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# User Manual:
# GSM0000PB003MAN

## Enfora Event Tool
## User Manual
Revision 1.00

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## Revision History

| Date | Rev | Author | Description |
|------|-----|--------|-------------|
| 6/2/03 | 1.00 | M.Glover | Initial Release. |

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## 1    Introduction

**About this Manual**

Contained in this manual are instructions on how to use the Enfora Event Tool application.  The application is designed to facilitate the quick setup and configuration of the Enfora event-processing engine.  The capability of the core Enabler module provides powerful event-driven processing that can monitor the General Purpose Input Output (GPIO) interface along with certain network events.  Additionally, this tool provides support for the GSM/GPRS Spider SA (with GPIO interface) MT platform devices.  Please follow the instructions herein closely to insure proper configuration and operation.

Please refer to the following documents for detailed information related to event processing capabilities.

**GSM/GPRS Module and Spider SA platforms (with GPIO interface):**

- *Enabler-G AT Command Set GSM0102PB001MAN*
- *GSM0000AN015 - Event Monitor and Reporting Overview*

**GSM/GPRS Spider MT platforms:**

- *Spider MT-G AT Command Set GSM2000PB001MAN*
- *GSM2000AN007 - Spider MT-G Event Monitor and Reporting Overview*


## 2    System Requirements

- Windows 98 SE / XP / NT 4.0 (Service Pack 6)/2000 Professional
- One standard RS-232 serial port
- An Enfora GSM/GPRS Enabler or Enabler-based product like the Spider SA or MT.

## 3   Event Tool Overview

### 3.1   Basic Functionality

The event tool application provides support for the AT$EVENT command supported in various Enfora GSM/GPRS products.  The AT command provides multiple options for configuration and can prove to be complicated if not understood completely.  The event tool provides a graphical interface that allows the user to accomplish the following:

- Set event variables for input and output processing
- Write defined events to the modem
- Read defined events from the modem
- Write defined events to a file
- Read defined events from a file
- Delete selected events
- Delete all events

### 3.2   Running the Event Tool

Prior to running the event tool, make sure that your modem is connected via a serial connection and is powered and communicating properly.

The event tool is a stand-alone executable application.  Once it resides on a computing platform, it can simply be double-clicked to initiate.

### 3.3 Event Tool Layout

The following is the basic layout of the event tool.
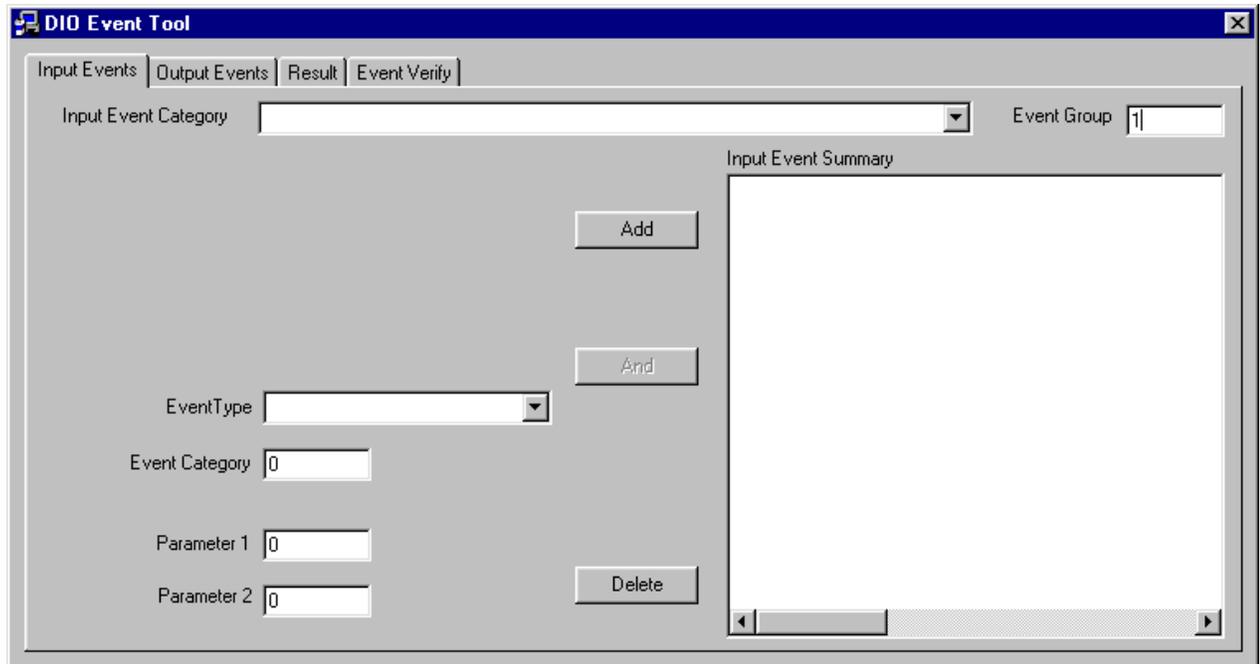


**Figure 1 - Event Tool Main Screen**

**Input Events** - Used to define input events

**Output Events** - Used to define output events

**Results** - Display and read/write defined events

**Event Verify** - Delete events

## 4    Setup and Configuration

The event tool provides the ability to configure the COM port being used.  To configure the COM port, click on the icon in the upper left-hand corner of the application window.
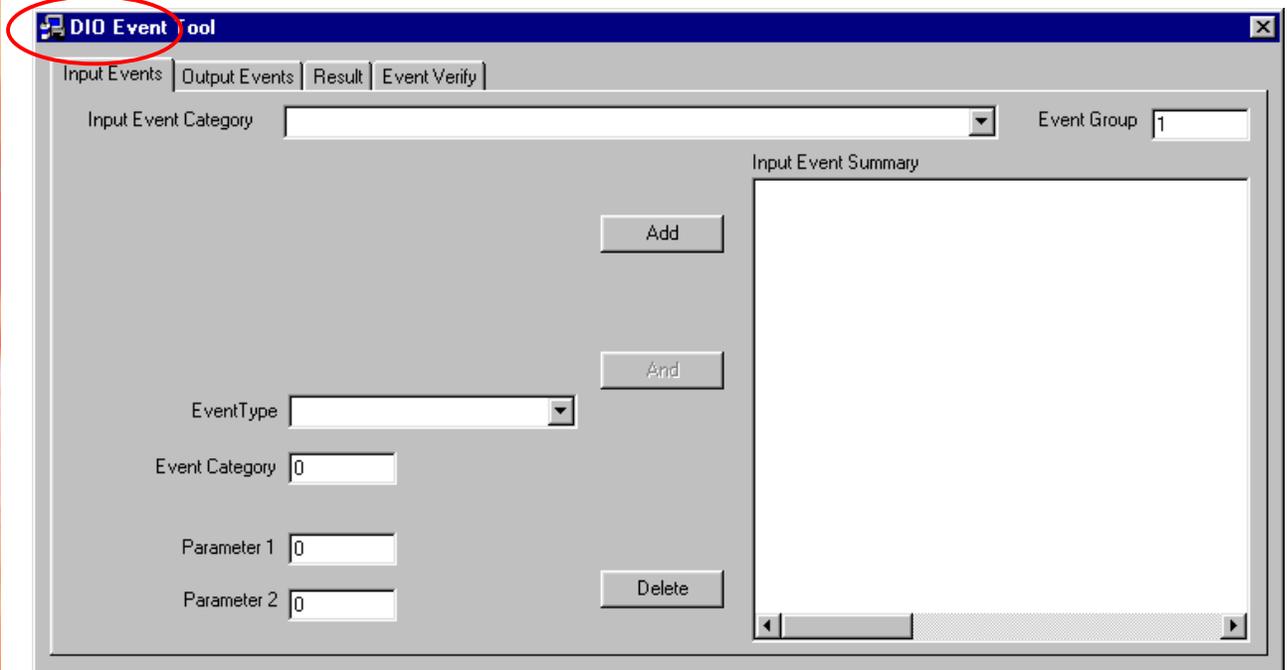


**Figure 2 - Event Tool Configuration**

Select COM Port Setup (Figure 3 - Event Tool COM Port Setup Selection).
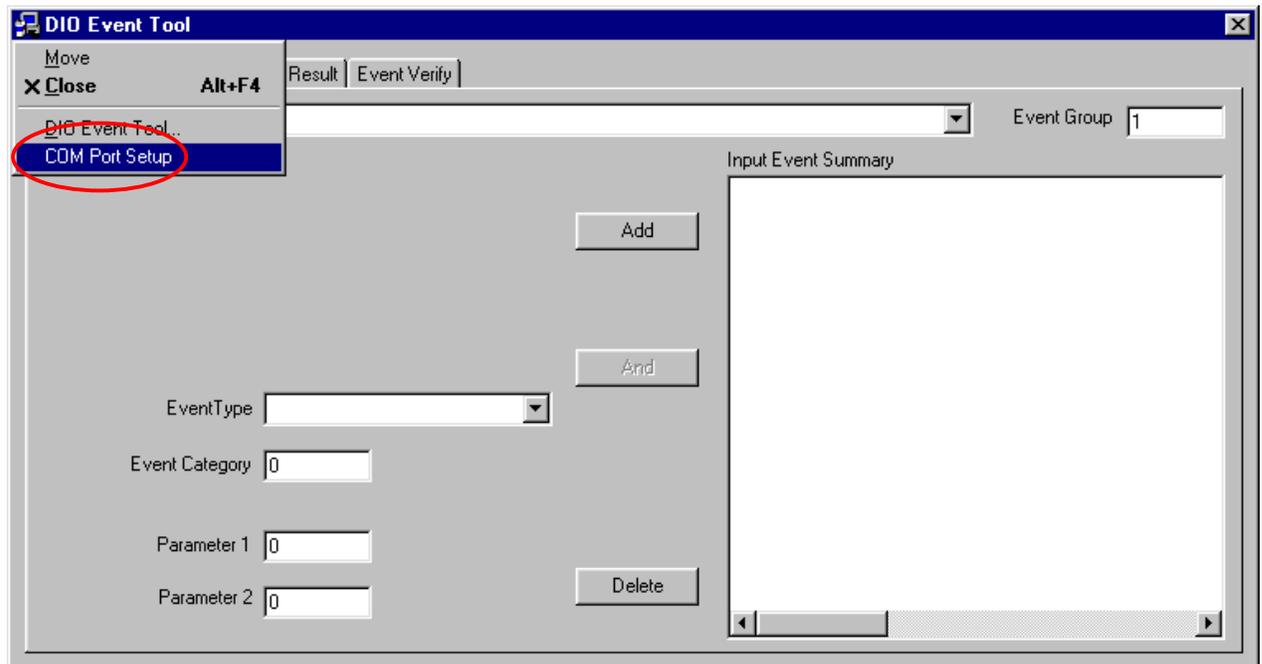


**Figure 3 - Event Tool COM Port Setup Selection**

A dialog box is provided to define the COM port (Figure 4 - Event Tool COM Port Setup Screen). The port number, speed, data bits, parity, stop bits, and flow control can be defined. These parameters must match the modem configuration.
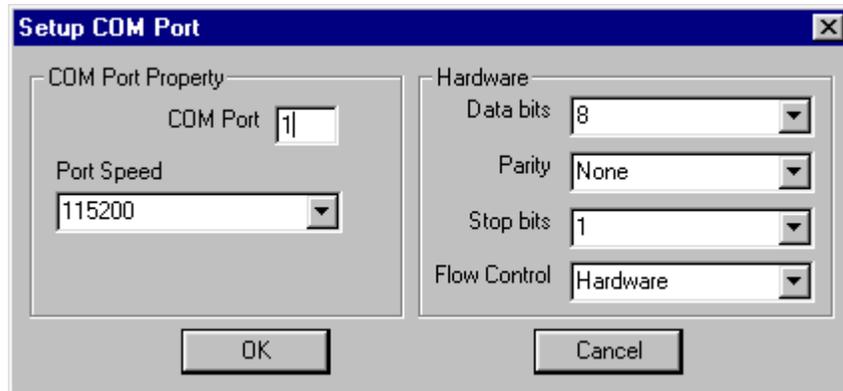


**Figure 4 - Event Tool COM Port Setup Screen**

## 5   Event Definitions

The following will outline the process required to create and manage an event.  Individual application tab selections are explained.

> <span style="color:red">Please note that the Event Group number defines the grouping of event transactions.  When implementing, pay careful attention to the Group Number.  Failure to do so could potentially cause unpredictable results.</span>

### 5.1      Input Events

By selecting the **Input Event Category** drop-down box (Figure 5 - Event Tool Input Event Category Selection), a particular input event **Selection** can be made.  Once selected, the **Input Event Detail** can be chosen (Figure 6 - Event Tool Input Event Detail Selection).  Make sure that the appropriate **Event Group** is selected.  Click **ADD** to create the event (Figure 7 - Event Tool ADD Input Event).  Once complete, the **Input Event Summary** is provided.  If a mistake has been made or an event is to be eliminated, the **DELETE** button can be used once the event is selected.

Multiple events can be used as qualifiers before a particular grouping is considered complete.  This is done by selecting the desired event and then pressing the **AND** button (Figure 8 - Event Tool Multiple Input Conditions).
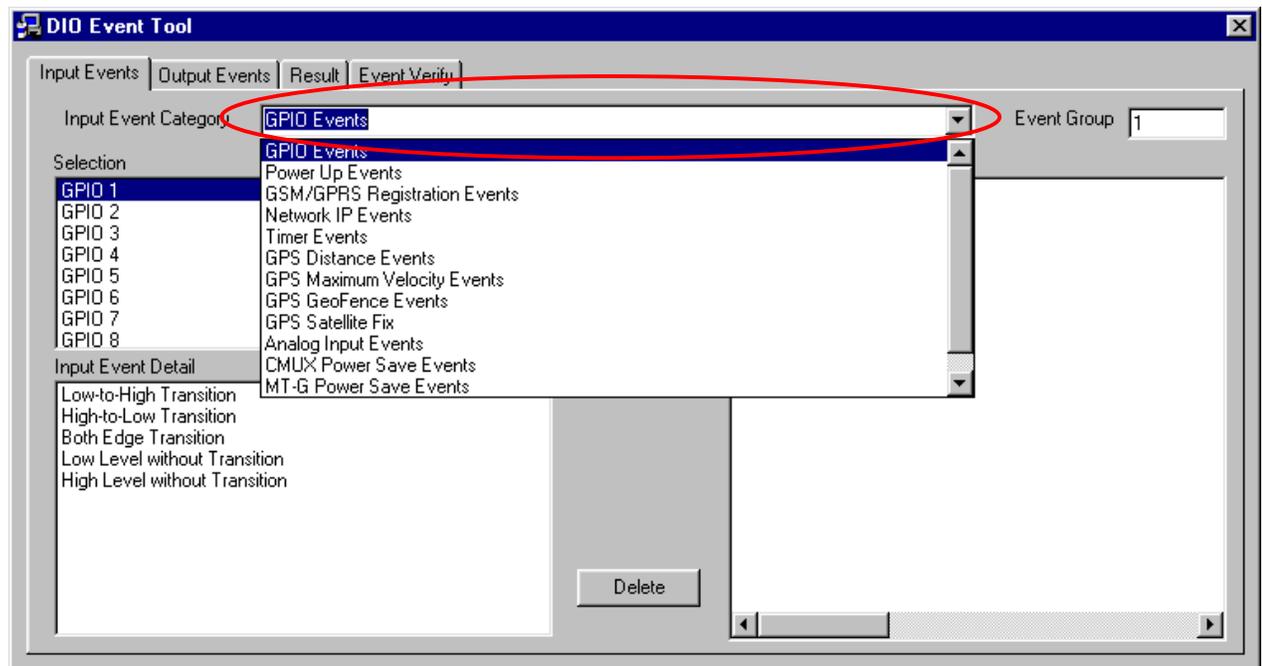


**Figure 5 - Event Tool Input Event Category Selection**
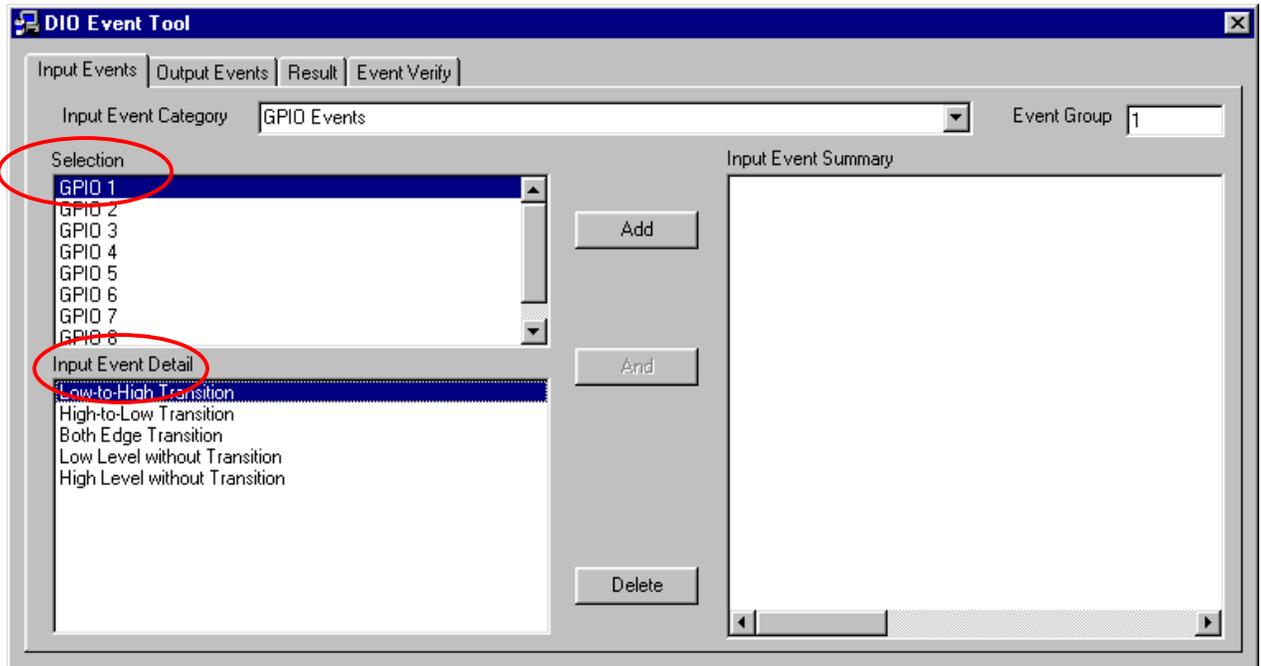
**Figure 6 - Event Tool Input Event Detail Selection**
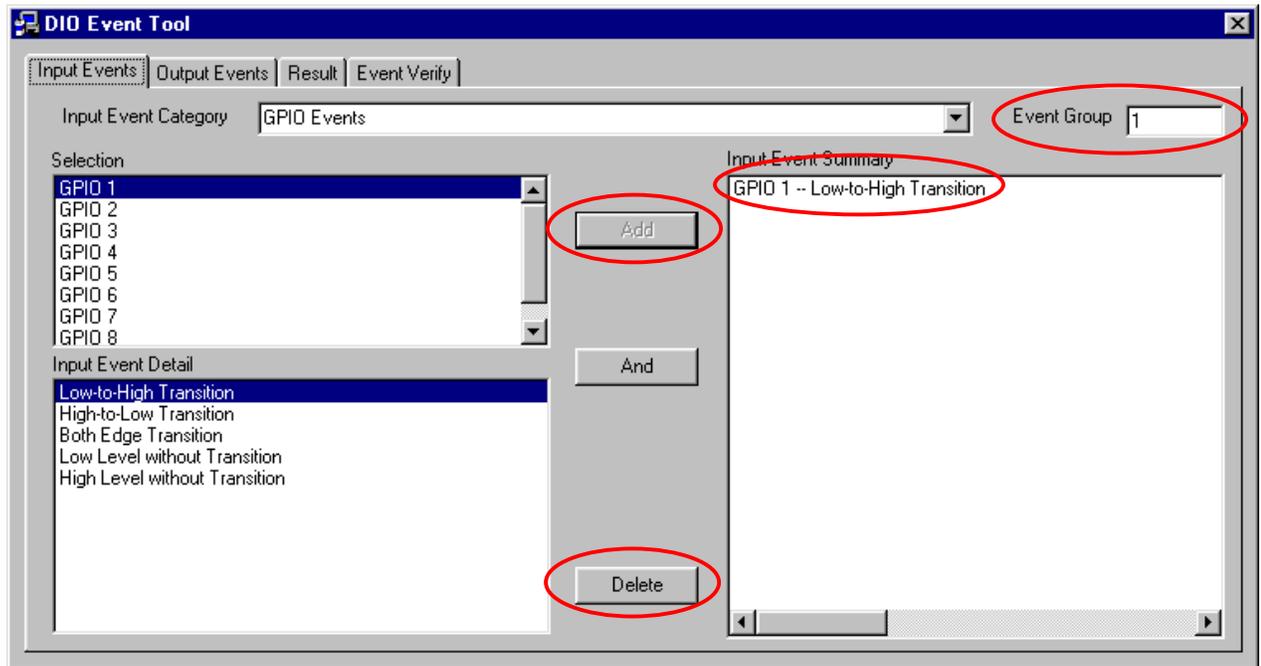


**Figure 7 - Event Tool ADD Input Event**
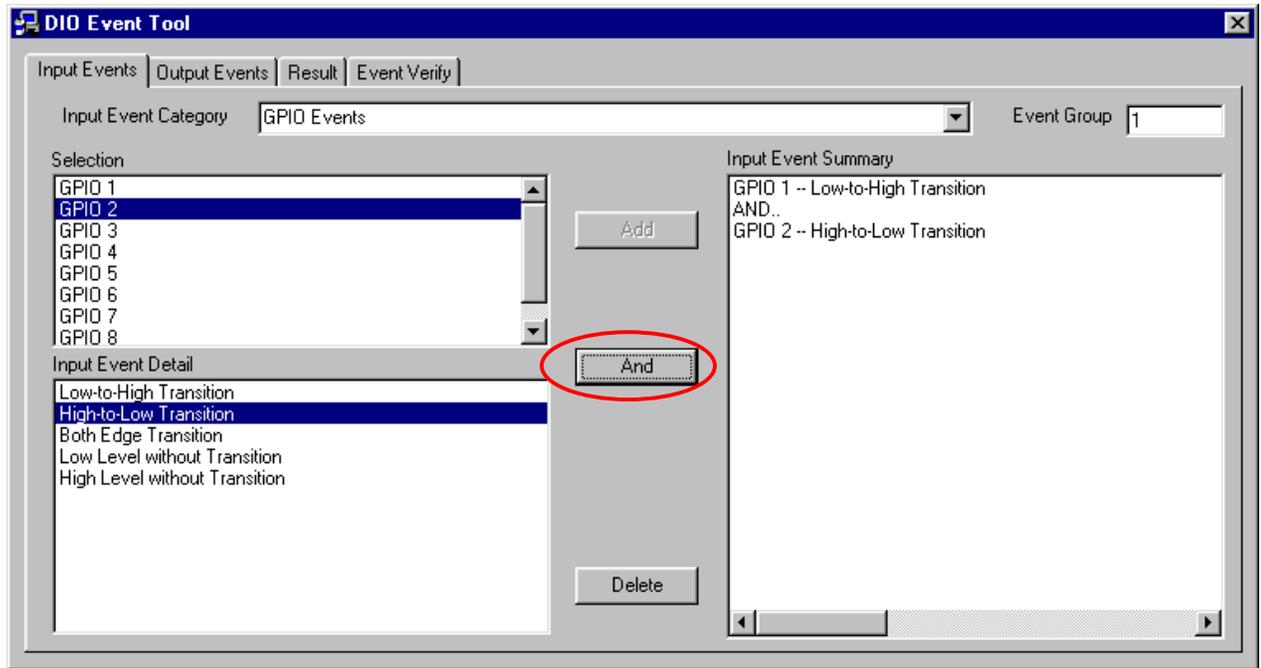
**Figure 8 - Event Tool Multiple Input Conditions**

### 5.2 Output Events

Once an Input Event is defined, an Output Event definition is required. Select the **Output Event** tab. By selecting the **Output Event Category** drop-down box (Figure 9 - Event Tool Output Event Selection), a particular output event **Selection** can be made. Once selected, the **Output Event Detail** can be chosen (Figure 10 - Event Tool Output Event Detail Selection). Make sure that the appropriate **Event Group** is selected. Click **ADD** to create the event (Figure 11 - Event Tool ADD Output Event). Once complete, the **Output Event Summary** is provided. If a mistake has been made or an event is to be eliminated, the **DELETE** button can be used once the event is selected.
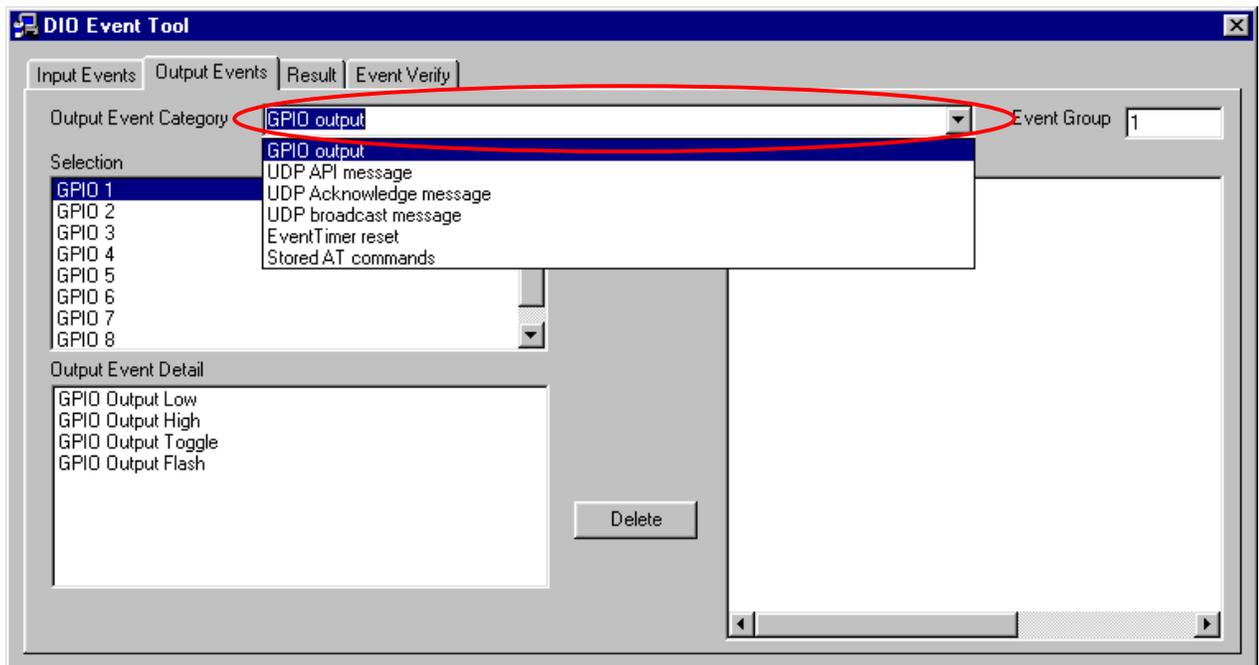


**Figure 9 - Event Tool Output Event Selection**
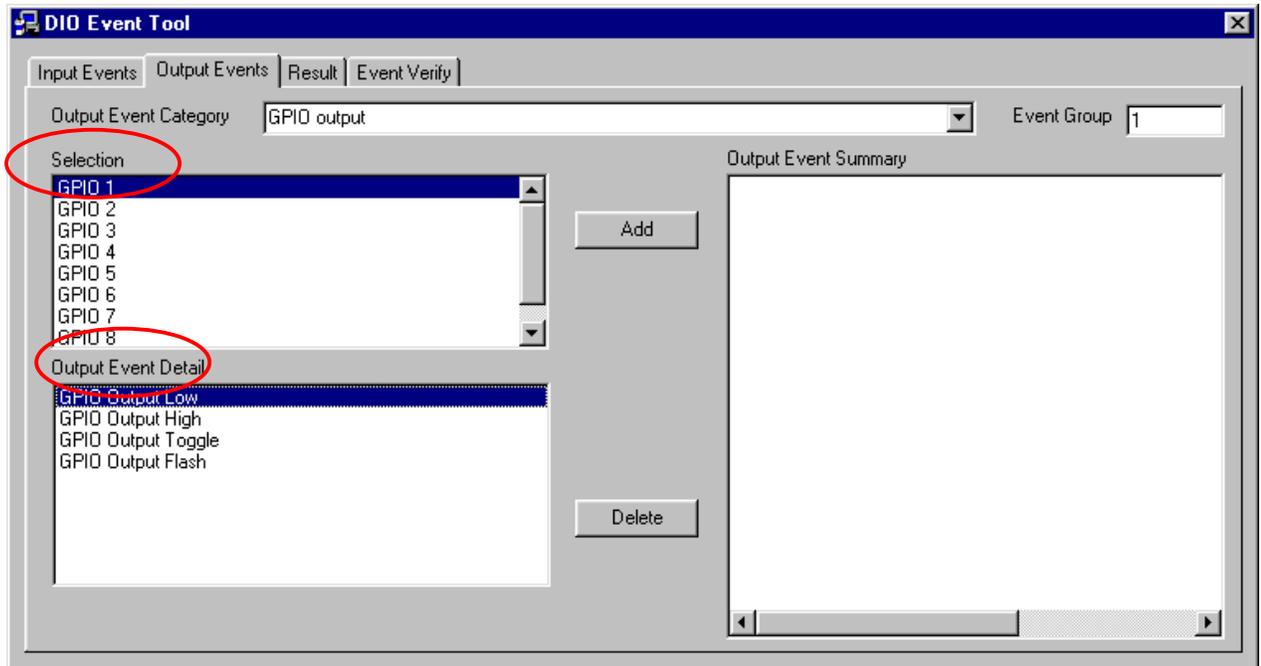
**Figure 10 - Event Tool Output Event Detail Selection**
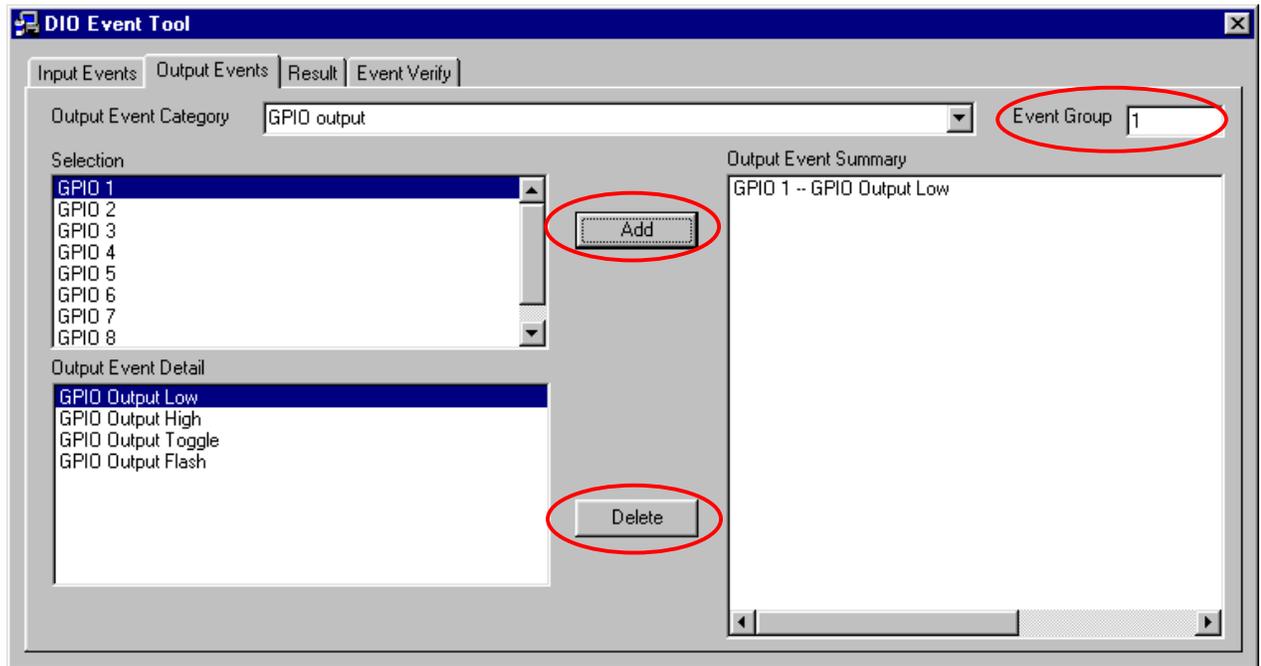


**Figure 11 - Event Tool ADD Output Event**

### 5.3 Result

Once the Input triggers are selected and the resulting output action defined, the entire event can be viewed. Select the **Result** tab to view the entire event definition (Figure 12 - Event Tool Result Tab). The event is described and the associated AT commands applied to the modem are presented. From this screen, the events can be written to the modem, written to the modem and saved to non-volatile memory, or written to a file. This screen can also be used to read events from an existing file that has previously been saved.

The **Next Event Group** button can be used to cycle through the event groups that have been defined. The **Save Events in Modem's Non-Volatile Storage** checkbox will need to be selected if the events are to be saved to memory. This will allow the events to survive a modem power cycle.

The **Write to File** and **Read from File** buttons can be used to designate a location to write/read a file. A dialog box will be presented for these buttons allowing for local designation of file location (Figure 13 - Event Tool File Dialog Box).
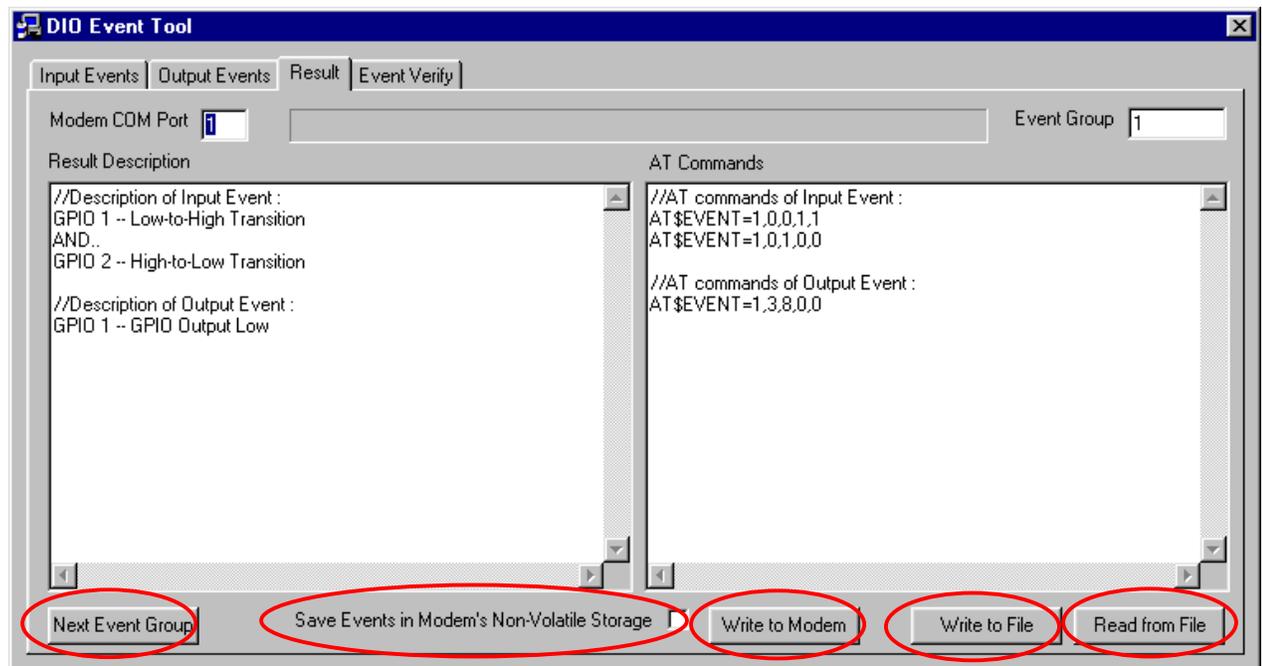


**Figure 12 - Event Tool Result Tab**
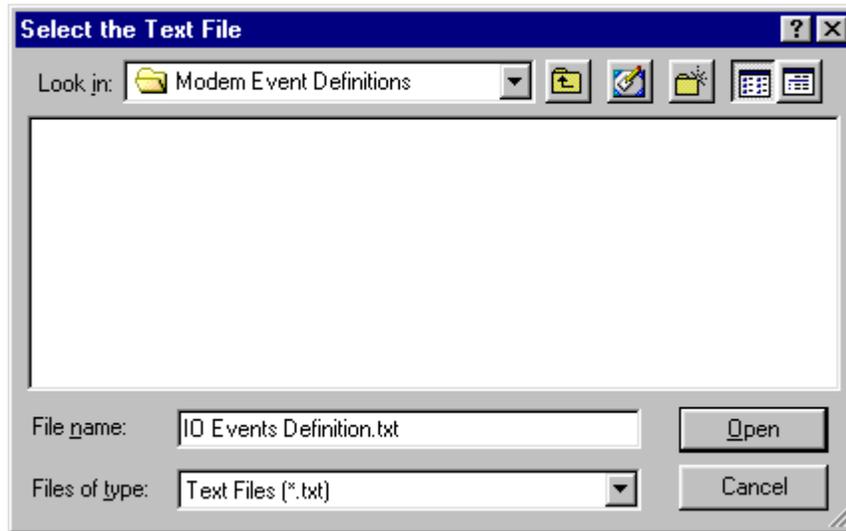
**Figure 13 - Event Tool File Dialog Box**

## 5.4 Event Verify

The Event Verify tab is used to manage defined events (Figure 14 - Event Tool Event Verify Tab).  Events must be first written to the modem and then read by pressing the **Read Events from Modem** button.  The events will be listed will be presented in the **Modem Events List** section of the screen.  Events can then be individually selected and deleted by pressing the **Delete Selected Event** button or all of the defined events can be deleted by pressing the **Delete All Events from the Modem** button.
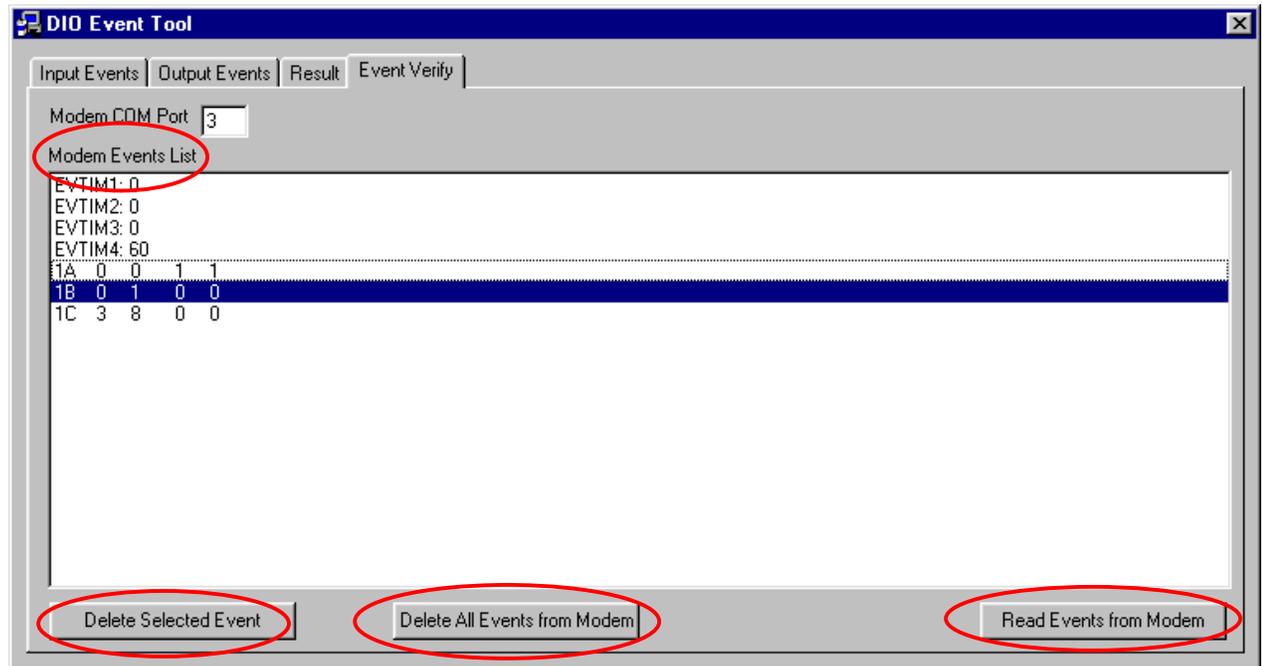


**Figure 14 - Event Tool Event Verify Tab**

## 6  Input Events

The following input event categories are available:

- GPIO Events
- Power Up Events
- GSM/GPRS Registration Events
- Network IP Events
- Timer Events
- GPS Distance Events
- GPS Maximum Velocity Events
- GPS GeoFence Events
- GPS Satellite Fix
- Analog Input Events
- CMUX Power Save Events
- MT-G Power Save Events
- Custom Events

### 6.1  GPIO Input Event Selections

The following GPIO input event selections are available:

- GPIO 1
- GPIO 2
- GPIO 3
- GPIO 4
- GPIO 5
- GPIO 6
- GPIO 7
- GPIO 8

### 6.1.1  GPIO Input Event Detail

The following GPIO input event detail options are available for all GPIO lines:

- Low-to-High Transition
- High-to-Low Transition
- Both Edge Transition
- Low Level without Transition
- High Level without Transition

### 6.2 Power Up Input Event Selection

- N/A

#### 6.2.1 Power Up Input Event Detail

- Modem Power-Up

### 6.3 GSM/GPRS Registration Input Event Selection

- GSM Registration
- GPRS Registration

#### 6.3.1 GSM Registration Input Event Detail

- Idle
- Trying
- Registered Home Network
- Registered Roaming
- Registered
- Registration Fail
- Registered, no trigger
- Trying, no trigger

#### 6.3.2 GPRS Registration Input Event Detail

- Idle
- Trying
- Registered Home Network
- Registered Roaming
- Registered
- Registration Fail
- Registered, no trigger
- Trying, no trigger

### 6.4 Network IP Input Event Selection

- N/A

#### 6.4.1 Network IP Input Event Detail

- No IP
- First IP
- New IP
- No IP, no trigger
- Valid IP, no trigger

### 6.5        Timer Input Event Selection

- Timer 1
- Timer 2
- Timer 3
- Timer 4
- All timer events have a timer period value in seconds

### 6.6        GPS Distance Input Event Selection (MT Only)

- Minimum Time (seconds)
- Maximum Time (seconds)
- Distance (meters)

### 6.7        GPS Maximum Velocity Input Event Selection (MT Only)

- Speed (knots)

### 6.8        GPS GeoFence Input Event Selection (MT Only)

- GeoFence Area 1
- GeoFence Area 2
- GeoFence Area 3
- GeoFence Area 4

#### 6.8.1        GPS GeoFence Input Event Type (MT Only)

- Entering GeoFence Area
- Leaving GeoFence Area
- Entering or Leaving GeoFence Area
- Each event provides Latitude (Deg.deg), Longitude (Deg.deg), and Radius (Meters)

### 6.9        GPS Satellite Fix Input Event Selection (MT Only)

- N/A

#### 6.9.1        GPS Satellite Fix Input Event Detail (MT Only)

- Valid Fix
- Invalid Fix

### 6.10        Analog Input Event Selection

- Analog Input 1
- Analog Input 2
- Each event provides Minimum and Maximum values in millivolts

### 6.11    CMUX Power Save Input Event Selection

- Entering Low Power Mode
- Waking From Low Power Mode

### 6.12    MT-G Power Save Input Event Selection (MT Only)

- Entering Low Power Mode
- Waking From Low Power Mode

### 6.13    Custom Input Event

- The custom input event selection allows custom definition of event processing.  It is recommended that the AT$EVENT command be completely understood prior to using this feature.

#### 6.13.1    Custom Input Event Type

- Transition Trigger
- Occurrence Trigger
- Input Non-Trigger
- Output
- Each Event Type provides Event Category, Parameter 1, and Parameter 2 values

## 7   Output Events

The following Output event categories are available:

- GPIO Output
- UDP API Message
- UDP Acknowledge Message
- UDP Broadcast Message
- Event Timer Reset
- Stored AT Commands

### 7.1      GPIO Output Event Selections

The following GPIO output event selections are available:

- GPIO 1
- GPIO 2
- GPIO 3
- GPIO 4
- GPIO 5
- GPIO 6
- GPIO 7
- GPIO 8

#### 7.1.1     GPIO Output Event Detail

The following GPIO output event detail options are available for all GPIO lines:

- GPIO Output Low
- GPIO Output High
- GPIO Output Toggle
- GPIO Output Flash
- GPIO Output Flash provides High Duration (seconds), Low Duration (seconds), and Toggle Count values

### 7.2 UDP API Message Output Event Binary Format

The following fields are available to include in a UDP API Message in binary format.  The following information is provided for the UDP API Message, UDP Acknowledge Message, and UDP Broadcast Message formats.

- Message Number
- Modem ID
- GPIO
- Analog 1
- Analog 2
- Store Message
- Trigger Event
- GPS Date
- GPS Status
- GPS Latitude
- GPS Longitude
- GPS Speed
- GPS Heading
- GPS Time
- GPS Altitude
- GPS Number of Satellites
- The output message can provide a unique message number

### 7.3 UDP API Message Output Event ASCII Format

The following fields are available to include in a UDP API Message in ASCII format.  The following information is provided for the UDP API Message, UDP Acknowledge Message, and UDP Broadcast Message formats.

- Message Number
- Modem ID
- GPIO
- Analog 1
- Analog 2
- Store Message
- Trigger Event
- GPS NMEA GGA
- GPS NMEA GLL
- GPS NMEA GSA
- GPS NMEA GSV
- GPS NMEA RMC
- GPS NMEA VTG
- The output message can provide a unique message number

### 7.4 Event Timer Reset Output Event

- Event Timer 1
- Event Timer 2
- Event Timer 3
- Event Timer 4

### 7.5 Stored AT Commands Output Event

This feature allows stored AT commands to be executed based on a particular input event. The following parameters are provided:

- Stored AT Command 1
- Stored AT Command 2
- Stored AT Command 3
- Stored AT Command 4
- Stored AT Command 5

## 8   Tech Support

For problems stemming from your network access, contact your GSM/GPRS carrier service.  For technical support and customer service dealing with the modem itself, contact Enfora by any of the following methods:

Website:        http://www.enfora.com

Phone:         (972) 578-2373

Email:         techsupport@enfora.com