SunGuide Software

User’s Group Design Review

Meeting Minutes





Date: August 1, 2019

Time: 2:30pm-3:30pm EDT

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| Agenda: |  |
| Topic | **Led By:** |
| DMS Font Issues  2964 – Multiple Logical Devices Mapped to Same Physical Device  4815 – Response Plans should use Congestion Tail, if available  4870 – For NTCIP Camera, set into manual mode before sending manual command | Derek Vollmer and Adam Dylla  AJ Skillern  AJ Skillern  AJ Skillern |

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| Attendees: |  |
| Robbie Brown, D1  Ray Mikol, D1  Alain Capucchi, D1  Justin Merritt, D1  Luis Ruiz, D1  Jason Summerfield, D2  Kevin Mehaffy, D3  Aven Morgan, D3  John McFadden, CoT  Jacques Dupuy, D4  Dee McTague, D4  Shannon Watterson, D5  Eddie Grant, D5  Josh Sibley, D5 | Jay Williams, D5  Mark Laird, D6  Jared Roso, D7  Dan Buidens, D7  Alex Brum, FTE  Clay Congdon, I-595  Rolle Adrenamae, I-595  Tucker Brown, SwRI  Adam Dylla, SwRI  AJ Skillern, SwRI  Christine Shafik, CO  Derek Vollmer, CO  Mark Dunthorn, CO  Frances Ijeoma, CO  Jennifer Rich, CO  Karthik Devarakonda, CO |

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| Discussion: |  |

This meeting is being recorded for the purpose of taking meeting minutes.

**DMS Font Issue**

**Derek Vollmer:** This was actually brought to our attention by Adam Dylla while doing his testing of the new DMS font enhancement. He discovered that the font version ID was not being calculated correctly by one of the vendors. This font version ID is a critical part of this font enhancement. When we download a font to a sign, the vendor is supposed to take certain attributes of the fonts and certain characters that have been defined for the font and calculate the font version ID. It uses the same algorithm that they use to calculate the message ID. Unfortunately, the vendor that has this issue is a large vendor in the state. Since it is an internal meeting I will mention that it is Daktronics. The TERL is working on writing up the issue and we wrote a script to verify that the issue does exist. They can use it to verify if their algorithm is working. They have an example within the standard that is a simple two-character example with the CRC that goes along with it that they can load into their sign to determine if the sign controller is calculating the font version ID. On our side, we will be working with the vendor to get this resolved but we don’t know how far back it goes. We don’t know how many of the older signs it will impact. The other older vendors on the APL, we don’t have controllers to test their signs to verify if they have issues. We have some of the sign controllers here and we can verify those but with that in mind, we need to come up with an alternative or some options in SunGuide to handle if the sign is not calculating the font version ID correctly.

**Adam Dylla:** As part of the font upload process, the driver will also download the CRC that is generated. That is how we were able to determine it wasn’t matching the one that we were calculating. What we are going to do in the meantime is to use their version of CRC when we send the messages. It is likely that it is a small bug in their calculation but it is probably still identifying a unique identifier given the data. If they report that everything else was successful during the upload there is still a way to determine if the CRC was correct. In the meantime, we will do that, then it should be a trivial fix once we determine that most vendors have implemented a fix and we can test with them. Then we can change the driver to do what we intended all along and we can use our calculated version to send the messages.

**Derek Vollmer:** There may be some sign vendors that we can’t get to have the updates for some of the older versions of their signs. Is there something else we can do to flag it to say, “we can’t do font management for this sign”?

**Adam Dylla:** The better option is to indicate that we are going to use the sign CRC and not the calculated CRC. I don’t think we would be ignoring it, we are still going to use a CRC. I believe with the Daktronics it was like this all along. Including the activation code where the other CRC is used. When we upload a message, we are supposed to generate a hash for a 12-bite string and upload it. It has been using their version of the CRC anyway that is part of the request of activating the message. It is a similar situation where we are confident with the code that they generated is a unique code so the sign knows what we are referring to. I think using the internal value is still the correct answer right now.

**Derek Vollmer:** How are you going to verify that the font you downloaded is the correct font? You are going to have to retrieve every value and do a comparison.

**Adam Dylla:** No, that is part of the upload process. After you are done you tell it to mark this font as “ready for use” and that is when it generates the CRC. At that point, it is locked. Once the CRC is generated no more of the bites are being touched. That is your finalization of that font and the CRC that you get is the data you uploaded. If we verify it once immediately afterward then we are pretty confident that we have uploaded and verified all of the bites and we have the CRC that the sign says is correct but it doesn’t match our calculations but all the other data would be the same.

**Derek Vollmer:** That was my question, instead of uploading a font to the sign and comparing our calculated CRC to their calculated CRC. You are going to upload the font and verify that what you uploaded is indeed what you uploaded and then grab their CRC and use it as the unique identifier after that.

**Adam Dylla:** So, if the CRC doesn’t match, then we do the full verification of the data. It would be a slower upload process but we wouldn’t have to load it on every poll cycle

**Derek Vollmer:** Okay, that is a good approach. Since this is a change to our approach we wanted to see if anyone else has any comments or ideas?

**Adam Dylla:** Does anyone recall when graphics were implemented? Do you know if Daktronics had to have firmware updates to start working?

**Derek Vollmer:** Like maybe they are calculating that CRC correctly?

**Adam Dylla:** Back in my testing I had a Daktronics emulator, it wasn’t a real Daktronics sign but I was having trouble with CRC’s too but I thought it was trouble with the emulator. But it turns out it might have been the same problem all along. That is why for the graphics we have a config file that is called to ignore CRC. I don’t know who in the Districts has that flag turned on.

**Jason Summerfield:** I want to say all of our Daktronics signs worked with graphics out of the box. We had a set of little small ones that were custom and we had to update them to make them fully NTCIP 2 compliant but I don’t think it was a graphics issue. I think they just didn’t recognize the tag. I will go look now and see if we have the config file set to true and will let you know. Ignore graphics CRC is set to false on our system.

**Jacques Dupuy:** Same thing here in District Four it is set to false.

**Adam Dylla:** Okay, that is good. At least the calculation is working for graphics, now we just need to get them working for fonts.

**Derek Vollmer:** It is probably something simple like the construction bite stream needs to feed the algorithm.

**Issue 2964: Multiple Logical Devices Mapped to Same Physical Device**

**AJ Skillern:** This issue is about when you have multiple devices in SunGuide that may map to the same physical device out in the field. In SunGuide right now there are no checks that are performed at the UI level or the subsystem level that can check for duplicate IP/port combinations across the system. The check is done within the same driver but the driver must be running to prevent bad configurations. Normally this pops up when you don’t have the driver on and you put in a device that already exists.

The goal of this enhancement is to find a way to eliminate this problem by introducing a check across the entire system for duplicate device configurations. The proposed way of doing this is by adding a new window to SunGuide that can pull in all device information from all of the subsystems. Then do the checks for unique device configurations. Obviously, from there, you can decide if the configurations are valid or need to be changed. Are there any questions?

**Jason Summerfield:** I assume that your uniqueness is going to be a combination of IP port number and the address number?

**AJ Skillern:** Yes.

**Mark Laird:** Whenever there is that.

**AJ Skillern:** Yes, basically the tricky part is that it depends on the device to determine if the device is unique. Some device types and protocols may support multidrop and some may not. Sometimes the IP/Port is the unique identifier and sometimes the drop address in addition to IP and Port is the unique identifier. Based on my understanding of this we will use the IP/Port for identifying duplicates. From there you would need to determine if the devices that do have the duplicate configurations are still unique based on the drop address.

**Jason Summerfield:** As long as you display that the devices that have the same IP and Port and tell us what the IP, Port, address, and name then it should be fine.

**Mark Laird:** This is run like a utility or something? It is not something that happens as you are configuring, correct?

**AJ Skillern:** That is correct. Do you have a preference?

**Mark Laird:** It is okay, sure it is nice if it catches right when you do it but mostly it is hard to find them because of the way those perimeters are configured for different subsystems.

**AJ Skillern:** I am not sure if we have submitted a cost estimate for this but this is something that we could potentially do at configuration time and do conflict checking like when you remove a device. Potentially we could check as if you were modifying a device to see if there are duplicates. It depends on how frequently you are doing things.

**Mark Laird:** Generally, it is fine to run a utility when something is not right and when we add a bunch of devices and want to make sure we did it correctly.

**AJ Skillern:** Any more questions?

**4815 Response plans should use congestion tail if available**

**AJ Skillern:** This next enhancement is talking about response plan message templates. Now when you have a message template for an event you are required to configure it with template tags and you have to choose the specific portion of the location you want to use in a message. You can choose from location, congestion head, or congestion tail and there are specific template parameters for each one. This enhancement is a way to simplify the use case when you have congestion. When posting messages that deal with congestion, normally you want to use reference information related to the congestion field because that is the point of reference that the motorist has for when they will encounter the event. The proposed change here is that we will use a template tag. When the event has no congestion, it will use the normal event location and when the event does have congestion it will change those same template tags to change it to congestion tail instead. There would be a configuration level flag at the system level that we would introduce to enable or disable this behavior. Potential considerations that we have thought about include the text of a message.

**Mark Laird:** The tag is the same and automatically changes? I guess that operations will want the ability to override that?

**AJ Skillern:** Is that on a per-event basis?

**Mark Laird:** Yes, can someone from Operations chime in?

**Dee McTague:** Yes, I am thinking it through.

**AJ Skillern:** The thinking behind doing it at a system level is that operationally messaging for DMS is pretty standard so we didn’t think it would be something changing on a per-event basis. We would want consistent messaging.

**Mark Laird:** I think the majority of the time that makes sense. I wonder if there are cases where access to a certain like the road splits and you have certain apologies,

**AJ Skillern:** Or an event like visibility, I think in the event details window the terminology changes but when you day congestion there you are identifying the range of the roadway not the set of congestion.

**Mark Laird:** This seems great as a default.

**Dee McTague:** Our messaging would be we wouldn’t put crash we would put two lanes blocked on blank Blvd. Then congestion at blank miles ahead. One of the problems with congestion events is that you have actively follow them as they change. If it happens at a peak time and things are crazy it is a little difficult for operators.

**AJ Skillern:** I understand the limitations there. I think this enhancement helps limit the number of templates needed to be configured for the logic to select the correct message template for a particular DMS. You could use the same message template and wouldn’t have to configure it to say something different. Even if you don’t say congestion ahead, the intent behind the location template tags is to let them know where they are going to encounter the event. The congestion tail changes that from the default location and this was a way to redo one configuration and get the benefit of both kinds of situations.

**Mark Laird:** I just think about all the times Microsoft helps and we don’t want it to.

**Jason Summerfield:** My operations people aren’t in here right now but they did come give it a look and gave a thumbs up. You said this was going to be a system-wide thing and not a different tag?

**AJ Skillern:** That is correct, we could introduce the concept of a different tag but right now the discussion has been around a configuration flag so you don’t have to go in and adjust your templates.

**Jason Summerfield:** I think conversations we had before was to have a tag and instead of location it would be location tail so you could set a different template to use it and if you didn’t have a tail then it would default to using whatever the location was. For us, we have crash x miles ahead and then the lane blockage on the template so that is telling you where the incident is and then congestion is handled separately. Then if we were using that it would change it to crash 2 miles ahead if that is where the tail is, correct?

**AJ Skillern:** Yes.

**Jason Summerfield:** We already have it set as configurable at the installation level so I think we are more strongly in favor of having a different tag so we could enable it when we need it. If you’re just using the default templates you can just change it in one place then it goes across the board. But if you have multiple templates set up for different event types you are probably only going to want to do this for certain event types anyway.

**Mark Laird:** You are saying that this new tag would have behavior that if there was no congestion it would use the location and if there is it would use the congestion tail? And the old tag would just have whatever you call it, congestion or location.

**Jason Summerfield:** The old location tag would be the same and there would just be a new tag called location tail or something like that. With the behavior, here if you don’t a congestion tail it would just use the location since it is the same thing. I think it came from a conversation years ago saying you are not managing the congestion tail moment to moment but you are still letting people know the crash is X miles ahead so they can let off the gas halfway. That is my ancient recollection of this one.

I think we have moved away from wanting to say we have congestion from X to Y. You would need the tail and head for that. I think we have moved away from that type of messaging anyway. I still see it useful for events that have both a head and a tail.

**Dee McTague:** It seems to me on how you do your messaging. We don’t put crash we would put two lanes blocked at before or beyond X Blvd. XX miles ahead. I could see this as a second phase to that message for congestion ahead. If we have an accident at Commercial Blvd we won't start messaging for congestion until the congestion falls outside the Commercial Blvd EM location. So, we would say two lanes blocked at Commercial Blvd, 2 miles ahead. Congestion wouldn’t be reported until it reached beyond Oakland Park ave. It gets confusing if you say there is an accident at Commercial and congestion at commercial. I could see it more as a second phase.

**Jason Summerfield:** Which I think you could do as a second phase of the message template if you had a different tag, right?

**Dee McTague:** Yes. If we set up the template with the tag as the tail we can put it as the second phase of the message.

**Ray Mikol:** I just want to say that District One agrees with Dee that it would be beneficial to have a second phase react to the tail.

**4870 For NTCIP Cameras, set into manual mode before sending manual command**

**AJ Skillern:** For certain vendors when the camera is in an automatic focus/iris mode and the user sends a command to change the focus/iris, the system does not send a command to change the camera to manual focus/iris mode. Some cameras will accept this but some interpret this as a command to send the camera to a manual focus/iris mode. It then requires the user to click the focus/iris command again to start the focus/iris action.

The proposed fix for this is if the camera is in automatic mode, send a command to change the camera to manual mode before sending the requested focus/iris action. Are there any questions?

**Bryan Homayouni:** So, is there a follow-up command for afterward the autofocus/iris for manual focus to send the camera back to autofocus after a certain prescribed period of time?

**AJ Skillern:** No, that is the existing functionality of the system today. The only way to get it back into auto mode is to manually set it back into auto mode.

**Mark Laird:** I don’t think you want to do that. If you put it in manual, you want it to be there until you change it out.

**Bryan Homayouni:** If someone is working with the camera and trying to tweak it, using manual and they log out then someone grabs it, it won’t autofocus. Maybe it is a long period of time.

**AJ Skillern:** I think that is a potential future enhancement to turn it back to the auto state automatically. This one is really focusing on the user having to click twice and the user not knowing that they have to do that. Any other questions?

**John Hope:** I don’t think you closed out Bryan’s point unless the user interface is going to tell the operator what mode it is in.

**Mark Laird:** It is really going to behave the way it does now. Nothing is really changing except dealing with the camera protocol.

**AJ Skillern:** Both the camera control window and the camera on a desktop window indicate whether the camera supports retrieving the values and will indicate if it is in an auto or manual focus/iris mode. Users should be aware of that. The camera is still respecting the change from auto to manual, the issues are that as a single request it does not support going from automatic to manual and moving the iris or the lens to adjust the focus. It just requires two separate requests and it is trying to make the behavior consistent between cameras.

**Mark Laird:** Today if you put it into the manual mode it is going to stay there until you manually change it to automatic mode and that doesn’t change.

**AJ Skillern:** Correct.

**Jason Summerfield:** But it does if you look at the display and it does tell you whether it is on or off.

**AJ Skillern:** If there are no more questions that is all I had for you today.

**Bryan Homayouni:** While we have the Districts on the line, are any of you using the SPAR application for Road Rangers?

**Jason Skillern:** Yes, District Two is.

**JJ McFadden:** Tallahassee is.

**Alex Brum:** Turnpike is.

**Bryan Homayouni:** I was aware Turnpike was using it but wasn’t sure about anyone else. We are migrating to that and one of the things we noticed was when using the SPAR application, the Road Ranger them self does not have the ability to close the event. I just wanted to know how other Districts are navigating around that.

**Jason Summerfield:** That was my initial design. When we created it, we went back and forth about certain behaviors like adding lane closures or closing events. At the time, the answer was an unqualified no that they will not do that. The Road Ranger can open it and an operator should manage it from that point on.

**Bryan Homayouni:** Is that how you still manage it?

**Jason Summerfield:** Correct. I believe the current process is that the Road Ranger is responsible for letting them know they are at an event and give the operator an indication of what service they are providing via the app.

**AJ Skillern:** The SPAR software itself allows closing of the event it is just the app itself doesn’t allow it. There is the potential for the SPAR interface to allow closing for the event but the SunGuide SPAR app does not allow it.

**Jason Summerfield:** Please note that when we created the SPAR app, we were waiting for Districts to possibly use it and to move to it later. We had a number of features that would be nice to have but we didn’t want to just do enhancements for ourselves. We could look into updating the app. I think if we did it would just be a lot of different circumstances for each District.

**Bryan Homayouni:** From an operational standpoint if it makes sense then we were looking at wanting to close it through that app. Since you have mindfully gone the other direction, you probably wouldn’t want that.

**Jason Summerfield:** It has been a decade so it could be revisited.

**Bryan Homayouni:** We are just starting using the application so we will have more feedback.

**Christine Shafik:** We appreciate the conversation, if there are no other comments or concerns, we are finished. Please let us know if you have any additional comments.

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| New Action Items: |  |
| Action: | **Responsible Person:** |
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