

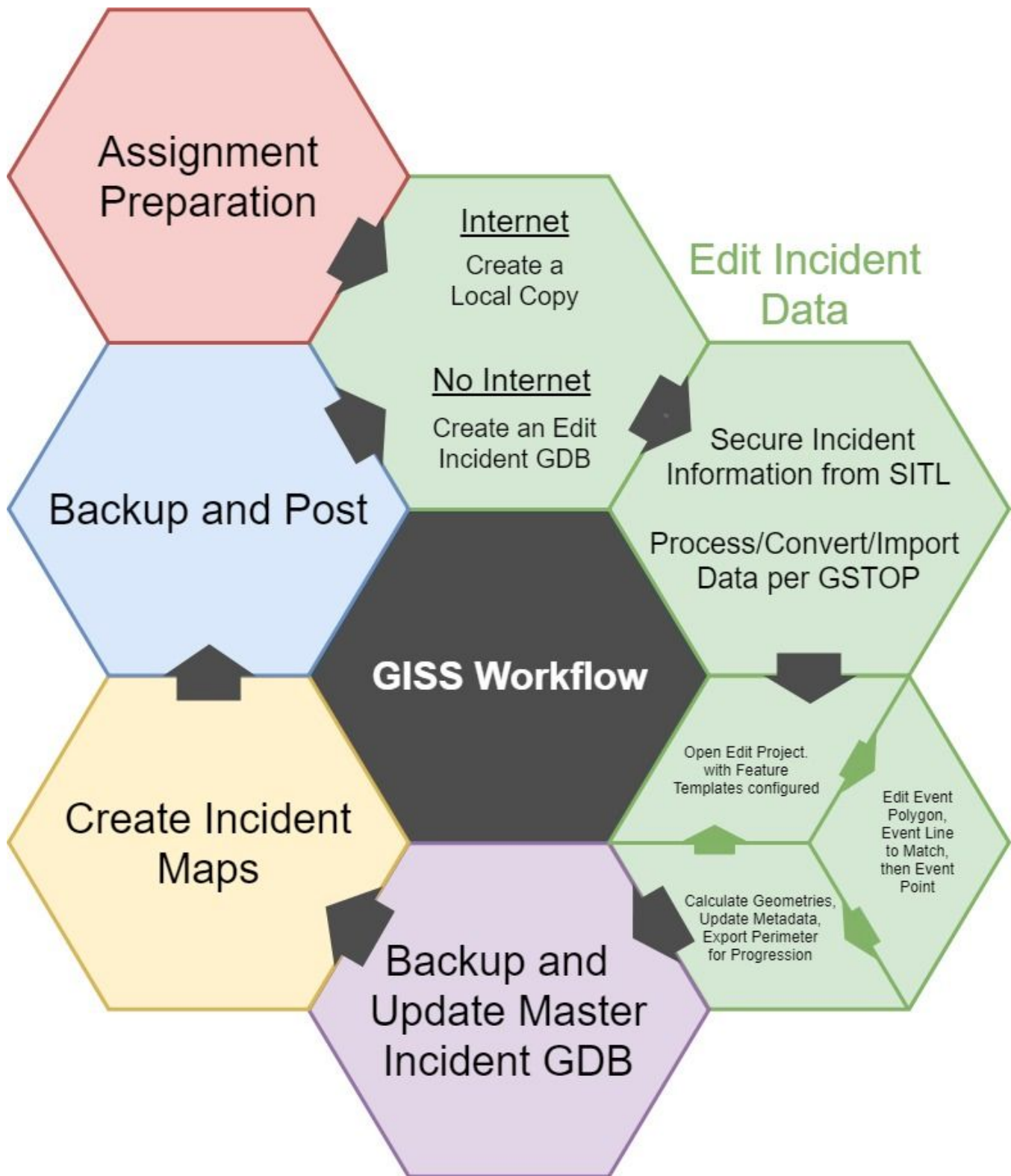
Wildland Fire GIS Specialist Incident Workflow

Version 1.0
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Executive Summary: The GISS Workflow was developed as a training and refresher resource to provide a single workflow for reference on wildland fire incidents. The GISS Workflow aims to bring together other training and outreach materials targeted to GIS Specialists in one single, process oriented document. Varying degrees of detail are provided in this document with reference links throughout. A single page flow-chart based workflow, two page high level workflow, and a detailed multi-page workflow are provided to assist GISS. GISS trainees and experienced GISS should review this document to assist in incident response. Many new techniques are included such as using the new Event geodatabase and working with the National Incident Feature Service.

GISS Workflow - Flowchart



GISS Workflow - 2 Page

Definitions:

Local Copy - Refers to multiple software specific options for the GDB used for editing feature services. The incident will be a Local Copy (ArcMap or ArcGIS Pro) from the National Incident Feature Service (NIFS) in a system folder. Note that this is not the same GDB that is used for mapping purposes. *Local copies should exist only during editing and preferably less than an hour to avoid conflicts. Not available with ArcMap Basic license.*

Master Incident GDB - The most current GDB named per GSTOP standards (*{year}_{incident name}_{unit ID + local incident ID}*) and is placed in the *incident_data* folder to be used as the source for **all incident maps**. This GDB should not be edited.

Edit Incident GDB - A GDB copy for editing named per GSTOP standards (*{year}_{incident name}_{unit ID + local incident ID}_edit*) and is placed in the *incident_data/edit* folder. This allows other GISS to continue map production using Master Incident GDB. Should only use when ICP has no internet access. The GDB is backed up and used to overwrite the Master Incident GDB, after edits are finalized.

Edit Project - The map document (.mxd) or project (.aprj) used for editing the Edit Incident GDB or Local Copy. Editing should not be done in any project used for mapping. The project stores your configured feature templates.

Assignment Preparation - Do Once

1. Gather incident information - Name, Unit ID, IRWINID, etc.
2. Copy the GSTOP incident directory structure to hard drive. Rename for incident.
3. Populate the *base_data* folder with data relevant to the fire area.
4. Open and save a new map document (ArcMap) or project (Pro) to be the **Edit Project**. Name per GSTOP standards {map type} = “edit”.
 - a. Internet Access? (if possible before leaving for incident).
 - i. YES - Create a **Local Copy**:
 1. Zoom to incident area of interest (AOI).
 2. Add the National Incident Feature Service (NIFS).
 3. Create a **Local Copy** (ArcMap) or **Download Map** (ArcGIS Pro).
 - ii. NO - Create an **Edit Incident GDB** in the *incident_data/edit* folder and rename to GSTOP standard and add *_edit* to the end of GDB name.
 - b. Add template layer file and repair path to point to GDB (Local or Edit).
 - c. Set data frame coordinate system to local projection.
 - d. Configure Feature Templates.
 - e. Save a group layer file for Event in the *incident_data* folder and include your name.

Edit Cycle - Repeat as Necessary

5. Edit the GDB (**Local Copy** or **Edit Incident GDB**).
 - a. Secure information through SITL to create/edit incident data.
 - b. Process/Convert/Import incoming data and store per GSTOP file structure.
 - c. Open the **Edit Project** and create a new **Local Copy** if necessary (watch AOI and only edit your incident). Edit the GDB.
 - i. Edit the EventPolygon first. Calculate Geometries and populate attributes.
 - ii. Edit the coincident EventLine features to match the fire polygon. Calculate Geometries and populate attributes.
 - iii. Edit the EventPoint or EventLine features in a logical order. Calculate Geometries and populate attributes.

- d. Save data edits and save **Edit Project**.
- e. Export latest fire perimeter to a progression GDB for use in the progression maps.
- f. Calculate containment, ownership acres, etc.

Backup and Update the Master Incident GDB - Done after every Edit Cycle

- 6. Internet Access?
 - a. YES - Sync and then Backup **Local Copy** (ArcMap) or **Download Map** (ArcGIS Pro)
 - i. Determine the path and name of the **Local Copy**.
 - ii. Synchronize **Local Copy** with the NIFS.
 - iii. Create a copy of the **Local Copy**, paste into the daily backup folder under *incident_data\backups* and rename following GSTOP.
 - b. NO - Backup **Edit Incident GDB**
 - i. Copy the **Edit Incident GDB** in *incident_data\edit* and paste into the backup folder under *incident_data\backups*. Rename following GSTOP.
 - ii. Upload a copy of the backup to Fire Enterprise Geospatial Portal (EGP) when internet becomes available.
- 7. Replace **Master Incident GDB** - use the current GDB backup to overwrite the Master Incident GDB with the newest incident data. Maintain GSTOP naming convention.

Map Cycle - Repeat as Necessary

- 8. Create or Update Incident Map(s)
 - a. Use existing master incident project or open a template and save as a master project per GSTOP.
 - b. Set data frame coordinate system to local projection.
 - c. Add layer file(s) and repair path to point to the **Master Incident GDB**.
 - d. Add base maps and ancillary datasets to map.
 - e. Create a layout for the desired map product or apply template to existing project.
 - f. Use definition queries to display only the Event features appropriate for the intended map audience.
 - g. Create division and branch (if necessary) annotation.
 - h. Use dynamic labelling or create annotation in separate GDB (in *Other_Incident_Data.gdb*) for other features.
 - i. Ensure that all essential map elements are present and correct (STANDL SGD).
 - j. Export geospatial PDF map per GSTOP standards.
 - k. Backup map documents in *projects\backups* folder per GSTOP.

Backup and Post - Repeat as Necessary

- 9. Post map products to NIFC FTP site nightly. Use QR codes to reference folders if desired.
- 10. Backup incident directory structure.

****** If additional GDB edits are needed the Master Incident GDB should not be edited. Only the Local Copy or Edit Incident GDB should be edited******

GISS Workflow - EXPANDED

This is the expanded version of the 2 page GISS Workflow document and is designed to provide additional details, links and tips for each part of the workflow. This document is designed as a reference for qualified GISS and GISS Trainees.

Reference materials from the [GISS Introductory Class](#) and [ArcGIS Help](#) resources are linked throughout. Working in a group environment is encouraged and helps simulate working on an actual incident.

NOTE: Make sure to save MXDs, APRXs, and edits often and routinely.

Assignment Preparation - Do Once

How To: [ArcMap](#), [ArcGIS Pro](#)

- 1) Gather incident information. Add information to the [GSTOP File Namer](#) spreadsheet to easily create GSTOP compliant file names.
 - a) Review Using and Customizing the GSTOP File Namer [PDF](#) or [Video](#) for tips.
 - b) Refer to [Locating the IRWIN ID and Other Important Attributes](#) for additional information on finding key attributes.
- 2) Copy the GSTOP incident directory structure to hard drive. Place as close to the root of hard drive as possible to reduce clicks to find data. Rename following GSTOP standards.
 - a) [Directory structure templates](#) can be downloaded from the [Tools page](#) of the GIS Specialist Training site.
 - b) Method of Work - [GSTOP Directory Structure](#)
 - c) Video: [GSTOP File Naming and Directory Structure](#)
- 3) Populate the *base_data* folder with data relevant to the fire area. Sources of data include:
 - a) [NIFC FTP](#) 1:24,000 scale USGS topographic maps converted to geotiff files.
 - b) [USFS FSTopo](#) 1:24,000 scale USFS topographic maps.
 - c) National Interagency Fire Center [ArcGIS Online Organization](#).
 - d) USGS [Hazards Data Distribution System](#) (HDDS) for Fire
- 4) Open and Save a new map document, to create the Edit Project. Name per GSTOP standards: {map type} = "edit".
 - a) **Internet Access?**
 - i) YES - Create a **Local Copy** or **Download Map**.
 - (1) Zoom to Area of Interest. The **Local Copy** (ArcMap) or **Download Map** (ArcGIS Pro) tools will only pull down data in the map view.
 - (2) Add the [National Incident Feature Service \(NIFS\)](#).
 - (a) Video: [Connecting to the Incident Feature Service](#).
 - (b) An [EGP account](#) is required to access the NIFS. Connecting to the GIS Server will require EGP username and password.
 - (c) [Create a connection](#) to the EGP ArcGIS Server.
 - (d) Select the correct server URLs when creating the connection. There are options for [Production](#) (incidents only!) and [Training](#).
 - (e) Once the connection is made add the Event_GISSEdit feature service to the map.

- (3) Review Area of Interest and make sure all of the fire features needed are in map view. If neighboring fires are included in the download, [DO NOT edit or delete other fire's data](#).
 - (4) Create [Local Copy](#) or [Download Map](#).
 - (a) NOTE: Users with a ArcMap Basic license **CANNOT** create a local copy.
 - ii) NO - Create an **Edit Incident GDB**. Copy a [blank Event GDB](#) from the *\tools* folder to the *\incident_data\edit* folder to create the Edit Incident GDB. Appropriately name it per GSTOP standards (don't forget *_edit*).
- b) Add template layer files and repair path.
 - i) From the Add Data window add the 2019_Event_Features_PointLabelsDefined.lyr Layer File from the *\tools* folder into the map.
 - ii) Set the data source on the EventPoint layer by clicking on the red exclamation point and then select the EventPoint feature class in the Edit Incident GDB. All three Event Features should update.
 - iii) Note: always add the layer file via the Add Data dialog or Catalog window. Doing this will ensure that the labeling and feature templates associated with the layer files will be added, not just the symbology.
 - c) Set the data frame to the preferred local projection. If the local projection is unknown set the dataframe to UTM NAD83 and [zone based on the incident location](#).
 - d) Configure the feature template for all three event layers using the incident information from the resource order provided. Resource: [Unit 2A](#) How To- Prepare and Configure the Event GDB for [ArcMap](#) or [ArcGIS Pro](#).
 - i) Set up the feature templates by selecting each feature class, right clicking and selecting Edit Features > Organize Feature Templates.
 - ii) Select everything in the list and enter personal contact information and the incident attributes into the feature templates from [Resource Order, IRWIN, or ask the SITL for the correct IDs](#).
 - iii) The Feature Templates will automatically populate any new features with the attributes provided. This saves significant time during an incident by cutting down on attribute data entry.
 - iv) Extra copies of the blank Event GDB and layer files can be found in *\tools* folder of the [standard template](#) file structure.
 - e) Save a group layer file for the Event feature classes in the *incident_data\edit* folder. Use the same name as **Edit Incident GDB** and add your name. Use this layer file recreate the edit project as necessary, only edit incident data from the edit project. Save the **Edit Project**.
 - f) If using a **Local Copy**, sync edits back to the service immediately after completing them and do not keep a download any longer than necessary to [avoid overwriting field edits](#).

Edit Cycle - Repeat As Necessary

- 5) Edit the GDB - [Local Copy \(ArcMap\)](#), [Download Map \(ArcGIS Pro\)](#), or **Edit Incident GDB (No Internet)**. Resource: [Unit 2B](#) How To: Editing the Event GDB in [ArcMap](#) or [ArcGIS Pro](#). How To: [Tips and Tricks](#) and ESRI presentation: [ArcMap Editing Tricks and Tips](#).
- a) Secure information through [Situation Unit Leader](#) (SITL) to create/edit incident data.
- i) Add any base or ancillary data necessary to make the required edits. Keep data layers to a minimum in the **Edit Project** to make selections easier and reduce clutter.
 - ii) Format topo maps.
 - (1) Clear the white and green colors in topo maps by setting background transparent to allow placement of polygons with solid fill colors beneath the topo map.
 - (2) Set the background transparent on one topo and use the Layer Properties > Symbology tab to Import the settings to other topos.
 - (3) Group and name the the topos appropriately so they can all be turned off quickly with one click.
 - (4) Save the group as a layer file for later use.
- b) [Process, Convert, or Import](#) incoming data and store per GSTOP file structure. [GSTOP Filename Components](#).
- i) Video: Working with Incident Data [Part 1](#) and [Part 2](#) review how to process and incorporate different types of data.
 - ii) Use the Toolbox tool [GPX to Features](#) to import GPX data. The tool can be found at Conversion Tools > From GPS > GPX to Features.
 - iii) Use the Toolbox tool [KML to Layer](#) to import KML data. The tool can be found at Conversion Tools > From KML > KML to Layer.
 - iv) Use File > Add Data > [Add X/Y Data](#) to import coordinate pair data.
 - v) [DNRGPS](#) can also be used to work with GPS and KML data.
- c) Open the **Edit Project** and create a new **Local Copy** or synchronize your **Download Map** if necessary ([watch AOI and only edit assigned incident](#)).
- i) [Edit the EventPolygon](#) Feature Class first. (How To: [Pro](#), [ArcMap](#))
 - (1) Refer to Utilizing the Event Attributes [How To](#) or [Video](#) for attribute descriptions and how to use the Event GDB for various mapping scenarios.
 - (2) Use any new perimeter data that has been received to update the polygon.
 - (a) NIROPS perimeters are generally very accurate and can be [traced](#), [aligned to](#), and sometimes used to [replace](#) the entire fire polygon on new or small fires.
 - (b) Use the [Attribute Editor](#) window to update the attributes. Attributes can be updated singularly or in bulk by selecting multiple features in the Attribute Editor window.
 - (c) It will vary by feature, but all relevant attributes constitute Required Metadata. The following fields must be populated for **every** feature:

IncidentName	ContactName	UnitID
MapMethod	ContactEmail	LocalIncidentID
FeatureAccess	ContactPhone	IRWINID
FeatureStatus	Point/Line/PolyDateTime	
IsVisible	GACC	

- (d) When setting a Date/Time field use the Attribute Editor and the popup date picker to populate the attribute. After the date has been added the time can be added by entering the time in AM or PM. Example: 8/5/18 3:32 PM.
 - (e) Make sure to populate the FeatureAccess, FeatureStatus and IsVisible fields if any Definition Queries (ArcMap or [ArcGIS Pro](#)) are used in maps. [Utilizing the Event Attributes](#) has information on using definition queries.
 - (f) NOTE: To reduce the number of fields displayed in the *Attributes* window and make it easier to enter new attributes, turn off unnecessary fields in each layers' properties (OBJECTID, SHAPE, SHAPE_Length, CreateName, CreateDate, EditName, DateCurrent, ContactEmail, ContactPhone, etc.).
- (3) Open the Attribute table and use the [Calculate Geometry](#) tool to populate the GISAcres field using the local projection for only polygons that were edited. ([Watch AOI and only edit your incident](#))
- ii) [Edit the EventLine](#) Feature Class. (How To: [Pro](#), [ArcMap](#))
- NOTE: Line and Point edit order may be switched based on the most logical order for the incident.
- (1) Refer to Utilizing the Event Attributes [How To](#) or [Video](#) for attribute descriptions and how to use the Event GDB for various mapping scenarios.
 - (2) Create or modify coincident EventLine features to match the fire polygon.
 - (a) Use the appropriate feature template to [trace](#) the fire perimeter boundary to create the fire line features.
 - (b) Alternately, copy the fire polygon and paste into the EventLine feature class to create new features.
 - (c) Use the [Split](#) tool to divide the line based on the line type. Use [Merge](#) from the Editor toolbar to combine lines of the same type.
 - (d) Modify any attributes using the [Attribute Editor](#) window.
 - (3) Use the Create Features window to create any additional lines.
 - (4) During or after creating all of the new line features, use the attribute editor window to bulk update the attributes for all of the fields possible.
 - (5) Populate all Required Metadata fields listed in the Polygon editing section above.
 - (6) When setting a Date/Time field use the Attribute Editor and the popup date picker to populate the attribute. After the date has been added the time can be added by entering the time in AM or PM. Example: 8/5/18 3:32 PM.
 - (7) Make sure to populate the FeatureAccess, FeatureStatus and IsVisible fields appropriately if any Definition Queries (ArcMap or [ArcGIS Pro](#)) are used in maps. [Utilizing the Event Attributes](#) has information on using definition queries
 - (8) From the feature class attribute table use the [Calculate Geometry](#) Tool to populate the LengthFeet field. Make sure to “Use coordinate system of the data frame” in your local projection (Figure One), in order to calculate length properly. ([Watch AOI and only edit your incident](#)).

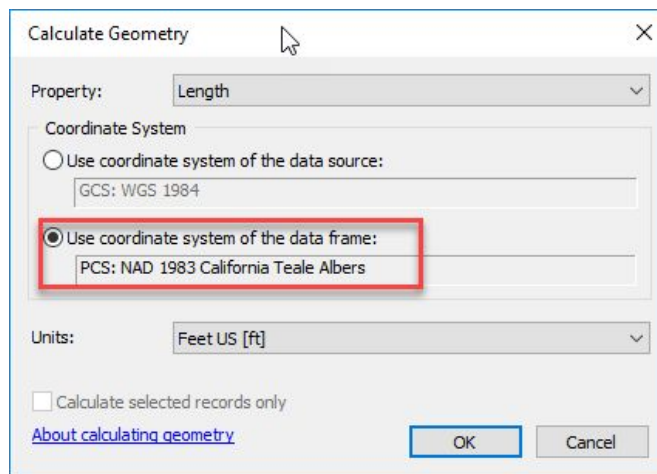


Figure One: Calculate geometry for Polygons and Lines

iii) [Edit the EventPoint](#) Feature Class. (How To: [Pro](#), [ArcMap](#))

- (1) Refer to Utilizing the Event Attributes [How To](#) or [Video](#) for attribute descriptions and how to use the Event GDB for various mapping scenarios.
- (2) Use the Create Features tool to digitize division and branch breaks at the locations provided by SITL and/or Operations. Divisions are usually arranged in alphabetical, clockwise order around the fire perimeter starting at the fire origin. Video: Branches and Divisions [Part 1](#) and [Part 2](#).
 - (a) In the **Label** field, enter the name of the division that is clockwise from the division break; enter the text as it should appear on the map (ex. Div A). Examples of drop point, helispot and date attributes: DP-1, H-1, Aug 5 1643 hrs.
 - (b) Both divisions and branches on each side of the break should be identified in the **Comments** attributes (Branch I-II, Div D-E).
 - (c) If no branches currently exist on the incident, only the divisions on each side of the break will be identified in the **Comments** attribute (Div A-B or A-B).
 - (d) Rotate the breaks so they are perpendicular to the fire perimeter. The break symbol can be rotated using the [Rotate](#) tool on the editor toolbar or by entering the rotation in degrees into the Angle field in the Attribute Editor. The Angle field stores the rotation for all symbols.
- (3) Create any new point features.
 - (a) To create features using coordinates, select the appropriate feature type from the feature template, move the cursor over the map, right mouse click and select [Absolute X,Y](#). Choose the appropriate coordinate format using the menu arrow on the right side of the “X” entry box, and then enter the coordinates. Press Enter.
- (4) During or after creating all of the new point features, use the attribute editor window to bulk update the attributes for all of the fields possible.
- (5) Populate all Required Metadata fields listed in the Polygon editing section above.
- (6) When setting a Date/Time field use the Attribute Editor and the popup date picker to populate the attribute. After the date has been added the time can be added by entering the time in AM or PM. Example: 8/5/18 3:32 PM.
- (7) Make sure to populate the FeatureStatus and IsVisible fields appropriately if any Definition Queries (ArcMap or [ArcGIS Pro](#)) are used in maps. [Utilizing the Event Attributes](#) has information on using definition queries
- (8) Enter the appropriate label for each feature in the Label attribute.

- (9) From the feature class attribute table use the [Calculate Geometry](#) Tool to populate the Latitude and Longitude in degrees-decimal-minutes format. Make sure to “Use coordinate system of the data source” WGS84. ([Watch AOI and only edit your incident](#))

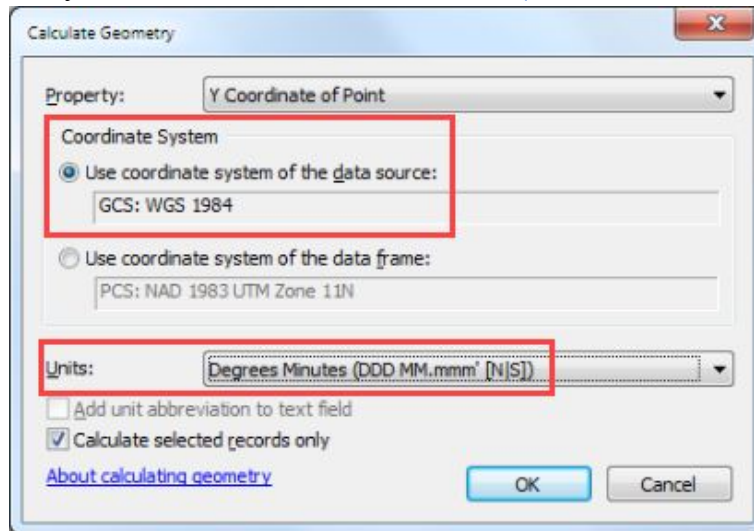


Figure Two: Calculate Geometry for Points

- d) Save Edits and save **Edit Project**.
- e) Export latest fire perimeter to progression GDB for use in the progression maps.
- Create a Progression GDB in the `\incident_data\progression` folder (name per GSTOP standards).
 - Export the current fire perimeter to a new “*progression*” feature class and name per GSTOP standards using the date and time the fire perimeter data was collected
 - Export each updated fire perimeter.
- f) [Calculate containment](#) for the fire. Determine the percentages of completed line and uncontrolled fire edge.
- Ensure that the LengthFeet field has been updated since any edits were made. If uncertain, it is always best to recalculate geometry. ([Watch AOI and only edit your incident](#))
 - Run [Summary Statistics](#) on EventLine using LengthFeet as the statistics field and FeatureCategory as the case field. If not all completed line is coincident with the fire perimeter, a selection may be set prior to running the tool so that only lines coincident with the perimeter are summarized.
 - Divide the total length of completed line by the total length of uncontrolled fire edge to determine the containment percentage.

Backup and Update the Master Incident GDB - Done after every Edit Cycle

6) **Internet Access?**

- a) YES - Sync and then backup the **Local Copy**.
 - i) Determine the path and name of the **Local Copy**.
 - ii) Synchronize **Local Copy** with the NIFS
 - iii) Create a copy of the **Local Copy**, paste into the daily backup folder under *incident_data\backups* and rename following GSTOP.

- b) YES - Sync and then convert the **Download Map**.
 - i) Synchronize the the **Download Map** with the NIFS.
 - ii) Determine the path and name of the **Download Map** Runtime GDB. The standard location is the folder set in the project options as the “Home Folder.”
 - iii) Copy the Runtime GDB and paste into the daily backup folder under *incident_data\backups* and rename following GSTOP.
 - iv) Use the [Copy Runtime GDB to File GDB](#) conversion tool to create a File GDB and rename following GSTOP..

- c) NO - Backup **Edit Incident GDB**
 - i) Create a backup of the **Edit Incident GDB** in the *\incident_data\backups* folder and name it following GSTOP standards.
 - ii) Upload a copy of the backup to [Fire Enterprise Geospatial Portal \(EGP\) Incident Data Portal](#) when internet becomes available.

7) Replace the **Master Incident GDB** with the current backup.

- a) Make sure no GISS are connecting to the existing **Master Incident GDB**. If there are any connections then a lock file will be created in the **Master Incident GDB** and it can not be deleted. Have all GISS exit ArcMap or ArcGIS Pro.

- b) Delete the current **Master Incident GDB**.

- c) Copy and Paste the current backup into the *\incident_data* folder.

- d) Rename the GBD to the same name as the previous **Master Incident GDB**. If file names are not exactly the same the source paths in the ArcMap and ArcGIS Pro maps will not be correct.

Map Cycle - Repeat As Necessary

8) Create or Update Incident Maps

- a) Use existing master incident project or open a template and save as a master map document per GSTOP.
 - i) Whenever possible use an existing project as a basis for the new project. Update yesterday's IAP to make today's, change the page size on an IAP map and save as a Situation map or Briefing map.
 - ii) Or use an [Event Map Template](#) to speed map production.
 - (1) Resource: [Unit 2G - Creating Map Layouts Using Templates](#)
 - (2) Video: [Creating Map Layouts Using Templates](#)
 - (3) Video: [Anatomy of An Event Map Template](#)
 - (4) Video: [Using An Event Map Template](#)
 - iii) Save per GSTOP standards in the `\projects` folder.
- b) Set the data frame to a local projection. If the local projection is unknown, set the dataframe to UTM NAD83 and [zone based on location](#).
- c) Add `2019_Event_Features_PointLabelsDefined.lyr` (from `/tools` folder) template layer and repair path to point to the **Master Incident GDB** in the `incident_data` folder.
- d) Add base maps and ancillary datasets to map. Add the topo maps layer file created earlier.
- e) Create a layout for the desired map product or [apply template](#) to existing project.
 - i) [Incident Map](#) Types:
 - (1) [Incident Action Plan](#)
 - (2) [Multi-Page \(Tiled\)](#)
 - (3) [Briefing \(BAM\)](#)
 - (4) [Situation](#)
 - (5) [Transportation](#)
 - (6) [Progression](#)
 - (7) [Air Operations](#)
 - (8) [Operations](#)
 - (9) [Other](#)
 - ii) In the Layout View, leave room (in Data Frame) in the direction the fire is burning, as the fire will grow, and reset the map scale to 1:24,000.
 - iii) Appropriately size and position the map elements in the layout to not block any features.
- f) Use definition queries to display the Event features appropriately for the intended map audience.
 - i) Refer to Utilizing the Event Attributes [How To](#) or [Video](#) for definition query examples using the Event GDB for various mapping scenarios.
- g) Create division and branch annotation. Resource: [Unit 2F - Labeling and Annotation](#).
 - i) Convert the labels to annotation (Resource: [Unit 2F](#) Convert Labels to Annotation using [Pro](#) or [ArcMap](#))
 - ii) If using the `2019_Event_Features_PointLabelsDefined.lyr` the labels are already configured for an IAP Map.

- iii) Set the appropriate map scale and [Convert Labels to Annotation](#) for the EventPoint feature class in *other_incident_data.gdb* per GSTOP.
 - iv) Note: **Do not** create Feature Linked annotation. GISS with ArcGIS Basic licenses are not able to edit the EventPoint feature class and annotation layers if this is done.
 - v) Move annotation features to optimize readability. This can either be done in the map view or by focusing the data frame in the layout view for ArcMap. ArcGIS Pro annotation editing is done within the Map view.
- h) Use dynamic labeling or create annotation in separate GDB (in *Other_Incident_Data.gdb*) for any other features.
- i) Ensure that all [standard map elements](#) are present and correct (STANDL SGD). Video: [Map Symbology and Standard Map Elements](#). GSTOP page 56.
- i) **Scale**
 - ii) **Title**
 - (1) Use Dynamic Text based on the map Document Properties to update layout elements. Resource: [Unit 2H - Dynamic Text](#).
 - (2) Use an Event Map Template which includes dynamic text. Video: [Anatomy of An Event Map Template](#) Video: [Using An Event Map Template](#)
 - iii) **Author**
 - iv) **North Arrow**
 - v) **Date**
 - vi) **Legend**
 - (1) When using a dynamic legend activate the “only show classes that are visible in the current map extent”.
 - vii) **Source Statement**
 - viii) **Graticule/Grid**
 - ix) **Datum**
 - x) Add logos, [QR codes](#), and other map elements.
- j) Export map to PDF and name and store appropriately per GSTOP standards. Resource: [Unit 4D - Geospatial PDF](#)
- i) Use the following export settings to create a good quality PDF:

Resolution	300 dpi
Output Image Quality	Best
Boxes checked (selected) for:	<input checked="" type="checkbox"/> Compress Vector Graphics <input checked="" type="checkbox"/> Convert Marker Symbols to Polygons <input checked="" type="checkbox"/> Embed All Document Fonts
Image Conversion	Adaptive
Picture Symbol	Vectorize layers with bitmap markers/fills

- ii) Use the following information in the file name: *{mapname}_{pagesize}_{orientation}_{date}_{time}_{incident name}_{ Unit + Local Incident ID}_{operational period}.pdf*
- iii) For S-341 add *_ {your_name}* to the end of the file name.

- k) Backup projects in the *projects\backups* folder per GSTOP. Use the File > Save A Copy tool to backup master MXD or APRX in the appropriate folder.

Backup and Post - Repeat as Necessary

- 9) Post map products to NIFC FTP site nightly in appropriate date subfolders. Use QR codes to reference folders. Resource: [Unit 4B - FTP.NIFC.GOV](#).
- 10) Backup the entire incident directory structure to an external device. Resource: [Unit 4C - Backup, Share and Archive Incident Data](#).