Factual Report – Attachment 17

StreamerRT version 5.1 User's Guide.

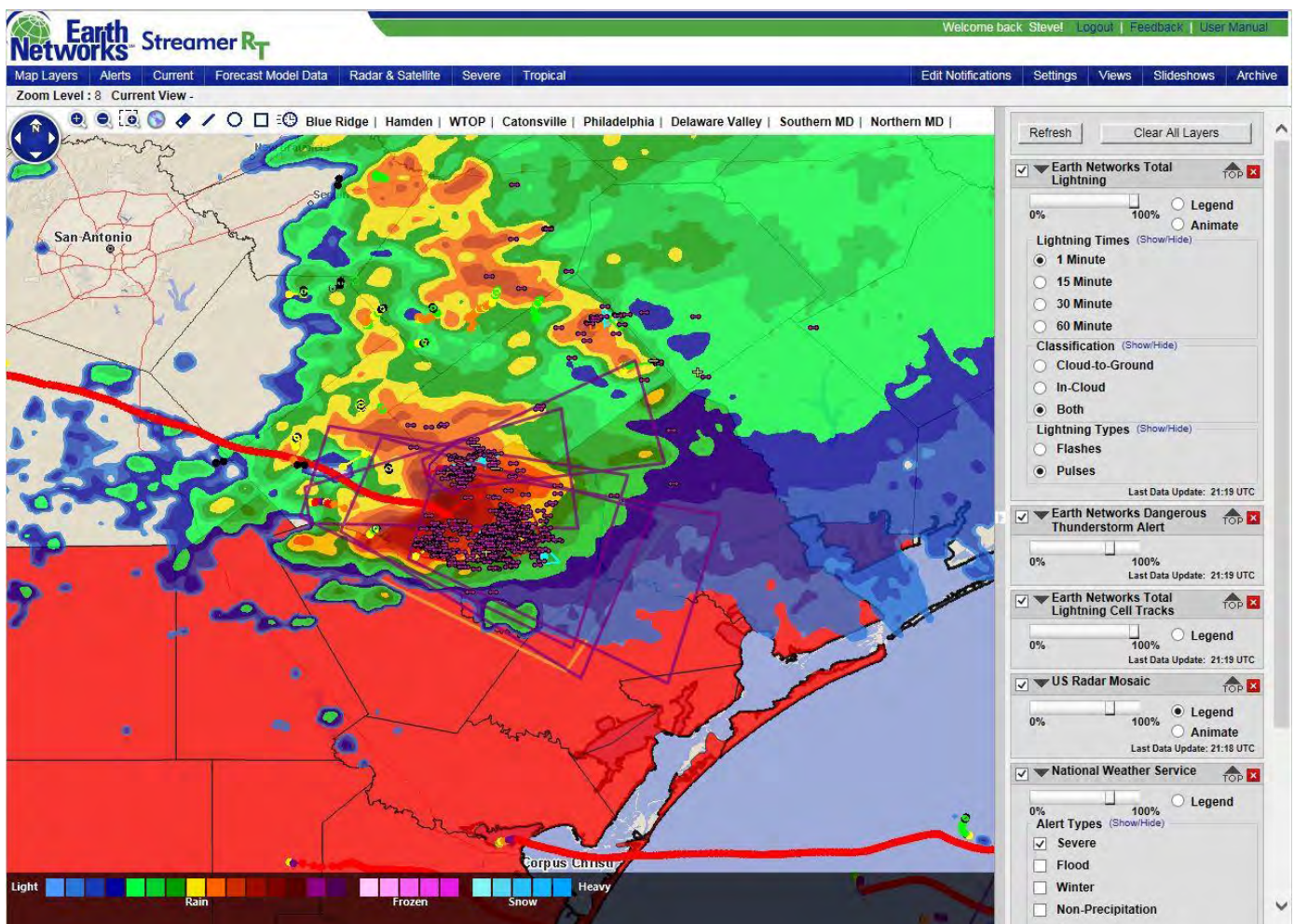# METEOROLOGY

DCA18MM028

Submitted by: Mike Richards
NTSB, AS-30

StreamerRT

Version 5.1 - User Guide

Earth Networks – WeatherBug Corporate Headquarters
12410 Milestone Center Drive, Suite 300
Germantown, MD 20876

Phone: 800.544.4429
Website: www.earthnetworks.com
Technical Support: 888-239-0047 (option 1)

StreamerRT
July 2015
Table of Contents

1. Overview

StreamerRT is a real-time weather decision system that provides a fully interactive mapping platform with a comprehensive collection of weather data. Users have the ability to monitor real-time station observation data from the WeatherBug network and overlay numerous enhanced data sets to stay up-to-date with significant weather events before and after they develop.

Use StreamerRT to create the customized Views that are important to you and then monitor your weather through easy access to your Views, Slideshows of Views and animations.

StreamerRT Login URL – https://streamerrt.enterprise.weatherbug.com

Please note that, although StreamerRT will run and update if left up on your Internet Explorer browser for monitoring, you will be forced to sign in again if you attempt to make a change (i.e.- add a Layer or Rule).
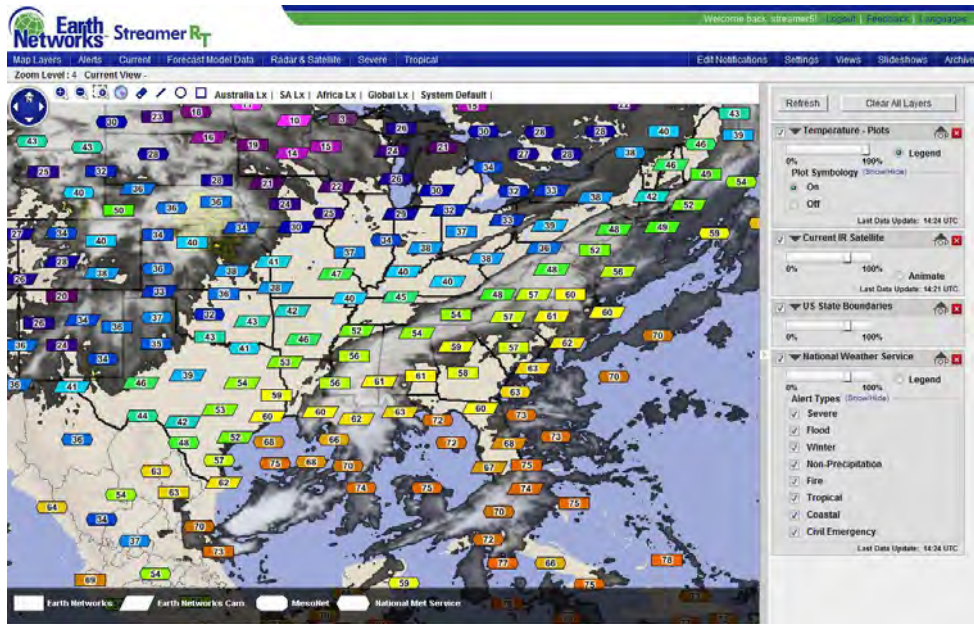
Example View of StreamerRT showing Temperature points, Infrared Satellite imagery, and National Weather Service (NWS) Alerts.

2. System Requirements

The following are the recommended system requirements to experience the optimal performance from WeatherBug Professional StreamerRT:

> Browser: IE 8.0, IE 9.0, IE 10.0, IE 11.0
> Connection: Broadband Connection (DSL, Cable Modem, T1 or T3)
> Hardware: Pentium IV or better
> RAM: 2 GB or greater for light users; 4 GB or greater for heavy users
> Screen Resolution: 1024x768 or higher

Contact your IT Department to open security access to the following StreamerRT URLs:

> https://protiles.weatherbug.com
> http://dashboard.streamerrt.weatherbug.com
> https://basemaps.enterprise.weatherbug.com
> http://professionalportal.weatherbug.com
> https://streamerrt.enterprise.weatherbug.com

3.   Map Tips

You can open map tips with station point or other data layer information by left-clicking on a data point value. The layer must be the top data layer in the Data Pane to the right of the map to open a map tip for most layers. If the map tip does not open when the data point is clicked, check to make sure you are at the correct zoom level and the point is the top data layer in the Data Pane to the right of the map. Bring a layer to the top by left-clicking and dragging it to the top of the Data Pane display.

Data layers with map tip information include Station Points, Weather Service and WeatherBug Dangerous Thunderstorm Alerts, Custom Notifications, Current Observation Points, Forecast Model Data Points, Single Site Radar Locations, Lightning, Storm Reports and Tropical Information.

Many map tips include additional details, which you can access by left-clicking on the "Details" link at the bottom of the map tip if it is displayed.

You can move an open map tip anywhere within the map by left-clicking and dragging it to a new location.

Information about the map tips associated with point layers is provided in the details for each layer.

4.   Map Controls

The map controls allow you to interact with the map as follows: zoom-in, zoom-out, pan and zoom-out to full extent within the map.

Layers relocate and resize as the active map is zoomed and panned.

4.1.   Zoom Levels

By using the map controls, you can zoom between zoom levels 2 (the world) and 11 (local streets). Your current zoom level is displayed above the map controls along with your Current View or Slideshow (if one is selected).

4.2.   Zoom-In

Zoom-in by selecting the 🔍 Zoom-in button, by double-clicking on the map or by moving the mouse scroll wheel up. This will produce a zoom of 50%, centered on the middle of the map.

Select the 🔍 Area Zoom button to zoom into a specific area by drawing a zoom box in the map. Left-click and drag to create the box.

4.3. Zoom-Out

Zoom-out by selecting the ⊖ Zoom-out button or by moving mouse scroll wheel down. The view will zoom out 50%, centered on the middle of the map.

4.4. Pan

Pan the map in 8 directions by left-clicking on the ⊕ Pan wheel or left-clicking anywhere on the map and dragging the map in any direction.

4.5. Full Extent

Select the 🌐 Full Extent button to make the map zoom out to the default full extent of the world (zoom level 2).

5. 🕐 Tools

There are 4 drawing tools for distance measurement in StreamerRT. They are located on the lower menu bar between the navigation tools and the saved Views. Multiple drawings can be added at once.

5.1. Line, Circle, Square Drawing Tools

◆ ╱ ○ □ Left-clicking on any of the drawing tools (line, circle or square) activates them for drawing.
- Left-click on the map to drop the location point you want to measure from and then drag the mouse to the distance or point of interest.
- Release the left mouse button to set the distance drawing on the map.

5.2. Eraser Tool

◆ The eraser removes distance drawings.
- Left-click on the eraser symbol to activate the eraser function.
- Left-click on the drawing to remove it from the map.

5.3. Save Drawings

If a drawing is present when you save a new View or replace an existing View, it will be saved with the View and will display every time the View is selected. See Section 10.3 for more details on Views.

5.4. Drawing Properties

╱ When left-clicking on a line, the Drawing Properties window will open and display the lat/long points and the distance of the line.

⭘ When left-clicking on a circle, the Drawing Properties window will open and display the center point lat/long and the radius distance of the circle.

◻ When left-clicking on a square, the Drawing Properties window will open and display the top left point lat/long and the height and width distances of the square.

Drawing Properties ✖

Top Left	38.2030,-104.6620
Width (miles)	111.3149
Height (miles)	83.0798
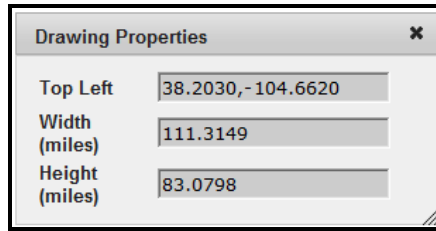
5.5. Storm Tracking or Estimated Time of Arrival (ETA) Tool

⏲ When left-clicking on the ETA icon, the ETA calculator window will open and display in the top left of the map display area.
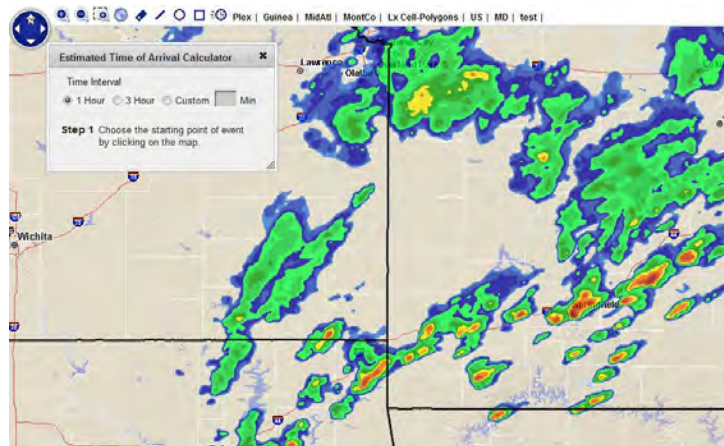
The user should then follow the three step instructions in this window for using the tool.

Estimated Time of Arrival Calculator ✖

Time Interval

◉ 1 Hour ○ 3 Hour ○ Custom [ ] Min

Step 1 Choose the starting point of event by clicking on the map.
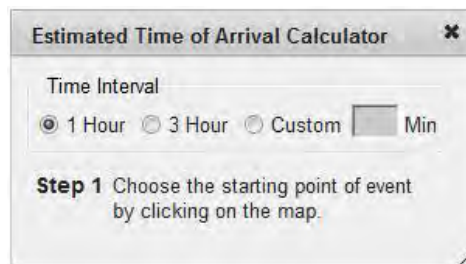
Following the three steps will complete the ETA calculation and plot the start point, end point, speed and ETA for the storm being tracked.
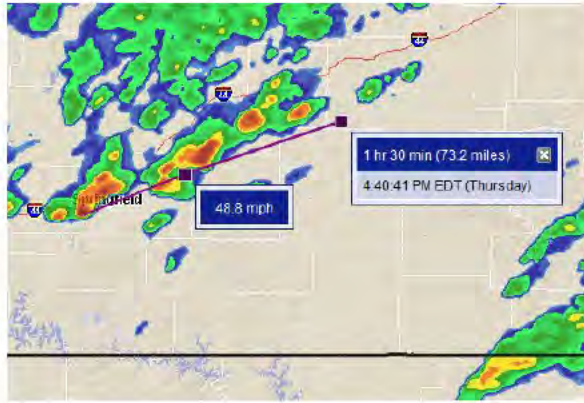
6. Displayed Views

Views are a saved set of data layer combinations. Please see Section 10.3 Views for more detail. The first 8 Views in your list are available for selection next to the map tools. Left-clicking on any View in the list loads that View.

Hurricanes2 | Pressure | Satellite | lightning | System Default | Alerts | Spain's Alert's |
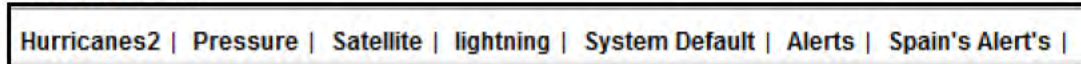
7. Data Pane

When a weather data layer is selected from the Data Menu, the data layer is displayed in the Data Pane to the right of the map. The Data Pane provides easy access for you to view which data layers are displayed on the map and provides additional functionality for that data.

Each layer in the Data Pane can be expanded and collapsed by left-clicking on the ▼ arrow to the left of the name.

The entire Data Pane can be hidden by clicking on the arrow to the left, center of the Data Pane (the black arrow in the screenshot below is pointing to the collapse button).
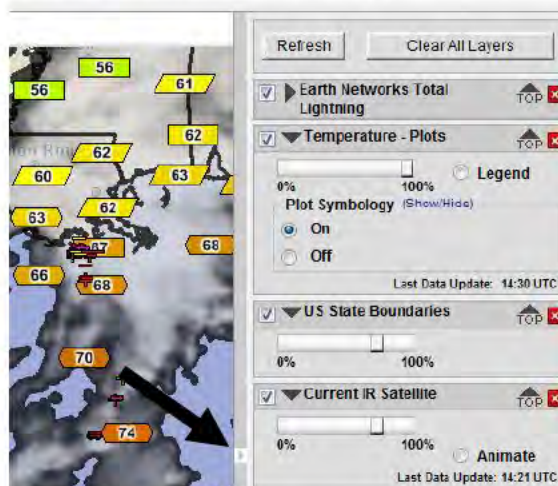
7.1. Remove Layers from Map

A data layer can be removed from the Data Pane by left-clicking the ☒ delete button to the right of the layer name.

7.2.   Refresh and Clear All Layers

When you select the Refresh button, the data for the data layers currently displayed on the map refreshes.

When you select the Clear All Layers button, the map and Data Pane are cleared of all data layers.
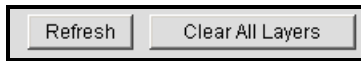
7.3.   View or Hide Data Layers

By default, data layers are on and visible once selected. Left-clicking to remove the check in the first checkbox ☑ entry to the left of the data layer name allows you to turn off a layer from the map, but keeps the data layer entry in the Data Pane for easy access to turn on when needed. A data layer will not display on the map once it is turned off. To turn it back on, check the box.

7.4.   Jump Data Layer to Top

Each layer added has an arrow labeled "Top" ▲ TOP that allows the layer to jump a data layer to the top position. A data layer must be in the top position for the map tip information to be queried. This is an easy way to move a layer quickly into this position.

## 7.5.   View Legends

The ⊙ Legend radio button allows you to turn on a legend for applicable data layers. The radio button will not display for layers that do not have a legend. Only one legend can be displayed on the map at a time. If the radio button is selected, the legend will display; if it is not selected, the legend will be hidden (default).

7.5.1. National Weather Service (NWS) Legends

If you load the National Weather Service layer into your data pane and left-click on the ⊙ Legend radio button, you can see all the active NWS alerts for the U.S. Please note that this legend at the bottom of the screen will contain only the information for the active alerts in the viewable area. Therefore, if there are only three types of alerts in the viewable area, you will only see a legend of three elements. If the viewable area contains no alerts, the legend will contain no elements.
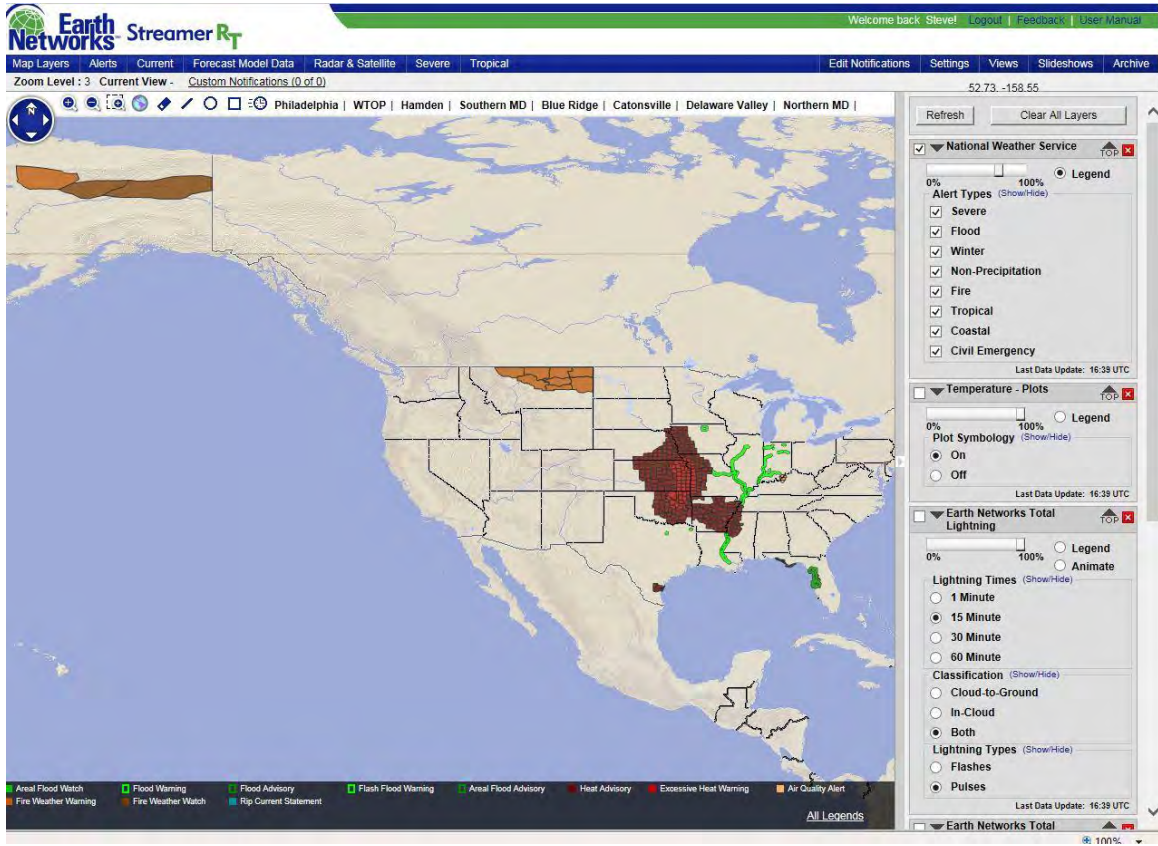
Note: If there are more active alerts than what the legend can physically display, you will see an "Active Legends" link appear in the legends area, as depicted in the screen capture below.
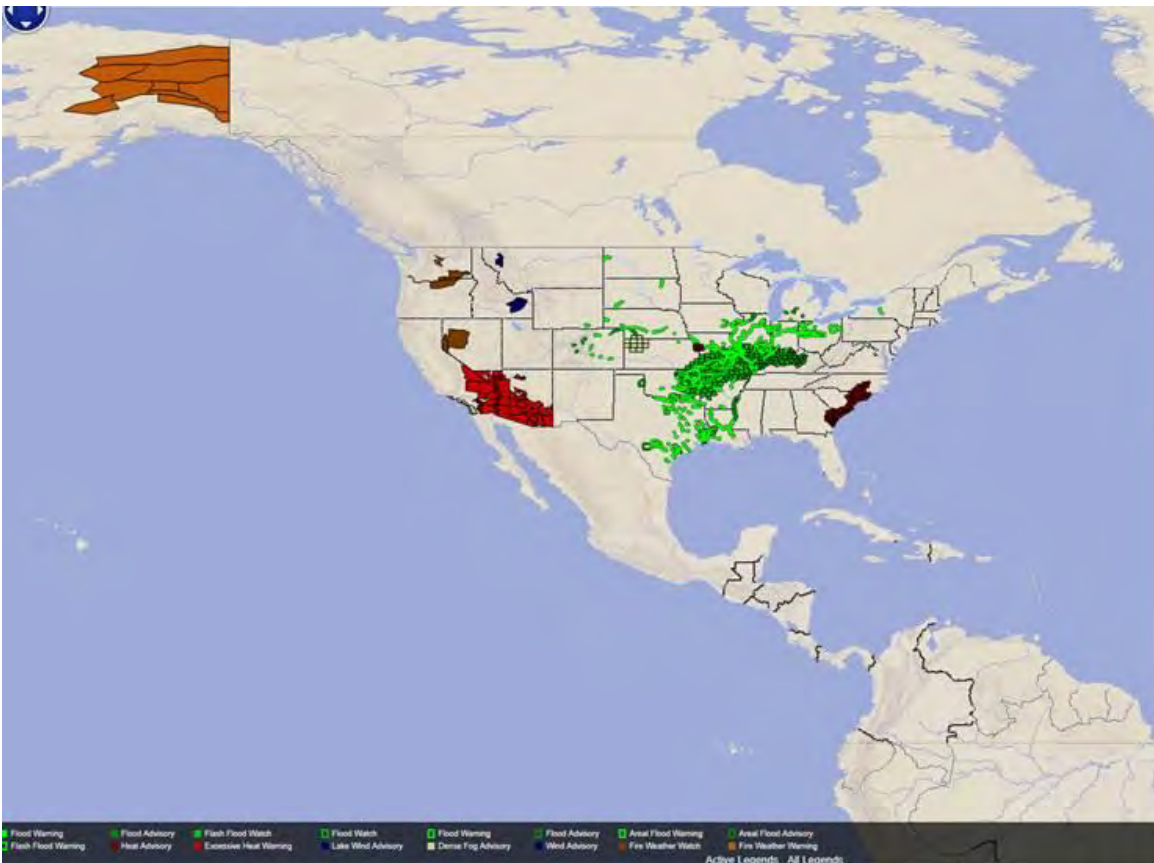
If you left-click on the "Active Legends" link, you will see a pop-up window appear containing the color-coded information corresponding to all the active alerts, per below:

If you left-click on the other link in the legend area, called "All Legends," a pop-up window will appear containing all of the alerts that StreamerRT can support, regardless of whether it is an active alert.

Important notes:

1. StreamerRT is two-dimensional, so alerts can be overlaid by other alerts that are active. For instance, a Tornado Watch can cover up a Flood Warning. Therefore, it is possible that certain alert types may not be visible, but are indeed present.

2. The StreamerRT map tile system sends tiles that are "off screen." Therefore, it is also possible that alert types might not be visible, but are present on tiles that are off the edge of the viewable area.

7.6.　　Animate Data Layers

The radio button allows you to animate the data layers on any map extent or View. The radio button will not display for layers that do not animate. Only one data layer can be animated on the map at a time. You must first select the Animate radio button in the Data Pane to turn on animation.

You can then select the Animation Interval of 1 (default) or 3 hours at the bottom of the map.
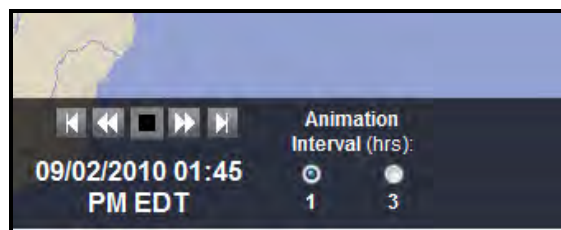
While animating, the animation bar will display showing images for the period of 1 or 3 hours depending on your selection. New images will automatically be added to the animation sequence.

Animation timestamps show the time for each frame in the animation.

Additional controls display for layers that have Animate selected.

　　If a layer is animating:

 Allows you to stop animation.

　　If a layer is not animating:

 Jumps you to the first animation frame.

 Allows you to start animation.

 Allows you advance backwards frame by frame.

 Allows you to advance forward frame by frame.

 Jumps you to the last animation frame.

7.7. Plot Symbology

All point data layers with numeric/point values (i.e. Temperature and Humidity) are able to display within color-coded shapes, known as plot symbology. The colors match the palettes provided in the contour maps. For instance, a point value of 100° F in Temperature will match the color palette used for the Temperature contour layer as displayed in the legend below.
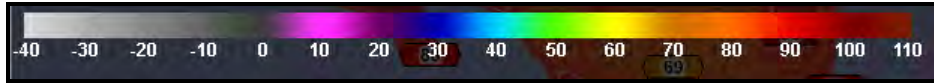
If the point layer does not have a matching contour layer, it will use the same color palette as a similar contour layer. For instance, Daily High Temperature and Heat Index Depression will use the Temperature contour color palette and Dew Point Rate will use the Dew Point contour color palette.

The shapes correspond to the station or data types as follows:

- WeatherBug Location or gridded model data
- Weather Bug Location with Camera
- METAR
- MesoNet

You may activate a legend that displays the shape keys for all layers other than the Days 1-6 NWS Forecast Low/High Deviation. The Days 1-6 NWS Forecast Low/High Deviation layers display the color keys instead. You may also turn the point data symbology on and off for each point layer in the Data Pane. By default, the symbology is on. You have the option to turn it off by simply left-clicking the radio button to the left of the "off" within the pertinent Point Data Layer on the Data Pane.

Note that when you create Views, your Plot Symbology selection will be saved with the View.

7.8. Move Layers to the Top of the Data Pane

Each data layer can be ordered by left-clicking on the layer and dragging and dropping it into the order desired. Moving a data layer to the top of the list makes the layer the top overlay displayed on the map and allows the map tips to be viewed for that layer.

7.9. Data Layer Update Time

Data layers show the time of the latest update performed in the map at the bottom of the individual data layer entry in the Data Pane.

8. Viewing Custom Notifications

A Custom Notifications link appears to the right of the Current View or Current Slideshow on the zoom level display bar. The display will vary based on the status of your Custom Notifications that have been created using the Edit Notifications link in the menu bar:

- **Flashing, bold, red font:** You have one or more new active Custom Notifications that you have not yet viewed (you have not opened the Custom Notification List).
- **Bold, black font:** You have one or more active Custom Notifications that have not been read (you have not viewed the Custom Notification Details).
- **Non-bold, black font:** All active Custom Notifications have been read or you do not have any active Custom Notifications (you may have existing inactive Custom Notifications).

The numbers that appear in the link provide the number of active Custom Notifications out of the total number of active and inactive Custom Notifications. For instance, (2 of 4) represents 2 active Custom Notifications out of 4 total active and inactive Custom Notifications.

Viewing the Custom Notification List

Left-clicking on the Custom Notifications link opens the Custom Notifications List with the Active tab selected. There are two Custom Notification tabs you may select: Active and Inactive. You can also employ the pull down tab below to select the number of Notifications you wish to view on a page: 15, 25, 50, 75, 100, or All.

Once the active Custom Notifications List is opened, the Custom Notifications link will no longer display with blinking, red font. This is because all new notifications are considered "viewed" once the list is opened.

Close the Custom Notifications List by left-clicking on the close button ✖ in the upper, right-hand corner.

Reading Custom Notifications

Custom Notifications in the list appear in bold text if they have not been read. You will see information on the Rule Name, Location, Notification Rule, Issue Time, Expired/Expiration Time, and a number of Actions. In order to "read" a notification so that it makes the font un-bold, you must left-click the Mark as Read button 🖻 under the Actions column. The rule will then be considered as "read."

Note: All lightning details represent the pulse that caused the Custom Notification.

Custom Notification Actions

You are able to Delete, Mark as Read, Export and Print the Custom Notifications in each list. To perform each of these tasks:
1. Select the Custom Notifications by left-clicking on the specific Notification.

2. Left-click on the Export, Print, Mark as Read, or Delete buttons.
   - **Export (📤): Exports the selected Notification to a CSV file.**
   - **Print (🖨):** Opens a new window with the notifications in printable format.
   - **Mark as Read (🖻):** Un-bolds the font for all selected notifications.
   - **Delete (🗑):** Permanently deletes the Custom Notification(s) from all lists.

You may center each Custom Notification's location on the map (the zoom level will not change) by left-clicking on the "map" link next to each notification.

You are able to manage your Custom Notifications (see Section 10.1 Edit Notifications) by left-clicking on the Edit Notifications link. This will cause the Custom Notifications List to close and the Notifications Configuration window to open.

8.1. Active Custom Notifications

Left-clicking on the Active tab displays only Custom Notifications that are active. You can employ the pull-down tab to select the number of Notifications you wish to view on a page: 15, 25, 50, 75, 100, or All. Custom Notifications are considered active from the point the event occurs until the event expires. Note that a test email notification that you trigger will be sent to your Active Custom Notification list. The expiration rules are determined by the type(s) of Data Elements comprising the Rule(s):
   - **Weather Service Alerts:** Weather Service Alerts follow the Expiration Time in the alert.
   - **Lightning:** Lightning Custom Notifications expire after the duration time has elapsed from the last lightning flash/pulse has occurred at the location.
   - **Observations:** Observations expire 15 minutes after the Threshold becomes false.
   - **Invalid:** When there are no available weather stations for your location, an Unavailable Notification will display. This will expire once a weather station becomes available for that location again.
* *Custom Notifications with two data elements will follow the shorter of the expiration times.*

Custom Notifications are moved to the Inactive list when they expire. If they are deleted while in the Active list, they are permanently removed and will not move to the Inactive list.

8.2. Inactive Custom Notifications

Left-clicking on the Inactive tab displays only Custom Notifications that are inactive. Once again, you can use the pull down tab to select the number of Notifications you wish to view at a time: 15, 25, 50, 75, 100, or All. When notifications are moved from the Active to the Inactive list, the notifications will be bolded again until they are read.

Custom Notifications remain in the Inactive list until they are deleted or for *24 hours* after they expire.

9. Data Menu (Map Layers)

Map Layers	Alerts	Current	Forecast Model Data	Radar & Satellite	Severe	Tropical
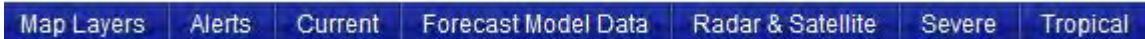
The data menu allows you to select map layers and overlays for viewing. Each data menu category will allow you to turn on a single layer using a radio button or multiple layers using one or more check boxes.

Generally, only one point layer and one contour layer can be enabled at a time using radio buttons and multiple overlays can be selected using check boxes. When a layer/overlay is selected, it will become visible on the map and an entry will be entered in the Data Pane on the right of the display.

As you select data layers and overlays from the menu options, the StreamerRT map display will refresh to include the newly selected data.

Data observations are refreshed *every minute automatically regardless of whether a given station has an update*; moving the map around will not refresh the data. You can always obtain the latest data by left-clicking on the map tip for the Data Layer at the top of the Data Pane. For Earth Networks stations, for instance, this map tip data will be updated within the last several seconds.

Layers and overlays available for selection are dependent on user accounts. Depending on access, you will have the ability to view some or all of the following selections:

9.1. Map Layers

Depending on access, users can view map boundaries and other details. Map Layers include U.S. County and State Boundries and International Borders and will overlay all map layers with black borders. It is best to only use the U.S. County Boundries layer on close zoom, otherwise it may take extra time to draw.

9.2. Alerts

Depending on access, users are able to view up to three different sources of alerts in StreamerRT: national meteorological agency issued alerts (Met Services), Earth Networks Severe Weather Alerts (WeatherBug), and Custom Notifications.

9.2.1. Met Services

Users are able to view alerts from the National Weather Service and Environment Canada depending upon access.

Met Services Alerts Map Tip

All Met Services alerts allow you to view the alert summary information for each displayed alert on the map. Make sure the alert layer is the top layer in the Data Pane and the zoom level is 3 or higher. Left-clicking on an alert box opens up the map tip.

Most Met Services alert map tips display a Details link at the bottom of the page. Left-clicking on this link opens a new window or tab with detailed alert information. The first alert is displayed by default. Additional alerts (if any) may be viewed by left-clicking the links at the top of the page.

9.2.1.1. National Weather Service (NWS)

NWS Alerts include alerts for the Continental U.S., Alaska, Hawaii, Guam and Puerto Rico. Users are able to select which alert types to view from the Data Pane.

Severe Weather - Tornado Warning, Severe Thunderstorm Warning, Tornado Watch, Severe Thunderstorm Watch, Flash Flood Warning

Flood Warnings - Flash Flood Warning, Flood Warning, Coastal Flood Warning, Flash Flood Watch, Flood Watch, Flood Statement

Winter Weather - Winter Storm Warning, Winter Storm Watch, Winter Weather Advisory
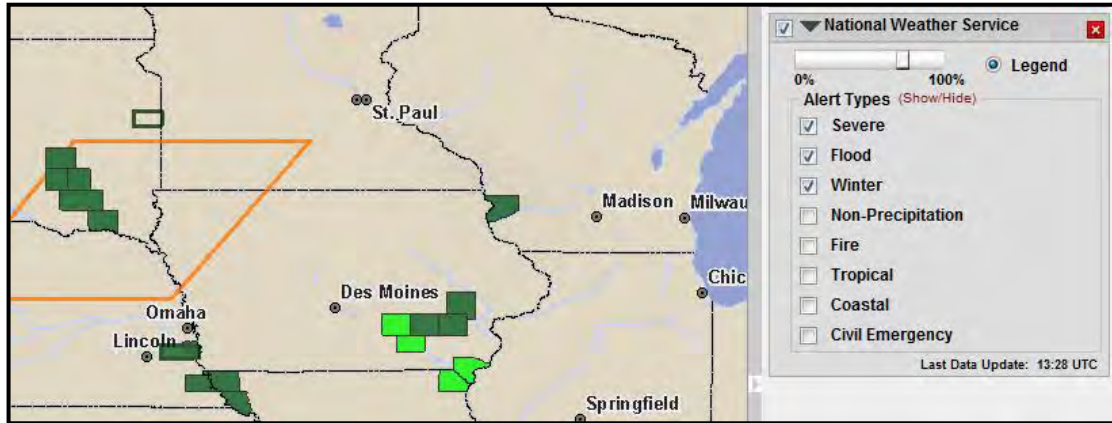
Non-Precipitation - Frost and Freeze Warning, Frost and Freeze Watch, High Wind Warning, High Wind Advisory, High Wind Watch, Lake Wind Advisory, Dust Storm Warning, Air Stagnation Alert, Wind Chill Advisory, Wind Chill Warning, Excessive Heat Warning, Dense Fog Warning, Freezing Fog Warning

Fire Weather - Red Flag Warning

Tropical Weather - Hurricane Local Statement, Hurricane Warning, Hurricane Watch, Tropical Storm Warning, Tropical Storm Watch, Extreme Wind Warning

Coastal Weather - Coastal Flood Warning, Coastal Flood Watch, Coastal Flood Statement, Lake Shore Warning Statement, Tsunami Warning, Tsunami Watch

Civil Emergency - Civil Emergency Message, Civil Emergency Message, Avalanche Watch, Avalanche Warning, Child Abduction Emergency

9.2.1.2.   Environment Canada

Environment Canada Alerts include alerts for Canada provinces and territories. You may select which alert types to view in the Data Pane.

Selections include:
- Severe Weather
- Flood
- Winter
- Non-Precipitation
- Tropical

9.2.2. Earth Networks Dangerous Thunderstorm Alerts (DTAs)

Dangerous Thunderstorm Alert (DTA) - issued when lighting rates exceed 25 flashes/minute. The alert indicates an increased threat of heavy rain rates, dangerous lightning, hail, strong winds and tornadic activity.

DTA Map Tip
Left-clicking anywhere within the DTA polygon will open up a map tip of all active national weather service and DTA alerts in the area. This is the same map tip described in the Met Services section (8.2.1). Make sure the alert layer is the top layer on the map and the zoom level is 3 or higher to view.

9.2.3. Custom Notifications

You are able to view the status for every location that has a Custom Notification by selecting the Custom Notification Locations map layer. A color-coded star displays for each location:

- **Green:** locations with rules that are turned on but are not active
- **Orange:** locations with all rules turned off or no rules attached
- **Red:** locations with rules that are turned on and currently active

Custom Notifications consist of the following elements:

- **Threshold**: a value that is added to a data element to determine when the weather observation becomes active—you input the threshold that will cause Observation data elements to become active; Lightning and Weather Service Alert data elements become active when lightning occurs or an alert is activated
- **Data Element**: the Observation, Weather Service Alert or Lightning selection assigned to a rule, up to two data elements may be assigned
- **Rule**: the data element(s) assigned to a location, you may turn rules on and off (Custom Notifications are never issued for rules that are off)
- **Location**: the point, radius or zip code to which the rules are assigned
- **Custom Notification**: the combination of a location and rule, a Custom Notification becomes active when a threshold is met/occurs for at least one of the data elements assigned to a rule and inactive when a threshold is not met

For details on creating, editing and deleting Custom Notifications, please see Section 10.1 Edit Notifications.

Custom Notifications Map Tip

Left-clicking on any of the stars opens a map tip that shows all rules associated with the alert along with their status of active or inactive. Note that you can use the drop down menu to select the number of Active or Inactive Rules you wish to display.

9.3. Current

View worldwide station observation point data and/or detailed color contour images for numerous station data attributes by leveraging the exclusive WeatherBug Network. Current map layers are automatically refreshed every 5 minutes.

9.3.1. Surface Data

Allows you to select point or contour image for any of the data selections below:

Note: You may only view one point and one contour at a time.
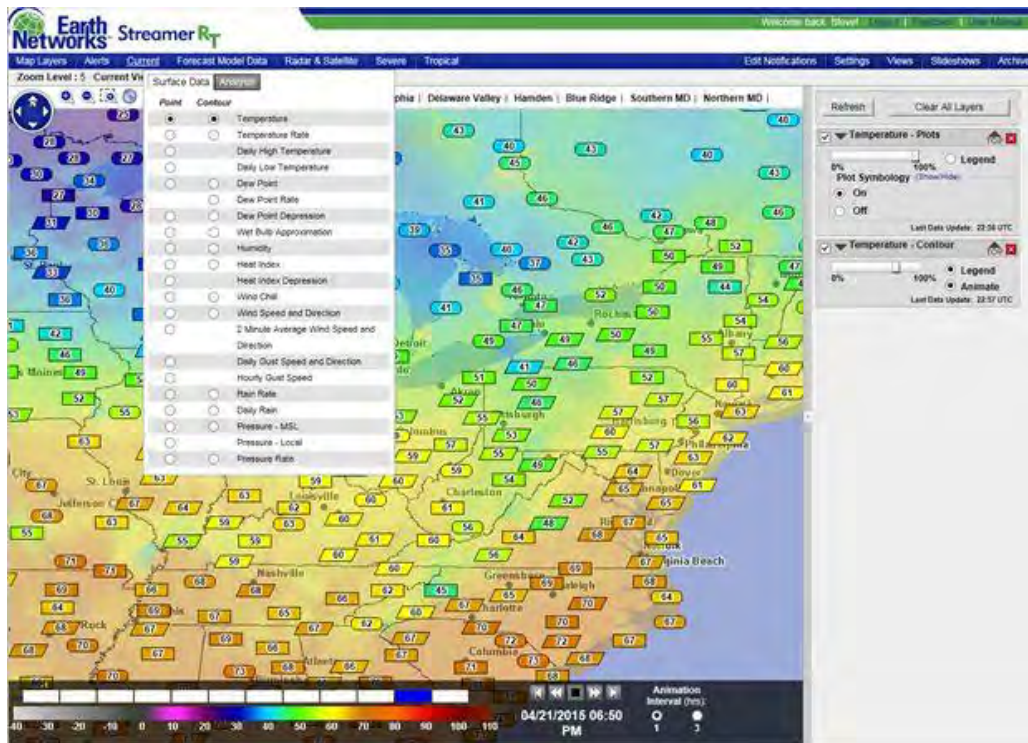
Temperature – current surface temperatures in degrees Fahrenheit or Celsius

Temperature Rate – measured temperature change in the last six minutes expressed as an extrapolated hourly temperature change rate (plus or minus) in degrees Fahrenheit or Celsius

Daily High Temperature – measured highest temperature in degrees Fahrenheit or Celsius for the current day (midnight to midnight local time)

Daily Low Temperature – measured lowest temperature in degrees Fahrenheit or Celsius for the current day (midnight to midnight local time)

Dew Point – current surface temperature to which the air must be cooled for water vapor to condense into water (dew) in degrees Fahrenheit or Celsius

Dew Point Rate - measured dew point temperature change in the last six minutes expressed as an extrapolated hourly temperature change rate (plus or minus) in degrees Fahrenheit or Celsius

Dew Point Depression – the difference between the temperature and the dew point

Humidity – the amount of water vapor in the air expressed as a percent of maximum saturation

Heat Index – index that combines the current temperature and humidity to determine an apparent temperature in degrees Fahrenheit or Celsius

Heat Index Depression – difference between the Current Heat Index and the Current Outdoor Temperature

Wind Chill – index that factors air temperature and wind speed to determine an apparent temperature felt on exposed skin in degrees Fahrenheit or Celsius

Wind Speed and Direction – current wind speed and direction in miles or kilometers per hour

2 Minute Average Wind Speed and Direction – a moving two minute Average Wind Speed and Average Wind Direction (the two minute window is defined as the two minutes prior to the current observation time)

Hourly Gust Speed – peak instantaneous wind speed measurement for the past hour (hour is defined as the 60 minutes before the current observation time)

Daily Gust Speed and Direction – highest wind gust speed in miles or kilometers per hour and direction for the current 24 hour period

Rain Rate - measured rain total in the last six minutes expressed as an extrapolated hourly rain rate in inches or millimeters

Daily Rain – measured amount of rain in inches or millimeters for the current day 24 hour period

Pressure - MSL - the pressure exerted by the atmosphere at sea level expressed in inches of mercury or millibars

Pressure – Local – the pressure exerted by the atmosphere at the elevation of the location expressed in inches of mercury or millibars

Pressure Rate – the measured pressure exerted by the atmosphere at sea level in the last six minutes expressed as an extrapolated hourly pressure change rate expressed in inches of mercury or millibars

Wet Bulb Approximation – the lowest temperature that can be obtained by evaporating water into the air

Point Map Tip (Station)

The Point Map Tip allows you to view a quick data summary of many critical real-time station weather parameters and daily values. To enable a station map tip, left-click on the data point that you want to view and the map tip will open.
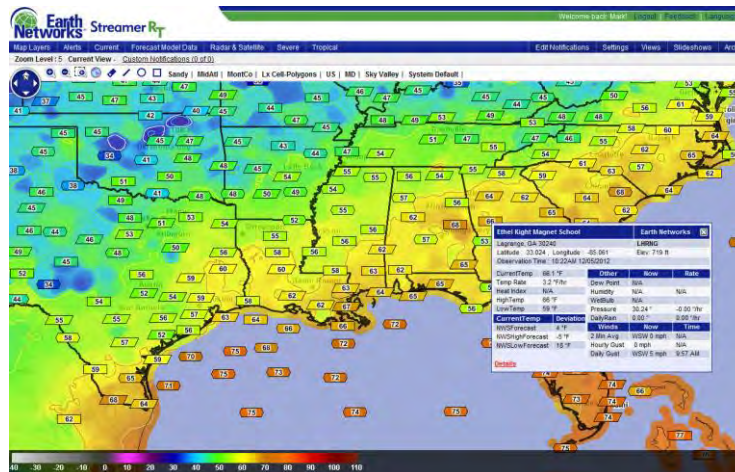
Dashboard

In addition to the station map tip, you can left-click on the "Details" link found at the bottom of the map tip to open the Dashboard in a new window or tab.

The Station Dashboard provides you with a comprehensive view of weather station observations including camera images, daily and monthly observation summaries/graphs as well as 7-day and hourly forecast information.
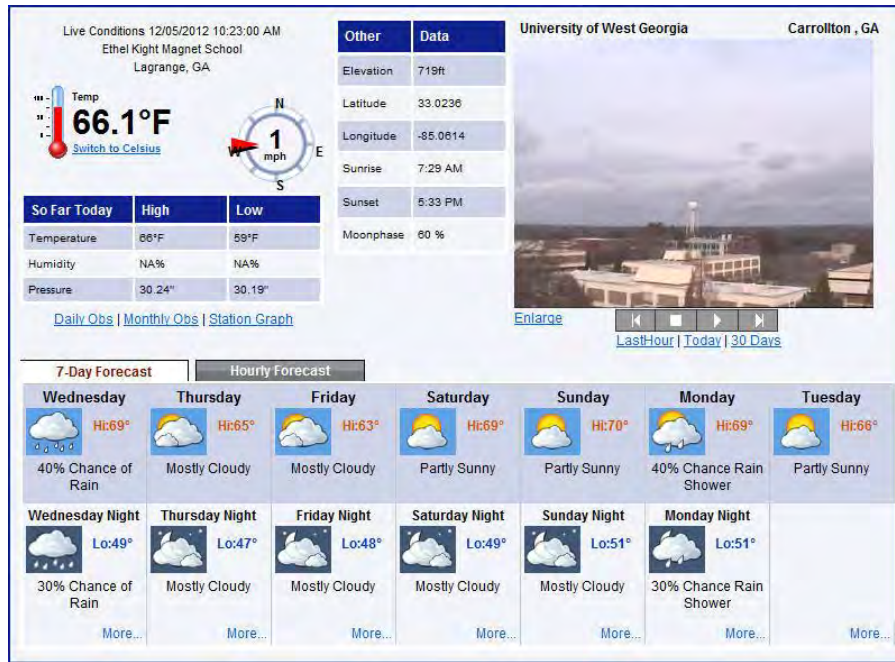
9.3.2. Analysis

Selecting **Temperature Deviation from Yesterday** displays the difference of the current temperature from the temperature at the same time 24 hours ago as a contour and/or point layer.

9.4.   Forecast Model Data

National Weather Service NDFD forecast data such as current temperature and daily high/low temperature is available based on user access. In addition, critical Forecast Deviation points and/or contours which provide the immediate location where the weather is unexpectedly hot or cold are available. (Includes the Continental U.S.) Forecast Model Data map layers are automatically refreshed every five (5) minutes.

9.4.1. Daily High Low

Selections are:

NWS (NDFD) Current Temperature Forecast – NWS forecast information provided by the NDFD available as point data and color contour

NWS (NDFD) Low/High Forecast Temperatures for Days 1-7 – NWS forecast information provided by the NDFD available as point data and color contour (From 12 am local time to approximately 8 am local time, the Day 7 low temperature will be unavailable (N/A) until the overnight model run is updated.)

9.4.2. Deviation

Displays the deviation between forecast temperatures and current temperatures as point data and color contour. Selections are:
- Current Temp from NWS Low Temp Forecast
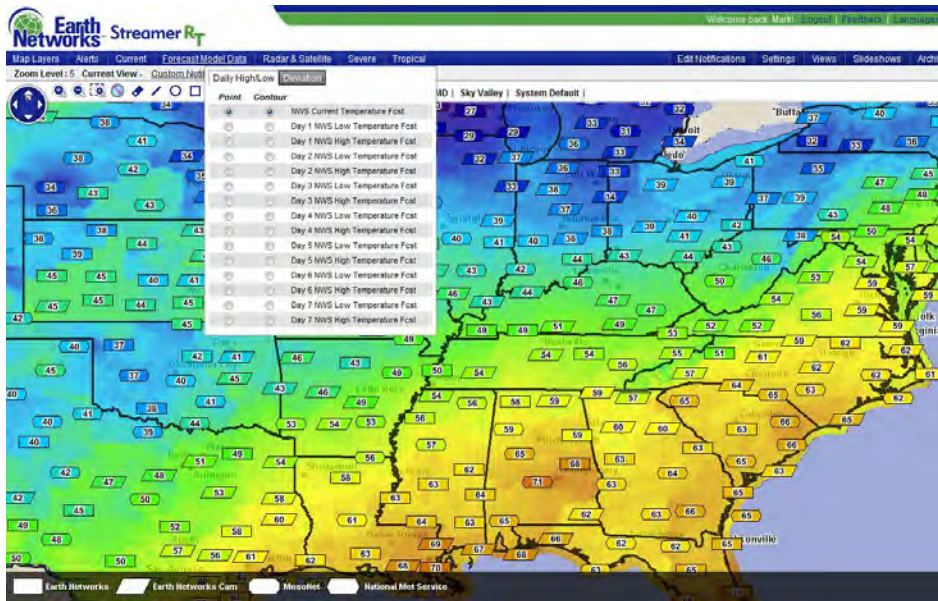
- Current Temp from NWS High Temp Forecast
- NWS Current Temp Forecast from Current Observed
- NWS Forecast Low/High Deviation (Days 1-6)—see Section 9.4.2.1 NWS Forecast Low/High Deviation Point Layers below for more details on the layer and associated map tip

Point Map Tip/Dashboard and Deviation Map Tip

All Forecast Model point data other than the NWS Forecast Low/High Deviation (Days 1-6) layers also display the same Point Map Tip and Dashboard as used for Current layers (Section 9.3) when clicked.
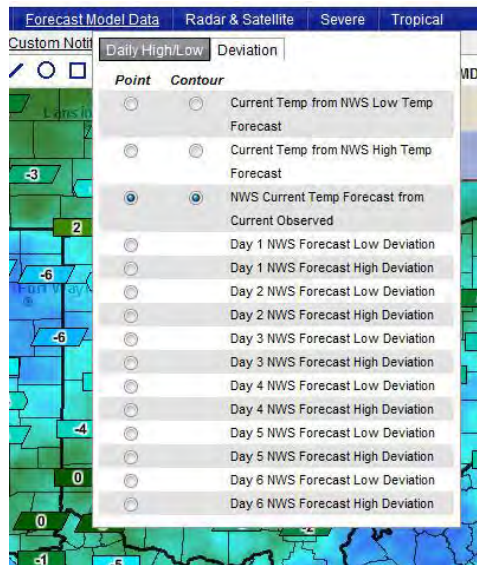
9.4.2.1.   NWS Forecast Low/High Deviation Point Layers

The NWS Forecast Low/High Deviation point layers display the difference between the first forecast low or high issued in the NDFD forecast for the specified date and the first forecast low or high issued in the NDFD forecast for the previous date. This allows observation of

forecast trends and uncertainty based on forecast spread, which will help assess risk and confidence.

Forecast deviations are displayed on a 4km grid that will display at higher resolution as map levels are zoomed in.

Forecast days will advance as forecasts update and NWS forecasts stop issuing high and low forecasts for the current day. This will generally occur in the morning for lows and in the late afternoon for highs.

You are able to select either the low or the high values for Days 1-6. For NWS Forecast High Deviation point layers, Day 1 is always the current date, Day 2 is always tomorrow and Day 3 is always the day after tomorrow, etc. For NWS Forecast Low Deviation point layers, Day 1 is always tomorrow, Day 2 is always the day after tomorrow, etc.

Example of Data (high forecast):

		Forecast Date							
		13-Mar	14-Mar Day 1	15-Mar Day 2	16-Mar Day 3	17-Mar Day 4	18-Mar Day 5	19-Mar Day 6	20-Mar
Date Forecast Received	13-Mar		67	61	70	88	90	80	76
	12-Mar	76	66	61	71	87	85	79	

In the example above, the current day (Day 1) would be March 14th since both forecast values are no longer available for March 13th and Day 6 would be March 19th.

Example of Data (low forecast):

		Forecast Date							
		14-Mar	15-Mar Day 1	16-Mar Day 2	17-Mar Day 3	18-Mar Day 4	19-Mar Day 5	20-Mar Day 6	21-Mar
Date Forecast Received	14-Mar		47	41	50	58	50	50	N/A
	13-Mar	56	46	41	51	57	55	49	

In the example above, the current day (Day 1) would be March 15th since both forecast values are no longer available for March 14th and Day 6 would be March 20th.

Point Map Tip/Dashboard and Deviation Map Tip
Left-clicking on any of the data points in any of the NWS Forecast Low Deviation point layers opens the NDFD Low Temperature Forecast Trends map tip; left-clicking on any of the data points in the NWS Forecast High Deviation point layers opens the NDFD High Temperature Forecast Trends map tip. The map tip displays 7 days of full forecasts with 7 days of data in both line graph and table format (the NDFD Low Temperature Forecast Trends map tip is shown below).

Thursday , December 6
NDFD High Temperature Forecast Trends
Lat/Lon : 41.51,-80.50

	30-Nov	01-Dec	02-Dec	03-Dec	04-Dec	05-Dec	06-Dec	07-Dec	08-Dec	09-Dec	10-Dec	11-Dec	12-Dec
05-Dec							45	48	49	48	52	35	37
04-Dec						38	39	48	49	49	55	49	
03-Dec					61	37	38	46	45	48	56		
02-Dec				59	58	37	41	46	39	39			
01-Dec			57	61	58	38	39	46	38				
30-Nov		53	55	58	52	36	39	48					
29-Nov	47	51	56	55	53	37	37						
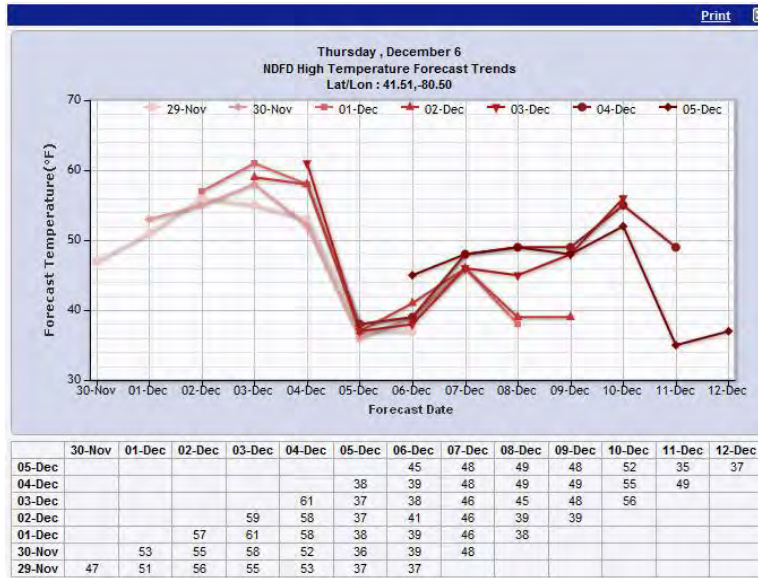
Line Graph

The x-axis denotes the forecast date and the y-axis denotes the temperature. The line colors, displayed in a legend at the top of the graph, denote the date the forecast was received. You are able to mouse over the points to display a pop-up window with values. The top line in the pop-up displays the date the forecast data was received and the bottom line displays the forecast date and value. If points overlap, the most recent 7-day forecast values will display in the pop-up by default. To display the pop-up for an underlying point, right-click on the line belonging to the point to activate.

Chart

In the chart, the x-axis denotes that date the forecast was received and the y-axis denotes the forecast date.

9.5.   Radar & Satellite

Current radar, radar loops, radar reflectivity forecasts, satellite images and precipitation accumulation totals are available.

9.5.1. Radar

Current Radar and Forecast radar mosaics show where precipitation is and where it is headed. (Includes Continental U.S., northern Mexico, southern Canada and adjacent coastal waters.)

9.5.1.1.   Current Radar Mosaic

Doppler radar 1km composite radar image covering the Continental U.S. 15 radar dBZ (decibels of Z, where Z represents the energy reflected back to the radar) levels are shown covering 5 to 75+ dBZ and color coded each 5 dBZ. The layer is automatically refreshed every 5 minutes.

9.5.1.2. Single Site Radar Locations

Displays individual WSR-88D Doppler radar locations. (Includes Continental U.S., Alaska, Hawaii, Guam and Puerto Rico.)

Checking the Single Site Data Location layer under Radar & Satellite adds the 4-letter Site IDs of locations, plotted in a white box with blue text, to the map.
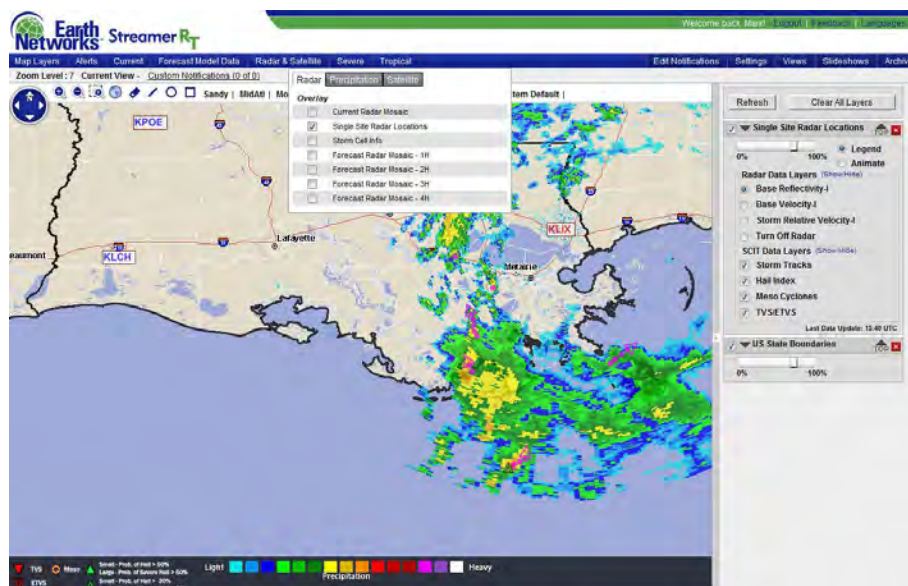
To select a single site location Left-click the desired location text, this will display the default Base Reflectivity I data layer and will load the data layer into the Data Pane. The Site ID marker will change to red to indicate it is the 'active' site being viewed.

Data Pane Selections for Single Sites

Radar Data Layers

The following Radar Data Layers are available for display by left-clicking on a radio button.
    Base Reflectivity I - 124nmi range, angle = 0.5 degrees (selected by default)
    Base Velocity I - 124nmi range, angle = 0.5 degrees
    Storm Relative Velocity I - 124nmi range, angle = 0.5 degrees
    Turn Off Radar

SCIT Data Layers

Left-clicking on a single site location from the Data Pane will also include the available SCIT (Storm Cell Identification and Tracking) information. Checking the data layers will display SCIT markers available from the selected radar site. Left-clicking the SCIT marker will display a map tip window for the storm.

Storm Tracks ●——➤ – show motion and speed of cell over one hour with 15 min markers

Hail Index –

▲ If Prob of Severe Hail >or= 50%

◬ If Prob of Severe Hail >or= 30%

▲ If Prob. Of Hail >or= 50% and Prob of Severe Hail = 0%

◬ If Prob. Of Hail >or= 30% and <or= 50% and Prob of Severe Hail = 0%

◯ **Meso Cyclones** – orange donut

▼ TVS – Tornado Vortex Signature - upside down solid red triangle

▽ ETVS – Elevated Tornado Vortex Signature - upside down hollow red triangle

SCIT data is not available for animation. The most recent SCIT information will plot when selected.

SCIT Map Tip

Make sure the Single Site Radar Locations layer is the top layer on the map in the Data Pane. Left-clicking on any of the SCIT markers will open up the map tip.

KBMX BIRMINGHAM, AL	Cell: J2 11:28 AM CDT - Apr 06, 2015 ☒
Movement	330 deg. at 22 kts.
Max DBZ	45 dBZ
Max dBZ Height	9500 ft
VIL	2 kg/m^2
Top	9500 ft

The information displayed in the map tip varies based on the SCIT marker. The map tip displayed above ifs for Storm Tracks.

9.5.1.3.   Storm Cell Info

Displays the speed in knots and direction of storm cells associated with NWS Severe Thunderstorm and Tornado warnings. (Includes Continental U.S.)

Storm Cell Map Tip

Make sure the Storm Cell Info layer is the top layer on the map in the Data Pane. Left-clicking will open up the map tip.

Storm Cell Info	⊠
Nearest City	Milton, FL
Event Time	04/15/2015 4:53:00 PM - CDT
Direction	268 deg.
Speed	13 kts
Lat/Lon	30.69, -87.17
Posted Time	04/15/2015 4:54:00 PM - CDT
Expire Time	04/15/2015 5:30:00 PM - CDT

9.5.1.4. Forecast Radar

Displays a Forecast Doppler radar 1km composite radar image covering the Continental U.S. 15 radar dBZ levels are shown covering 5 to 75+ dBZ and color keyed each 5 dBZ. The data is updated 4 times an hour. Selections are for 1, 2, 3 and 4 hours. (Includes Continental U.S., northern Mexico, southern Canada and adjacent coastal waters.)

9.5.2. Precipitation

Track precipitation accumulation totals over a 1, 3, 6, 12 and/or 24 hour period.

Rain Water Accumulation precipitation accumulation estimates are derived from the Nationwide Level II mosaics (NMII) every 5 minutes retaining the high resolution 1km grid. Selections are available for 1, 3, 6, 12 and 24 hours. (Includes Continental U.S.)

9.5.3. Satellite

View visible, infrared and international infrared satellite images.

Satellite Visible - Visible channel satellite image that displays cloud cover from 15-180 degrees west and 0-90 degrees north. Cloud cover is depicted by reflected sunlight off the cloud tops. Image will be black where the sun is not shining. Image is updated every 30 minutes.

Satellite IR - Infrared channel satellite image that displays cloud cover from 15-180 degrees west and 0-90 degrees north. Cloud cover is depicted by assigning colors to a scale of water droplet temperatures detected by satellite. Image is updated every 30 minutes.

International IR Satellite - Infrared channel satellite image that covers the world. Cloud cover is depicted by assigning colors to a scale of water droplet temperatures detected by satellite. Image is updated every 1 hour.

9.6. Severe Weather

Track lightning, flood conditions, fire, major snow forecast and accumulation areas and storm reports.

9.6.1. Lightning

View lightning flashes or pulses, cell tracks and lightning polygons for >3 flashes/minute, >12 flashes/minute and >25 flashes per minute (DTA—Earth Networks Dangerous Thunderstorm Alert).
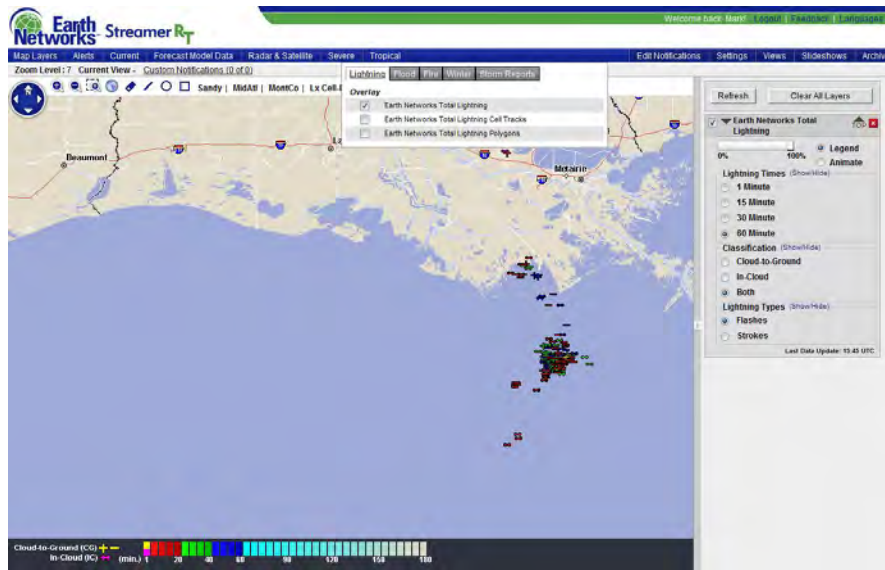
9.6.1.1.   Earth Networks Total Lightning

The Earth Networks Total Lightning data layer has a number of options available in the Data Pane for displaying lightning information. You are able to select Lightning Times (the last 1, 15, 30 or 60 minutes), Classification (Cloud-to-Ground, In-Cloud or both) and Lightning Types (Flashes or Pulses). Please note that this data is available worldwide.

<u>FLASH</u>: the complete bolt of lightning including the many forked tentacles called pulses.
- **Cloud-to-Ground (CG) Flash**: comes into contact with the ground
- **In-Cloud (IC) Flash:** does NOT make contact with the ground

<u>PULSE</u>: one of the many tentacles that comes out from a lightning flash. Many pulses make up the composite flash.
- **Cloud-to-Ground (CG) Pulse**: main pulse of strong electric current in a lightning channel connecting to ground
- **In-Cloud (IC) Pulse**: pulse of electric current in a lightning channel that does NOT touch the ground

At this time, only CG flashes and pulses can have the polarity indicated by displaying the location of the flash with a positive or negative symbol. The legend displays the type of pulse or flash by color with the CG showing both positive and negative parameters.

(-) Negative CG Pulses: negative charge flows from the cloud to the ground. These are by far the most common type of CG pulse, occurring more than 95% of the time.
(+) Positive CG Pulses: positive charge flows from the cloud to the ground. These are rarer- occurring less than 5% of the time. Positive pulses are considerably more dangerous and damaging than CG pulses as they often have a stronger current and last longer.
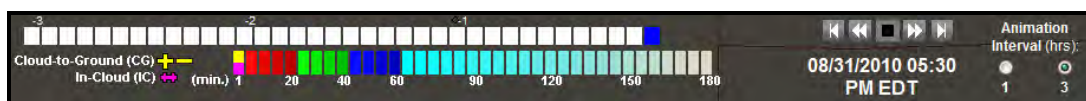
The age of the lightning pulse or flash is color coded as indicated in the legend on the animation bar. When animating, the colors change as the lightning animation moves forward in time. An example of a 3-hour animation is shown below.
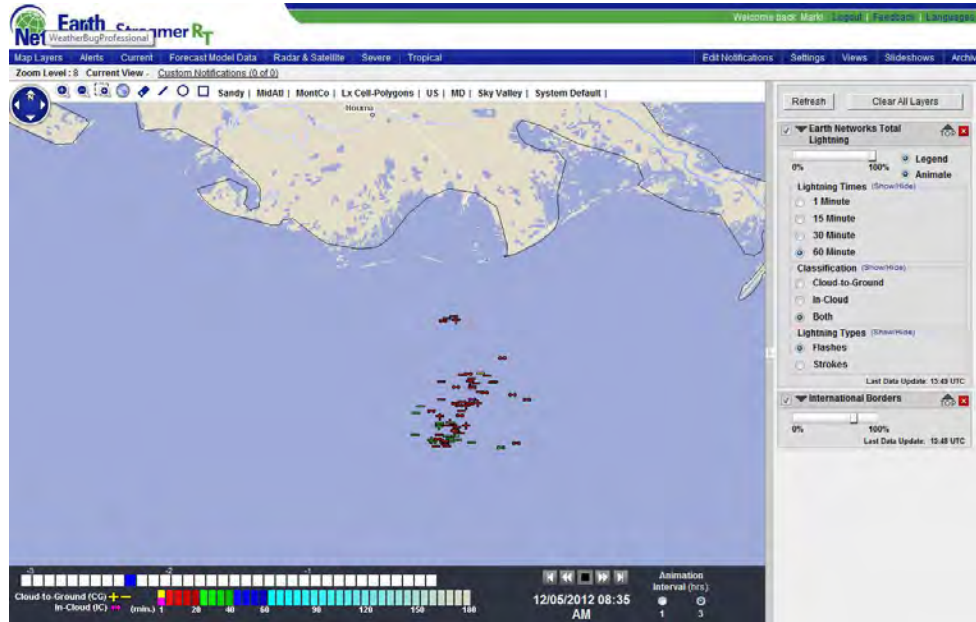
WeatherBug Total Lightning Map Tip

You must be zoomed into zoom level 9, 10 or 11 to be able to access map-tip information on the pulse or flash. The map tip for lightning displays the location, time and amperage.

Left-clicking on Details displays a complete table of the lightning data that is visible within the map pane in a new window.

You may left-click on the Copy Table link at the bottom of the table to copy the table data to paste the data into another program.

9.6.1.2.   Earth Networks Total Lightning Cell Tracks

The Earth Networks Total Lightning Cell Tracks layer displays a connected line of individual lightning cell center points indicating the track and location of individual lightning cells over the last 3 hours or since the cell formed. The end-point displays an arrow indicating the direction of movement. The most recent cell center point is surrounded by a polygon that is color-coded based on the rate of lightning. Each line segment is also color coded based on the rate of lightning at that instance in time. The legend for the layer provides color keys.
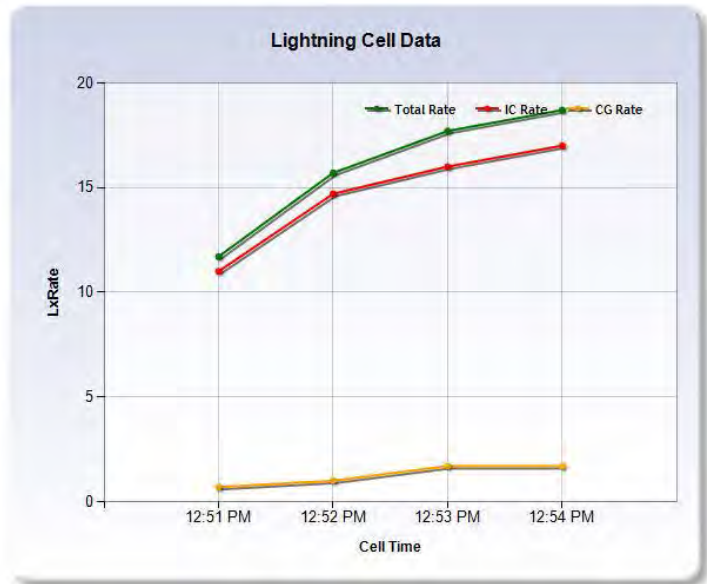
Earth Networks Total Lightning Cell Tracks Map Tip

Left-clicking on a displayed lightning cell on the map opens a map tip with the following information: Cell Area, Cell Centroid, Total Rate (flashes/minute), IC Rate (flashes/minute), CG Rate (flashes/minute), Total Rate Change, IC Rate Change, CG Rate Change, Direction and Speed. You must be at zoom level 9 or above and the map must not be animated.

Left-clicking on the Details link opens an additional window that displays lightning cell data in table and line or bar graph format. You are able to left-click on the Copy Table link to copy and paste the table data into another program.

9.6.1.3. Earth Networks Total Lightning Polygons

The Earth Networks Total Lightning Polygons layer displays color-coded polygons based on your selection in the Data Pane. You may select from one to all layers:

- **Level 1:** the polygon color is green, flash rate of >3 flashes/minute
- **Level 2:** the polygon color is orange, flash rate of >12 flashes/minute
- **DTA:** the polygon color is purple, this represents a DTA—Earth Networks Dangerous Thunderstorm Alert (flash rate of >25 flashes/minute)

One level must be selected in the Data Pane; by default, the DTA level is selected.

There can only be one Level 1, Level 2 and/or DTA issued for the cell at a given time, but more than one polygon can display because they have 45 min valid times and the polygons can be reissued every 15 minutes. Thus, there can be up to three Level 1, Level 2, and/or DTA polygons displayed on the cell.

Earth Networks Total Lightning Polygons Map Tip
Left-clicking anywhere within a displayed lightning polygon on the map opens a map tip with the additional details. You must be at zoom level 9 or above.

Cell : SA2697	12:55 PM - Dec 05, 2012 ⊠
Cell Area	13.6 m^2
Cell Centroid	-23.28,-48.59
Total Rate	16.7 flash/min
IC Rate	15.0 flash/min
CG Rate	1.7 flash/min
Total Rate Change	2.3
IC Rate Change	2.2
CG Rate Change	0.1
Direction	318
Speed	1.7 mph
Details	

9.6.2. Flood

Selections include the following for Continental U.S. locations:

Flash Flood Guidance - Flash Flood Guidance estimates the average number of inches of rainfall for given durations required to produce flash flooding in the indicated county issued by the National Weather Service (NWS) River Forecast Centers. These estimates are based on current soil moisture conditions. **Note:** In urban areas, less rainfall is required to produce flash flooding. Selections are available for 1, 3, 6, 12 and 24 hours.

Significant River Flood Outlook - This Flood Outlook is intended to provide a general outlook for significant river flooding provided by the NWS Hydrometeorological Prediction Center.

Flood map layers are automatically refreshed every 5 minutes.

9.6.3. Fire

Selecting the Current Fire Perimeters layer displays the location of active fire perimeters provided by the Geospatial Multi-Agency Coordination Group (GeoMAC). (Includes Continental U.S.)

The Fire map layer is automatically refreshed every 5 minutes.

9.6.4. Winter

Allows you to track snowfall amount and forecasts. (Includes Continental U.S.)

Snowfall Amount – Accumulated snowfall amount (in inches) for the past 1, 3, 6, 12 and 24 hours on a 1km grid. The 1 hour snowfall amount is updated every 5 minutes; all others are updated hourly.

Snow Amount Forecast—The Snow Amount Forecast contains 4-6 hour options and is broken into 6 hour increments as follows: 8AM-2PM, 2PM-8PM, 8PM-2AM and 2AM-8AM EST. Each forecast period falls into one of those periods based on the current EST. Let's pretend it is 3:00 PM EST:

- 8AM-2PM: 18-24 hours forecast
  - The expected total accumulation of new snow (in inches) in a 6 hour period.
- 2PM-8PM: 0- 6 hours forecast (falls in current timeframe)
  - The expected total accumulation of new snow (in inches) in a 6 hour period. The 6 Hour periods correspond to either 8AM – 2PM, 2PM – 8PM, 8PM – 2AM, 2AM – 8AM represented in EST. The valid time of the Snow Amount (0 - 6 hours) data layer will represent the 6 Hour period that corresponds to the current EST.
- 8PM-2AM: 6-12 hours forecast
  - The expected total accumulation of new snow (in inches) in a 6 hour period.
- 2AM-8AM: 12-18 hours forecast
  - The expected total accumulation of new snow (in inches) in a 6 hour period.

Snow Probability Forecast– The probability of new snow. Values are slight (10%), moderate (40%) and high (70%). You may select among the following choices:

- Days 1-3- 4 inches: indicates the chance that 4 inches of snow could accumulate
- Days 1-3- 8 inches: indicates the chance that 8 inches of snow could accumulate
- Days 1-3- 12 inches: indicates the chance that 12 inches of snow could accumulate

Freezing Rain (0.25") Probability Forecast: User may view this overlay for Days 1, 2 and 3. Represents the probability that at least .25 inches of freezing rain or drizzle will fall in the period selected.

9.6.5. Storm Reports

Selecting the Storm Reports layer displays all significant weather events reported to the NWS since midnight. (Includes Continental U.S., Puerto Rico, Alaska and Hawaii.)

The Local Storm Reports map layer is automatically refreshed every 5 minutes.

Storm Report Map Tip
Make sure the Storm Report layer is the top layer on the map. Left-clicking on a point will open up the map tip with report details.

Storm Report - TSTM WND DMG	
Nearest City	APPLETON, SC
Reported Time	04/15/2015 03:43 PM - EDT
Magnitude	
Accuracy	
Latitude	33.01
Longitude	-81.39
Source	PUBLIC

Details:
OAK TREE DOWN ACROSS ROAD HALF A MILE NORTH OF APPLETON RD ON CONCORD CHURCH RD. ONE OR TWO SMALLER HARDWOOD TREES ALSO DOWN IN THE AREA. TIME ESTIMATED FROM RADAR

9.7.   Tropical

The Tropical data is separated by the Atlantic and Eastern Pacific basins. Each active storm allows for selecting options in the Data Pane. Historical storms display the Forecast Track and do not allow any additional selections.

Note: You may only select an overlay if it contains a storm. If multiple storms exist, all will be selected by default. Left-click in a checkbox to select/de-select a storm.
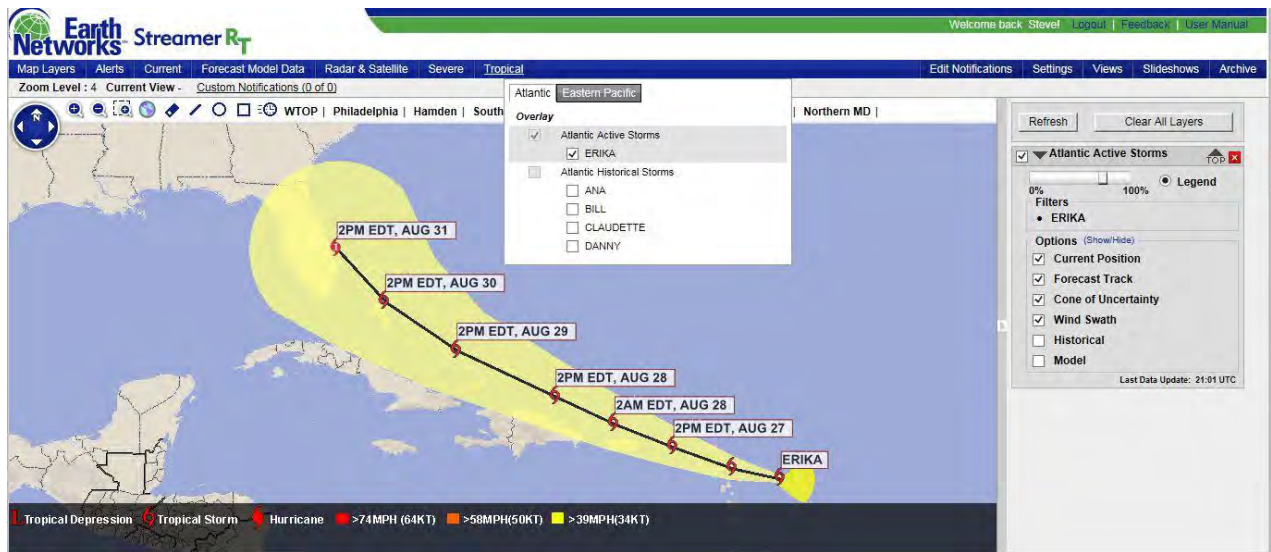
You are able to select the following options for active storms in the Data Pane:

Forecast Track - Official NHC tropical forecast track for active storms. Forecast points are every 12 hours for 0 - 72 hours. Date and time are given in UTC. Number at forecast point is the forecast sustained wind speed at that forecast interval. Data updates 4 times a day, roughly 3, 9, 15 and 21 UTC

Cone of Uncertainty - Defines the uncertainty of the official NHC forecast track. Error in track forecasts dictates that the line of the track is the best estimate, but the cone gives the potential area the storm could actually fall into. Data updates 4 times a day, roughly 3, 9, 15 and 21 UTC.

Wind Swath - Wind swath information is derived from the NHC advisories for the current position report and shows the forecasted extent of 34, 50 and 64 KT (39, 58 and 74 MPH) winds.

Historical – Displays past storm positions.

Model -

Tropical model forecast tracks for active tropical cyclones. Forecast tracks are for the available National Hurricane Center Operational Track Guidance Models, which are for 12-hour forecast intervals from 0-120 hours. Data updates 4 times a day, roughly at 3, 9, 15 and 21 UTC.
- AVNI (Interpolated Aviation Model)
- BAMD (Beta and advection model; deep layer)
- BAMM (Beta and advection model; medium layer)
- CEMN (Canadian Ensemble Mean)

- CLIP (Climatology and Persistence Model)
- COAI (Coupled Ocean/Atmosphere Mesoscale Prediction System (COAMPS) - Atlantic grid interpolated 06 hours)
- DSHP (Statistical Hurricane Intensity Prediction Scheme (SHIPS) with inland decay)
- GFDI (interpolated NWS Geophysical Fluid Dynamics Model)

- LBAR (Limited Area Sine Transform Barotropic Model)

- NGPI (Interpolated Navy Operational Global Prediction System)
- OFCI (Interpolated Official National Hurricane Center Forecast)
- XTRP (Extrapolated forecast of current track)

Tropical Map Tip

Left-clicking on the Historical track for an active or historical storm produces a map tip with storm, latitude/longitude, wind/gust, pressure and movement details.

ANA 5PM EDT - May 09, 2015	
Storm	TROPICAL STORM
Lat/Lon	32.9, -78.3
Max Wind/Gust	57 mph / 69 mph
Pressure	1001 mb
Movement	NW 3 mph
Bulletins	

Left-clicking on the "Bulletins" link in the map tip opens a window displaying further information and discussion on the tropical event.

TROPICAL STORM ANA
5PM EDT - May 09, 2015 Bulletin Number 8
Discussion | Technical Advisory | Public Advisory | Wind Speed Probabilities | Position Estimate
Atlantic Outlook | Atlantic Discussion

Tcdat1

Tropical Storm Ana Discussion Number 8
Nws National Hurricane Center Miami FL   AI012015
500 PM Edt Sat May 09 2015

Ana Continues To Maintain Deep Convection Near And East Of The
Center, Although The Convection Is Rather Ragged-Looking. There Is
Weak Upper-Level Outflow Over The Southern Portion Of The
Circulation. The Current Intensity Is Held At 50 Kt, In Agreement
With Data From An Ascat Overpass From Several Hours Ago. Since The
Storm Will Be Moving Over Progressively Cooler Waters As It Departs
The Gulf Stream, And Is Being Influenced By Northwesterly Shear And
Some Dry Air, Gradual Weakening Is Forecast Until Landfall. After
Ana Crosses The Coast, The Weakening Will Of Course Be More Rapid.
The Official Intensity Forecast Is Again Close To Ivcn, The
Intensity Model Consensus. Global Model Guidance Indicates That
Ana Or Its Post-Tropical Remnant Will Become Absorbed By, Or Merge
With, A Large Extratropical Cyclone Over Atlantic Canada Within 72
Hours.

The Center Is A Little Difficult To Locate, But My Best Estimate Of
The Initial Motion Is 320/3. The Track Forecast Philosophy
Continues Unchanged. The Persistent Mid-Tropospheric Blocking
Ridge To The North Of Ana Is Predicted By The Global Models To
Shift Eastward And Weaken During The Next Day Or So. The Models
Also Depict A Broad Trough Moving Eastward From The Central To The
Eastern U.S. Over The Next 2-3 Days. This Evolution Of The
Steering Currents Should Cause Ana To Turn Northward And
Northeastward. The Official Track Forecast Is Similar To The

Left-clicking on Forecast Track for an active storm produces a map tip with storm type, latitude/longitude and wind/gust details.

Left-clicking on the "Bulletins" link in the map tip opens the same window that opens from the Historical track map tip.

Left-clicking on the Model for an active storm produces a map tip with forecast hour and latitude/longitude information.

10. Settings

The Settings options are located to the right of the data menu in the toolbar.

You may use these buttons to:
- Mange Custom Notifications (Edit Notifications)
- Adjust the settings for unit and date formats (Settings)
- Manage Views (Views)
- Manage Slideshows (Slideshows)
- Export Lightning Archives (Archive)

10.1.   Edit Notifications

Custom Notifications consist of the following elements:
- **Threshold**: a value that is added to a data element to determine when the weather observation becomes active—you input the threshold that will cause Observation data elements to become active; Lightning and Weather Service Alert data elements become active when lightning occurs or an alert is activated
- **Data Element**: the Observation, Weather Service Alert or Lightning selection assigned to a rule, up to two data elements may be assigned
- **Rule**: the data element(s) assigned to a location
- **Location**: the point or radius to which the rules are assigned
  - **Point**: Custom Notifications are issued when a data element occurs at the weather station closest to your point. Note: Lightning data elements may not be assigned to point locations.

- o **Radius**: Custom Notifications are issued when a data element occurs at any of the weather stations located within your radius.
  - **Custom Notification**: the combination of a location and rule, a Custom Notification becomes active when a threshold is met/occurs <u>for at least one</u> of the data elements assigned to a rule and inactive when a threshold is not met

Left-click on the Edit Notifications link on the right side of the toolbar to access the Notification Settings window. *Note that if it has been over 24 hours since you accessed the "Edit Notification" features, you will need to login again as the session has expired*.

The Notification Settings Window allows you to perform the following tasks for locations:
- create new locations
- manage locations
- manage rules
- manage delivery (email address for notification emails)
- edit rules
- import/export rules
- delete locations and rules
- turn rules on or off

You are able to add unlimited locations to your list and unlimited rules to each location. However, you may not have more than 50 rules turned on at one time.
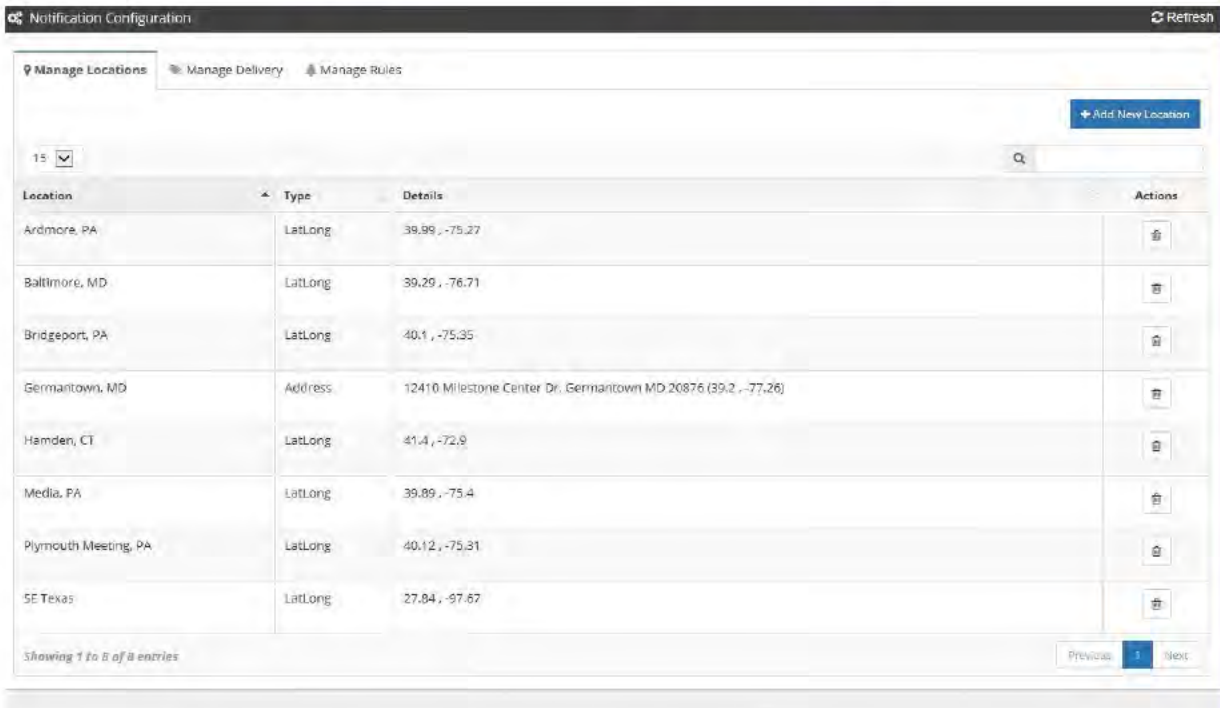

Under the Manage Delivery tab, you will see the following features:

- Drop down menu: employed to select the number of devices to display. Note that you can also use the scroll bar on the right side of the window.

- Device Name: the name of the given device that will receive custom notifications

- Device Type: the type of electronic device that will receive the custom notifications

- Email: the email address to which the custom notifications will be sent

- Actions: this presents the options to edit ( ), or delete ( ) a given device.

To add a new device, click on the **+ Add New Device** button in the upper right. Give this a Device Name, select the Device (Email), and enter your email address. If you click on the Create New Device button, it will be added to the list.

Note that if you left-click the Refresh button at the top right, the entire application will be refreshed.

⚙ Notification Configuration   **↻ Refresh**

| ♀ Manage Locations | ☜ Manage Delivery | 🔔 Manage Rules |

+ Add New Location

15 ▾   🔍 [   ]

Location ▲	Type	Details	Actions
Ardmore, PA	LatLong	39.99 , -75.27	🗑
Baltimore, MD	LatLong	39.29 , -76.71	🗑
Bridgeport, PA	LatLong	40.1 , -75.35	🗑
Germantown, MD	Address	12410 Milestone Center Dr. Germantown MD 20876 (39.2 , -77.26)	🗑
Hamden, CT	LatLong	41.4 , -72.9	🗑
Media, PA	LatLong	39.89 , -75.4	🗑
Plymouth Meeting, PA	LatLong	40.12 , -75.31	🗑
SE Texas	LatLong	27.84 , -97.67	🗑

Showing 1 to 8 of 8 entries   Previous   1   Next

Under the Manage Rules tab, you will see the following features:

- **Location:** the list of your defined locations that correspond to given notifications

- **Notification:** the name that you gave to this particular custom notification

- **Type:** the rule(s) that will trigger a given custom notification

- **Active:** shows whether the alert is "on" (**ON ✓**) or "off" (**✖ OFF**). You can change this by left-clicking on the on/off symbol in the column to turn a given notification off/on.

- **Actions:** this presents the options to export (↧), edit (☑), or delete (🗑) a given notification

- There are also three buttons in the top right that enable you to do the following:

- **Add New Rule:** create a new custom notification

- **Import:** upload a CSV file from your desktop or drive to use as a custom notification

- **Export:** download custom notification(s) as a CSV file. You select which rules you would like to export by placing a check in the corresponding column on the far right side

10.1.1.   Create New Locations

The starting point for each Custom Notification is the location. You must have an existing location in order to create the rules that will generate a Custom Notification.

In order to create a new location:

1. Left-click the **+ Add New Location** button at the top right side of the Notification Configuration window.

2. A blank form will appear for you to add a new location.
3. Fill in the Location Name in the top box
4. Select the Location Type—Address or Lat/long—by clicking the radio button to the left of the Location Type.
   a. If this is a physical address, enter the information for Address, City, and Zipcode. You may select the Country and State from the pull down menus. Note that you are only able to do a physical address for a U.S. location. For an international site, you must use the latitude/longitude option below. Left-click the [Create Location] button and your new location will be saved. If not satisfied, click the Cancel button.

   b. If this is b. If this is a Lat/long, you can enter the coordinates manually or by clicking on the map. If using the map, you can manipulate the map by left-clicking and dragging up/down and left/right. You can zoom in by pressing the **+** button on the upper left of the map; you can zoom out by left-clicking on the **−** button on the upper left of the map.

The location you enter (via lat/long coordinates or by left-clicking on the map) will show as a red pushpin. If satisfied with this, you can left-click the [Create Location] button in the lower right. If not satisfied, click the [Cancel] button and re-enter the coordinates and move the map until you have your location in the correct spot.
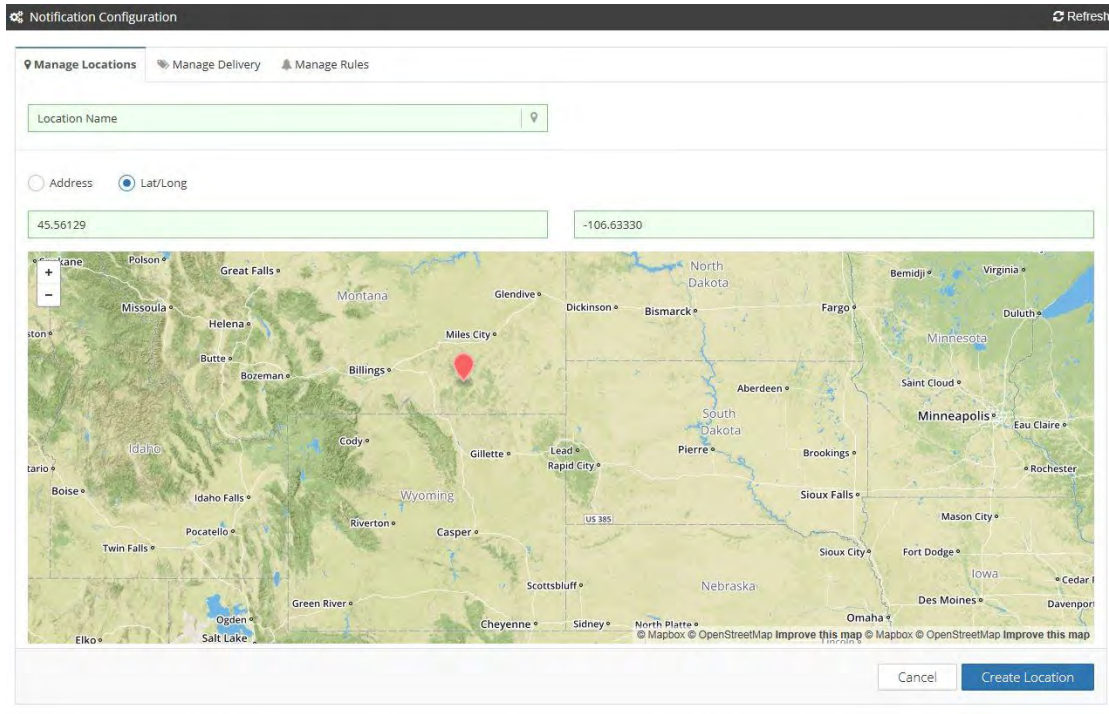
10.1.1.1. Tips

It is helpful to have a point layer (i.e. Current→Surface Data→Temperature point) to ensure there is a station for your selected address or lat/long location. if you are attaching rules based on Observation data elements, the Observation rules rely on weather station data.
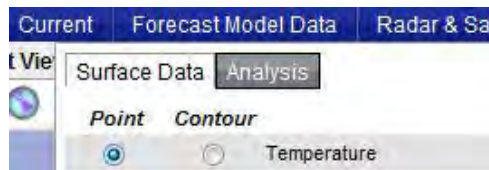
Note: The Lightning and Weather Service Alert rules do not rely on weather station data so a weather station is not required to be near the address or lat/long location.

10.1.2.   Delete Locations

To delete a location:
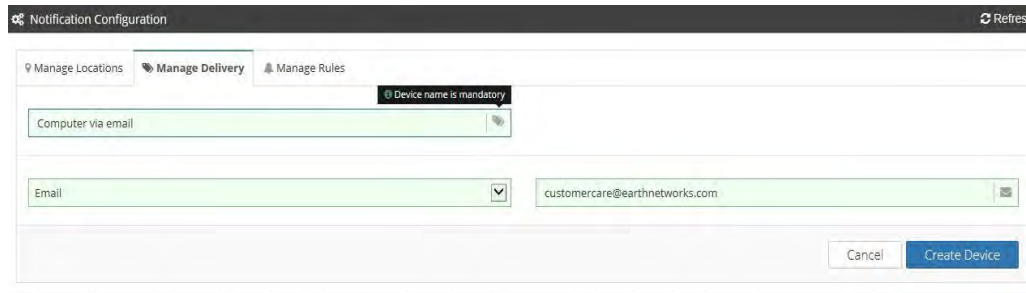
1. Left-click on the trash can symbol (🗑) under the Actions column on the far right.
2. A confirmation message will appear.
3. Left-click Yes to delete the location or No to cancel the action.
4. The Edit Custom Notification Location window will close and the Notification Settings window will repopulate.

Note: All attached rules will be deleted with the location.

10.1.3.   Manage Delivery

For each rule under each location it is possible to have emails delivered to a variety of devices to notify a user that a rule has been triggered.

1. To add a new device, left-click the Manage Delivery tab and click on the Add New Device button in the upper right.
2. Give this a device a unique Device Name.
3. Select the Device from the pull down menu.
4. Enter in the appropriate box the valid email address where you would like the alert to be delivered. Initially, you can only select email but there will be more options available in the future.

5. Click on the [Create Device] button and you should see it added to the list.
6. You can create new Devices for each unique email address to where you would like Notifications to be delivered by simply following the process outlined above.

Example of Custom Notification Email:

From: Earth Networks StreamerRT noreply@earthnetworks.com
To: <User Email>
Subject: StreamerRT Notification from Earth Networks
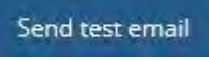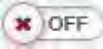
Notification Rule: 15-mile Lightning
Lightning Distance: 13.49 Miles
Pulse Location: Lat:39.93091 Lon:-75.05197
Type: IC
Peak Current: +0.98 kA
Activated Time: 7:07 PM

Please do not reply to this email. This email is delivered to you by Earth Networks upon your request. If you no longer want to receive these notifications please login to StreamerRT and remove your email address from the relevant rules. For any other feedback please email us at: customercare@earthnetworks.com.

10.1.4.   Add New Rules to Locations

You must have an existing location in order to add a new rule. A rule consists of one or two data elements. Rules are added in the Notification Configuration window under Manage Notification Rules. *Please note that a new rule will default to "off" and it will need to be turned "on" to trigger alerts.*

1.   Left-click on the Edit Notifications tab.

2. Left-click on the tab for Manage Rules

3. Left-click on the [+ Add New Device] button

4. Enter a name for the Notification

5. Choose the Location from the pull down menu

6. Specify the device for which you would like to have this alert delivered. Initially, you can only select email but there will be more options available in the future. Enter your email address.

7. You can also send a test email to confirm the successful delivery of a Notification. Simply click on the [Send test email] button and you should receive a Test email in your inbox from no-reply@earthnetworks.com. As a reminder, this test email notification that you trigger will be sent to your Active Custom Notification list and, as a result, your Custom Notifications will be blinking.

8. You can select from three types of Rules: Observation, Weather Service, and Lightning (within a given radius).

9. You can also send a test email to confirm the successful delivery of a Notification.

10. For Observation, you will see many weather data elements from which to choose. *Explanations and detailed instructions for each data element are provided in the sections below.*

11. For Weather Service, you can select either an Earth Networks Dangerous Thunderstorm Alert or a National Weather Service alert.

12. For Lightning Custom Notifications, you can select a radius in miles around a location of interest for where you would like to be alerted as well as the duration in minutes. You can also choose to have an All Clear message sent to you via email.

13. As a reminder, the newly-created rule will default to "off" so be sure that you turn this "on" so that you will receive alerts. In order to accomplish this, do the following:

a. Click on the Manage Rules tab
b. Find the Rule you created and look at the Active column where the Rule will show it is "off." Click on the [✖ OFF] and you should see the symbol change to "on" and appear like this: [ON ✓].
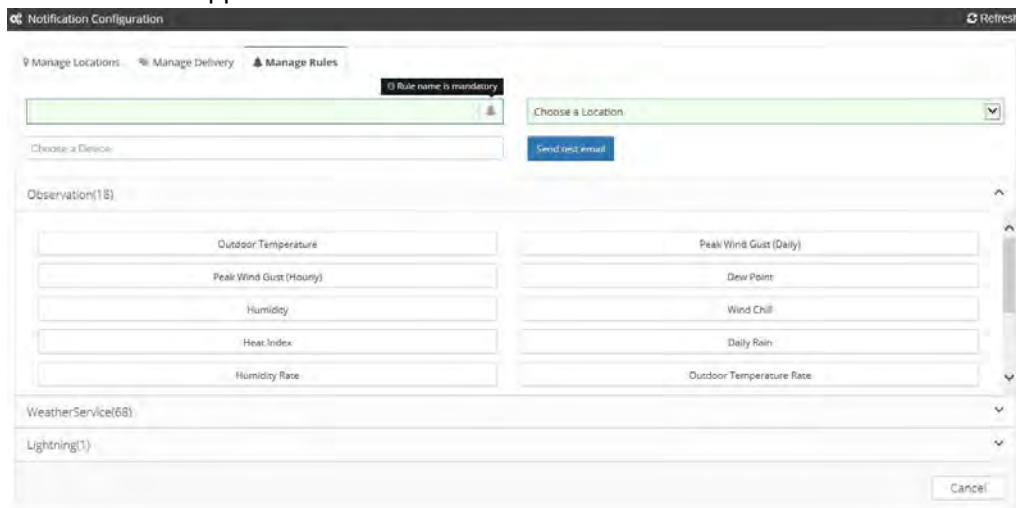
10.1.4.1. Observation Data Elements

Rules with Observation data elements become active when the thresholds you assign are met. Notifications will remain in effect for one hour starting at the time that the threshold is met. At 15 minutes' prior to full hour, the system will check to see if the threshold is met. If the threshold is met, the notification will be extended for an additional hour. The Notification will be allowed to expire at the end of hour in which the threshold is no longer met.

The additional steps for adding Observation data elements to a rule are:

1. Select the Observation Data parameter by left-clicking on the one you would like to use for a rule.

2. Now, you need to set parameters around your rule. Under the Notification Rule section, set your trigger for the rule using the dropdown menus and entry boxes.

3. Enter a threshold for radius in miles and then select from the pull down menu on the left the LessThanOrEqual.

4. Similarly, enter the parameters around your observation.

5. When completed, left-click the [+ Add Rule] button.

Available Data Elements

All Threshold units are based on your selection of Unit Type in Settings. The Data Elements available in Observations are:

Daily Rain: Rainfall amounts since midnight for the current day, expressed in inches (") or millimeters (mm).

Dew Point: The temperature to which air must be cooled to condense, expressed in °F or °C.

Heat Index: The temperature felt when the air temperature is combined with the relative humidity (any measurement greater than or equal to 70 °F), expressed in °F or °C.

Humidity: The air's water vapor content, expressed as a percentage.

Humidity Rate: The change of the air's water vapor content averaged over the last hour, expressed in percentage per hour (%/hr).

Pressure: The pressure exerted by the weight of air above a certain point, expressed in mb (millibars) or "(inches of mercury).

Pressure Rate: The change in pressure averaged over the last hour, expressed in inches per hour ("/hr) or millibars per hour (mb/hr).

Rain Rate: The rate of rainfall averaged over the past hour, expressed in inches per hour ("/hr) or millimeters per hour (mm/hr).

Solar: The percentage of possible light.

Solar Rate: The change in the percentage of possible light over the last hour, expressed in percentage per hour (%/hr).

Temperature (Indoor): The indoor temperature at the weather station, expressed in °F or °C.

Temperature (Outdoor): The outdoor temperature at the weather station, expressed in °F or °C.

Temperature (Wet Bulb): The temperature at which no more evaporation will occur, and thus no further decrease in temperature, expressed in °F or °C.

Temperature Rate (Indoor): The change in indoor temperature averaged over the last hour, expressed in °F (°F/hr) per hour or °C per hour (°C/hr).

Temperature Rate (Outdoor): The change in outdoor temperature averaged over the last hour, expressed in °F per hour (°F/hr) or °C per hour (°C/hr).

Wind Chill: The perceived cooling felt due to the loss of body heat as wind passes over exposed skin (any measurement below 70 °F), expressed in °F or °C.

Wind Gust (Hourly): Peak instantaneous wind speed in the last hour, expressed in mph or km/h.

Wind Gust (Minute): Peak instantaneous wind speed in the last minute, expressed in mph or km/h.

Wind Speed: Two-minute average of instantaneous wind measurements, expressed in mph or km/h.

You are able to enter a negative sign (-) in front of any value for observations that require negative values.

10.1.4.2. Weather Service Alerts Data Elements

Rules with Weather Service Alert data elements become active when the assigned alert is issued. The alerts available for selection depend on the location. StreamerRT currently offers meteorological service alerting for the United States and Canada. The Earth Networks Dangerous Thunderstorm Alert (DTA) is available for all locations.

The additional steps for adding Weather Service Alert data elements to a rule are:

1. For Weather Service, you can select either an Earth Networks Dangerous Thunderstorm Alert or a National Weather Service alert.

2. You can expand the tree by left-clicking on the category and then left-clicking on the alert you wish to select.

3. You will see these alerts populate at the bottom under the Notification Rule section.

4. When satisfied, click the **+ Add Rule** button.

10.1.4.3. Lightning Data Elements

Rules with the lightning data element become active when lightning pulses occur within the radius that you have defined. The lightning data element may only be used for radius locations. It cannot be used with point locations.

The additional steps for adding the Lightning data element to a rule are:
1. Left-click on the Lightning bar.

2. You will then need to enter the radius in miles around the location for where you would like to be alerted

3. You will also need to enter a duration for the alert in minutes. This is for how long after the last lightning detected would you want to wait before an All-Clear message.

4. You can also choose to have an All Clear message sent to you via email by checking the box to the left of the Send All Clear Email. *Note that you must enter a minimum duration for an all-clear of 15 minutes; the recommendation is for 30 minutes.*

5. When satisfied, click the **Add Rule** button.

10.1.5.   Turn Rules On or Off

You are able to turn a rule on or off. Once you have turned a rule off, Custom Notifications will never be issued for that rule. Once a rule is turned on, it will not be considered active until a threshold is met.

To turn a rule on or off, left-click on the on or off button to the right of the rule and you will see the symbol change from "on" (**ON ✓**) to off (**✖ OFF**).

| Baltimore, MD | Lightning | Lightning alert within 15mi 30min | ON ✓ | ⬇ ✎ 🗑 | ☐ |

Two important reminders:

a. You may only have *50 rules turned "on"* at a time.

b. Newly-created rules will default to being "off" so remember that you must turn them "on" in order to receive notifications.

10.1.6.   Edit Rules

You may change a pre-existing rule or add new data elements. You must save or cancel any new rules you are adding or editing before you can edit a different rule.

1. To edit a rule, go to Manage Rules and left-click on the ✎ Update Rule icon in the Actions column corresponding to the rule or interest.
2. Make the changes desired as described in previous sections
3. When you are satisfied, click on the ➕ Update Rule button at the bottom. You can also cancel at any time if you decide you do not wish to modify the rule by clicking the Cancel button.

10.1.7.　　　Delete Rules

You may delete a rule by doing the following:

1. Under the Manage Rules tab, find the Rule that you would like to delete and left-click on

the ⬚ delete icon in the Actions column of the rule.

2. Answer Yes to the confirmation message to delete.
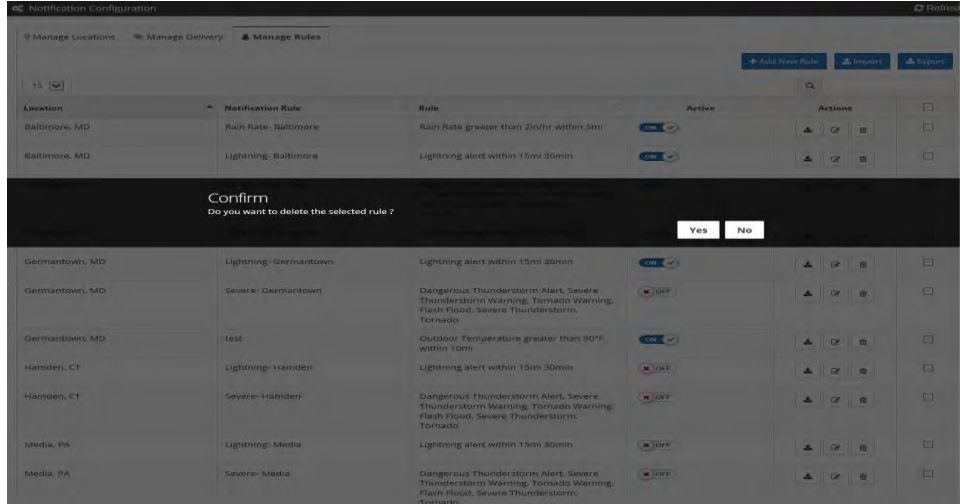
10.1.8 Special Features: Import Rules and Export Rules

StreamerRT offers the ability to export rules and import rules from one StreamerRT account to another. The benefit in this is that it enables you to share rules among different accounts without having to manually create them.

Export

In order to export a rule you created to another StreamerRT user, please do the following:

1. After creating a rule, navigate to the Actions column and click on the Export icon ⬚ .*

* You can also accomplish this by navigating to the far right column and left-clicking in the box ⬚

corresponding to the rule you would like to export/share. You will see a check mark appear ☑ .

Left-click on the ⬚Export button in the top right corner.

3. You can then choose to Open the text file, Save it to your computer or flash drive, or Cancel the operation.
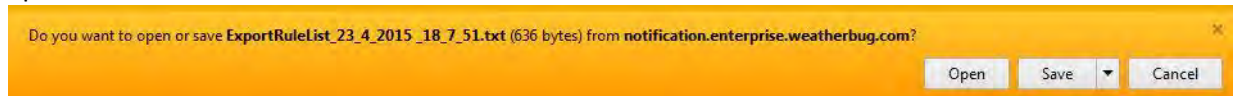
Import

In order to import a rule from another StreamerRT user, please do the following:

1. Left-click on the [Import] button in the upper right corner.
2. Left-click the Browse… button to select your rule text file for upload.

3. Left-click the [OK] button to import it.

Select file for Import
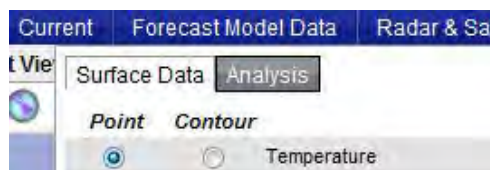
Browse…

OK   Cancel
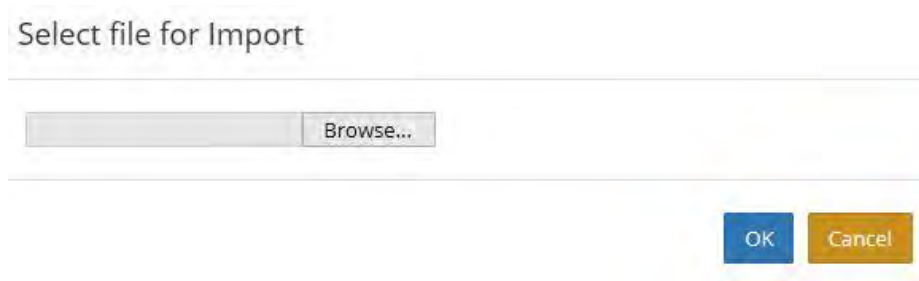
4. You should now see the new rule successfully added to your list.

10.1.9. Important Reminders

1. Remember to turn a rule "on" as newly-created rules will default to being "off." To turn a rule on or off, left-click on the on or off button to the right of the rule and you will see the symbol change from "on" (ON ✓) to off (✖ OFF).

| Baltimore, MD | Lightning | Lightning alert within 15mi 30min | ON ✓ | ⬇ ✎ ☐ |
| | | | | 🗑 |

2. Once a rule is turned on, it will not be considered active until a threshold is met. Once you have turned a rule off, Custom Notifications will never be issued for that rule.

3. You may only have *50 rules turned "on"* at a time.

4. Once a location has been created, you are unable to edit it. You would need to create a new location.

5. It is helpful to have a point layer (i.e. Current→Surface Data→Temperature point) to ensure there is a station for your selected point, radius or zip code if you are attaching rules based on Observation data elements. The Observation rules rely on weather station data.

| Current | Forecast Model Data | Radar & Sat |

t Vie | Surface Data | Analysis

Point Contour

◉   ○   Temperature

Note: The Lightning and Weather Service Alert rules do not rely on weather station data so a weather station is not required to be in the point, radius or zip code.

10.2. Settings

You are able to select your Unit Type, Language, or DateTime Format within Settings. Please note that the overlay names and map tip data will still display measurement values in English (for example, Snow Probability Forecast – Day 1 – 4") and data will be converted to Metric only where available and may not apply to all layers or legends.

10.3. Views

A View is a combination of data layers that you save, including your map extent, plot symbology, animation, legend and opacity selections for each layer and any drawings you have added to the map using the Drawing Tools.

You can quickly switch between any View for rapid visualization of changing weather conditions.

10.3.1. Select View Tab

Select, delete, make a Default View or reorder Views in this section.

10.3.1.1. Select a View

Switch to a new View by left-clicking on the View Name, which is a link to the View.

10.3.1.2. Delete a View

Select the Delete Views checkbox and left-click OK to permanently delete a View.

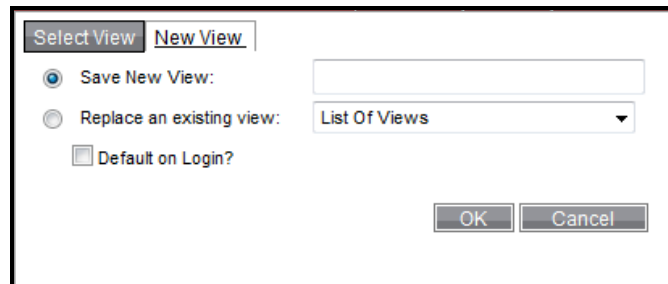#### 10.3.1.3. Set View to Default

Select the Default on Login radio button next to the View Name so your View will automatically be loaded every time you login. There may only be one Default View designated.

10.3.1.4. Reorder Views

Hold down the left mouse button and drag and drop the View Name into the desired order.

10.3.2. New View Tab

Save a new View or replace an existing View to save the current map extent, drawings, plot symbology and active layers.

10.3.2.1. Create a New View

Select the Save New View radio button, type in a View Name (you may not edit the name after the View is saved) and left-click OK to create a new View. Check the Default on Login checkbox only if you want to set this to the Default View and have it automatically loaded at login.

10.3.2.2. Replace an Existing View

Select the Replace an Existing View radio button, highlight the View you wish to replace in the List of Views drop down and left-click OK. Check the Default on Login checkbox only if you want to set this to the Default View and have it automatically loaded at login.

10.4. Slideshows

Views can be grouped into a Slideshow presentation. You can configure which Views to add into a Slideshow and which order the Views will display as well as how long each View will display.

When a Slideshow is running, the Current View used for the slideshow, the Slideshow Name and a "stop" button will be displayed to the right of the zoom level display bar. (If there are multiple Views in a Slideshow, only the top View value will display in the display bar.)

10.4.1. Select Slideshow Tab

Slideshows are available for easy selection and will begin playing immediately once you left-click on the Slideshow you wish to view.

You may also delete Slideshows from within this window by selecting the Delete checkbox and left-clicking OK.

10.4.2. New Slideshow Tab

Create a new Slideshow using the following steps:
1. Enter a Slideshow Name. If you enter a name that already exists, StreamerRT will overwrite the existing Slideshow with the new Slideshow.
2. Select a View Name and Display Time from the lists.
   a. The Add View button allows you to add additional Views to the Slideshow.
   b. The Del button deletes the row from the list of Views in the Slideshow.
3. Left-click OK to save the Slideshow.
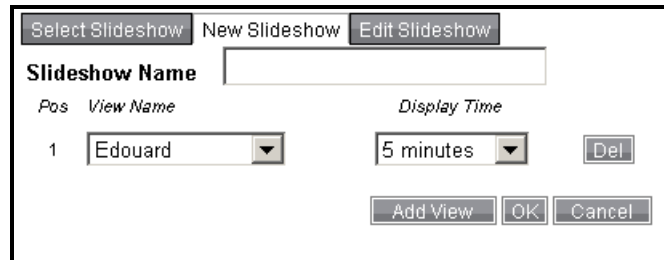
10.4.3. Edit Slideshow Tab

The Edit Slideshow tab allows you to modify a Slideshow's content, View Name and Display Time or to delete a View. To edit:
1. Select the Slideshow you wish to edit in the Edit Slideshow dropdown.
2. Add, delete or adjust selected Views.
   a. The Add View button allows you to add additional Views to the Slideshow.
   b. The Del button deletes the row from the list of Views in the Slideshow.
3. Use the dropdown lists to change either the existing View Name or Display Time.

4. Left-click OK to save the Slideshow.
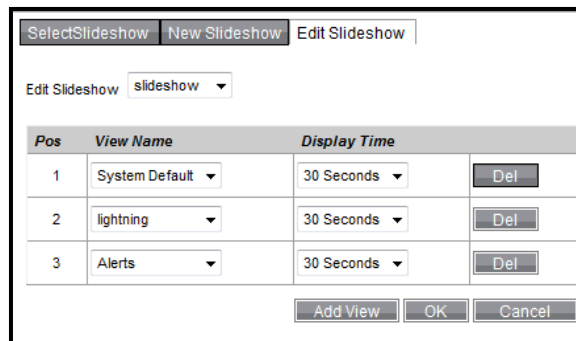
10.5. Archive

Left-clicking the Archive link to the right of Slideshows in the data menu will open a pop-up window that will allow you to select from available archives.

Edit Notifications	Settings	Views	Slideshows	Archive

In order to access Earth Networks Total Lightning Network Flash Data, do the following:

1. Be sure you are on Zoom Level 9, 10, or 11 or you will be unable to access the Archive.

2. Left-click on the Lightning Archive link to open the Lightning Data Archive page in a new window.

Archive

Available Archives

Lightning Archive

3. After left-clicking on the Lightning Archive link, you will be able to access Earth Networks Total Lightning Flash Data from up to six months in the past and export it as a CSV or KMZ file. Please note that, in order to access the data via a KMZ file, you will need to have the Google Earth application downloaded and operational on your desktop.

4. Follow the directions that appear in the window carefully for completing the form, as attempting to download too much data will not be allowed. Pay particular attention to the Start Date and End Date and be certain to adjust for your Time Zone's offset to UTC.

5. When you have entered the necessary information, click on either Export .kmz file or Export .csv file. You should see your data appear shortly in the format you requested.

Lightning Data Archive

Enter Date and Time Range.

Start Date `04/21/2015 12:00 PM -0400`   End Date `04/21/2015 6:00 PM -0400`

North `40.94815`   South `39.82755`

East `-74.27255`   West `-76.03036`

- Note: Start date must be less than 6 months prior to the current date. Time span must be less than 6 hours.
- If you need archived data for a larger area, time range or event older than 6 months, please contact lightning sales support at salesops@earthnetworks.com

Export .kmz file   Export .csv file
(Click to export kmz file for Google Earth Viewing)