

Survalent.

Survalent Training Manual

SurvalentONE – SCADA System Level 1

Module 7 – Alarm Management

Revision 01



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Module 7 – ALARM MANAGEMENT

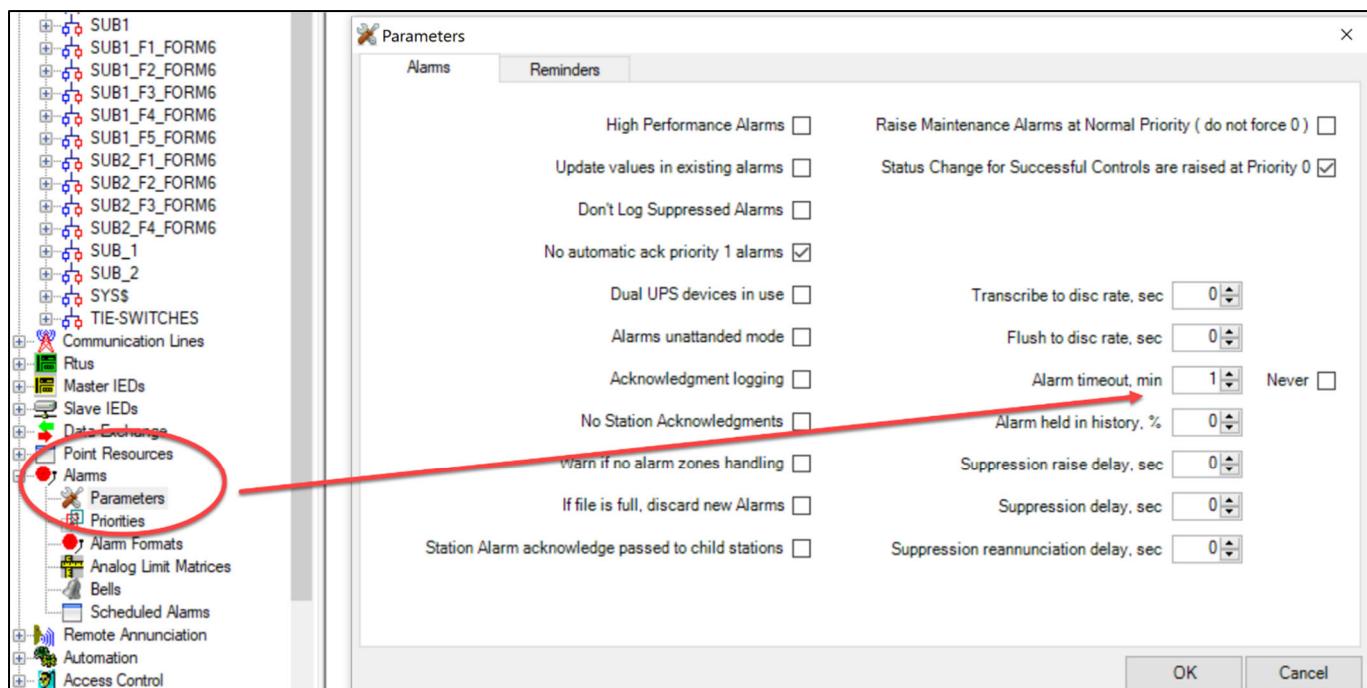
INTRODUCTION

We ended the last module by looking at how to set Alarm views. In this module we will be taking a more detailed look at Alarm Management.

Before beginning our tests, let's make a change in Alarms and Parameters. By changing the Alarm Timeout Min to 1, we are saying we want the Alarm to drop off the Alarm Management screen:

- 1 minute after it has been acknowledged or
 - 1 minute after it has been acknowledged and returned to its normal state.

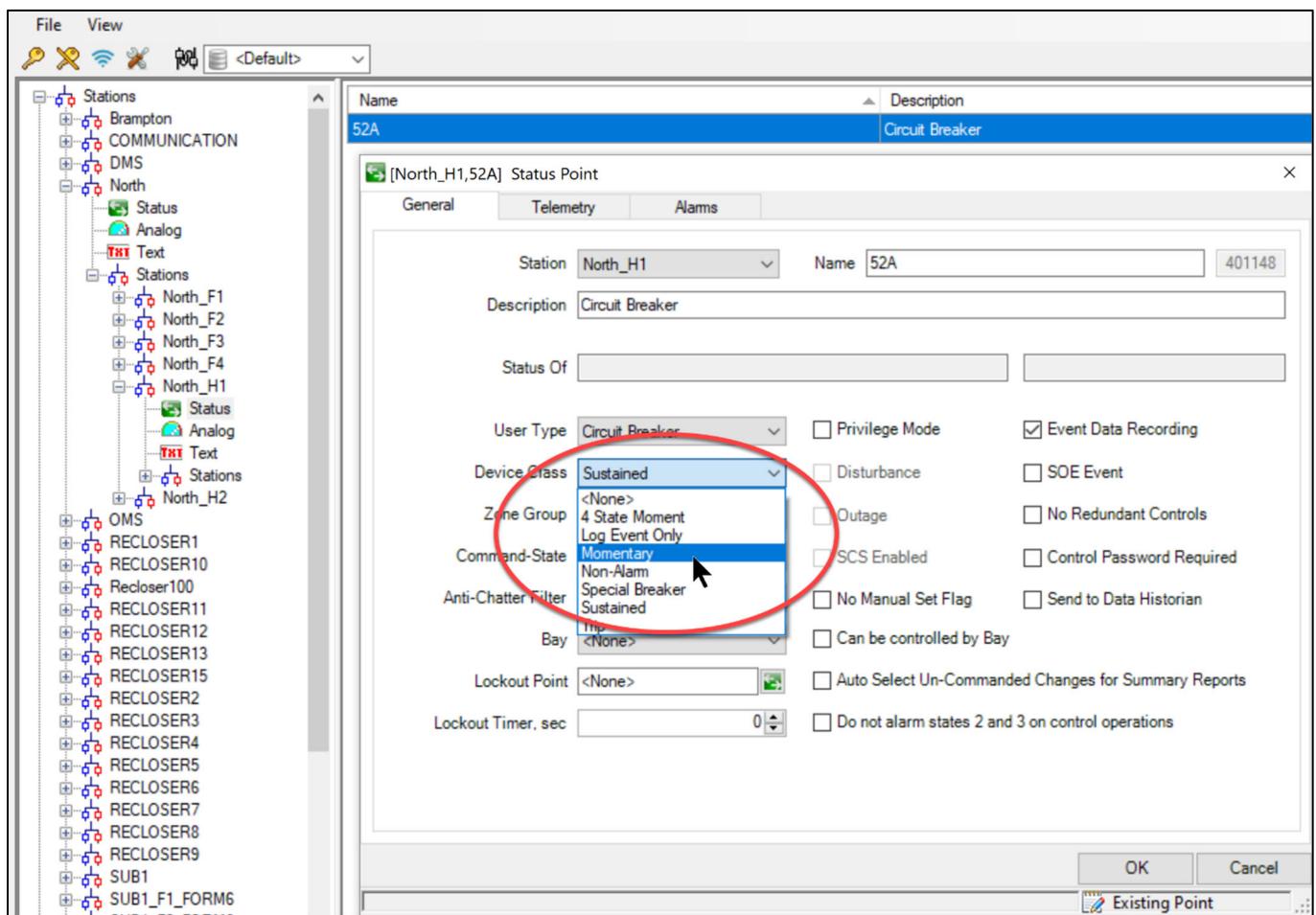
The determining factor of the two possibilities above depends on the type of alarm set.



7.1 Changing Alarm Settings

MOMENTARY ALARM BEHAVIOR (STATUS POINTS)

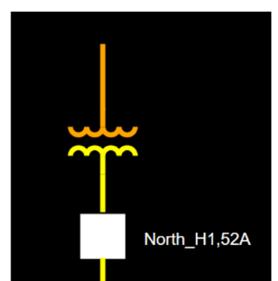
North_H1,IA is a point we created with a Sustained Device Class (Alarm Status). Let's switch it to Momentary to better understand the Momentary Behavior.



7.2 Changing a Point Alarm to Momentary

In 7-3, North_H1,52A is showing an unacknowledged alarm.

As we saw in the last module, to focus this point, we drag it to the Alarm tab (see Image 7-4).



7.3 Unacknowledged Alarm

Note: Usually if we open the breaker it won't require acknowledgement but recall we checked this setting in the Alarm tab of the point.

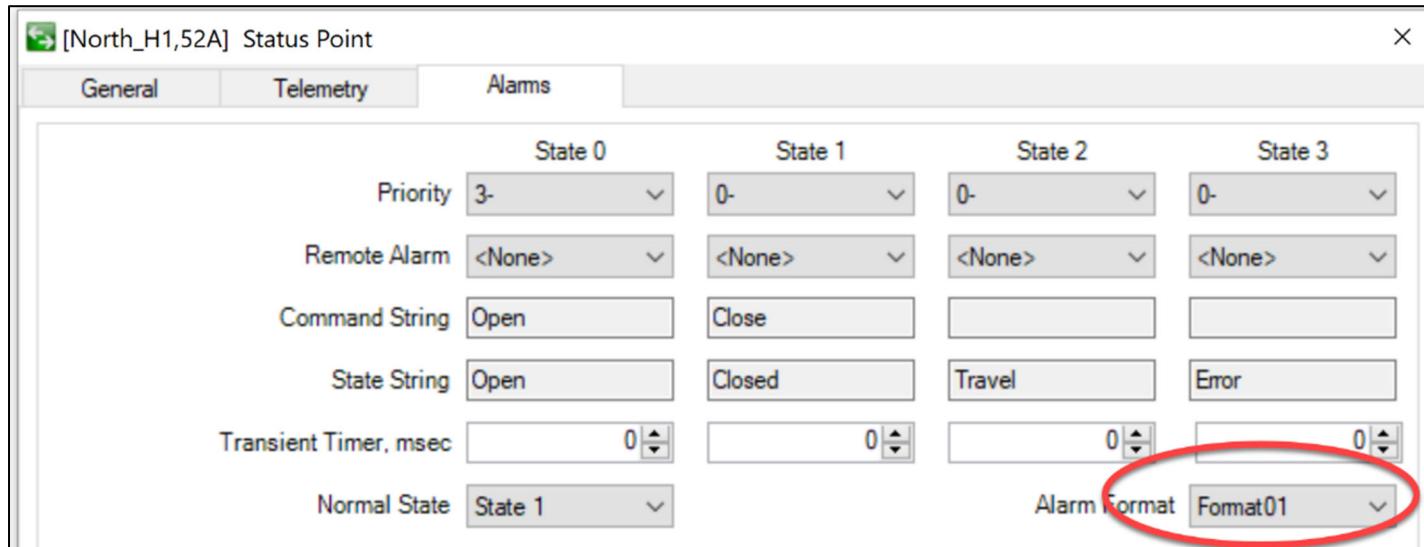
Raise Alarm on Control at Priority of State Change

7.3a Setting that Puts Alarm in NAK State even if
Tripped Intentionally by Operator.



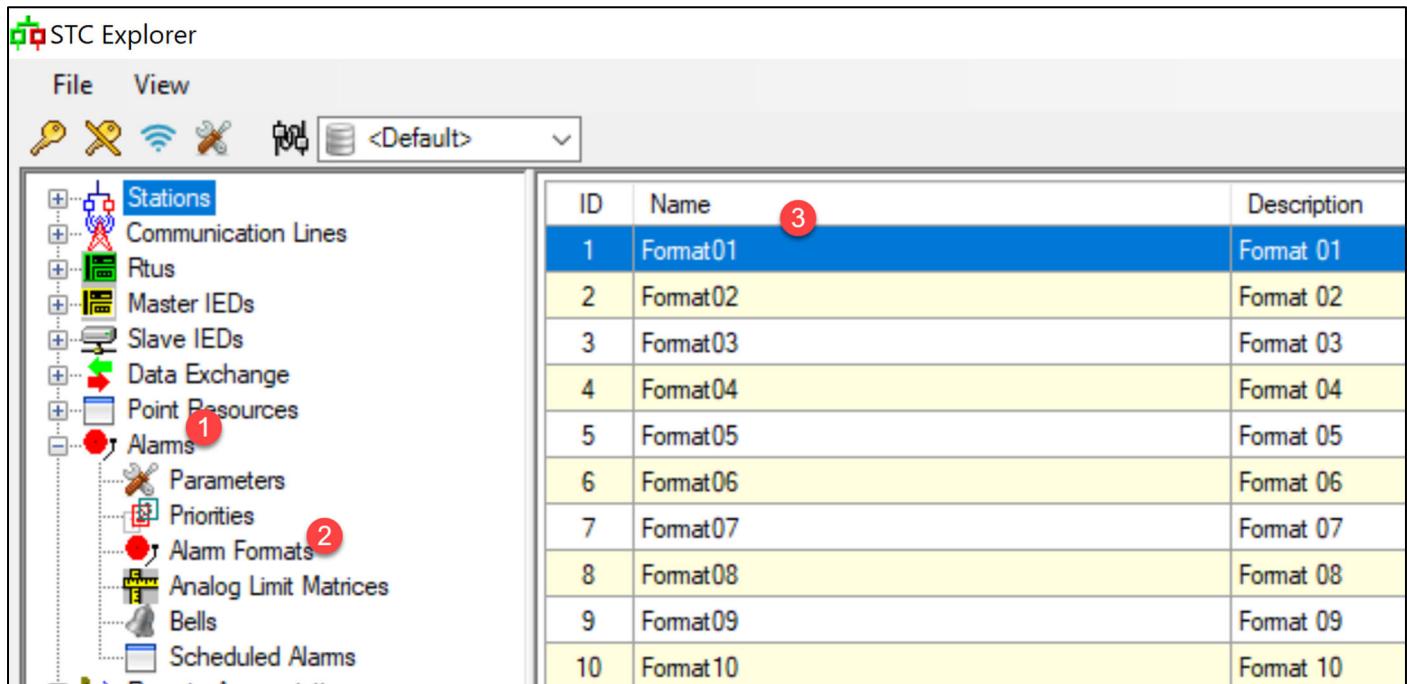
7.4 Wording

The wording for the Operators is North_H1,52A Circuit Breaker Open. We set these words when we set up the point, specifically the Alarm Format in the Alarms tab:



7.5 Where the Alarm Format is Selected.

Use Image 7.6 to find where we find the formats and how they are set. Double-click on Format01.

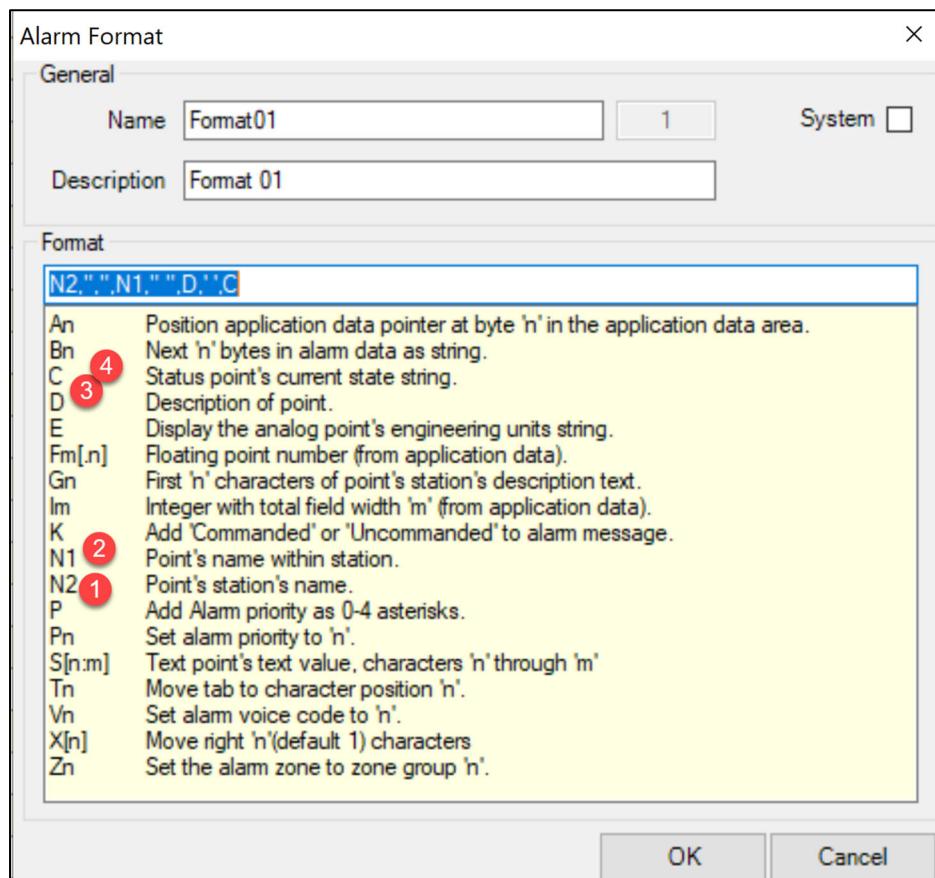


7.6 Alarms Setting and Alarm Formats

We see the components of the wording in the Alarm Format box.

- (1) N2 = Station Name.
- (2) N1 = Short Name of Point (aka the part without the station name).
- (3) D = Point Description (we enter the description when we create the point).
- (4) C = Current State

The “.” are used for creating space between the different elements.



7.7 Where the Formats are Defined

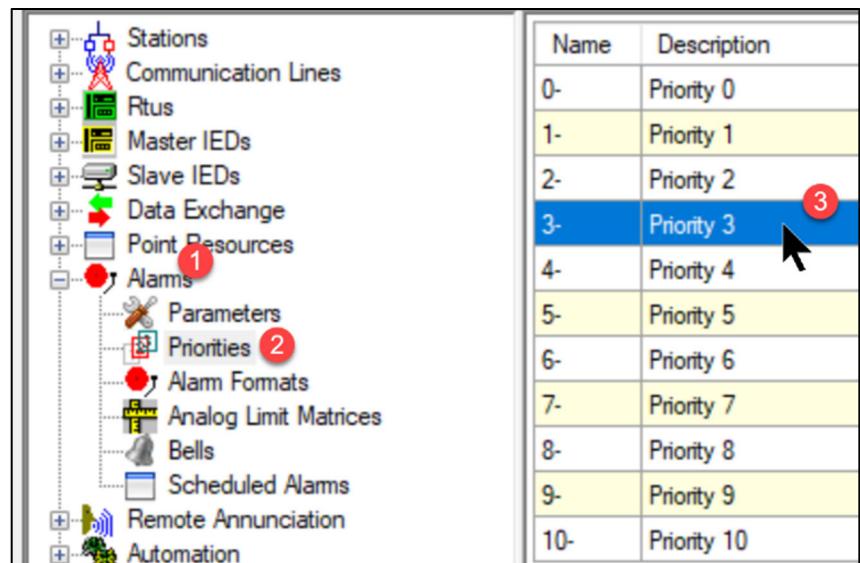
To confirm these settings, refer back to Image 7.4.

Also, while referring back to Image 7.4, note the number 3 is circled. When you refer back to Image 7.5, you will see that this 3 refers to the Alarm Priority we set.

Next, let's look at the coloring. The words appear in an Aqua color.

The colors for alarm priorities are set under (1) Alarms and (2) Priorities.

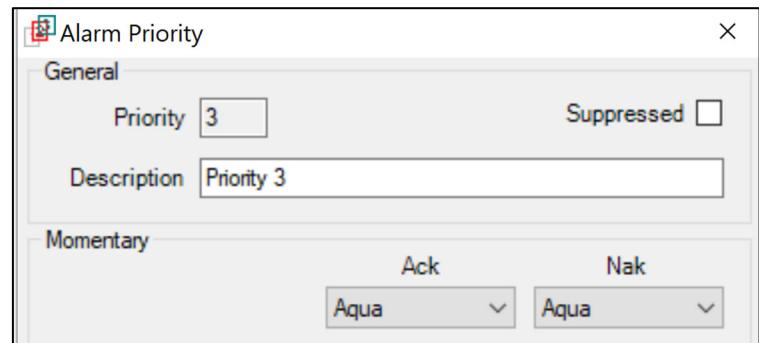
(3) Let's click on Priority 3.



7.8 Opening Up the Color Scheme for Priority 3

For now, we are focusing on Momentary Alarms.

Aqua is the chosen color for both the Acknowledged and Unacknowledged settings.



7.9 Aqua Setting

Referring back to 7.4, we see that the date is highlighted. This is the indication that the alarm has not been acknowledged. There are many ways to acknowledge the alarm.

One way is through the dialogue box.



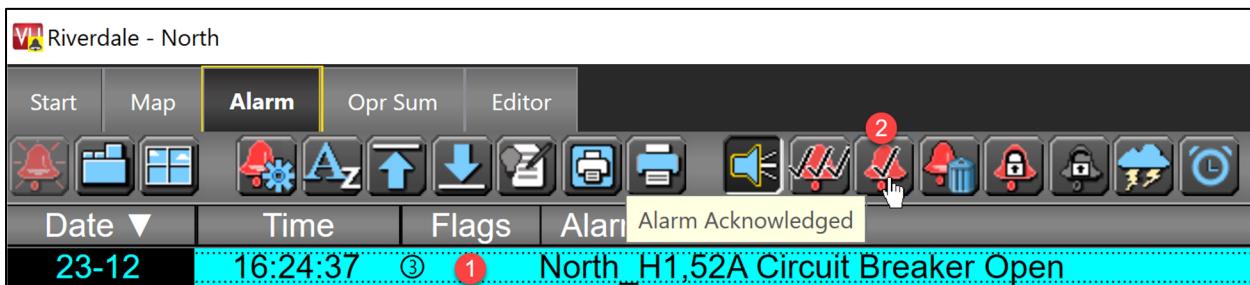
7.10 Acknowledge Alarm from Dialogue Box

If there are multiple unacknowledged alarms, you can acknowledge all the ones on the screen at once by clicking the Page Acknowledged button.



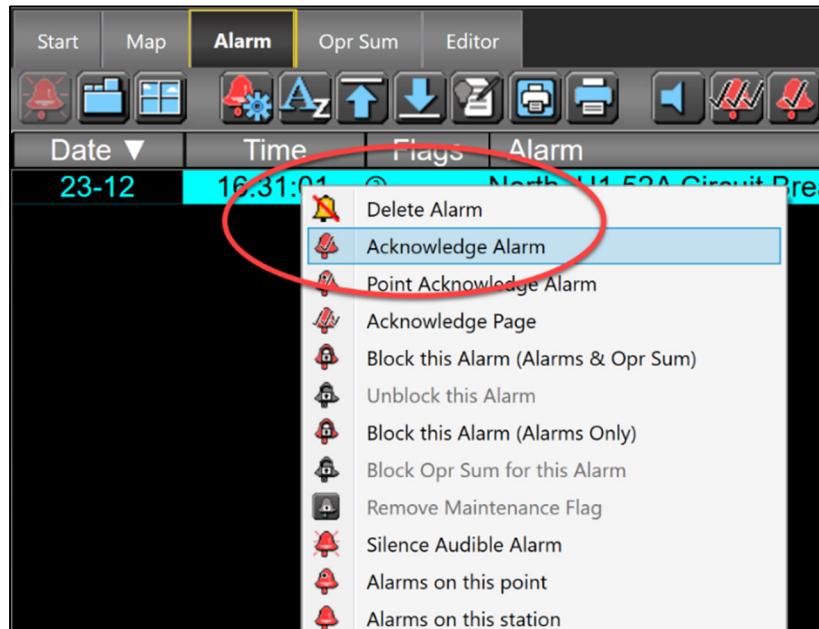
7.11 Acknowledging all Alarms on the Screen

Similarly, if you click on the specific alarm you want to acknowledge, you can choose to just acknowledge that one alarm.



7.12 Acknowledging a Specific Alarm

You can also right-click on the point and find a whole menu of acknowledge options.



7.13 Right-click on Point to Acknowledge



7.14 Highlight Indicates Point Not Acknowledged



Exercise

In-class exercise: Choose one of the methods to acknowledge the alarm. Note the following:

1. The date immediately will change so that it's not highlighted.
2. The alarm will clear from the screen within 1 minute

SUSTAINED ALARM BEHAVIOR (STATUS POINTS)

Next, let's walk through a sustained scenario. Start with switching our point back to Sustained (Image 7.2). Next, let's put the breaker in its abnormal state again.

Since we did not change the Format 1 setting, the wording remains the same. There is no difference here between Momentary and Sustained settings.

The circled number 3 under Flags represents the priority just like when we set the alarm to Momentary.

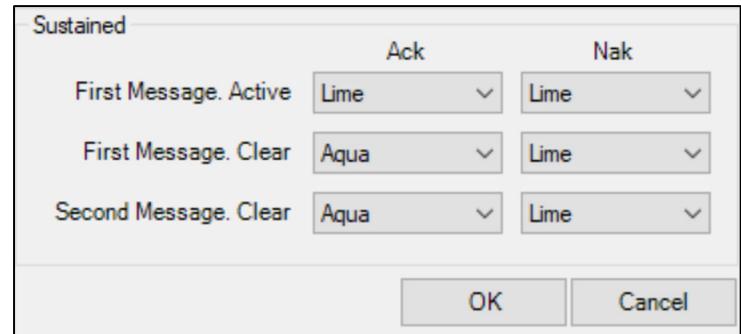
However, the star is different from our Momentary setting. The Momentary alarm required that someone acknowledge it before it disappears from the screen. Sustained alarms have the extra requirement that the point also has to return to its normal state. The star indicates that the point is still not in its normal state.



7.15 Sustained Alarm Message

What about the green text? Refer back to 7.8 and open Priority 3 again.

Whether Acknowledged or Not Acknowledged, the administrator has set Lime to be the color.



7.16 Lime Setting



Exercise

In-class exercise: Test the settings by closing the breaker. The star should disappear (Image 7.15) and the first message should remain lime in color since the point is still NAK. If the point was acknowledged too, the first message would have turned to Aqua.

Date ▼	Time	Flags	Alarm
23-12	17:43:07	①(CL)	North_H1,52A Circuit Breaker Closed
23-12	17:43:05	①	Close North_H1,52A FROM Bruce-lap::SCADA
23-12	17:05:53	③	North_H1,52A Circuit Breaker Open

7.17 Point Back in Normal State

The CL shows that the point has closed but it will disappear shortly.

The first message remains green and the date remains highlighted.

Next, let's acknowledge the alarm to create the second message. We should expect the highlight to disappear, the color turn to aqua, and the point to disappear within a minute.

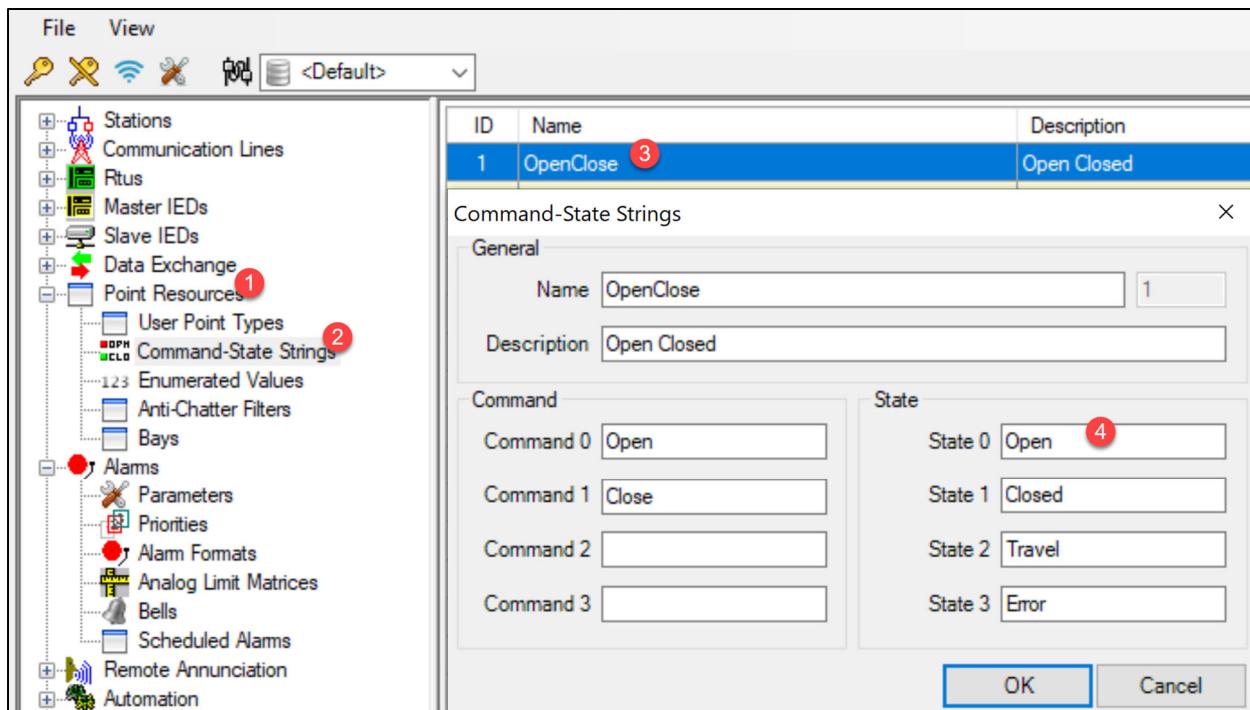
Start	Map	Alarm	Opr Sum	Editor
Date ▼	Time	Flags	Alarm	
23-12	17:05:53	③	North_H1,52A Circuit Breaker Open	

7.18 Cleared and Acknowledged

4 STATE MOMENT BEHAVIOR (STATUS POINTS)

The Command-State string we used for North_H1,52A was OpenClose. To look at this string, go to:

1. Point Resources
2. Command-State Strings.
3. Double-click on OpenClose
4. Note there are 4 possible states and that, in addition to Open and Close, there is also Travel and Error.

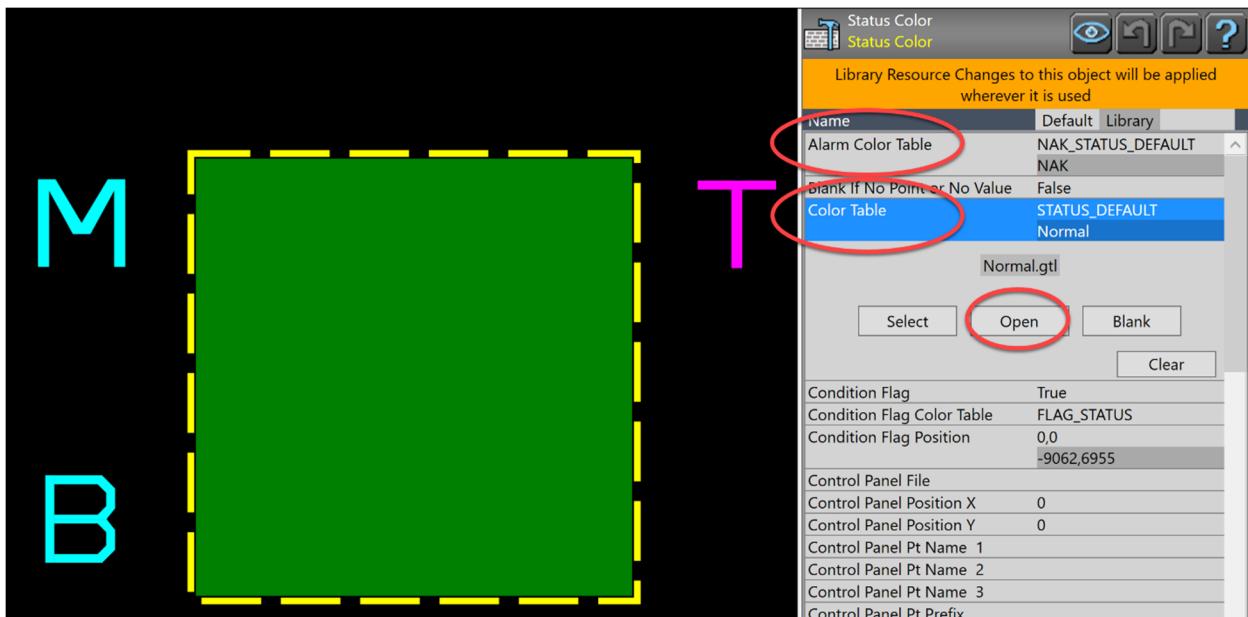


7.19 Possible 4 States

Since we have 4 states, we could set up our point with the 4 State Alarm format (review Image 7.2.).

If you view Image 7.5, you would see that you could attach alarm priorities to the other two states.

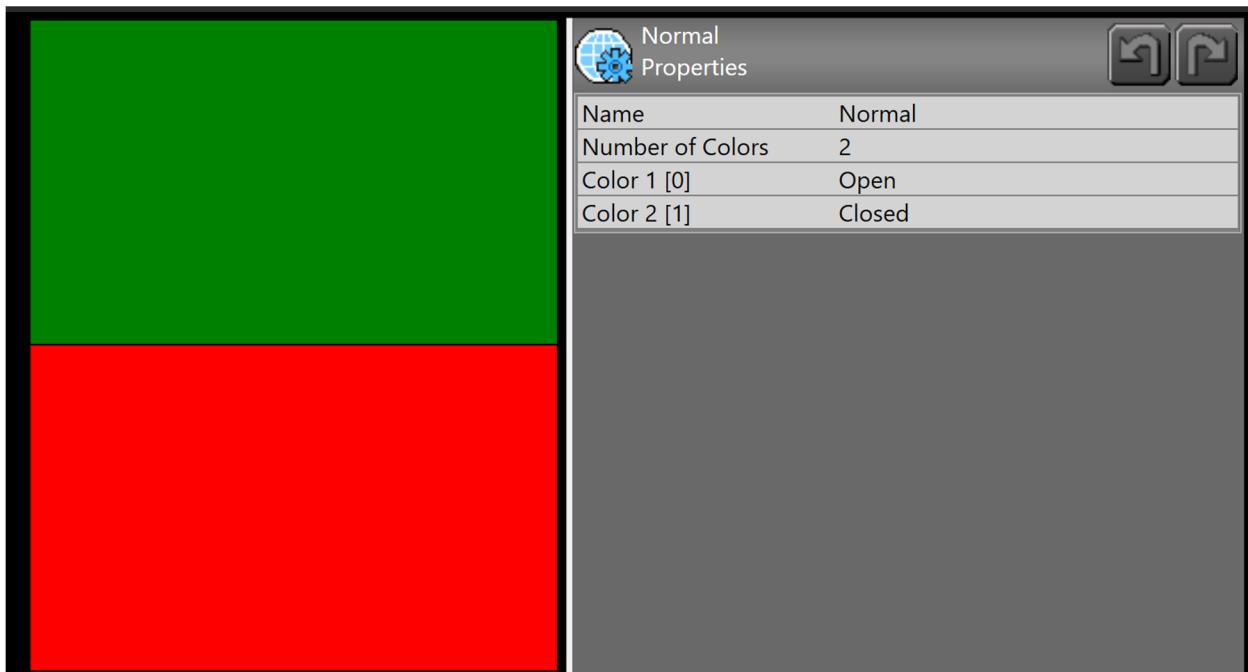
Now, let's go to SmartVU and open the Status Color PMacro we've been using.



7.19 Alarm States

The color PMacro uses color tables to show the states in the map. Click Open to see the Color Table we used for our breakers.

Below, we covered the first two states Open and Closed. We could add two more colors for Travel and Error. This would give us 4 states to match the 4 State Moments.



7.20 Only Using 2 of the 4 States

Note: If we were using Station or Image PMacros, we would add 2 more symbols for the 2 states.

LOG EVENT ONLY BEHAVIOR (STATUS POINTS)

In image 7.2, we could change our North_H1,52A alarm setting to Log Event Only. Let's try this one out.

Before beginning, make sure the alarm is closed and not in a NAK state. If you need to make a change, wait for a minute to let all the alarms close.

As the name sounds, the behavior is that opening the breaker won't trigger an alarm. You won't see any record of an alarm in Alarms but the opening of the breaker will show up as an event in Opr Sum.

If you try to issue a Control to this point and it fails, the failure will show up in Alarms.

	Date ▲	Time	Flags	Event
1	23-12	19:05:00	①	North_H2,IB HI 415.78 400.00
2	23-12	19:05:15	③	North_H1,IA HI HI HI 487.29 475.00
3	23-12	19:05:15	①(CL)	North_H2,IA LO 79.87 100
4	23-12	19:05:15	①(CL)	North_F1,IA HI HI 460.22 450.00
5	23-12	19:05:15	①	North_F3,IA HI 413.66 400.00
6	23-12	19:05:15	①(CL)	North_H1,IB HI HI 466.14 450.00
7	23-12	19:05:15	③	North_H1,IC LO LO LO 23.83496 25
8	23-12	19:05:15	①(CL)	North_H2,IB HI 115.78 400.00
9	23-12	19:05:23		Open North_H1,52A FROM Bruce-lap::SCADA
10	23-12	19:05:25		North_H1,52A Circuit Breaker Open
11	23-12	19:05:30	①(CL)	North_H1,IA HI HI HI 487.29 475.00
12	23-12	19:05:30	①(CL)	North_H1,IA HI 449.54 400.00
13	23-12	19:05:30	①	North_H2,IA LO 63.84 100
14	23-12	19:05:30	①(CL)	North_H1,IC LO LO LO 23.83496 25

7.21 Log Event Only Shows in Opr Sum

NON-ALARM BEHAVIOR (STATUS POINTS)

Non-Alarm Behavior functions exactly the same as Log Event Only with the exception of the last sentence.

SPECIAL BEHAVIOR (STATUS POINTS)

Used for locking out breakers; however, it's not supported across many protocols.

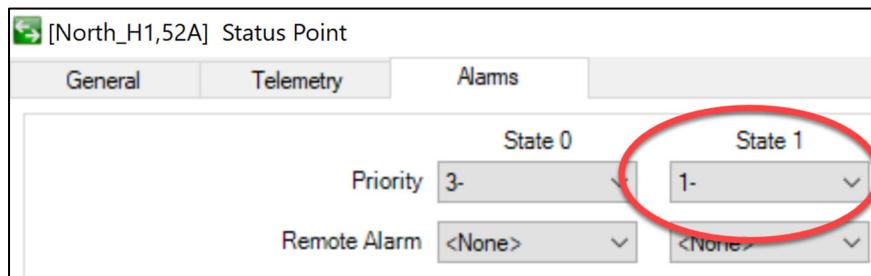
TRIP (STATUS POINTS)

To see how Trip works, let's make this change to North_H1,52A. In image 7.22, we are changing the closed state (State 1) from 0 to 1.

When it was 0:

- 1 If the point opened, it went into Priority 3 alarm.
- 2 If the point gets Acknowledged, then it won't have to be Acknowledged when it goes back to the Closed state.

Now that it is set to 1, the point will have to be acknowledged again when it gets closed.



7.22 Changing Priority When Point Returns to Normal

Now let's change the Alarm setting to Trip.

In the below image (7.23) we will note that:

- 1 The point opened and It was acknowledged.
- 2 The point was closed.
- 3 Further acknowledgement was needed (the priority we set in Image 7.22)

Date ▼	Time	Flags	Alarm
23-12	19:55:18	①(CL) ③	North_H1,52A Circuit Breaker Closed
23-12	19:55:16	②	Close North_H1,52A FROM Bruce-lap::SCADA
23-12	19:51:53	③	1 North_H1,52A Circuit Breaker Open

7.23 Point Also Needs Acknowledgement When Closed

So far, the behavior is just like Sustained. Where Trip differs is when the point returns to its normal state before an operator can acknowledge it.

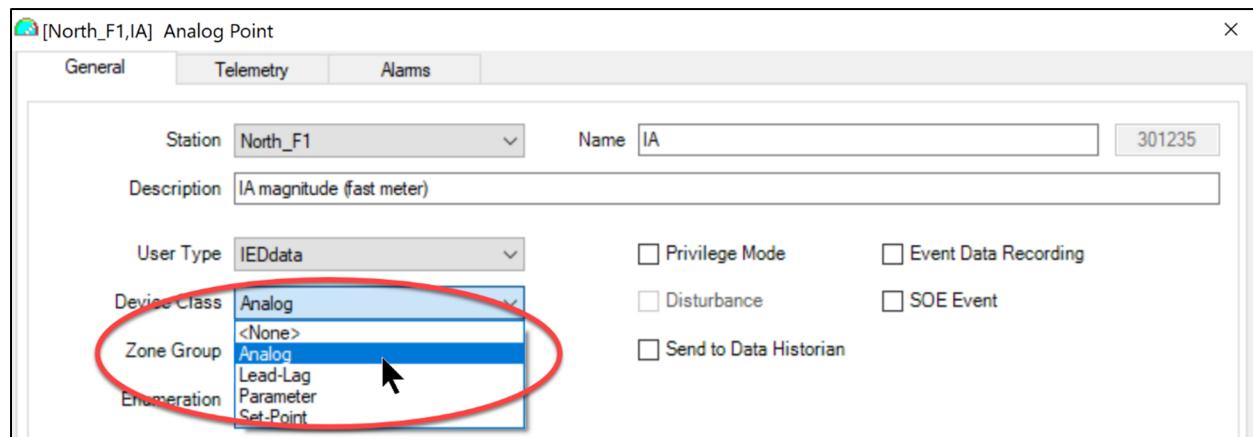
Compare 7.24 to 7.23, this time there is no priority when the breaker closes.

Date ▼	Time	Flags	Alarm
23-12	19:55:18	①(CL)	North_H1,52A Circuit Breaker Closed
23-12	19:55:16	②	Close North_H1,52A FROM Bruce-lap::SCADA
23-12	19:51:53	③	North_H1,52A Circuit Breaker Open

7.24 No Acknowledgement Need When Breaker Closed

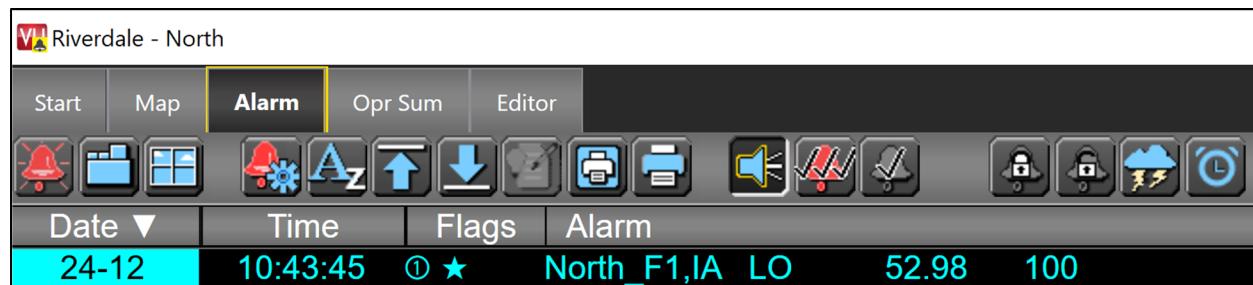
ANALOG ALARM BEHAVIOR

For our analog point alarm behavior, let's look at North_F1,IA. Below, you see it's been set up with the Analog Device Class (Alarm) logic.



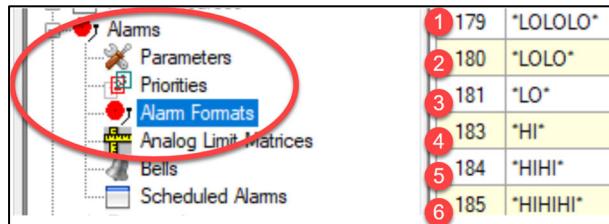
7.25 Analog Option

Next, notice that we dragged this point (from the Control Panel) to the Alarm tab.



7.26 Alarm Tab for our Analog Point

The wording for analog points is set in the 6 Alarm Formats shown in Image 7.27. These 6 formats correspond with the 6 possible alarm settings in Image 7.28.



7.27 -6 Settings for Alarm Wording

PreEmerg	Low <input checked="" type="checkbox"/>	High <input checked="" type="checkbox"/>	Deadband <input type="text" value="0"/>
	Limit <input type="text" value="100"/>	400	
Emergency	Low <input checked="" type="checkbox"/>	High <input checked="" type="checkbox"/>	Deadband <input type="text" value="0"/>
	Limit <input type="text" value="50"/>	450	
Unreason	Low <input checked="" type="checkbox"/>	High <input checked="" type="checkbox"/>	Deadband <input type="text" value="0"/>
	Limit <input type="text" value="25"/>	475	

7.28 -6 Alarm Settings

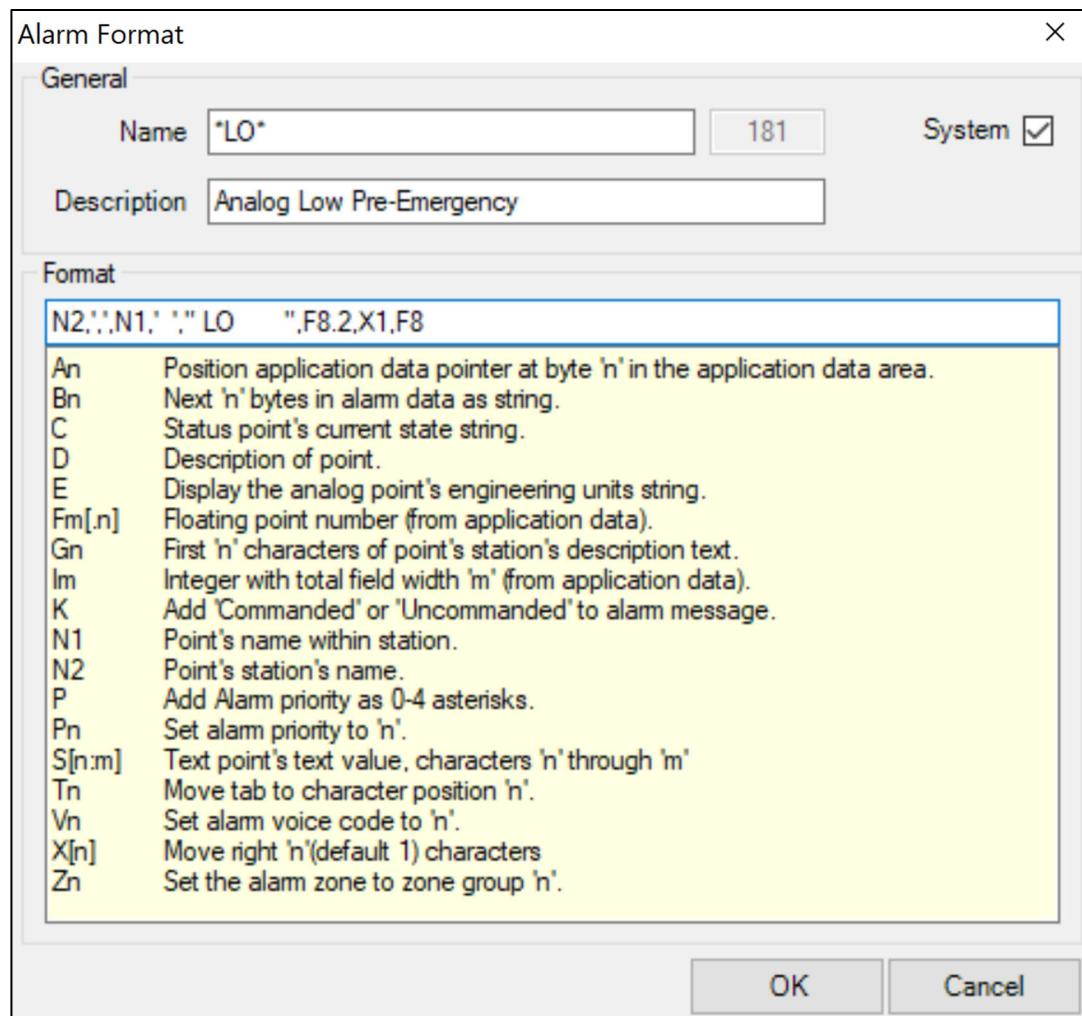
Seeing LO in Image 7.26 indicates that it's using ID 181 in Image 7.27. Settings 179 to 181 cover Unreasonable, Emergency, and Pre-Emergency low values respectively. Settings 183 to 185 cover Pre-Emergency, Emergency, and Unreasonable high values respectively.

This means the point is in PreEmerg Low range which was set at 100 in Image 7.28.

Let's open up ID 181 by double-clicking on it. This is covered in detail on the next page.

The items in the Format box (which can be changed) state that, if the point goes into Pre-Emergency Low, the Operator should see the:

- Point Station Name = N2.
- Point Name = N1.
- The word LO (plus extra spacing between the quotation marks).
- The point value to 2 decimal places = F8.2
- The value at which we judge the points to be in Pre-Emergency = F8.



7.29 How Operator Announcement is Set

If you go back to Image 7.26, you can confirm the wording. Staying with Image 7.26, the star indicates that the alarm has not returned to an acceptable range (greater than 100, less than 400) and the 1 means that this is a priority 1 alarm.

To watch further behavior, let's:

- Turn off the calculation (function) that's giving values for North_H1,F1.
- Manually set the point to 200 (which is a good value).
- Acknowledge all previous alarms showing.
- Wait 60 seconds and confirm the Alarm screen is blank.

As shown in image 7.30 below, let's manually change the current value to 490 and check the alarm screen.

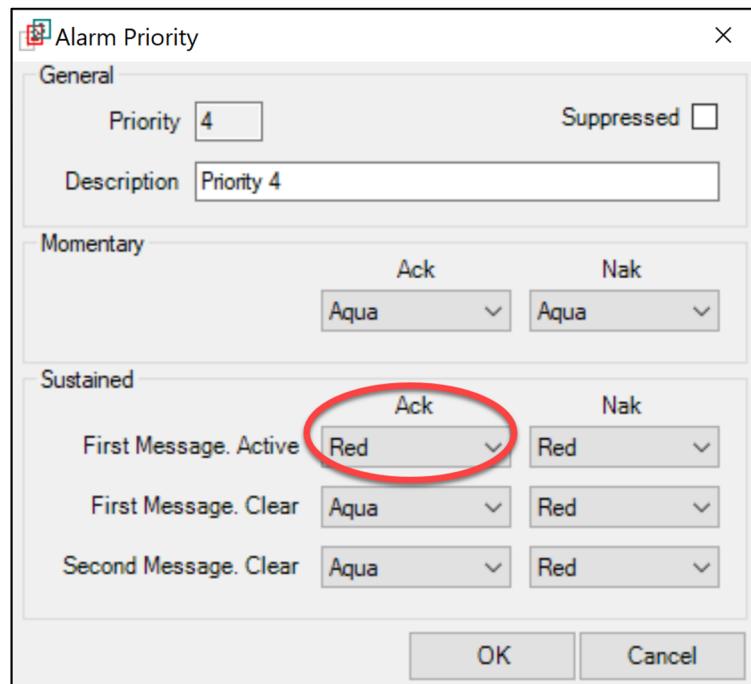
Date ▼	Time	Flags	Alarm
24-12	16:21:43	④ ★	North_F1,IA HI HI HI 490.00 475.00

7.30 First Message with Value at 490

We see the star meaning the point is still at the unreasonable value. The 4 is the priority we set in Image 7.28. The highlighted date means it's in a NAK state.

The red text is specified in Priority 4 alarms.
The analog point is taking the same colors as a sustained alarm.

We are seeing the first message and the alarm is still active.



7.31 Why Image 7.30 is in Red

Let's manually place the alarm in a "good" state such as 200 without acknowledging it. In the image below, we got a temporary white message explaining that the point cleared; however, we now have a second red message in Red. We know it's a different message because there is no star like in Image 7.30. Note that, even though the alarm has cleared, we still see the 490 that triggered the alarm.

Once we acknowledge, this message will disappear within a minute.

Date ▼	Time	Flags	Alarm
24-12	16:21:43	④	North_F1,IA HI HI HI 490.00 475.00

7.32 Second Message Clear - but still NAK

After all the messages have disappeared, let's recreate the value and alarm from Image 7.30. However, this time we will acknowledge before the point goes back to a normal value.

24-12	16:46:39	④ ★	North_F1,IA	HI HI HI	490.00	475.00
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7.33 Acknowledged but Not Cleared

When the point is cleared (back in normal value), we get our second message. As expected from image 7.31, the cleared and acknowledged message is in Aqua.

24-12	16:53:29	①(CL)	North_F1,IA	HI HI HI	490.00	475.00
24-12	16:46:39	④	North_F1,IA	HI HI HI	490.00	475.00

7.34 Acknowledged and Cleared

The message above will disappear within the 1-minute threshold we assigned in Image 7.1.

LEAD-LAG ALARM BEHAVIOR (ANALOG)

If we were to set alarm values like this for North_F1,IA, set as Analog, we would get an error.

For alarms on high values, the higher the value the more serious the alarm. It would not be logical to move from 0.95 to 0.9 to 0.5.

Similarly, the low values are not getting lower as we move from PreEmerg to Unreasonable.

General	Telemetry	Alarms
PreEmerg		
Low <input checked="" type="checkbox"/>	High <input checked="" type="checkbox"/>	Deadband
Limit <input type="text" value="-0.95"/>	<input type="text" value="0.95"/>	<input type="text" value="0"/>
Priority <input type="button" value="1-"/>	<input type="button" value="1-"/>	
Remote Alarm <input type="button" value="<None>"/>	<input type="button" value="<None>"/>	
Emergency		
Low <input checked="" type="checkbox"/>	High <input checked="" type="checkbox"/>	Deadband
Limit <input type="text" value="-0.9"/>	<input type="text" value="0.9"/>	<input type="text" value="0"/>
Priority <input type="button" value="2-"/>	<input type="button" value="2-"/>	
Remote Alarm <input type="button" value="<None>"/>	<input type="button" value="<None>"/>	
Unreason		
Low <input checked="" type="checkbox"/>	High <input checked="" type="checkbox"/>	Deadband
Limit <input type="text" value="-0.5"/>	<input type="text" value="0.5"/>	<input type="text" value="0"/>
Priority <input type="button" value="4-"/>	<input type="button" value="4-"/>	
Remote Alarm <input type="button" value="<None>"/>	<input type="button" value="<None>"/>	

7.35 Illogical Settings?

However, if you refer to Image 7.25, this is exactly the behavior you would want with the Lead-Lag setting. Points with these settings move from -1 to 1 with -1 and 1 being good settings (Cosine values would be an example). The closer the point gets to 0, the more it needs to be raised as an alarm. This is what Image 7.35 captures with Unreasonable capturing values between -0.5 and +0.5.



Exercise

In-class exercise: Give an analog point the Lead-Lag setting and test. Remember the point should be set to fluctuate between -1 and +1.

Test the Parameter setting by putting a point in the Parameter condition and watching the behavior when a new value is reported.

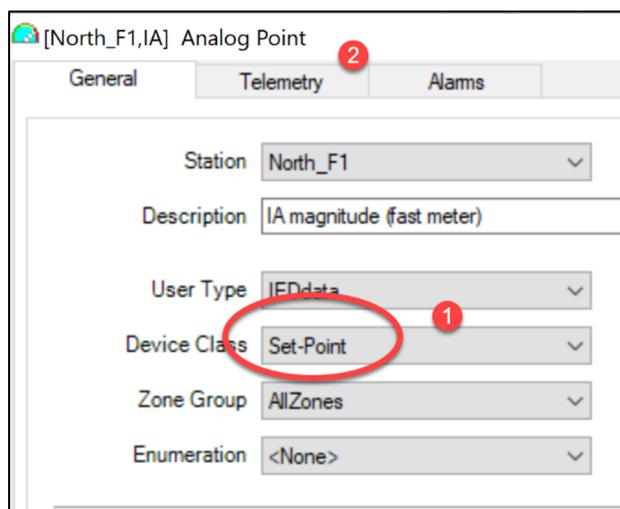
PARAMETER (ANALOG)

In some scenarios in this module, we've put points in a manual status. For example, if we put North_H1,IA and manually set it to 200, it would stay at 200 until we activated the point.

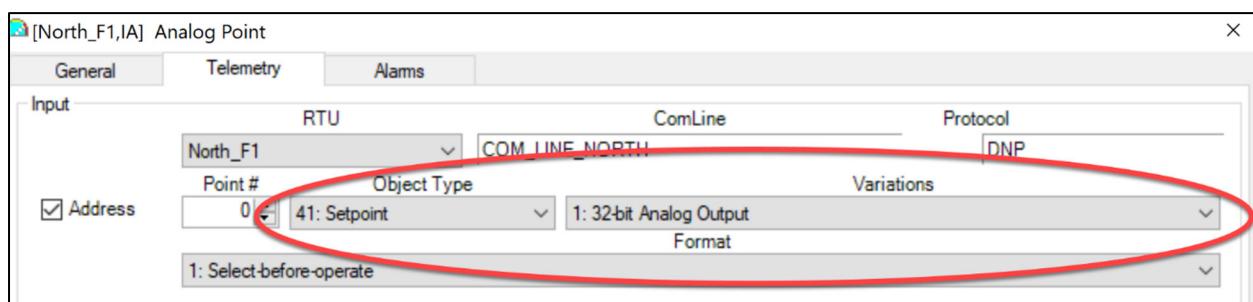
However, Image 7.25 shows a setting called Parameter. When you give a point the Parameter setting, the point continues to scan and will still report the proper values. It will move to the manual setting but move off it when there is a change.

SET-POINT (ANALOG)

To make a point a set-point you would make the changes as in Images 7.36 and 7.37. (1) Change Device Class to Set-Point, (2) Telemetry tab will have more configuration for the object type.



7.36 Creating a Set-Point



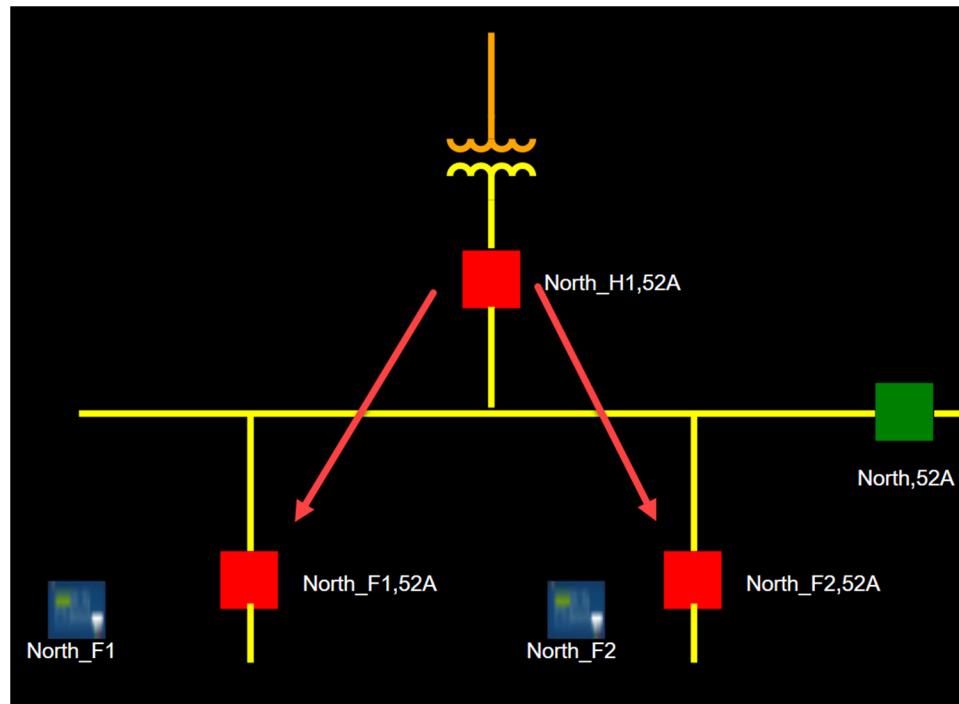
7.37 Set-Point Attributes

ALARM SUPPRESSION

Alarm Suppression allows you to set up a relationship between alarms. The relationships are that one alarm is a “master” alarm and that one or more alarms are “slaves”. In this relationship, if the Master slave is raised then the slave alarms are either:

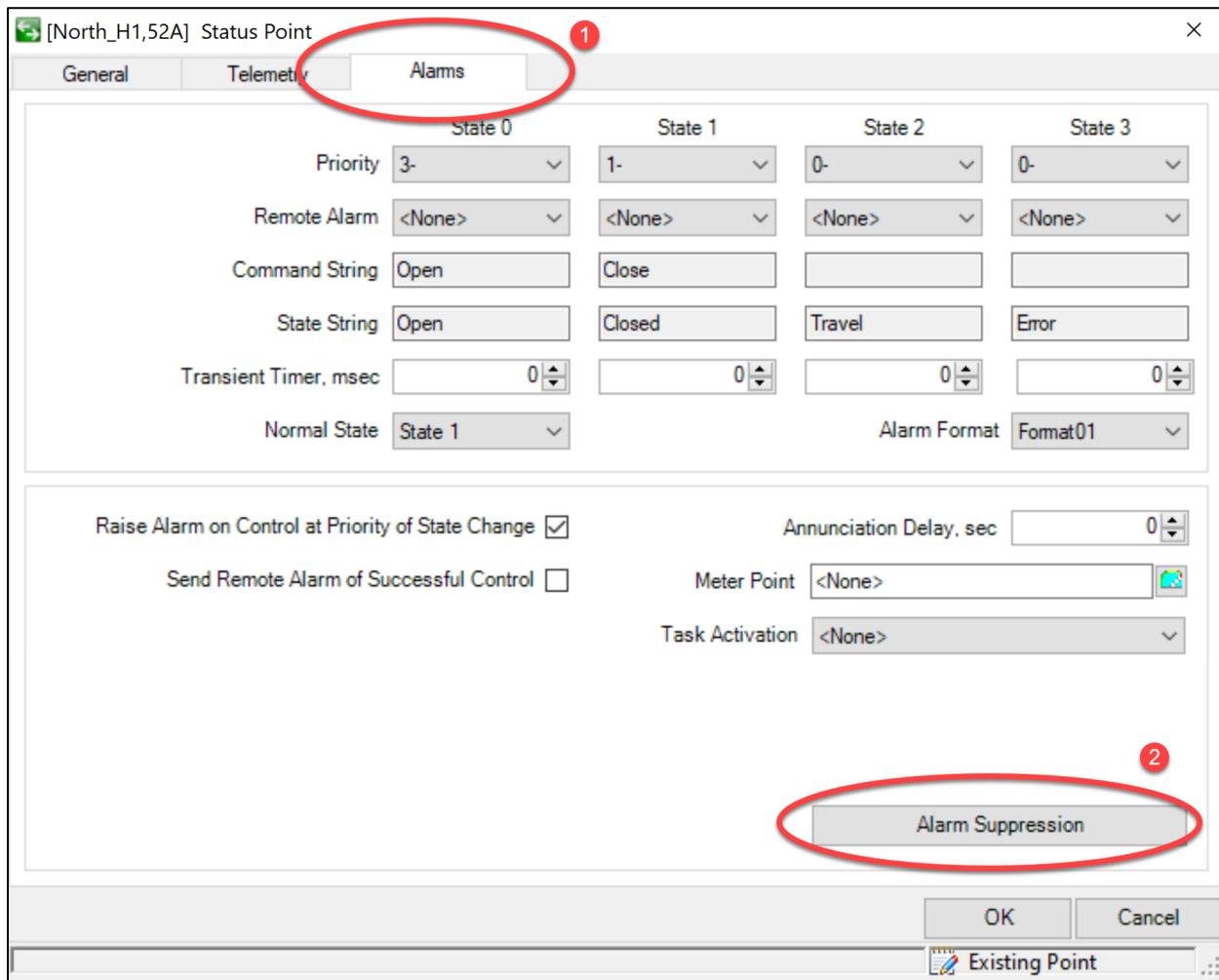
- Prevented from being raised.
- Acknowledged as soon as the master alarm is acknowledged.

Let's set up the first scenario. We will set up North_H1,52A as master to North_F1,52A and North_F2,52A.



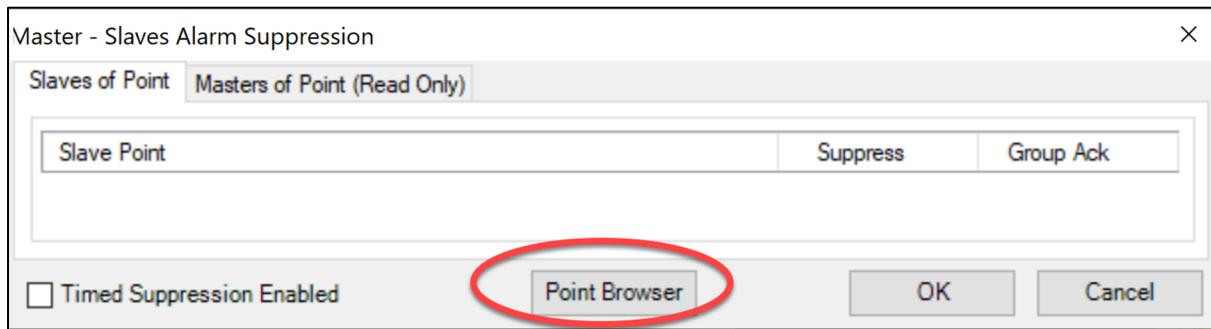
7.38 Visualizing our Master and Slave Relationship

In the Alarms tab of the master point, click Alarm Suppression.



7.39 Launching Alarm Suppression

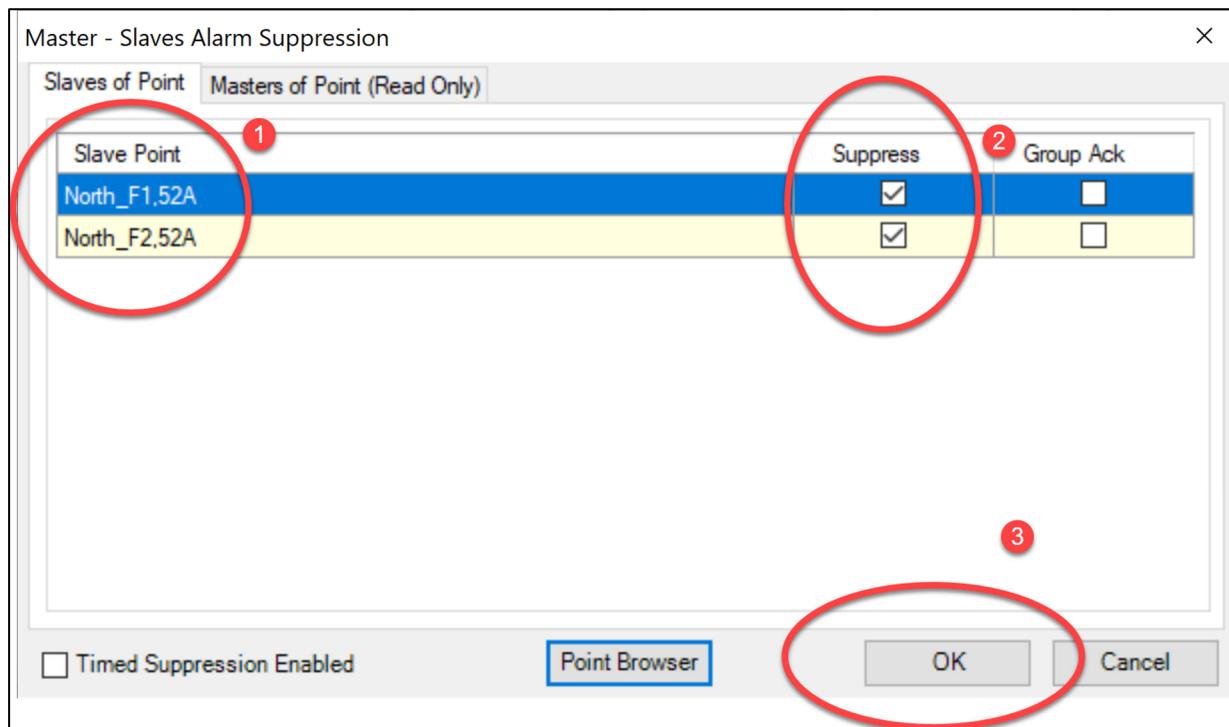
Use the Point Browser to identify the slave points.



7.40 Point Browser

(1) We have selected our two points.

By default, (2) Suppression is checked. We will use Group Ack in an exercise. Click OK to continue.



7.41 Two Points Selected



Exercise

In-class exercise: With this configuration, confirm that North_F1,52A and North_F2,52A will not show alarms if North_H1,52A is in an alarm state.

If we set the check marks to Group Ack (see Image 7.41), we should see a different effect. This time all 3 points (1 Master and 2 Slaves) should all show alarms; however, acknowledging the Master automatically and simultaneously acknowledges the Slave points.

Confirm this behavior.

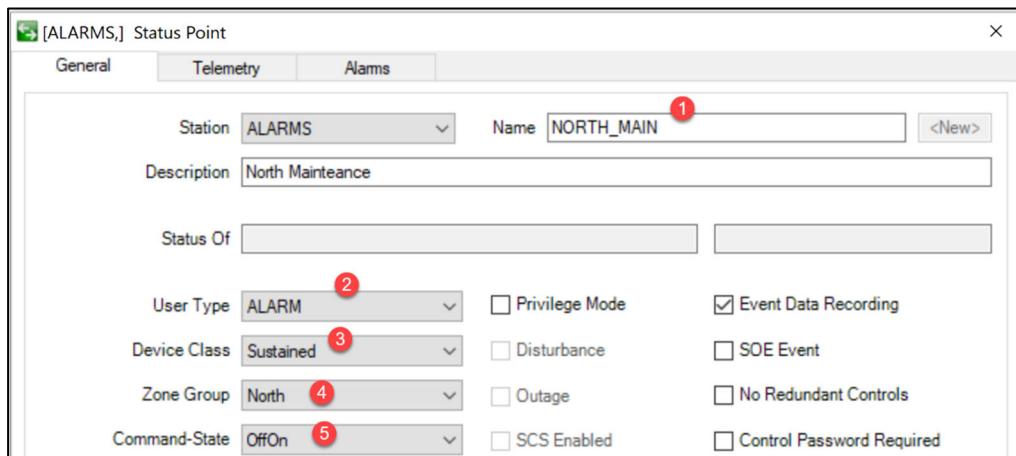
SCHEDULED ALARMS



Exercise

In-class exercise: We will be creating a new point for this section but we don't have all the resources yet:

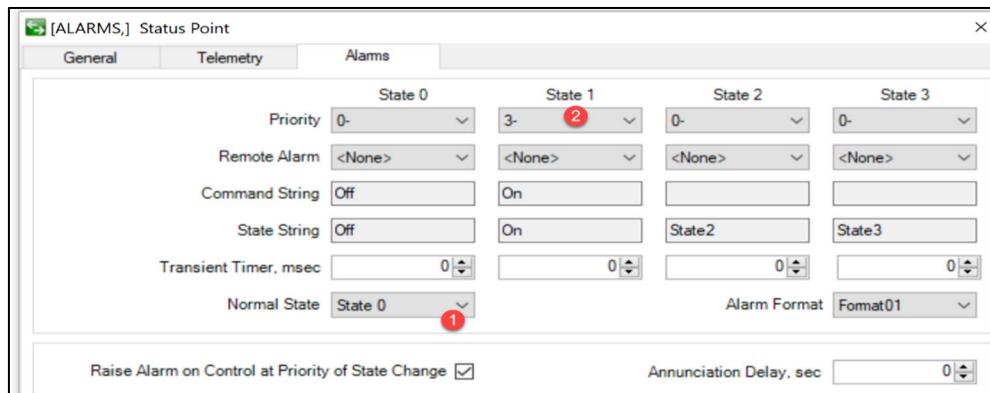
- Create a User Type called ALARM.
- Create a Station Called Alarm.
- Create a Status Point called North_Main
- Configure North_Main as shown in the following 2 images (no Telemetry necessary).
 - (1) Give it a name
 - (2) Select the correct User Type
 - (3) Device class is Sustained
 - (4) Zone Group set to North
 - (5) Command-State is OffOn



7.42 General Tab

Remember to set under the Alarm Tab

- (1) Normal state
- (2) State 1 to Priority 3

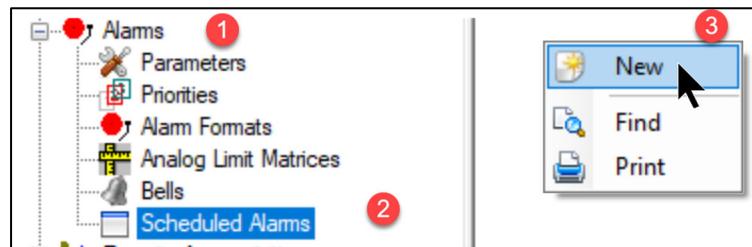


7.43 Alarms Tab

Scheduled Alarms can be used to remind us of events. In this example, we'll set a reminder that we are to do maintenance in the North Substation on December 26.

Under STC Explorer, scroll down to (1) Alarms, you'll find (2) Scheduled Alarms.

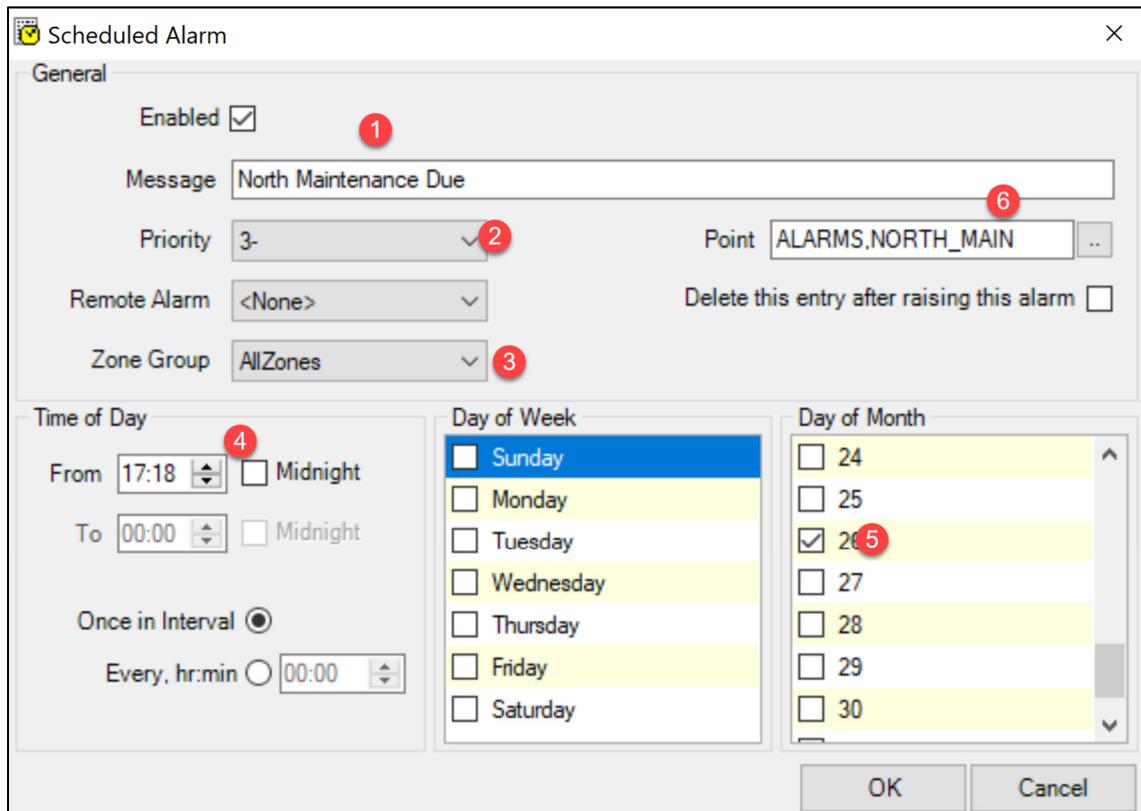
- (3) Right-click in the white space to the right and select new.



7.44 Setting Up a Scheduled Alarm

Below, we have given our scheduled alarm a:

1. Message
2. Priority
3. Zone Group
4. Time
5. Date
6. Point we can use for PMacros (we will cover this in an exercise).



7.45 Configuring the Schedule Alarm

When the time comes, we get the Alarm Message.



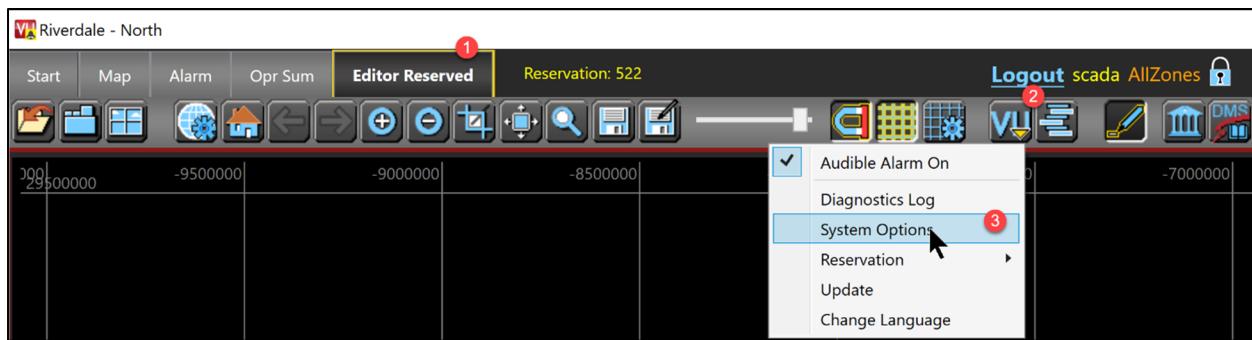
7.45 Schedule Alarm Message

ALARM SOUNDS

In addition to visual distractions such as flashing symbols, sounds can also be configured in SmartVU to draw attention to alarms in the system.

This is done:

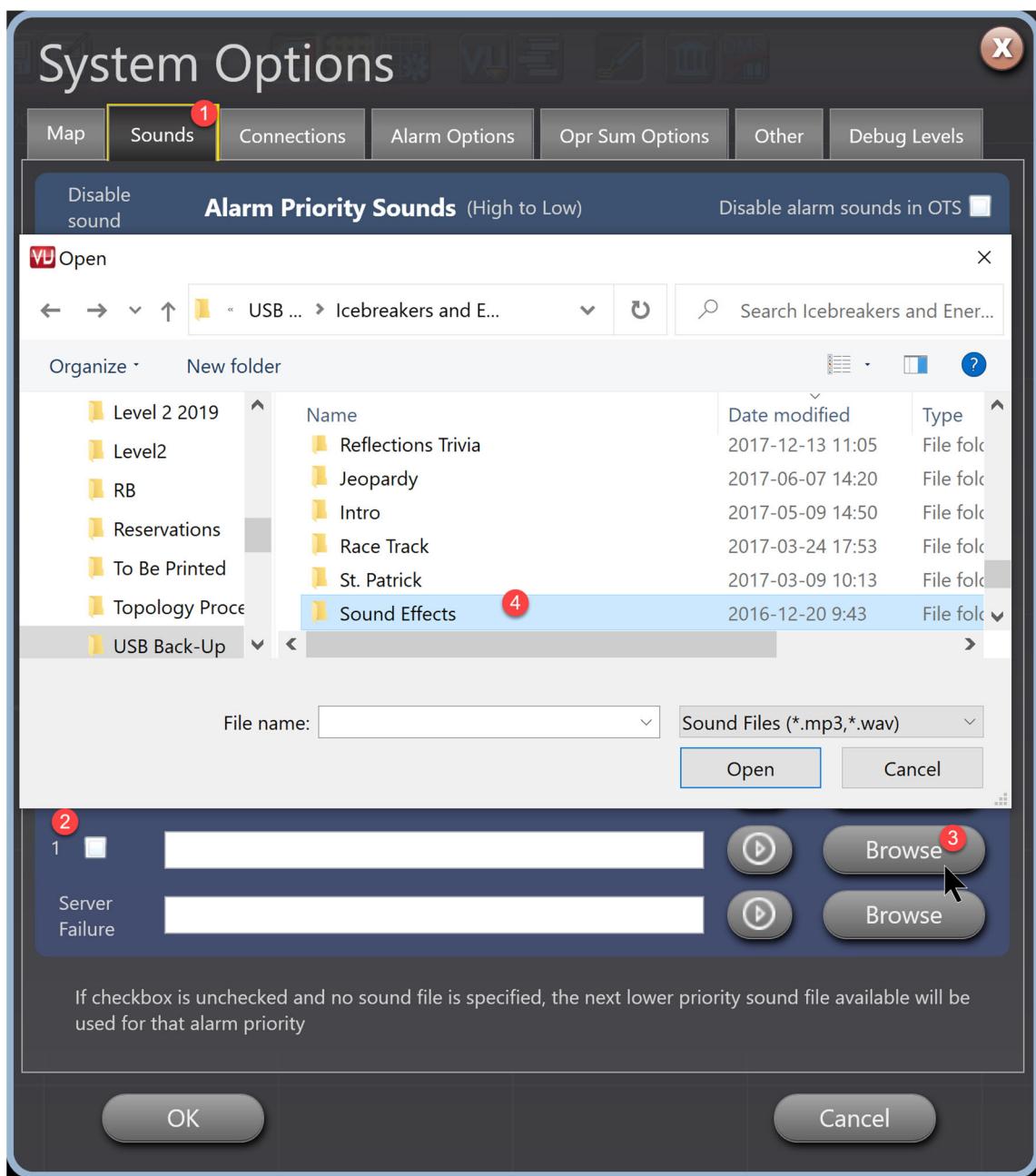
1. In editor mode.
2. Clicking on the VU menu.
3. Selecting System Options.



7.46 System Options in SmartVU

You can select standard audio files by:

1. Choosing Sounds.
2. Selecting an Alarm Priority.
3. Clicking Browse.
4. Selecting an audio file.



7.47 Selecting an Audio File for Alarms

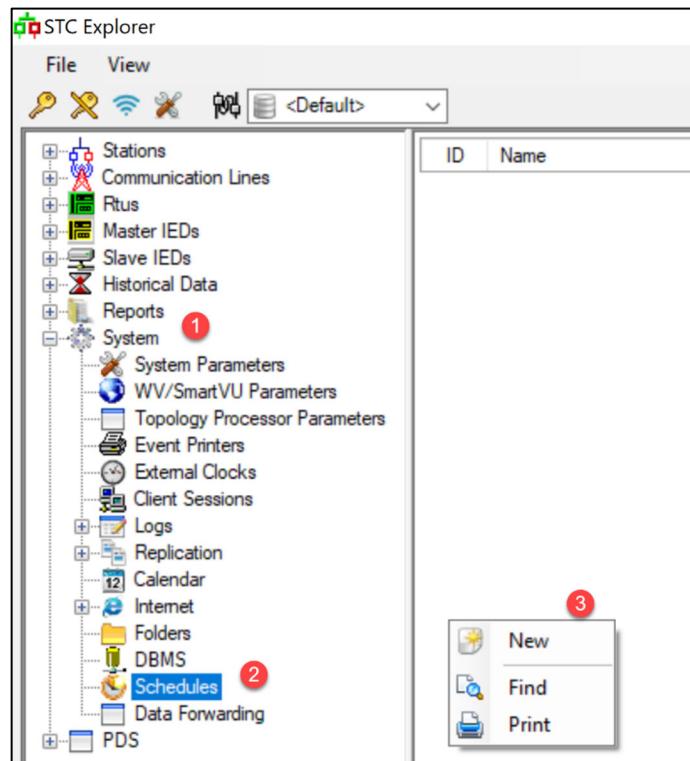
REMOTE ANNUNCIATION

Let's say there is a team that wishes to monitor points in the North Substation after hours. If a point goes into an alarm, this team wishes to be notified right away by phone, messaging, or email.

We should start by defining the schedule.

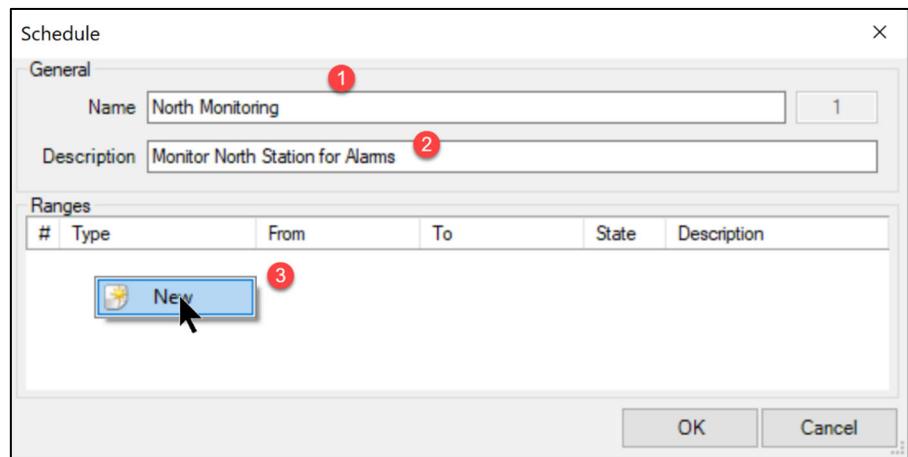
In STC Explorer:

1. Select System.
2. Schedules.
3. Right-click in the right window and select New.

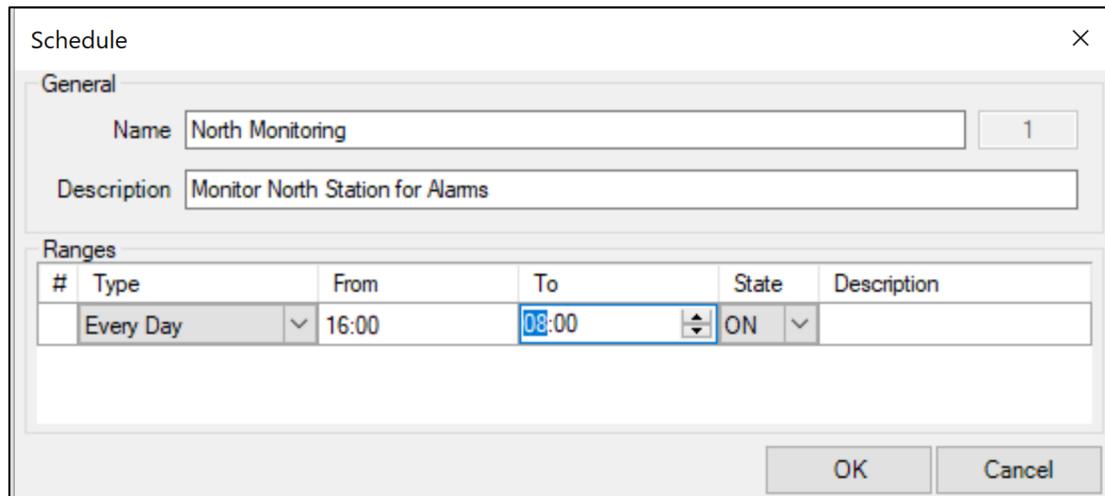


7.48 Schedules

- (1) Provide a name,
- (2) Description, and then
- (3) Right-click on an open space and select New.



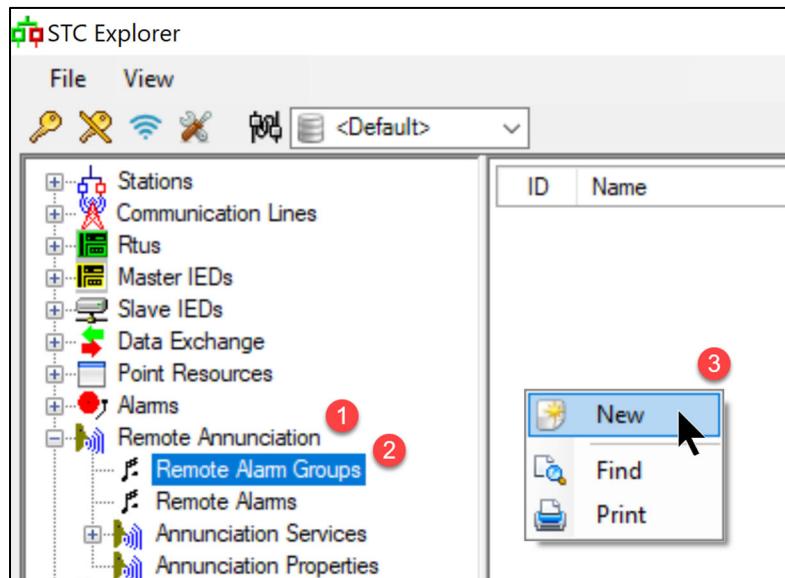
Below, we've set the time range and then clicked OK.



7.50 Defining the Hours

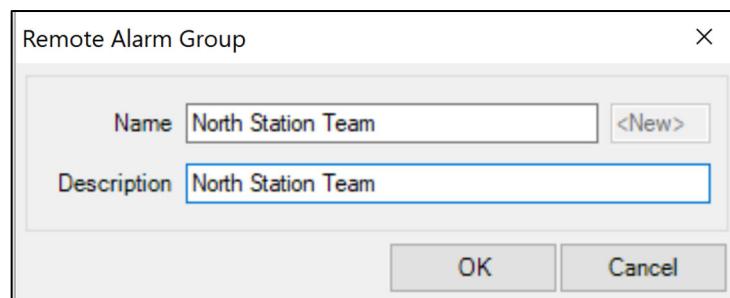
Now, we can turn our attention to the Remote Annunciation section:

1. Select Remote Annunciation.
2. Remote Alarm Groups.
3. Right click in the right window and select New.



7.51 Creating Remote Annunciation Groups

Here we can give the group a name for Remote Annunciation.



7.52 Defining a Group Name

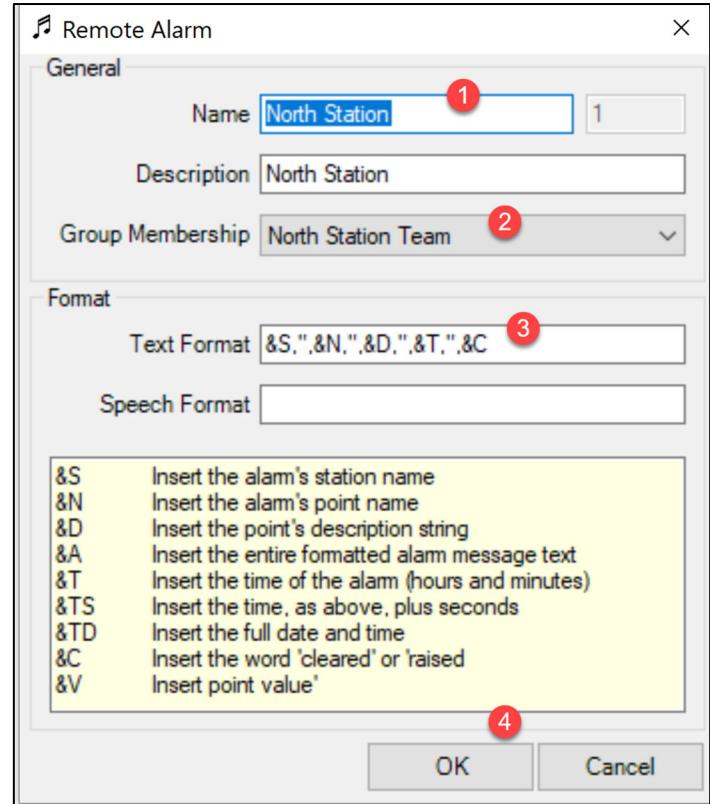
We now can define the wording of the alarms by creating a new Remote Alarm.



7.53 Creating a New Remote Alarm

Here, we:

1. Provide the name for the wording.
2. Attach it to the North Station Team.
3. Use the coding below to set what will be read or heard.
4. Click OK.



7.54 Establishing the Info Provided in a Remote Annunciation Alarm

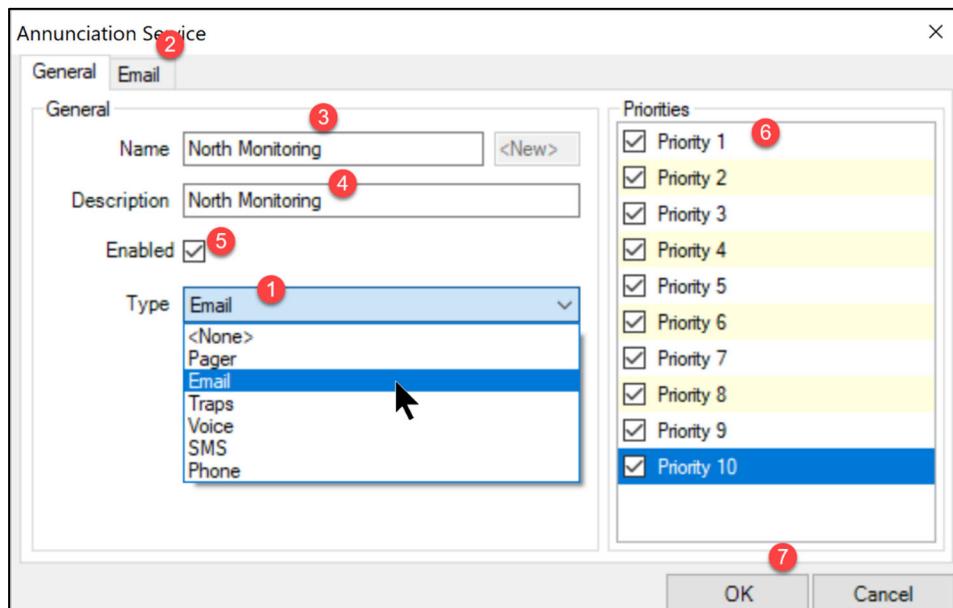
When we get to Annunciation Services, we are configuring the servers that will be sending the messages.



7.55 Setting Up a Service Such as Email or Messaging etc.

Below are the options in the General Tab of Annunciation Services.

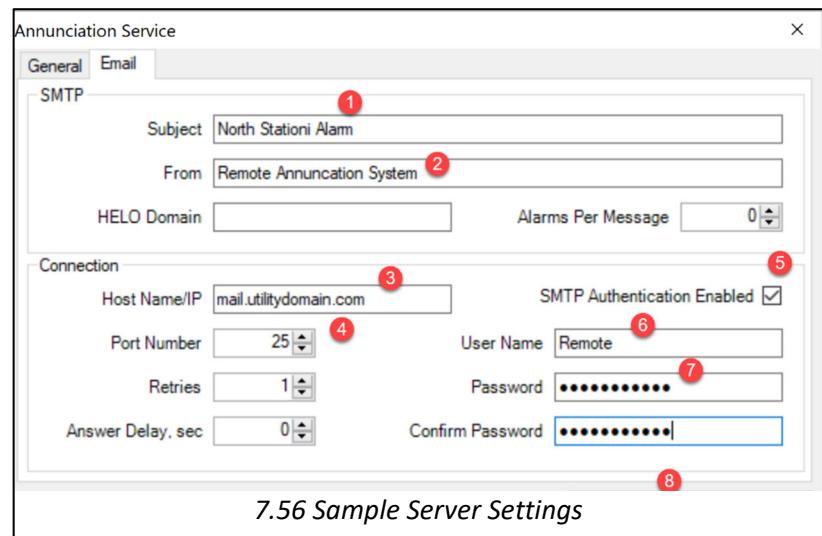
1. What we choose in the Type will determine the name and type of the second tab.
2. Since we selected Email, we see the tab Email.
3. Add a name for the service.
4. And a description.
5. Check Enabled.
6. Select the priorities you wish to include.
7. Click OK.



7.55 Selecting the Technology for the Annunciation

In the service tab (email based on our selection in Image 7.55) we enter:

1. Subject for the Email.
2. Sender Name.
3. SMTP (sending) Server.
4. SMTP Port (25 is common).
5. Check if using Authentication.
6. User name for Authentication.
7. Password for Authentication.
8. Click OK.



7.56 Sample Server Settings

Now that we've set up the server for email or whatever communication system we are using, we need to set up recipients.

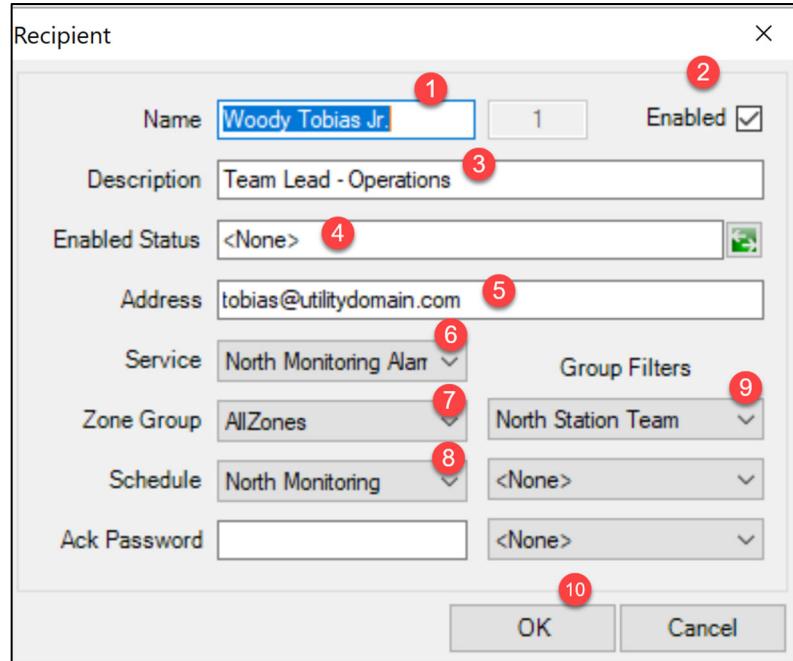
Select the (1) service we set up and (2) right-click on the right side.



7.57 Connecting our Service to Recipients

To set up our recipient:

1. Enter his name.
2. Check off Enabled.
3. Give a description of the recipient.
4. Enabled status – you can use a pseudo point to show the recipient is enabled.
5. Enter how we reach him (e.g. email address).



7.58 Setting Up Recipients

Labels 6-9 set up restrictions or customizations as to how the message is received:

6. He's going to receive his message by the email service we set up in Images 7.55 and 7.56.
7. He's going to receive messages from All Zones (but we could have restricted him to a specific zone).
8. He will only receive messages during the times set up in the North Monitoring schedule as we saw in Image 7.50.
9. The messages will be set in accordance with how they were formatted for the North Station Team in Image 7.54.

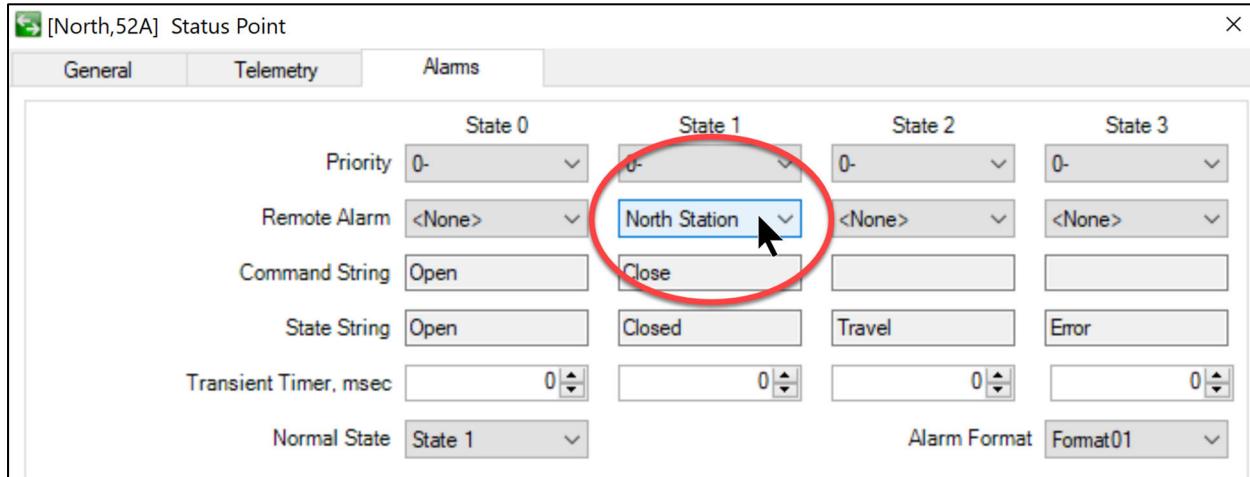
Label 9 also offers another important layer of filtering. You can tell by the names that these groups have been set up to correspond to the North Substation. People in the North Station Team are not to receive annunciations from other stations.

Label 9 also sets up the restrictions but we have to make some changes in the database.

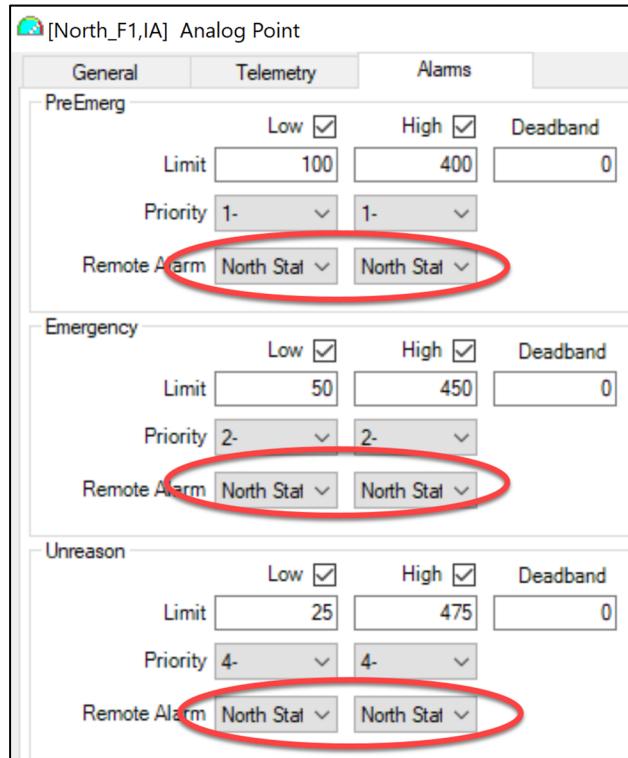
Points in the database can be set up as shown in Image 7.59. The point and the recipient are now connected to North Station Team.

The recipient now will only receive messages with points designated as North Station Team.

Note: Look back at Image 7.58. If our recipient is not connected to any filters then he will receive alarms from all points.



7.59 Connecting Status Points to Recipients

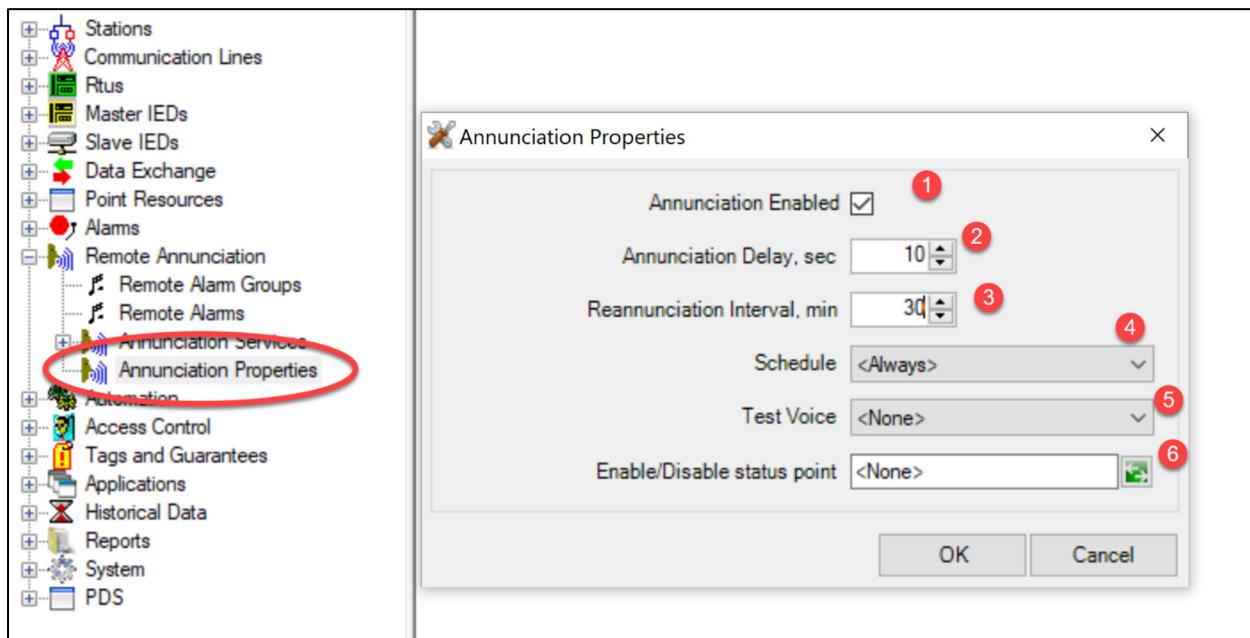


7.60 Connecting Analogs to Annunciation

The final option under Remote Annunciation is Annunciation Properties. When you click on Annunciation Properties you will see a configuration box in the window on the right.

Options here include:

1. The annunciation system here can be enabled or disabled.
2. You can specify a time delay.
3. You can specify the times of subsequent messages if the alarm is still active.
4. Set a schedule for annunciation to work (if set to always, make sure you have an always set showing the system is always available).
5. Test Voice has not yet been released by Survalent.
6. Optional – you can specify a status point to show if Annunciation is enabled.



7.61 Annunciation Properties

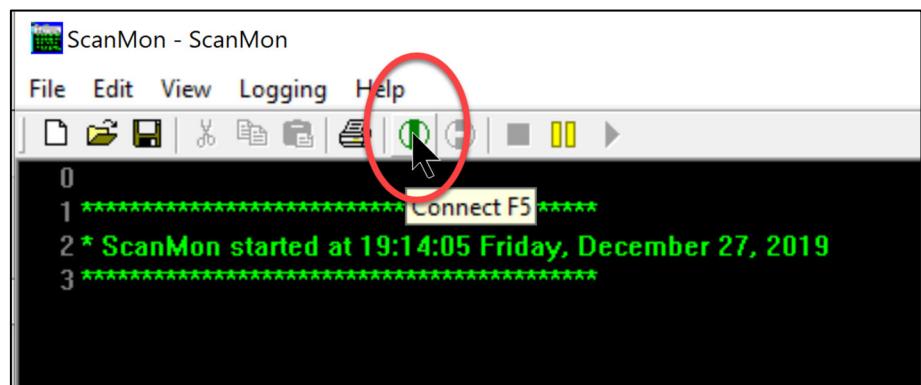
VOICE MANAGER

In module 3, we used a tool called ScanMon. It was a text-based tool that could monitor the network if it is not performing as we expect.

If employees are not receiving their emails, texts, or voice messages, you can monitor and test with the same tool. With this tool, you still run ScanMon but instead of monitoring a Communication Line, we use the command VoiceMgr to monitor annunciation errors.

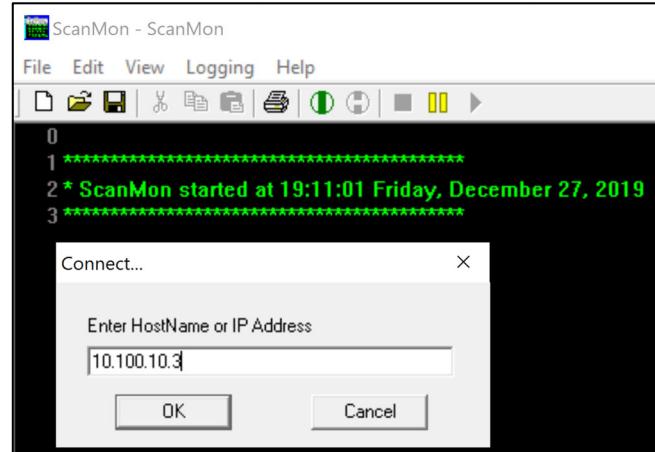
Over the next few pages, we will set the tool, raise an alarm on North_F1,IA, and check the message.

ScanMon launches in the same manner as when we were tested performance on a Communication Line. We connect by clicking on the green icon or tapping the F5 key.



7.62 Launching ScanMon

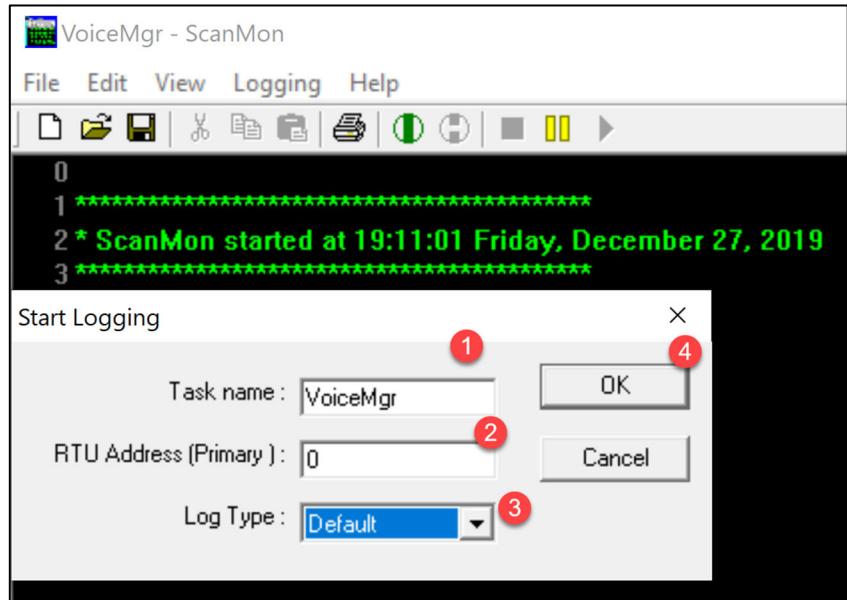
Next, we enter the address of the SCADA Master.



7.63 Connecting to the SCADA Master

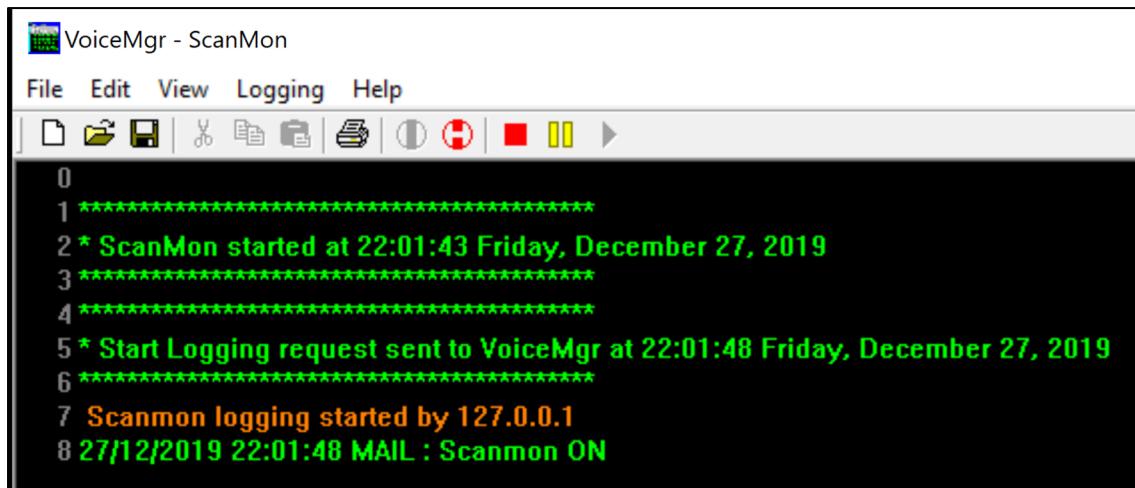
Here, we differ from the commands we used to monitor Communication Lines:

1. The command is VoiceMgr.
2. The number 0 has no function other than the tool requires that some number be entered in this box.
3. We can use the Default Log Type.
4. Click OK.



7.64 Specifying VoiceMgr

The Voice Manager is now running and listening for Remote Annunciation activity. Next, we will trip the breaker in Feeder 1 to see what it captures.

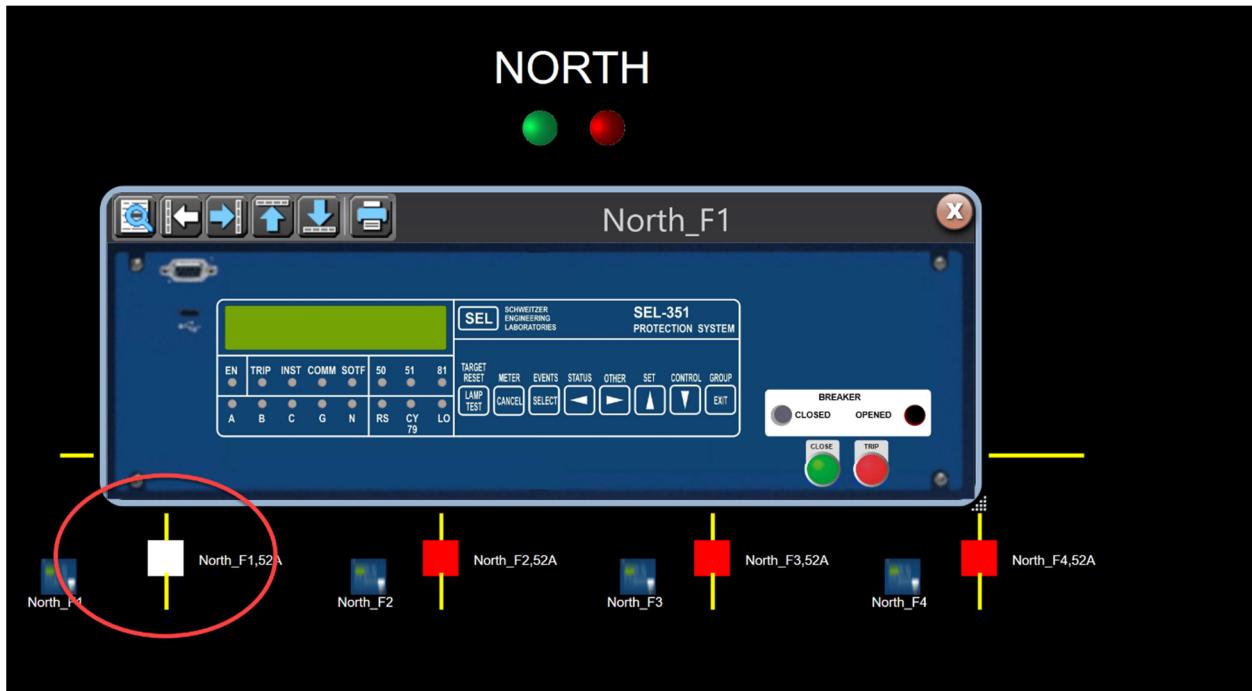


VoiceMgr - ScanMon

File Edit View Logging Help

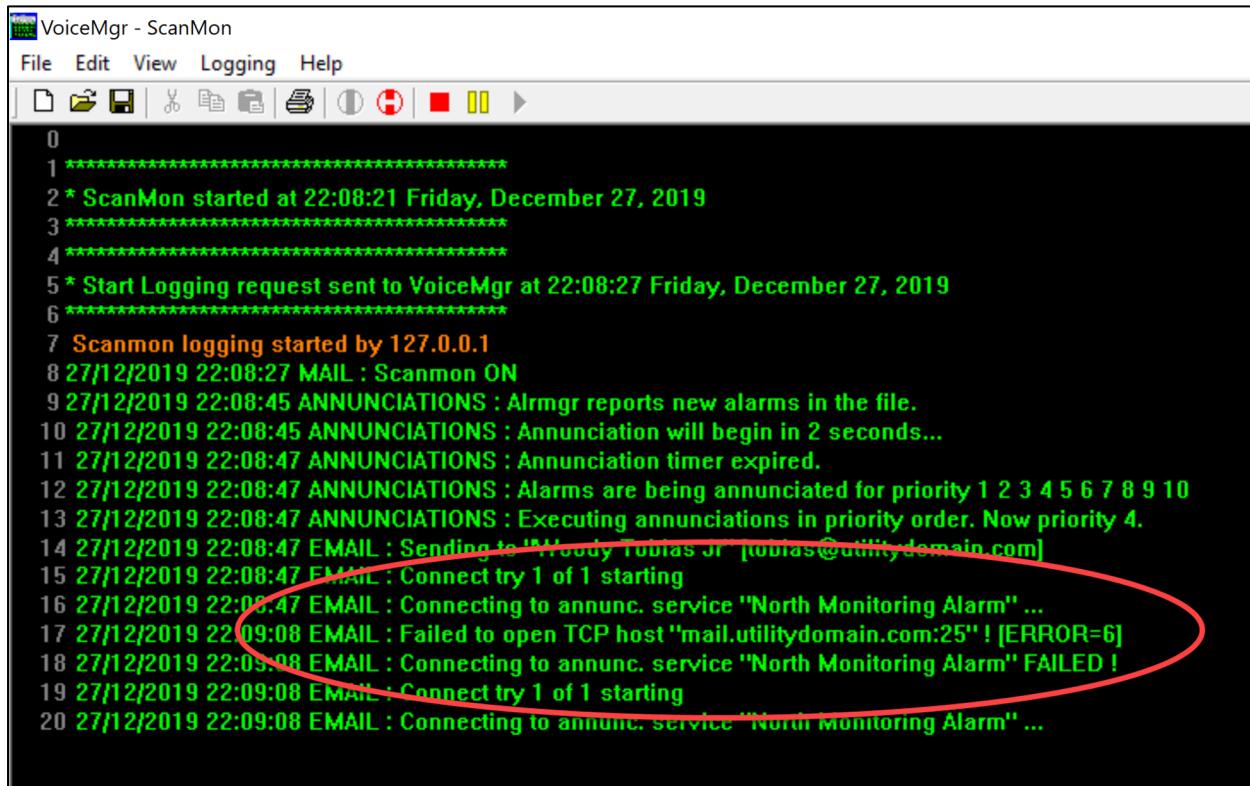
```
0
1 *****
2 * ScanMon started at 22:01:43 Friday, December 27, 2019
3 *****
4 *****
5 * Start Logging request sent to VoiceMgr at 22:01:48 Friday, December 27, 2019
6 *****
7 Scanmon logging started by 127.0.0.1
8 27/12/2019 22:01:48 MAIL : Scanmon ON
```

7.65 VoiceMgr Active



7.66 Breaker Tripped Using Control Panel

Image 7.67 on the next page shows that the system tried to send an email to the employee but there was a fault in the mail server configuration.



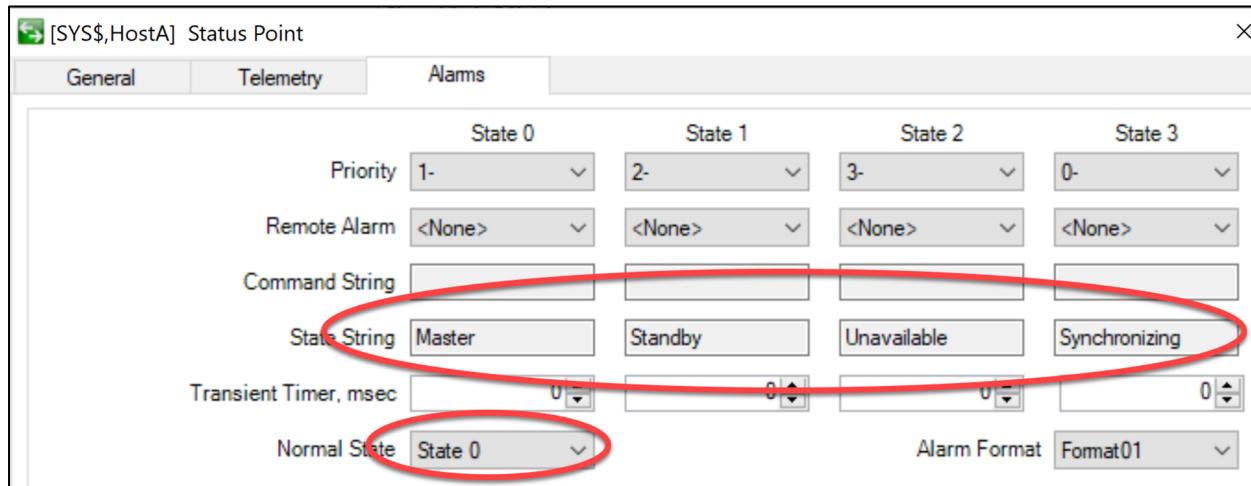
The screenshot shows a terminal window titled "VoiceMgr - ScanMon" with a black background and white text. The window has a menu bar with "File", "Edit", "View", "Logging", and "Help". Below the menu is a toolbar with icons for file operations. The log output starts with a timestamp "0" and continues with several log entries. A red oval highlights the last five entries, which show an attempt to send an email to "Woody Tobias Jr <tobias@utilitydomain.com>" at 22:09:08 on December 27, 2019. The entries indicate that the connection failed due to an error (ERROR=6).

```
0
1 *****
2 * ScanMon started at 22:08:21 Friday, December 27, 2019
3 *****
4 *****
5 * Start Logging request sent to VoiceMgr at 22:08:27 Friday, December 27, 2019
6 *****
7 Scanmon logging started by 127.0.0.1
8 27/12/2019 22:08:27 MAIL : Scanmon ON
9 27/12/2019 22:08:45 ANNUNCiations : Alrmgr reports new alarms in the file.
10 27/12/2019 22:08:45 ANNUNCiations : Annunciation will begin in 2 seconds...
11 27/12/2019 22:08:47 ANNUNCiations : Annunciation timer expired.
12 27/12/2019 22:08:47 ANNUNCiations : Alarms are being annunciated for priority 1 2 3 4 5 6 7 8 9 10
13 27/12/2019 22:08:47 ANNUNCiations : Executing annunciations in priority order. Now priority 4.
14 27/12/2019 22:08:47 EMAIL : Sending to "Woody Tobias Jr <tobias@utilitydomain.com>"
15 27/12/2019 22:08:47 EMAIL : Connect try 1 of 1 starting
16 27/12/2019 22:09:07 EMAIL : Connecting to annunc. service "North Monitoring Alarm" ...
17 27/12/2019 22:09:08 EMAIL : Failed to open TCP host "mail.utilitydomain.com:25" ! [ERROR=6]
18 27/12/2019 22:09:08 EMAIL : Connecting to annunc. service "North Monitoring Alarm" FAILED !
19 27/12/2019 22:09:08 EMAIL : Connect try 1 of 1 starting
20 27/12/2019 22:09:08 EMAIL : Connecting to annunc. service "North Monitoring Alarm" ...
```

7.67 Sample of a failed message

STATUS POINTS IN SYS\$

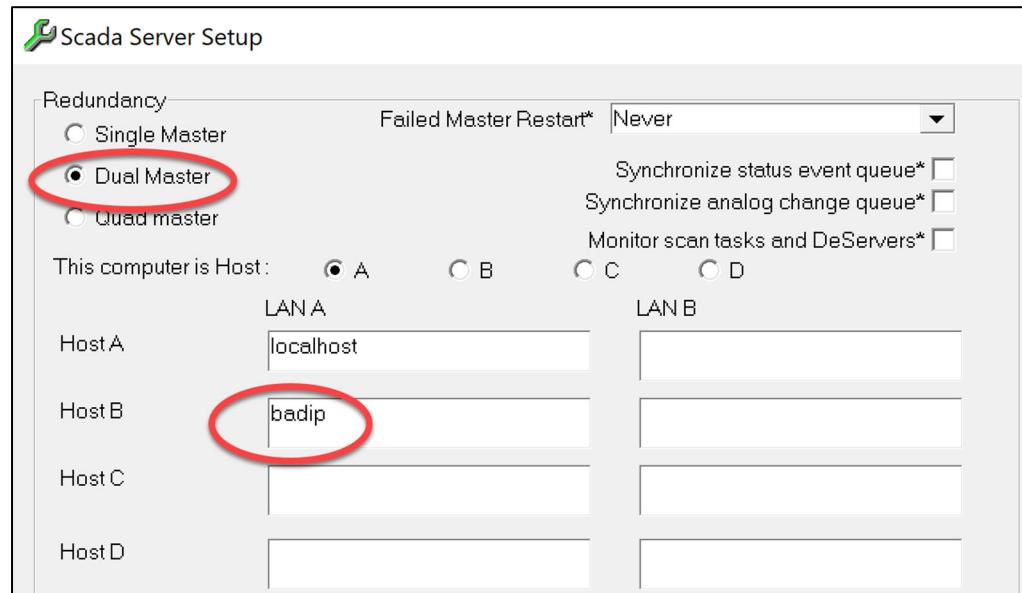
The SYS\$ folder contains status points that indicate the health of HOSTA and HOSTB. The alarms would work as seen below:



7.68 HOST Alarm States

Let's create a malfunctioning HOST B to go along with our HOST A (localhost). In ADMS Manager, make the following changes in SCADA Server Setup:

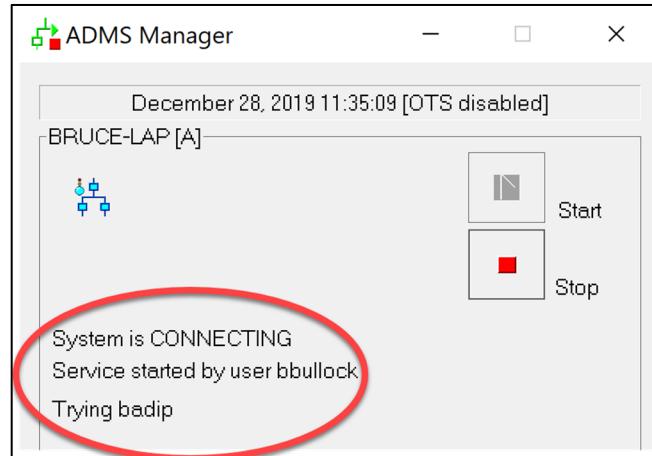
- Change our system to a Dual Master (which means, instead of just HOSTA, we now have HOST A and HOST B).
- Give Host B an incorrect address.



7.69 Adding a Malfunctioning Second Host

After making the changes, stop and restart the ADMS Manager.

At first, you'll see the message to the right saying that it's trying to connect to the second server.



7.70 Trying to Connect to Second Server

The image on the next page shows how the HOSTS appear in the SCADA Status Point Viewer.

HOST A is showing to be in Master (0) status and HOST B is showing as Unavailable (2).

Recall the other states are Standby (1) and Synchronizing (3).

We can make a Status Color PMacro that will match colors to these 4 states.

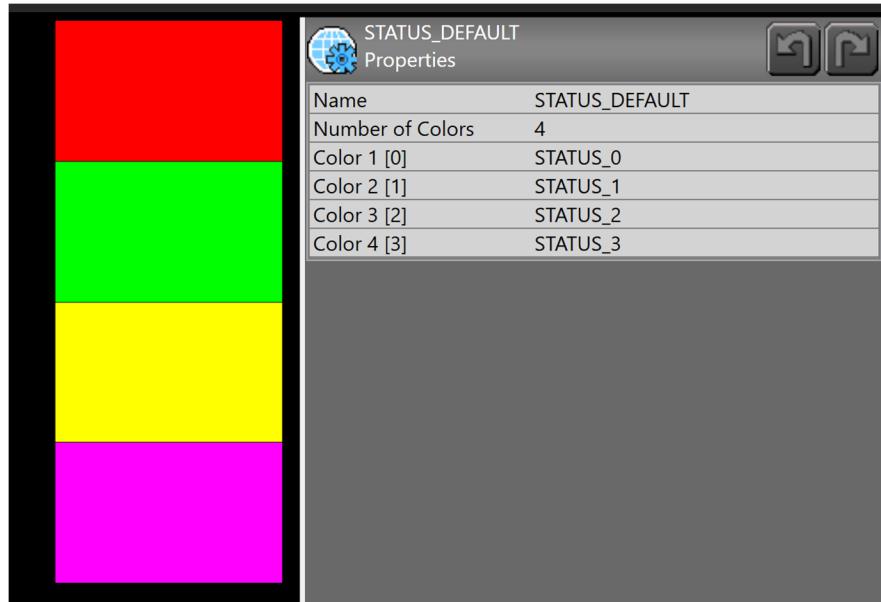
Let's start by seeing if we have a color table that nicely corresponds to these states.

The screenshot shows the 'Full Status Points Online Display' interface. On the left is a tree view of status points under a 'SYS\$' root node. On the right is a table of system status values. A red arrow points from the 'SYS\$' node in the tree to the 'Value' column in the table. Another red circle highlights the 'Master(0)' entry in the table.

Name	Value
SYS\$.Logger1	Normal(1)
SYS\$.HostB	Unavailable(2)
SYS\$.HostA	Master(0)
SYS\$.ALFULL	Open(0)
SYS\$.SCADA	Closed(1)

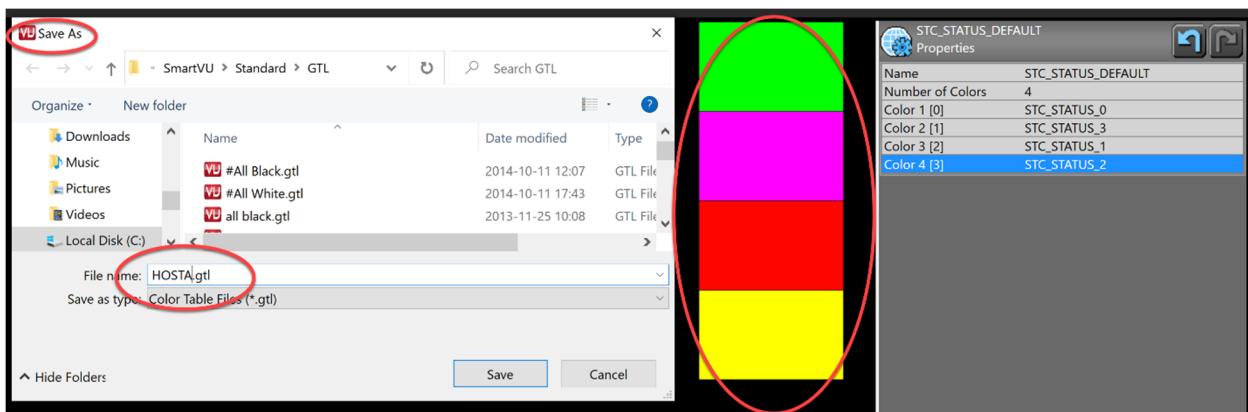
7.71 Status Point Viewer

The Status_Default Color Table below has 4 states; however, let's say we want Green to be our active color (state 0), Fuchsia for Standby (state 1), Red for Unavailable (state 2), and Yellow for Syncing (state 3).



7.72 Status Default Color Table

So, let's switch the color order and then use "Save As" to create a new color table called HOST A.



7.73 New Color Table



Exercise

In-class exercise:

1. Create a color table called Host_NAK. The colors should be the same as HOST except they should be flashing.
2. Using the 2 new color tables, create a Status Color PMacro for the HOSTS.
3. Create a Template that uses the Status Color PMacros – one connects to HOST A and the other connects to HOST B.
4. Turn the Template into a Template PMacro.
5. Apply the Template PMacro to both the North and South substations in the map.

This exercise marks the conclusion of Module 7 as we have learned the different types of alarms and how to manage them. In the last module, we will be taking a look at automation.