



# SunGuide Software

## User's Group

### Meeting Minutes



Date: October 12, 2017

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

#### Agenda:

Topic	Led By:
Item 1: DMS Configuration Improvements - Fonts	Derek Vollmer, CO

#### Attendees:

Robbie Brown, D1

Renee Daniels, D1

Justin Merit, D1

Luis Ruiz, D1

Jason Summerfield, D2

Kevin Mehaffy, D3

Aven Morgan, D3

John McFadden, COT

Jacques Dupuy, D4

Dee McTague, D4

Jose Alfaro, D4

Mark Lucas, D5

Doug Towson, D5

Kyle Higgins, D5

Eddie Grant, D5

Mark Laird, D6

Romona Burke, D7

Charles Keasler, D7

Matthew Mileto, D7

Marlon ChinShue, I-595

Tucker Brown, SwRI

Derek Vollmer, CO

Mark Dunthorn, CO

Frances Ijeoma, CO

Jennifer Rich, CO

**Discussion:**

**ITEM 1 DMS Configuration Improvements – Fonts**

The first slide is for DMS configuration improvements but today will mainly focus on font configuration. There will be a follow up meeting to discuss other DMS configuration on items we can automate and additional items we want to bring in.

**Footprint put in by District 5 by John Hope – FP 3568 Monitor and Regulate DMS Fonts**

The issue they were having is the defaults on the sign might get restored and when they get restored, the default fonts get placed back into the font table. When messages are posted after that, they will have the wrong font and that is sized incorrectly for the DMS. They were asking for the ability to download a font to the DMS if it was determined that the font had changed. And they were also asking that when we periodically poll DMS to periodically poll the fonts to be able to make the determination if something has changed.

Background on SunGuide and font configuration (an example of the configuration dialog from SunGuide was shown on the slide). There is a name, default width, line height, character spacing and line spacing. These fonts are completely separate than what is actually shown on the slide. These are fonts that you define with characteristics of the font that you think will be displayed on the sign. You have to put in the desired font width so you know it will fit on the sign. Looking at the standards, within the standards we have the number of fonts that the sign can support. There is no concept of multiple fonts in SunGuide right now. You have the font name that you can get from the sign, you have the font height which is the height of the font in pixels (equivalent in SunGuide is line height), font character spacing which is the number of pixels between characters (defined in SunGuide as character spacing), font line spacing which maps to the line spacing in SunGuide but in SunGuide there is the default width which does not have an equivalent in the NTCIP standards.

Additional items in the standard that we can consider are:

- **Font Version ID:** which is a relatively unique calculated ID for a font. It takes all of the font characteristics and all characters in the bitmaps that are defined for that font and it's basically a CRC16 calculation that happens and then you get a relatively unique ID. We say relatively unique because multiple inputs can match up to the same output but it is just rare.

- Max Font Characters: which is the maximum number of characters you can define for a font. The supplemental requirements require that the sign manufacturers support 255 font characters in their font tables.
- Character Width: In the standard defined for each character within the font.
- Character Bitmap: which takes the font height, width and you define which pixels within that rectangle on and off to define how the character will be defined on the sign.
- Font Max Character Size: which defines how large each character is allowed to be in bytes.

The Font Max Character Size and Max Font Characters are not that important. What is important are the Character Bitmap, Character Width and Font Version ID will be important.

With the font configuration in SunGuide you define the exception. You have the default width like you have an older Amber only walk-in signs that has the 66 or 70 mm pitch between the pixels, where it has a 7 pixel tall by 5 pixel wide font defined on it. You might come across a time where you have a letter that is 3 pixels wide (letter I) so you would want to add that to this table. You might have an apostrophe that might be defined small and it would be a few pixels wide so you would want to add it. It is a very manual process and you have to know how all of the characters are defined on the sign so you can put in the exception characters in the table.

An item that will be discussed at the ITS Working Group meeting next week is whether to standardize fonts statewide. We could define and supply the standardized font sets with the SunGuide software. In order to that, we would need to consider the following:

- MUTCD says that for roadways that have 45 MPH or greater speed limits you have to an 18" character. We would need to define 18" characters for 66mm, 34mm, and 20mm signs. We would discuss the option of having a narrow font in addition to a regular font.
- Arterial signs (speed limit <45MPH) can use 12" font height so we would define fonts for the 20mm, 34mm, and 44mm signs. We would have to define a regular and potentially a narrow font.

12 fonts at a minimum that would need to be standardized.

Some signs have the ability to store four fonts and some have the ability to store 20 fonts. The supplemental DMS requirements say a DMS must support a minimum of four fonts. For us 20 fonts would be too much to manage so we would probably only want to manage the

first four. If we standardize the fonts, I would want to keep it more consistent to where the font number and the font index line up.

With or without standardizing fonts we could manage the first four rows in the font table. We could grab the first four font rows including character bitmaps and only store the unique fonts in the database.

Default fonts that get configured on a sign – you have your fonts 1-20 and there is an NTCIP object on the sign that lets you select one of the fonts that is the default. So you either send a font tag that doesn't have a font number or omit the font tag then sign will use the default font that is stored. SunGuide does not use the font number in its messages so the sign is basically always selecting that default font. Sometimes that can get changed when the defaults get restored.

We want to expose the ability to retrieve the default font and have the ability to set it to the sign. With the configuration values for the font, we were thinking that you would have the ability to click something and it would retrieve what's on the sign and see what was configured in SunGuide so you could compare them. Depending on the result you could as the maintenance contractor to go out and change the sign default so you could use what you configured in SunGuide or you can use what was retrieved from the sign and store it over what you had configured.

One question was whether you could use one default font value and apply it to all of your signs in your system. But then you would have the ability to go in and make changes if necessary. What are your thoughts on having something like that in there?

**M. Laird:** we have different fonts for our color signs so we would at least want to have one for monotone and one for color.

**D. Vollmer:** so this is actually to tell the sign which font to display when you don't send a font tag. So if you have all of your signs set to use font set 1 they will do that automatically if you do not send a tag, or you can go in manually and change the ones you want.

**M. Laird:** I think we want the default to match whatever we configured in SunGuide because right now you can only pick one.

**D. Vollmer:** Font configuration in SunGuide is not representative of what is displayed on the sign unless you go through the details of getting it correct.

**M. Laird:** I think whatever you set the font configuration in SunGuide will then send that to the default slot in the sign and SunGuide will always not include a font tag so it always uses a default slot.

**D. Vollmer:** That is not correct. What happens is basically nothing. You are not configuring anything on the sign whatsoever. The configuration in SunGuide is just to let SunGuide know when a message reaches the max line length and to go the next line or the message will be too big. It really has no connection to what is configured on the sign and that is the problem. Which is what we are trying to address and clear up confusion on. Instead of configuring on all signs it could retrieve what is there and then you could go through and review to see if that is correct or not. We will have to come up with some pictures to help explain what is going on.

With all of this we would not want anyone to have access to configure signs so we are thinking of having an advanced configuration window that people could have access to where they can change the configurations that go out to a DMS.

One being fonts and the other being the recovery messages. You can define messages when you have a power loss or communication loss or software reset you can display messages. A lot of times those will get used when the initial testing of the signs is happening and sometimes they don't get changed.

**M. Laird:** You mentioned retrieving what is on the signs, if we review them and they are correct, could we have them stored so in the future we could push a button and say check everything against what I last approved?

**D. Vollmer:** Yes! That's exactly what we want.

#### Font Management

We want the ability to grab all of the information from the sign. We want to find out what fonts are stored in the first four slots so we can bring them in and be able to review the font and then commit the font if that is what you wanted to be your SunGuide configuration. We are not necessarily wanting to expose each individual character bitmap. We are looking more at the font name, and the other font characteristics. You also have the ability to take what was grabbed from the sign and re-download it to the sign.

We can poll the sign and retrieve the font information, the most important thing we get is the version id then compare to what we have and if we detect a difference, an action can happen but not sure what the action will be. Note there can be an hour delay to what was stored on the sign and what is pulled from the sign which I think is better than the currently delays.

My interpretation of the Footprint is as follows: District 5 would like if there is a difference detected in the font we could automatically download the correct font to the sign. My concern with this is if you asked for a different font to go out then SunGuide automatically

changes it back without you knowing. We are thinking it might be better to have an alert and have an approved user who could download the fonts to the sign.

If we determine a difference what should we do? Stop posting from SunGuide? Blank the sign into error state and show why there was an error? We should discuss.

What we could do is: we could always send which font to use and the version ID of that font. I think in the long run it's the better solution. If you submit that to the sign and the sign detects an error, it will not get posted. That way you would know your message didn't post. Other considerations are you cannot delete fonts that are in use (currently being displayed on the sign) you would have to blank the message and then go into the font deletion process.

Is anyone else opposed or not thrilled about auto restoring a font if a difference is detected?

**M. Laird:** this could be bad if you forget to update the font table.

**D. Vollmer:** the intent is to have the ability to detect the changes and be able to fix them from SunGuide.

**M. Laird:** Manually fixing them would be fine.

**T. Brown:** My biggest issue is if the operator wants to post it but the system won't let it because of the software restrictions. I prefer the option of some alert saying are you sure you want to manually change the information instead of the operator not being allowed at all, that way they have a warning message.

**M. Laird:** I like that you can manually override and are alerted/told about it.

#### **Discussion:**

Would anyone want the ability to view the character bitmap to confirm the characters are correct (' instead of !)? I'm not sure if we can make any changes and it depends on if we standardize or not. If we standardize it shouldn't be a problem but if we don't you could have character bitmaps that are off.

**M Laird:** I don't think it's needed we do tests and post all the characters on the sign to see how it looks.

**D Vollmer:** Anyone opposed to having more automated font configuration in SunGuide? Not hearing anything. When it comes to standardizing fonts, narrow and regular fonts, we use to have in the Standard Specs for old Amber Walk-ins that the sign had to be approx. 27 by 225 pixels and it was defined that way. So you had the ability to put 18 characters on a sign and you might have seen manufacturers say that said they could put 21 characters on

the sign. So they used a narrow font and might have decreased the font character spacing to fit more characters on the sign. Example toll rate signs for Express Lanes. Keep in mind manufacturers say they fit characters on the sign but it might not be the best and legible. Be aware. TERL testing uses the MUTCD standards, 18" character and use a percentage of the height and you have to at least display 15 characters on the sign.

**M. Laird:** It would be nice to load the character width instead of typing them in manually.

**D. Vollmer:** With this process we could automate that process.

Meeting adjourned around 3:30 PM

New Action Items:

Action:

Responsible Person:

Bring up in the ITS Working Group meeting.

Derek Vollmer