EGAT Technical Manual

Tableau Dashboards and Database Solution

SSI
Synectic Solutions, Inc.

Booz | Allen | Hamilton

Table of Contents

EXECUTIVE SUMMARY 2

1. TABLEAU OVERVIEW 3

1.1 Tableau Desktop vs Tableau Reader 3

1.2 Tableau Versioning 3

1.3 Live vs Extract Connections 6

1.4 File Types 8

1.5 Security and Distribution of Files 8

2. DATABASE OVERVIEW 8

2.1 Schema 8

2.2 Setup (Install Prerequisite Software) 12

2.3 Install EXWC Import/Export Tool 19

2.4 Prepare Data for Ingest 22

2.5 Using EXWC Import/Export Tool 32

2.6 Best Practices 40

2.7 Troubleshooting Import Errors 44

3. TABLEAU FUNCTIONS 47

3.1 How to Perform a Single Data Refresh 47

3.2 How to Perform Multiple Data Refreshes 49

3.3 How to Use the “View Data” feature 51

3.4 How to Export Data 55

3.5 Icon Rendering 63

3.6 Screen Resolution 65

Executive Summary

This user guide provides detailed explanations for both the Tableau and database solutions.

All Tableau dashboards were built in Tableau 2018.2, the latest version of Tableau that is approved on NMCI for both NIPR and SIPR environments. Within the Tableau section, there is an overview that goes over important concepts such as Tableau Reader vs Tableau Desktop, file types, and security of files. There is also a Tableau Functions section which reviews how to a perform a data refresh, how to use the "View Data" feature to view the underlying data, export data into a CSV file and or use the Crosstab to Excel function to transfer the reports to Excel. Each of these functions is accompanied by screenshots detailing step by step how to accomplish each task. Lastly, there is a section for each of the dashboards:

- CDMD-OA EXMIS Audit Report Dashboards
    - Asset Location
    - Audit Report
    - Gap Analysis
- FIP/FIAR Dashboards
- Data Demographics Dashboards
- OARS Dashboards
- Product Support Statistics Dashboards
- EGAT Metrics Dashboards

To support the Tableau visualizations, a database solution was also required. The database was built using PostgreSQL (v11.9), a free and open-source database management system which is DADMS approved. PostgreSQL provides the dual purposes of storing all data tables while quickly creating queries required to support the data visualizations. Within the database section, there is an overview that covers the tables which are exported for visualization purposes. Alongside the database, there is also an Import/Export Tool built with .NET Framework (v4.7.2), a free, DADMS approved application development platform for Windows. The Import/Export Tool is a Graphical User Interface which serves to assist with running the ingestion process of the OARS data extracts into the database as well as exporting the required CSV files that are used in the data visualizations. This guide will cover how to use the tool. Additionally, the database section will cover installation and setup of the Import/Export Tool and the database.

1. Tableau Overview

1.1 Tableau Desktop vs Tableau Reader

There are many different variations of the Tableau software, however, the EGAT project currently necessitates Tableau Desktop and Tableau Reader as the other two software, Tableau Public and Tableau Online are not in scope for security purposes. Tableau Desktop is a developer product where you can design and build functional Tableau dashboards. Tableau Reader is a consumer product used to view and interact with Tableau dashboards but cannot build dashboards. Aside from being able to build Tableau dashboards, the other major distinction is price. Tableau Desktop requires a license which is a cost that needs to be factored into development projects whereas Tableau Reader is free and only requires a MAC push from an ACTR. Below is a summary of capability differences between Tableau Desktop and Tableau Reader.

Capability	Tableau Desktop	Tableau Reader
Create Dashboards	Yes	No
View Dashboards	Yes	Yes
Interact with Dashboards	Yes	Yes
View Underlying Data	Yes	No
Create Ad Hoc Visuals	Yes	No
Connect to Data	Yes	No
Refresh Data	Yes	No
Revert Workbook Version	Yes	No
Data Security	Yes	Yes
Free Cost	No	Yes
Convert File Types	Yes	No

Figure 1.1.1

1.2 Tableau Versioning

Currently, NMCI has approved Tableau 2018.2 on both NIPR and SIPR. We recommend using Tableau 2018.2 only because it will prevent backwards compatibility issues. For example, if a dashboard was built in Tableau 2018.3, it can be reverted to Tableau 2018.2 for someone with Tableau 2018.2 Desktop or Reader to open. If that Tableau 2018.3 workbook was not converted, it would not be able to open in Tableau 2018.2 Desktop or Reader. This capability can revert a Tableau dashboard back to Tableau 10.5. However, this is a feature that is only available in Tableau Desktop. You cannot revert versions in Tableau Reader. Once a Tableau Desktop license has been acquired, you can begin to develop dashboards and revert dashboard versions if necessary. In order to use this feature, you first need to understand what version of Tableau the dashboard is built in. The team has provided steps on how to perform a version revert, but we recommend viewing and refreshing the dashboards in the approved version which is currently 2018.2. If a version newer than 2020.2 is used, the data source will need to be remapped. Therefore, please only use the version export function when necessary.

1. Open the desired workbook using Tableau Desktop. Go to **Help** and select **About Tableau** (see below).

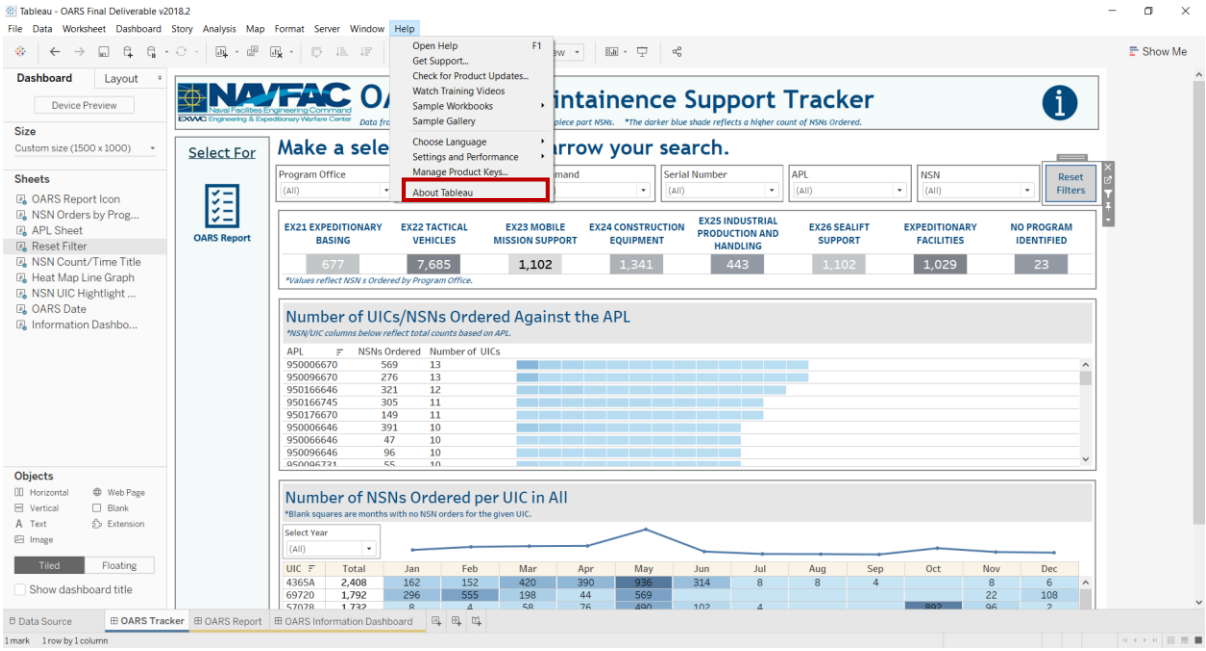


Figure 1.2.1

2. A pop-up will then indicate what version that dashboard was created in. The dashboard below was created in 2018.2 which is the latest NMCI approved version.

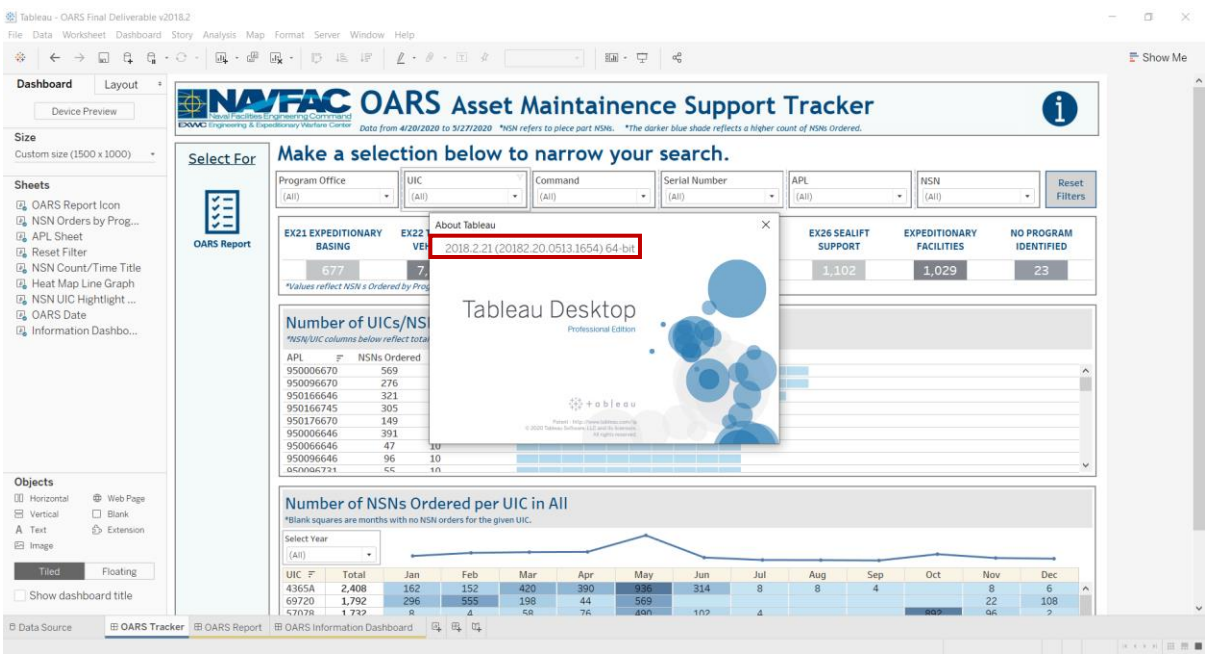


Figure 1.2.2

To revert a version, please follow the steps below:

1. Go to **File** and select **Export as a Version**.

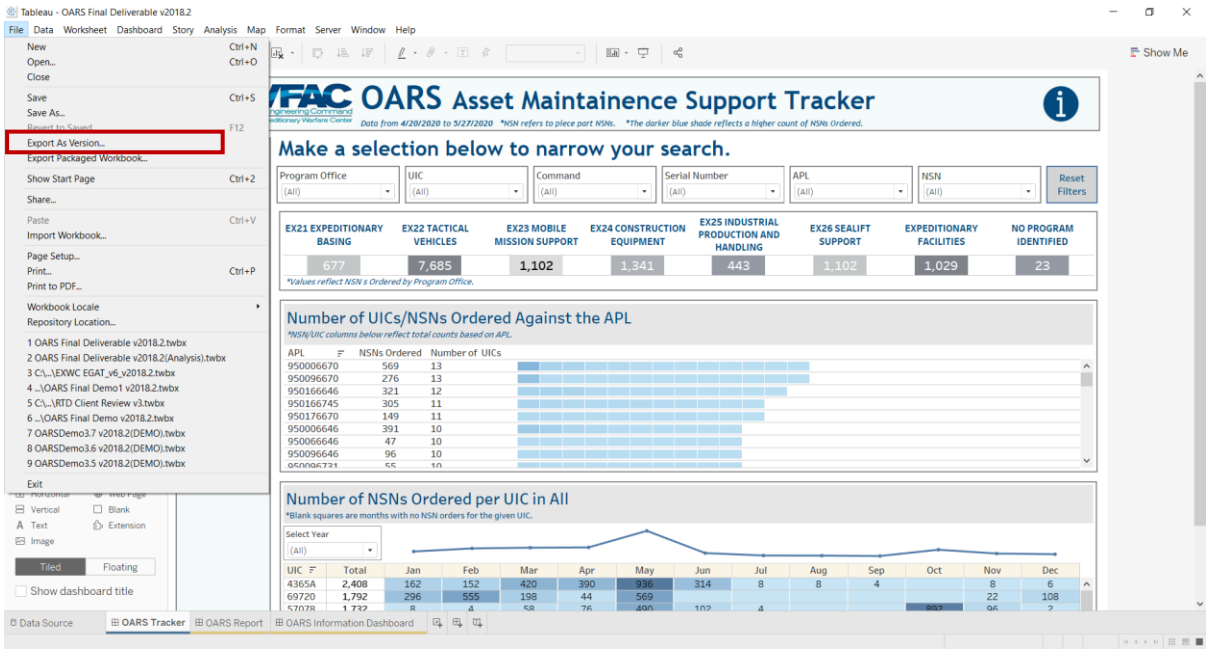


Figure 1.2.3

2. Using the dropdown menu on the popup, select which version to revert to. In this case, revert to Tableau 2018.2 as that is the version available on NMCI. After making the appropriate version selection, select **Export**.

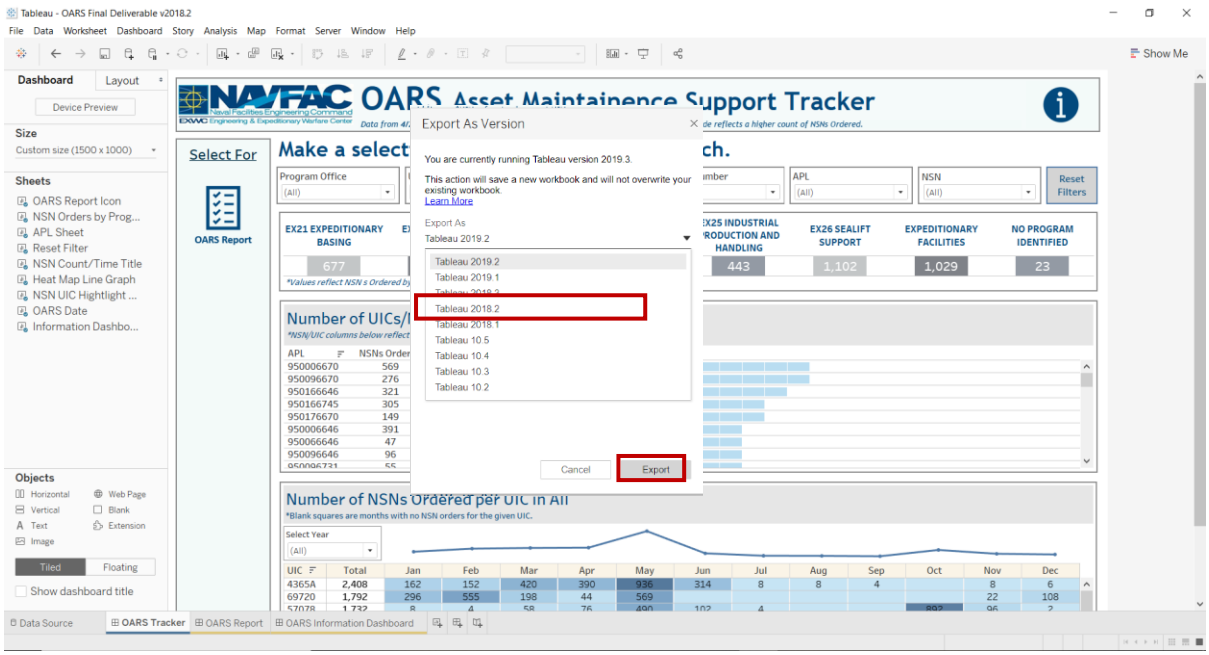


Figure 1.2.4

3. On the next pop-up, choose the location and select **Save**.

   NOTE: The version is then added to the end of the filename.

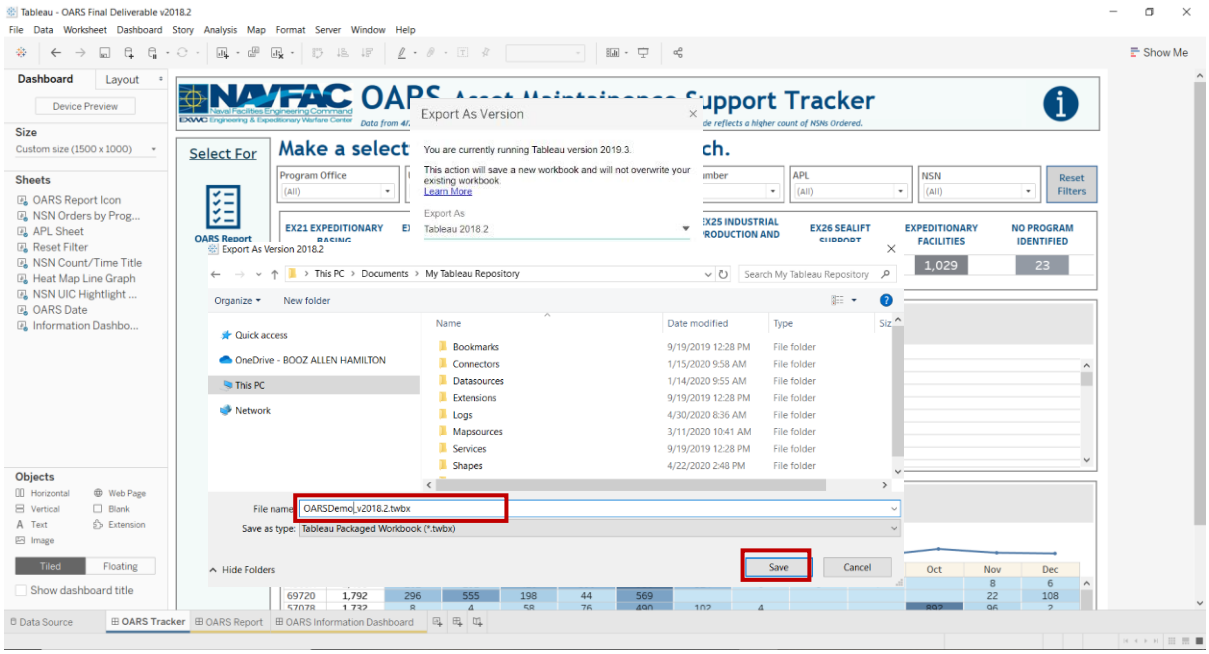


Figure 1.2.5

1.3 Live vs Extract Connections

There are two connection types in Tableau: live and extract. A live connection offers the convenience of real-time updates as any changes in the underlying data source will be reflected in Tableau. However, because Tableau is constantly reaching back to the database for all queries, it will only update as fast as the database itself. In addition, there are other factors to account for when using a live connection such as workbook and network speed. On the other hand, an extract is a snapshot of the underlying data which will then need to be refreshed whenever the underlying data updates. Since Tableau is not constantly tapping a database looking for updates, extracts are optimizing the workbook because it uses Tableau's in memory data engine to run the queries. With these two principles in mind, all EGAT dashboards were created using an extract connection and the queries have been optimized for Tableau ingestion.

To view the connection type of a dashboard, please follow the steps below:

1. Go to **Data** and select the data source to look at. For example purposes, use the "oars_data_current" and then select **Edit Data Source**.

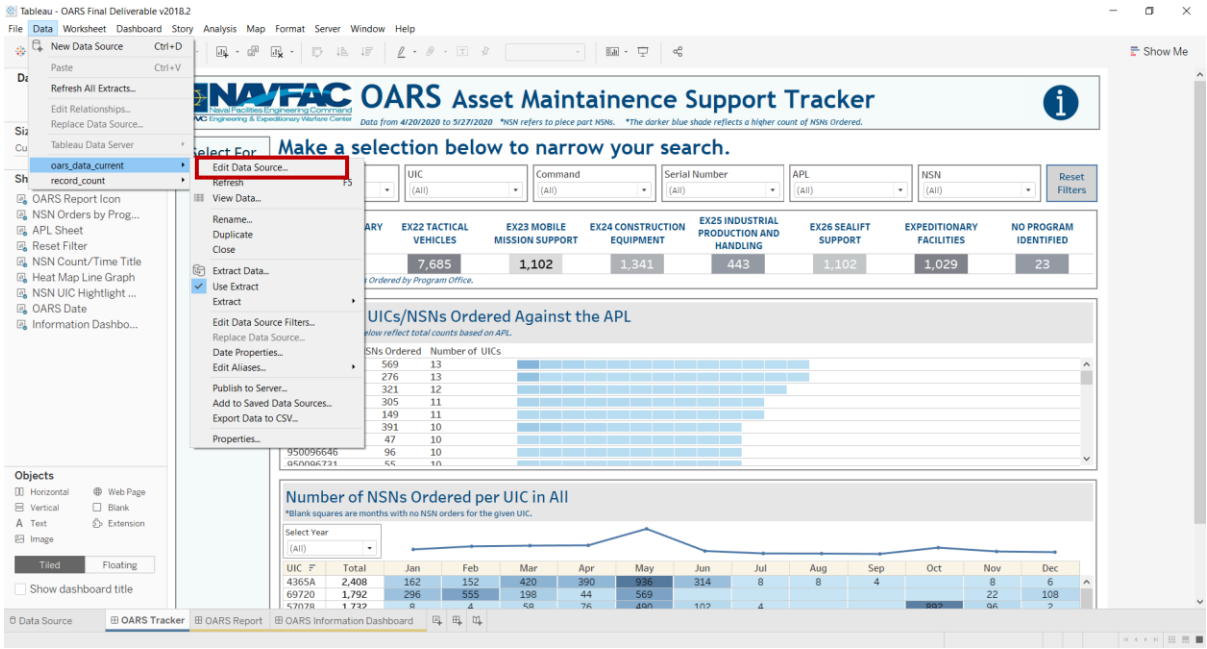


Figure 1.3.1

2. In the Data Pane (below), you can view how the data source is being joined. In the top right-hand corner, you can see the connection type (**Extract** in this case).

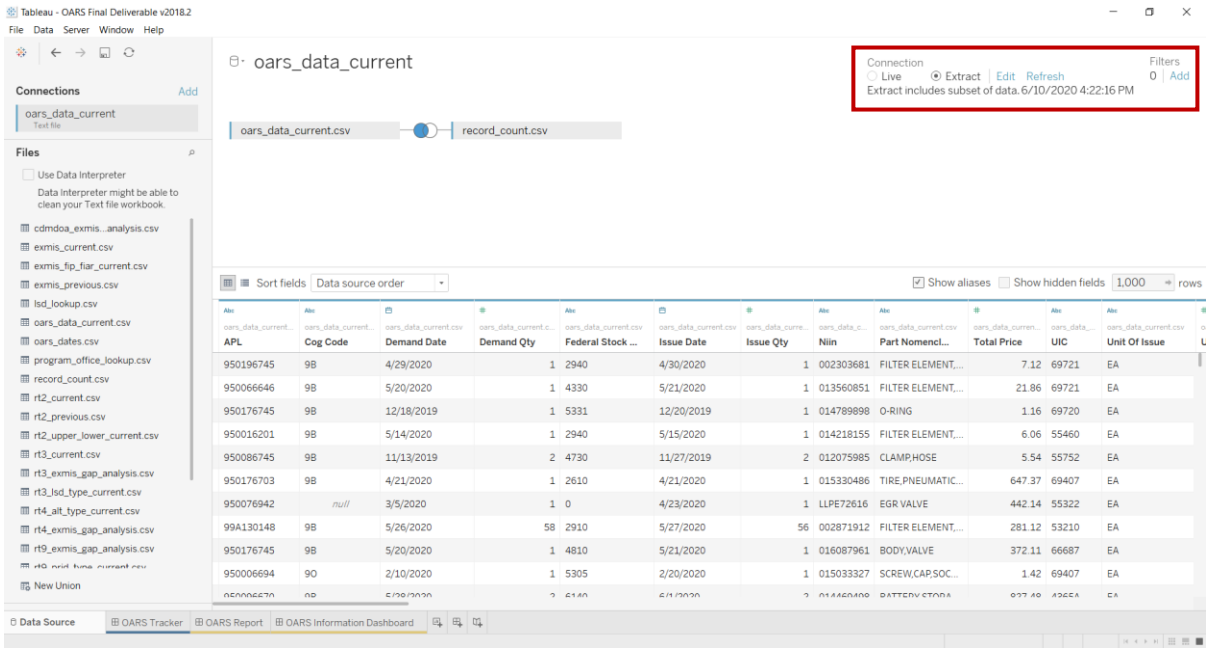


Figure 1.3.2

1.4 File Types

All dashboards are saved as a .twbx file which is a Tableau-specific file type. This allows you to create and view dashboards in Tableau Desktop and Tableau Reader respectively. Aside from .twbx files, dashboards can also be exported as different file types including PDF.

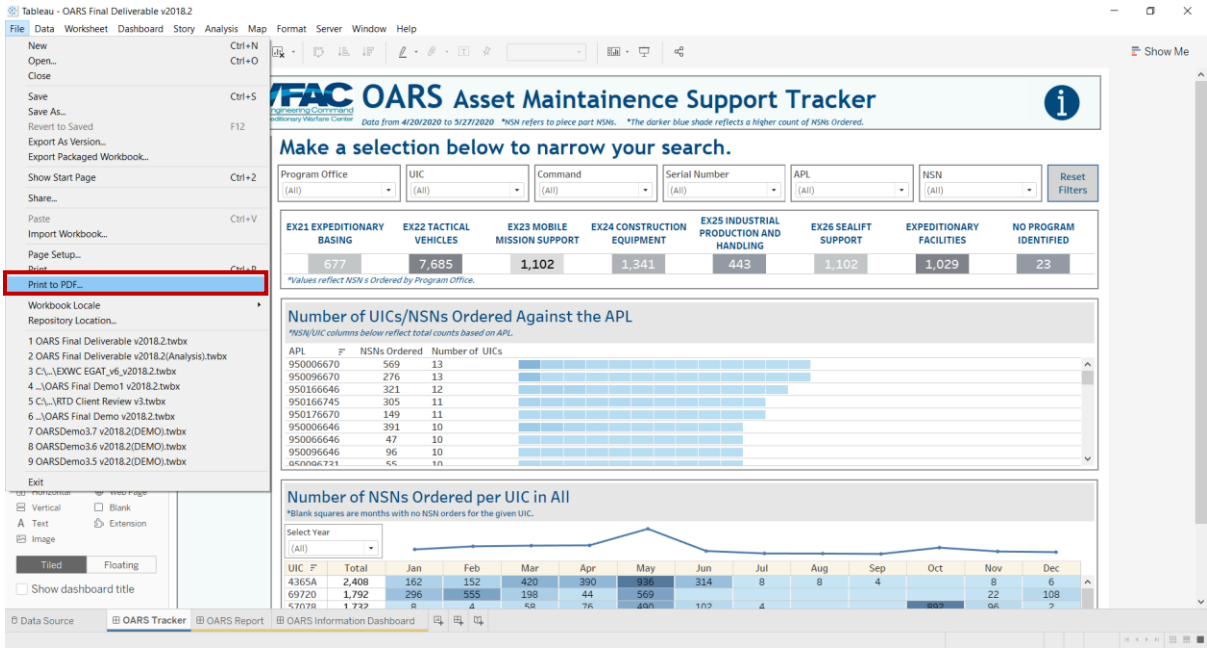


Figure 1.4.1

1.5 Security and Distribution of Files

As this data deals with the location of government owned assets, security is an important feature. Both Tableau Desktop and Tableau Reader provide security of data ingested into the tool. No one can view the reports unless provided access to such reports. However, it is up to you to reinforce data security by ensuring that the members of the Share Folder have a need to know. In addition, it is important to be vigilant when emailing files.

2. Database Overview

2.1 Schema

Three main data sources are ingested by the PostgreSQL database. The tables in each of these sources create the core of the database. Below is a list of those data sources and the names of their constituent tables.

NOTE: THESE TABLE NAMES CANNOT CHANGE AS THIS WILL AFFECT THE DASHBOARD WHEN REFRESHING THE DATA.

1. **CDMD-OA**
    a. **RT2:** Provides asset data from RT2 and is the parent table of all other RT tables. Upon ingest, the table is filtered such that each asset meets the following conditions:

        i. Serial Number and the USN BuNo Craft Number are non-null.

        ii. ESD is in the user provided ESD List (see additional tables below).

iii. The RIC and parent RIC indicate the asset is a parent asset.

Assets from the other RT tables that do not have a matching Serial Number and UIC in the filtered RT2 are removed.

b. RT3: Provides asset data from RT3.

c. RT4: Provides asset data from RT4.

d. RT9: Provides asset data from RT9.

e. RTD: Provides asset data from RTD.

f. RTE: Provides asset data from RTE.

2. **EXMIS**
   - **a. EXMIS:** List of assets from EXMIS and their associated data. Acts as a reference table to check the accuracy of the CDMD-OA database. EXMIS and CDMD-OA share common data traits under different names. For example, Asset Number in EXMIS is the same as Serial Number in CDMD-OA. Property Holder in EXMIS is the same as UIC in CDMD-OA.
   - **b. EXMIS IPSE:** Provides additional data on EXMIS assets including, Item Number, IPSE Type, and IPSE Type Description.
3. **OARS**
   - **a. Activity Maintenance:** Used to identify the Serial Number in which the NSNs from Part Issues were ordered against by matching Identification Number Opening, Identification Number Closing or Location to EXMIS Asset Number.
   - **b. Part Issues:** Provides a record of parts issued to UICs. It includes when the part was ordered versus when it was issued, the quantity ordered versus the quantity issued, the unit price and the total price. It also provides the Federal Stock Class, NIIN, and Part Nomenclature for each asset ordered.

In addition, there are auxiliary tables you will need to maintain manually:

1. **RT9 Crosswalk:** Provides the description for PRIDs found in RT9.
2. **LSD Crosswalk:** Provides a description of LSD Types found in RT3. It also maps them to their IPSE Type counterparts found in EXMIS.
3. **EIN Crosswalk:** Provides the description for EINs found in RTE.
4. **SNDL:** Provides the command and location information associated with UICs/Property Holders found in CDMD-OA and EXMIS. If new UICs are to be added with their locations, they may be found on the DoDAAC at: https://www.transactionservices.dla.mil/eDoDAAD/s_search/query_dodaac.asp
5. **Alt Type ID Crosswalk:** Provides the description for Alt. Types found in RT4.
6. **Master NOC:** Contains data on SEAFLIFT assets including Serial Number, RIC, UIC, Alt. Type, Alt. ECB FSB, Alt. Status, NOC date, and Alt. RIC.
7. **ESD List:** A customizable filter on CDMD-OA assets. CDMD-OA assets whose ESDs are not included in the list are removed from the database.

8. **Platform:** Provides platform information for Assets found in RT3. It maps platform to Itemnum, Program Office, and Description.

9. **EGAT Metrics:** Provides historical trend data broken up by Program Office for counts of Assets in all Gap Analysis table. This table gets updated each import ran and will require you to use the most recent exported EGAT Metrics table from the application with the subsequent import.

10. **Scorecard:** Data from CM Health by Functions from Basing CM Health Assessment and Scorecard wrangled into an ingestible format.

11. **Scorecard Crosswalk:** A crosswalk to join function principles with their function descriptions.

12. **Master Ric:** lists what is in "NAVY ERP" for a particular APL/RIC.

13. **COSAL Feedback:** Fleet COSAL Feedback Report (hosted by Navy 311) is a tool that the fleet uses to communicate discrepancies and or to update/correct the ships (command) COSAL.

    a. The ship's (command) COSAL and other selected records can quickly become out of date if the mix of equipment on a ship (command) changes. This mix is called the ship's configuration. The COSAL loses its value if it does not list up to date repair parts, spares, and equipage needed to maintain all the equipment within its command. When combined with ASI or CIA, it becomes a closed loop system, which also provides updated allowance, logistics, and technical data to ships (command).

14. **CDMD-OA Transactions:** The CDMD-OA Transactions is the Workfile Status report which provides an overview of status for all CDM workfile processing.

NOTE: When updating these files, make sure spacing, capitalization, and use of special characters, such as dashes are consistent. Otherwise, you may unintentionally create duplicate records that may cause false gaps. Especially pay attention to capitalization as Tableau is case sensitive. The database is embedded within the EXWC Ingest Tool application. The Ingest Tool imports the above tables and synthesizes the following tables:

15. **CDMD-OA LTT:** Historical CDMD-OA Transaction data that has previously been ingested into the application.

16. **CDMD-OA-EXMIS Gap Analysis:** A table joining RT2 and EXMIS that shows which RT2 assets exist in EXMIS. It is the data source for the RT2-EXMIS Gap Analysis Dashboard.

17. **RT3-EXMIS Gap Analysis:** A table joining RT3, RT2, LSD Crosswalk, and EXMIS that shows which CDMD-OA assets exist in EXMIS. For assets that exist in EXMIS, it shows data discrepancies between the RT3 and EXMIS. It is the data source for the RT3-EXMIS Gap Analysis Dashboard.

18. **RT4-EXMIS Gap Analysis:** A table joining RT4, RT2 LSD, Alt. Type and EXMIS that shows which CDMD-OA assets exist in EXMIS. For assets that exist in EXMIS, it shows data discrepancies between RT4 and EXMIS. It is the data source for the RT4-EXMIS Gap Analysis Dashboard.

19. **RTD-EXMIS Gap Analysis:** A table joining RTD, RT2, and EXMIS that shows which CDMD-OA assets exist in EXMIS. For assets that exist in EXMIS, it shows data discrepancies between RTD and EXMIS. It is the data source for the RTD-EXMIS Gap Analysis Dashboard.

20. **RTE-EXMIS Gap Analysis:** A table joining RTE, RT2, EIN Crosswalk and EXMIS that shows which CDMD-OA assets exist in EXMIS. For assets that exist in EXMIS, it shows data discrepancies between RTE and EXMIS. It is the data source for the RTE-EXMIS Gap Analysis Dashboard.

21. **RT9-EXMIS Gap Analysis:** A table joining RT9, RT2, RT9 Crosswalk, and EXMIS that shows which CDMD-OA assets exist in EXMIS. For assets that exist in EXMIS, it shows data discrepancies between RT9 and EXMIS. It is the data source for the RT9-EXMIS Gap Analysis.

22. **RT2 Upper/Lower:** Labels which assets are parents, and which are children (constituent parts of a parent asset).

23. **RT3 LSD Type:** Joins RT3 and EXMIS to connect Parent Serial Number, EFD, and LSD Type with Item Number, PSPID, and Program Office.

24. **RT4 Alt. Type:** Joins RT4 and EXMIS to connect Parent Serial Number and Alt. Type with Item Number, PSPID, and Program Office.

25. **RT9 PRID Type:** Joins RT9 with EXMIS to connect Parent Serial Number, EFD, PRID Type with Item Number, PSPID, Program Office.

26. **RTD USMR Type:** Joins RTD with EXMIS to connect Parent Serial Number, USMR Type, USMR National Registry, Item Number, PSPID, Program Office.

27. **RTE EIN Type:** Joins RTE with EXMIS to connect Parent Serial Number, EIN Type, and EFD with Item Number, PSPID and Program Office.

28. **EXMIS FIP FIAR:** Further filters EXMIS to keep assets with the following conditions:

    a. EMICOG is not 2C or 2B

    b. EMIEC does not begin with A or X

    c. Status/Inventory Status is not decommissioned/disposed
    d. Location is not 10131 or 10105

    e. Location description is not BSVE

29. **OARS Data:** Joins Activity Maintenance and Part Issues table to form the data source of the OARS Dashboard. The table also connects records to an asset within EXMIS and CDMD-OA.

30. **EGAT Metrics:** Provides historical trend data broken up by Program Office for counts of Assets in all Gap Analysis tables, provides historical data for counts of Verified and Unverified FIP/FIAR Assets, and counts of not started, working, and completed counts from RT3 EXMIS Gap Analysis. This table is used in the Product Support Statistics (PSS) Dashboard.

31. **EGAT Details:** Provides a full account of all assets in the database between CDMD-OA and EXMIS with headers from each of the Gap Analysis tables to collect counts for the EGAT Metrics Dashboards.

32. **CDMD-OA LTT:** Contains a historical record of all imported CDMD-OA Transaction tables ingested over time.

The database maintains three versions of most of these tables: a current version from the latest ingest, a previous version from preceding ingest, and a baseline from the very first ingest. EGAT Metrics and CDMD-OA LTT are cumulative tables so they contain It also contains two metadata tables:

1. **Application Run Log:** History of ingests since the very first time the application was run.

2. **Record Count:** The lengths of raw data tables, the lengths of temporary tables used to build the database, as well as the lengths of the final product tables.

The following sections explain how to install and use the EXWC Ingest Tool to access the database.

2.2 Setup (Install Prerequisite Software)

Setup Environmental Variables:

1. Search for “Edit the system environment variables” in the Windows search bar and select **Edit the system environment variables**.

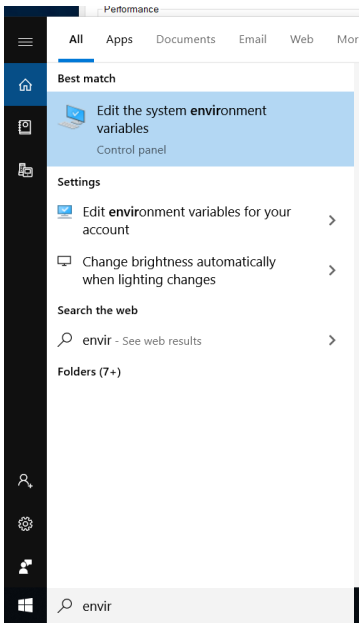


Figure 2.2.1

2. Select **Environment Variables...** on the System Properties window.

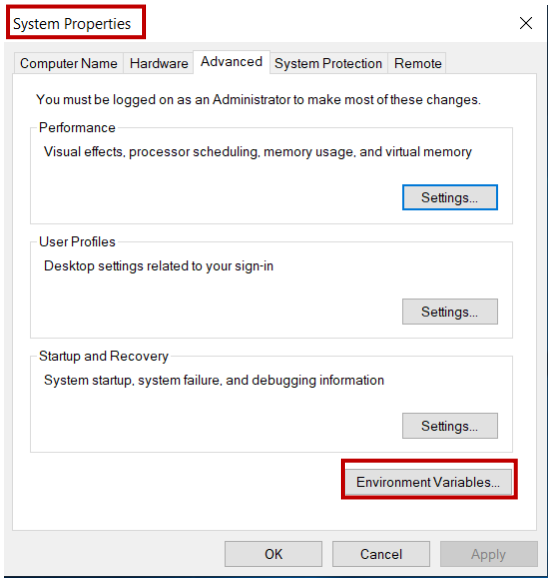


Figure 2.2.2

3. Highlight "Path" by selecting **Path** on the Environment Variables window and select **Edit**.

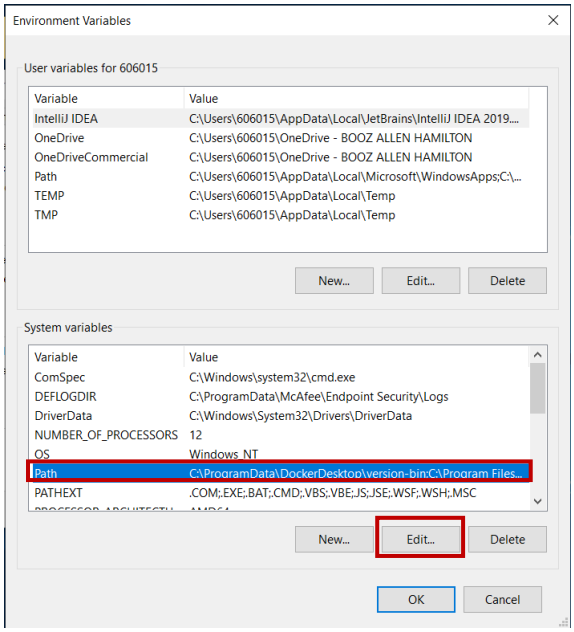


Figure 2.2.3

NOTE: Be careful to select **Path** in the bottom section of the window, labeled "System Variables".

4. Select **New** on the Edit environment variable Window.

5. Add the two bottom entries shown in the figure below: "C:\Program Files\PostgreSQL\11\bin" and "C:\Program Files\PostgreSQL\11\lib".

6. Select **OK** on the Edit environment variable window.

7. Select **OK** again on the Environment Variables window.

8. Select **OK** again on the System Properties window.

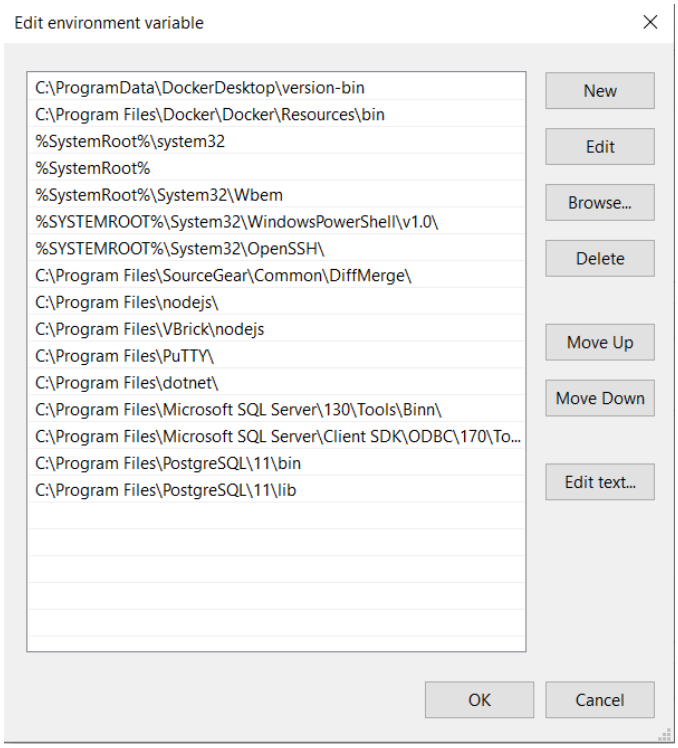


Figure 2.2.4

Install PostgreSQL v11

NOTE: If installing on NMCI, please reach out to ACTR. This is a DADMS approved application.

1. Download the provided file “postgresql-11.9-windows-x64.exe”.

2. Right click the downloaded file “postgresql-11.9-windows-x64.exe” and select **Run as administrator**.

3. Select **Next** on the Setup window.

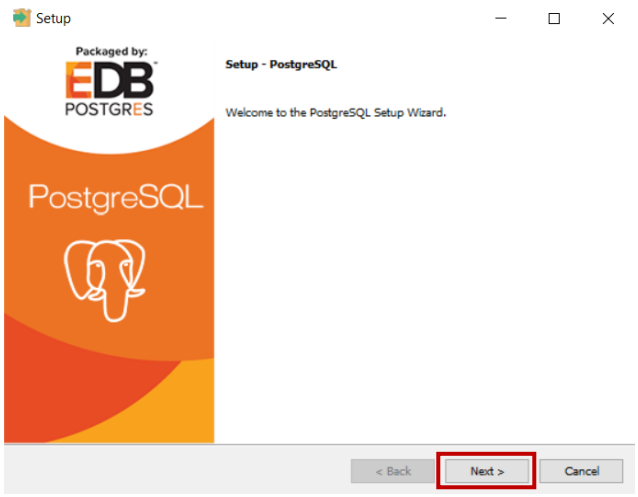


Figure 2.2.5

4. Leave the default Installation Directory path in the Setup window "C:\Program Files\PostgreSQL\11" and select **Next**.

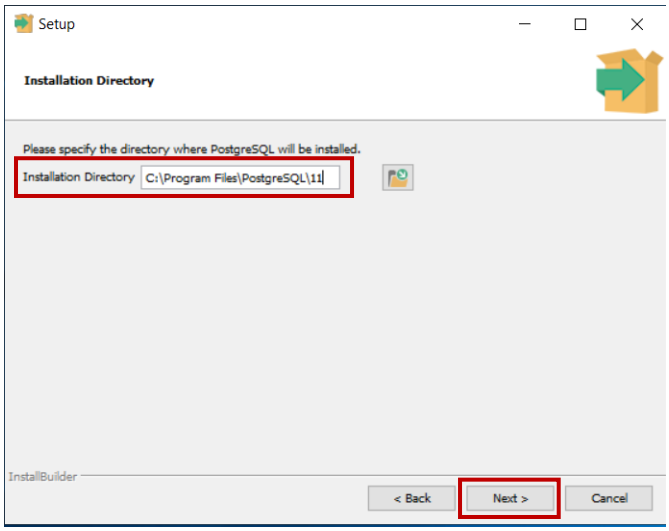


Figure 2.2.6

5. Leave all boxes checked and select **Next**.

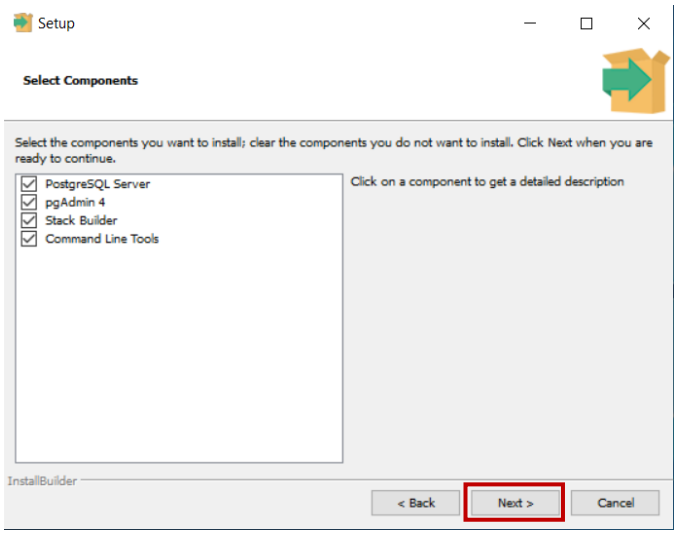


Figure 2.2.7

6. Leave the default Data Directory path “C:\Program Files\PostgreSQL\11\data” and select **Next**.

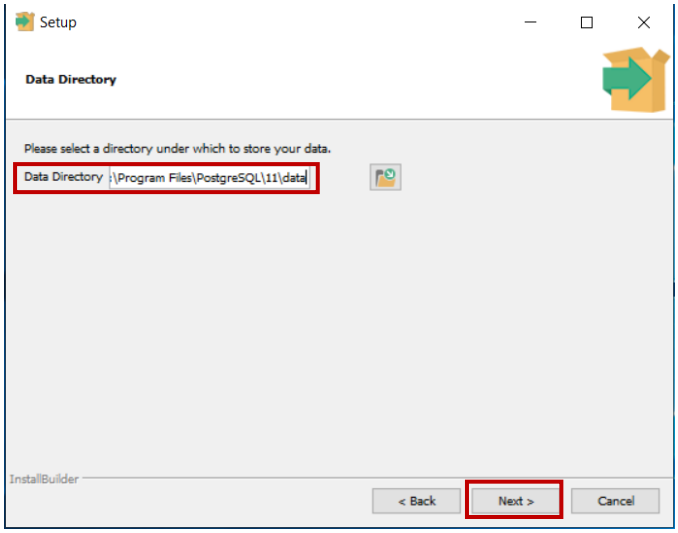


Figure 2.2.8

7. Set the password to “postgres”. Retype the password (“postgres”), then select **Next**.

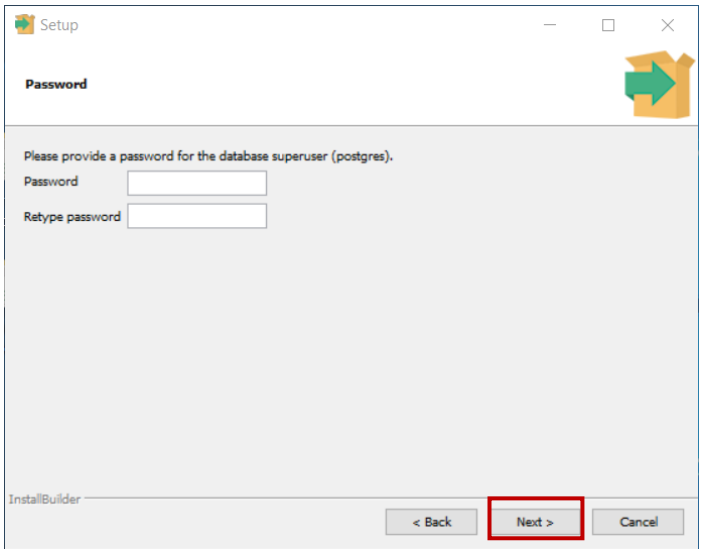


Figure 2.2.9

NOTE: The import/export application expects the password to be set to “postgres”.

8. Leave default Port “5432” on the Port window and select **Next**.

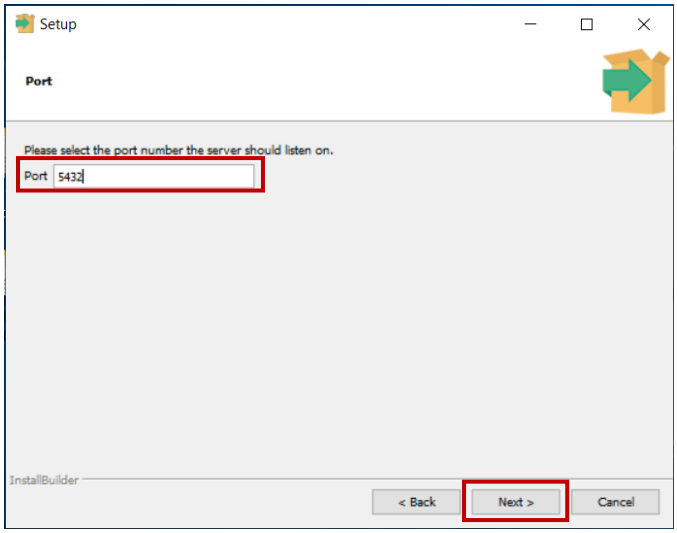


Figure 2.2.10

9. Leave default Locale “[Default locale]” on the Advanced Options window and select **Next**.

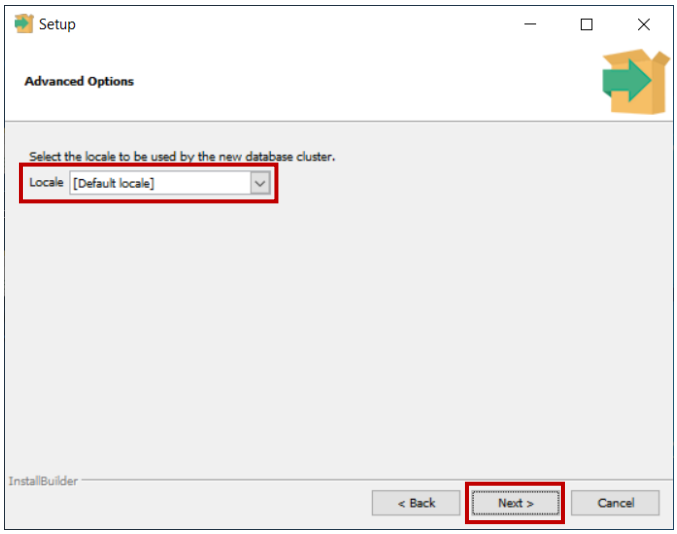


Figure 2.2.11

10. Select **Next** on the Pre Installation Summary window.

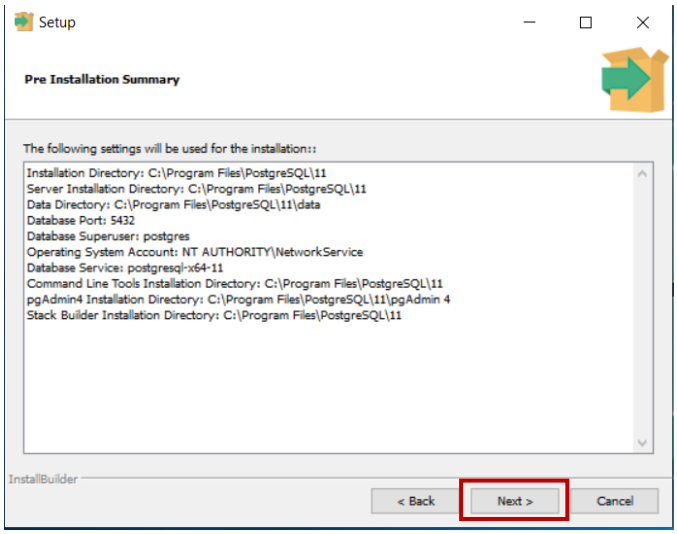


Figure 2.2.12

11. Select **Next** on the Ready to Install window.

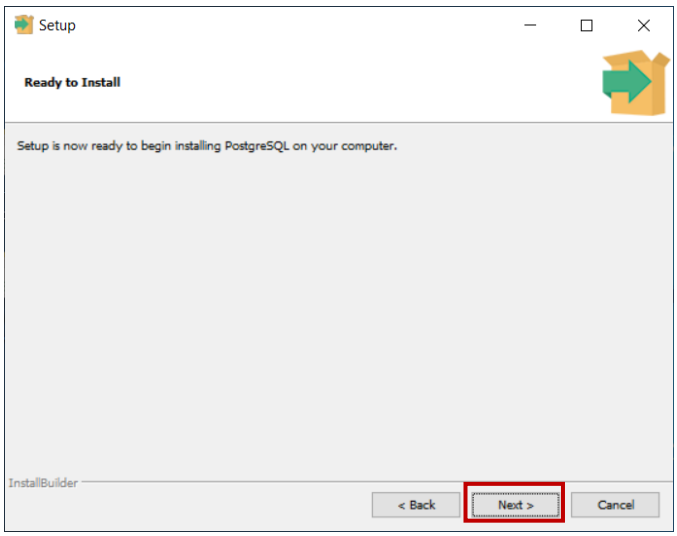


Figure 2.2.13

12. Select **Next** on the Installing window after 100% completion.

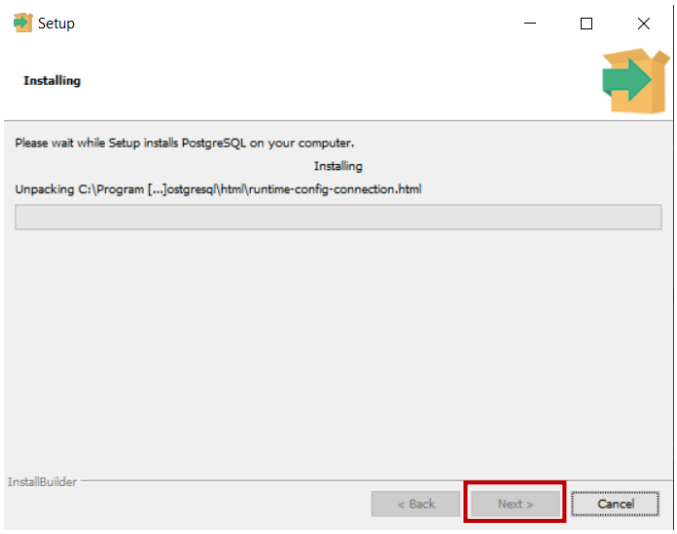


Figure 2.2.14

13. Uncheck **Launch Stack Builder at exit** upon completing the PostgreSQL Setup Wizard window and select **Finish**.

Figure 2.2.15

NOTE: If you encounter any errors during the install process, first try uninstalling the version of postgresql that you downloaded and reinstalling. If this doesn't resolve the issue reach out to the current EXWC Ingest Tool developer with screenshots of the issue to determine the issue and correct troubleshooting steps.

2.3 Install EXWC Import/Export Tool

NOTE: If a previous version of the EXWC Import/Export Tool is installed, please delete that version before installing the latest version.

1. Navigate to the Control Panel by typing in the Windows search bar.
2. Under Programs, select **Uninstall a program**.
3. Highlight EXWC and select **Uninstall** and follow the prompts.
4. Select **OK**.

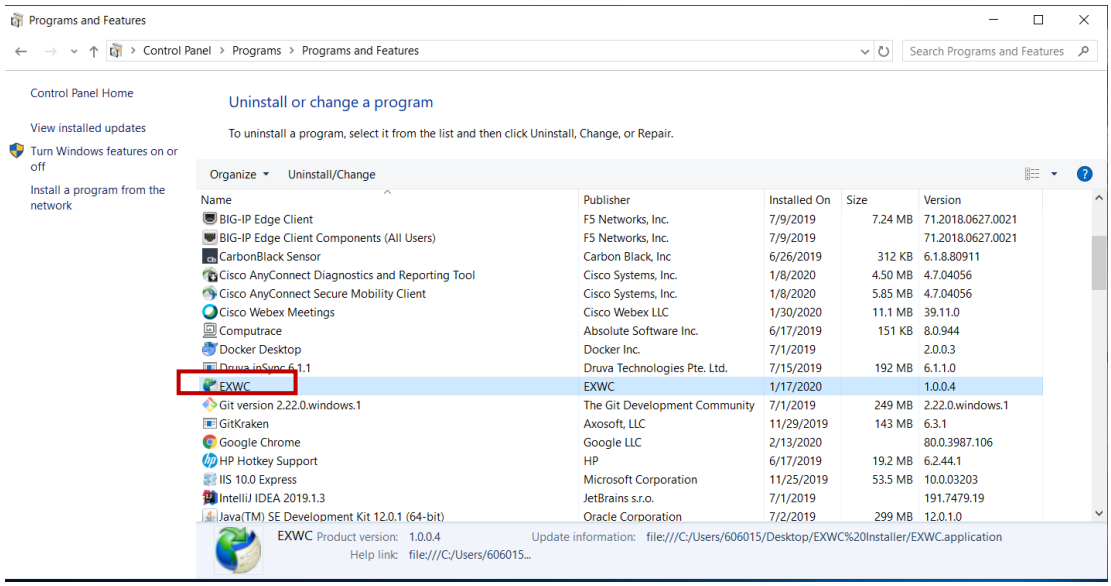


Figure 2.3.1

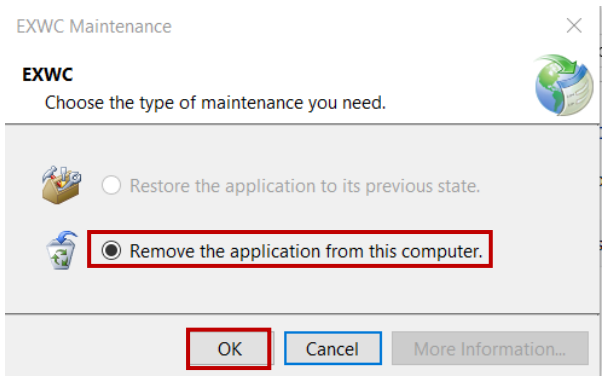


Figure 2.3.2

Installing the Latest Version of the Tool:

1. Download the provided zip file “EXWC Installer.zip”.
2. Right click “EXWC Installer.zip” and select **Extract All**.
3. Select “setup.exe” in the destination folder.
4. Select **Install**.

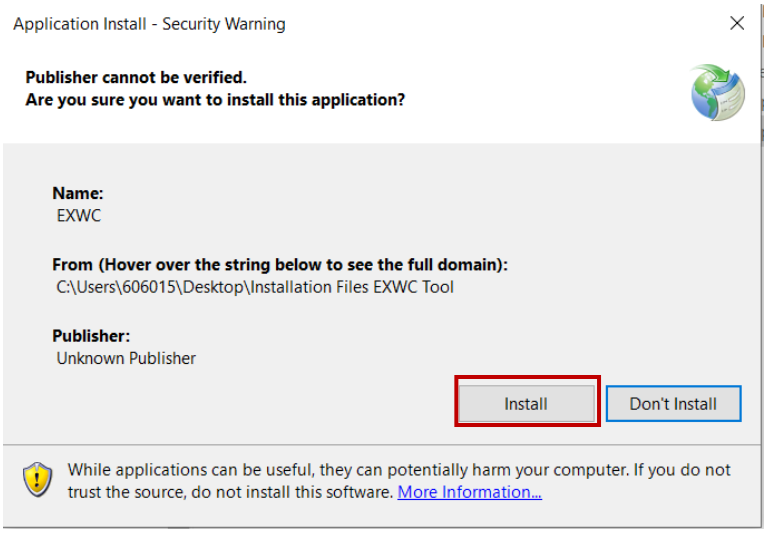


Figure 2.3.3

5. The application will start immediately.

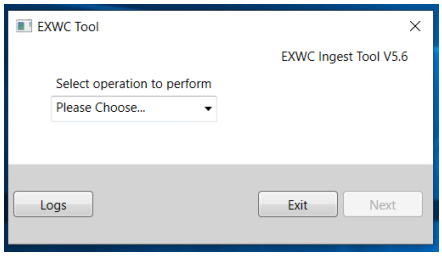


Figure 2.3.4

NOTE: To start the application in the future, type “EXWC” into the Windows search bar. You can right click this and pin it to Start or to the task bar.

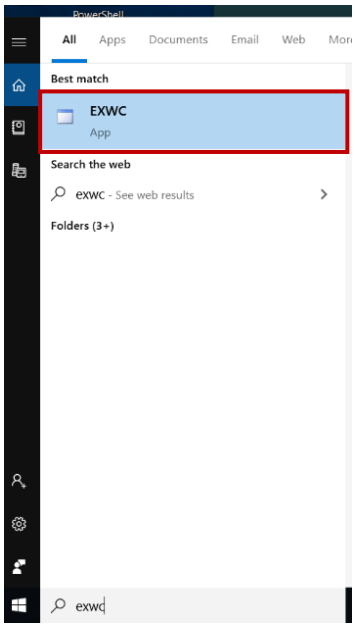


Figure 2.3.5

2.4 Prepare Data for Ingest

Prior to dropping the CDMD-OA tables in the EXWC Tool, the raw data must be formatted for the PostgreSQL database. This includes removing single quotes and formatting the tables as text to prevent scientific notation or dropping zeros. The tool that is being leveraged to prepare the data is Power Query. It is a Microsoft based product which means it can be readily used on an NMCI machine without any additional permissions, software downloads, or ATOs. Follow the instructions below to prepare the data for ingest.

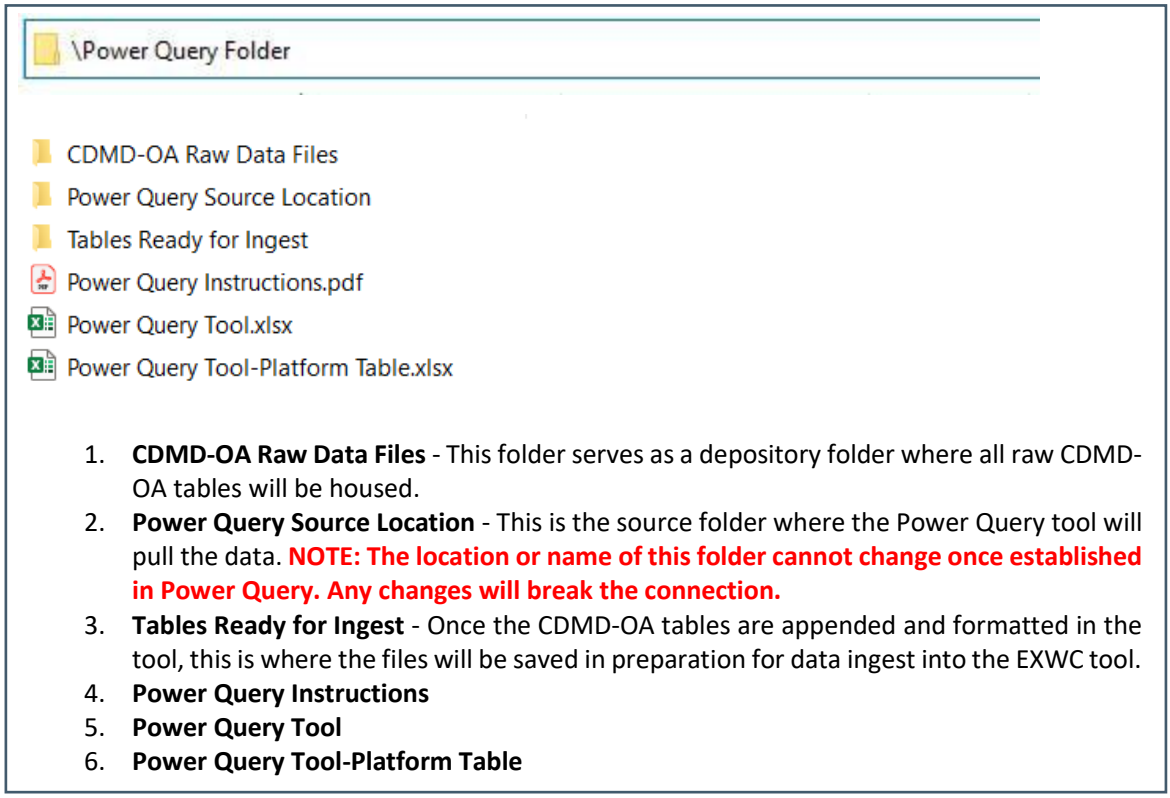
**If this is the first time the tool is being used, follow the instructions below, otherwise skip to step two to refresh the tables with new data.*

Power Query Instructions

1. Establish Source Location

a. Download the Power Query zip file and extract the folder onto the desktop.

b. Open the Power Query folder:



1. **CDMD-OA Raw Data Files** - This folder serves as a depository folder where all raw CDMD-OA tables will be housed.
2. **Power Query Source Location** - This is the source folder where the Power Query tool will pull the data. **NOTE: The location or name of this folder cannot change once established in Power Query. Any changes will break the connection.**
3. **Tables Ready for Ingest** - Once the CDMD-OA tables are appended and formatted in the tool, this is where the files will be saved in preparation for data ingest into the EXWC tool.
4. **Power Query Instructions**
5. **Power Query Tool**
6. **Power Query Tool-Platform Table**

Figure 2.4.1

c. Open the CDMD-OA Raw Data Files folder.

d. Select all folders (hold the shift key, select the first folder, then select the last folder) and copy the most current data pull CDMD-OA tables.

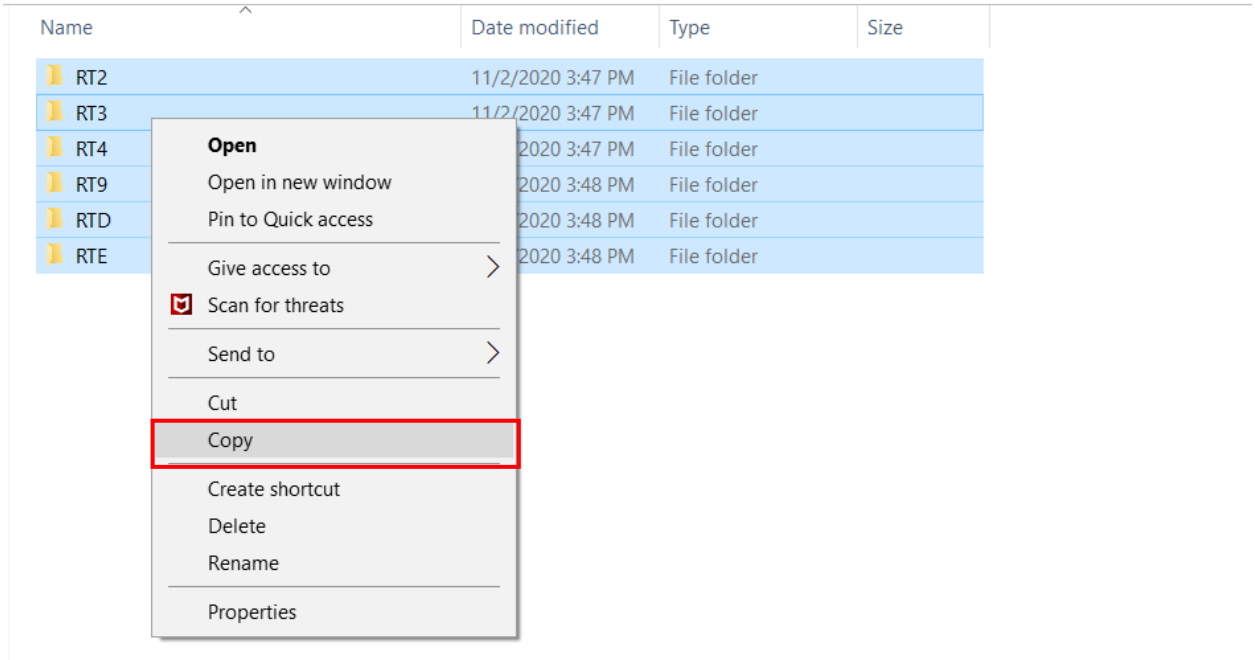


Figure 2.4.2

e. Open the Power Query Source Location folder. Paste the copied tables into the folder.

- If there are CDMD-OA files in this folder, they must be removed before pasting the new files. You can either archive them into the CDMD-OA Raw Data Files folder or delete them.

f. A total of 6 folder and two tables need to be in the Power Query Source Location folder
   i. Folders
      1. RT2
      2. RT3
      3. RT4
      4. RT9
      5. RTD
      6. RTE
   ii. Tables
      1. platform.csv
      2. EXMIS_IPSE.csv

g. Open the Power Query Tool

NOTE: The Power Query tool is a large file and will take time to render.

- If there are other Excel files open, save and close them then open the Power Query Tool. Once open, if you see this warning, disregard and select **Close**.

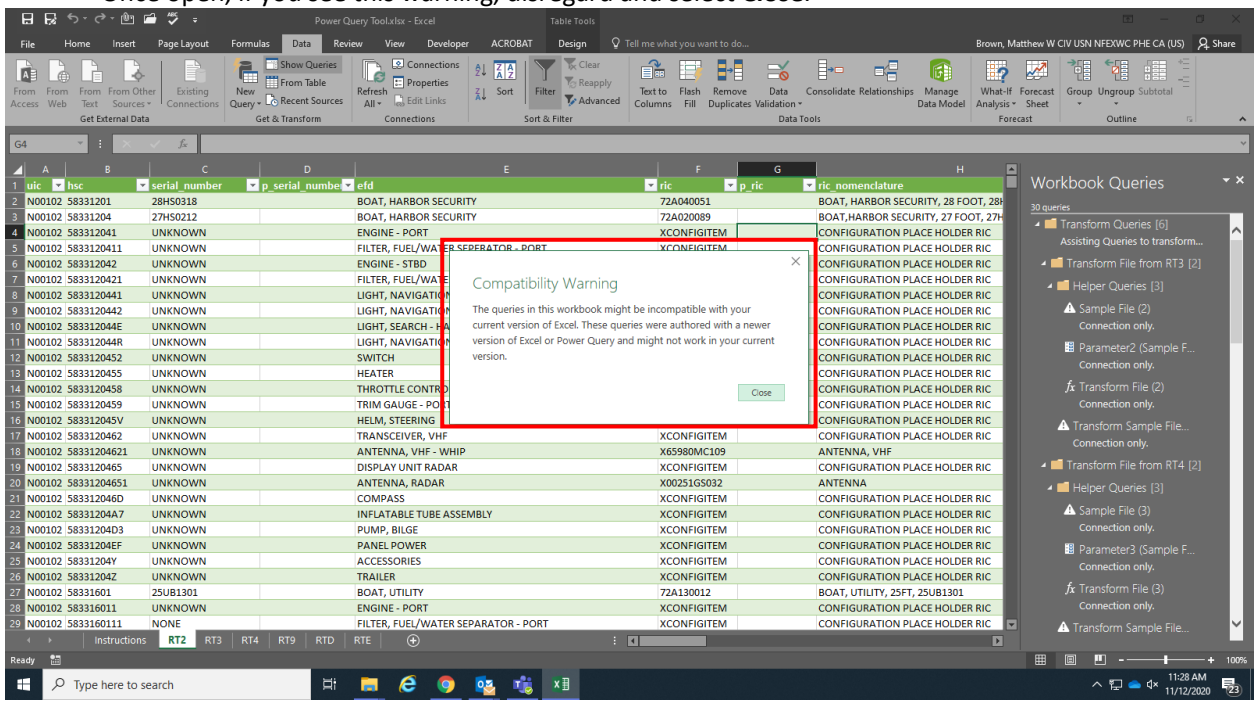


Figure 2.4.3

h. Go to **Data** and select **Queries and Connections** to see a summary of all the query connections. The names/locations may be different depending on the version of Excel being used.

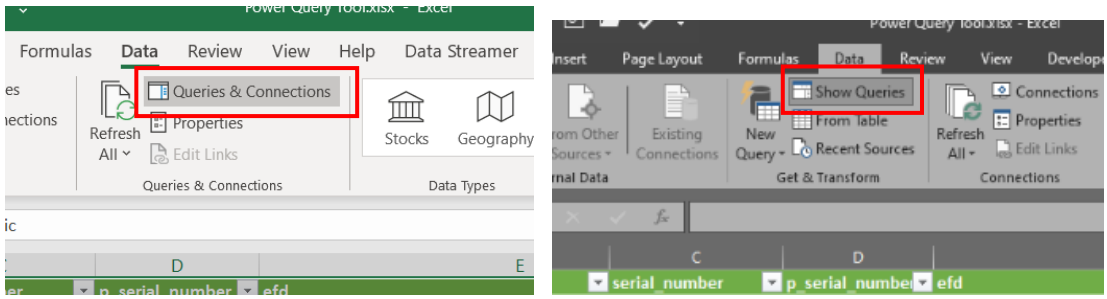


Figure 2.4.4

i. Since the file connection has not yet been established, the link will be broken and will show an error icon ⚠ (see below). Under Append File from RT2, double click **Sample File (4)** to open the Power Query Editor.

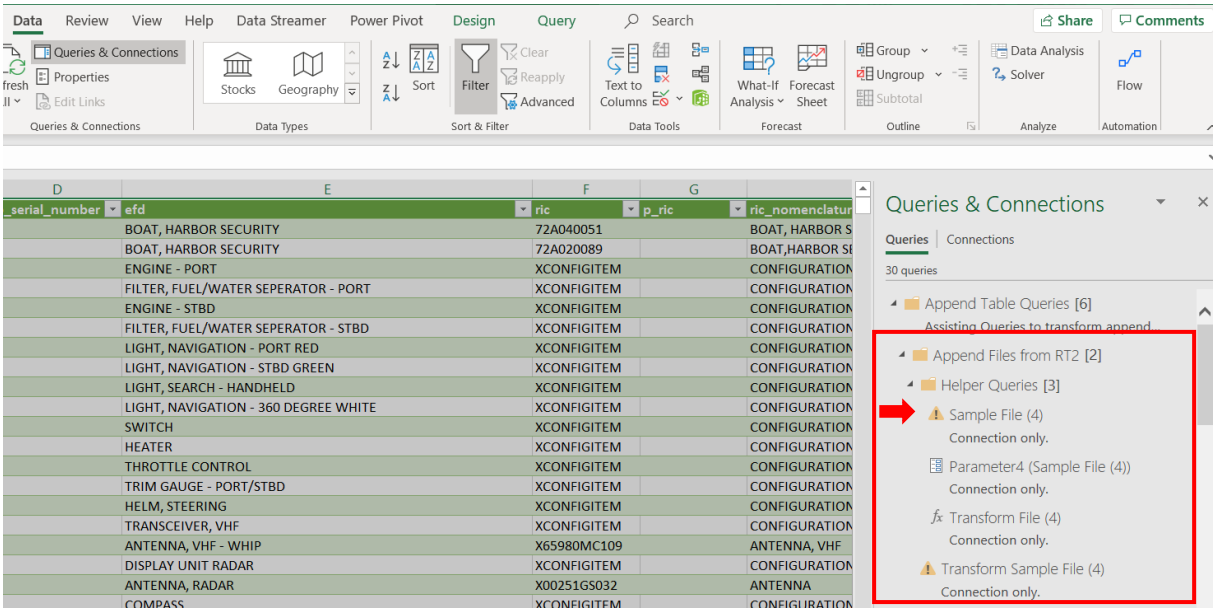


Figure 2.4.5

j. In the Power Query Editor, on the top left-hand side of the screen (below Close and Load), select **>** to expand all queries. Within the query list locate **Sample File**. The source file location needs be modified to update the query connection. To accomplish this, select **Sample File (4)** under Append Files from RT2. Then select ⚙ next to Source under APPLIED STEPS.

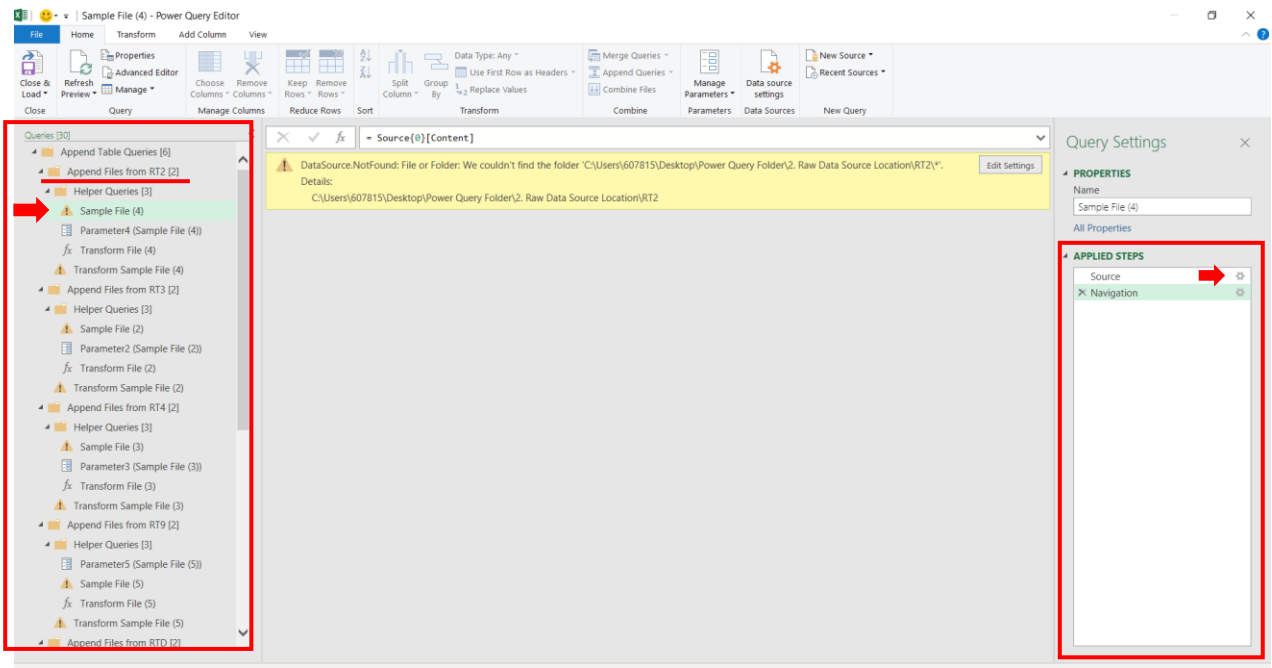


Figure 2.4.6

k. Select **Browse**. Navigate to the folder named Power Query Source Location. Select the appropriate record type folder (e.g. RT2), then select **OK** twice.

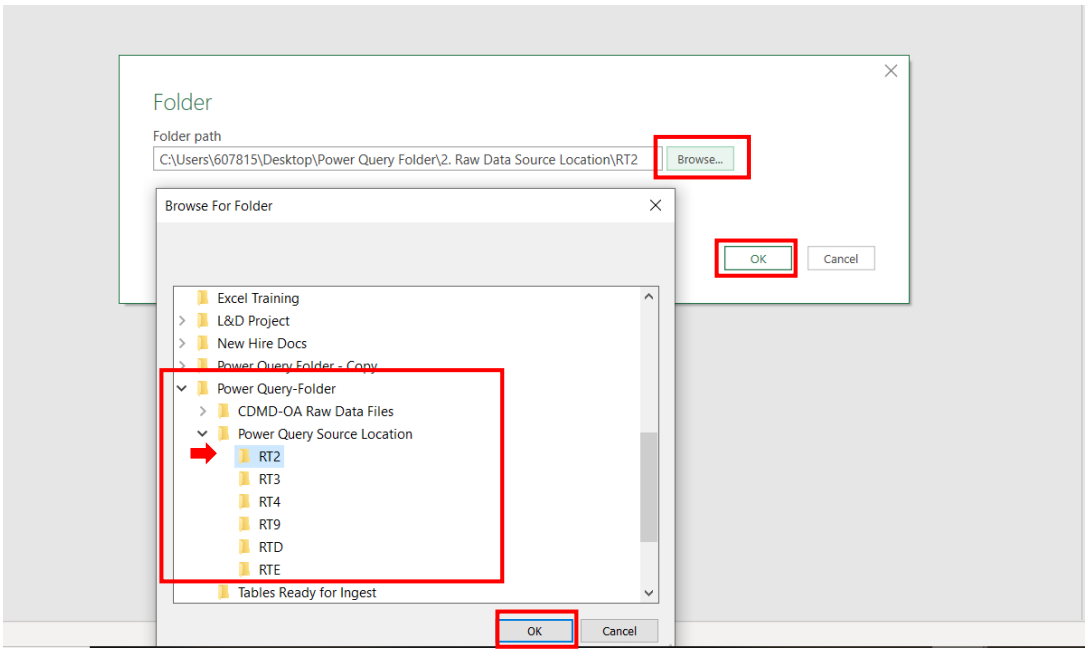


Figure 2.4.7

NOTE: All queries under Append Files from RT2 now have a connection. This process needs to be repeated for each additional Append Files folder for the respective table (RT3, RT4, RT9, RTD, and RTE).

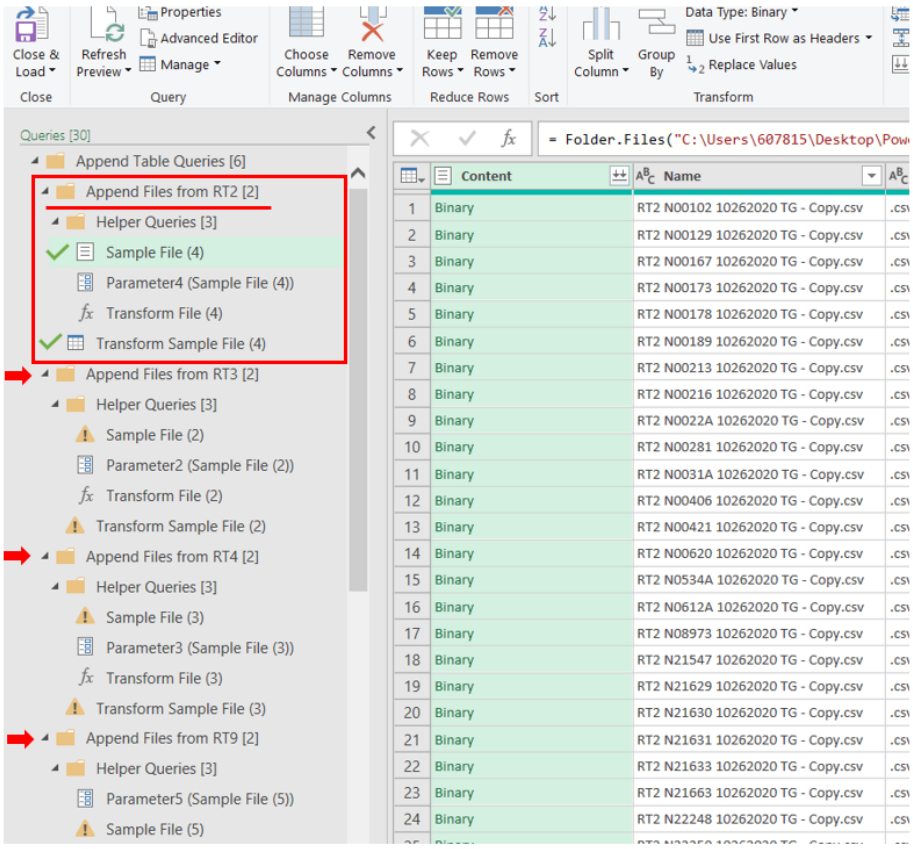


Figure 2.4.8

l. Next, update Formatting CDMD-OA Table Queries. Select **RT2** and select **Go To Error**.

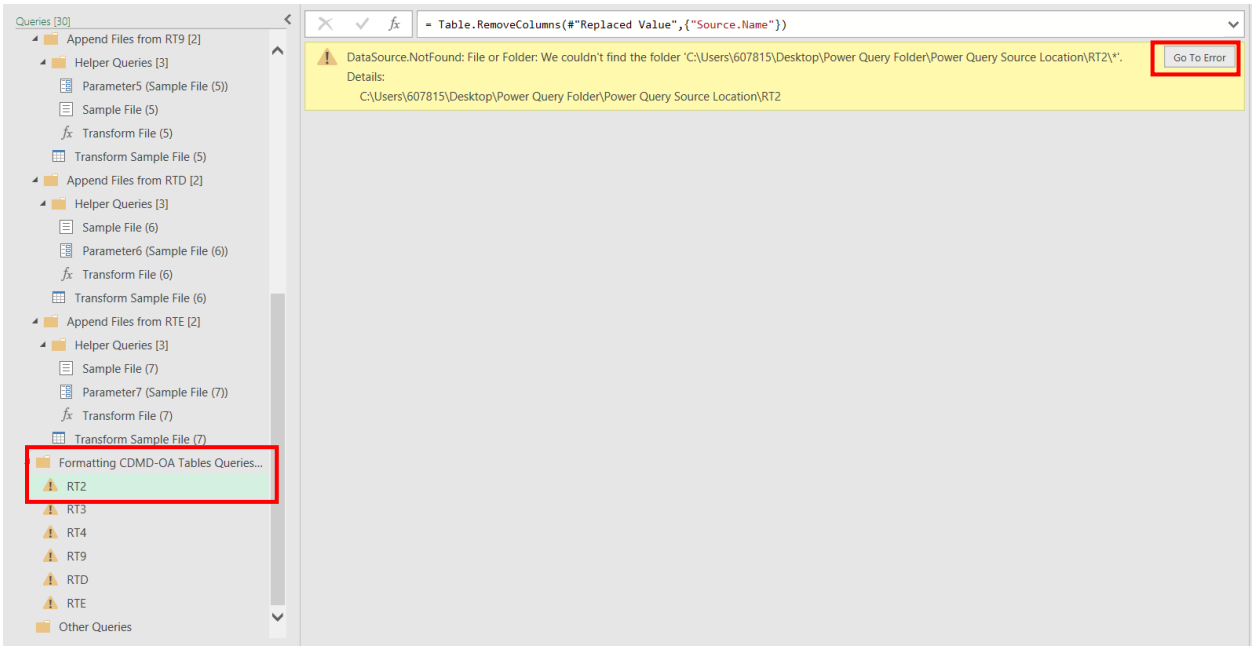


Figure 2.4.9

m. Copy the current file path (where the Power Query Source Location folder currently resides) and replace the existing path in the formula window.

NOTE: The beginning and end of the string must begin with **(“** and end with **“))**

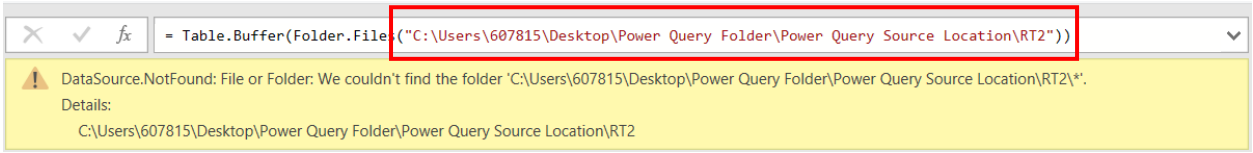
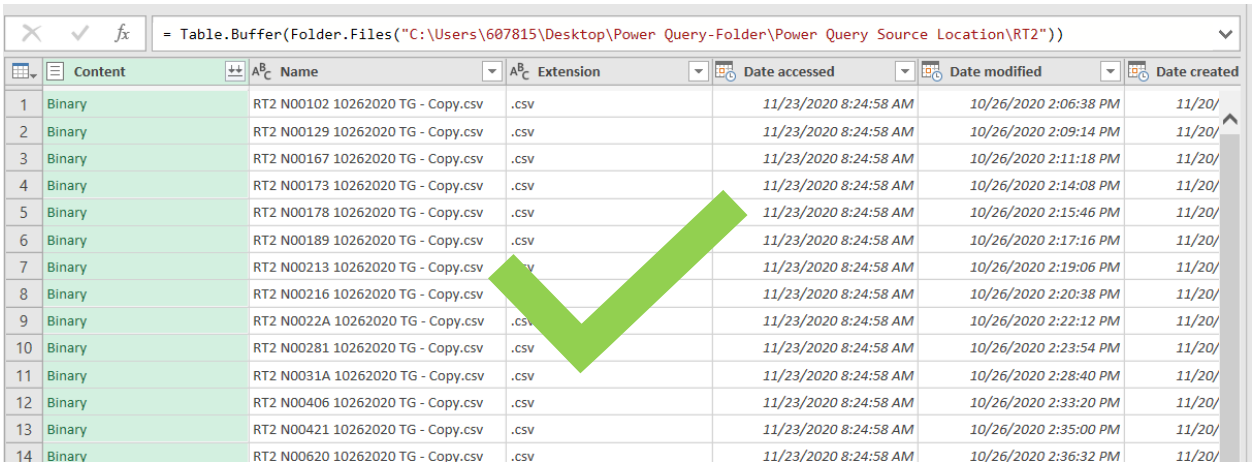


Figure 2.4.10

NOTE: When updated correctly, a preview of the query will show in the context window.



	Content	Name	Extension	Date accessed	Date modified	Date created
1	Binary	RT2 N00102 10262020 TG - Copy.csv	.csv	11/23/2020 8:24:58 AM	10/26/2020 2:06:38 PM	11/20/
2	Binary	RT2 N00129 10262020 TG - Copy.csv	.csv	11/23/2020 8:24:58 AM	10/26/2020 2:09:14 PM	11/20/
3	Binary	RT2 N00167 10262020 TG - Copy.csv	.csv	11/23/2020 8:24:58 AM	10/26/2020 2:11:18 PM	11/20/
4	Binary	RT2 N00173 10262020 TG - Copy.csv	.csv	11/23/2020 8:24:58 AM	10/26/2020 2:14:08 PM	11/20/
5	Binary	RT2 N00178 10262020 TG - Copy.csv	.csv	11/23/2020 8:24:58 AM	10/26/2020 2:15:46 PM	11/20/
6	Binary	RT2 N00189 10262020 TG - Copy.csv	.csv	11/23/2020 8:24:58 AM	10/26/2020 2:17:16 PM	11/20/
7	Binary	RT2 N00213 10262020 TG - Copy.csv	.csv	11/23/2020 8:24:58 AM	10/26/2020 2:19:06 PM	11/20/
8	Binary	RT2 N00216 10262020 TG - Copy.csv	.csv	11/23/2020 8:24:58 AM	10/26/2020 2:20:38 PM	11/20/
9	Binary	RT2 N0022A 10262020 TG - Copy.csv	.csv	11/23/2020 8:24:58 AM	10/26/2020 2:22:12 PM	11/20/
10	Binary	RT2 N00281 10262020 TG - Copy.csv	.csv	11/23/2020 8:24:58 AM	10/26/2020 2:23:54 PM	11/20/
11	Binary	RT2 N0031A 10262020 TG - Copy.csv	.csv	11/23/2020 8:24:58 AM	10/26/2020 2:28:40 PM	11/20/
12	Binary	RT2 N00406 10262020 TG - Copy.csv	.csv	11/23/2020 8:24:58 AM	10/26/2020 2:33:20 PM	11/20/
13	Binary	RT2 N00421 10262020 TG - Copy.csv	.csv	11/23/2020 8:24:58 AM	10/26/2020 2:35:00 PM	11/20/
14	Binary	RT2 N00620 10262020 TG - Copy.csv	.csv	11/23/2020 8:24:58 AM	10/26/2020 2:36:32 PM	11/20/

Figure 2.4.11

n. Repeat this process for the additional CDMD-OA tables (RT3, RT4, RT9, RTD, and RTE).

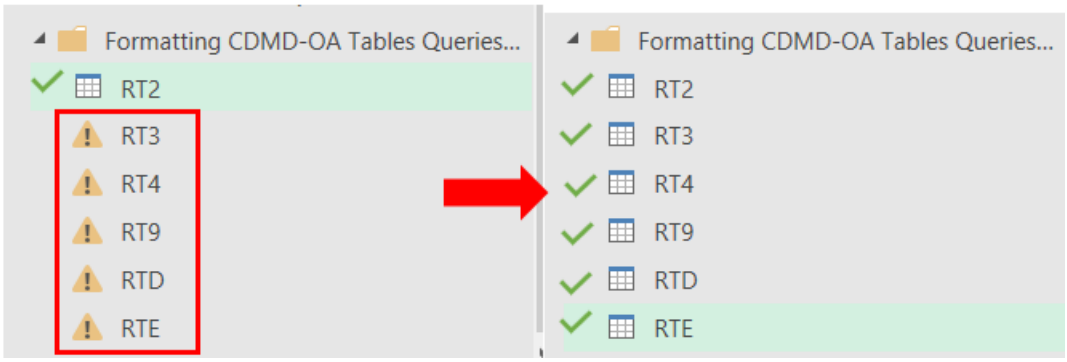


Figure 2.4.12

o. After updating all CDMD-OA tables, select **Home** > **Close & Load**.

NOTE: All query connections should have the error icon removed now that the source location has been established.

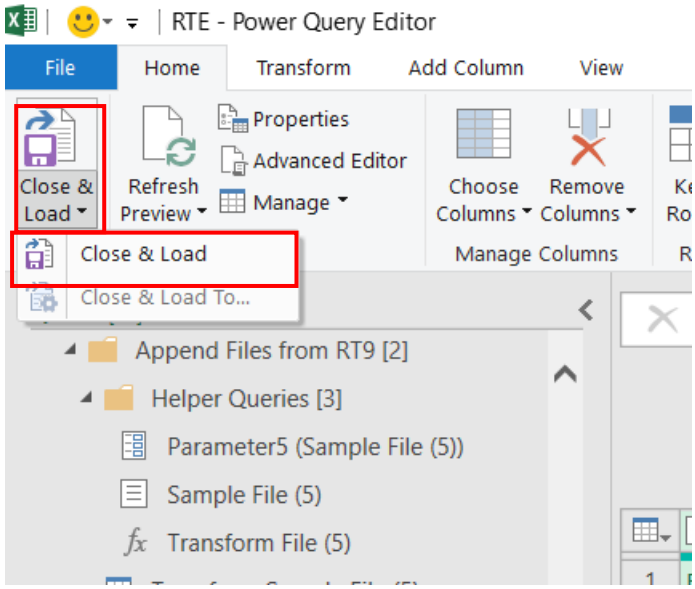


Figure 2.4.13

p. **IMPORTANT NOTE:** Be sure to save the file at this point to avoid repeating this process. This is the only time the file will need to be saved as **Power Query Tool.xlsx**. All other file saves will be as .csv under the respective CDMD-OA tables.

2. Refresh Data

a. Open the CDMD-OA Raw Data Files folder.

b. Select all folders (hold the shift key, select the first folder, then select the last folder) and copy the most current data pull CDMD-OA tables.

   i. If already completed ignore this step and skip to step C.

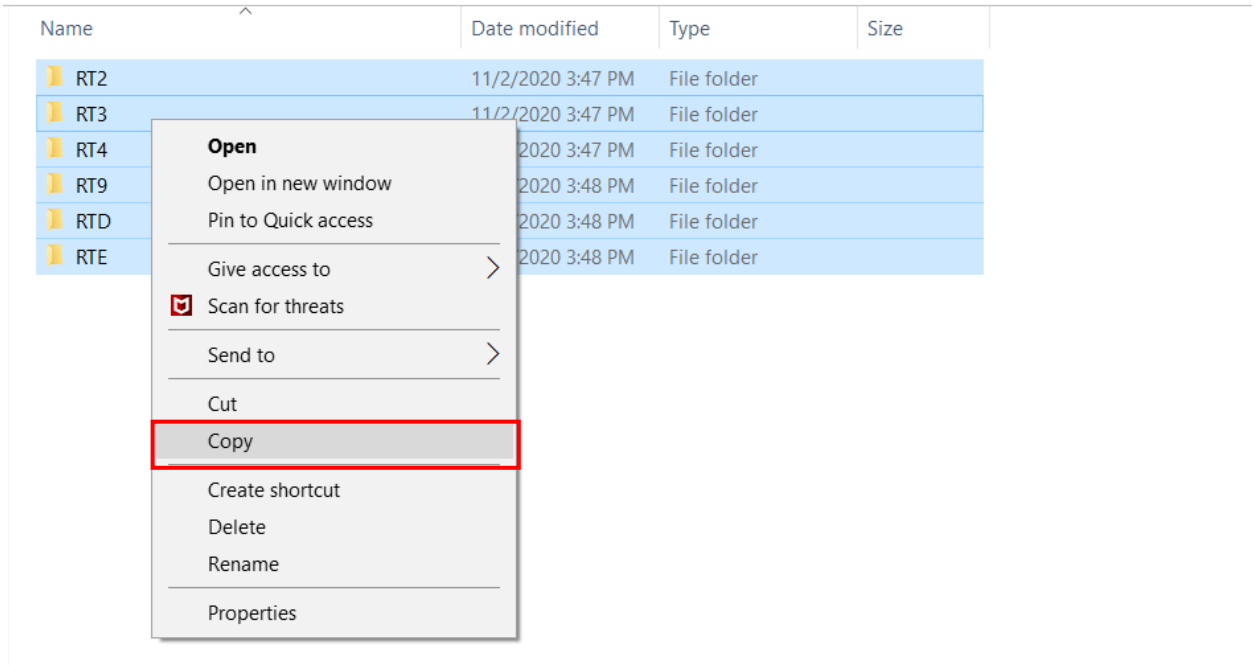


Figure 2.4.14

c. Open the Power Query Source Location folder. Paste those tables into the folder.

   i. If there are CDMD-OA files in here, they must be removed before pasting the new files. They can either be archived into the CDMD-OA Raw Data Files folder or deleted.

d. Go to **Data** and select **Queries and Connections**. The tab names may be different depending on the Excel version. Then go back to **Data** and select **Refresh All**. This will refresh all the tables with the latest CDMD-OA raw data.

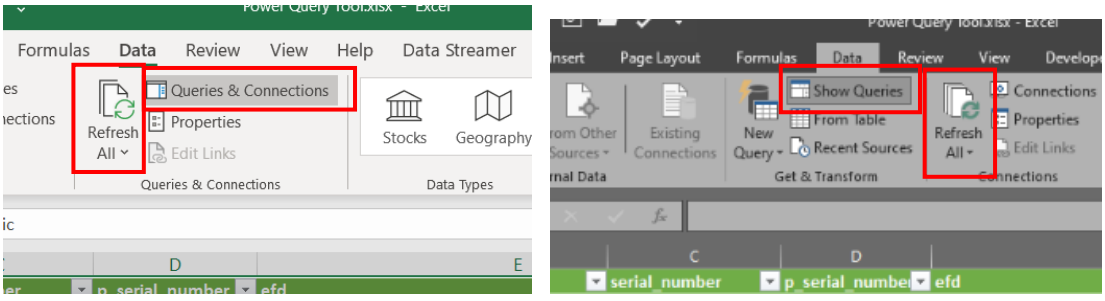


Figure 2.4.15

e. To ensure the tables did refresh with the latest data, hover over the table name in Queries and Connections. This is a brief summary of the data and query. Last refreshed will show when the table was last refreshed.

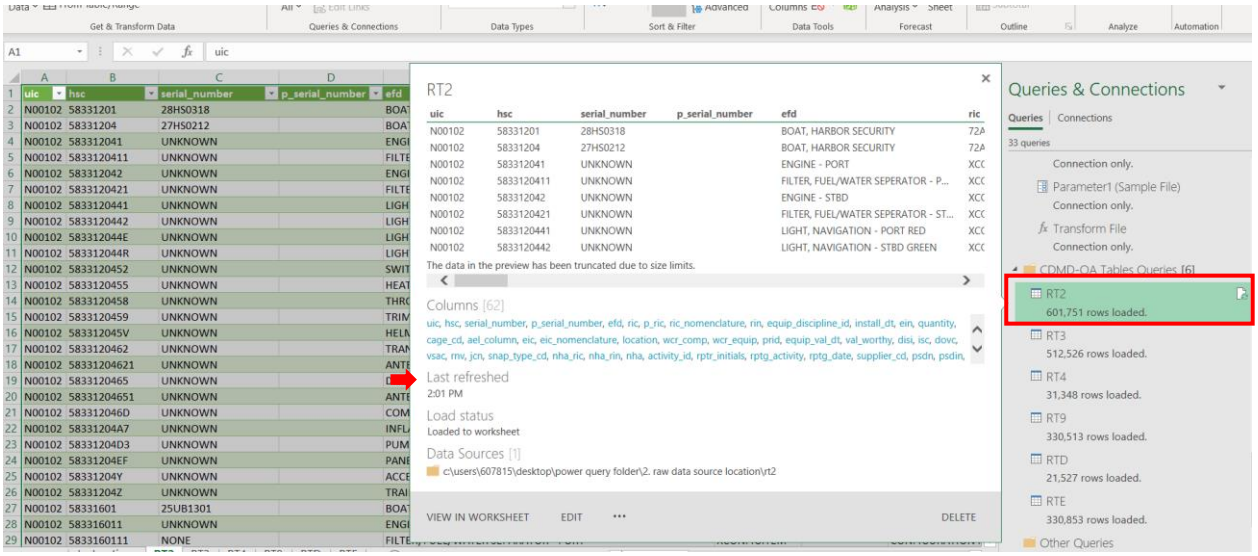


Figure 2.4.16

f. Once it has been verified that all tables have been refreshed each table can now be saved into .csv format for data ingest in the EXWC tool.

g. Select the RT2 spreadsheet tab and go to **File** > **Save As** and save it into the Tables Ready for Ingest folder as a .csv file. Be sure to save it as the CDMD-OA table name.

i. If this window pops up, disregard and select **OK**. Each sheet will be saved as a different table name.

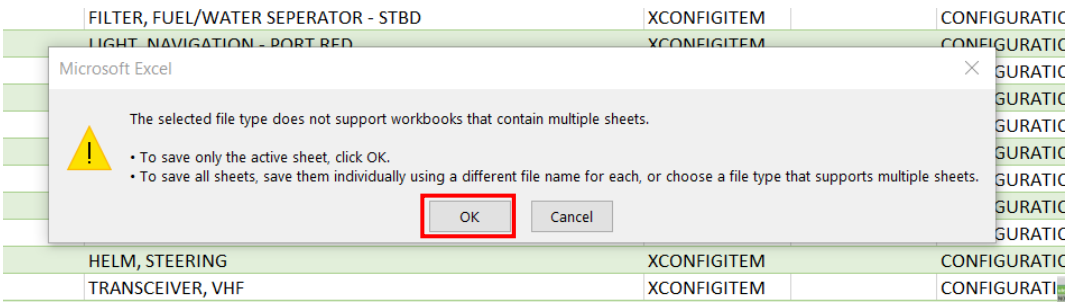


Figure 2.4.17

h. Once completed the RT2 table will be saved into the Tables Ready for Ingest folder. Repeat this process for all other tables.

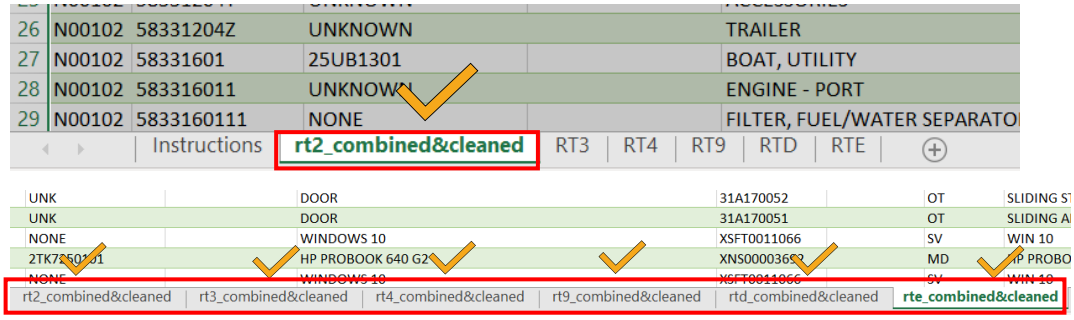


Figure 2.4.18

i. The new CDMD-OA tables in the Tables Ready for Ingest folder can now be ingested into the EXWC tool. NOTE: **These tables cannot be reopened in excel. They have been appended and formatted. Opening these files will undo this.**

Update Platform Table

a. Open the Power Query Tool-Platform Table file and follow the steps starting from section H in Establish Source Location. This will reestablish the connection between the tool and the source location.

b. Once the source location has been reestablished and the table has been refreshed, select the platform tab and go to **File** > **Save As** and save it into the Tables Ready for Ingest folder as a .csv file.

c. Ensure to save the table as platform.

2.5 Using EXWC Import/Export Tool

On launching the EXWC Ingest tool the warning in *Figure 2.5.1* may appear if the application cannot find all the environmental variables. Follow instructions in Section 2.2 for setting up all environmental variables.

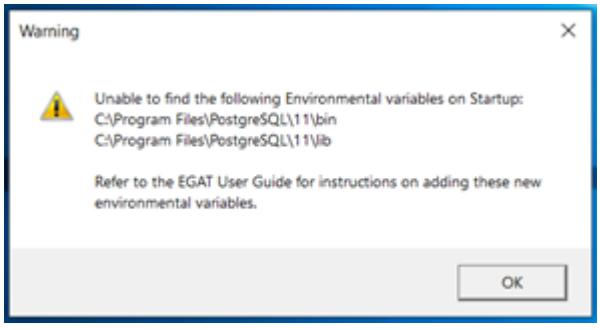


Figure 2.5.1

The EXWC Ingest tool has three operations you can select in the drop down menu of the main window: **import**, **export,** and **reset**.

Import is used to ingest the CSV data files extracted from the CDMD-OA, EXMIS, and OARS database, as well as the auxiliary tables.

Export is used to produce the spreadsheets (i.e. **.csv** files) that Tableau requires in order to create the data visualizations. At this stage, all the SQL tables created during the **import** stage are turned into CSV spreadsheets.

Reset is used to revert the database back to its bases state, using this functionality will result in the loss of all ingested data.

Selecting **Logs** on the main window will open a file explorer process to the logs folder in the EXWC Ingest Tool application data. All communications between the Ingest Tool and the database during Ingest are stored in this folder so it is the primary tool used when debugging potential issues with the application.

NOTE: Before importing any spreadsheets, please confirm they are saved in the format *CSV UTF-8 (Comma delimited) (*.csv)*. The import is not guaranteed to function correctly otherwise. (See Section 2.6 for guidance).

Importing:

1. Launch EXWC tool – Type "EXWC" into the Windows search bar and press enter.

2. Select **Import** then select **Next**.

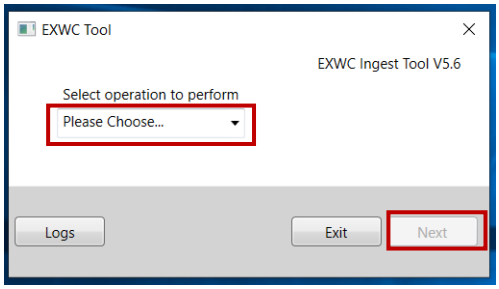


Figure 2.5.2

NOTE: Your first time running this application will require you to provide Optional Files – refer to *Figure 2.5.3* and *2.5.4*.

3. If this is your first time running this application, you will see this prompt. Select **OK**.

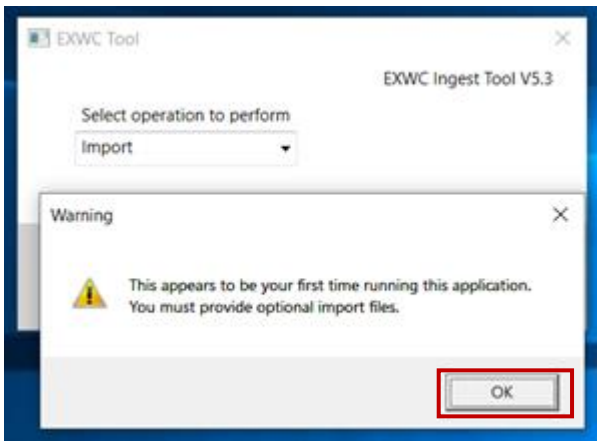


Figure 2.5.3

4. Select **Browse** for EXMIS Asset file Location(s).

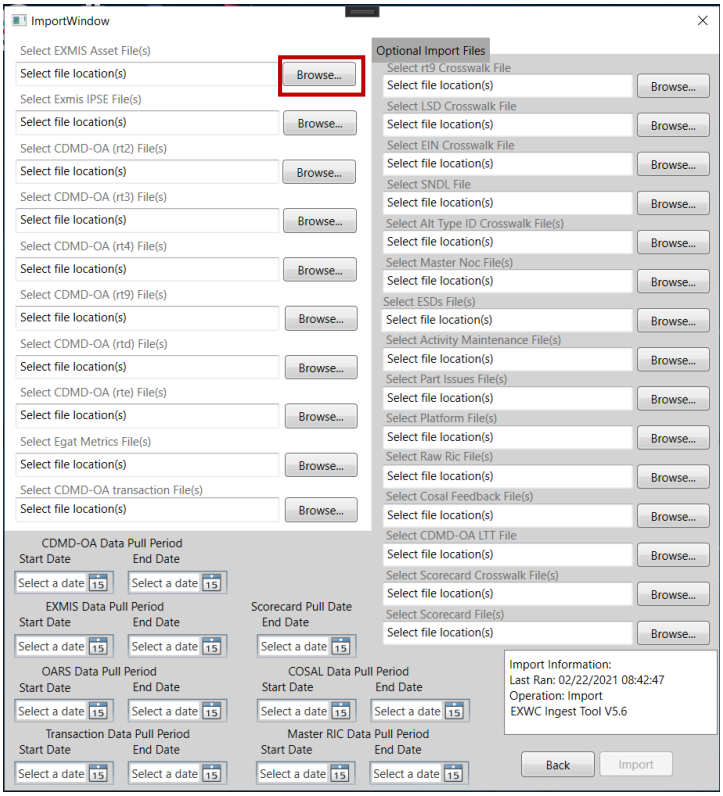


Figure 2.5.4

NOTE: The files on the left side are required files on every import. The files on the right side are optional import files unless this is the first run.

5. Navigate to the folder location where the EXMIS Asset file is located.

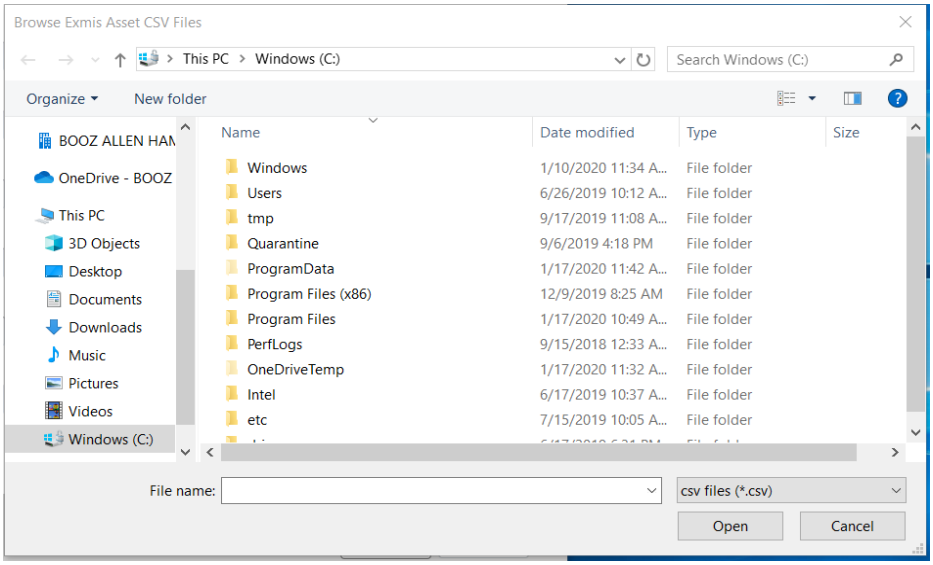


Figure 2.5.5

6. Select the EXMIS Asset file and select **Open**.

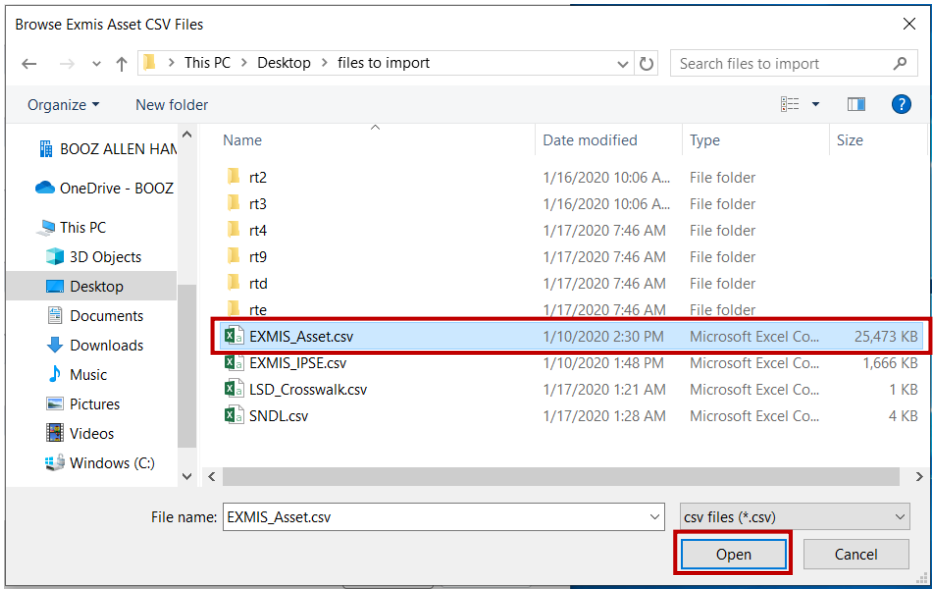


Figure 2.5.6

NOTE: When importing more than one file, hold *Ctrl* on the keyboard while selecting files for import. After, release *Ctrl* on the keyboard and select **Open**.

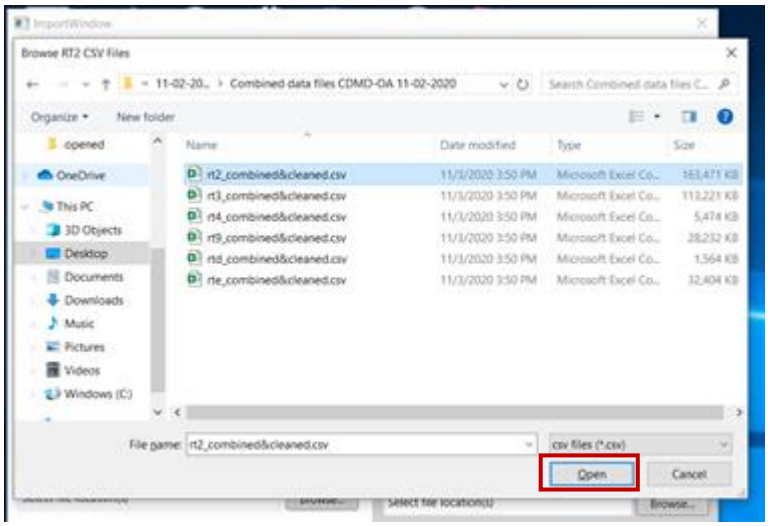


Figure 2.5.7

7. Repeat for each browse section until all required files are selected. You must also populate the start and end dates of the pull periods for the CDMD-OA, EXMIS, and OARS tables you are currently importing. In the case of OARS, enter the pull period of the tables that are currently in the database if you are not importing new data. The start date is the date of the first table pulled and the end date is the date of the last table. For example, if the EXMIS Asset table was pulled on 09/01/2020 and the EXMIS IPSE table was pulled on 09/02/2020, the start and end date for EXMIS would be 09/01/2020 and 09/02/2020 respectively. When all required fields are populated, select **Import**.

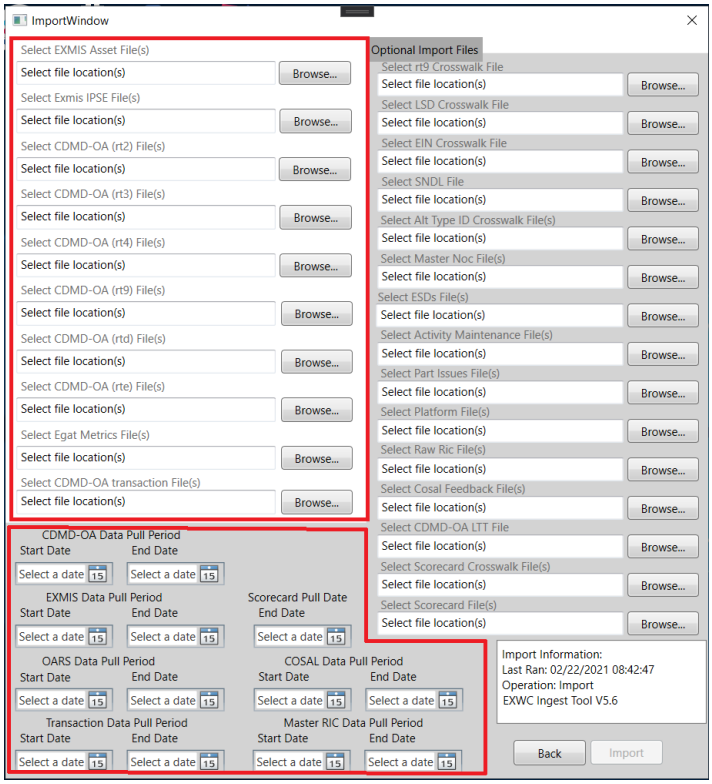


Figure 2.5.8

NOTE: Again, if this is the first run of the application Optional Import Files will be required.

NOTE: If Import has already ran that day the application will warn you. Select **OK** to continue.

8. A new window will appear that will show the progress of the import.

    a. If the import fails, you will see an error message that includes which files failed to import and a short message about the error associated with each file. If this occurs, check the formatting of the affected files, along with other files of the same type (i.e. if one RT2 file has errors, then any other RT2 files may also have the same kind of errors). A failed import will not overwrite any data in the database.

    b. To view more detailed information relating to any errors that occur during the import process, Select **Errorlog**.

    c. After the import has been completed it will check that all necessary tables exist in the database and inform you whether the import was successful and if there are any missing tables.

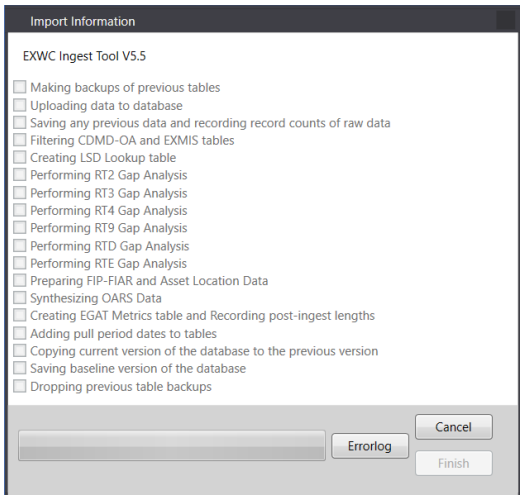


Figure 2.5.9

NOTE: This process may take up to 30 minutes. If you wish to revert the database to its state before the current import, select **Cancel**. If you close the window before the import has finished, the database will be in a corrupted state. To reverse this, import the files from the previous run again, then import the current files. If the process seems to be stuck at any point in the ingest process you will have to troubleshoot to ensure that the application is connecting to the database correctly which can be done by checking the logfiles accessed through the Main Window.

Exporting:

1. Launch EXWC tool – Type “EXWC” into the Windows search bar and press enter.

2. Select **Export** then select **Next**.

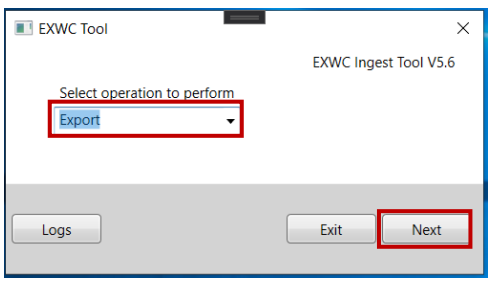


Figure 2.5.10

3. Select Version of Tables to export from the dropdown. There are three options for table versions: *Current*, *Previous*, and *Baseline* which correspond to which set of tables will be exported. Select **Browse** and choose an export folder.

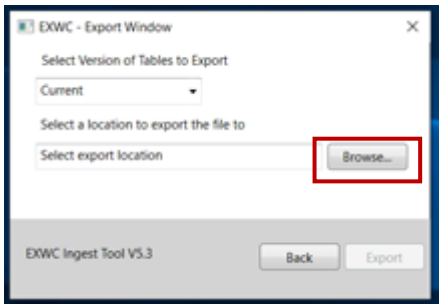


Figure 2.5.11

NOTE: Best practice is to have an empty folder to export to.

4. Select **Export**.

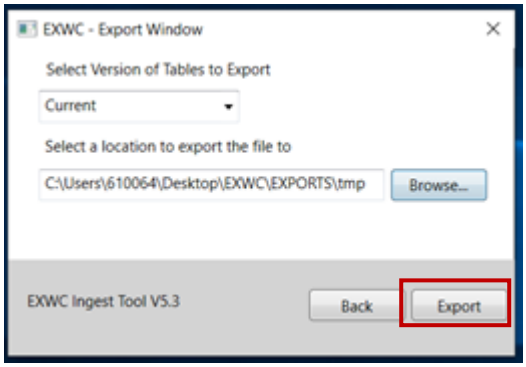


Figure 2.5.12

5. Select **OK**. Now you will return to the main process selection window.

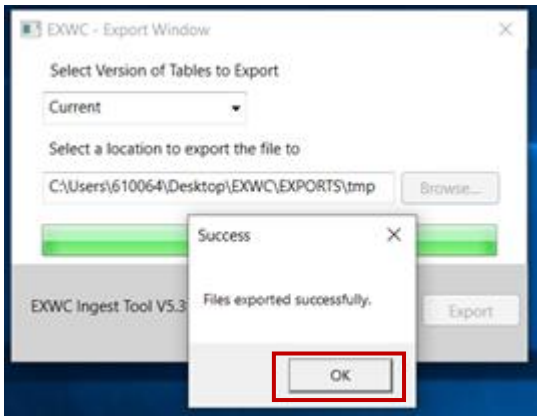


Figure 2.5.13

6. You should see the following files in your export destination.

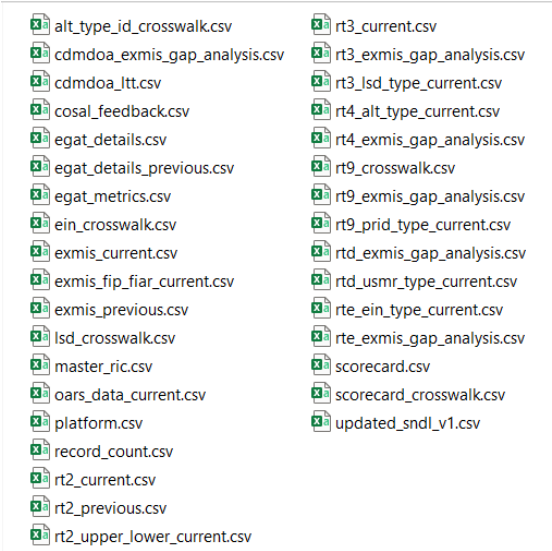


Figure 2.5.14

NOTE: Do not change the filenames or they will not be ingestible by Tableau.

7. After every export you will need to replace the current egat_metrics file in your data folder with the exported egat_metrics file. This is to ensure that the most recent version of the table gets ingested during the next import.

NOTE: If the egat_metrics file says that it has the wrong encoding, follow best practices located in section 2.6.

Reset:

1. On the main window select **Reset** from the dropdown and select **Next**.

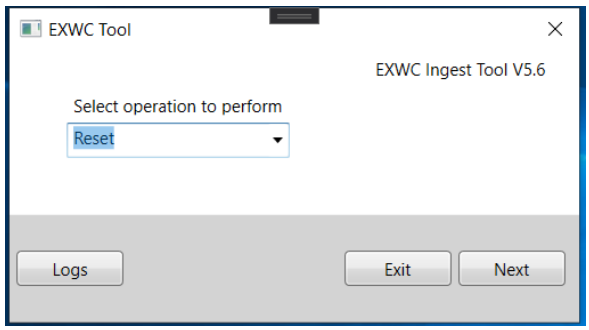


Figure 2.5.15

2. Select **Yes** to begin the reset process immediately.

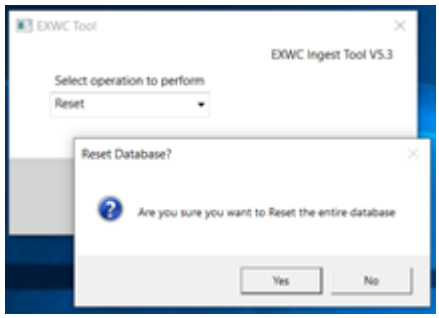


Figure 2.5.16

3. Select **OK**. Now you will return to the main process selection window.

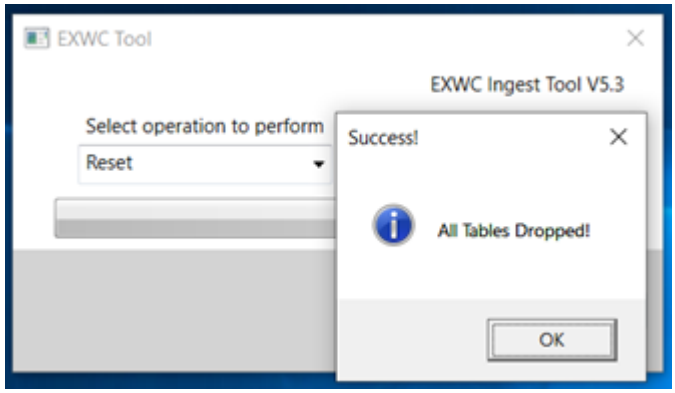


Figure 2.5.17

2.6 Best Practices

For the best possible experience please follow these guidelines when using the app:

- Verify files have been saved as appropriate file types *CSV UTF-8 Encoded.*
- When pulling the raw data, it is best to obtain the files in the proper format.
    - To check a .csv file's encoding, open it in Notepad. Navigate to "Save as" and verify that "UTF-8" is selected in the "Encoding" drop down.

Figure 2.6.1

    - If you obtain files in .xlsx, open them in Excel, navigate to "Save as" and select "CSV UTF-8 Encoded" from the "file type" drop down menu.

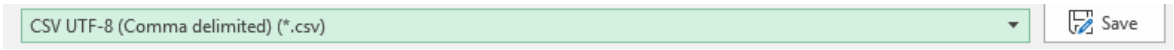


Figure 2.6.2

NOTE: Opening files in Excel can cause irreversible reformatting of the data. If possible, obtain a new version of the file with the correct .csv file extension.

Table 2.6.1 Header formatting for each filetype

THESE HEADERS CANNOT CHANGE AS THIS WILL AFFECT THE DASHBOARD WHEN REFRESHING THE DATA.

EXMIS Asset	ASSETNUM, EMISECSERIALREGNUM, ITEMNUM, PROGRAM_OFFICE, EMIEC, EMIREQEC, EMIPSPID, DESCRIPTION, LOCATION, LOCATION_DESCRIPTION, EMIWAREHOUSELOC, CONDITIONCODE, EMISUBCONDITION, EMIYRMFG, EMILIFEEXPECTANCY, EMIOVERAGE, EMIPRMDL, EMIPRMFGCODE, COMPANIES_NAME, EMIPRVIN, EMILENGTH, EMIHEIGHT, EMIWIDTH, EMIWEIGHT, EMICUBE, EMICOLOR, EMILIRN, PURCHASEPRICE, EMIPRICE, INSTALLDATE, STATUS, EMIINVSTATUS, EMISTATUSCD, EMIASSIGNCD, EMIAEL, EMIAPL, EMICERTDATE, EMICOG, EMICONTAINERTYPECD, EMIDATETOSTORAGE, EMIESTREPCOST, EMIFUELTYPE, EMIHORSEPOWER, EMILASTOP, EMILOANAGREENUM, EMILOANDATE, EMILOANDUE, EMILOANTOUIC, EMINEXTOPTEST, EMIOCONLOADWT, EMIPRENGMDL, EMIPRENGMFGCD, EMIPRENGSERIALNUM, EMIPRESERVELVL, EMIRECERTDATE, EMISECENGMDL, EMISECENGMFGCD, EMISECENGSERIALNUM, EMISECMDL, EMISECMFGCD, EMISECVIN, EMISTORAGE, EMITRANSMDL, EMITRANSMFGCD, EMITRANSSERIALNUM, EMIUII, EMIWARRANTY, EMIACTIVITY, EMIBUYTYPE, EMICONTRACTNUM, EMIDELIVERYORDER, EMILOCATIONCD, EMIMARKFOR, EMIPROPHOLDER, EMIPURPOSE, EMIRECAPUSN, EMIRECHOLDER, EMIRECLOCCD, EMIRECPROPHOLDER, EMISENTCDMDOA, EMIPARENTUSN, EMIRECHOLDERLOC, ITEMTYPE, ASSETID, EMIPRSERIALNUM, PONUM, EMISECSERNUM, CHANGEBY, CHANGEDATE, TYPE, ITEMCONDITION_DESCRIPTION, EMISECTION, LONGDESCRIPTION, PHYSICAL_INVENTORY_DATE
EXMIS IPSE	ITEMNUM, DESCRIPTION, EMISTOCKNUMTYPE, EMIIPSETYPE, EMIIPSETYPEDESCRIPTION, EMIDESCRIPTION, EMIREFERENCENUM, EMIPROCUREMETHOD, EMIPROCUREMENTSOURCE, EMIISSUEUNIT, EMIPRICE, EMIPRICEYR, EMIEXISTINGRQMT, EMINOTES, EMILASTUPDATEDDATE, EMILASTUPDATEDUSER
Part Issues	JOB_SEQ, APL, COG_CODE, DEMAND_DATE, DEMAND_QTY, FEDERAL_STOCK_CLASS, ISSUE_DATE, ISSUE_QTY, NIIN, PART_NOMENCLATURE, TOTAL_PRICE, UIC, UNIT_OF_ISSUE, UNIT_PRICE
Activity Maintenance	JOB_SEQ, EQUIPMENT_NOMENCLATURE, IDENTIFICATION_NUMBER_CLOSING, IDENTIFICATION_NUMBER_OPENING, LOCATION, WHEN_DISCOVERED_CODE
SNDL	index,UIC,CONFIG_DATA_MANAGER,SHIP_TYPE,TYCOM_CD, TYCOM Description,Combatant Command, COCOM, COMMAND, COUNTRY, STATE,CITY,ZIP,CONUS OR OCONUS

RT2	uic,hsc,serial_number,p_serial_number,efd,ric,p_ric,ric_nomenclature,rin,equip_discipline_id,install_dt,ein,quantity,cage_cd,ael_column,eic,location,wcr_comp,wcr_equip,prid,equip_val_dt,val_worthy,disi,isc,dovc,vsac,rnv,jcn,snap_type_cd,nha_ric,nha_rin,nha,activity_id,rptr_initials,rptg_date,supplier_cd,psdn,psdin,lsri,sei,esd,sac,isea,scat_cd,mec,cei,mcc,usn_buno_craft_num,database_id,inventory_id,rptg_activity,transaction_dt,equip_type_code,del_flag_cd,ship_type,rptr_initials_1,action_cd,edit_ck,hs_unit_id,ric_history_id,install_dt_sort
RT3	uic, hsc, serial_number, p_serial_number, efd, ric, p_ric, rin, action_cd, ael_column, p_rin, log_rin, lsd_type, log_serial_number, lsd_date, lsd_note_cd, disi, snap_type_cd, jcn, lsd_assembly_num,lsd_item_num, desc1, rptg_activity, rptr_initials, rptg_date, pub_nsn, pub_order_point, pub_status_cd, lsd_weight_grp, ein, isc, equip_discipline_id, esd, del_flag_cd, edit_ck
RT4	uic, hsc, serial_number, p_serial_number, ric, p_ric, ric_nomenclature, rin, p_rin, alt_rin, alt_type, alt_id, alt_ric, alt_status, disi, install_dt, jcn, psdn, psdin, lssc, rptg_activity, rptr_initials, rptg_date, seq_nbr, lsri, authority, ein, dovc, equip_discipline_id, isc, supplier_cd, del_flag_cd, action_cd, edit_ck, psdn_type, ric_history_id, install_dt_sort
RT9	uic, hsc, serial_number, p_serial_number, efd, ric, prid_type, prid, primary_fg, del_flag_cd, action_cd, p_rin, chkerr_err_type
RTD	uic, hsc, serial_number, p_serial_number, ric, iuid, usmr_source, usmr_affixed, usmr_typ,usmr_national_registry, del_flag_cd, p_rin, chkerr_err_type
RTE	uic, hsc, serial_number, p_serial_number, efd, ric, p_ric, ein_type, ein, primary_fg, del_flag_cd, action_cd, p_rin, chkerr_err_type
ALT Type ID Crosswalk	alt_type, alt_type_description
EIN Type Crosswalk	ein_type, ein_type_long_description
LSD Crosswalk	index,EMIIPSETYPE,EMIIPSETYPEDESCRIPTION,EMIDESCRIPTION,CDMDOA,CDMDOA Description
RT9 Crosswalk	Prid_type, PRID_Description
Platform	itemnum, Platform (PO), Program Office, Description
EGAT Metrics	id, cdmdoastartdate, cdmdoaenddate, exmisstartdate, exmisenddate, program_office, platform, asset_only_in_exmis, asset_only_in_cdmdoa, asset_in_both, rt2_table, rt3_not_started, rt3_working, rt3_completed, rt4_table, rt9_table, rte_table, rtd_table
CDMD-OA Transaction	cdm_nm_tx,ship_type,ship_hull,uic,activity_name,class,rec_type,rt_cd,item_type_cd,adds_received,chgs_received,dels_received,oth_received,total_received,deleted,net_received,total_processed,auto_processed,manual_processed,non_agree,average_days_process_time,total_unprocessed,average_days_unprocessed
Master Ric	ric,cage,niin,item_name,papl,pn_type,qty,uoi,unit_price,smr
COSAL feedback	Tracking Number,Status,JCN/JSN,Official UIC,Combined,Date/Time Open,Date/Time Closed,EIC,Nomenclature,APL/AEL NUMBER,APL DATE,NSN,CAGE,PART NUMBER

CDMD-OA LTT	cdm_nm_tx,ship_type,ship_hull,uic,activity_name,class,rec_type,rt_cd,item_type_cd,adds_received,chgs_received,dels_received,oth_received,total_received,deleted,net_received,total_processed,auto_processed,manual_processed,non_agree,average_days_process_time,total_unprocessed,average_days_unprocessed,transactiondateto,transactiondatefrom
Scorecard Crosswalk	Function Principle,Principle Description
Scorecard	program_office,Function,FY,Function Principle,Metric

Table 2.6.1

- Structure Import Folders like the image below (Combined CDMD-OA, EXMIS Assets and EXMIS IPSE), and all optional files.

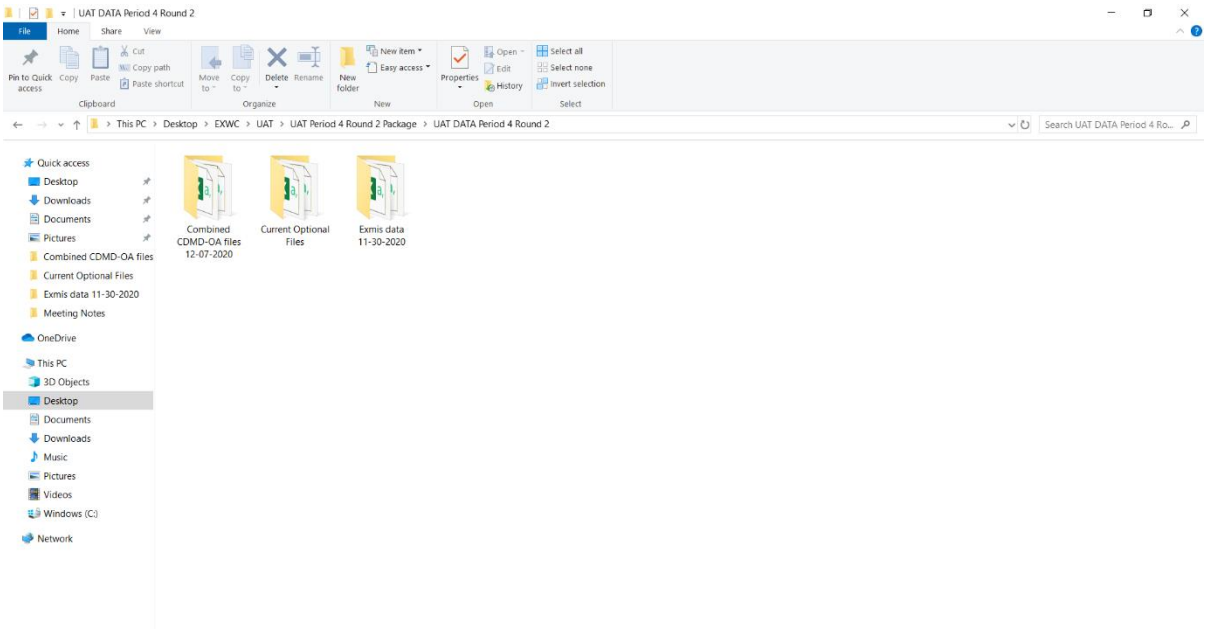


Figure 2.6.3

NOTE: When importing more than one file per section it is easiest to group those files into folders (e.g. place all RT2 files into an RT2 folder).

- Optional Imports: OARS Part Issues, OARS Activity Maintenance, RT9 Crosswalk, LSD Crosswalk, EIN Crosswalk, SNDL, Alt Type ID, Master Noc, Platform, and scorecard must import at the first run of the app. Afterwards, they are optional.

- Remember that Exmis Assets, Exmis IPSE rt2, rt3, rt4, rt9, rtd, rte, and EGAT Metrics are always required.
    - EGAT Metrics is updated after each import and the most recent version of the table can be created with an App Export.

- Close all files being imported before you select **Import**.

- Ensure that your file's headers are properly formatted prior to importing. *Table 2.6.1* shows the header formats expected per file type. Please note the order and capitalization.

- Export files to a new empty folder in an easy to find location, such as your Documents folder or your Desktop.

2.7 Troubleshooting Import Errors

There are two types of errors that will prevent you from selecting files in the Import window.

1. Bad Headers: if you get a message like the one below, make sure your file has all the required headers, in the right order and with the right capitalization (refer to *Table 2.7.1*). The message will show the path(s) of the file(s) with bad headers and a short description of what specifically caused the error.

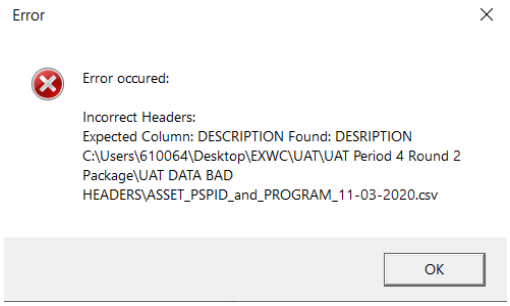


Figure 2.7.1

2. Bad encoding: If you get a message like the one below, check the encoding of the file. It must be UTF-8 encoded. The message will show the path(s) of the file(s) with the wrong encoding. Refer to the instructions on changing the encoding located at the beginning of Section 2.7.

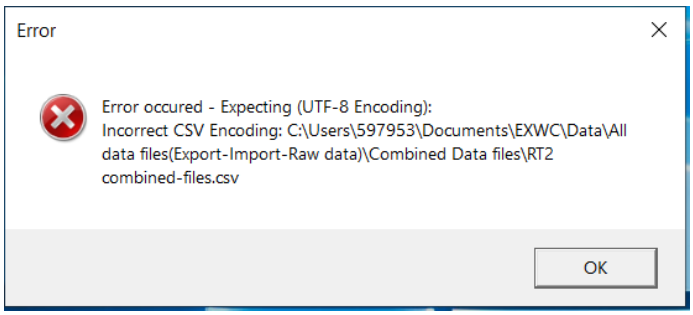


Figure 2.7.2

Even if the headers and the encoding of the files are correct, there are other formatting errors that can prevent the files from importing successfully. These errors will be caught in the Import Progress window. To access them, select **Errorlog** at any time during or after an import. Below is an example of how the error is displayed in the Progress window.

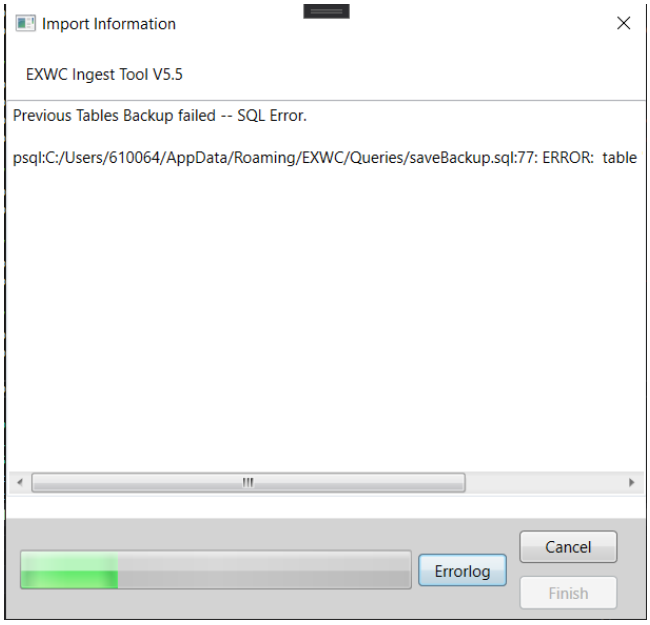


Figure 2.7.3

Each error message has two lines:

1. "Previous Tables Backup failed – SQL ERROR …"
    a. This line shows the step and type of error that occurred.
2. "psql: …."
    a. This line shows the path of the file that failed to import, and the specific error thrown by the database.

Here are some suggested troubleshooting steps to try when encountering errors:

1. Avoid opening the files in Excel (this also applies to the exported files as well). Excel tampers with the original format of the file, which can cause errors to occur during import. If you suspect a file was opened in Excel, re-download a copy of the original and try to import again.
2. Right-click on the file to inspect the file in Notepad. Select **Open with**, then select **Notepad**.
3. If the error is from uploading files to the database, navigate to the line number mentioned under the "CONTEXT" part of the error. You can do this by pressing CTRL + G on the keyboard. In the "Go to Line" dialogue, enter the line number.
4. Check the row for improper uses of double quotation marks (").
    a. Every row must have an even number of double quotes. Each field/column in the line is separated by commas. Fields can be wrapped in a pair of quotation marks to be read as a string. This allows commas within that string to be ignored instead of being read as a separator. For example: M29,Sailboat will be read as two separate fields, while "M29, Sailboat" will be read as one.

b. A standalone double quote that is not wrapped around double quotes will group all fields to the right of it as one field. This can cause the database to think there is data missing for some of the fields. Consider the following example row. Each column is separated by a comma. The instances of standalone double quotes are highlighted.

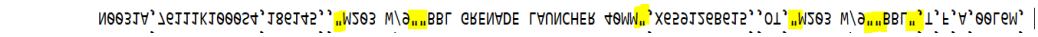


Figure 2.7.4

c. These kinds of fields need to be wrapped in double quotes like in the example below.

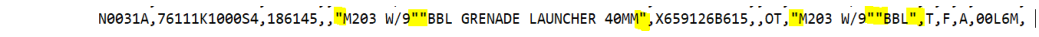


Figure 2.7.5

d. Ensure that surrounding rows follow this rule.

5. If the error is a “SQL Error” take screenshots and refer the associated logfile to the current EXWC Ingest Tool developer to determine the issue that occurred. The associated logfile can be located though the Main Window after selecting **Log** and finding the most recently created logfile.

6. Scorecard Assessment troubleshooting:

a. Scorecard Assessment naming. Ensure that the raw scorecard file names follow the format “Program Office” + “-“ + “abbreviated program office name”.

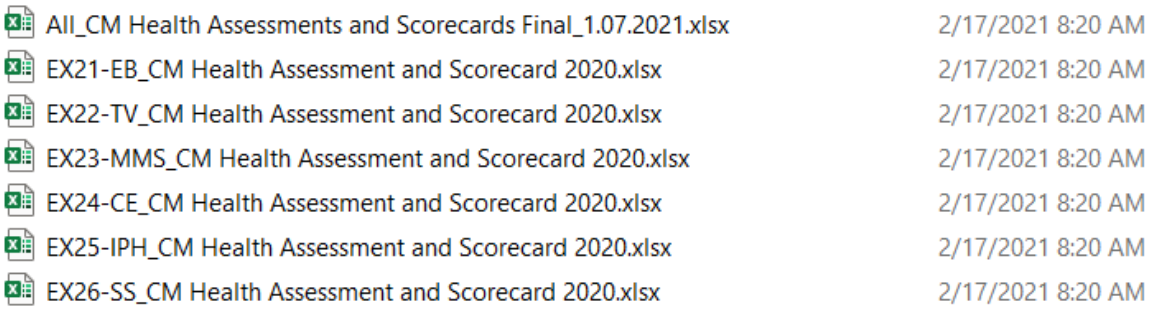


Figure 2.7.6

b. The ingest tool expects the scorecard layout to be the same every time it is ingested and wrangles the data into an ingestible form based on the layout pictured below. This layout is flexible to account for any number of Functions and Function Principles.

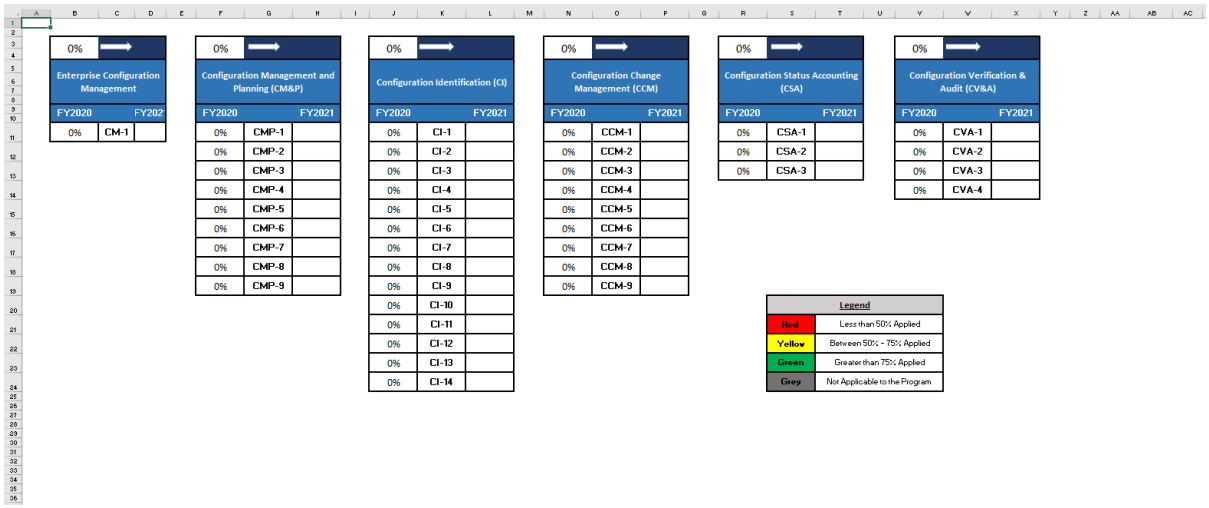


Figure 2.7.7

3. Tableau Functions

3.1 How to Perform a Single Data Refresh

A data refresh is necessary in updating new data to the dashboards. Each dashboard has a Data Refresh section in the EGAT Tableau Manual with a list that specifies which tables must be refreshed. Please refer to each dashboard's Data Connection & Refresh Strategy for the appropriate list. The steps below provide best practices and how to organize files for a data refresh.

NOTE: If the data refresh does not work properly, a possible cause is that either the table name has changed, or the field names have changed. Ensure these are labeled correctly before refreshing the data. Reference Section 2.6 on data handling best practices.

1. Once the data is exported from the EXWC Import/Export Tool save and name the folder based off the date it was extracted from the tool. (Example: "Export EGAT 9-2-2020").

    a. Create a folder titled "Data into Visualization". This folder will be used as the primary file source from where the Tableau data is being pulled. This is important to ensure that all the data is stored in one primary folder. Once this folder is created, this step does not need to be repeated.

    b. Copy all the latest files from the Export Tool and paste them into the Data into Visualization folder.

c. Those files will replace the existing ones. For example, below “updated_sndl_v1.csv” is being replaced with a new updated file but under the same name. Once the files are saved in the designated folder, it can now be uploaded into Tableau.

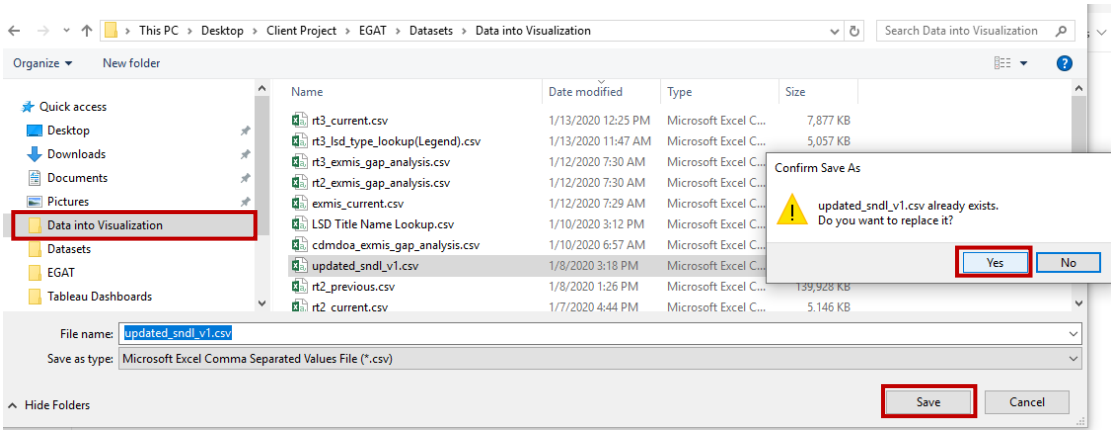


Figure 3.1.1

2. Since the connection type is extract, perform an extract refresh to update the dashboard with new data. First, go to **Data** and navigate to the data source that needs to be refreshed--for example, “oars_data_current” and then navigate to **Extract** and select **Refresh**. If the file source has been updated with the new data, the dashboard will reflect the new data upon a refresh.

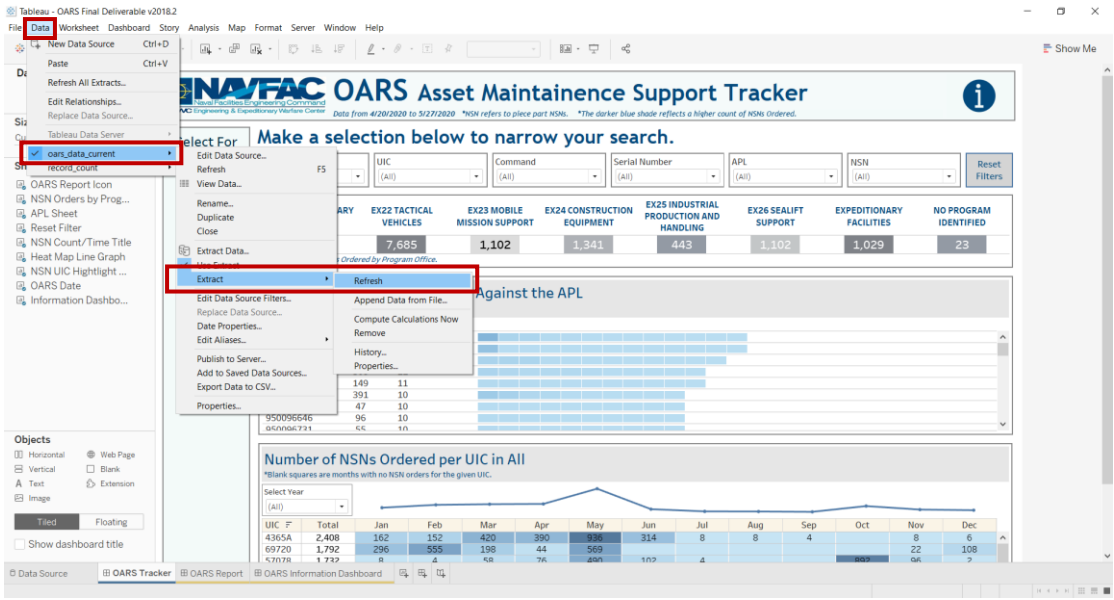


Figure 3.1.2

3. To ensure the data was refreshed correctly make sure that the refresh date stamp is based on the latest refresh. If the date/time is a previous date/time, manually select **Refresh** to update the data.

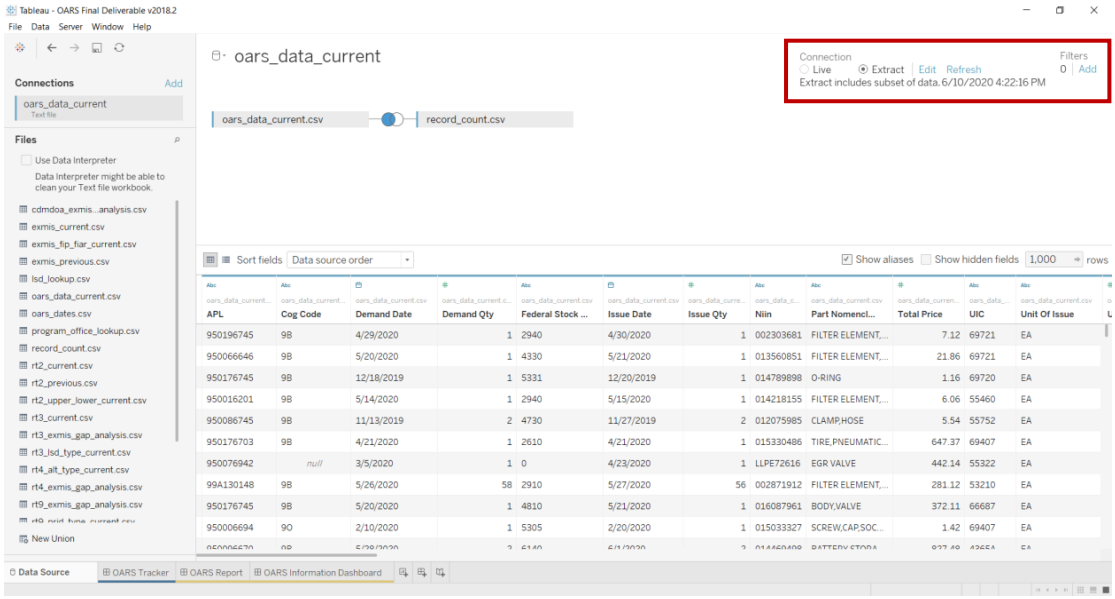


Figure 3.1.3

3.2 How to Perform Multiple Data Refreshes

Tableau has the capability to refresh all data sources in one workbook. This feature only works when the data source is an extract connection. Reference Section 1.3 Live vs Extract Connections. The CDMD-OA EXMIS Audit Dashboards, for example, have over six different data sources in one workbook. Using this feature will refresh the dashboards all at once. **In order to do this, all data sources must come from the same file location, the file names cannot change, and the column headers cannot change.** Reference Section 2.6 on data handling best practices. Use the Data into Visualization for this. Once all data sources are linked to the same folder all dashboards can be updated.

1. Go to **Data** and select **Refresh All Extracts**.

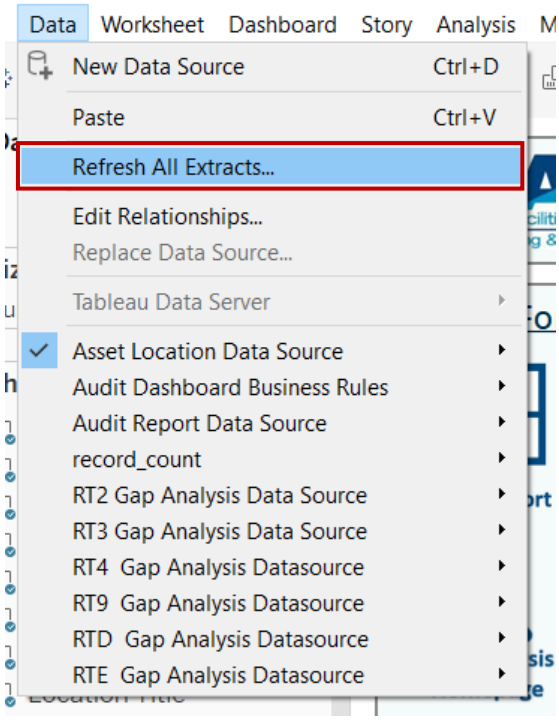


Figure 3.2.1

2. A window will pop up showing all the data sources that will be updated. Select **Refresh** to update all dashboards with the latest data that has been copied into the Data into Visualization folder.

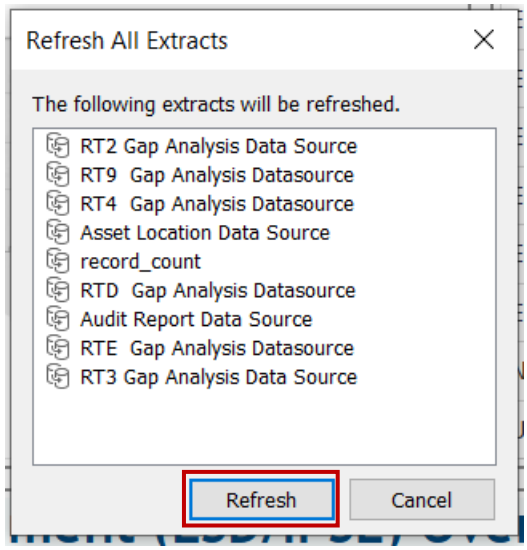


Figure 3.2.2

3. It will take a few minutes to refresh all dashboards. The image on the left will show the loading process while the one on the right is what it should look like when done correctly.

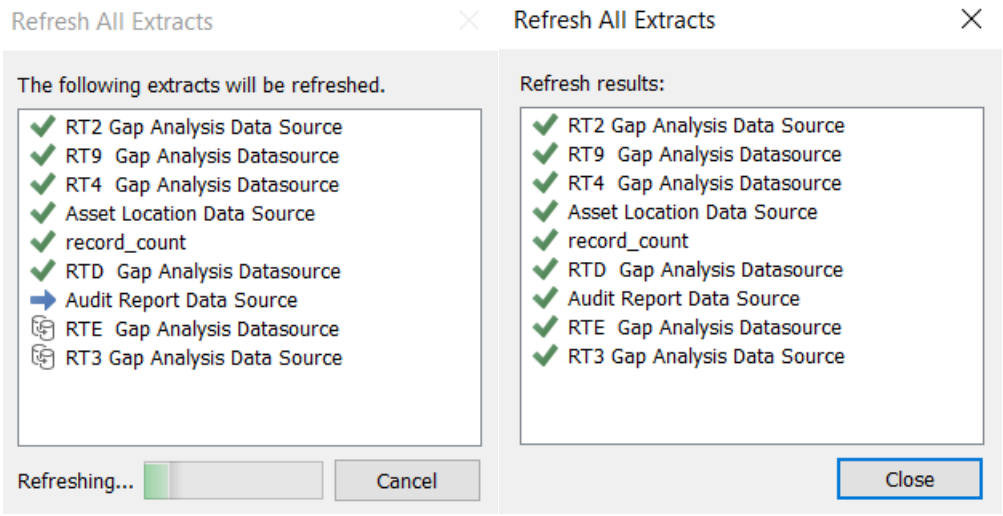


Figure 3.2.3

4. **NOTE: In order to use this feature all data sources must come from the same file location; the file names cannot change and the column headers cannot change. Any deviation from this will cause an error during the refresh process.** If the refresh extract process suddenly stops and is not completed, a "Show Details" button will appear. To display all the data sources that did not load, select **Show Details**. The refresh all extract feature will refresh all data sources sequentially. If one data source is broken, all subsequent data sources will not load. In the example below RT4 Gap Analysis Data source did not load therefore all data sources following that will not load either.

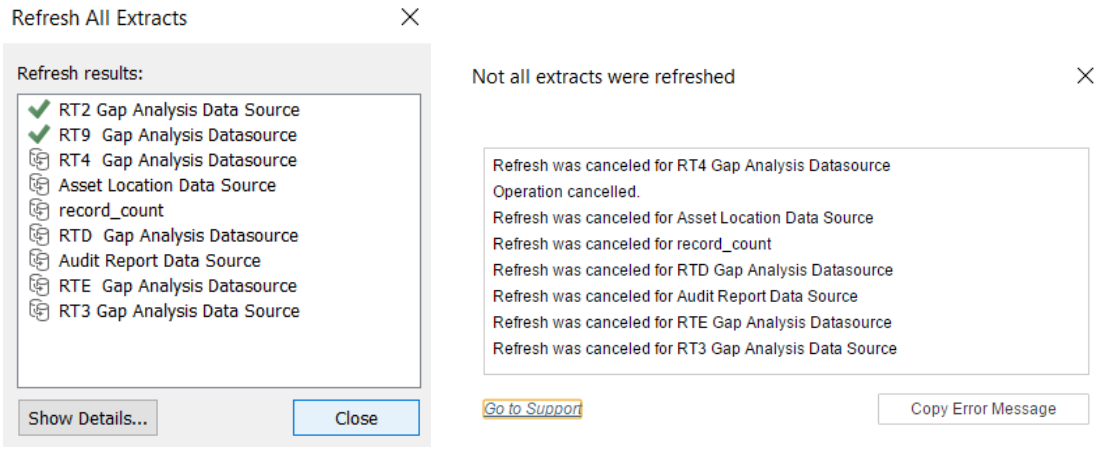


Figure 3.2.4

3.3 How to Use the "View Data" feature

Tableau has a feature for viewing data in report form. Depending on the data selected, you can view all data connections or a subset of the data. This feature is only an option for Tableau Desktop. In Tableau Reader, you cannot use this feature. These dashboards, however, have been modified with options to view in a report form with Tableau Reader.

1. If using Tableau Desktop, in order to use the "View Data" feature, first go to **Data** in the tool bar and navigate to the data source that needs to be refreshed. Select **View Data**.

   Notice the icon next to **View Data**. Anywhere this icon appears, select it to view the data.

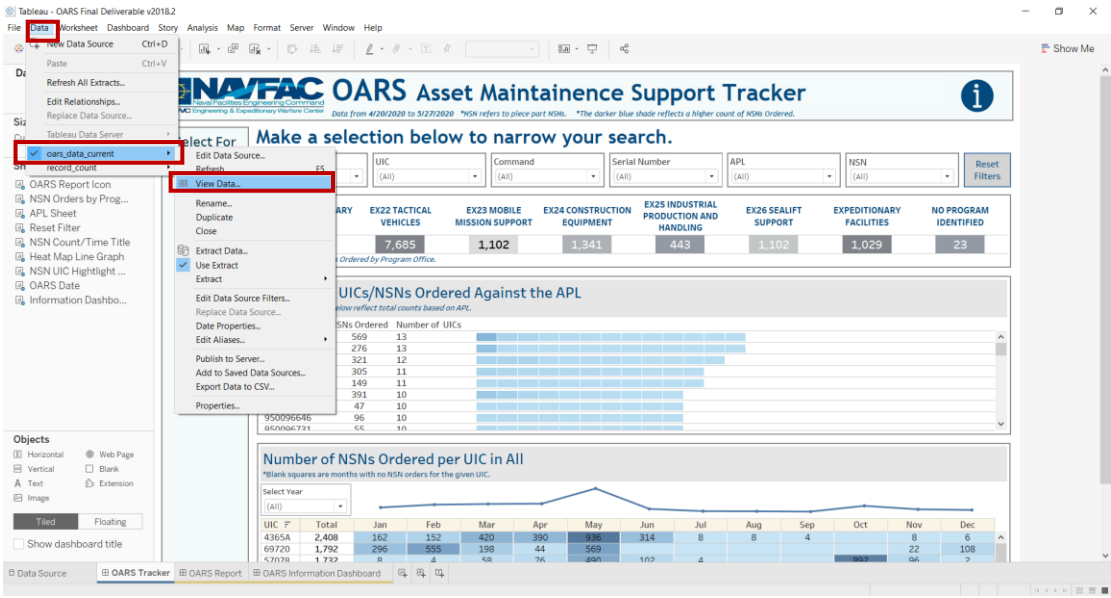


Figure 3.3.1

2. This method will show all the data that is joined in this data source.

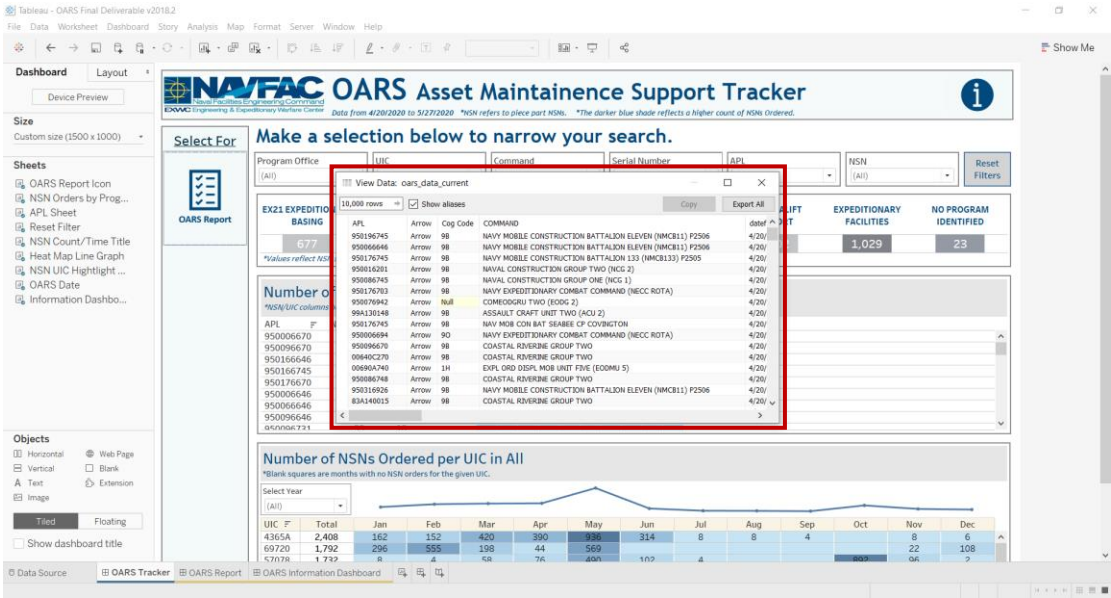


Figure 3.3.2

3. To view a subset of the data, right-click on any metric in the dashboard. Keep in mind that whatever is right-clicked on will only show the specific data that applies to that metric. In this example, if you right-click on the “Port Hueneme” blue circle in the Conus map, the data that will populate will only be the data that applies for this “Port Hueneme” metric.

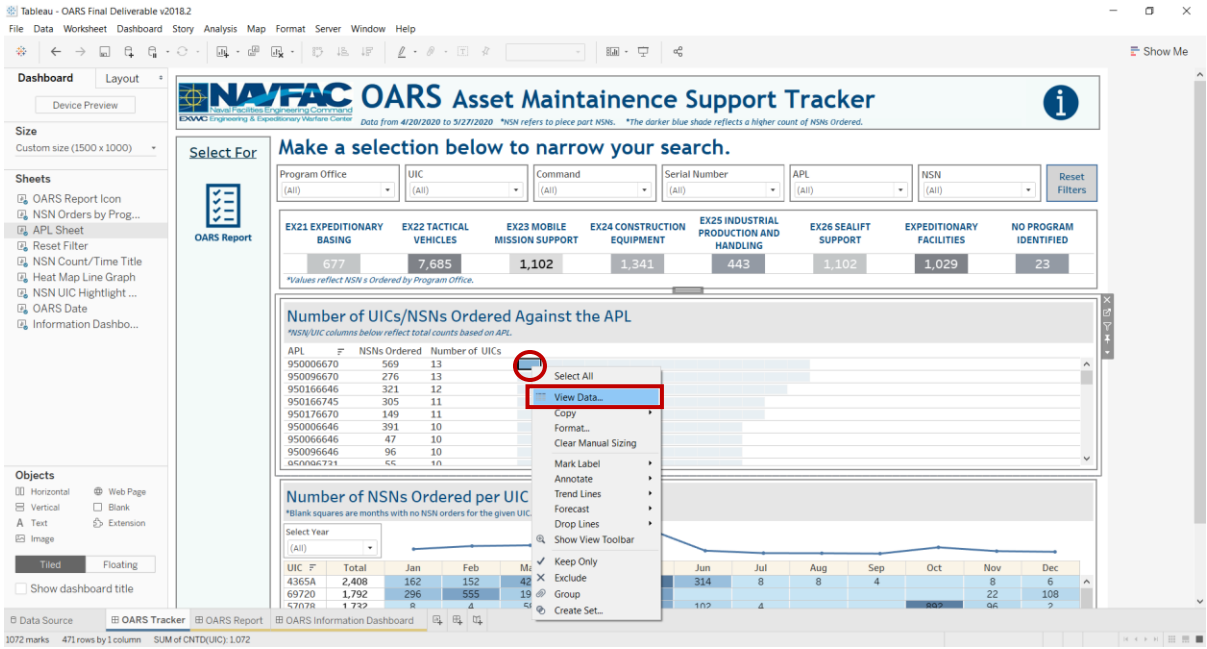


Figure 3.3.3

4. This data is a summary of the selected metric. The UIC selected was ordered NSNs against APL “950006670” and the pop up only shows what is relevant to the selected metric. It does not contain the full data.

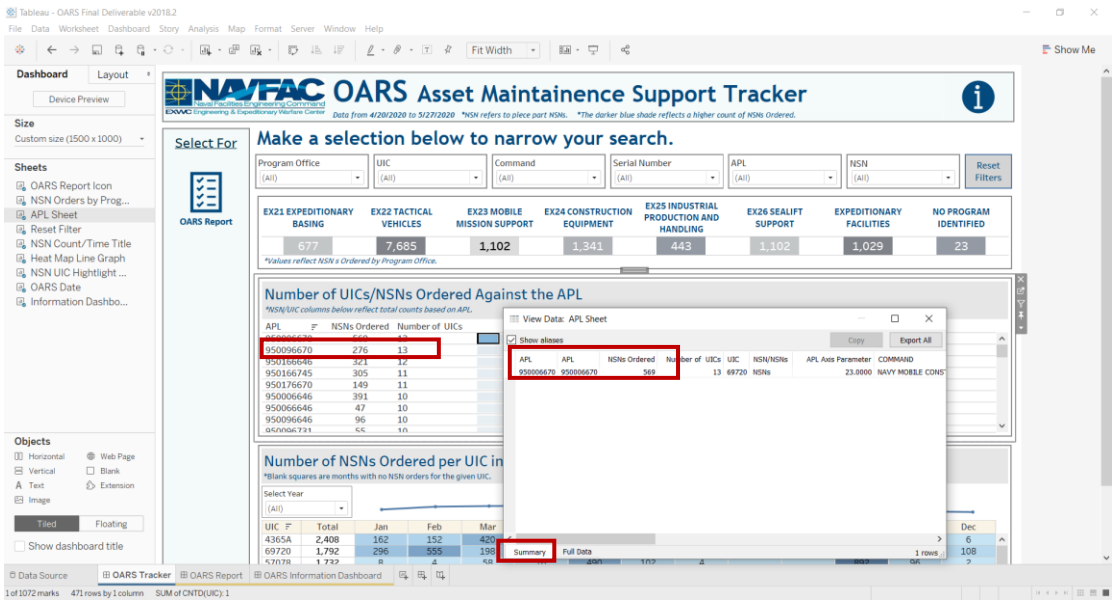


Figure 3.3.4

5. To view all data, select **Full Data**. This will show all the rows/columns from the data source that have a connection with this metric.

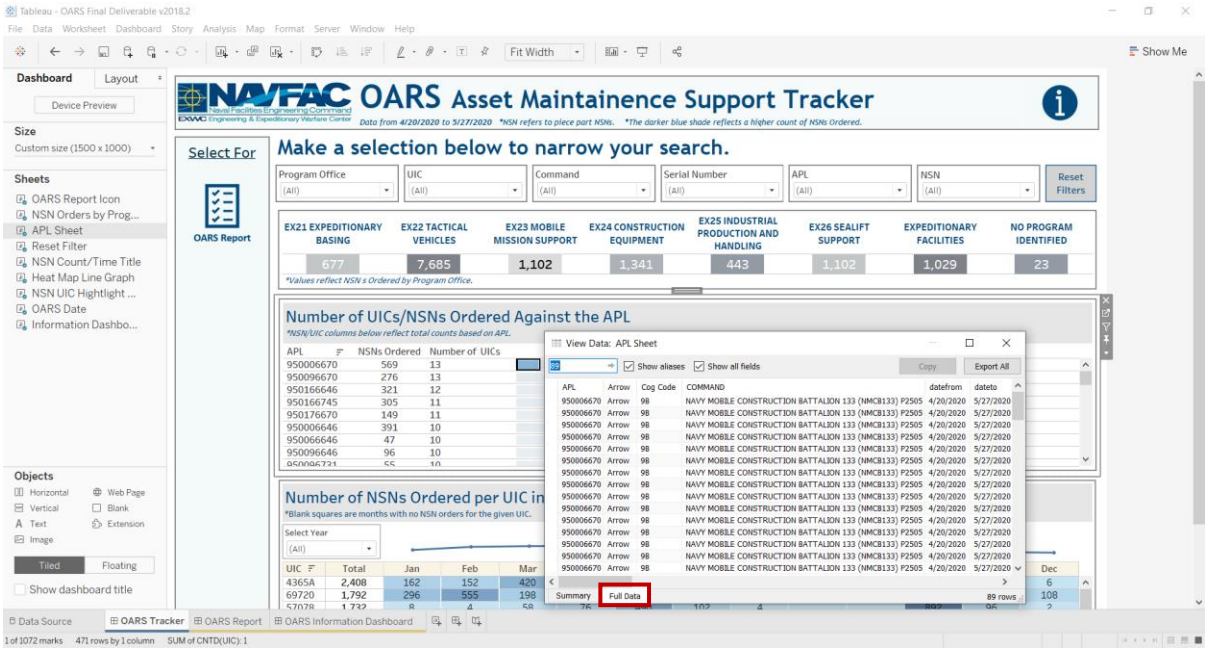


Figure 3.3.5

6. To view just the columns that are used in the metric visual, unselect the **Show All Fields** box. Only the columns that directly pertain to this visual are displayed (see below).

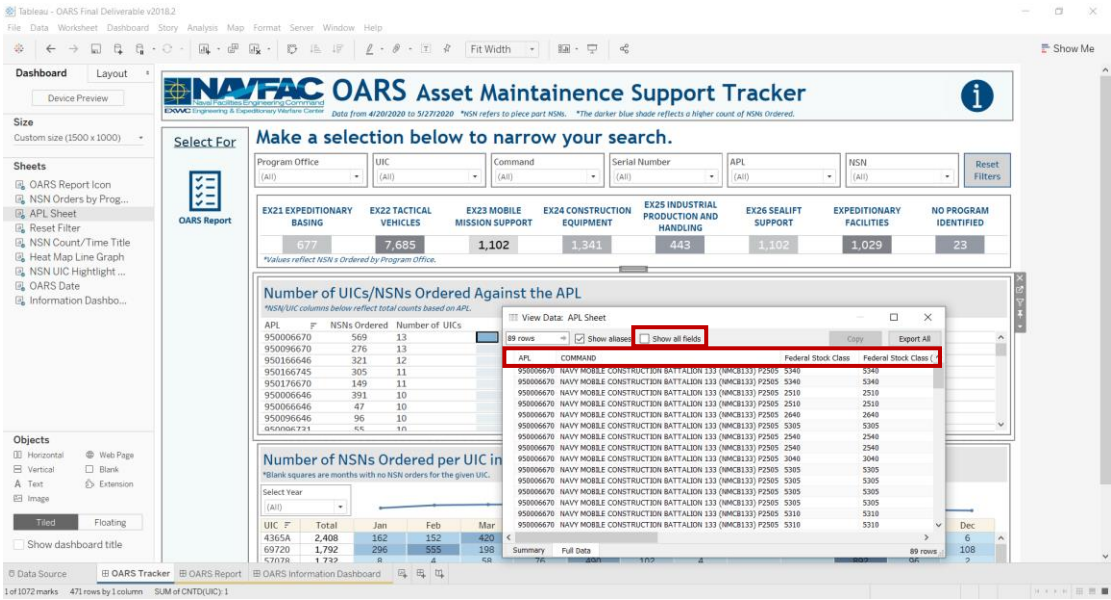


Figure 3.3.6

7. This is an example of what you see when viewing the dashboard with Tableau Reader. Please note: Tableau Reader does not have the option to select the data tab at the top or to right-click to view a data subset.

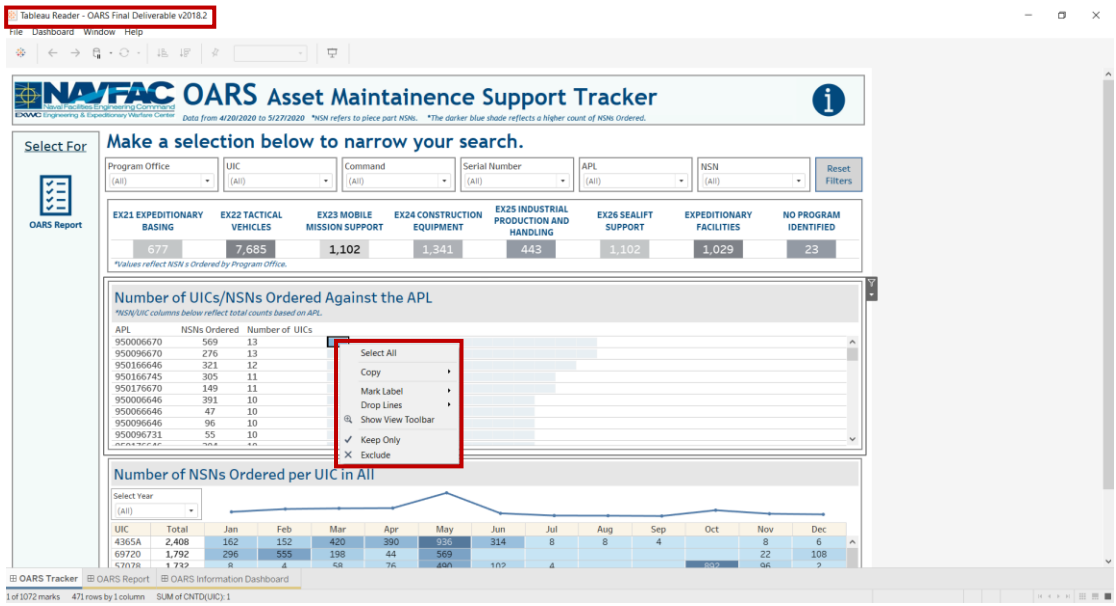


Figure 3.3.7

3.4 How to Export Data

In Tableau Desktop, data can be exported and used in other data manipulation tools such as Microsoft Excel. The file can only by exported in CSV format.

1. With the "View Data" pop-up open, select **Export All**. A window will appear to download the data in the folder you specify. Keep in mind that the data downloaded will be based on the options that are selected in the "View Data" page (i.e. "Show All Fields, Full Data").

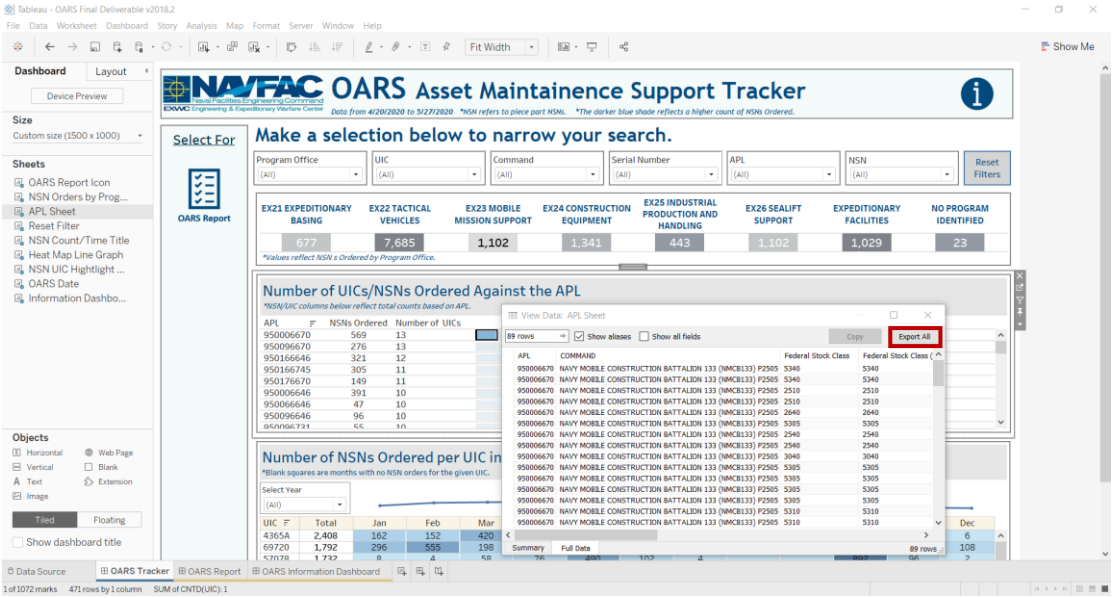


Figure 3.4.1

Note: Tableau Reader does not have the "View Data" capability, but the data can still be exported in the following three ways.

1. Crosstab Export to Excel

This export feature will keep the data in the same clean format as Tableau i.e. no scientific notation and/or dropping leading 0's.

a. Once the filter selections have been made, ensure the sheet where the data needs to be copied is highlighted.

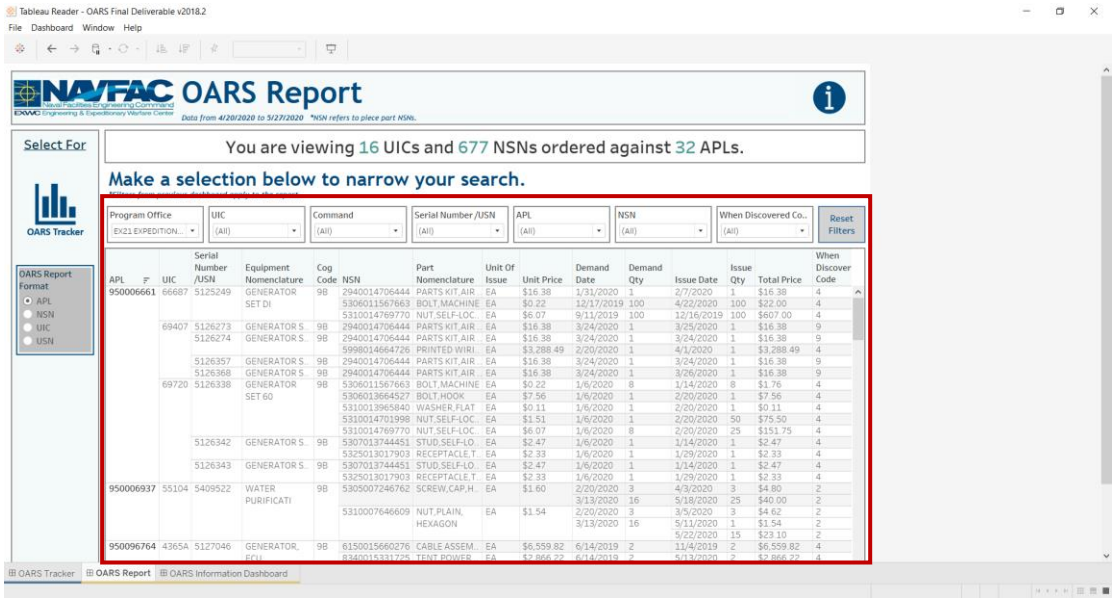


Figure 3.4.2

b. Go to **Worksheet** > **Export** and select **Crosstab to Excel**.

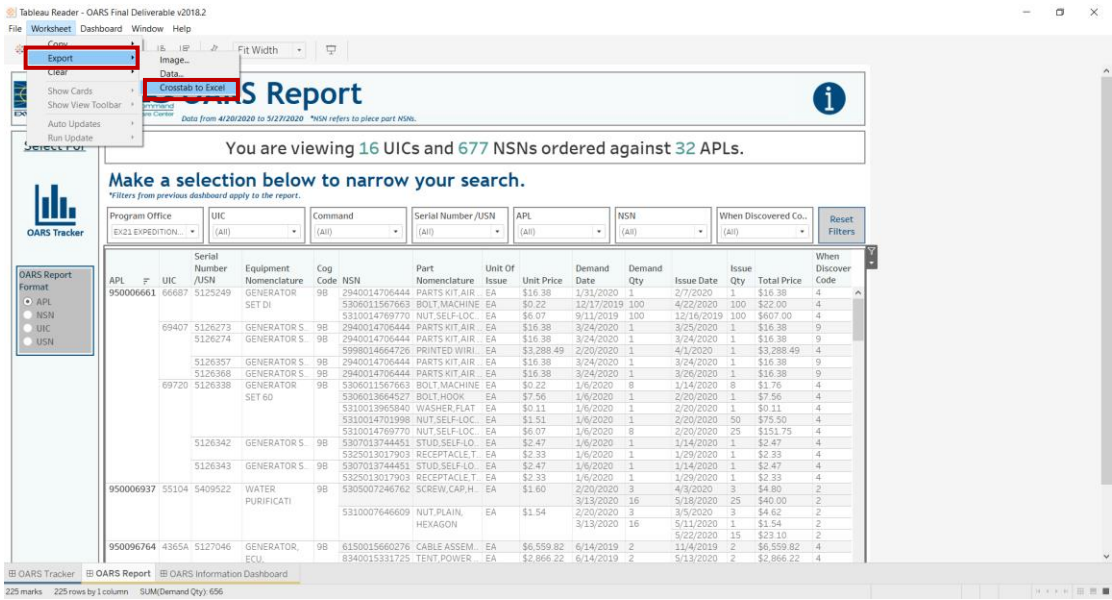


Figure 3.4.3

c. Excel will open with the same data that was filtered in the report. Keep in mind there is a loading time of a couple minutes depending on your computer speed. The more records that are exported, the longer it will take to load into Excel.

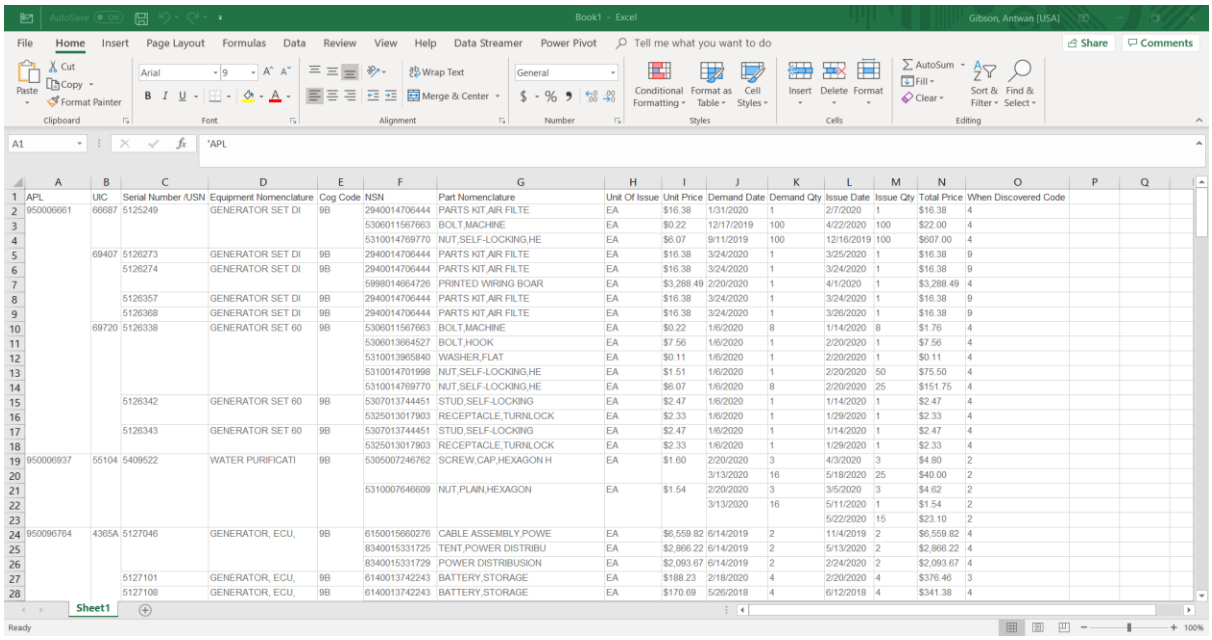


Figure 3.4.4

When using this feature the exported excel file will have merged cells. While this feature matches the view from Tableau, the merged cells make it difficult for analysis. Follow the steps below to properly populate the merged cells.

1. Go to **Format** in the top tool bar, then select **AutoFit Column Width**.

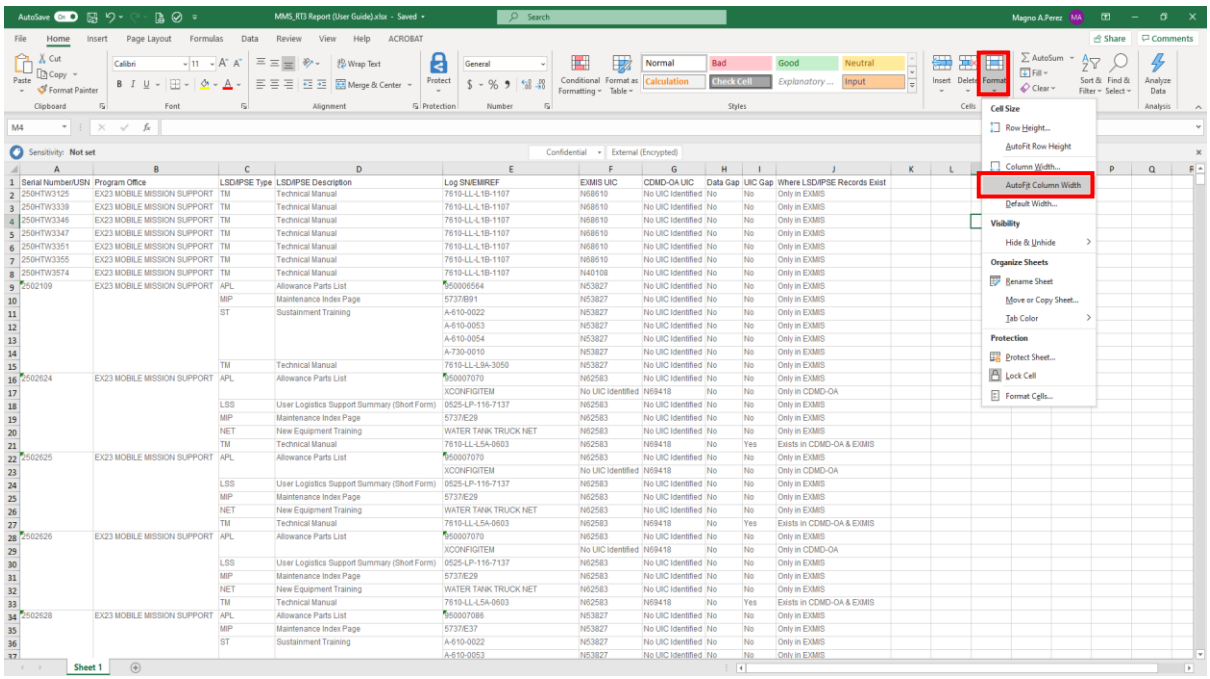


Figure 3.4.5

2. Select All by selecting the downward diagonal arrow in the top left-hand corner of the spreadsheet. Then go to **Merge & Center** and select **Unmerged cells**. **NOTE:** the select all feature must stay active.

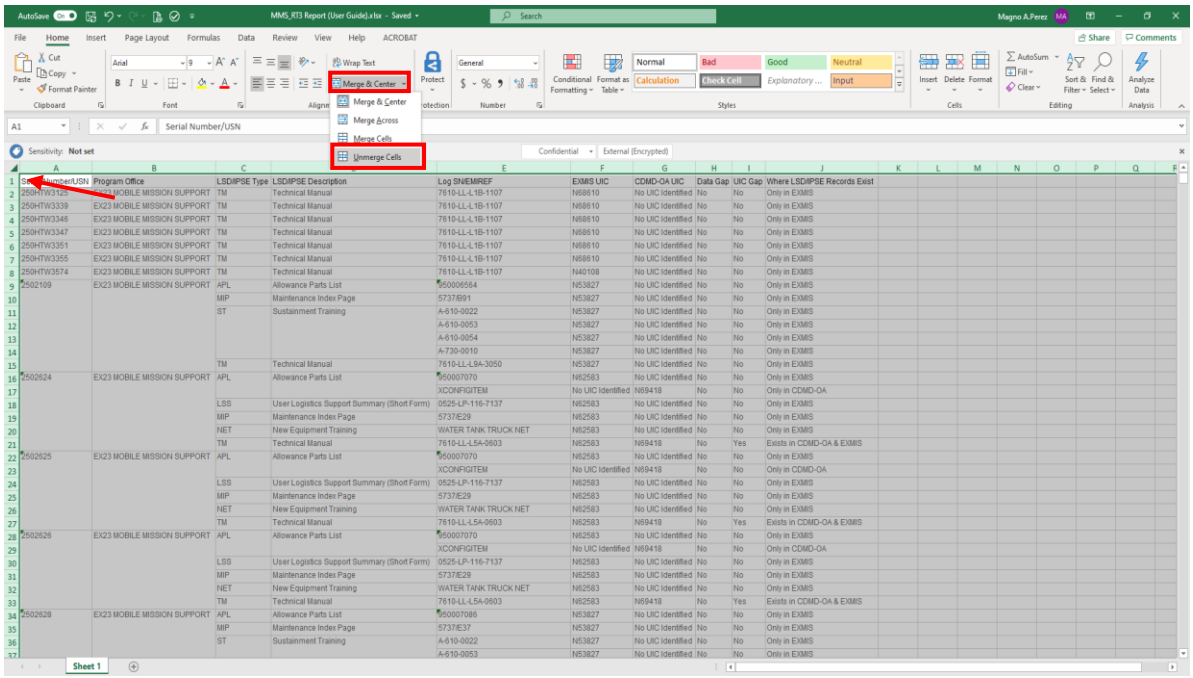


Figure 3.4.6

3. Go to the **Find & Select** pull down menu in the top right-hand corner of the spreadsheet. Then select **Go to Special**. Select **Blanks** and then select **OK**.

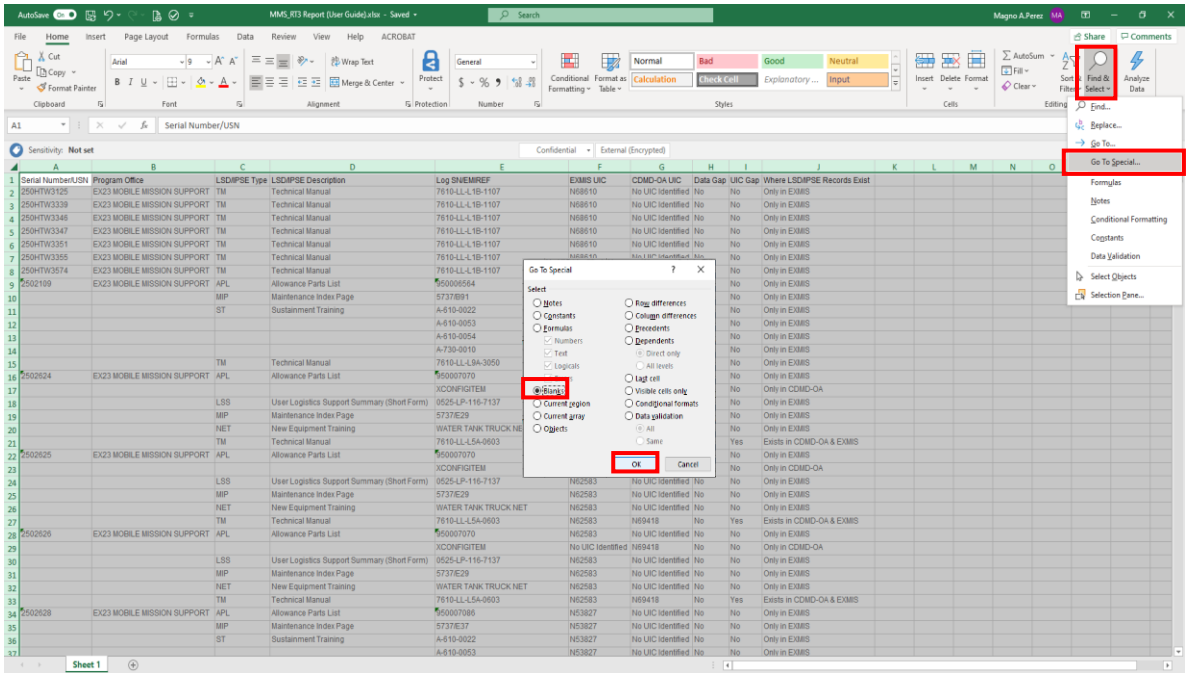


Figure 3.4.7

4. The first non-null cells are highlighted. Press “=” and press the “up” arrow on your keyboard. This references the first non-null cell. Press “ctrl + enter”.

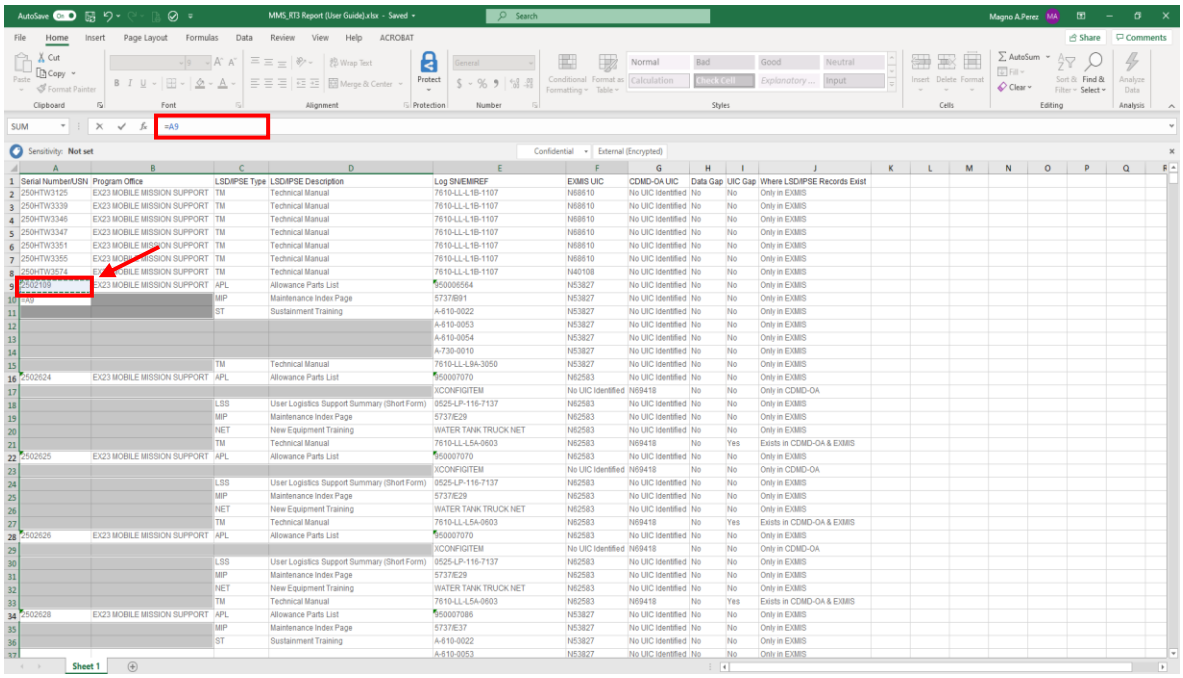


Figure 3.4.8

5. The blanks (non-null cells) sort automatically. This option is best for analyzing data as it will populate all merged non-null cells.

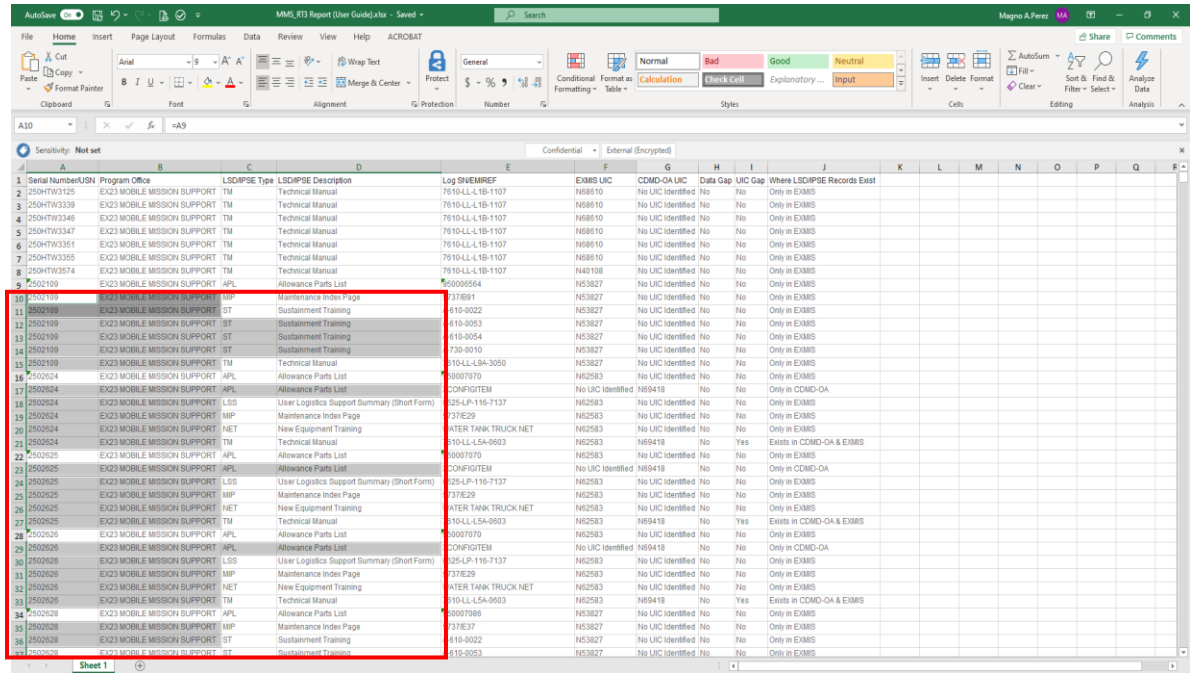


Figure 3.4.9

2. Copy Data to Excel

This export will copy in the cell which can then be pasted in Excel. It does not keep the same Tableau formatting. The formatting in Excel drops leading 0's and changes long numeric character cells into scientific notation.

a. Once you make any filter selections, ensure the sheet where the data needs to be copied is highlighted.

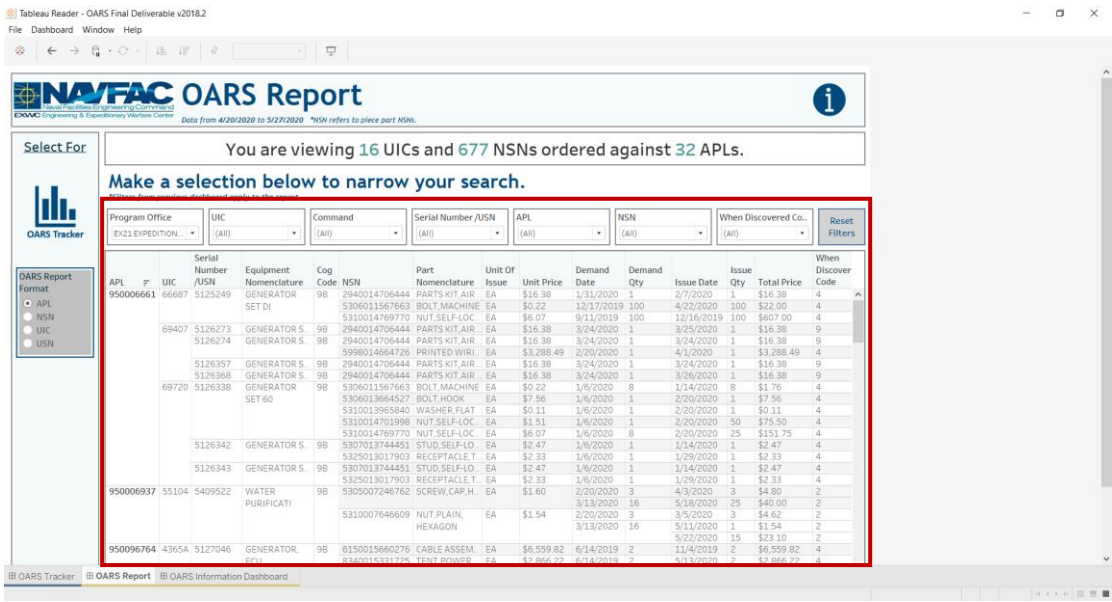


Figure 3.4.10

1. Go to **Worksheet** > **Copy** and select **Data**. Depending on the size of the data, Tableau may render while copying the data.

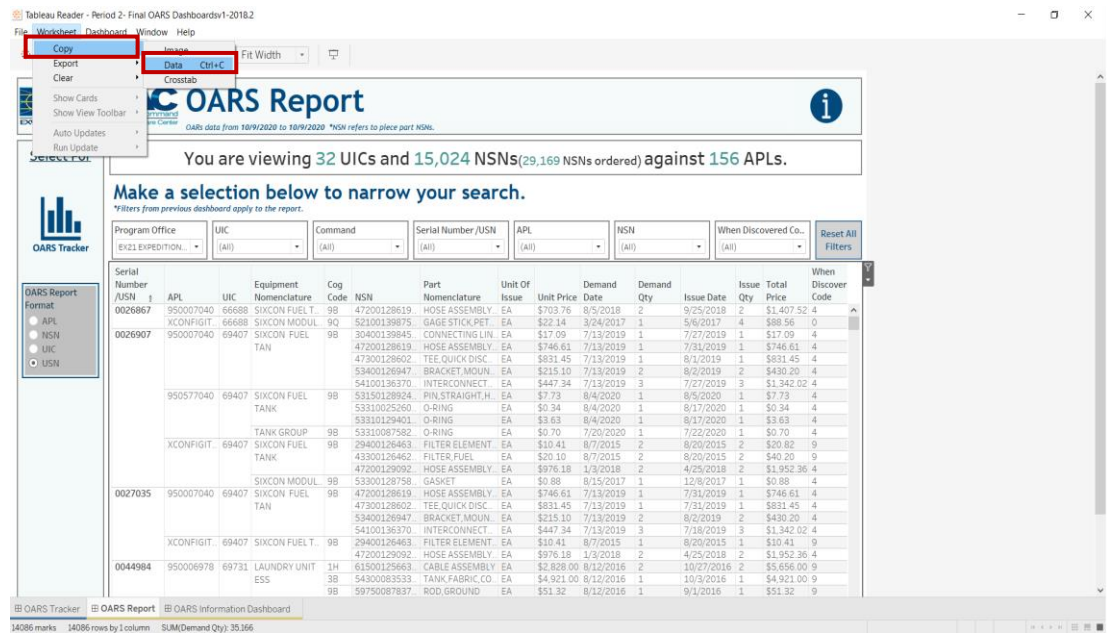
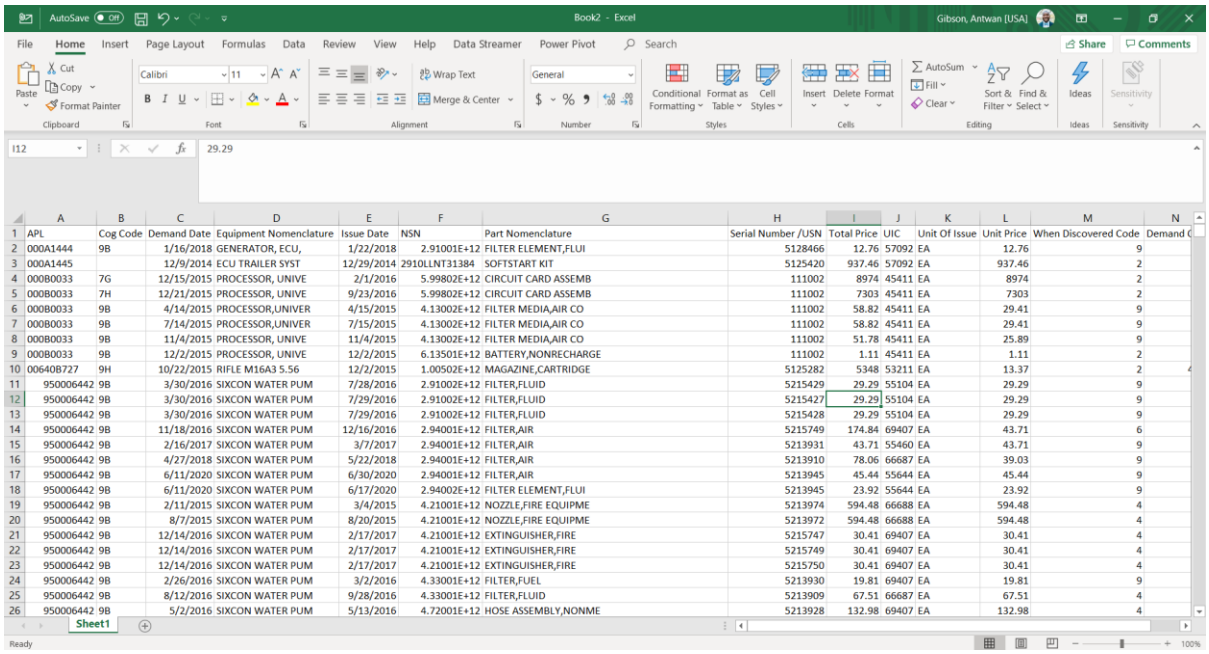


Figure 3.4.11

2. Open a new Excel file and paste the data into Excel. The columns will sort alphabetically. This option is best for analysis as it will populate all non-null cells.



	A	B	C	D	E	F	G	H	I	J	K	L	M	N
1	APL	Cog Code	Demand Date	Equipment Nomenclature	Issue Date	NSN	Part Nomenclature	Serial Number /USN	Total Price	UIC	Unit Of Issue	Unit Price	When Discovered Code	Demand C
2	000A1444	9B	1/16/2018	GENERATOR, ECU,	1/22/2018	2.91001E+12	FILTER ELEMENT,FLUI	5128466	12.76	57092	EA	12.76	9	
3	000A1445		12/9/2014	ECU TRAILER SYST	12/29/2014	2910LLNT31384	SOFTSTART KIT	5125420	937.46	57092	EA	937.46	2	
4	000B0033	7G	12/15/2015	PROCESSOR, UNIVE	2/1/2016	5.99802E+12	CIRCUIT CARD ASSEMB	111002	8974	45411	EA	8974	2	
5	000B0033	7H	12/21/2015	PROCESSOR, UNIVE	9/23/2016	5.99802E+12	CIRCUIT CARD ASSEMB	111002	7303	45411	EA	7303	2	
6	000B0033	9B	4/14/2015	PROCESSOR,UNIVER	4/15/2015	4.13002E+12	FILTER MEDIA,AIR CO	111002	58.82	45411	EA	29.41	9	
7	000B0033	9B	7/14/2015	PROCESSOR,UNIVER	7/15/2015	4.13002E+12	FILTER MEDIA,AIR CO	111002	58.82	45411	EA	29.41	9	
8	000B0033	9B	11/4/2015	PROCESSOR, UNIVE	11/4/2015	4.13002E+12	FILTER MEDIA,AIR CO	111002	51.78	45411	EA	25.89	9	
9	000B0033	9B	12/2/2015	PROCESSOR, UNIVE	12/2/2015	6.13501E+12	BATTERY,NONRECHARGE	111002	1.11	45411	EA	1.11	2	
10	00640B727	9H	10/22/2015	RIFLE M16A3 5.56	12/2/2015	1.00502E+12	MAGAZINE,CARTRIDGE	5125282	5348	53211	EA	13.37	2	
11	950006442	9B	3/30/2016	SIXCON WATER PUM	7/28/2016	2.91002E+12	FILTER,FLUID	5215429	29.29	55104	EA	29.29	9	
12	950006442	9B	3/30/2016	SIXCON WATER PUM	7/29/2016	2.91002E+12	FILTER,FLUID	5215427	29.29	55104	EA	29.29	9	
13	950006442	9B	3/30/2016	SIXCON WATER PUM	7/29/2016	2.91002E+12	FILTER,FLUID	5215428	29.29	55104	EA	29.29	9	
14	950006442	9B	11/18/2016	SIXCON WATER PUM	12/16/2016	2.94001E+12	FILTER,AIR	5215749	174.84	69407	EA	43.71	6	
15	950006442	9B	2/16/2017	SIXCON WATER PUM	3/7/2017	2.94001E+12	FILTER,AIR	5213931	43.71	55460	EA	43.71	9	
16	950006442	9B	4/27/2018	SIXCON WATER PUM	5/22/2018	2.94001E+12	FILTER,AIR	5213910	78.06	66687	EA	39.03	9	
17	950006442	9B	6/11/2020	SIXCON WATER PUM	6/30/2020	2.94001E+12	FILTER,AIR	5213945	45.44	55644	EA	45.44	9	
18	950006442	9B	6/11/2020	SIXCON WATER PUM	6/17/2020	2.94002E+12	FILTER ELEMENT,FLUI	5213945	23.92	55644	EA	23.92	9	
19	950006442	9B	2/11/2015	SIXCON WATER PUM	3/4/2015	4.21001E+12	NOZZLE,FIRE EQUIPME	5213974	594.48	66688	EA	594.48	4	
20	950006442	9B	8/7/2015	SIXCON WATER PUM	8/20/2015	4.21001E+12	NOZZLE,FIRE EQUIPME	5213972	594.48	66688	EA	594.48	4	
21	950006442	9B	12/14/2016	SIXCON WATER PUM	2/17/2017	4.21001E+12	EXTINGUISHER,FIRE	5215747	30.41	69407	EA	30.41	4	
22	950006442	9B	12/14/2016	SIXCON WATER PUM	2/17/2017	4.21001E+12	EXTINGUISHER,FIRE	5215749	30.41	69407	EA	30.41	4	
23	950006442	9B	12/14/2016	SIXCON WATER PUM	2/17/2017	4.21001E+12	EXTINGUISHER,FIRE	5215750	30.41	69407	EA	30.41	4	
24	950006442	9B	2/26/2016	SIXCON WATER PUM	3/2/2016	4.33001E+12	FILTER,FUEL	5213930	19.81	69407	EA	19.81	9	
25	950006442	9B	8/12/2016	SIXCON WATER PUM	9/28/2016	4.33001E+12	FILTER,FLUID	5213909	67.51	66687	EA	67.51	4	
26	950006442	9B	5/2/2016	SIXCON WATER PUM	5/13/2016	4.72001E+12	HOSE ASSEMBLY,NONME	5213928	132.98	69407	EA	132.98	4	

Figure 3.4.12

3. Export to Access

1. Once the filter selections have been made, ensure the sheet where the data needs to be copied is highlighted.

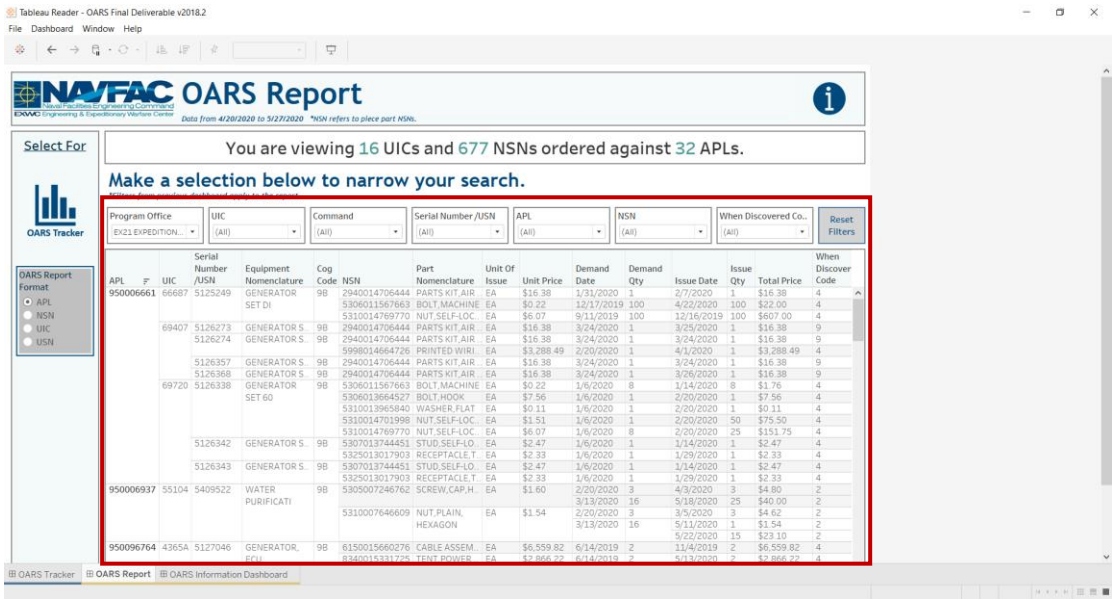


Figure 3.4.13

3. Go to **Worksheet** > **Export** and select **Data**. Depending on the size of the data, Tableau may render while exporting the data.

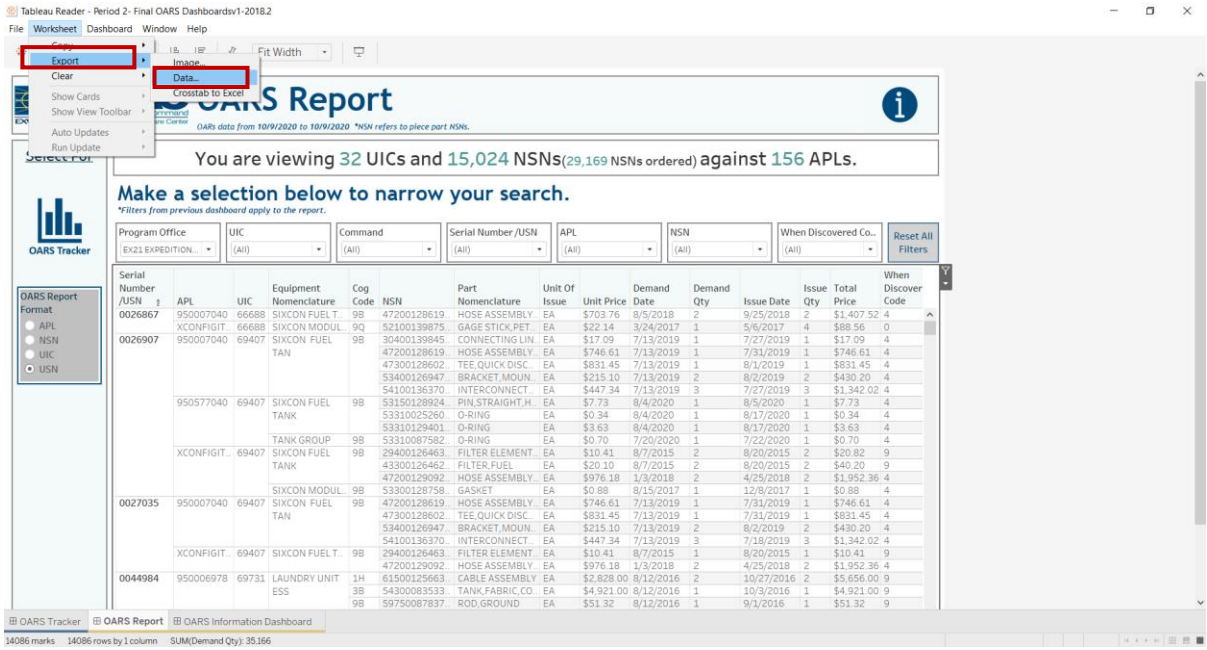


Figure 3.4.14

4. A window pops-up to save as a Microsoft Access Database. Once the file is saved it can then be opened in Microsoft Access.

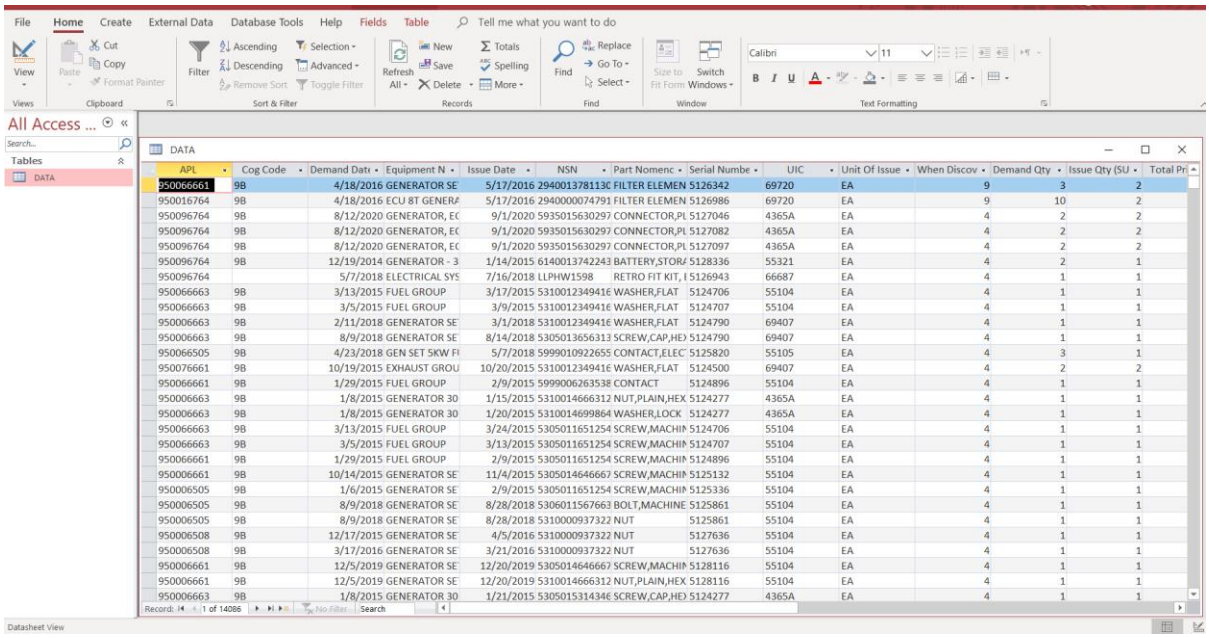


Figure 3.4.15

3.5 Icon Rendering

For the dashboard icons to render properly, the .png files of the custom icons must be loaded into Tableau. To load the appropriate icons, place the New Icons folder AND the Custom Icons folder distributed along with the dashboards into the Shapes folder in My Tableau Repository. See the folders and path below.

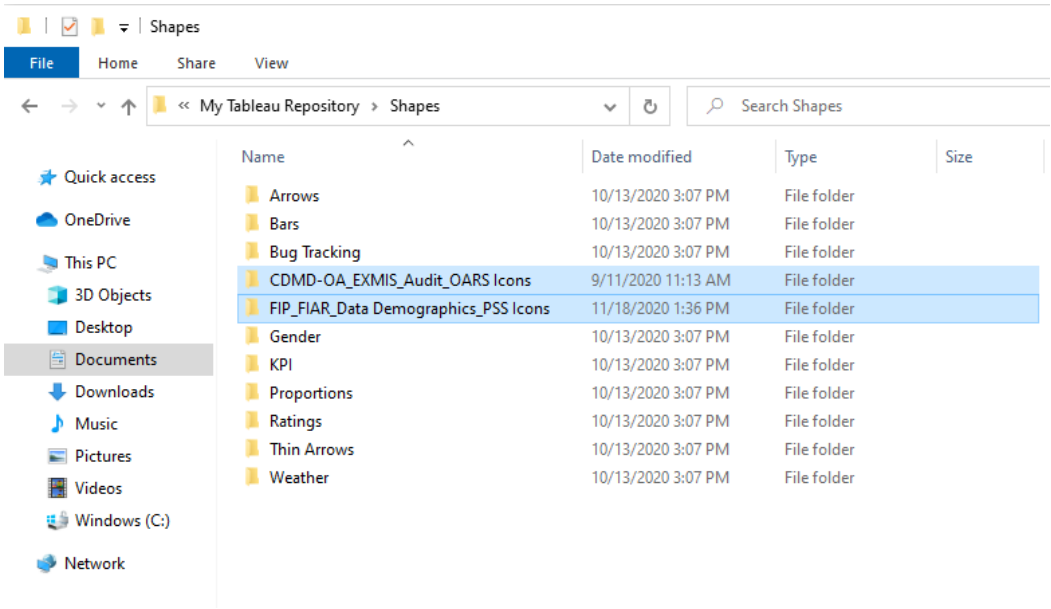


Figure 3.5.1

To refresh the new icons, follow the steps below.

1. Select the icon and select **Go to Sheet**.

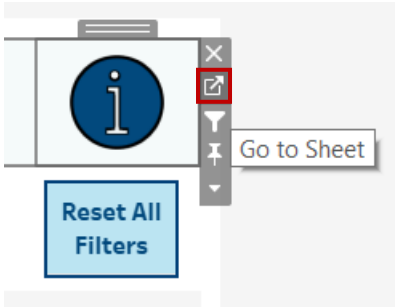


Figure 3.5.2

2. Select **Shape**.

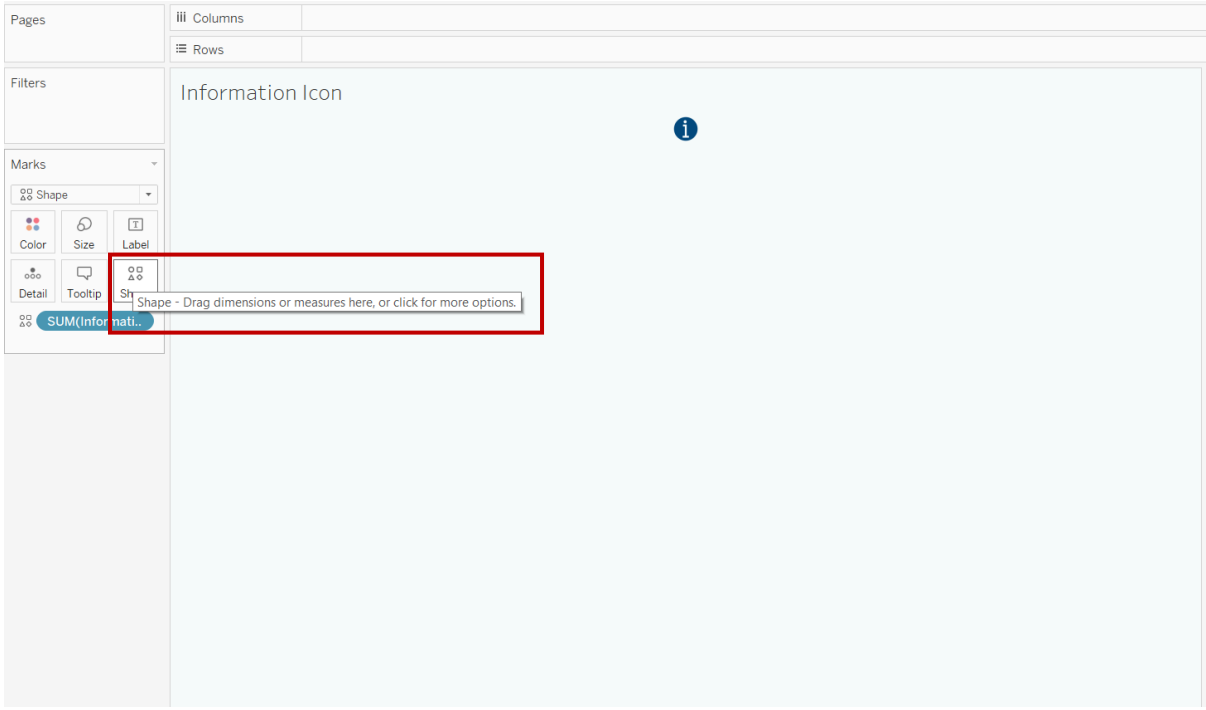


Figure 3.5.3

3. Select **Reload Shapes**.

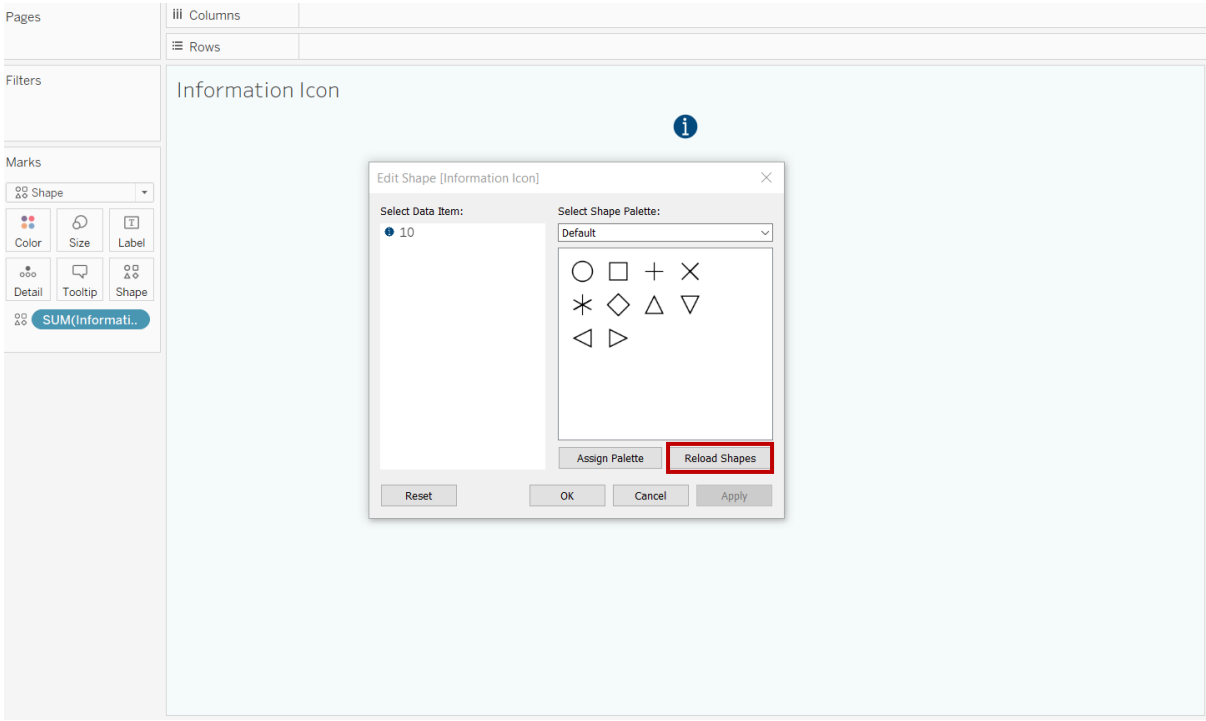


Figure 3.5.4

3.6 Screen Resolution

Due to the vast number of EGAT users, all dashboards have been sized to “Automatic”. This automatic sizing allows each dashboard to fill the screen when used in both Tableau Desktop and Tableau Reader. However, because each computer has a different resolution, it is difficult to develop a universal dashboard that will apply to any screen resolution. Tableau’s automatic sizing feature is fairly accurate, but there can be instances where metrics on the dashboard contain pound signs, as seen in *Figure 3.6.1* below.

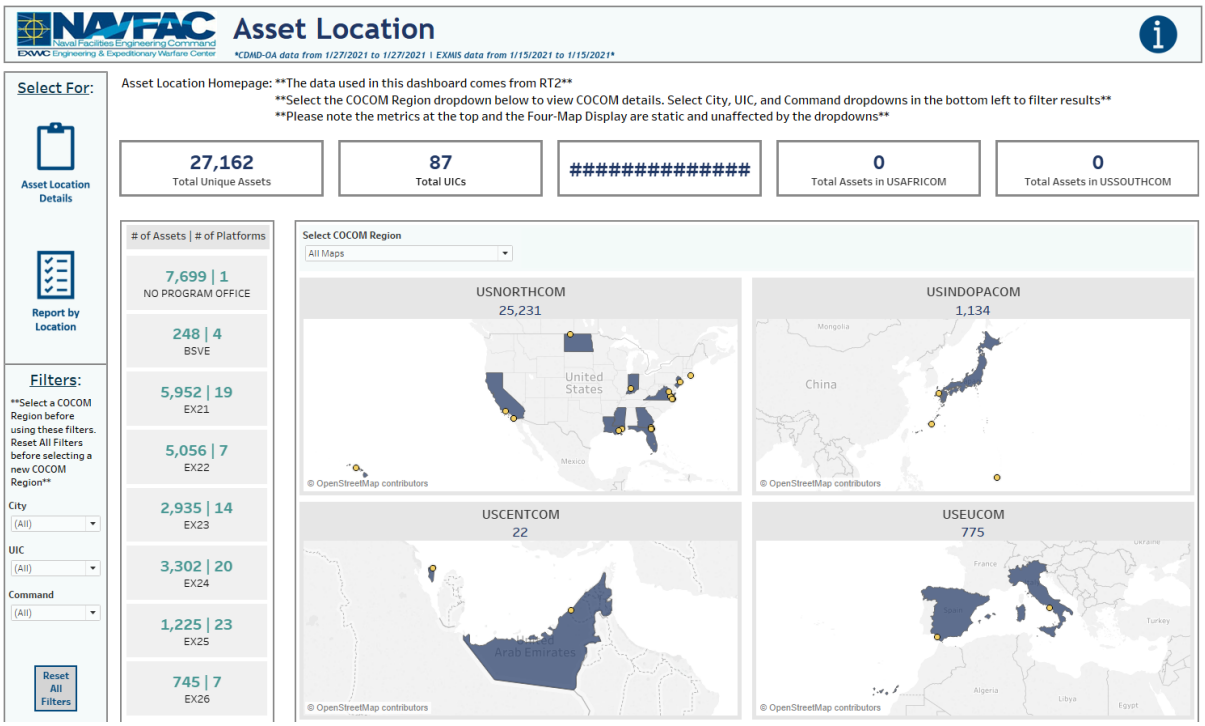


Figure 3.6.1

This is not a technical error within the dashboard. It is purely an indication that the dashboard resolution is higher than the screen resolution. For Tableau Desktop users, this will not be an issue. However, due to the limited developer options within Tableau Reader, no formatting changes can be made. To troubleshoot resolution issues on Tableau reader, follow the steps below:

1. Right click on your desktop window and select **Display Settings**.

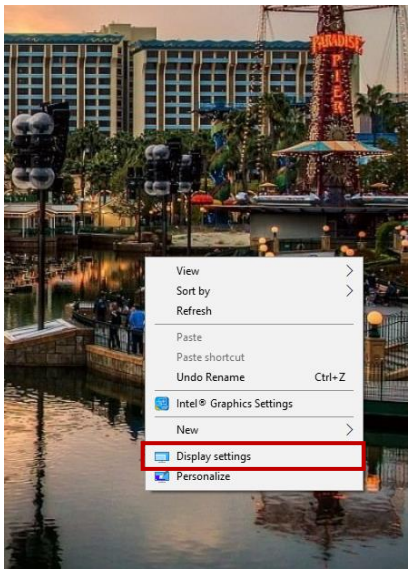


Figure 3.6.2

2. On the main Display page, ensure that the Scale and Layout is set to **125%**. Then ensure that the Display Resolution is set to **Recommended**. If neither adjustment works, please reach out to your Tableau Developer, who will then follow steps 3-5.

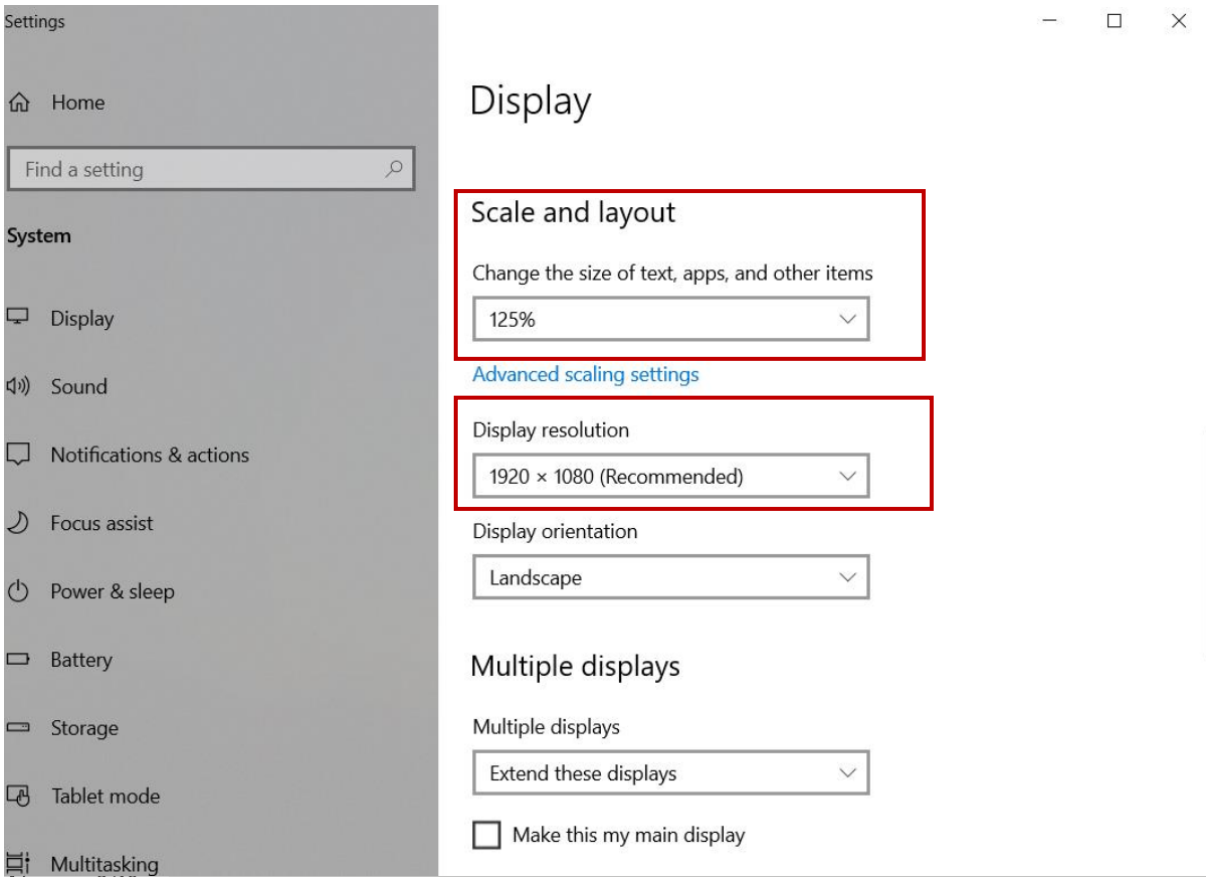


Figure 3.6.3

3. For those with Tableau Desktop, ensure you are in developer mode and select the dropdown within the Size section.

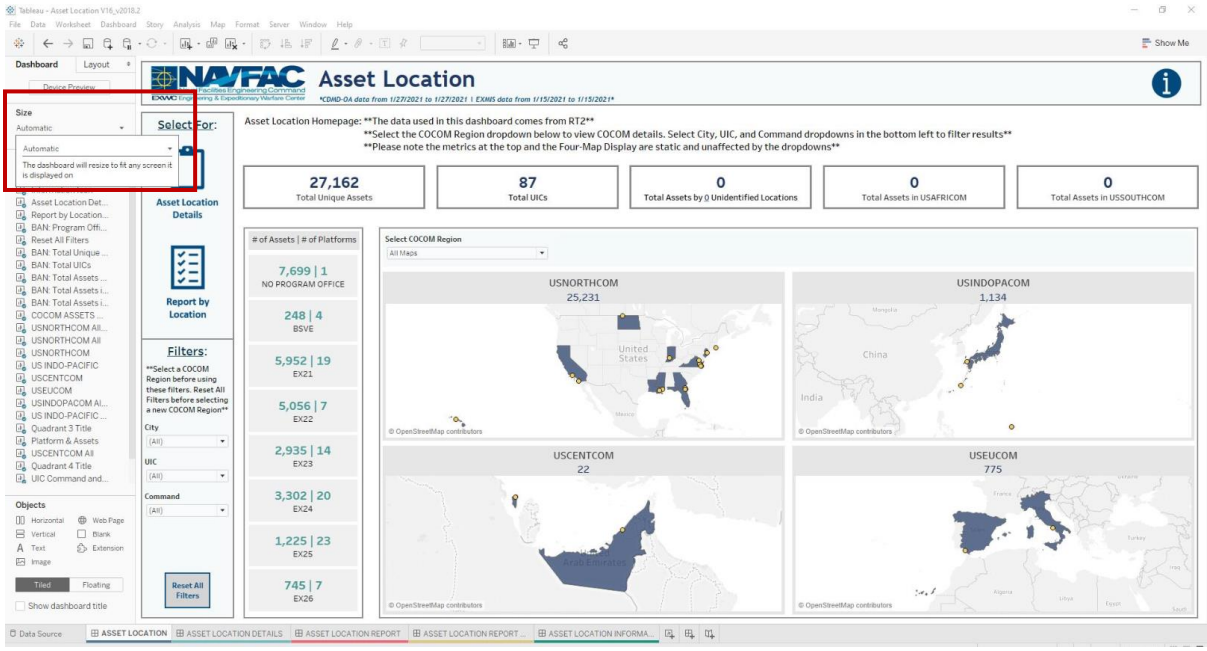


Figure 3.6.4

4. Change the selection from Automatic to Fixed.

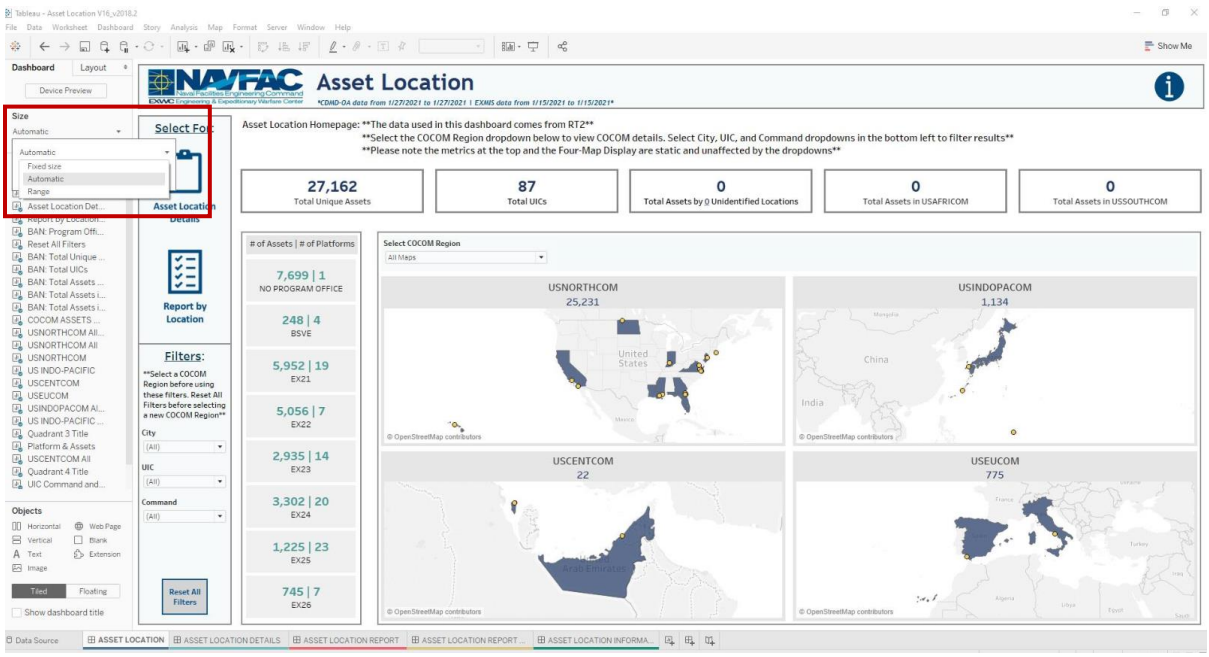


Figure 3.6.5

5. Adjust the width and height dropdowns until hash marks disappear. Note this may take some trial and error. As noted, automatic sizing should prevent hash marks from appearing in the first place. Steps 3-5 should rarely be used but were provided just in case.

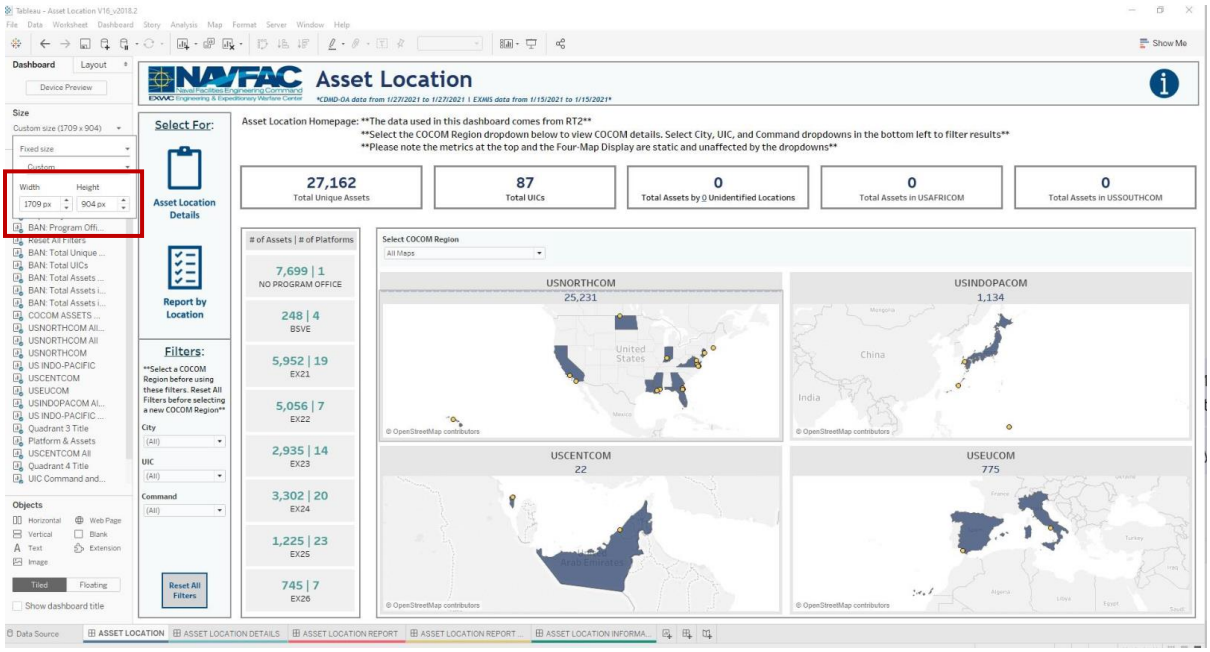


Figure 3.6.6