Creating and Identifying F4 Profiles through Communications
Additional Tips not Mentioned in the User's Manual

The flow charts in chapter 7 of the Series F4S/F4D user's manual demonstrate how to handle profiles through communication. While it covers the sequence of doing most things, it does miss a couple of subjects that come up from time to time. This paper will attempt to address a couple of these issues.

The first issue involves the creation of profiles. When you are creating new profiles from scratch for the very first time the flow of the chart seems pretty straightforward. But what if some profiles have been deleted and now you want to create more? Where will they appear? Can you specify where the new profile should appear?

Internally and through the communications interface, the F4 is always keeping track of profiles as a numerical list of profiles from 1 to 40. On the front panel, you only see the name of the existing profiles all appearing in a continuous row regardless of how the controller is handling them internally. By default the profiles have a name that is the word "Profile" with it's profile number appended to the end. (Note: The names are programmable so this number will not always be as obvious as it is with the default name.)

The F4 always creates a new profile at the next available location. When there are no profiles or all the profiles have so far been created in sequence, it is obvious where the next profile will appear. For example if you have just created the first profile, it will be profile number 1 with a default name of Profile1. If you now decide to create another profile, it will be profile number 2 with a default name of Profile2. Let's do this another three times to end up with a total of 5 profiles. Here is an example of what we would see from the Series F4 front panel:
Profile1
Profile2
Profile3
Profile4
Profile5

Now let's say we decide that Profile2 and Profile4 don't do at all what we need them to do, so we decide to delete them. After deleting Profile #2 and Profile #4, we would see the following on the Series F4 front panel:
Profile1
Profile3
Profile5

Now we decide to create a new profile that does perform the sequence that we need. The flow chart says to create a profile:
1. Write a value of 1 to register 4000
2. Write a value of 1 to register 4001

3. Write a value of 1 to register 4002.
This should create the profile. But now where will it appear? Will it appear as Profile6? Will it overwrite Profile1? Actually neither case will happen. As mentioned above, the F4 always creates a new profile at the next available location. So in this case, the next available location will be profile number 2. So now looking at the front panel of the Series F4 you see:
Profile1
Profile2
Profile3
Profile5

The F4 will not overwrite an existing profile nor allow you to select the location of where you create the profile. You are required to set register 4000 and 4001 even though they are not actually used to determine where the profile will be created. It is just a quirk of the controller that you must set those values. Registers 4000 and 4001 can be set to various values and it will still create the profile, but it will still be in the same location: the lowest available location. We recommend using a value of 1 for file number and step number because: that value will always work, it easy to remember, and it has no actual effect anyway.

Now that you have created the profile, you might want to know which profile it is so that you can add step to it. The F4 does have a provision for providing you that information without having to track which files previously existed and finding the next available number yourself. The profile number register, 4000, is changed automatically to the new profile number after the profile is created. By querying this register right after creating the profile, you can determine where the new profile was created. So that information can be saved away for future reference and it is already in set for adding steps to the new profile.

One final piece of information that is not in user manual: How do you check whether a profile step or a profile itself exists?

To check whether a profile step exists, set the file number, register 4000, to the file number of the particular file, and set the step number, register 4001, to the step number you wish to verify. Then read then step type, register 4003. A return value of -31300, means that the selected step of that profile doesn't exist. This also can be used to validate the existence of a profile. Set the same registers as above, but set the step number to a value of 1. A return value of -31300, means that step 1 of that profile doesn't exist, which means the specified profile doesn't exist.