Application Report
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Information to Provide When Reporting Issues With TI Gauges

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ABSTRACT

This document describes the steps recommended to help us assist you in troubleshooting problems with TI Impedance Track gauges more quickly. The procedures described in this document require the use of TI bqEVSW. Providing us with this information initially can help speed up the process of finding a solution to your problem.

1 Introduction

The items that help the most in troubleshooting problems are listed below:

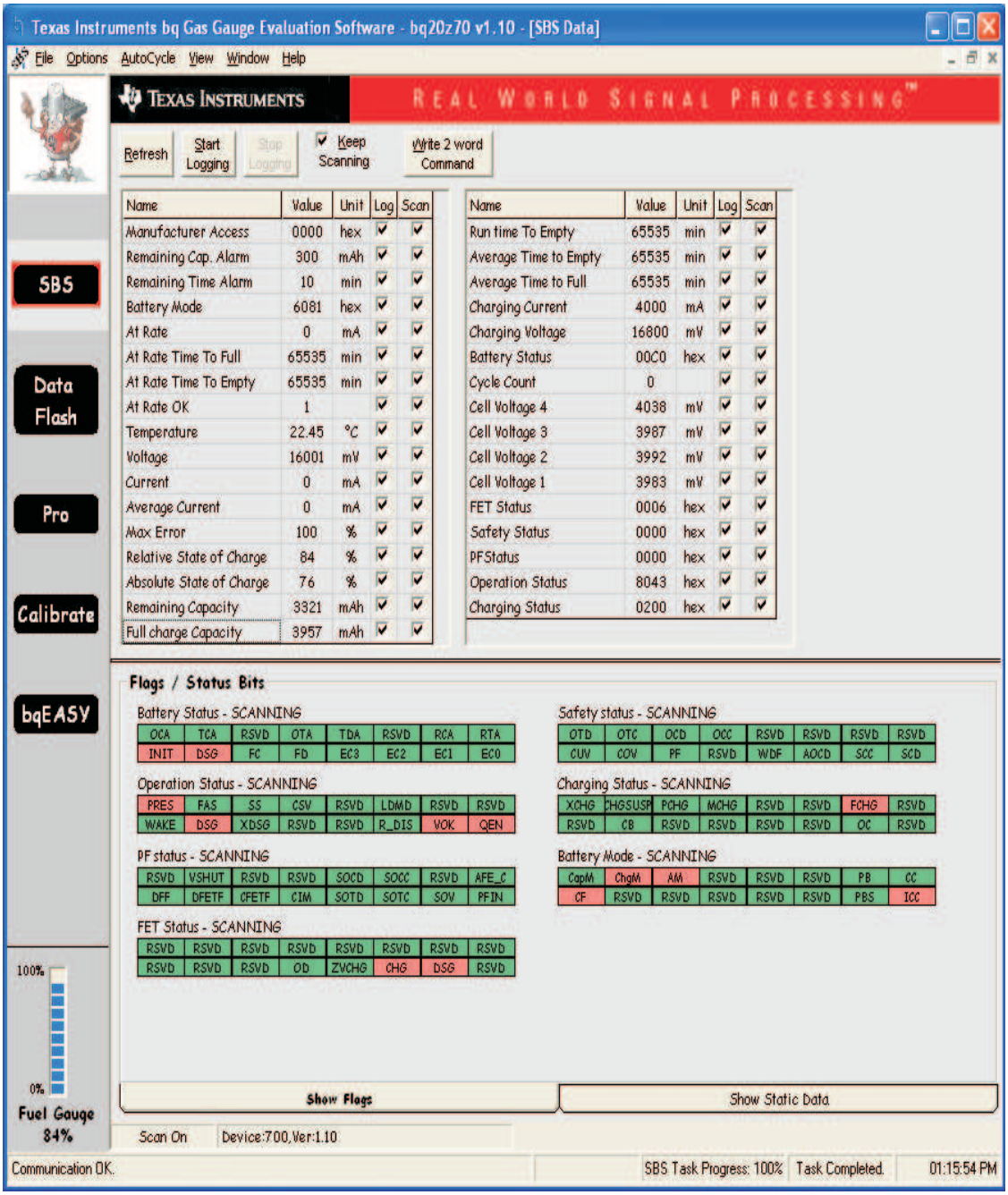
- Log file containing the issue being reported
- GG (Gas Gauge) files, which contain an image of the data flash
- SENC file, which is an encrypted version of the data and instruction flash file

The remainder of this document will describe the steps involved in obtaining this information. TI bqEVSW, corresponding to the particular part you are using, will be required to obtain this information. The software can be downloaded from http://power.ti.com.

2 How to Log and Extract GG Files Using TI bqEVSW

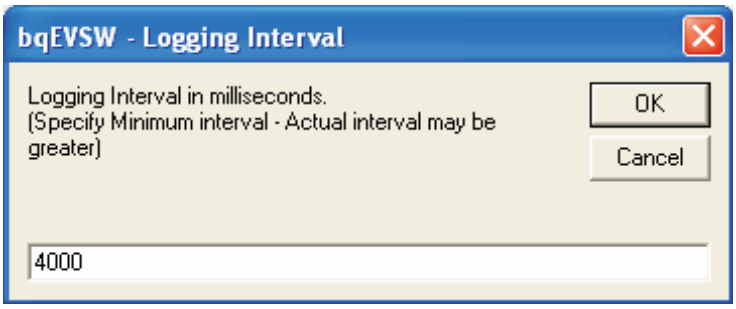
If the problem is reproducible, follow the instructions below to capture the failure in progress. This information can greatly help in troubleshooting the problem. If the problem is not easily reproducible, but the problem currently exists in a pack, skip to the *Extracting SENC file from Gas Gauge* section.

1. Create a directory for saving the log file and GG (data flash image) files.
2. Open EVSW and go to the *SBS* screen.

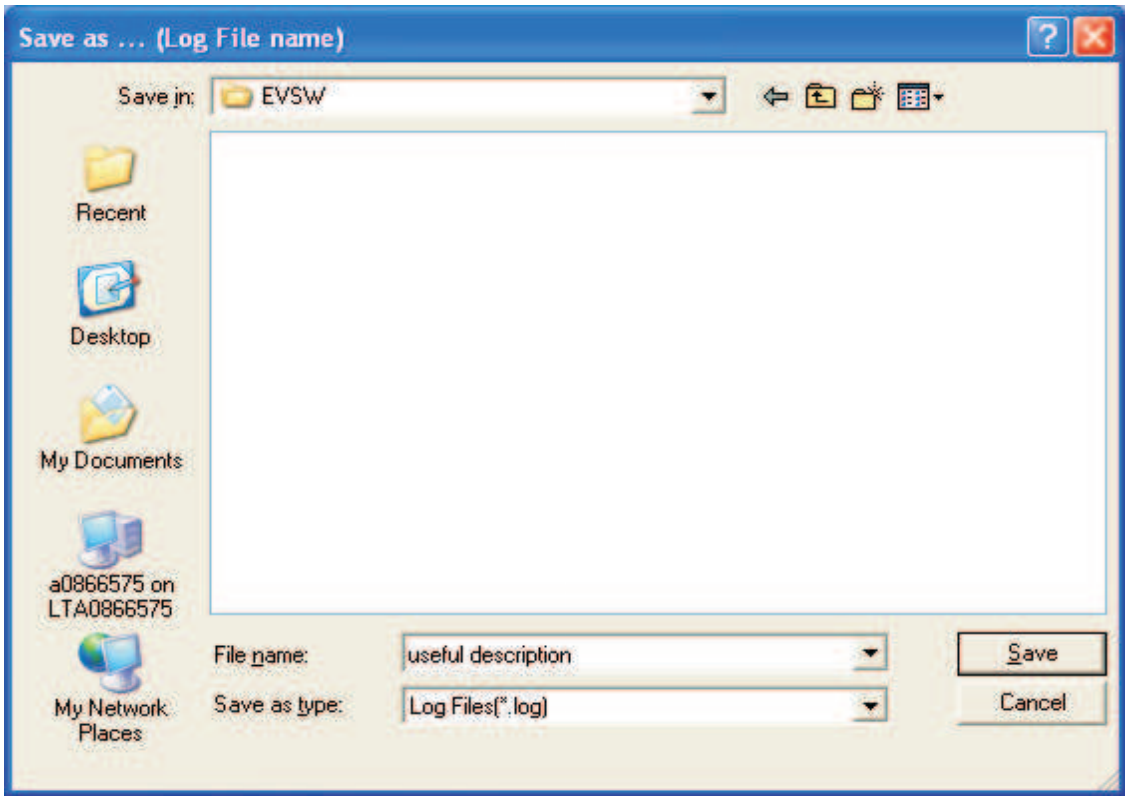


3. From the *Options* pull-down menu, select *Set Log All*. This will put checkmarks in all of the boxes in the *Log* column in the data area of the SBS Screen. All SBS data on this screen will be logged to a file.

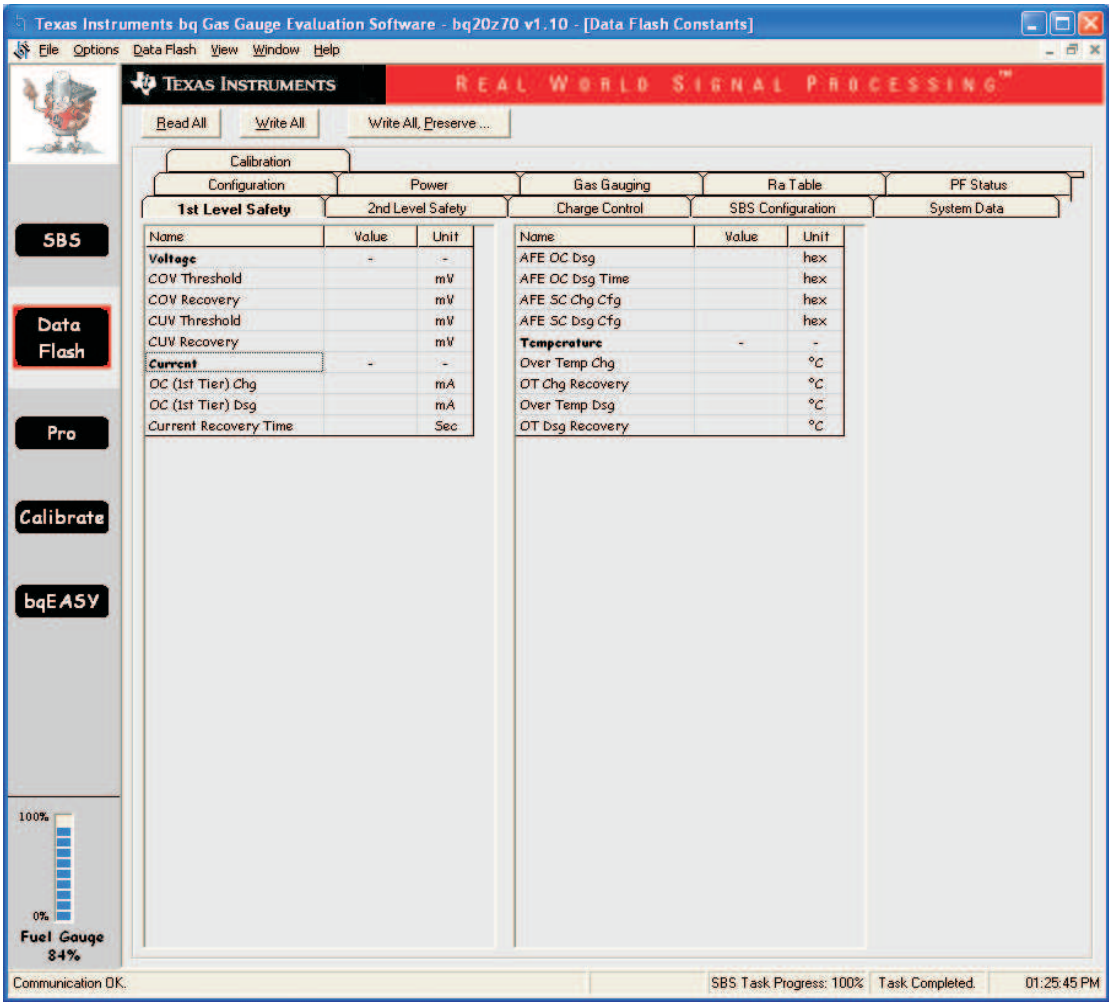
4. From the *Options* pull down menu, select *Set Logging Interval*. A *Logging Interval* window will pop up. Enter 4000 in the text box and click *OK*. This will set the data logging interval to happen every 4 seconds. This will give us enough resolution to see everything happening without filling up the log file too quickly.



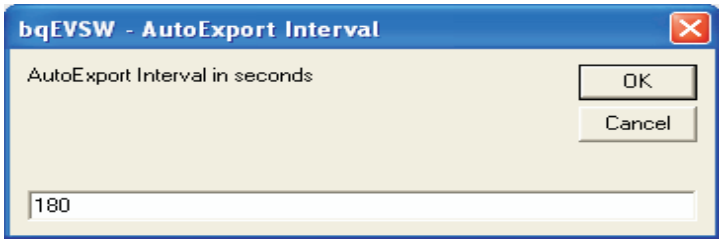
5. Click the *Start Logging* button at the top of the data section. A window will pop up asking for a file name and location. Name the file with a useful description and save the file in the directory created in step 1. After saving, logging will start and continue until the *Stop Logging* button is clicked.



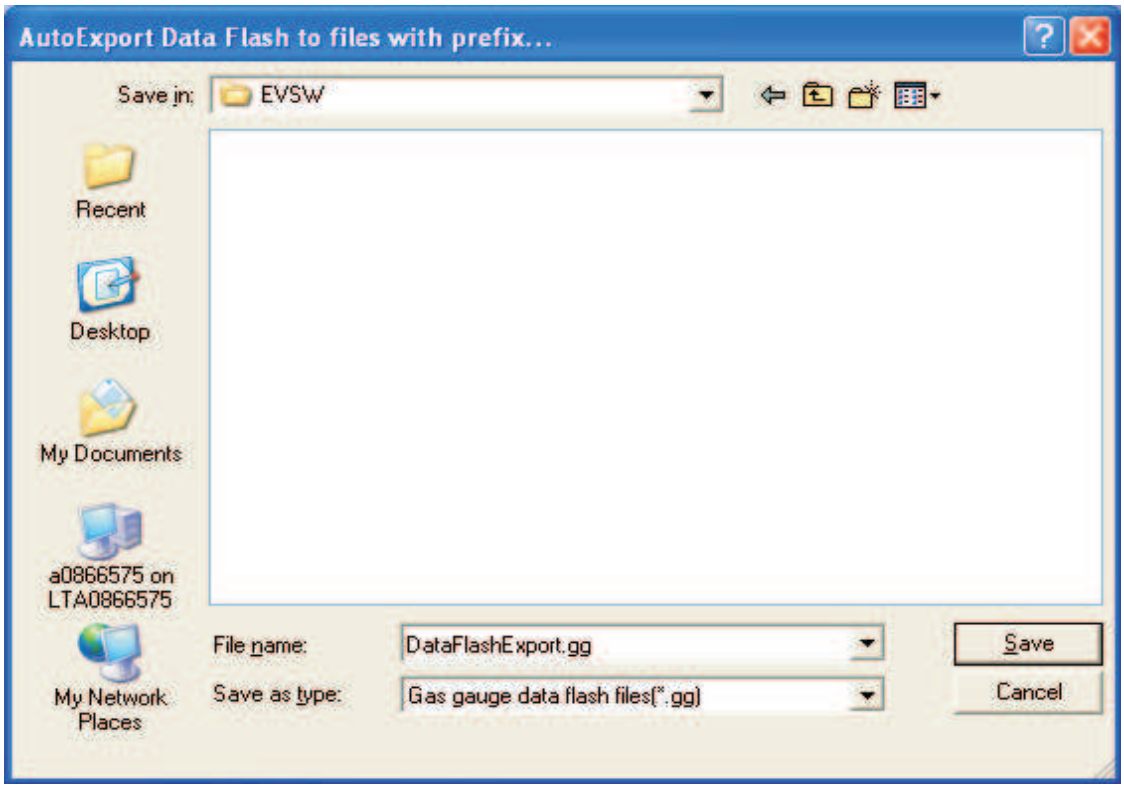
6. Go to *Data Flash* screen.



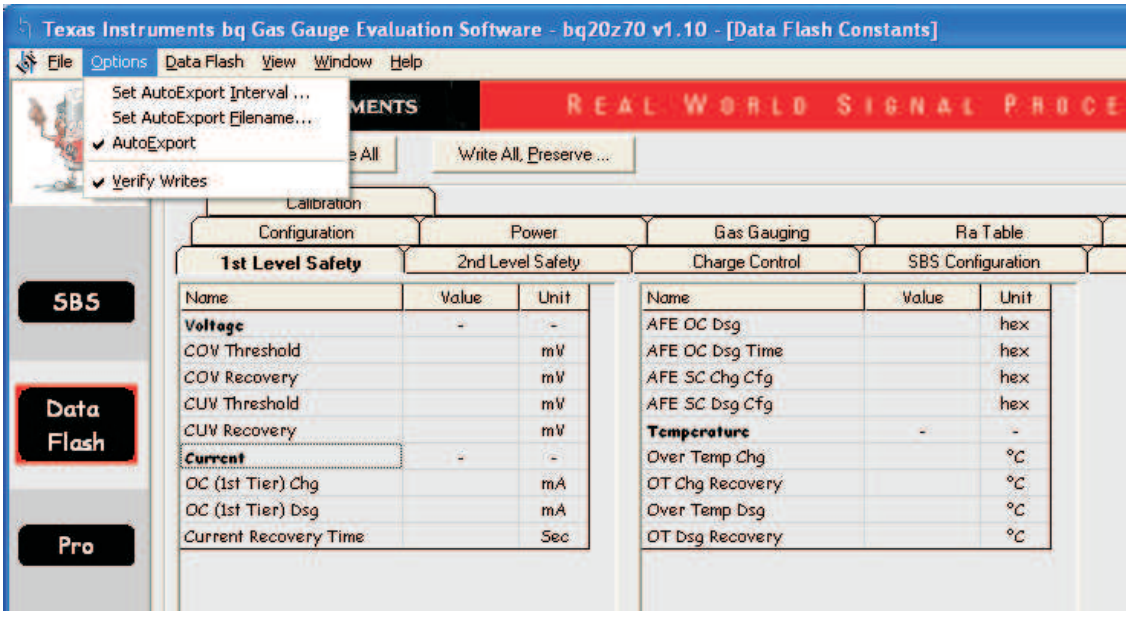
7. From the *Options* pull-down menu, select 'Set AutoExport Interval…'. This will open a text box. Enter 180 in the text box and click 'OK'. This will change the save interval for the data flash images. Every 3 minutes, a new GG file will be saved to a directory to be specified in the next step. This allows us to track changes made to the data flash over the course of the logging session. Since data flash does not update as often as SBS parameters do, 3 minute intervals will work.



8. From the *Options* pull-down menu, select *Set AutoExport Filename*… . A window will pop up asking for a file name and location. Keep the default name and save the file in the directory created in step 1. The EVSW will append a number to the end of the filename and this number will increment by 1 for every GG file logged.



9. From the *Options* pull-down menu, select *AutoExport*… . This will start the process of logging GG files to the directory specified. Every 3 minutes, a new data flash capture will be saved. A checkmark to the left of *AutoExport*… indicates that logging is in progress. To disable logging, click on *AutoExport*… while the check mark is visible.

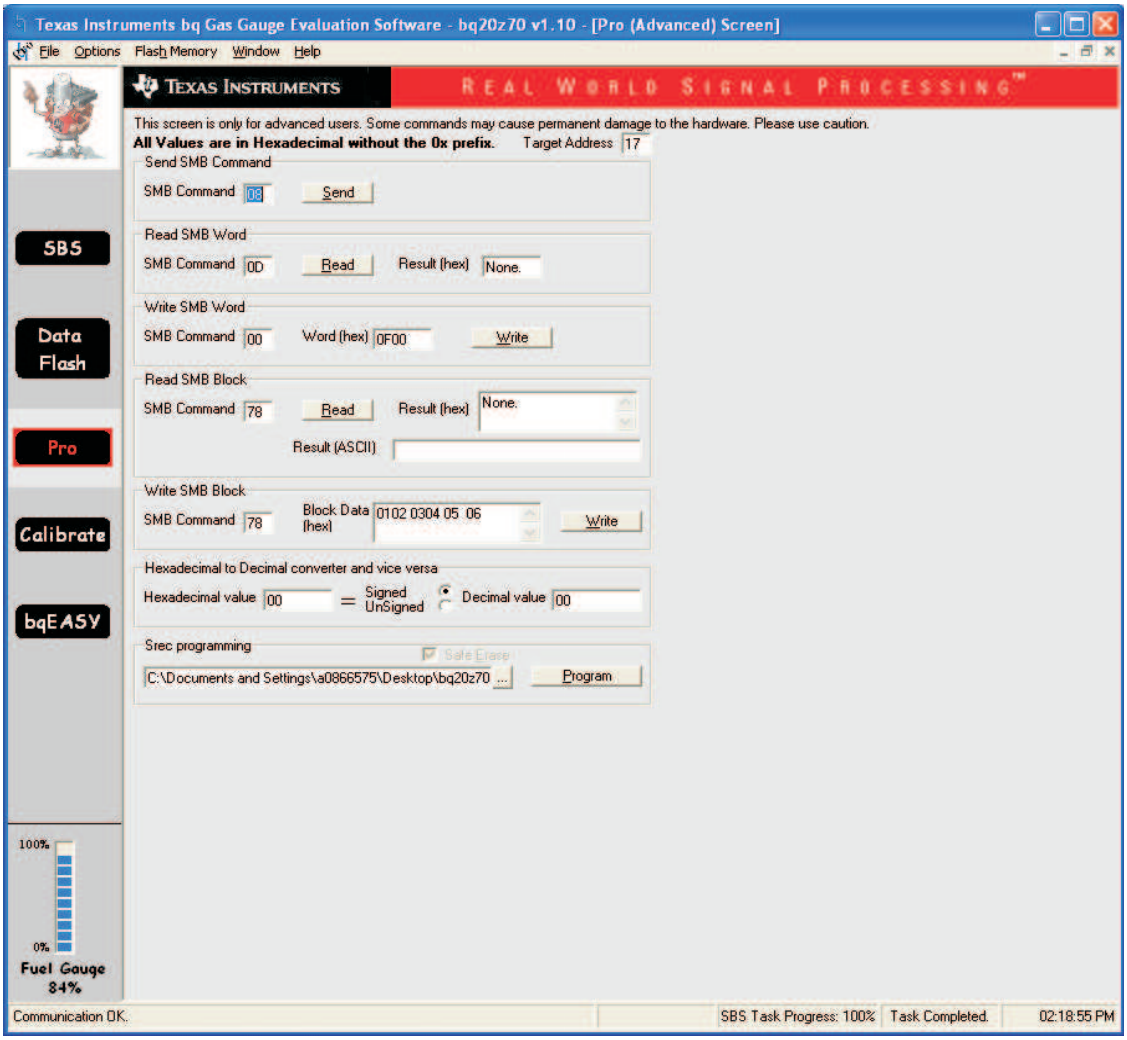


10. After logging is complete, zip up the directory containing the log and GG files.

3 Extracting SENC File From Gas Gauge

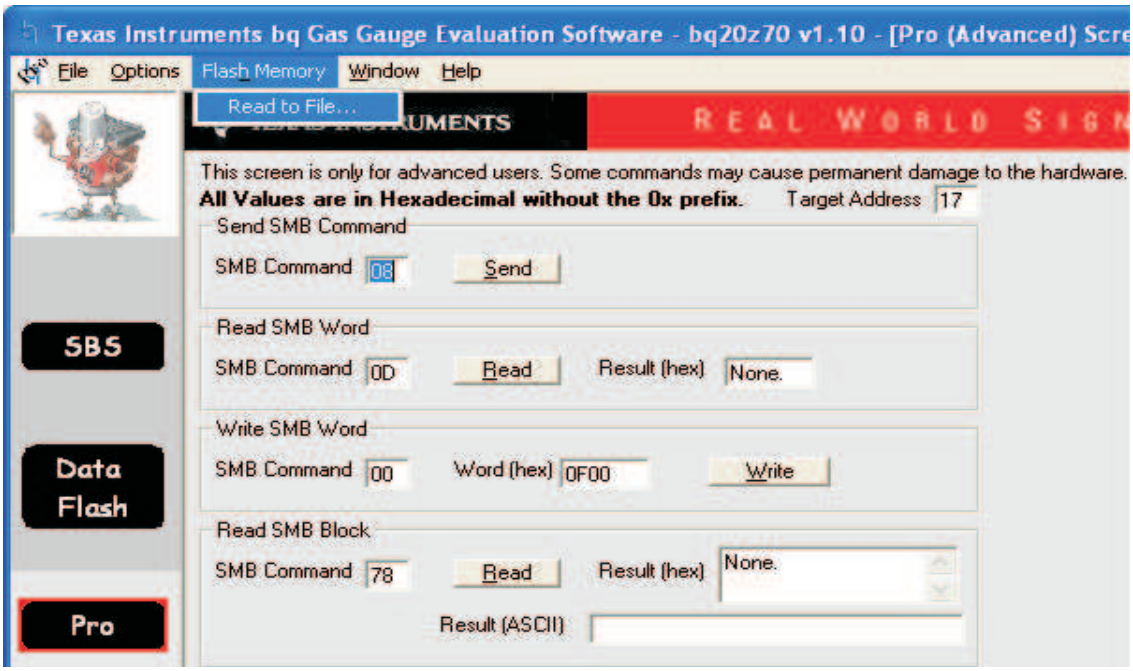
Extracting the SENC file should be done after the logging is complete. This will provide us with further information about the problem that may assist with solving the problem.

1. In EVSW go to the *Pro* screen.

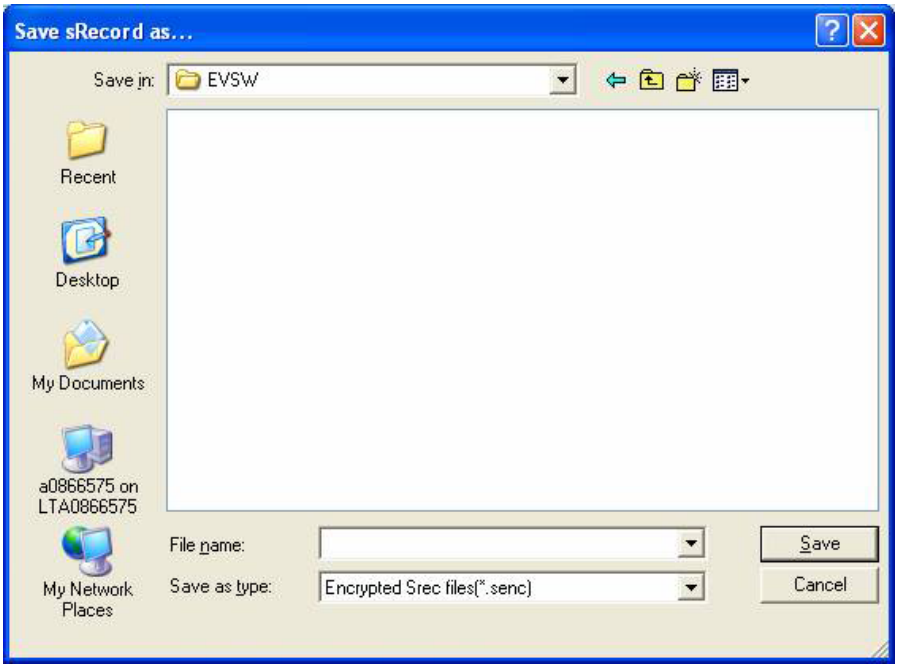


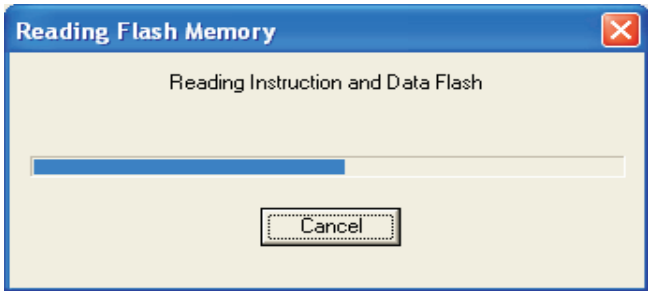
2. If the device is in full access mode, skip to step 3. If the gauge is sealed, it will need to be unsealed, and then put in full access mode.
   a. In the 'Write SMB Word' area set the *SMB Command* box to 00
   b. Then, in the *Word (hex)* box, type the first unseal key and click the *Write* button. Then type the second unseal key and click the 'Write' button. This will put the device in unseal mode
   c. Finally, also in the *Word (hex)* box, type the first full access key and click the *Write* button. Then type the second full access key again and click the *Write* button. This will put the device in full access mode and allow the device to enter ROM mode
3. Send a command to put the device in ROM mode
   a. In the *Write SMB Word* area set the 'SMB Command' box to 00.
   b. Then, in the *Word (hex)* box, type 0F00 and click the *Write* button. This will send the device to ROM mode. In this mode, the device can be programmed with a new instruction flash set.

4. The final step will be to extract the SENC file from the device. From the *Flash Memory* pull-down menu, select *Read to File* (This may say *Export SREC to file* or something similar, depending on the bqEVSW version).



5. A window will pop up asking for a file name and location. Name the file with a useful description and save the file in the directory created in step 1. After clicking *Save*, a progress bar will be shown while the SENC is being extracted.





6. In the *Send SMB Command* area set the *SMB Command* box to 00 and click the 'Send' button. This will restart the firmware
7. Send the SENC file, along with the log and GG files, to TI for analysis.

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