

Arizona

Office of the State Fire Marshal (OSFM)

NFIRS Data Import and Validation Procedures (eNFIRS)

For Local Fire Department Data Submittals

Updated: 05/31/2023 with permission and much appreciation to CAL Fire and the CALStats Unit Staff for allowing AZ OSFM to plagiarize this document and make it our own in order to help all AZ State Fire Departments and Districts in the quest for NFIRS enlightenment.

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Data Import Process

Overview

Fire departments in Arizona report their incident response activity either directly into the National Fire Incident Reporting System (NFIRS) or to the Office of the State Fire Marshal (OSFM) through eNFIRS. OSFM periodically exports the data from eNFIRS to the National Database. A flowchart of the process is included in Appendix A. In order to complete the following steps, you must have an eNFIRS user account.

The general process is:

- Export the NFIRS incident data file from the third-party vendor software (.txt or .INC). Remember to save the file in a location where it is easy to navigate to.
 NOTE: A single file can contain multiple incidents.
- 2. <u>Import the file</u> into the eNFIRS National Data Warehouse (eDW) using the Bulk Import Utility (BIU) in eNFIRS
- 3. Review the output reports generated by the eNFIRS import
- 4. Make any necessary corrections
- 5. Repeat steps 1 4 if corrections are made

NFIRS Submission Files

The following section outlines some of the basic elements included in an NFIRS submission file and is for informational purposes only.

Incident Identification

A good coding scheme is necessary when loading incidents from multiple fire departments from multiple states over multiple years into one database. NFIRS uses five key fields to distinctly identify individual incident records.



FDID

NFIRS relies on a five-digit identifier for the specific fire department that "owns" the report. This identity key is called the Fire Department Identification Number (FDID). The FDID number is issued and controlled by the AZ OSFM.

The format is: CCTTN

Where:

CC	=	County (01- 15)			
TT	TT = Type of Department				
N	= Order in which the department signed up				

State

NFIRS relies on a two-character alphabetical key to identify the specific state that "owns" the report. The format is: **SS**

Where
$$SS = State = AZ$$

Date

The incident date is defined as the date when the incident is first reported to the fire department.

The format is usually: YYYYMMDD

Where **YYYY** = Year And **MM** = Month

And DD = Day of the month

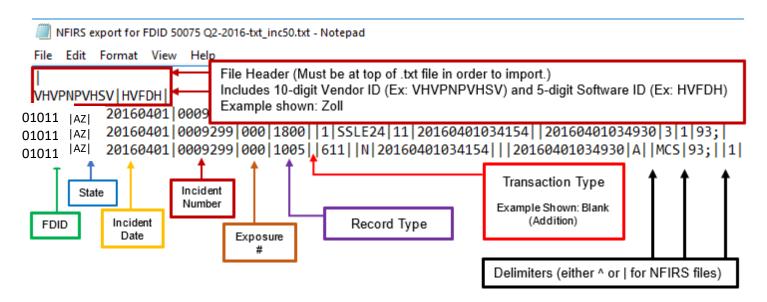
Incident Number

The incident number is a seven-digit number assigned to an incident (numerical only). This number is assigned and controlled by the fire department.

Exposure Number

In NFIRS, an exposure is a fire started by another fire. While the FDID, State, Incident Date, and Incident Number remain the same, a separate sequential Exposure Number is assigned to each exposure. The original "parent" incident is always coded as exposure "000" and further exposures are numbered sequentially in increments of 1, beginning with "001." This is a three-digit number.

NFIRS Flat File Basics:



More information on NFIRS Flat Files (also called "Transaction Files") can be found on pages **132 – 161** of the **NFIRS 5.0 Design Documentation**:

https://www.usfa.fema.gov/downloads/pdf/nfirs/NFIRS Spec 2015.pdf

eNFIRS Import

To view a video created by the U.S. Fire Administration that demonstrates the following steps, go to: <u>eNFIRS: Importing Incident Files (in depth)</u>

Log in to **eNFIRS**



eNFIRS is ONLY fully functional with the Microsoft Edge browser.

Other browsers may cause functionality issues.



Each account can have access to multiple FDIDs, if needed. These users can switch between FDIDs while logged in to a single user account but will only be able to view or import data for the FDID profile they are currently in at that time.

Select **Import Incidents** under **Incident Management** to access the Bulk Import Utility (BIU).





Do NOT select "Import Fire Departments" under the "Fire Departments" section for the incident submission process.

The first field of the Bulk Import Utility (BIU) is the email address that the results will be sent to. The default is the email address associated with the account, but this can be changed manually here if needed.



In the BIU, select Yes for "Accept Invalid Incidents" and "Overwrite Existing Incidents."



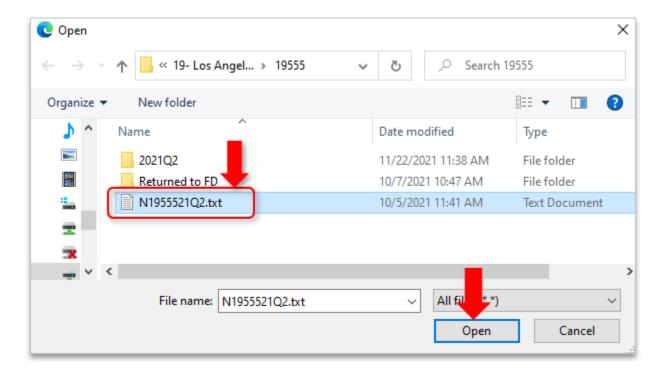
Note: They will turn gray when they are selected. If they are white, they are **not** the selected options.



Select Choose File under File 1.



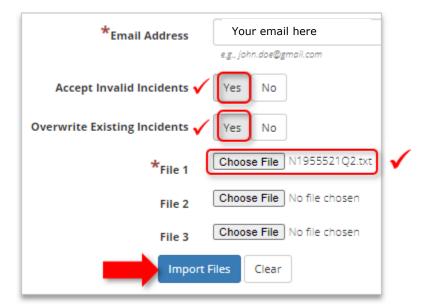
Select the desired file and click **Open**. Remember to save the files in a location that is easy to navigate to and you will remember where they are saved.



Be sure the file follows the guidelines shown on the Bulk Import Utility (BIU) web page. These file guidelines are also shown in **Appendix E**.

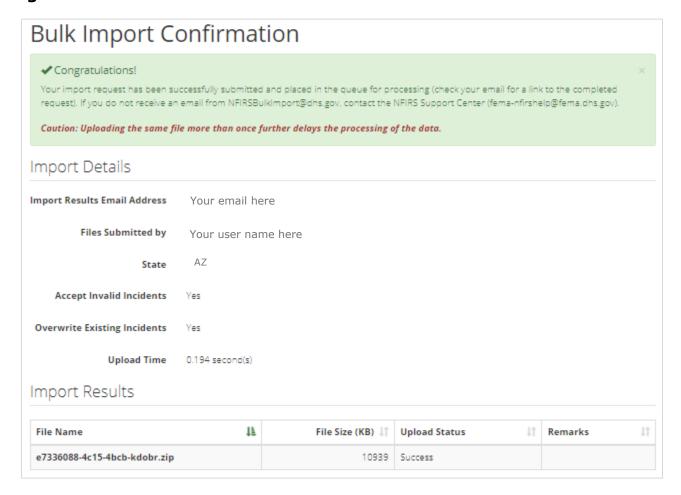
Note: A single file can contain multiple incidents. Once the file is selected under File 1,

click Import Files.



Once you click Import Files, you will see the Bulk Import Confirmation screen.

<u>Save the original file</u> that was imported. This may be needed to evaluate critical errors and/or import failures once the file import is processed and the results are generated.





The Bulk Import Confirmation does NOT indicate that the file was successfully imported, only that it has been successfully submitted to the queue for processing.

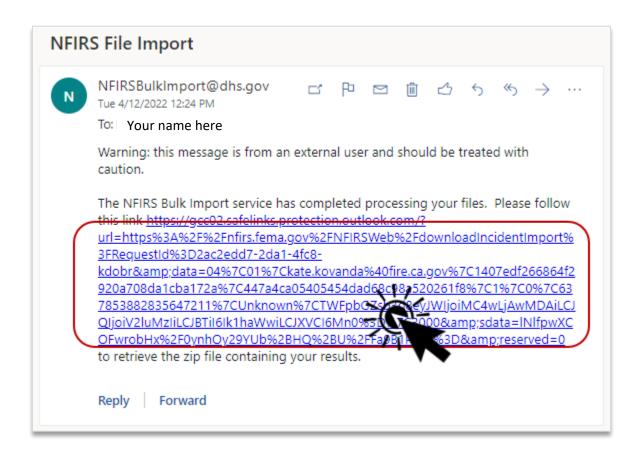


The import and validation results (output files) will be sent to the email address entered into the **Email Address** field of the BIU.

This email from NFIRSBulkImport@dhs.gov will contain a link to the output files.

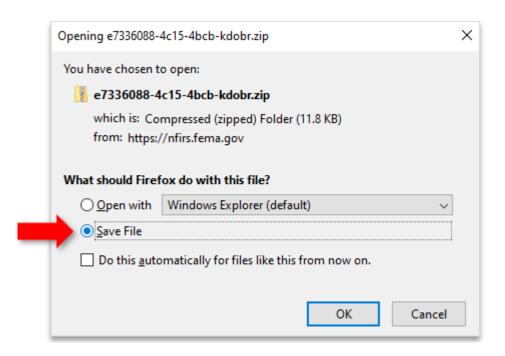
Typically, the email from NFIRSBulkImport@dhs.gov does **not** arrive immediately and may be delayed further due to a large file size or system outages.

If the email from NFIRSBulkImport@dhs.gov does not arrive after 48 hours, contact the NFIRS Help Desk at: FEMA-NFIRSHELP@fema.dhs.gov

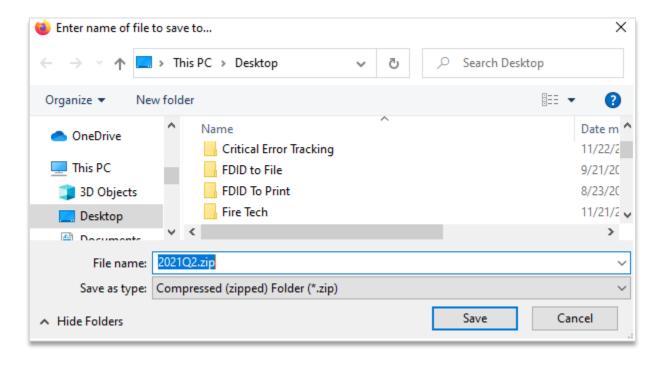


Clicking the **long** link in the email will generate a message asking what to do with the file. (This may look different depending on the web browser or email provider.)

Select "Save File" and click OK.



Save the file to the Desktop or other desired location. This will save a *.zip folder containing the output files. The files in the newly saved folder are the **results** of the import. Remember to rename the file to something that makes sense rather than the random letters and numbers it is assigned.



More videos demonstrating eNFIRS features, such as account registration and data file processing can be found at the U.S. Fire Administration's NFIRS Training web page:

https://www.usfa.fema.gov/nfirs/training/

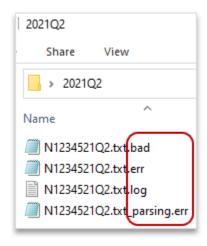
Processing Import and Validation Results

Overview

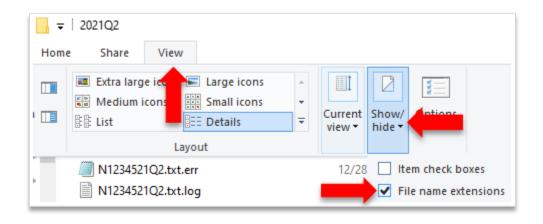
The desired result of an import is for all records to be successfully uploaded (imported) into the NFIRS database and to successfully pass the validation check.

The folder containing the **results** (output files) of the import should contain four files. The files should have the following extensions (shown in the red box): **.bad, .err, .log, ._parsing.err**

The main *.log file is considered the **summary report**, which shows the number of valid imports, invalid imports (incidents with critical errors), deleted incidents, import failures, and the total number of incidents processed.



If the file extensions are not visible, go to the **View** tab in Windows Explorer, click the "Show/Hide" menu and check the **File Name Extensions** box.



Viewing Import and Validation Results

- Open the *.zip file containing the results of the import (output files)
- Open the *.log file and scroll to the bottom to view the Incident Summary
- If there are zero Invalid Imports (critical errors) AND zero import failures, this confirms that the import and file validation was successful
- If there are any Invalid Imports (critical errors) or Import Failures, use <u>Appendix</u>
 B and/or <u>Appendix C</u> for information on viewing these

Summary Report (*.log)

The following section outlines the various elements of the *.log file.

The first part of the summary report (*.log) shows the settings used in the processing of the data.

```
Bulk Import Request:
                                                    2014/05/05 14:40:07
Processing file: N1955521Q2.txt
TransType: NFIRS 5.0 Incident File
                                                   2014/05/05 14:40:07
VendorID: VXVMPWVXWY
                                                    2014/05/05 14:40:07
SoftwareID: XRTVR
                                                    2014/05/05 14:40:07
Import Target: Database
                                                    2014/05/05 14:40:07
Database Mode: On Line
                                                    2014/05/05 14:40:07
Accept invalid Incidents: true
                                                    2014/05/05 14:40:07
Overwrite existing Incidents: true
                                                    2014/05/05 14:40:07
Import after validation: true
                                                   2014/05/05 14:40:07
```

The second part of the *.log file contains a status report for each incident processed. Each line shows the date/time that the incident was uploaded. Alternatively, the record may contain other information if there are validation issues with the record or if the record failed to import.

```
Incident was Successfully Imported: 39010:CA:11/20/2008:0000266:0 2014/05/05 09:51:04
Incident was Successfully Imported: 39010:CA:11/20/2008:0000267:0 2014/05/05 09:51:04
Incident was Successfully Imported: 39010:CA:11/24/2008/0000268:0 2014/05/05 09:51:04
EXCEPTION: Incident 39010:CA:12/02/2008:0000273:0 Contains Validation Errors 2014/05/05 09:51:04
Incident was Successfully Imported: 39010:CA:11/26/2008:0000269:0 2014/05/05 09:51:05
Incident was Successfully Imported: 39010:CA:11/26/2008:0000271:0 2014/05/05 09:51:05
Incident was Successfully Imported: 39010:CA:11/26/2008:0000271:0 2014/05/05 09:51:05
```

The third portion of the *.log file contains summary statistics for the status of the validation and import. *Note:* "*Invalid imports"* are incidents with one or more critical errors.

Incident was Successfully Imported: 39010:CA:12/29/2008:0000295:0 2014/05/05 09:51:09

Typical Situations Found

Use the information in the *.log file to determine any actions needed for the incident data.

Situation 1: Successful Validation

```
Incident Summary:
Valid imports: 421
Invalid imports: 0
Deleted incidents: 0
Import failures: 0
Total Processed: 421
```

The Problem:

No problems. Invalid imports (critical errors) = 0 and Import failures = 0

This is the desired outcome. All of the records successfully passed the validation check and were successfully imported into eNFIRS

Situation 2: Invalid Imports (Incidents with Critical Errors)

```
Incident Summary:
Valid imports: 420
Invalid imports: 9
Deleted incidents: 0
Import failures: 0
Total Processed: 429
```

The Problem:

Invalid imports > 0

There are some incidents with critical errors.

Some of the records did not pass the validation check. Typically, this error message is generated when a data field in the record contains an invalid or incomplete value. The Bulk Import Utility (BIU) will still upload the incident into the eNFIRS National Data Warehouse (eDW).

The *.err file will contain additional information concerning the validation errors.

Note: Warnings do NOT impact the validity of an incident. **Only critical errors** need to be addressed.

In the example below, incident #0000163 was coded as a wildland fire but no acres were entered in the Acres Burned field.

01011^AZ^20210120^0000163^0^Fire Module^Required Data^Critical^Number of Acres Burned^0^0^

More information on critical errors can be found in **Appendix B**.

Situation 3: Import failures

Incident Summary:
Valid imports: 420
Invalid imports: 0
Deleted incidents: 0
Import failures: 9
Total Processed: 429

The Problem:

Import failures > 0

There are incidents that failed to import.

These incidents were not imported into eNFIRS.

The detailed listing of the incidents in the *.log file will show **"Incident failed import," "Unable to import,"** or **"Unrecoverable error"** for incidents that failed. For example:

Unable to import incident 01011:AZ:05/15/2008:0000101:1 due to an error that occurred while saving incident data: Exposure 0 for incident number 0000101 was not found, but must be added before this exposure (1) can be added. (Exposure 0 for this incident is missing or may have failed to import.) (Exposures must start with 0.). 2014/05/05 09:50:39

The example above occurs when Exposure 001+ is included in the file, but Exposure 000 is not present (or is located *later* in the file than Exposure 001+). **Exposure 001 and greater cannot import if Exposure 000 is not in the eNFIRS National Data Warehouse (eDW).**

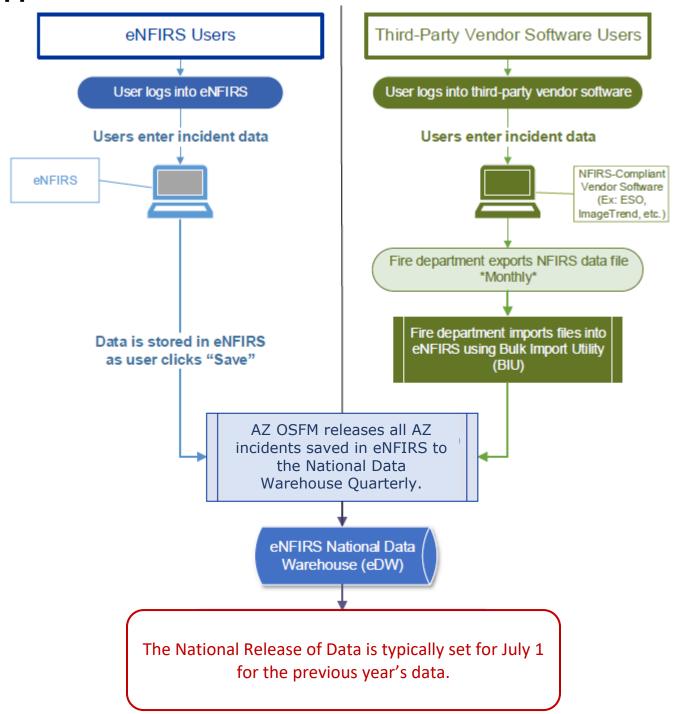
Note: All related exposures MUST have the same FDID, Date, and Incident Number. Otherwise, the database does not associate them together and the "child" records will fail to import.

Data format issues can also cause import failures. Data formatting is typically the problem when there are a large number of import failures.

<u>Appendix C</u> and <u>Appendix D</u> provide instructions for identifying the issues causing the import failures.

When these issues are identified, refer to your fire department's department software vendor, the NFIRS Helpdesk at fema-nfirshelp@fema.dhs.gov, or reach out directly to the AZ OSFM NFIRS State Program Manager, Stephanie Fournier at for assistance.

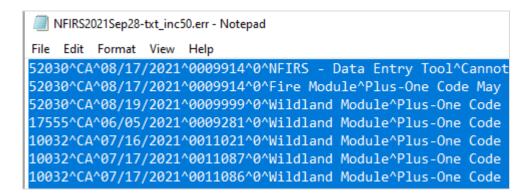
Appendix A: AZ NFIRS Data Flow



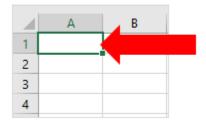
Appendix B: Using Excel to Process *.err Files

Note: the following examples will be taken directly from CAL Fire. You should note that when you use the examples below for your own use, the two letter identifier will be AZ and not CA as shown below.

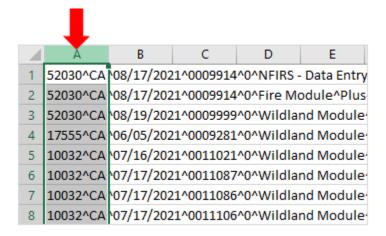
- Open a blank Excel workbook
- Open the *.err file
- Use CTRL+A to "select all" in the *.err file



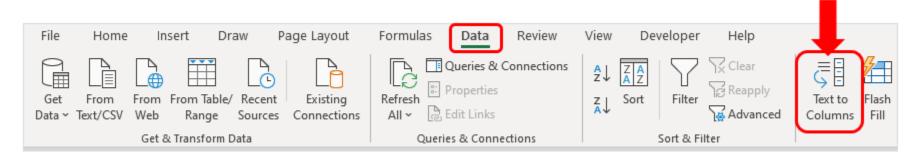
- Use CTRL+C to copy the selected data
- Use CTRL+V to paste the data into cell A1 of the Excel workbook



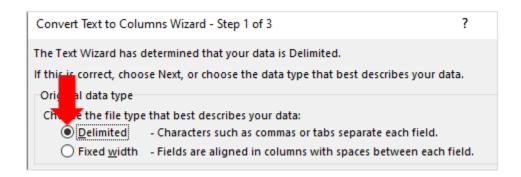
Click on A in the gray column header to select all of column A



Under the Data tab, select Text to Columns

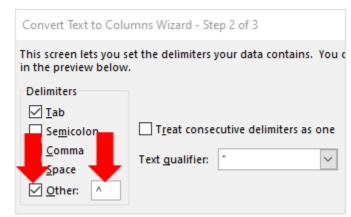


Select **Delimited** and click Next

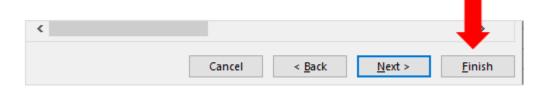


• Check the **Other** box and enter either the caret (^) symbol or other delimiter, such as "|" (depending on what

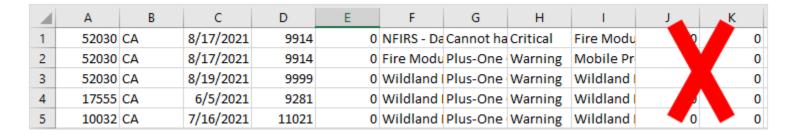
is in the file)



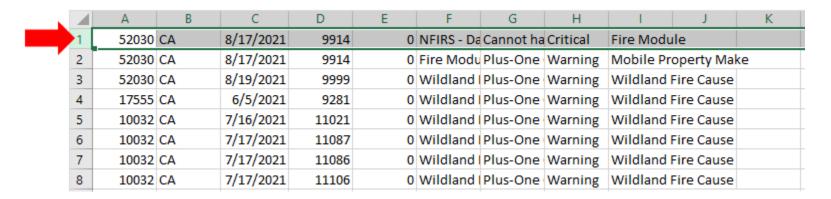
Click Finish



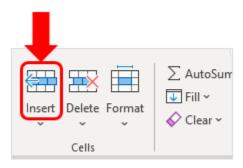
- Your error data is now split into columns
- Delete columns J and K, if present.



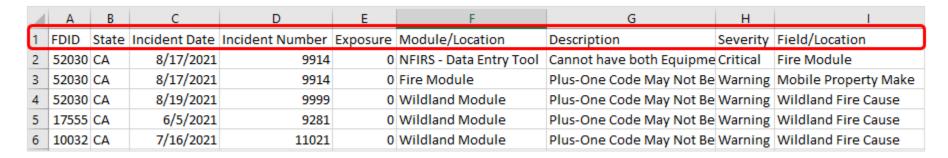
Click on 1 in the gray row numbers to select all of row 1



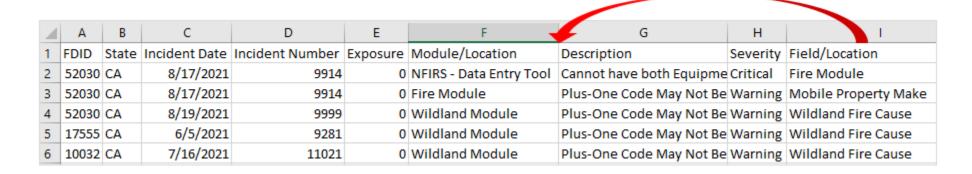
Click Insert to insert a new row above row 1



Label the columns as shown below:



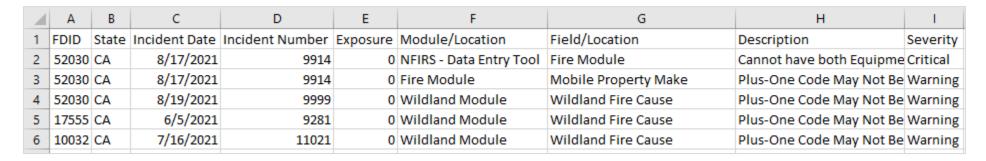
• If desired, **insert a new blank column** to the **left** of **column G**, then cut and paste the **Field/Location** column (column I) into that new blank column so the information flows better (optional)



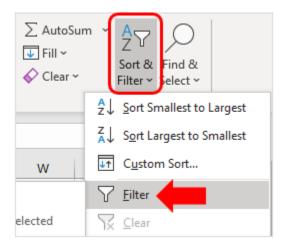
The spreadsheet should now look like this:

4	Α	В	С	D	Е	F	G	Н	1
1	FDID	State	Incident Date	Incident Number	Exposure	Module/Location	Field/Location	Description	Severity
2	52030	CA	8/17/2021	9914	0	NFIRS - Data Entry Tool	Fire Module	Cannot have both Equipme	Critical
3	52030	CA	8/17/2021	9914	0	Fire Module	Mobile Property Make	Plus-One Code May Not Be	Warning
4	52030	CA	8/19/2021	9999	0	Wildland Module	Wildland Fire Cause	Plus-One Code May Not Be	Warning
5	17555	CA	6/5/2021	9281	0	Wildland Module	Wildland Fire Cause	Plus-One Code May Not Be	Warning
6	10032	CA	7/16/2021	11021	0	Wildland Module	Wildland Fire Cause	Plus-One Code May Not Be	Warning

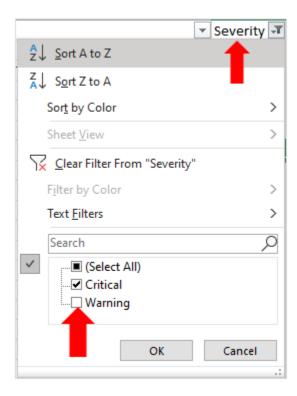
Use CTRL+A to select all of the cells with data



Under Sort & Filter select Filter



• Under the **Severity** column filter, un-check "Warning" (since warnings do **not** count against validation, only critical errors) and click OK.



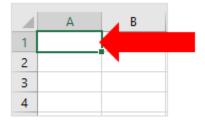
You now have a list of the critical errors from the file.

Appendix C: Processing Import Failures

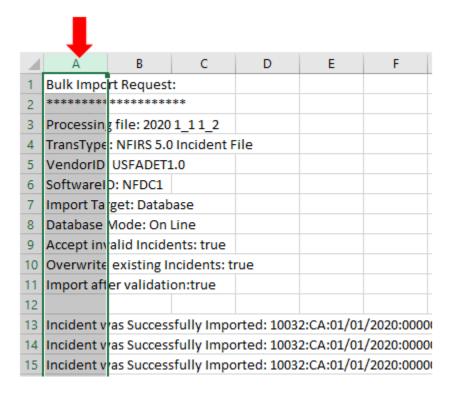
- Open a blank Excel workbook
- Open the *.log file
- Use CTRL+A to "select all" in the *.log file

```
2020 1_1 1_2.log - Notepad
File Edit Format View Help
Bulk Import Request:
*******
Processing file: 2020 1_1 1_2
TransType: NFIRS 5.0 Incident File
VendorID: USFADET1.0
SoftwareID: NFDC1
Import Target: Database
Database Mode: On Line
Accept invalid Incidents: true
Overwrite existing Incidents: true
Import after validation:true
Incident was Successfully Imported: 10032:CA:01/01/2020:0000002:0 2021-07-30 12:56:52
Incident was Successfully Imported: 10032:CA:01/01/2020:0000005:0 2021-07-30 12:56:55
Incident was Successfully Imported: 10032:CA:01/01/2020:0000011:0 2021-07-30 12:56:59
Incident was Successfully Imported: 10032:CA:01/01/2020:0000009:0 2021-07-30 12:57:03
```

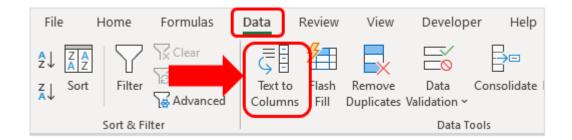
- Use CTRL+C to copy the selected data
- Use CTRL+V to paste the data into cell A1 of the Excel workbook



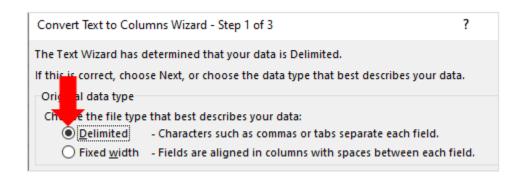
Click on A in the gray column header to select all of column A



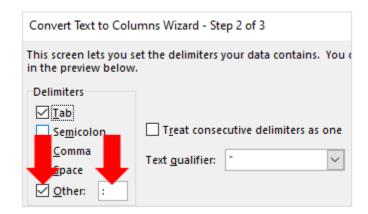
Under the **Data** tab, select **Text to Columns**



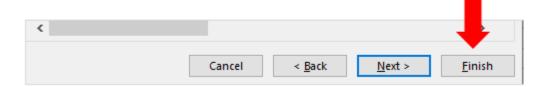
Select **Delimited** and click Next



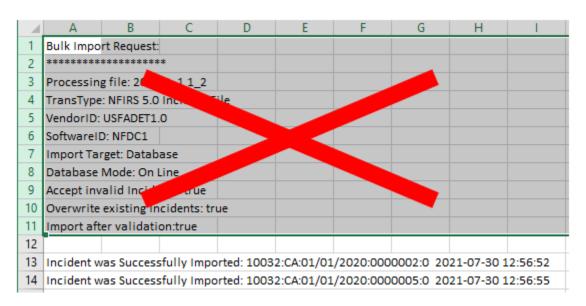
Check the Other box and enter the colon (:) symbol



Click Finish



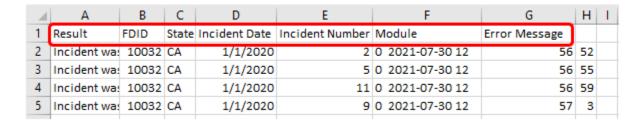
- Your error data is now split into columns
- Delete rows 1 through 11



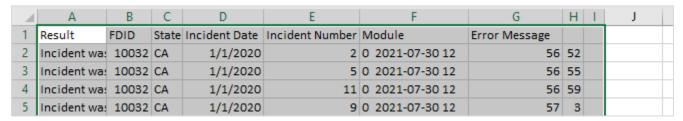
Scroll to the end of the spreadsheet and delete the Incident Summary rows



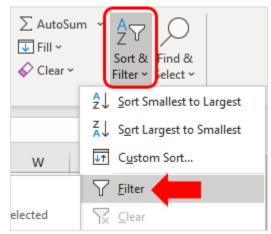
Scroll back to the top of the document and label the columns as shown below



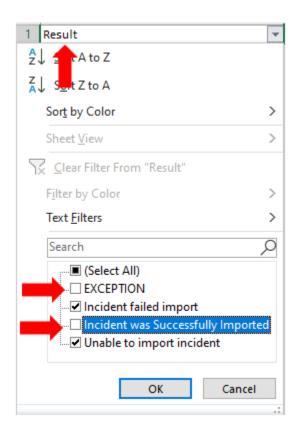
Use CTRL+A to select all of the cells with data



Under Sort & Filter select Filter



 Under the Result column filter, un-check "EXCEPTION" and "Incident was Successfully Imported and click OK.



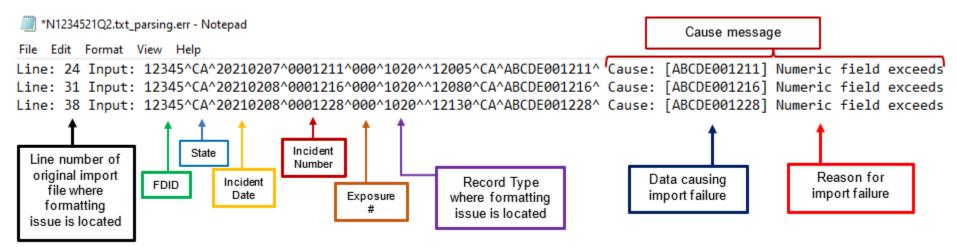
Note: "Exception" indicates a critical error, NOT an import failure.

- You now have a list of the import failures from the file.
- More information on the incidents that failed to import can be found in the
 *.txt_parsing.err file (see <u>Appendix D</u>)

Appendix D: Viewing the Parsing File (*.txt_parsing.err)

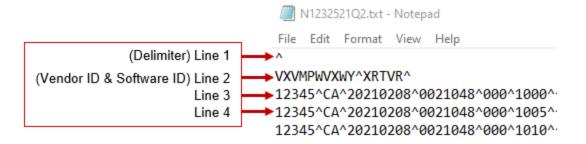
The information below provides an explanation and example of identifying the formatting issues that can cause incidents to fail import. The parsing file is something that NFIRS-compliant software vendors should be familiar with, but this information can be used to assist in communication and resolution of formatting issues in NFIRS submission files.

Elements of the Parsing File



Line Number

This is the line number, starting from top to bottom, where the data causing the import failure can be found in the **original file** that was imported to eNFIRS. Line one is a delimiter and line two is the ten-digit Vendor ID and five-digit Software ID.



Locate the specified line number in the **original file** that was imported to eNFIRS.

Review the cause message from the **parsing file** and locate the **data** causing the import failure.

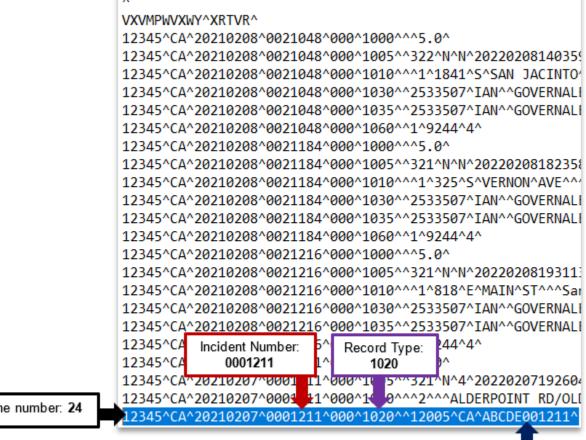
This can also be found in the **original file** by locating the **incident number** and **record type** identified in the **parsing file**.

Ex:

Line: 24 Input: 12345^CA^20210207^0001211^0000^1020^^12005^CA^ABCDE001211^ Cause: [ABCDE001211] Numeric field exceeds

Line Number = 24**Data = [ABCDE001211]**

Incident Number = 0001211Record Type = 1020



Line number: 24

Data causing of import failure: ABCDE001211

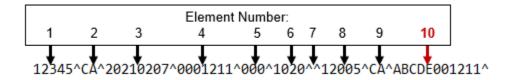
In the **parsing file**, the **reason** for the import failure in this example reads: "Numeric field exceeds max allowed length."

This indicates that the data (ABCDE001211) exceeds the maximum number of characters allowed for that field.

To identify which NFIRS field this is, locate the **element number** of the data in the **original file** that was imported.

(The element number is the count of the elements between the delimiters)

Ex:

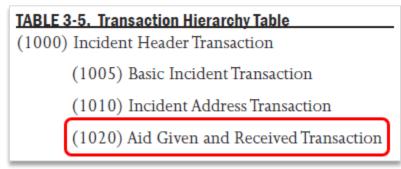


Element Number = 10

The NFIRS field causing the error in this example is **element number 10** of **record type 1020**.

Table 3-5 on page **132** of the <u>NFIRS 5.0 Design Documentation</u> lists the record types (transactions) of an NFIRS submission file.

Record type 1020 is identified as the "Aid Given and Received Transaction" of the incident. This transaction (record type) contains information from the Aid Given and Received section of the Basic Module.



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Beginning on page **141** of the NFIRS 5.0 Design Documentation, there are tables for each transaction that show which field is located at each element number of that record type.

Locate the appropriate table based on **Table 3-5**.

In this example, the "Aid Given and Received Transaction" can be found in **Table 3-10** on page **142**.

From this table, it is shown that **element number 10** of **record type 1020** is the "Incident Number of FDID Receiving Aid" field.

It is also shown that this field must be a number (N) and the **maximum** length of this field is seven digits.

A key explaining the various data types can be found beginning on page 136 of the NFIRS 5.0 Design Documentation.

TABLE 3-10. Aid Given or Received Transaction

ELEMENT NUMBER	ELEMENT NAME	DATA TYPE	SPECIAL FORMATTING	MAX OR EXPECTED LENGTH	COMMENTS
1	Fire Dept. ID	X		5	
2	Fire Dept. State	C		2	
3	Alarm Date	N		8	
4	Incident Number	N		7	
5	Exposure Number	N		3	Zero Based
6	Record Type	N		5	Record Type: 1020
7	Transaction Type	С		1	
8	FDID Receiving Aid	X		5	
9	FDID State Receiving Aid	C		2	
10	Incident Number of FDID Receiving Aid	N		7	

The data causing the import failure (**ABCDE001211**) contains eleven digits, which exceeds the maximum of seven. This information can be brought to the attention of the software vendor your fire department uses to complete NFIRS reports (ESO, Emergency Reporting, Zoll, Firehouse, etc.) to resolve the issue in their data formatting.

Appendix E: eNFIRS Bulk Import Utility (BIU) File Guidelines

These guidelines can be found on the eNFIRS BIU web page:

File Names:

- May contain alphabetic characters (A to Z)
- May contain numeric digits (0-9)
- May ONLY contain the following special characters:
 @(at sign), .(period), _(underscore), -(hyphen)
- No other special characters will be accepted

File Content Type and Number:

- File content type must be either <u>text/plain</u> or <u>application/zip</u>
- File of content type <u>application/zip</u> must only contain <u>plain</u> <u>text files</u>
- File of content type <u>application/zip</u> can contain up to 10 files
- A <u>maximum</u> of <u>30 plain text files</u> are allowed
- File content type has to be either incident data or fire department information data
- A zip file cannot contain both incident data files and fire department information data files
- Fire department information files must be uploaded separately on the Fire Department drop down menu