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Query Studio Ad Hoc ROSS Reports

Student Workbook
Release 2.16.12

For ROSS Steady State
Operations & Maintenance

Developed by Phacil, Inc. under
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1 Course Outline

1.1 Unit 1 – Class Administration

Refer to **Slide QS-01-ROSS-SL** (Query Studio Ad Hoc ROSS Reports).

1.2 Unit 2 – Course Overview

1. Course Purpose.

   Refer to **Slide QS-02-ROSS-SL** (Course Purpose).

2. Course Objectives.

   Refer to **Slides QS-03-ROSS-SL**, **QS-04-ROSS-SL**, and **QS-05-ROSS-SL** (Objectives).

3. Course Description.

4. Presentation Methods.

   a. Course consists of lecture, class discussion, and hands-on practice.

   b. Focus of classroom activities is on creation of reports in Query Studio using the ROSS AR data package.

   c. Days 1 & 2: Instructor and students build reports together.

d. Day 3: Students work in small groups to 'table-top' report scenarios, and then each student independently builds the report.

5. Student Responsibilities.

   a. Actively participate in class discussions and scenarios.

   b. Ask for clarification and guidance as appropriate from instructors.

   c. Maintain an open minded and flexible outlook.

   d. Take notes on course material as appropriate.

   e. Complete a Course Evaluation form.

6. Student Evaluation.

   a. Instructors assess student competency during practice sessions by observing students as they:

- Plan the steps necessary to answer the scenario's reporting question(s).
- Develop the report.
- Validate and interpret report results.

b. At end of the course, instructors recommend whether the student should be granted ROSS AR access.

7. Course Schedule.
8. Student Workbook.
9. Student Expectations.

1.3 Unit 3 – Report Types

1.3.1 Types of ROSS Reports

1. Standard.

- Accessed via 'Reports Portal' option under ROSS Reports menu.
- Pre-defined list of reports.
- Viewed in web browser via Cognos Connection.
- Can set filter criteria.
- Cannot select query items.
- Example: List of resources on incidents, by incident, by catalog, by category, by catalog item.

• Standard reports meet as much as 90% of the user community's reporting needs.
2. Current Year Ad Hoc (Analytical Reports). • Create custom reports in web browser via Cognos Query Studio. • Drag and drop query subjects onto a report window. • Can create crosstab reports. • Example: Number of resources on incidents started between 08/01and 08/15 of the current year, by date, by GACC, by Host, and by incident type.
3. Historical Ad Hoc (Analytical Reports Historical). • Current Year Data vs. Prior Year Data (AR Historical). Point out this course addresses ad hoc reports using current year data.

- Currently AR (Historical) data includes 2009 to present. Data prior to 2009 must be accessed via DDS.

- Comprehensive, up-to-date Data Dictionary is available at: http://ross.nwcg.gov/analytical_reports/ROSS-AR%20Data%20Dictionary.pdf

4. User Community Reports folder.

- Shared reports stored in 'User Community Reports' folder.
  - Before creating report, see if already exists in User Community Reports.

  - Do not create a new report if there is an existing report that meets your reporting needs.

  - Primary sub-folders in the User Community Reports folder.

- When developing a custom report, consider whether the report community could benefit from the report being:
  - Converted into a standard ROSS report, or

– Added to the User Community Reports ROSS-AR folder.

1.3.2 Types of Query Studio Reports

1. List Report.

Refer to **QS-01-ROSSR-HO** (List Reports).

- Displays data in rows and columns.
- All new reports start as list reports.
- Can filter, group, summarize, and calculate data.

2. Crosstab Report.

Refer to **QS-02-ROSSR-HO** (Crosstab Reports).

- Displays summary of quantitative information at intersections of rows and columns.

3. Chart.

- Displays information in graphical form.

1.4 Unit 4 – Data

1.4.1 Data Package Elements
1. Opening Query Studio. • Click Launch link in Cognos toolbar & select Query Studio. • There is a ROSS Users Guide section dedicated to using Query Studio, available via the Analytical Reports link on the ROSS home page
2. Data Package. • ROSS-AR data package. • ROSS-AR data dictionary.
3. Subject Areas. Refer to **QS-03-ROSSR-HO** (Subject Areas).

- Subject Area – Collection of related query subjects (e.g., Incidents).

- Independent Subject Areas.
  - Built to be stand-alone.
  - Query items may not be combined with those from other subject areas.
  - The ‘Information’ double-arrow button (below the ‘Insert’ button) can be used to view information about the selected element.

- Integrated Subject Areas.
  - Query items from different subject areas can be combined in a single report.
  - 'Integrated' because relationships exist between the underlying data structures.

4. Query Subjects.

Refer to **QS-04-ROSSR-HO** (Query Subjects).

- Query Subject – Collection of related query items.
  - Represents table in database.
  - Query Subjects are grouped into Query Areas.

5. Query Items.

Refer to **QS-05-ROSSR-HO** (Query Items).

- Query Item – Individual item within a Query Subject.
  - Represents a column of data in a database table.

6. Pre-Configured Filters.

Refer to **QS-06-ROSSR-HO** (Pre-Configured Filters).

- Pre-defined filter within a subject area that allows multiple query item level filters to be set at the same time.

1.4.2 Understanding, Interpreting, and Selecting Data

1. Selecting Data.

- To correctly answer your reporting question, you must select the right data.
- To select the right data, you must understand the data package elements and their relationships.
- Correctly using the data is vital to achieving accurate report results.

2. Interpreting Data.

- Your interpretation of the data can also affect your report results.

- For example: Do you consider a ‘Reserved’ resource to be ‘Available’, ‘Committed’, and/or ‘Assigned’? This can affect calculation of Days on Assignment (i.e., should ‘Reserved’ resources be excluded, even though they are ‘Assigned’?)

3. Query Items in Multiple Subject Areas.

- Some query items exist in multiple subject areas. For example:
  - Inc GACC Org Name in Incidents subject area, and Res GACC Org Name in Resources Subject area.
  - Inc Name in Incidents subject area, and Inc Name in Resources subject area (Assignment History query subject).

- To ensure most robust joins, best to stay within the same subject area. For example:
  - If building an Incident report, select query items within the Incidents subject area as much as possible (e.g., Inc GACC Org Name).
  - If building an Assignment History report, select query items within the Resources subject area as much as possible (e.g., select Res GACC Org Name).

- Using filters and query items from the ‘other’ subject areas could generate different report results.
  - For example, if looking for resources that have been assigned to an incident, using Resources > Resources > Res Name would not return the same results as using Requests > Assignment > Res Name.

1.5 Unit 5 – Creating a List Report

1.5.1 Adding Data to a Report

1. General Rules.

- Want to minimize the data as soon as possible, otherwise putting unnecessary performance strain on system.

- Filter query items prior to adding them to the report by right-clicking and selecting 'Filter for report…'
  - This allows the system, when the query item is subsequently added to the report, to retrieve only data that matches the filter criteria, rather than having to retrieve all data associated with the query item.

- Use a pre-configured filter if possible, allowing drill down towards desired data prior to bringing data to the report.

- Insert and filter query items in a 'general to specific' order to limit the amount of data that must be retrieved.

  For example:
  - Filter on Inc GACC Org Name prior to inserting Inc Disp Org Name.
  - Filter on Inc Disp Org Name prior to inserting Inc Name.

- The order in which you insert and filter query items is very important. Inserting ‘Inc Name’ and related data without having first reduced the number of dispatches can result in the Cognos server ‘coming to its knees’. This can affect not just Cognos users but all users running applications from that server. This is one of the reasons query studio will only be available to those who have received training.

- Always anticipate the effects of adding the next query item, and filter the existing data first if appropriate.

2. Methods of Adding a Query Item – Double-Clicking

Refer to **QS-07-ROSSR-HO** (Pre-Configured Filter Prompt Screen).

3. Methods of Adding a Query Item – Clicking the Insert button

4. Methods of Adding a Query Item – Drag and Drop

5. Report Items.

- Query items added to a report become ‘report items’.

- In a List Report each report item appears as a column.

- To view list of your report items, and their expressions, click Report Definition under Manage File menu link.

- To remove a report item, select heading and click Delete button.

1.5.2 Ordering of Report Items

1. Ordering of Report Items.

- By default each new item added as next column.

- Can cut and paste columns; when pasting select column you want the pasted column to go before.

- Report Context and Accuracy – Sometimes context or accuracy of report is not realized until certain query items are added.

Examples:

- Inserting items from Request Documentation query subject, without inserting items such as Incident Name and Request Number, results in display of all documentation, not just that for requests.
- Inserting Request Transactions and Documentation. Documentation will not necessarily line up with action it applies to until Request Number is inserted (since documentation is by request, not by transaction).

1.5.3 Missing Data

1. Missing Data.

- Due to Cognos performing an auto summarize on items added to report, may appear there are blank records.
- Inserting additional items will allow records to display.
- For example: Incident Name, Resource Name, and Assignment Date are inserted. Some incident rows may contain no values.

- It is not until Request Number is inserted that you can see some incidents have pending requests that didn't display initially when the query was looking for assignments.

1.5.4 Saving a Report

1. Saving a Report.

Refer to **QS-08-ROSSR-HO** (Toolbar Buttons).

- 'Saving' a report in Query Studio:
  - Retains specific set of instructions for extracting particular data.
  - Does not save results of a particular run.
- Save and Save As Toolbar buttons.

1.5.5 Modifying the Appearance of a Report

1. Modifying the Appearance of a Report.

Refer to **QS-09-ROSSR-HO** (Change Layout Menu Link).

- Changing the appearance of a report does not change its data.

- Edit Title Area.
  - Report title and subtitle.
  - Show filters check box – Controls whether applied filters display as subtitle.
  - Show sorts checkbox – Controls whether applied sorts display as subtitle.
  - Show suppression checkbox – Controls whether applied suppression displays as subtitle.

- Changing Report Item Headings.

- Setting Number of Rows per Page.
  - Set Web Page Size link (from Change Layout menu).

– Number of Rows drop-down list.

1.6 Unit 6 – Running a Report

1.6.1 Run Report Options

Refer to **QS-10-ROSSR-HO** (Run Report Menu Link).

1. Preview with Limited Data.

- Shorter run time.
- Good for checking if results are 'in the ballpark'.
- Summarized numbers not correct.
- Limited Data page displays with 'torn-looking' borders at top and bottom.

2. Preview with No Data. • Shortest run time. • Quick view of report - no actual data. • Good when designing or editing report format. • Torn borders indicate results are not complete.
3. Run with All Data. • Runs report items against entire database. • Longer run time.

4. Suppression of Duplicate Records.

- Query Studio, by default, suppresses duplicate records.

- With Documentation query items, for example, this can result in missing rows of documentation.

- To ensure all data is returned, uncheck ‘Automatically summarize detail values, suppressing duplicates’ under ‘Advanced Options…’.

1.6.2 View Report Options

1. View in PDF Format.

- PDF – Portable Document Format that is independent of application software, hardware, and operating system.

- Like taking a photocopy of each page.

- Best method for:
  - Saving a copy of report results.

  - Printing the report.
  - Opens in Cognos Viewer.
- View in PDF Format link.

2. View in Other Formats.

- View button (farthest right button in the toolbar).
- HTML (HyperText Markup Language) – Best for web pages.
  - Select View in HTML Format.
- XML (Extensible Markup Language) – For transporting structured data to other systems, not for viewing.
- Excel – Data displays directly in Excel, in same format as on screen.

- CSV (Comma Separated Values) – Data displays in a grid on a webpage, unformatted.

1.6.3 Printing and Saving Report Results

1. Printing and Saving Report Results.

- First view report in PDF format.
- Use browser Print and Save As buttons.

1.6.4 Practice Session – List Reports 1

1. Practice Session – List Reports 1.

1.7 Unit 7 – Manipulating Data in a Report

1.7.1 Formatting Report Values

1. Formatting Report Values.

Refer to **QS-11-ROSSR-HO** (Edit Data Menu Link).

- Many functions can be accessed in three ways – clicking a toolbar button, right-clicking, and selecting from the menu.

- Text – Can truncate strings by setting number of visible characters.

- Date and Time.

- Other formatting: Number, Currency, Percentage, and Scientific.

1.7.2 Sorting Report Values

1. Sorting Report Values.

Refer to **QS-12-ROSSR-HO** (Sort Screen).

- Sort criteria is been added to the report subtitle.
- Sorting Letters – When Cognos sorts letters, it groups values containing all capital letters first, then values containing upper and lower case letters second. This can result in, for example, ‘AIRTANKER 101’ displaying before ‘Aerial Task Force 101’.

2. Sorting Request Number.

Refer to **QS-13-ROSSR-HO** (Sorting Request Number Column).

- Must apply ‘Req Number Sort Key’ item, otherwise for example, A-10 will display before A-2.
- Insert **Req Number** from Integrated Subject Areas > Requests > Requests.
- A report can be sorted by a query item, without adding the query item to the report, by right-clicking the query item and selecting ‘Sort for report’.

- Insert **Req Number Sort Key** (also in Requests > Requests) and select ‘Sort for report…’ to add as a sort without adding the query item to the report).

1.7.3 Grouping Report Values

1. Grouping Report Values.

- Used to hide duplicate values.

- Cannot group measures.

- Group toolbar button.

1.7.4 Calculating Report Values

1. Calculating Report Values.

Refer to **QS-14-ROSSR-HO** (Calculate Screen).

- Creates new report item for calculation results.

- Re-calculates with each report run.

- Click Edit Data menu link. Click Calculate link.

1.7.5 Summarizing Report Values

1. Summarizing Report Values.

Refer to **QS-15-ROSSR-HO** (Summarize Screen).

- Form of calculation that condenses data.

- Available summary functions depend on type of data selected.

- Does not add a new report item.

- Click Summarize link (under Edit Data menu). Click Advanced link.

- Summary for footers.
  - If you want to apply a summary function to your report, such as totaling numbers, select function from drop-down list.
  - Adds new ‘footer’ rows to report.

1.8 Unit 8 – Filtering Report Values

1.8.1 Filter Methods
1. Prefilters. • Text, numeric, and date and time data can be filtered. • Many query items are prefiltered views of a database table. • For example, Res Disp Org Name is a view of the Organization table prefiltered to remove all organization types that cannot be the home dispatch of a resource. • When filtering Res Disp Org Name, filter is applied only to dispatches, not to all organizations.
2. Pre-Configured Filters. • If you intend to select a large percentage of the items in the filter fields, using the pre-configured filter may not be the best option. Due to query differences, the query is significantly faster if you apply custom filters before and/or after adding the items to the report, rather than using the pre-configured filter.

3. Right-Click Filtering.

- A report can be filtered by a query item, without adding the query item to the report, by right-clicking the query item and selecting ‘Filter for report’.

1.8.2 Filter Screens

1. ‘Pick values from a list’ Filter Screen.

- Three filter screens: ‘Pick values from a list’, ‘Search for values’, and ‘Type in values’.

- Filter screen most appropriate for the selected report item automatically launches.

Refer to **QS-16-ROSSR-HO** (Pick Values from a List Filter Screen).

- ‘Prompt every time the report runs’ checkbox – Allows filter to be changed with each run.

- ‘Missing values’ link.

- ‘Apply the filter to individual values in the data source’ checkbox – Determines whether filter is applied at detail or summary level.

– Detail filter – Is applied to every record in the database. – Summary filter – Is applied only after all detail filters have been applied, so only runs against data in the report. – Summary filters are typically used for totals or counts.
2. ‘Search for values’ Filter Screen. Refer to **QS-17-ROSSR-HO** (Search for Values Filter Screen). • ‘Search for values’ link.
3. ‘Type in values’ Filter Screen. Refer to **QS-18-ROSSR-HO** (Type in Values Filter Screen). • ‘Type in values’ link.

1.8.3 Combine Filters Screen

1. ‘Combine filters’ Screen.

Refer to **QS-19-ROSSR-HO** (Combine Filters Screen).

- Used to manage the filters applied to the report.

- Detail tab – Displays the report filters that are applied to every record in the database

- Summary tab – Displays the report filters that are applied to just the data in the report.

- ‘Group’ / ‘Ungroup’ links (bottom right of ‘Combine filters’ screen).
  - Can group filters to cause them to be applied at the same time.

  - Necessary if don’t want all filters applied to all data.

  - Example with following filters: Dispatch A, Dispatch B, Aircraft, and Overhead.
    - For all aircraft and overhead from both dispatches, leave filters ungrouped.

  - But if want Dispatch A's aircraft and Dispatch B's overhead, must:
    - Group 'Dispatch A' and 'Aircraft' filters.
    - Group 'Dispatch B' and 'Overhead' filters.

- 'Apply NOT' / 'Remove NOT' links.

- 'Delete' / 'Delete All' links.

- 'Add a filter line' link.

1.8.4 Editing a Filter

1. Editing a Filter.

1.8.5 Resource Assignment Filtering
1. 'Assignment History' Filter. Refer to **QS-20-ROSSR-HO** (Resource Assignment Filtering). • Resource assignment information can include either a resource's assignment history (all requests to which resource has been assigned) or current assignment. • When creating an assignment history report involving query items from Resources subject area, a blank row (no assignment information) is displayed for each resource not currently assigned, including those that have never been assigned. • 'Assignment History' Filter (Integrated Subject Areas > Resources). – Apply to suppress the blank row for resources that have been previously assigned. – Predefined filter that does not prompt for filter criteria.
2. 'Exclude Non-Existing Requests' Filter. • A 'Non-Existing' request occurs when a resource is diverted from an assignment while Mob en Route.

- By default, non-existing requests are included in report results when Assignment History filter applied.
- 'Exclude Non-Existing Requests' filter can be applied to eliminate non-existing request data.

3. 'Current Status' Filter.

- 'Current Status' filter (Integrated Subject Areas > Resources) can be applied to display only current assignment of each resource.
- 'Current Status' is a predefined filter that does <u>not</u> prompt for filter criteria.
- Previous assignment information is excluded.
- Blank row for resources that have never been on an assignment continues to display.

- To suppress resources that have never been assigned, create a 'Not Equal to Null' filter on a report column containing null values for unassigned resources (e.g., Incident Name Not Equal to Null).

4. Non-Inventory Resources.

- Once a non-inventory resource's demobilization ETA has passed, resource can no longer be viewed via Resources subject area.

- Assignment query items from Requests subject area must be used to obtain data for non-inventory resources no longer on assignment.

1.8.6 Filtering Resource Status

1. Filtering Resource Status.

Refer to **QS-21-ROSSR-HO** (Filtering Resource Status).

- Special case in which a summary filter is applied to a non-numeric attribute, Resource Status.

- Resource Status is not a single field in the database, rather it is a derived value based on multiple queries.

- For performance reasons, ‘Res Status’ must be filtered at the summary level (i.e., filter only the results returned from detail filters).

- Un-check ‘Apply the filter to individual values in the data source’ check box.

1.8.7 Practice Session – List Reports 2

1. Practice Session – List Reports 2.

1.9 Unit 9 – Crosstab Reports

1.9.1 Creating a Crosstab Report

1. Creating a Crosstab Report.

- Benefits of a crosstab report:
  - Useful when same rows are displayed for multiple report items.
  - Swings common rows up to become columns.
  - Shows measure at intersection of each row and column.
  - Example:
    - Our report is currently a List Report: Contains rows for each of the two years, over and over for each GACC, and each incident type within each GACC.
    - Our report as a Crosstab Report: The rows for either Incident Type or Year will swing up to become columns, greatly reducing number of rows by eliminating redundancy, and providing summaries by year.
- 'Pivot (creates a crosstab)' button.

1.9.2 Summarizing a Crosstab Report

1. Summarizing a Crosstab Report.

- Cannot summarize non-numerical data.

- Summarize link (under Edit Data menu).

- Can summarize numerical data.

1.9.3 Sorting a Crosstab Report

1. Sorting a Crosstab Report.

- Sorting non-numerical data – Same as with list reports.

- Sort link (under Edit Data menu).

- Sorting numerical data (summaries).

Refer to **QS-22-ROSSR-HO** (Sorting a Summary).

– ‘Based on group summaries’ drop-down list.

1.9.4 Swapping Rows and Columns

1. Swapping Rows and Columns.

- Typically used when there are many more columns than rows.

- Swap Rows and Columns toolbar button.

1.9.5 Converting a Crosstab Report Back to a List Report

1. Converting a Crosstab Report Back to a List Report.

- Clicking the Ungroup button converts a cross-tab report back to a list report.

1.9.6 Collapsing and Expanding Groups

1. Collapsing and Expanding Groups.

- Temporarily removes/restores progressive levels of detail.

- Not applicable if report:
  - Has no numerical data.

  - Contains a custom group.

- No visible indication that report is collapsed.

- Collapse Group toolbar button.

- Expand Group toolbar button.

1.9.7 Creating a Custom Group

1. Creating a Custom Group – Individual Values.

Refer to **QS-23-ROSSR-HO** (Custom Groups – Individual Values).

- Creates a new report item.

- Define Custom Groups link (Edit Data menu link).

- Customization Type drop-down list.

- Individual values.
  - Select Individual Values.

  - New group name:

  - New item name – Enter name for new report item:

  - ‘All remaining values (including future values)’ link – What to do with values not assigned to any of the custom groups.
    - Use the individual values as range names (default) – Uses value as header name.

- Do not show range names – No header names display.

- New range name – Can specify group name.

2. Creating a Custom Group – Ranges.

Refer to **QS-24-ROSSR-HO** (Custom Groups – Ranges).

- Process for creating ranges is essentially the same as for individual values.

1.9.8 Creating Report Sections

1. Creating Report Sections.

- Value of selected report item becomes heading of a section.

- Create Sections toolbar button.

1.9.9 Practice Session – Crosstab Reports
1. Practice Session – Crosstab Reports.

1.10 Unit 10 – Charts

1.10.1 Using Charts

1. Using Charts.

- Must have numerical (measures) and non-numerical (non-measures) data.
- Can have maximum of two non-measures and unlimited measures.
- Charts are created using the most-summarized report data, so consider first:
  - Removing measures that are not meaningful for chart.
  - Reordering non-measure columns.
  - Collapsing groups.

1.10.2 Chart Types

1. Chart Types.

- Click Change Layout menu link. Click Chart link.

Refer to **QS-25-ROSSR-HO** (Chart Types and Configurations).

- Chart Type drop-down list:
  - Column.
  - Bar.
  - Pie.
  - Line.
  - Column Line.
  - Area.

– Radar – Combines multiple axes into a radial figure.

1.10.3 Chart Configurations

1. Chart Configurations.

- Chart Configuration radio buttons:
  - Standard.
  - Stacked.
  - 100% – Shows relation of each measure to total
  - 3D.
- Not all configurations are applicable to each type.

1.10.4 Creating a Chart

1. Creating a Chart.

- Select the chart Type.

- Select the chart Configuration.

- 'Show the values on the chart' checkbox.

- Show the following in the report:
  - Chart and table.
  - Chart only.

1.10.5 Practice Session – Charts

1. Practice Session – Charts.

1.11 Unit 11 – Integrated Practice Session

1. Integrated Practice Session.

1.12 Unit 12 – Wrap Up

Course Objectives Review. Refer to **Slides QS-06-ROSS-SL**, **QS-07-ROSS-SL**, and **QS-08-ROSS-SL** (Objectives Review).
Ask remaining questions.
Any unmet expectations?
Please fill out the course evaluation and clean your workspace.