



U.S. Department of Transportation  
**Federal Motor Carrier Safety Administration**

FMCSA Data Quality Improvement Program

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# SAFETYNET Query Applications

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# Learning Objectives

- Learn how to turn a data request, question, or problem statement into a query
- Discuss how to identify and troubleshoot query mistakes or issues

# Session Format: Demos and Exercises



**Demo:** We'll show you how it's done



**Exercise:** Try it on your own and we'll review as a group



**Small Group Exercise:** We'll form breakout groups in separate web rooms

# What Can You Do with a Query?

- Respond to questions and problems posed by management
- Provide information like:
  - Effectiveness of State programs
  - Training enhancement issues
- Allows you to:
  - Examine data quality
  - Improve ability to run reports



# Common Applications

- Improve completeness (e.g., find records where “driver’s license class” is blank)
- Assist with quarterly MCSAP reporting
- Find duplicate crashes or inspections
- Use “Federally recordable” & “State reportable” fields to identify all crash records in either category
- Find calendar year passenger vehicle crashes with Hazmat
- Find records where carrier name is unknown.



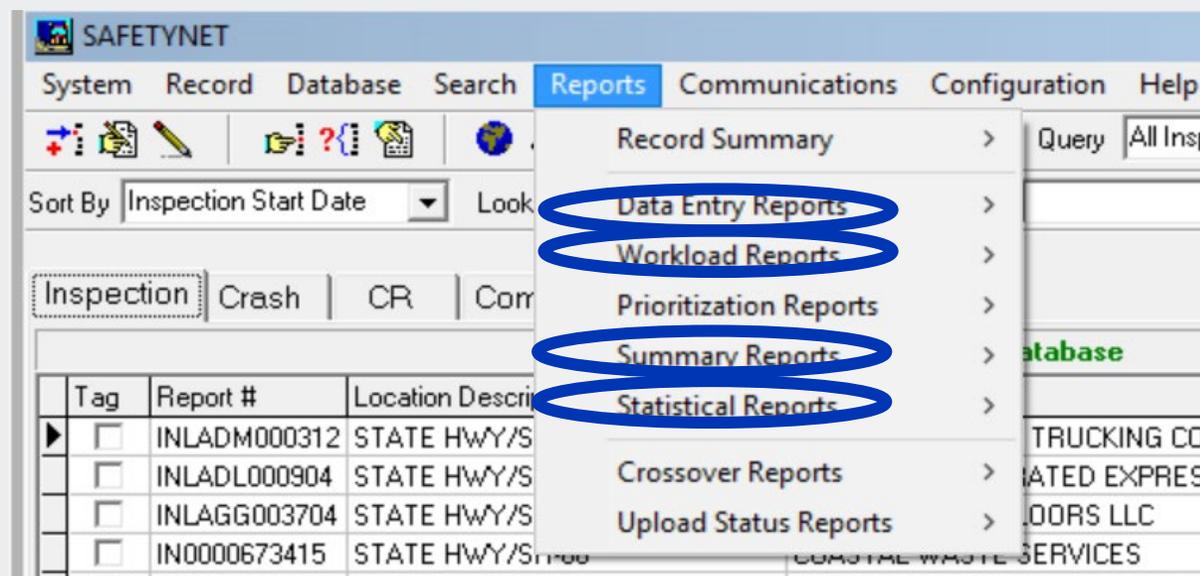
**How do you use queries?**

# Alternatives

- Queries
- Reports
- Data Quality Tool
- Export data for analysis in another program

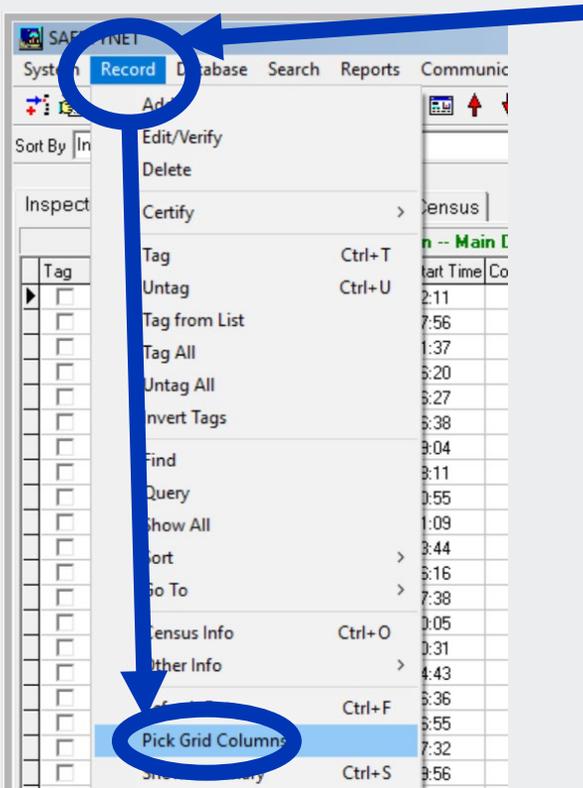
# Commonly Used Inspection Reports

- MCSAP Quarterly Report  
(in “Statistical Reports”)
- Duplicate Inspection Number  
(in “Data Entry Reports”)
- Inspection Type Summary  
(in “Workload Reports”)
- CVSA Decal Report  
(in “Summary Reports”)

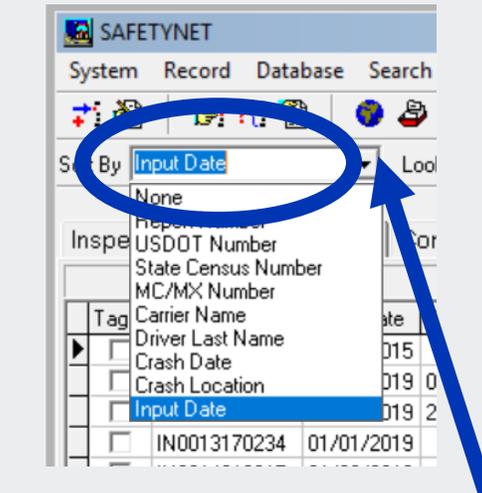
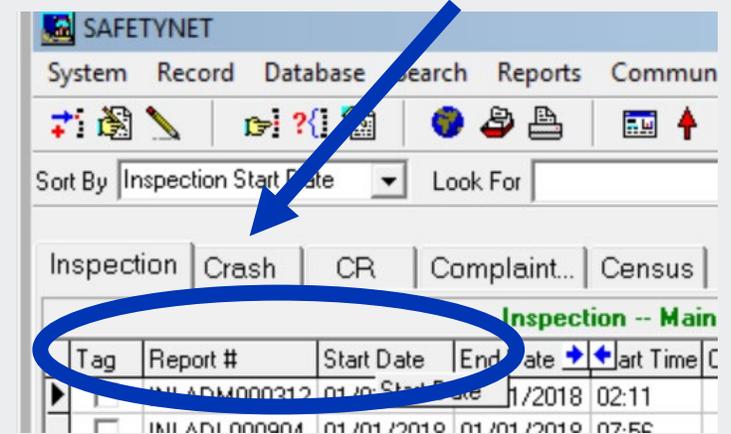


# Tips: Customize Grid to Find Information You Need

Choose columns/order to display columns (persistent)



Drag column headers to change order (temporary)



Sort the results

# Tips: Show All Records

- Click **this button** to display all records before/after querying



# Query Tips

- Use a unique username to save and run a particular query
- Save a query or find one in another profile
- Export and print



# “Current Date” Application



## Demo: Crash Query #13

Check for records where the Driver Lic. # Field is not filled in (for records edited in 2020)

### Query Construction:

- Last Edit Date  $\geq$  01/01/2020 **AND**
- Last Edit Date  $\leq$  12/31/2020 **AND**
- Driver Lic. # Is Blank



# “Current Date” Application



## Demo: Crash Query #14

Check for records where the Driver Lic. # Field is not filled (for records edited in **the past year**)

### Query Construction:

- Last Edit Date  $\geq$  Current Date (-365 days) **AND**
- Driver Lic. # Is Blank



# “Current Date”: Practice



**Exercise:** Take the query that we were just working with (or another one of your choice!)

Modify query to cover different date ranges using “Current Date”

e.g., Last Edit Date  $\geq$  Current Date (-90 days)

Or

Last Edit Date  $\geq$  Current Date (-30 days)

Etcetera



# Locally Defined Fields

Inspection Configuration

Certification Statements | Driver OOS Until Text/Delinquent Letter Text | Miscellaneous | Import/Export  
 Locally Defined Fields | Inspection Locations | Vehicle Makes | State Violations | Holidays | Cargo

Sort By:  Field Description  Start Date  Field Label  Tab Order

Display Date Range: From 01/01/1984 To 03/02/2020

Show Deleted Fields

Field ID	Deleted	Field Description	Field Label	Start Date
8	<input type="checkbox"/>	DUTY STATUS:	DUTY STATUS:	01/01/1984
17	<input type="checkbox"/>	Food Transport Inspection	Food Transport Inspection	08/12/2011
18	<input checked="" type="checkbox"/>	Health Hazard	Board of Health Enf. Action	08/12/2011
19	<input type="checkbox"/>	IDOR Permitted	OS/DW Permitted Vehicle	06/18/2018
10	<input type="checkbox"/>	Out of Service Location	OUT-OF-SERVICE AT	07/13/2001
14	<input type="checkbox"/>	Prepass Y/N	Pre-Screened Carrier	10/21/2005
4	<input type="checkbox"/>	PROJECT CODE #:	PROJECT CODE:	01/01/1984

Buttons: Add, Delete, Print, Export...

Field Description: Health Hazard

Field Label: Board of Health Enf. Action

Data Type: Logical Width (Chars): 1

Start Date: 08/12/2011 Page: Page 1

Deletion Date:

Print on Facsimile Report

Buttons: Save, Cancel, Tab Order, Position...

Buttons: Close, Help



# Locally Defined Fields

INSPECTION [ Editing ]

Location/Activities | Carrier | Driver/Shipper | Vehicle/HM | Violations | Notes/Special Study | **Locally Defined Fields**

Report Number **INLABE005014** Carrier Name **SWIFT LEASING CO LLC**

Page 1

ACCIDENT/INCIDENT #:

PROJECT CODE:

DUTY STATUS:

OUT-OF-SERVICE AT

- CDL Checked
- Pre-Screened Carrier
- Food Transport Inspection
- Board of Health Enf. Action
- OS/DW Permitted Vehicle



# Locally Defined Fields



## Demo: Inspection Query #14 (Version 1)

All inspections in 2020 where the LDF shows that the “Board of Health Enf. Action” checkbox was selected

### Query Construction:

- Start Date  $\geq$  01/01/2020 **AND**
- Start Date  $\leq$  12/31/2020 **AND**
- Optional Field # = 18 **AND**
- Optional Value = 1



# Locally Defined Fields



## Demo: Inspection Query #14 (Version 2)

All inspections in 2019 where the LDF shows that the “Board of Health Enf. Action” checkbox was selected

### Query Construction:

- Start Date  $\geq$  01/01/2020 **AND**
- Start Date  $\leq$  12/31/2020 **AND**
- Optional Field Description = Board of Health Enf. Action **AND**
- Optional Value = 1



# Combining Queries with a Report



## Demo: Inspection Query #15

A supervisor needs Inspector Profile Workload Report for CY 2019, regular duty inspections, for inspector codes **IN5399** and **IN1478**

### Query Construction:

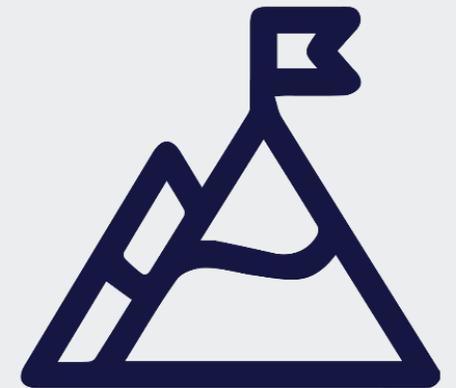
- Start Date  $\geq$  01/01/2020 **AND**
- Start Date  $\leq$  12/31/2020 **AND**
- (Optional Field Description = Duty Status: **AND**
- Optional Value = RT) **AND**
- (Inspector Code = IN5399 **OR**
- Inspector Code = IN1478)

Use Tag Queried Records checkbox!



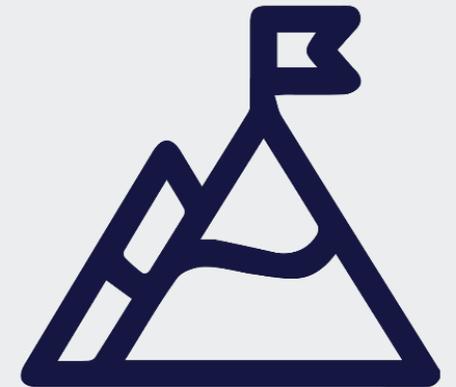
# Challenges When Writing Queries

- Additional layers increase the chance of losing data that you don't realize you are excluding
- Improper placement of parentheses
- Comparators
  - Choosing the right one
- Date range limitation
  - Archived records do not appear in query results



# Addressing Challenges – Validating Your Query

- Build up the query and check as you go
  - Start with Date Range
  - Add specific elements one-by-one
- Write the query out by hand – the issue might be with constructing it in SAFETYNET
- Check against another data source or similar query
- Get a fresh pair of eyes – consult with a coworker
- Query the archive separately or bring archived records back into main database



# Managing Query Results

**IF**

your query gives you more results than you want

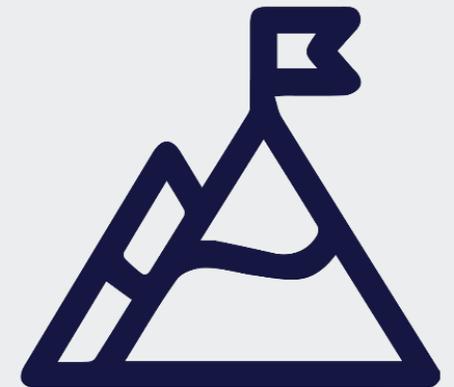
**THEN**

“test” the query using a small data set to verify the query language



# Addressing Challenges: Blank Fields vs Empty Spaces

- Fields that use drop-down menus will have an empty space when there is no value rather than a true blank space
- Empty spaces make it difficult to search for missing data



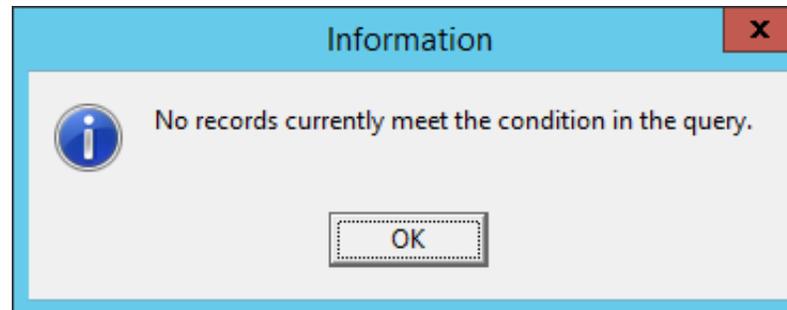
# Queries on Blank/Empty Spaces



**Exercise Crash Query #15:** Write a query that demonstrates what happens when you create a query using a field that has empty spaces (crash database)

- Driver Lic. Class is Blank

Note the result:



# Queries on Blank/Empty Spaces



**Exercise Crash Query #16:** To query for fields that contain empty spaces, we need to revise the query to search for fields that **do not** equal all the possible values for that field.

Let's try this using the Drivers License Class field for 2020.

# Finding Other Queries

**IF**

you want to find a query that someone else wrote

**THEN**

in the upper left of the Stored Queries screen, click the button to show “All Queries” instead of “My Queries”



# Applications

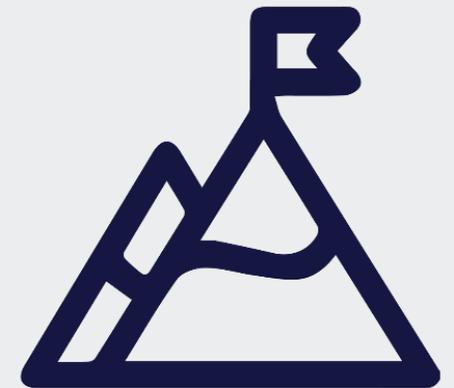


**Small Group Exercise:** We will form breakout groups in separate web rooms

Activity	Time (Minutes)
Small Group Discussion: Each person describes a new question they would like to answer with a query.	5
Exercise: Each person attempts their new query; returning to group members intermittently with questions or results.	10
Small Group Discussion: Decide what to report to the large group, and who will do so.	5
Large Group: Group representatives report out by talking and/or posting on the whiteboard (optional).	10

# Additional Challenges and Limitations

- Queries are limited to fields available on the drop down list
- Queries can produce more records, fewer records, or records other than the ones you are searching for:
  - Use another tool and export to Excel or a different resource (SAFETYNET, Data Quality Reports)
  - Refine your query or relax the restrictions of your query
- Queries simply return a group of records – they do not provide statistical information



# Have Questions? Let Us know!



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## **Additional Resources:**

Data Quality Website

<http://ai.fmcsa.dot.gov/DataQuality>

DataQs Website

<http://dataqs.fmcsa.dot.gov/>

## **Thank You!**