is available then it will become unavailable and vice versa.**

A record will be written to the ?RES\_AVAILABILITY? database table if the user saves a change for the resource for the day, otherwise a record will not exist on the database table because the resource will be available by default.

A summary display format will be provided to show availability per day rather than per hour:



- Clicking 'Previous Month' will display the resources for the previous calendar month.
- Clicking 'Next Month' will display the resources for the next calendar month.
- Clicking 'Refresh' will perform a new query for the selection criteria set.
- Clicking 'Close' will return the user to the detail section.

If the user presses the ?Summary? button then the summary section will be displayed and the records will be displayed for the month of the date displayed in the detail section.

The ?RES\_AVAILABILITY? database table will be used to set 31 temporary items in the Oracle Form for the resource for the date displayed.



All of the temporary items in the screen will be displayed initially as available unless there is a database record for the resource for the date displayed: then the temporary items for that resource will be set based on the ?AVAILABLE? flags for the corresponding day of the month.

A vertical scrollbar will be present to display more resources.

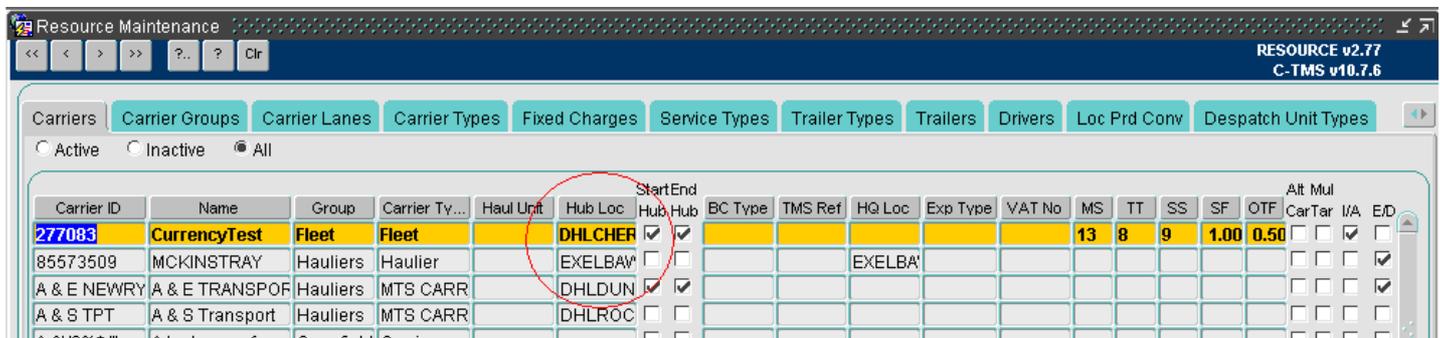
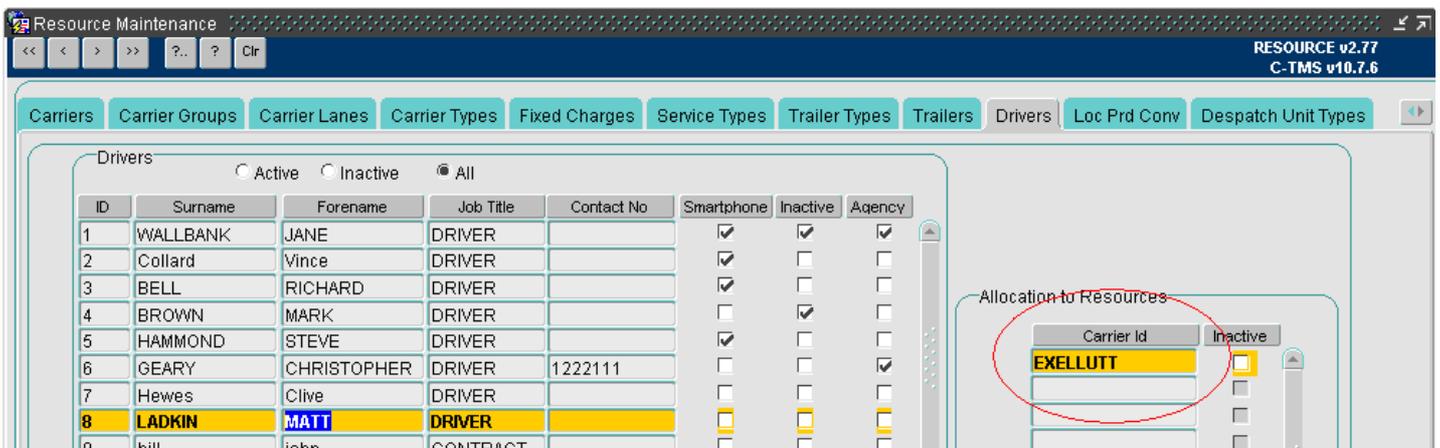
N.B. In the summary view, the background colour will be displayed as ?Red? if the resource is unavailable all day; ?Green? if it is available all day; or ?Orange? if it is available for only part of the day.

?Red? and ?Green? will be existing visual attributes but ?Orange? will be the colour scheme ?Amber?.

### 3.4 Depot Validation

Drivers and Tractors will be configured in the ?Resource Maintenance? screen to belong to a single carrier and that carrier will have a hub location defined for the controlling depot. This means, on implementation, a separate carrier ID will be created to represent the fleet at each depot.

Driver/Carrier/Hub:



Tractor/Carrier/Hub:

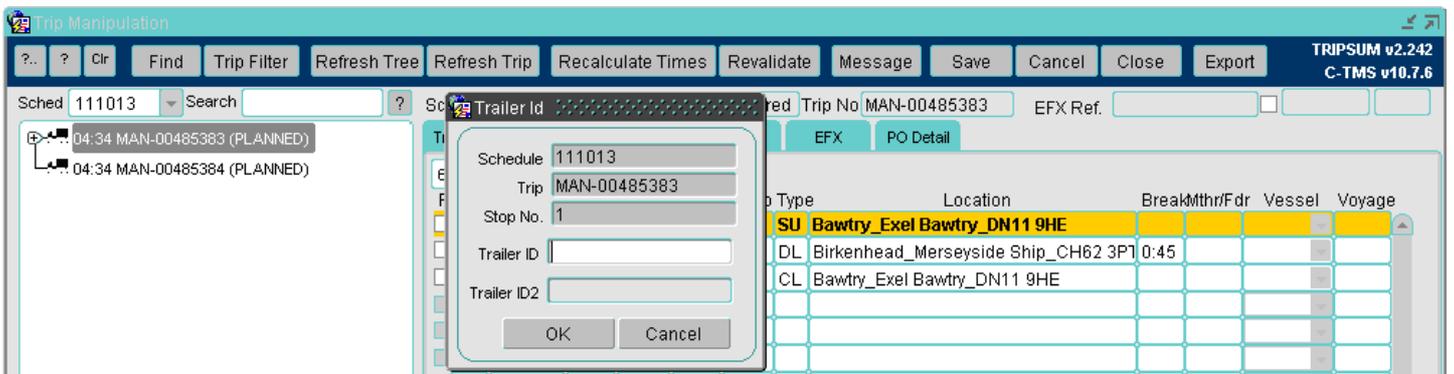
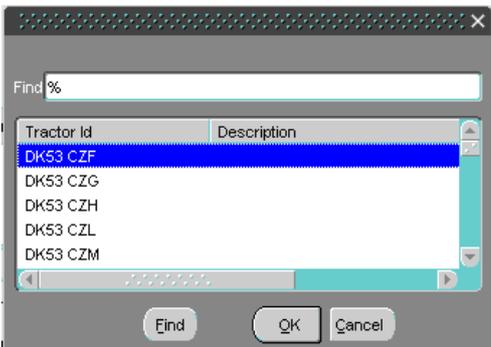
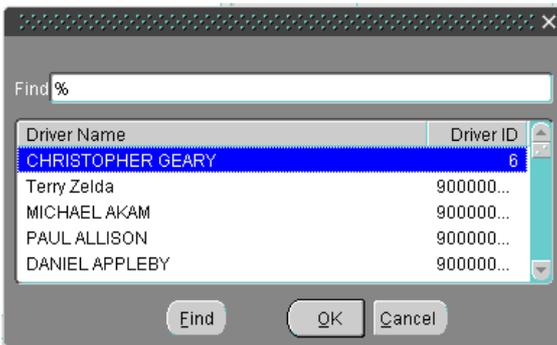
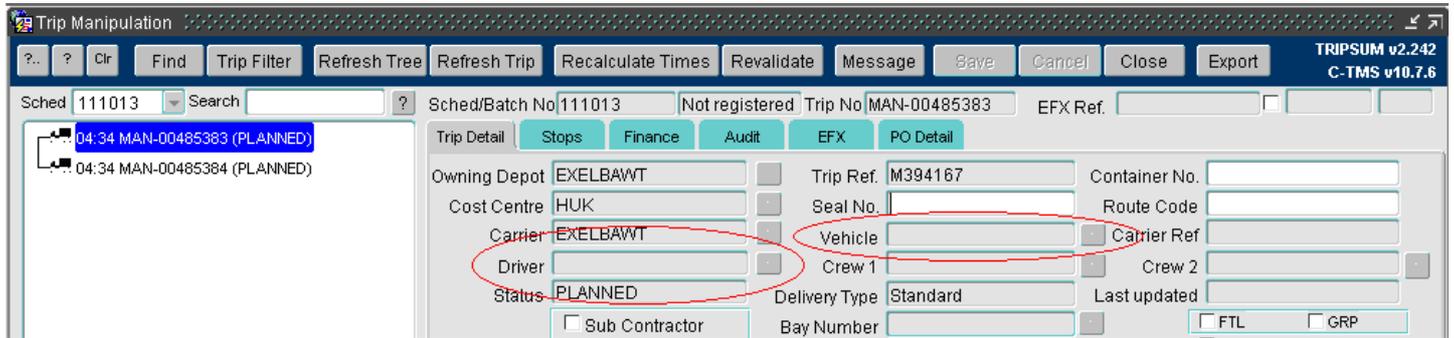


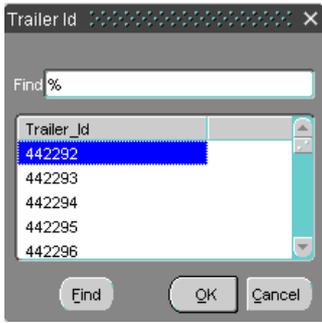


The inactive flag that is currently available against each resource will be retained and used as a master override to make a particular resource permanently inactive.

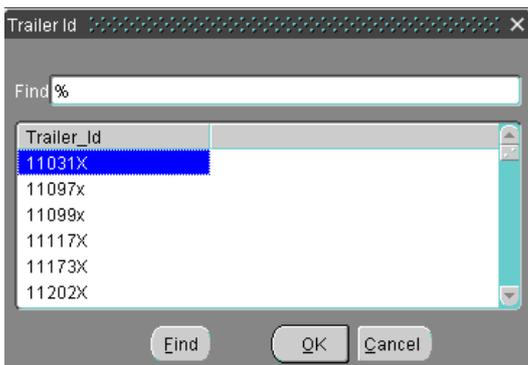
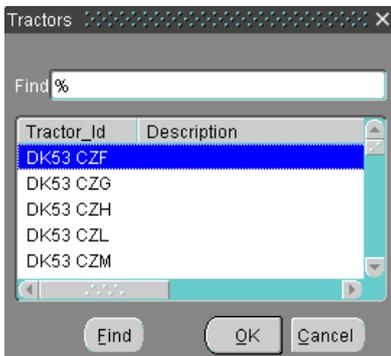
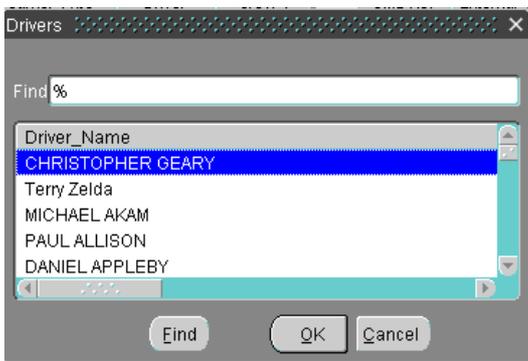
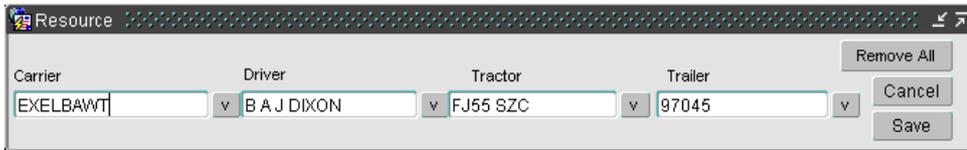
For example:

**Trip Manipulation:**





Trip Execution:



Trip Overview (Waterfall):



**ALLOCATE RESOURCE**  
TRIP\_RES v1.10  
C-TMS v10.7.6

Schedule: 111013    Trip Id: MAN-00485383    MTS Ref: M394167  
 Carrier Id: EXELBAWT    Status: PLANNED    Trailer Type: [v]  
 Driver: [ ]    Tractor: [ ]    Trailer: [ ]

**Resource List Search**

Driver: [?]    Tractor: [?]    Trailer: [?]

Id	Surname	Forename
9000001	(BA) AGY 1	
9000001	(BA) AGY 10	
9000001	(BA) AGY 2	
9000001	(BA) AGY 3	
9000001	(BA) AGY 4	
9000001	(BA) AGY 5	
9000001	(BA) AGY 6	
9000001	(BA) AGY 7	
9000001	(BA) AGY 8	
9000001	(BA) AGY 9	
9000001	(RL) AGY 1	
9000001	(RL) AGY 10	
9000001	(RL) AGY 2	
9000001	(RL) AGY 3	
9000001	(RL) AGY 4	

Tractor Id
0001TEST
009TEST
AY03AOJ
DK53 C2L
DK53 CZD
DK53 CZE
DK53 CZF
DK53 CZG
DK53 CZH
DK53 CZJ
DK53 CZL
DK53 CZM
DK53 CZN
DK53 CZO
DK53 CZP

Trailer Id
11031X
11097x
11099x
11117X
11173X
11202X
11206X
11246x
11254x
11360X
11486X
11627x
1162x
11687
11687X

Buttons: Assign Driver, Remove Driver, Assign Tractor, Remove Tractor, Assign Trailer, Remove Trailer, Remove All, Save, Cancel, Close, Add Resource

Resources can be entered in the ?Trip Manipulation?, ?Trip Execution? and ?Trip Overview (Waterfall)? screens and each of these forms will be modified as follows:

- The lookup list of resource (?Driver?, ?Tractor? and ?Trailer?) will show all resources that are available (?Green?) that overlap the planned duration of the trip, whether covering the full duration or just part of the duration.
- Alongside the resource in the lookup list, C-TMS will also display the time that the resource is available from the resource availability data and this will be constrained further by any other trip the resource is already allocated to.
- This time will be displayed with reference to the trip being resourced.

The duration of the trip will be considered as between the planned departure time at the first trip stop and the planned arrival time at the last trip stop.

The ?Allocate Resources? screen in the ?TRIP\_RES? from will be changed for the allocation of resources in the ?Trip Overview (Waterfall)? screen.

**N.B. The ?Allocate Resources? screen for the crew in the ?TRIP\_RES\_CRW? form will not be changed because this version will not be used by ?Gamma?.**

The width of the window and canvas will be increased to enable the extra columns to be displayed for each type of resource as an overlay window and canvas:

- Previous
- Available From
- Available To
- Next

The start of the trip will be considered to be the planned arrival time of the first stop and the end of the trip to be the planned departure time of the last stop. These times will be stored against the trip as the start and end times (i.e. ?SCH\_TRIP.START\_TIME? and ?SCH\_TRIP.END\_TIME?).



If the resource is available during the same minute as the trip times then it will be considered as available because the time window will be inclusive. For example, if the trip being resourced starts at 08:15 and the driver is assigned to a trip that ends at 08:15 then that driver will be available for assigning to the trip being resourced, however, if the trip were to end at 08:16 then that driver would be unavailable because the driver would not be available before that start of the time window.

For a trip being resourced **starts at 17/10/11 08:15 and ends at 17/10/11 12:00:**

Driver:

Driver	Previous	Available From	Available To	Next
Robert Jones	Off Shift	17/10/11 06:00	17/10/11 15:00	Off Shift
Sally Jenkins	Off Shift	17/10/11 07:00	17/10/11 11:30	PLU-00007910
Mike Smith	Off Shift	17/10/11 07:00	17/10/11 16:00	Off Shift
Keith Davies	PLU?00007860	17/10/11 07:45	17/10/11 12:00	Off Shift
Steve James	PLU-00007865	17/10/11 08:30	17/10/11 12:30	Off Shift
John Williams	Off Shift	17/10/11 08:00	17/10/11 09:00	PLU-00007870
John Williams	PLU?00007870	17/10/11 11:30	17/10/11 16:00	Off Shift

Driver ?Sally Jenkins? is greyed out because she is not available for the full duration of the trip because the start of the next trip ?PLU-00007910? is before the planned end of the trip being resourced.

Driver ?Steve James? is greyed out because he is not available for the full duration of the trip because the end of the previous trip ?PLU-00007865? is after the planned start of the trip being resourced.

The previous and next activity of the driver will be displayed for reference. The previous and next activity could be another trip or ?Off Shift? (i.e. inactive). Drivers who are not available for any of the planned duration of the trip because they are either unavailable in the resource diary or they are allocated to another trip for the duration of the trip being resourced will not be displayed at all.

**N.B. Multiple records can be displayed for the same resource if the resource is available more than once within the time window of the trip being resourced. For example, a driver is assigned to a trip between 09:00 and 11:30 and is therefore available for resourcing between 08:15 and 09:00 and between 11:30 and 12:00. See driver John Williams in the above table.**

Tractor/Trailer:

Tractor	Previous	Available From	Available To	Next
DG09 TGH	No Previous			Available
HJ57 GHD	VOR	16/10/11 18:00		Available
KD11 DFW	PLU-00007950	17/10/11 06:00	17/10/11 18:00	PLU-00008001
BK10 VFT	PLU-00007865	17/10/11 08:00		Available
FG10 HGR	PLU-00007999	17/10/11 08:00	18/10/11 08:00	VOR
KJ09 WRD	PLU-00008010	17/10/11 09:00		Available

N.B. A blank field means that there is no constraint for future resource planning in the ?Available From? or ?Available To? time. It is expected that the drivers will be included in the ?Resource Diary? so there should always be a previous or next shift to reference.

If a tractor or a trailer is not ?off road? in the ?Resource Diary? and it has not been allocated to a trip then the available times can be blank because a constraint does not exist.

If a resource is available for the entire period (of the trip being resourced), the fields (row) will be white - if not available for the entire period they will be grey - if not available for any of the period they won't show at all.

The record will appear as grey because the ?ALLOCATED? visual attribute is set and white because the ?DEFAULT? visual attribute is set.

N.B. The date and time of availability (rather than just the time) will be displayed to improve visibility should the duration of the trip be over more than one calendar day.

For drivers the previous and next constraint will be ?Off Shift? or another trip.



For tractors and trailers, the previous and next constraint will be ?VOR? (i.e. ?Vehicle Off Road?) or another trip. If ?No Previous? record exists (e.g. it is new to the fleet) and nothing in the future is planned for the resource then ?Available? will be displayed, these values will show in the ?Previous? and ?Next? columns respectively.

N.B. Tractors available for the duration of the trip, or part of the duration of the trip, will be displayed in the lookup list. The previous and next activity of the tractor will be displayed for reference. The previous and next activity could be another trip, ?VOR? (i.e. inactive in the ?Resource Diary?) or ?Available?. The same logic will be displayed for the trailer lookup.

The available resource lookup lists will be sorted to show the earliest previous availability first (i.e. by the dates and times shown in the ?Available From? column in ascending order).

N.B. If no records exist in the resource availability diary, it will be assumed that the resource is available by default (not withstanding being allocated to another trip at the same time of course as described above).

### 3.7 Suggested Resource Combinations

The trip planning screens will be changed to assess the last combination of driver and tractor and trailer used and offer this combination when any one of the three resources is selected in a list of values, or a value is keyed directly into the driver, tractor or trailer fields.

The last combination will be obtained from the trip with the same resource and cost centre; not on a future schedule; and with the latest start time.

If the system parameter ?RES\_AVAILABILITY\_ALLOC? is ?Y? for the cost centre of the trip, a popup box will be displayed to allow the user to accept or reject the suggested combination for the other resources. These other resources will only be replaced should they not have been set and the user accepts the suggested combination.

Each of the three resources will be independently checked for availability against the diary for the duration of the current trip being resourced and appropriate warnings provided if any conflicts occur. A ?greyed-out? resource may be selected, or an unavailable resource keyed, although the resource is not expected to be used for the current planning stage.

#### Table Updates Required

A new database table called ?RES\_AVAILABILITY? will be created as described in section 3.1.

#### Modules to be changed

Module Name	Module Type	Notes
RESOURCE.fmb	Form	New tab page
TRIPSUM.fmb	Form	New resource selection
TRIP_OVERVIEW.fmb	Form	New resource selection
TRIP_PLAN.fmb	Form	New resource selection
TRIP_RES.fmb	Form	New resource data
IMP.sql	Package	New import type

#### References

Ref No	Document Title & ID	Version	Date
1	EST-292361 PM-8LZN4D Resource Diary v2.0.doc	2.0	13/10/11

#### Glossary

Term or Acronym	Meaning
C-TMS	Calidus TMS

#### Document History

Version	Date	Status	Reason	Initials
0.1	31/10/11	Draft	Initial version	PDR
1.0	7/11/11	Issue	Review and Issue	DJM





## 4 AUTHORISED BY

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