Rolls-Royce SMS Solution v2019.1 User Manual - Analysis

	Name	Date
Author	Martha Machin Palmer	29 Jul 2019
Reviewed by	Margaret Gascoine	5 Aug 2019
Editorial review by	Stuart Gould	6 Aug 2019
Approved By	Ross Thomas	6 Aug 2019

Record of Revisions

Date	Revision Number	Description of Revision
29 Jul 2019	0.1	First draft by Martha Machin Palmer. Updated for v2019.1 specifically: • Section 4.5 Finding Criteria • Section 4.6 Action Criteria
5 Aug 2019	0.2	Reviewed by Margaret Gascoine.
6 Aug 2019	0.3	Editorial check by Stuart Gould
6 Aug 2019	1	Approved for release with 2019.1

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Content

1.0

1. Introduction

The Analysis module is divided into four pages:

- **Analysis (home page):** A dashboard of graphs.
- **Operation Statistics:** Record and report on statistics such as number of hours flown each month.
- **Statistics/Analysis:** The powerhouse of the Analysis module – output graphs and reports.
- **Scheduled Reports:** Using saved criteria, set up reports to be automatically emailed out at scheduled intervals.

1.0

2. Homepage graphs

When you first access the **Analysis** module home page, there will be 4 blank sectors waiting for you to select graphs.
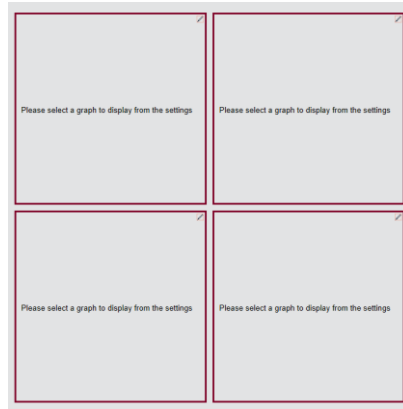
1. To select a graph, click the edit icon in the top-right corner of one of the sectors.

2. Use the drop-down list to select from the pre-defined graphs.

Occurrence Costs - Year to Date	Actions Raised (by Month)
Occurrences (Total) - Year to Date	Actions Closed by Due Date (Percentage)
Occurrences (By Month)	eReports Submitted (By Month)
Occurrences (By Type) - Year to Date	eReports Imported (By Month)
Occurrences This Month	eReports Rejected (By Month)
Occurrences This Year	eReports Returned (By Month)
Findings Raised (by Month)	eReports (By Month)
Active Findings by Risk	Assessments closed by Due Date (Percentage)
Finding Response Accepted by Due Date (Percentage)	Investigations closed by Due Date (Percentage)
Top 10 Causes - Year to Date	Audits closed by Due Date (Percentage)

3. Once you have selected the graph, choose whether you want to filter the graph (either by eReport type, Occurrence type or department, depending on the graph selected):
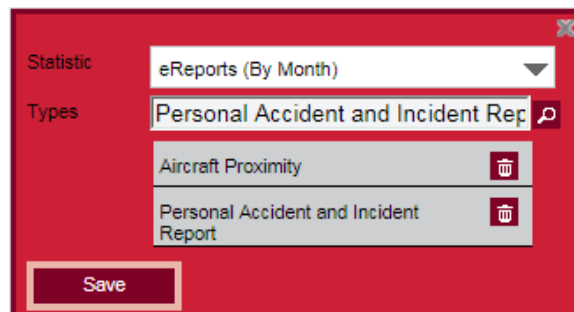
Note: You can select multiple eReport/Occurrence Types.

4. Click **Save**. The selected graph will appear. Your selection will be remembered next time you log in.

5. On some graphs, you can click on them to be taken through to relevant area.

2.1 Graph Details

Title	Type	Data	Date Range	Grouped by	On Click
Occurrence Costs – Year to Date	Pie	Occurrence Costs	Year to Date	Cost Category	Search Occurrences
Occurrences (Total) – Year to Date	Column	Number of Occurrences **Note:** This is *cumulative* i.e. January shows all Occurrences submitted in January; February shows all Occurrences submitted in January and February etc.	Year to Date	Month	Search Occurrences
Occurrences (By Month)	Column	Number of Occurrences	Previous 12 months	Month	Search Occurrences
Occurrences (By Type) – Year to Date	Column	Number of Occurrences	Year to Date	Month & Type	Search Occurrences
Occurrences This Month	Pie	Number of Occurrences	Current month	Occurrence Type	Search Occurrences
Occurrences This Year	Column	Number of Occurrences	Year to Date	Occurrence Type	Search Occurrences
Findings Raised (by Month)	Column	Number of Findings	Previous 12 months	Month raised	Search Findings
Active Findings by Risk	Column	Number of Active Findings (Response State = 'Required' or 'Submitted')	n/a	Risk level	Search Findings
Findings Response Accepted by Due Date (Percentage)	Pie	Percentage of Findings	All dates	Response Accepted by Due Date vs. Response Accepted after Due Date	n/a

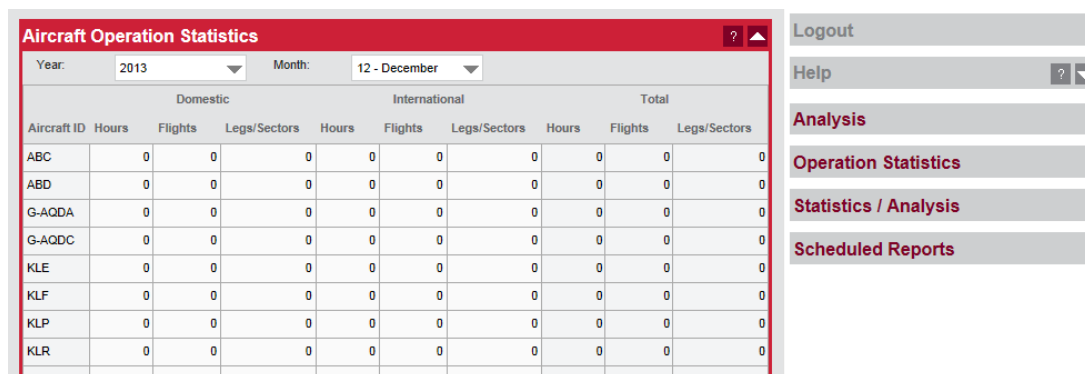| Title	Type	Data	Date Range	Grouped by	On Click
Top 10 Causes – Year to Date	Pie	Percentage of Causes	Year to Date	Causal Factors	n/a
Actions Raised (by Month)	Column	Number of Actions	Previous 12 months	Month raised	Search Actions
Actions Closed by Due Date (Percentage)	Pie	Percentage of Actions	All dates	Closed by Due Date vs. Closed after Due Date	n/a
eReports Submitted (By Month)	Column	Number of eReports submitted	Previous 12 months	Month	Search eReports
eReports Imported (By Month)	Column	Number of eReports imported (accepted)	Previous 12 months	Month	Search eReports
eReports Rejected (By Month)	Column	Number of eReports rejected	Previous 12 months	Month	Search eReports
eReports Returned (By Month)	Column	Number of eReports returned	Previous 12 months	Month	Search eReports
eReports (By Month)	Column	Number of eReports submitted, imported, rejected & returned	Previous 12 months	Month and Status Change (i.e. submitted, imported, rejected, returned)	Search eReports
Assessments closed by Due Date (Percentage)	Pie	Percentage of Assessments	Last 12 months	Closed by Due Date vs. (closed after Due Date OR still open and overdue)	n/a

Title	Type	Data	Date Range	Grouped by	On Click
Investigations closed by Due Date (Percentage)	Pie	Percentage of Investigations closed by Due Date	Last 12 months	Closed by Due Date vs. (closed after Due Date OR still open and overdue)	n/a
Audits closed by Due Date (Percentage)	Pie	Percentage of Audits Closed by Due Date	Last 12 months	Closed by Due Date vs. (closed after Due Date OR still open and overdue)	n/a

3. Operation Statistics

3.1 Aircraft Operational Statistics

The Aircraft Operations Statistics form is used to record the aircraft **flight hours**, **number of flights** and **legs/sectors** operational data required for performing normalised rate-based analysis of Occurrence data.

1. Go to **Operation Statistics**. **Year** and **Month** default to the previous month.

2. To record operation statistics for a different month, use change **Year** and **Month**.

Note: You cannot record statistics for future months.

3. It is possible to record statistics for the overall **Fleets** or for each individual **Aircraft** (which can be set up in **Administration** > **System Assets > Aircraft & Fleets**). If you record by fleet, a row will display for each fleet; if you record by aircraft, a row will display for each aircraft.

The fields available to record data for each Aircraft will depend on the settings in the **Aircraft Statistics** section of **Analysis Admin**. It is possible to record flying hours, number of flights, number of legs/sectors (or a sub-set of these), and to specify whether a break-down by Domestic flights vs. International flights should be captured.

4. Enter the data for the relevant Aircraft / Fleet in the selected month in the appropriate columns.

If you are recording **International vs. Domestic**, column totals will calculate automatically (each row will be updated as you move away from it).

3.2 Other Rate Statistics

The **Other Rate Statistics** section is used to collect the associated data on a monthly basis once a custom Rate Type has been defined.

For example, if an Occurrence Type to collect Occupational Safety and Health incidents has been defined, it may be desirable to plot these events using the number of person hours worked or the average number of staff. These two categories can be defined and the activity rate entered on a monthly basis.

1. Expand **Other Rate Statistics**. The grid shows the year range from **Start Year** to **End Year**, with months along the top.

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2004	90	110	150	125	95	100	120	112	98	106	135	140
2005	105	89	95	118	143	103	90	137	128	96	100	133
2006	98	50.25	95	0	0	0	0	0	0	0	0	0
2007	3050	3098	3075	3120	3320	3570	3600	3650	3705	3540	3460	3350
2008	0	0	0	0	0	0	0	0	0	0	0	0
2009	0	0	0	0	0	0	0	0	0	0	0	0
2010	0	0	0	0	0	0	0	0	0	0	0	0
2011	0	0	0	0	0	0	0	0	0	0	0	0
2012	0	0	0	0	0	0	0	0	0	0	0	0
2013	0	0	0	0	0	0	0	0	0	0	0	0
2014	0	0	0	0	0	0	0	0	0	0	0	0

2. If you wish to record statistics for a year which is out of range, use the drop-down lists to select a wider range.

3. Select the **Rate Type** against which the activity is to be recorded.

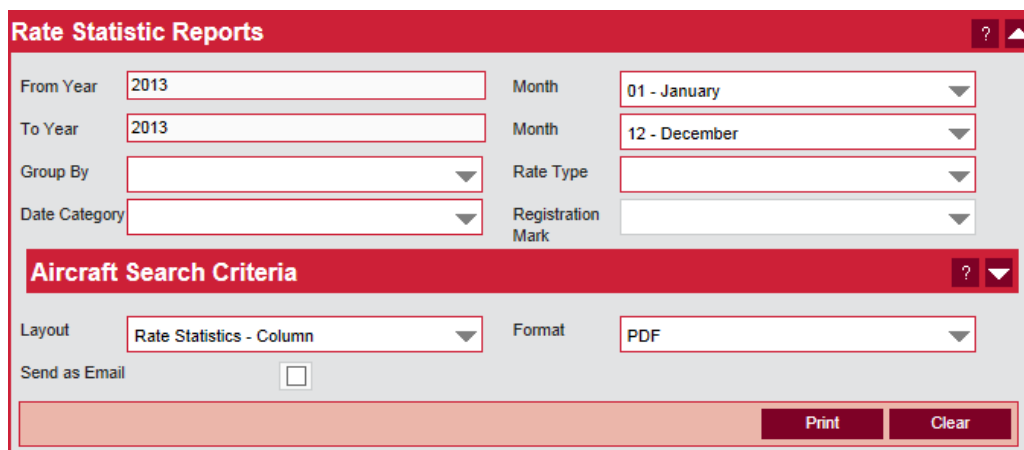Any data already entered for this Rate Type within the year range specified will be displayed in the grid.

4. Enter or amend the data in the appropriate fields (use decimal places and negative values if appropriate). Changes are saved automatically when you leave each field.

3.3 Rate Statistic Reports

The **Rate Statistics Reports** provide a means to view the stored base rate information. This includes generating a graph of the Flying Hours, Number of Flights or any custom rate type recorded in the system.

Options on the **Rate Statistics Graphs** can be used to limit the information plotted to data that meets a certain criteria, as well as specifying how the data is to be presented.

1. Expand the **Rate Statistic Reports** section.

2. Select the **Rate Type**. This specifies what activity data should be shown on the graph. The list will include one or both of the predefined rate types **Flying Hours** and **Number of Flights** (depending on the set-up in **Administration** > **Analysis Administration** > **Rate Types**), as well as any custom rate types.

3. Set the **Group by** value to determine the break-down shown on the graph:

Group by	x axis	y axis	Clustered by
Fleet (All Fleets)	Time	Number of [Rate Type selected]	Fleet
Aircraft Model/Fleet Filter	Time	Number of [Rate Type selected]	N/A – totals only **Note:** You will be prompted to enter criteria in the Aircraft Search Criteria section
Total	Time	Number of [Rate Type selected]	N/A – totals only
International vs Domestic	Time	Number of [Rate Type selected]	International vs Domestic

Note: If you use a custom **Rate Type**, only the **Total** option will be available.

4. Choose a date type to determine the date grouping (X-axis) of the data on the graph. The options available are:

- **Month**
- **Quarter**
- **Year**

Note: The Date Category options are disabled when the Graph Type **Pie** is selected because date intervals are not required for a Pie graph.

5. Optionally, change any of the following fields:

From Year/Month **To Year/Month**	The **From Year/Month** and **To Year/Month** fields can be used to specify the date range for the graph. Enter the **Year** as a four-digit number, and select the **Month** from the drop-down list.
Registration Mark	The Registration (Tail No or Ship No) against which the activity data is recorded. Select a value from the drop-down list to return the **Flying Hours** or **Number of Flights** performed by a specific aircraft. **Note:** The **Registration Mark** can only be used as criteria if activity data is collected per aircraft, rather than per fleet.
Aircraft Search Criteria	This allows you to specify one or more fleets, Manufacturer/Model or Engine Types/Model combinations as criteria for a search. When a filter is used, only activity data recorded against aircraft of the specified fleet and/or manufacturer and/or model are included on the graph. One line/column in the graph will be plotted for each item in the filter list. **Note:** Manufacturer/Model filters can only be used if activity data is collected per aircraft, rather than by fleet.
Layout	The following types of graphs are available: • **Area** • **Column** • **Data Only (raw data)** • **Line** • **Pie**
Format	Choose the format to output to (PDF, Word DOC or Excel XLS).

6. Click **Print**. The corresponding output will be displayed.
7. To clear all current search criteria, click **Clear**.

3.4 Departure Landing Statistics

If your organisation has enabled it in Analysis Options, the **Departure Landing Statistics** can be used to store and view departure and landing information. Options to specify criteria are available to limit the information displayed. A report can be generated which applies the criteria specified.

3.4.1 Adding Departure Landing Statistics

1. Expand the **Departure Landing Statistics** section.

2. Click **+** to add a new statistic. The **Add Departure Landing Statistic** dialog will open.

3. Enter a value for all of the following fields.

Departure / Landing	Select **Departure** or **Landing** from the list.
Aircraft Model	The Manufacturer/Model of Aircraft which the departure or landing statistic being recorded is against. Click on the **Search** icon to display a list of Models and their Manufacturer. You can type into the **Manufacturer** or **Model** search fields at the bottom to narrow the list. Select the row and click **Submit**.
Location	The location where the departures or landings took place. Click on the **Search** icon to display a list of pre-defined locations. You can type into the **Name** search field at the bottom to narrow the list *(See 4.3.1.1 How to Search on Location fields)*. Select the row of the location and click **Submit**.
Department	The department responsible for the departures or landings. Click on the **Search** icon to display a list of Departments. You can type into the **Name** search field at the bottom to narrow the list. Select the row of the department and click **Submit**.

Month	Select a month from the list which the departures or landings took place.
Year	Type in the year which the departures or landings took place.
Number of Flights	Type in the number of flights which took place.

4. Click **Save**. The new statistic will be added to the list.

3.4.2 How to generate output

You can choose to filter the list shown by changing any of the following fields:

Date From/To	Use this to identify Departures and Landings in the specified date range. Select one of the pre-defined date ranges using the **Date Option** (e.g. Previous Month, Previous 3 Months). This will automatically set the **From** and **To** date fields to the appropriate values based on Today's date. To manually enter the date criteria, set **Date Option** to **Enter Date Range**. This will enable the **From** and **To** fields. **Note:** When entering date criteria only 1 of the dates (i.e. either the **From** or **To** date) needs to be provided. The other date field can be left blank.
Location	Click on the **Search** icon to add a filter for location. A dialog will open to allow you to select a pre-defined Location value. *See 4.3.1.1 How to Search on Location fields.*
Departure / Landing	Select **Departure** from the list to only include Departures, or select **Landing** to only include Landings.
Aircraft Model	The Manufacturer/Model of Aircraft which the departure or landing statistics are against. Click on the **Search** icon to display a list of Models and their Manufacturer. You can type into the **Manufacturer** or **Model** search fields at the bottom to narrow the list. Select the row and click **Submit.**
Department	The department responsible for the departures or landings. Select the desired department from the list. Click on the **Search** icon to display a list of Departments. You can type into the **Name** search field at the bottom to narrow the list. Check **Show Inactive** to include inactive departments. Select the row of the department and click **Submit.** Once you have selected a department, decide whether or not to include any of the sub-departments that belong to the department. If you want to include statistics by the department specified AND its sub-departments, check **Include Subsidiary Departments**.

1. To clear the fields entered at any time, click **Reset**.
2. Once you have finished specifying criteria, click **Search**. The list will be filtered to show only Departure and/or Landing Statistics which meet the criteria.
3. To print a report of the statistics displayed, click the **Print** icon on the grid. The **Print Departure Landing Statistics Report** dialog will open.

4. Select the desired **Layout** and **Format** from the drop-down lists. To email the report check **Send as Email.**

5. Click **Print**. The report will be generated, applying the criteria specified.

4. Statistics/Analysis – Search Criteria

This **Statistics/Analysis** facility provides a range of tools that enable you to search on, report on and analyse the data recorded.
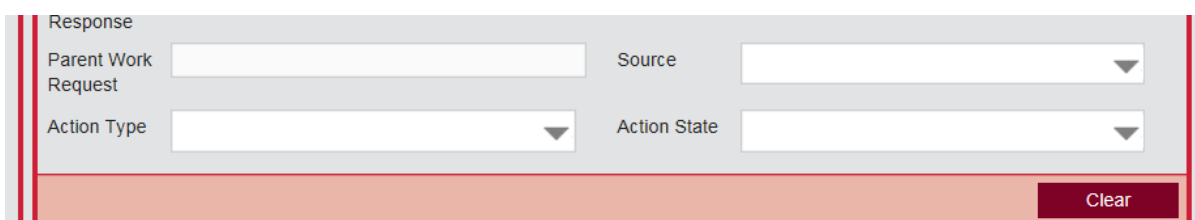
You can specify criteria relating to one record type, but ask for output of another record type. For any output options, if criteria have been entered for a record other than that which has been specified for output, data will be output which *links to those* records which match the criteria specified.

For example, if you have entered *Investigation* Criteria, but want a list of *Occurrences*, the system will compile a list of all Investigations which match the criteria specified. It will then pull back all *Occurrences* which are linked to those Investigations, and show those Occurrences in the output.

Similarly, if you have entered *Occurrence* Criteria but want a list of *Findings*, the system will compile a list of the Occurrences which match your criteria, then pull back all the Investigations linked to those Occurrences, *then* it will pull back the Findings linked to those Investigations.

4.1 How to generate output

1. Go to **Statistics/Analysis**.

2. Enter your **Search Criteria** using any of the expandable sections.

3. Specify how the output should appear using the **Output Criteria** section.

4. Click **Generate** in the **Workflow** tool or at the bottom of the page.

5. To clear all your search criteria, click **Clear Criteria** in the **Workflow** tool. You can also clear individual sections by clicking the **Clear** button in that section.
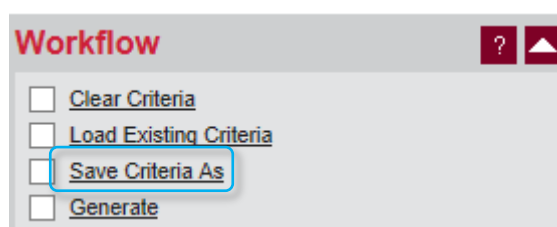
4.2 How to save a set of criteria

A set of search criteria (and the associated output specification) can be saved to use in the future (for example to produce a monthly report). These saved criteria can also be used in the **Scheduled Reports** page to set up periodical reports that run on a regular basis and are emailed to an email address.

Note: Only outputs which use **Analysis Graphs** or **Reports** as the **Output Option** can be emailed in a Scheduled Report Set.

1. Select the criteria and output options desired.

2. Click **Save Criteria As** in the **Workflow** tool.

3. Enter a **Criteria Name** (up to 255 characters) in the text field.

4. Choose who can use the Criteria to run reports.

- **Only Me:** Criteria will be private
- **My Department:** Criteria will be available to all users with the same Department as you on their user profile.
- **Everyone:** Anyone can access your saved criteria.

Note: Their own security access will still be applied to the data the saved criteria returns.

5. Click **Save**. The search criteria will be saved, along with a record of who created it and when.

6. To load a saved criteria, click **Load Existing Criteria** in the **Workflow** tool.

7. Select whether you want to choose from public criteria sets, criteria sets which have been shared with your department, or your own personal criteria sets.

8. Select the desired search.

Note: If the title is too long to see, hover the mouse over that record and the title will appear as pop-up text.

9. Click **Select**. The name of the criteria set will appear at the top of the screen, and all the criteria and output options will be set according to their saved values.

10. Click **Generate** to generate output.

11. Make any changes required to the search criteria or output criteria and click **Save Criteria** in the Workflow.

12. To delete a criteria, click **Delete Criteria** in the **Workflow**.

4.3 Occurrence Criteria

The criteria available in the **Occurrence Criteria** section are listed below. Use any of these in combination to return the desired set of records.

The labels for some of the fields may differ from those mentioned below because of the customisation done within the Occurrence form design process.

Searches will only work for Occurrences where the field used as a criterion for the search has been included on the Occurrence data entry form (e.g. if the Originator field is not included on any of the Occurrence Data Entry forms, then you will not be able to search by Originator. Searches using Originator as criteria will return no matches).

Fields left empty in the **Occurrence Criteria** section will not affect the search. To return all Occurrences in the system leave all criteria fields blank. We recommended that at least a date range be specified for all searches; if there are a large number of Occurrences recorded in the system, a search for all Occurrences may take a long time.

4.3.1 Occurrence Fields

The search options presented in the Occurrence Criteria section are almost identical to those presented in the **Occurrence Advanced Search** page in the **Safety** module.

Note: If Occurrences contain **Secure** fields, and you do not have permission to secure fields, the matching search criteria fields will appear red on the search form and will not affect the search results.

Occurrence Type	Click on one or more Types in the list box to only return Occurrences of those Types.
	If Occurrence Type Security is enabled for the viewing of data, the list of Types will only include those that you are authorised to view.

Title	Search for a word or phrase contained in the **Occurrence Title**.
Text	Search for a word or phrase contained in the **Occurrence Title** or **Occurrence Description**.
State	Select the **State** from the list to search for Occurrences with that **State**. An additional state of **All Active** is available to return Occurrences that are either **Open** or **In Progress**.
Investigation Required	The level of Investigation which is required on the Occurrence: • Logged for Statistics (i.e. no Investigation) • Assessment Only • Full Investigation
Date / Registered Date	**Date:** The Date/Time of the Occurrence (i.e. when the event *happened*). **Registered Date:** The Date/Time that the Occurrence was *created*. Use the predefined date ranges, or select **Enter Date Range** and enter dates manually. **Note:** The predefined **Date Options** (e.g. Previous Week, Previous Month) can be saved as part of the criteria for a search. This allows the search to be re-run without having to change the date criteria for each search.
Originator	The staff member who created the Occurrence.
Location / Reporting Point / Departure Point / Destination Point	*See 4.3.1.1 How to Search on Location fields.*
Registration Mark	This is the Registration (Tail No or Ship No) of the aircraft involved. Select a value from search dialog to search for Occurrences with a matching value in this field. Use the Manufacturer and Model fields to filter the list of aircraft if required. **Note:** You may only have access to a subset of your organisation's Registration Marks if the system has been set up to use Fleet departmental authorisation.
Flight No	The Flight Number or call sign
Report to Authority	This is useful for finding Occurrences not yet sent to your Aviation Authority (e.g. CAA, NTSB, ATSB etc.), provided this field has been included on the Occurrence forms.
Occurrence Owner	The department recorded on the Occurrence as having prime responsibility/ownership for the event. Select the desired department from the list. Once you have selected an **Owner**, decide whether or not to include any of the sub-departments that belong to the department. If you want to include Occurrences owned by the department specified AND its sub-departments, check **Include Subsidiary Departments**.
Internal Flight Ops Ref	This is a reference that can be entered on the Occurrence to refer back to your own Flight Logs or other paper forms.
Ref Program	A number referring back to your own Defect logs.

Authority Occ Reference	A cross-reference to the Occurrence number used by a regulatory authority to which you reported the Occurrence. This is particularly useful for those Occurrences requiring an on-going dialogue with the Authority.
	Although it is possible to combine this with other criteria, this will have little effect, and may prevent the specified Occurrence from being returned.
Involved Party Name / ID	Search for Occurrences against which the specified name has been recorded, or the specified ID.
	The items in the drop-down list are made up of all previously entered parties.

4.3.1.1 How to Search on Location fields

There are 4 standard fields on Occurrences which hold location information which can be used to search.
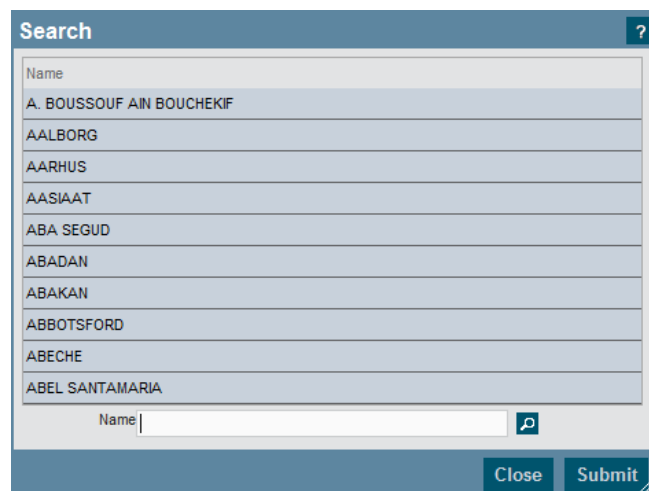
- **Location**
- **Departure Point**
- **Destination Point**
- **Reporting Point**

The **Location** field is used to record the location of an event, which could be an airport (e.g. Wellington International), a specific part of an airport (e.g. Gate 15) or could be somewhere between airports (e.g. 5 miles North-east of Wellington). Accordingly, you can either use the pre-defined Location values which have been set up, OR you can type in free text.
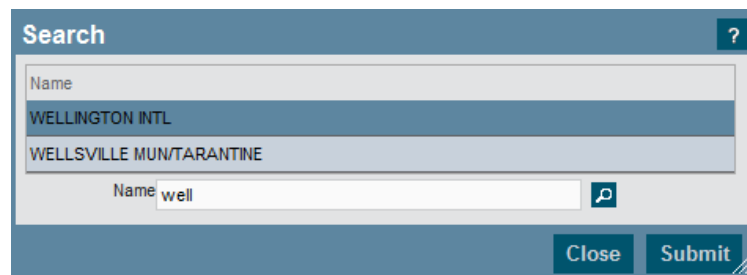
The other 3 location fields (**Departure Point**, **Destination Point** and **Reporting Point**) by default can only be populated with pre-defined Location values.

Field	What it holds	Example
Location	Pre-defined Location Description; OR	*Wellington Intl* *Kingsford Smith Intl*
	Free text	*North of Wellington* *Gate 15, Wellington*
Departure / Destination / Reporting Point	Pre-defined Location **Code**	*WLG* *SYD* *YYZ*

When you search these fields, you can choose to type in a value (e.g. "Wellington", "WLG", "Well" etc.) or you can select one of the pre-defined Location values from the search box.

When you select a pre-defined value, this uses the equivalent location **Code** to run the search. For example, if you select Wellington Intl, it will use the string "**WLG**" to search (just the same as if you had typed in "**WLG**").

How this search string is used can be broken into 3 steps:

4.3.1.1.1 Part 1 – Searches using search string

First, the system finds all Occurrences which contain the search text anywhere in the Location field.

For example, 'MEL' would return 'Melbourne Intl', but 'WLG' would NOT return 'Wellington Intl', because it does not contain those letters in that order. 'Wellington' would return 'Wellington Intl', 'Wellington International', 'South Wellington' etc.

4.3.1.1.2 Part 2 – Checks the Location table

Secondly, the system checks the pre-defined **Location** values to see if the text being used to search matches either any Codes or any Descriptions.

For example, if you are using 'WLG' to search, it would bring back the value 'WLG = Wellington Intl'. If you have typed in "Wellington", it would bring back 'WLG = Wellington Intl'.

4.3.1.1.3 Part 3 – Runs exact match search

If it has picked up any values from the Location table, the system then uses these values (e.g. 'WLG' and 'Wellington Intl') to do a second search on the Occurrences. This search uses exact matching.

For example, the above search would bring back values of 'WLG' and 'Wellington Intl', but not 'Wellington International'

4.3.2 Event Descriptor Criteria

Event Descriptors are codified definitions used to describe specific aspects of an event. Event descriptors include things like:

- **Nature of Flight**
- **Effect on Flight**
- **Flight Phase**
- **Flight Safety**

Event Descriptors allow you to specifically define the type of incident. Codifying these attributes allows for more exact analysis than the use of free-format text.

The **Event Descriptor Criteria** section works in the same way as the **Cause Descriptor Criteria** and the **Finding Descriptor Criteria** sections.

➔ See *4.8 Descriptor Queries – Event Descriptors/Error Descriptors/Cause Descriptors* for further instructions.

4.3.3 Cause Descriptor Criteria

Causal Factors are the codified descriptions of causes which can be associated with Occurrences. Codifying these attributes allows for more exact analysis than the use of free-format text.

The **Cause Descriptor Criteria** section allows you to conduct analysis on the codes that were recorded against Occurrences.

The **Cause Descriptor Criteria** section works in the same way as the **Occurrence Event Descriptor** and the **Finding Descriptor Criteria** sections.
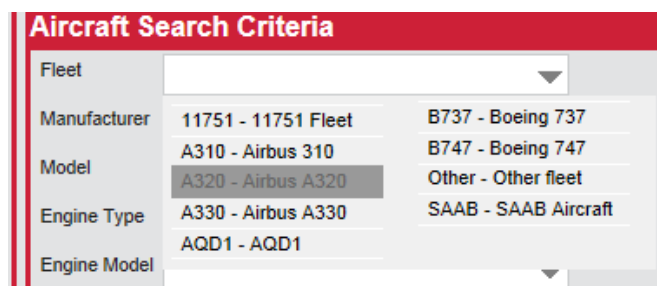
➔ See *4.8 Descriptor Queries – Event Descriptors/Error Descriptors/Cause Descriptors* for further instructions.

4.3.4 Aircraft Search Criteria

The **Aircraft Search Criteria** tool allows the report to be run for specific groupings of Fleets or Manufacturers and/or Models of aircraft or Engine Types/Models. The filter works by building up a list of criteria that is used to search for Occurrences.

Note: The use of pre-defined Fleets (created in **Administration** > **AQD Core**), reduces the need for using the **Manufacturer** or **Model**. However, the **Manufacturer** and **Model** are still useful when you wish to analyse part of a **Fleet**. For example, you may have defined a **B737 Fleet**, consisting of all **B737-200** and **B737-300** aircrafts, but you wish to look at Occurrence statistics for just the **B737-200** aircraft.

1. Click **Add Criteria**.

2. Select a value from any of the drop-down lists.

3. Click **Apply** to add that value to the Filter list.

Note: **Manufacturer** and **Model** can be used together, as can **Engine Type** and **Engine Model**. The former field filters the latter.

4. To add another value, click **Add Criteria** to return to the first panel.

5. Select another value from the lists.

6. Click **Apply**. These will be built up into an OR list i.e. the search will bring back Occurrences relating to aircraft which fit ANY of the criteria listed.

7. Click **Validate** to see one row for each unique combination of Manufacturer / Model / Engine Type / Engine Model which fits the criteria specified.

8. To remove a criterion, click **Show Criteria** and click the **Delete** icon.

Fleet ▲	Manufacturer	Model	Engine Model	Engine Type	Delete
A320					✖
↺		⏮ ◀ Page 1	of 0 ▶▶ ▶�		View 1 - 1 of 1
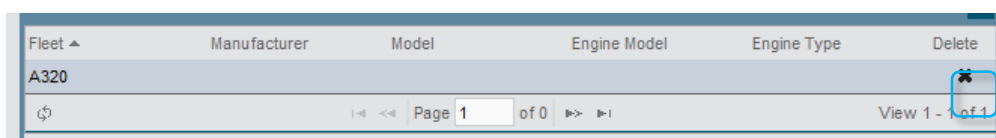
4.4   Work Requests Criteria

The criteria available in the **Work Requests** section are listed below. Use any of these in combination to return the desired set of records.

Note: These search fields will search Investigations, Assessments, ERC Reviews, Audits and Risk Reviews, as these all come under the 'Work Request' category.

ID	Search for a specific Work Request.
WR Type	Work Request Type. Select one of the types of Audit, Investigations, Assessments or ASAP (ERC Reviews).
WR SubType	Work Request Sub-type. Once you have selected a general WR Type, you can use the WR SubType field to narrow the search further.
Title	Search the Title field on a Work Request.
Text	Search any of the text fields on a Work Request.
Department	Search for the Department being Assessed/Audited, as recorded on an Assessment or Audit. Check **Include Subsidiary Departments** if you wish to include sub-departments for the selected department.
Owner	Search the owner Department responsible for the Work Request. Click the **Search** icon and select the desired Department from the list. To select an inactive department, check **Show Inactive** and click the **Search** icon. Check **Include Subsidiary Departments** if you wish to include sub-departments for the selected department.

Start Date / End Date	Use this to identify those Work Requests that are due to be completed, or were completed, in the specified date range.
	Note: If the **Actual Start Date** has been entered, then this date will be used in preference to the **Target Start Date**. Similarly, if the **Actual End Date** has been entered, this date will be used in preference to the **Target End Date**.
	Select one of the pre-defined date ranges using the **Date Option** (e.g. Previous Month, Year to Date). This will automatically set the **From** and **To** date fields to the appropriate values based on Today's date. To manually enter the date criteria, set **Date Option** to **Enter Date Range**. This will enable the **From** and **To** fields.
	Note: When entering date criteria only 1 of the dates (i.e. either the **From** or **To** date) needs to be provided. The other date field can be left blank.
State	Search the **State** of Work Requests. If you have selected a **WR Type** the list of States will be filtered to only those States applicable to the select Work Request type.
Priority	Select one or more of the values to search the **Priority** of Investigations, Assessments or ERC Reviews.
	Selecting all 3 values will return only those Assessments / Investigations / ERC Reviews that have a **Priority** assigned
Staff Member	Search the staff members assigned to the Work Requests.
	Click the **Search** icon and select the relevant staff member. Check **Show Inactive** to see inactive staff members.
Include Overdue	Use this check-box to identify Work Requests which have exceeded the estimated **Target End Date**.

4.5   Finding Criteria

The search options presented in the Finding Criteria section are similar to those presented in the **Search Findings** page in the **FCA** module.

Finding ID	Search for a specific Finding.
	Although it is possible to combine this with other criteria, this will have little effect, and may prevent the specified Finding from being returned.
Title	Search the **Title** field within the Finding.
Description	Searches the **Description** field.
Exclude Findings From Incomplete Investigations / Audits	Check the box to exclude Findings that are from Investigations or Audits that are still In Progress.
Assigned To	Who is recorded in the **Assigned to** field.
	Click the **Search** icon next to the field to open the **Staff Search** window and select a staff member.
Discovered by	Use the **Search** box to open the **Staff Search** window and select a staff member. The search will return all Findings Discovered by that user.

Department	Choose the name of a specific Department to analyse only that department's Findings. Leave blank if you want to include all Findings.
	Use the **Search** icon next to the field to open the **Search Departments** window, select a department, then click **Submit**.
	Note: Some departments may be sub-categorised within other departments. If you use a 'parent' item (i.e. a department with other departments inside it) and you wish to include the 'child' departments in the search, check **Include Subsidiary Departments**.
Registration Mark	Select a Registration Mark from the search dialog.
	Use the Manufacturer and Model fields to filter the list of aircraft if required.
	Note: You may only have access to a subset of your organisation's Registration Marks if the system has been set up to use Fleet departmental authorisation.
Response	Choose to search for Findings where a response is 'Required' or 'Not Required'
Location	Search Findings according to where they happened.
State	Choose one or more Finding States to search by.
Repeat Finding	Check this box to only return Findings marked as Repeat Findings.
Overdue	Check this box to restrict the list to Findings which have a **Response Status** of **Required**, and a **Response Due Date** in the past.
Date Discovered	The Date the Finding was discovered. Use the predefined date ranges, or select **Enter Date Range** and enter dates manually using the calendar tool.
Response Date	The Date the Finding Response is due by. Use the predefined date ranges, or select **Enter Date Range** and enter dates manually using the calendar tool.
Audit / Investigation Owner	Use the **Search** icon next to the field to open the **Search Departments** window, select a department, then click **Submit**.
	Note: Some departments may be sub-categorised within other departments. If you use a 'parent' item (i.e. a department with other departments inside it) and you wish to include the 'child' departments in the search, check **Include Subsidiary Departments**.
	The search will bring back all Findings raised from Audits/Investigations owned by that department, *even if the Finding itself is on a different department*.
Source Type	Whether the Finding was raised from an Audit or an Investigation, or whether it was raised as a stand-alone Finding and is a Quality Deficiency or an External Finding.
Source ID	Enter the ID of a work request (e.g. an Audit or an Investigation) to return all Findings raised from that work request.
External Audit Reference	Enter the External Reference of an External Audit to return all Findings related to that Audit.

Severity / Likelihood / Risk	Risk is a combination of Severity and Likelihood, as defined in the Primary Risk Matrix. Instead of searching based on Severity or Likelihood separately, you can search by the associated Risk levels.
	Select one or more values from the drop-down list. To remove a value, click the delete icon next to it.
Category	Select a Category from the drop-down list to search on it. Leave blank to include all Findings, even those which have not been categorised.
Standard / Standard Category / Standard Item	Select a Standard from the drop-down list. You can then narrow the search further by selecting a Standard Category from within that Standard, and a Standard Item from within the Standard Category.
Checklist Details (Code, Revision Item, Item Ref, Version)	Search for Findings based on the Checklist or Checklist Item that Finding was created from (applicable to Audit Findings only).
	At a Checklist level, you can search on the Code, Revision and Version, and at a Checklist Item level you can search
	The search will bring back all Findings which were created in response to that Checklist or Checklist Item being scored.
Error Header / Error Item	Select an Error Header from the drop-down list. You can then narrow the search further by selecting an Error Item from within that Error Header.

4.5.1 Cause Descriptor Criteria

Causal Factors are the codified descriptions of causes associated with Findings arising from an Investigation or Audit. Codifying these attributes allows for more exact analysis than the use of free-format text.

The **Cause Descriptor** section allows you to conduct analysis on the codes that were recorded as the causal factors against the cause descriptions. These options allow you to limit the analysis to Causal Factors that meet a certain criteria.

The **Cause Descriptor Criteria** section works in the same way as the **Occurrence Event Descriptor** and the **Finding Descriptor Criteria** sections.

➔ See *4.8 Descriptor Queries – Event Descriptors/Error Descriptors/Cause Descriptors* for further instructions.

Note: The **Cause Descriptor Criteria** section can be hidden if Causes are not used at all. To do this, go to **Analysis Administration** > **Analysis Options**.

4.5.2 Error Descriptor Criteria

The **Finding Error Descriptors** section works in the same way as the **Cause Descriptor Criteria** and the **Event Descriptor Criteria** sections.

➔ See *4.8 Descriptor Queries – Event Descriptors/Error Descriptors/Cause Descriptors* for further instructions.

4.5.3 Finding Aircraft Criteria

This works in the same way as the Aircraft Search Criteria tool in Occurrence Criteria, except that it searches the aircraft details associated with Findings instead of with Occurrences.

➔ See *4.3.4 Aircraft Search Criteria* for further instructions.

4.6 Action Criteria

The search options presented in the Action Criteria section are similar to those presented in the **Search Actions** page in the **FCA** module.

Action ID	Search for a specific Action. Although it is possible to combine this with other criteria, this will have little effect, and may prevent the specified Action from being returned.
Department	Choose the name of a specific Department to analyse only that department's Actions. Leave blank if you want to include all Actions. Use the **Search** icon next to the field to open the **Search Departments** window, select a department, then click **Submit**. **Note:** Some departments may be sub-categorised within other departments. If you use a 'parent' item (i.e. a department with other departments inside it) and you wish to include the 'child' departments in the search, check **Include Subsidiary Departments**.
Audit/Investigation Owner	Use the **Search** icon next to the field to open the **Search Departments** window, select a department, then click **Submit**. **Note:** Some departments may be sub-categorised within other departments. If you use a 'parent' item (i.e. a department with other departments inside it) and you wish to include the 'child' departments in the search, check **Include Subsidiary Departments**. The search will bring back all Actions raised from Findings from Audits/Investigations owned by that department, *even if the Action itself is on a different department*.
Assigned To	Who is recorded in the **Assigned to** field. Click the **Search** icon next to the field to open the **Staff Search** window and select a staff member.
To be Tracked by	Who is recorded in the **To be Tracked by** field. Click the **Search** icon next to the field to open the **Staff Search** window and select a staff member.
Registered by	Who is recorded in the **Registered by** field (i.e. who created the Action).
Contact	Free text user recorded against the Action.
Registered On / Due Date / Closed On / Completed On / Recheck On	**Registered on:** The date the Action was entered **Due Date:** The date the Action should be completed by **Closed On:** The date the Action was closed **Completed On:** The date the Action Assignee indicated they completed the Action. **Recheck on:** The date the Action needs to be re-checked. Use the predefined date ranges, or select **Enter Date Range** and enter dates manually using the calendar tool. Check **Overdue** to only include Actions where the date has been missed.
Action Required	Search the **Action Required** text field within an Action.

Action Taken	Search the **Action Taken** text field within an Action.
Work Request ID	Enter the ID of a work request (e.g. an Audit or an Investigation) to return all Actions raised from Findings raised from that work request.
Source Type	Whether the Action was raised from a Finding raised from Audit or an Investigation, or whether it was raised from a stand-alone Finding (Quality Deficiency or an External Finding) or whether it was raised from an ERC Review (ASAP module) or a Risk.
Action Type	Select one or more Action Types.
State	Select one or more Action States.
Effectiveness	Search by whether the Action was effective or not.

4.7   Query by Form

The **Query By Form** functionality allows users to create advanced queries using any Occurrence field in the system. It requires a more in-depth understanding of database queries than the very simple **Occurrence Search**.

The search provided in the **Occurrence Criteria** section can be combined with the more powerful query building tools in **Query By Form** to create outputs based on custom fields.

Note: If you build a query using Query by Form, and then save it as part of a wider saved Criteria Set, the Query by Form will be automatically saved with the same name as the Criteria Set.

4.7.1 How to build a query

The following instructions explain how to build up a valid query.

1. Expand the **Query by Form** section.

2. Click **+**. A new line will be added.

3. Select a **Source** to determine what data is to be used for the search (i.e. which database table).
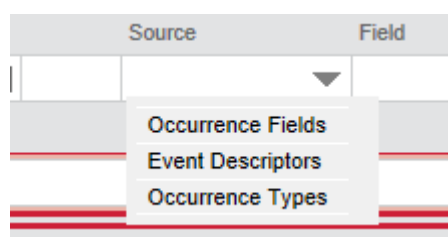
4. When you select a **Source**, the contents of the **Field Name** will be limited to relevant values. The following **Sources** are available:

Occurrence Fields	The data entry fields recorded on the eReport and Occurrence forms. This includes all Pre-defined fields and Custom Fields set up in **Administration** > **System Assets** > **Forms** > **Define Fields**, plus the **Fleet** and **Model** fields. Once you have specified the **Source**, the **Field Name** list will contain relevant values. Select the field name or descriptor that you wish to use for the search.
Event Descriptors	The list of codified Event Descriptors used to describe the incidents.
Occurrence Types	All Occurrence Types. If you set **Source** to **Occurrence Type**, select an Occurrence Type from the **Value** drop-down list.

5. Choose an operator:

Operator	Meaning	How to use	Example	Will match Occurrences…
=	equal to	Enter a value to compare the field to.	Body Part **=** Ankle	which have the Event Descriptor **Body Part - Ankle** assigned to them.
<>	not equal to		Light Conditions **<>** Daylight	which have a **Light Conditions** Event Descriptor assigned which is **NOT Daylight**.
>	greater than		Hours on Duty **> 10**	which have an **Hours on Duty** value higher than **10**
<	less than		Altitude **< 1000**	which have an **Altitude** less than **1000**
>=	greater than or equal to		Registered Date **>= 01/05/12**	which were **Registered on** or **after** 1st May 2012
<=	less than or equal to		Number of Crew **<= 15**	which have a **Number of Crew** recorded as **15** or **less**
In	included in	Enter a list of values separated by commas	Occurrence Types **In CAB,FLT,MNT**	which have an **Occurrence Type** of CAB, FLT or MNT.

Operator	Meaning	How to use	Example	Will match Occurrences…
Between	between	Enter two values	Occurrence Date **between** 01/01/12 and 31/12/12	which occurred **between** (and **including**) 1st Jan 2012 and 31st Dec 2012.
Like	contains	Enter a text value.	Description **Like** bag*	in which the **Description** contains the text *bag* with any other text around it. Will include *bag, baggage, handbag* etc.

Note: For Values that must be chosen from a list, you cannot use **In**, **Between** or **like**.

- To search for Occurrences Fields where a value has NOT been entered in a particular field, use the operator '=' and leave the **Value** field blank (i.e. the field is equal to NULL).

- To search on Occurrence Fields where a value HAS been entered in a particular field, use the operator '<>' and leave the **Value** field blank (i.e. the field is not equal to NULL).

6. Enter the value to be matched during the search. The value must be appropriate for the **Source** and **Field Name** that has been entered (e.g. for Date fields enter one or more dates). In the following cases, the value must be chosen from a list:

- For Occurrence Fields defined as a **combo box**, the **Value** field forces a selection from the list of the values specified in the **Row Source** for that field.

- For Event Descriptors, the **Value** field will show a list of Categories and Sub-categories for the Event Descriptor selected. Check **Show Inactive** to see any inactive event descriptors.

Note: To find all Occurrences that have a value recorded for a particular Event Descriptor, regardless of which child value is actually recorded, enter the Event Descriptor name in both the **Field Name** column and the **Value** column (this happens by default when you select an Event Descriptor anyway).
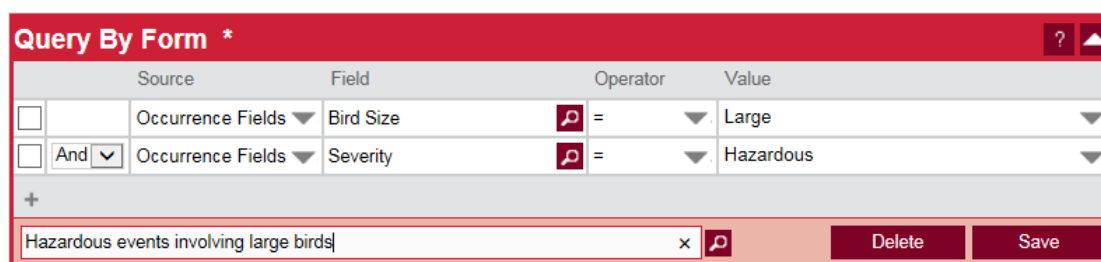
Query By Form *				? ▲
	Source	Field	Operator	Value
☐	Event Descriptors ▾	Body Part	🔍 = ▾	Body Part 🔍
+				

7. As you add more lines to your query, join them with 'And' or 'Or'.

➜ See *4.9 Building Descriptor / Query by Form Queries* for further instructions.

4.7.2 How to save a query
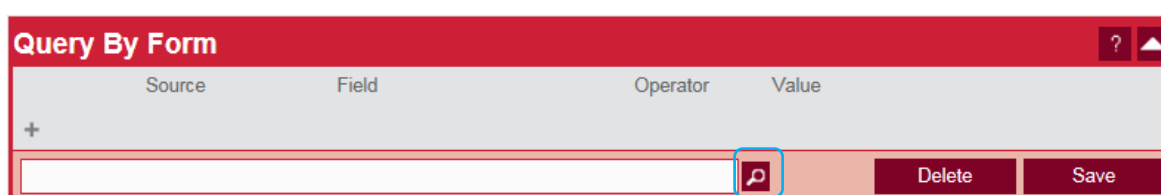
1. Once you have built a query, enter a name for it:

2. Click **Save**.

4.7.3 How to use a saved query

1. Click the **Search** icon:

2. The **Load Criteria** window will open. Select the name of the query you wish to load.

3. Click **Select**.

4.7.4 How to edit or delete an existing query

1. Load the query you wish to edit.

2. Make the required changes to the query and click **Save**.

3. To delete the query, click **Delete**.

Note: If a saved Query by Form query is used as part of a wider saved Criteria Set, you should NOT delete the Query by Form query.

4.8 Descriptor Queries – Event Descriptors/Error Descriptors/Cause Descriptors

Descriptors are defined in a hierarchical structure of up to three levels. Due to historical changes, the names of the levels for Event Descriptors and Error Descriptors are slightly different to the levels of Causal Factors:

Level	Name		
	Event Descriptors	**Error Descriptors**	**Causal Factors**
1	Descriptor	Descriptor	Category
2	Category	Category	Item
3	Sub-category	Sub-category	Item Sub-category

Any Descriptor or Category that has entries "under" it is referred to as a "parent", and the entries under it are its "children".

There are 3 sections within the Search Criteria which can be used to build queries on Descriptors:

- **Event Descriptor Criteria** (located within Occurrence Criteria)
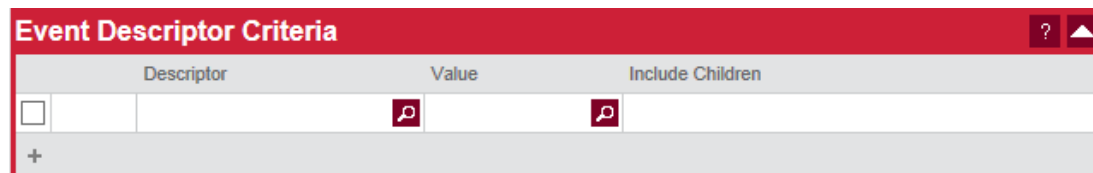
- **Error Descriptor Criteria** (located within Finding Criteria)
- **Cause Descriptor Criteria**

The way to build up queries, which is identical for all three sections, is explained here.

4.8.1 How to add a criterion

To select a Descriptor, Category or Sub-category as a criterion:
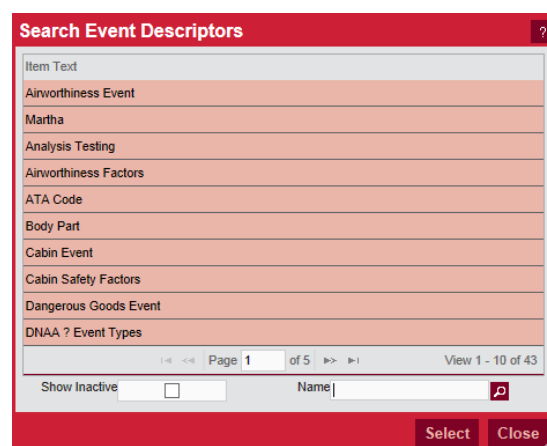
1. Expand the **Descriptor** section and click **+**.

2. You now have 2 options:

    - Choose a Descriptor from the **Descriptor** field. This will then filter the **Value** column so that only the Categories and Sub-categories from that Descriptor are shown.

    - Choose a Value from the **Value** field. The Categories and Sub-categories will not be filtered and will be from all Descriptors.

3. To choose a Descriptor, click the **Search** icon in the **Descriptor** column.

4. The **Search Descriptors** window will show the Descriptors relevant to the section you are using.

5. If the Descriptor you wish to search for is not shown, it may be because it has been made **Inactive**. To include inactive Descriptors in the list, check the **Show Inactive** check-box.

6. To filter the list of values, you can start typing in the **Name** field.

7. Select the desired Descriptor and click **Select**. The Descriptor value will appear in the **Descriptor** column:

	Descriptor	Value	Include Children
☐	Airworthiness Event	🔍	🔍	☑
+			

8. To select a **Category** or **Sub-category** from within the selected Descriptor, click the **Search** icon in the **Value** column.

	Descriptor	Value	Inclu
☐	Airworthiness Event	🔍	🔍

The **Categories/Sub-categories** window will open.

Title	?
Item Text	
- Aircraft Design	
- - Complex	
- - Configuration variance	
- - Inaccessible	
- - Not user friendly	
- Communication	
- - Between departments	
- - Between engineer/team leader/support	
- - Between people (peers)	
- - Between shifts	
I◄ ◄◄ Page 1 of 9 ►► ►I	View 1 - 10 of 85
Name	🔍
	Select Close

9. Scroll through and select the one you want to use.

10. Click **Select**. If the item is a Category with Sub-categories within it, you will be given the option to include these as well.

Include Children
⚠ Do you want to include children?
Yes No

11. If you click **Yes**, the **Include Sub-categories** column will become checked, and the search will include both the Category and any of its Sub-categories. If you click **No**, the **Include Sub-categories** column will remain un-checked, and the search will only include the Category.

Note: This check-box can be manually changed at any time.

- If the item copied to the list is a Sub-Category, its parent Category name will be shown in the **Value** field.

12. Repeat the above steps until the grid includes all the Descriptors, Categories and Sub-categories needed.

13. To delete a criterion, select the criterion/criteria to be removed using the check-boxes and click **Delete**.

Note: This may affect the remaining statement, with respect to the **AND**, **OR** and grouping. Review each line to ensure it is correct.

14. To remove all criteria at once, click **Clear**. All items will be removed.

4.8.2 How to use And/Or and grouping

As new lines are added to descriptor queries, they must be joined together with 'And' or 'Or'. They may also be grouped into sub-queries.

➔ See *4.9 Building Descriptor / Query by Form Queries*
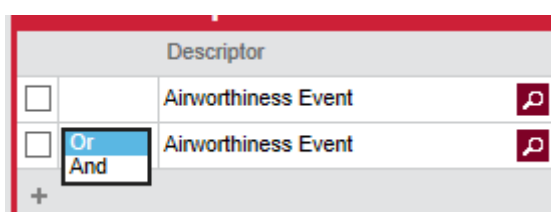
4.9 Building Descriptor / Query by Form Queries

4.9.1 How to use And/Or
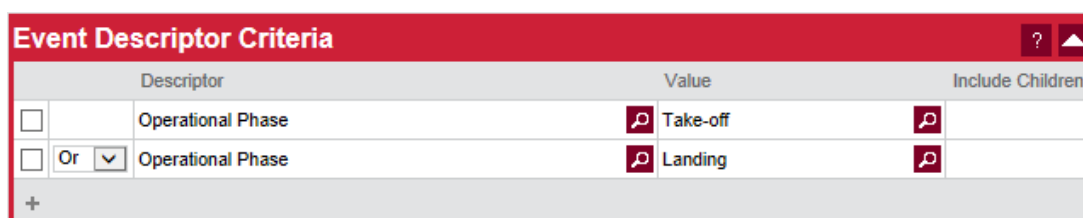
The criteria used in Descriptor and Query by Form queries are joined together by **Or** / **And**.

OR	Records that have any **one** of the Descriptors will be returned.
AND	Records that have **all** the Descriptors will be returned.
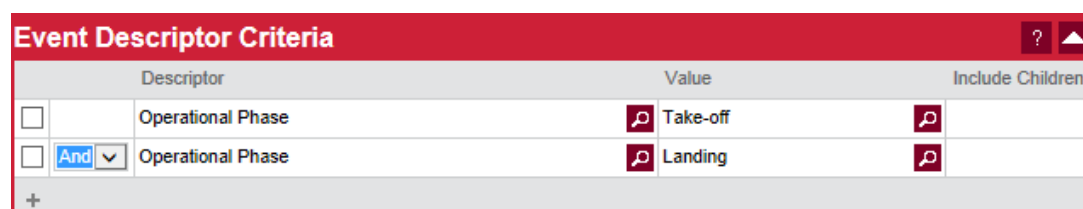
As you add each criterion, an **Or** will appear at the start of the row. This means that records with *either* Descriptor will be included. To change the **Or** to **And**, select from the drop-down list.

You can create complex queries using a combination of ANDs and ORs, together with the brackets. Use the buttons above the Descriptor criteria list to manipulate each row. For example, 2 lines can be joined with OR:

This query would return all Occurrences which occurred on take-off **or** landing. Alternatively, they could be joined with AND:

This query would return all Occurrences which occurred on both take-off **and** landing (this would be 0 Occurrences as there could be no such event).

Note: It will only ever be valid to place an AND between two values for the same Event Descriptor if that Descriptor appears more than once on any of the Occurrence data entry forms (if the Descriptor only appears once, it can never have more than one value).

4.9.2 How to combine And / Or

Any combination of **AND** and **OR** can be used. If you combine them, remember that **AND** has precedence over **OR**.

For example:

I want to see:	What it means:
Edmund **AND** Lucy **OR** Peter **AND** Susan	Edmund and Lucy together, OR Peter and Susan together
Edmund **AND** Lucy **OR** Peter **OR** Susan	Edmund and Lucy together, OR just Peter, OR just Susan
Edmund **AND** Lucy **AND** Peter **OR** Susan	Edmund and Lucy and Peter together, OR just Susan

4.9.3 How to use grouping

Lines can be grouped into a single unit separate from the rest of the query, similar to using brackets (parentheses) in a mathematical equation. For example, the below configuration would return:

- All Occurrences which occurred on **Take-off** *AND* had a **Flight Safety Event** of **Lightning Strike**,

- PLUS all Occurrences with a **Flight Safety Event** of **Turbulence**, regardless of the **Operational Phase**,

- PLUS all Occurrences with a **Flight Safety Event** of **Severe Weather**, regardless of the **Operational Phase**.

However, if you group the final 3 rows together, it would return:

- All Occurrences which occurred on **Take-off** *AND* had a **Flight Safety Event** of **Lightning Strike**, **Turbulence** or **Severe Weather**.

1. To join 2 or more criteria together, use the check-boxes to select the lines you wish to group.
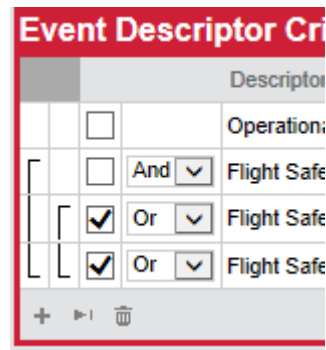
2. Click the **Group** icon.

The grouping will be added:

3. Groups can be created within other groups. To do so, use the check-boxes to select the relevant lines and click **Group**.

4. To remove a group, click the lines which delineate the group once.

5. Statistics/Analysis – Output Criteria

Once you have specified the **Search Criteria** to retrieve the required data, you can use the **Output Criteria** section to specify how you want the data to appear.

5.1 Grid

The most basic output you can get from the **Statistics/Analysis** page is a grid of records.

1. Set **Output Option** to **Grid**.

2. Choose the **Grid Type**.

3. Click **Generate**. The grid will be populated with a list of records (filtered according to your occurrence type security and departmental authorisation).

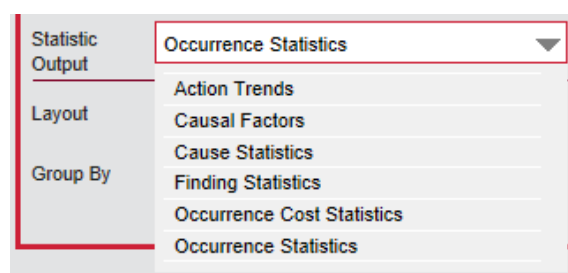4. Click on a record to go to it (access will depend on security).

Note: Just because you have specified search criteria for one record type, you do not have to choose that same record type for the grid. For example, you could specify a Finding Department of 'Maintenance' and choose to output a grid of Actions. That grid would show all Actions which were raised from Findings with a Department of 'Maintenance', *regardless of the department of the Actions themselves*.

5.2 Analysis Graphs

The **Analysis Graphs** option lets you choose between several Graphs/Spreadsheets

Analysis can be done using raw data (e.g. the number of Occurrences), or by normalising the data using a rate type (e.g. create a graph of Occurrences per flying hour, or by the number of flights).

While there are different options available for each graph, the overall process is the same.

1. Set **Output Option** to **Analysis Graphs**.

2. Choose the **Statistic Output**. This choice will affect the available options.

3. Choose a **Format**.

Preview	Opens the graph as a PDF in a new tab within the browser
PDF	Prompts you to open/save* the graph as a PDF
Word DOC	Prompts you to open/save* the graph in Microsoft Word
Excel XLS	Prompts you to open/save* the graph in Microsoft Excel

* This depends on your browser settings

4. Select a **Layout**, **Group By**, **Date Category** etc. (see later sections for further instructions.)

5. The report **Title** defaults to predefined text, but you can modify it if required.

Format	Preview
Title	Occurrence Statistics - Aircraft

6. Click **Generate**.

5.2.1 Action Trends

The **Action Trends** graph allows you to analyse your organisation's performance with respect to the closing of Actions.

Indicate the lines to be plotted on the graph by selecting one or more **Graphs to Plot**:

% Closed by due date	Of those Actions that were closed during the period, what percentage were closed by the Action's Due Date (if an Action was in a state of Recheck prior to being closed, the Recheck Due Date will be used). The graph will show 100% rather than 0% when there were no Actions closed, and there are no Actions that should have been closed in a the period (excluding cancelled, rejected and proposed Actions).
Number closed during period	Number of Actions closed during the period.
Number completed at end of period	Number of completed Actions at the end of the period
Number open at end of period	Number of open (outstanding) Actions at the end of the period (this excludes Proposed Actions, but includes Recheck Actions).
Number open at start of period	Number of open (outstanding) Actions at the start of the period (this excludes Proposed Actions, but includes Recheck Actions).
Number overdue at end of period	Number of overdue Actions at the end of the period.
Number registered during period	Number of new Actions registered (all Actions entered during the period).

Note: (Open at start) + (Registered during period) – (Closed during period) will not necessarily = (Number open at end of period) as some Actions may have been Rejected or Cancelled, or still be in a state of Proposed.

5.2.2 Causal Factors

Note: The **Causal Factors** option can be hidden if Causes are not used at all. To do this, go to **Analysis Administration** > **Analysis Options**.

Choose how to group the data (i.e. you will get one line or column per value of the item chosen):

Group by	x axis	y axis	Clustered by
By Cause Category	Time (based on **Date Discovered** of the parent Finding)	Count of Causes	Cause Categories (level 1) *e.g. , 'Organisation factors', 'Local Error factors', 'Local Violation factors', 'Active failures'*
Total by Cause Item	Time (based on **Date Discovered** of the parent Finding)	Count of Causes	Cause Items (level 2) *e.g. 'Poor human-system interface', 'Poor supervision & checking'*
By Item Sub-category	Time (based on **Date Discovered** of the parent Finding)	Count of Causes	Cause Items Sub-categories (level 3) *e.g. 'Not Understandable', 'Incorrect', 'Other'*
By Person / Organisation	Time (based on **Date Discovered** of the parent Finding)	Count of Causes	Person/Organisation values

5.2.3 Cause Statistics

Note: The **Causal Statistics** option can be hidden if Causes are not used at all. To do this, go to **Analysis Administration** > **Analysis Options**.

For the Layouts:

- **Line** is not available for **Total Causes by Person/Organisation** or **Total Causes by Risk).**

- **Pie** is only available **for Total by Cause Item** and **Total Causes for Person/Organisation**).

There are two different kinds of analysis available:

- A breakdown of the total number of Causes (that meet the criteria you have specified) into whichever "category" you have chosen.

- Trends over time by showing the numbers of Causes on a monthly, quarterly or yearly basis.

Group by		x axis	y axis	Clustered by
Total	**By Cause Item**	Cause Items (level 2)	Count of Causes	n/a
	Causes by Person/Organisation	Cause Items (level 2)	Count of Causes	Person/Organisation values
	Causes by Risk	Risk value	Count of Causes	Cause Items (level 2)

Group by		x axis	y axis	Clustered by
	Based on Risk value of the Cause's associated Finding.			
	Causes for Person/Organisation	Person/Organisation values	Count of Causes	n/a
Trends	**By Cause**	Time	Count of Causes	Cause Items (level 2)
	By Person/Organisation	Time	Count of Causes	Person/Organisation values

If you selected a **Total** graph, choose a **Limit To** option to focus the analysis on the main causes in your organisation:

- **Top 10**
- **Top 20**
- **Top 20%**

Note: These are only available with Total graphs, not Trends.

5.2.4 Finding Statistics

Choose how to group the data (i.e. you will get one line or column per value of the item chosen):

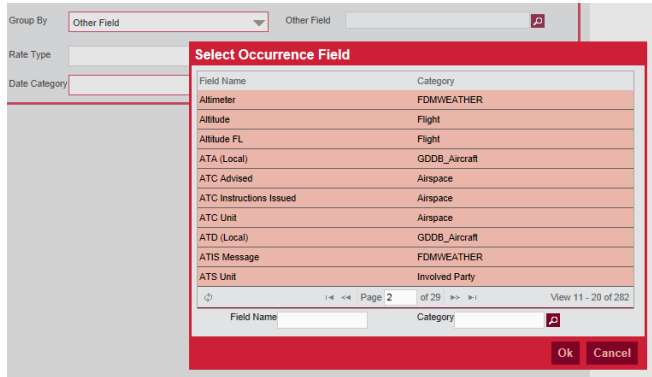| Group by	x axis	y axis	Clustered by
Error Descriptor	Time	Count of Findings	You must specify a **Descriptor Breakdown** to determine which level the graph will cluster at: • **At Descriptor Level** (level 1) • **At Category Level** (level 2) • **At Sub-Category Level** (level 3)
Finding Category	Time	Count of Findings	Finding Category values *e.g. 'Non-Compliance, Non-Conformance'*
Rule Reference	Time	Count of Findings	Rule Reference values *As entered into the Rule Ref field on Findings*
Likelihood	Time	Count of Findings	Likelihood value *e.g. High, Medium, Low*
Manual Reference	Time	Count of Findings	Manual Reference *As entered into the Manual Ref field on Findings*
Risk	Time	Count of Findings	Risk level *e.g. Acceptable, Not Acceptable*
Severity	Time	Count of Findings	Severity value *e.g. Critical, Major, Minor*

Group by	x axis	y axis	Clustered by
Standard Category	Time	Count of Findings	Standard Categories (level 2) *e.g. Cabin Operations, Flight Operations*
Top 20% Errors	Time	Count of Findings	You must specify a **Descriptor Breakdown** level to determine which of these levels the graph will cluster at. • **At Descriptor Level** (level 1) • **At Category Level** (level 2) • **At Sub-Category Level** (level 3)

5.2.5 Occurrence Cost Statistics

The Occurrence Cost Statistics output provides the ability to look at Occurrence Costs, both as trends over time and broken down by various categories (including cost category, Occurrence Type or aircraft fleet/model).

Choose how to group the data (you will get one line/column per value of the item chosen):

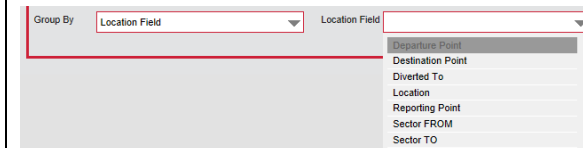| Group by	x axis	y axis	Clustered by
Aircraft Model/Fleet Filter	Time (based on Occurrence Date)	Cost	Each of the specified Fleet/Model filters. You must specify a fleet or model etc. using the Aircraft Model/Fleet Filter on the Criteria tab.
Cost Category	Time (based on Occurrence Date)	Cost	Cost Categories *e.g. Compensation, Delays, Diversions*
Fleet	Time (based on Occurrence Date)	Cost	Fleets *e.g. Airbus A320, Airbus A330*
Location Field	Time (based on Occurrence Date)	Cost	Location values. Select which location field to use from the **Location Field** list. Group By: Location Field — Location Field: Departure Point, Destination Point, Diverted To, Location, Reporting Point, Sector FROM, Sector TO
Occurrence Type	Time (based on Occurrence Date)	Cost	Occurrence Types *e.g. BAG, CAB, FLT* **Note:** Because Occurrences can have multiple types, some costs may be listed multiple times (once per type). Therefore, the total cost listed in this graph may exceed the total actual cost.

Group by	x axis	y axis	Clustered by
Other Field	Time (based on Occurrence Date)	Cost	Any Occurrence field. Select which field to use from the **Select Occurrence Field** window. **Note:** Not all of the fields will be relevant to all Occurrence Types, and some of them may not be used on your Occurrence data entry forms (depending on how the forms have been customised).
Total	Time (based on Occurrence Date)	Cost	n/a

5.2.6 Occurrence Statistics
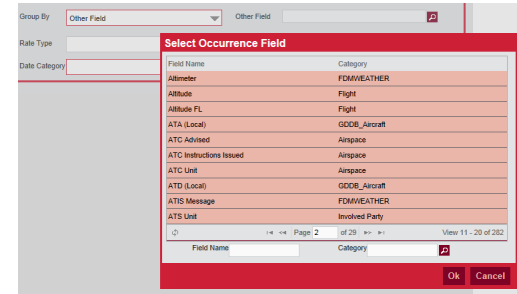
For trend graphs (such as column and line graphs), the number or rate of events is plotted on the y-axis and time on the x-axis. The exceptions to this are the **Risk Matrix** and the **Fleet vs. Event Descriptor** graphs (which produce a matrix as a three dimensional column graph), and the **Top 20% Event Descriptors** (which produces a horizontal bar chart).

Group by	x axis	y axis	Clustered by
Aircraft	Time (based on Occurrence Date)	Count of Occurrences	Registration Mark
Aircraft Model/Fleet Filter	Time (based on Occurrence Date)	Count of Occurrences	An extra field will appear. Select which of the searchable fields to cluster the graph by: Fleet, Manufacturer, Model, Engine Type or Engine Model.

Event Descriptor	Time (based on Occurrence Date)	Count of Event Descriptors on Occurrences
		Note: Because some Occurrences may have multiple event descriptors recorded against them (or none), some Occurrences may be represented multiple times (or not at all).
			Specify a **Descriptor Breakdown** to determine which level the graph will cluster at.
			• At Descriptor Level (level 1)
			• At Category Level (level 2)
			• At Sub-Category Level (level 3)
			• **Include all Descriptors in graph** check-box:
			  o **Un-checked:** Graph only includes Descriptors *explicitly mentioned* in the criteria.
			  o **Checked:** Graph includes all Descriptors associated with the Occurrences which are returned by the search criteria.

Fleet	Time (based on Occurrence Date)	Count of Occurrences	Fleet *e.g. Airbus A320, Airbus A330*

Group by	x axis	y axis	Clustered by
Fleet vs. Event (Descriptor)	Specify a **Descriptor Breakdown** to determine which level will appear on the x axis: • **At Descriptor Level** (level 1) • **At Category Level** (level 2) • **At Sub-Category Level** (level 3)	Count of Event Descriptors on Occurrences **Note:** Because some Occurrences may have multiple event descriptors recorded against them (or none), some Occurrences may be represented multiple times (or not at all).	Fleet *e.g. Airbus A320, Airbus A330*
Likelihood	Time (based on Occurrence Date)	Count of Occurrences	Likelihood *e.g. Remote, Often*
Location	Time (based on Occurrence Date)	Count of Occurrences	Location values. Select which location field to use from the **Location Field** list. Group By Location Field Location Field Departure Point Destination Point Diverted To Location Reporting Point Sector FROM Sector TO
Occurrence Type	Time (based on Occurrence Date)	Count of Occurrences	Occurrence Types. **Note:** If an Occurrence has multiple Types, that Occurrence will be included in the count once for each of the types plotted on the graph. This can result in double counting of individual Occurrences, causing a higher total number of Occurrences to be reported.

Group by	x axis	y axis	Clustered by
Other Field	Time (based on Occurrence Date)	Count of Occurrences	Any Occurrence field. Select which field to use from the **Select Occurrence Field** window. Use the **Field Name** and **Category** fields to narrow down the list. **Note:** Not all of the fields will be relevant to all Occurrence Types, and some of them may not be used on your Occurrence data entry forms (depending on how the forms have been customised).
Risk	Time (based on Occurrence Date)	Count of Occurrences	Risk e.g. *Acceptable, Not Acceptable* Note: This output option may not work as expected in v2018.1 due to changes made to Risk functionality. This will be fixed in a future release.
Risk Matrix	Severity e.g. *Major, Minor*	Count of Occurrences	Likelihood e.g. *Remote, Often* Note: This output option may not work as expected in v2018.1 due to changes made to Risk functionality. This will be fixed in a future release.

Group by	x axis	y axis	Clustered by
Severity	Time (based on Occurrence Date)	Count of Occurrences	Severity e.g. *Major, Minor*
Time of Day	Hours (based on Occurrence Date)	Count of Occurrences	n/a
Top Descriptors	Time (based on Occurrence Date)	Count of Occurrences	You must specify a **Descriptor Breakdown** to determine which level the graph will cluster at. • **At Descriptor Level** (level 1) • **At Category Level** (level 2) • **At Sub-Category Level** (level 3) You must also specify how many Top Descriptors will be included in the graph data: • **Top 10** • **Top 10%** • **Top 20%** • **Top 5**
Total Occurrences	Time (based on Occurrence Date)	Count of Occurrences	n/a
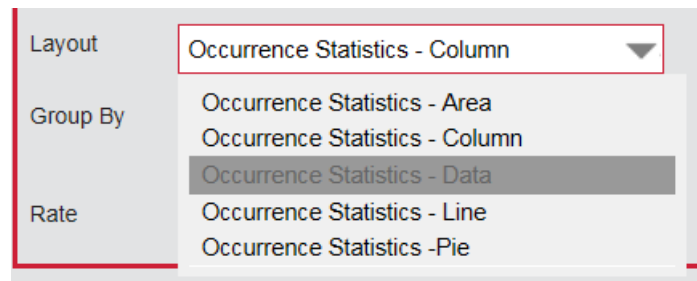
Choose a **Rate Type** if desired to specify how the data should be rated. This may be the number of hours flown, the number of flights, or one of the custom Rate Types.

Note: Not all graphs can be rated. The **Rate Type** and **Rate** fields will be disabled when **Group By** is **Risk Matrix**, **Fleet vs. Event** or **Top Descriptor**.

If you select a **Rate Type**, enter the value by which the data should be rated (e.g. set **Rate Type** to **Number of Flights** and enter **1,000** in the **Rate** field to graph Occurrences per 1,000 flights).

5.2.7 How to apply pivot tables to data output
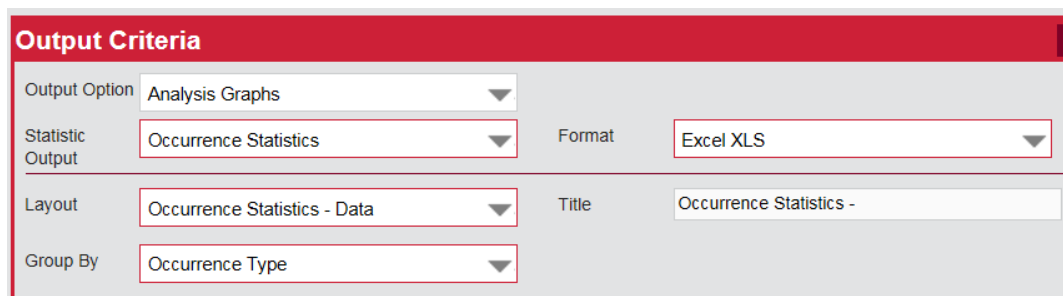
Within **Analysis Graphs**, most **Statistic Output** options have a '**Data'** layout which can be selected:

If you output this Data layout to Microsoft Excel you can manipulate it using Pivot tables.

Note: MS Excel is a third-party product, and there are many online resources to help you use it. As such, the following is a just basic overview of how to use one of MS Excel's functions in conjunction with output from the system.

1. Enter your search criteria as required.

2. Set **Output Option** to 'Analysis Graphs' and select the desired **Statistic Output**.

3. Set **Format** to 'Excel XLS' and **Layout** to the 'Data' option.

4. Set the rest of the values as required.

5. Click **Generate** in the **Workflow** tool. The data will be output to an Excel spreadsheet.

6. In the spreadsheet, select all the values in the **Period**, **Month**, **Group By** and **Count** columns:

7. Go to the **Insert** tab and click **PivotTable**:
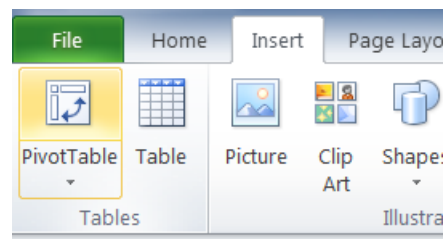
8. Click **OK** on the dialog. A blank pivot table will be added on a new worksheet:
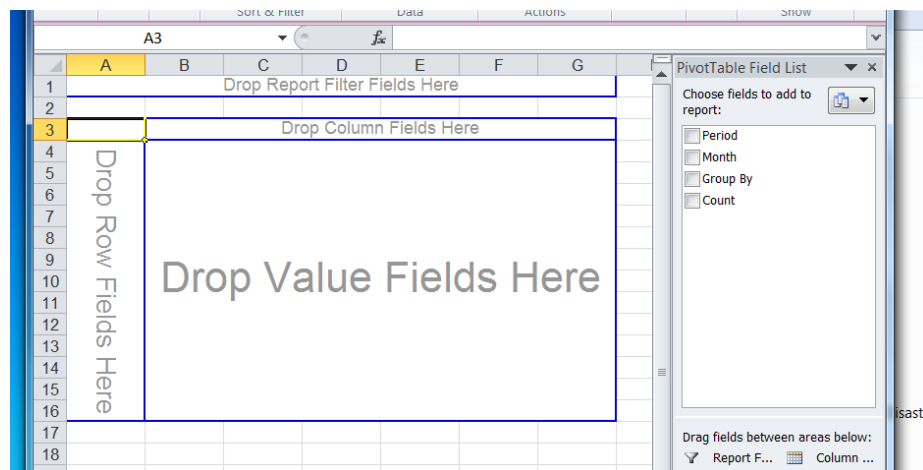
9. Drag and drop the **Period** field to the '**Drop Column Fields Here**' section.

10. Drag and drop the **Month** field to the same section:

11. Drag and drop the **Group by** field to the '**Drop Row Fields Here**' section:

12. Drag and drop the **Count** field to the '**Drop Value Fields Here**' section:

	A	B	C	D	E	F	G	H	I
1									
2									
3	Sum of Count	Period ▾	Month ▾						
4		⊟ 2007							
5	Group By ▾	1	2	3	4	5	6	7	8
6	Cabin Safety		1	1			1		1
7	Flight Safety	16	25	44	31	31	23	18	15
8	Ground Safety		1	2	4	3	2	1	2
9	Hazard Report								
10	Maintenance Safety	3	5	12	3	7	3	2	3
11	Security				1				
12	Voyage Report								
13	Grand Total	19	32	59	39	41	29	21	21
14									
15									

5.3   Reports

While there are different options available for each report, the overall process is the same.

1. Choose the **Statistic Output**. This choice will affect the available options.

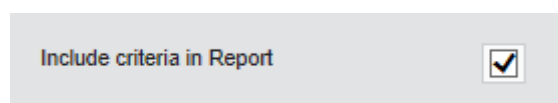|	
Action Search Result Report	The same report which is output when you print from the **Search Actions** grid in the **FCA** module.
Assessment Search Report	The same report which is output when you print from the **Search Actions** grid in the **FCA** module. **Note:** Available from v2017.2 Hotfix #3.
Audit Search Results	The same report which is output when you print from the **Search Audits** grid in the **Audit** module.
Audit Status Report	The same report which is output when you print the **Audit Status Report** from the **Audit Reporting** page in the **Audit** module. Provides a list of all Audits currently scheduled (but not yet completed), showing the details and State of each audit.

Audit Summary Report	A summary of Audits. Can be used to review the Audit program on a monthly, quarterly or annual basis, including: • The numbers of Audits scheduled vs. completed • The percentage completed by the scheduled Target Date • The percentage of Audits that resulted in Findings being raised, with breakdown of how many Findings were raised • A list of Audits completed in the same period can also be requested
Detailed List Report (*Audits*)	Lists all the Audits scheduled for a specified period.
Finding Search Results Report	The same report which is output when you print from the **Search Findings** grid in the **FCA** module.
Investigation Search Report	The same report which is output when you print from the **Search Investigations** grid in the **Safety** module.
Investigation Status Report	The same report which is output when you print the **Investigation Status Report** from the **Safety Reporting** page in the **Safety** module, except that it includes Assessments as well as Investigations. Lists all Assessments and Investigations not yet closed, and provides a summary of their status.
Multiple Assessment Summary	The Assessment Summary report can be printed from an individual Assessment. The **Multiple Assessment Summary** outputs a bulk version of the Assessment Summary Report, which includes details from all Assessments returned by the search criteria.
Multiple Investigation Summary	The Investigation Summary report can be printed from an individual Investigation. The **Multiple Investigation Summary** outputs a bulk version of the Investigation Summary Report, which includes details from all Investigations returned by the search criteria.
Occurrence Search Report	The same report which is output when you print from the **Search Occurrences** grid in the **Safety** module.
Occurrence Status Report	The same report which is output when you print the **Occurrence Status Report** from the **Safety Reporting** page in the **Safety** module. **Layout** options: • **Occurrence Status Report** • **Occurrence Status with WR Details** (includes details of any Findings and Actions raised from linked Investigations and ERC Reviews).
Occurrence Summary Report	the same report which is output when you print the **Occurrence Summary Report** from the **Safety Reporting** page in the **Safety** module. **Note:** The one-page summary is not restricted by security, as no Occurrence details are shown. The list of Occurrences is filtered according to you Occurrence Type security.

1.0

2. Select a **Layout**, **Group By**, **Date Category** etc. (see later sections for further instructions).

3. The report **Title** defaults to predefined text, but you can modify it if required.

Format	Preview ▼
Title	Occurrence Statistics - Aircraft

4. Choose whether to include the entered criteria at the bottom of the report.

Include criteria in Report ☑

5. Choose a **Format**.

Preview	Opens the graph as a PDF in a new tab within the browser
PDF	Prompts you to open/save* the graph as a PDF
Word DOC	Prompts you to open/save* the graph in Microsoft Word
Excel XLS	Prompts you to open/save* the graph in Microsoft Excel

* This will depend on your browser settings

6. If your set-up allows you to, choose whether to **Include Restricted Data**. Checking this box may require you to enter the answer to an equation to confirm that you are sure you wish to print restricted data.

7. Click **Generate**.

5.3.1 Security

Reports displaying Occurrence and Investigation details will apply the following security:

- The **Occurrence Description** will not be displayed for Restricted Occurrences, unless you have authorisation to view restricted Occurrences.

- The Investigation Findings and Synopsis will not be shown for Restricted Investigations, unless you have authorisation to view restricted Investigations.

- If access to incomplete Investigations has been set, the Investigation Findings and Synopsis will not be shown for Investigations that are currently active (i.e. not Closed or Cancelled).

5.4 Excel Graphs

The 'Excel Graphs' option provides essentially the same options as 'Analysis Graphs'. The difference is that when you click 'Generate', the data will be exported into an MS Excel file with the graph automatically created:
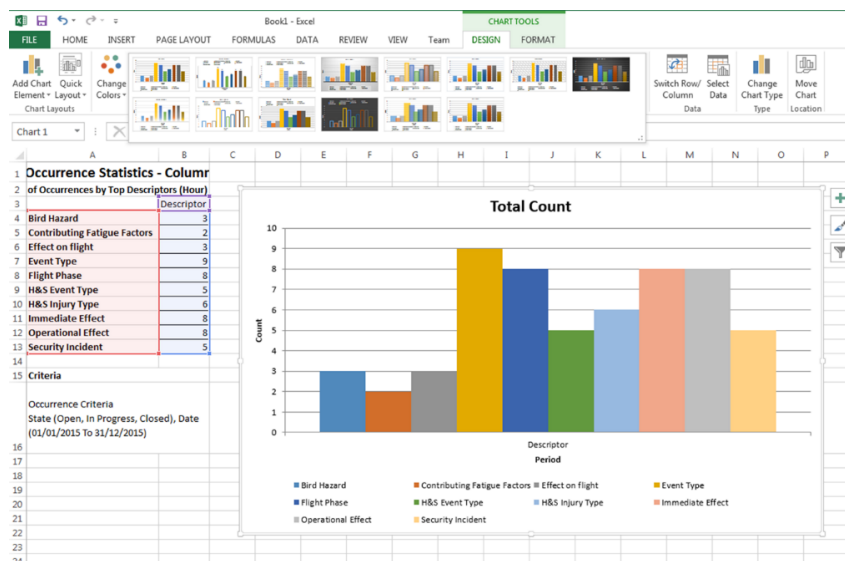
Because the graph is not just a static image you can use options available in MS Excel to apply different formatting to the graph.

Notes:

- Excel Graphs can be saved as part of Saved Criteria Sets. However, these sets cannot be used as part of Scheduled Reports.
- Unlike most other reports, the output is not controlled by an .RDL file. Therefore, the layout cannot be changed.
- This functionality supports versions of MS Excel versions from 2010 onwards.
- Since the 'Excel Graphs' option always outputs data and a graph to MS Excel, there will be no 'Format' field available and the 'Data' Layout option will not be present.

In order to use Excel Graphs you must enable the Administration setting, and then install a custom URI handler on the computer of each person who will use the functionality.

1. Go to **Administration**.
2. Go to **Analysis Administration**.
3. Go to **Analysis Options**.
4. Check the 'Enable Simple MS Excel Graph Export' option.
5. Ask Support for the AQD.Connect.CustomUri installer.

For each person who needs to use 'Excel Graphs':

6. Install the custom URI handler on the computer you intend to use the functionality on.

6. Scheduled Reports

Scheduled Reports functionality allows you to select previously saved report criteria and automatically email these out at regular intervals.

To access the **Scheduled Reports** page in **Analysis** and create Scheduled Report sets, you need the following static security role:

- *Report Scheduler*

1. Go to **Scheduled Reports**.

2. In the **Scheduled Report Sets** grid, click **+**.

Title	Visible from the **Scheduled Report Sets** grid
Description	Details about the purpose and contents of the Scheduled Reports Set.
Run Every	How frequently the Scheduled Report Set will be sent.
Active	Un-check if you are not ready for the Scheduled Report Set to be run. The Scheduled Report Set will only be picked up by the Scheduled Report Service if the **Active** box is checked.
Last Run Date	When the Scheduled Report was last run.
Next Run Date	Defaults to today. Change it if required
Email Scheduled Report Owner if Report Set fails	Check to send email the address recorded against the Scheduled Report Set's owner if the Scheduled Report Set fails to generate. If the owner has no email recorded, or this option is not checked, then if the Scheduled Report set fails an alert will be sent to the email entered in **Administration** > **Module Administration** > **Analysis** > **Analysis Options** > **Scheduled Report** > **Notification Email.**
To / CC / BCC	Enter the email addresses of the staff you want the reports to be sent to. Click the **To**, **CC** and **BCC** buttons to use the Address Book.
Subject / Body	The contents of the email which will be sent.

Once you have created your Scheduled Report Set, you can choose which reports you want to include, and which criteria you want to run on them.

3. In the **Reports to Include** section, click **+**.

4. The window is divided into:

- **Public**: Criteria sets available to all users

- **Personal**: Criteria sets visible only to the currently logged in user.

- **Department**: Criteria sets visible to people in your department.

5. You can select straight from the grid if desired

6. To filter the list of reports, use the **Report** field. Click the search icon to open the **Select Report Layout** window.

Select Report Layout

Report Layouts

Report	Layout	Module
Causal Factors	Causal Factors - Area	ANA
Causal Factors	Causal Factors - Column	ANA
Causal Factors	Causal Factors - Graph Data	ANA
Causal Factors	Causal Factors - Line	ANA
Causal Factors	Causal Factors - Pie	ANA
Occurrence Cost Statistics	Occurrence Cost Statistics - Pie	ANA
Occurrence Cost Statistics	Occurrence Cost Statistics - Area	ANA
Occurrence Cost Statistics	Occurrence Cost Statistics - Column	ANA
Occurrence Cost Statistics	Occurrence Cost Statistics - Line	ANA
Occurrence Cost Statistics	Occurrence Cost Statistics - Data	ANA

Page 1 of 3   View 1 - 10 of 25

7. Select a Report Layout from the grid.

8. Click **Select**. The **Add Report Query** grids will be filtered so that only Criteria Sets which use that specific layout are visible.

9. Select the Report/Criteria combo you wish to add to the report.

10. Click **Add**. The Report/Criteria combo will be added to the Scheduled Report Set in the **Reports to Include** section.

11. Add as many reports as required.

12. Close the **Add Report Query** window.

13. To test your Scheduled Reports Set, click the '**Test**' button, enter an email address, and click '**Test**'.

Test Scheduled Report

Test Email   john.smith@airline.com

Test

Cancel

6.1   Reassigning Scheduled Report Sets

Once created, a Scheduled Reports Set is visible only to the user who created it. If ownership needs to be changed from one user to another, you can use the **User Assignment** tool (accessible from the **AIM** screen).

To access the **User Assignment** page reassign Scheduled Report sets, you need the following static security role:

- ***Report Schedule Reassigner.***

When the Scheduled Report Set is run, it will send the included Reports to the email recipients specified. **Note that the security applied to the report contents will be the same security access that the user who owns the Scheduled Report Set has.**

7. Appendix A – Query by Form Examples

7.1 Cabin, Flight Safety and Maintenance events at Wellington Airport in 2013

The following query will identify all Occurrences which:

- have an Occurrence Type of CAB, FLT or MNT; AND
- occurred between 1st Jan 2013 and 31st Dec 2013; AND
- occurred at Wellington Airport.

		Source	Field	Operator		Value	
☐		Occurrence Types ▼		🔍 In	▼	CAB,FLT,MNT	▼
☐	And ∨	Occurrence Fields ▼	Occurrence Date Time	🔍 Between	▼	01/01/13 00:00	31/12/13 00:00
☐	And ∨	Occurrence Fields ▼	Location	🔍 =	▼	WELLINGTON INTL	🔍

Query By Form *

7.2 Near misses

The following query will identify all Occurrences which:

- Have an Occurrence Title containing the text 'near miss'; OR
- Have an Occurrence Description containing the text 'near miss'.

Query By Form *

		Source	Field	Operator		Value	
☐		Occurrence Fields ▼	Title	🔍 Like	▼	near miss	
☐	Or ∨	Occurrence Fields ▼	Occurrence Description	🔍 Like	▼	near miss|	✕

7.3 Major and minor events from 2013

The following query will identify all Occurrences which:

- Have an Occurrence Date Time between 1st Jan 2013 and 31st Dec 2013; AND which either:
  - Have a Severity of Minor
 - Have a Severity of Major

Query By Form *

		Source	Field	Operator		Value	
☐		Occurrence Fields ▼	Occurrence Date Time	🔍 Between	▼	01/01/13 00:00	31/12/13 00:00
☐	And ∨	Occurrence Fields ▼	Severity	🔍 =	▼	Minor	▼
☐	Or ∨	Occurrence Fields ▼	Severity	🔍 =	▼	Major	▼

7.4 Events during turbulence where someone fell or was struck by a falling object

The following query will identify all Occurrences which:

- Have a Turbulence of Severe AND
  - Have an Injury Event Type of Fall during turbulence; OR
  - Have an Injury Event Type of Struck by falling object

		Source	Field	Operator		Value	
☐		Occurrence Fields ▼	Turbulence	🔍 =	▼	Severe	▼
☐	And ▼	Event Descriptors ▼	Injury Event	🔍 =	▼	Struck by falling object	🔍
☐	Or ▼	Event Descriptors ▼	Injury Event	🔍 =	▼	Fall during turbulence	🔍

7.5 Events about Fire Protection, smoke or fire in which the flight was cancelled

The following query will identify all Occurrences which:

- Have an Effect on Flight Event Descriptor of Flight Cancelled; AND which either:
  - Have an DNAA ? Event Types Event Descriptor of Fire Protection; OR
  - Have an Occurrence Description containing the text 'smoke'; OR
  - Have an Occurrence Description containing the text 'fire'.

		Source	Field	Operator		Value	
☐		Event Descriptors ▼	Effect on flight	🔍 =	▼	Flight cancelled	🔍
☐	And ▼	Event Descriptors ▼	DNAA ? Event Types	🔍 =	▼	Aircraft Airframe malfunction > Fire protection	🔍
☐	Or ▼	Occurrence Fields ▼	Occurrence Description	🔍 Like	▼	smoke	
☐	Or ▼	Occurrence Fields ▼	Occurrence Description	🔍 Like	▼	fire	

7.6 Bird strikes from 2013 where the number of birds hit is known

The following query will identify all Occurrences which:

- Have a Bird Number Hit value not equal to NULL (i.e. this field is populated); AND

- Have an Occurrence Date Time between 1st Jan 2013 and 31st Jan 2013.

		Source	Field	Operator		Value	
☐		Occurrence Fields ▼	Bird Number Hit	🔍 <>	▼		▼
☐	And ▼	Occurrence Fields ▼	Occurrence Date Time	🔍 Between	▼	01/01/13 00:00	31/12/13 00:00

7.7 Events which happened on Auckland-Wellington / Wellington-Auckland route

The following query will identify all Occurrences which either:

- Have a Departure Point of AKL (Auckland); AND

- Have a Destination Point of WLG (Wellington)
  OR

- Have a Departure Point of WLG (Wellington); AND

- Have a Destination Point of AKL (Auckland)

		Source	Field	Operator		Value	
☐		Occurrence Fields ▼	Departure Point	🔍 =	▼	AKL	🔍
☐	And ▼	Occurrence Fields ▼	Destination Point	🔍 =	▼	WLG	🔍
☐	Or ▼	Occurrence Fields ▼	Departure Point	🔍 =	▼	WLG	🔍
☐	And ▼	Occurrence Fields ▼	Destination Point	🔍 =	▼	AKL	🔍