

TecNote 1008 - Updating (Loading) Software to Flash Memory

This TecNote reviews the steps to be taken as part of a software update to controllers and LCD MMUs. Naztec controllers and LCD MMU's use Flash memory to store the operating software (also referred to as firmware). These traffic control devices support the update of their software through a resident Software Load Utility that is used in conjunction with a Palm Pilot or laptop computer. This note reviews recommended practices common to updating software in Naztec devices. In particular, after loading updated firmware, remember to:

- 1) Verify the checksum (CRC)
- 2) Cycle power
- 3) Clear event and alarm buffers, and
- 4) Check the values of any new parameters.

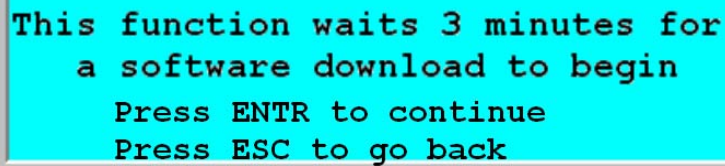
Loading Software to Naztec Controllers and LCD MMU's

The "Load Software" function is generally found on the Utility Menu.

For the 980, v61, this is found by selecting 8, then 5 from the Main Menu.

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      Main Menu
1.Controller 4.Scheduler 7.Status
2.Coordinate 5.Detectors 8.Login,Utills
3.Preempts  6.Comm
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      Login and Utilities
1.Login      4.Init DBase 7.Clear Fault
2.Set Access 5.Load S/W
3.Print      6.Self Tests
```



This function waits 3 minutes for
a software download to begin
Press ENTR to continue
Press ESC to go back

On the MMU 516L, it is accessed by MM->5->7->1.

Follow the instructions on the screen until the message “Waiting for ROM download due to keyboard command...” Then, initiate the download on the Palm Pilot or via laptop software. When the download is complete, be sure to perform the following steps:

1. Verify that the checksum (actually, a CRC) of the loaded software matches that of the specific version.

This can be found by examining the software .hdr file with notepad. The checksum is the fifth item, a four digit hexadecimal number, that follows the description of the equipment the software is for. The checksum is displayed for a period of several minutes after the loading process completes. However, it can be recalculated and displayed anytime the controller is not running by accessing the ROM diagnostic (MM->8->6->2).

2. Cycle power to the controller/MMU.

Once the software is re-loaded, cycle power to the controller to ensure that all of RAM memory is re-initialized for the new version. This is particularly important when the software is loaded on-site at the intersection and the controller is not being swapped or removed to accomplish the update.

3. Be sure to clear the Event buffer and the Alarm buffer after cycling power (step 2 above). On the 980, the Event buffer is found at MM-1-6-3 and the Alarm buffer at MM-1-6-6.

4. If there are new user-programmable features in the updated software, upload the device's database and verify that the new feature's parameters are set to initial values. Initial values for new features normally disable the feature. Alternatively, set any new parameters to a desired value.

Summary

By following this procedure you should be able to easily download software to a controller or MMU. We must reemphasize that you should remember the following steps for downloading:

- 1) Verify the checksum (CRC)
 - 2) Cycle power
 - 3) Clear event and alarm buffers, and
 - 4) Check the values of any new parameters.
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