Aptean

Planning - Trip Planning Guide

Calidus TMS - 12.45

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Reference: PLANNING

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1 Fixed Routes

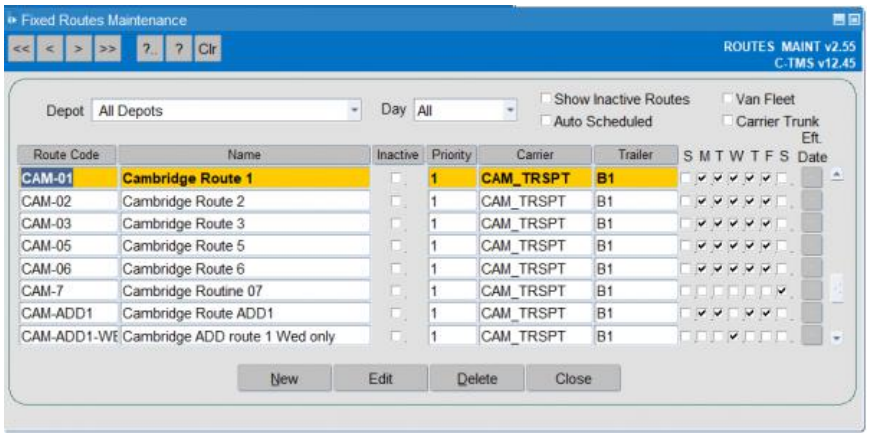
Fixed Routes is a module within C-TMS that provides a mechanism to define a set of "template" Trips that can be built from a pool of unscheduled orders. This functionality will typically be used to try and plan certain trips before sending the remaining unscheduled orders to an external scheduling tool or building them manually. Typically these Trips will be key routes that are repeated on a frequent basis.

Fixed Routes consists of two areas, configuration and execution. Two screens, Fixed Routes Maintenance (ROUTES_MAINT) and Fixed Routes Execution (ROUTES_EXEC) are used.

1.1 Fixed Route Configuration

You can access Fixed Routes Maintenance from the C-TMS Modules/Maintenance menu.

The following form opens:



The screen automatically displays active routes for all depots your user has access to on all days, for fixed routes that can be manually run.

Note: The list of fixed routes will be automatically restricted to your user's accessible depot, set through Access Control. Your user will either show all depots, or will be restricted to a single depot.

You can change what is displayed on this screen through the criteria at the top of the screen

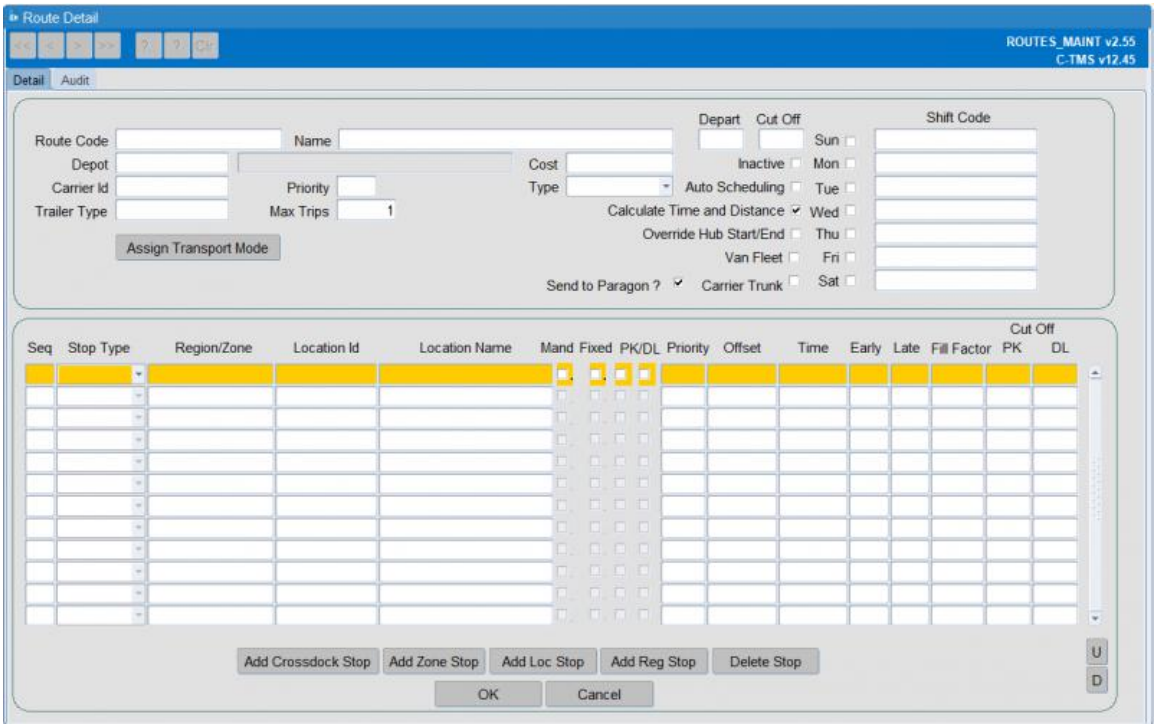
- *Depot* - you can select the depot from the drop-down list to filter the list of fixed routes shown.
- *Day* - you can select the active day from the drop-down list - all routes that are active on at least that day are shown
- *Show Inactive Routes* - you can check this box to show just routes that are currently inactive, so that you can re-enable them if required.
- *Auto Scheduled* - you can check this box to show Auto-scheduled fixed routes, as opposed to manual run fixed routes.
- *Van Fleet* - you can check this box to show just Van Fleet fixed routes.
- *Carrier Trunk* - you can check this box to show just Carrier Trunk fixed routes.

From here, you have the following buttons:

- **New** - create a new fixed route - see New Route below.
- **Edit** - click an existing route in the list and then this button and you can edit an existing route - this will allow you to change fixed routes similarly as to when creating a new route.
- **Delete** - click an existing route in the list and then this button and you can delete an existing route - you will be prompted for confirmation.
- **Close** - close this form.

1.1.1 New Route

"Fixed Routes" are used to automatically allocate orders onto predetermined trips; new routes can be created by selecting the **New** button which will take you into the screen shown below



The route code will govern the order in which the routes are displayed in the main screen.

The "Name" should concisely describe the route detail.

The "Depot" is the one with which the route is associated and the "Priority" will control which route takes an order if there are two possibilities (i.e. one order could allocate to two different routes).

The "Carrier ID" field determines the carrier that will be associated when the route is generated.

Likewise the "Trailer Type" field will determine the trailer associated with the trip and the "Cost" populates the MTM cost field on the trip detail tab, note this is for reference and not applied to the trip in the fixed route process.

If a Trailer Type is assigned it will be assigned to all Trip Stops on the created Trip, the Trailer will also be fixed (pegged) so that it cannot be overwritten by trip validation (see Trip Manipulation for further details of fixing Trailers).

Each route can be made inactive if no longer required.

The "Max Trips" number defines the number of each particular route that can be generated, in the example below three trips could be generated provided that there were sufficient orders available. Routes can be allocated to individual days or all through the week.

The "Route End Time" defines the expected end time of the trips created from the fixed route. For most scheduling purposes, this is for information only. The exception is fixed drop scheduling, which uses this to set the return to base time for the CL stop.

The route should be set for the days of the week for which it is active and the "Shift Code" can be applied to each day and is stamped against the trip created.

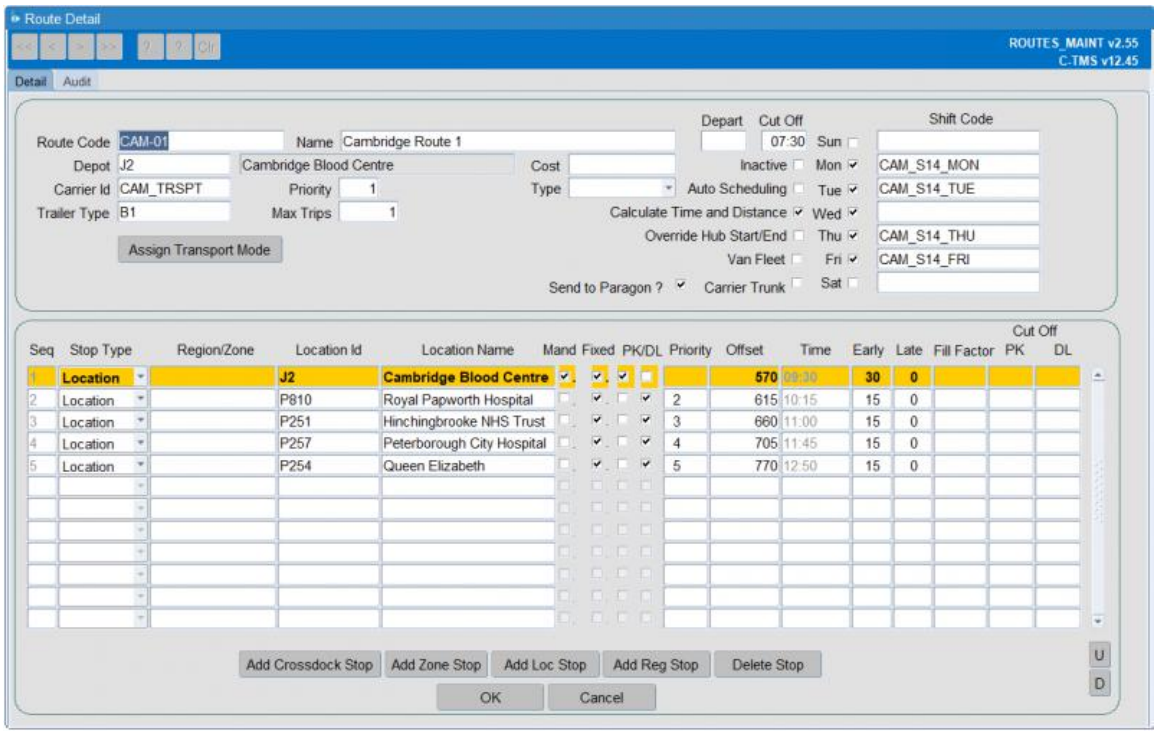
Each Route can be specified for any or all days of the week.

The "Auto-Scheduling" check box determines whether this fixed route should be used by the Scheduling Engine process, or whether this route is used solely by the manual fixed route execution process.

The route can be identified as a Bank Holiday route ONLY through the check box provided.

1.1.2 Route Stops

Stops can be added, deleted or inserted and also moved up and down within the route if desired using the available **U** (up) and **D** (down) buttons.



When setting up a new route, as a minimum two route stops must be added - the origin and destination locations need to be entered, a close-down location for own fleet is not required as this will adhere to the standard carrier Hub location functionality.

A route stop can be set as a specific single point location or a more general region or zone, encompassing several potential stops contained in an area.

If the Route Stop is defined at a region them the Fixed Routes processing will consider all locations in that region when identifying potential Orders.

Stops can be made mandatory and it must be stated which activity type they are:

- Pick-ups "PK"
- Deliveries "DL"

The "Offset" determines the target time for each stop and the "Early" and "Late" times signify the permitted window for which the round could pick-up at that location. For example, a trip may be able to:

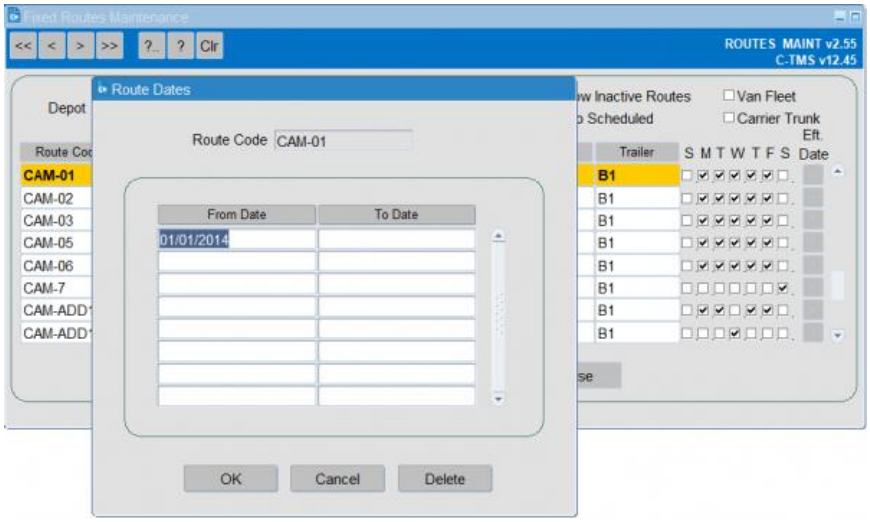
- Collect at stop 1 target time of 10:30 with an early of -30 mins and a late of +0 mins which creates a window between 10:00 day and 10:30 on the schedule day
- Deliver at stop 2 target time of 11:00 with an early of 10:45 and late of 11:00

Note: The times are calculated in total minutes from midnight on the schedule day i.e. midday 12:00 is represented by 720 minutes. Negative numbers can be used to indicate times before the schedule day.

It is possible to "Fix" the times on a Route Stop at a Location so that they don't get recalculated as part of Recalculate Distance and time. **Note:** It is not possible to fix times at Region stops as it is possible that C-TMS may identify a number of Orders within that region resulting in multiple Trips stops being created from single Route Stop. If a number of optional stops are entered they must be prioritised in order of importance, this way it is possible to define the order in which stops are considered within Fixed Routes allowing C-TMS to fill the important stops before considering the less important stops.

1.1.3 Effective Dates

The routes can be marked with an "Effective date" so that they are considered active while effective dates are in force.



The effective dates functionality will allow date ranges for which each route is active and this will allow specific routes to be setup on bank holidays or other key days where a reduced schedule might be operated.

The effective dates are not mandatory, if no records exist on this new table for a route then it will be assumed that there is no limits to how long the route is to remain active and is considered permanently active accordingly.

For a route to be set up specifically for bank holidays then the date ranges entered will be for the bank holiday date or date range.

Note: This function is only effective with the automatic fixed routes execution.

1.1.4 Imports

Fixed routes and stops may be imported through Imports:

- FIXED_ROUTE

1.2 Fixed Routes Execution - Advanced Creation

Note: This is a bespoke process - this is not normally required for scheduling orders onto fixed routes - the normal process is covered in section Fixed Routes Execution - Order Scheduling Engine below.

It is possible to run an automated background in C-TMS process which will generate Trips automatically from Fixed Routes and process any orders in the Order Well which might be applicable to the route.

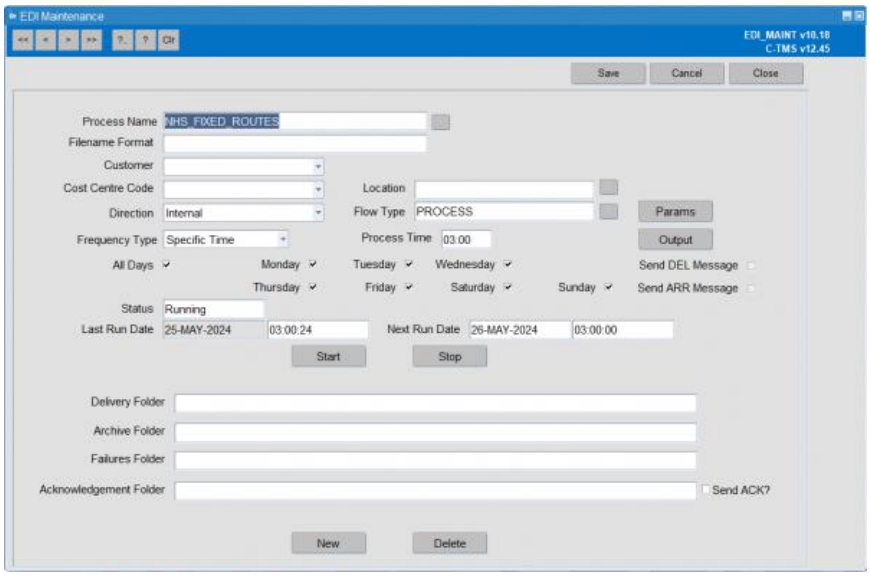
This will run based on an advance schedule date which is determined by a System Parameter SCH_SCHEDULED_ADV_DAYS which is proposed to will be set to 21 days in advance.

This will run in two distinct phases:

1. Generate the trips from the Fixed Routes templates initially for the specific advance schedule day.
2. Assess all the unplanned orders from the order well from the advance schedule day to current and determine if any orders can be planned into existing Fixed Route trips.

1.2.1 EDI Maintenance - Fixed Routes Scheduler

The standard EDI Maintenance form is be used to setup the automated job which will run the Fixed Routes advanced creation processing.



This controls the following:

- The process type - the data validation and trip planning functionality that is applicable.
- The processing frequency - whether the process is running and at what frequency of occurrence.

These processes should always be managed by the EDI_OWNER user ID.

1.2.2 Trip Creation

The fixed route trips (prefixed with "RTE-") will be generated for the schedule 21 days in advance (dependent on the new system parameter "SCH_SCHEDULE_ADV_DAYS") automatically from the fixed routes standing data via an overnight process. This will create trips including all trip stops for each Fixed Route and Route Stop that exist for that particular day and which are active based on the effective dates.

This process will loop through all of the fixed routes data and when active for the appropriate day it will create the trip with its appropriate stops. The trip is created at PLANNED status.

The Trip Header and Trip stops are created as per the Fixed Route template, with the key Route Code, Shift Code, Carrier and Trailer Type set on the trip as per the Fixed Route template.

1.3 Fixed Routes Execution - Order Scheduling Engine

The Scheduling Engine process will plan orders to the appropriate trip stops based on the Route Stop time and location details compared to that of the order collection/delivery locations and associated time windows. If advance creation is not configured, then the scheduling engine process will create the trips automatically for you.

The process will loop through any unscheduled orders (with the appropriate delivery type and schedule name - from current day/time of running up to and including the parameter setting value - recommended setting 21 days) and try to schedule them onto any previously generated RTE trips. The appropriate delivery types are those setup to automatically schedule (Auto Sched is ticked) within Business Data Maintenance.

Fixed Routes also provides the mechanism to part built Trips if only some of the Orders are present and then re-build

them at a later date when all the Orders are present. This stops Orders being sent to the Scheduling tool if it is likely that C-TMS will be able to plan them and is achieved by using the Semi Fixed trip status. If the Semi Fixed Trips have not been turned into complete Trips near to their planned departure point they can be disbanded and all the Orders returned to Unscheduled so that they can be sent to the Scheduling tool to be planned.

A Semi Fixed Trip will be created if either the highest priority optional stop or all stops have not been satisfied or if the fill factor or trailer capacity has not been met at each stop. These options are configurable.

The success or failure of he scheduling engine process can be viewed in the Scheduling Maintenance screen, on the Audit tab.

1.4 Fixed Routes Execution - Manual

There are two main sections to Fixed Routes, the execution and the maintenance. The maintenance of fixed routes will usually be left up to a site superuser or the C-TMS team. This section will therefore concentrate on the manual execution of Fixed Routes.

The aim of fixed routes is to speed up the planning process by anticipating trips that occur on a regular basis. These trips can be created automatically. Fixed routes are set up in the maintenance screen with certain criteria (such as delivery / collection times and trailer fill) which need to be adhered to before the fix route will be used.

C-TMS will create a trip from the fixed route and then proceed to find an order that matches its fixed route's criteria. If it doesn't match the criteria it will disband the trip, if it does then C-TMS will keep the trip and it can be viewed from within the trip manipulation screen.

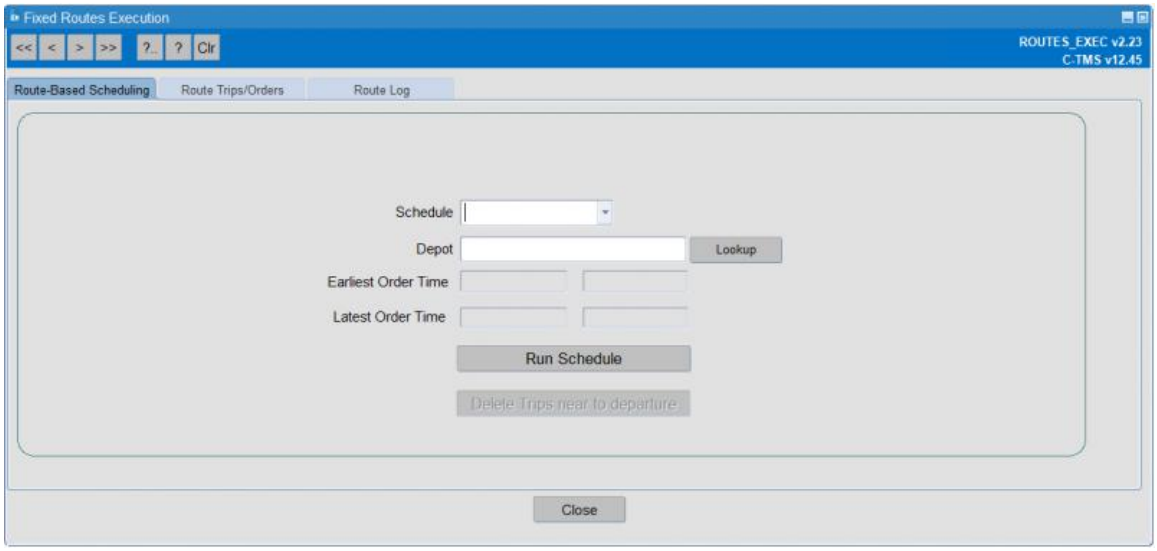
Fixed routes Execution will generally be ran after all the orders for a day's plan have been created.

1.4.1 Running Fixed Routes

Fixed routes execution can be accessed via the drop down menus of C-TMS Modules / Trip Management / Fixed Routes Execution.

Once you are in the fixed routes execution screen, the process for running fixed routes is very simple. You will first need to select the schedule that you want fixed routes generated for. Use the drop down box to select your schedule.

You then need to specify which group of fixed routes you want to run. Fixed routes are grouped by depot which is controlled from the fixed routes maintenance. Each fixed route is assigned to a depot which means that you can run fixed routes one depot at a time. If you do the planning for the whole of your contract you are more likely to select "All" depots at this point which will have the effect of running every depots fixed routes in one go. You can either type the depot location ID straight into the depot box, or you can use the Lookup button to bring up a list of all the depots that you can run fixed routes for.



Once you have selected the depot you can now run your fixed routes. To do this, press on the **Run Schedule** button. You will then be prompted with a message that asks "Applying unscheduled orders to fixed routes Continue?" to which you click **Yes**. This will start the process of matching any unscheduled orders in that schedule with your fixed routes. If these unscheduled orders match all the criteria specified in the fixed routes maintenance screen then the trips will be created.

Execution is performed for a Schedule and optionally for Depot. Access control is used to control which Depots a user can run Fixed Routes for. Upon execution it is possible to identify the day that Fixed Routes is being executed for. The process considers all Routes that are defined to run on the specified day (Note - if 7 day schedules are being used it is possible to select the days within that schedule that fixed routes should execute for) and attempts to match any Unscheduled Orders to the user defined Fixed Routes. Fixed Routes will check the number of Trips that have already been created on that schedule from that Route and will attempt to create trips until it reach the maximum number if sufficient demand exists. Fixed Routes will process all stops that have been defined on the Route on the following order: -

1. Mandatory Pickup - Mandatory Delivery
2. Mandatory Pickup - Optional Delivery
3. Mandatory Delivery - Optional Pickup
4. Optional Pickup - Optional Delivery

If an order cannot be found to satisfy a mandatory stop the Trip will be immediately disbanded. Each time an order is added to a Fixed Route the Trip is validated to ensure that the resulting trip is still valid, if validation fails the Order will be removed and processing will continue. Once a Fixed Route has been built additional checks are performed to ensure that the required stops have been included and that the trailer of fill factor has been satisfied, if not the Trip will either be disbanded or set to SEMI_FIXED. A system parameter defines the measure that is used to calculate fill factor, this is either RPE, weight or volume. Finally the Trip is set to its final status, usually TENDERED or ACCEPTED. During this process a comprehensive Audit log is written and is visible from the Fixed Routes Execution screen. From this log it should be possible for users to identify the reason why a route has not built. In addition to the Audit Log the Fixed Routes Execution screen also allows a user to view the Trips that have been created via Fixed Routes and also the Orders that have been assigned to the Trips.

When C-TMS has completed the fixed route execution process it will inform you via the Route based scheduling message. This message will give you details of the number of trips created from fixed routes and the number of orders that were placed on those trips. It will also detail the number of trips that were subsequently disbanded because the criteria on those fixed routes were no met (i.e. the volume was too much or too little, or the time windows on the order did not match the time windows on the fixed route).

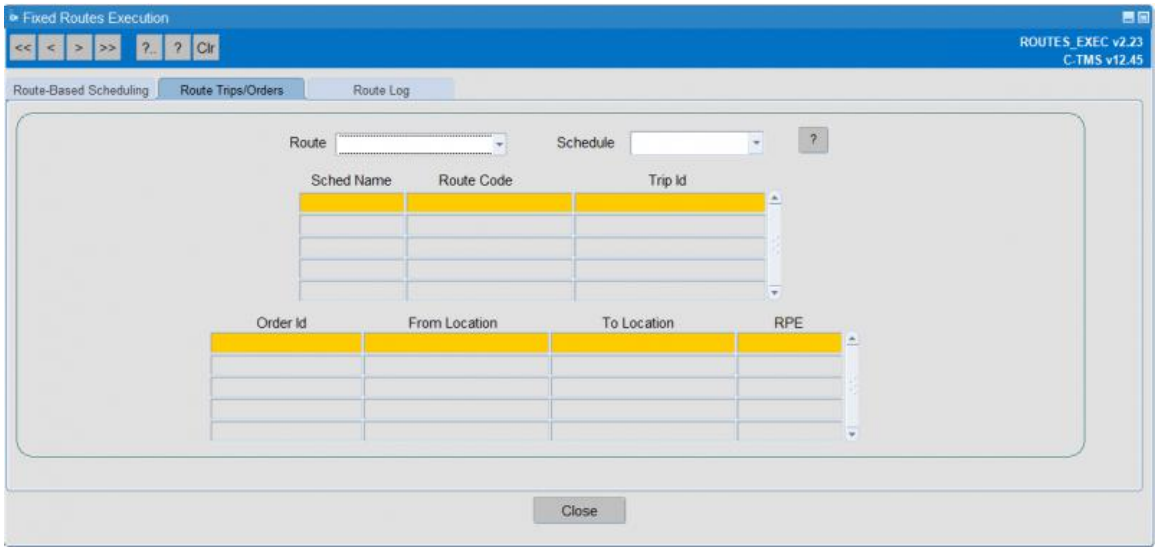
You will also note that the message details the first and last messages to look between within the fixed routes log.

You can now click on the **OK** button and go and view the trips you have just created in the trip manipulation screen.

1.4.2 Viewing Generated Fixed Route Trips/Orders

Staying within the fixed routes execution screen you will notice that there are two further tabs, the middle of which is labelled 'Route Trips/Orders'. The 'Route Trips/Orders' tab allows you to view the fixed routes that have successfully had

trips created from them. It will detail information regarding the orders that have been placed onto those fixed routes, the C-TMS trip ID number, the collection and delivery locations and the RPE (roll pallet equivalent). The "Route Trips/Orders" tabs are displayed.



You are able to search for the information via two different filters. You can either search by "Route" or by "Schedule". The route is referring to the fixed route ID which was set up in fixed routes maintenance. The **?** button activates the filter.

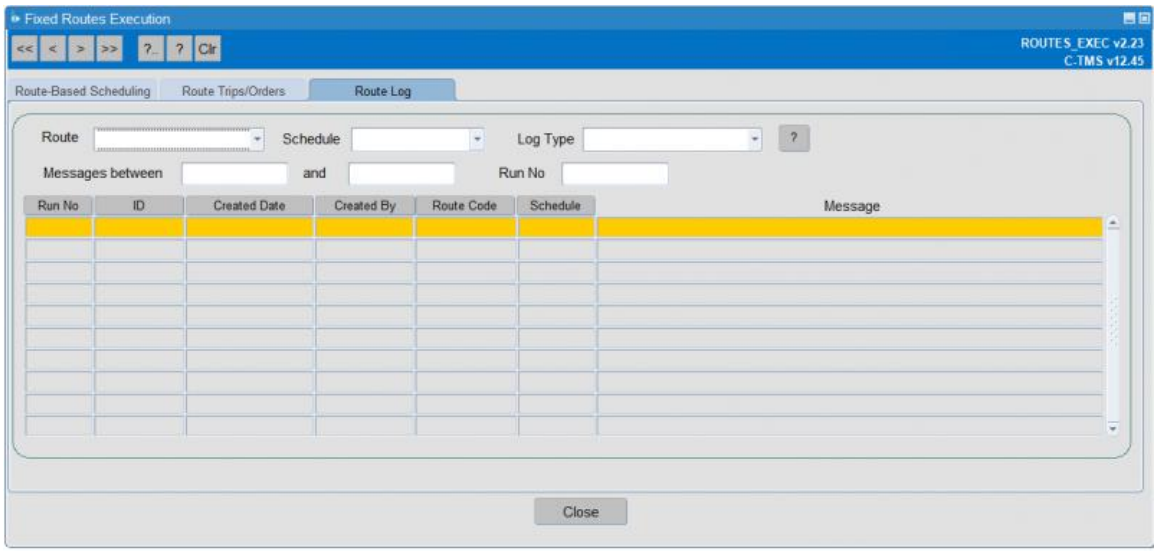
You then see the details of all the trips that have been created from a particular fixed route.

The bottom box containing the 'Order ID' etc. is showing the order details pertaining to the highlighted trip in the top box.

The other filter option is the schedule, which can be activated in the same way as you activate the route filter. This will detail the trips that have been created within the schedule provided.

1.4.3 Viewing the Fixed Route Log

The end tab on the fixed route execution screen is the Route Log. This will enable you to dissect the processes that C-TMS has followed when it has ran fixed routes. This can be used to understand the reason why a trip from a fixed route was not created when it might have been expected to do so. It will be in a technical language and may be difficult to dissect, but you will often be able to get to the bottom of a problem using this functionality.



Each line in the main table displays details of each step taken by C-TMS within its fixed routes execution process. It gives you an audit on who ran the fixed routes and when they were ran. It tells you the fixed route code and schedule that the message belongs to, and it gives the message itself. The message is a description illustrating the "thought process"

undertaken by C-TMS within that particular step.

You are able to filter this data in several ways using the different drop down boxes and free text boxes available. You could filter the data by fixed route ID (using the "Route" drop down box), the schedule, the log type, and perhaps most usefully of all, the messages between boxes. This is where you can enter the numbers that were given to you when you ran your fixed routes. After fixed routes execution has finished you are prompted with a note that details the messages between numbers that relate to that run of fixed routes. You should note those numbers and enter them into the messages between boxes within this screen. Whichever filter method you go for, you will be able to action it by pressing on the **?** button.

1.5 Further Configuration

The following system parameters affect this functionality:

Parameter	Description	Level
RTE_LOG_DEL_DAYS	Number of days that Fixed Routes log messages should be kept for	SYSTEM
RTE_MAINT_RDC_ALL_USAGE	Allow the values for the fixed route locations to include an RDC location when the depot has not been assigned to a customer or a customer group (Y/N)	SYSTEM
RTE_ORDERS_ASC_OR_DESC	Should orders be orders in Ascending or Descending order (ASC or DESC)	SYSTEM
RTE_PLAN_BY_REGION	Allow Fixed Routes to plan by Postal Region or Planning Region, values are PL and PO.	SYSTEM
RTE_PRIORITISE_URG_LATE_ORDS	Controls whether urgent and late orders are to prioritised in the Fixed Route process.	SYSTEM
RTE_REGION_AND_ZONE	Will fixed routes crossdock by planning region and location zone? (Y/N)	SYSTEM
RTE_SCHED_OFFSET_HRS	Fixed Routes Schedule Offset in hours	SYSTEM
RTE_SEMI_FIXED_CAPACITY	Determines whether capacity is checked by FILL or TRAILER capacity.	SYSTEM
RTE_SEMI_FIXED_FUNCTION	Should trips go to SEMI_FIXED if they are not optimum, Y or N.	SYSTEM
RTE_STOPOVER_MINS	Default number of minutes for a stopover for the network route.	COST_CENTRE
RTE_TRIPS_DEL_DAYS	Fixed Route RTE Trips in status DELETED on schedules older than this value will be deleted	SYSTEM
RTE_TRIPS_FIN_STATUS	Fixed Routes final status	SYSTEM
RTE_TRIPS_TO_ACCEPTED	Defines if ACCEPTED or PLANNED Trips are deleted in Rev TI, if yes then ACCEPTED, otherwise PLANNED - Y or N	SYSTEM
RTE_USE_CROSSDOCK	Should Fixed Routes allow crossdocks to be used.	SYSTEM
SCH_SCHEDULE_ADV_DAYS	Determines how many days in advance to generate fixed routes Schedule	SYSTEM

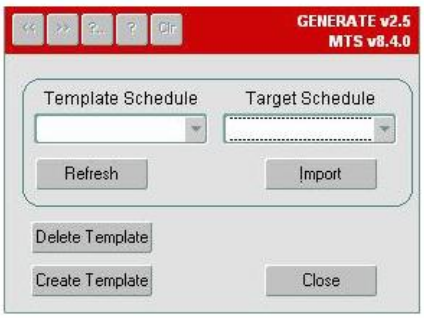
2 Fixed Schedules

Fixed Templates provides functionality to copy an entire Schedule of Trips, Orders and their associated Haulage Activities for a specific Depot in to a named Template. The Template can then be generated into another Schedule to effectively copy a Depot based Schedule from one Schedule Date to another.

Fixed Schedules allow users to create a template based on orders and trips which can be used to generate future schedules. The template will generate new orders and plan them on the new trips, eliminating the need to create orders or perform planning.

The Fixed Schedule screen is accessed from the Administration menu in C-TMS.

Selecting the menu item will display the following screen. Within the screen, users may create templates and generate schedules from the templates. There is a list of available templates and a list of target schedules.

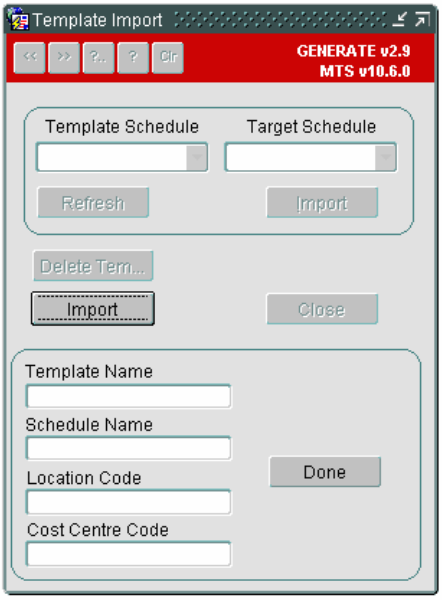


The target schedule will be required to be created, so that it is available to select from the drop down menu

2.1 CREATE TEMPLATE

Allows you to specify a Schedule of Trips, Orders and the Haulage Activities that associate the Loading and Unloading of Orders on Trip Stops for a user specified Depot to be copied into a Fixed Template. The Fixed Template can be named with an appropriately descriptive name such as TUE_SWI_NP for a typical Tuesday Non-Perishable Schedule for the Swindon Depot. This function effectively takes snapshot of a Depot Schedule so that it can be reused on an alternative Schedule in the future.

Selecting Create Template displays the following screen.



You will specify a name for the template, this should be named so it is easily identified in the drop down list. A suggested naming convention would be "MON-SUMMER", "MON-WINTER","TUES-SUMMER" etc.

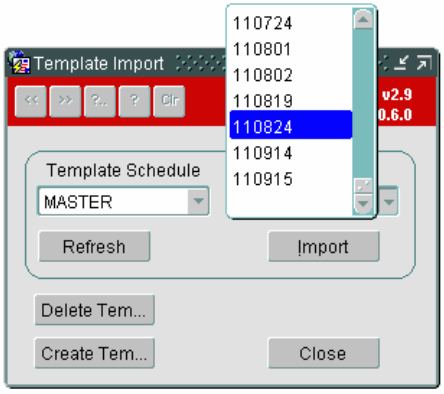
You will then specify the source schedule to be copied for the template. Where there are orders and trips for more than one cost centre or location, you may specify to base the template on orders for a specific location or cost centre.

Once the data is populated, select **Import** to create the template.

When the import is complete, the system will confirm the number of orders and trips created for the template. Select **OK** to confirm the creation of the template.

2.2 IMPORT SCHEDULE

This provides the facility to generate a new Schedule of Trip, Order and Haulage Activities for a specific Depot from a previously created Fixed Template. A stored fixed Template can be selected along with a target Schedule date and then the Template generated into the target Schedule creating all the Trips, Orders and associated Haulage Activities that were stored in the Fixed Template.



This functionality is typically used to generate Depot Schedules for particular days of the week where the deliveries made on the day do not vary greatly from week to week.

You first select a schedule you wish to copy, all orders and trips on the schedule will be copied. Any unscheduled orders on the schedule will also be copied.

The schedule will include orders being collected today for delivery tomorrow and orders which were collected yesterday for delivery today. The schedule will be based on a day of the week - eg MONDAY and will show the orders collected on a Monday and the orders delivered on a Monday.

2.3 Further Configuration

The following System Parameters affect this functionality:

Parameter	Description	Level
FIX_NULL_BOOKING_REF	Set booking Ref to Null for fixed schedules	COST_CENTRE
ORD_FIXED_SCHEDULE_CHECK	Check for existing fixed schedule generated orders	CUSTOMER
SCH_DEFAULT_FIXED_TEMPLATE	Default Fixed Template Name for Auto Generation	SYSTEM
TRM_FIXED_TRIP_STATUS	Determines status of trips created via Fixed Schedules. P for PLANNED or A for ACCEPTED.	SYSTEM

3 Introduction

The non-working days functionality is complicated, especially for Good Friday.

The changes will be required in several processes (such as depot sweep, scheduling engine, imports, Paragon strategic imports, etc) and will comprise the following:

- Allow for Non-working Days for a country, depot and route.
- Allow exceptions to non-working days through exceptions against specific routes.

Non-working days affect many processes within CTMS, such as:

- Scheduling Engine
- Imports
- Carrying forward
- Paragon Strategic Imports
- Depot Sweep

The process allows for

- Non-working Days for a country, depot and route.
- Exceptions to non-working days.

These processes and how they operate are very much dependent on which of these processes you have configured (especially Scheduling Engine). This guide is intended to show you all of the configuration that you can apply that affects the calculation of whether a day is considered a working day.

3.1 Example

A non-working day can be specified for a country in the ?Non Work? tab page and they are usually setup for public holidays.

An exception to the non-working day in the country can be specified in the ?Working Day Exception? tab page.

Additionally, a non-working day can be specified for a depot and a route within the country.

Usually, the non-working day is assessed by the appropriate level:

1. Country
2. Depot
3. Route

A non-working day for a country will apply to all depots and routes and a non-working day for a depot will apply to all its routes.

Non-working days are also assessed by country, depot and route to set a non-working day or to override a non-working day that has been set at a higher level.

This functionality is relevant for countries that have different public holidays for their states or constituent countries.

For example, the country code ?GB? applies to the ?United Kingdom of Great Britain and Northern Ireland?, but there are different public holidays for Scotland and Northern Ireland.

The depots and routes for these countries may be active or inactive on these days.

An example of how the non-working days will be assessed is below.

- Birmingham is an example of a depot in GB, which is not used for routes for Scotland and Northern Ireland.
- Warrington is an example of a depot in GB, which is also used for routes for Scotland and Northern Ireland.
- Newcastle is an example of a depot in GB, which can be served by Middlesbrough.
- Eurocentral is an example of a depot in GB, which is used for Scotland.

The rows in italics will not need to be setup because they are included here just to indicate a result.

Date	Depot	Country	Exception Depot		Route	Bank Holiday Runs	Non-Working Day?
01/01/2025	All	Yes	No				Yes
02/01/2025	*Birmingham*	*No*	*No*				*No*
02/01/2025	*Warrington*	*No*	*No*		*(non-trunk to Scotland)*		*No*
02/01/2025	Warrington	No	No		Inc (trunk to Scotland)		Yes
02/01/2025	Eurocentral	No	No	Inc			Yes
17/03/2025	*Warrington*	*No*	*No*		*(non-NI)*		*No*
17/03/2025	Warrington	No	No		Inc (trunk to and deliver in NI)		Yes
18/04/2025	Birmingham	No	No			Yes	No
18/04/2025	Middlesbrough	No	No			Yes	No
18/04/2025	Newcastle	No	No	Inc			Yes
18/04/2024	*Eurocentral*	*No*	*No*				*No*
21/04/2025	All	Yes	No				Yes
05/05/2025	All	Yes	No				Yes
26/05/2025	All	Yes	No				Yes
14/07/2025	*Warrington*	*No*	*No*		*(non-NI)*		*No*
14/07/2025	Warrington	No	No		Inc (trunk to and deliver in NI)		Yes
04/08/2025	*Birmingham*	*No*	*No*				*No*
04/08/2025	Eurocentral	No	No				Yes
25/08/2025	Birmingham	Yes	No				Yes
25/08/2025	Eurocentral	Yes	No	Exc			No
01/12/2025	Eurocentral	No	No				
24/12/2025	*All*	*No*	*No*				*No*
24/12/2025	All	No	No		Inc (P routes)		Yes
25/12/2025	All	Yes	No				Yes
26/12/2025	All	Yes	No				Yes
31/12/2025	*All*	*No*	*No*				*No*
31/12/2025	All	No	No		Inc (P routes)		Yes

Note: that the ?Bank Holiday? routes will be active only on public holidays as specified for the depot.

3.2 Configuration

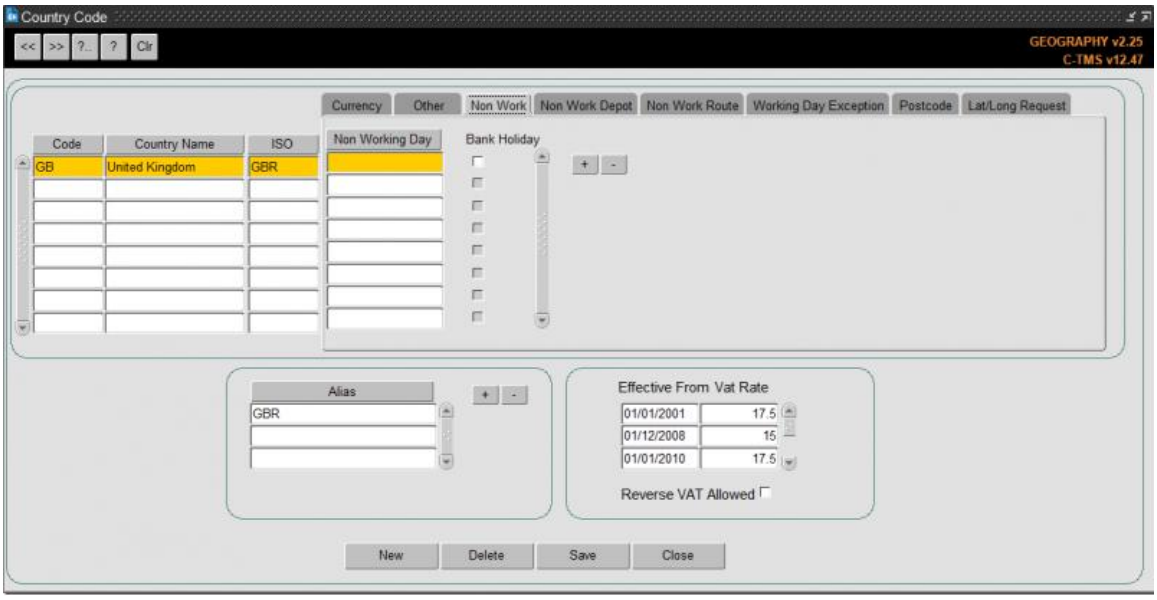
3.2.1 System Parameters

General non-working days for al depots in the network are set in the following system parameter:

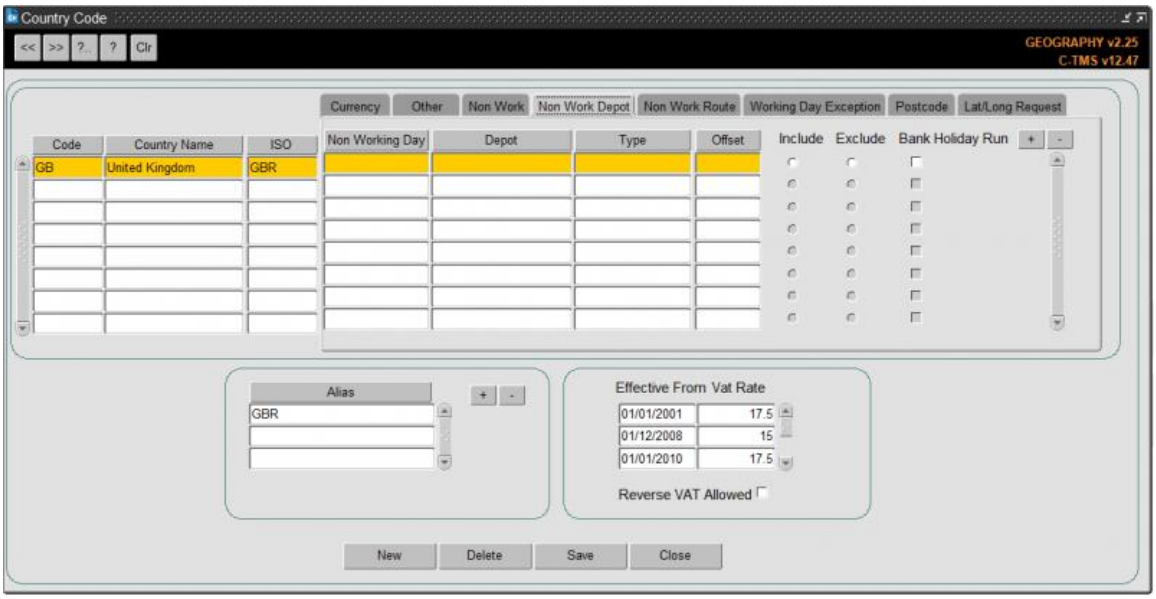
Parameter	Description	Level
CAL_WORKING_DAY_MAP	Defines which days of the week are being worked - Sunday to Saturday, Y or N.	SYSTEM
CAL_WORKING_DAY_MAP	Defines which days of the week are being worked - Sunday to Saturday, Y or N.	COST_CENTRE

3.2.2 Countries

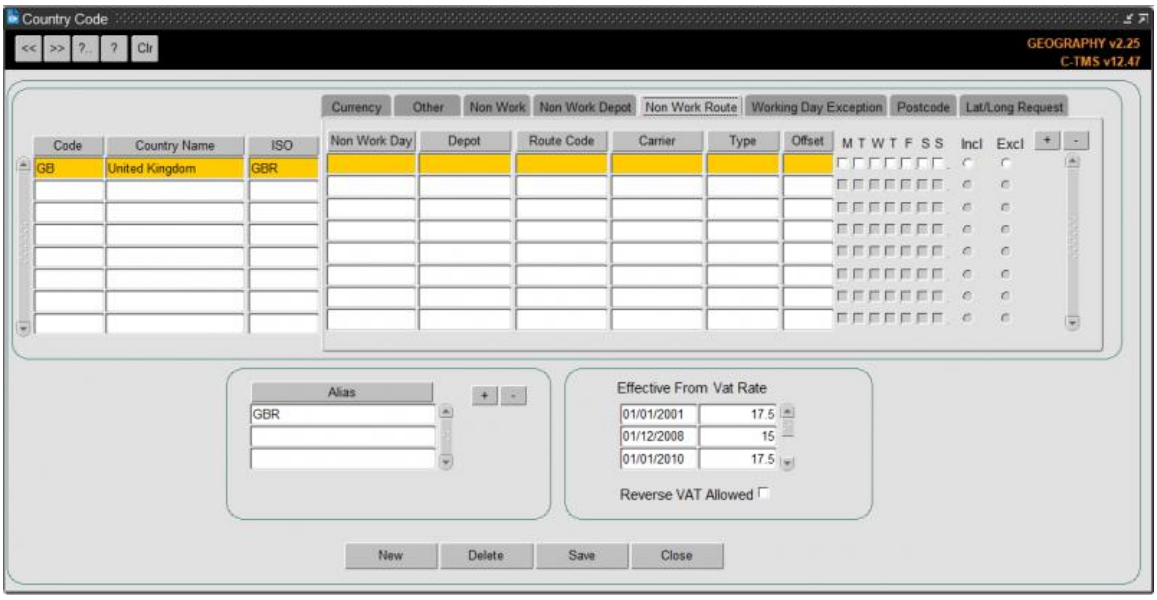
Country wide non-working days are defined using the ?Non Work? tab page:



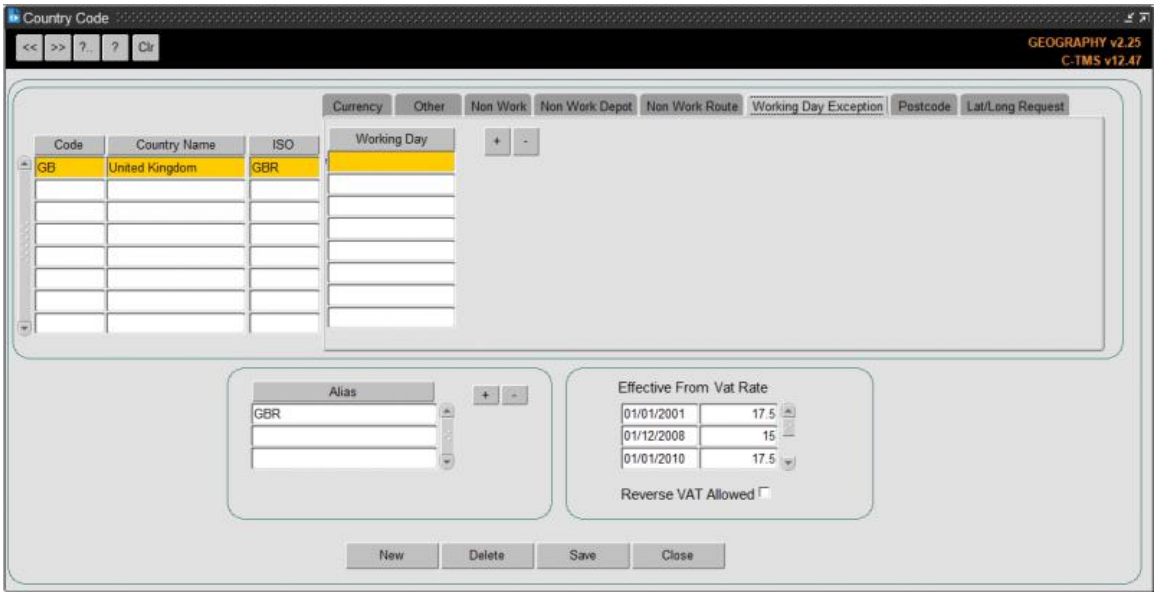
Depot-specific non-working days are defined using the ?Non Work Depot? tab page:



Non-working days for a route are defined using the ?Non Work Route? tab page:



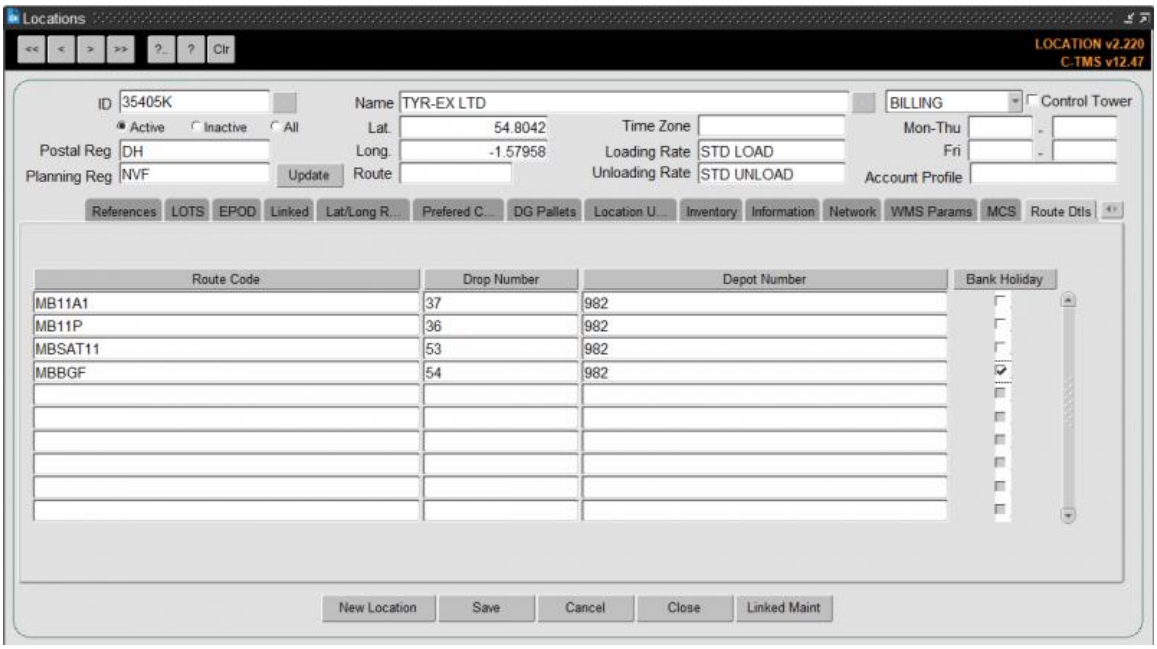
Working-day exceptions are defined using the ?Working Day Exception? tab page:



3.2.3 Locations

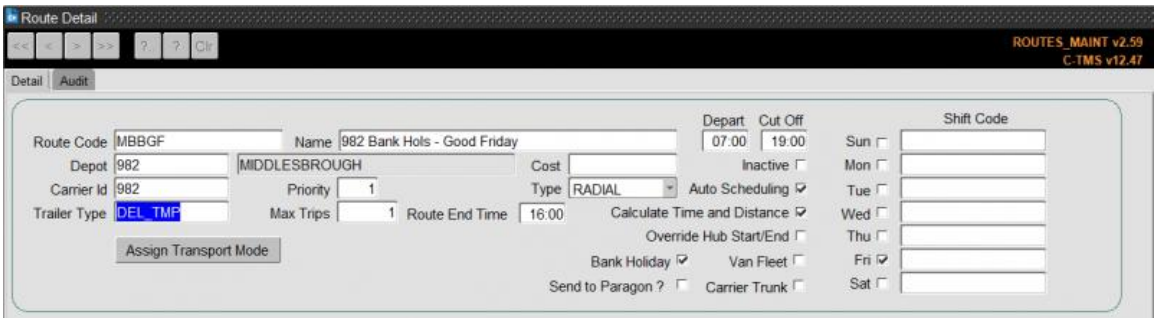
Note: For Fixed Drop Scheduling engine only:

Routes assigned to locations can be marked as Bank Holiday ONLY:



3.2.4 Fixed Routes

The route maintenance screen in CTMS stores the following route header information for all trunk and delivery routes, which will allow C-TMS to identify when a route is available.



The working days of each route are specified, as well as whether this is considered a bank holiday route ONLY.

A non-working day can be specified for a country in the ?Non Work? tab page and they are usually setup for public holidays.

An exception to the non-working day in the country can be specified in the ?Working Day Exception? tab page.

Additionally, a non-working day can be specified for a depot and a route within the country.

Usually, the non-working day is assessed by the appropriate level:

4. Country
5. Depot
6. Route

A non-working day for a country will apply to all depots and routes and a non-working day for a depot will apply to all its routes.

3.3 Operation

3.3.1 Depot Sweep

The Depot Sweep Carry Forward process checks for non-working days before the schedule of an order is changed.

The delivery depot associated with the order is found and the country wide and depot specific non-working days are assessed before assigning the new Schedule, for example:

- There are depot specific non-working days on the new schedule.
- There are no country wide non-working days on the new schedule.

3.3.2 Fixed Drop Scheduling Engine

The scheduling engine processes assesses non-working days when determining a route to plan orders onto.

The route code associated with the order is checked against the delivery date of the order to ensure that:

- The route is active for that day.
- There are no route exceptions for that route on the delivery date.
- There are depot-specific non-working days on the delivery date.
- There are no country-wide non-working days on the delivery date.

4 Planning

The Planning screen can be accessed via the drop-down menus C-TMS Modules / Trip Management / Planning.

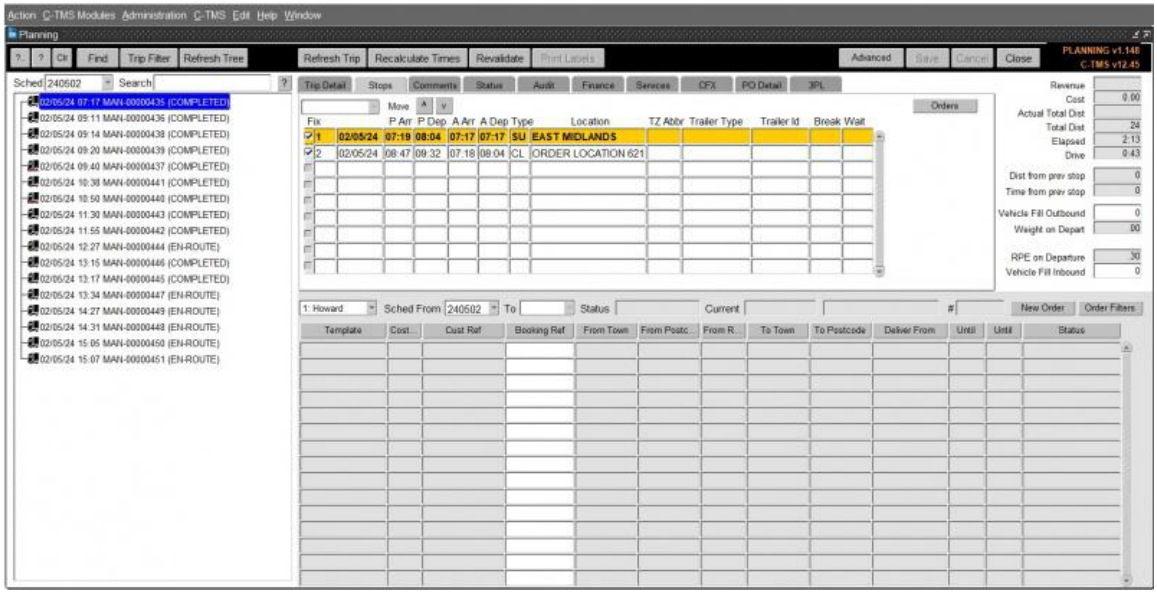
Trip manipulation can be used for both the pre-planning of trips and the execution of that plan. A planner will often be responsible for creating the orders and then putting these orders onto trips. Fixed routes will often automate part of this job for you, leaving some orders to be tripped up manually using the skill of the planner. There is functionality within trip manipulation that will aid and guide the planner in making an informed decision.

For instance, the Network (point-to-point) table held in the background of C-TMS holds details of travel times and mileages that will illustrate to the planner the planned arrival and departure times for these trips. This will then work in conjunction with the times populated on the order to show whether the deliveries will be made on time or not. C-TMS will also flag whether the planner is trying to create a trip that exceeds the trailer capacity of the vehicle type that has been allocated to this trip. Further to this, C-TMS can tell the planner if the trip exceeds a pre-set drive or duty time for each driver.

The Transport operator will then be able to allocate resources to the trips, and enter actual trip times and pallets delivered after the driver has returned from their journey.

4.1 General Use

The following is an example of the Planning Screen:



The screen consists of multiple sections

- Left - Trip tree - a list of all trips on the schedule.
- Middle Top - Trip Details - for specific details of the trip.
- Top Right - Trip Summary Details
- Bottom - Order Well - unscheduled orders.

Key functions may be accessed by buttons above the section:

- **Revalidate** - validate the currently-selected trip displayed in the Trip Details section.
- **Recalculate Times** - recalculate distances and times on the currently-selected trip displayed in the Trip Details section.
- **Refresh Trip** - refresh the currently-selected trip displayed in the Trip Details section.
- **Advanced** - advanced integration features
- **Save** - save any changes you have made. The button will only be enabled when you have changes to save.
- **Cancel** - cancel any changes that have not yet been saved. The button will only be enabled when you have changes to cancel.
- **Close** - close the Planning form and exit.

Many of these key functions are discussed in more detail in the following sections.

4.2 Trip Tree section

By default, the screen will open with the latest active schedule already shown, with all the trips that have already been created, either automatically or manually.

The trip tree will display only trips that match your user's depot (BASED_AT) parameter (if you are a planner for a single depot), or all trips if your user is configured to see all depots (a control tower-style configuration set by using the ALL_DEPOTS user parameter). Trunk trips (trips between depots) will be shown for any trips that are from or to your depot. Owning depot configuration is covered in the Owning Depot guide.

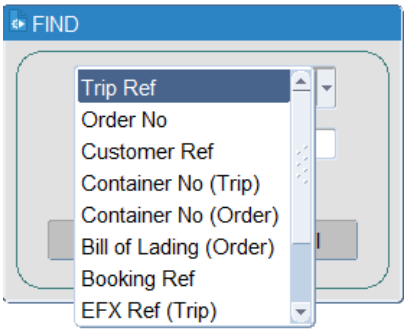
The Trip Tree displays the header for the trips contained within the schedule selection.

The trip header contains the planned arrival time of the driver at the depot, the unique transport identifier, and the status of the trip. This is also configurable to display the route. The trip header in the trip tree can also indicate if there are any outstanding warnings or errors with this trip, with a red highlight - you can see these warnings on the Comments tab in the *Trip Details* section, discussed below. Note that this icon may also display in RED, depending on how you want the screen implemented for your system.

This schedule selection can be made in the top left drop-down box named "Sched". The schedule refers to a date and is the method of grouping a set of orders and trips together into one manageable set. The schedule can be daily or weekly.

You can change the schedule shown on the screen by clicking on the Sched box and selecting or typing a schedule.

The **Find** function can find trips across schedules by many criteria.



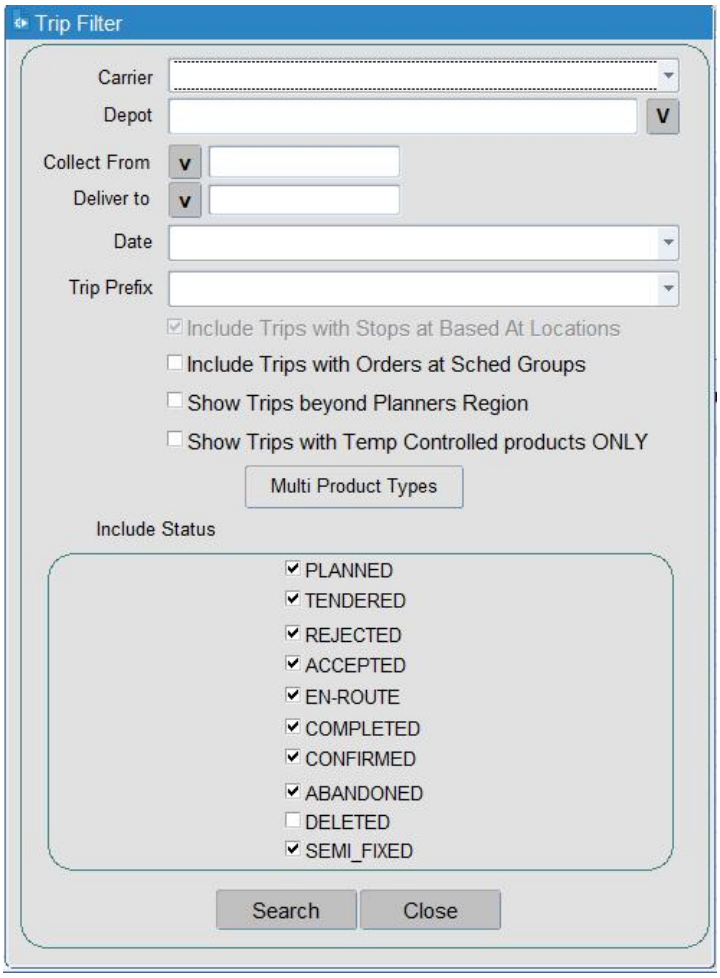
You can select one of:

- Trip Ref
- Order No
- Booking Ref
- Customer Ref
- Container No (Trip)
- Container No (Order)
- Bill Of Lading (Order)
- EFX Ref (Trip)
- EFX Ref (Order)
- Route Code
- Tractor ID

Enter the value you wish to search for (note: case-sensitive) and then click **Find** (or **Cancel** to cancel the search.

When you click **Find**, the system will find all matching trips across all schedules and display the results in the trip tree.

The **Filter** function can filter the trips that are displayed in the trip tree.



You can choose to filter by:

- Carrier - a drop-down list of all available carriers your user can see.
- Depot
- Collect From - a list of locations from which the orders are being collected. You can use the **v** button to initiate a pop-up lookup.
- Deliver To - a list of locations from which the orders are being delivered. You can use the **v** button to initiate a pop-up lookup.
- Date
- Trip Prefix
- Checkboxes can also apply a filter:
    - *Include Trips with Stops at Based At locations* - this is initially checked.
    - *Include Trips with Orders at Sched Groups* - this is initially unchecked.
    - *Show Trips beyond Planning Region* - this is initially unchecked.
    - *Show Trips with Temp Controlled Products ONLY* - this is initially unchecked.
- Product type - you can select multiple product types to match trips against through the **Multi Product Types** button.
- Include status - you can filter the trips at particular statuses only through the check-boxes provided. By default, all trips at all statuses bar DELETED will be shown.

Once you have entered the criteria, click **Search,** and the trip tree will be filtered by your criteria. If you don't want to search, click **Cancel**.

The **Refresh Tree** button refreshes the trip tree.

Many key functions can be accessed through a right-click menu on the trip in the tree.

- *Refresh* - refresh the trip.
- *Validate Trip* - revalidate the trip to see any validation errors.

- *Set Status* - set the status of the trip from a sub-menu of statuses.
- *Change Schedule Date* - move the trip onto a different schedule.
- *Split Trip* - split the trip from the stop selected on the Trip Stops section - a second trip will be created with all stops from that point removed from the original trip.
- *Merge Trip* - merge two selected trips together.
- *Merge Trip across Schedules*
- *Merge Trip with...*
- *Delay Trunk* - mark the trunk as delayed and unplan every order on this trip.
- *Delete Trip* - delete the selected trip and unplan every order on this trip.
- *Unschedule Orders* - unschedule orders from this trip.
- *Edit Order*
- *Resend NAKs*
- *Show Map* - show a map in a new browser window showing all the stops on that trip, plus navigation instructions.
- *Print Maps* - print the map above.
- Several standard documents can be generated from this trip tree - the report run is configured through system parameters shown later in this document:
    - *Print Manifest*
    - *Loading List*
    - *Delivery Docs*
    - *Despatch Note* - This will generate the Despatch Note report in PDF form for the trip that is currently highlighted in the trip tree.
    - *CMR Note*
    - *Combined Documents*
- *Send Message*
- *Send Enabling Message*
- *Resend PO Message*
- *Debrief Trip* - open the trip in the Trip Debrief screen.
- *Trip Volumetrics*
- *Redirect Trip*
- *Reject Trip*

Many of these key functions are discussed in more detail in the following sections.

4.3 Trip Summary section

Summary trip and stop information is presented here.

- Revenue - the total revenue allocated to this trip from orders planned on this trip.
- Cost - the trip cost calculated from the carrier tariff, if present.
- Actual Total Dist
- Total Dist - the planned total distance travelled on this trip.
- Elapsed - the planned elapsed time taken for this trip.
- Drive - the planned drive time taken for this trip.
- Dist from Prev Stop - the distance of the stop selected from the previous stop.
- Time from Prev Stop - the time of the stop selected from the previous stop.
- Vehicle Fill Outbound - the percentage of vehicle fill on departure of the trip. **Note:** This is only available if there is a trailer type associated with the trip and stops, and that type has a defined capacity. Trailer types may be automatically assigned to the trips when created from fixed routes. This guide shows how to assign trailer types in the Key Functions section below. Trailer Type definitions are covered in the Resources screen guide.
- Weight on Departure - the total weight of orders on the trip at departure.
- RPE on Departure - the total RPE of all orders on this trip loaded at the departure point.
- Vehicle Fill Inbound - the percentage of vehicle fill on completion of the trip.

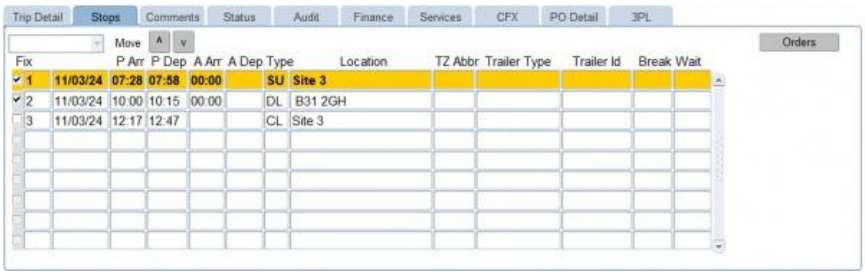
4.4 Trip Details section

This section will display the details of the trip that is currently selected within the trip tree section. There are multiple tabs in this section, the default of which is the Stops tab, which displays the different stops on the trip selected.

- *Trip Detail* - This shows the general information on the trip. Resources can be assigned, and the references edited here.

- *Stops* - This shows all stops on the trip, and is the default tab. This is where the key functions for a trip can be accessed. Orders on stops can be accessed here through the Orders button.
- *Comments* - You can add or edit general comments here. You can also view rejection comments, errors and contract auditing from this tab.
- *Status* - The screen shows general trip status changes here.
- *Audit* - The screen shows detailed auditing information on the changes to the trip here.
- *Finance* - The screen displays generated finance (trip cost and revenue from orders) here. Payments and additional costs can be added here.
- *Services* - You can see, add or modify any trip services here.
- *CFX* - You can see, add or modify CFX information here.
- *PO Detail* - You can see, add or modify PO information here.
- *3PL* - You can see details of the 3rd-party carriers here to compare costs.

4.4.1 Stops Tab



It shows by default (from left to right):

- the stop number,
- the planned arrival and departure times from each stop,
- the actual arrival and departure times (if this has been keyed within the debrief screen),
- the type of stop (SU = Start-up, DL = Deliver, PK = Pick-up, CL = Closedown),
- the name of the location,
- the type of trailer that has been allocated to the trip,
- the trailer ID associated with each stop,
- where the driver break needs to be taken,
- any wait time at the stops.

This layout is configurable, and the following fields may also be added to the display:

- Booking Time
- Pick By
- Pick By Time
- Location Town
- Location PostCode
- Trailer ID (2)
- Mother Feeder
- Vessel ID
- Voyage
- Port
- Stop ETA Date
- Stop ETA At Date
- Warehouse Loading Time
- Stop Lifts
- RPE on Arrival
- REP At Stop
- Bordero
- Drop Number - a Fixed Drop Number. **Note:** This is specific to the Fixed Drop Scheduling Engine.

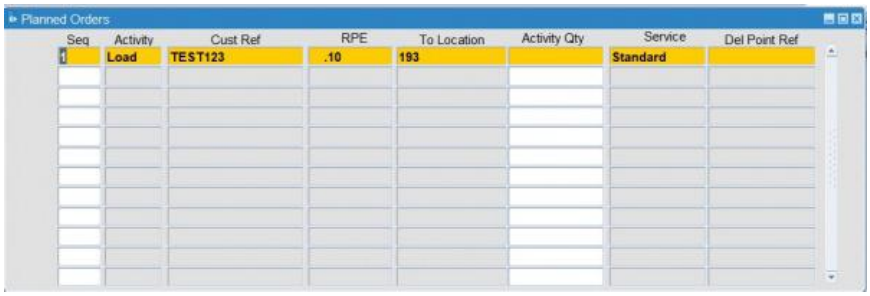
Many key functions can be accessed through a right-click menu on the trip stop in this tab:

- *Configure Layout* - configure the columns on this table.
- *Insert Stop* - insert a stop at this point.

- *Append Stop* - append a stop to the trip at a specified point.
- *Delete Stop* - delete the selected stop.
- *Abort Stop* - abort the selected stop.
- *Assign Trailer Type*.
- *Remove Trailer Type*.
- *Assign Trailer ID*.
- *Remove Trailer ID*.
- *Print Material Checklist*.
- *Move Stopover back*.
- *Reset Stopover*.
- *Move Stopover Forward*.
- *Move Stop* - move the stop to a new position.
- *Desp Conf Message Hold*.
- *Transfer Orders* - transfer all of the orders on the stop onto a different trip (also Job Swap).
- *Create Pickup*.
- *Create Delivery*.
- *Print Labels*.
- *Send Trip Stop*.

Many of these key functions are discussed in more detail in the following sections.

You can also see the orders that have been placed on the stop on the trip through the **Orders** button, which will open a pop-up window to show you the orders.



In this window, you will find the orders that are related to the stop that is highlighted within the larger section above, and it shows the following information:

- Seq
- Activity
- Cust Ref
- RPE
- To Location
- Activity Qty
- Service
- Del Point Ref

Double-clicking on the order header will take you into the details of the order itself, where you will be able to amend time windows and pallet quantities.

Several key functions are available from this stop orders list, accessed via right-clicking on an order in the list:

- *Unschedule Order* - unschedule the order from this trip.
- *Unschedule Order from Trips* - unschedule the order from all trips.
- *Show Shipment*
- *Transfer Order* - transfer the selected order on the stop onto a different trip (also Job Swap).
- *Find and Replace/Replace* - replace the order with another order.
- *Carry Forward* - this configurable option allows you to select orders and carry them forward to another route on the following schedule.

4.4.2 Trip Detail Tab

The "Trip Detail" tab in this section will allow for resources such as the carrier, the driver and the tractor registration to be allocated against the trip.

You can right-click on the driver and choose to show resource details of the driver, carrier or tractor - a pop-up window will be shown with these details.

You can also enter the following:

- Seal number - free text entry
- Container no
- Shift Code - with lookup
- Delivery type - The Delivery Type is set from the first order planned against a trip and is triggered automatically. In normal circumstances, this is display only and for information only.
    - For the NHSBT Scheduling Engine and Fixed Templates processing, this is critical to the adding of orders automatically to these trips.
    - Note also that for Carriers that are marked as LogiNext enabled (i.e. they are executing tasks through the LogiNext 4PL platform), this can be configured through a system parameter ALLOW_TRP_DEL_TYPE_UPDATE configured per carrier, to allow the Delivery Type to be changed to a curated list, available through a drop-down list. The list will display only those values that have been configured in the decode list for LogiNext use. No manual entry is allowed.
- Route Code - a free text route code. If this trip was created from Paragon or from fixed routes, this will be populated with the route code. See note below.
    - Route code can also be set to be a lookup item as well as free text - this is controlled through a system parameter LOOKUP_FOR_ROUTE_CODES. In this case, a lookup button will be provided. This lookup will display the 'Route Code', 'Route Name', and 'Trip ID' if a trip already exists for the given Route Code. If multiple trips exist, the first one will be displayed that is in either PLANNED, ACCEPTED, EN-ROUTE state. You can then select a trip, and the route code and description will be set for you against this trip.
- Route Name - a free text field describing the route, for informational purposes.
- Status - the trip status, display only.
- Carrier - the carrier assigned to the trip, and from whom the resources (driver, crew, tractor/trailer/vehicle) will be sourced. You can change this with the lookup button provided.
- Carrier Ref - if this is a third-party carrier, then a carrier reference may have been provided, and is displayed here.
- Crew 1/2 - additional crew.
- PO Number
- ADR Reg
- Full Trailer Load
- Groupage
- Subcontractor

4.4.3 Comments Tab

You can add comments against the trip by right-clicking in the general Comments sub-tab, selecting *Add comments* and entering your text.

To the right of the General comments tab is the Errors tab. This displays the rules that have been broken for this trip, which could include the total time of the trip or a broken delivery window.

You can also view rejection comments and contract auditing from this tab.

Note that any information regarding the tendering, acknowledgement or acceptance of trips and orders for 3rd-party carriers using the LogiNext interface may be displayed here, such as indications when all orders have been acknowledged or accepted.

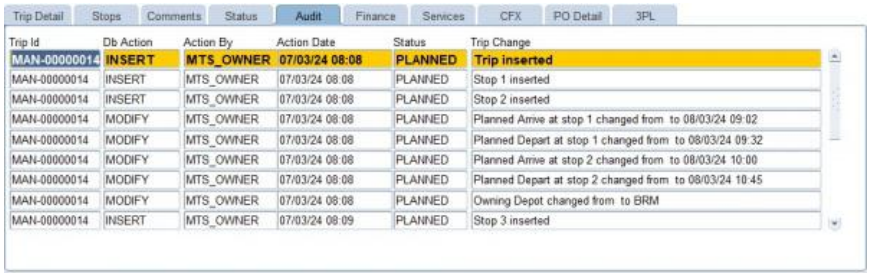
4.4.4 Status Tab

This tab shows the auditing of the change of status of the trip.

It also shows whenever a carrier is changed, and who made the change and when, the last change date and whether the manifest has been produced or sent.

4.4.5 Audit Tab

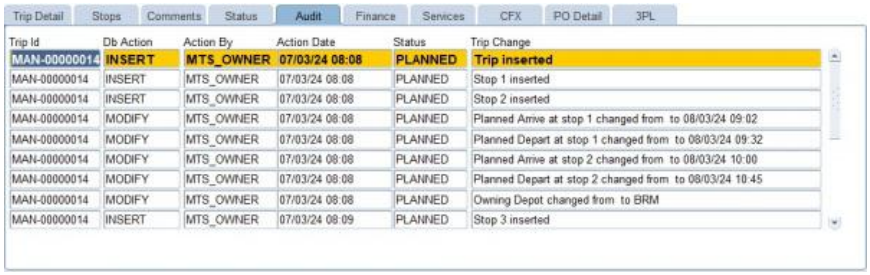
The screen shows detailed auditing information on the changes to the trip here.



This enables you to view the history of the trip, showing both who has created and amended the trip. It will also show if the trip has been set to another status, and if it has been deleted.

4.4.6 Finance Tab

The screen displays generated finance (trip cost and revenue from orders) here. Payments and additional costs can be added here.



This allows you to see, add or change the costs associated with doing this trip when allocated to a subcontractor. Finance can be studied in more detail within the Contracts Module.

The cost against a trip indicates the amount paid to a subcontractor to carry out the trip. If the trip is being carried out by an own fleet carrier, there is generally no charge. Subcontractor charges can be created automatically from Contracts, in a similar way to Order revenue. The payments are automatically generated when the order is set to Accepted. The revenue displayed is a sum of the revenue generated for the orders being collected on the trip.

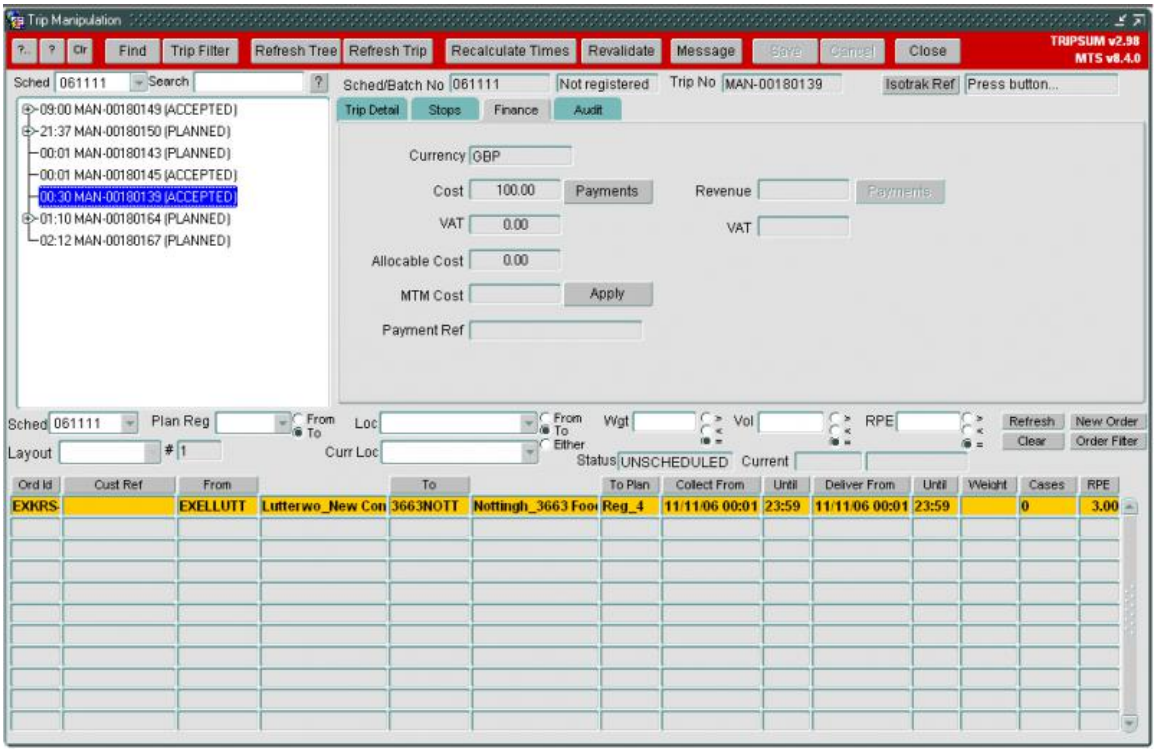
The trip revenue displays the sum of the revenue against the orders on the trip.

The Profit Loss fields show the revenue minus the cost. Where there is a loss, the field will be coloured red.

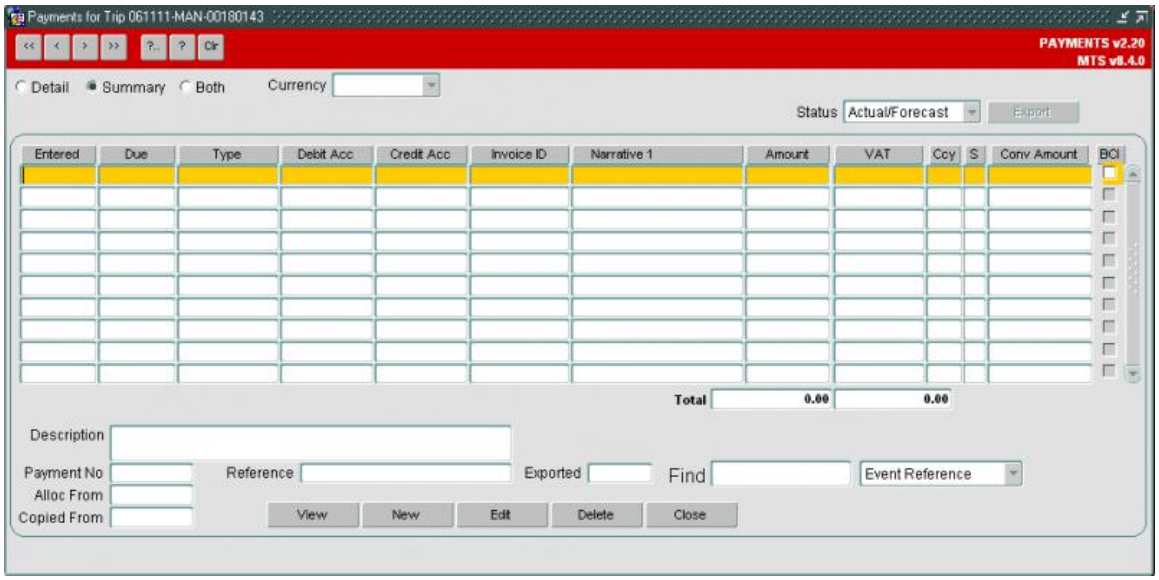
The set up of account charges, is covered fully in the Accounts module. This section will show you how to allocate a cost to a trip within the trip manipulation or Planning screen after all the set-up has taken place.

There are two ways that the cost of a trip can be allocated. These are either manually, or automatically, both of which are covered below.

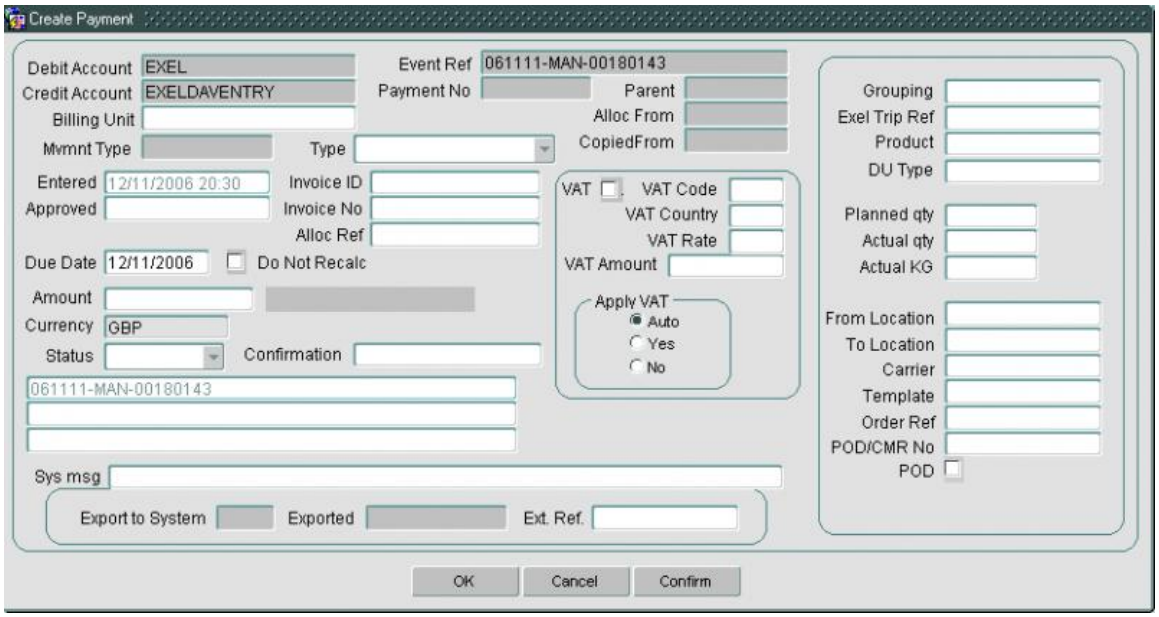
To allocate a cost automatically (assuming that rates and contracts have been set up), all you need to do is to allocate the relevant carrier to the trip in question, recalculate the trips times and then set the trip status to "TENDERED". You should then select the "Finance" tab from within the trip detail section of the screen. You should notice that the cost of the trip has been automatically assigned to the trip below. In this example the cost of ?100 has been allocated to the trip.



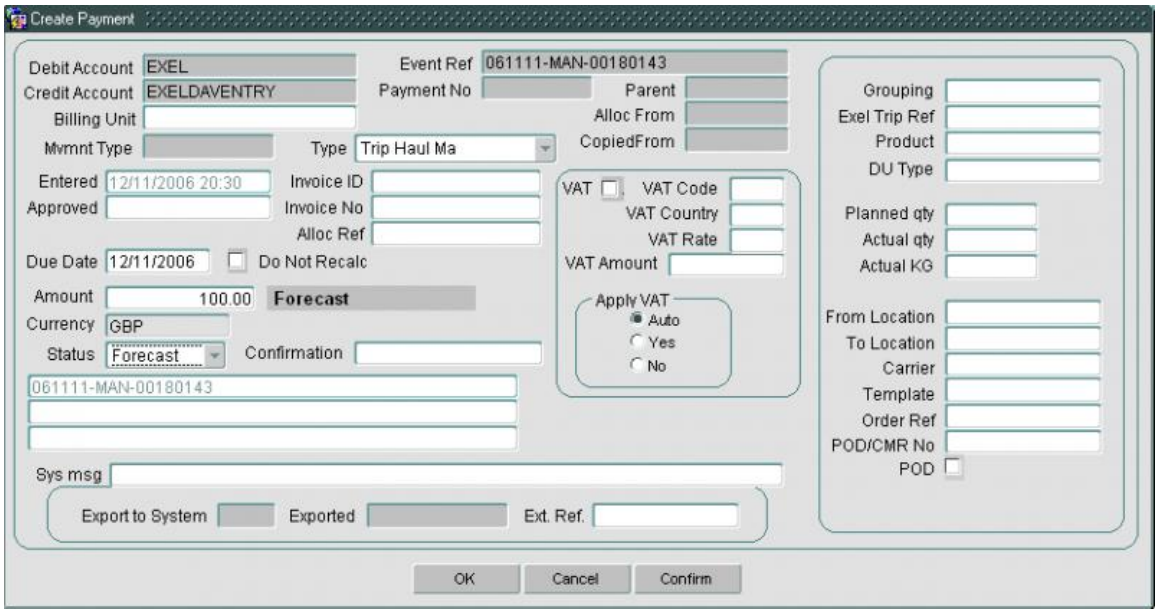
This automation has been possible because a contract and rate matrix have been set up for this carrier. If you do not have this set up, you are still able to enter a cost against the trip, but again the relevant set-up must have taken place beforehand. To do this, select your trip and allocate the relevant carrier to that trip. Re-calculate times of the trip and save your changes. Next, switch to the finance tab and press the ?Payments? button. This will bring up the "payments for trip" screen which details all the payments that have been allocated to the trip so far. At this point this screen will be empty as you have not entered any payments yet.



To enter a payment press the **New** button at the bottom of the screen. This will take you into the "Create payment" screen.



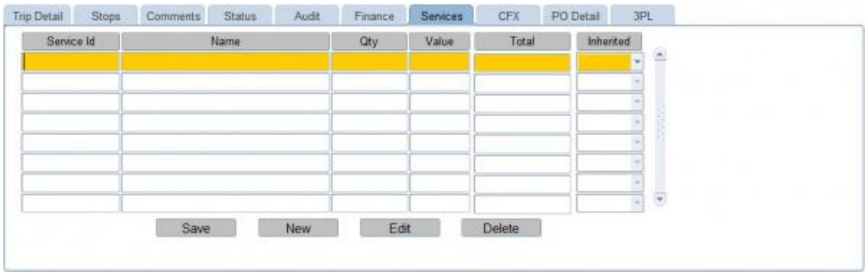
First enter the payment type. This will usually be "Trip haul ma" (as in the example below), but may also be payments such as fuel surcharge. Next, enter the cost of using the selected carrier for doing this trip (the example below has a cost of ?100 entered). Lastly enter the status of the payment as "forecast".



Once you have entered those three pieces of information you can press the **OK** button to create the payment. This will take you back to the "Payment for trip" screen where you will see your newly created payment. When you close this screen you will see the payment assigned to the trip. If you want to add further payments against the same trip, you will simply need to repeat the process detailed above. If you chose to add a manual payment, the system will no longer calculate the cost from contract, recognizing that you have chosen to overrule the cost.

4.4.7 Services Tab

This tab allows you to see, create, amend and delete any trip services.



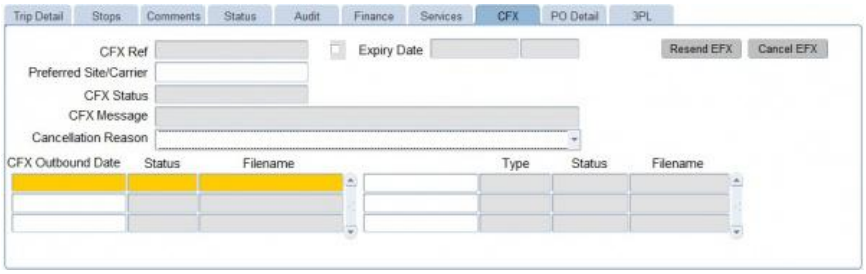
These are additional costs accrued against a trip from the carrier.

The buttons below are available:

- **Save** - save any changes you have made.
- **New** - create a new service in the table - you enter the details there.
- **Edit** - edit a selected line
- **Delete** - delete a selected line.

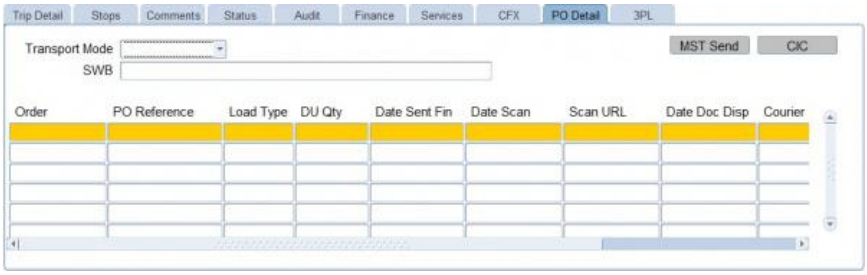
4.4.8 CFX Tab

This tab shows specific CFX interface parameters.



4.4.9 PO Detail tab

This tab allows POs to be entered against a trip. See Purchase Orders for more information on this process.



4.4.10 3PL Tab

When a carrier is known, the carrier may simply be selected for the trip created for these orders. If the carrier is not known or multiple carriers exist, you can ask the system to select the best 3PC for the trip.

To use this functionality:

Enter the carrier of the trip as "3PL" and click **Save**.

The system will calculate the charges for each carrier specifically and compare costs, selecting the best. The calculated charges from the carriers will be specified in the audit trail, and the total charges are displayed in this 3PL tab in this section.

4.5 Order Well Section

This section can be found at the bottom of the screen, and it displays orders that have not yet been allocated to trips. You are also able to create new orders or cancel existing orders here.

The order well will display only orders that match your user's depot (BASED_AT) parameter (if you are a planner for a single depot), or all trips if your user is configured to see all depots (a control tower-style configuration set by using the ALL_DEPOTS user parameter).

Each line within this Order Well shows you the header information for an unscheduled order. The order ID is a unique sequential number allocated to an order at the time of its creation. The customer reference is an optional field on the

order that is often populated when orders are imported into C-TMS. This is because you tend to import your orders from another system that will have its own reference number. You can however, input this reference number manually straight into C-TMS.

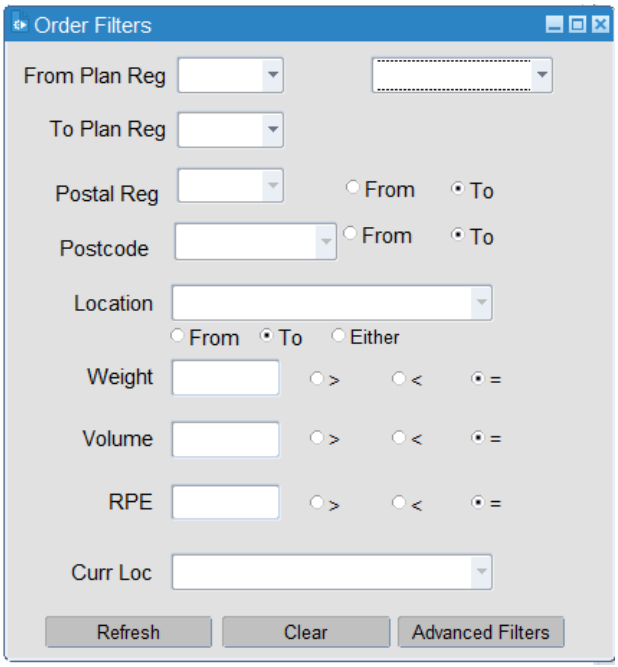
You can also see where the order is being collected from and where it is being delivered to. You will also see the region code for that order. This will typically relate to the first two alpha characters of the locations' postcodes so that the planner has an idea of its location. Next to the region code is the 4 time windows that make up the collection and delivery window. Lastly, you can see the weight, volume and RPE that relate to the quantity of goods that are being moved for that order.

Note: Emergency orders are shown in red and will always be at the top.

You can change the layout of the field in this section and filter by many attributes.

You can add a new transport order using the **New Order** button from this section - you will be taken to the New Order form to enter the details.

There are several filter options relating to the unscheduled order well section, so that when the planner is undertaking the planning, they are able to narrow their search to particular order types.



The "Schedule selector" can be used to change the set of orders that the order well is showing you. This is a separate filter from the schedule filter found in the trip tree section of the trip manipulation screen. This means that you are able to drag orders from previous or later schedules onto trips that belong to this schedule.

You can access additional order filters using the **Order Filters** button.

The Planning Region filter allows you to select the Planning Region from/to that the orders have been assigned to. Orders are assigned to planning regions automatically based on their postcode and postal area.

The Postal Region Filter relates to the first two alpha characters of the postcode for a location on the order. This can either be the collection or the delivery location of the order, depending on whether the ?From? or the ?To? check box is selected. Choose whether you are interested in the collection point ("from") or the destination point ("to"), and select the relevant box. The drop-down box will now show all the region codes that relate to your chosen location point against each order. Selecting one of these will filter out locations that do not have the region code you have selected (i.e. you are left with orders that are delivering or collecting from your chosen region code).

There is also a filter to find orders that have specific trailer type requirements.

The Location Filter relates to the order Collection from location, Delivery to location, or both. This is dictated by the check boxes to the right of the location drop-down box. By selecting the "From" check box, the locations within the drop-down box will relate to the collect from locations within the orders listed in the unscheduled order well. If you then selected one

of those locations from the list, the unscheduled order well would filter out any locations that didn?t have your chosen "from" location as their collection point. Conversely, selecting the "To" check box will display the delivery locations within the well, and selecting one will filter out any locations that don?t deliver to your specified location. The "Either" check box allows you to see and filter both the collection and delivery locations of the order.

The Weight, Volume and RPE filters all work in the same way. They allow you to filter out orders via the weight, volume or pallets associated with each order in the unscheduled orders well. Selecting the ">" check box and entering a figure in the associated box, will filter out any orders that have less weight, volume or pallets than your specified figure. The "<" check box will give you the opposite result. The "=" check box will keep any orders that have that exact figure on their order as you have keyed into the relevant search box.

There is also a filter on Current location - this allows you to select orders based on where they have been planned up to. So an order that has been planned from the from location FROM 1 to RDC1 (on the way to location TO1) will be found if you search for the current location "RDC1".

You can right-click on orders here to access many key features.

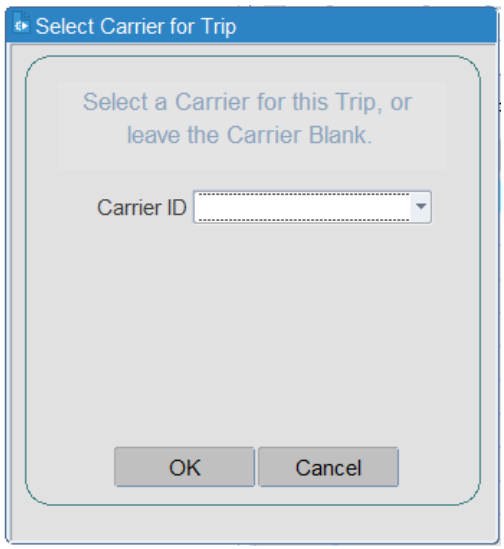
- *Configure Layout*
- *Refresh*
- *Apply to Trip*
- *Send to Paragon*
- *Apply to Stops*
- *Apply via X-Dock Locations*
- *Create One Order Trips*
- *Create One Order Trips and Brief*
- *Create New Trip*
- *Add Order to Milk Round*
- *Move to Schedule* - You can use this to carry forward orders onto another schedule.
- *Edit*
- *Find External Reference*
- *Amend Day Offset*
- *Amend Values* - You can amend an unscheduled orders booking ref, planned DU quantity or latest delivery through this option.
- *Cancel Order*
- *View Order Locations*
- *Show Volumetric Information*
- *Set Order to On Hold*
- *Suggest Trip* - This option will search for planned, accepted or en-route trips where the from and to locations of the order are present, where the stops have not been arrived at yet, and where the collection and delivery windows of the order match up to the stop arrival and departure windows. **Note:** This will IMMEDIATELY plan the order onto the first trip it finds with that location on it. This option will only suggest trips on cost centres that have been configured for this functionality through a system parameter - see Further Configuration for more details.
- *Reset Auto-Scheduling* - This configurable option allows you to select orders that have been marked for Manual Planning and reset that flag, so that they can be processed by the scheduling engine again.
- *Carry Forward* - This configurable option allows you to select orders and carry them forward to another route on the following schedule.

4.6 Key Functions

4.6.1 Create New Trip

Once you have a set of orders ready to plan, you can start to put them onto trips. Select one of your unscheduled orders from the unscheduled orders well by left-clicking onto it. Now right-click on the order and choose the *Create New Trip* option. Note that you can multi-select orders from the well by holding down the SHIFT or CTRL keys when clicking.

After you have selected the *Create New trip* option, a pop-up window will appear asking you to select a carrier.



Using the drop-down list, select the required carrier. **Note:** For subsequent trips, the carrier ID will default to the previously selected carrier - you can change the carrier if required by reselecting using the drop-down list.

The order will now disappear from the unscheduled order well, as it is now scheduled onto a trip, and the new trip will be visible (and selected) in the trip tree.

The trip you have just created will be the one highlighted in blue in the trip tree section of the screen. The detail section of the screen will relate to your new trip. You will see that C-TMS has worked out the arrival and departure times for each of your stops on the trip. This has been driven by your collection and delivery windows for your order. C-TMS will try and meet the windows, getting to the delivery location as early as is feasible at the start of the delivery window.

C-TMS will then work backwards / forwards from this time to work out the arrival and departure times at the depot on the first and final stops. The drive time and distance are worked out from the network table that sits behind the trip manipulation screen. The network table keeps a record of the distance and drive time between every location and uses the applicable record when calculating times and distance on a trip.

You will also notice that at each stop, C-TMS has allocated a stop time. This can be worked out by looking at the difference between the planned arrival and planned departure times at each stop. This time will have been taken from the loading / unloading rates allocated to each location within the location maintenance screen. It may also include a break time if the driver has reached the designated limit (usually 4.5 hours drive time, but configurable against the carrier).

If you click on the detail tab within the trip detail section of the screen, you will see that the carrier has been allocated to your trip. You can change the carrier by clicking on the carrier button and selecting it from a list (this will be covered in more detail within the resource allocation section module).

4.6.2 Assign Resources

Within the Planning form, it is possible to assign resources to a Trip.

Once you have created a trip, you will then be able to allocate different resources to it. These include the carrier, the driver, the tractor registration, the trailer type and the trailer ID.

A Carrier can be selected from a list of valid Carriers. This is done by pressing the button to the right of the carrier name box, which activates the lookup. This will list all the carriers available for selection. If your intended carrier does not appear here, you will first need to set it up from within the resources maintenance screen.

When you have found the required carrier, you can either double click on its name, or left-click once to highlight it and press the **OK** button. You should then notice that your selected carrier's ID has been populated in the relevant box on the trip.

It is then possible to populate a Driver (and optionally 2 crew members), Vehicle and Trailer Id. Depending on the set-up of the carrier (i.e. Fleet or Haulier) these values will either be selected from a list or entered as free text. If a Haulier is being used, the details of all resources will not be stored in C-TMS, so they will need to be entered manually. If selecting

from a list, the list will be restricted to those resources that are available to the Carrier that is assigned to the Trip.

How you assign fixed driver, crew, tractor and Trailer resources like this can vary depending on configuration.

- Simple - just select from a drop-down list of all available resources.
- If the resource diary has been maintained and the tractors/trailers are all fixed, then this can be done through the resource diary allocation.

4.6.2.1 Simple Resource Allocation

Adding a Driver's name - After selecting the required trip from the trip tree section, click on the Trip Detail tab within the trip detail section of the screen. Within this tab, you will see that there is a Driver section.

If the driver name box has a white background, then the population of this field will be free-text. This means that you are able to type the driver's name straight into the box.

If the box has a grey background, then the population of this field is via a pre-set driver list. The type of entry is dependent on the way that the carrier you have selected is set up in resource maintenance.

If the name box has a grey background, then by pressing the button to the right of the Driver name box, this activates the lookup, and a list of all the drivers available for selection would appear. If your intended driver does not appear here, that driver has either not yet been set-up, or the driver is not allocated to that carrier. As part of the driver set-up (covered in the resources Module) you will see that each driver is allocated to a particular carrier, so if you select that carrier on a trip, the drivers selectable will only include those that have been allocated to that carrier.

When you have found the required driver, you can either double click on their name, or left-click once to highlight it and press the **OK** button. You should then notice that your selected Driver name has been populated in the relevant box on the trip.

Adding a Tractor Unit - After selecting the required trip from the trip tree section, click on the "trip detail" tab within the trip detail section of the screen. Within this tab you will see that there is a Vehicle section. It is within this section that you are able to record the tractor registration number of that trip. If the vehicle box has a white background, then the population of this field will be free-text. This means that you are able to type the tractor registration straight into the box. If the box has a grey background, then the population of this field is via a pre-set vehicle registration list. The type of entry is dependent on the way that the vehicle you have selected has been set up in resource maintenance.

This is done by pressing the button to the right of the Vehicle box, which activates the find box. This will list all the vehicle registrations available for selection. If your intended vehicle registration does not appear here, that registration has either not yet been set-up, or the vehicle is not allocated to that carrier. As part of the vehicle set-up (covered in the resources Module) you will see that each vehicle is allocated to a particular carrier, so if you select that carrier on a trip, the vehicle registrations selectable will only include those that have been allocated to that carrier. When you have found the required vehicle registration, you can either double click on the relevant registration, or left-click once to highlight it and press the **OK** button. You should then notice that your selected vehicle registration name has been populated in the relevant box on the trip.

Adding a Trailer Type - The trailer type is selectable from the main trip stops tab of the trip manipulation screen, rather than from the trip detail tab as with the carrier, driver and tractor unit.

Select the trip that you want to allocate a trailer type to from the trip tree section of trip manipulation. You may notice that the trailer type for this trip has been pre-populated for you by C-TMS. When you create a trip, C-TMS will look for the most appropriate trailer type for your trip, taking into account the trailers based at the depot and the number of pallets to be moved. This process will have taken place at the time of the trip's creation.

Right-click on the blank trailer type box of the first stop. This will bring up a menu. From this menu, select the *Assign Trailer Type* option. This in turn will provide you with an entry box.

If you know the trailer type ID, you can enter it straight into the Trailer type box and press the **OK** button. Otherwise, type in a percent symbol ("%") into the Trailer type box. Pressing the **OK** button in this instance will provide the find box, which

will list all the trailer types available for selection. Select the trailer type from the list and press the **OK** button. Your trailer type will populate the trailer type field and you will now be able to press the **OK** button. You will then see that the trailer type you selected has been allocated to the trip.

You are able to add a different trailer type for different stops on the trip (these must be for subsequent collections, rather than stops serviced from the collection picked up at stop one). Simply repeat the process outlined above, but starting off by right-clicking on the desired stop number rather than the first stop. This will effectively change the trailer type for that stop and all subsequent stops after it.

Adding a Trailer ID - The trailer ID is selectable in exactly the same way as the trailer type above.

4.6.2.2 Allocate Resources (Diary)

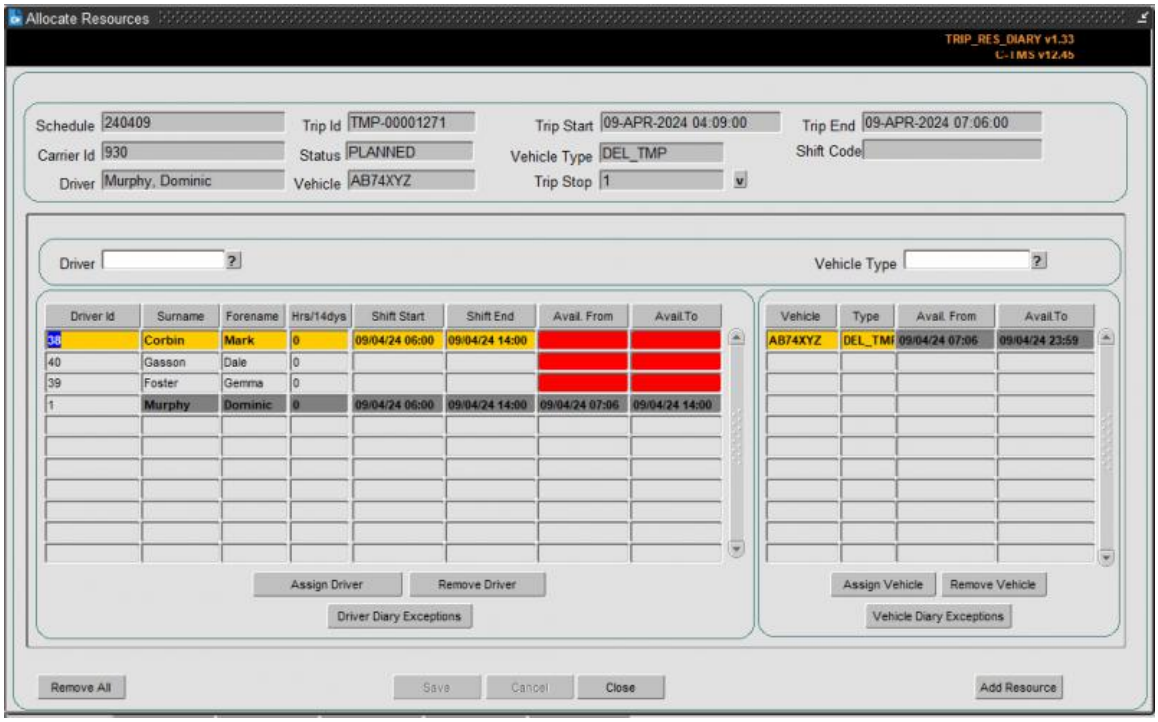
The Allocate Resources (Diary) screen is accessible via the **Alloc Resource** button in the PLANNED and ACCEPTED sections of the Trip Overview screen and through the Planning screen.

In order for this functionality to be available, the system parameter RES_AVAILABILITY_ALLOC must be set to "Y" for the applicable cost centre - you can use the System Parameters screen to do this.

From the Waterfall screen. select a trip from the well, that you want to allocate resources to, then click the **Alloc Resource** button.

From the Planning screen, select to resource a driver, tractor or trailer against a trip or trip stop.

The screen below will be displayed:



Note: All fields on the driver and vehicle part can be sorted by clicking on the button above that column.

The Drivers and Vehicles that appear in the bottom of the screen are those available to be allocated to the current trip.

Only Drivers and Vehicles linked to the Carrier assigned to the trip are available for selection.

If a Trailer Type has already been assigned to the trip then only Vehicles of that Trailer Type are available for selection. Only Drivers that can drive that Trailer Type will be available for selection.

If no Trailer Type has been assigned, then all Drivers and Vehicles will be available.

See the Resources screen for the set up of these links.

You can filter drivers and vehicles using the filters above each panel, and then clicking the **?** button to the right.

The screen displays the availability of the drivers, based on their assigned shifts and resource diary. If the driver has been assigned to another trip, this will be accounted for in the availability.

The screen displays the availability of the vehicles, based on their assigned trips and VOR/Inactive status.

RAG colouration is applied to make it easy to see which drivers and vehicles are available.

- GREEN - available
- RED - unavailable for any of the reasons above.

The Driver column marked Hrs/14dys is an indication of the hours the driver has worked in the last 14 days, allowing you to take into account a driver working too many hours.

The currently allocated driver and vehicle are displayed in the top of the screen, and darkened in the driver and vehicles lists.

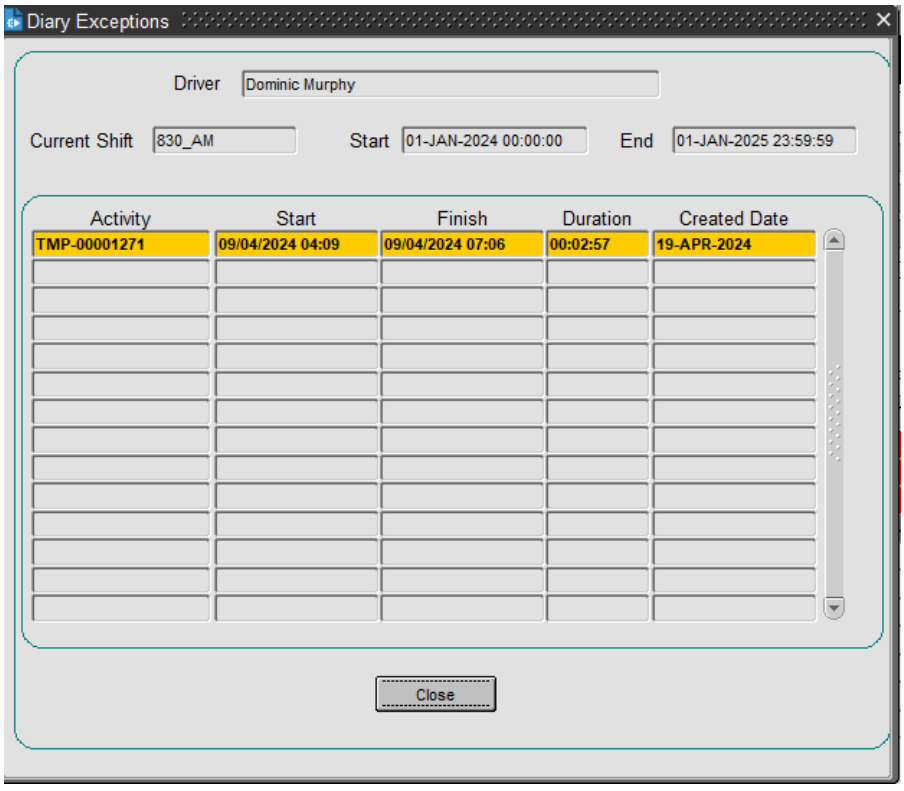
If a Trailer Type has not been assigned, this can be done using the **V** lookup button next to that field in the header.

Those resources that are currently in use between the trips start time and finish time are high-lighted in grey to show the user they are currently in use, although they can still be allocated.

To assign a resource, select it from the list and click the associated **Assign ...** button. When assigned, the name/id will appear in the header. Use the **Remove ...** button if a resource needs to be removed.

You can remove all resources applied to the trip using the **Remove All** button provided.

You can view the resource availability in detail using the **... Diary Exceptions** buttons provided.



Note: When you add the last resource for this carrier, the screen will warn you of this in a pop-up.

Whilst in this screen, you may need to add or change a resource to make them available for the trip. You can do this by clicking on the **Add Resource** button - you will be taken to the Resources maintenance screen.

Once happy that resources have been added, click **Save**. If during a **Save**, all resources have been added to a PLANNED trip, the system will automatically update the trip status to ACCEPTED.

4.6.3 Apply to Trip/Apply to Stop

Allows any Unscheduled Orders on that Schedule to be applied to a new or existing Trip.

Once you have created a trip, you may want to add further orders to the same trip. To do this, select the trip you want to add orders to (if not already selected), and highlight the unscheduled order (or orders) you want to add to that trip. Right-clicking on that order will cause a menu to pop up where you should click on the *Apply to Trip* option.

Once you have done this you will see that your order has jumped onto the selected trip and disappeared from the unscheduled order well. Notice that only one stop has been added as the order was collected from a location already on the trip.

By default, an Order will be automatically applied to what the system believes to be the most appropriate stops.

It is also possible to apply an Order to a specific pair of stops to reduce the need for manual manipulation. When multiple orders are being applied to a trip, the system will try to minimise the number of stops required by selecting the largest trailer type available.

4.6.4 Revalidate Trip

Performs validation checks on the selected Trip to ensure that the trip is valid and feasible. If the trip breaks any validation rules these will be reported back to the user.

These checks include:

- Ensure that the trip has at least 1 load and unload activity and these activities are in the correct order.
- Ensures that the trip complies with driving regulations such as Driver's Breaks.
- Checks whether the Trip will deliver within the delivery windows of the Orders.
- Ensures that a valid Trailer Type is assigned to the Trip. If a Trailer has been 'fixed' onto a Trip (see Fixed Routes for more details) it will not be overwritten.

4.6.5 Recalculate Distance and Time

Allows the times on a Trip to be recalculated, wait times will be optimised and Driver's Breaks included (this can include an overnight stopover), all departure times will be made unique. This may result in Delivery windows being breached, however, these failures will be reported during Trip Validation.

4.6.6 Set Trip Status

The trip status is a way of signifying to the operation just what stage the trip is at.

Typically this follows the process as below:

PLANNED -> TENDERED (optional) -> ACCEPTED -> EN-ROUTE -. COMPLETE -> CONFIRMED (Optional).

A status of planned will signify that the trip is still being looked at by the planner and the trip is yet to be finalised. Planned is the status that is allocated to the trip when it is first created.

When the planner is happy with the trip, they will set the trip to accepted to signify this fact.

Alternatively, they may set it to Tendered to show that the trip has been tendered out to a different carrier, and they are waiting for the carrier to accept or decline that piece of work (if the carrier has accepted the piece of work, the planner will then set the trip to accepted). Note that some interfaces to 3rd/4th party carriers will automatically change the status from TENDERED to ACCEPTED (such as LogiNext 4PL interfaces)

When the driver has left the site with their trip, operations will tend to set the trip to EN-ROUTE. Note that certain Electronic POD systems will automatically handle this change of status (such as Aptean POD systems and LogiNext 4PL interfaces), as will use of Calidus MCS Despatch.

After the driver has returned and the trip has been debriefed within the trip debrief screen, the trip status will be changed to complete. Note that certain Electronic POD systems will automatically handle this change of status (such as Aptean POD systems and LogiNext 4PL interfaces), as will use of Calidus MCS Receipt.

Confirmed status may be used for any other purpose that your operation needs, such as to mark as dealt with for Invoicing, etc.

Setting the status of the trip is simple. Highlight your trip within the trip tree section of the screen, and then right-click on it. This brings up a menu list where you should select *Set Status*, followed by the status that you want to set the trip to.

C-TMS will ask you a question, making sure you want to change the status of the trip, to which you reply **OK**. The system will check whether there are any dependencies on changing the status to the selected value (such as resources allocated when changing to Accepted status). You will then notice the status of the trip change to accepted within the trip tree section of the screen.

4.6.7 Manipulating a Trip

Once you have added your orders to a trip, you may then want to change the trip around somewhat. You will be able to manoeuvre stops around, change order details, override C-TMS-derived stop times, split trips into two separate trips, merge trips together, and remove stops on existing trips.

4.6.7.1 Manoeuvre Stops

You are able to move a stop up and down the stop order by using the move up **^** and down **v** buttons found at the top of the Trip Detail section.

Simply highlight the stop you want to move and press the relevant move button. C-TMS will not let you move the order's delivery above the order's collection, which is logical as you cannot deliver an order before you have collected it.

It may not always be feasible to move stops, in which case C-TMS will warn you if delivery windows will be missed.

4.6.7.2 Merge Trip

Most people use Trip manipulation to track their drivers' workload. Once they have scheduled all their orders onto single trips, they are likely to start looking for trips to put together to create multiple "gate exit" trips. So a driver may go out and do a delivery, come back to base before collecting a further load for delivery. These two gate exits are likely to be represented originally by two separate trips in C-TMS. So you will need to use the merge functionality within C-TMS to bring those two trips together.

To do this, highlight the first trip you want to merge by left-clicking on it within the trip tree section of the screen. You will then need to hold down the CTRL key on your computer keyboard, and while you are doing this, left-click on the second trip that you want to merge (again from within the trip tree section of the screen). You will notice that the result of your actions are that both trips are highlighted within the trip tree. You will now need to right-click on one of your two trips in the trip tree to bring up the options menu.

Select the *Merge Trips* option. You will receive a confirmation message telling you that the merge you undertook was successful. One of your trips will have been deleted, and the orders that were on that trip have been moved onto the other trip. C-TMS will have recalculated the times automatically for you.

Two configurable system options are now possible for this function. Either duplicate Stops will be removed and stops will be combined together where possible, or Stops will be appended on to the end of the resulting trip.

4.6.7.3 Split Trip

If you have merged two separate "gate exit" trips together, but later want to reverse that merge, or you have a large over-capacity trip that you want to split, or a time-limited resource problem to solve, you will be able to utilise the split functionality.

The split functionality will split one trip into two separate trips.

Select the trip that you want to split by left-clicking on the trip within the trip tree section of the screen. You will first need to expand the trip within the trip tree so that all its trip stops are showing. To do this, you will need to press the small **+** button to the left of the trip. If there is not a small **+** next to your trip, press the **Refresh Trip** button. Once you have expanded the trip, you will need to select the stop where you want the split to take place by left-clicking on it. The split will take place above the stop you select.

Select *Split Trip* to activate the split trip functionality. You will be confronted with a message box telling you that you that split has been successful and that a second trip has been created for you. You will also notice that the trip does not appear to have changed. This is because C-TMS has not refreshed the screen, so you will need to do it. Press the **Refresh Tree** button to update all the trips with the trip tree. You should now notice the effect of the split functionality.

Each Trip will then be validated to ensure that it has the relevant SU and CL activities.

4.6.7.4 Delete Trip

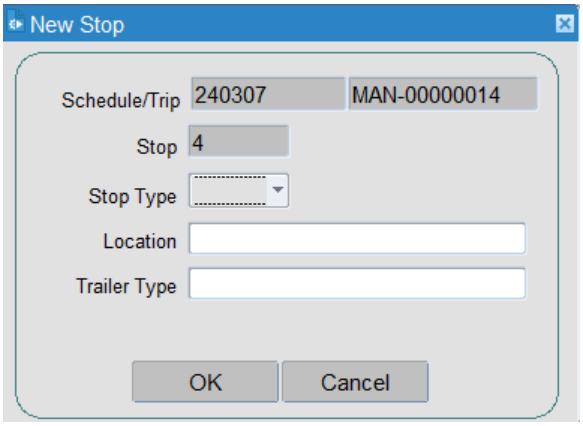
If a trip is no longer required, it can be deleted. The trip will remain on the database with a status of deleted, the stops will be removed and the Orders set back to Unscheduled.

4.6.7.5 Insert Stop

Allows a new stop to be manually added to a Trip after the selected Stop, an Activity Type, Location and Trailer Type are required.

Specific stops may be added to trips as a manual task. This will then allow orders to be added to the trip, with the load and unload at the required part of the trip.

Select a stop, then right-click in the Stops and choose *Insert Stop*.



This will display a pop-up screen where the details of the new stop are specified, including where the stop is to be added (the stop number) and the stop (PK, DL). You must also select the location, using a lookup if required.

4.6.7.6 Append Stop

Allows a stop to be appended to the end of a Trip, an Activity Type, Location and Trailer Type are required.

This works in the same way as Insert Stop above, but automatically assumes that the stop will be after the final stop on the trip.

4.6.7.7 Move Stop

Moves the currently selected stop. You will be asked where the stop will be moved on this trip, before/after a specific stop number. Clicking **OK** will confirm the movement and this will be reflected on the stops tab. Clicking **Cancel** will cancel the move.

4.6.7.8 Overriding Stop Times

C-TMS will work out the times against each stop on your trip for you. If for some reason you want to change these times against the trip, you can do this using the "Fixed" functionality.

The first column in the Trip Detail section of the screen is headed "Fixed". Clicking in a fixed box puts a tick in that box and has effectively fixed the stop, meaning that C-TMS will not recalculate that stops times.

So if you wanted to change the times on the first stop of a trip to start a driver at a later time than C-TMS had allocated, click in the first stop's "Fixed" box. Then change both the planned arrival and planned departure times for this stop.

Clicking on the **Recalculate** button will leave the first stop's times to how they have been set by you, but change the subsequent stops to reflect the driver's new start time.

Note: You are able to fix more than one stop on the trip, but you are unable to effectively fix a stop in the middle of a trip without fixing all previous stops.

When you do forcibly change the stop time of a trip, you may notice that you receive a warning message detailing windows that have been broken. Because you are overriding the times on the order, you may well have broken one of the windows on that order. Drill down into the order in question to find out the details, for example, by how much you have broken the window.

4.6.8 Removing Order(s)

If you need to remove an order from a trip, there are two ways of doing it. The first involves deleting an entire stop and all of its orders from the trip, and the second is a little more subtle, where you are able to remove a single order at a time.

4.6.8.1 Delete Stop

Allows a stop to be deleted from a Trip, any Orders at that Stop will be Unscheduled.

To use the "Delete stop" functionality, highlight the stop you want to delete from within the trip detail section of the screen. Right-click on that stop and select the *Delete Stop* option from the menu.

C-TMS will ask if you are sure you want to delete the stop to which you press the **OK** button. You will notice that the stop has been deleted from the trip. The order(s) you have removed from the trip may not at first appear within the unscheduled order well at the bottom. To see the order, press the **Refresh** button within the **Order Filters** pop-up on the unscheduled order well section.

4.6.8.2 Unschedule Orders

You can also achieve similar results by using the Unschedule Orders functionality. This way will allow you to remove single orders at a time from a stop. To do this, highlight the trip that you want to remove the the order from, by clicking on it from within the trip tree section of the trip manipulation screen. You will then need to highlight the stop on the trip that contains the order you want to remove (remember that the order will be present at two stops on the trip, both where the order is collected and where the order is delivered). Next, press the **Orders** button and highlight the order that you want taking off the trip.

Now right-click on that order and select the *Unschedule Order* option. You will be given confirmation that your order was removed successfully, and the order will drop-down into the unscheduled order well automatically.

4.6.9 Change Order Details (whilst on a trip)

You can change an order's planned pallet quantities or order time windows whilst the order is on a trip. This will often be the case when you have added multiple orders to a trip, only to find that because of previous stops on the trip, your order

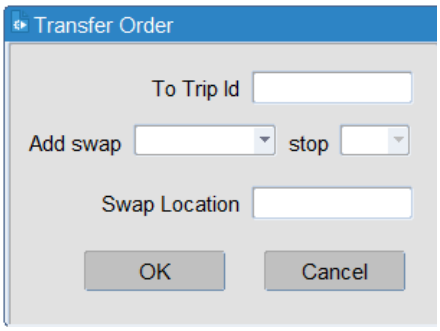
will be arriving late. Also, if you have planned to squeeze 27 pallets onto a trailer that has the capacity to support only 26 pallets, then you may also want to make changes to the pallet quantities.

Select the stop that the order is either collected from, or delivered to, and click the **Orders** button. Then double click on the order from within the pop-up. This opens the order details form, where you are able to edit pallet quantities or time windows accordingly.

Note: If you try to edit the order but C-TMS does not allow you to, this will be because of your access level. These have been set up by your system administrator.

4.6.10 Transfer Order(s)

You can transfer an order from a trip stop or all orders on a trip stop.



You will be asked to select the trip onto which you want to transfer the order or orders. A lookup of available trips is provided, with information to help you decide which trip to select.

- Trip ID
- Trip Status
- Route Number.
- Route Description.
- Trip departure time.
- RPE on departure.
- Number of stops.
- Trip completion time.
- Last non-RDC stop departure time.

You must also identify a swap transfer point if you are only transferring the delivery of the order. You can identify the stop and whether the swap should be before or after the stop you identified. If you are transferring the collection, this is not required.

The position of the new load in the swap trip is identified by defining AFTER or BEFORE an existing stop on the swap trip. The swap location selected must exist in C-TMS to be selected as a swap location. You may manually create locations.

Selecting OK will complete the following changes:

- Original Trip - The order is unloaded at the new swap location. If the trip does not currently have a stop at the swap location, a new stop will be created. The new stop will be inserted after the last stop to be debriefed. Checks will ensure the new stop is not inserted before the stop on which the order is loaded.
- Swap Trip - If the swap or unload location do not exist on the trip, 2 new stops will be created. The swap location will be created in the position as defined in the screen above and the unload location will be added to the end of the trip. The unload location will be set to the same unload location on the original trip.

4.6.11 Move to Schedule

You can use this to carry forward orders onto another schedule.

You can select multiple orders using the CTRL or SHIFT keys when clicking on orders in the order well.

You will be prompted for confirmation, and then prompted on to which schedule you want to move the order, selected from a drop-down list.

The system will then automatically refresh the order well, at which point your updated orders may well be removed from the order well for the schedule selected (depending on your selection criteria of course).

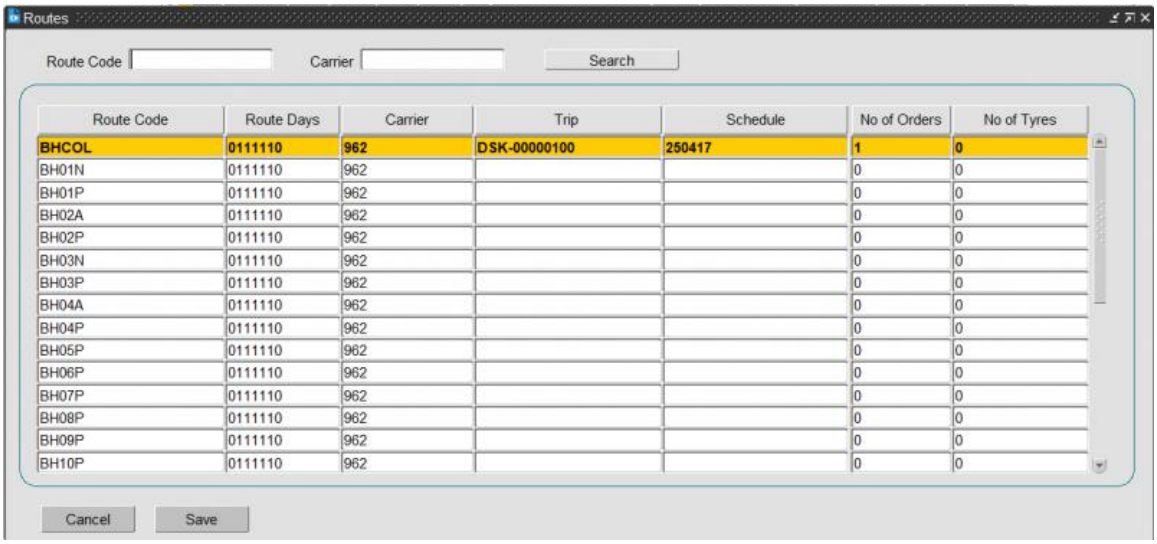
Note that this will not change the orders' collection and delivery windows - this option just changes the schedule. You may then want to change the order's windows through the New Order screen.

4.6.12 Carry Forward

This configurable option allows you to select orders and carry them forward to another route on the following schedule.

You will be prompted to select a route or trip from the next available schedule.

The screen will display a list of all routes that are available in the system (provided you have access), indicating whether a trip has already been created for that route on the schedule.



The information displayed is:

- Route Information:
  - Route Code
  - Route Days - the days that the route is active, from Sunday to Monday
  - Carrier
- Trip information (if there is a trip created for that route):
  - Trip
  - Schedule
  - No of Orders
  - No of Tyres

You can filter by partial carrier or route code, then click the **Search** button to filter the list.

When selected and confirmed with the **Save** button, this will add the selected order to the selected trip, or create a new trip for that order from the selected route.

If the order was already planned on to a trip, this order will be moved.

4.6.13 Amending Order Values

You can amend an unscheduled orders booking ref, planned DU quantity or latest delivery by highlighting the required order in the order well, right-clicking and selecting *Amend Values*. This will display a pop-up screen where you can do the following:

- Amend the details - save with the **OK** button.

- Create a trip for the unscheduled order with the **Create Trip** button.
- Cancel any changes with the **Cancel** button.

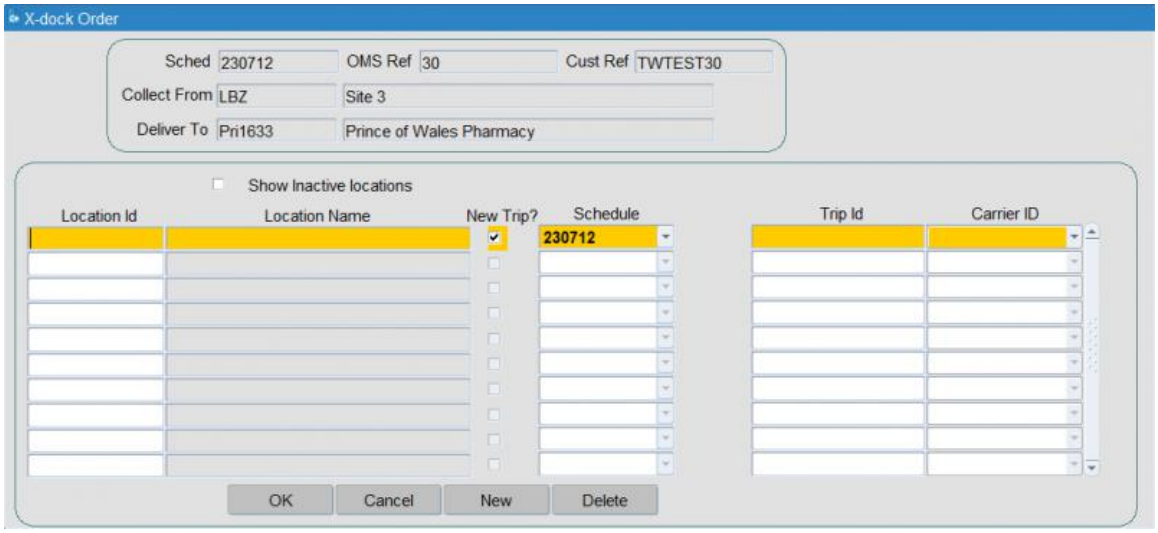
4.6.14 Creating Trips via Crossdocks

This is functionality within C-TMS that will allow you to create multiple trips with one order. You are therefore able to emulate a collection at point "A", a delivery at point "B", via a crossdock at point "C".

The first thing you need to make sure of is that the location ID you are to use as a crossdock has been set up as such within the Maintenance business data screen. The Location Types tab within this screen enables you to set certain locations up as crossdocks. This should be set up by a superuser or a system administrator.

To create your crossdocked trips from within the trip manipulation screen, highlight the order you want to use from within the unscheduled order well. Now right-click on the same order to bring up the menu box, and select the *Apply via x-dock locations* option.

This will cause a new screen to appear titled "X-Dock Order".



This screen will enable you to create the first legs of your crossdocked trips. The final leg will then be created back in the trip manipulation screen as normal.

The top box within this screen provides header information for the order you are to crossdock. This includes the original collection point and the final destination point. The box below it allows you to list the locations that this order will be crossdocked via. If a further crossdock location is required, press the ?New? button and enter a second crossdock location ID in the row below.

The "New Trip?" box should be ticked if this crossdock trip is to be added to a new trip rather than a pre-existing one. If you are adding this to an existing trip, un-tick the box and enter the C-TMS trip number into the "Trip id" box.

When you have entered all the required crossdock locations, press the **OK** button. This will prompt C-TMS to create all the trips that you have requested via the "X-Dock Order" screen. The final leg of the trip, the one that delivers the goods to the final destination, is still to be created. You will still be able to see the order you have used to create your crossdock legs within the unscheduled order well at the bottom of the trip manipulation screen with a status SCHED-COLL, indicating the collection has been scheduled but not the delivery. Select the order and create a new trip from it. This will mean that all legs of the trip have been created and are available from within the trip tree section of the screen.

4.6.15 Pass a Depot Trip to Another Depot or Carrier

It may be that a lack of resources means that your depot may not be able to complete a trip. In that case, you can pass your trip on to another carrier. This may be another of your internal fleet carriers or a third-party carrier (3PC). To do this:

- Select the trip in the trip tree.

- Go to the Trip Details tab.
- Change the Carrier to the new carrier - select it from a list of available carriers.

New SU and DL stops at the new carrier location will be added to the trip.

4.6.16 Change a Driver on a Trip

It may be that drivers change after execution has started, perhaps due to sickness. In this case, you may not want to change the driver allocation (which might require resending manifests to third parties, execution systems like C-ePOD or APOD, etc). In this case, if you just want to record the changed driver, you can use the crew to record this:

- Retain the existing driver on the trip.
- Add the name of the new driver in to the Crew field on the trip detail tab.
- Select the comments tab and edit comments to record the stop where the driver was changed.

4.7 Notes

4.7.1 Distance and Fuel Units

Please note that distance and fuel units, displayed throughout C-TMS, but specifically on the Planning form, are now controlled within C-TMS via 2 system parameters: GEO_DT_DISTANCE_UNITS and RES_DT_FUEL_UNITS. These are initially set up to only be edited by your implementation team. They will default to "Miles"' and "Litres" respectively if the operation does not request alternative units such as Kilometres and Gallons.

It is assumed that any external system to C-TMS will be configured by to pass data using the correct units.

4.7.2 Break Times

Within C-TMS, when calculating the planned stop times, the system takes into account the legal driver regulations as regards the regular breaks and overnight stops.

This includes an overnight break (stopover or layover) once the driver has exceeded his maximum number of working hours for a day.

The data used within this calculation is configurable at the carrier level.

- Trip Threshold Hours
- Standard Shift Hours
- Overtime Factor
- Work Break Threshold (Hrs)
- Work Break Threshold (Mins)
- Stopover Threshold (Hrs)
- Stopover Threshold (Mins)
- Stopover Duration (Mins)
- Max Shift Hours
- Standard Factor
- Driver Break Threshold (Hrs)
- Driver Break Threshold (Mins)

If not specifically set for the carrier, then the values will default to the database-level system parameters.

- TRM_APPLY_DRIVER_BREAK_RULES - This can be used to switch off this functionality altogether
- TRM_MAX_DRIVING_HOURS - This can be used to default the maximum driving hours for a driver (within a shift) when it has not been specified at the carrier level. This value is compared against the total driving hours for each trip to ensure that the trip does not exceed the maximum shift driving hours permissible for a driver.
- TRM_MAX_SHIFT_HOURS - This can be used to default the maximum shift hours for a driver when it has not been specified at the carrier level. This value is compared against the total hours for each trip to ensure that the trip does not exceed the maximum shift hours permissible for a driver.

The following parameters can be used to default the appropriate values to be used in planned stop time calculations when they have not specified at the carrier level:

- TRM_DFLT_DRV_BREAK_MINS
- TRM_DFLT_MAX_DRV_HRS_WO_BREAK
- TRM_DFLT_MAX_DRV_HRS_WO_STOPOVER
- TRM_DFLT_MAX_WRK_HRS_WO_BREAK
- TRM_DFLT_MAX_WRK_HRS_WO_STOPOVER
- TRM_DFLT_STOPOVER_BREAK_MINS
- TRM_DFLT_WRK_BREAK_MINS

The TRM_MAX_WAIT_TIME parameter is used to optimise the wait time, i.e. Will cause any waiting time incurred at a stop to be moved to end of the preceding stop, if the latter is an RDC.

The MTM_OPTIMISE_WAIT_TIME parameter is used to restrict the amount of time that a driver can wait at a location.

The planned arrival and departure times are then calculated using the driving times between stops and loading/unloading time required at the stop to determine the planned times.

It keeps track of the total time and drive time since the last break and then adds on any necessary breaks (including stop-overs), before calculating the next time, also taking into account any slack time.

These breaks and layovers can be seen on the trip planning form against each stop (depending on the configurable layout - layover) as break time.

They can be manually adjusted, and options exist on the right-click menu to move the stopover position.

- *Move Stopover back*.
- *Reset Stopover*.
- *Move Stopover Forward*.

4.7.3 Wait Times

A planned order may have restrictions on it as to when it can be delivered or collected. CTMS will, by default, plan the departure times of the trip to be flexible, in order to accommodate the least amount of time out of the depot. But if the departure time is fixed from the depot (for example, leaving at 6AM, the first delivery is at 9AM, but the travel time is only half an hour), then wait times occur.

In this case, a 2.5 hour wait time will be accrued against the stop and displayed in the wait time column.

Note that CTMS will always do its best to accommodate order and location delivery times within the plan, which sometimes results in wait times. However, if the planned sequence of stops means that CTMS can't get to the order for collection or delivery, it will still retain the order, but will note that the collection or delivery window has been missed on the stop and order.

4.8 Further Configuration

The following system parameters affect this functionality:

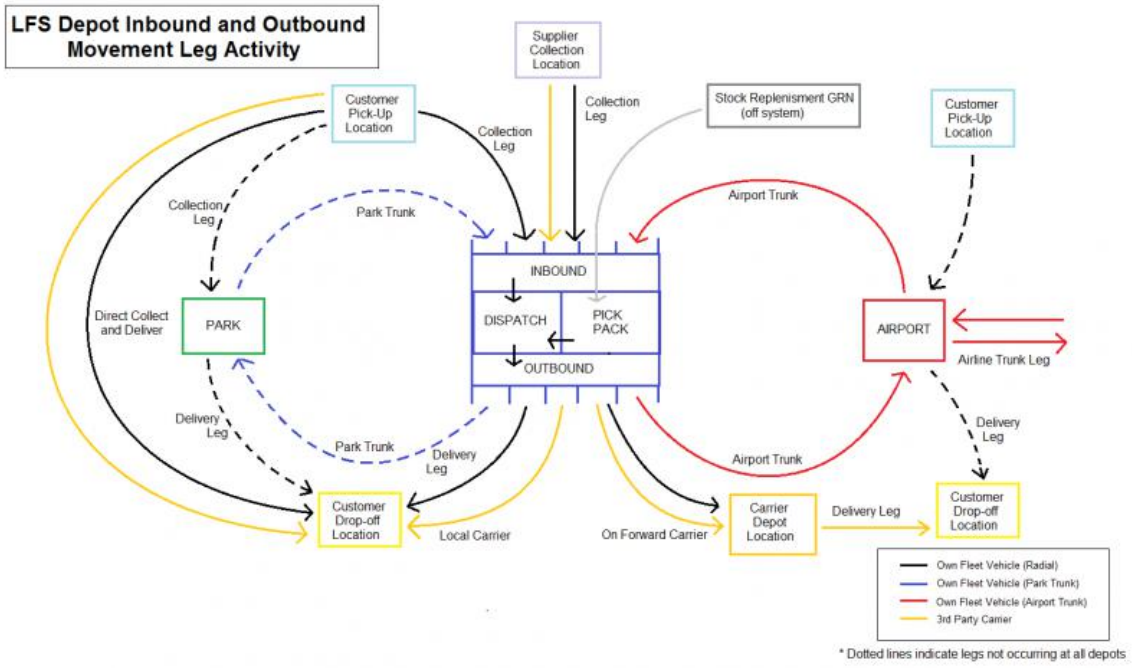
Parameter	Description	Level
SUGGEST_TRIP	Suggest an appropriate trip for an order	COST_CENTRE
GEO_DT_DISTANCE_UNITS	Current distance unit - miles or kilometres	SYSTEM
RES_DT_FUEL_UNITS	Current fuel unit - Litres or Gallons	SYSTEM
RES_AVAILABILITY_ALLOC	Determines how resources are allocated to a trip.	COST_CENTRE
FORMS_DEFAULT_ORDERS_MODULE	Default Orders Form - ORDERS_WIDE, ORDERS or ORD_ENTRY_TARGET	SYSTEM
TRIP_ALWAYS_SHOW_EMERGENCY_ORDERS	Emergency Deliveries are always displayed regardless of filter criterion	SYSTEM
TRIP_HAZARD_DISPLAYED	Show the Trip hazardous Totals or not.	SYSTEM

Parameter	Description	Level
TRIP_LABELS	Indicates the name of the report to be run from the Print Labels menu option in the trip tree in the Planning screen.	COST_CENTRE
CMR_NOTE	Name of the CMR note report	COST_CENTRE
CMR_NOTE1	Name of the CMR note report	COST_CENTRE
COMBINED_DOCUMENTS_REPORT	Name of the Combined Documents report.	COST_CENTRE
DELIVERY_NOTE	Name of the delivery note report	COST_CENTRE
DESPATCH_REPORT	Name of the despatch note report printed from the trip tree	COST_CENTRE
LOADING_REPORT	NON Cost centre Loading Report	SYSTEM
MANF_REPORT	Indicates the name of the manifest report to be automatically generated when a trip is accepted	COST_CENTRE
MANF_REPORT	Driver Manifest Name	COST_CENTRE
REP_DELIVERY_DOCS	Name of the Delivery report printed from trip tree	COST_CENTRE
SEND_MANF_TO_SUPP	Indicates if the supplier manifest report will be automatically generated when a trip is accepted for the cost centre of the trip being collected.	COST_CENTRE
SEND_MANF_TO_SUPP	Indicates if the supplier manifest report will be automatically generated when a trip is accepted for the cost centre of the trip being collected.	CUSTOMER
SUPPLIER_MANF	Indicates the name of the supplier manifest report to be automatically generated when a trip is accepted.	COST_CENTRE
TRIP_SHEET	Trip Sheet Report	COST_CENTRE
TRM_LFS_PRINT_TRIP_POD_POC	Display LFS Trip Sheet POD POC report menu option (Y/N)?	SYSTEM
TRM_APPLY_DRIVER_BREAK_RULES	Switches Driver Breaks on or off - Y or N	SYSTEM
TRM_MAX_DRIVING_HOURS	Maximum Driving Hours	SYSTEM
TRM_MAX_SHIFT_HOURS	Maximum Shift Hours	SYSTEM
TRM_DFLT_DRV_BREAK_MINS	Default Driver Break (minutes)	SYSTEM
TRM_DFLT_MAX_DRV_HRS_WO_BREAK	Default maximum drive hours without break	SYSTEM
TRM_DFLT_MAX_DRV_HRS_WO_STOPOVER	Default maximum drive hours without stopover.	SYSTEM
TRM_DFLT_MAX_WRK_HRS_WO_BREAK	Default maximum work hours without break	SYSTEM
TRM_DFLT_MAX_WRK_HRS_WO_STOPOVER	Default maximum work hours without stopover.	SYSTEM
TRM_DFLT_STOPOVER_BREAK_MINS	Default stopover duration (minutes).	SYSTEM
TRM_DFLT_WRK_BREAK_MINS	Default work break duration (minutes)	SYSTEM
TRM_MAX_WAIT_TIME	Maximum waiting time at Location (minutes)	COST_CENTRE
MTM_OPTIMISE_WAIT_TIME	Should wait time incurred at a stop be moved to end of the preceding stop if the latter is an RDC.	SYSTEM
RESET_MANUAL_SCHEDULE	Provides described new menu functionality to allow reset of manual schedule flag and carry forward.	SYSTEM
LOOKUP_FOR_ROUTE_CODES	Display lookup button in PLANNING beside Route Code	SYSTEM
ALLOW_TRP_DEL_TYPE_UPDATE	Allow Delivery type updates in the planning screen	CARRIER

5 Introduction

This guide is intended to show the most complicated use of the Network scheduling engine, based around a multi-legged healthcare logistics provider.

5.1 Overview of Network



- **Inbound**
    - ♦ Bulk Collection Run

(Orders collected directly from supplier)

- Airport Pick-Up Run

(Orders cross-docked in from another RDC via airport)

- Local Radial Run

(Orders requested to be picked up locally)

- Park Trunk Run

(Orders collected on Local Radial Run and handed to Park Trunk)

- **Outbound**
- Local Radial Run (Own Fleet)

(Orders requested to be dropped locally)

- Local Radial Run (Local Carrier)

(Orders requested to be dropped locally)

- On-Forwarder (National/Local Carrier)

(Orders requested to be dropped none locally)

- Airport Lodgement Run

(Orders cross-docked out to another RDC via airport)

- Park Trunk Run

(Orders requested to be dropped locally - distributed at park)

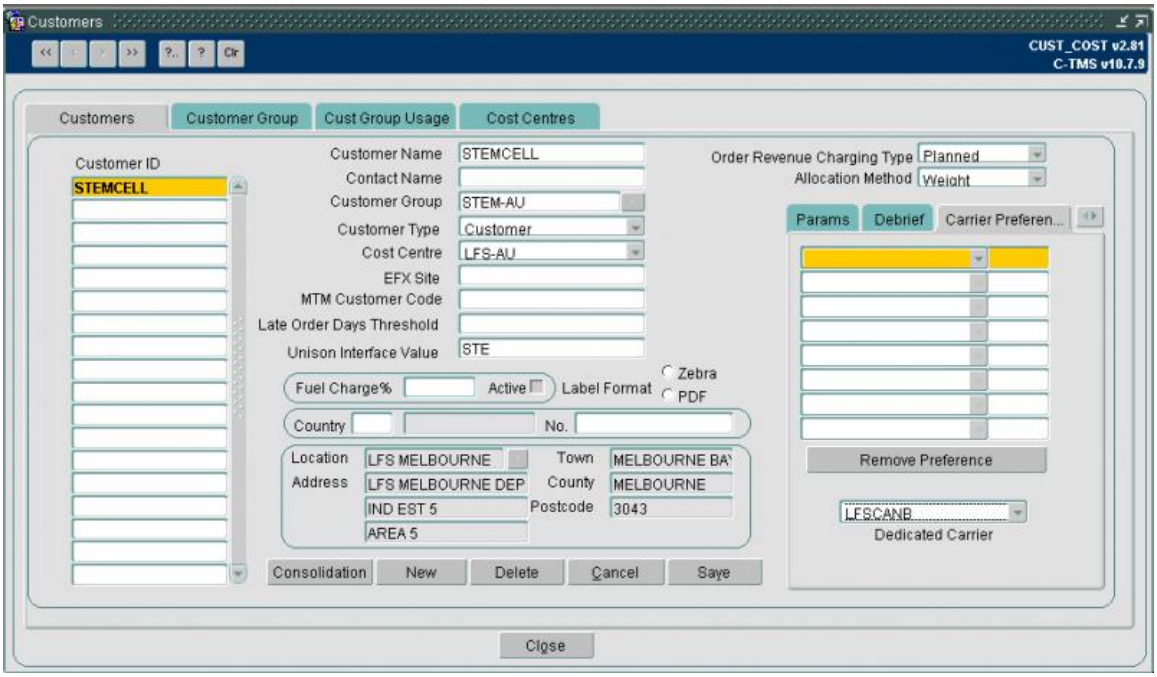
- **Other**

- Orders moved via flight leg

(Airport-to-Airport movement)

- **Local Work Only** - Own Fleet
- **Local Work Only** - Local Carrier
- **Crossdock Work** - Own Fleet - Linehaul Carrier - Own Fleet
- **Crossdock Work** - Own Fleet - Linehaul Carrier - Own Fleet - Local Carrier
- **Crossdock Work** - Own Fleet - Linehaul Carrier - Local Carrier
- **Crossdock Work** - Own Fleet - National Carrier
- **Crossdock Work** - Local Carrier- Own Fleet - Linehaul Carrier - Own Fleet
- **Crossdock Work** - Local Carrier - Own Fleet - Linehaul Carrier - Local Carrier
- **Crossdock Work** - Local Carrier - Own Fleet - Linehaul Carrier - Own Fleet - Local Carrier
- **On-Forwarding** - National Carrier
- **On-Forwarding** - Local Carrier

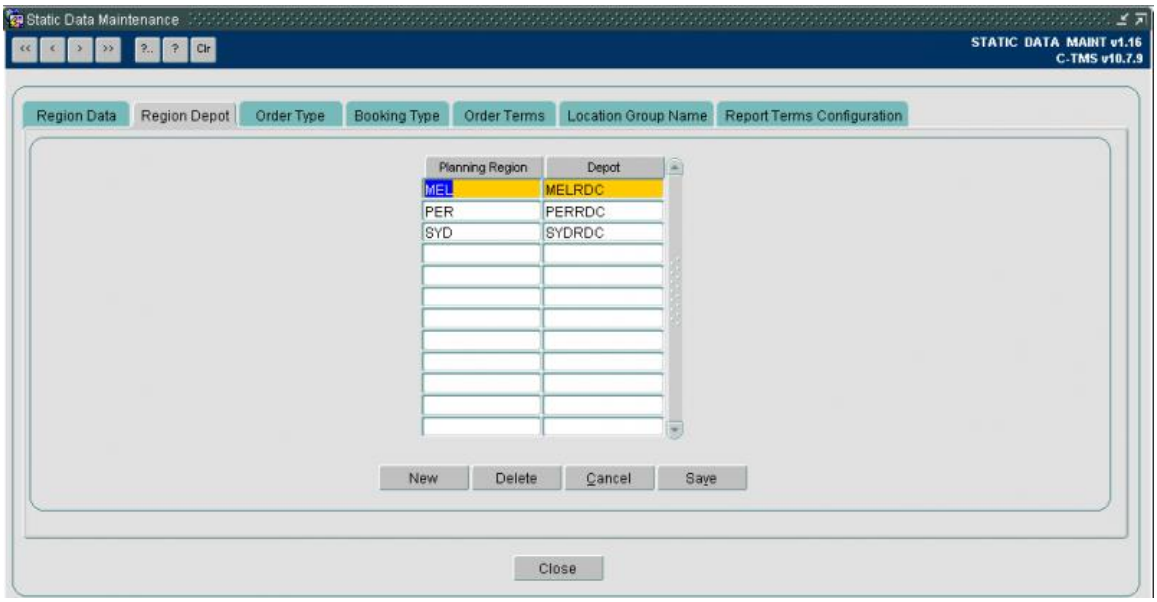
5.2 Maintenance



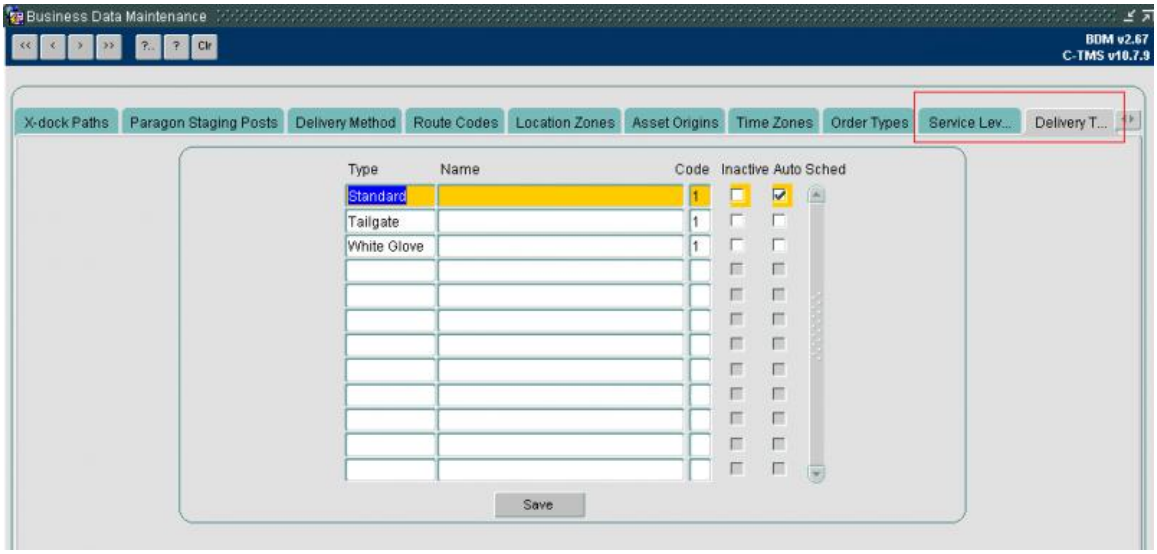
The Customer screen has been amended to include a new field Dedicated Carrier. This allows users to specify a single carrier that a customer order must be scheduled with. When an order is received for this customer it will only be scheduled onto a route carried out by this carrier.

A new table for controlling depot has been created and is maintained in the Static Maintenance screen. The screen assigns a Controlling depot (Warehouse) to each Planning Region. The planning region of the collection location or current location (for partially planned orders) is then assessed to find the relevant controlling depot.

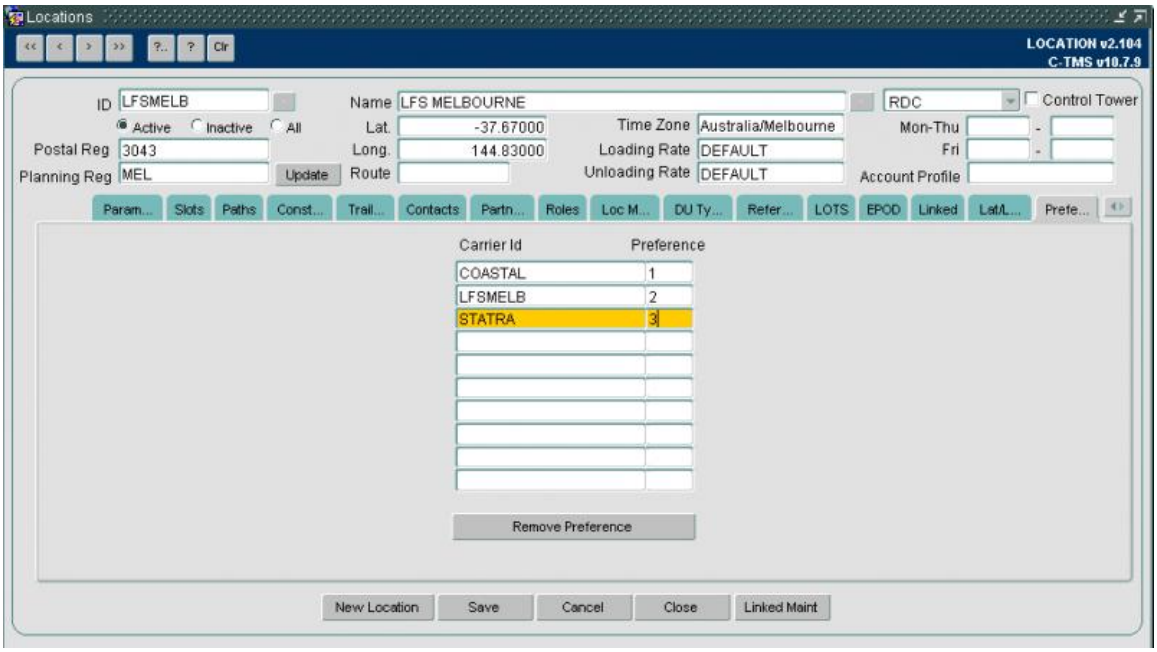
All routes will be assigned to a controlling depot, when the scheduling engine is running routes will only be selected for consideration where they belong to the controlling depot linked to the planning region of the collection location/ current location.



The Delivery types maintenance has been moved from the Contracts screen to the Business Data Maintenance screen. Within this screen, users are able to tick the delivery types which will be considered for the scheduling engine. If an order is assigned a delivery type which has not been ticked for auto scheduling, the order will not be considered for scheduling.



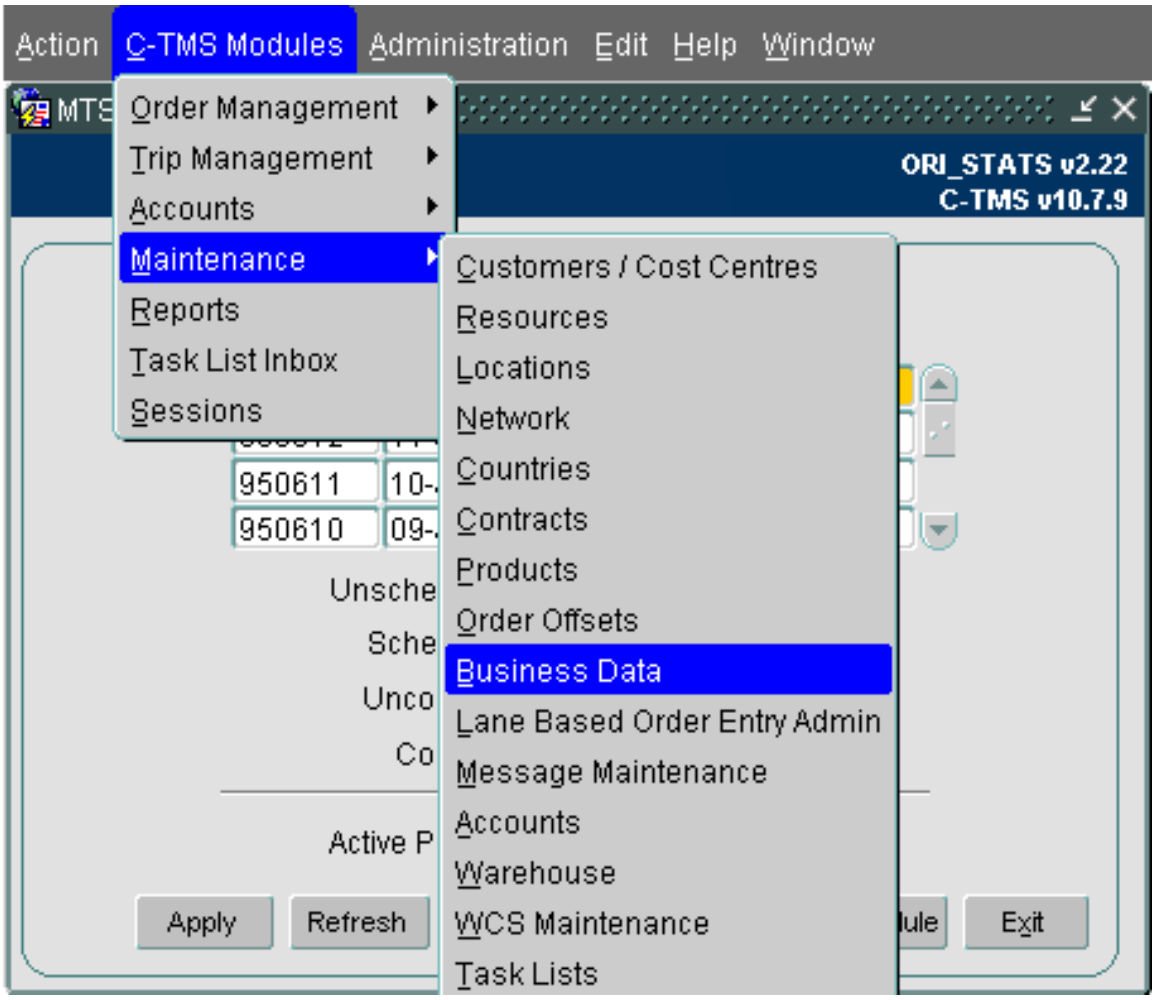
Each controlling depot will exist as a Location in C-TMS. A new tab has been added to the Locations Maintenance screen specifically for the controlling depots. The new tab is preferred carrier and allows a user to list the carriers that work out of the controlling depot with a numeric preference for route selection.



In the example above LFSMELB is a controlling depot which has been assigned 3 carrier preferences. Routes will be created and assigned to a controlling depot. Based on the above data, routes for controlling depot LFSMELB which are carried out by COSTAL will be considered before routes carried out by LFSMELB and then routes carried out by STATRA. Only routes which are assigned to carriers listed above will be considered for scheduling.

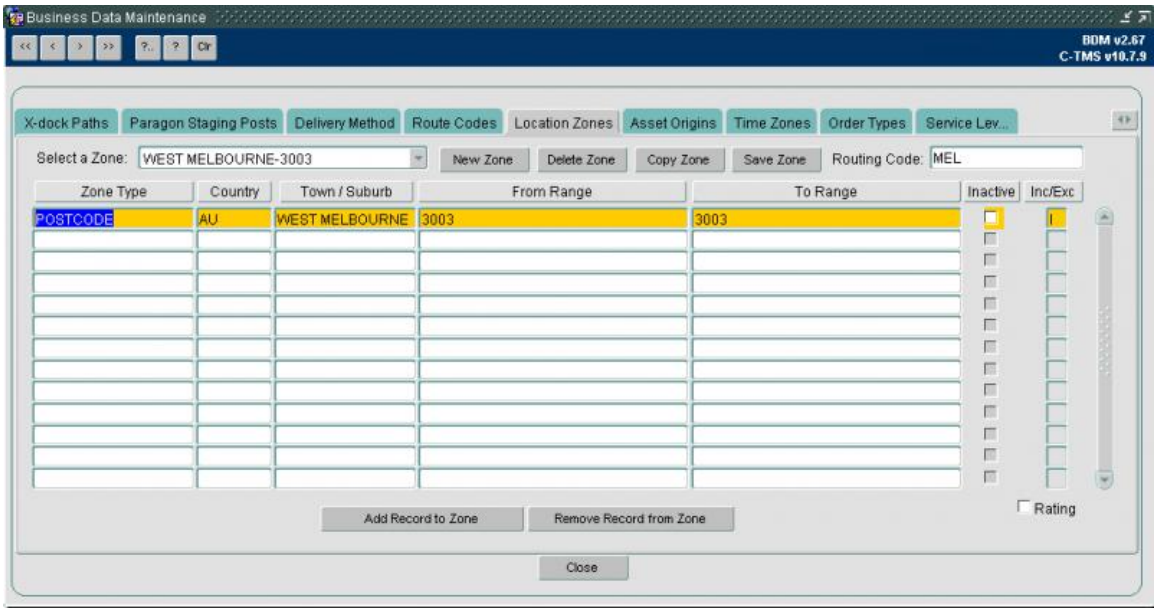
5.3 Location Zones

Location Zones are a grouping of locations into areas which make zones. The Zones are created in the Business Data Maintenance screen which is accessed from the maintenance screen.

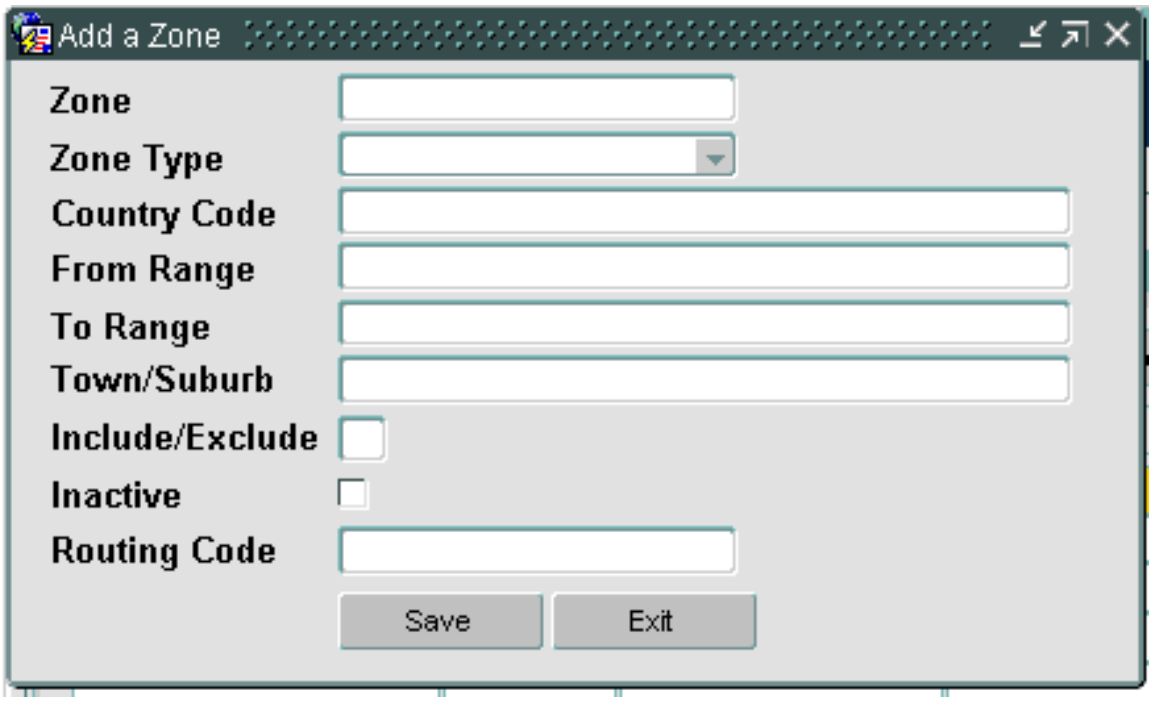


When the screen is opened the user may select an existing Zone to view the details. All existing Zones are available to select from the drop down list.

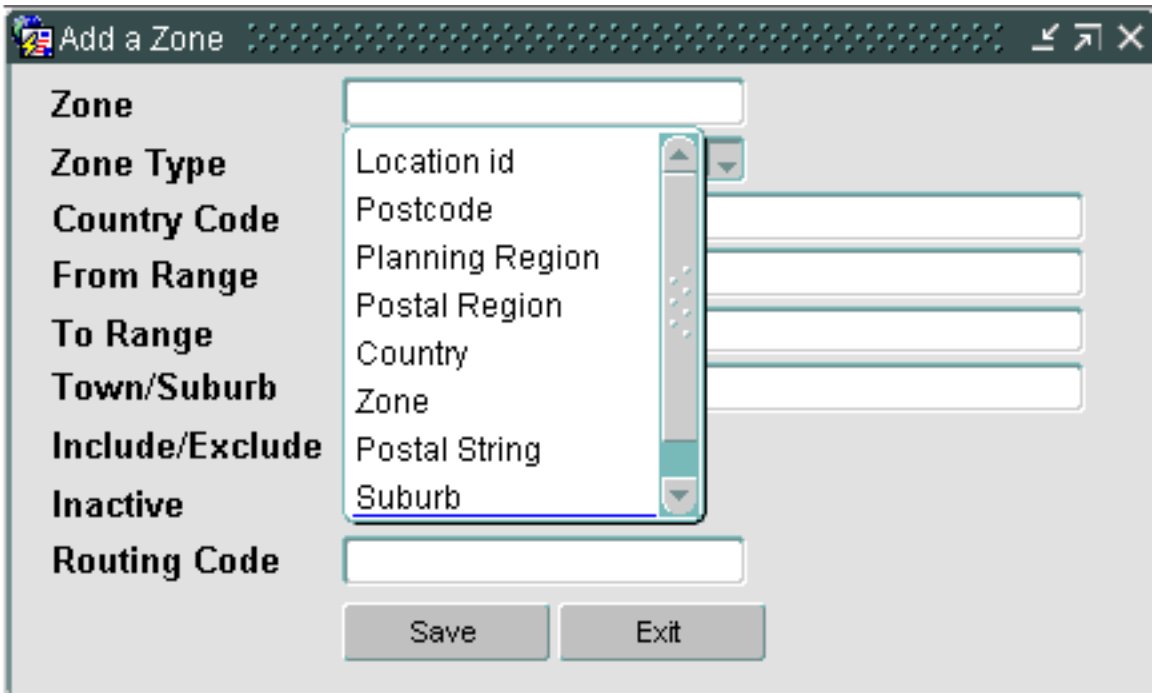
In the screen below a Suburb Postcode zone has been created. The Zone has been created for the West Melbourne suburb and 3003 postcode. The Zone type is defined as POSTOCE. Country code is always required when creating the lines in the Zones. All lines must be identified as Include or Exclude.



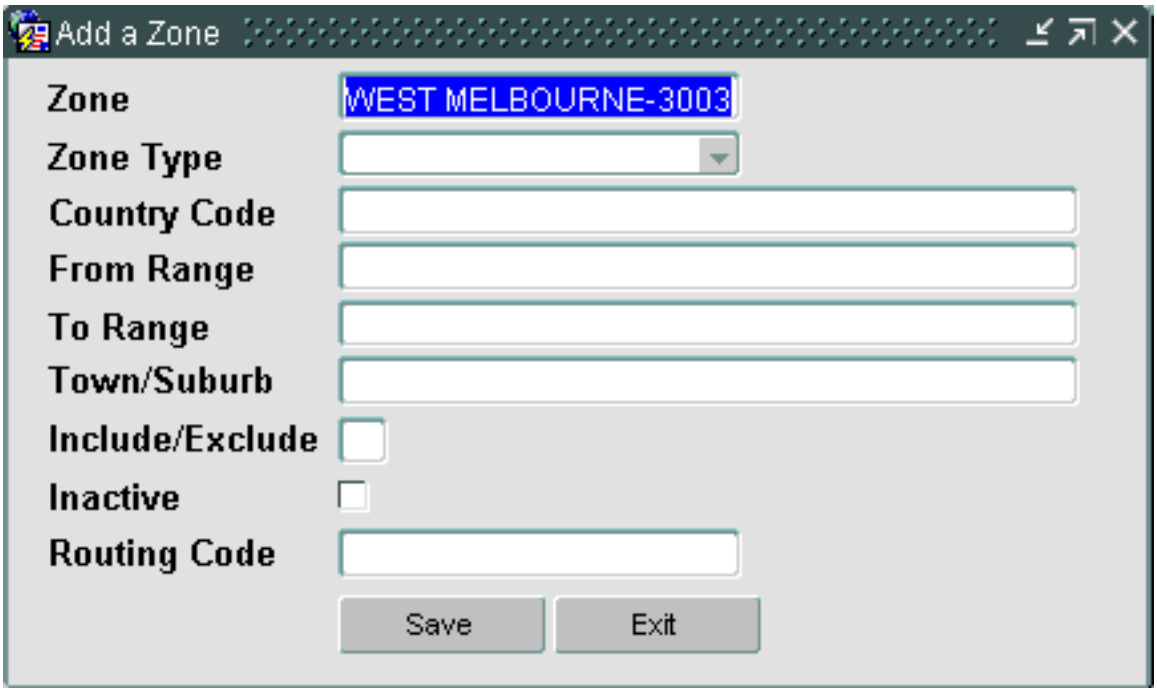
Select New Zone, to create a new Zone, the following screen is displayed.



Users are required to enter the information above. The Zone name should be unique and the Zone type must be selected from the drop down list. Country code is required . The Zone types are listed below, the zone type selected will control which fields are required to be populated.

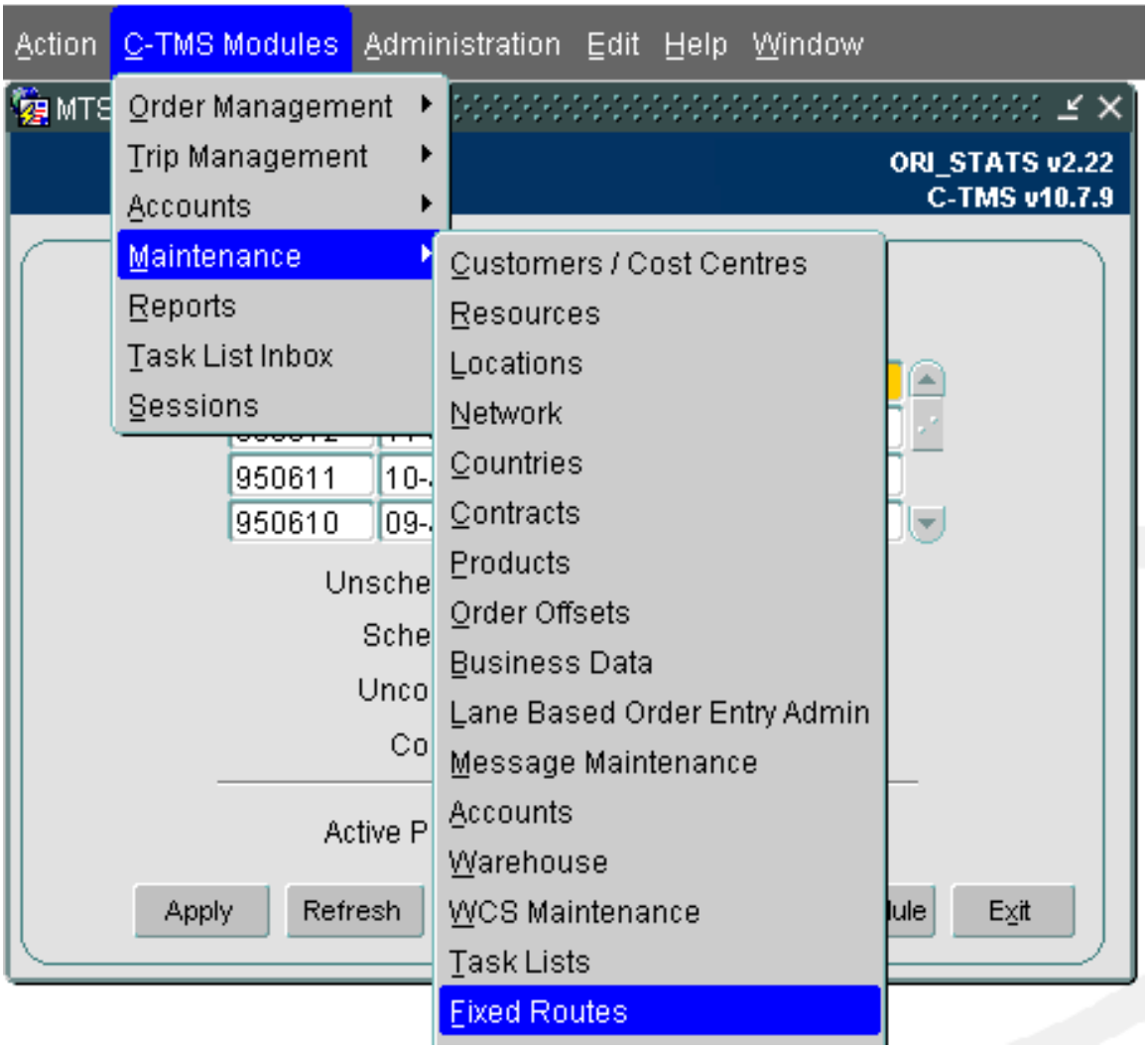


In addition to creating a new Zones, users are able to add new records to existing zones. Select the Zone in the main screen and use the 'Add Record to Zone' button. The selected Zone will be pre-populated in the Zone name

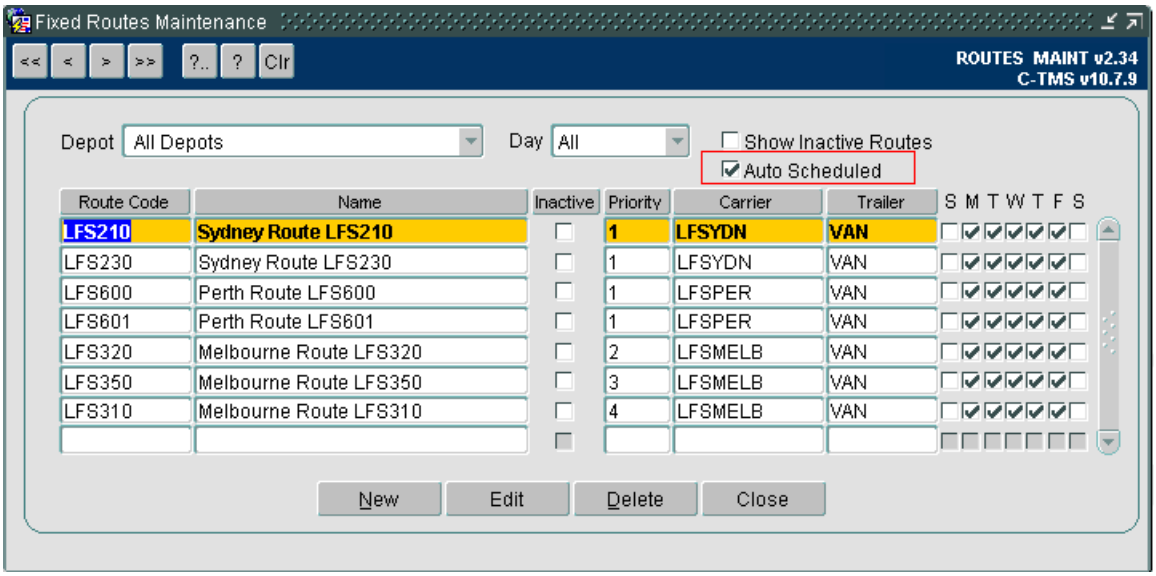


5.4 Creating a Network Route

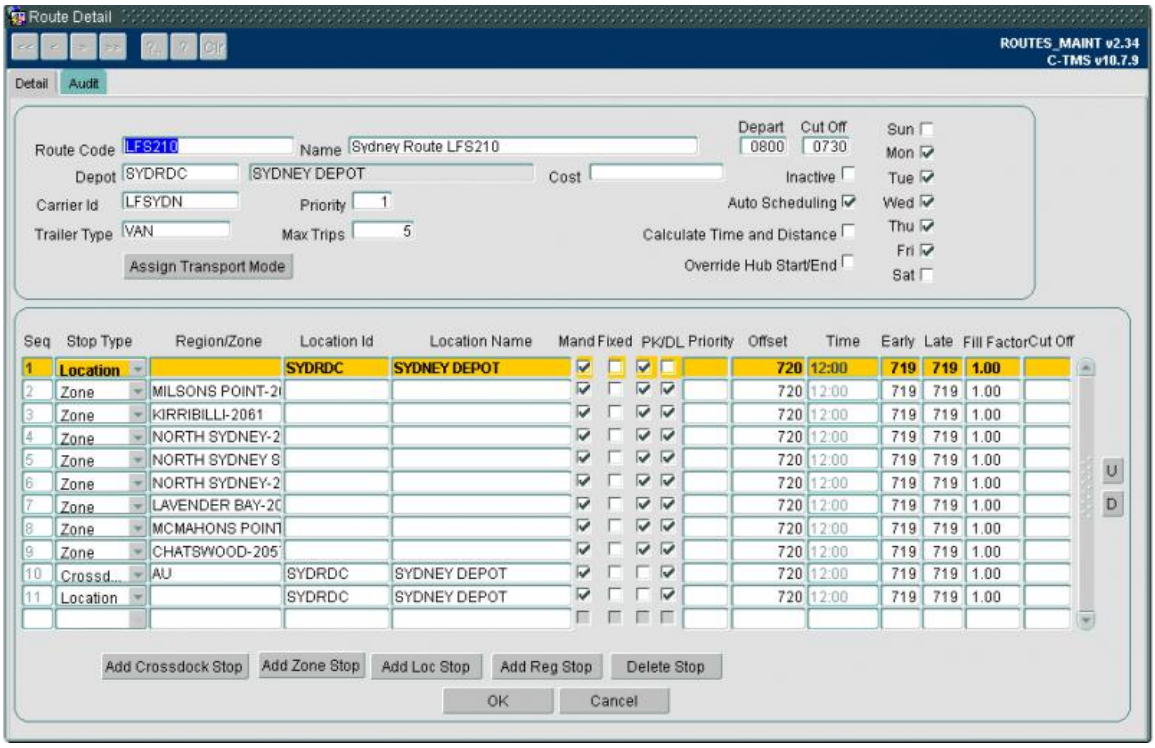
Routes are created in the Fixed Routes maintenance screen, which is accessed from the Maintenance menu.



When the screen is selected, the user is shown the existing route headers. There are 2 methods of fixed routes, Scheduling Engine Routes and Fixed Routes. Select the scheduling engine flag will display only the scheduling engine routes.



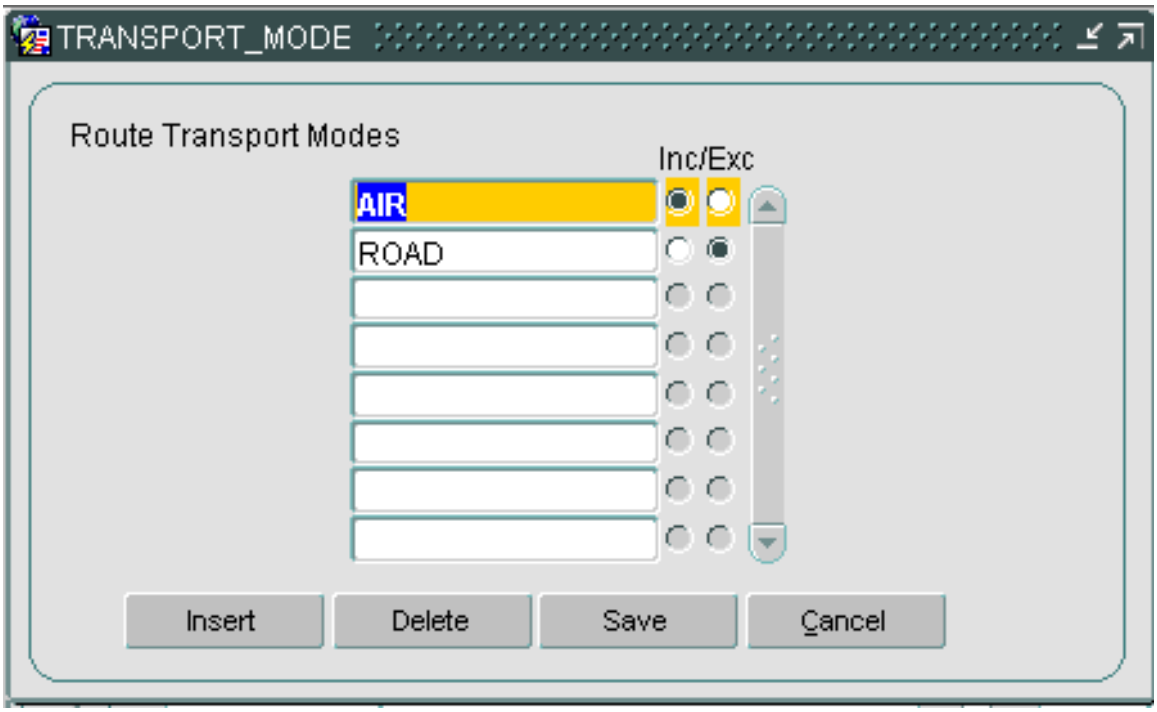
The list of routes displayed by can further controlled by using the Depot and Day fields, to select all routes out of a depot on a specific day. To view the details of the route, select Edit.



In the header section, the route code and name are defined. Any trip generated from a route is stamped with the route code. The depot refers to the controlling depot and is used to select routes for an order based on the controlling depot linked to the orders collection or current location.

A depart time and cut off time are added to the route, this indicates the time after which orders may not be scheduled on todays route. Tick boxes indicate the days of the week that the route runs. Users indicate by tick box if the route is an Auto scheduling route, if time and distance should be calculated on any trips generated from the route and wether the route should include a start and end stop at the carriers hub location.

Selecting Assign Transport Mode will display the following screen, where users can include or exclude transport modes.



The details screen shows the header information and the stop details. Each stop is assigned a type, the options available for the scheduling engine are Location, Zone or Crossdock. For a location stop type, users must define a location id and name and leave the region/zone blank. When using a Zone stop users must define a zone and leave the location empty.

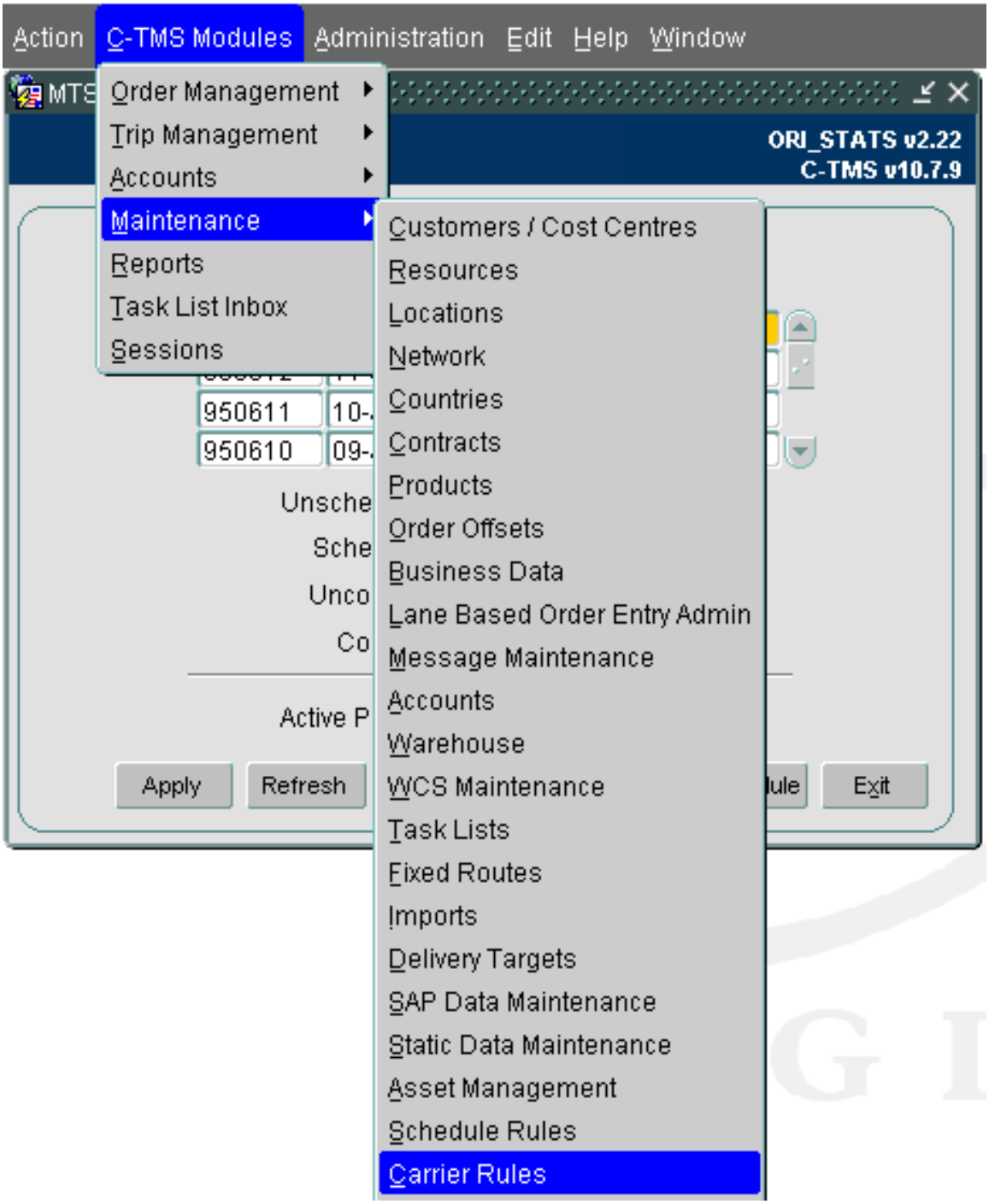
When using a crossdock stop type, users must define a zone and a locations id and name.

Stops may be defined as PK, DL or both. This indicates if goods may be loaded or unloaded at the stops.

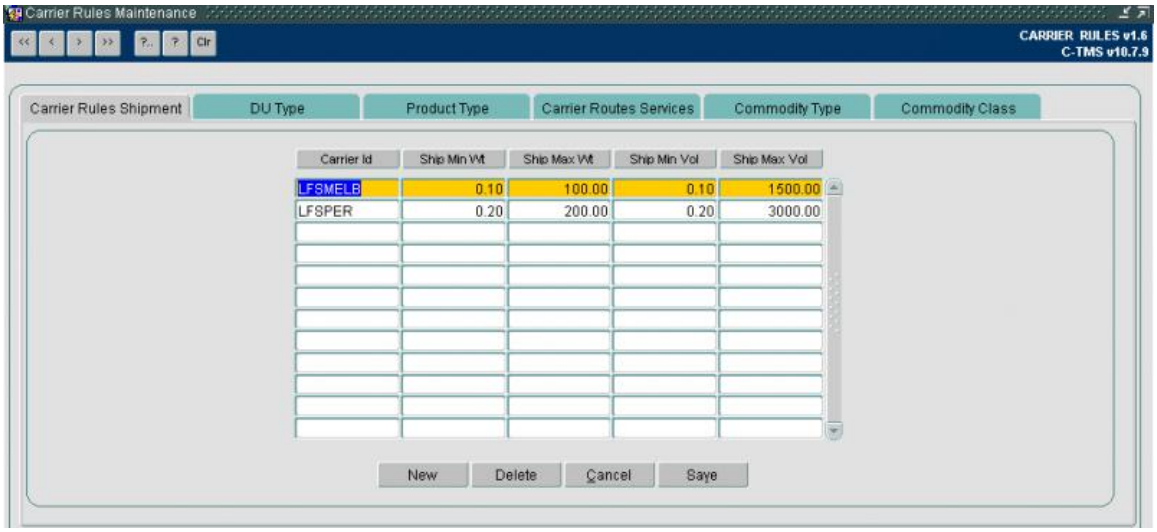
Offset is set to a value of minutes. This value is converted to hours and added to midnight to set the time at the stop. The early and late fields, also declared in minutes are used to set the windows at the stop. In the above screen shot, the stops have been assigned windows based on the full day.

5.5 Carrier Rules

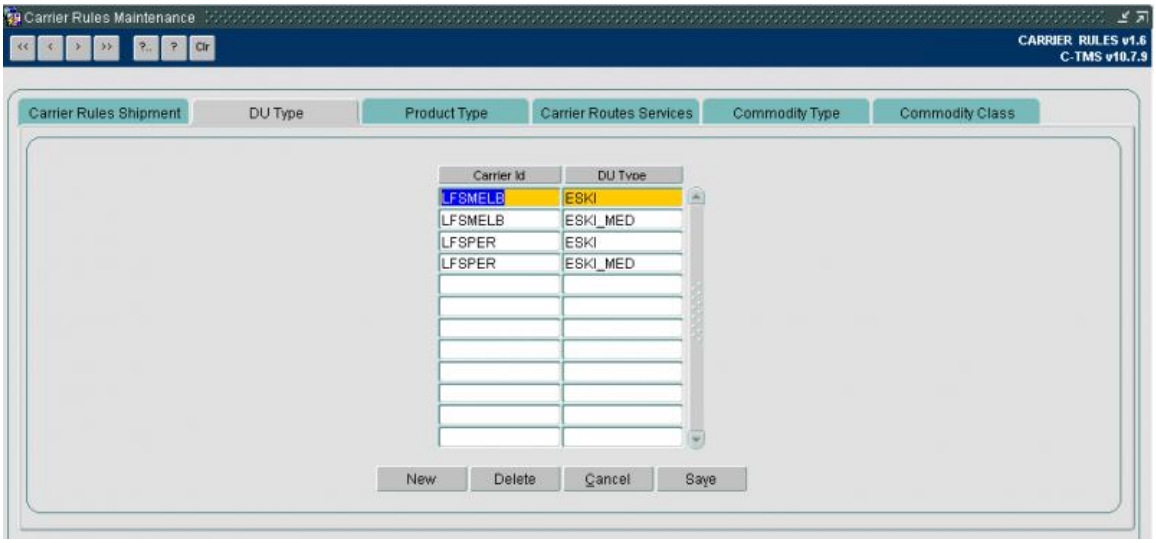
Third Party carrier routes and settings are defined in the carrier rules maintenance screen. This screen is made up of a series of tabs where users can define the package constraints for a carrier. Constraints include weight, volume, du types, product type and commodities. The constraint tabs will also be used to define own fleet carriers



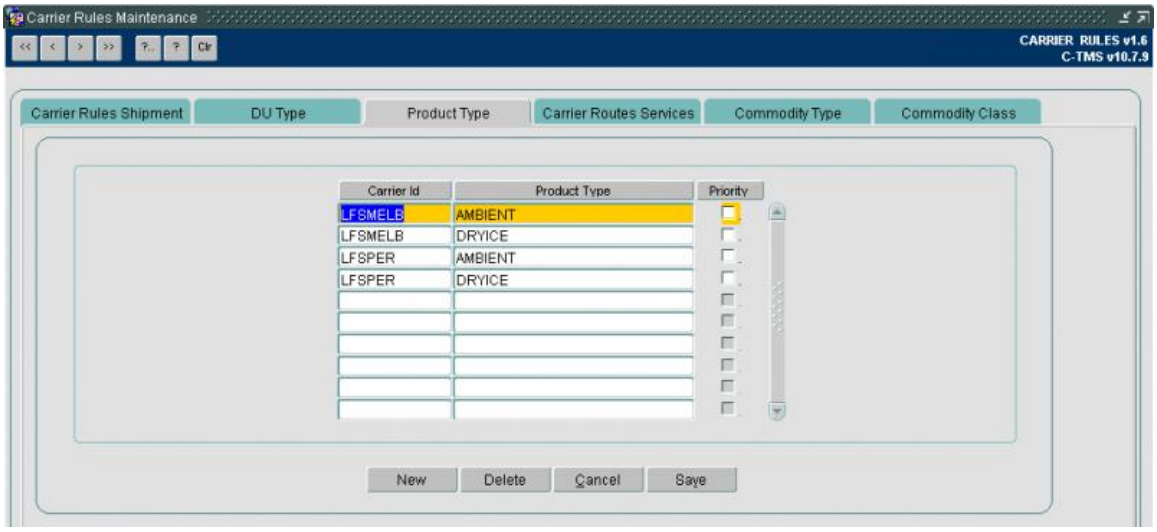
When selected, the following screen is displayed



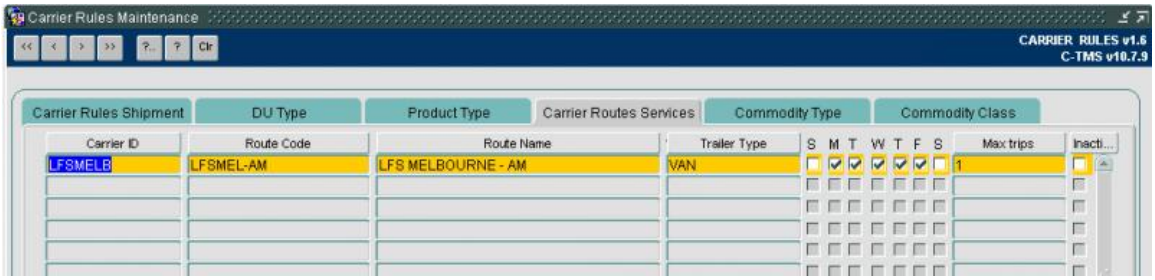
The Carrier shipment rules define the minimum and maximum weight and volume that a carrier will transport. If there are no limits for carriers, these values must still be entered but set to very low minimum and large maximum values.



DU types allows users to define those DU types the Carrier will transport. If a du type has not been set up for a carrier, any order with that DU type will not be permitted on a route with the carrier.

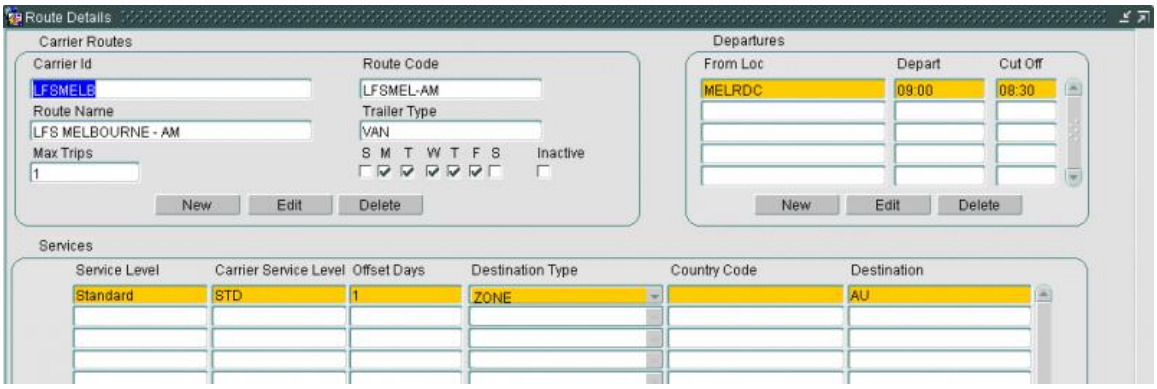


Product Type tab allows users to define which product types a carrier will transport. If a product type is missing on this tab for a carrier, any orders with the product type will be prevented from scheduling on a route with the carrier.



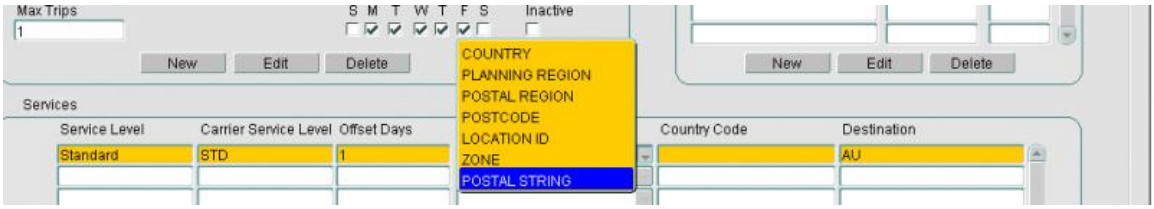
Carrier Routes services details the routes a carrier will provide, header details include the route code and name, days of the week the route will run and the number of trips which may be generated from the route each day.

Double click on a route to see the details of the stops and further header information.

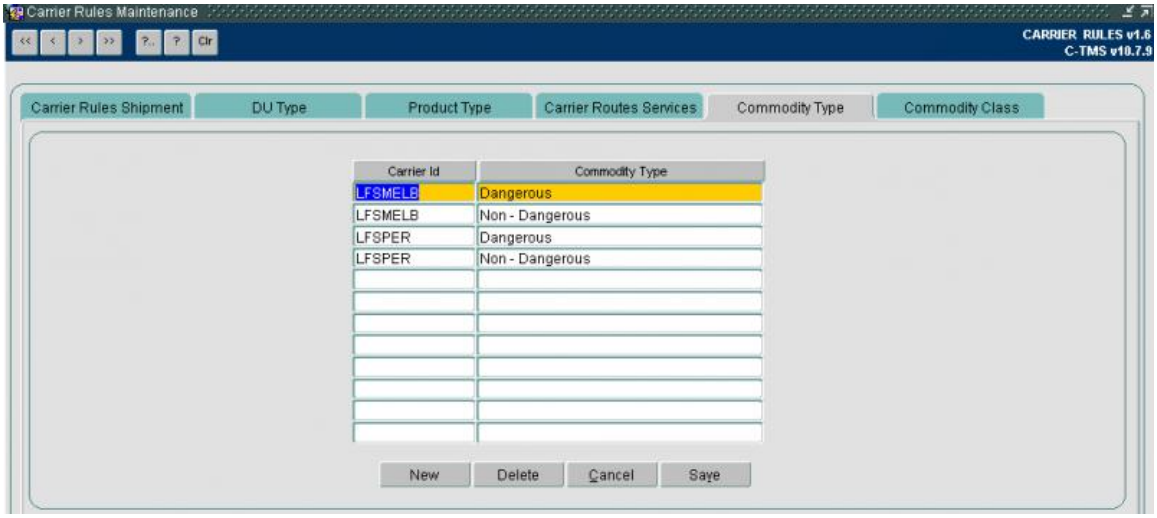


The header information included the controlling depot, which will be used to identify relevant routes. The cut off time will identify when new orders can no longer be added onto the route on the day it runs.

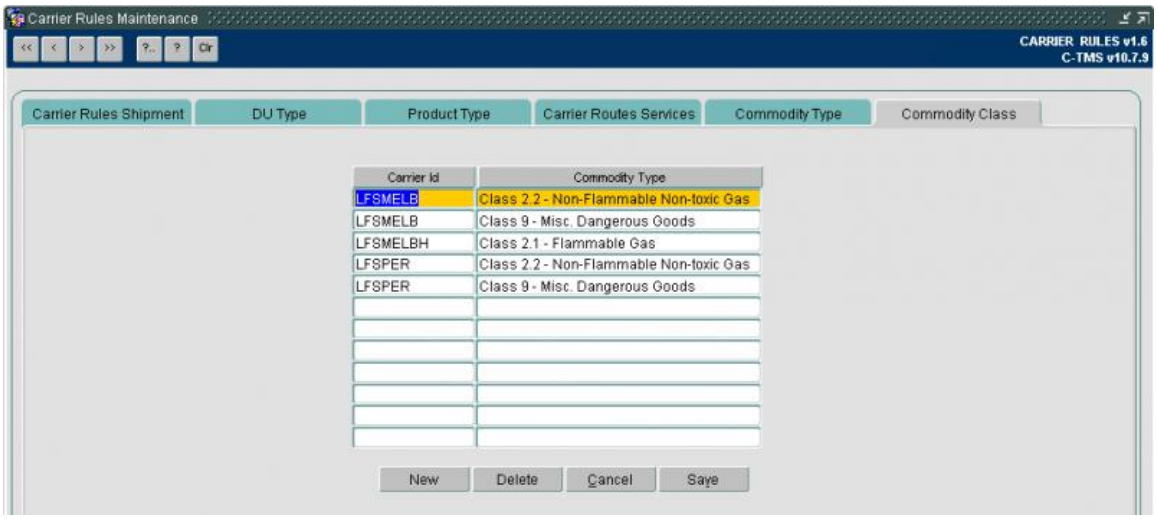
The services block indicates the places the route will deliver to, the destinations types are listed below.



Service level should be set to Standard as this will be checked against the orders. To add a new destination, select the New button at the bottom of the screen, this will move the cursor to the next blank record.



The commodity type allows users to define if a Carrier takes dangerous and non dangerous goods.

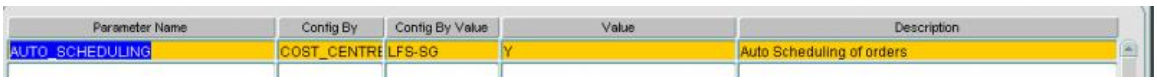


The Commodity Class Type tab allows users to define those commodities that may be transported by a carrier. (See product maintenance for Commodity Class incompatibility)

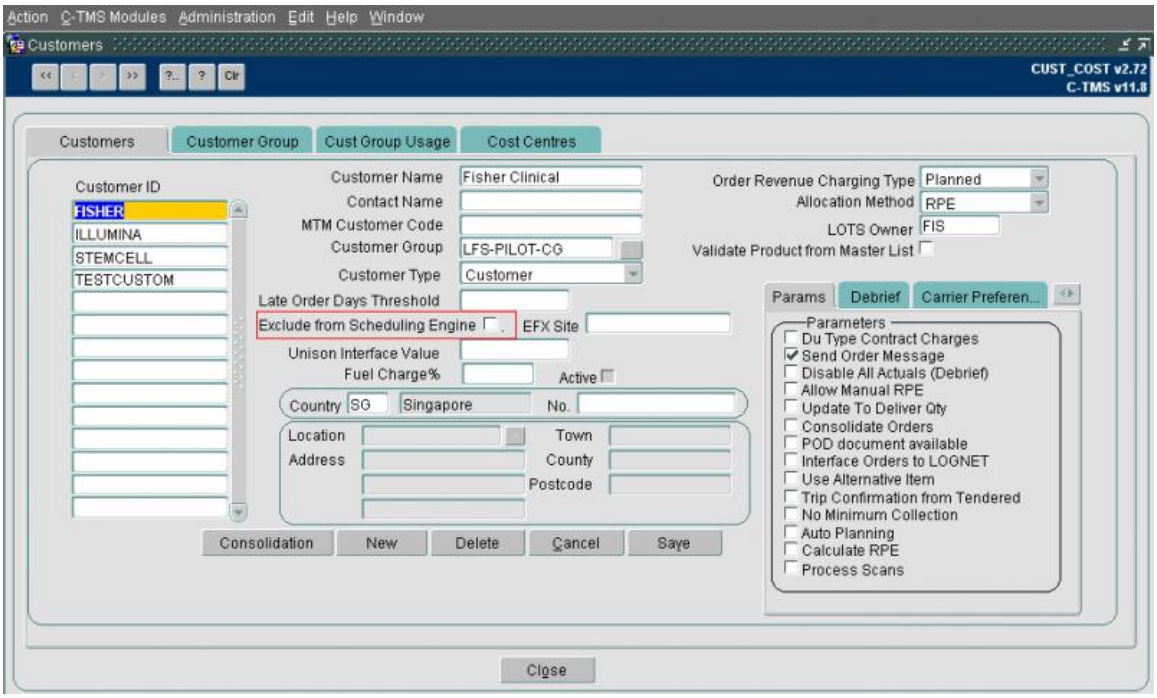
5.6 Controlling the Scheduling Engine

The scheduling engine can be automated to run and is completely under user control. Users are able to control which orders are selected by the scheduling engine (based on both Cost centre and customer) and when the scheduling runs and how often.

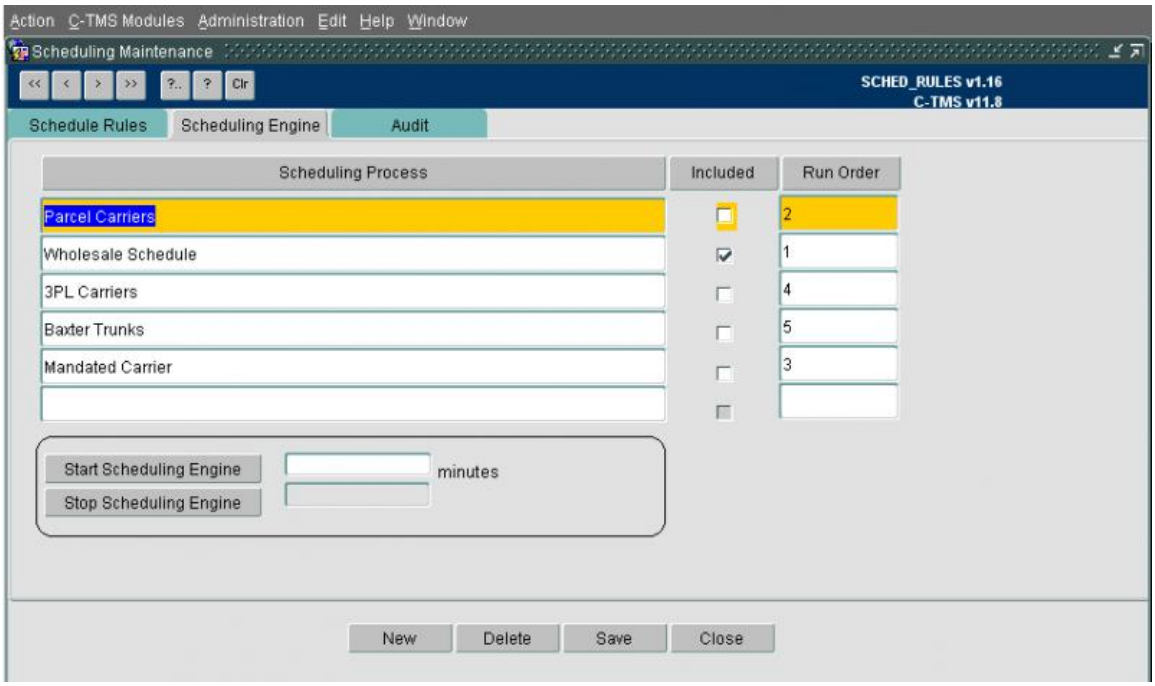
A cost centre parameter controls which cost centres use the scheduling engine. Multiple parameters may be created for systems with more than one cost centre.



If an order is selected for the scheduling engine, by the cost centre, there is a futher level of control available to the user. Users are able to exclude certain customers from the scheduling engine. This is controlled by a flag in the customer maintenance screen.

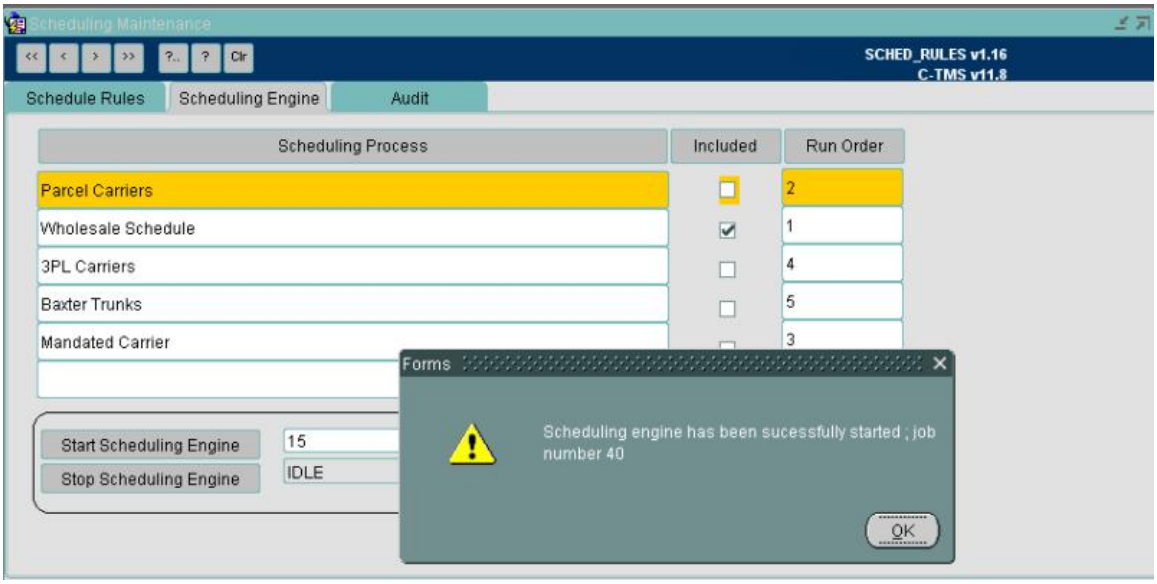


A screen has been created to control when the scheduling screen is run. A specific user name has been created with the ability to start and stop the scheduling engine. Users will be able to access the screen to check when the engine is running.

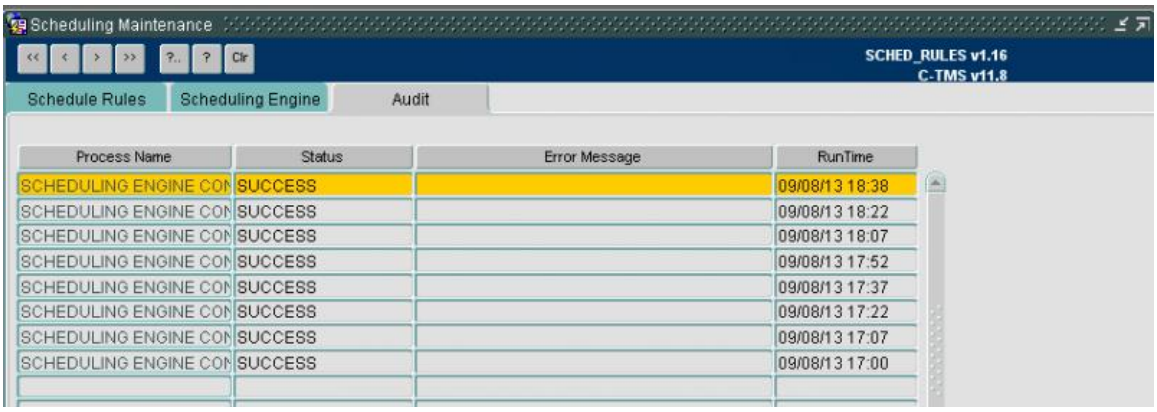


The engine has been created to run several flavours of scheduling, for carrier selection and 3PL carriers. To run the scheduling rules from the fixed routes maintenance screen , users must select the Wholesale schedule.

Selecting start will create a database job to run the scheduling functionality. The interval will indicate how often the engine looks for Unscheduled orders and tries to apply the orders to trips. If no minutes are entered, a default value of 15 minutes is entered, to run the engine every 15 minutes.

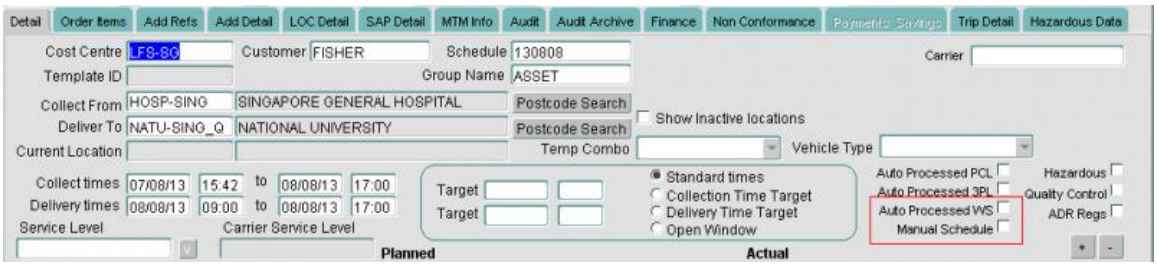


A status is also available to indicate if the engine is Idle or running. The Audit tab will allow users to see when the engine has run and will report any errors encountered.



If an order is selected by the engine, but fails to find a suitable route, a flag will be set next against the order to prevent the engine from attempting and failing to schedule the order every run.

In addition if a user chooses to manually remove an order from a trip, which was applied by the engine, a Manual schedule flag is ticked against the order to prevent the engine from applying the order to the same trip again.



Users are able to manually change the values of the flag to allow an order to available to the engine, or prevent the engine from selecting an order.

6 Scheduling Engine

The scheduling engine is an automated process that will select unscheduled orders and apply them to the available trips or create new trips as required based on the routes that exist.

The fixed routes (for own fleet) and the carriers routes (for external carriers but also for own fleet parcel services) will be assessed based on rules to schedule the orders.

6.1 System Parameters

- 'AUTO_SCHEDULING'

A cost centre parameter that controls which orders are considered by the scheduling engine, the parameter must be set to 'Y' for the cost centre of the order for the order to be scheduling automatically.

- 'ENGINE_RUNNING'

A cost centre parameter which will be set automatically to 'Y' by the schedule engine process when the process is being run for the database.

This system parameter will be set back to 'N' by the process once all of the available orders have been processed.

- 'MAINTAIN_SCHEDULE_DATES'

A cost centre parameter which will control if the order time windows will be derived for the 'XML' and 'CSV' orders.

The system parameter must be set to 'Y' for the cost centre of the order to be active.

- 'TRIP_PREVENT_PARCEL_CARRIER_ASSIGNMENT'

A cost centre parameter which will control if orders can be planned manually to a trip for a 'Parcel' carrier.

The system parameter must be set to 'Y' for the cost centre of the order to be active.

- 'TRIP_VALIDATE_PARCEL_ORDER_ASSIGNMENT'

A cost centre parameter which will control if orders are validated when they are planned manually to a trip for a 'Parcel' carrier.

The system parameter must be set to 'Y' for the cost centre of the order to be active.

- 'TRM_3PL_REROUTE'

A system parameter that can be set to 'Y' to enable the functionality in the Fixed-Drop Scheduling engine to plan the orders to the next available route.

- 'TMP_ENG_TRIP_PREFIX'

A system parameter that controls the prefix that the trips created from fixed drop scheduling drops will be prefixed with e.g. TMP, MAN, RTE etc.

If the trips are to be replanned by Paragon, set this to TMP. If the trips are not to be replanned, then set this to RTE (or some other easily recognizable prefix).

6.2 Scheduling Engine Control

The scheduling engine may be defined in the 'Scheduling Maintenance' screen.

To use the screen, the user must be logged in as 'EDI_OWNER' so that the process is started with the correct level of access control.

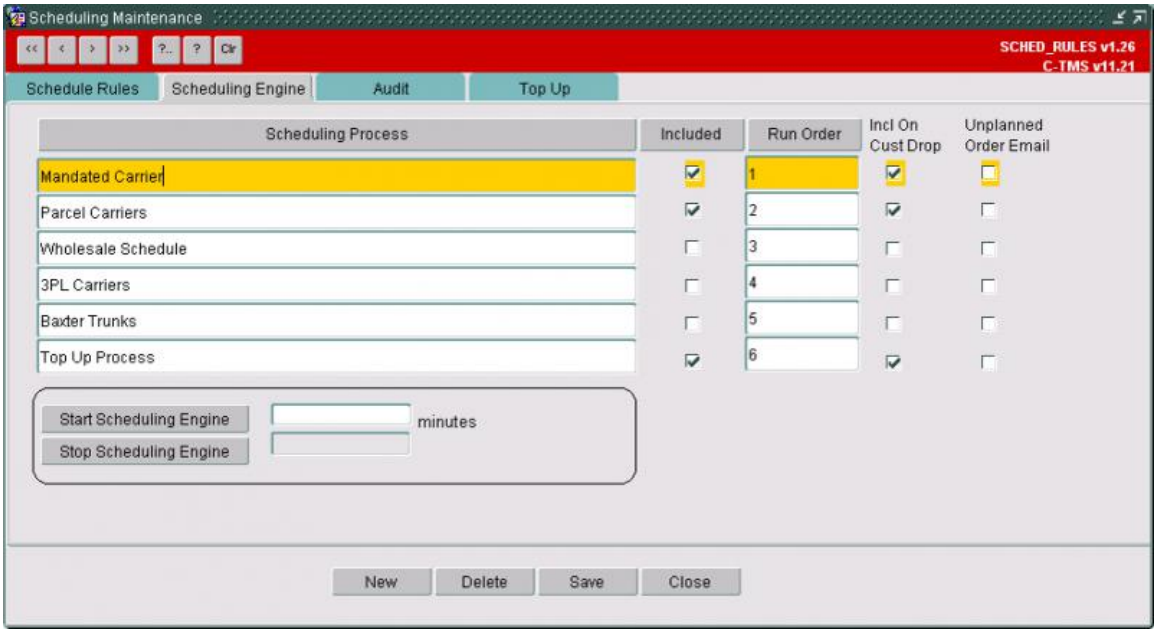
The screen allows users to start and stop the scheduling engine and select which functionality runs and the sequence in which the different aspects of the scheduling engine are run.

Note that if a process is not ticked as being 'Included' IT WILL NOT BE RUN.

The 'Audit' tab page will record each successful completion of the scheduling engine and will also display any errors which occurred during the processing of the orders.

The audit does not record why an order failed to schedule (because it would have to record why it failed to schedule with every route available).

There are different processes that the scheduling engine can use - 'Parcel Carriers', '3PL Carriers', 'Wholesale Schedule', 'Mandated Carriers', 'Top Up Process', 'Network Schedule' and 'NHSBT Schedule':



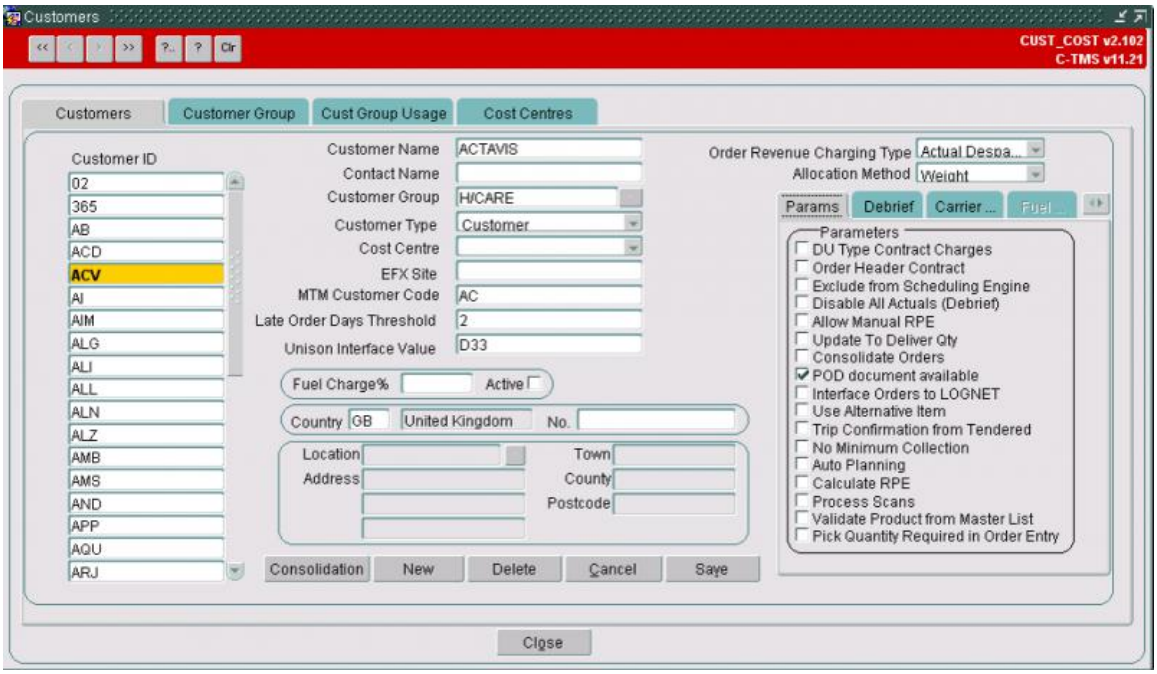
The 'Run Order' can be specified to the sequence in which each type of scheduling engine process will be run so that certain types of orders and carriers can be assessed preferentially.

In this example, the 'Mandated Carrier' process will be run first.

6.3 Customer Settings

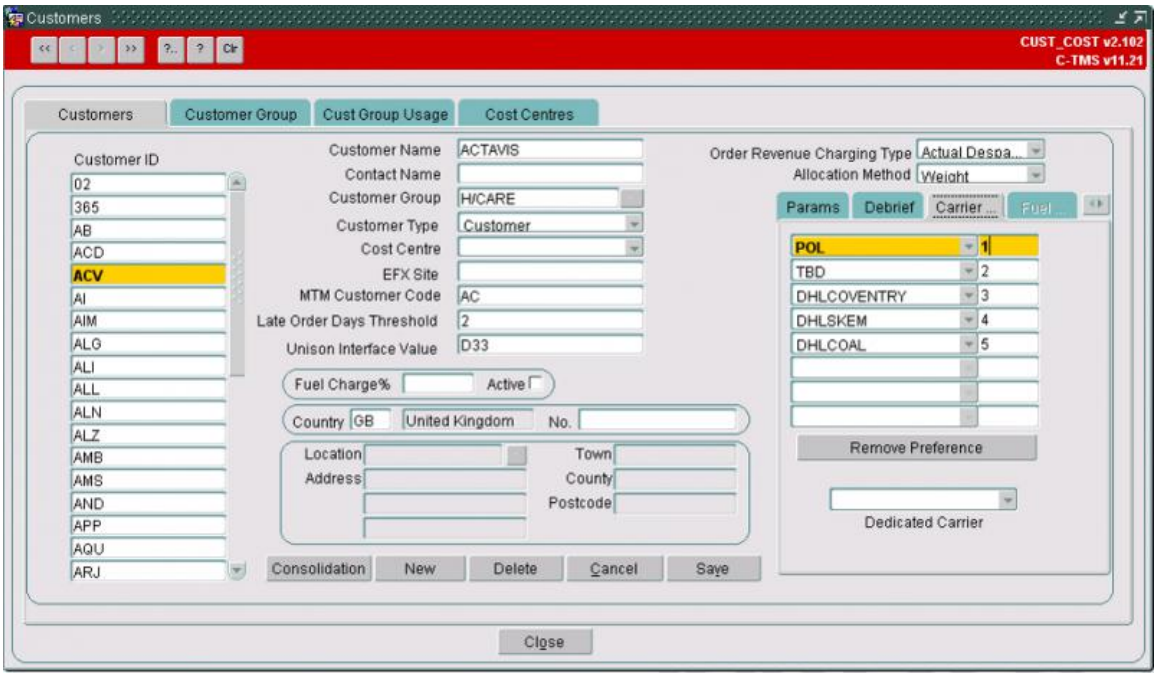
- 'Exclude From Scheduling Engine'

Customers must be actively excluded from the scheduling engine if they do not want to have their orders scheduled automatically:



- 'Carrier Preferences'

The carrier must exist as a preferred carrier for the customer of the order if the customer has a list of carriers that it will accept for the delivery of its orders:

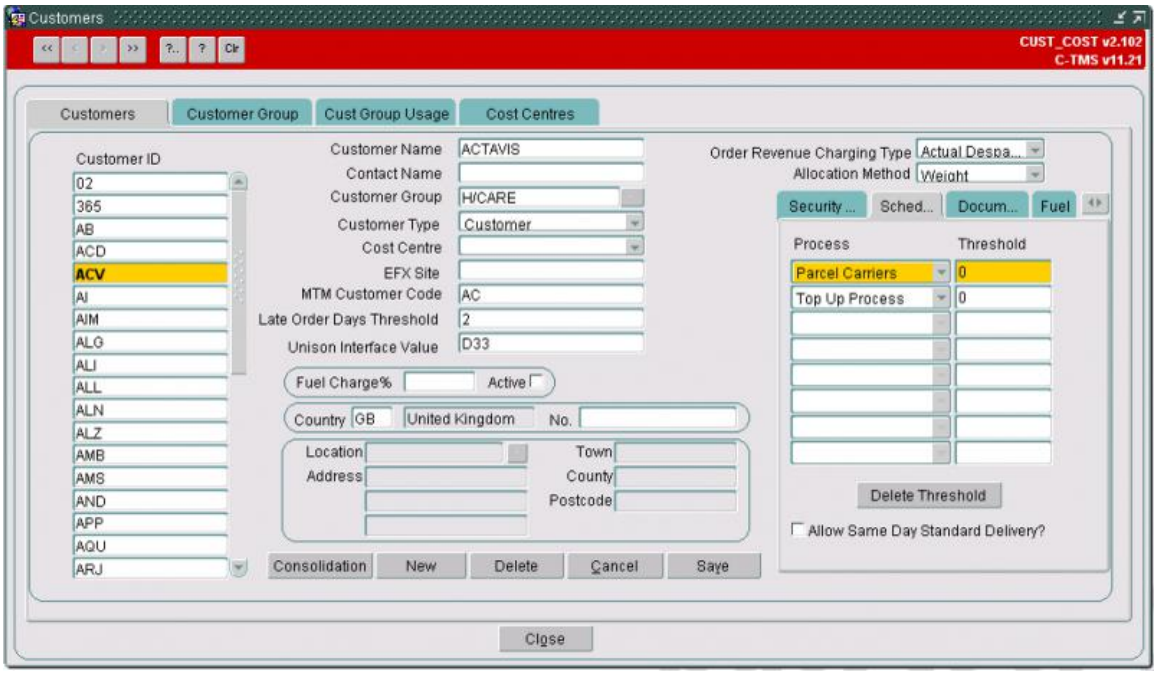


In this example, the 'POL' carrier will be assessed first and if that carrier cannot take the order, the 'TBD' carrier will be assessed next.

Note that if a customer has no preference, the orders for that customer may be delivered by any carrier without preference.

- 'Scheduling Threshold'

A threshold value may be set to exclude the order from the scheduling engine until a set period of time prior to its early delivery date and time:

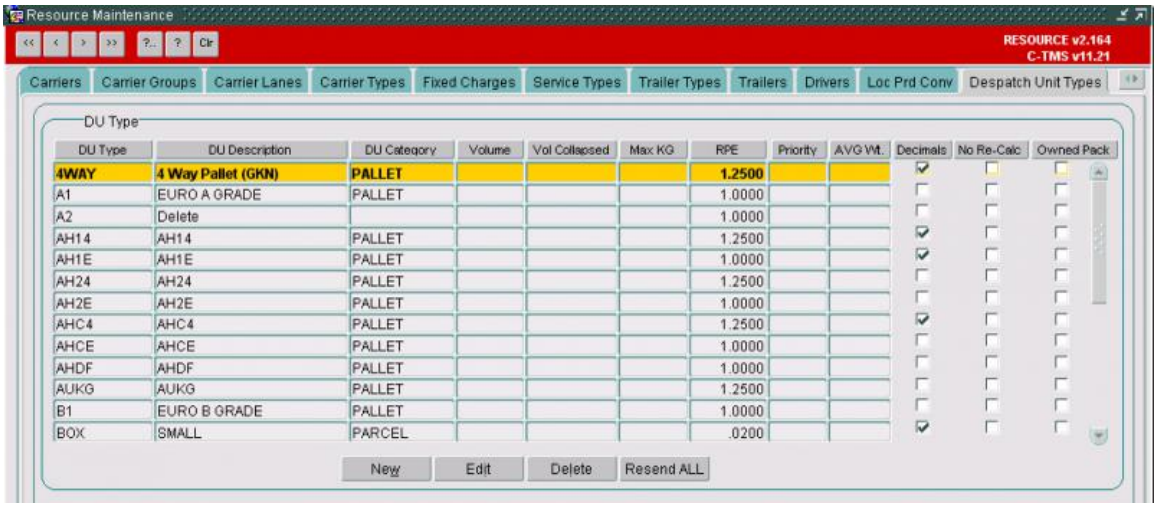


The number of minutes may be specified and a value of '0' will indicate that the order cannot be scheduled automatically in the particular aspect of the scheduling engine until the early delivery date and time has been reached by the system date and time (i.e. in the local time zone).

Note that if a threshold value is not specified that the order will effectively be valid for the aspect of the scheduling engine to process once it has been created, validated and set to 'UNSCHEDULED' status.

6.4 DU Category

The DU category can be specified to denote the type of despatch unit for planning purposes:



A DU category of 'PALLET' indicates that it is a pallet that would normally be transported by own fleet.

A DU category of 'PARCEL' indicates that it is a parcel that would normally be transported by a parcel carrier service by own fleet or by an external 'PARCEL' carrier.

Note that a DU type will have a DU category of 'PALLET' by default unless stated otherwise.

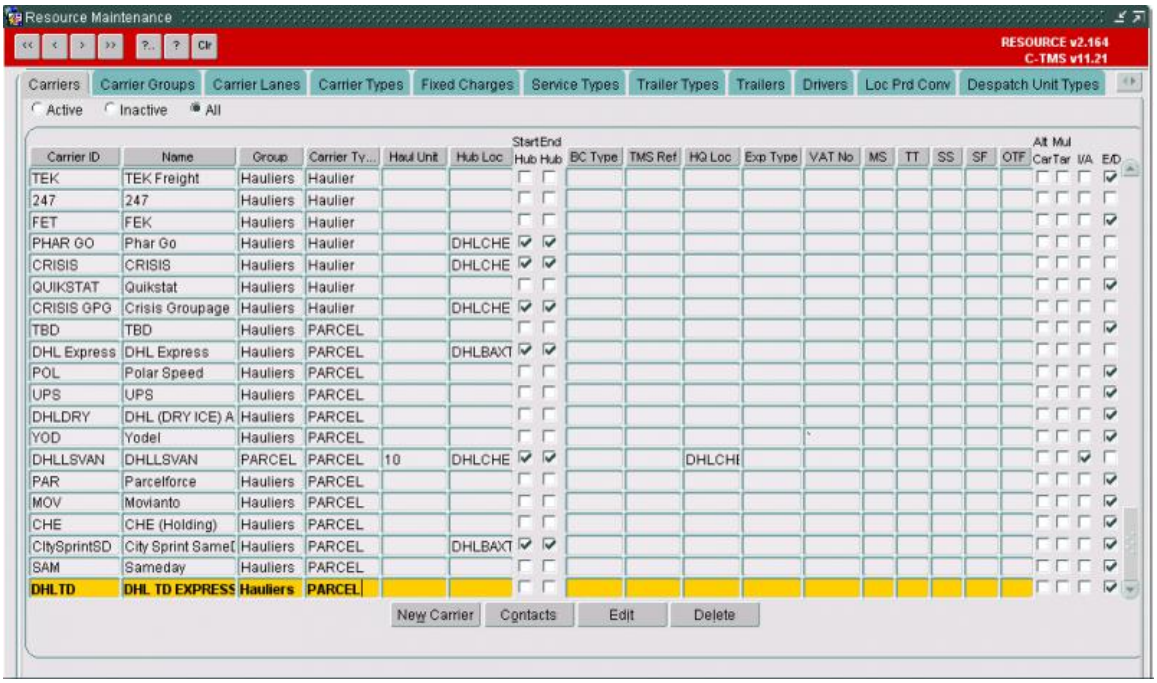
The DU category of an order will be set to 'PARCEL' based on the presence of a DU type having a DU category of 'PARCEL'.

The DU category will then be used to decide which set of routes (fixed for 'PALLET' or carrier for 'PARCEL') to check for the derivation of the order time windows when the orders are created via the 'XML' and 'CSV' files.

Note that some 'PARCEL' carriers will be able to take 'PALLET' items should they be setup to do so in the 'Carrier Rules' screen for the DU types.

6.5 Carrier Type

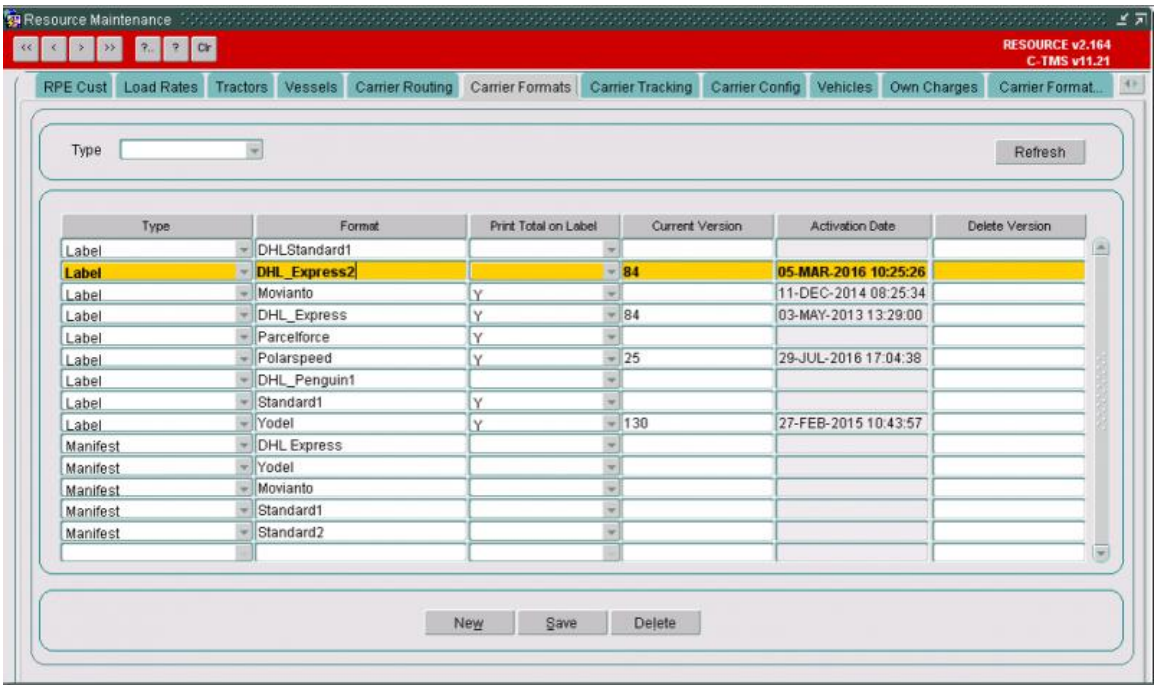
The 'Carrier Type' will determine the scheduling engine process in which that carrier will be assessed:



The 'Carrier Type' may be '3PL' or 'PARCEL' to apply the specific scheduling engine process.

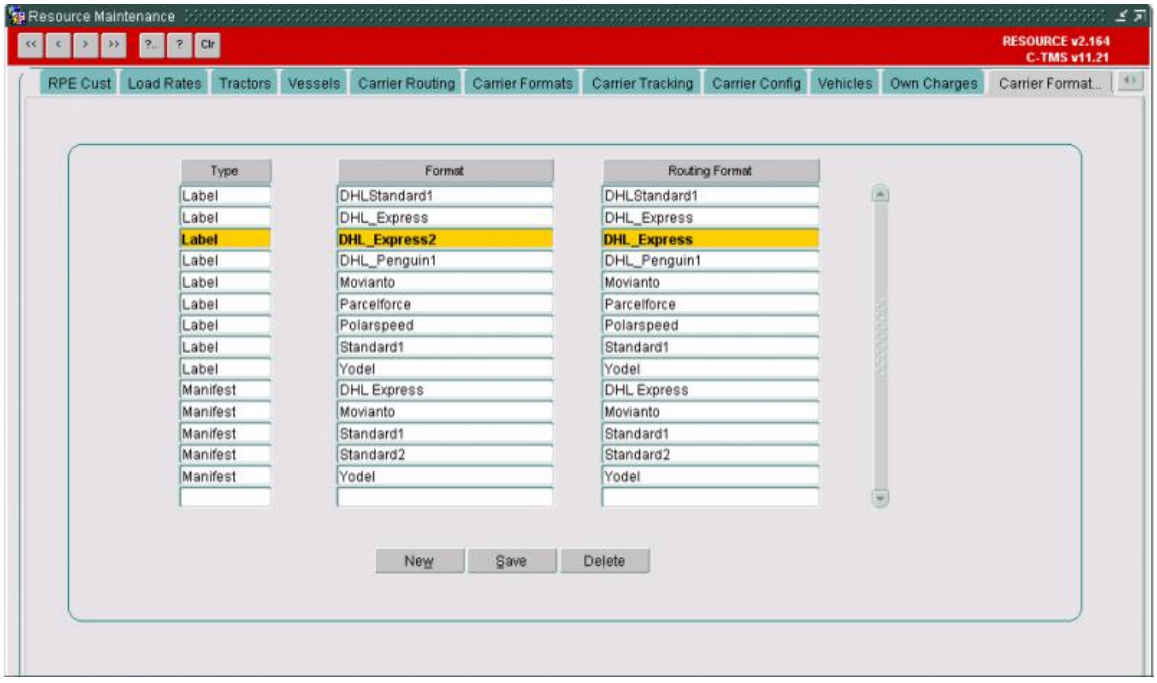
6.6 Carrier Formats

Different formats can be setup for each carrier:

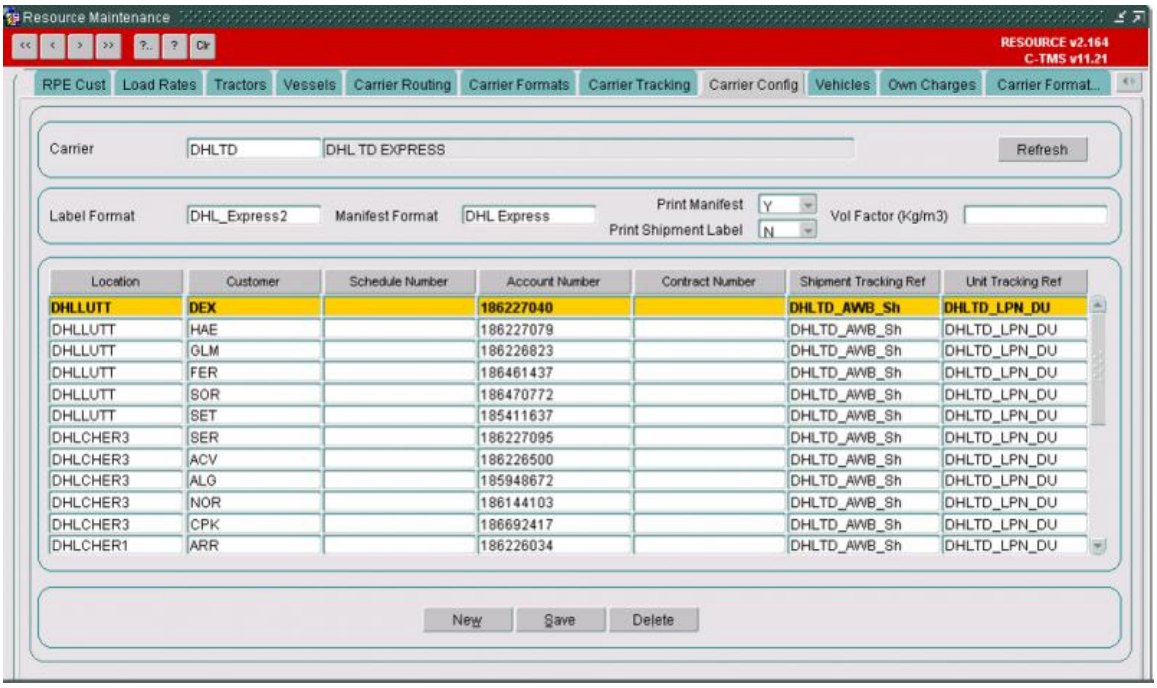


The current version of the gazetteer data can be stored for the label format.

The label format can be assigned to a routing format to obtain the gazetteer data:



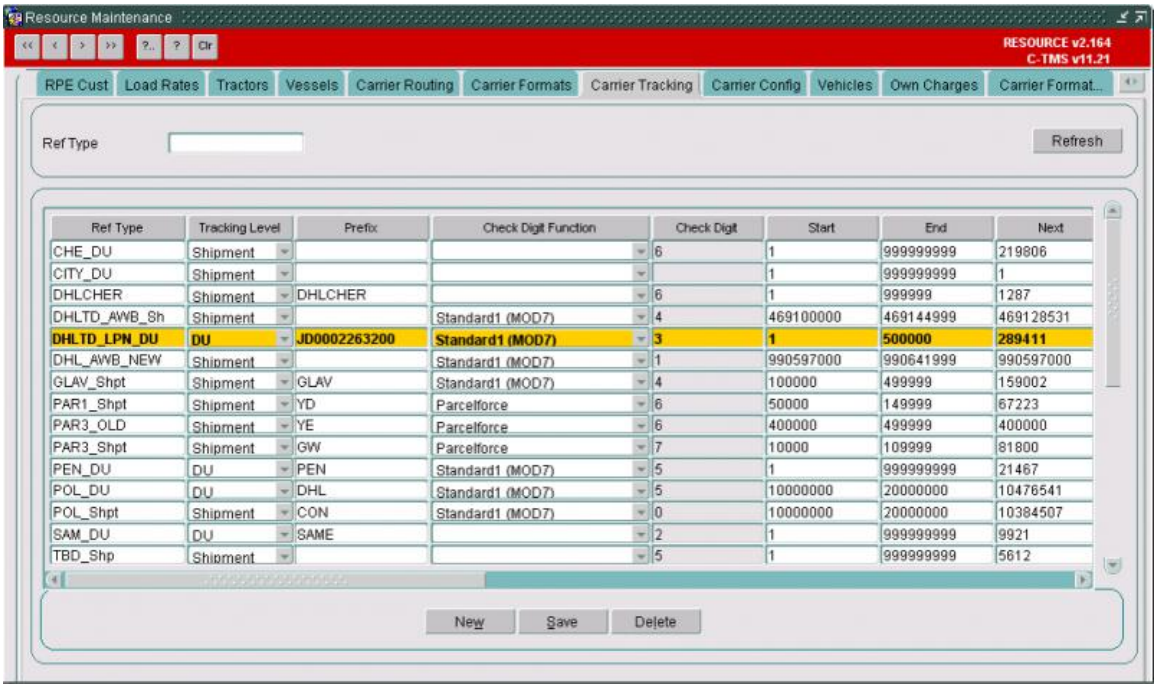
The carrier can be configured to have a label format and a manifest format:



The physical manifest can also be requested to be printed automatically when the trip is despatched.

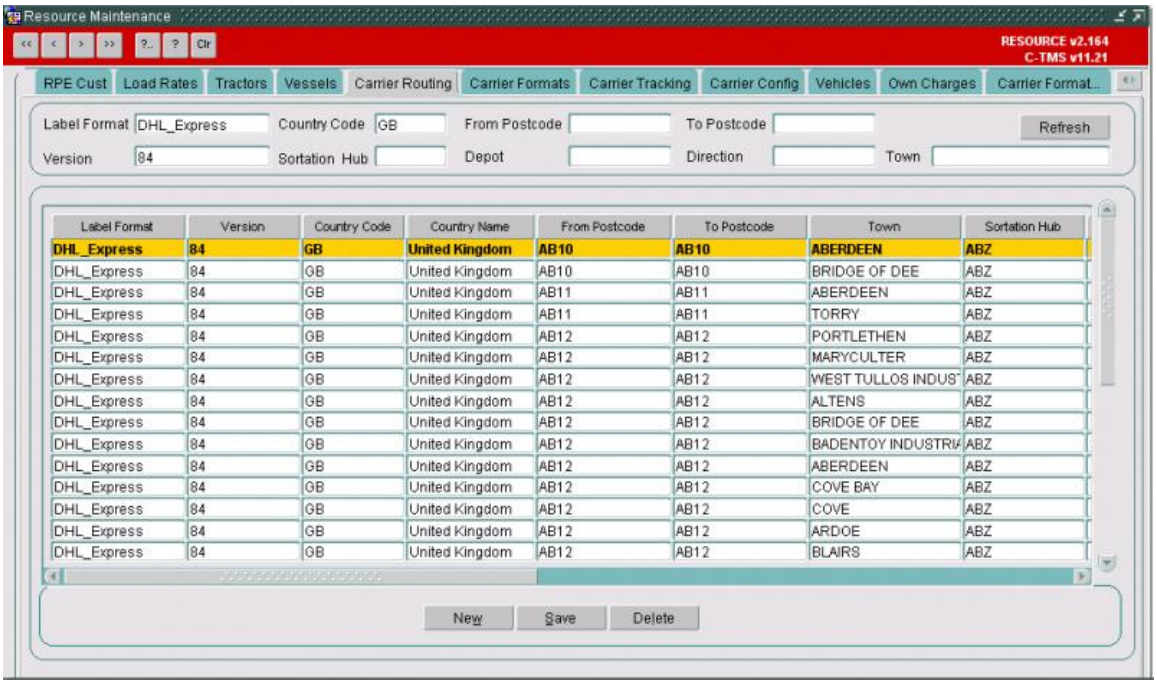
The tracking references can be applied by customer by depot.

The tracking references can be updated with a range of values for the carriers:



6.7 Carrier Gazetteer

The gazetteer data can be imported for each carrier for the latest version to be applied:



The carrier routing data will be used for the production of the carrier labels and this data should be used to specify the carrier rules for ensuring that the orders are scheduled correctly.

Note that this data is not used in the scheduling engine or the derivation of the order time windows.

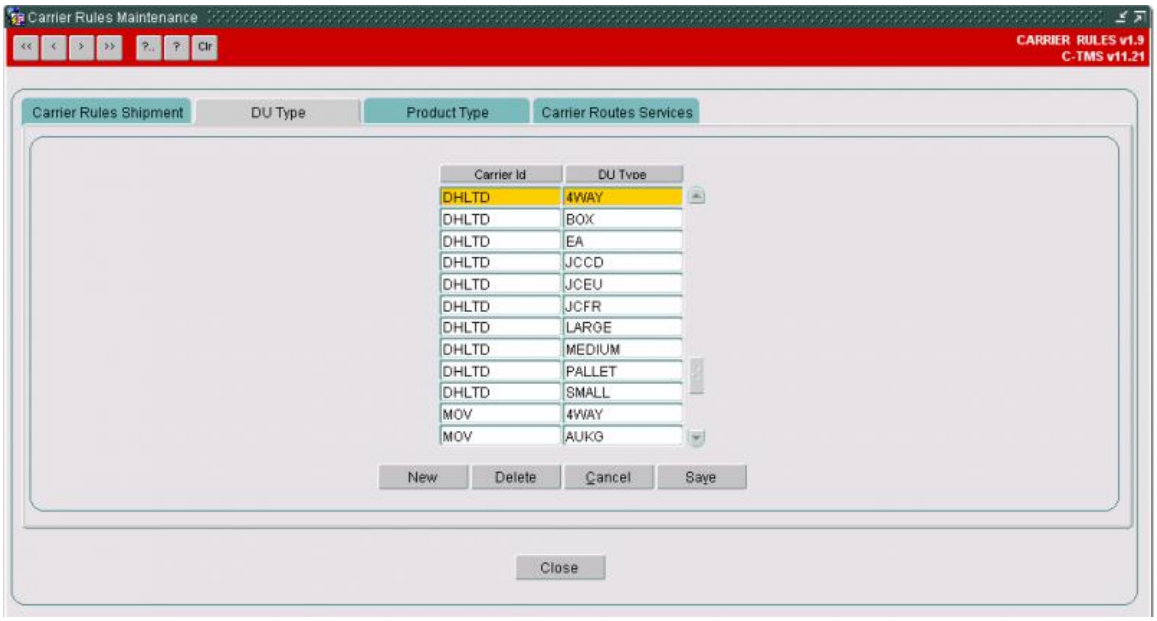
6.8 Carrier Rules

The carrier rules will apply to the assessment of the parcel carriers:

- Shipment Size

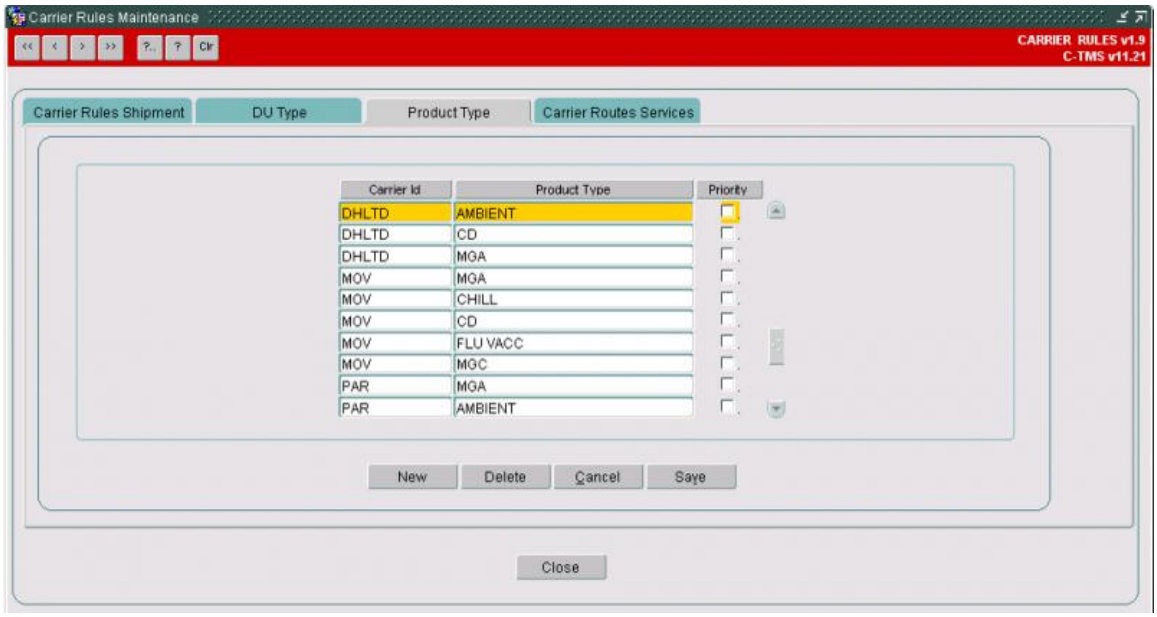
The carrier must be able to transport the size of the shipment (i.e. based on the total for the order) based on the weight and the volume.

- DU Type



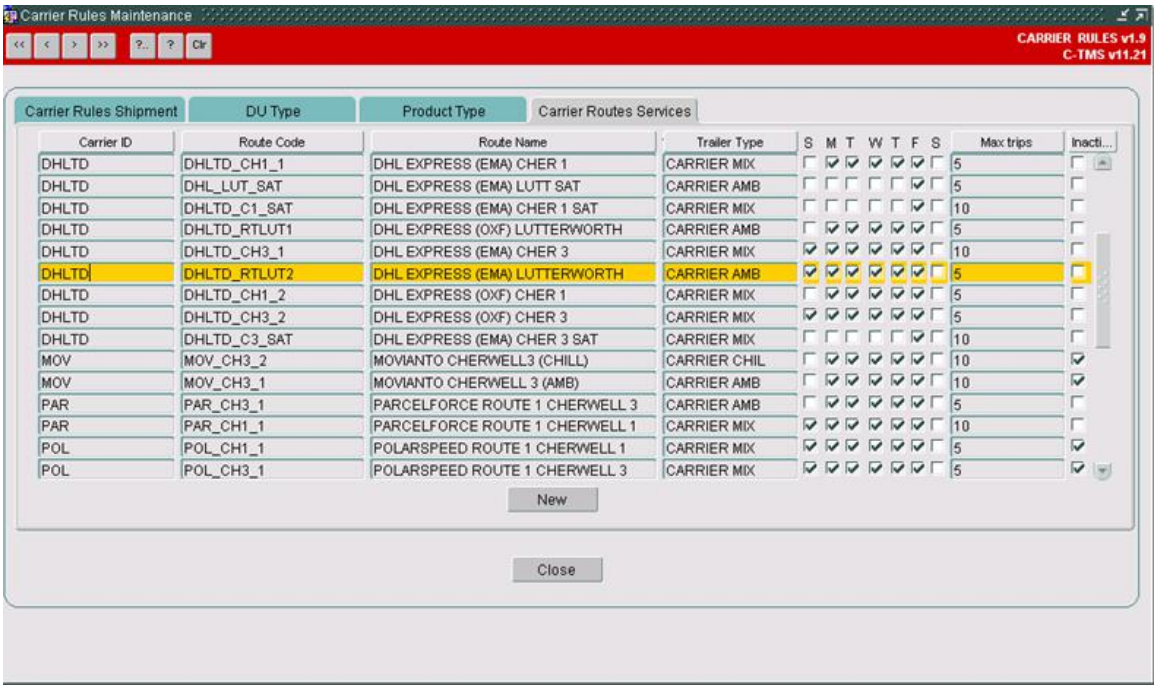
The carrier must be able to transport the DU types that exist for the order lines (as packed and despatched).

- Product Type



The carrier must be able to transport the product types that exist for the order lines (as packed and despatched).

- Service Level



The carrier route will indicate if the carrier can deliver the order from the source depot.

The source depot and ant cross-docking depots can be listed with a cut-off time to ensure that the order is available prior to the expected loading time of the vehicle.

The days of the week on which the route operates can be specified.

The type of trailer can be specified and further validation will be performed to ensure that the products for the order can be loaded onto the trailer for the trip for the route.

The carrier routes should be based on the gazetteer information that is provided by the external carrier to ensure that the carrier will be able to deliver the order on the specified date and by the specified time.

The service level of the order and the destination will be assessed to ensure that the delivery location is valid for the route.

The service level can be mapped to the appropriate service level for the carrier to indicate how it will be transported within the carrier's own network.

The 'Destination Type' and 'Destination' will indicate how the delivery location of the order is assessed:

'ZONE' indicates that there may be multiple locations that are valid for the route.

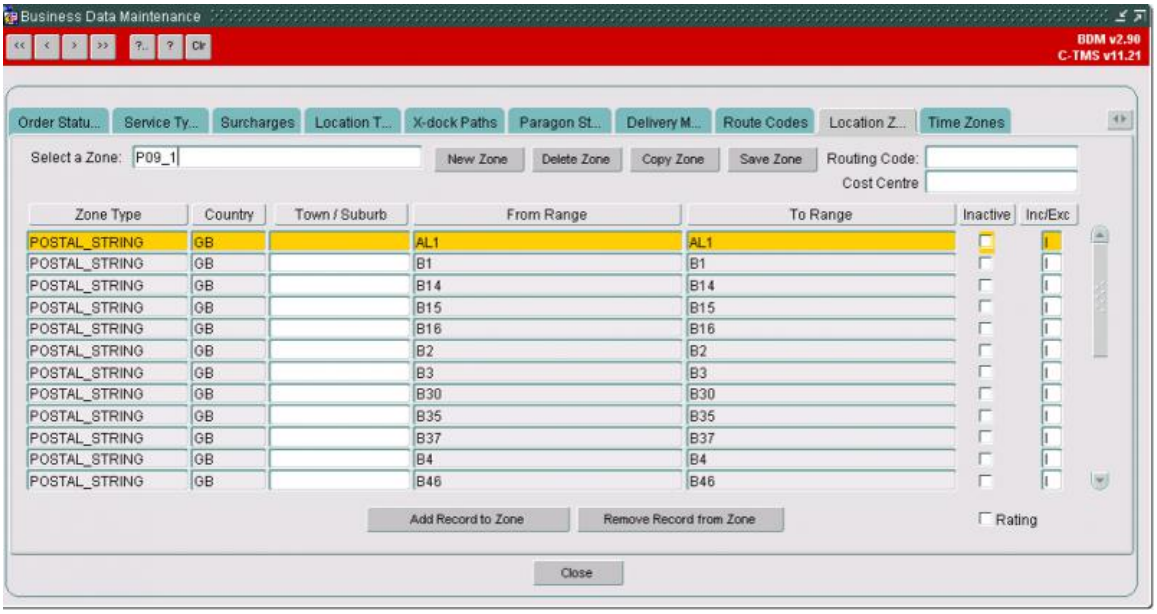
'COUNTRY' indicates that all orders for delivery in a country are valid for the route.

'LOCATION' indicates that orders just for that location are valid for the route.

Note that different destination types can apply for the same service level.

6.9 Location Zones

The location zones can be specified in the 'Business Data Maintenance' screen:

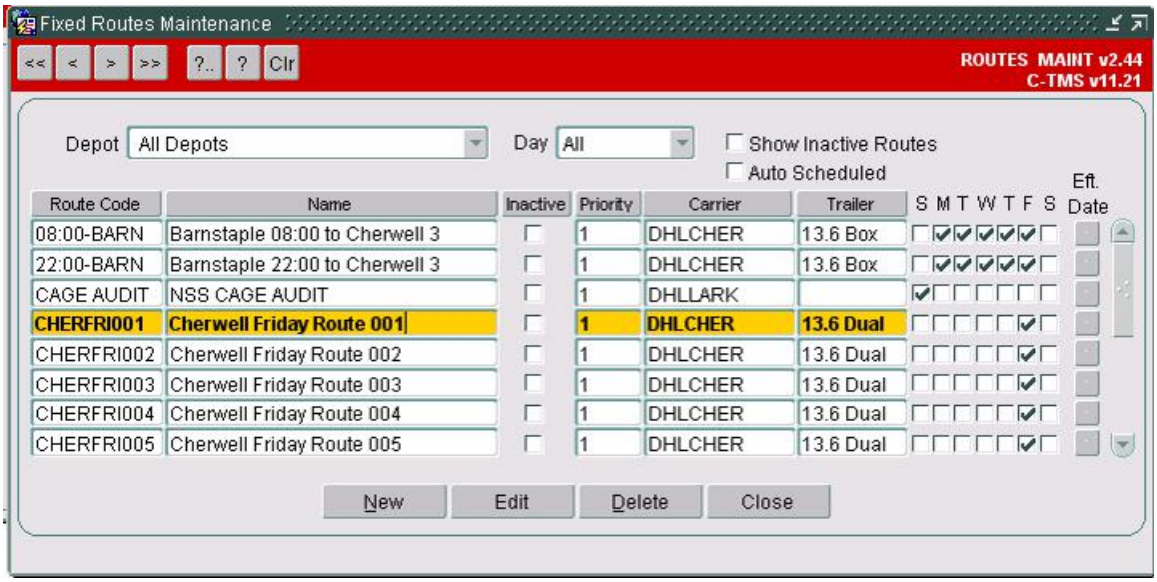


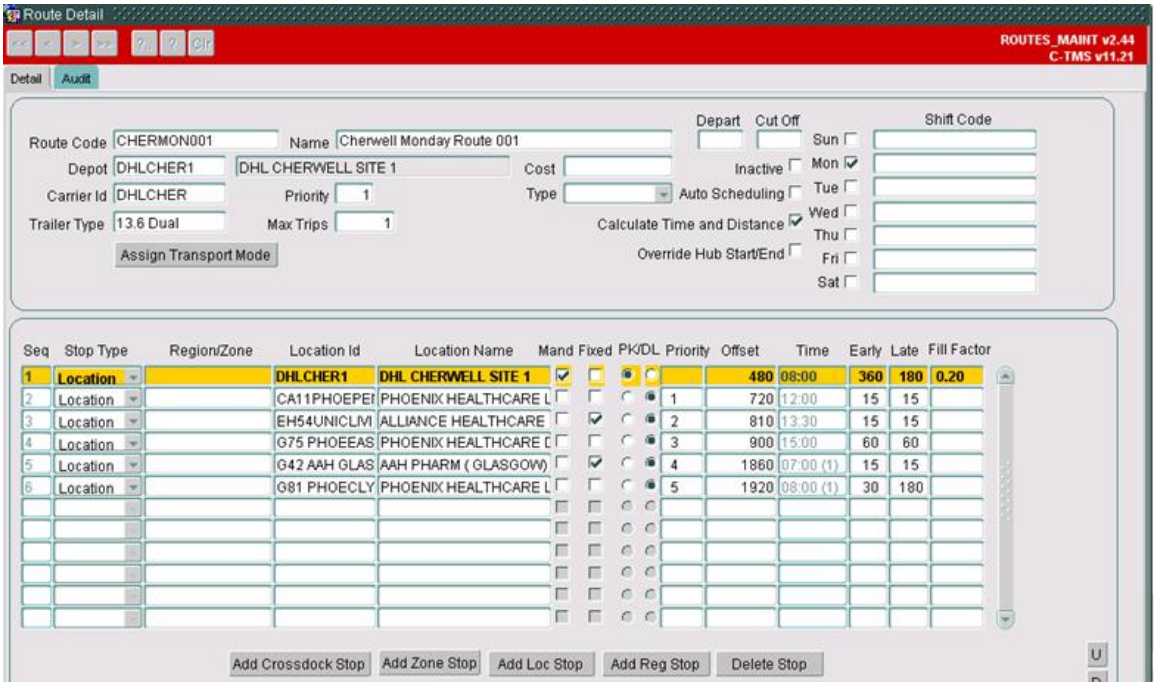
In this example, the 'P09_1' location zone incorporates various postcodes (using the prefix as a postal string) for the delivery locations.

The 'Inc/Exc' flag indicates if the type of zone is being included or excluded from the location zone to enable greater flexibility to specify the delivery locations that are valid for the particular location zone.

6.10 Fixed Routes

The fixed routes will apply to the assessment of the own fleet carriers:



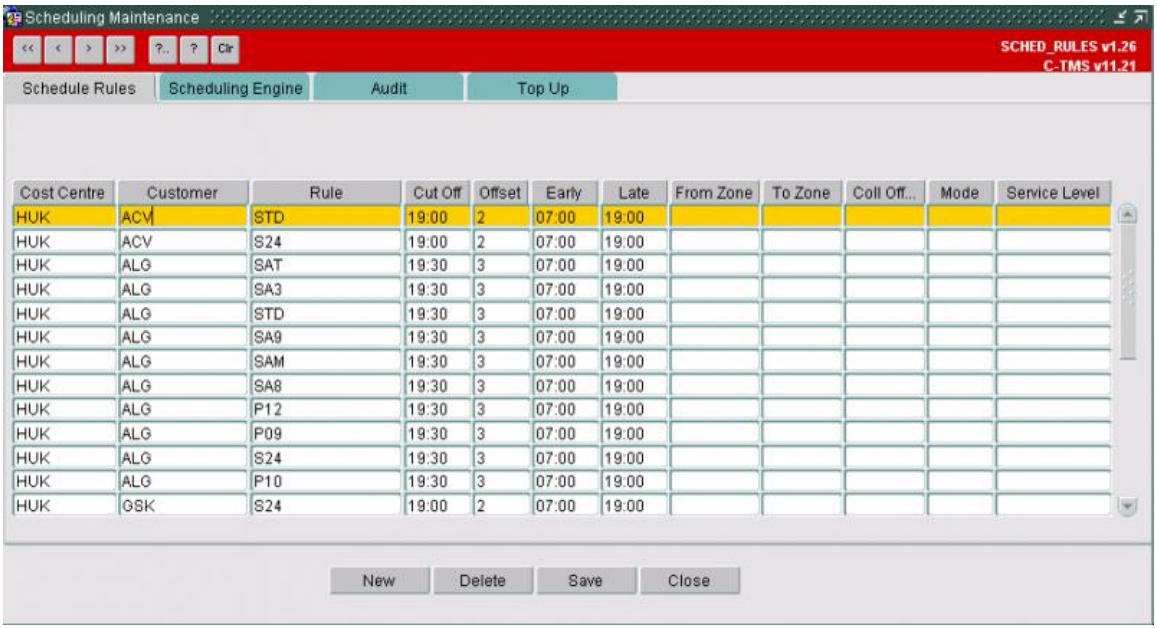


In this example, the route is being used to collect from, and deliver to, specific locations.

The 'Stop Type' can be specified to include 'Zone' as well as 'Location' to enable orders to be valid for the route without having to specify each location as a stop.

6.11 Schedule Rules

The schedule rules are used to calculate the time windows for the '**PARCEL' orders**:



For example, 'HUK' orders will be provided with an early delivery date and the time windows will be calculated for that date and time.

The 'Rule' is the service level of the order.

The 'Offset' is a number of days for the delivery to be made (i.e. the order must be available 2 days before the delivery date for the 'STD' service level for the 'ACV' customer).

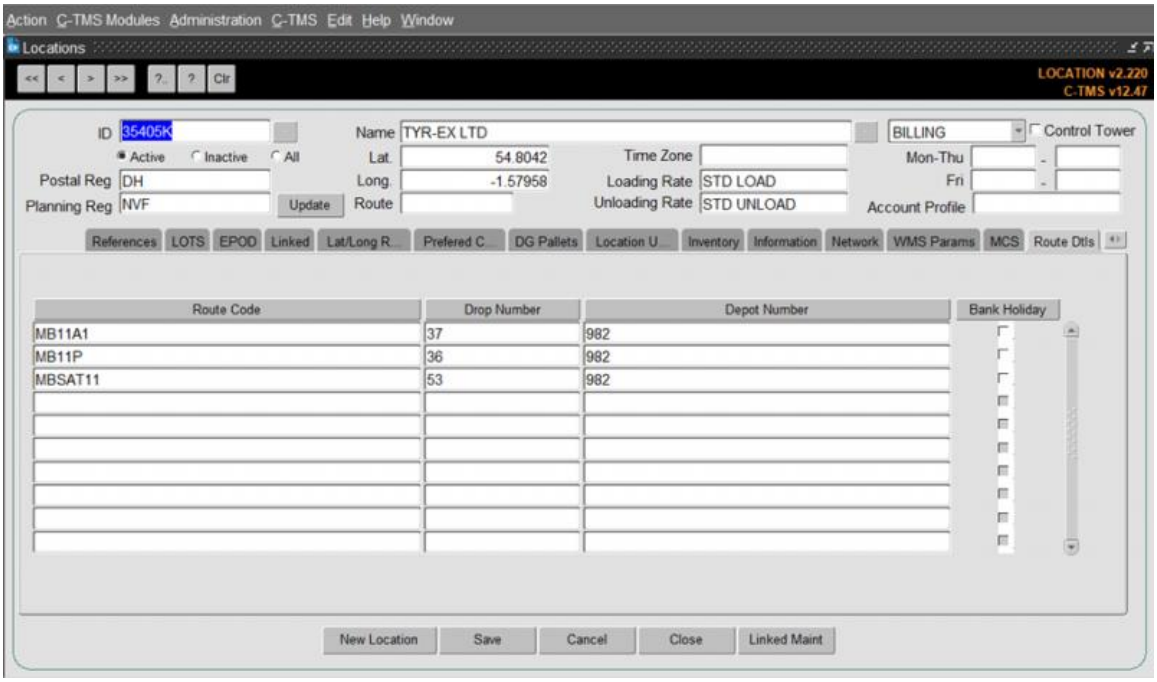
The 'Cut Off' is a time after which a day will need to be added for the expected delivery for it to be made.

Note that the weekends will be offset automatically.

6.12 Location Fixed Route Details

Note: Applies to fixed drop scheduling only.

Each location that can be planned as a destination may have multiple routes (run numbers) assigned to the location.



The routes can be specified as being applicable solely to bank holidays.

6.13 Order Time Window Derivation

The time windows can be derived for the orders that are created via the 'XML' and 'CSV' files by assessing the stock being ordered and the service level.

The assessment of the service level and the delivery type will be performed for the orders when they are created via 'CSV' or 'XML' files and the '**MAINTAIN_SCHEDULE_DATES'** system parameter is 'Y' for the cost centre of the order.

The **DU category** of the order is used to decide whether to check the fixed routes for 'PALLET' or the schedule rules for 'PARCEL'.

'PARCEL' will only be specified if the order only contains DU types with a category of 'PARCEL'.

'PALLET' types will assess the fixed routes for a direct or a radial route for the early delivery date, the locations of the order and the mandated carrier if provided.

If the **early delivery date** is known the route will be checked that it is active on that day of the week.

Future early delivery dates will not offset the date:

Service Level *'Standard'*

Delivery Type *'On Sched'*

Early Avail *SYSDATE*

Late Avail *Delivery Date at Late Target Time*

Early Del *Delivery Date at Early Target Time*

Late Del *Delivery Date at Late Target Time*

Or

Service Level *'Standard'*

Delivery Type *'Off Sched'.*

Early Avail *SYSDATE*

Late Avail *Delivery Date at 17:00*

Early Del *Delivery Date at 08:00*

Late Del *Delivery Date at 17:00*

Same day early delivery date may offset the date:

Service Level *'Standard'*

Delivery Type *'On Sched'*

Early Avail *SYSDATE*

Late Avail *Delivery Date at Late Target Time*

Early Del *Delivery Date at Early Target Time*

Late Del *Delivery Date at Late Target Time*

Or

Service Level *'Standard'*

Delivery Type *'Off Sched'.*

Early Avail *SYSDATE*

Late Avail *Delivery Date + 3 days at 17:00*

Early Del *Delivery Date +3 days at 08:00*

Late Del *Delivery Date + 3 days at 17:00*

Note that the delivery date may also be offset to avoid the weekends so it may be +4 or +5 days.

Past early delivery date will offset the date:

Service Level *'Standard'*

Delivery Type *'On Sched'*

Early Avail *SYSDATE*

Late Avail *Delivery Date + 3 days at Late Target Time*

Early Del *Delivery Date + 3 days at Early Target Time*

Late Del *Delivery Date + 3 days at Late Target Time*

Or

Service Level *'Standard'*

Delivery Type *'Off Sched'.*

Early Avail *SYSDATE*

Late Avail *Delivery Date + 3 days + 3 days at 17:00*

Early Del *Delivery Date +3 days + 3 days at 08:00*

Late Del *Delivery Date + 3 days + 3 days at 17:00*

Note that the delivery date may also be offset to avoid the weekends so it may be +4 or +5 days.

No early delivery date will offset the date:

Service Level *'Standard'*

Delivery Type *'On Sched'*

Early Avail *SYSDATE*

Late Avail *Next Delivery Date at Late Target Time*

Early Del *Next Delivery Date at Early Target Time*

Late Del *Next Delivery Date at Late Target Time*

Or

Service Level *'Standard'*

Delivery Type *'Off Sched'.*

Early Avail *SYSDATE*

Late Avail *Delivery Date + 3 days at 17:00*

Early Del *Delivery Date +3 days at 08:00*

Late Del *Delivery Date + 3 days at 17:00*

Note that the delivery date may also be offset to avoid the weekends so it may be +4 or +5 days.

'PARCEL' types will use the delivery date, cost centre, customer and service level provided (or a default service level from 'OMS_DEFAULT_SERVICE_LEVEL') to assess the schedule rules.

An early delivery date will calculate the collection date using the delivery offset days for the schedule rule:

Early Avail *Collection Date at 00:00*

Late Avail *Delivery Date at Late Time*

Early Del *Delivery Date at Early Time*

Late Del *Delivery Date at Late Time*

No early delivery date will offset the date when before the cut-off time for the SYSDATE:

Early Avail *SYSDATE at 00:00*

Late Avail *SYSDATE + Delivery Offset Days at Late Time*

Early Del *SYSDATE + Delivery Offset Days at Early Time*

Late Del *SYSDATE + Delivery Offset Days at Late Time*

No early delivery date will offset the date when after the cut-off time for the SYSDATE:

Early Avail *SYSDATE at 00:00*

Late Avail *SYSDATE + 1 day + Delivery Offset Days at Late Time*

Early Del *SYSDATE + 1 day + Delivery Offset Days at Early Time*

Late Del *SYSDATE + 1 day + Delivery Offset Days at Late Time*

If SYSDATE is Friday the weekend will be offset at the start for the above calculations when no early delivery date is provided.

Note that the derived delivery date may also be offset to avoid the weekends.

'XML' orders will assess the above rules if not all of the order time windows are provided.

'CSV' orders will assess the above rules if not all of the order time windows are provided.

The delivery type of 'On Sched' and 'Off Sched' can be set for the 'CSV' and 'XML' orders but this code is not run elsewhere, therefore the order should not have changed automatically the delivery type when the order was unscheduled.

6.14 Scheduling using Parcel Carriers

The 'Parcel Carriers' will assess the carriers that have been setup with a 'Carrier Type' of 'PARCEL'.

The orders will be selected provided that the carrier accepts the type of goods that are being transported.

This process will either create a new 'PCL' trip for the order or it will add the order to an existing 'PCL' trip for the same route for the same delivery date minus the nunber of offset days for the service level.

The **capacity** of the current trip(s) for the route will be assessed against the **total RPE, weight and** volume of the order being processed:

- If there are no trips for the day for the route and the capacity of the trailer will not be exceeded by the order then a new trip will be created.
- If there is spare capacity then the current trip will be used.
- If there is no spare capacity and the total number of trips for the route for the day has reached the maximum number of trips for the route then the order will remain unscheduled.

The schedule of the trips will be based on the early delivery date and time of the order being processed minus the nunber of offset days for the service level of the order.

Note that the '**PCL' trips** will be handed-off to an external carrier so they will be assigned to a **schedule for a previous day** based on the number of 'Offset Days' for the carrier route for the service level of the order.

The intention is to advise the external carrier when they need to collect the orders from the depot for delivery within their own network.

The orders for the 'Parcel' carriers can be cross-docked prior to their delivery trips.

The 'Auto Processed PCL' flag will be set if the order has been assessed for this aspect of the scheduling engine.

6.15 Scheduling using 3PL Carriers

The '3PL Carriers' will assess the carriers that have been setup with a 'Carrier Type' of '3PL'.

The orders will be selected provided that the carrier accepts the type of goods that are being transported.

The same logic will apply to the '3PL' carriers as to the 'Parcel' carriers and the orders for the '3PL' carriers can be cross-docked prior to their delivery trips.

The 'Auto Processed 3PL' flag will be set if the order has been assessed for this aspect of the scheduling engine.

6.16 Scheduling using Wholesale Schedule

The 'Wholesale Schedule' will assess the fixed routes to potentially cross-dock the orders multiple times prior to delivery.

There are 3 different types of trips that can be assessed for **unscheduled orders**:

- Collection

The orders will be assessed based on the source and delivery locations of the order for any 'Cross-dock' stops that exist for a route.

- Trunk

The orders will be assessed based on the stops for collection from the current location of the order.

- Direct

The orders will be assessed based on the stops for collection from the source location and delivery to the location/zone of the delivery location of the order.

These orders will not be cross-docked.

There are 2 different types of trips that can be assessed for **partially scheduled orders**:

- Trunk

The orders will be assessed based on the stops for collection from the current location of the order.

- Radial

The orders will be assessed based on the stops for collection from the current location and delivery to the location of the delivery location of the order.

The capacity of the current trip(s) for the route will be assessed against the total RPE, weight and volume of the order being processed to decide if a trip can be used:

- If there are no trips for the day for the route and the capacity of the trailer will not be exceeded by the order then a **new trip** will be created.
- If there **is spare capacity then the current trip** will be used.
- If there **is no spare capacity** and the total number of trips for the route for the day has reached the **maximum number** of trips for the route then the order will **remain unscheduled**.

Note that is a '**PARCEL' order** is being processed, it **can be added to a 'RTE' trip** but it **cannot create a 'RTE' trip.**

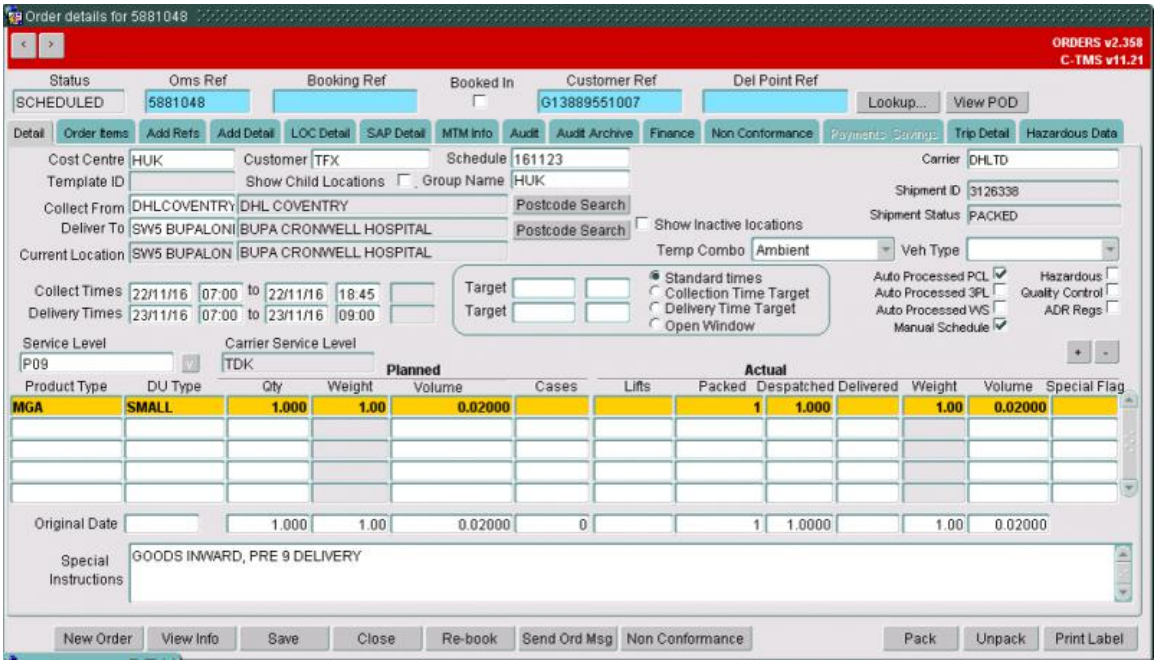
The schedule of the '**RTE' trips** will be based on the **schedule for the early delivery date and time** of the order being processed.

The orders for the 'Wholesale' carriers can be cross-docked prior to their delivery trips.

The 'Auto Processed WS' flag will be set if the order has been assessed for this aspect of the scheduling engine.

6.17 Scheduling using Mandated Carrier

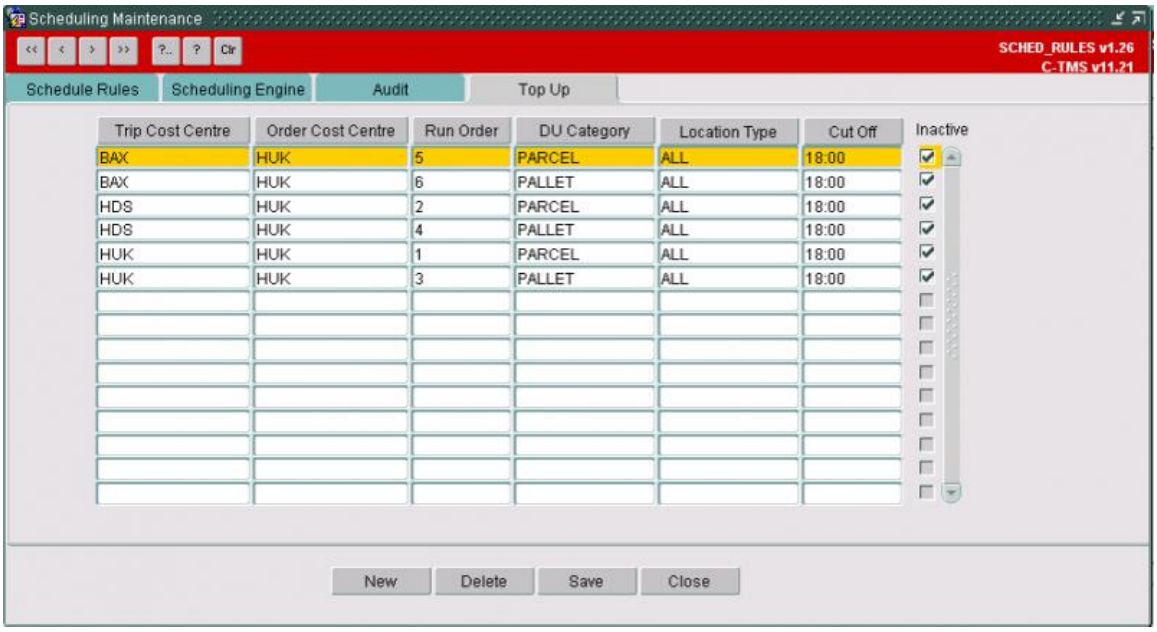
The orders that have a mandated carrier in the 'Carrier' field will be assessed for the appropriate '3PL, 'Parcel' or 'Wholesale' aspects of the scheduling engine depending on the 'Carrier Type' of the mandated carrier:



In this example, 'DHLTD' must be used to deliver the order.

6.18 Scheduling using Top Up Process

The 'Top Up Process' has parameters that can be used to decide which orders can be used to 'top-up' which trips:



In this example, the 'HUK' orders can be topped-up onto trips for 'HUK', 'HDS' and 'BAX' networks in that sequence.

The delivery location of the order will be used to assess onto which trip the order can be added and trunk trips can be created to ensure that the order is transported between depots in time for the departure of the delivery trip.

There must be an existing stop on the trip for the order to be added to the same stop on that trip.

The 'Master' locations will be suitable to ensure that the same location code is used in the different networks for the different cost centres for the orders.

6.19 Scheduling using Network Schedule

The 'Network Schedule' will be used to schedule orders between for collection into depots and delivery out of depots, or direct deliveries between supplier and customer locations, using the fixed routes and carrier routes.

This process may be used for cross-docking across country or between countries to include flight trips and sea crossings.

6.20 Scheduling using NHSBT Schedule

The 'NHSBT Schedule' is a specific process to assess the fixed routes and add orders to the trips that have been created for the fixed routes.

This process will be used to schedule orders up to a week in advance.

6.21 Scheduling using Fixed Drop Schedule

Warning: This is an incomplete guide.

The Fixed Drop scheduling engine is a specific process that schedules according to fixed drops on fixed routes.

The fixed drops are stored against each location.

The orders received MUST include an order reference "RUN_NUMBER" set to a valid route code, and that fixed route MUST have a roue end time.

The process can schedule:

- Desk collection jobs onto DSK trips
- Collection/Delivery radial jobs onto fixed route trips labelled as RTE trips (the prefix is configurable through system parameters).
- Trunk movements between depots
- 3rd-party trips routed onto trips labelled as 3PL trips.

Each RTE trip created will be marked with the fixed drop number (visible in the planning screen). Jobs will be placed on the trips in drop number sequence. CL stops will be marked as drop number 999, whilst any jobs automatically planned onto these trips by the route number will be marked as drop 998.

6.22 Scheduling Engine Processing

The different aspects of the scheduling engine will be run in sequence as described above.

Only the orders that have not been marked for manual scheduling, or that have previously been processed automatically, will be processed if the cost centre and the customer allow automatic scheduling.

6.23 Pack Confirmation/Labelling

There are 2 methods of scheduling the order ready for when it is being picked and packed and labelled:

- C-TMS Pack Confirmation

A 'Pack' button can be pressed in the 'Order Summary' and 'Order Details' screens to schedule the order and then print a label to a default printer (for the user and also for the carrier for the user).

These 'Pack' buttons are designed to be used for orders that have been entered manually in C-TMS rather than in the source warehousing system.

Note that the orders can be scheduled automatically when the scheduling engine is running and the orders can be scheduled without delay because the scheduling threshold will not apply to this packing process.

- WMS Pack Confirmation

A pack 'XML' file can be generated from the source WMS system (e.g. 'SAP') to pack the order and print a label optionally.

A pack 'CSV' file can be generated from the source WMS system (e.g. a 'CIPD' file from 'Unison') to pack the order and print a label optionally.

The EDI parameter 'PRINT_LABEL' must be set to 'Y' for a label to be printed to either the advised printer or a default printer for the user.

Note that the order for such pack confirmation must already be scheduled for the label to be printed in the required format for the carrier of the delivery trip.

- Print Label

All of the labels, or a selection of the labels, may be printed or reprinted in the 'Print Label' screen in C-TMS.

However, a fresh set of the labels will be printed via the generation of a new pack 'XML' file from the source WMS system.

6.24 Tracking References

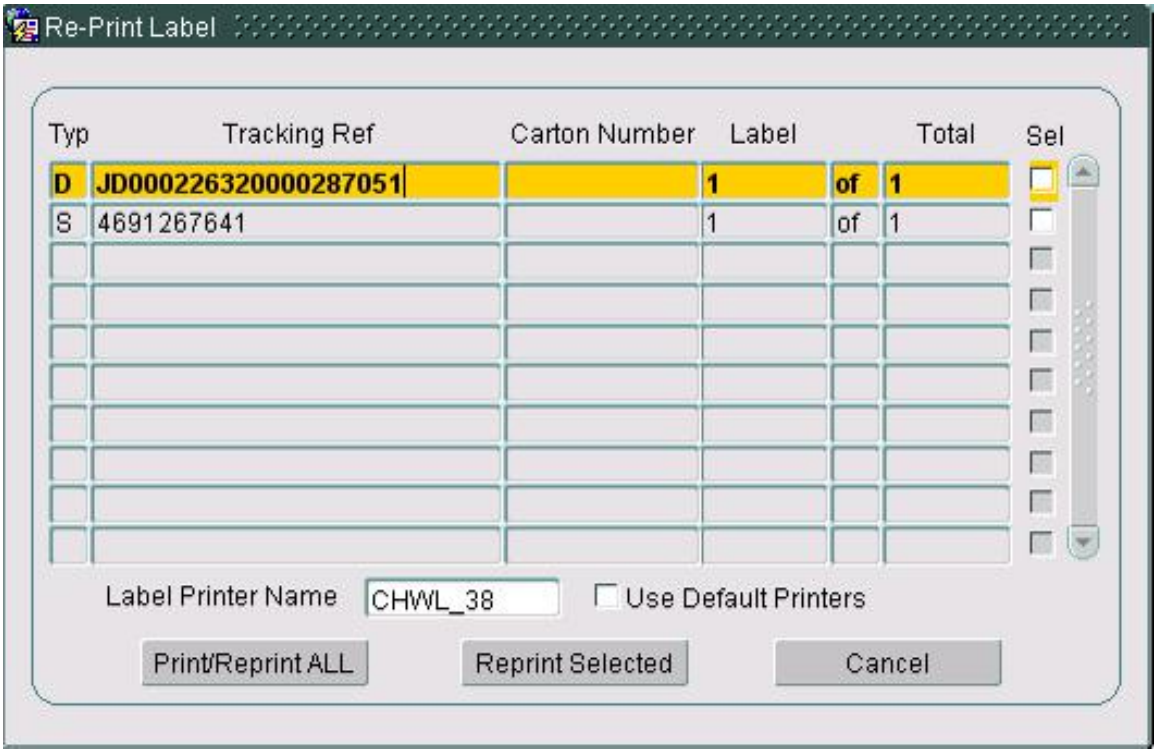
The tracking references will be generated for the labels as they are printed.

These tracking references will be printed on the labels and they will be used by the external carriers for tracking the items for the orders as they are being delivered.

Each carrier can have its own format and sequence numbers so that the labels and the tracking references are unique for that carrier.

The tracking references will be stored against the carton numbers if the order is packed via a 'CSV' file called 'CIPD' from 'Unison'.

The tracking references may be displayed in the 'Print Label' screen in the 'Orders' screen:



6.25 Unscheduling Orders

If an order is unscheduled from its delivery trip, the existing tracking references will be removed because the order will have to be potentially repacked and relabelled when it is rescheduled in case a different carrier is used to deliver the order.

The 'Manual Schedule' flag will be set to indicate that the order will not be reprocessed automatically by the scheduling engine to ensure that the order is not simply rescheduled onto the same trip.

6.26 Manual Trip Planning

The orders can be scheduled manually if they have failed to schedule automatically or they have been unscheduled for replanning.

The same rules can be applied for the manual planning to ensure that the order can be taken by the carrier, the 'TRIP_VALIDATE_PARCEL_ORDER_ASSIGNMENT' system parameter will control this validation when it is set to 'Y'.

The 'TRIP_PREVENT_PARCEL_CARRIER_ASSIGNMENT' system parameter can be used to prevent orders being assigned to trips for 'Parcel' carriers when it is set to 'Y'.

6.27 CITD Files

Files can be generated for the 'Unison' source WMS system to return the tracking references for storage against the packs that have been created there.

The file can be triggered when the trip status is updated to 'ACCEPTED' and the order has been packed in 'Unison' and a carton number has been provided.

6.28 Despatch Confirmation

A check can be performed when the trip is despatched in the trip planning screens to ensure that all of the orders on the trip have been fully packed.

The system parameter 'X' will control this validation for the trips for the external carriers.

Note that the unpacked orders will have to be unscheduled or packed before the trip can be despatched.

6.29 Physical Manifests

A physical manifest may be printed when the trip is updated to 'EN-ROUTE' status.

The physical manifest will be printed to the default printer for the user if the carrier of the delivery trip is setup to print a report.

6.30 Electronic Manifests

An electronic manifest may be generated as a 'XML' file when the trip is updated to a specified status and/or when it is updated to 'EN-ROUTE' status.

The trip status may be specified as an EDI parameter called 'STATUS' (e.g. 'PLANNED' and 'TENDERED').

Some carriers (e.g. 'Polarspeed') cannot accept multiple files for the same order so they will only send a single electronic manifest when the trip is 'EN-ROUTE'.

Other carriers will accept multiple updates as the trip is planned with more orders and when those orders are packed differently.

Only the changes since the last file was generated will be included in the next file for the specified trip status.

6.31 Paragon Considerations

There are limitations for using Paragon to plan all of the orders rather than to plan the orders for the own fleet and then allow the scheduling engine to plan the remaining orders and the orders that have been mandated for an external carrier:

- Paragon will need to assess the individual gazetteer data for the external carriers.
- Paragon will need to assess the shipment size, DU type and product type for the external carriers.
- Paragon will need to derive the carrier service level for the carrier based on the service level of the order.
- Paragon will need to ensure that a mandated carrier is used.
- Any orders that have been printed and that have generated a tracking reference will lose those references if they are unscheduled (which is what Paragon does to respin a trip).
- Some of the labels display a 'Trip ID' so they will need to be reprinted if the order is rescheduled (e.g. 'Standard', 'Penguin').
- Some of the labels display data from the carrier route code name and this route code will not be provided by Paragon (e.g. '(EMA)' and '(OXF)' are translated as the origin code for the DHL Express labels).

- The trip stop times will not be calculated for the external carriers based on the time windows of the orders on the stops but they will be calculated based on the distance and time from the previous stop.
- The trip stop times are used to advise the external carrier when the orders will be delivered in their network via the 'Electronic Manifest'.
- Files may be generated for the 'Electronic Manifest' when the orders are unscheduled temporarily.

6.32 Depot Sweep Processes

Warning: This is an incomplete guide.

The Depot Sweep EDI processes can move orders between schedules automatically if not completed.

These processes are most commonly associated with fixed drop scheduling and are useful for Paragon planning, as the schedule is linked to the Paragon working area for each day.

The fundamental principles are:

- Part of scheduling engine
  - Any order than cannot be planned to look for a further run on that day and automatically plan instead. The process will check the routes and change the order reference to plan onto a different run, reset the manual schedule flag and let the next schedule engine run pick it up. If no runs found on that day, then remains unscheduled (and will be carried forward on planning day end).
- Planning Day end
  - Any orders of any type not fully planned at the end of the day carried forward to next day (including non-working days). The scheduling engine process above will then pick up the order and plan according to the rules above.
  - Expected to be scheduled process once per day, on or around 1830-1900.
- Actual day end
  - Any DSK (Desk Collections) orders that have not been completed (debriefed) at end of day to carry forward to next day and planned automatically onto the next DSK collection trip.
  - Reset any TOTD orders and next day orders that remain unscheduled.
  - Expected to be scheduled process once per day, around (before) 2359.

This is the definition of the automated scheduling and carry-forward rules. It will also be possible to carry an order forward manually (for example, when determining on Monday that you will not deliver until Thursday, you can carry the order forward to Thursday?s schedule manually from the planning screen.

The depot sweep processes can be configured with parameters to control which depot is affected by the process, what route types are affected and what action to take, as shown below:

Parameter	Value	Purpose
DEPOT_SWEEP	Y	Identifies that the EDI process is to perform the depot sweep.
DEPOT	blank or RDC location	Identifies the depot that is affected by this depot sweep, or all depots if blank.
ROUTE_TYPE	COLLECT_DESK	Identifies that the EDI process will assess the orders for the collection desks based on the run number of their route.
ROUTE_TYPE	RADIAL	Identifies that the EDI process will assess the orders for collection from the customers or for delivery to the customers based on the run number of their route.
ACTION	CARRY_FORWARD	Identifies that the EDI process will assess the orders and carry forward any unscheduled orders to the next day.
ACTION	RESCHEDULE	Identifies that the EDI process will assess the orders and unschedule any incomplete orders from their incomplete trips and carry forward any unscheduled orders to the next day.

Note: The Route Type can include a list of types of routes that are separated by a comma.

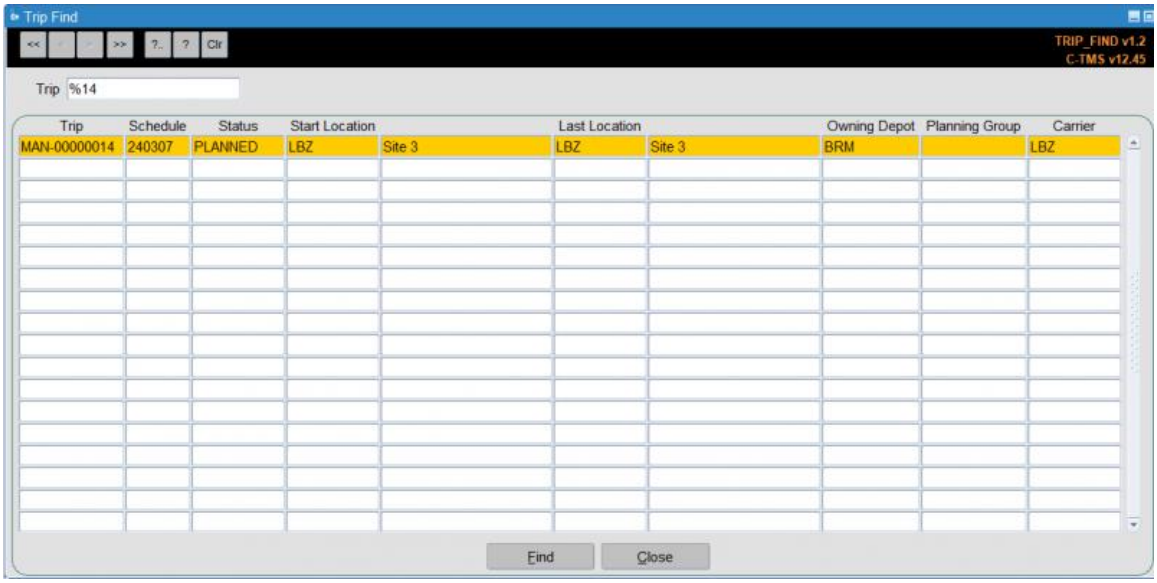
6.33 Potential Developments

There are potential developments to enable the scheduling engine to be more specific for the operations:

- Include a matrix for the deliveries for the own fleet for the carrier routes and fixed routes to indicate when the location will accept the order.
- This matrix would be used to set the order time windows to use the next delivery date for the location should an invalid delivery date be provided.
- The gazetteer data can be assessed instead of the carrier routes if appropriate routes and zones cannot be maintained effectively.

7 Trip Find

You can find trips on this form.



Enter a trip ID or part of a trip ID (with the % wildcard) in the trip box and click the **Find** button.

All matching trips will be shown in the table below.

8 Trip Planning

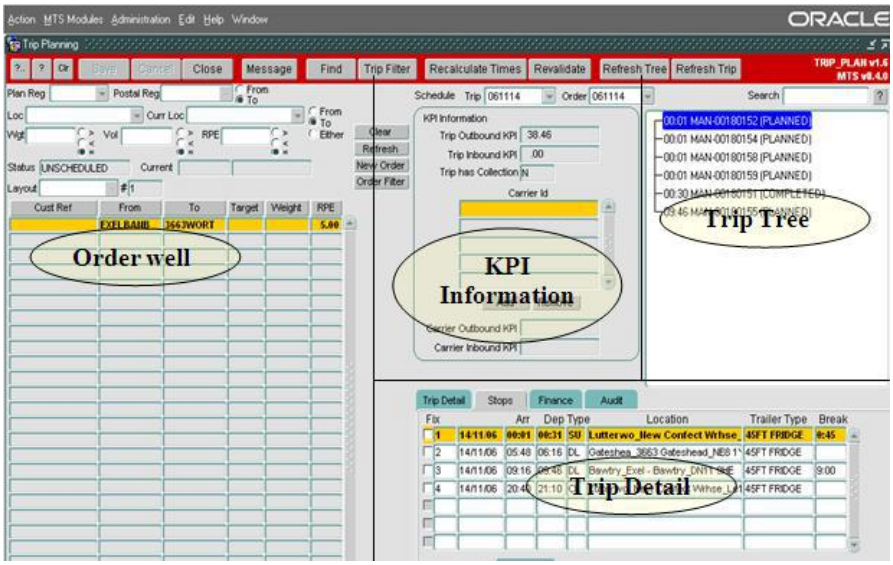
8.1 Introduction

Trip planning can be used for both the pre-planning of trips, and the execution of that plan. A planner will often be responsible for creating the orders and then putting these orders onto trips. Fixed routes will often automate part of this job for users, leaving only a few orders to be assigned to trips up manually using the skill of the planner. There is functionality within trip planning that will aid and guide the planner to making an informed decision.

For instance, the 'point to point' table held in the background of C-TMS holds details of travel times and mileages which will illustrate to the planner the planned arrival and depart times for there trips. This will then work in conjunction with the times populated on the order to show whether the deliveries will be made on time or not. C-TMS will also flag whether the planner is trying to create a trip that exceeds the trailer capacity of the vehicle type that has been allocated to this trip. Further to this, C-TMS can tell the planner if the trip exceeds a pre-set drive or duty time for each driver.

The Transport operator will then be able to allocate resources to the trips, and enter actual trip times and pallets delivered after the driver has returned from their journey.

There are four main sections to the trip planning screen.



8.2 The 'Trip tree' section

The 'Trip Tree' displays the header for the trips contained within the schedule selection (this schedule selection can be made in the top left hand drop down box named 'Sched'. The schedule refers to a date, and is the method of grouping a set of Orders and trips together into one manageable set. The schedule can be daily or weekly). The trip header contains the planned arrival time of the driver at the depot, the unique transport identifier, and the status that the trip is in.

8.3 The 'Trip detail' section

This section will display the detail of the trip that is currently selected within the trip tree section. There are four tabs in this section:

8.3.1 'Stops' tab

This tab displays the different stops on the trip selected. It shows (from left to right) the stop number, the planned arrive and depart time from each stop, the actual arrive and depart times (if this has been keyed within the debrief screen), the type of stop (SU = Start-up, DL = Deliver, PK = Pick-up, CL = Closedown), the name of the location, the type of trailer that has been allocated to the trip, the trailer ID associated with each stop, and where the driver break needs to be taken.

You can also see the orders that have been placed onto the trip within the small box below the main section. In this box you will find the orders that are relating to the stop that is highlighted within the larger section above. Double clicking on the order header will take you into the detail of the order itself, where users are able to amend time windows and pallet quantities.

8.3.2 'Trip detail' tab

This tab will allow for resources such as the carrier, the driver and the tractor registration to be allocated against the trip. There is also a Seal number box which is free text.

Users can also add comments against the trip by right clicking in the general Comments sub tab, selecting 'Add comments' and entering text. To the right of the General comments tab is the Errors tab which will display the rules that have been broken for this trip, which could include the total time of the trip or a broken delivery window. You will also find details such as the total kms, drive time and elapsed time for the trip selected.

8.3.3 'Finance' tab

This tab allows users to view, add or change the costs associated with performing a particular trip when allocated to a sub contractor. Finance can be studied in more detail within the 'Freight Payment' Module. We will however look at assigning a payment to a trip within this Module.

8.3.4 'Audit' tab

This tab enables users to view the history of the trip showing both who has created the trip, and who has amended the trip. It will also show if the trip has been set to another status, and if it has been deleted.

8.4 The 'Unscheduled Order Well' section

This section can be found at the left of the screen, and it displays orders that have not yet been allocated to trips. You are also able to create new orders or cancel existing orders here.

Each line within this 'Unscheduled Order Well' shows you the header information for an unscheduled order. The order ID is a unique sequential number allocated to an order at the time of its creation. The customer reference is an optional field on the order which is often populated when orders are imported into C-TMS. This is because you tend to import your orders from another system which will have its own reference number. You can however input this reference number manually straight into C-TMS.

You can also see where the order is being collected from, and where it is being delivered to. You will also see the region code for that order. This will typically relate to the first two alpha characters of the locations postcodes so that the planner has an idea of its location. Next to the region code is the 4 time windows that make up the collection and delivery window. Lastly you can see the weight, volume and RPE that relate to the quantity of goods that are being moved for that order.

There are several filter options relating to the unscheduled order well section, so that when the planner is undertaking the planning they are able to narrow their search to particular order types.

8.4.1 'Schedule selector'

Can be used to change the set of orders that the order well is showing you. This is a separate filter from the schedule filter found in the trip tree section of the Trip Planning screen. This means that you are able to drag orders from previous or later schedules onto trips that belong to this schedule.

8.4.2 'Region Filter'

Relates to the first two alpha characters of the postcode for a location on the order. This can either be the collection or the delivery location of the order, depending on whether the 'From' or the 'To' check box is selected. Choose whether you are interested in the collection point ('From') or the destination point ('To'), and select the relevant box. The drop down box will now show all the region codes that relate to your chosen location point against each order. Selecting one of these will filter out locations that do not have the region code you have selected (i.e. you are left with orders that are delivering or collecting from your chosen region code).

8.4.3 'Location Filter'

Relates to the order Collection from location, Delivery to location, or both. This is dictated by the check boxes to the right of the location drop down box. By selecting the 'From' check box, the locations within the drop down box will relate to the collect from locations within the orders listed in the unscheduled order well. If you then selected one of those locations from the list, the unscheduled order well would filter out any locations that didn't have your chosen 'from' location as their collection point. Conversely, selecting the 'To' check box will display the delivery locations within the well, and selecting one will filter out any locations that don't deliver to your specified location. The 'either' check box allows you to see and filter both on the collection and delivery locations of the order.

8.4.4 Weights, Volumes and RPEs

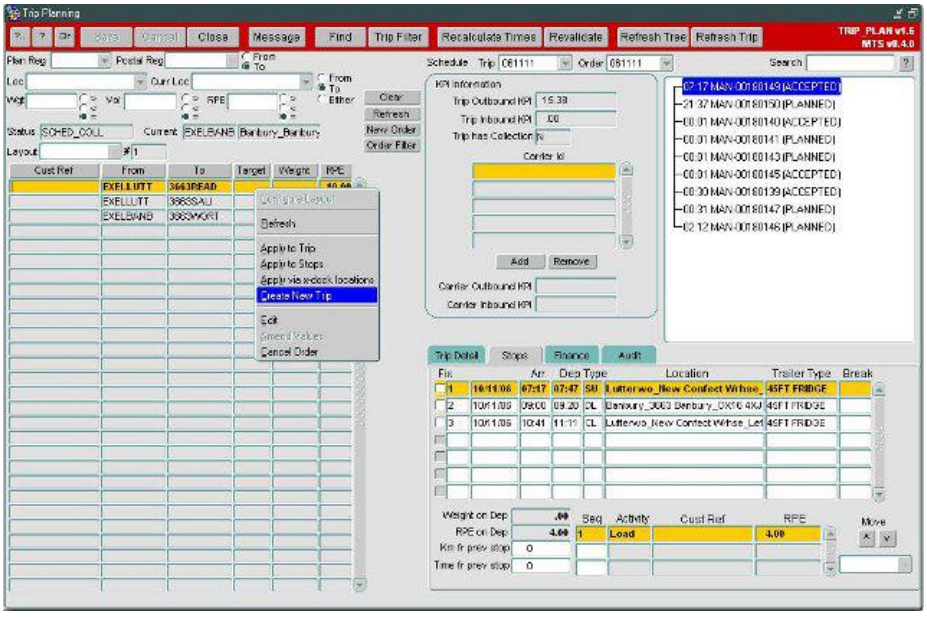
The Weight (WGT), Volume (Vol) and Pallet (RPE) filters all work in the same way. They allow you to filter out orders via the weight, volume or pallets associated with each order in the unscheduled orders well. Selecting the '>' check box and entering a figure in the associated box, will filter out any orders that have less weight, volume or pallets than your specified figure. The '<' check box will give you the opposite result. The '=' check box will keep any orders that have that exact figure on their order as you have keyed into the relevant search box.

8.5 Creating a new order

Although most of your orders will be created through different functionality (such as imports or templates), there may be times when you will need to create an ad hoc order. You are able to do this from within the Trip Planning screen. Start the process off by clicking on the **New Order** button at the bottom right of the screen. This will open up a blank 'Order Detail' screen from which you will be able to enter details of your order. For more details about entering orders see the ORDERS form page.

8.6 Creating a new Trip

Once you have a set of orders ready to plan, you can start to put them onto trips. Select one of your unscheduled orders from the unscheduled orders well by left clicking onto it. Now right click on the order and choose the 'Create new trip' option:



After you have pressed the **Create New Trip** button, your order will have been placed onto a brand new trip It will have disappeared from the unscheduled order well, as it is now scheduled onto a trip.

The trip you have just created will be the one highlighted in blue in the trip tree section of the screen. The detail section of the screen will therefore relate to your new trip. You will see that C-TMS has worked out the arrival and depart times for each of your stops on the trip. This has been driven by your collection and delivery windows on your order. C-TMS will try

and meet the windows, getting to the delivery location as early as is feasible at the start of the delivery window.

C-TMS will then work backwards / forwards from this time to work out the arrive and depart times at depot on the first and final stops. The drive time and distance are worked out from the Network table which sits behind the Trip Planning screen. The Network table keeps a record of the distance and drive time between every location and uses the applicable record when calculating times and distance on a trip.

You will also notice that at each stop, C-TMS has allocated a stop time. This can be worked out by looking at the difference between the planned arrive and planned depart times at each stop. This time will have been taken from the loading / unloading rates allocated to each location within the location maintenance screen. It may also include a break time if the driver has reached the designated limit (usually 4.5 hours drive time).

If you click on the detail tab within the trip detail section of the screen, you may see that a carrier has been allocated to your trip automatically. If this is the case, this will have been due to how you have been set-up as a user within C-TMS. You will have been allocated to a particular carrier, so whenever you create a new trip, this carrier will automatically be allocated to it. You can change the carrier by clicking on the carrier lookup button and selecting a new one from a list (this will be covered in more detail within the resource allocation section later.

8.7 Adding orders to an existing trip

Once you have created a trip, you may want to add further orders to the same trip. To do this select the trip you want to add orders to (if not already selected), and highlight the unscheduled order you want to add to that trip. Right clicking on that order will cause a menu to pop-up where you should click on the 'Apply to Trip' option. Once you have done this you will see that your order has jumped onto the selected trip, and disappeared from the unscheduled order well.

You will notice however that the stops you have just added have no dates or times against them and that the close down stop (CL) is at stop 4 instead of the last stop. To solve all of these problems you will simply need to press the **Recalculate Times** button.

8.8 Manipulating a trip

Once you have added your orders to a trip, you may then want to change the trip around some what. You will be able to manoeuvre stops around, change order details, override C-TMS derived stop times, split trips into two separate trips, merge trips together, and remove stops on existing trips.

8.8.1 Manoeuvre stops

You are able to move a stop up and down the stop order by using the move up **^** and down **v** buttons found at the right hand side of the trip detail section. Simply highlight the stop you want to move and press the relevant move button. In this example then, highlight stop 3 and press the **v** button once. This will have moved that stop up.

8.8.2 Change Order Details

If you need to change an orders planned pallet quantities or order time windows whilst the order is on a trip, you can do. This will often be the case when you have added multiple orders to a trip only to find that because of previous stops on the trip, your order will be arriving late. Also, if you have planned to squeeze 27 pallets onto a trailer that has the capacity to support only 26 pallets, then you may also want to make changes to the pallet quantities.

To do this is an easy process. Simply select the stop that the order is either collected from or delivered to on the trip, and double clicks on the order from within the Order section of trip detail.

Double clicking on the order will effectively drill down into the detail of the order where you are able to edit pallet quantities or time windows accordingly.

If you try to edit the order but C-TMS does not allow you to, this will be because of you access rights. These would have been set-up by your system administrator.

8.8.3 Over-riding C-TMS stop times

As previously discussed, C-TMS will work out the times against each stop on your trip for you. If for some reason you want to change these times against the trip, you can do. To do this you will need to utilise the 'Fixed' functionality. The first column in the trip detail section of the screen is headed 'Fixed'. Clicking in a fixed box puts a tick in that box and has effectively fixed the stop meaning that C-TMS will not recalculate that stops times.

So if you wanted to change the times on the first stop of a trip to start a driver at a later time than C-TMS had allocated, click in the first stops 'Fixed' box. Then change both the planned arrive and planned depart times for this stop. Clicking on the **Recalculate** button will leave the first stops times to how they have been set by you, but change the subsequent stops to reflect the drivers new start time. You are able to fix more than one stop on the trip, but you are unable to effectively fix a stop in the middle of a trip without fixing all previous stops. If you did try to do this, C-TMS will not work backwards to calculate its times.

When you do forcibly change the stop time of a trip, you may notice that you receive a warning message detailing windows that have been broken. Because you are overriding the times on the order, you may well have broken one of the windows on that order. Drill down into the order in question to find out by how much you have broken the window.

8.8.4 Merging two trips together

Most people use Trip Planning to track their drivers workload. Once they have scheduled all their orders onto single trips, they are likely to start looking for trips to put together to create multiple 'gate exit' trips. So a driver may go out and do a delivery, come back to base before collecting a further load for delivery. These two gate exist are likely to be represented originally by two separate trips in C-TMS. So you will need to use the merge functionality within C-TMS to bring those two trips together.

To do this, highlight the first trip you want to merge by left clicking on it within the trip tree section of the screen. You will then need to hold down the 'Ctrl' key on your computers keyboard, and while you are doing this left click on the second trip that you want to merge (again from within the trip tree section of the screen). You will notice that the results of your actions are that both trips are highlighted within the trip tree. You will now need to right click on one of your two trips in the trip tree to bring up the options menu.

Select the 'Merge Trips' option. You will receive a confirmation message telling you that the merge you undertook was successful. One of your trips will have been deleted, and the orders that were on that trip have been moved onto the other trip. C-TMS will have re-calculated the times automatically for you.

8.8.5 Splitting one trip into two separate trips

If you have merged two separate 'gate exit' trips together, but later want to reverse that merge, you will be able to utilise the split functionality. The split functionality will split one trip into two separate trips. This functionality will only work on trips that have multiple gate exits, and will only split at the point of a gate exit.

Select the trip that you want to split by left clicking on the trip within the trip tree section of the screen. You will first need to expand the trip within the trip tree so that all its trip stops are showing. To do this you will need to press the small **+** button to the left of the trip. If there is not a small '+' next to your trip, press the **Refresh Trip** button. Once you have expanded the trip you will need to select the stop where you want the split to take place by left clicking on it. The split will take place above the stop you select, so the stop you select will usually be a pick up at a depot (i.e. the start of the next gate exit).

Now right click on that same stop to bring up the menu options. Select split trip to action the split trip functionality. You will be confronted with a message box telling you that you split has been successful and that a second trip has been created for you to accommodate the second gate exit. You will also notice that the trip does not appear to have changed. This is because C-TMS has not refreshed the screen, so you will need to do it. Press the **Refresh Tree** button to update all the trips with the trip tree. You should now notice the effect of the split functionality.

8.8.6 Removing orders from a trip

If you need to remove an order from a trip there are two ways of doing it. The first involves deleting an entire stop and all of its orders from the trip, and the second is a little more subtle where you are able to remove a single order at a time. To use the 'Delete stop' functionality, highlight the stop you want to delete from within the trip detail section of the screen. Right click on that stop and select the 'Delete Stop' option from the menu.

C-TMS will ask if you are sure you want to delete the stop to which you press the **OK** button. You will notice that the stop has been deleted off the trip. You will have to recalculate the times on the trip as C-TMS has not done that for you. You

will also notice that the order(s) you have removed from the trip do not at first appear within the unscheduled order well at the bottom. To see the order, press the **Refresh** button within the unscheduled order well section.

You can also achieve similar results by using the 'Unscheduled Orders' functionality. This way will allow you to remove single orders at a time from a stop. To do this, highlight the trip that you want the order removing from, by clicking on it from within the trip tree section of the Trip Planning screen. You will then need to highlight the stop on the trip which contains the order you want to remove (remember that the order will be present at two stops on the trip, both where the order is collected and where the order is delivered). Next, highlight the order that you want taking off the trip from within the order section of the trip detail part of the screen.

Now right click on that order and select the 'Unschedule Order' option. You will be given confirmation that your order was removed successfully and the order will drop down into the unscheduled order well automatically. Finally, you will need to recalculate the times on the trip using the 'Recalculate Times' button.

8.9 Adding Resources to a trip

Once you have created a trip, you will then be able to allocate different resources to it. These include the carrier, the driver, the tractor registration, the trailer type and the trailer ID.

8.9.1 Adding a Carrier to a trip

After selecting the required trip from the trip tree section, click on the 'trip detail' tab within the trip detail section of the screen. Within this tab you will see that there is a carrier section. This may already have a carrier populated in it, which would have been derived from your user parameters previously set-up by your system administrator. If this is the case, there is a possibility that you want to change the given carrier and so you can follow the same instructions as if you were adding a new carrier to the trip.

8.9.2 Adding a Drivers name

After selecting the required trip from the trip tree section, click on the 'trip detail' tab within the trip detail section of the screen. Within this tab you will see that there is a Driver section. If the driver name box has a white background, then population of this field will be 'free-text'. This means that you are able to type the drivers name straight into the box. If the box has a grey background then population of this field is via a pre-set driver list. The type of entry is dependant on the way that the carrier you have selected is set up in resource maintenance.

8.9.3 Adding a Tractor Unit

After selecting the required trip from the trip tree section, click on the 'trip detail' tab within the trip detail section of the screen. Within this tab you will see that there is a Vehicle section. It is within this section that you are able to record the tractor registration number of that trip. If the vehicle box has a white background, then population of this field will be 'free-text'. This means that you are able to type the tractor registration straight into the box. If the box has a grey background then population of this field is via a pre-set vehicle registration list. The type of entry is dependant on the way that the vehicle you have selected has been set up in resource maintenance.

8.9.4 Adding a Tractor and Trailer Type

The tractor type is selectable from the main trip stops tab of the trip Planning screen, rather than from the trip detail tab as with the carrier, driver and tractor unit.

Select the trip that you want to allocate a trailer type to from the trip tree section of trip Planning. You may notice that the trailer type for this trip has been pre-populated for you by C-TMS. When you create a trip, C-TMS will look for the most appropriate trailer type for your trip, taking into account the trailers based at the depot and the number of pallets to be moved. This process will have taken place at the time of the trips creation.

Right click on the blank trailer type box of the first stop. This will bring a menu up,from this menu, select the 'Assign Trailer Type' option. This in turn will provide you with an entry box if you know the trailer type ID you can be enter it straight into the Trailer type box and press the 'OK' button or you can use a list of values to select the correct trailer type id.

You are able to add a different trailer type for different stops on the trip (these must be for subsequent collections, rather than stops serviced from the collection picked up at stop one). Simply repeat the process outlined above but starting off by right clicking on the desired stop number rather than the first stop. This will effectively change the trailer type for that stop, and all subsequent stops after it.

8.9.5 Adding a Trailer ID

The trailer ID is selectable from the main trip stops tab of the Trip Planning screen, rather than from the trip detail tab, as with the carrier, driver and tractor unit. Select the trip that you want to allocate a trailer ID to, from the trip tree section of trip Planning.

Right click on the trailer ID box of the first stop on the trip. This will bring a menu up, from this menu, select the 'Assign Trailer ID' option. This in turn will provide you with an entry box.

If you know the trailer ID you can enter it straight into the Trailer ID box and press the 'OK' button. Otherwise, select the trailer ID from the list and press the OK button. Your trailer ID will have been entered into the box so you will now be able to press the OK button. You will then see that the trailer ID you selected has been allocated to the trip.

You are able to add a different trailer ID for different stops on the trip. Simply repeat the process outlined above but starting off by right clicking on the desired stop number rather than the first stop. This will effectively change the trailer ID for that stop, and all subsequent stops after it.

8.10 Other Functionality within Trip Planning

8.10.1 Setting a trips Status

The trip status is a way of signifying to the operation just what stage that trip is at. A status of planned will signify that the trip is still being looked at by the planner and the trip is yet to be finalised. Planned is the status that is allocated to the trip when it is first created. When the planner is happy with the trip they will set the trip to accepted to signify this fact. Alternatively, they may set it to Tendered to show that the trip has been tendered out to a different carrier, and they are waiting for the carrier to accept or decline that piece of work (if the carrier has accepted the piece of work, the planner will then set the trip to accepted). When the driver has left site with their trip, operations will tend to set the trip to en-route. After the driver has returned and the trip has been debriefed within the trip debrief screen, the trip status will be changed to confirmed.

Setting the status of the trip is simple. Highlight your trip within the trip tree section of the screen, and then right click on it. This brings up a menu list where you should select 'Set Status', followed by the status that you want to set the trip to.

C-TMS will ask you a question making sure you want to change the status of the trip, to which you reply 'OK'. You will then notice the status of the trip change to accepted within the trip tree section of the screen.

8.10.2 Creating Trips via Crossdocks

This is new functionality within C-TMS that will allow you to create multiple trips with one order. You are therefore able to emulate a collection at point 'A', a delivery at point 'B', via a crossdock of point 'C'.

The first thing you need to make sure of is that the location ID you are to use as a crossdock has been set up as such within the Maintenance business data screen. The Location Types tab within this screen enables you to set certain locations up as crossdocks. This should be set up by a superuser or a system administrator.

To create your crossdocked trips from within the trip Planning screen, highlight the order you want to use from within the unscheduled order well. Now right click on the same order to bring up the menu box, and select the 'Apply via x-dock locations' option.

The will cause a new screen to appear titled 'X-Dock Order'. This screen will enable you to create the first legs of your crossdocked trips. The final leg will then be created back in the Trip Planning screen as normal.

The top box within this screen provides header information for the order you are to crossdock. This includes the original collection point and the final destination point. The box below it allows you to list the locations that this order will be crossdocked via.

The 'new trip?' box should be ticked if this crossdock trip is to be added to a brand new trip. If you are adding this to an existing trip, un-tick the box and enter the C-TMS trip number into the 'Trip id' box.

When you have entered all the required crossdock locations, press the 'OK' button. This will prompt C-TMS to create all the trips that you have requested via the 'X-Dock Order' screen. The final leg of the trip, the one that delivers the goods to the final destination, is still to be created. You will still be able to see the order you have used to create your crossdock

legs within the unscheduled order well at the bottom of the Trip Planning screen. Select the order and create a new trip from it. This will mean that all legs of the trip have been created and available from within the trip tree section of the screen.

8.10.3 Allocating a cost to a trip (Freight Pay)

There is a lot of setting up involved with freight pay, and this is covered fully in a separate article. This section will show you how to allocate a cost to a trip within the Trip Planning screen after all the set-up has taken place. There are two ways that the cost of a trip can be allocated. These are either manually, or automatically, both of which are covered below:

To allocate a cost automatically (assuming that freight pay has been set up), all you need to do is to allocate the relevant carrier to the trip in question, recalculate the trips times and then set the trip status to 'TENDERED'. You should then select the 'Finance' tab from within the trip detail section of the screen. You should notice that the cost of the trip has been automatically assigned to the trip. In this example the cost of ?150 has been allocated to the trip, with no additional VAT cost.

This automation has been possible because the rate matrices for this carrier have been set-up in the background. If you do not have this set up, you are still able to enter a cost against the trip, but again the relevant set-up must have taken place beforehand. To do this, select your trip and allocate the relevant carrier to that trip. Re-calculate times of the trip and save your changes. Next, switch to the finance tab and press the 'Payments' button. This will bring up the 'payments for trip' screen which details all the payments that have been allocated to the trip so far. At this point this screen will be empty as you have not entered any payments yet.

To enter a payment press the 'New' button at the bottom of the screen. This will take you into the 'Create payment' screen. First enter the payment 'Type'. This will usually be 'Trip haulage' (as in the example below), but may also be payments such as fuel surcharge or demurrage. Next, enter the cost of using the selected carrier for doing this trip (the example below has a cost of ?150 entered). Lastly enter the status of the payment as 'forecast'.

Once you have entered those three pieces of information you can press the 'OK' button to create the payment. This will take you back to the 'Payment for trip' screen where you will see your newly created payment. When you close this screen you will see the payment assigned to the trip. If you want to add further payments against the same trip, you will simply need to repeat the process detailed above.

8.11 KPI Information

KPI information details are included in Trip Planning screen as shown in the first screen shot on this page. The Trip outbound KPI is calculated based on the RPE on the departure figure and the capacity of the trailer, in the example given above the Trip Outbound KPI value of 26/26 = 1.00 or a vehicle fill of 100.00 percent.

If there are any collection, then the Trip has collection flag is set to 'Y'. It is now possible to see that the KPI has been calculated based on the RPE on departure figure and the capacity of the trailer, in this instance 26 RPE. This gives a Trip Outbound KPI value of 1 / 26 = 0.03846 or a vehicle fill of 3.85 percent. The Trip Inbound KPI is based on the vehicle fill after the first PK stop on the trip which is not at the start up location is calculated as the Trip Inbound KPI of 13/26 = 0.50 or a vehicle fill of 50 percent.

The Carrier Outbound and Inbound KPI values are populated, these are calculated based on the totals for the selected carriers and also take into account the different trailer types and capacities associated with each trip.

9 Scheduling Engine - Fixed Drop Scheduling

This guide is intended to show the requirements of running a fixed drop scheduling engine, and what processes can be used with it.

9.1 Overview

The Fixed drop scheduling engine is just one part of the whole fixed drop scheduling processes:

- Order Import with defined Run Number
- Fixed drop scheduling
- Depot Sweep processing

In summary, the process is as follows.

- Order Import with defined Run Number
  - Orders are received and created with a defined Run Number
- Fixed drop scheduling
  - Orders are planned onto the route specified in Run Number
  - They are planned onto the drop specified against that delivery location, unless no config exists for that run/location, when they will be planned as drop 998
  - If they have missed cutoff (the only validation applied to these routes), the process will attempt to carry the order forward to another valid route on that day for that location. If found, the order will be planned.
  - If not found, the order will remain in an unscheduled state, and will not be automatically planned again.
- Manipulation
  - The order can be manually planned.
  - The order can be pushed through the fixed drop scheduling again.
  - The order can be pushed to another day.
- Depot Sweep processing
  - At 1900, a depot sweep process will carry forward any remaining unscheduled orders to the next schedule day, when the scheduling process will begin again immediately, attempting to schedule for the next day.
  - At 2350, any incomplete desk collection orders will be moved to a trip on the following schedule day.

9.2 Configuration

9.2.1 Route Headers

Route headers must be created for all of the routes, specifying:

- ID and description
- Active days
- Start Time
- Cutoff Time
- End Time
- Automatically Scheduled

Ref: Fixed Routes

9.2.2 Route Drops

Locations must be assigned to Route Drops - if not, then the orders for that location will be planned onto the route, but will not be sequenced by drop number - they will be at the end of the trip (drop 998).

Ref: Locations#Route_Details

9.2.3 Paragon Strategic Planning

Should the Paragon Strategic Planning interface be enabled, then any newly created locations will be interfaced to the Paragon Strategic instance. This will then allow Paragon users to route fresh locations onto existing runs, create new runs, move locations around on runs and eventually set the drop numbers.

This information when confirmed will be imported back into Calidus TMS and automatically populate the route header and route drop information.

Any issues importing this information can be viewed within the Calidus Web Service Audit screen, with direction set to Paragon API. This will identify any issues processing the records.

Ref: Paragon_Interface#Strategic_Interface

9.2.4 CSV Upload

If required, route headers can be imported in bulk into CTMS through the configurable imports.

Ref: Imports_Details#FIXED_ROUTE

9.3 Operational

9.3.1 Orders

Orders must have a reference "RUN_NUMBER" specifying a valid route header.

Ref: New_Order#Add_Details_Tab

Orders may also be imported with this reference, through the Trip Order XML, through EDI or the API.

Ref: TripOrder_Interface_XML

The order will be imported as unscheduled (i.e. not INVALID) if the route header specified in the reference exists (so that it can determine the start and end times for the order).

9.3.2 Visibility

It is recommended that Drop Number (as well as Stop Number) is added to the Planning screen, so that the generated drop numbers can be seen.

Ref: Planning#Stops_Tab

9.4 Controlling the Scheduling Engine

The scheduling engine can be automated to run and is completely under user control. Users are able to control which orders are selected by the scheduling engine (based on both Cost centre and customer) and when the scheduling runs and how often.

A cost centre parameter controls which cost centres use the scheduling engine. Multiple parameters may be created for systems with more than one cost centre.

If an order is selected for the scheduling engine, by the cost centre, there is a further level of control available to the user. Users are able to exclude certain customers from the scheduling engine. This is controlled by a flag in the customer

maintenance screen.

A screen has been created to control when the scheduling screen is run. A specific user name has been created with the ability to start and stop the scheduling engine. Users will be able to access the screen to check when the engine is running.

Ref: Scheduling_Maintenance#Scheduling_Engine_Tab

The engine has been created to run several flavours of scheduling, for carrier selection and 3PL carriers. To run the scheduling rules from the fixed routes maintenance screen , users must select the Fixed Drop schedule.

Selecting start will create a database job to run the scheduling functionality. The interval will indicate how often the engine looks for Unscheduled orders and tries to apply the orders to trips. If no minutes are entered, a default value of 15 minutes is entered, to run the engine every 15 minutes.

A status is also available to indicate if the engine is Idle or running. The Audit tab will allow users to see when the engine has run and will report any errors encountered.

9.5 Fixed Drop Processing

The process will assess the order after it is created.

- The order will attempt to plan for the scheduled day.
- The order will attempt to plan onto the run number provided.
- The route will be validated:
    - If the order has missed the cutoff time for the route, then the order will not be planned and will be available for carry forward on the day.
- If no route stop is set up against that location, it will be added to the trip created from that run number on that day with a drop number of 998.
- If the route number does not exist, the order will not be planned and will be available for carry forward on the day.
- If the order remains unplanned, then the process will check for any other route drops configured against that location, looking for routes that may be available later in the day.
- Each is checked (in start time sequence) and validated. If one is found, the order will be planned onto a trip generated for that route, with the drop number set to the drop number of the route drop configuration against that location.
- Failing that, the order will remain unscheduled and will be marked as requiring manual planning.

If an order is selected by the engine, but fails to find a suitable route, a flag will be set next against the order to prevent the engine from attempting and failing to schedule the order every run.

In addition if a user chooses to manually remove an order from a trip, which was applied by the engine, a Manual schedule flag is ticked against the order to prevent the engine from applying the order to the same trip again.

Users are able to manually change the values of the flag to allow an order to available to the engine, or prevent the engine from selecting an order.

9.6 Depot Sweep Processes

Several processes can be set up at a timed interval to carry forward orders from one schedule to the next. It is expected that several would be set up for:

- Carrying over incomplete desk collections at midnight.
- Carrying over unscheduled jobs at various times of the day (generally after cutoff for those jobs).

Ref: Scheduling_Engine_Overview#Depot_Sweep_Processes

9.7 Manual Manipulation

Several manipulations of orders on trips are possible, with particular reference to:

- Manual auto-scheduling reset
- Manual carry forward
- Manual change schedule

Ref:

- Planning
- Planning#Manoeuvre_Stops
- Planning#Transfer_Order(s)
- Planning#Move to Schedule
- Planning#Carry Forward
- Planning#Order Well Section - reset auto scheduling option