

# IRIN Toolbox Guide

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## Overview

The main purpose of this product is to automate the repetitive operations performed during an interpretation mission. The IRIN Toolbox reduces the number tools the user needs to run to complete their mission; thus, reduces the number of places errors can be introduced. These tools are meant to assist IRIN’s workflow but should not be used blindly. Always double check attribute tables, KMZ and PDF Maps before uploading your data.

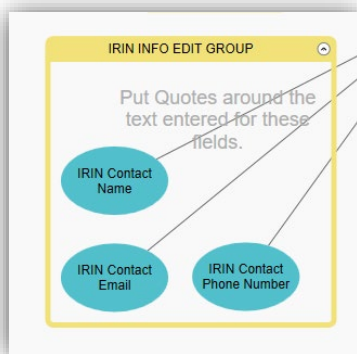
The toolbox contains two toolsets, Main Tools and Aux. Aux tools are only designed to be used by the tools in the Main Tools toolset and are not designed to be run directly. All tools described in this document are members of the Main Tools toolset.

# Getting Setup

There are a few items that will need to be personalized before using the IRIN Toolbox. These steps will only need to be performed once but should be reviewed at the beginning of each fire season. These changes are saved to the toolbox and are not project dependent. The toolbox should be copied to a directory location according to personal organizational preferences but not directly in a project folder. The toolbox setup process can be performed in any ArcGIS Pro project. See ['Alternate steps for adding a toolbox to your projects'](#) below for help on importing toolboxes.

## Update Tool #3. IRIN Info Attribute Updater.

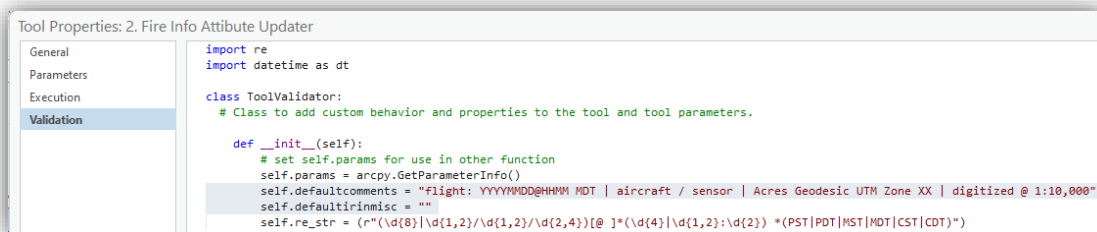
1. In the Catalog Pane expand the IRIN\_Toolbox.tbx and the Main Tools toolset
2. Right-click on tool #3 and select Edit
  - a. Edit the blue ovals with the appropriate information. Remember to keep quotation marks around these entries.



3. Save and close the model

## Update the Default IRIN Comments and/or IRIN Miscellaneous– Optional

1. Right-click on tool # 2. Fire Info Attribute Updater and select Properties
2. Select the Validation tab along the left-hand side of the window



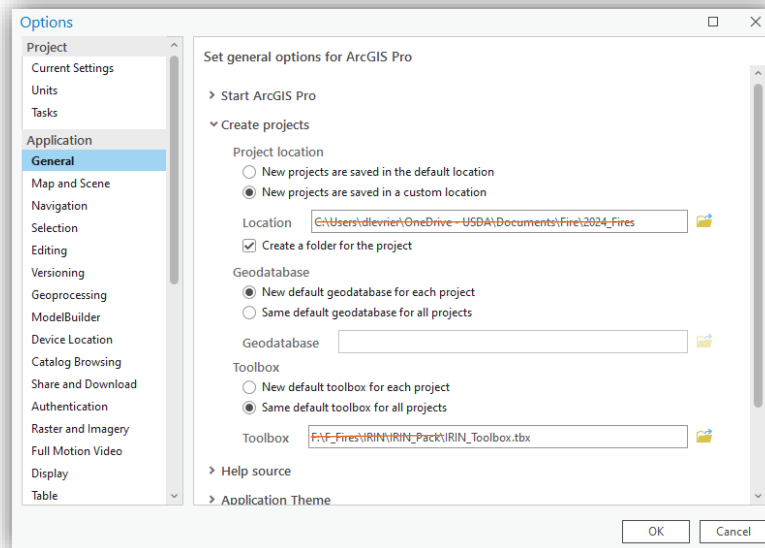
3. Update the line that starts with 'self.defaultcomments' and/or 'self.defaultirinmisc' to suit your style. Keep all edits within the quotation marks and do not add extra quotation marks.

There are some limitations for the date and time stamp, please refer to [Tool #2 Auto Filling Parameters](#) for more information.

## Adding the Toolbox to your projects

This process may disrupt your normal workflow if you commonly use toolboxes in your other GIS duties. See alternative instructions below for a less intrusive option.

1. Open and edit your ArcGIS Pro Options
2. Under the Applications section select the General tab
3. Expand the 'Create projects' section



4. Under Toolbox select the radio button 'Same default toolbox for all projects'
5. Using the file chooser, find and add the IRIN\_Toolbox

### Alternate steps for adding a toolbox to your projects

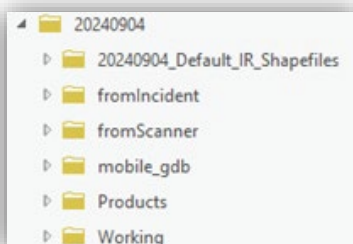
1. Find your project Toolboxes in the Catalog pane under the Project tab
2. Right click on the Toolboxes and select 'Add Toolbox'
3. Find and add the IRIN\_Toolbox

## Working with the Tools

This toolbox contains two toolsets, Main Tools and Aux. Aux tools are only designed to be used by tools in the Main Tools toolset and are not to be run directly. All tools described below are in the Main Tools toolset.

### #1 Pre Flight – Mission Setup

1. Run prior to receiving the IR data from the scanner.
2. This Model creates a date-time aware mission directory. If this tool is run after noon (12:00pm local time) it will create a directory with the next day's date. If it is run before noon the directory will have the current date.



3. When running the tool, there is no need to update the tool's parameter. Just click Run at the bottom of the tool's pane.
4. Now it's time to download IR data from the FTP and add it to the 'fromScanner' folder.

## #2 Fire Info Attribute Updater

1. This tool is run after the interpretation is completed
2. Prior to running this tool, each incident's IR Polygons should be merged by 'FeatureCategory'.
3. Tool #2 will auto populate the IR Point and IR Polygon feature classes' attributes if a Heat Perimeter already exist. The following attributes will be populated: 'IncidentName', 'Comments', 'IRWINID', 'FeatureStatus' and will set the 'MapMethod' to "IR Image Interpretation" based on the 'FeatureCategory' not being a 'IR Heat Perimeter'. For new starts, the initial heat perimeter's 'FeatureCategory' may need to be set manually to 'IR Image Interpretation', as the default is 'Mixed Methods'.
4. The Tool's Auto Filling Parameters:

After setting the tool's 'IR Polygon Layer' parameter, this script will auto fill any parameters, listed above, that have corresponding data with the layer's attribute table. This will select data from the first 'IR Heat Perimeter' feature in the attribute table. For multiple fires or complexes, individual fires can be processed separately by selecting all the features for a specific fire before running the tool. See [Note for Complexes](#) below.

'Image Date Time' attribute will auto fill when a valid date time stamp is detected in the Comments parameter. It is Time Zone sensitive, will report in UTC, must use 24 hr. time and end with a time zone stamp (TZS): CST, CDT, MST, MDT, PST, PDT

Dates formats: 'M/D/Y' or 'YMD'

Time formats: 'hm' or 'h:m' in 24 hr. clock time

Date Time separator: ' ', 'at', '@' or '@'

Valid date time formats: 'Date Time TZS' or 'Date@Time TZS' or 'Date @ Time TZS' or "Date at Time TZS"

Examples:	Results:
9/5/2023 20:15 PDT	9/6/2023 3:15 AM
9/5/2023 at 2015 PDT	9/6/2023 3:15 AM
20230905@2115 MDT	9/6/2023 3:15 AM
20230905 21:15 MDT	9/6/2023 3:15 AM

5. IR Points are not required and should not be added if that fire does not have any IR Points features. See Note for Complexes below.
6. Make sure all the appropriate fields filled before running the tool.
7. **Double check the attribute table.**

### [NOTE FOR COMPLEXES](#)

Tools 2 and 3 have been separated to accommodate multiple fires within a complex and some care needs to be taken when interpreting multiple fires.

1. Select all features for a single fire before running tool #2. This is not necessary for tool #3.
2. If there are not any Point features associated with a given fire, do not point the tool the IR Points feature in tool #2. It will write to all unselected point features; just as would be expected when running Field Calculator on unselected data.

### #3 IRIN Info and Geometric Measures Attribute Updater

1. This tool should be run after interpretation
2. This Model's IR Contact Info parameter should be edited prior to running this tool, see the [IRIN Toolbox Setup](#) document for more information.
3. Fill in all the appropriate fields and run the tool.
4. **CAUTION**, this tool tends to fail when run on large number of acres, ≈100K+ acres. Selecting fewer polygons at a time will allow the tool to run, especially true for complexes. For very large fires, the tool may need to be run on each polygon separately. (This is a known problem to ESRI).
5. This tool can be run on a whole complex if the fires are small and do not exceed a total of 100K acres.
6. **Double check the attribute table.**

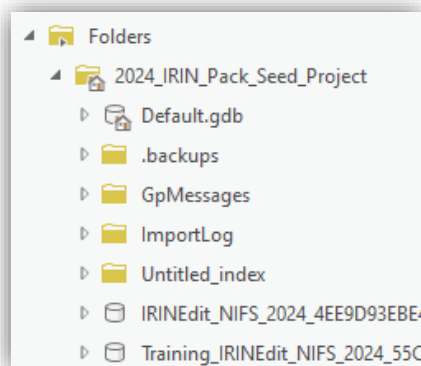
### #4 Post Flight - Data Export

1. Run this tool last but before disconnecting from NIFS
2. This tool splits the IR Point layer and an IR Polygon layer into shapefiles based on the Feature Type and are named using standard naming convention.
3. A file geodatabase is created and populated, again with standard naming convention. This geodatabase will be placed in the mission folder alongside the Shapefile folder.
4. There should be no need to update the attributes under Split Point or Split Polygon, leave 'FeatureCategory' in the first box and leave the second box empty.

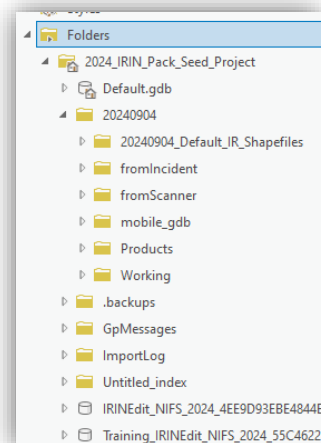
## Basic Workflow

This workflow should not be practiced until the rest of this document has been reviewed.

1. Start a new project or open an existing project
2. Run Tool #1



Before

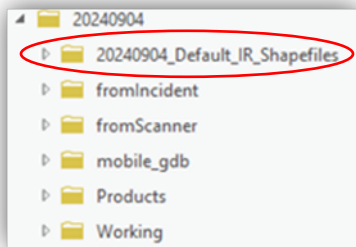


After

*In this example the fire is named Default.*

3. Get mission data
  - a. Download and unzip scanner and incident provided data to 'fromScanner' and 'fromIncident' folders, respectively

4. Do the interpretation
  - a. Don't worry about attributes yet.
5. Run Tool #2
  - a. This will update fire specific data, such as incident name and IRIWN ID
  - b. For complexes, do not provide the Point layer for fires that do not have point features. As should be expected, if you provide a tool with a layer with unselected features it will overwrite the specified attributes for all the features of that layer. See section [Note for Complexes](#).
6. Run Tool #3
  - a. This tool will update the IRIN's information and update the IR Point's lat/long and IR Polygons Acres.
  - b. **CAUTION**, Tool #3 tends to fail when run on large polygons, 100K+ acres. Selecting fewer polygons at a time will allow the tool to run, especially true for complexes. See [CAUTION](#) section for using tool #3.
7. Run Tool #4
  - a. See dated mission folder for pre named Shapefile folder.



- b. Fill the Data Time stamp with the imagery time date as listed on the IR imagery files, time zone stamp can be included for clarity.
  - c. Fill in the tool's parameters and run.
  - d. Zip and rename GDB. The GDB will have the date and time stamp of the capture time, the zipped file should have the IR product delivery date and incident name to follow the standard naming conventions.
  - e. Zip the Shapefile directory; this zip-file should not have to be renamed
  - f. Move the compressed files to the 'Products' folder
8. Create Maps (PDF Topo/Ortho) in the 'Products' folder
  - a. At this point forward the map can be synced and removed to restore the NIFS IRIN Edit Feature Service
9. Create KMZ package in the 'Products' folder
  - a. By adding the IR Heat Perimeter shapefile to the NIROPS KML Converter all the other shapefiles will automatically populate the appropriate boxes and double check that it is correct
10. Upload 'Products' to the FTP
11. Finalize IRIN Daily Log