



CONNECTIONS ANALYSER

USER GUIDE

SEPTEMBER 2017

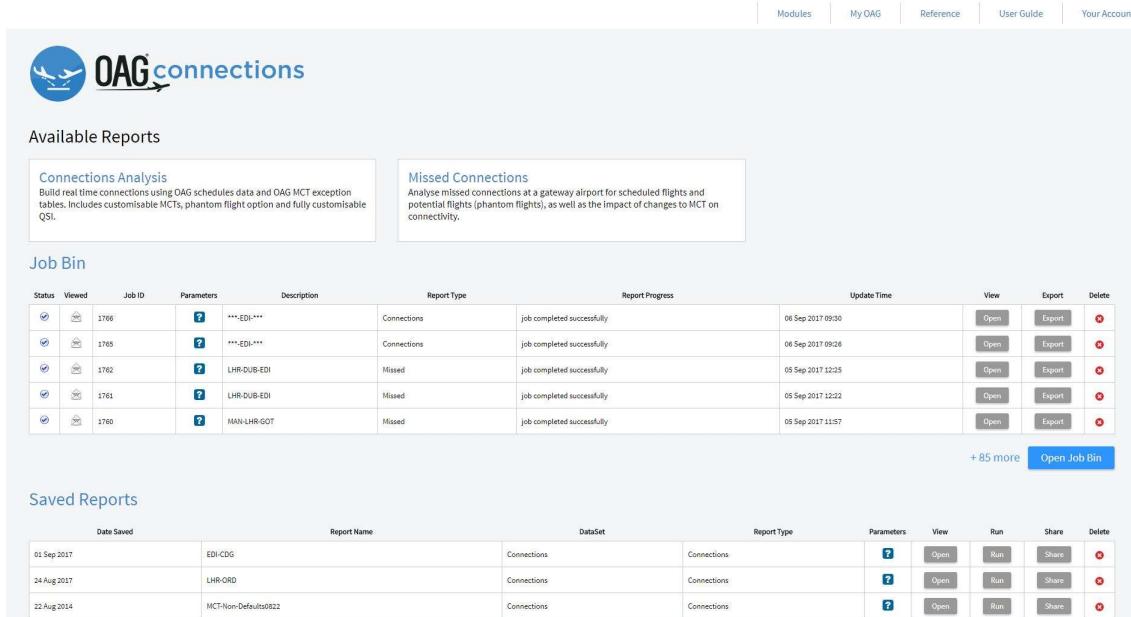
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1 INTRODUCTION

1.1 About the Tool

OAG Connections Analyser is a very powerful tool which is designed to help you model and explore airline network connectivity. Drawing on OAG's comprehensive schedule database, Connections Analyser can dynamically build all possible global airline connections so you can model the impact of real and 'what if' schedule changes on route and network connectivity.



The screenshot shows the main interface of the OAG Connections Analyser. At the top, there is a navigation bar with links for Modules, My OAG, Reference, User Guide, and Your Account. Below the navigation bar, the title "OAG connections" is displayed next to a blue circular icon containing a white airplane silhouette.

Available Reports

- Connections Analysis**: Build real time connections using OAG schedules data and OAG MCT exception tables. Includes customisable MCTs, phantom flight option and fully customisable QSI.
- Missed Connections**: Analyse missed connections at a gateway airport for scheduled flights and potential flights (phantom flights), as well as the impact of changes to MCT on connectivity.

Job Bin

Status	Viewed	Job ID	Parameters	Description	Report Type	Report Progress	Update Time	View	Export	Delete
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	1766	?	***EDL***	Connections	job completed successfully	06 Sep 2017 09:30	Open	Export	Delete
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	1765	?	***EDL***	Connections	job completed successfully	06 Sep 2017 09:26	Open	Export	Delete
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	1762	?	LHR-DUB-EDI	Missed	job completed successfully	05 Sep 2017 12:25	Open	Export	Delete
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	1761	?	LHR-DUB-EDI	Missed	job completed successfully	05 Sep 2017 12:22	Open	Export	Delete
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	1760	?	MAN-LHR-GOT	Missed	job completed successfully	05 Sep 2017 11:57	Open	Export	Delete

+ 85 more [Open Job Bin](#)

Saved Reports

Date Saved	Report Name	DataSet	Report Type	Parameters	View	Run	Share	Delete
01 Sep 2017	EDI-CDG	Connections	Connections	?	Open	Run	Share	Delete
24 Aug 2017	LHR-ORD	Connections	Connections	?	Open	Run	Share	Delete
22 Aug 2014	MCT-Non-Defaults0822	Connections	Connections	?	Open	Run	Share	Delete

OAG Connections Analyser sits within the OAG Analyser Suite of modules, each accessed via a common dashboard. Each module has been designed to have a high degree of commonality so that screens are visually comparable, and users of one will find it easy to use the other products and create outputs in similar and comparable formats where needed.

1.2 Key Features

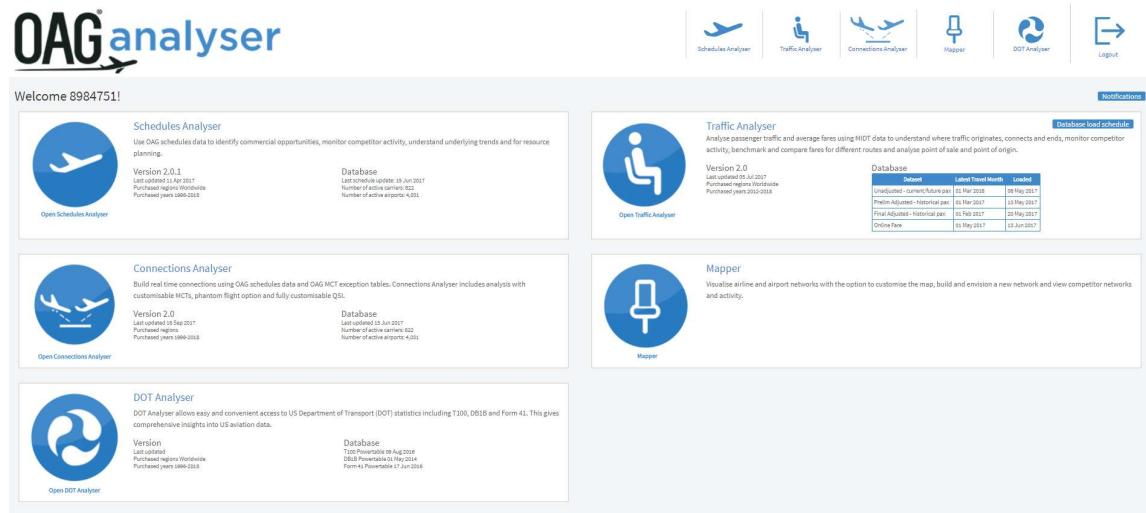
OAG Connections Analyser has been designed with a specialist user in mind. Whilst it looks similar in appearance to other OAG Analyser products, don't be deceived. It is a very powerful tool and it is easy to make a selection that generates vast amounts of data and takes a long time to process. In fact, because so many of the reports created here require significant processing capability the majority of reports you create are sent to a Job Bin, rather than being delivered immediately.

- Fast and accurate dynamic building of all global airline connection options (both single and doubles).
- Only product to use real connection times using the OAG MCT exception tables, rather than predefined minimum/maximum connecting times.
- Includes a QSI function.
- Schedules for 1 year forward as standard but – uniquely - historical data back to 1996 can be included.
- Allows 'what if' analysis – different MCT, phantom flights and new airline partners.
- Simple analysis runs on-demand, while complex analyses run as batch jobs with uncapped connections.
- Integrated into OAG Analyser platform of online modules.
- Integrated mapping and data export capability (.CSV, .PDF, .XLS, .XLSX)

2 GETTING STARTED

This guide provides all the information you need to start using OAG Connections Analyser. It has been designed to walk you through all of the steps involved with getting the data you need from Connections Analyser and can be used on its own, or in conjunction with the user guide videos on our website. Given the complexity of Connections Analyser we do encourage you to view the user guide videos when you first start using this tool. There is also a glossary of terms on our website which explains both standard industry terminology and some of the more obscure terms used, and a frequently asked questions section.

If you have any log in or account issues please get in touch via [ContactUs@oag.com](mailto>ContactUs@oag.com). If you would like to give feedback on your experience of using Connections Analyser or if you have any problems using this tool please contact your account manager and they will be able to help you or pass you on to the relevant department to help. When you log into OAG Analyser you will see a screen like this which is the dashboard for the OAG Analyser suite of products.



The dashboard displays the following information:

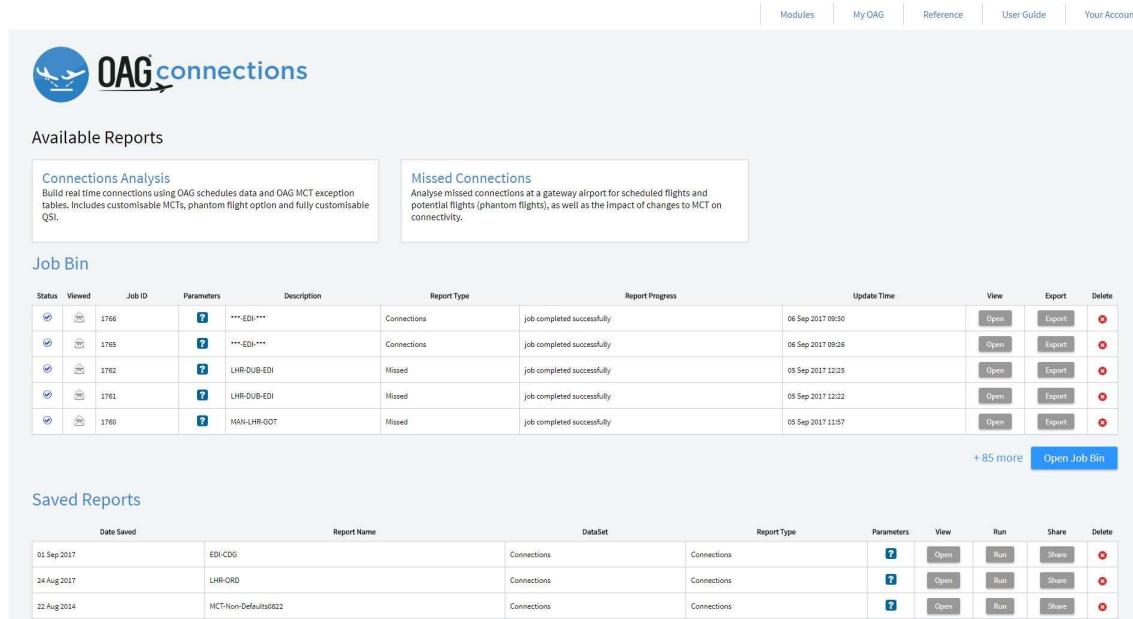
- Schedules Analyser:** Use OAG schedules data to identify commercial opportunities, monitor competitor activity, understand underlying trends and for resource planning. Version 2.0. Last updated 21 Apr 2017. Purchased regions Worldwide. Purchased years 2008-2016.
- Traffic Analyser:** Analyse passenger traffic and average fares using MIDT data to understand where traffic originates, connects and ends, monitor competitor activity, benchmark and compare fares for different routes and analyse point of sale and point of origin. Version 2.0. Last updated 29 Jul 2017. Purchased regions Worldwide. Purchased years 2008-2016.
- Connections Analyser:** Build real time connections using OAG schedules data and OAG MCT exception tables. Connections Analyser includes analysis with customizable MCTs, phantom flight option and fully customizable SQL. Version 2.0. Last updated 29 Jun 2017. Purchased regions Worldwide. Purchased years 2008-2016.
- Mapper:** Visualise airline and airport networks with the option to customise the map, build and envision a new network and view competitor networks and activity. Version 2.0. Last updated 29 Jun 2017. Purchased regions Worldwide. Purchased years 2008-2016.

At the top right, there are links for Notifications, Database load schedule, and Logout.

Each product you have access to is listed along the top right and also in middle of the screen. Your account number is located at the top left of the screen, where it says welcome, and you need just one account and login to access all of the OAG Analyser products you subscribe to.

To open Connections Analyser, the module covered in this user guide, you can either click on the module name at the top of the screen, or click on the planes icon located to the left of the Connections Analyser section.

On logging into Connections Analyser, you will see this screen which is the home screen:



The screenshot shows the OAG Connections Analyser interface. At the top, there are quick access links for Modules, My OAG, Reference, User Guide, and Your Account. Below this is the main dashboard area.

- Available Reports:**
 - Connections Analysis:** Build real time connections using OAG schedules data and OAG MCT exception tables. Includes customisable MCTs, phantom flight option and fully customisable QSI.
 - Missed Connections:** Analyse missed connections at a gateway airport for scheduled flights and potential flights (phantom flights), as well as the impact of changes to MCT on connectivity.
- Job Bin:** A table listing completed jobs with columns for Status, Viewed, Job ID, Parameters, Description, Report Type, Report Progress, Update Time, View, Export, and Delete. The table includes rows for various report types like Connections, Missed, and LHR-DUB-EDI.
- Saved Reports:** A table listing saved reports with columns for Date Saved, Report Name, DataSet, Report Type, Parameters, View, Run, Share, and Delete. Examples include EDI-CDG, LHR-ORD, and MCT-Non-Defaults0822.

In the central area you will see the 2 reports available in Connections Analyser and below is the Job Bin which stores reports once you've run them. Below that you can view any Saved Reports.

Along the top of the screen there are some additional functions. Firstly, there are quick access links to each of the modules you have access to as part of your licence.

Next is the My OAG section which also allows you to access saved reports and the Job Bin. You can also access a feature which allows you to customise groups of data to make running reports with similar queries easier. There is also access here to My MCTs, My QSI and My Phantom Flights – all additional areas of customisation by the user. The functions in this section, and the reference section next to it, are covered in more detail later in this guide. The User Guide option takes you through OAG's help pages which include this guide, some FAQ's, a glossary and some videos to guide you through how to use each report.

In this user guide we will now take you through each of the reports in turn and how to use them.

You do not need to run through them in sequence – in fact it may be useful to jump ahead to the My OAG section.

3 REPORTS

There are 2 reports available in Connections Analyser. We describe how they work here and provide you with a worked example of each report in this section. You can also access short video guides from our user guide that replicate the content provided here. From the home screen you can click on either one of the report names below and you will be linked to a new query screen.

- **Connections Analysis** – this report allows you to dynamically build all possible global airline connections as they occur in real time.
- **Missed Connections** – this report allows you to model how many potential missed connections there are at a gateway airport by a specific, or multiple carriers.

3.1 CONNECTIONS ANALYSIS REPORT

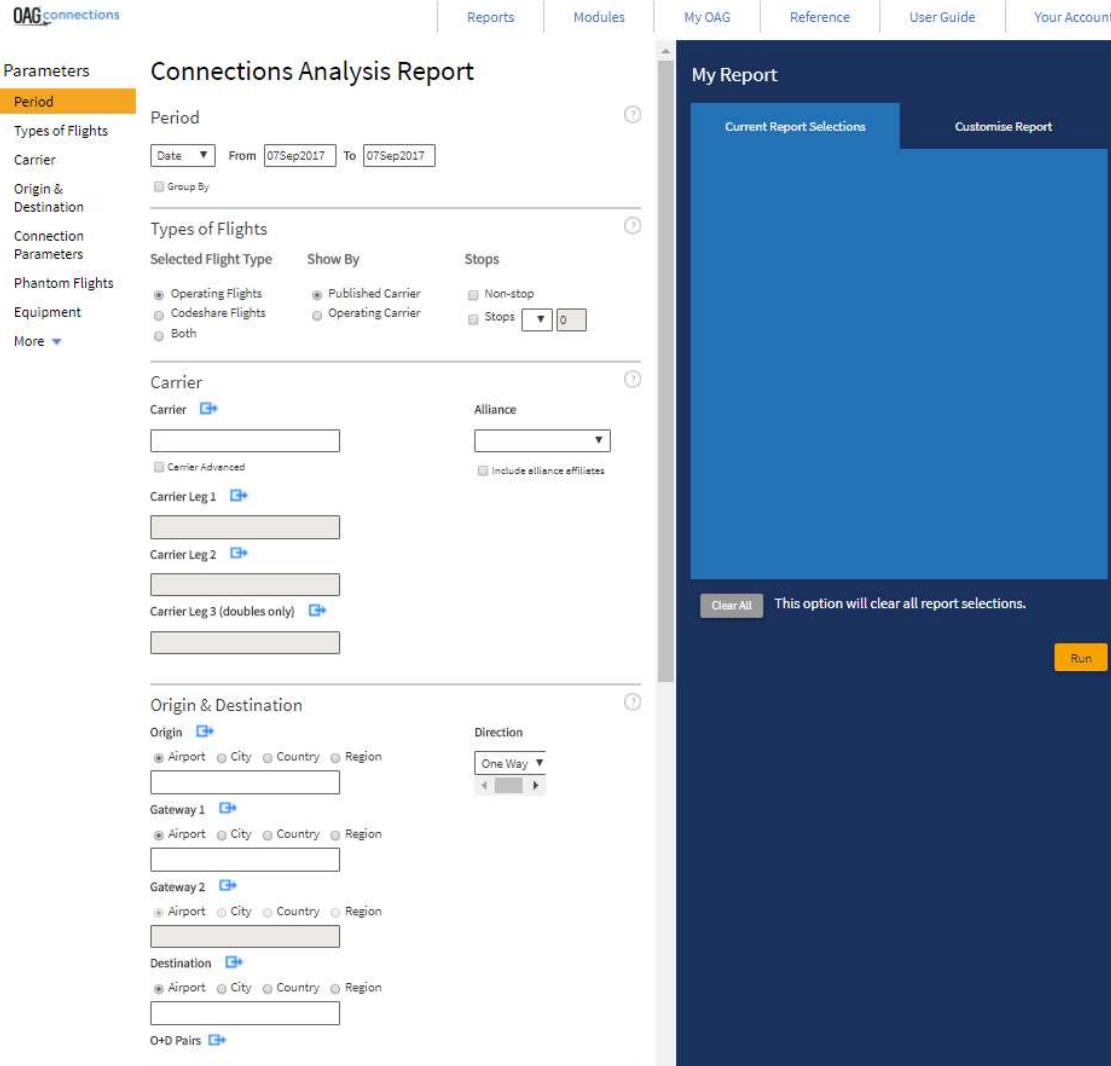
This report contains data on airline connections – e.g. for trip type (direct, single or double) and by connection type (online, interline, all) – and allows you to show which flights connect with other flights. It can be run with a variety of options including for all carriers, or a selection; by alliances; by specific origins and destinations (at different levels e.g. airport, city, country and region).

You can also test ‘what if’ scenarios by changing Minimum Connection Times or creating phantom flights for theoretical airline schedules so you can see how they fit into a network and enhance or reduce connectivity. And you can generate a QSI score – a quality of service value – for each flight option. We’ll return to QSI in more detail in the following sections.

The Connections Analysis report is very detailed so it’s helpful to run quite a specific report for what you need otherwise you will generate a LOT of data. In fact, because so many of the reports created in Connections Analyser require significant processing capability, all reports you create are sent to a Job Bin, rather than being delivered immediately. All items in the Job Bin are deleted automatically after 4 days so reports you need to keep should be saved.

Like most reports in OAG Analyser products, this report has numerous options to tailor the data request to what you need, but not every box needs to be filled in every time. Often you may only need to fill in a few of the options, so it’s worth spending a bit of time familiarising yourself with the query screen.

To get to the query screen, simply click on Connections Analysis report from the home screen. A new screen like the one below will appear:



The screenshot displays the OAG Connections Analysis Report interface. On the left, a sidebar titled "Parameters" contains several sections: "Period" (selected), "Types of Flights", "Carrier", "Origin & Destination", "Connection Parameters", "Phantom Flights", "Equipment", and "More". The central area is titled "Connections Analysis Report" and includes sections for "Period" (Date from 07Sep2017 to 07Sep2017), "Types of Flights" (Selected Flight Type: Operating Flights, Show By: Published Carrier, Stops: Non-stop, Both), "Carrier" (Carrier, Alliance, Carrier Advanced, Include alliance affiliates), "Carrier Leg 1", "Carrier Leg 2", "Carrier Leg 3 (doubles only)", "Origin & Destination" (Origin, Direction: One Way, Gateway 1, Gateway 2, Destination, O+D Pairs), and "More". The right side features a dark blue panel titled "My Report" with tabs for "Current Report Selections" (selected) and "Customise Report". It includes a "Clear All" button (warning: This option will clear all report selections) and a "Run" button.

There are three main areas. On the left are the Parameter groups so you can quickly navigate to the fields you want, in the central area are all the fields you need to select the parameters you want to use to define your report, and to the right is a summary of the report you've specified and options to customise the look of the report.

We'll take a look now at each of these areas.

3.1.1 Parameters

On the left, there are 7 parameter groups displayed and 1 more which opens up if you click on more at the bottom of the list:

Parameters	Parameters
Period	Period
Types of Flights	Types of Flights
Carrier	Carrier
Origin & Destination	Origin & Destination
Connection Parameters	Connection Parameters
Phantom Flights	Phantom Flights
Equipment	Equipment
More ▾	Less ▲ Service Type

As you click on each parameter it moves the central screen to that area. In the image below we clicked on Origin & Destination and you can see that field has moved to the top of the screen.

OAG connections

Parameters

- Period
- Types of Flights
- Carrier
- Origin & Destination**
- Connection Parameters
- Phantom Flights
- Equipment
- Less ▲
- Service Type

Origin & Destination

Origin  Direction 

Airport City Country Region

Gateway 1  One Way 

Airport City Country Region

Gateway 2  Region 

Airport City Country Region

Destination  Region 

Airport City Country Region

O+D Pairs 

Connection Parameters

Trip Type 

All Direct Single Double

Connection Type 

Max. Circuitry 

Restriction Rule 

Connection Window (hours) 

Custom MCT 

Custom QSI 

Flight Type 

Phantom Flights

Search Phantom Flights 

 4th CX freq
 3rd MH frequency

Equipment



1. Period

We'll look firstly at **Period**. You will see from the dropdown list there are 3 time period options that can be selected. These are date, week and month.

Connections Analyser has historical data available back to 1996 and airline schedules data is also available for one year into the future. Whilst you can select a range of different time periods – from a day, week or month – it is often best to select just one day given that large queries may take a long time to process.

Period

Date  From To

Types of Flights

Selected Flight Type  Show By 

2. Type of Flights

The next group of parameters relate to the **Type of Flights**. As you can see, operating flights, published carriers and non-stop flights are the default options here, but you can change these if you want. You may not need to change these but if you are interested in code-sharing arrangements between airlines you may want to click on 'both' so you can see both the flights which the carrier operates and those that it doesn't operate, but still sells.

Types of Flights

Selected Flight Type	Show By	Stops
<input checked="" type="radio"/> Operating Flights <input type="radio"/> Codeshare Flights <input type="radio"/> Both	<input checked="" type="radio"/> Published Carrier <input type="radio"/> Operating Carrier	<input type="checkbox"/> Non-stop <input type="checkbox"/> Stops > ▾ 0

You can also choose to restrict the results to non-stop services only, or to define the number of stops up to a maximum of two.

3. Carrier

In the **Carrier** box, you have two options. If you leave this blank, data for all carriers will be included. Otherwise, you need to specify which carriers, or carrier groups, you want to view data for. There are two ways of inputting carrier names – either by 2 letter code or by typing the name. As you type a drop down box will appear and you select the correct airline entry from that. Multiple airlines can be included as long as each is separated by a comma.

You can also select multiple entries by clicking on the link logo at the end of the field. This opens up a new box where you can enter the carrier names or two letter codes that you need. You have the option to either save your selection (so you can revisit it in future) or simply enter the details and run your query.

Carrier

Carrier 	Alliance 
<input type="text"/>	<input type="text"/>
<input type="checkbox"/> Carrier Advanced	<input type="checkbox"/> Include alliance affiliates
Carrier Leg 1 	
<input type="text"/>	
Carrier Leg 2 	
<input type="text"/>	
Carrier Leg 3 (doubles only) 	
<input type="text"/>	

Underneath the Carrier field, there is an option to selected **Carrier Advanced**. When you do this, the Carrier box is greyed out. The three boxes below become available for use, allowing you to specify a different carrier(s) for each leg of a journey.

At the top on the right in this section, you can select data for a specific **alliance** or for airlines not in an alliance, which we term unaligned. The default is no selection. You can also choose to include alliance affiliates.

4. Origin and Destination

In this parameter you can specify part or all of a routing. As before, if you leave the Origin and Destination fields blank, data for all origins and destinations will be included. Doing this would return a lot of data however, so it's usually easier to select a specific airport, city, country or region.

Origin & Destination

Origin  <input checked="" type="radio"/> Airport <input type="radio"/> City <input type="radio"/> Country <input type="radio"/> Region <input type="text" value=" "/>	Direction <input type="button" value="One Way ▾"/>
Gateway 1  <input checked="" type="radio"/> Airport <input type="radio"/> City <input type="radio"/> Country <input type="radio"/> Region <input type="text" value=" "/>	
Gateway 2  <input checked="" type="radio"/> Airport <input type="radio"/> City <input type="radio"/> Country <input type="radio"/> Region <input type="text" value=" "/>	
Destination  <input checked="" type="radio"/> Airport <input type="radio"/> City <input type="radio"/> Country <input type="radio"/> Region <input type="text" value=" "/>	
O+D Pairs 	

When you select an origin and a destination you are choosing to look at all airline connections **between** the origin and the destination.

You can select either a single **Origin** or **Destination** or a multiple selection. Between origin and destination there are further options to select **Gateway 1** and **Gateway 2**. If you have selected a Trip Type (see Connection Parameters in section 5 below) of Direct, then the only options available for input will be Origin and Destination. If you select single, then Gateway 1 is editable, and finally if you select Double, then all 4 boxes can be edited. All of these options can be selected by airport, city, country or region. A gateway is a connecting point.

You can also choose to view the results of the data on a one way or two way basis in this parameter.

Finally, at the bottom of the query screen on the left, there is an option to choose specific **O&D Pairs**. When you click on it, it opens up the following dialogue box:

You can use this box to enter specific O&D Pairs, with space for up to 4 pairs. If you need to add more, clicking on **Add More O&D Pairs** adds a new set of boxes each time.

Alternatively, if you have multiple pairs to add, you can use the **bulk selection area** which lets you paste in a selection of origin and destination codes from another source. These need to be inserted as the three letter codes separated by a space or comma.

X

O&D Pairs

Origin	Destination
Origin Airport	
Destination Airport	✖
Origin Airport	
Destination Airport	✖
Origin Airport	
Destination Airport	✖
Origin Airport	
Destination Airport	✖

[Add More O & D Pairs](#)

Bulk selection

Please enter O&Ds with a comma or space between
Example

AMS,ABZ
AMS,ACE

or

AMS ABZ
AMS ACE

With one pair per line.

OK Cancel

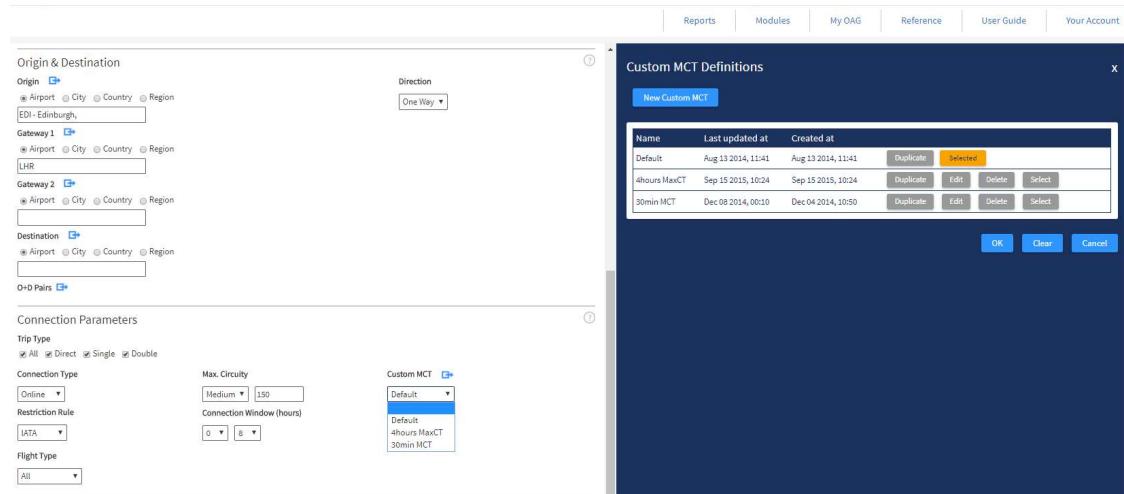
5. Connection Parameters

The next step is to define the carrier options. There are several options to consider:

- a) Trip Type – Direct, Single (default) or Double
- b) Connection Type, Restriction Rule and Flight Type
- c) Max Circuitry
- d) Connection Window
- e) Custom MCT
- f) Custom QSI

- a) The first option for is for **Trip Type** which will default to Single, meaning single connection journeys (i.e. two flights). Direct means all routings between point A and point B, meaning there is only one flight (or a stopping service with a through flight number), and Double refers to routings with three flights and two gateways, so there are two connections. We advise caution in selecting the Double option as this significantly increases the size of your query and the time it takes to run.
- b) Connection type allows you to choose between online, interline or all connections. The default is Online. The Restriction Rule field allows you to select either IATA, LCC or both. The default is IATA. Flight type allows you to limit the results to either International, Domestic or All flights. The default is all.
- c) The Max Circuitry field allows you to determine the maximum **circuitry** you want the report to calculate. Circuitry is a term which reflects how far from the Great Circle Distance between the origin and destination the actual routing is. A direct flight between point A and B would have a circuitry of 100. Essentially circuitry measures how far out of your way connecting via a particular gateway takes you. The default is 150 which we have defined as Medium. There are three other circuitry options in the dropdown including Low which is 125 and High which is 175. The custom option allows you to enter a different circuitry figure. A circuitry of higher than 175 would be unlikely, as it would involve a significant backhaul via a connecting destination to a final point.
- d) Connection Window – there are a range of options here to select a connection window of between 0-12 hours. The default is 8 hours.
- e) Custom MCT - With this field, you have the ability to change Minimum Connection Times at the gateway airport. The default MCT in Connections Analyser calculates potential connections using the Minimum Connect Times for the airport and a maximum connect time of 8 hours, unless you tell it otherwise. Any departing flight which leaves within 8 hours of the inbound arriving flight (see Connection Window) will be a possible connection as long as it meets the other restriction criteria you specify in your query.

You can override the default times for minimum and maximum connecting times in order to test the impacts of changing flight times. We will cover this in a worked example in a video which you can access through the help function in Connections Analyser. Saving a custom MCT means it will appear in the dropdown box beneath the Default option.



The screenshot shows the OAG Connections Analyser interface with the 'Custom MCT Definitions' dialog box open. The dialog box contains a table with three rows of saved custom MCT definitions:

Name	Last updated at	Created at
Default	Aug 13 2014, 11:41	Aug 13 2014, 11:41
4hours MaxCT	Sep 15 2015, 10:24	Sep 15 2015, 10:24
30min MCT	Dec 08 2014, 00:10	Dec 04 2014, 10:50

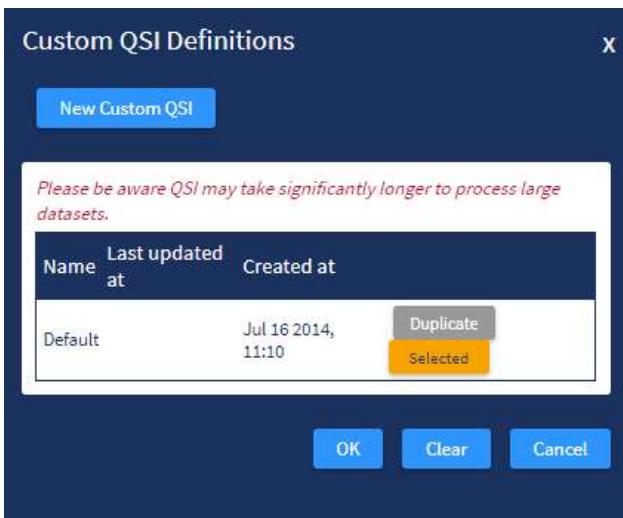
Buttons at the bottom of the dialog box include 'OK', 'Clear', and 'Cancel'.

You can see in the screenshot below that there are two saved custom MCT's and in the box to the right, the custom MCT's appear and can be edited, duplicated or deleted.

- f) Custom QSI - QSI stands for Quality of Service Index and is a way to compare the attractiveness of one routing against another from a passenger perspective. These are used extensively by airline traffic forecasters who need to understand how the total volume of existing passenger traffic will be redistributed when new flight options are added, or the timing of existing flights are changed.

In other words, QSI helps calculate market share. OAG Connections Analyser can do this automatically, potentially saving you a lot of time. And you can tailor the way the QSI is calculated so you can use whatever weightings you want to each aspect of the calculation. We'll look at this in a worked example towards the end of this section.

Clicking on the arrow to the right of Custom QSI opens up the following dialogue box where you can either duplicate and then edit the Default QSI, or create a new Custom QSI range by clicking on the New Custom QSI box. This dialogue box has a large number of parameters and coefficients. Each parameter represents a factor which affects passenger preferences for connecting one-way vs another way.



The screenshot shows the 'Custom QSI Definitions' dialog box. It includes a note: 'Please be aware QSI may take significantly longer to process large datasets.' A table lists the saved QSI definitions:

Name	Last updated at	Created at
Default	Jul 16 2014, 11:10	

Buttons at the bottom of the dialog box include 'OK', 'Clear', and 'Cancel'.

Custom QSI

Name	<input type="text"/>														
QSI	<input checked="" type="checkbox"/> Select All <input checked="" type="checkbox"/> Stops <input checked="" type="checkbox"/> Alliance Member <input checked="" type="checkbox"/> Domicile Carrier <input checked="" type="checkbox"/> Equipment <input checked="" type="checkbox"/> Elapsed Time <input checked="" type="checkbox"/> Departure Time <input checked="" type="checkbox"/> Carrier Category <input checked="" type="checkbox"/> Frequency <input checked="" type="checkbox"/> Connection Wait Time <input checked="" type="checkbox"/> Connection Type <input checked="" type="checkbox"/> Arrival Time														
Parameters	<input type="button" value="Stops"/>														
Coefficients	<table border="1"> <tr> <td>0</td> <td>2.0</td> </tr> <tr> <td>1</td> <td>0.25</td> </tr> <tr> <td>2</td> <td>0.05</td> </tr> <tr> <td>3</td> <td>0.03</td> </tr> <tr> <td>4</td> <td>0.01</td> </tr> <tr> <td>5</td> <td>0.01</td> </tr> <tr> <td>6</td> <td>0.01</td> </tr> </table>	0	2.0	1	0.25	2	0.05	3	0.03	4	0.01	5	0.01	6	0.01
0	2.0														
1	0.25														
2	0.05														
3	0.03														
4	0.01														
5	0.01														
6	0.01														
<input type="button" value="Save"/> <input type="button" value="Reset"/> <input type="button" value="Cancel"/>															

Over time data analysis has helped us understand how passengers weight the factors so, for instance, if we look at the coefficients for non-stop services, you'll see that there's a weighting of 2 for a non-stop service and of 0.25 for a 1 stop service. This means that a passenger values a non-stop flight 8 times more highly than a 1 stop flight.

There are 11 parameters for which you can set coefficients including departure time, arrival time, aircraft type and the type of airline. OAG has set default coefficients for each of these but you can override any of them and save them as 'My QSI' in 'My OAG'. The default coefficients are detailed in the Connections Analyser Glossary.

6. Phantom Flights

A Phantom Flight is a fictitious flight you create which Connections Analyser treats as if it were part of the schedule database. The purpose of phantom flights is to allow you to test the impact on connectivity from adding a new flight or flights. It's a useful tool for testing the value of code-sharing relationships too. Once you've created a Phantom Flight it appears below the Search Phantom Flights box.

You have to enter precise data to create a phantom flight including the number of seats on the aircraft, the aircraft type, terminal from which the flight departs and arrives, and you'll need

to create a flight number for your phantom flight. You can enter numerous phantom flights and you can use as many of them as you want in your data query. Clicking on the arrow to the right of this field opens up the Phantom Flights dialogue box where you can either upload a set of data you've created elsewhere – and a sample file is included which you can download to see what format your data needs to be in - or you can create a new phantom flight. We'll provide a worked example later in the report showing how to do this. Essentially you complete the following table. Several of the fields will populate automatically as you select a carrier, including Carrier Category, Equipment and Seats.

Phantom Flights

Search Phantom Flights

<input type="checkbox"/>  4th CX freq
<input type="checkbox"/>  3rd MH frequency

Phantom Flight Schedule

Flight Name	<input type="text"/>
Carrier	<input type="text"/>
Alliance Member	<input type="checkbox"/>
Domicile Carrier	<input type="checkbox"/>
Carrier Category	<input type="button" value="Mainline"/>
Flight Number	<input type="text"/>
Origin	<input type="text"/>
Origin Terminal	<input type="button" value="▼"/>
Destination	<input type="text"/>
Destination Terminal	<input type="button" value="▼"/>
Equipment	<input type="button" value="Custom"/>
Seats	<input type="button" value="▼"/> <input type="button" value="▼"/>
Departure Time	<input type="text" value="hhmm"/>
Elapsed Time	<input type="text" value="hhmm"/>
Arrival Time / Day	<input type="text" value="hhmm"/> / <input type="button" value="▼"/>
Operation Days (1=Mon)	<input checked="" type="checkbox"/> 1 <input checked="" type="checkbox"/> 2 <input checked="" type="checkbox"/> 3 <input checked="" type="checkbox"/> 4 <input checked="" type="checkbox"/> 5 <input checked="" type="checkbox"/> 6 <input checked="" type="checkbox"/> 7
Effective From Date	<input type="text" value="07Sep2017"/>
Effective End Date	<input type="text" value="07Sep2017"/>
Service Type	<input type="button" value="J - Passenger Flights Only"/>
Advanced <input type="button" value="▼"/>	
<input type="button" value="Save"/> <input type="button" value="Cancel"/>	

3.1.2 Report Options

My Report

Current Report Selections

Customise Report

Period
Date: 07Sep2017 to 07Sep2017
Time Series: No

Types of Flights
Flight Type: Operating Flights Show By: Published Carrier

Carrier
Carrier
Included: MH

Origin & Destination
Origin
Include: LHR
Destination
Include: MY
Direction: One Way

Gateway 1
Include: KUL

Connection Parameters
Direct: No Single: Yes Double: No
Restriction Rule: IATA
Connection Type: Online
Max Circuitry: 150

Clear All This option will clear all report selections.

Run

As you define your report by selecting Parameters on the left hand side of the screen they appear in the **Current Report Selections** tab on the right hand (blue) side.

Once you've selected all the parameters you require, you have the option to customise the report further. On the right hand side of the screen in the My Report section, you can click on the second tab, **Customise report**.

As you can see there are several options to customise the output of the report and simply clicking on the tickbox in the field removes it, and clicking again in the field puts it back.

At the bottom of this tab there are some **Graphing** and **Mapping Options** and you can have these turned on or off in this area, again just by clicking on the arrow to uncheck the box. The default is to include these options. You can also customise what the graphing option does, by deciding which data you want to have on the x and y axis and whether you want to see the data as a line graph, column or pie chart.

My Report

Current Report Selections

Customise Report

Customise Output
Please select tabs for results output
 Select All
 Summary
 Connections
 Routings
 Min. Max. Average
 Origin Destination
 Origin
 Destination
 Carrier
 Gateway

Graphing Options
 Show data in a graph
Type: Columns Pie
X Axis: Published Carrier (leg1)
Y Axis: Frequency

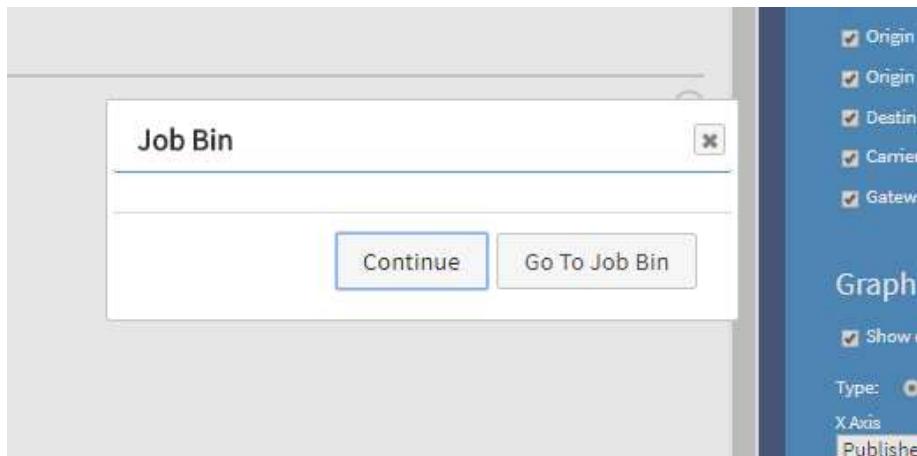
Mapping Options
 Show map

Clear All This option will clear all report selections.

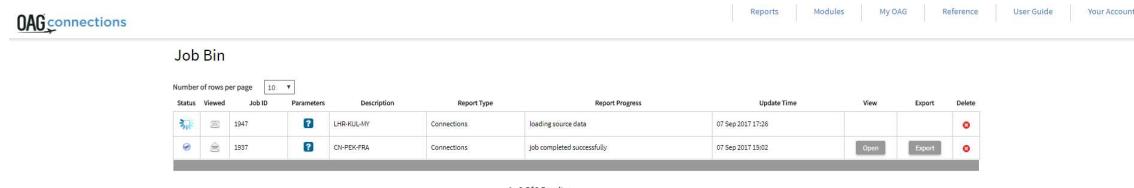
Run

At the bottom of the query screen (this is there whichever tab you have open) you can then run the query.

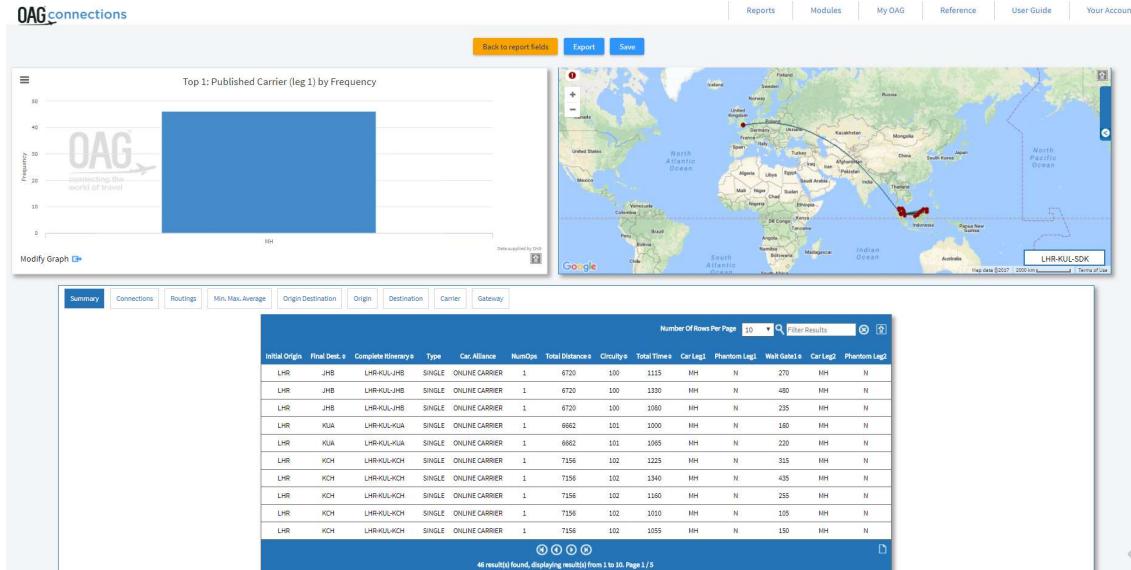
You'll see from the example below that once you click run, the following message is displayed. If you click on continue, you can run a new Connections Analysis report, or amend some aspects of the one you have just run while your report is sent for processing. Clicking on Go To Job Bin takes you straight to the Job Bin, where you will see your report being processed.



The Job Bin looks like this and can be accessed in this way, from inside a report, or from the home screen, where the most recent reports you have run will be displayed.



Once the report is ready, the option to view and/or export becomes available in the boxes to the right. Reports only remain the job bin for 4 days after you run them – after that they are removed. The best course of action is to save your report if you think you will need it again. Once the query has been processed you can click on **open** and the data you requested will be displayed in the following format:



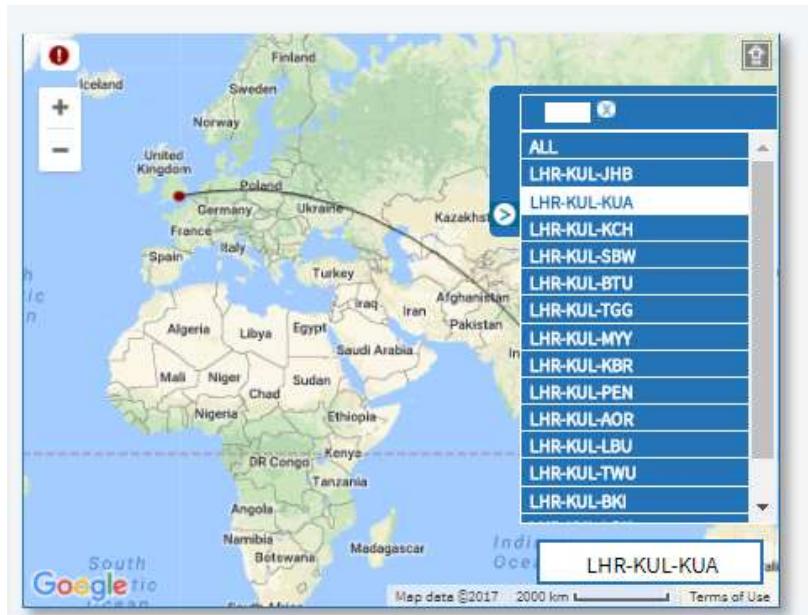
The screenshot shows the main interface of the OAG connections analyser. At the top, there's a navigation bar with links to Reports, Modules, My OAG, Reference, User Guide, and Your Account. Below the navigation is a header bar with "OAG connections" on the left, and "Back to report filters", "Export", and "Save" buttons on the right.

The main content area has three main sections:

- Top Left:** A bar chart titled "Top 1: Published Carrier (leg 1) by Frequency". The y-axis is labeled "Frequency" with values from 0 to 50. The x-axis is labeled "Carrier" with one entry: "MH".
- Top Right:** A world map showing flight routes. A specific route is highlighted in red, originating from London (LHR) and ending in Jakarta (KUL). The route passes through several countries like Germany, France, Italy, and Turkey before reaching Southeast Asia. A callout box on the map indicates the route as "LHR-KUL-SDK".
- Bottom:** A detailed table of flight routes. The table has columns for Initial Origin, Final Dest., Complete Itinerary#, Type, Car. Alliance, NumOps, Total Distance, Circuits, Total Times, Car Leg#, Phantom Leg#, Wkt Leg#, Car Leg#, and Phantom Leg#. The data shows multiple routes from LHR to various destinations like JHB, KUA, KCH, and KUL, each with its own set of metrics.

There are three main areas on the output screen. Each of the three areas has an arrow on the right, either in the top right hand corner (map) or the bottom right hand corner (chart, table). Clicking on the arrow maximises the table, chart or map to the full screen. Clicking on it again minimises it.

Clicking on **Modify Graph** allows you to amend the outputs in the graph as displayed in the image below, and at the top of the graph there are 4 small lines which, if you click on them, open up the export options for the graph. You can send the graph straight to print or download in several different formats including PDF, PNG, JPEG or SVG vector image.



On the map, clicking on the blue tab on the right hand side allows you to see all of the itineraries in the query and select one. You can also zoom in and out on the map using the + and - symbols on the left hand side, and re-center it by clicking and dragging the map to where you want it to be centered.

The map does not automatically export, but you can save it as a screenshot using external tools.

The bottom part of the report displays the connections analysis data. There are 9 tabs, each displaying the data from a different perspective.

The report shown here is for online connections on Malaysia Airlines from Heathrow via Kuala Lumpur to Malaysia in a single day. The first tab is labelled **Summary** and displays the summary of results by the selected parameters. At the bottom of the report we can see there are 46 connections from between Heathrow and Malaysia via Kuala Lumpur.

Initial Origin	Final Dest. #	Complete Itinerary #	Type	Car. Alliance	NumOps	Total Distances	Circuity %	Total Time #	Car Leg1	Phantom Leg1	Wait Gate1 #	Car Leg2	Phantom Leg2
LHR	JHB	LHR-KUL-JHB	SINGLE	ONLINE CARRIER	1	6720	100	1115	MH	N	270	MH	N
LHR	JHB	LHR-KUL-JHB	SINGLE	ONLINE CARRIER	1	6720	100	1330	MH	N	480	MH	N
LHR	JHB	LHR-KUL-JHB	SINGLE	ONLINE CARRIER	1	6720	100	1080	MH	N	235	MH	N
LHR	KUA	LHR-KUL-KUA	SINGLE	ONLINE CARRIER	1	6662	101	1000	MH	N	160	MH	N
LHR	KUA	LHR-KUL-KUA	SINGLE	ONLINE CARRIER	1	6662	101	1065	MH	N	220	MH	N
LHR	KCH	LHR-KUL-KCH	SINGLE	ONLINE CARRIER	1	7156	102	1225	MH	N	315	MH	N
LHR	KCH	LHR-KUL-KCH	SINGLE	ONLINE CARRIER	1	7156	102	1340	MH	N	435	MH	N
LHR	KCH	LHR-KUL-KCH	SINGLE	ONLINE CARRIER	1	7156	102	1160	MH	N	255	MH	N
LHR	KCH	LHR-KUL-KCH	SINGLE	ONLINE CARRIER	1	7156	102	1010	MH	N	105	MH	N
LHR	KCH	LHR-KUL-KCH	SINGLE	ONLINE CARRIER	1	7156	102	1055	MH	N	150	MH	N

(1)
(2)
(3)
(4)
(5)

46 result(s) found, displaying result(s) from 1 to 10. Page 1 / 5

The next tab, **Connections**, shows the origin, destination and complete itinerary in addition to several other details – Great Circle Distance, Total Distance, the carrier on each leg and the aircraft (equipment) type.

Summary		Connections		Routings	Min, Max, Average	Origin Destination	Origin	Destination	Carrier	Gateway									
Leg 1																			
Initial Origin Final Dest																			
Initial Origin	Final Dest	Completion	Car.	Alliance	Type	Stops	NumOps	GCD	Total	Circuity									
								mi	mi	s									
Org Leg	Des Leg	Car Leg	Org Leg	Des Leg	Car Leg	Org Leg	Des Leg	FldNo Leg	DeptTime Leg	ArrTime Leg									
								#											
ArrivalDay Leg	ArrivalDay Leg	ArrivalDay Leg	ArrivalDay Leg	ArrivalDay Leg	ArrivalDay Leg	ArrivalDay Leg	ArrivalDay Leg		Time Leg	Effect Leg									
									s										
DeptDay Leg	DeptDay Leg	DeptDay Leg	DeptDay Leg	DeptDay Leg	DeptDay Leg	DeptDay Leg	DeptDay Leg		Discon Leg	DelayOp Leg									
ArrivalDay Leg	ArrivalDay Leg	ArrivalDay Leg	ArrivalDay Leg	ArrivalDay Leg	ArrivalDay Leg	ArrivalDay Leg	ArrivalDay Leg		Distance Leg	Sent Leg									
LocalInventory Leg	ServiceClass Leg	RestrictionCode Leg	OptCar Leg	Phantom Leg	WaitEnter Leg	Org Leg	Des Leg		Ca Leg										
LHR	JHB	LHR-KUL-JHB	SINGLE	ONLINE CARRIER	0	1	6714	6720	100	1115	LHR KUL MH MH 380 3	10:25 06:45	1	800	2017-09-07 09:07	0650	1234567 486	LHR-KUL FAJCZOYBH UNRES	O N 270 KUL JHB MH
LHR	JHB	LHR-KUL-JHB	SINGLE	ONLINE CARRIER	0	1	6714	6720	100	1330	LHR KUL MH MH 380 3	10:25 06:45	1	800	2017-09-07 09:07	0650	1234567 486	LHR-KUL FAJCZOYBH UNRES	O N 480 KUL JHB MH
LHR	JHB	LHR-KUL-JHB	SINGLE	ONLINE CARRIER	0	1	6714	6720	100	1080	LHR KUL MH MH 380 1	21:55 17:50	1	795	2017-09-07 09:07	0650	1234567 486	LHR-KUL FAJCZOYBH UNRES	O N 235 KUL JHB MH
LHR	KUA	LHR-KUL-KUA	SINGLE	ONLINE CARRIER	0	1	6879	6862	101	1000	LHR KUL MH MH 380 3	10:25 06:45	1	800	2017-09-07 09:07	0650	1234567 486	LHR-KUL FAJCZOYBH UNRES	O N 180 KUL KUA MH
LHR	KUA	LHR-KUL-KUA	SINGLE	ONLINE CARRIER	0	1	6879	6862	101	1065	LHR KUL MH MH 380 1	21:55 17:50	1	795	2017-09-07 09:07	0650	1234567 486	LHR-KUL FAJCZOYBH UNRES	O N 220 KUL KUA MH
LHR	KCH	LHR-KUL-KCH	SINGLE	ONLINE CARRIER	0	1	7001	7156	102	1225	LHR KUL MH MH 380 3	10:25 06:45	1	800	2017-09-07 09:07	0650	1234567 486	LHR-KUL FAJCZOYBH UNRES	O N 315 KUL KCH MH
LHR	KCH	LHR-KUL-KCH	SINGLE	ONLINE CARRIER	0	1	7001	7156	102	1340	LHR KUL MH MH 380 3	10:25 06:45	1	800	2017-09-07 09:07	0650	1234567 486	LHR-KUL FAJCZOYBH UNRES	O N 435 KUL KCH MH
LHR	KCH	LHR-KUL-KCH	SINGLE	ONLINE CARRIER	0	1	7001	7156	102	1160	LHR KUL MH MH 380 3	10:25 06:45	1	800	2017-09-07 09:07	0650	1234567 486	LHR-KUL FAJCZOYBH UNRES	O N 255 KUL KCH MH
LHR	KCH	LHR-KUL-KCH	SINGLE	ONLINE CARRIER	0	1	7001	7156	102	1010	LHR KUL MH MH 380 1	21:55 17:50	1	795	2017-09-07 09:07	0650	1234567 486	LHR-KUL FAJCZOYBH UNRES	O N 105 KUL KCH MH
LHR	KCH	LHR-KUL-KCH	SINGLE	ONLINE CARRIER	0	1	7001	7156	102	1055	LHR KUL MH MH 380 3	10:25 06:45	1	800	2017-09-07 09:07	0650	1234567 486	LHR-KUL FAJCZOYBH UNRES	O N 150 KUL KCH MH

46 result(s) found, displaying result(s) from 1 to 10. Page 1 / 5

The next tab is labelled **Routings**. Departure airports are on the left, then the Gateway airport, then the Arrival airport, Seats and then Circuity. The first entry has a circuity of 100 because the Great Circle Distance between the origin and destination is the same as the total distance of flight segments. The actual flight distance is 100% of the Great Circle Distance between origin and destination. The next entry, LHR-KUL-KUA, has a circuity of 101. In other words, the distance from LHR to KUL plus KUL to KUA is 101% of the great circle distance from LHR to KUL.

To the right of Circuity there are Connections, Frequency and then ASMs, or Available Seat Miles.

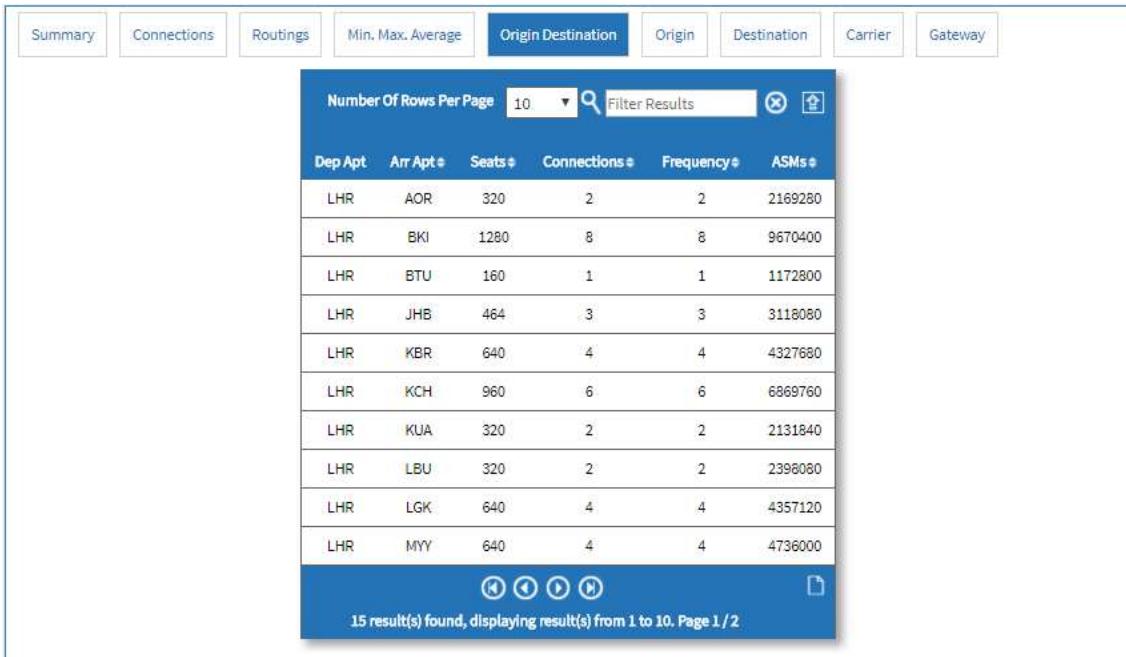
Dep Apt	Gateway 1	Gateway 2	Arr Apt	Seats	Circuitry	Connections	Frequency	ASMs
LHR	KUL		JHB	464	100	3	3	20160
LHR	KUL		KUA	320	101	2	2	13324
LHR	KUL		KCH	960	102	6	6	42936
LHR	KUL		SBW	160	103	1	1	7261
LHR	KUL		BTU	160	104	1	1	7330
LHR	KUL		TGG	160	104	1	1	6731
LHR	KUL		KBR	640	106	4	4	27048
LHR	KUL		MYY	640	106	4	4	29600
LHR	KUL		PEN	960	106	6	6	40368
LHR	KUL		AOR	320	107	2	2	13558

15 result(s) found, displaying result(s) from 1 to 10. Page 1 / 2

The fourth tab, **Min/Max/Average** provides a summary of the distance, elapsed time, circuitry, wait time and seats.

Distance	Elapsed Time			Circuitry			Wait Time			Seats		
Min.	Max.	Avg.	Min.	Max.	Avg.	Min.	Max.	Avg.	Min.	Max.	Avg.	Min.
6662	7691	7094	920	1445	1139	100	109	105	65	480	241	144
1 result(s) found, displaying result(s) from 1 to 1. Page 1 / 1												

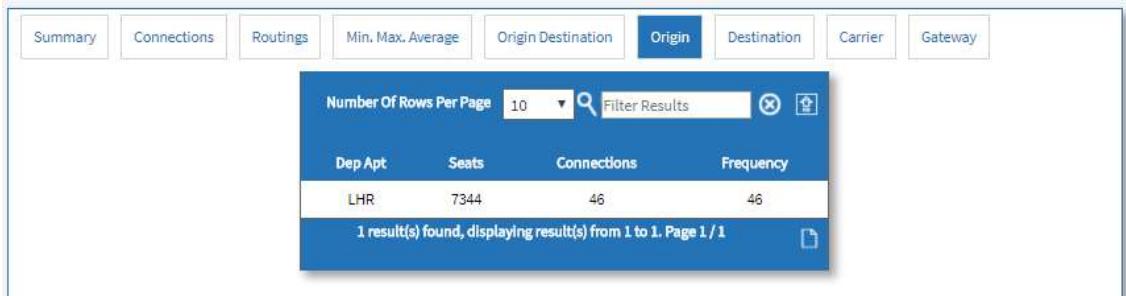
The next table is **Origin Destination** which summarises seats, connections, frequency and ASMs by origin and destination airports.



Dep Apt	Arr Apt	Seats	Connections	Frequency	ASMs
LHR	AOR	320	2	2	2169280
LHR	BKI	1280	8	8	9670400
LHR	BTU	160	1	1	1172800
LHR	JHB	464	3	3	3118080
LHR	KBR	640	4	4	4327680
LHR	KCH	960	6	6	6869760
LHR	KUA	320	2	2	2131840
LHR	LBU	320	2	2	2398080
LHR	LGK	640	4	4	4357120
LHR	MYY	640	4	4	4736000

15 result(s) found, displaying result(s) from 1 to 10. Page 1 / 2

Then there is a summary tab for just the **Origin**.



Dep Apt	Seats	Connections	Frequency
LHR	7344	46	46

1 result(s) found, displaying result(s) from 1 to 1. Page 1 / 1

There is also a tab for **Destination**.

Summary	Connections	Routings	Min. Max. Average	Origin Destination	Origin	Destination	Carrier	Gateway
Number Of Rows Per Page <input type="text" value="10"/> Filter Results <input type="button" value="X"/> <input type="button" value="Print"/>								
Arr Apt	Seats	Connections	Frequency					
AOR	320	2	2					
BKI	1280	8	8					
BTU	160	1	1					
JHB	464	3	3					
KBR	640	4	4					
KCH	960	6	6					
KUA	320	2	2					
LBU	320	2	2					
LGK	640	4	4					
MYY	640	4	4					
<input type="button" value="First"/> <input type="button" value="Previous"/> <input type="button" value="Next"/> <input type="button" value="Last"/> <input type="button" value="Print"/>								
15 result(s) found, displaying result(s) from 1 to 10. Page 1 / 2								

The second last tab, **Carrier**, highlights the carrier combinations which provide direct seats between Heathrow and points in Malaysia. These results are all for Malaysia Airlines as we restricted the results to show just MH.

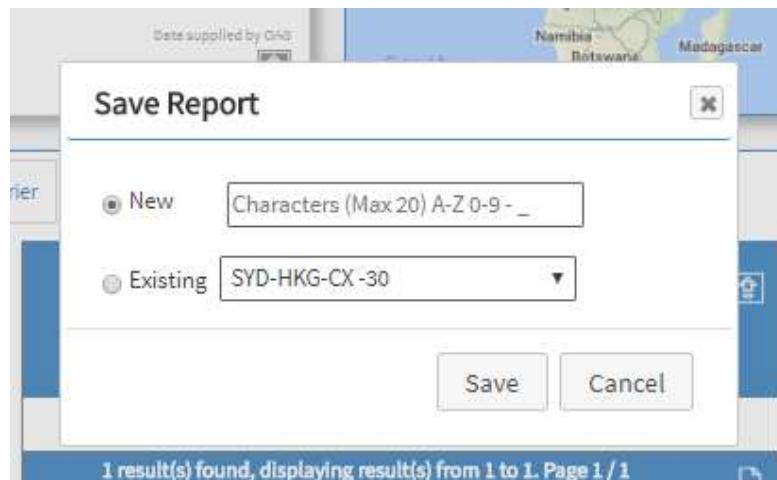
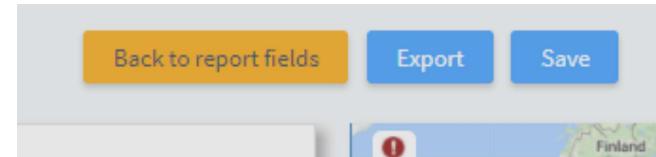
Summary	Connections	Routings	Min. Max. Average	Origin Destination	Origin	Destination	Carrier	Gateway
Number Of Rows Per Page <input type="text" value="10"/> Filter Results <input type="button" value="X"/> <input type="button" value="Print"/>								
Carrier Combination	Seats	Connections	Frequency	ASMs				
MH,MH	7344	46	46	52108480				
1 result(s) found, displaying result(s) from 1 to 1. Page 1 / 1 <input type="button" value="Print"/>								

The last tab is the **Gateway**. This shows how many seats are offered via Kuala Lumpur.

Summary	Connections	Routings	Min. Max. Average	Origin Destination	Origin	Destination	Carrier	Gateway
Number Of Rows Per Page <input type="text" value="10"/> Filter Results <input type="button" value="X"/> <input type="button" value="Print"/>								
Gateway	Seats	Connections	Frequency					
KUL,KUL	7344	46	46					
1 result(s) found, displaying result(s) from 1 to 1. Page 1 / 1 <input type="button" value="Print"/>								

3.1.3 Saving Reports

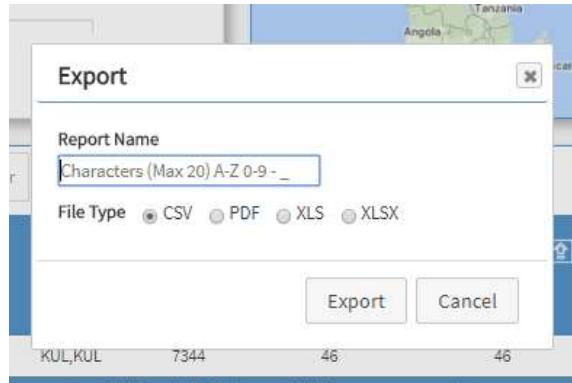
Reports can be saved by clicking on Save at the top of the report. This opens a new window where you can name the report and Save.



When you return to the home page you'll see the saved report now appears under **Saved Reports**. You can then open, run or share the report from there.

3.1.4 Exporting

Once you've run the report, you can download it in a range of ways. Click on **Export** and an export box opens. Give your report a name and then select the file type – you can choose from a range of options including CSV, PDF and XLS. If you know that you will always want to export in a particular format, you can save it as a default in the User Preferences section (we cover how to do this later in this guide). Once you've given your report a name and selected the file type, click on **Export**. This box then appears and you can choose to continue with another query, or go the Job Bin where the report will be processed.

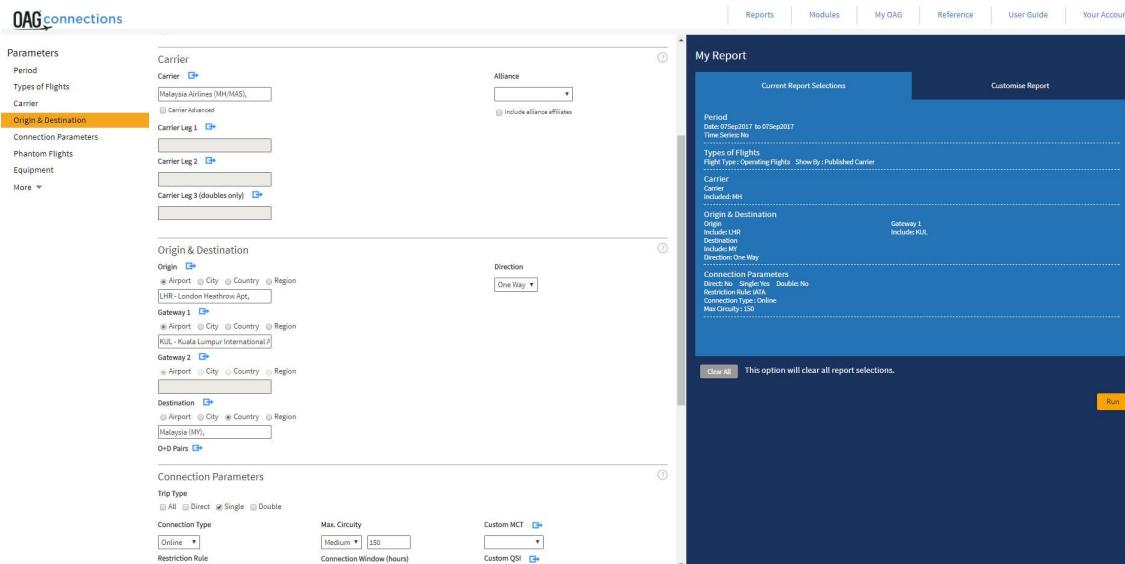


The user guide link from Connections Analyser for this report takes you to our website where there is a short video with a worked example of how to run a Connections Analysis report, create a phantom flight, add custom MCTs and QSI.

3.1.5 Worked examples – Custom MCTs, Phantom Flights & QSI

1. Custom MCT

In this example, we're going to look at connections between London Heathrow and Malaysia via Kuala Lumpur. We've specified Malaysia Airlines as the Carrier, the Origin Airport as LHR, the gateway as KUL and the destination is Malaysia. We're only interested in single connections so we've excluded direct flights and we're using the default connection type which is online.



The screenshot above is the base query, without any changes to the MCT. This is the same query we used earlier so the results are displayed in the previous section. The query returns 46 possible connections and frequencies to a range of Malaysian airports, assuming the minimum connecting time for the KUL, and a maximum connect time of 8 hours. Any departing flight which leaves within 8 hours of the inbound arriving flight will be a possible connection as long as it meets the other restrictions we have specified in our query.

The parameter we want to show you first is Custom MCT's. In this example, we've changed the MCT for international to domestic connection from the default IATA MCT of 45 minutes to just 30

minutes. We clicked on Custom MCT, amended the International – Domestic min CT field in the **Via 1** box.

Custom MCT

Name **30min MCT**

Via 1 (Affects single and double connecting flights)

Domestic - Domestic	min CT <input type="text" value="30"/> mins	max CT <input type="text" value="90"/> mins
Domestic - International	min CT <input type="text" value="45"/> mins	max CT <input type="text" value="120"/> mins
International - Domestic	min CT <input type="text" value="30"/> mins	max CT <input type="text" value="120"/> mins
International - International	min CT <input type="text" value="90"/> mins	max CT <input type="text" value="180"/> mins

Via 2 (Affects double connecting flights only)

Domestic - Domestic	min CT <input type="text" value="30"/> mins	max CT <input type="text" value="90"/> mins
Domestic - International	min CT <input type="text" value="45"/> mins	max CT <input type="text" value="120"/> mins
International - Domestic	min CT <input type="text" value="45"/> mins	max CT <input type="text" value="120"/> mins
International - International	min CT <input type="text" value="90"/> mins	max CT <input type="text" value="180"/> mins

Update **Reset** **Cancel**

We then saved the Custom MCT with the name 30min MCT and closed that box, and we ran the report. The output file looks the same as we saw before but by changing the MCT to just 30 minutes for the international to domestic leg reduces the potential connections to 28.

Summary Connections Routings Min. Max. Average Origin Destination Origin Destination Carrier Gateway

Number Of Rows Per Page: 10 Filter Results

Initial Origin	Final Dest. #	Complete Itinerary #	Type	Car. Alliance	NumOps	Total Distance #	Circuitry #	Total Time #	Car Leg1	Phantom Leg1	Walk Gate1	Car Leg2	Phantom Leg2
LHR	KUA	LHR-KUL-KUA	SINGLE	ONLINE CARRIER	1	6662	101	885	MH	N	50	MH	N
LHR	KUA	LHR-KUL-KUA	SINGLE	ONLINE CARRIER	1	6662	101	1000	MH	N	160	MH	N
LHR	KCH	LHR-KUL-KCH	SINGLE	ONLINE CARRIER	1	7156	102	1010	MH	N	105	MH	N
LHR	KCH	LHR-KUL-KCH	SINGLE	ONLINE CARRIER	1	7156	102	935	MH	N	35	MH	N
LHR	KCH	LHR-KUL-KCH	SINGLE	ONLINE CARRIER	1	7156	102	1055	MH	N	150	MH	N
LHR	SBW	LHR-KUL-SBW	SINGLE	ONLINE CARRIER	1	7281	103	960	MH	N	45	MH	N
LHR	SBW	LHR-KUL-SBW	SINGLE	ONLINE CARRIER	1	7281	103	1020	MH	N	110	MH	N
LHR	BTU	LHR-KUL-BTU	SINGLE	ONLINE CARRIER	1	7330	104	1040	MH	N	100	MH	N
LHR	TGG	LHR-KUL-TGG	SINGLE	ONLINE CARRIER	1	6731	104	895	MH	N	45	MH	N
LHR	TGG	LHR-KUL-TGG	SINGLE	ONLINE CARRIER	1	6731	104	890	MH	N	35	MH	N

(1) (2) (3) (4)

28 result(s) found, displaying result(s) from 1 to 10. Page 1 / 3

2. Phantom Flights

We're going to build on the same query here to demonstrate the Phantom Flights functionality. Looking in the connections tab from the initial report we can see there are 2 departing flights from London Heathrow to Kuala Lumpur, one leaving at 1025 in the morning and arriving at 0645, and the other leaving at 2135, arriving at 1750 the next day.

DeptTime Leg1#	ArrTime Leg1#
21:35	17:50
10:25	06:45

What might the impact be on connectivity if we added another flight from Heathrow to Kuala Lumpur? The Phantom flight functionality allows us to do just that. From the Parameter menu we click on Phantom Flights and then click on the blue arrow to open up the dialogue box.

Parameters

Period

Types of Flights

Carrier

Origin & Destination

Connection Parameters

Phantom Flights

Equipment

More ▾

Phantom Flights

Search Phantom Flights

Clear



4th CX freq

3rd MH frequency

Phantom Flights

Add Phantom Flight

Phantom Flights Upload (csv only)

Choose File No file chosen

Upload and replace Upload and append

Submit File Download Sample File

Flight Name	Carrier	Origin	Destination		Export to Csv	
4th CX freq	CX	SYD	HKG			
3rd MH frequency	MH	KUL	LHR			

OK Clear Cancel

We then select Add Phantom Flight at the top of the page on the right hand side, and this opens up another window. To create a phantom flight you have to enter precise data including the number of seats on the aircraft, the aircraft type, the terminals at which the flight departs and arrives, and a flight number. There are some pre-filled fields once you select a carrier, with Equipment type and seats automatically added. We input a departure time, in this case 1600 which is halfway between the existing two departures, and the elapsed time, and the arrival time is calculated automatically. You can override them if necessary.

Phantom Flight Schedule

Flight Name	Malaysia-3
Carrier	Malaysia Airlines (MH/MAS)
Alliance Member	<input type="checkbox"/>
Domicile Carrier	<input type="checkbox"/>
Carrier Category	Mainline ▾
Flight Number	7703
Origin	LHR - London Heathrow Apt
Origin Terminal	0 ▾
Destination	KUL - Kuala Lumpur International ▾
Destination Terminal	0 ▾
Equipment	333 - Airbus A330-300 ▾
Seats	290 ▾
Departure Time	1600
Elapsed Time	1320
Arrival Time / Day	1220 / 1
Operation Days (1=Mon)	<input checked="" type="checkbox"/> 1 <input checked="" type="checkbox"/> 2 <input checked="" type="checkbox"/> 3 <input checked="" type="checkbox"/> 4 <input checked="" type="checkbox"/> 5 <input checked="" type="checkbox"/> 6 <input checked="" type="checkbox"/> 7
Effective From Date	07Sep2017
Effective End Date	07Sep2017
Service Type	J - Passenger Flights Only ▾

Advanced ▾

Save **Cancel**

All we do now is **Save** and the Phantom Flight appears in the dropdown list as an option. We select it, and then rerun the report.

Number Of Rows Per Page Filter Results

Initial Origin	Final Dest.	Complete Itinerary	Type	Car. Alliance	NumOps	Total Distance	Circuity	Total Time	Car Leg1	Phantom Leg1	Wait Gate1	Car Leg2	Phantom Leg2
LHR	JHB	LHR-KUL-JHB	SINGLE	ONLINE CARRIER	1	6720	100	1175	MH	Y	325	MH	N
LHR	JHB	LHR-KUL-JHB	SINGLE	ONLINE CARRIER	1	6720	100	1080	MH	N	235	MH	N
LHR	JHB	LHR-KUL-JHB	SINGLE	ONLINE CARRIER	1	6720	100	1330	MH	N	480	MH	N
LHR	JHB	LHR-KUL-JHB	SINGLE	ONLINE CARRIER	1	6720	100	1115	MH	N	270	MH	N
LHR	JHB	LHR-KUL-JHB	SINGLE	ONLINE CARRIER	1	6720	100	995	MH	Y	145	MH	N
LHR	KUA	LHR-KUL-KUA	SINGLE	ONLINE CARRIER	1	6662	101	1065	MH	N	220	MH	N
LHR	KUA	LHR-KUL-KUA	SINGLE	ONLINE CARRIER	1	6662	101	1220	MH	Y	380	MH	N
LHR	KUA	LHR-KUL-KUA	SINGLE	ONLINE CARRIER	1	6662	101	1000	MH	N	160	MH	N
LHR	KCH	LHR-KUL-KCH	SINGLE	ONLINE CARRIER	1	7156	102	1055	MH	N	150	MH	N
LHR	KCH	LHR-KUL-KCH	SINGLE	ONLINE CARRIER	1	7156	102	1010	MH	N	105	MH	N

76 result(s) found, displaying result(s) from 1 to 10. Page 1 / 8

The results show that adding in an extra flight increased the number of potential connections from 46 to 76. The extra flight could create many more opportunities for passengers to connect.

You can enter numerous phantom flights and you can use as many of them as you want in your data query.

3. Custom QSI

The final feature is QSI. In this query we're going to look at SkyTeam connections between Rome in Italy and the UK. SkyTeam has, perhaps, less presence at London Heathrow than the other big alliances so some traffic connects via hub airports at Amsterdam and Paris so this query is designed to look at the relative attractiveness of the available connections to passengers.

OAG connections

Carrier Advanced

Include alliance affiliates

Carrier Leg 1

Carrier Leg 2

Carrier Leg 3 (doubles only)

Origin & Destination

Origin

Airport City Country Region

Rome (IT) (ROM),

Direction

Gateway 1

Airport City Country Region

Gateway 2

Airport City Country Region

Destination

Airport City Country Region

United Kingdom (GB),

O+D Pairs

Connection Parameters

Trip Type

All Direct Single Double

Reports | Modules | My OAG | Reference | User Guide | Your Account

Custom QSI Definitions

New Custom QSI

Please be aware QSI may take significantly longer to process large datasets.

Name	Last updated at	Created at
Default	Jul 16 2014, 11:10	

OK | Clear | Cancel

Custom QSI

Name	<input type="text"/>														
QSI	<input checked="" type="checkbox"/> Select All <input checked="" type="checkbox"/> Stops <input checked="" type="checkbox"/> Alliance Member <input checked="" type="checkbox"/> Domicile Carrier <input checked="" type="checkbox"/> Equipment <input checked="" type="checkbox"/> Elapsed Time <input checked="" type="checkbox"/> Departure Time <input checked="" type="checkbox"/> Carrier Category <input checked="" type="checkbox"/> Frequency <input checked="" type="checkbox"/> Connection Wait Time <input checked="" type="checkbox"/> Connection Type <input checked="" type="checkbox"/> Arrival Time														
Parameters	Stops ▾														
Coefficients	<table border="1"> <tr> <td>0</td> <td>2.0</td> </tr> <tr> <td>1</td> <td>0.25</td> </tr> <tr> <td>2</td> <td>0.05</td> </tr> <tr> <td>3</td> <td>0.03</td> </tr> <tr> <td>4</td> <td>0.01</td> </tr> <tr> <td>5</td> <td>0.01</td> </tr> <tr> <td>6</td> <td>0.01</td> </tr> </table>	0	2.0	1	0.25	2	0.05	3	0.03	4	0.01	5	0.01	6	0.01
0	2.0														
1	0.25														
2	0.05														
3	0.03														
4	0.01														
5	0.01														
6	0.01														
<input type="button" value="Save"/> <input type="button" value="Reset"/> <input type="button" value="Cancel"/>															

We've selected Rome as the origin and the UK as the destination, and selected the SkyTeam alliance. As before, we changed the connection type to all, and selected just single as the trip type.

Once we've set up these fields, we can simply click on the QSI box and then New Custom QSI which allows us to choose the coefficients we want.

Each parameter represents a factor which affects passenger preferences for connecting one way vs another way. Over time data analysis has helped us understand how passengers weight the factors so, for instance, if we look at the coefficients for non-stop services, you'll see that there's a weighting of 2 for a non-stop service and of 0.25 for a 1 stop service. This means that a passenger values a non-stop flight 8 times more highly than a 1 stop flight.

There are 11 parameters for which you can set coefficients including departure time, arrival time, aircraft type and the type of airline. OAG has set default coefficients for each of these which are outlined in the Connections Analyser Glossary, but you can override any of them and save them as 'My QSI' in 'My OAG'.

For this query, we've just selected the default QSI coefficients, and can click run then retrieve our report from the Job Bin.

When we open the report, we can see instantly from the map that there are connections via Amsterdam, Paris and Milan. If we look at the 'Routings' tab, we can see all possible connections on SkyTeam airlines between Rome and the UK.

In the last two columns of the Routings tab, there is a QSI score and a QSI percentage field.



Summary	Connections	Routings	Min, Max, Average	Origin Destination	Origin	Destination	Carrier	Gateway		
Number Of Rows Per Page <input type="button" value="10"/> <input type="text"/> Filter Results <input type="button" value="X"/> <input type="button" value="Reset"/>										
Dep Apt	Gateway 1*	Gateway 2	Arr Apt*	Seats*	Circuitry*	Connections*	Frequency*	ASMs*	QSI*	QSI (%)*
FCO	LIN		LHR	2668	100	23	23	20470	15.39	12.5122
FCO	LIN		LCY	3432	100	36	36	32040	10.56	8.5854
FCO	CDG		LHR	3319	101	23	23	20654	6.85	5.5691
FCO	CDG		EDI	1031	103	10	10	12310	6.26	5.0894
FCO	AMS		SOU	320	120	4	4	4320	5.90	4.7967
FCO	AMS		LHR	3701	115	27	27	27513	5.67	4.6098
FCO	AMS		BHD	285	105	3	3	3801	5.63	4.5772
FCO	AMS		LBA	800	104	8	8	8712	5.14	4.1789
FCO	AMS		NWI	824	105	10	10	9510	5.01	4.0732
FCO	AMS		GLA	1492	102	8	8	9936	4.91	3.9919

The Routings Reports shows that there are 25 possible connections on SkyTeam airlines between Rome and the UK, either via Amsterdam or Paris or Milan. The QSI score is based on all the coefficients that we saw earlier and the QSI percentage adds up to 100%, providing the relative ranking for each connection. We can see that there are two connections which are relatively more attractive than others – FCO-LIN-LHR and FCO-LIN-LCY, with QSI percentage scores of 12.5% and 8.5% respectively.

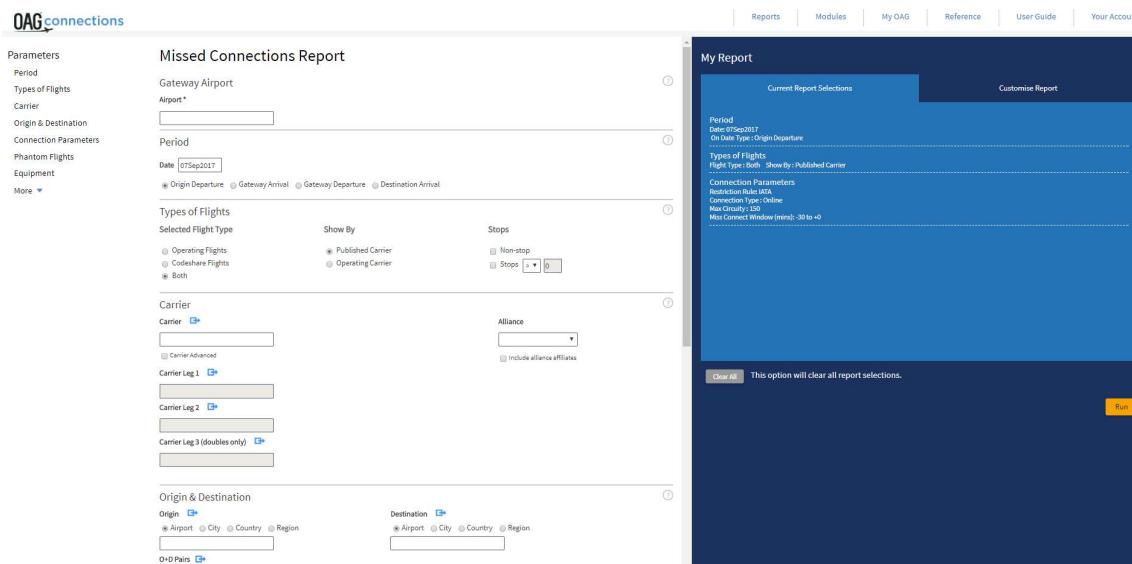
The User Guide tab on the Connections Analyser home screen takes you to some videos which illustrate these examples, and there are more details about QSI and other Connections Features in our FAQ's and Glossary.

3.2 MISSED CONNECTIONS REPORT

The Missed Connections Report allows you to model how many potential missed connections there are at a gateway airport by a specific carrier, or multiple carriers. It does this by allowing you to build potential connections using a time window outside the minimum and maximum connection times used, by looking at what connections might occur within a specified time period behind the Minimum connection time, and beyond the Maximum connection time.

The Missed Connections report is very detailed and takes a while to run so it's helpful to run quite a specific report for what you need otherwise you will generate a lot of data.

To get to the query screen, select the **Available Reports** section on the Home Screen and click **Missed Connections** Report, or use the **Reports** link in the bar at the top of your screen. A new screen like the one below will appear:



The screenshot shows the 'Missed Connections Report' configuration screen. On the left, there are several filter sections: 'Parameters' (Period, Types of Flights, Carrier, Origin & Destination, Connection Parameters, Phantom Flights, Equipment), 'More' (Carrier Advanced, Carrier Leg 1, Carrier Leg 2, Carrier Leg 3 (doubles only)), and 'Origin & Destination' (Origin, Destination). The main area displays the 'Missed Connections Report' settings, including 'Gateway Airport' (empty input field), 'Period' (Date: 07Sep2017, Options: Origin Departure, Gateway Arrival, Gateway Departure, Destination Arrival), 'Types of Flights' (Selected Flight Type: Both, Show By: Published Carrier, Operating Carrier), 'Carrier' (Carrier input field, Carrier Advanced, Carrier Leg 1, Carrier Leg 2, Carrier Leg 3 (doubles only)), and 'Origin & Destination' (Origin input field, Options: Airport, City, Country, Region). To the right, a 'My Report' panel shows 'Current Report Selections' with the same parameters and a 'Customise Report' button. At the bottom, there are 'Clear All' (This option will clear all report selections) and 'Run' buttons.

As before, this report can be run with a variety of options including for all carriers, or a selection; by alliances; and by specific origins and destinations (at different levels e.g. airport, city country and region).

In the same way that we walked through how to run a Connections Analysis report, we'll do the same here. Many of the fields are similar, so we will focus on those that differ from that report.

3.2.1 Report Parameters

The Missed Connections report is very similar to the Connections Analysis report, with two key differences, the **Gateway** field, and the **Miss Connect Window** fields. You can only look at one Gateway at a time. You can also only look at one day at a time.

Missed Connections Report

Gateway Airport

Airport *

1. Gateway Airport

Selecting the airport you want to review potential connections at is the first step. You can either type in the airport code or name or choose from the drop-down list which appears after you begin to type the name or code. Remember, you can analyse only one gateway airport at a time.

2. Missed Connections Window

This field is located in the Connection Parameters area and allows you to model the 'what if' impact of extending or reducing the Minimum and Maximum connecting times. The default is -30 minutes, and +0 minutes, which means that if you run a query on this basis, it will identify what missed connections occur 30 minutes behind the Minimum connection time. You can select any number of minutes in this option, but the longer the time period, the greater the volume of data that will be included.

Connection Parameters

Connection Type	Max. Circuitry	Custom MCT
Online ▾	Medium ▾	150 ▾
Restriction Rule	Miss Connect Window (mins)	
IATA ▾	- 30 ▾	to + 0 ▾
Flight Type		
All ▾		

3. Location Options

There is one other main difference in this report, which are the location options at the top in the **Period** parameter.

Period 

Date 07Sep2017

Origin Departure Gateway Arrival Gateway Departure Destination Arrival

These options allow you to change the focus of the Missed Connections Window by changing the location options. The default is to look at the origin departure times, but you can change this to look at what impact changing the minimum and maximum connecting times have at the gateway arrival, the gateway departure or the destination arrival point.

This option allows you to order the results by the origin departure time, gateway arrival time, gateway departure time or destination arrival time, depending on your preference.

Lastly, the date field only allows you to select a single day.

All other selections work in the same way as the Connections Analysis report.

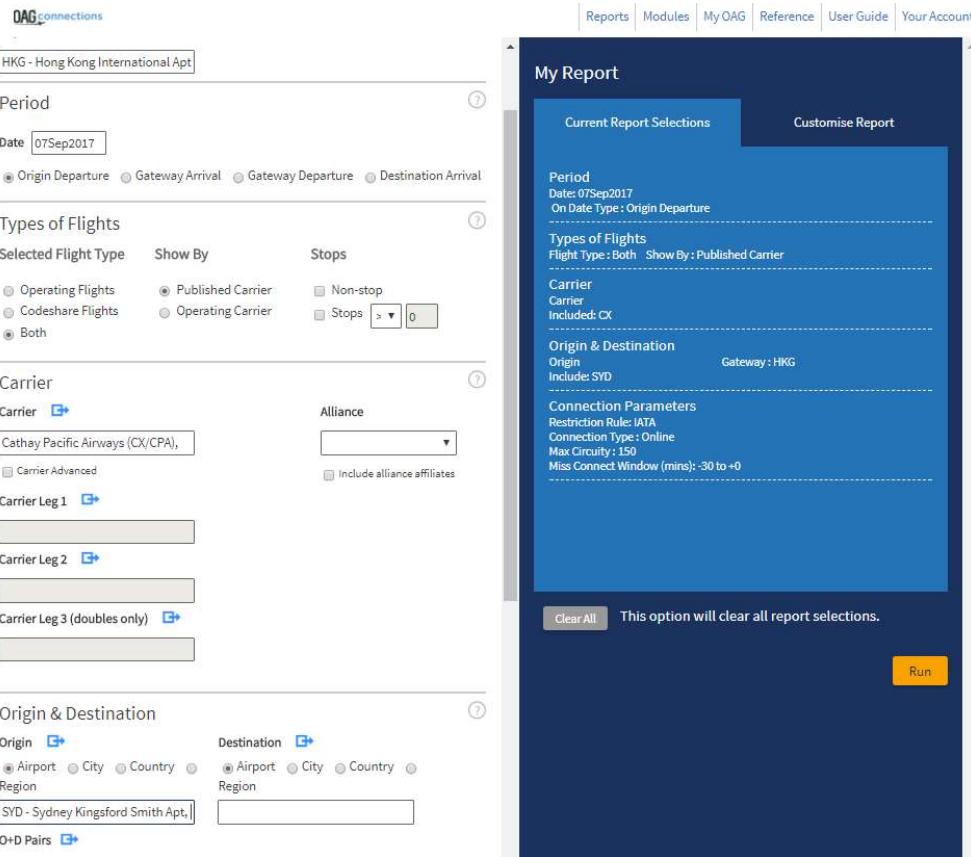
3.2.2 Worked Example – Missed Connections Report

On our website there are some worked example video guides for each type of report. These match up with the worked examples we use here, so you can use this guide and the videos to complement each other if necessary.

In this example we're going to look at what connections Cathay Pacific's Sydney to Hong Kong flight misses. We've selected Hong Kong as our Gateway airport, Cathay Pacific as the carrier, and Sydney as the origin airport. We'll leave the destination field blank as we want to see all possible missed connections. We'll also leave the Miss Connect Window at

the default setting of -30 and +0 minutes, and the default location option of Origin Departure (meaning the Miss Connect window timings will be applied to the origin departure times).

The screenshot below shows the Connections Analysis report with these criteria and default selections



The screenshot displays the 'My Report' interface of the OAG Connections Analyser. At the top, there are navigation links: Reports, Modules, My OAG, Reference, User Guide, and Your Account.

Current Report Selections:

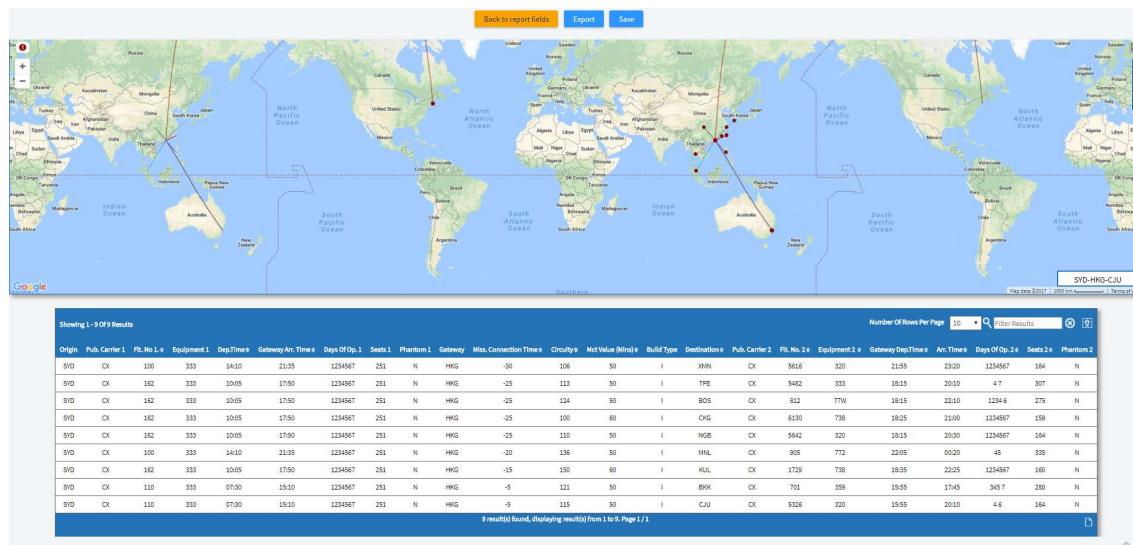
- Period:** Date: 07Sep2017, On Date Type: Origin Departure
- Types of Flights:** Flight type: Both, Show By: Published Carrier
- Carrier:** Carrier: Cathay Pacific Airways (CX/CPA), Alliance: None, Include alliance affiliates: Off
- Carrier Leg 1:** None
- Carrier Leg 2:** None
- Carrier Leg 3 (doubles only):** None
- Origin & Destination:**
 - Origin:** SYD - Sydney Kingsford Smith Apt., Region: 0+D Pairs
 - Destination:** None

Connection Parameters:

- Restriction Rule: IATA
- Connection Type: Online
- Max Circuitry: 150
- Miss Connect Window (mins): -30 to +0

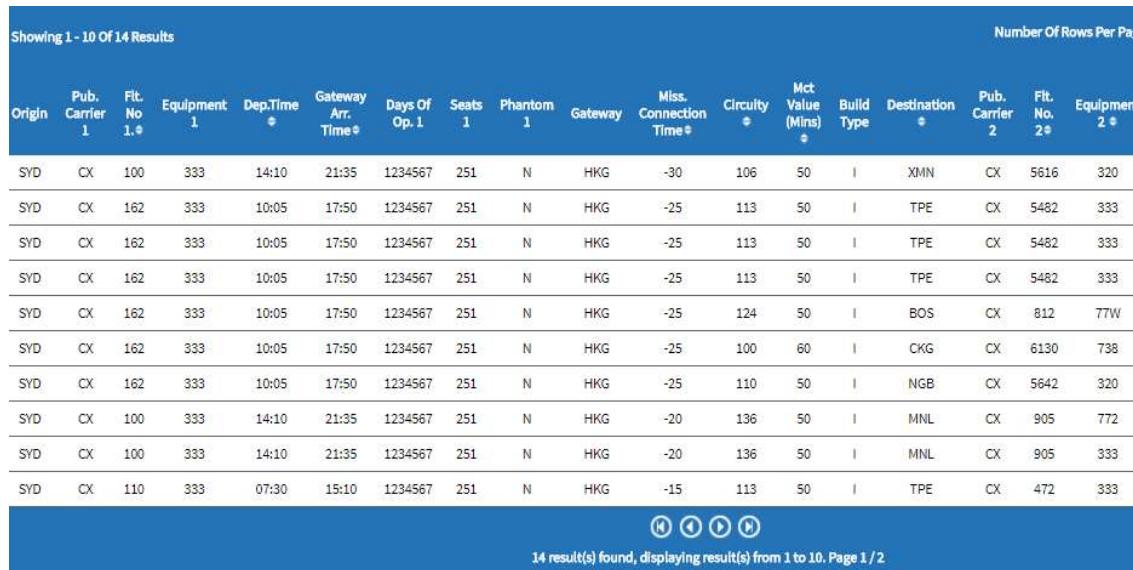
At the bottom left is a 'Clear All' button, and at the bottom right is a yellow 'Run' button. A note below the 'Clear All' button states: "This option will clear all report selections."

We then click Run and as with other OAG Analyser reports, the data appears as shown in the screenshot below:



The results here show what onward connecting flights would have been feasible if our inbound flight had arrived up to 30 minutes earlier and left no later than the current schedule. You can see that there are 9 potential missed connections.

If we change the focus of our query to the Gateway arrival, the results are now determined by the Miss Connect Window being applied to the Gateway Arrival (Hong Kong) times.



The figure shows a world map with flight routes originating from Sydney (SYD) and arriving at Hong Kong (HKG). A red dot marks the arrival time of the inbound flight at HKG. The results table below lists 14 potential missed connections:

Origin	Pub. Carrier 1	Flt. No 1. #	Equipment 1	DepTime #	GatewayArr. Time#	Days Of Op. 1	Seats 1	Phantom 1	Gateway	Miss. Connection Time#	Circuity #	Mkt Value (Mins) #	Build Type	Destinations	Pub. Carrier 2	Flt. No. 2 #	Equipment 2 #
SYD	CX	100	333	14:10	21:35	1234567	251	N	HKG	-30	106	50	I	XMN	CX	5616	320
SYD	CX	162	333	10:05	17:50	1234567	251	N	HKG	-25	113	50	I	TPE	CX	5482	333
SYD	CX	162	333	10:05	17:50	1234567	251	N	HKG	-25	113	50	I	TPE	CX	5482	333
SYD	CX	162	333	10:05	17:50	1234567	251	N	HKG	-25	113	50	I	TPE	CX	5482	333
SYD	CX	162	333	10:05	17:50	1234567	251	N	HKG	-25	124	50	I	BOS	CX	812	770
SYD	CX	162	333	10:05	17:50	1234567	251	N	HKG	-25	100	60	I	OKG	CX	6130	738
SYD	CX	162	333	10:05	17:50	1234567	251	N	HKG	-25	130	50	I	NGB	CX	5642	320
SYD	CX	162	333	10:05	17:50	1234567	251	N	HKG	-25	110	50	I	CKG	CX	6130	738
SYD	CX	162	333	10:05	17:50	1234567	251	N	HKG	-25	110	50	I	NGB	CX	5642	320
SYD	CX	100	333	14:10	21:35	1234567	251	N	HKG	-20	136	50	I	MNL	CX	905	772
SYD	CX	100	333	14:10	21:35	1234567	251	N	HKG	-20	136	50	I	MNL	CX	905	333
SYD	CX	110	333	07:30	15:10	1234567	251	N	HKG	-15	113	50	I	TPE	CX	472	333

Number of Rows Per Page: 10 | Filter Results

You can see that there are now 14 potential missed connections.

As with all the other OAG Analyser reports you can export the data and save the query if you want to return to it at a future point. Reports will appear in the Job Bin for 4 days after you run them, but after that they will be deleted.

The best course of action if you think you will want to revisit a report is to save it.

4 MY OAG

In this section we will take a look at some of the general functions that run across Connections Analyser. These are very similar to those in Schedules and Traffic Analyser. These include the ability to save reports; and to customise groups of information to make running reports with similar query types easier. There is also a detailed reference section where you can look up information on a range of areas.

These are all useful steps that should help you to make the most of your Analyser experience.

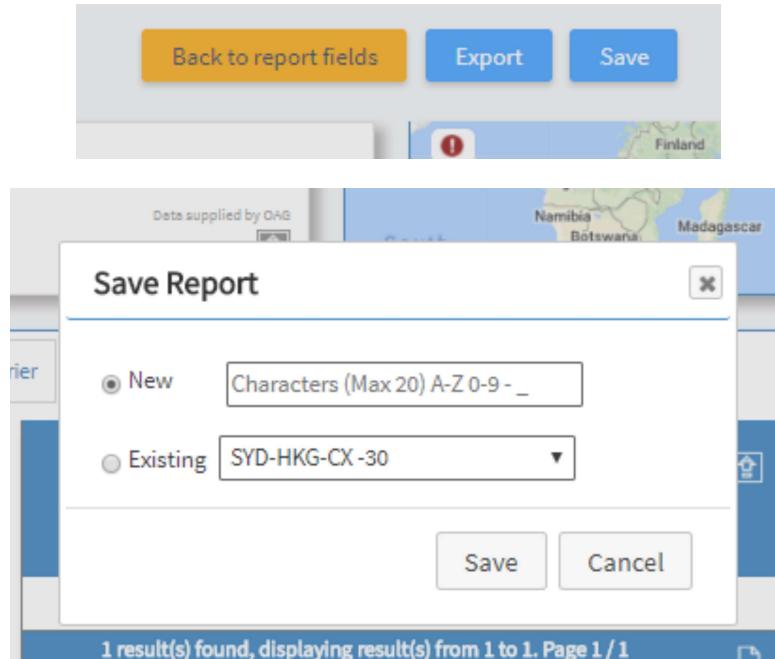


Reference Area	What can I use it for?
Saved Reports	Save reports to allow them to be run again
Job Bin	Collecting reports once they have been processed
Customise Groups	Set up a range of criteria for airlines, airports, etc
User Preferences	Setting default preferences for extracting reports
My MCTs	Customise and save a group of Minimum Connecting Times
My QSI	Customise and save QSI co-efficients
My Phantom Flights	Set up test flights to model connectivity

4.1.1 SAVING REPORTS

Saving a report and naming it means you can return at any time and re-run the report based on your original query, or amend some of the details and revisit it. To save a report in either

of the Connections Analyser reports you simply click on **Save** which is located in the top right hand corner. This opens up a box, as shown in the screenshot below and all you need to do is enter a name for the report and then click on Save.



Once you've saved a report, you can view it from the Saved Reports option in My OAG as displayed below. My OAG can be accessed at any time from the main toolbar at the top of the screen.

Saved Reports

Date Saved	Report Name	DataSet	Report Type	Parameters	View	Run	Share	Delete
08 Dec 2014	SYD-HKG-CX -30	Connections	Missed					
08 Dec 2014	SYD-HKG-CX +45	Connections	Missed					
07 Dec 2014	KUL-LHR-GB MCT	Connections	Connections					
02 Dec 2014	ROM***-GB	Connections	Connections					
02 Dec 2014	KUL-LHR-GB base	Connections	Connections					
02 Dec 2014	KUL-LHR-GB Phantom	Connections	Connections					
02 Dec 2014	KUL-LHR-GB MCT 30	Connections	Connections					
02 Dec 2014	DXB-LGW-GB	Connections	Connections					

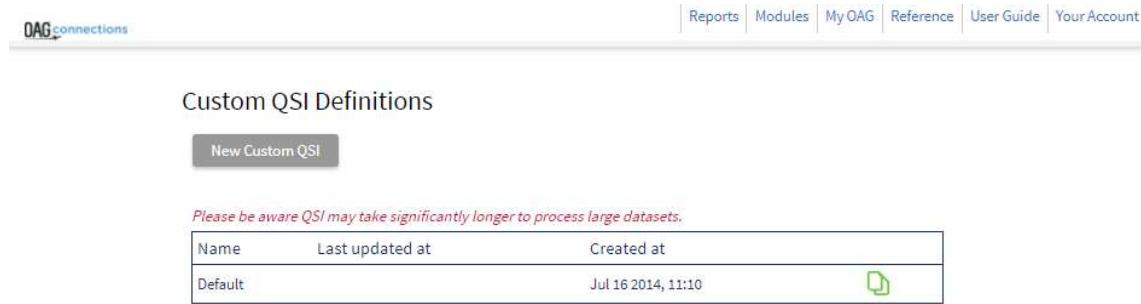
To view the report, you click on open, to rerun the report you simply click run, and there is a third option to share the report with another user, by clicking share and entering their user ID.

4.1.2 CUSTOMISING DATA

A helpful feature in OAG Connections Analyser is the ability to set up groups of data – you can do this for carriers, cities, countries, equipment, airports, regions and states. You can also create Phantom Flights (we cover the steps to do this earlier in this guide), your own QSI coefficients and MCT's as well as the above data groups.

To set up a new QSI definition, you need to take the following steps:

Go to My OAG, then select My QSI. This opens the following page:



Name	Last updated at	Created at
Default	Jul 16 2014, 11:10	

Please be aware QSI may take significantly longer to process large datasets.

New Custom QSI

Click on New Custom QSI and the following table opens up allowing you to pre-determine whatever coefficients you wish. For each parameter selected in the drop down box a unique set of coefficients appears, all of which can be changed by the user. Once you've changed what you need, you should give the custom QSI a name, and then save it. It will then appear in your default list.

Custom QSI

Name	<input type="text"/>	
QSI	<input checked="" type="checkbox"/> Select All <input checked="" type="checkbox"/> Stops <input checked="" type="checkbox"/> Alliance Member <input checked="" type="checkbox"/> Domicile Carrier <input checked="" type="checkbox"/> Equipment <input checked="" type="checkbox"/> Elapsed Time <input checked="" type="checkbox"/> Departure Time <input checked="" type="checkbox"/> Carrier Category <input checked="" type="checkbox"/> Frequency <input checked="" type="checkbox"/> Connection Wait Time <input checked="" type="checkbox"/> Connection Type <input checked="" type="checkbox"/> Arrival Time	
Parameters	<input type="text" value="Stops"/>	
Coefficients	0	<input type="text" value="2.0"/>
	1	<input type="text" value="0.25"/>
	2	<input type="text" value="0.05"/>
	3	<input type="text" value="0.03"/>
	4	<input type="text" value="0.01"/>
	5	<input type="text" value="0.01"/>
	6	<input type="text" value="0.01"/>
<input type="button" value="Save"/> <input type="button" value="Reset"/> <input type="button" value="Cancel"/>		

Setting up Custom MCTs is a similar process. Access the menu from the same place, My OAG, then select new custom MCT

Custom MCT Definitions

Name	Last updated at	Created at	
Default	Aug 13 2014, 11:41	Aug 13 2014, 11:41	
4hours MaxCT	Sep 15 2015, 10:24	Sep 15 2015, 10:24	
30min MCT	Dec 08 2014, 00:10	Dec 04 2014, 10:50	

The following box appears and you can pre-set your custom MCTs, remembering to give them a name and save before closing the box.

Custom MCT

Name

Via 1 (Affects single and double connecting flights)

Domestic - Domestic

min CT mins max CT mins

Domestic - International

min CT mins max CT mins

International - Domestic

min CT mins max CT mins

International - International

min CT mins max CT mins

Via 2 (Affects double connecting flights only)

Domestic - Domestic

min CT mins max CT mins

Domestic - International

min CT mins max CT mins

International - Domestic

min CT mins max CT mins

International - International

min CT mins max CT mins

The process for setting up these different types of groups is similar. You select the type of group you want and add the details of carrier, or airports, or any other field you need, then save the group giving it a new name. It will then appear in your list of Saved Groups.

[OAGconnections](#)
[Reports](#) | [Modules](#) | [My OAG](#) | [Reference](#) | [User Guide](#) | [Your Account](#)

Customise Groups

Select a group type: Airline Airport City Country Region Equipment

Groups : Carrier

Create or Edit Group

Or enter multiple carriers in the following format

AA,DL,UA,BA
or
AA
DL
UA
BA

Save Group

 New

 Existing




Saved Groups

Showing 1 - 3 Of 3 Results

Number Of Rows Per Page

10



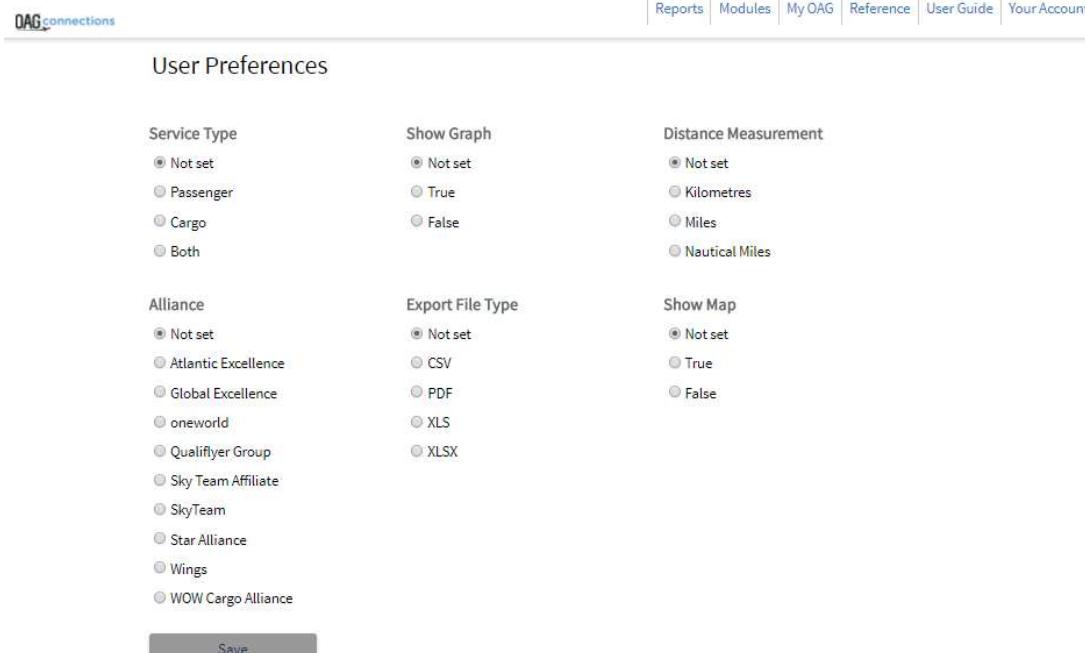


Name	Carrier Selection	Last Updated At	Created At	Add	Delete
European LCCs	EW, FR, U2, W6	Jun 23 2017, 14:06	Mar 28 2017, 12:13		
My 1st Group	AA, DL, UA	Mar 21 2017, 13:35	Mar 21 2017, 13:35		
US Majors	AA, DL, UA	Mar 30 2017, 19:15	Mar 30 2017, 19:15		

3 result(s) found, displaying result(s) from 1 to 3. Page 1 / 1

4.1.3 USER PREFERENCES

In the **User Preferences** section you can save your preferences to always ensure that reports are displayed in your preferred formats.



The screenshot shows the 'User Preferences' page with the following settings:

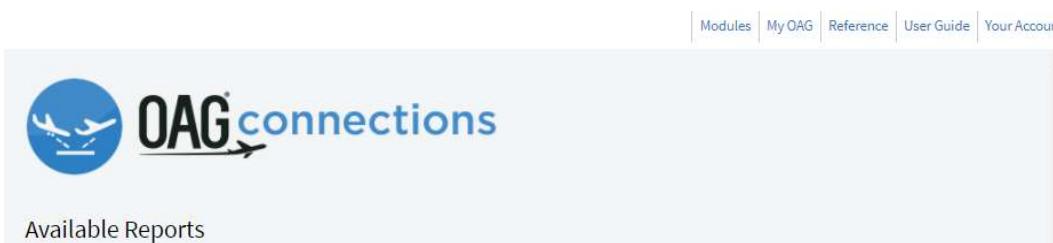
Service Type	Show Graph	Distance Measurement
<input checked="" type="radio"/> Not set	<input checked="" type="radio"/> Not set	<input checked="" type="radio"/> Not set
<input type="radio"/> Passenger	<input type="radio"/> True	<input type="radio"/> Kilometres
<input type="radio"/> Cargo	<input type="radio"/> False	<input type="radio"/> Miles
<input type="radio"/> Both		<input type="radio"/> Nautical Miles

Alliance	Export File Type	Show Map
<input checked="" type="radio"/> Not set	<input checked="" type="radio"/> Not set	<input checked="" type="radio"/> Not set
<input type="radio"/> Atlantic Excellence	<input type="radio"/> CSV	<input type="radio"/> True
<input type="radio"/> Global Excellence	<input type="radio"/> PDF	<input type="radio"/> False
<input type="radio"/> oneworld	<input type="radio"/> XLS	
<input type="radio"/> Qualiflyer Group	<input type="radio"/> XLSX	
<input type="radio"/> Sky Team Affiliate		
<input type="radio"/> SkyTeam		
<input type="radio"/> Star Alliance		
<input type="radio"/> Wings		
<input type="radio"/> WOW Cargo Alliance		

Save

4.1.4 REFERENCE DATA

Lastly the OAG Reference section allows you to look up reference data associated with airlines and airports. You reach this section by clicking on reference in the bar at the top of the screen



The screenshot shows the 'Available Reports' section of the Reference page, which is currently empty.

Once you click on Reference, the following screen appears, allowing you to search for data in 10 different areas.

