Trapeze™
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Austrics Windows Client

Feature Guide

Version 24.2

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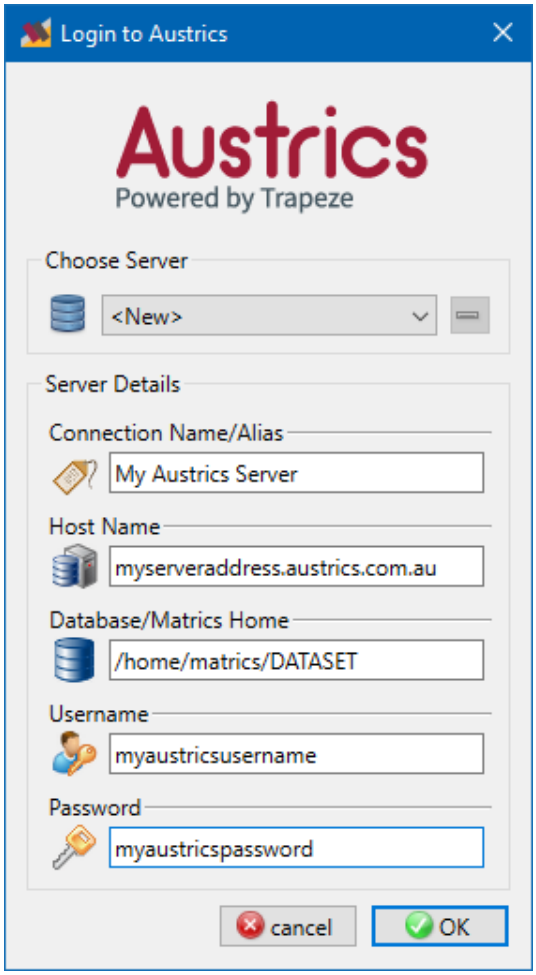
INTRODUCTION

This document is for anyone new to using the Austrics Windows Client. We will highlight some key differences when compared to the Linux Client and provide guidance on some new features.

GETTING STARTED

Login to Austrics

The first time you login, you will have to specify the connection details for your Austrics server.

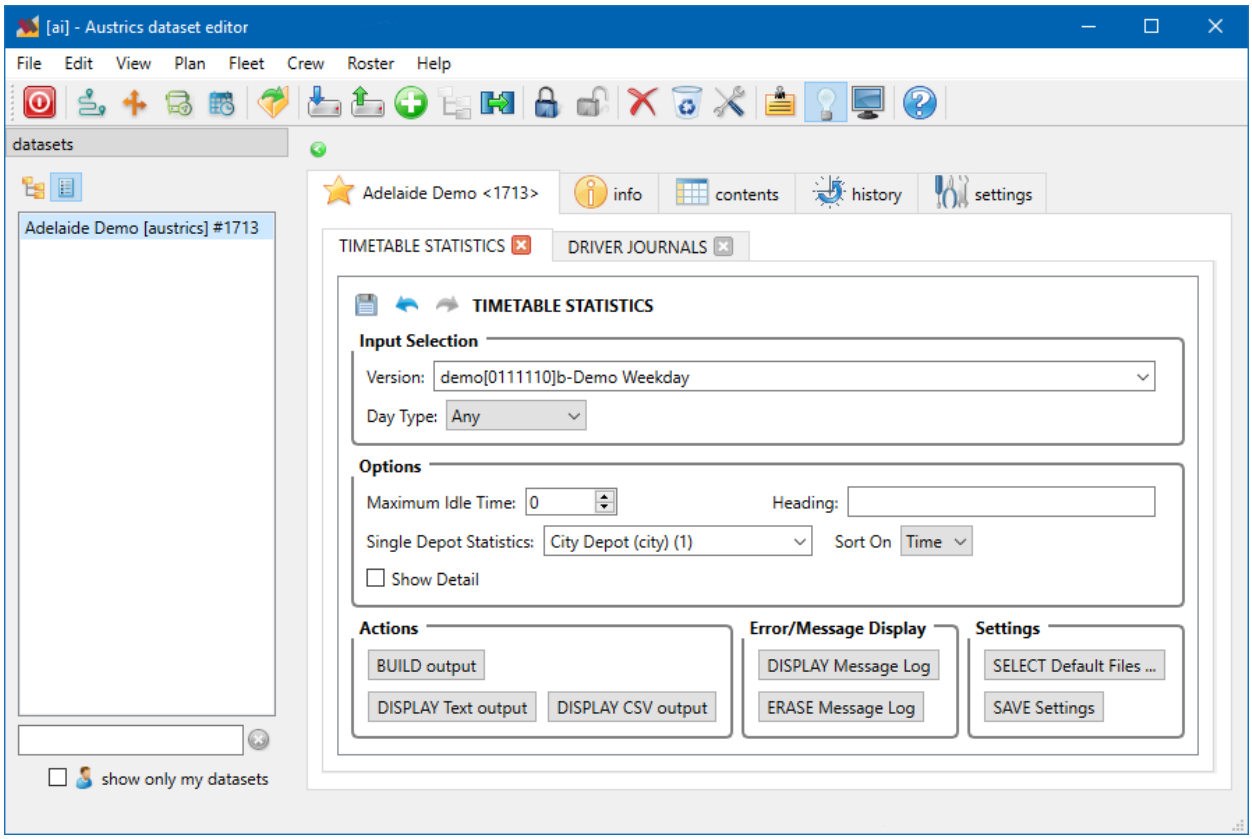


Screenshot 1: The Austrics Windows Client Login screen.

Connection Name/Alias	Enter a name for this connection profile.
Host Name	This is the address for your Austrics server. You can enter either a host name or IP address.
Database/Matrics Home	This is the location on the linux Austrics server where all datasets are stored. This will most commonly be set as **/home/matrics/DATASET**.
Username	Enter the username used to logon to the Austrics server.
Password	Enter the password for the username provided. The password will be saved upon successful login.

The Austrics Dataset Editor (ai)

The *Austrics Dataset Editor* now handles opening all menu items directly. Reports and secondary screens launched from the Plan, Fleet, Crew, or Roster menus open as new tabs within the selected dataset.



Screenshot 2: An example of the Austrics Dataset Editor (ai) loading various screens displayed as tabs.

There are also dedicated buttons to launch any of the primary applications available directly from the main toolbar.

Screenshot 3: The four primary Austrics applications, from left:
Network Planner, Trip Editor, Optimiser Job Manager, Roster Planner

Windows Settings

In the Windows environment, your work folder will usually be located at:

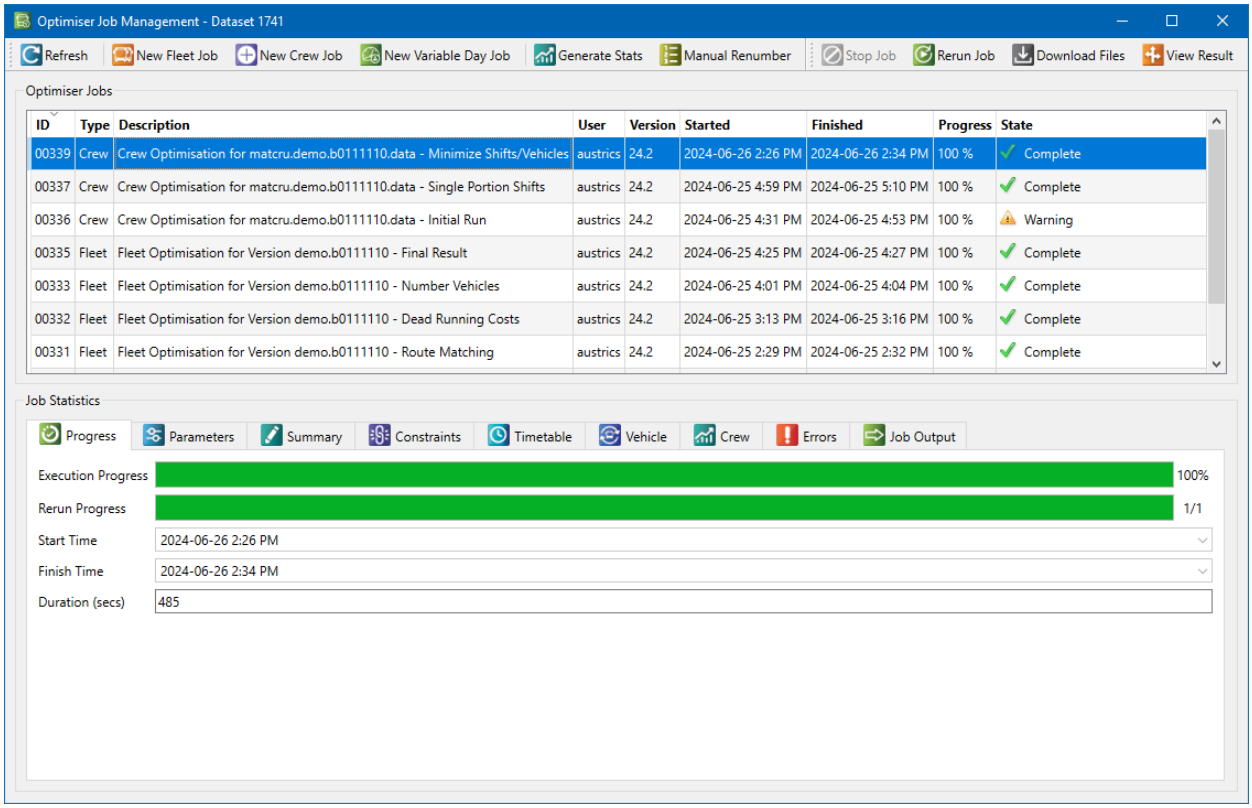
```
C:\Users\<Windows Username>\Austrics\<Connection Name>\<Dataset ID>
```

All output files, log files, temporary files, and data exports will be saved here. Files will open with the default Windows application associated with that file type/extension.

Access your Work Folder for the currently selected dataset through **Edit > Show working directory** or by clicking this button on the main toolbar: 

THE OPTIMISER JOB MANAGER

The *Optimiser Job Manager* is used to setup, run, and view all your Fleet and Crew optimisation jobs. All users will be able to see a complete optimisation job history for the selected dataset and be able to follow the live progress of running jobs started by *any* user.



Screenshot 4: Introducing the Optimiser Job Manager.

The step-by-step format for setting up jobs allows for more validation of the data being used before a job is launched.

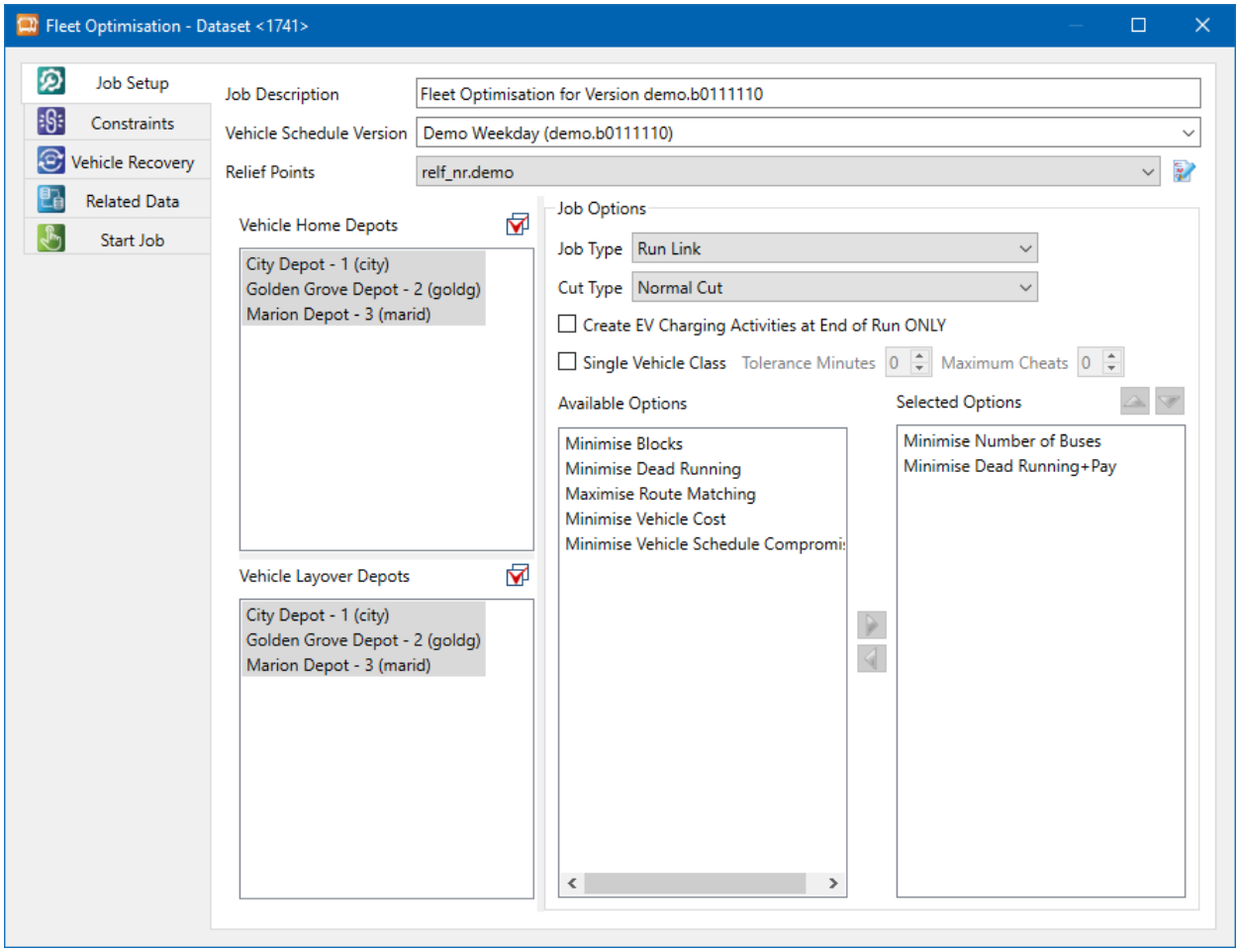
New Fleet Job

Click **New Fleet Job** to start a new Fleet Job, which may also be known as a linking job or service optimisation.

Job Setup

The *Job Setup* step is where you'll begin to choose the data, settings, and objectives for this job.

Job Description	This descriptive text will be displayed alongside the job entry in the main Optimiser Job Management screen.
Vehicle Schedule Version	Select the vehicle schedule to be used for this Fleet Job.
Relief Points	Choose the Relief Point file that contains the depots to be considered for this job.
Vehicle Home Depots	Choose the home depots from which the runs should be created.



Screenshot 5: The Fleet Optimisation > Job Setup step for a New Fleet Job.

Vehicle Layover Depots	(Optional) You may select specific depots that should only be considered for the vehicles to layover
Job Type	Choose *Run Link* for a standard Fleet Optimisation job or *Run Link with Tolerance Minutes – No Trip Overlaps* to allow for cheats within the tolerance provided. See below.
Cut Type	Choose from *Normal Cut*, *Quick Cut*, or *Deep Cut*.
Create EV Charging Activities at End of Run ONLY	If checked, this setting forces all charging activities for electric vehicle classes to be generated at the end of their runs for overnight charging scenarios. If unchecked, charging activities will be generated each time the electric vehicle returns to a valid depot.
Single Vehicle Class	If checked, the optimiser will run a simulated job assuming all trips are using a single vehicle class. This can be used to determine how trip vehicle class restrictions may be affecting the cost of the result.
Tolerance Minutes	Used for Job Type *Run Link with Tolerance Minutes*. This specifies the maximum number of minutes the optimiser should consider deviating from scheduled times and rules to achieve a better result.
Maximum Cheats	Used for Job Type *Run Link with Tolerance Minutes*. This specifies the maximum number of deviations within the *Tolerance Minutes* setting that should be allowed to reduce the vehicles used by one.

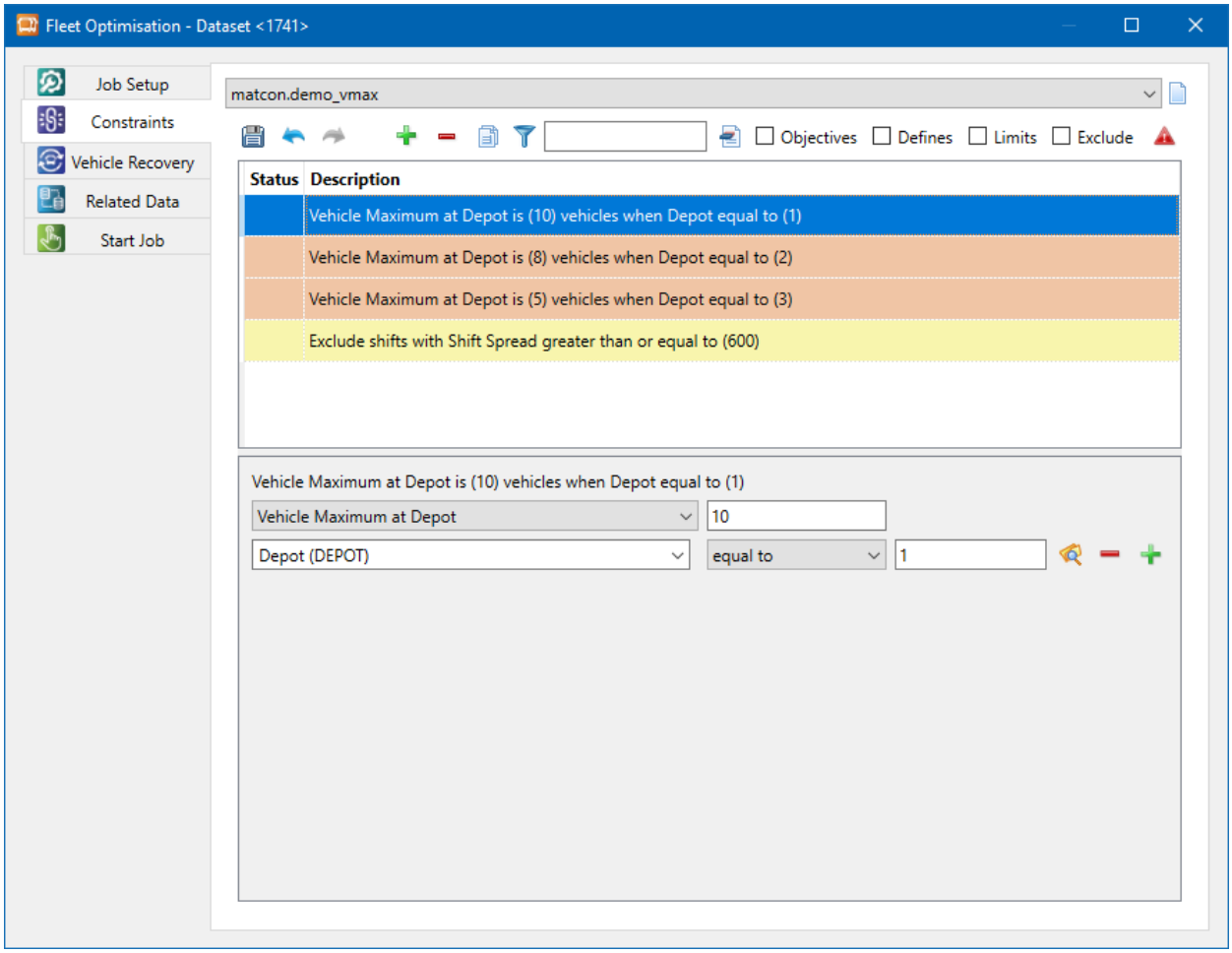
Available Options	These are the available optimisation objectives that can be used. Select the options you wish to use and press the ▶ button to add them to the *Selected Options* list on the right.
Selected Options	Optimisation objectives added from the *Available Options* list appear in this list. Press the ◀ button to remove options from this list. The options are displayed in priority order, with the highest priority given to the top option. Use the ▲ button to increase the priority of a selected option, or the ▼button to decrease its priority.

Constraints

The *Constraints* step allows you to select, create, or edit a constraints file (matcon) to use for this job.

Multiple constraint records can be viewed alongside each other, with automatically generated descriptions to identify each record at a glance. Selecting a record from the upper section of this editor will allow you to edit the record details in the lower section of the editor.

There are now drop-down lists for the constraint type and conditions/keywords fields, as well as selectors for choosing values based on the existing data. You can add or remove conditions from the constraint record by using the plus and minus buttons at the send of each row.



Screenshot 6: The Fleet Optimisation > Constraints step.

Note: Any crew specific constraint records will be ignored by the Fleet Optimisation process.

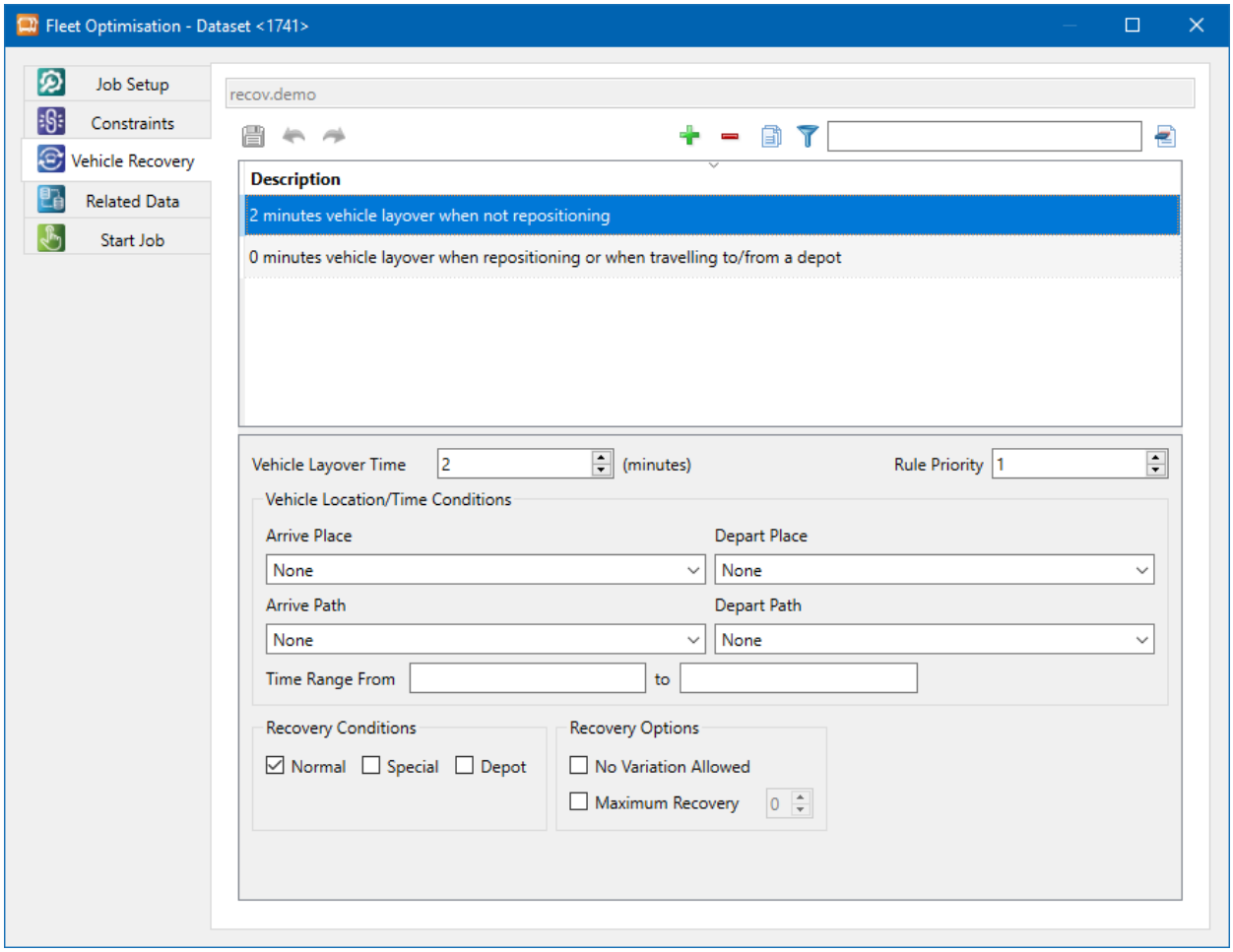
Vehicle Recovery

The *Vehicle Recovery* step allows you to edit recovery records for the file associated with the Vehicle Schedule in the *Job Setup* step. You can change this file from the *Edit Vehicle Schedules* panel in the Trip Editor.

In a similar manner to the Constraint editor, multiple recovery records can be viewed alongside each other, with automatically generated descriptions to identify each record at a glance. Selecting a record from the upper section of this editor will allow you to edit the record details in the lower section of the editor.

The order of the records shown here is the order in which the optimiser will look for matching conditions to apply the recovery rules specified.

Please refer to the standard help documentation for a description of all the recovery file record fields.

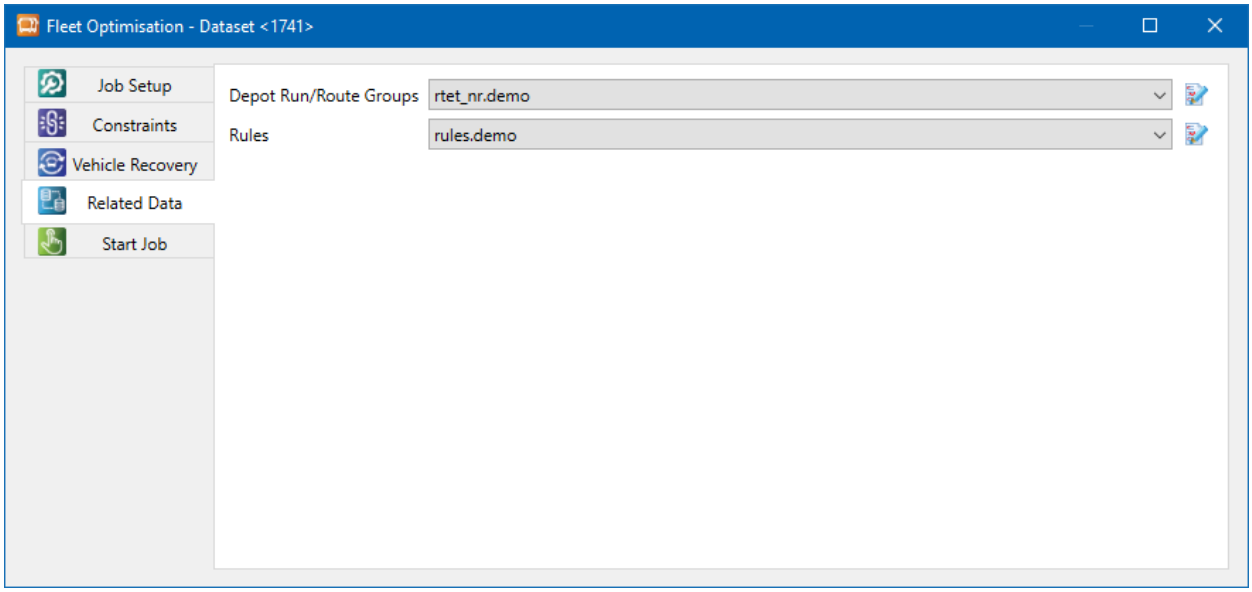


Screenshot 7: The Fleet Optimisation > Vehicle Recovery step.

Related Data

The *Related Data* step allows you to select the Depot Run/Route Groups file (rtet_nr) and Trip Rules file (rules) to use for this job. The initial files selected here are based on what has been defined for the Vehicle Schedule selected in the *Job Setup* step.

These files can also be edited directly from this screen by pressing the edit button on the right of each file selector.

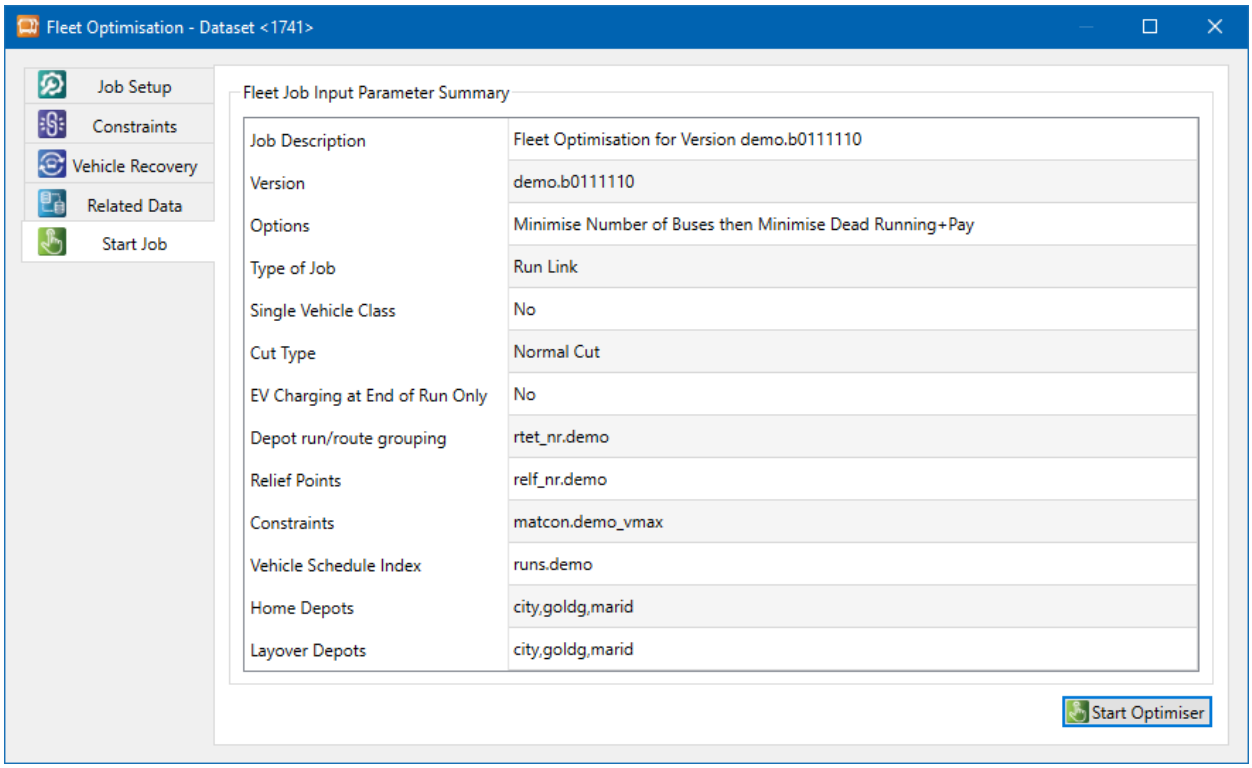


Screenshot 8: The Fleet Optimisation > Related Data step

Start Job

The *Start Job* step provides a summary of data and parameters selected for the Fleet Job to be submitted, allowing for one final check before starting the job.

Once you are ready to proceed with starting the Fleet Optimisation job, click the **Start Optimiser** button.



Screenshot 9: The Fleet Optimisation > Start Job step.

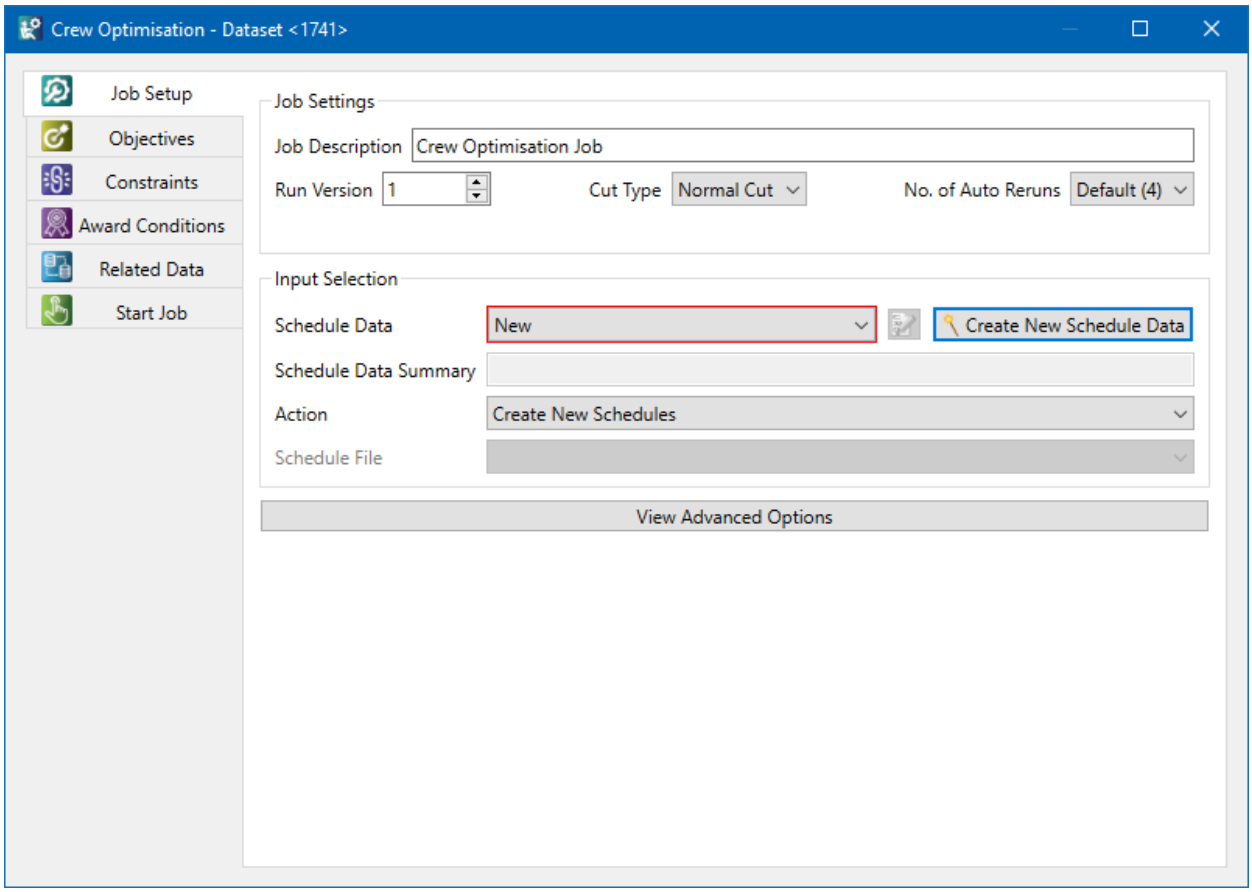
The Fleet Job will be submitted and visible from the main Optimiser Job Management window.

New Crew Job

Click **New Crew Job** to start a new Crew Job, which may also be known as a run-cutting job or shift optimisation.

Job Setup

The *Job Setup* step is where you'll define the settings and schedule data for this job.



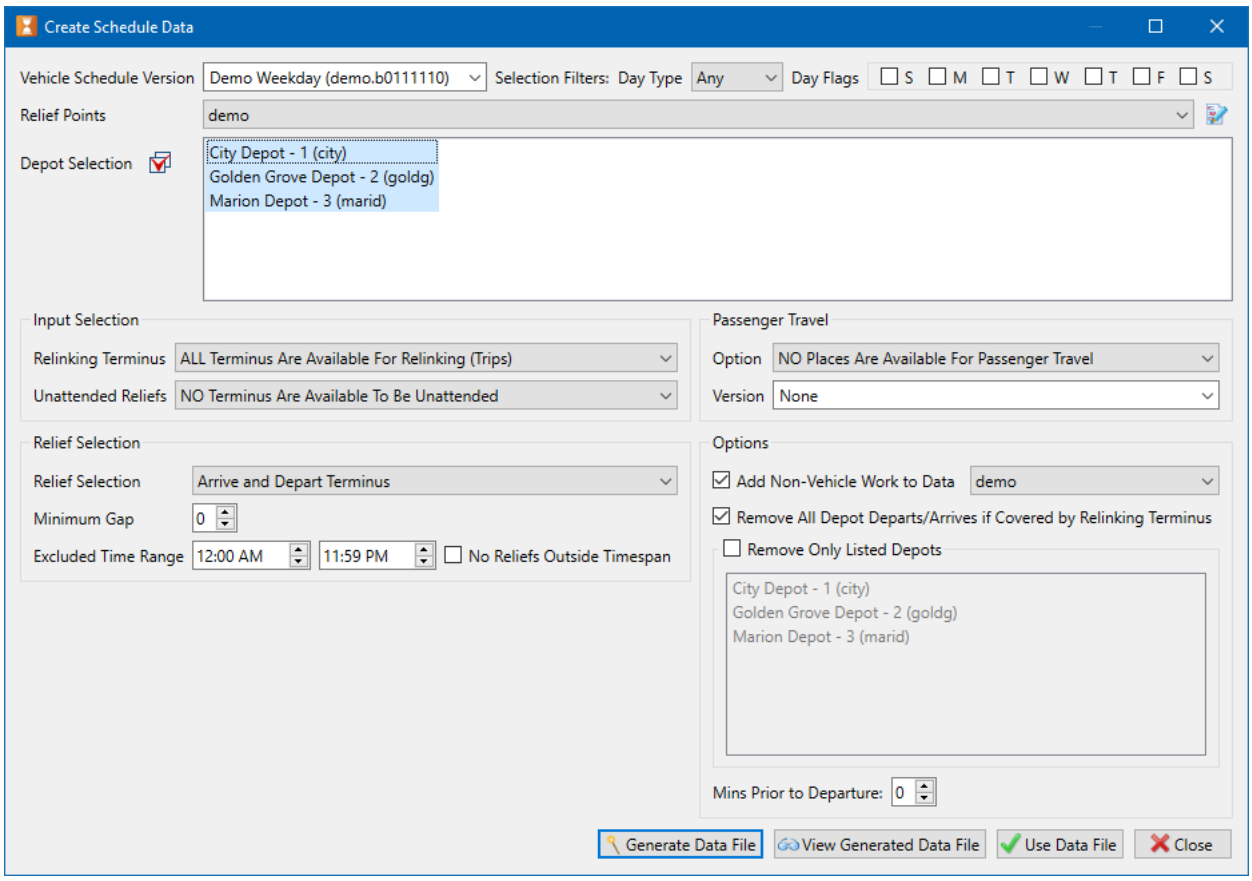
Screenshot 10: The Crew Optimisation > Job Setup step for a New Crew Job.

Job Description	This descriptive text will be displayed alongside the job entry in the main Optimiser Job Management screen.
Run Version	This is the run version number to be used for this job.
Cut Type	Choose from *Normal Cut*, *Quick Cut*, or *Deep Cut*.
No. of Auto Reruns	Automatic Reruns allow the Optimiser to have multiple attempts at improving on its previous best result. The higher this number, the longer the job will take to run but the end result may be better. Four is a good default for *Normal Cut* jobs, and values up to 10 can be used for complex jobs. Values above 10 are best used with *Deep Cut* jobs.
Schedule Data	Select *New* and click **Create New Schedule Data** to being the process of creating a new input data file for this job. Otherwise, select a previous generated data file from the drop-down list and optionally click **Edit Existing Schedule Data** to regenerate the file with new parameters. Schedule data files are saved to your local work folder.

Action	Choose *Create New Schedules* or *Improve Existing Schedules*.
Schedule File	The schedule file to be improved if *Improve Existing Schedules* is chosen.
View Advanced Options	Click to unroll additional advanced options available for this job. Please refer to the standard help documentation for more details.

Create Schedule Data

Before a *Crew Job* can be run, the schedule data needs to be created. This provides this optimiser with details for relief possibilities, optional passenger travel, non-vehicle work, depot usage, relinking options, and more parameters specific for this job.



Screenshot 11: The new Create Schedule Data window.

Please refer to the standard help documentation for details of the fields available here.

Click **Generate Data File** to launch the Schedule Data Creation process. A window will be displayed to follow the process and once the task is complete, you may click **Quit** to close this output window.

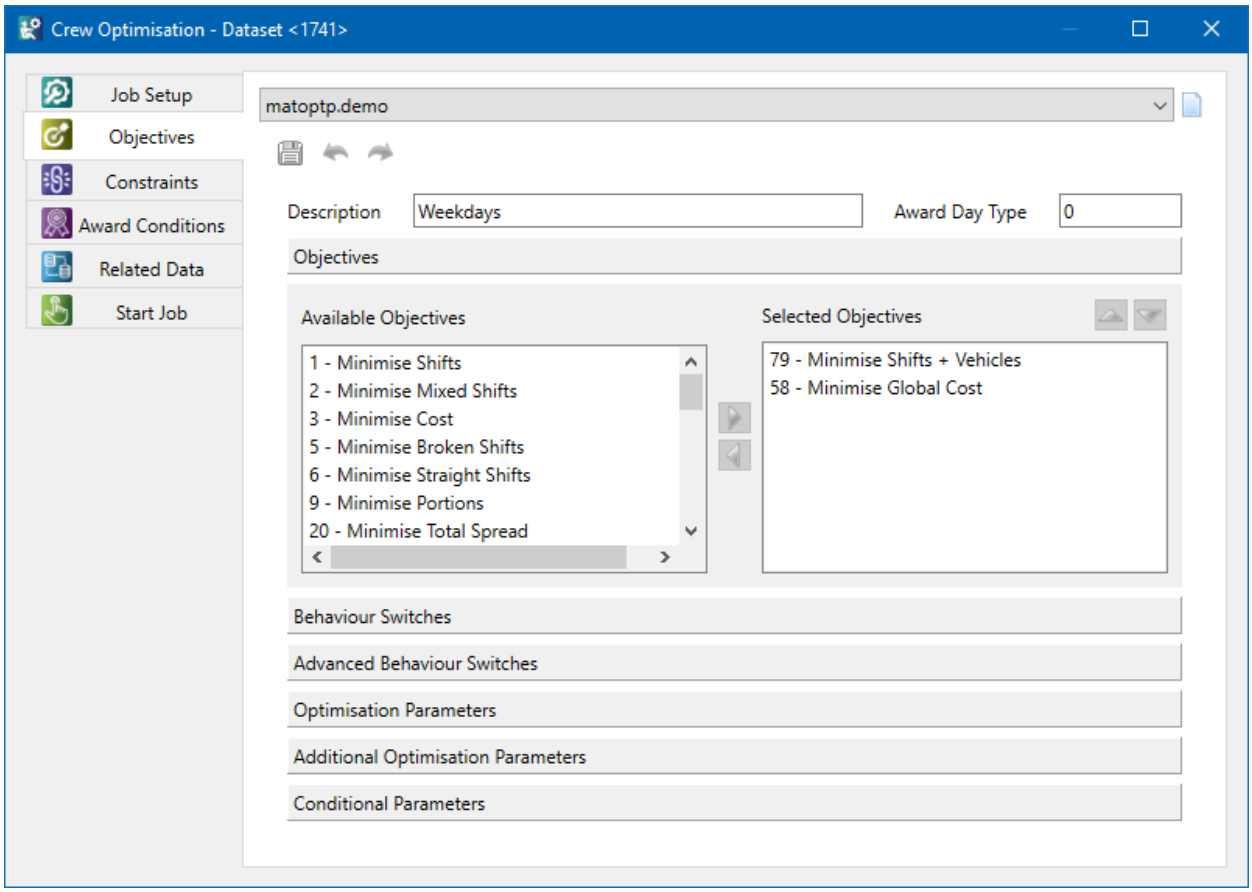
Optionally, you may click **View Generated Data File** to inspect the data file prior to proceeding to use it for the Crew Job.

To proceed with this file, click **Use Data File** and you will be returned to the **Job Setup** step with the newly generated schedule data file now selected for use.

Note: The generated schedule data file (e.g. matcru.demo.b0111110.data) is saved to the local work folder for the dataset being used.

Objectives

The *Objectives* step is where you will edit the optimisation objectives for this job along with further advanced parameters related to this job. These are saved to the **matoptp** file that is selected at the top of the editor.



Screenshot 12: The Crew Optimisation > Objectives step.

Available Objectives
These are the available optimisation objectives that can be used. Select the objectives you wish to use and press the ▶ button to add them to the *Selected Objectives* list on the right.

Selected Objectives
Optimisation objectives added from the *Available Objectives* list appear in this list. Press the ◀ button to remove items from this list. The objectives are displayed in priority order, with the highest priority given to the top objective. Use the ▲ button to increase the priority of a selected objective, or the ▼ button to decrease its priority.

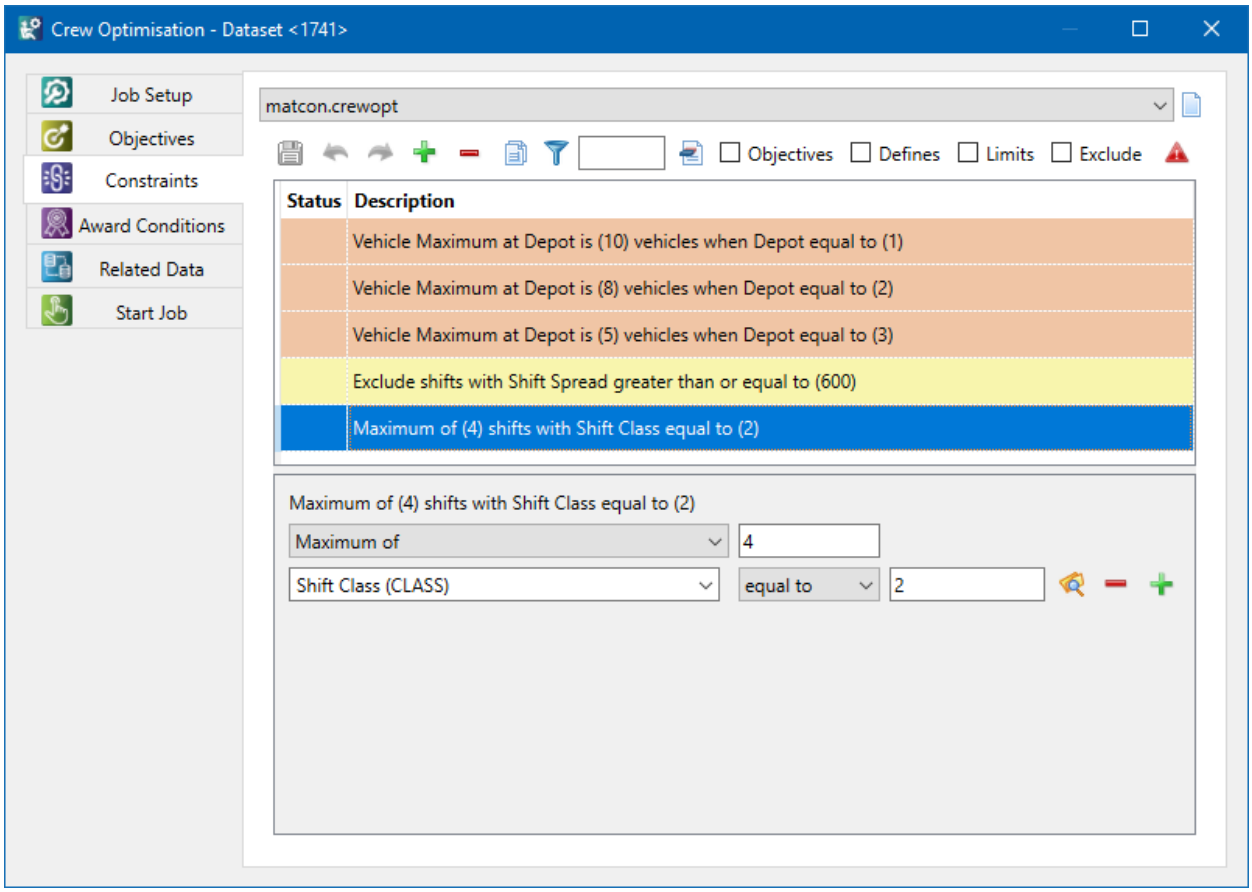
Please refer to the standard help documentation for further details on the additional options available in this editor.

Constraints

The *Constraints* step allows you to select, create, or edit a constraints file (matcon) to use for this job.

Multiple constraint records can be viewed alongside each other, with automatically generated descriptions to identify each record at a glance. Selecting a record from the upper section of this editor will allow you to edit the record details in the lower section of the editor.

There are now drop-down lists for the constraint type and conditions/keywords fields, as well as selectors for choosing values based on the existing data. You can add or remove conditions from the constraint record by using the plus and minus buttons at the send of each row.



Screenshot 13: The Crew Optimisation > Constraints step.

Please refer to the standard help documentation for details on available constraint types and conditions that can be specified.

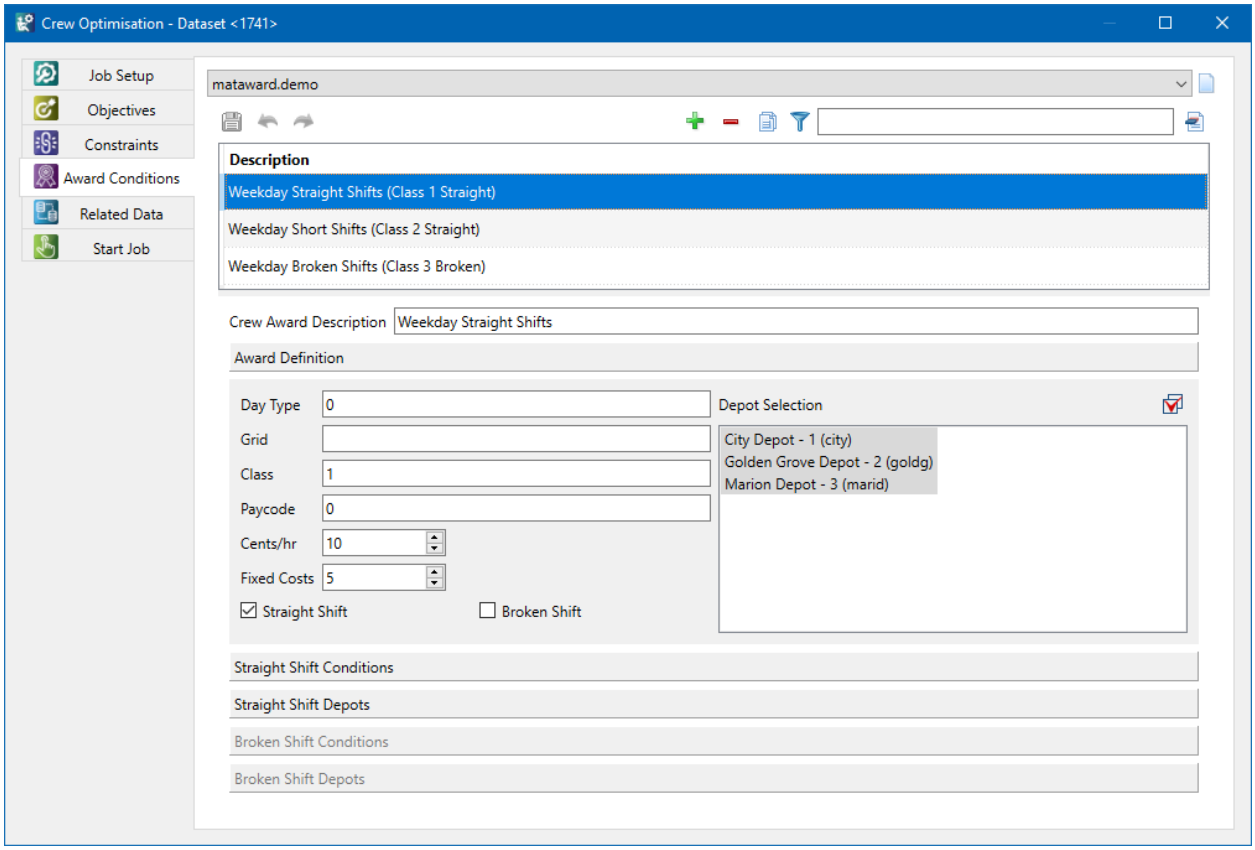
Award Conditions

The *Award Conditions* step allows you to select, create, or edit an award file (mataward) to use for this job.

In a similar manner to the previously seen editors, multiple award condition records can be viewed alongside each other, with automatically generated descriptions to identify each record at a glance. Selecting a record from the upper section of this editor will allow you to edit the record details in the lower section of the editor.

Click the desired header in the lower section of this editor to expand the fields for *Award Definition*, *Shift Conditions*, and *Shift Depots*.

Please refer to the standard help documentation for a description of all the award file record fields.

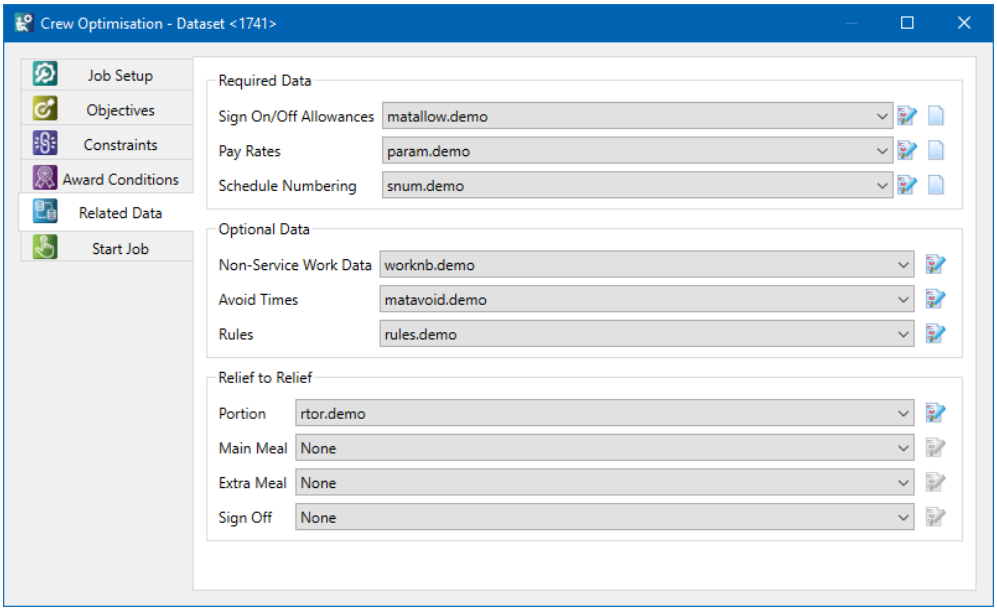


Screenshot 14: The Crew Optimisation > Award Conditions step.

Related Data

The *Related Data* step allows you to specify other files to use for this job. The initial files selected here are based on what has been specified in the default files and the files used to create the schedule data.

These files can also be edited directly from this screen by pressing the edit button on the right of each file selector.

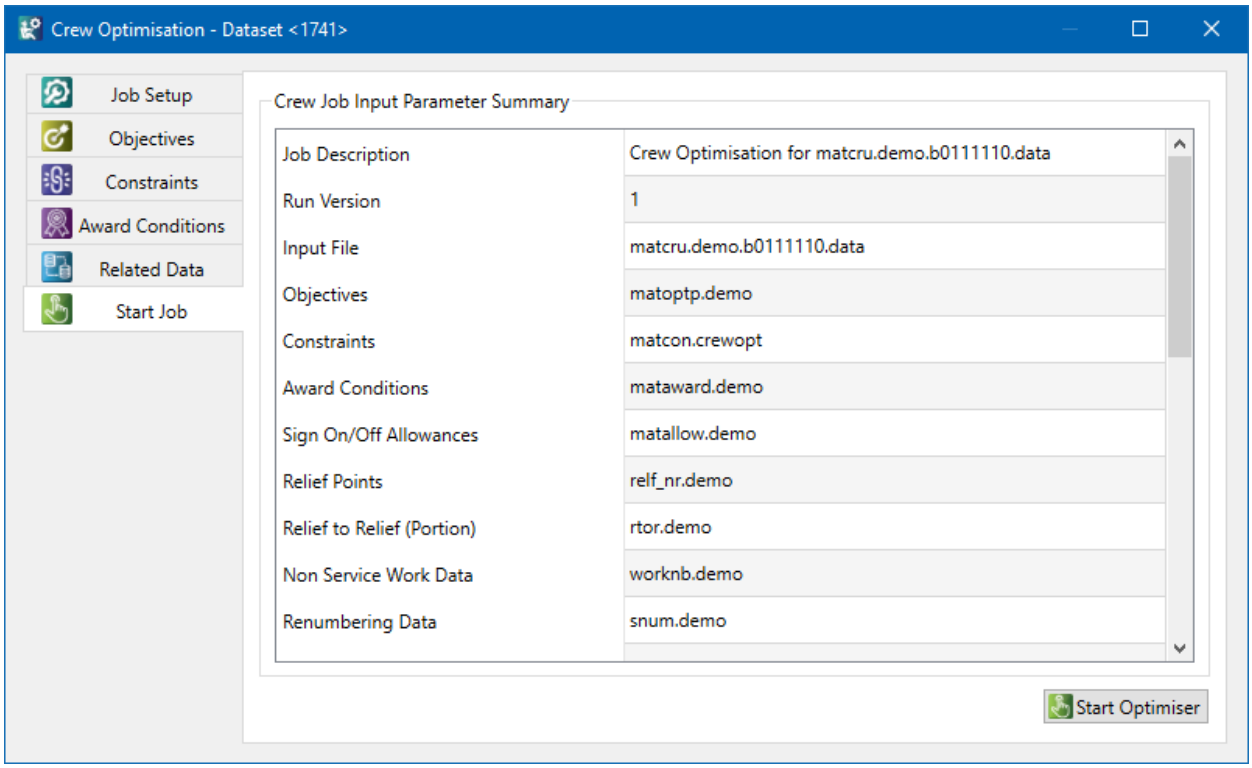


Screenshot 15: The Crew Optimisation > Related Data step.

Start Job

The *Start Job* step provides a summary of data and parameters selected for the Crew Job to be submitted, allowing for one final check before starting the job.

Once you are ready to proceed with starting the Crew Optimisation job, click the **Start Optimiser** button.



Screenshot 16: The Crew Optimisation > Start Job step.

The Crew Job will be submitted and visible from the main Optimiser Job Management window.

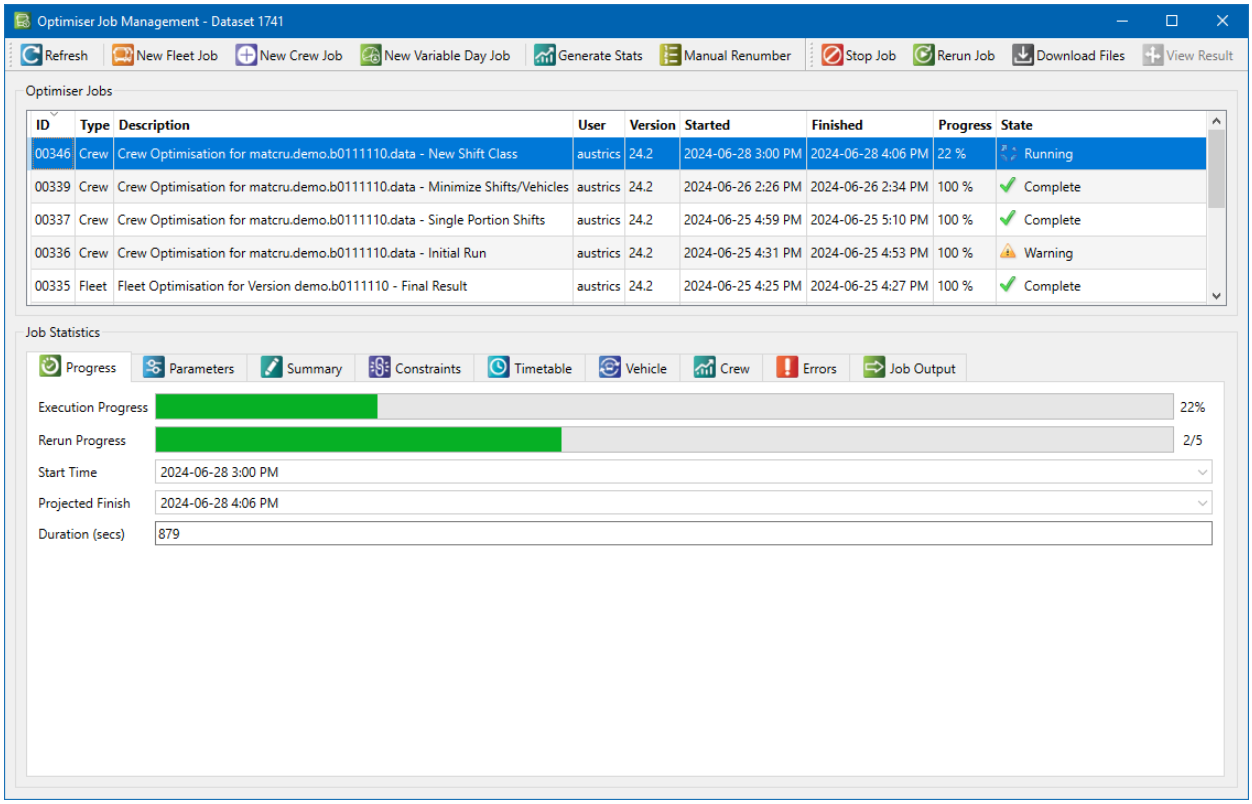
Job Statistics

The *Job Statistics* section of the Optimiser Job Management window allows you to monitor the live progress of currently running jobs, view and export statistics of completed jobs, see details on errors and warnings, compare details between two or more jobs, and view the output of a job directly.

Progress

The *Progress* tab will show the progress of a currently running job, and other details for completed jobs.

Execution Progress	This bar will show the estimated progress of the current run of the optimisation process.
Rerun Progress	This bar will show which stage of the total reruns is currently in progress.
Start Time	The time this job started.
(Projected) Finish	The projected time the job is expected to finish, or the actual time the job finished.
Duration (secs)	How long (in seconds) this job has been running, or how long the job took.



Screenshot 17: An example of monitoring a Crew Job in progress.

Parameters

A list of the parameters and files used to run this job. Similar to the *Start Job* summary screen.

Summary

The final summary statistics for the hard constraints, and objectives specified for this job, along with some other key statistics. Click **Export** to save the data to a CSV file.

Constraints

A table showing all the constraints given for this job and their pass/fail status and count (where applicable). Click **Export** to save the data to a CSV file.

Timetable

The timetable statistics for this job, showing distance, minutes and costs for depot travel, recovery, idle time, repositioning, special service, and service running. Click **Export** to save the data to a CSV file.

Vehicle

A breakdown of vehicle statistics by vehicle class and depot. Click **Export** to save the data to a CSV file.

Result *(Fleet Job only)*

Some key vehicle statistics relating to a Fleet Job. Click **Export** to save the data to a CSV file.

Crew *(Crew Job only)*

A table showing crew related statistics (when available) for various shift activities. Click **Export** to save the data to a CSV file.

Errors

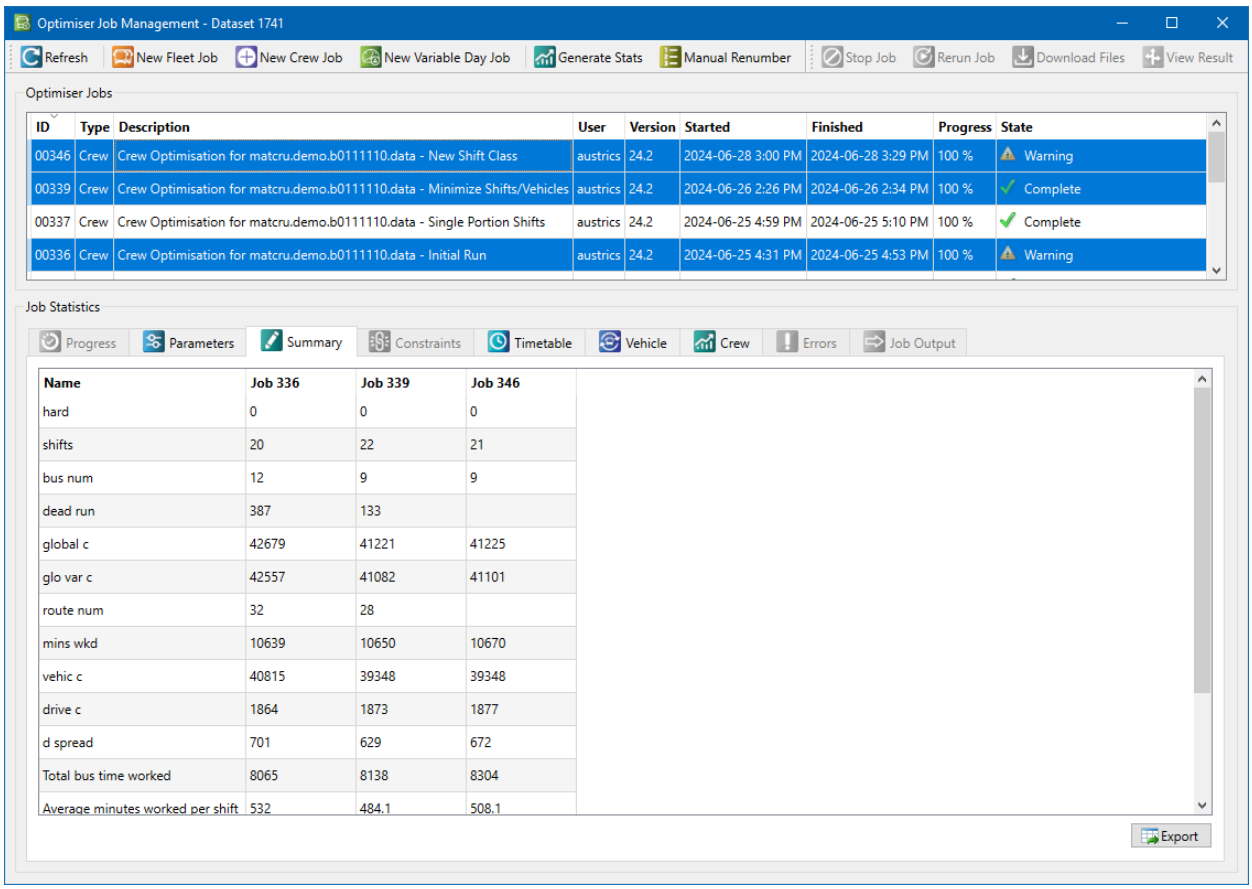
Any errors or warnings related to the job will be displayed here. Click the Errors button to show/hide error messages, and the Warnings button to show/hide warning messages.

Job Output

The direct output from the job as it ran will be displayed in this tab. You can search the output with the **Find…** button, or click **View in Text Editor** to open the output in the default text editor for Windows.

Comparing Multiple Jobs

Compare multiple job statistics in the main Optimiser Job Management window by holding down CTRL and selecting the jobs you wish to compare. The *Parameters*, *Summary*, *Timetable*, *Vehicle*, and *Crew*/*Result* statistics tabs will all display key data in a column format for comparison and you can click **Export** to save the comparison data to a CSV file.



Screenshot 18: Comparing multiple jobs in the Optimiser Job Manager.

Generate Statistics

The **Generate Statistics** button will load the *Crew* > *Reports* > *Schedule Breakdown Statistics* report in the Austrics Dataset Editor for the current dataset.

Manual Renumber

The **Manual Renumber** button will load the *Crew > Renumber Schedules and Files to Database* tool in the Austrics Dataset Editor for the current dataset. This is helpful in the case of the Schedule Renumbering process needing to be rerun after a job has been completed.

Stop Job

The **Stop Job** button will force a running job to stop immediately.

Rerun Job

The **Rerun Job** button will commence the process for a new job of that type pre-filled with the same parameters used for the selected job. This is helpful when making small tweaks to previously run jobs.

Download Files

The **Download Files** button will download all files related to the selected job and place them into the current work folder.

View Result

The **View Result** button will open the Vehicle or Crew Schedule in the Trip Editor for inspection.

Automatic Archiving

To avoid quickly running out of disk space on your Austrics server, job data is archived as follows:

- *Download Files* is only available for jobs run in the past 7 days.
- *Job Output* is only available for jobs run in the past 20 days.
- *Job Statistics/Errors* are only available for jobs run in the past 90 days.
- The job entry itself will be removed after 365 days.

UPDATING

Follow these steps when updating to a new version of Austrics.

Austrics release versions are in the format **MM.M.m-b** where **MM.M** is the major version, **m** is the minor version, and **b** is the build number.

For example, **24.2.2-601** to **24.2.3-603** would be a *minor* release update, while **24.1.4-578** to **24.2.1-597** would be a *major* release update.

> The following instructions can only be performed ***after*** a new version has been installed on the Austrics server.

Patch Updates (Minor Versions)

You can update to a new minor release version in one of two ways:

1. From the Dataset Manager simply go to **Help > Check For Updates** and follow the instructions, **or**
2. Locate the **Austrics Maintenance Tool** in your Start Menu, select *Update components* and click **Next**. Then follow the on-screen instructions.

Installing a New Release (Major Version)

To install a new major release, you must use the **Austrics Maintenance Tool**.

1. Locate the **Austrics Maintenance Tool** in your Start Menu, select *Add or remove components* and click **Next**.
2. Select the new Austrics version to be installed and then click **Next**.
3. Click **Update** to perform the installation, then **Finish** to exit the **Austrics Maintenance Tool**.
4. You will now find a new icon available in your Start Menu for the new version that was installed.

Online Release Notes

All the latest Release Notes can be accessed online via the Austrics Dataset Editor under the *Help* menu, *Austrics Release Notes*.