SVI FF R3 Device DTM Requirements

# Background

The new revision of firmware has incompatible behaviors and new behaviors

# Support changed behaviors

## Starting a process

**Background**: In R3, a process that leaves data in the diagnostic buffer will not automatically terminate. Instead, it will indicate completion of its function by setting %complete to 200%.

A procedure that uploads diagnostic buffer should prompt on completion: “Upload finished. Discard data in the device? / Discard / Keep”. If the user chooses “Discard” and process %complete > 150%, cancel process.

Any method that starts a process must check for diagnostic data in the device buffer. If process %complete > 150%, prompt “Device has diagnostic data / Discard and continue / Cancel”. On “Discard and Continue” cancel the existing process before starting the new one as requested.  
**Note**: This guards against loss of data collected by a process. If we want to guard data collected by standalone data collection, we need to analyze the buffer header (by first writing 0 to DIAGNOSTIC\_DATA[0], as usual)

## Interpreting the diagnostic buffer data

### Sampling interval

In R2, it was fixed to 105 ms (and I am afraid, hardcoded in DTM).

In R3, it is 15 ms or 60 ms, and must be inferred from the buffer header.

### New variable

Analog input can now be sampled (id=7). The scaling is 1 count = 0.001 mA, as usual.

## Renamed parameters

All custom TB parameters and enumerations, some RB enumerations etc. are automatically documented in paramdoc.html accompanying the firmware build.

Some parameters are renamed compared to R2, for various reasons. If DTM accesses parameters by name, the list of renames is available.

# Support new behaviors

## New enumerations and bitmaps

OFFLINE\_DIAGNOSTICS has new enum values to start PST or data collection.  
Note: Old data collection interface should still work, mostly as a debug tool, but otherwise should not be used.

ALERT\_ACTION MAPPED\_TO\_RB renamed BLOCK\_ERR\_MAP and has a new selection “Report per FF890” which is the default.

## New parameters and menus

TEMPERATURE\_EXTREMES now also has min and max lifetime temperatures

New PST\_TRIGGER and PST\_CONFIG should go to a “Partial Stroke Test” menu, along with a Start and Cancel button and a window showing collected data.

New DATA\_CONFIG\_PERM, DATA\_CONFIG\_TEMP, DATA\_COLLECTION\_TRIGGER should go to the data collection menu to replace the existing configuration content. (I suggest first adding and testing new, and then remove old.)   
DATA\_CONFIG\_PERM is used with automatic start of data collection but can also be used with manual start. DATA\_CONFIG\_TEMP is used for manual data collection (separate command in OFFLINE\_DIAGNOSTICS).

New TB\_FSTATE\_STATUS goes together with XD\_FSTATE

New ANALOG\_INPUT goes together with other sensor displays.

# Requested improvements

## Diagnostic buffer upload

Buffer data upload should be done in a background periodic thread (perhaps of lower priority). This is important because data collection may start automatically.  
A GUI window that displays process or data collection data should NOT be modal. When returning to such a window, it should continue where it left off.  
Instead, there should be a popup on completion of a process, probably it should be generated by the background thread.