

# Sensor Electronics Corporation

## SEC 3100 Memory Card Reader Utility

### Basic Help Guide

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THE INFORMATION CONTAINED IN THIS HELP GUIDE IS INTENDED FOR BASIC USE OF THE SEC MEMORY CARD READER UTILITY APPLICATION, AND IS NOT AN EXHAUSTIVE WORK OR AN AUTHORITY ON MEMORY CARD READERS OR MICROSOFT WINDOWS. THIS DOCUMENT REMAINS THE PROPERTY OF SENSOR ELECTRONICS CORPORATION; NO PART OF IT MAY BE COPIED OR DUPLICATED IN ANY MANNER WITHOUT THE EXPRESS WRITTEN CONSENT OF SENSOR ELECTRONICS CORPORATION. THIS DOCUMENT IN NO WAY IMPLIES OR ESTABLISHES ANY FORM OF WARRANTY FOR ITS USE. THE READER EXPRESSLY AGREES TO HOLD HARMLESS SENSOR ELECTRONICS CORPORATION FOR MISTAKES, SPELLING, OMMISIONS OR OTHER ERRORS IN THIS DOCUMENT.

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## Important Revision Note- MUST READ!!

In version 1.0 of this SEC Memory Card Reader Utility Application, certain anomalies exist between the SEC Memory Card Reader, and the generic Windows Driver used for it by this application. As follows;

- (1) Even though you are allowed to remove memory cards from the SEC Memory Card Reader and replace them with another, there is a potential conflict still in the disk manager and auto-play mechanisms for USB removable storage devices containing removable media, such as this card reader. It is possible for the driver to report improper states to the application and generate a message to **“Unplug the Card Reader, insert a valid SEC Memory Card into the SEC Memory Card Reader and THEN plug the SEC Memory Card Reader into an Available USB Port”**. It is wise to only do it this way for now, even though technically you can remove and insert memory cards with the Card Reader Plugged in.
- (2) If you plug in only the SEC Memory Card Reader into the USB port without any memory card inserted previously into the card reader, it will not initialize and the application will not recognize it- it will appear as though it is not plugged in. Furthermore, if the card reader does eventually initialize, it will enter an invalid and unreliable state. Therefore, **ONLY PLUG IN THE SEC MEMORY CARD READER WHEN YOU HAVE A MEMORY CARD INSERTED INTO IT FIRST.**
- (3) When you insert/remove a memory card into/from the SEC Memory Card Reader, or plug/unplug the SEC Memory Card Reader into/from the USB port with a valid SEC Memory Card inserted into it, you may see Windows Explorer popup windows appear and disappear with those actions, which may be very distracting. This application attempts to remain on top at all times to minimize this effect; however it is not entirely removed. Please ignore these pop-ups by Windows.

**For the reasons/issues given above, it is recommended that you use the SEC Memory Card Reader as follows;**

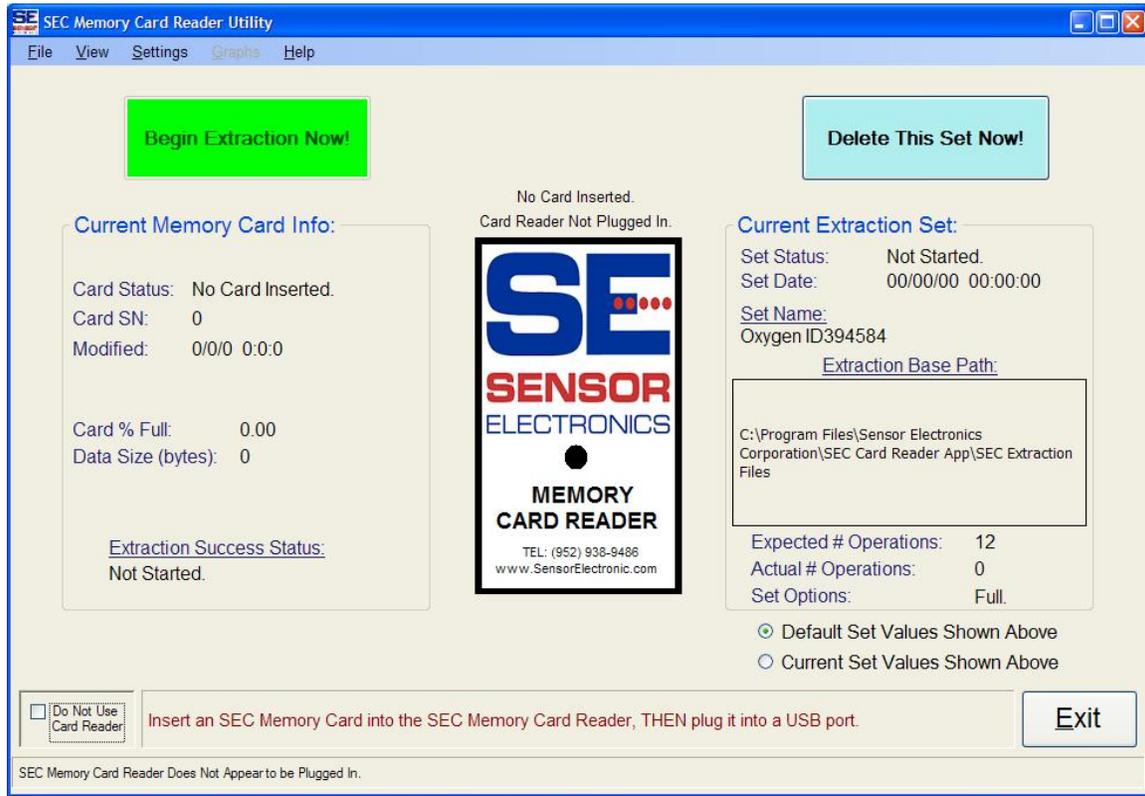
### **Memory Card Insertion:**

With the SEC Memory Card Reader Unplugged, fully insert a valid SEC Memory Card into the SEC Memory Card Reader, then plug the SEC Memory Card Reader into an Available USB port with this SEC Memory Card Reader Utility Application Running, with the “Run Without Card Reader” option cleared.

### **Memory Card Removal:**

With the SEC Memory Card inserted into the SEC Memory Card Reader and the SEC Memory Card Reader Utility Application Running with the “Run Without Card Reader” option cleared, unplug the entire card reader from the USB Port (without removing the SEC Memory Card from the reader).

# What Is It?



The SEC Memory Card Reader Utility Application was specifically designed for the SEC 3100 Data Transmitter from Sensor Electronics Corporation, to allow customers to extract log data stored on those removable memory cards. Its purpose therefore is to interface your desktop with the SEC USB 3100 Memory Card Reader and allow you to extract this log data and store it on your hard drive, make copies of it, and parse out specific information based on default parsing options you make. This application allows you to organize your data into folders on your computer as you desire, with friendly filenames you supply.

This application also allows you to open existing extraction sessions (extraction operations you have already performed) and regenerate fresh sets of collations and different sets of files based on changes you make to parsing options, while your SEC Memory Card remains in its SEC 3100 unit.

## Requirements

1. SEC Memory Card Reader, USB, and USB 2.0 high speed cable.
2. Available USB 2.0 Port.
3. Microsoft Windows XP Version 2 with Service Pack 2 or higher.
4. 30 – 50mb of available memory.
5. 100mb free disk space, plus space to store your extracted files.
6. Working internet browser (for viewing help in the application).
7. Full Administrative Rights to your computer (not your domain).

## Key Terminology

**“Data Extraction Set”** – This is a set of files that are produced by this application either during the initial [“Extraction”](#) from the inserted SEC Memory Card or during a subsequent [“Regeneration”](#) operation, based on the [“Data Extraction Options”](#) settings.

**“Extraction”** – This is the operation of pulling all of the log information from the inserted SEC Memory Card and storing it on your hard drive.

**“Data Extraction Options”** – Refers to settings you can designate for determining which individual files will be created during [“Extraction”](#) or [“Regeneration”](#), parsed from the hard disk copy (known as the [“Clone”](#)) of your extracted memory card contents.

**“Clone”** – This is a full copy of the contents of your inserted SEC Memory Card, placed on your hard drive and will be used by all other subsequent [“Extraction”](#) or [“Regeneration”](#) operations.

**“Full Backup Copy”** – This is a full copy of the [“Clone”](#) file on your hard drive- highly recommended. This implies two full identical copies of the contents of your inserted SEC Memory Card. This file is created based on the [“Data Extraction Options”](#) setting for [“Create Full Copy with ALL events”](#) selection.

**“Regeneration”** – This operation parses out all operator selected details and collects them into specific, individual files based on the [“Data Extraction Options”](#) settings, storing them in a collection called a [“Data Extraction Set”](#).

**“Base Storage Path”** – This is a location on your hard drive that you designate as the [“root”](#) where all [“Extraction Data Sets”](#) will be stored. Each data set has its own sub-folder created from this [“root”](#), and having the [“Data Set Name”](#). By default, the base storage path will be something like [“C:\Program Files\Sensor Electronics Corporation\SEC Memory Card Reader App\Extraction Files”](#).

**“Data Set Name”** – This is the name of the [“Extraction Data Set”](#) that will be; (1) the name of the sub-folder (from the [“Base Storage Path”](#)) containing the extraction files, and (2) the unique name that will be appended to the names of all the files in the set.

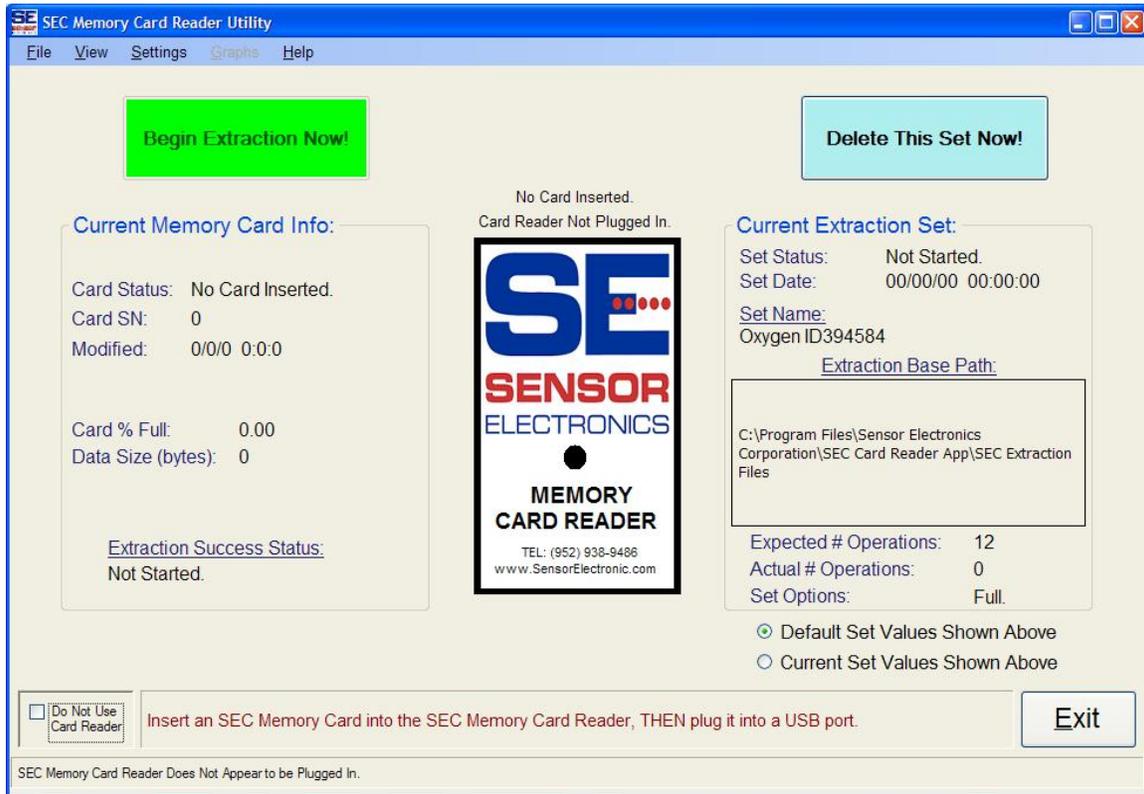
## What is This Data?

The data contained on your SEC Memory Card is produced by your SEC 3100 unit. It is a data log of all “events” that have occurred since this SEC Memory Card was inserted. Those events are numerous in categories, summarized as follows (for more details see [Appendix A: Data File Format](#)):

1. **Gas Change Events-** When a gas level rises or falls according to a pre-determined delta (change) threshold, a gas record is entered into the log by the 3100, containing the timestamp and gas level at the time of the event.
2. **Alarm Events-** When a gas level rises and triggers one of the alarms (low, medium, high) or when a sensor fault is detected, an alarm event is recorded along with a timestamp, the alarm type and the gas level at the time of the event.
3. **Calibration Events-** When the user performs a calibration operation, a timestamp and calibration indicator is recorded.
4. **Parameter Change Events-** When the user changes settings on the 3100, a change event recorded is recorded along with a time stamp and the 3100 parameters.
5. **Sensor Warm-up Events-** When either the 3100 or a sensor head is replaced and enters the warm-up operation, a sensor warm-up event is entered along with a timestamp and all of the new sensor and 3100 parameters.
6. **Memory Card Events-** Whenever the SEC Memory Card is removed or inserted, this event is recorded in the log along with all sensor, 3100 and card unit serial number parameters to indicate a possible change in 3100 unit data, to help prevent confusion from different 3100 units using the same Memory Card at different times.

This data can be copied “as-is” to another clone on your hard drive, as well as individual files containing any of these specific, parsed out events you may choose.

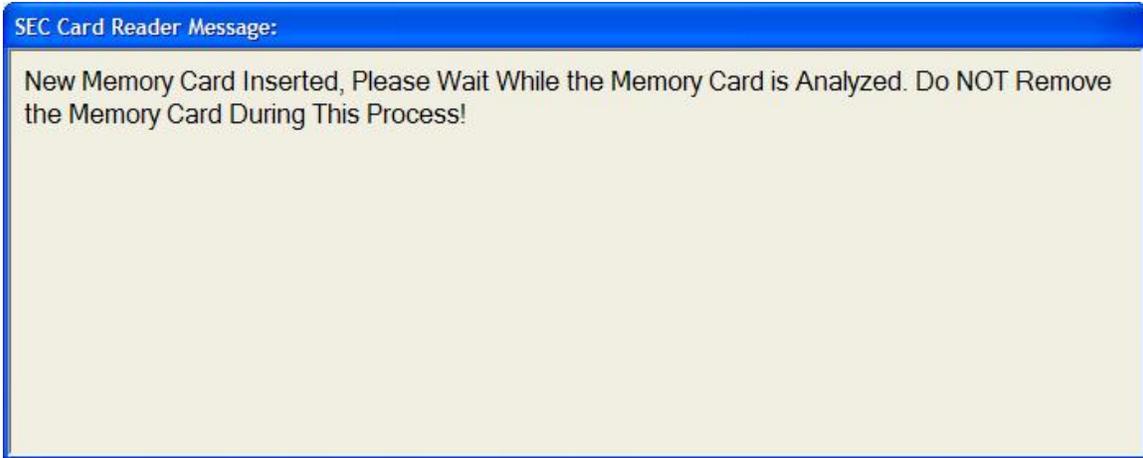
# Normal Operation



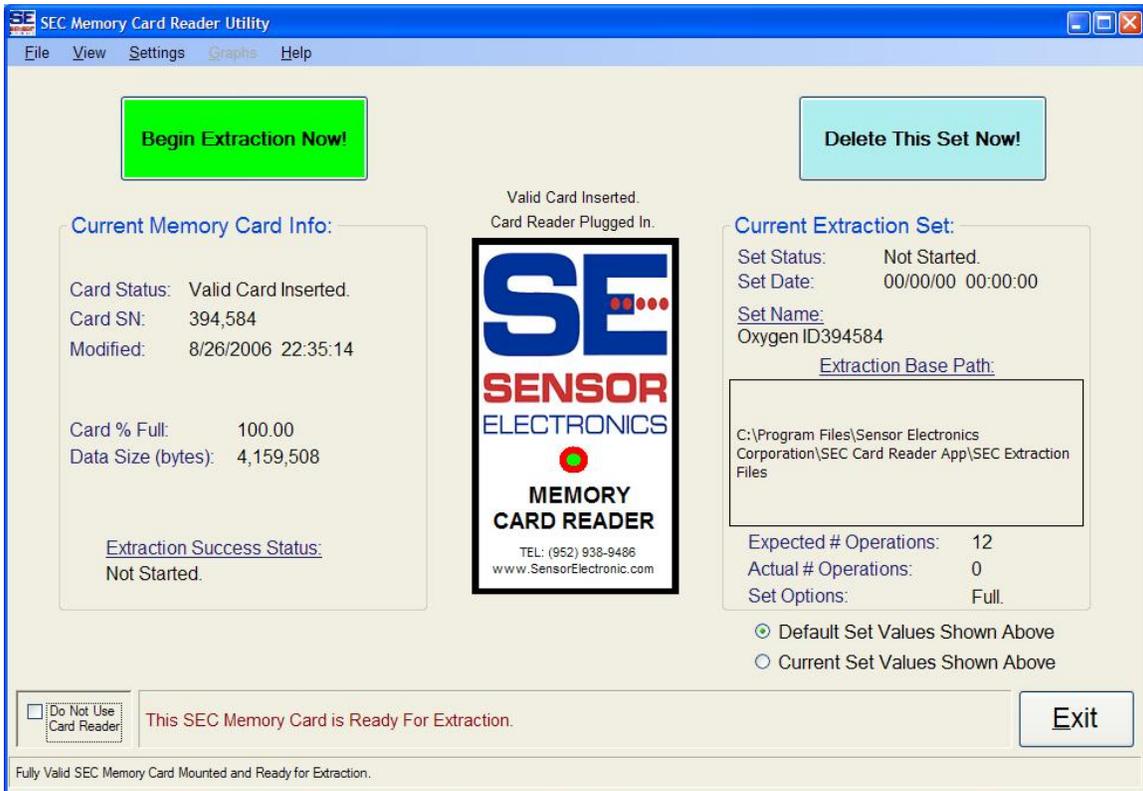
Normal Operation occurs in the following sequence:

1. The Main Screen as it appears above appears upon a normal launch of the application. It begins searching for the SEC 3100 Memory Card Reader to be plugged in to any USB port on your computer. It will continue searching until it finds the reader with a SEC Memory Card inserted into it. It is very important that the SEC Memory Card Reader ONLY be plugged into the computer initially, with an SEC Memory Card inserted into it, or improper behavior will result. Once an SEC Memory Card has been properly inserted and the SEC Memory Card Reader is inserted and recognized by this application, the card may be removed without unplugging the reader under most circumstances and other SEC Memory Cards can be swapped in. For more details concerning the main screen, see the next section entitled "[Main Screen](#)".

- This application detects the insertion of the SEC Memory Card Reader into any USB port on your computer with an SEC Memory Card inserted into the reader, and it begins to validate the Memory Card, with the following message displayed on top of the main screen as shown below:

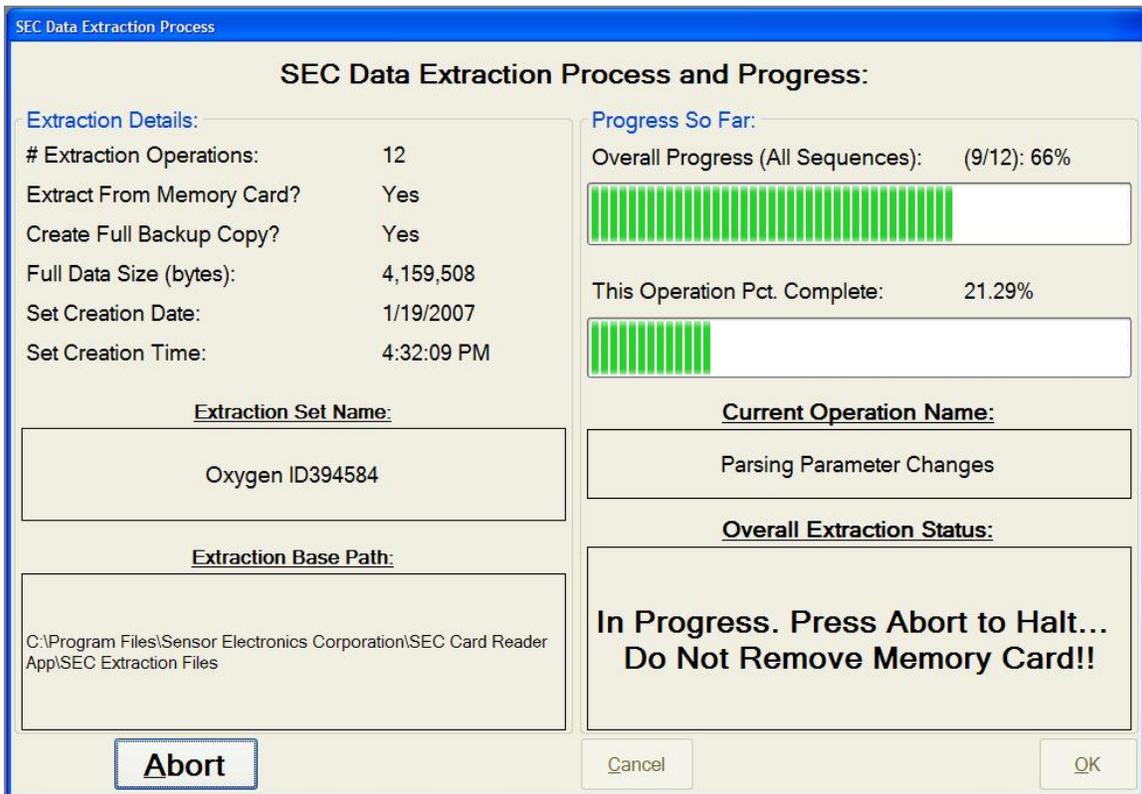


- Once validation is completed, which normally should only take about ten seconds or less, the main screen displays the basic details of the inserted memory card in the left pane as shown below:

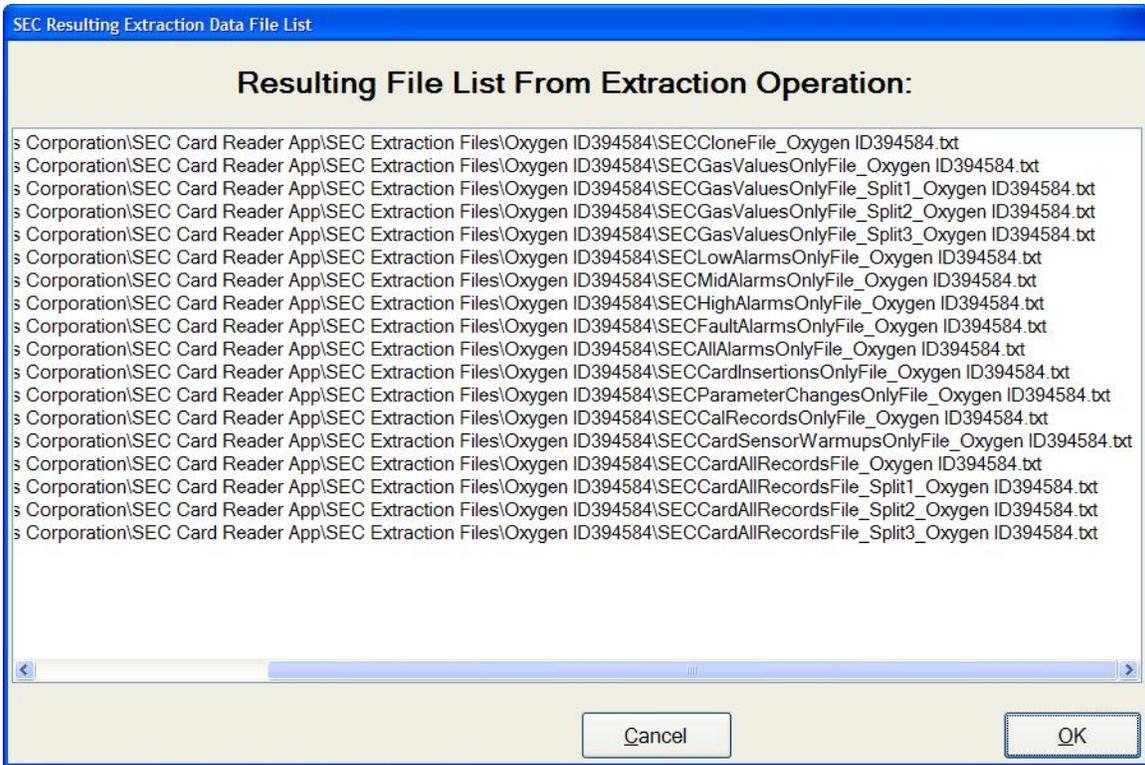


The “Current Memory Card Info” pane on the left contains the “Card Status” which can be one of five states (“No Card Inserted”, “Unknown Card Inserted”, “Valid Card Inserted”, or “Corrupt Card Inserted”). The SEC Memory Card Serial Number is also displayed (as “Card SN” in this pane), indicating the 3100 serial number that this Memory Card was pulled from. The last time the Memory Card was updated is displayed, the percent the card is full and how big the data log is in bytes is presented in this pane to the user if a valid card is inserted.

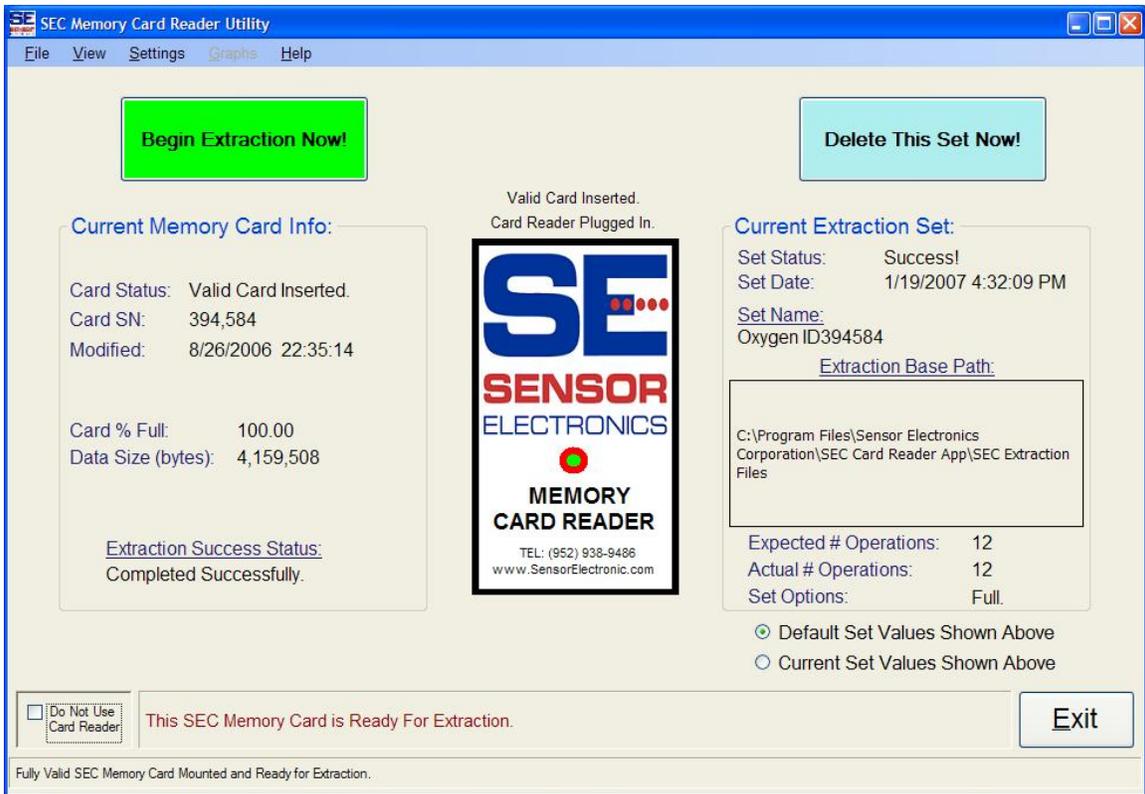
4. The big green “Begin Extraction Now!” button is then enabled, and you are now able to begin [extraction](#) of the contents of the inserted SEC Memory Card to your [default storage location](#), [data set name](#) and the parsed data file set you have chosen will be created according to your default [data extraction set options](#). The extraction process screen then appears (for more details about the extraction screen, see the section entitled “[Extraction Progress Screen](#)”) as shown below:



5. Once the extraction process is complete, the resulting file list screen is displayed, showing a list of all the files generated by this operation to complete the requested [extraction data set](#), as shown on the following page:

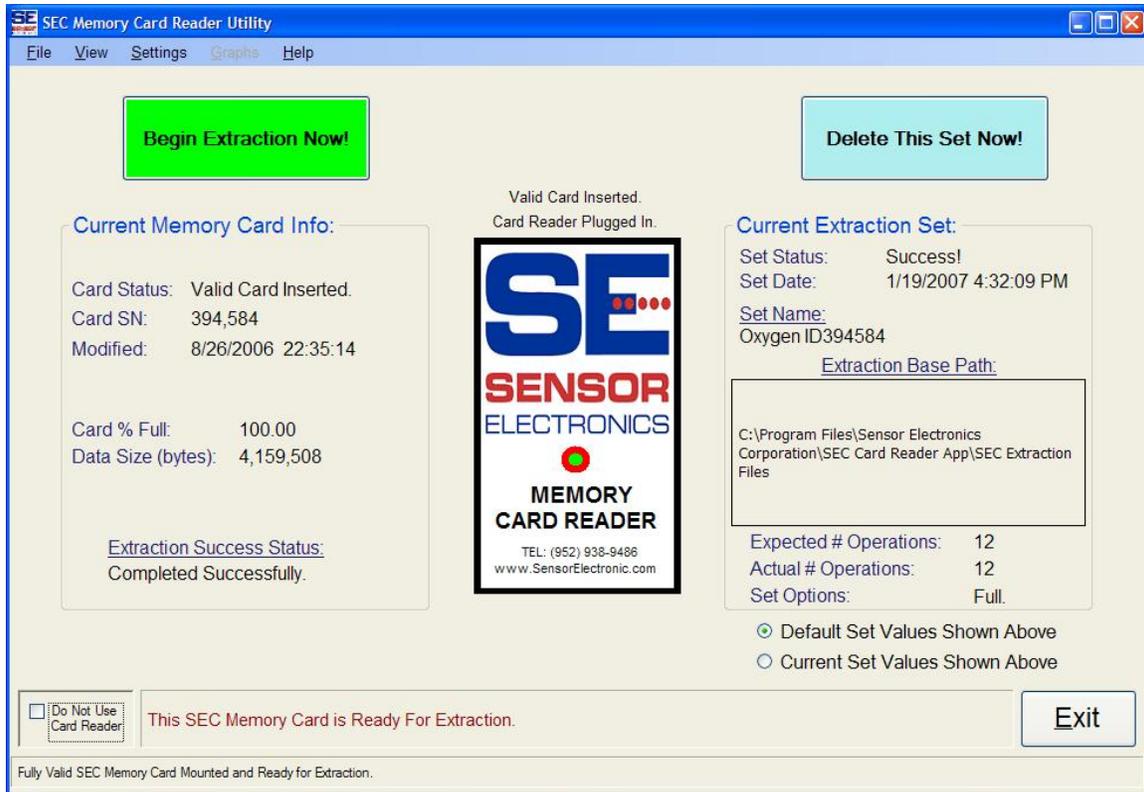


6. After reviewing this screen and the resulting files in the set, the main screen is returned, showing the results of the extraction operation in the right hand pane as shown below:



In the right-hand pane titled “Current Extraction Set”, the “Set Status” shows one of four states (“Not Started”, “Success!”, “Aborted”, and “Failed”). Also shown is the date and time of the set creation, the name of the [extraction set](#), the extraction [base storage path](#), the originally expected number of files in the set as well as the actual number of files generated in this set and a summary of the set options (“full”, “partial” or “none”).

## Main Screen



The Main Screen is comprised of several key areas of information, interest and interaction, which shall be discussed in detail:

- (1) Top Menu Bar and Menu System
- (2) Extraction and Delete Set Buttons
- (3) Center Card Reader Image and Graphical Status
- (4) Left-hand Current Memory Card Info Group
- (5) Right-hand Current Extraction Set Group
- (6) Disable Card Reader checkbox and Default vs. Current Set Values radio buttons
- (7) Large red instruction label
- (8) Exit button, minimize, maximize and control box controls
- (9) Bottom status bar

Starting from the bottom of the screen up;



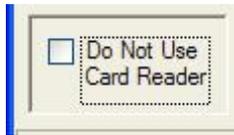
Validating Card. Please Wait...

**Bottom Status Bar:** At the bottom of the Main Screen, the bottom status bar (shown above) contains information regarding what the application is doing in the background. It cycles through a number of conditions, and is mostly active during detection and validation of a newly inserted card. When either the card reader is unplugged or a memory card is removed, it will be flashing two different messages concerning the status of the reader and attempting to locate the reader or a memory card. Once a card is validated, it will indicate that either an unknown card is in the reader, a corrupt card is in the reader, or that a fully valid card is in the reader.

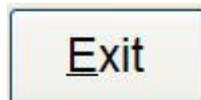


Insert an SEC Memory Card into the SEC Memory Card Reader, THEN plug it into a USB port.

**Big Red Instructions Bar:** Placed just above the bottom status bar, is the instruction bar, indicating to the user what action should be taken next. It will contain instructions, such as the one above, to insert a card in the reader and plug the reader into a USB port, or to insert an SEC memory card into the reader, or that the inserted card is mounted and ready for extraction, or that an extraction set is open and can be regenerated, etc.

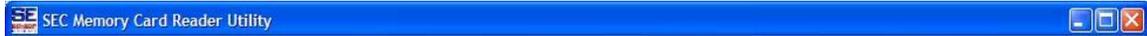


**Operate Without Card Reader:** This left-hand check box (as pictured above), located to the left of the big red instructions bar, allows the user to temporarily stop searching for the memory card reader, and will inhibit extractions from the memory card. It will still allow regeneration of [existing data sets](#), and hence the purpose of this checkbox is to allow the user to use the application without a card reader plugged in.



**Exit Button, Close Button:** The Exit Button (depicted above) allows the user to shut down the application when it is safe to do so. Therefore, it is not always enabled. It is located at the bottom right, next to the big red instructions label.

Title Bar:



The Close button (depicted above) on the other hand (small red X located at to very top-right of the screen in the title bar, pictured above), as well as the (close) menu option from the control box pictured below,



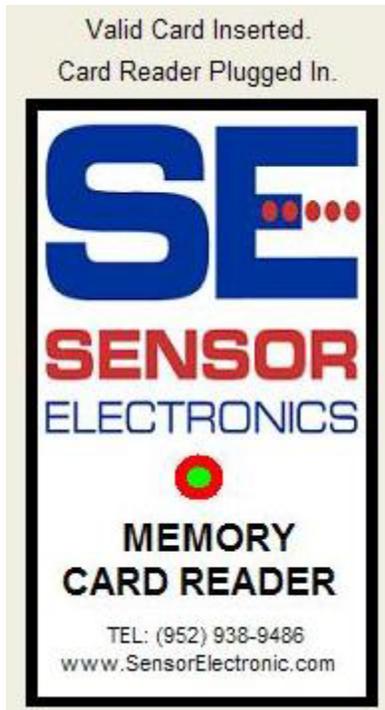
(located at the very top-left of the screen in the title bar), titled “Close” with an X to the left of it (as pictured below),



will behave exactly as the Exit Button, and will only shut down the application when it is able, however neither the “Close” menu option nor the Close button (red X) will be disabled.

- Default Set Values Shown Above
- Current Set Values Shown Above

**The Default Set vs. Current Set Values Shown Radio Buttons:** Only one of these (shown above) will be shown marked. These buttons are positioned just above the big red instruction bar to the right and under the right-hand “Current Extraction Set” group box. Normally, when using the card reader and extracting data from it, the “Default Set Values” radio will be marked, indicating that the information in the “Current Extraction Set” group contains the data for the default data set, possibly with the exception of the Set date and time and actual # operations performed. The “Current Set Values” radio will be marked when you [regenerate](#) a data set from an existing set that you open. Note: If you SELECT the “Default Set Values” item, it will CLEAR the results and reset them to the Default Set Values and your immediate summary view of the regenerated results (if any) will be cleared from the main display (not deleted, just display set updated on –screen). Also, if you have “Current Set Values” shown, and you change the [default storage location](#) or the [default extraction options](#), then “Default Set Values” will overwrite the “Current Set Values” shown in the group box and the radio mark above will reflect the change to “Default Set Values” shown.



**Center Card Reader Graphics and Status:** In the very center of the Main Screen, a graphic depiction of the SEC Memory Card Reader is displayed (as shown above), along with changing colors in the center for the card reader LED, as well as two lines of updated status text above the card reader graphic. The center colored indicator (located just underneath the blue “ELECTRONICS” label and just above the black “MEMORY CARD READER” text, changes color based on the reader status. If the circle graphics is all Black, then the card reader is either not recognized or plugged in. If it is all Red, then it indicates that the reader is plugged in, but a card is either not recognized or not inserted in the reader. If it is a Red circle with a green center (as shown) then it indicates that it has an SEC Memory Card that it recognizes and that the application believes it can extract the data out from it. It still could contain corrupt information, but the basic analysis reveals strong potential for extraction success. The top two lines, centered above the card reader graphic, indicate (1) Card status, and (2) Card Reader status.



**Left-hand “Current Memory Card Info” Group Information Box:** This panel of information (as shown above), located at the far left, centered up vertically with the center Card Reader Graphic, displays information about the currently inserted SEC Memory Card, if it is possible. If a card is not inserted, or it is corrupt or unrecognized, the values for Card SN, Modified date and time, Card % full and Data Size could all be zero. The Card Status will indicate the actual state, such as “Valid Card Inserted”, in which case all of the other values should properly be indicated, or the card status could be “Unknown card” or “Corrupt Card”. If you unplug the reader or remove the inserted memory card, this will all be cleared.

**Current Extraction Set:**

Set Status: Success!  
 Set Date: 1/19/2007 4:32:09 PM

Set Name:  
 Oxygen ID394584

Extraction Base Path:

C:\Program Files\Sensor Electronics Corporation\SEC Card Reader App\SEC Extraction Files

Expected # Operations: 12  
 Actual # Operations: 12  
 Set Options: Full.

**Right-hand “Current Extraction Set” Info Group:** This information group (as shown above), located to the far right of the center Card Reader Graphic and centered up vertically with it, contains summary information for the current or default data set as briefly discuss previously in the “[Default vs. Current Set Values Shown Radio Buttons](#)” topic. From top to bottom within the information panel group, it shows the Set Status (not started, Success, Failed, or Aborted), the date and time the extraction just occurred, the [set name](#), the [base path](#) where the data set is stored, the expected number of operations that should have been performed based on the [default extraction set options](#) set by the user before the extraction was performed, the actual number of operations performed (which should equal the expected number unless it was aborted or failed), and a summary label depicting the extraction set options (full, partial, or none).



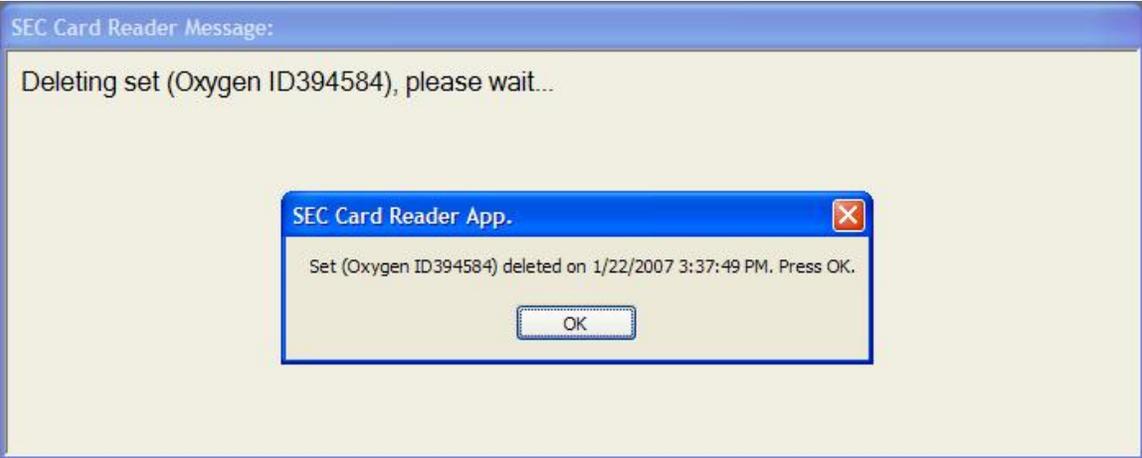
**The Begin Extraction Now Button:** When pressed (as shown above), starts the extraction process starting with extraction from the memory card. This button is only enabled when an SEC Memory Card is inserted in the SEC Memory Card Reader that the application recognized as having a high degree of potential for extraction success, and the card reader is enabled (an [existing extraction](#) set is not open). If either the card reader is disabled or an existing extraction set is open, this button will not be enabled. In such a case, the instructions will indicate to “[Regenerate](#)” the current extraction set, which is a menu option, located under the “File” menu. When this button is pressed, the “[Extraction Progress Screen](#)” is displayed, as discussed in the next [section](#).

**Delete This Set Now!**

**The “Delete This Set Now” Button:** When pressed, deletes the contents of the data set sub-directory as well as the data set sub-folder. But first, it will display a popup warning (as shown below)

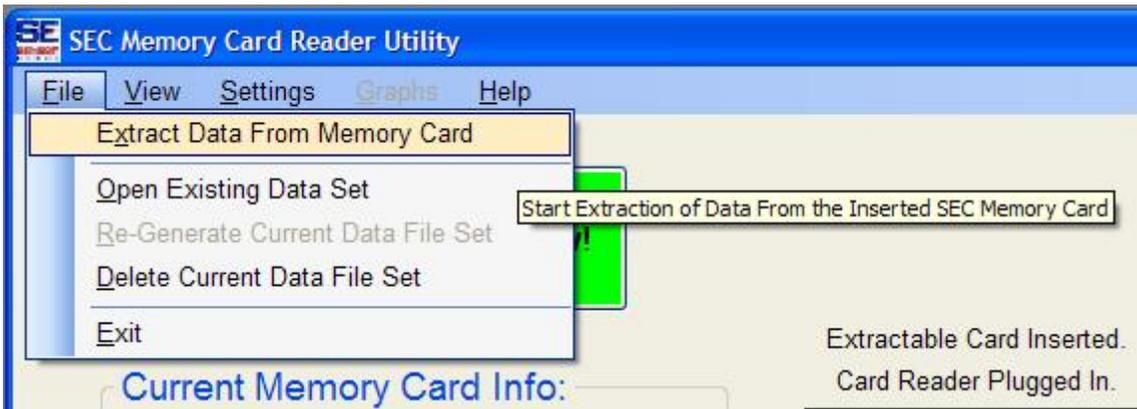


to you that it is going to delete all contents as well as the sub-folder, and it must be confirmed first to continue to the deletion operation, allowing you to cancel the deletion operation if this was not what you had intended. If it is confirmed, then the deletion operation is performed and once completed, another confirmation message popup appears to the user (as shown below):

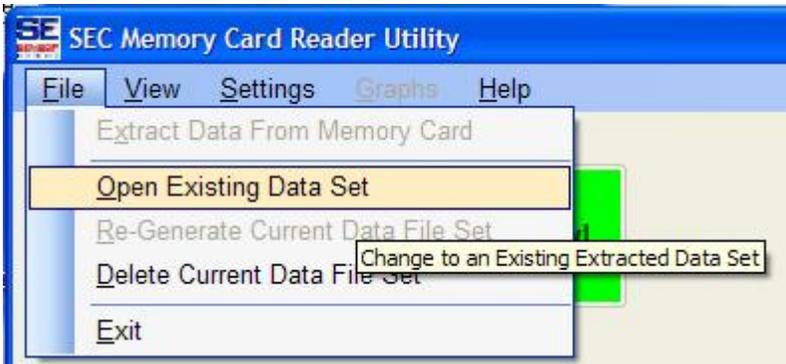




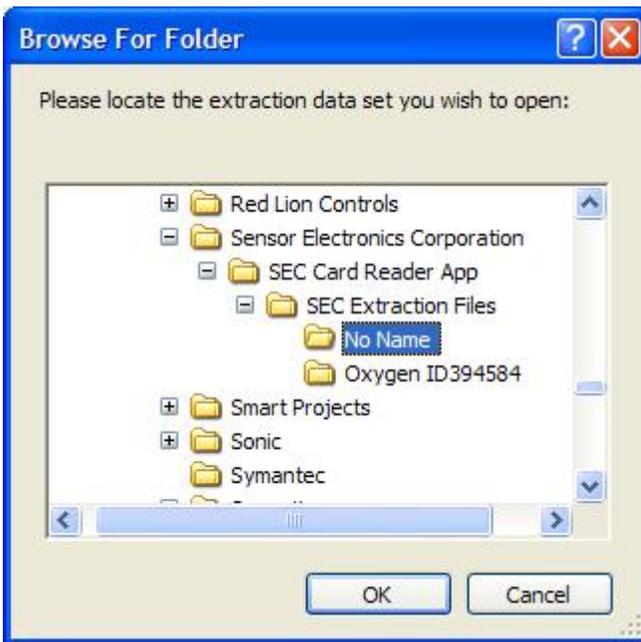
**Top Menu Bar and Menu System:** As depicted above, the top menu bar is located just under the title bar, and contains the valid menu drop-down lists that you may choose various operations, views and options from. As you can see, a tool tip hover box appears below the menu category (top-level menu) that the cursor is over, and gives a brief description of what the menu drop-down contains. Once the top-level menu is clicked, a drop down menu will appear and tool tip hover boxes will appear under the cursor as you move it with the mouse. First, we will examine the “File” top-level menu and list.



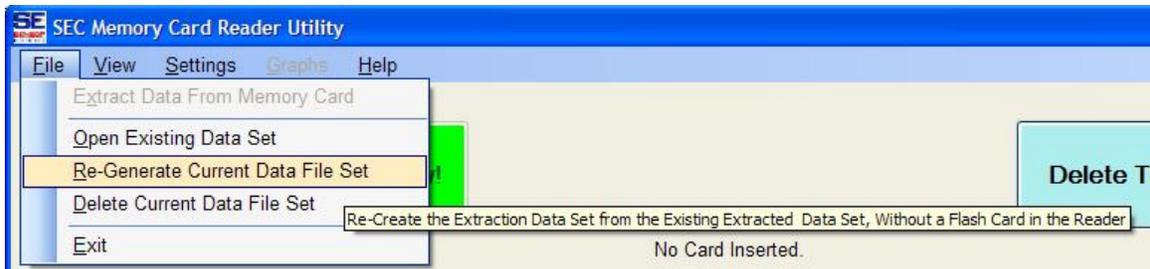
**Extract Data From Memory Card:** This menu option (as shown above) is only enabled when an extractable SEC Memory Card is inserted into the SEC Memory Card Reader and the card reader is enabled without an existing data set open, as previously described for the “[Begin Extraction Now](#)” button. It then proceeds exactly as it does as if the “[Begin Extraction Now](#)” button has been pressed, bringing up the “[Data Extraction Progress](#)” screen. Note: this menu option will NOT be enabled if the conditions described are not correct.



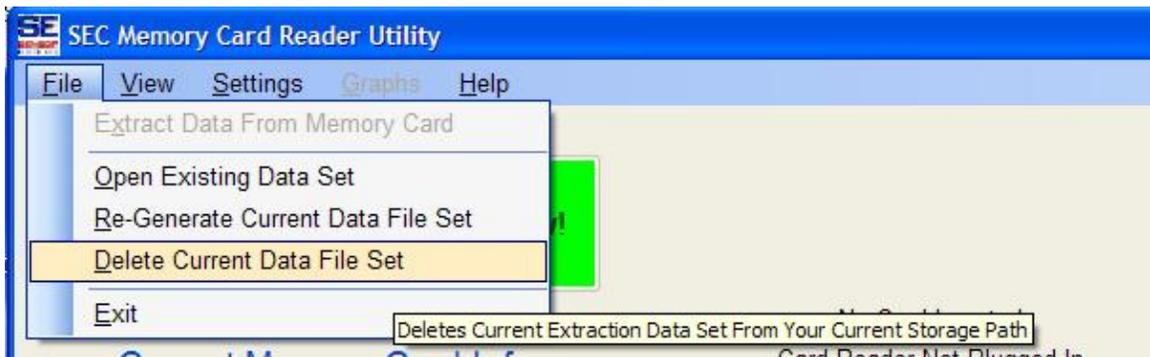
**Open Existing Data Set:** This menu option (as shown above) opens an existing data set that was previously generated. It sets the checkbox to “ignore” the card reader and disables the “Extract Data From Memory Card” menu option and the “Begin Extraction Now” button if clicked. If selected, a folder browser will popup as shown below, and the user can select the data set name (sub-folder) they wish to open:



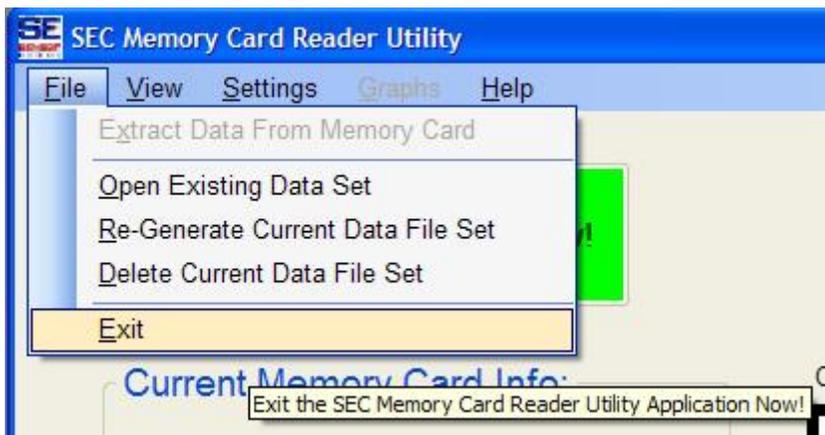
If “OK” is pressed, then the highlighted folder name ([data set name](#)) is chosen, and the menu items change as shown on the next page-



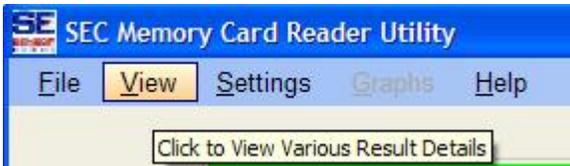
**Re-Generate Current Data File Set:** This menu option now enabled by opening an existing data set (as shown above), regenerates a fresh new data set from an existing, open set (specifically from the clone file in the set). It takes the current default extraction options, strips off the “Create Clone” (first) option, and regenerates all other files as set by the default options. It will operate identically otherwise as it would if the user had pressed the “Begin Extraction Now” button, bringing up the “Data Extraction Progress” screen, as described in the next section.



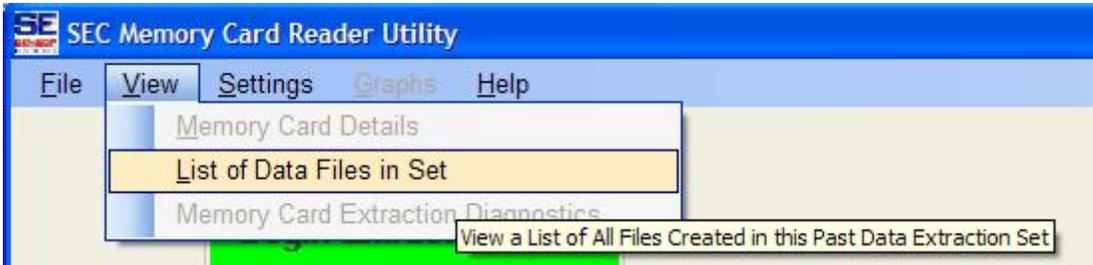
**Delete Current Data File Set:** This menu option (as depicted above) deletes the current data set as shown in the right-hand “Current Extraction Set” information panel group, and performs it identically as if the “Delete This Set Now” button had been pressed.



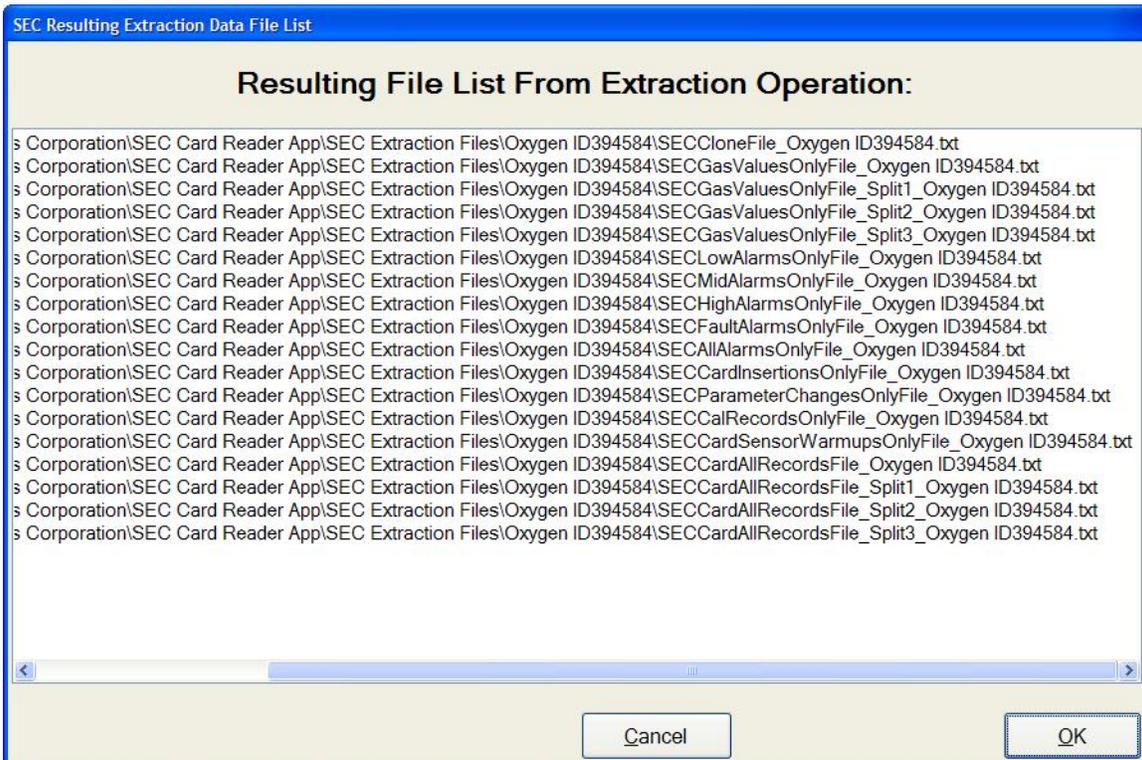
**Exit:** This menu option (as shown above) exits the application as if the “Exit Button” had been pressed. The behavior is identical to it.

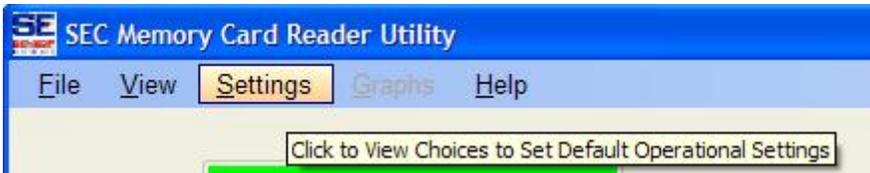


**View Menu Top Level:** This top-level menu (as shown above), once clicked opens a drop-down list allowing you to choose one of the various information items, as shown below:

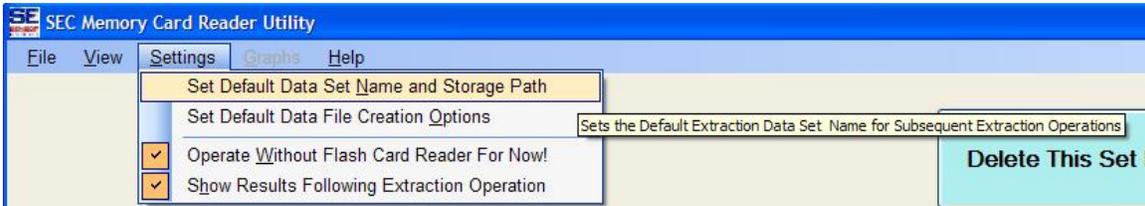


**List of Data Files in Set:** This menu option (as shown above) shows a data results display list that itemizes the files generated by the last data extraction or regeneration operation, as shown below:





**Settings Menu:** This top-level menu (as shown above), allows the user to select from a variety of default options and options that affect current operations immediately. Those options are shown below:

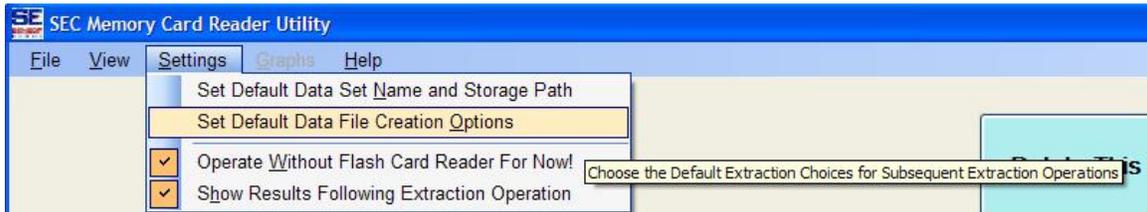


**Set Default Data Set Name and Storage Path:** This menu option (as shown above) allows the user to select an existing or create a new location for saving [extraction data sets](#) by default. By choosing (or creating then choosing) a new [data set name](#), you are creation both a new [storage base path](#) (one directory above it) as well as the new [data set name](#). By selecting this menu option, a folder browser dialog appears as shown below:

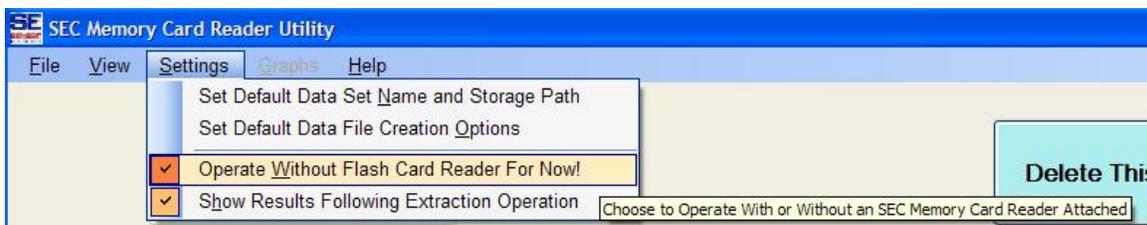


As shown above, the user may navigate to a desired, existing location for the default data set (As you can see in this example, the portion of the [base storage path](#) shown is “SEC Extraction Files” (the full path of this example is “C:\Program Files\Sensor Electronics Corporation\SEC Extraction Files”), while the selected [data set name](#) is “Oxygen ID394584”, which is a sub-folder off the base path. This data set name could be changed

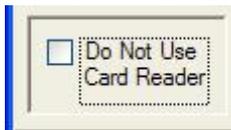
to “No Name” located just above it in this example, and maintain the same base storage path. The user could also press the “Make New Folder” button and create an entirely new, empty [data set name](#) and storage location. The user could also choose to traverse to an entirely different location altogether, such as based from a newly created [base path](#) of “My Documents” or another hard drive (which base sub-folder can be created as well with the “Make New Folder” button), and then create a new [data set name](#) from that base.



**Set Default Data File Creation Options:** By selecting this menu option, the “[Default Data File Creation Options](#)” screen will appear, and allow the user to change the way in which [extraction](#) or [regeneration](#) is handled. See the section entitled “[Changing The Default Parsing Options](#)” for more details.



**Operate Without Flash Card Reader:** This menu option allows the user to toggle the “Ignore SEC Memory Card Reader” state on or off. The check mark next to the menu option indicates that it is being ignored; otherwise the card reader is continuously checked by the application when this menu option check mark is cleared. This menu option is also controlled by the main screen button shown below, located at the bottom-left side of the main screen just above the status line:

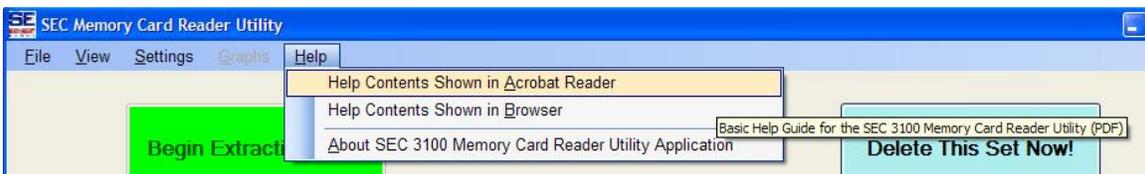




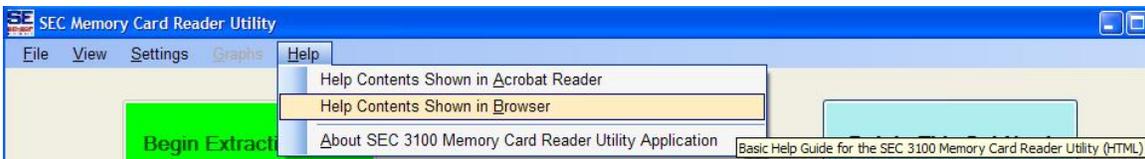
**Show Results Following Extraction Operation:** This menu option allows the user to toggle the “automatic show results file list” state on or off. When an [extraction](#) or [regeneration](#) operation is completed, a screen displaying the list of files generated will popup if this menu item is enabled (a check mark is visible next to it). If this menu item is not enabled (the check mark is not visible next to it), then the results file list is not automatically displayed after an extraction or regeneration operation. However, displaying the result file list can be done at any other time manually by selecting it off the “View” menu.



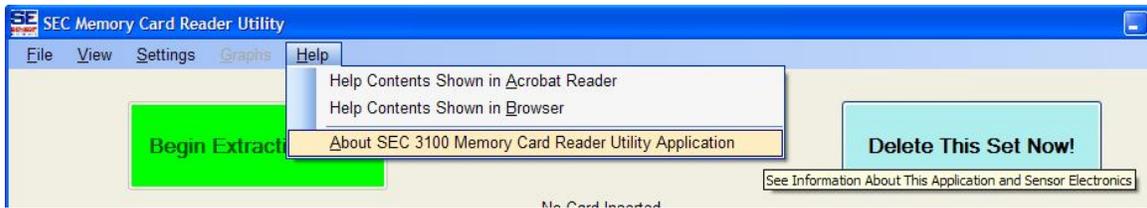
**Help Menu:** This top-level menu item contains a list of available help options, including basic help in HTML (Browser-based) and PDF (Acrobat Reader) formats, as well as information “About” this application and links for more information and support from Sensor Electronics Corporation.



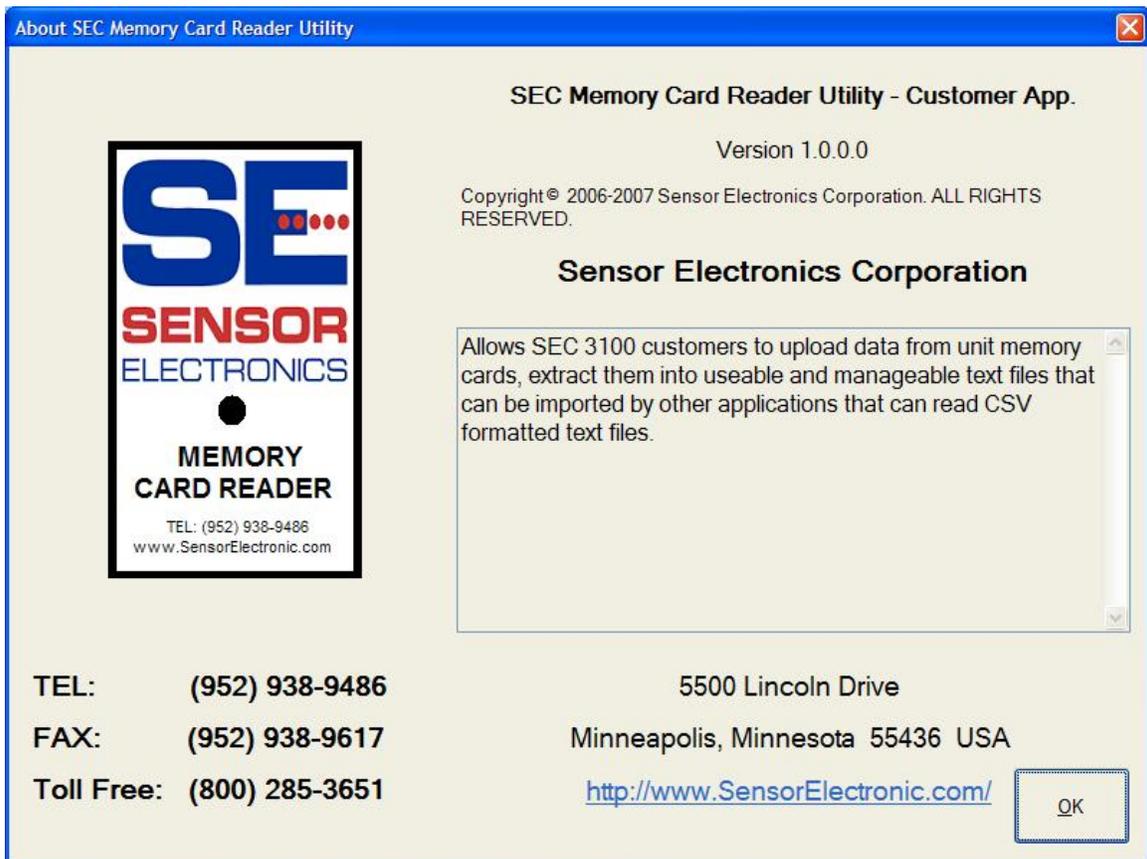
**Help Contents Shown In Acrobat Reader:** This menu option causes the help information to be displayed in the default PDF viewer installed on your computer (typically Adobe Acrobat Reader). It launches the viewer, and then minimizes the application so that it can be viewed properly. The application is restored when you exit the viewer.



Operates identically as the PDF option above, only launches the HTML version in the default Internet Browser installed on your computer.



**About SEC Memory Card Reader Utility Application:** This menu option allows you to view specific information about this version of the SEC Memory Card Reader Utility Application, as well as specific and support information about Sensor Electronics Corporation. See below:



By pressing on the “<http://www.SensorElectronic.com/>” link to the left of the “OK” button, your Internet Browser will be shown and display the Sensor Electronic Corporation website.

## Extraction Progress Screen

SEC Data Extraction Process

**SEC Data Extraction Process and Progress:**

**Extraction Details:**

# Extraction Operations: 12  
Extract From Memory Card? Yes  
Create Full Backup Copy? Yes  
Full Data Size (bytes): 4,159,508  
Set Creation Date: 1/19/2007  
Set Creation Time: 4:32:09 PM

**Extraction Set Name:**  
Oxygen ID394584

**Extraction Base Path:**  
C:\Program Files\Sensor Electronics Corporation\SEC Card Reader App\SEC Extraction Files

**Progress So Far:**

Overall Progress (All Sequences): (1/12): 0%

This Operation Pct. Complete: 26.16%

**Current Operation Name:**  
Creating Clone

**Overall Extraction Status:**  
**In Progress. Press Abort to Halt...  
Do Not Remove Memory Card!!**

Abort Cancel OK

When the “[Begin Extraction Now](#)” button is pressed, this extraction progress screen is displayed, and begins with extracting the log information from the SEC Memory Card and copying it to your hard drive, resulting in a “[Clone](#)”. This copy is then used in the following operations (if any others are selected in the [default extraction options](#)) to parse out specifics designated by the user. Based on those settings, the expected number of operations is established and displayed in the top-left information pane, as shown above. If the operation is extraction information from the memory card, that is indicated as well in the top-left information pane. If a [full backup copy](#) (in addition to the Clone copy just mentioned) is also set to be generated by this operation, it will be indicated as well in the top-left information pane. The estimated size of the extraction data is also displayed along with the extraction set date and time started.

On the left side of the screen, the Extraction [Data Set Name](#) is also displayed. This is the sub-folder where all files resulting from this operation are stored, off the [storage base path](#). Just below this, the Base Storage Path is displayed.

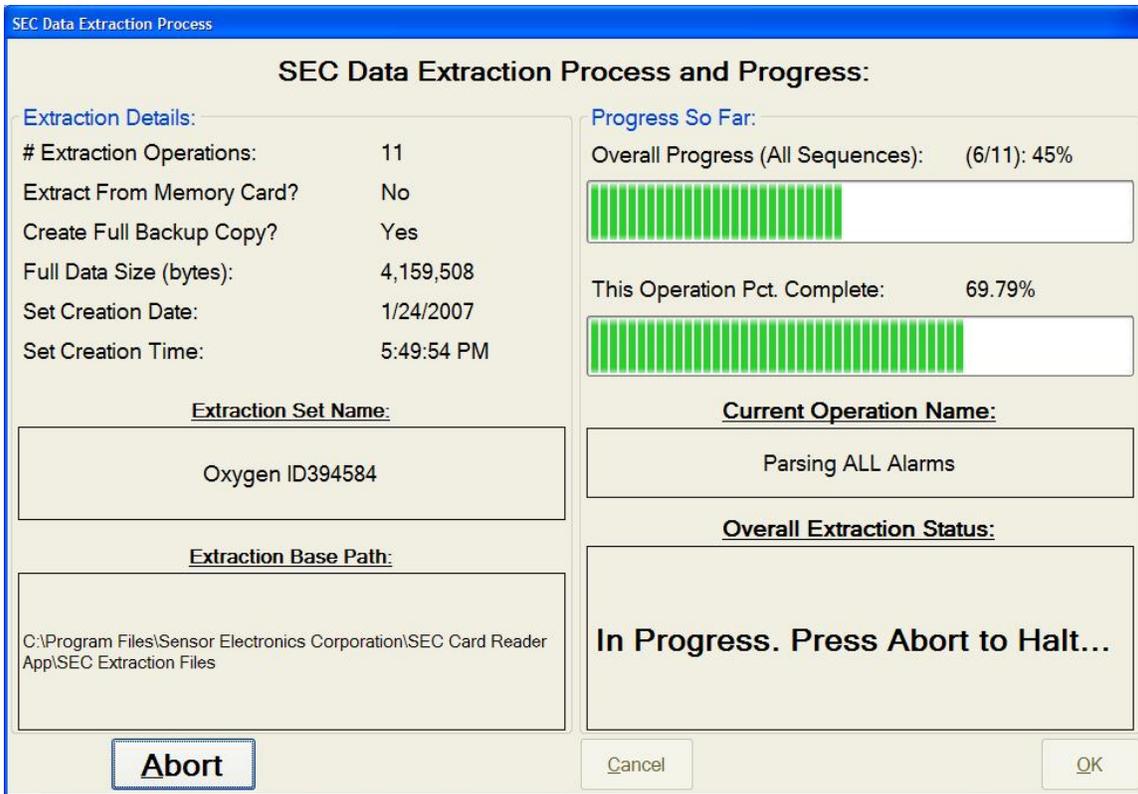
On the top-right side of the screen, the Extraction Progress is displayed in both text and via graphical progress bars. It is split into two categories; (1) the overall progress of ALL operations to be completed for this extraction operation, as established by the user’s [default extraction file creation options](#), and (2) the individual progress of the specific operation in progress within the overall operation set.

Below the progress section is displayed the current operation name in progress, within the overall extraction operation. As shown in the previous screen capture, the “Creating Clone” operation is 26% underway, and once completed then the next parsing operation will commence until all are performed or the user presses the “Abort” button to the bottom-left of the screen.

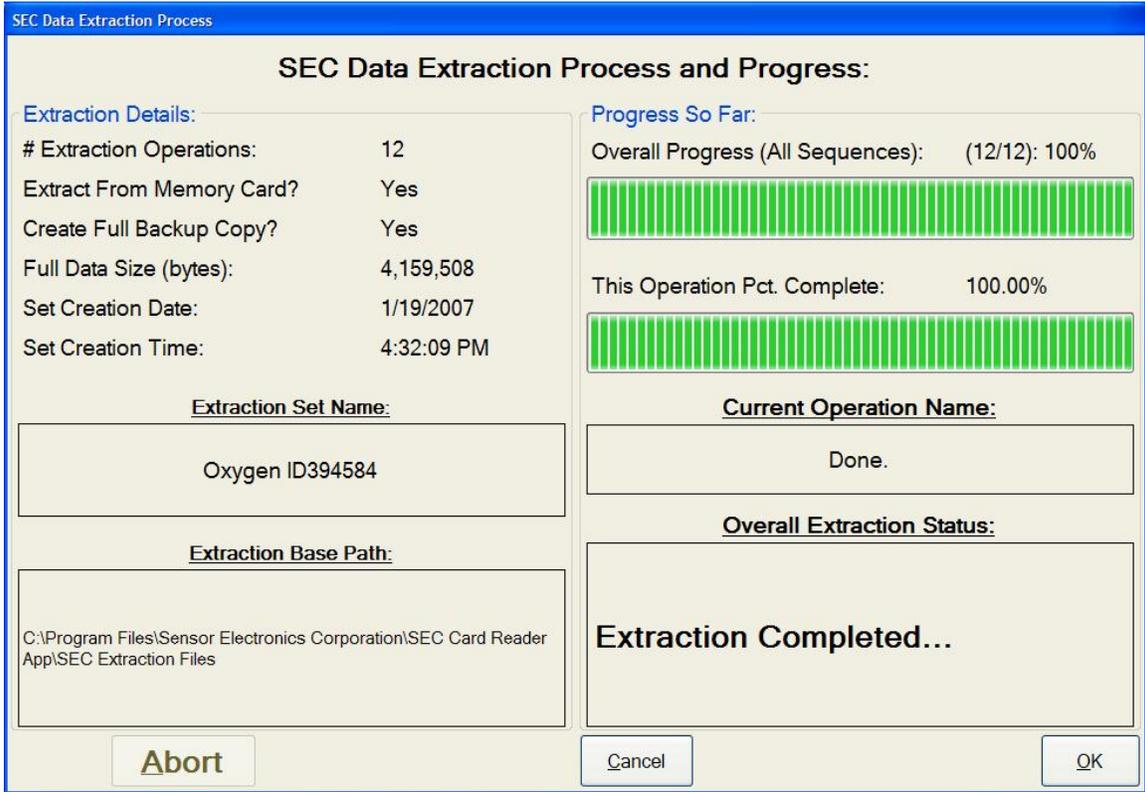
And finally at the bottom-right side of the screen the overall status in large type is displayed. It will show (“In Progress...”, “Aborted...”, “Done...”, or “Failed...”. When extracting from the memory card, as it is in this example, it specifically instructs the user not to remove the memory card at anytime during the process. Otherwise, not only could the operation and results files become corrupt, but the application behavior could become unpredictable.

At the bottom of the screen, are the action buttons. During the extraction process, the “Abort” button is enabled and may be pressed at anytime. The “OK” and “Cancel” buttons are disabled. If the user pressed “Abort”, the operation will be stopped and the “OK” and “Cancel” buttons will be enabled. If the operation fails, is aborted, or completes properly, then the “Abort” button is disabled, and the “OK” and “Cancel” buttons are enabled. Once you are done reviewing the progress and status, you may press either “OK” or “Cancel” to move on to either the results file screen or the main screen.

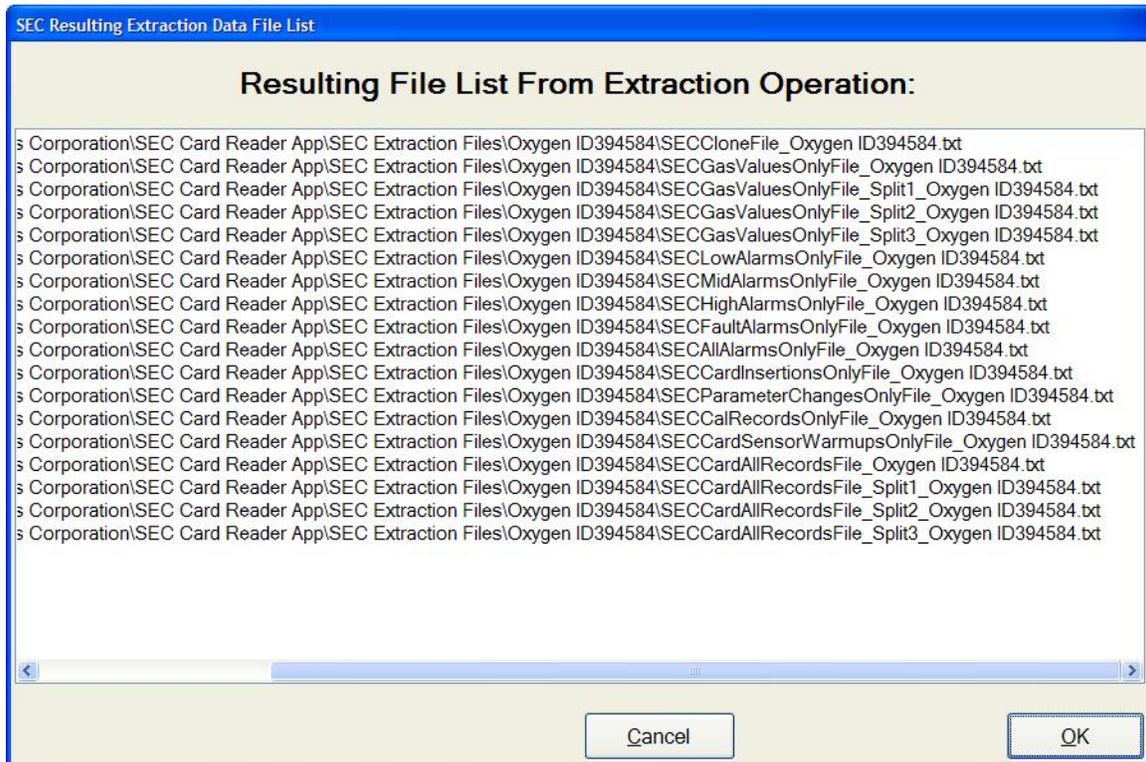
When the operation is not extraction, rather [regeneration](#), this display does NOT recreate the Clone, nor does it require the memory card to be inserted, as shown below:



As shown below, the screen when either operation completes successfully:



## Resulting File List Screen



This display is shown automatically after a successful data [extraction](#) or [regeneration](#) operation, or whenever the user selects this display from the “View” menu. It shows all of the files generated during the last operation.

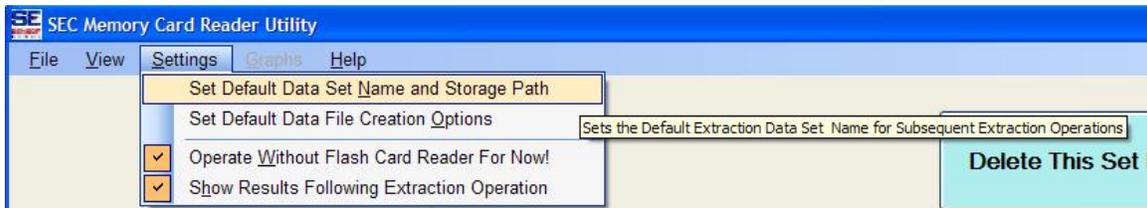
## Understanding the Results

When the “[Resulting File List Screen](#)” is displayed after an extraction or regeneration operation, the meaning of the list of files is as follows:

The original “[Clone](#)” copy file of the SEC Memory Card contents is called “SECCloneFile\_” and then the [data set name](#) is appended to it to become “SECCloneFile\_Oxygen ID394584.txt” for this example shown above. All other files, which contain the specific parsed data per file as requested by the user in the [default data extraction option](#) settings, will have the parse name, such as “SECGasValuesOnlyFile\_” with the data set name appended to it. When the user has selected to break up the parsed files into 64,000 line files, used for applications such as Microsoft Excel, in addition to the full file containing all parsed data, additional files with the same name only inserting “Split#\_” into the name before the data set name is appended, as in “SECGasValuesOnlyFile\_Split1\_Oxygen ID394584.txt”, “SECGasValuesOnlyFile\_Split2\_Oxygen ID394584.txt”, and “SECGasValuesOnlyFile\_Split3\_Oxygen ID394584.txt”, exist, each having up to a maximum of 64,000 lines.

When the main screen is displayed following an [extraction](#) or [regeneration](#) operation, the results of the operation is summarized in the Current Extraction Set” info group panel. If the operation had not been abort and fully succeeded, then it will show “Success” and the number of expected operations will match the actual operations performed. If it failed or was aborted, then the status will indicate this and you will notice that the actual number of operations will likely be less than the expected number of operations. Caution: if you change any parameters, open another file or choose to view the default set values these results are gone. You can still review the resulting file list by clicking on the “List Data Files in Set” off the “View” menu for this current data set name.

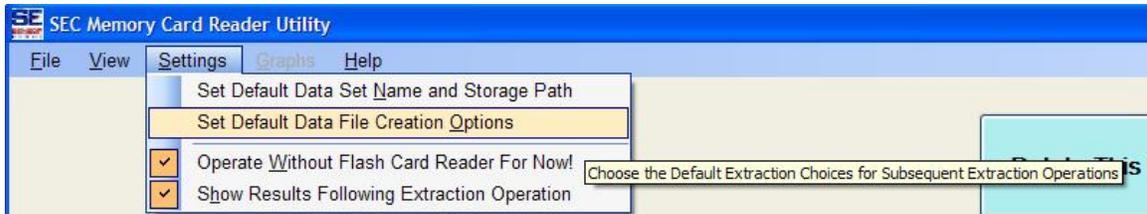
## Changing the Default Storage Path



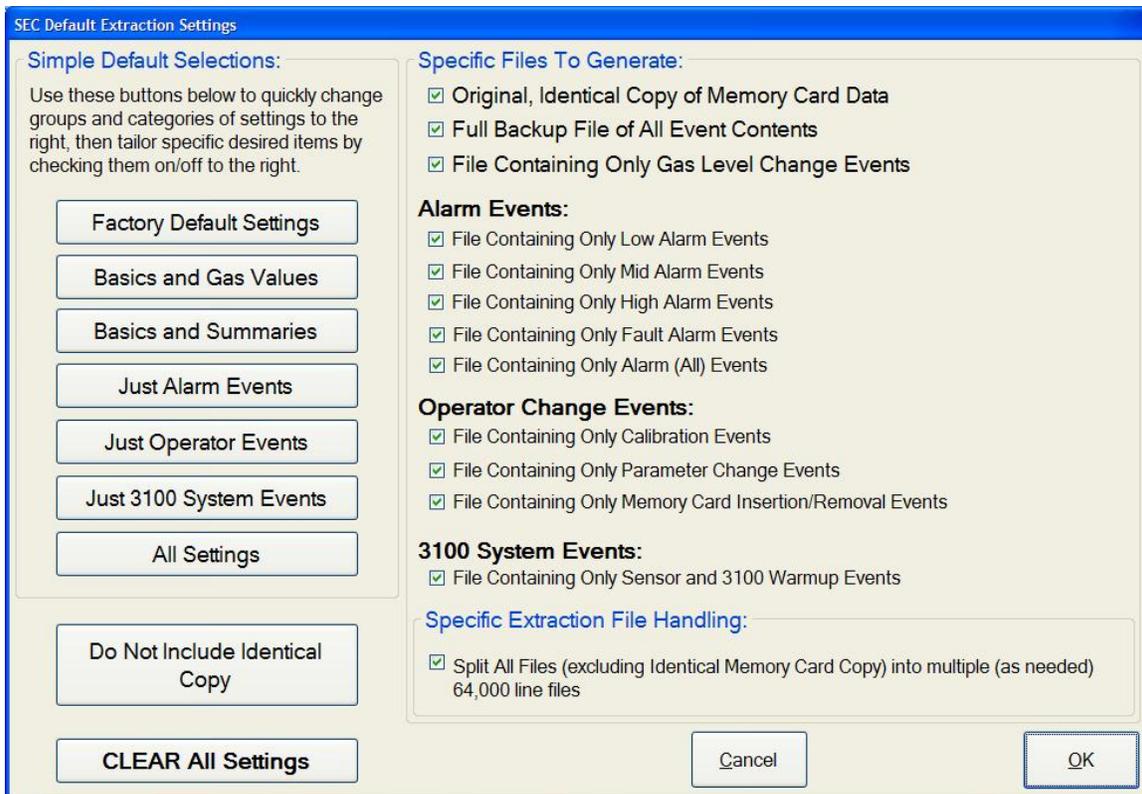
As described in detail in the section under the “Main Screen”, entitled “[Setting the Default Data Set Name and Storage Location](#)”, you make select a new name or create a new set name or base path. It is not recommended to choose network locations (and if so, make sure they are mapped to a drive letter), unless you are certain the connection will always be ready when you run this application. The entire path (the full [base storage path](#) plus the full [data set name](#)) is limited to 254 characters.

It is recommended that you name your data sets based on the 3100 unit gas name and serial number that the memory card is pulled from (such as “Oxygen ID394584”) or some directly identifiable and unique name that will allow you to track each individual memory card and its data source. Data sets are intended to collate all files generated by the extraction and regeneration operations into a single, individual sub-folder. And if you decide to move or copy the files to another off-storage location, the data set name is embedded in the actual file name for easier lookup. You may also want to create another sub-folder set for each data set based on Date, so that you can have multiple collections of data sets for the same ID; Such as “05\_21\_07”, 05\_22\_07” as the full data set name at any given time; ex; Full path for data set name “05\_21\_07”: “C:\Program Files\Sensor Electronics Corporation\SEC Card Reader App\SEC Extraction Files\Oxygen ID394584\05\_21\_07”.

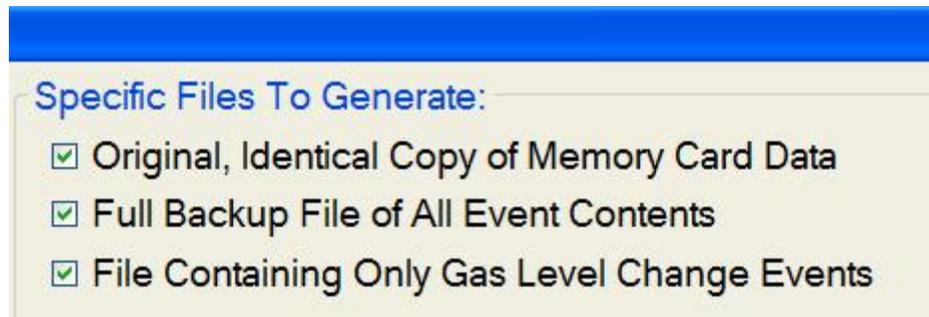
## Changing the Default Parsing Options



Which will display:



As shown in the example previously, the user is presented with a screen to change how data set files are created (which ones) from that point forward as a default setting. The screen is grouped into two major sections; (1) The left side contains shortcut buttons that allow the user to select a category of changes and apply them with the touch of a button, while (2) the right side of the screen contains all of the individual changeable parameters. When a user presses one of the buttons, it immediately affects the check marks to the right. While checking or un-checking an item on the right does not affect any others. Now let us break down the options by category as show previously:



At the top of the group, in bold as shown above, are the most important and commonly needed files generated in the data set.

1. The first one is the “[Clone](#)” shown as “Original, Identical Copy of Memory Card Data”. When checked, the extraction process will pull all the data out of the memory card and create this special “clone” file on your hard drive in your data set. If this option is set, but you are [regenerating](#) data, this option will be temporarily ignored during the regeneration process as it produces all of the other parse options from this already existing “Clone” file on your hard drive, NOT from the memory card. This allows you to reprocess your data without the card reader or the specific memory card. In fact, the memory card could be destroyed at this point.
2. The second item is a full backup of all data. This actually is an identical copy as the “[Clone](#)” file, only it is generated from the hard disk clone copy. It is not binary exact, but text-based similar. It should be treated as your working copy of the full contents and can also be used to render 64,000 line splits. More on that later in this section.
3. The third item is a file that contains only the gas level change records that are in the “Clone” file, absolutely no other events. This file too may be used to render 64,000 line splits.

### Alarm Events:

- File Containing Only Low Alarm Events
- File Containing Only Mid Alarm Events
- File Containing Only High Alarm Events
- File Containing Only Fault Alarm Events
- File Containing Only Alarm (All) Events

The next category of default options is the “Alarm Events” as shown above. Each one of these checked items will generate its own unique file containing the specific alarm records only stated. For instance; the first item shown will create a file that contains only Low Alarm Event records, taken from the “[Clone](#)” file. Whereas the second item will generate yet another unique file containing only Mid level Alarm Event records. None of these files will contain any other types of records, such as gas events or user changes. The last item will generate a unique file containing all of the alarm events into this one file, which is a good summary if not zeroing in on a specific event. All of these files may also be used to render 64,000 line splits.

### Operator Change Events:

- File Containing Only Calibration Events
- File Containing Only Parameter Change Events
- File Containing Only Memory Card Insertion/Removal Events

In the above category, depending on the files checked, each one contains certain specific records that are caused by 3100 operator interactions, as enumerated above. And just as all the other files and options we have discussed, they all are individually and uniquely created from the “[Clone](#)” file, and may be used to render 64,000 line splits.

### 3100 System Events:

- File Containing Only Sensor and 3100 Warmup Events

In the above category, a unique file would be generated if the option above is checked, containing only records from the “[Clone](#)” file that describe either a sensor head change, or a power cycle event of either the sensor body or the 3100 unit itself. And just like all of the other optional data extraction files mentioned previously, they may be used to render 64,000 line splits.

Considering the entire collection of extraction file types mentioned so far, each unique extraction type will cause a unique and specific file containing its individual extraction event records parsed from the “[Clone](#)” file. This could generate up to 12 different files if

all are checked. Note that by checking each one randomly or collectively will NOT create a single file containing the entire combination; no, they remain individual files.

#### Specific Extraction File Handling:

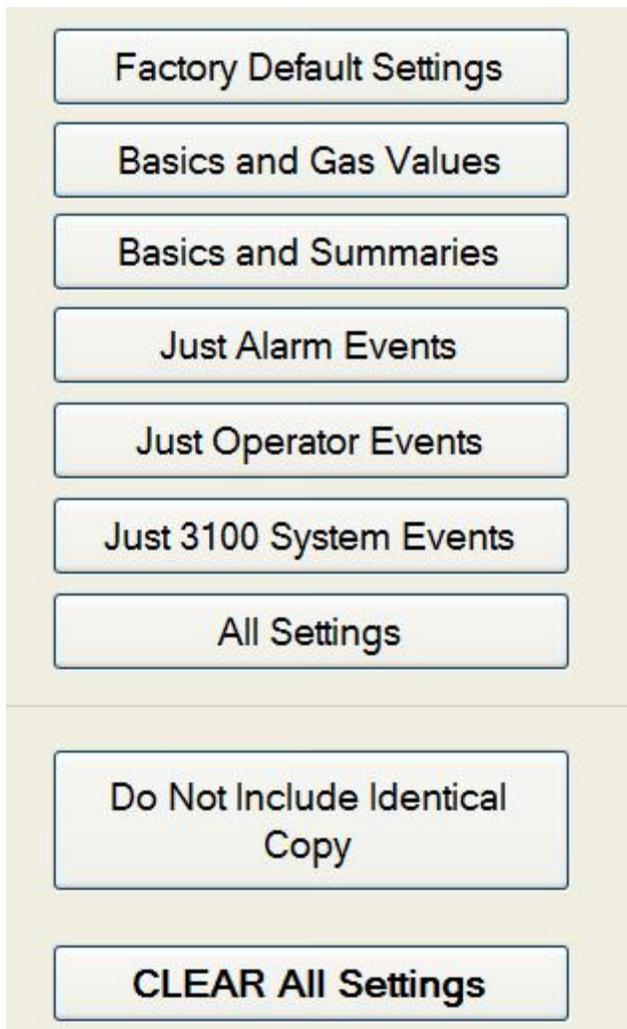
- Split All Files (excluding Identical Memory Card Copy) into multiple (as needed) 64,000 line files

The above option instructs the [extraction](#) or [regeneration](#) process to break up all files (except for the [Clone](#) file) in the set into files containing no more than 64,000 lines each. This is useful for applications such as Microsoft Excel that cannot read more than app. 64,000 lines in a given file. The option file itself remains full and intact, but rather extra “split” files are created with the same name, only have the term “\_Splitn\_” inserted in the name (where n is the split number). The number of “split” files required depends on each individual file size, but currently the maximum is 3.

Example:

- Total file size of the “Gas Values Only” file is 4,159,508 bytes.
- The file contains 140,000 lines.
- $140,000 / 64,000 = 2.1875$ .
- This means that there will two split files generated containing exactly 64,000 lines, and a third split file containing the remaining 12,000 lines.
- These split files are in addition to the original file containing all 140,000 lines.
- Example file names would be;
  - **“SECGasValuesOnlyFile\_Oxygen ID394584.txt”**:  
contains all 140,000 lines.
  - **“SECGasValuesOnlyFile\_Split1\_Oxygen ID394584.txt”**:  
contains the first 64,000 lines.
  - **“SECGasValuesOnlyFile\_Split2\_Oxygen ID394584.txt”**:  
contains the second 64,000 lines.
  - **“SECGasValuesOnlyFile\_Split3\_Oxygen ID394584.txt”**:  
contains the remaining 12,000 lines.
  - All of the above files would be contained in the data set sub-folder.

Now these settings can be individually set manually. However, there are category buttons on the left side of the screen to make quicker changes. See the next page for a discussion on the category buttons.



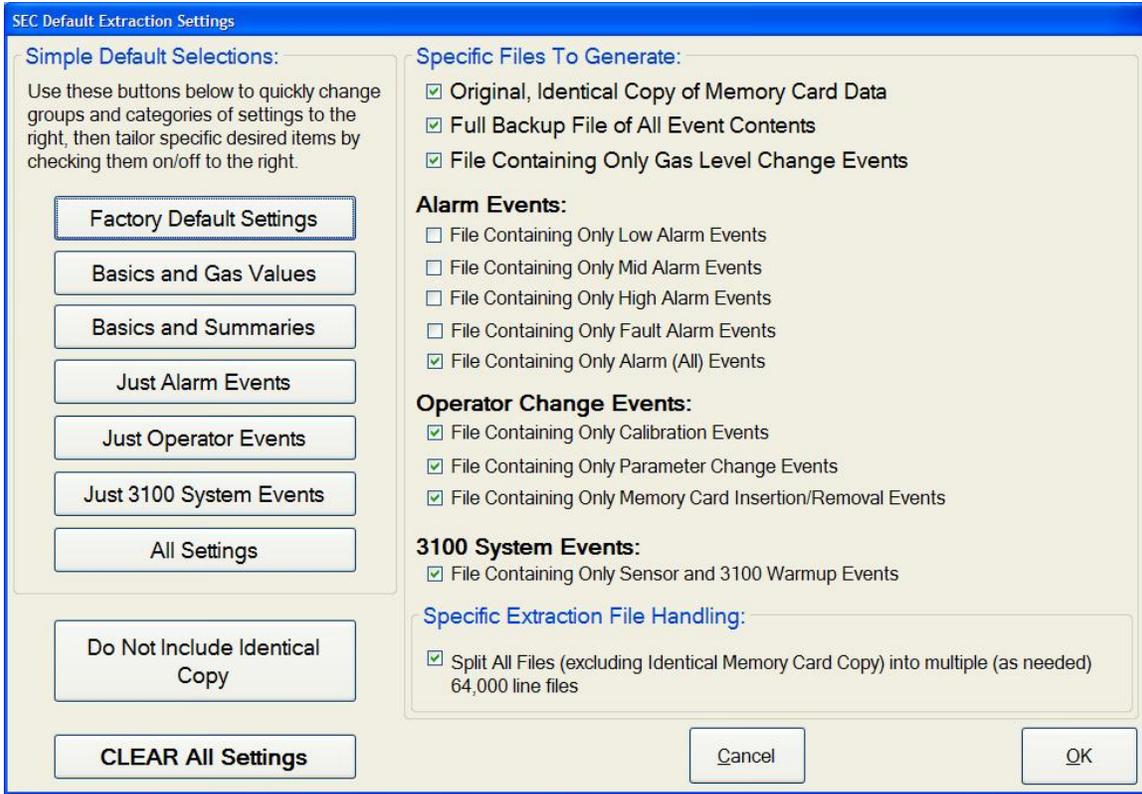
The above buttons, when pressed, merely change the check marks to the right of the default extraction file creation options screen. They are quick shortcut buttons to change large numbers of options based on typical categories, as follows from top to bottom:

1. **Factory Default Settings:** This will automatically change the check marks to reflect the options that would be set by default by the factory, other than ALL.
2. **Basics and Gas Values:** This will clear all settings and set the top three options, insuring that the [clone](#) and backup copy are made along with a file containing just the Gas Change Event records.
3. **Basics and Summaries:** As in #2 above, it adds in the ALL alarm event option.
4. **Just Alarm Events:** As in #2 above, without the Gas Change Event records but adding in all alarm event options (low, mid, high, fault and ALL options).
5. **Just Operator Events:** As in #4 above only without any of the Alarm Events but adding in all of the [Operator Change Events](#) options.
6. **Just 3100 System Events:** Just as in #5 above only without any of the Operator Change Events but adding in Sensor Warm-up and 3100 power-cycle event records.

7. **All Settings:** Just as it implies- ALL check marks will be set.
8. **Do Not Include Identical Copy:** Clears only the check mark for the first option, the [clone](#) file.
9. **Clear All Settings:** Just as it implies- ALL check marks will be cleared.

Here are a few example screen captures:

Factory Default Settings:



## Basics And Gas Values:

SEC Default Extraction Settings

**Simple Default Selections:**  
Use these buttons below to quickly change groups and categories of settings to the right, then tailor specific desired items by checking them on/off to the right.

Factory Default Settings

**Basics and Gas Values**

Basics and Summaries

Just Alarm Events

Just Operator Events

Just 3100 System Events

All Settings

Do Not Include Identical Copy

**CLEAR All Settings**

**Specific Files To Generate:**

- Original, Identical Copy of Memory Card Data
- Full Backup File of All Event Contents
- File Containing Only Gas Level Change Events

**Alarm Events:**

- File Containing Only Low Alarm Events
- File Containing Only Mid Alarm Events
- File Containing Only High Alarm Events
- File Containing Only Fault Alarm Events
- File Containing Only Alarm (All) Events

**Operator Change Events:**

- File Containing Only Calibration Events
- File Containing Only Parameter Change Events
- File Containing Only Memory Card Insertion/Removal Events

**3100 System Events:**

- File Containing Only Sensor and 3100 Warmup Events

**Specific Extraction File Handling:**

- Split All Files (excluding Identical Memory Card Copy) into multiple (as needed) 64,000 line files

Cancel OK

ALL:

SEC Default Extraction Settings

**Simple Default Selections:**  
Use these buttons below to quickly change groups and categories of settings to the right, then tailor specific desired items by checking them on/off to the right.

Factory Default Settings

Basics and Gas Values

Basics and Summaries

Just Alarm Events

Just Operator Events

Just 3100 System Events

All Settings

Do Not Include Identical Copy

CLEAR All Settings

**Specific Files To Generate:**

- Original, Identical Copy of Memory Card Data
- Full Backup File of All Event Contents
- File Containing Only Gas Level Change Events

**Alarm Events:**

- File Containing Only Low Alarm Events
- File Containing Only Mid Alarm Events
- File Containing Only High Alarm Events
- File Containing Only Fault Alarm Events
- File Containing Only Alarm (All) Events

**Operator Change Events:**

- File Containing Only Calibration Events
- File Containing Only Parameter Change Events
- File Containing Only Memory Card Insertion/Removal Events

**3100 System Events:**

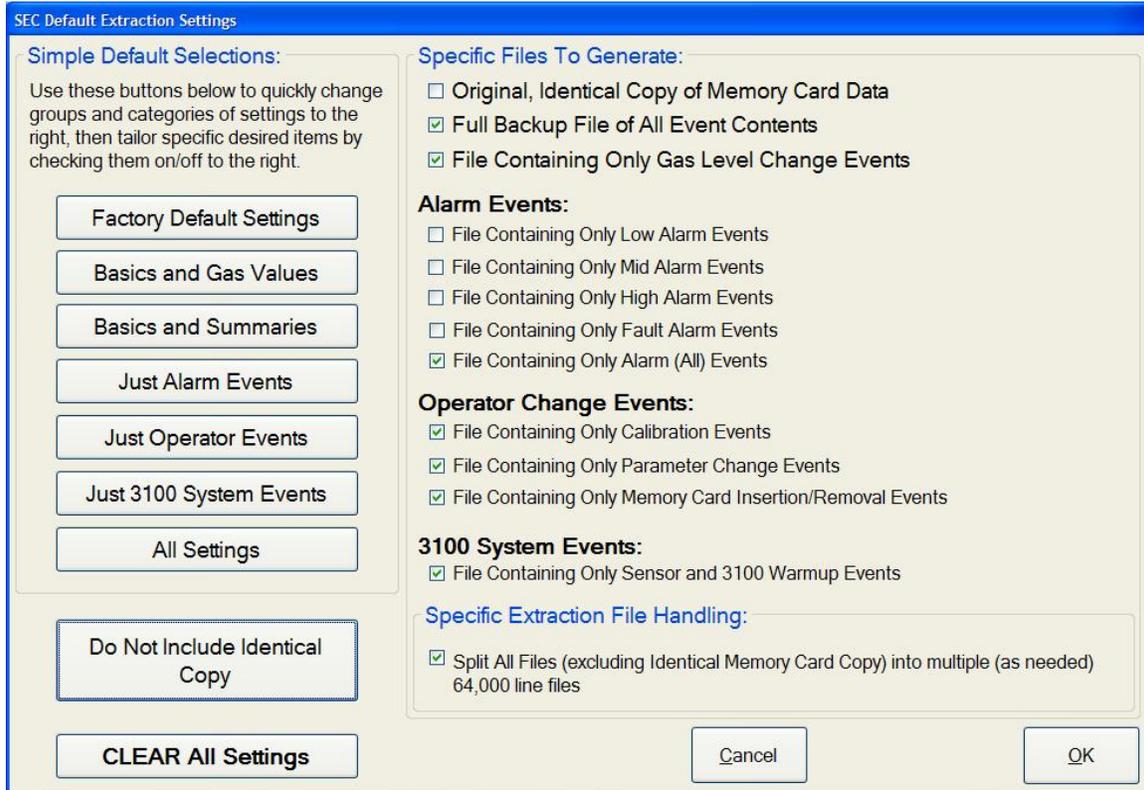
- File Containing Only Sensor and 3100 Warmup Events

**Specific Extraction File Handling:**

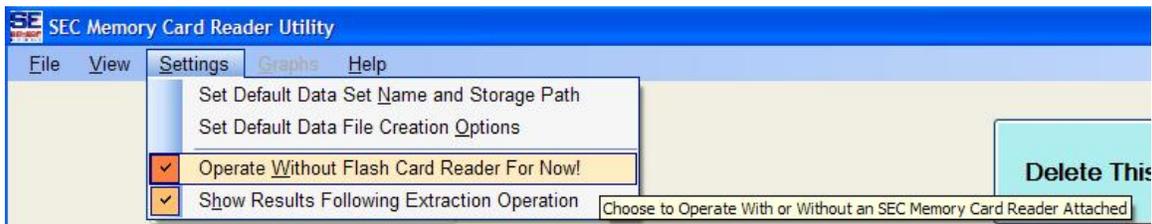
- Split All Files (excluding Identical Memory Card Copy) into multiple (as needed) 64,000 line files

Cancel OK

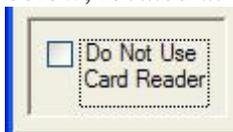
## Operator Change Events Without Clone File:



## Operating Without an SEC Card Reader



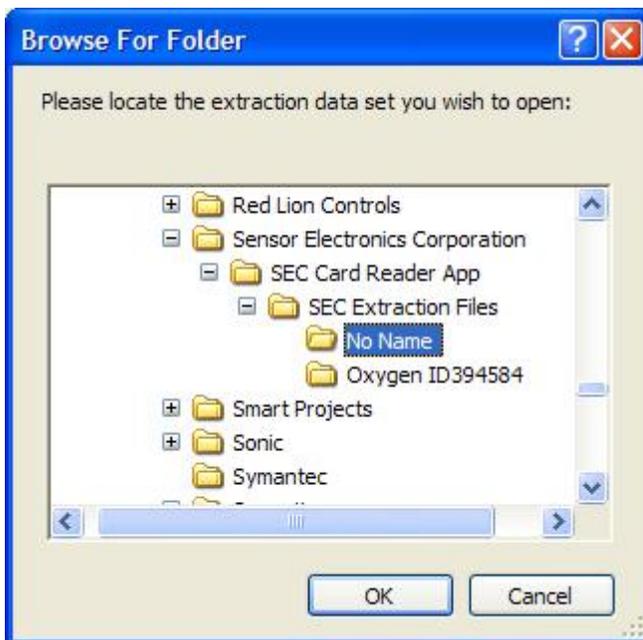
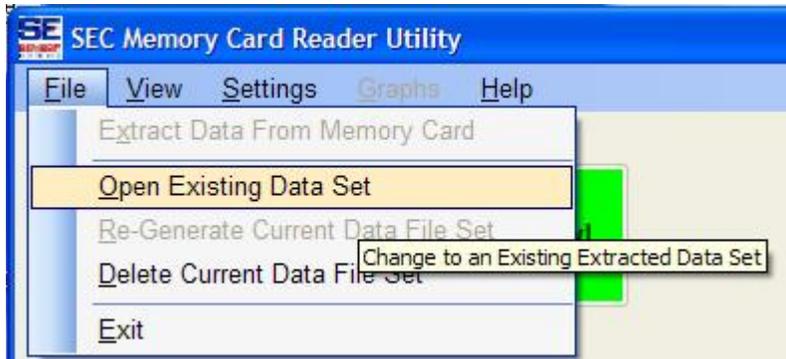
This option allows the user to toggle the “Ignore SEC Memory Card Reader” state on or off. The check mark next to the menu option indicates that it is being ignored; otherwise the card reader is continuously checked by the application when this menu option check mark is cleared. This menu option is also controlled by the main screen button shown below, located at the bottom-left side of the main screen just above the status line:



The primary reason to use this option is for [regenerating](#) existing data sets. It is automatically set when the user opens an existing file set from the File Menu. This allows

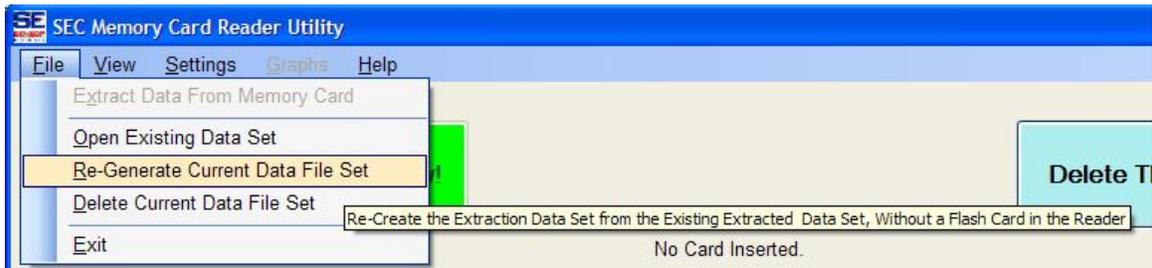
you to use the application without the SEC Memory Card Reader attached, using already existing [clone](#) files on your hard drive.

## Opening an Existing Data Set



This option allows you to open an existing data set from your hard drive, as shown above. See the detailed discussion in the Main Screen section entitled "[Open Existing Data Set](#)". Keep in mind that you must have at the very least, a [clone file](#) in that directory for this option to function. You do not have to have an SEC Card Reader attached, and may choose manually to ignore it. If you select to open a set from the File Menu as shown above, the application will automatically disable scanning of the card reader.

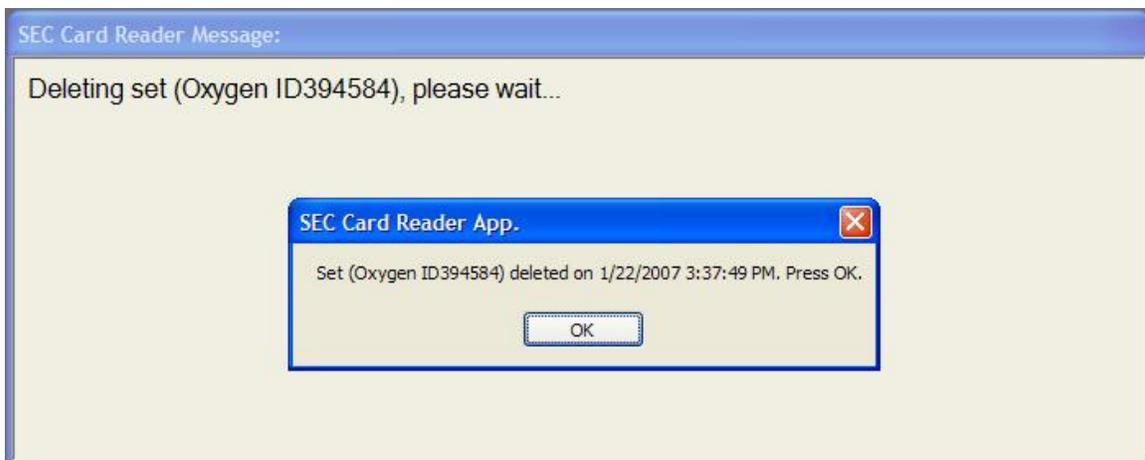
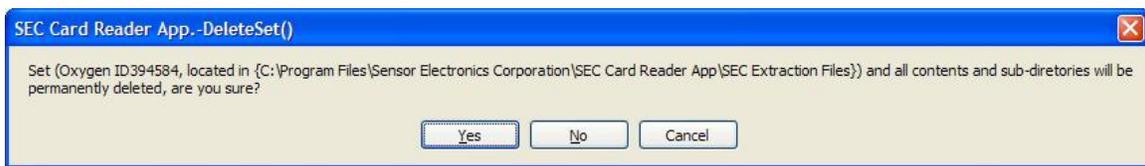
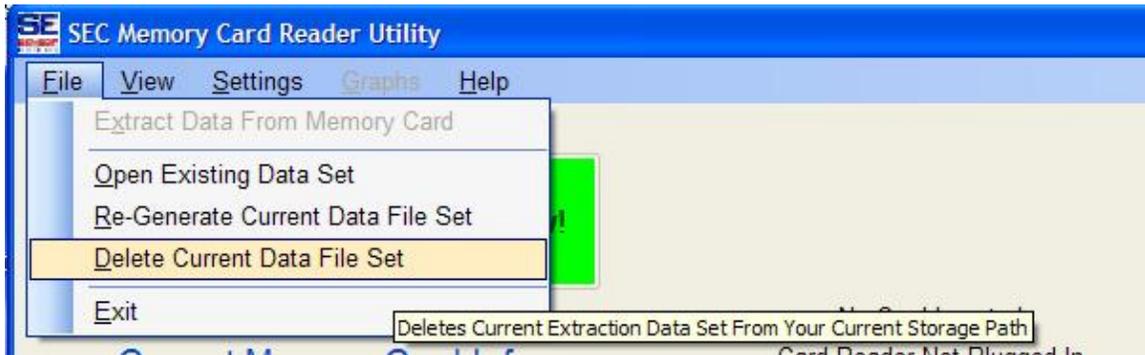
## Re-Generating a Data Set



For more details on this operation, please see under the Main Screen section, entitled “[Regenerate Current Data File Set](#)”. Please note that you must first have an existing data set as described in the previous section entitled “[Opening an Existing Data Set](#)”.

This option allows you to [regenerate](#) the data set (with new [extraction options](#) if you desire) from an existing open data set from the [clone](#) file in that set (not from the memory card). Keep in mind that you must have at the very least, a [clone file](#) in that directory for this operation to work. You do not have to have an SEC Card Reader attached, and may choose manually to ignore it.

## Deleting an Open Data Set/Current Set



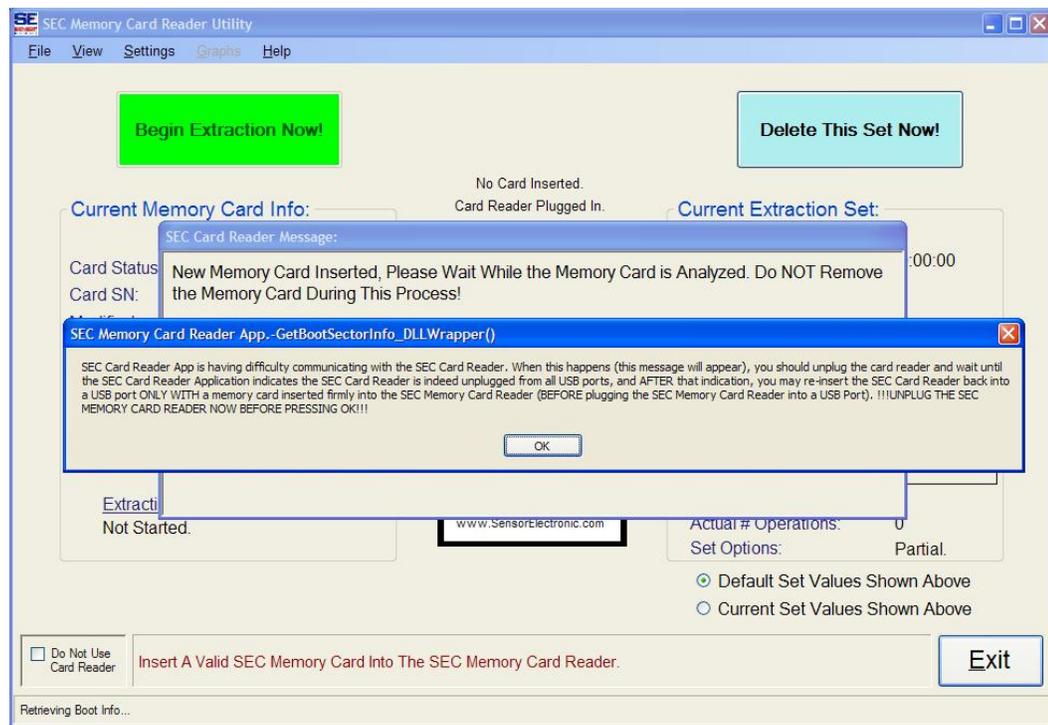
For more details, see the Main Screen section entitled “[Deleting An Existing Data Set](#)” and “[Delete This Set Now Button](#)”. This will permanently delete the contents and the sub-folder itself for the [data set name](#) shown in the Main Screen “[Current Extraction Set](#)” info group panel. You may not be able to restore it from the “Recycle Bin” either, so choose carefully. If you select a path that is not even a data set, be warned, it will still delete the contents of that sub-directory and the folder itself!

# Troubleshooting Guide

This guide is not intended to be an exhaustive all-answering trouble-shooting manual, rather, just enough to cover the most common, known possible problems that you might encounter. Please report any other issues to Sensor Electronics Tech. Support.

## 1. Sometimes I get a message indicating that I have to unplug the card reader, why?

When the card reader and/or the Windows driver that communicates with it get's into a fault state, operation becomes unpredictable. This application does its best to identify these conditions when they occur and it is best to do exactly what the warning message states to do such as the following (this occurs when you remove a memory card from the reader when the Windows driver was busy reading or writing to the memory card, for various operations):



## 2. Sometimes when I plug in the SEC Card Reader, the application doesn't seem to know it is there, the lights stay black, why?

Generally this is because either you have the "Do Not Use Card Reader" checked on the screen or in the Settings Menu option, or you have inserted the SEC Memory Card Reader into a USB port without a memory card in it. If so, unplug the SEC Memory Card Reader from the USB port, insert a memory card into it, then plug it back into the USB port with this application having the "Do Not Use Card Reader" check mark cleared.

## Appendix A- Data File Format

The Clone file on your hard drive in your data set contains all of the compressed log file data from the SEC Memory Card. It is a text file, and is readable with Notepad or any other text reading program. Especially useful in applications such as Microsoft Excel or any database or spreadsheet application, is the ability to import this data as a CSV format file. When you do so, parse the file as “space delimited” not “comma” or “tab” delimited. Then all of your columns will be broken up as intended in the file. Each line (in general) is considered a record. Each record contains an event. Events are enumerated so you can identify them and so that utilities can parse specific records out of the files. Here is the enumeration:

### Events:

- (00) – 3100 Boot/Power up Record
- (01) – Sensor removed and replaced- in warm-up
- (02) – Parameter changes made at the 3100
- (03) – A High Level Alarm Event logged
- (04) – A Mid Level Alarm Event logged
- (05) – A Low Level Alarm Event logged
- (06) – A Change in Gas Level of more than the given internal threshold
- (07) – A Sensor Fault Event logged
- (08) – A Sensor Calibration Event logged
- (99) – The Flash Card was Removed and the Replaced (same or different)

### Text File Format Of Clone File:

Each record (a line typically) in the file consists of the following fields (columns) of data:  
tt: mm dd yyyy HH MM SS vv CRLF

### Where:

- tt** = Record **Type** Enumeration, 00 - 99 (shown above).
- mm** = **Month** (timestamp), 1- 12 (January to December).
- dd** = **Day** (timestamp), 1-31 (Day of Month).
- yyyy** = **Year** (timestamp), 2005 – 2104.
- HH** = **Hour** (timestamp), 0 – 23 (Midnight to 11pm, 24 hour format).
- MM** = **Minute** (timestamp), 0 – 59.
- SS** = **Second** (timestamp), 0 – 59.
- vv** = **Variable Lenth Data based on Record Type (tt)**
- CRLF** = **Carriage Return followed by Line Feed** to terminate the line

**Each Record Type Contents:**

**3100 Boot/Power-cycle Event Record:**

00: mm dd yyyy HH MM SS NetworkID NetworkZoneID unitSerialNumber  
FWVersionNumberMajor.Minor.Rev.Build CRLF

**Sensor Removed and Replaced and Sensor Warm-up Event Record:**

01: mm dd yyyy HH MM SS NetworkID NetworkZoneID  
SensorSerialNumber SensorTypeCode SensorCalibrationValue SensorRange  
LowAlarmThreshold MidAlarmThreshold HighAlarmThreshold GasUnits GasName  
CRLF

**3100 Parameter Change Event Record:**

02: mm dd yyyy HH MM SS NetworkID NetworkZoneID  
SensorCalibrationValue LowAlarmThreshold MidAlarmThreshold  
HighAlarmThreshold CRLF

**High Alarm Triggered Event Record:**

03: mm dd yyyy HH MM SS GasValueAtHighTrigger CRLF

**Mid Alarm Triggered Event Record:**

04: mm dd yyyy HH MM SS GasValueAtMidTrigger CRLF

**Low Alarm Triggered Event Record:**

05: mm dd yyyy HH MM SS GasValueAtLowTrigger CRLF

**Gas Level Change Event Record:**

06: mm dd yyyy HH MM SS GasValue CRLF

**Fault Triggered Event Record:**

07: mm dd yyyy HH MM SS SensorUnitStatusCode SensorErrorCode CRLF

**User Calibration Event Record:**

08: mm dd yyyy HH MM SS CRLF

**Memory Card Removed and Replaced Event Record:**

99: mm dd yyyy HH MM SS NetworkID NetworkZoneID unitSerialNumber  
MemoryCardSerialNumber FWVersionNumberMajor.Minor.Rev.Build CRLF  
: SensorSerialNumber SensorTypeCode SensorCalibrationValue SensorRange  
LowAlarmThreshold MidAlarmThreshold HighAlarmThreshold GasUnits GasName  
CRLF

**Example of Each Record:**

**3100 Power-Cycle Record Type 00:**

00: 08 16 2006 18 30 11 006 001 1245 FWV2.0.57.0

**Sensor Replace/Warm-up Record Type 01:**

01: 08 21 2006 12 46 37 006 001 2468 1 999.99 1999.99 399.99 799.99 1199.99 PPM CHLORINE

**Parameter Change Record Type 02:**

02: 11 29 2006 13 49 36 215 001 999.99 399.99 799.99 1199.99

**High Alarm Trigger Record Type 03:**

03: 08 14 2006 18 54 38 256.56

**Mid Alarm Trigger Record Type 04:**

04: 08 14 2006 18 54 26 166.67

**Low Alarm Trigger Record Type 05:**

05: 08 14 2006 18 54 16 95.50

**Gas Change Record Type 06:**

06: 08 14 2006 18 54 11 65.54

**Fault Trigger Record Type 07:**

07: 11 29 2006 13 37 36 00 00

**User Calibration Record Type 08:**

08: 11 29 2006 13 39 22

**Memory Card Removed and Replaced Event Record:**

99: 11 29 2006 13 37 09 215 001 74589 74589 FWV2.1.70.0  
: 2468 1 999.99 1999.99 399.99 799.99 1199.99 PPM CHLORINE