



OmniBlast™ Explorer v1.0

Operation Manual

Revision 1.0

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1. OPERATIONS

1.1 DOWNLOAD AND INSTALLATION

Obtain the latest version OmniBlast™ Explorer at www.amadinc.com/support. Follow the wizard to download the software. The installation will be within the current user's scope (not universal to the computer) and will install, by default, to 'AppData>Local>Programs'.

If there are issues using the installer to download the software, contact AMAD for help troubleshooting and the newest version of the executable.

1.2 OVERVIEW

The OmniBlast™ Explorer (OBE) is a Windows application for aggregating and reviewing blast exposures across sets of sensors.

Four components of the application are always available to the user and are marked in **Figure 1**. The navigation ribbon (**Figure 1.1**) gives the user access to Main, Graph, Firmware, and Settings.

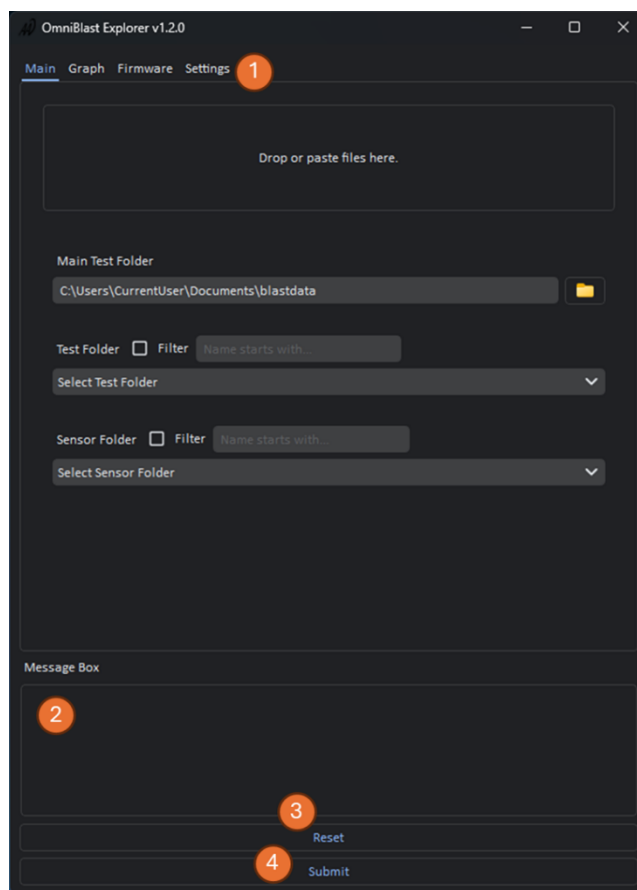


Figure 1. The tab ribbon that runs across the top of the OBE, with the Main tab selected.

The message box (**Figure 1.2**) provides feedback to the user on operations that have been performed. The reset button (**Figure 1.3**) will reconfigure the entire OBE back to its configuration on launch. The submit button (**Figure 1.4**) processes the files selected on the Main tab with the graphing options defined on the Graph tab.

1.3 MAIN TAB

The Main tab hosts the primary operations of the OmniBlast™ Explorer. It is the most populated tab and contains 6 interactive components (**Figure 2**).

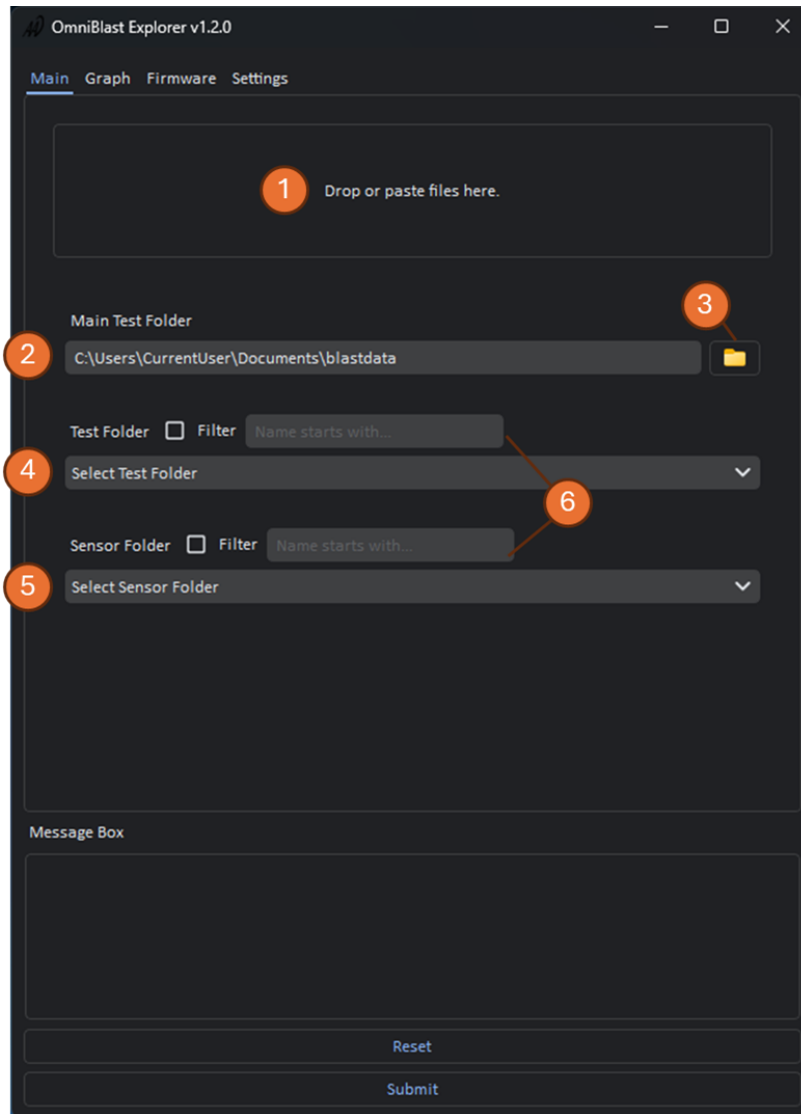


Figure 2. A representation of the ‘Main’ tab with markers identifying the purpose and operation of the UI components on this tab.

A drop box (**Figure 2.1**) spans the top of the tab and permits users to submit event files (ending in .gz or .GZ). When files are dropped into the drop box, they are added to the file structure and parsed, producing a .txt file with the various recorded data series.

The dropbox will not accept more than 50 event files in one drop. If there are more than 50 to add, drop them in batches of no more than 50 files.

The Main Test Folder (**Figure 2.2**) is the location of the root for a file structure. Many users will build a single tree containing all collected data underneath the default root. In instances where more than one file tree exists, the browse button (**Figure 2.3**) allows the user to navigate to the root of each file tree.

Once a root is selected, the Test Folder can be defined with the dropdown box (**Figure 2.4**). The dropdown box will show all the test folders contained in the root folder. When files are submitted via the dropbox, the Test Folder will be automatically generated and named as the date (UTC) of event's recording. A filter is also available to narrow down the selection (**Figure 2.6**). To apply the filter, check the box next to 'Filter' and begin entering the name of the test folder of interest.

Once a test folder is selected, the Sensor Folder can be defined with the dropdown box (**Figure 2.5**). The dropdown box will show all the sensors contained in the selected test folder. A filter is available to narrow down selection and works the same way as described above.

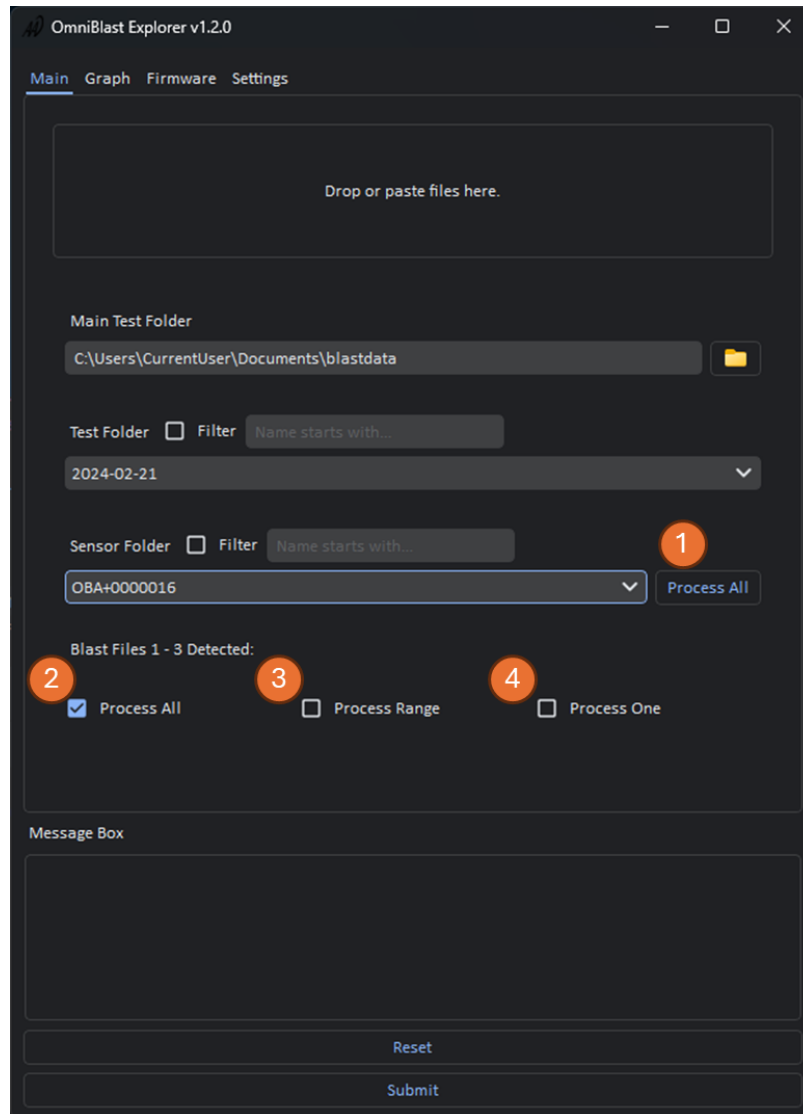


Figure 3. The four discovered components on the Main tab. These components identify which events should be analyzed.

During the process of selecting the test folder and sensor folder, discovered components are unveiled that allow the user to provide feedback on which events should be analyzed.

After the Test Folder is selected, the 'Process All' button (**Figure 3.1**) is made available. When pressed, all events in all sensors contained within the currently selected Test Folder are processed based on the parameters defined under the Graph tab. This button can be pressed without anything selected in the Sensor Folder dropdown and is agnostic to any value in the Sensor Folder dropdown.

Once the sensor is selected, a set of three checkboxes appear (**Figure 3.2-4**). These three checkboxes are mutually exclusive and run when the submit button is pressed at the bottom of the program.

By default, the 'Process All' checkbox is selected (**Figure 3.2**). When submitted, all the events for that sensor in the provided test folder are processed.

The 'Process Range' checkbox (**Figure 3.3**) provides a pair of dropdown boxes for selecting the upper and lower boundary of events that should be processed. Once the boundaries are selected, press the select button to process the events provided by the given range. The range is inclusive on both ends.

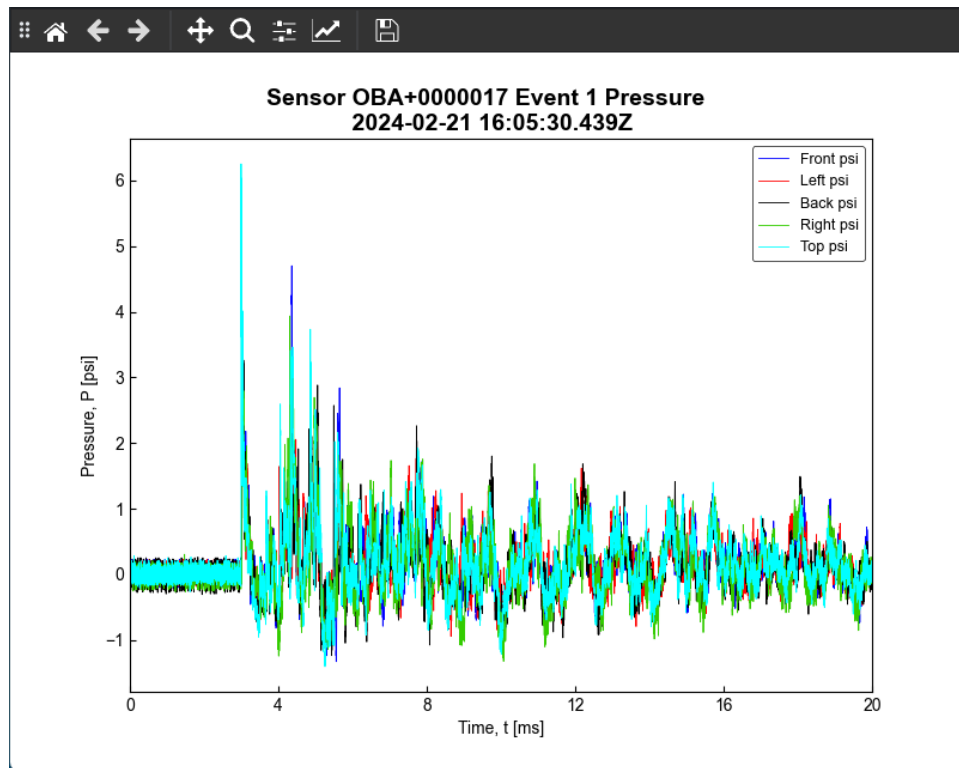


Figure 4. The interactive pop-up plot generated when 'Process One' is selected.

The 'Process One' checkbox (**Figure 3.4**) provides a single dropdown where the user selects the event to process. In addition to the processing specified on the Graph tab, an interactive graph will be displayed (**Figure 4**).

1.4 GRAPH TAB

The Graph tab allows to the user to provide input on which operations are performed when processed. Each processing submission will always ensure that the file is parsed, with an available .txt file. Using the checkboxes on the Graph tab, additional operations can be performed.

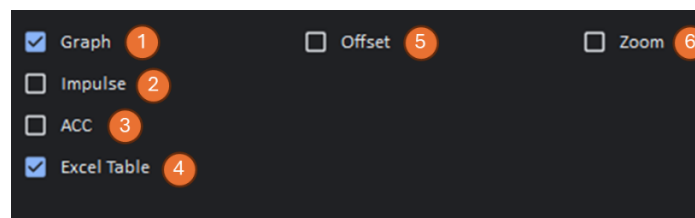


Figure 5. The options available under the Graph tab. The default selection is shown.

When 'Graph' is checked (**Figure 5.1**), the pressure trace (time in ms by pressure in psi) will be generated and saved as a pdf. When 'Impulse' is checked (**Figure 5.2**), the pressure and impulse trace (time in ms by

pressure in psi and impulse in psi*ms) will be generated on the same graph and saved as a pdf. When 'Impulse' is checked (**Figure 5.3**), the acceleration trace (time in ms by acceleration in g) will be generated and saved as a pdf.

When any combination of Graph, Impulse, and ACC are selected and submitted, a dedicated pdf will be generated for each event processed. The dedicated pdf will contain all the graphs generated for that event and will be named after the event. An additional pdf is generated that holds a collection of all the generated graphs from all the events analyzed and is called Processed_Data.pdf.

If the event was processed using the 'Process One' from the Main tab, each of the selected graphs will be shown as an interactive graph.

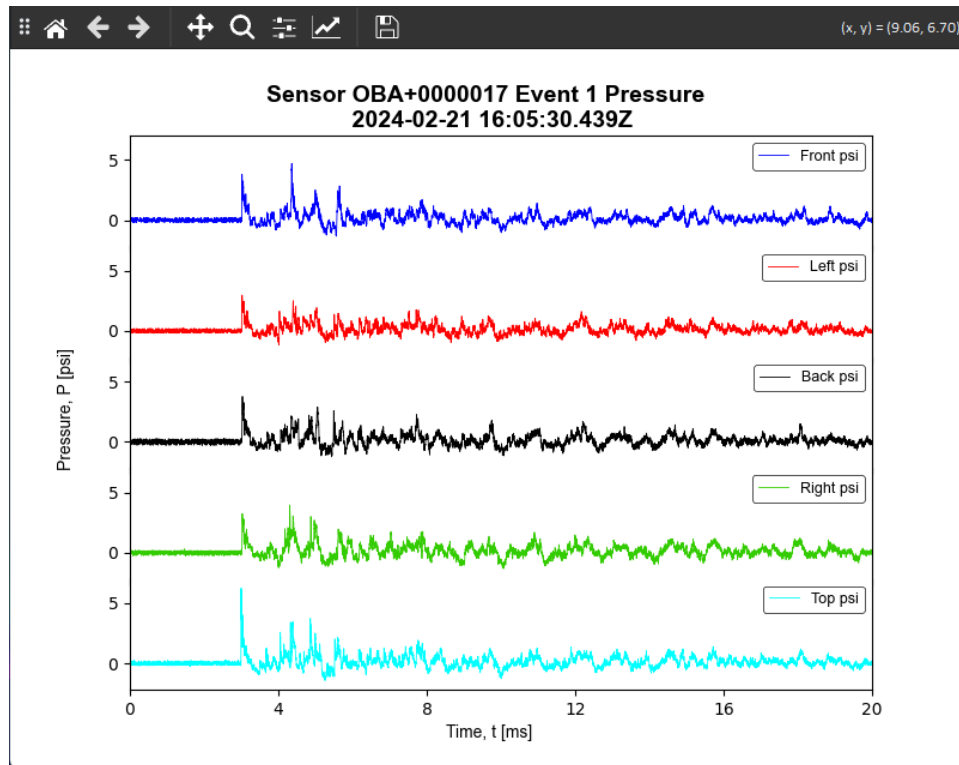


Figure 6. The interactive plot when the Offset checkbox is selected.

The Offset checkbox (**Figure 5.5**) is a modifier to the Graph and Impulse graphs that are generated. By default, the plot overlays the channels recorded by the OmniBlast™ sensor on top of one another, as seen in **Figure 4**. When Offset is checked, the channels of an event are no longer overlayed; instead, each channel has a dedicated y-axis, with each y-axis stacked on top of the last (**Figure 6**). The plots do share an x-axis, enabling direct comparisons on the time axis.

The Zoom checkbox (**Figure 5.6**) is the other graphing modifier. When the checkbox is selected, a text box appears to request the length of time, in milliseconds, to zoom on. The default value is 5 milliseconds. When zoom is selected, the viewable plot will begin at 2.5 milliseconds.

The graphing modifiers, Zoom and Offset, are only available with some of the plotting options. Modifier availability and description of what is plotted for each type of graph is posted in **Table 1**.

Table 1. Processing Option Outputs and Compatibility

Checkbox	Plot	Offset	Zoom
Graph	Pressure vs. Time	☒	☒
Impulse	Impulse & Pressure vs. Time		☒
ACC	Acceleration vs. Time		

The last processing option is the Excel checkbox (**Figure 5.4**). This box is checked by default. When checked, the program will output an excel file with the following naming convention: “Sensor_*[Sensor Serial Number]*_Data”. In this file, event information, such as number, date, and time, are recorded along with the metrics of the blast, including the peak pressure and max impulse of each channel.

1.5 FIRMWARE TAB

The Firmware tab is used to flash updates to the firmware. For clients who employ OmniBlast™ Air sensors (as opposed to OmniBlast™ Air Plus), this will be the primary method for flashing the new firmware.

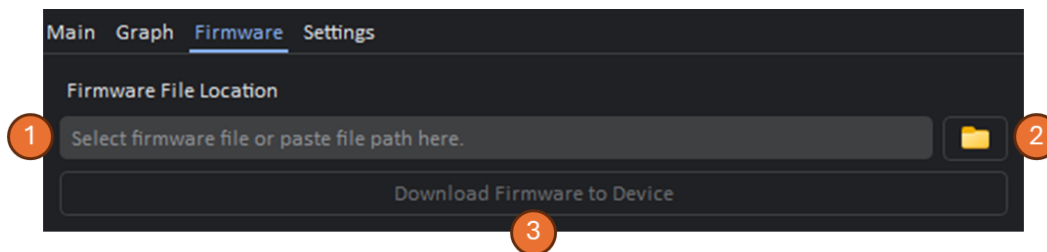


Figure 7. The operations available on the firmware tab.

The file location textbox (**Figure 7.1**) displays the file path to the .bin file that is used for importing and flashing the new firmware. To import the .bin file, use the browse button (**Figure 7.2**) to view the file explorer and select the latest firmware .bin file.

Once the .bin file location has been defined, the ‘Download Firmware to Device’ button (**Figure 7.3**) will become available. With a sensor in boot mode connected to the computer, the OBE will flash the firmware of the .bin file to the sensor.

If the computer cannot find a sensor in boot mode, a pop-up will notify the user to connect one.

1.6 SETTINGS TAB

The settings tab is currently occupied by a single setting – a toggle for Dark Mode.



2. CONTACT INFORMATION

Website	www.amadinc.com
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3. REVISION HISTORY

Revision	Date	Description
1.0	06/20/2025	Initial OmniBlast™ Explorer V1 Operation Manual release.