Adding or Updating TAF Sites in AvnFPS

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Introduction:

This document will take you through the process of creating a new Terminal Aerodrome Forecast(TAF) site within AvnFPS along with configuring it for issuing practice TAFs in AWIPS. This methodology will ensure the TAF will not be disseminated, but will still be used and processed by AvnFPS, allowing you to get a "real world" feel for issuing TAFs for your new site before going live. While this document will not explicitly cover determining the categorical amendment criteria for your new site, it will take you through entering that information within AvnFPS and will show you where the configuration files are stored in the Localization Perspective. For simplicity, this document will start assuming you already know all of the pertinent information about your TAF site: AFOS ID/Product Identifier Label (PIL), Categorical Amendment Criteria (CAC) Thresholds, Runway Configuration, Pilot Reports, (PIREPS), etc.

The following items will be covered in the order listed below:

I.   Adding a TAF product to AWIPS (required for product transmission)
II.   Disabling WAN transmission of a TAF Product (optional for practice TAFs)
III.   Creating a new TAF site in AvnFPS
IV.   Setting Up Monitoring Rules and Categorical Amendment Criteria (CAC) Thresholds
V.   Creating/updating climate data for your TAF site
VI.   Adding your new TAF to your TAF product list

While it may seem strange that we are going to disable the WAN transmission of your new TAF site before configuring it in AvnFPS, this is being done to ensure it doesn't get transmitted until you are ready to do so. You'll also create climate data before adding it to your local TAF product. Similar to disabling transmission of the new TAF, this is being done so climate data is available before the new TAF is added to your local TAF Product.

I.   Adding a TAF product to AWIPS
     These changes will likely be taken care of by your ITO or your AWIPS Focal Point as *root* level access is required. In addition, you likely won't be making changes here until you have an approved Data Review Group (DRG) Request for Change (RC) and have sent the Service Change Notice (SCN). This is due to the minimum 75-day waiting period, which helps allow for the dissemination group and the Federal Aviation Administration(FAA) to prepare for transmission of the new TAF. The DRG will also send its approved RCs to the group managing the National Datasets Maintenance (NDM) files. Once you have an approved DRG RC, start monitoring the NDM so you can update these files as necessary for your site. You should also consider adding the NdmUtils app in the NWS Software Collaboration Portal. This application will monitor the NDM repository and tell you what has been modified. It also includes a script to help you install the new files. If you are within 45 days of your implementation date and haven't seen the changes yet and you want to issue practice TAFs before you go live, you can open an NDM ticket and provide them with the necessary information. You could make the changes yourself in a pinch, but it's best to always work with the current national level files as your change need be available for all offices and will ensure your TAF can be issued in service back-up. The files you need to monitor/change are:

- afos2awips.txt (alphabetical order)
- afosMasterPIL.txt (alphabetical order)

The *afosMasterPIL.txt* file controls the text browser and the *afos2awips.txt* file controls what products can be transmitted. If it is not in *afos2awips.txt* file, you will not be able to issue live or practice TAFs. For information on editing these files, see [chapter 16 of the AWIPS System Managers Manual (SMM)](#). DO NOT add you new TAF PIL to the blacklist file mentioned in the *afos2awips.txt* documentation in the SMM. Doing so will prevent it from being ingested into AvnFPS and you will not be able to monitor the TAF in real-time while you are writing practice TAFs. Disable it's public transmission using the methodology shown in the following section titled, Disabling WAN transmission of a TAF Product. If the associated METAR site is new or has been modified, then you'll also need to check:

- metarStationInfo.txt
- MTR.goodness
- national_category_table.template
- textCCChelp.txt
- textCategoryClass.txt

Making sure all these items have been taken care of will help with the troubleshooting process if any problems arise. Once you have edited these files, you will need to run an NDM localization using the *config_awips2.csh* script. After running the script, check the EDEX logs on dx3 and dx4 to make sure there were not any errors while NDM files were being processed. Once this has been completed, proceed to step II to disable WAN transmission of your TAF product until you are ready to issue it.

II.   Disabling WAN transmission of a TAF Product
       In order to disable WAN transmission of your new TAF site, you'll need access to your system as users *awips* and *root*. If you do not have access as users *awips* and *root*, contact your ITO, ESA or AWIPS Focal Point and they should be able to help you with the following tasks.

       STEP 1: Check to see if you have a copy of WAN_exclude_XXX.txt in /awips2/edex/data/utility/common_static/site/XXX/dissemination/, where XXX is your site ID. To do this, you'll need to be logged into one of the servers (dx1, dx2, dx3, dx4, px1, px2 etc.) It is highly recommended that you log on to one of the pxs since there really isn't a need to be on the dxs at this point. We'll use px1. You may see more files than the ones shown below. The only file we are concerned with is WAN_exclude_XXX.txt.

- Enter the following commands (in white) to see if you have a copy of WAN_exclude_XXX.txt:

```
admin2-gjt{awips}: ssh px1
px1-gjt{awips}: cd /awips2/edex/data/utility/common_static/site/GJT/dissemination
px1-gjt{awips}: ls
NWWS_exclude_XXX.txt     NWWS_exclude_XXX.txt.md5
px1-gjt{awips}:
```

- If WAN_exclude_XXX.txt does NOT exist, like in the gray box above, go to **STEP 2**.

- If WAN_exclude_XXX.txt DOES exist, like in the gray box below (in white), go to **STEP 3**.

```
admin2-gjt{awips}: ssh px1
px1-gjt{awips}: cd /awips2/edex/data/utility/common_static/site/GJT/dissemination
px1-gjt{awips}: ls
NWWS_exclude_XXX.txt   NWWS_exclude_XXX.txt.md5   WAN_exclude_XXX.txt
WAN_exclude_XXX.txt.md5
px1-gjt{awips}:
```

STEP 2: To get the WAN_exclude_XXX.txt file, you will need to copy it from /data/fxa/workFiles/wanMsgHandling. The following commands should all be on one line.

```
px1-gjt{awips}: cd /data/fxa/workFiles/wanMsgHandling
px1-gjt{awips}: cp WAN_exclude_XXX.txt
/awips2/edex/data/utility/common_static/site/XXX/dissemination/
```

Open your new copy of *WAN_exclude_XXX.txt* and make sure everything listed in the file is correct. I'm partial to vi and it's pretty much guaranteed to be on every Linux system. However, feel free to use the text editor of your choice. Below are the example commands for changing to the directory you copied the file to and opening it with vi. There is also an example of what you may see in the file.

```
px1-gjt{awips}: cd /awips2/edex/data/utility/common_static/site/XXX/dissemination/
px1-gjt{awips}: vi WAN_exclude_XXX.txt
```

Example of *WAN_exclude_XXX.txt*

```
DENWRKTEX
DENWRKDRO
SLCWRKCNY
WRKSNOT14
~
```

Before officially adopting this file, you'll want to discuss what PILs are listed with your ITO, AWIPS FP and office management team to ensure it still meets your office's needs. Once everything is good to go, you can proceed to step 3.

STEP 3: Add the PIL, CCCTAFYYY, of your new practice TAF into *WAN_exclude_XXX.txt* using vi or your favorite text editor, where CCC is your node and YYY is the site identifier for your new TAF site.

```
px1-gjt{awips}: cd /awips2/edex/data/utility/common_static/site/XXX/dissemination/
px1-gjt{awips}: vi WAN_exclude_XXX.txt
```

```
DENWRKTEX
DENWRKDRO
SLCWRKCNY
WRKSNOT14
CCCTAFYYY
~
```

Once you have made the necessary edits, the changes will not take effect until you restart EDEX on dx3 and dx4. These steps will need to be performed by user *root*. **Before performing these steps, talk to your operations personnel and make sure it is OK to restart EDEX. DO NOT** perform these steps when anyone is editing grids or if any products need to be disseminated. This process could take up to 15 minutes for both servers. The "tail" command (in yellow below) must be entered on one line.

```
admin2-gjt{awips}: ssh root@dx3
dx3-gjt{root}: service edex_camel stop
dx3-gjt{root}: ps -fu awips
# Repeat ps until all awips edex processes are stopped (ignore any hydro related processes)
dx3-gjt{root}: service edex_camel start
dx3-gjt{root}: tail -f /awips2/edex/logs/edex-ingest-`date -u +%Y%m%d`.log | grep operational
# Once "operational" is output hit Ctrl-c to exit.
# Repeat the process on dx4
dx3-gjt{root}: ssh dx4
dx4-gjt{root}: service edex_camel stop
dx4-gjt{root}: ps -fu awips
# Repeat ps until all awips edex processes are stopped (ignore any hydro related processes)
dx4-gjt{root}: service edex_camel start
dx4-gjt{root}: tail -f /awips2/edex/logs/edex-ingest-`date -u +%Y%m%d`.log | grep operational
# Once "operational" is output hit Ctrl-c to exit.
```

Once the dxs are back up and running your practice TAF will not be disseminated via the WAN, but it will be processed by AvnFPS. Once you are ready to disseminate your new TAF, go to **Step 3** above and remove the PIL for your new TAF, then follow the same process to restart EDEX.

III.   Creating a new TAF site in AvnFPS
To keep things simple, we will only cover the process of configuring a new TAF site in AWIPS2. We will not delve into the process of working with the airports and determining the amendment criteria, CAC thresholds, airport information, etc. Further information on CAC can be found on the CAC website. Before starting, you should know the following basic things about your TAF site:

- Site ID: TAF Site ID (e.g. KGJT, KGUC, KDEN, etc.)
- TAF Headers:
  - WMO: WMO header used to transmit forecast (e.g. FTUS45 KGJT)
  - AFOS: PIL used during transmission (e.g. DENTAFGUC)
- TAF Duration: Length, in hours, of the regularly issued TAF (24 or 30 hours)
- Thresholds: (Visibility, Ceiling, Radar Cutoff, Profiler Cutoff)
  - Visibility: Visibilities, in miles, that define the categories used by the monitoring modules
  - Ceiling: Ceilings, in feet, that define the categories used by the monitoring modules
  - Radar Cutoff: A comma separated list of heights in meters defining the lowest height to be used in computing LLWS using this radar. The length of the cutoff list must be equal to the number of radars listed in the 'Radar' text field below
  - Profiler Cutoff: A comma separated list of heights in meters defining the lowest height to be used in computing LLWS using this profiler. The length of the list must be equal to the number of profilers listed in the 'Profiler' text field below.
- Geography:
  - Latitude: Site latitude in degrees north
  - Longitude: Site longitude in degrees east
  - Elevation: Site elevation in meters
- Runway(s): A comma separated list of runway directions in degrees. Used to calculate cross-, head- and tail-wind components
- Alternate IDs
  - METAR: METAR site id associated with the TAF, most likely the same as TAF
  - NAM: The closest site id found in NAM BUFR message associated with the TAF
  - GFSMOS: The closest site id found in GFS MOS message associated with the TAF
  - NAMMOS: The closest site id found in NAM MOS message associated with the TAF
  - GFS LAMP: The closest site id found in GFS LAMP message associated with the TAF, usually the same as GFE MOS identifier
  - ACARS: ACARS site id associated with the TAF
  - Radars: A comma separated list of radars associated with the TAF, can be empty
  - Profilers: A comma separated list of profilers associated with the TAF, can be empty
- QC Check: Impact, Climate and Current WX. All of these will likely be checked.
  - Impact Check: When selected, Impact Check will be performed when the QC button is pushed
 - Climate Check: When selected, Climate Check will be performed when the QC button is pushed

- ○ Current WX: When selected, Current Weather Check will be performed when the QC button is pushed
- ● Templates: 00Z, 06Z, 12Z, 18Z, these would be edited as needed depending on the operational hours of airport observers and equipment.

Once you have the information listed above, along with your CAC criteria from the CAC Spreadsheet, you can proceed with setting up your new TAF site. We'll start off with the basic site configuration which can be reached from the *AvnFPS Configuration GUI*.

i. The *AvnFPS Configuration GUI* can be opened in a couple different ways, but they all start with the AWIPS Start-up Menu. Click the "Red Hat" Application icon in the menu bar.

ii. Mouse over AWIPS Menu*(a)*, which shows options to launch CAVE, Firefox and the AWIPS start-up menu, then click "AWIPS start-up menu *(b)*."
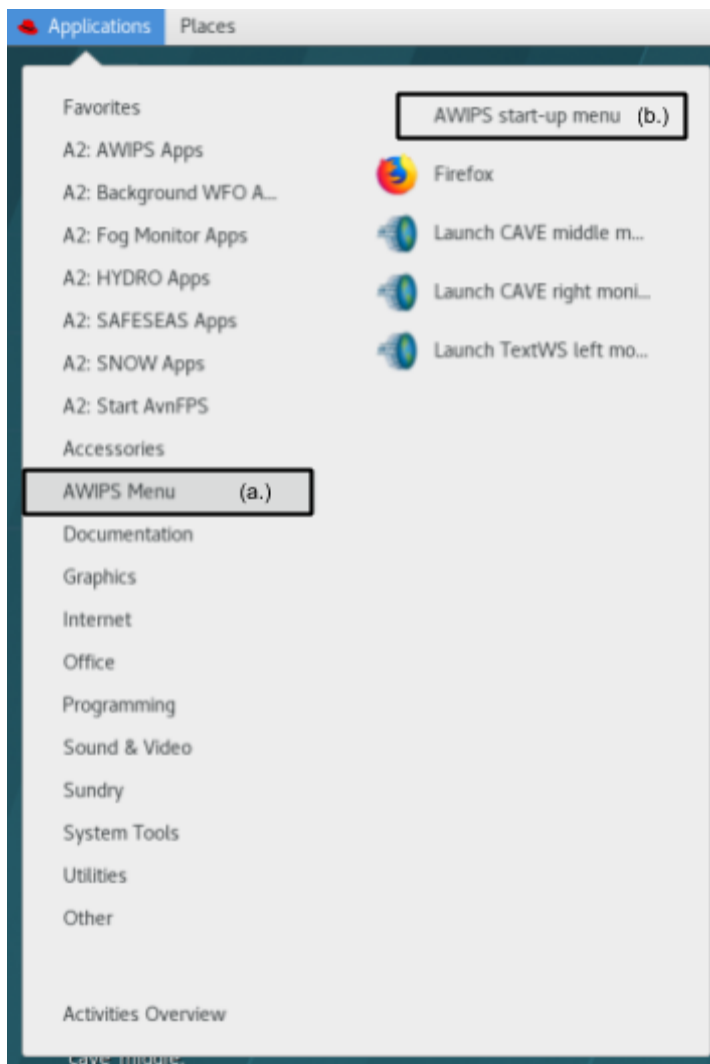
iii.   Once the AWIPS start-up menu is opened, you will see a pop-up similar to the one below. Click "*Start AvnFPS*," then "*Configuration GUI*."
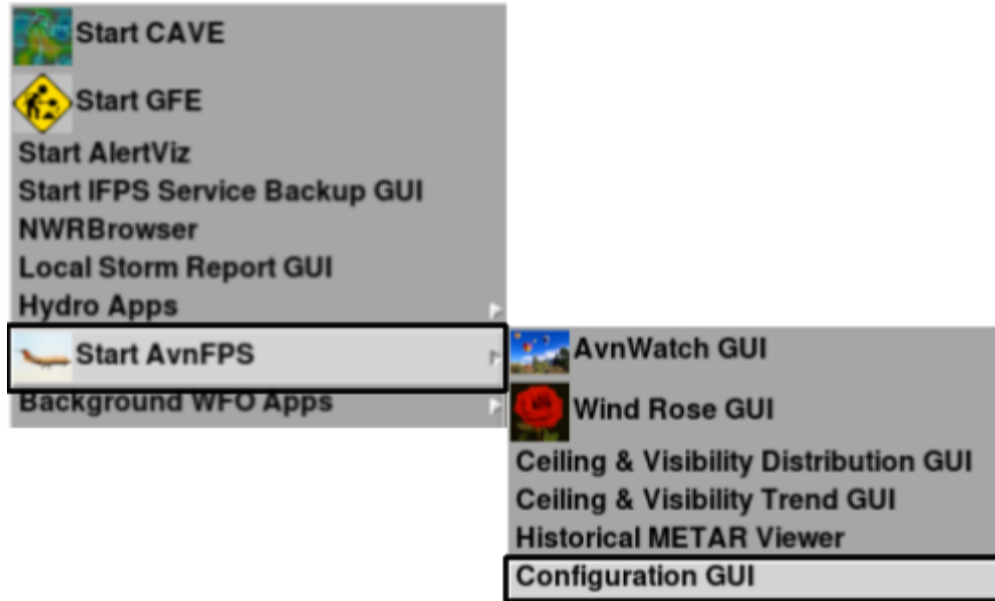
iv.   Once the AvnFPS Setup menu opens, you'll have multiple configuration windows that you'll need to edit in order to completely setup your new TAF site. We'll start with TAF Site Info, so click *TAF Site Info* and proceed with the configuration of your TAF site.

v.   All of the information highlighted with red boxes is required in the AvnFPS TAF Site Info Editor. The orange box denotes items that aren't required, however, if these aren't checked, those Quality Control (QC) checks won't be performed. First, enter the *Site ID* and click 'Load'. If any information has already been entered for the site, it will be loaded into the form. If not, the square at the bottom left of the menu will flash red and a failed to load message will briefly appear. Fill in all of the required information and any additional info you have to assist in monitoring and forecasting for this TAF site and click 'Save.'

The default visibility and ceiling values are 0.5, 1.0, 2.0, 3.0, 6.0 and 200, 600, 1000, 2000, 3100, respectively. These visibility and ceiling entries define the thresholds that are used in the "difference" rules. They need to correspond to the appropriate break points for the six categories (A, B, C, D, E, [F]). Therefore, there should only be four visibility entries and four ceiling entries, because there are five categories unless you have a category F. The total number of entries for visibility and ceiling must match (e.g. 4 visibility and 4 ceiling).
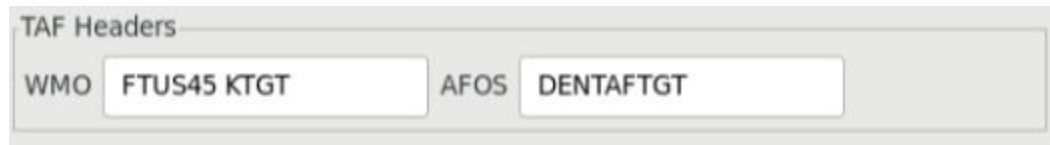
An example is shown in the figure below for the dummy site KTGT (KGJT), using the following settings:

TAF Settings:
- Site ID: KTGT

Site ID: KTGT

- TAF Headers:
  - WMO: FTUS45 KTGT
  - AFOS: DENTAFTGT

TAF Headers

WMO FTUS45 KTGT   AFOS DENTAFTGT
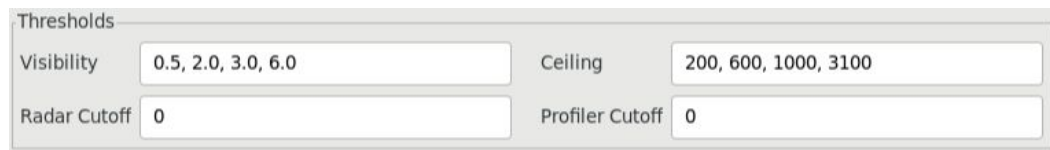
- TAF Duration:
  - Hours: 24

TAF Duration

Hours 24

- Thresholds (Visibility and Ceiling must have the same number of values):
  - Visibility: 0.5, 2.0, 3.0, 6.0
  - Ceiling: 200, 600, 1000, 3100
  - Radar Cutoff: 0
  - Profiler Cutoff: 0

Thresholds

Visibility   0.5, 2.0, 3.0, 6.0   Ceiling   200, 600, 1000, 3100

Radar Cutoff 0   Profiler Cutoff 0

The first rule is the airfield minimum(½ SM/200 ft). The second entry for visibility is always 2.0 SM and the ceiling is either 600 ft for a precision approach or 800 ft for a non-precision approach. There isn't a 1.0 SM visibility, unless it's the airfield minimum or a 2000 ft ceiling listed there. This is because those items are now handled in the monitoring rules. The last two entries are 3.0 SM/1000 ft and 6.0 SM/3100 ft. Radar and profiler cutoffs are separated by a comma and listed in the same order as the associated radar and profiler sites.

- Geography
  - Latitude: 39.12
  - Longitude: -108.53
  - Elevation: 1452
  - Runways: 40, 110, 220, 290

Geography

Latitude 39.12   Longitude -108.53   Elevation 1452   Runway(s) 40,110,220,290

- Alternate IDs
  - METAR: KGJT
  - GFSLAMP: KGJT
  - GFEMOS: KGJT

METAR	KTGT	GFSLAMP	KTGT	GFSMOS	KTGT

  - NAM-MOS: KGJT
  - NAM: KGJT
  - ACARS: GJT
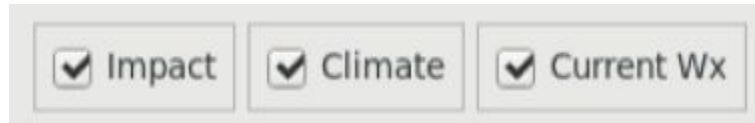
NAM-MOS	KTGT	NAM	KTGT	ACARS	TGT
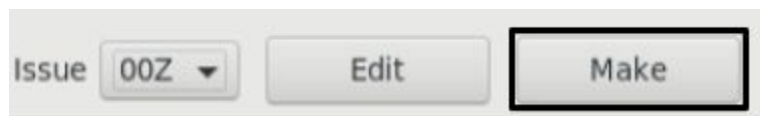
  - Radars: KGJX
  - Profilers: AZCN5

Radars	KGJX	Profilers	AZCN5

- QC Checks:
  - Impact: Checked
  - Climate: Checked
  - Current Wx: Checked
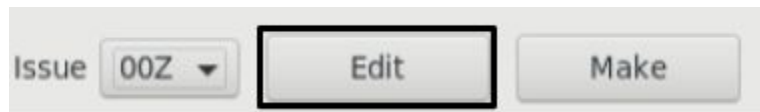
☑ Impact　　☑ Climate　　☑ Current Wx

- Templates(Click make after entering each entry):
  When entering the TAF templates, you can click the "Make" button shown below to create a default set.

  Issue　00Z ▼　　Edit　　**Make**

  Alternatively, you can manually edit the templates by selecting the "Issue" time and clicking the "Edit" button. Some examples are shown below:

  Issue　00Z ▼　　**Edit**　　Make

 - 00Z: KTGT D12320Z D100/D124 =
  - 06Z: KTGT DD0600Z DD0606 =

After entering all of the information, click 'Save'. A square in the bottom left of the window will flash green and the text "Site data saved for KTGT" will appear to the right of the square. This area is encapsulated by the orange box below.


IV.   Setting Up Monitoring Rules and Categorical Amendment Criteria (CAC) Thresholds
Similar to the "TAF Site Info," "Monitoring Rules" are accessed using the AvnFPS Setup GUI. Monitoring rules will help alert you to changes and/or differences in flight categories. Over the years we have changed how we monitor and update TAFs within the NWS. The current approach being used is referred to as Categorical Amendment Criteria or CAC for short. For more information you can visit the CAC Website and CAC Documentation and Instructions. While we will refer to the CAC Spreadsheet put together by AFS24 in these instructions frequently, it is important you know how these criteria are created as WFOs are ultimately responsible for their accuracy.

i.   Launch the "Monitoring Rules" GUI from the "AvnFPS Setup" window. Examples of both the AvnFPS Setup Menu and the Monitoring Rules GUI are shown below. The Color Methods and Message rules you'll need to look through are highlighted by the red box below.
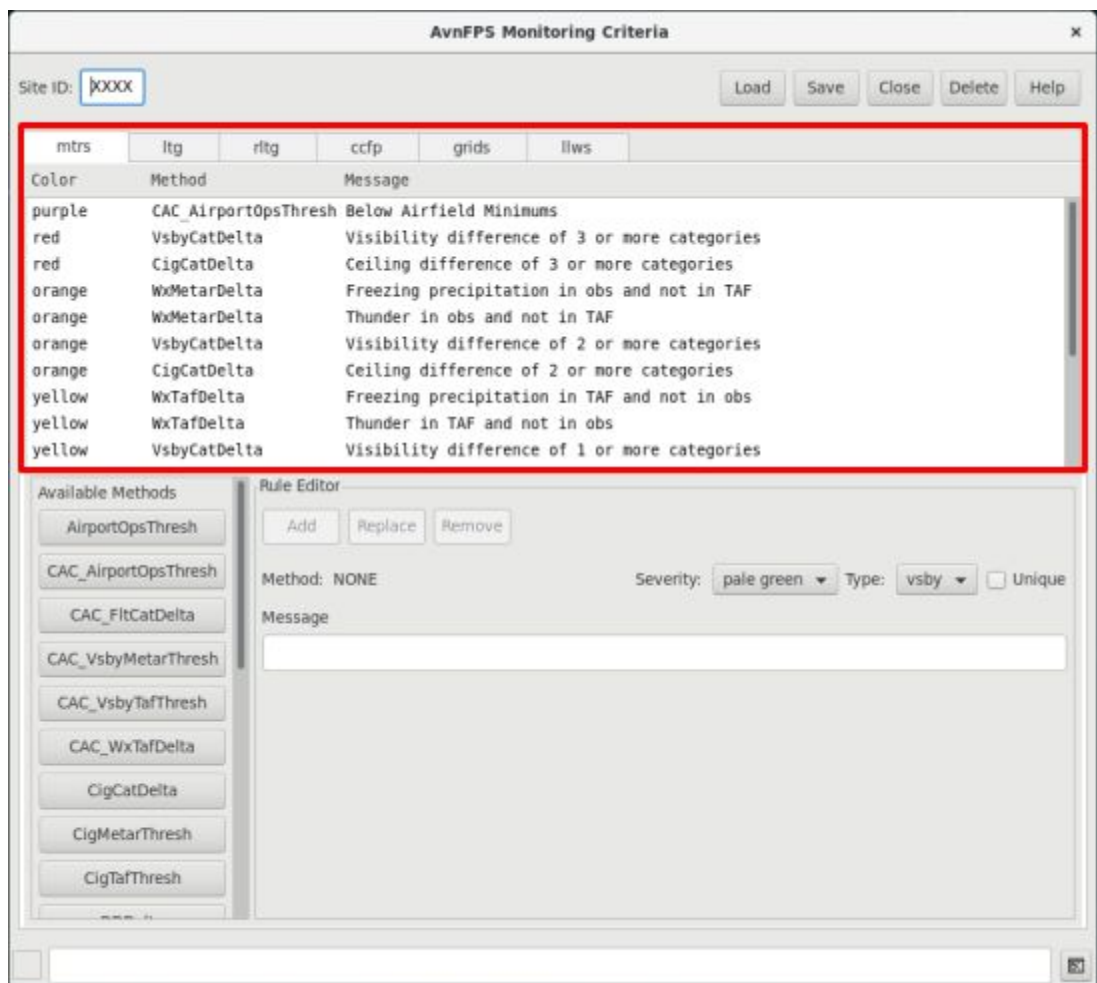
ii. If you are creating monitoring rules for a new TAF site, enter "XXXX" as the Site ID and click "Load." If you are updating the monitoring rules for an existing site, enter its Site ID, then click "Load."
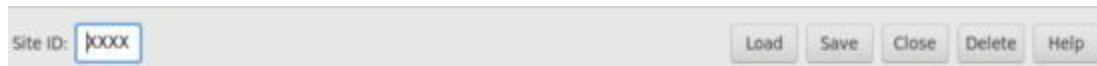
A green square, similar to the one in the Site Info GUI will flash green and the text "XXXX monitoring rules loaded successfully" will display at the bottom.

Now enter your Site ID and click "Save." This will save a default set of Color Method and Message monitoring rules for your new site.
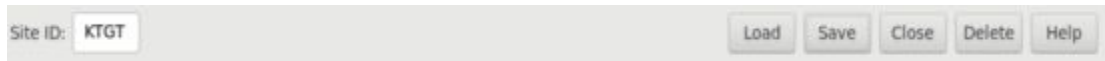
   iii.   Now that you have loaded the default or at least your current settings loaded, you can modify the rules for your TAF site. We'll start with the Airfield Minimum or THRESH A. Below the Load, Save, Close, etc. buttons you'll set a set of tabs (*mtrs, ltg, rltg, ccfp, grids, llws*) with a list Color Method and Message rules below them. Select the *mtrs* tab if it isn't already and look for a *CAC__AirportOpsThresh* Method with the message, "Below Airfield Minimums." If you find one, select it. If not, Under "Available Methods," click *CAC__AirportOpsThresh*. This will load the rule into the rule editor. CAC criteria, such as the airfield minimum can be found in the CAC Spreadsheet. For example, KGJT, the example we are using for KTGT has a THRESH A, airport minimum of:

- 200 - 1/2
    - Ceiling: 200 feet => cig = 200
    - Visibility: 1/2 statute miles => vsby =.5
    - Remarks: Y
    - Severity: purple
    - Type: cat
    - Message: Below Airfield Minimums

Enter the settings above into the Rule Editor as shown below. Click "Replace" if the rule existed, otherwise, click "Add." After adding/replacing the rule, click "Save."

iv.   The next CAC rule we will enter is for Threshold E or the Alternate/Fuel Airfield. As before in the Color Method and Messages section, look for a rule with the *FuelAlternate* method and a "System generated" message text. If you find one, select it to load the current rule settings into the Rule Editor. Otherwise, under "Available Methods," click *FuelAlternate*. This will load the default rule settings into the Rule Editor. Again, consult the CAC Spreadsheet for the correct settings. For example, KGJT, the example we are using for KTGT has a THRESH E, airport minimum of:

- 2000 - 3
  - Visibility: 3.0 => vsby = 3.0
  - Ceiling: 2000 feet => cig= 2000
  - Remarks: Y
  - Severity: yellow
  - Type: cat
  - Message: *Leave blank as this is a system generated rule, which states TAF LT 3SM/020 requires additional fuel and alternate airfield.*

Once these settings have been entered, click "Replace" if the rule existed, otherwise, click "Add." After adding/replacing the rule, click "Save."

v.   The next monitoring rule we will add and/or modify is another airfield operations threshold (*CAC_AirportOpsThresh*), however this one is for the airfield not being available as an alternate. These settings will vary, however the defaults are:

   ● Precision airfield
       ○ Ceiling: 600 feet
       ○ Visibility: 2 statute miles
   ● Non-precision airfield
       ○ Ceiling: 800 feet
       ○ Visibility: 2 statute miles

For our airport, KTGT (fake KGJT), it is considered an precision airfield, so we'll use 600 feet and 2 SM. Look at your current *mtrs* rules and see if you have one with a method of *CAC_AirportOpsThresh* that had message of "Airfield Not Available as an Alternate." IF you have one, select it to load the rule into the editor. If not, look in "Available Methods," "*CAC_AirportOpsThresh*" and click it to load the default settings.

   ■ vsby: 2
   ■ cig: 600
   ■ Remarks: Y
   ■ Severity: yellow
   ■ Type: cat
   ■ Message: Airfield Not Available as an Alternate

Once these settings have been entered, click "Replace" if the rule existed, otherwise, click "Add." After adding/replacing the rule, click "Save."

```
Rule Editor
  [ Add ]  [ Replace ]  [ Remove ]

  Method:  CAC_AirportOpsThresh            Severity: [ yellow  ▼ ]  Type: [ cat  ▼ ]  ☑ Unique

  Message

  [ Airfield Not Available as an Alternate                                          ]

  vsby [ 2          ]        cig [ 600        ]        remarks [ Y                ]

  Alert when either TAF or METAR cig/vis falls below an airport
  operations criteria. This rule satisfies CAC requirements.

  Arguments: vsby, cig - visibility/ceiling thresholds that affect operations.
  remarks - use variability information, if given, in the METAR remarks
```

vi.   The next monitoring rule we will add and/or modify is for flight category differences
        (*CAC_FltCatDelta*). This rule compares TAF and observations with respect to ceiling and
        visibility categories. Look for a rule with the *CAC_FltCatDelta* method and a "System
        generated" message text. If you find one, select it to load the current rules into the editor.
        Otherwise, under "Available Methods," click *CAC_FltCatDelta*. This will load the default rule
        into the rule editor. The "severity" should be *yellow* and "type" should be *cat*. Leave the
        message blank. Once these settings have been entered, click "Replace" if the rule existed,
        otherwise, click "Add." After adding/replacing the rule, click "Save."

```
Rule Editor
  [ Add ]  [ Replace ]  [ Remove ]

  Method:  CAC_FltCatDelta            Severity: [ yellow  ▼ ]  Type: [ cat  ▼ ]  ☑ Unique

  Message

  [                                                                                ]

  remarks [ Y                ]

  Comparing TAF and observations with respect to ceiling and visibility categories.
  Severity and message returned determined by algorithm.  This rule satisfies CAC
  requirements.

  Arguments: remarks - yes to use variability information, if given in the METAR remarks
```

vii.   Another item you can monitor is your ILS break point. Look for a rule with the method *CigMetarThresh* and a message text of "ILS Break Point Reached." If you find one, select it to load the current rule into the editor. Otherwise, under "Available Methods," click *CigMetarThresh*. This will load the default rule into the rule editor. The settings should be as follows:

- Severity: red
- Type: sky
- Message: ILS Break Point Reached
- cig1: 2500
- cig2: 2500
- Remarks: Y

This configuration will alert you if the conditions are below the ILS break point, but your TAF is not. The ILS break point(s) will vary, so you'll need to confirm what cig1 and cig2 should be for each site you configure. This may seem like a strange thing to monitor, but you should understand its impacts on flight operations and the air space. Once these settings have been entered, click "Replace" if the rule existed, otherwise, click "Add." After adding/replacing the rule, click "Save."

viii.   Next we will go through some Weather Monitoring Rules. We will start with a thunderstorm reported, but not in TAF rule. Look for a rule with the method *WxMetarDelta* and a message text of or similar to "thunder in obs and not in TAF." If you find one, select it to load the current rule into the editor. Otherwise, under "Available Methods," click *WxMetarDelta*. This will load the default rule into the rule editor. The settings should be as follows:

- ■ Severity: orange
- ■ Type: wx
- ■ Message: Thunder in obs and not in TAF
- ■ wx: TS

Rule Editor

Add   Replace   Remove

Method: WxMetarDelta   Severity: orange ▼ Type: wx ▼ ☑ Unique

Message

Thunder in obs and not in TAF

wx TS

Weather (any of the list) occurs in METAR and not in TAF.

Arguments: wx (list)

ix.   Another rule we can implement is freezing rain in observation and not in TAF. Look for a rule with the method *WxMetarDelta* and a message text of or similar to"Freezing rain in obs and not in TAF." If you find one, select it to load the current rule into the editor. Otherwise, under "Available Methods," click *WxMetarDelta*. This will load the default rule into the rule editor. The settings should be as follows:

- ■ Severity: orange
- ■ Type: wx
- ■ Message: Freezing rain in obs and not in TAF
- ■ wx: FZRA

Rule Editor

Add   Replace   Remove

Method: WxMetarDelta   Severity: orange ▼ Type: wx ▼ ☑ Unique

Message

Freezing precipitation in obs and not in TAF

wx FZRA

Weather (any of the list) occurs in METAR and not in TAF.

Arguments: wx (list)

V.   Creating/updating climate data for your TAF site

The addition of climate data can add a pretty useful sanity check for your TAF sites. Right now, the process for updating the climate data is a little choppy, but I am working on a solution to make it a little smoother. Once complete, I'll send an email to the AvnFPS and AFP lists. Until then, please follow these instructions. Before we get started, note that all of the climate data files are in "*/awips2/edex/data/share/aviation,*" but this information won't be important until later on in this document. If you already have climate data, but are getting errors, you may need to regenerate your *.h5* data files that are stored in "*/awips2/edex/data/share/aviation.*" Whether you are updating old, regenerating or creating new climate data files, you can use the instructions below. If you are seeing errors in the raw METAR viewer, then you'll need to download new data files for the affected years. In this document you will see several references to NCEI with graphics and file names referencing NCDC. For the purposes of this document consider these to be one in the same as the AvnFPS software predates the change of the National Climatic Data Center(NCDC) to the National Centers for Environmental Information(NCEI).

1. Open a *Terminal* window. This can be accomplished through the Red Hat *Applications* Menu.
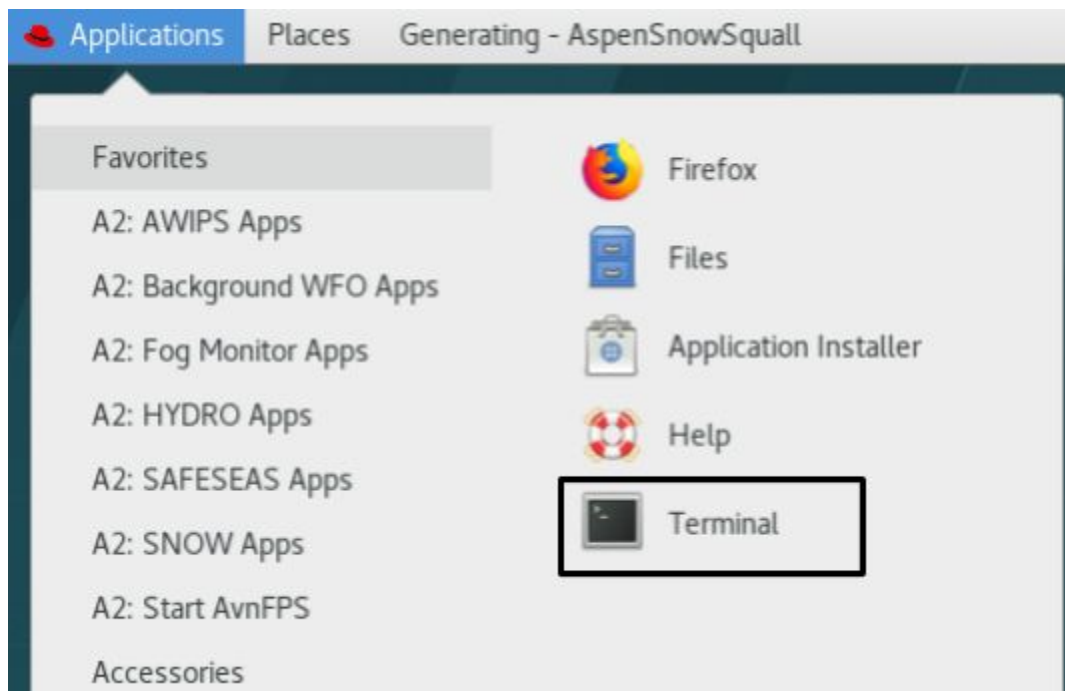
2. In the *Terminal* window, create the following directories "*/data/local/AvnFPS*," "*/data/local/AvnFPS/scripts*" and "*/data/local/AvnFPS/data*" using the steps shown below. When completed, Leave the *Terminal* window open. The commands you will be entering are in white text.

```
admin2-gjt{jdoe}: umask 002
admin2-gjt{jdoe}: cd /data/local/
admin2-gjt{jdoe}: mkdir AvnFPS
admin2-gjt{jdoe}: cd AvnFPS
admin2-gjt{jdoe}: mkdir scripts
admin2-gjt{jdoe}: mkdir data
```

3. From the *AvnFPS Setup* Menu, open the AvnFPS *Climate Data* Menu.

4. Once the *AvnFPS Climate Data* Menu is open, check the *Idents* section to see if climate data for your site has already been generated or is at least started. If it's not there, change from *Append* to *Create* and enter the *SITE ID* and *METAR AFOS ID*, then click '*Write Site Data*'. The *Idents* section should now be populated with your new TAF's Site ID.
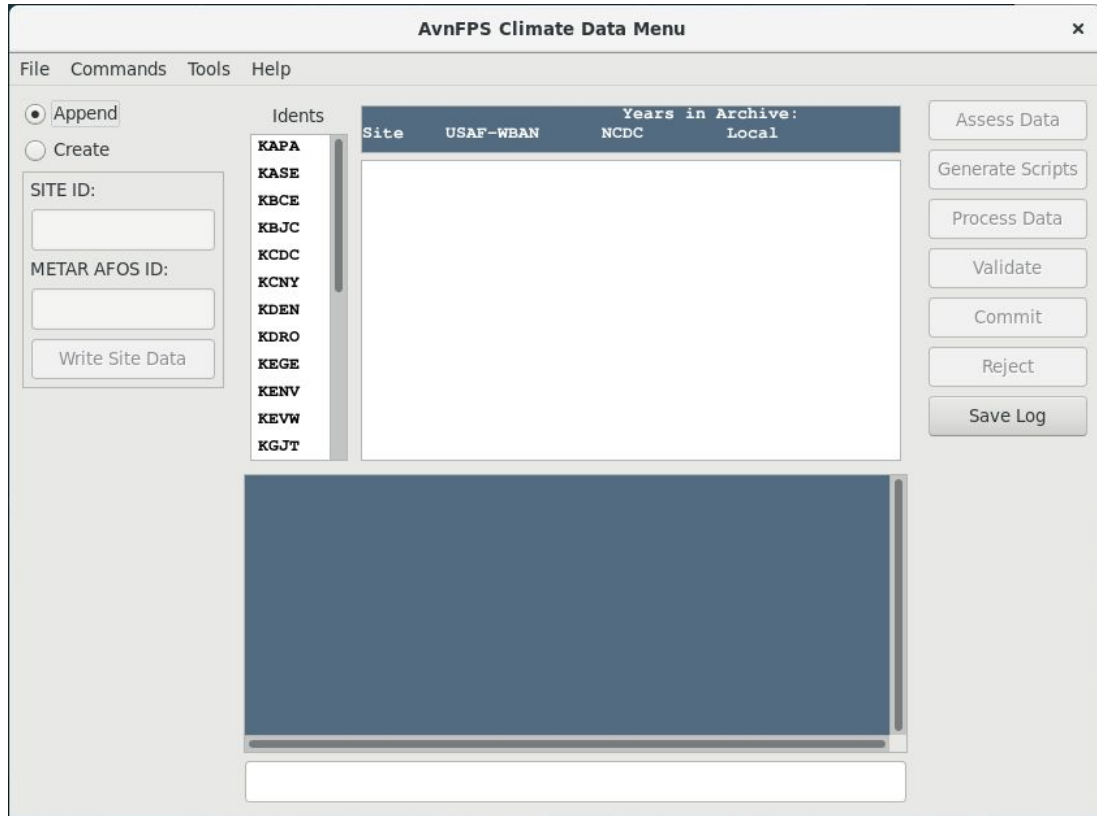
5. Select your site in the *Indents* section of the *AvnFPS Climate Data Menu*. Once this is completed, a portion of the site metadata section of the window will be populated. You'll see all of the associated USAF-WBAN Ids and years available in both the NCEI and Local archives. NCEI shows what is available from them and the Local archive is what you already have in your *.h5* file. If the NCEI ISD metadata files haven't been updated recently, you may only see data availability in this section through 2015, 2016, etc. Before you proceed any further, you'll want to update the metadata, so proceed to the next step. If it's been updated recently, you can skip to step 12.
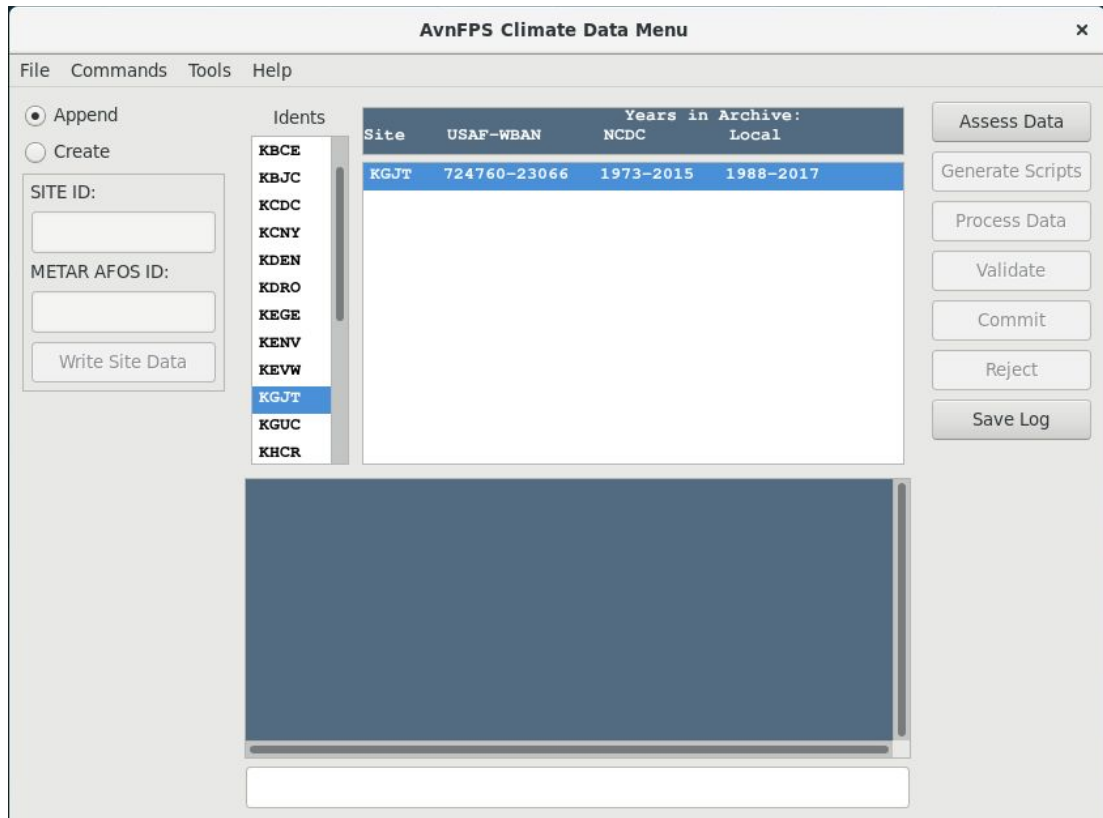
6. In the *AvnFPS Climate Data Menu*, go to the *Commands* menu and click *Update NCEI "isd" Files…*
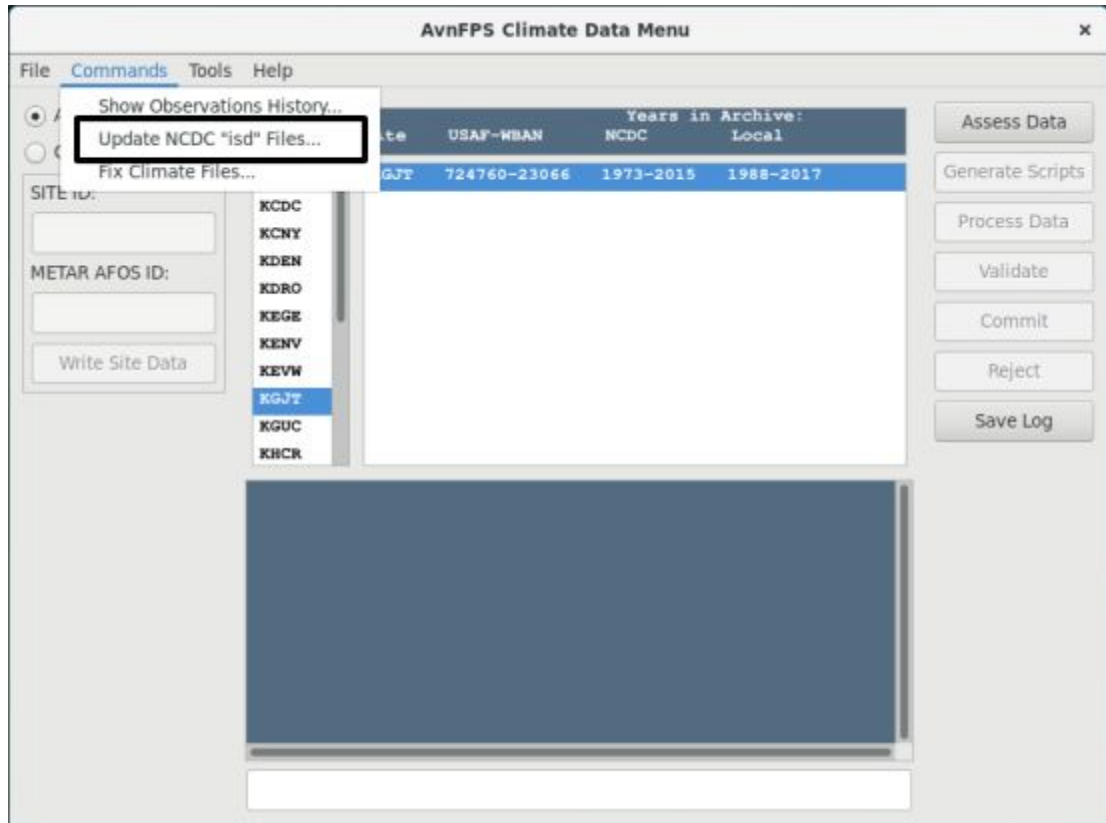
7. In the *NCEI Inventory/History* window, you can check the last time the files were updated by looking at the *Last Mod* time. If it has been a while, click *Generate Script* in the *Inventory Section*.
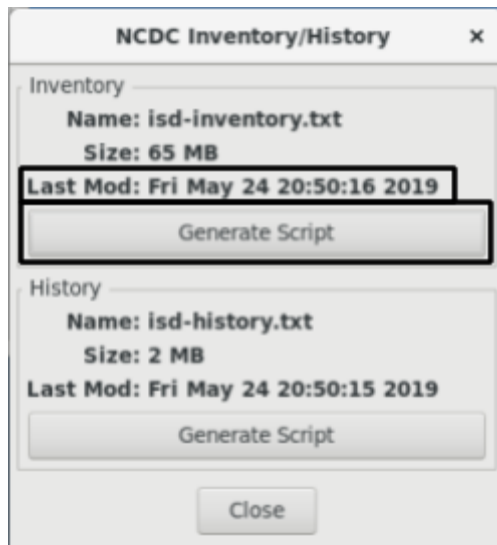
8. When the *Generate Scripts* window appears, click the *Linux FTP Script* button. The *Linux FTP Script* uses wget, whereas the *Windows FTP Script* uses FTP. FTP is an insecure protocol and shall not be used. Once the script has been generated, click *Save*. Change the save location to the scripts folder you create in **Step 2**, "*/data/local/AvnFPS/scripts*". You will also want to change the default file name to something else. I chose "*getNCDC-ISDFile-Inventory.sh"*. The default file name is the same for *Inventory* and *History* scripts, which is why this is being suggested. Once generated, you won't have to create new scripts to update the Inventory(*isd-inventory.txt*) and History(*isd-history.txt*) files, you can simply use these to update your climate data. Close the *Generate Scripts* window.

9. Next, click *Generate Script* in the *History Section*. As with Step 8, click *Linux FTP Script* and save it. Again, change the save location to the scripts folder you created in **Step 2**, "*/data/local/AvnFPS/scripts*". As before, you will want to change the default file name to something else. I chose "*getNCDC-ISDFile-History.sh*."
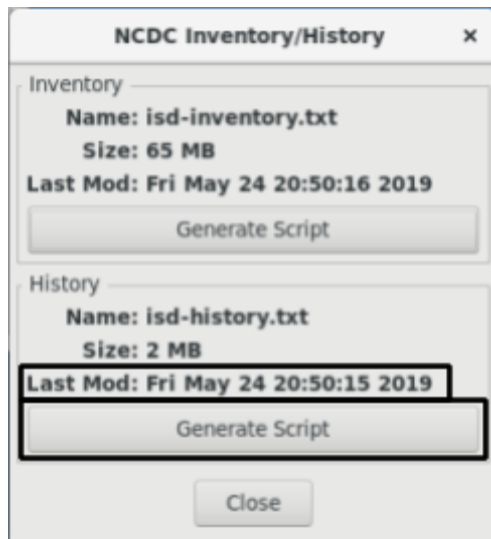
10. Go back to your *Terminal* window that you left open earlier. For simplicity, you will want to bundle up the scripts, so you only have to secure copy one file to LDAD. This will be more useful when updating the data files. Enter the following commands in order. Keep the *Terminal* session open when completed. Again, the commands are in white. The yellow text are notes of "problems" you may run into along the way.

```
admin2-gjt{user}: ssh ldad@ls1
# Note: Check to see of the folder /data/ldad/AvnFPS exists
admin2-gjt{user}: ls /data/ldad/AvnFPS
# Note: If the folder exists, you will get a listing of its contents, otherwise you will get
an error.  If the folder exists, skip the mkdir line below and move to the logout
command below it.
ls2-gjt{ldad}: mkdir /data/ldad/AvnFPS
ls2-gjt{ldad}: logout
admin2-gjt{user}: tar cvf scripts.tar scripts
admin2-gjt{user}: scp scripts.tar ldad@ls1:/data/ldad/AvnFPS
admin2-gjt{user}: ssh ldad@ls1
ls2-gjt{ldad}: cd /data/ldad/AvnFPS
# Note: If isd-inventory.txt and isd-history.txt exist, they should be removed
ls2-gjt{ldad}: rm isd-inventory.txt isd-history.txt
# Note: If isd-inventory.txt and isd-history.txt exist, they should be removed
ls2-gjt{ldad}: tar xvf scripts.tar
ls2-gjt{ldad}: chmod -R 755 scripts/*.sh
ls2-gjt{ldad}: ./scripts/getNCDC-ISDFile-Inventory.sh
ls2-gjt{ldad}: ./scripts/getNCDC-ISDFile-History.sh
ls2-gjt{ldad}: logout
admin2-gjt{user}: scp ldad@ls1:/data/ldad/AvnFPS/isd-inventory.txt isd-inventory.txt
admin2-gjt{user}: scp ldad@ls1:/data/ldad/AvnFPS/isd-history.txt isd-history.txt
admin2-gjt{user}: cp isd-inventory.txt /awips2/edex/data/share/aviation
admin2-gjt{user}: cp isd-history.txt /awips2/edex/data/share/aviation
```

11. Close and re-open the '*AvnFPS Climate Data Menu*,' then select your site. You should now see that the NCEI data availability has been extended through the current year.
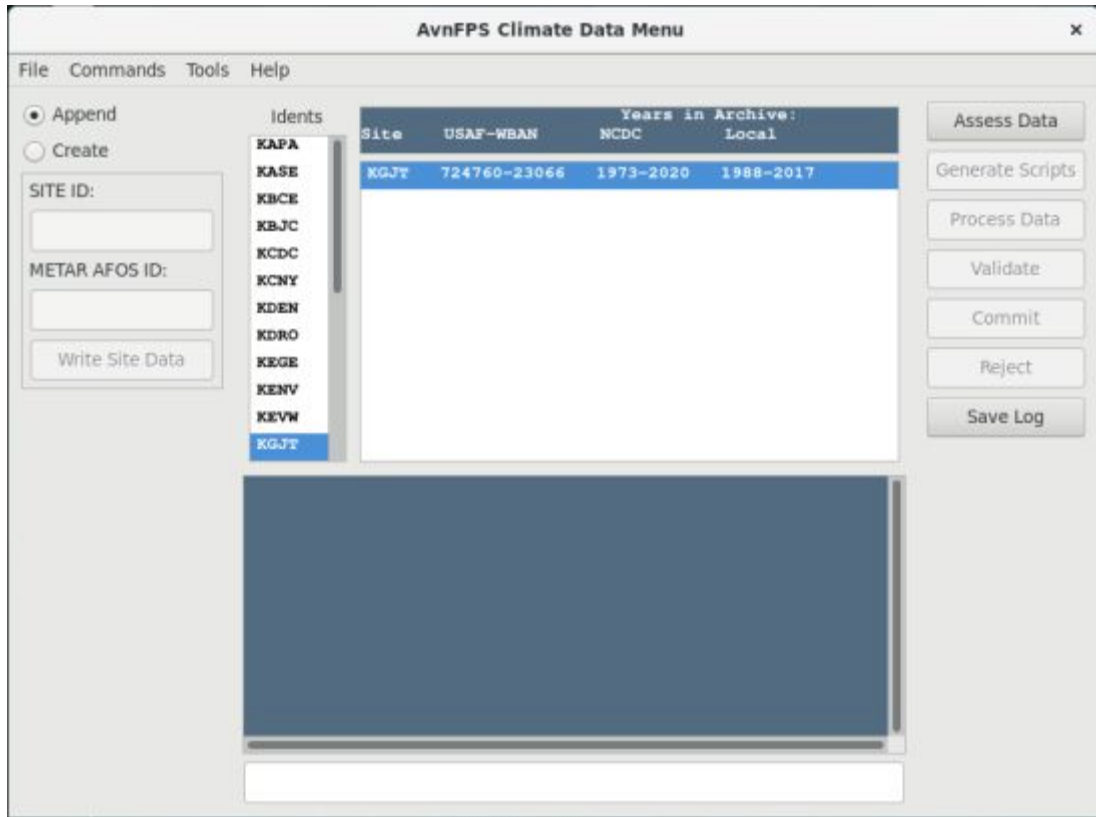
12. Now that the NCEI inventory and history data has been updated you can proceed with the process of updating the climate data. Click *Assess Data*. This will look at the data that should be available from NCEI as well as what is available locally. It will then enable the *Generate Scripts* and *Process Data* buttons.
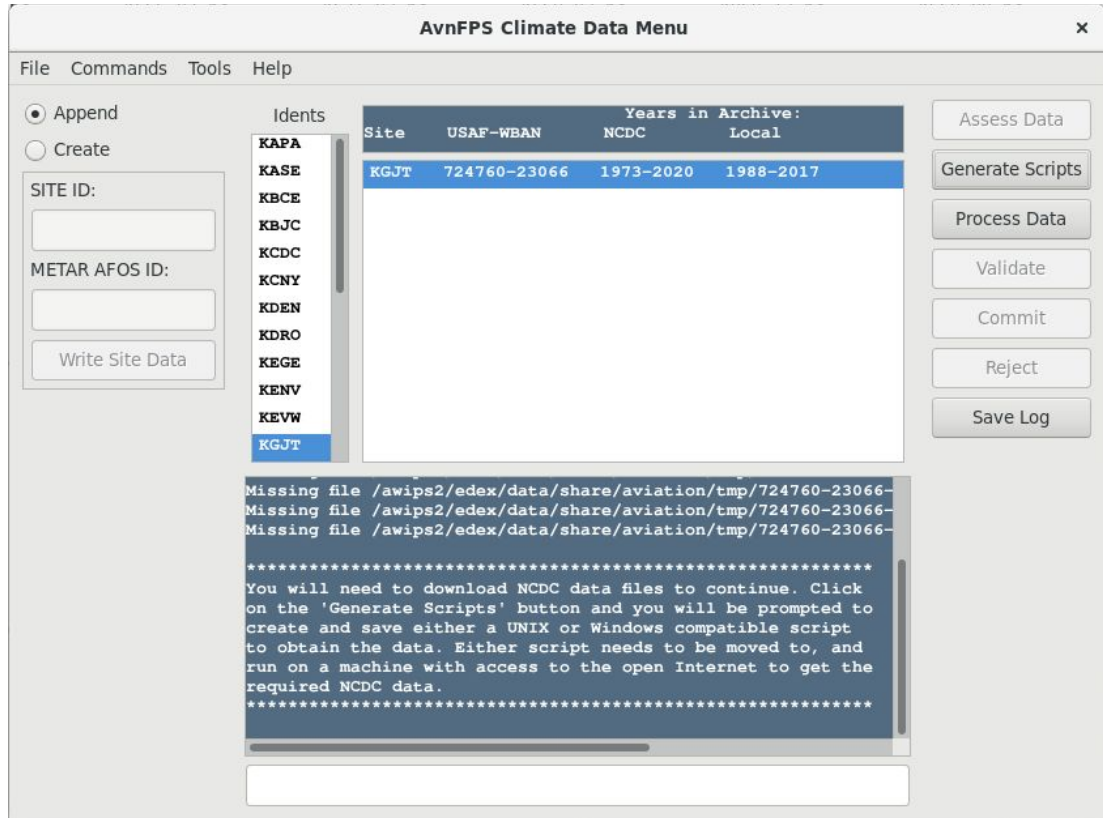
13. Chances are you won't already have any current data on station and it's possible none will be available locally for a new site, so click *Generate Scripts*.

14. When the *Generate Scripts* window appears, click *Linux FTP Script*. Fortunately, we won't have to change the default file name this time around. As before, save the file to "*/data/local/AvnFPS/scripts.*" In this example, I am downloading the data for Grand Junction, CO (KGJT) so the filename is "*getNCDCData-KGJT.sh*". Once the file has been saved, return to the *Terminal* window.
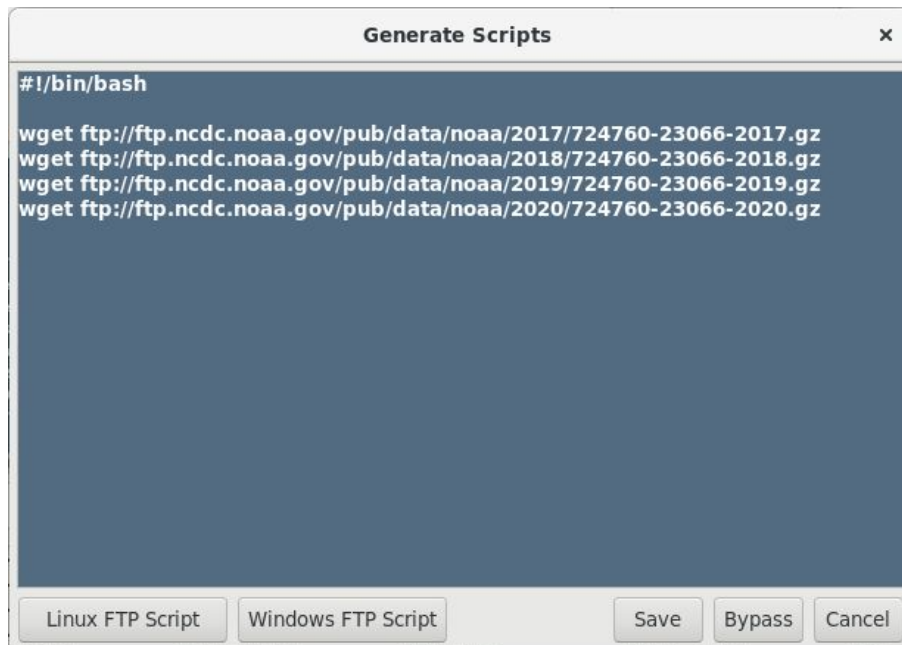
15. Here we will secure copy the script to LDAD and download the data from NCEI. In this example we are only updating on site, but under normal circumstances, you will likely update several sites at once, so we'll tar the scripts folder up before moving back into AWIPS.

```
admin2-gjt{user}: tar cvf scripts.tar scripts
admin2-gjt{user}: scp scripts.tar ldad@ls1:/data/ldad/AvnFPS
admin2-gjt{user}: ssh ldad@ls1
ls2-gjt{ldad}: cd /data/ldad/AvnFPS
ls2-gjt{ldad}: mkdir data
# NOTE:  If the "mkdir data" command returns a folder exists error, run the following
"rm data/*.gz" command.  This will ensure old files don't cause any problems. If
there are no errors, you can skip to the "tar xvf scripts.tar" command
ls2-gjt{ldad}: rm data/*.gz
ls2-gjt{ldad}: tar xvf scripts.tar
ls2-gjt{ldad}: chmod -R 755 scripts/*.sh
ls2-gjt{ldad}: cd data/
# NOTE:  Now run the shell script for each site you are updating.
ls2-gjt{ldad}: ../scripts/getNCDCData-KGJT.sh
ls2-gjt{ldad}: cd ../
ls2-gjt{ldad}: tar cvzf data.tar.gz data
ls2-gjt{ldad}: logout
admin2-gjt{user}: scp ldad@ls1:/data/ldad/AvnFPS/data.tar.gz
admin2-gjt{user}: tar xvzf data.tar.gz
admin2-gjt{user}: cp data/*.gz /awips2/edex/data/share/aviation/tmp/
```

16. Once the data files have been copied to "*/awips2/edex/data/share/aviation/tmp*" you can proceed and click *Process Data*. This step will take a while as it reads all of the data files. Obviously, the more data you have, the longer it will take. Fortunately, it does provide a status update at the bottom of the window.

17. Once the data has been processed, the software will inform you that it has completed. Now you can proceed to validating the data. This will copy the new hd5 to a location where it can be viewed using the climate data tools within AvnFPS.

18. You can use any of the Tools in the *AvnFPS Climate Data Menu* to assess the validity of the data. These can be found under the *Tools* menu. I initially used METARs and stepped through a fair amount of the data. Then I proceeded to the others to make sure the numbers made sense.

19. Once you have determined the data is valid, click *Commit*. If the data files are corrupt or do not look good, click *Reject*. There are a number of things that could lead to corrupt data, but a good place to start would be looking at the raw METAR data. If the data appears OK, then you can try re-processing the file. If there are errors, you need to go through NCEI to get the data corrected.
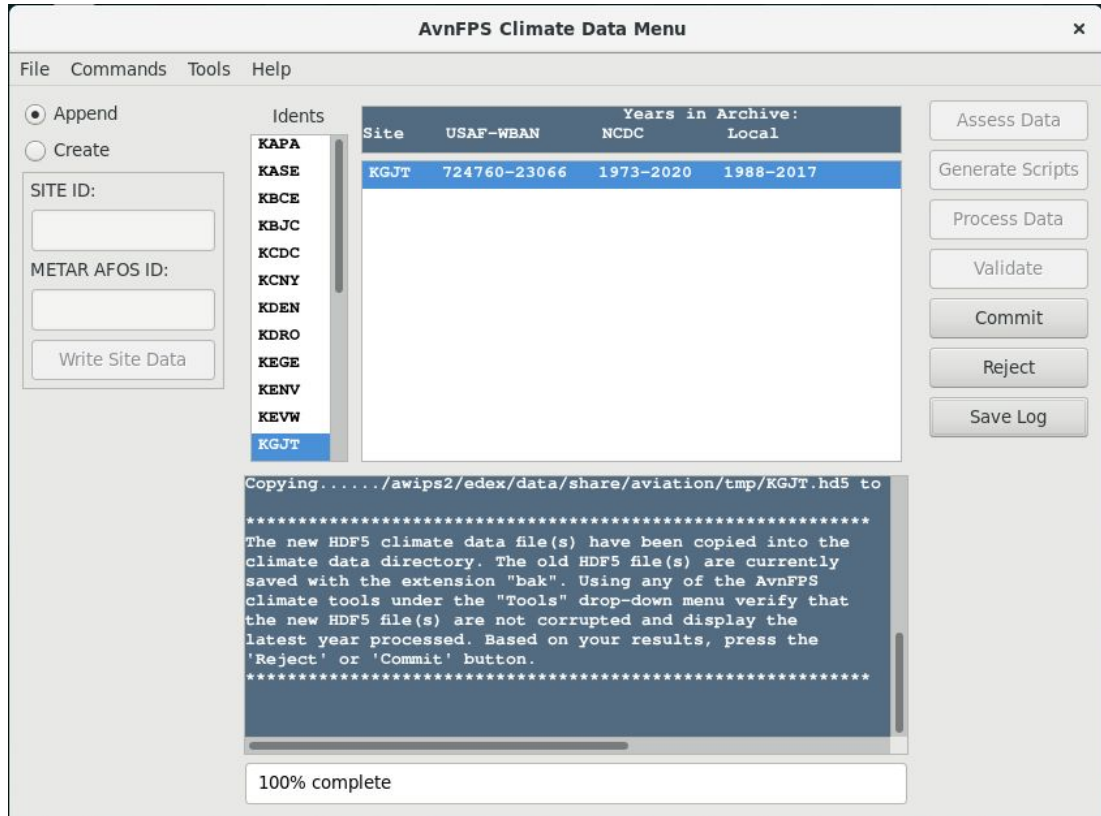
20. That's it! You are done populating the climate data files used by AvnFPS.

VI.   <u>Adding your new TAF to your TAF product list</u>
Now that you have created the new TAF site, created climate data for said TAF site and blocked it from getting transmitted until you are ready, you can now add it to your local TAF product in AvnFPS. This is the simplest step in the entire process. We'll assume you already have the AvnFPS Setup GUI Open.
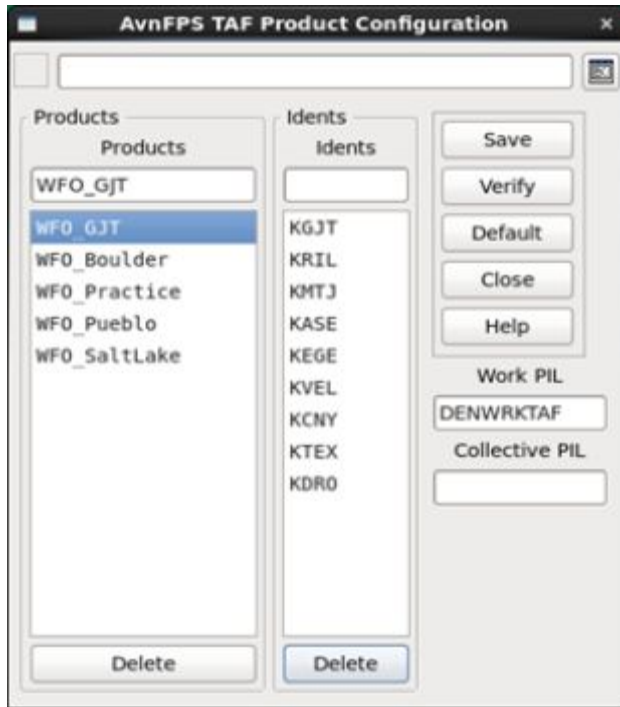
1. In the AvnFPS Setup GUI, click '*TAF Products*'.

2. The *AvnFPS TAF Product Configuration* window will open.
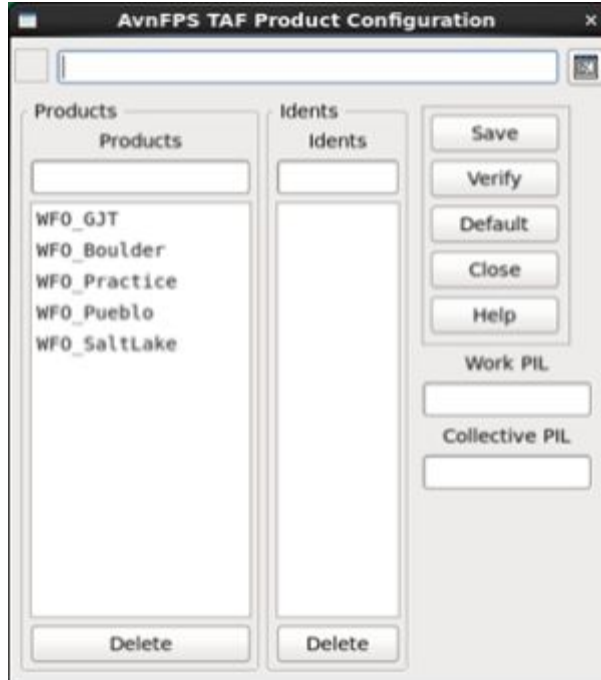
3. In the *AvnFPS TAF Product Configuration* window, select your primary TAF product. The sites that have already been added will populate the *Idents* section.

4. Enter your new TAF site's identifier in the text box above the other identifiers. Here I used KGUC for Gunnison-Crested Butte Regional Airport. After entering the site ID, press Enter.
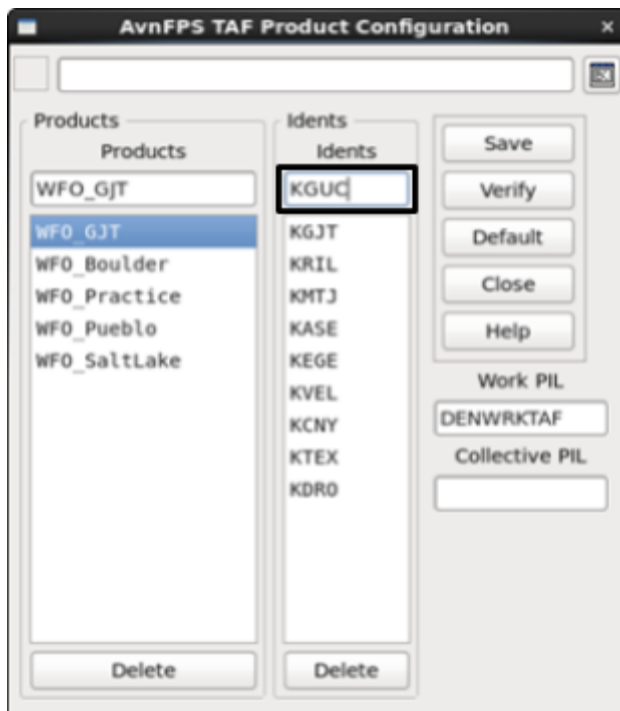
5. As shown below, the above step will add your TAF site to the selected TAF product. Click '*Save*' and then '*Verify*' to confirm the site and TAF product are configured correctly.
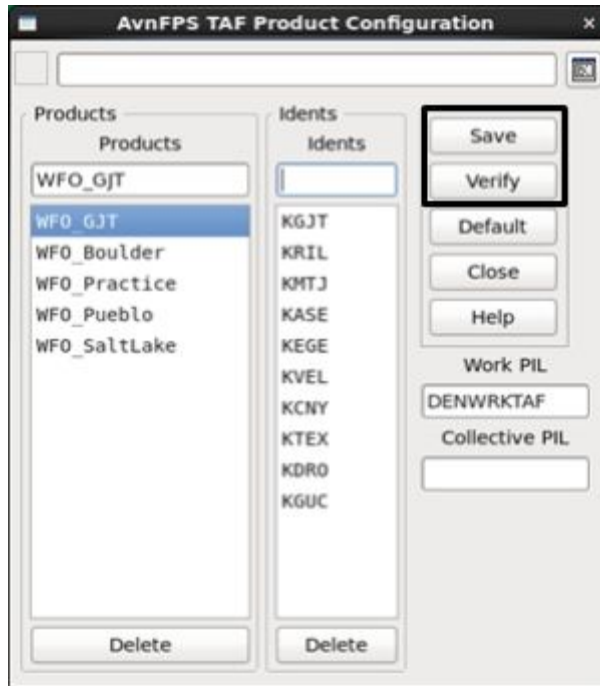
6. That's it. You have successfully added your new TAF to your suite of TAF products. Open the *AvnFPS Monitor* to confirm the site has been added. Since there will be no current TAFs for the site, you will need to issue an initial TAF for the new site.