MARLIN

Seismic Data Trawler

Troika International Limited

Marlin User Guide

Version 5.1.0

TROIKA

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Acknowledgements

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Troika is a Global Seismic Software Company supplying Data Management utilities and transcription software to Oil and Gas Companies and Service providers worldwide.

The company was founded in 1994 as a software house specialising in the development of software relating to Seismic formats, data on legacy tapes and encapsulation formats on disk.

Troika has always had a close relationship with the SEG Technical Committee and the Standards Leadership Council (SLC) to ensure that the data is format compliant and has developed tools to address issues and problems encountered in the industry when dealing with legacy data.

Troika's latest software releases focus on the requirement to handle and process large volumes of SEGY and SEGD data through its Data Management Utilities suite. These utilities enable you to QC and extract knowledge in a single pass by accessing your data with customisable and configurable workflows.

With offices in England, Scotland and the United States, Troika is able to provide its services, products and support to all corners of the globe.

Troika offer Marlin training courses that will ensure that you take the maximum advantage of Marlini's many features. These training courses can be configured to address your specific requirements.

Troika can work with you to design workflows and produce the necessary midi configuration command set to give:

Optimum efficiency + maximum confidence in media and data + maximum media information

Please contact us at info@troika-int.com for more information on training and services.

Document History

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CONTENTS

CHAPTER 4 Marlin Trawl Options

CHAPTER 5 External Product Launch

CHAPTER 1

Introduction

Marlin is a Seismic File discovery tool. It will trawl your disk storage for SEGY, SEGD and tar Seismic data in most encapsulations (Raw, RODE, Tape Image Format, Lacey, PToD etc.)

It will search through and extract meta-data from each file and then organise, classify and validate the data. The associated Troika products,Geom, Maxim, Midi, and Minima, can then be launched (if you have a valid licence) and used to perform a variety of other tasks to assist with your data management needs.

Marlin5.1.0 runs in Windows and Linux environments.

Use Marlin for:

- seismic file discovery and classification
- QC and validation of seismic file inventories
- simultaneous processing of multiple functions
- creating workflows for contract compliance
- generating QC images
- meta-data reporting

Operating Systems

Marlin is supported on the following Operating Systems:

Operating System	Architecture	Software Installer
Redhat 7/Centos 7	64-bit	Marlin-5.1.0-rhel7-x86_64.run
Windows 7/10/11	64-bit	Marlin-5.1.0-win64.exe

Table 1-1 *Supported Operating Systems*

Other Linux systems may be supported. Please contact Troika Support at support@troika-int.com if you would like to discuss available options.

File/Path Limit

The maximum **Windows** filename length to the operating system is 260 characters, however that includes a number of required characters that lower the effective number. From the 260, you must allow room for the following, Drive letter, Colon after drive letter, Backslash after drive letter, End-of-Line character, Backslashes that are part of the filename path (e.g. c:\dir-name\dir-name\filename).

Each directory name in the path of the filename must be included in that 260 characters. Windows makes no distinction in filename storage between the path and filenames.

On a **Linux O.S**, your path name is maxed out at 4,096 characters while the filename is limited to 256.

Command line GTK error messages

If Marlin is opened via the command line in Linux, then you will likely run into GTK error messages. Unfortunately these messages occur due to clashes between GTK and the wxPython code. There's no option in GTK to switch these messages off. They are a known issue but currently the developers on both sides have not come up with an appropriable solution to fixing these errors just yet.

In the meantime there is the option to send these error messages to a log file or /dev/null by doing the following:

- If starting from the command-line, options are:

-- Redirect stderr to the null device, so it won't be seen e.g. minimaGUI 2>/dev/null

-- Redirect stderr to a new file e.g. minimaGUI 2>/home/fred/minima_gtk.log

-- Redirect stderr to append to an existing file (could get quite big) e.g. minimaGUI 2>>/home/fred/minima_gtk.log

Prerequisites

For Linux installations the following libraries are required:

RHEL/Centos 7

- libnotify.so.4

When installing new/barebones RHEL/Centos 7 systems you may be required to install libnotify.so.4 in order for Marlin to work correctly. Follow this link to download - https://centos.pkgs.org/7/centos-x86_64/libnotify-0.7.7-1.el7.i686.rpm.html

What's New

Marlin 5.1.0 includes the following changes....

New Functionality

- **Marlin, Clear trawl results** - Clears existing trawl and filtered trawl results
- **Settings, Context menu** - Pops up a dialog to define file context menu items to launch Midi or Minima "quick options"
- Launch Midi 4.1 versions. Includes:
  - **NavMerge** to compare (Midi) or merge (Midi Advanced) data in seismic and navigation files
  - **Format** option to skip SEGD test records
  - **Marvel**
    - option to set trace accumulation method
    - 2D data options
  - **On** inputclosed option
  - **Polygon** option to load definition from a CSV file

Enhancements to existing functionality

- Export csv file reformatted to include Part checksum and Checksum with each file entry rather than as separate entries
- Trawl status window now includes the elapsed time
- Can have additional "quick options" defined in **Settings, Context menu** to launch Midi or Minima to create pre-defined outputs quickly

Bug Fixes

- Loading a macro file containing an unmatched endif was crashing Marlin
- Use Add Quick Start Tapes instead

Deprecated functionality

The following functions are deprecated and will be removed in later Marlin versions:

- The **Midi Advanced Navigation** option is deprecated in favour of the new, more general, **NavMerge**.
- The **Midi/Geom** configuration file (.cfg) format is deprecated for loading parameters with the **Midi** and **Geom** launch panel **Load** ... option. The **Load** ... option will continue to load Marlin format parameter files as produced with the **Save** ... option.

Due to known conflicts between GTK and wxPython, when using Linux you will receive GTK error massages in the terminal. Information about hiding or stopping these messages can be found within "Operating Systems " on the previous page

CHAPTER 2

Getting Started

Marlin is designed to trawl for seismic data and ,with a valid product licence, will launch the associated products of Maxim, Midi and Minima.

Configuring Marlin for the First Time

On opening Marlin for the first time you will be prompted to configure the software to launch external products (Figure 2-2 below). This is optional.

1. Click **Yes** to proceed with the configuration

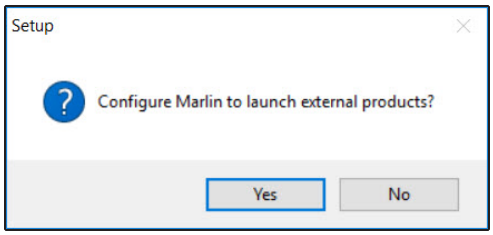


Figure 2-1 *Configure Marlin Prompt*

2. The User Preferences, parameter selection window will pop up giving External product configuration options.

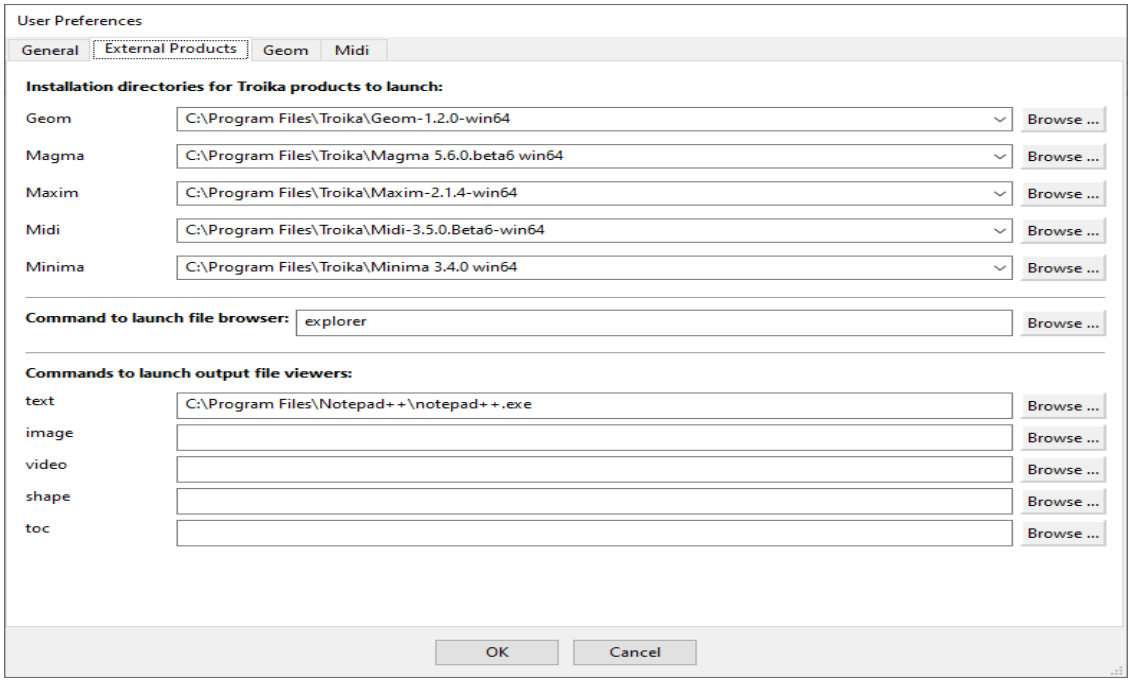


Figure 2-2 *External product settings*

Troika products that have been integrated with Marlin are ***Geom, Magma, Maxim, Midi, Minima***

Select a specific version of each installed Troika product from the pull-downs(denoted by **V** on right side of entry field). You can also Manually enter the full path to the installation directory for each product you wish to use or Browse to the appropriate install path and select using the **Browse**… button.

3. Marlin and Midi produce different output file types – text, image, movies and shapefiles. Suitable programs can be selected to view these outputs if available. Manually enter the full path to the program's binary executable for each product you wish to use, or browse to the appropriate path and select using the Browse… button.

```
Example: In Windows, if you use Irfan View as a viewing program for images and movies you would enter the program path as: C:\Program Files (x86)\IrfanView\i_view32.exe
```

If left blank, Marlin will attempt to launch the appropriate viewer based on the user's File Associations.

4. Click **OK.** Selected product details will be saved in the Marlin configuration settings.
5. The menu and display window screen opens.

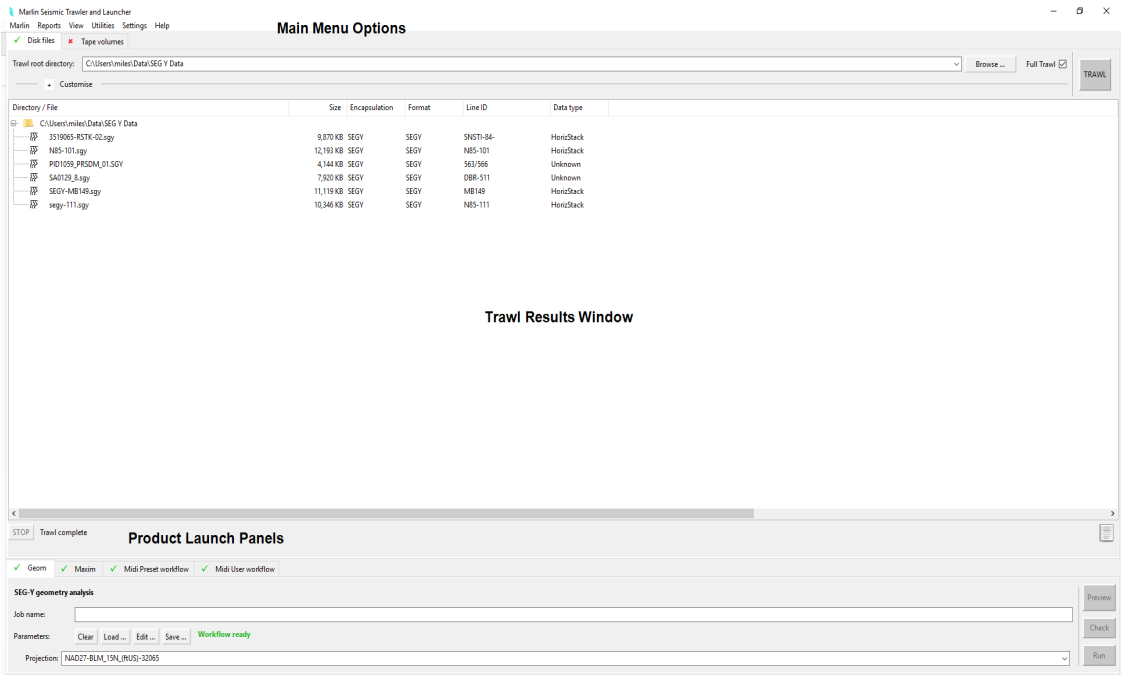


Figure 2-3 *Marlin Trawl and Launch Panels*

Settings

User preferences can be set and saved

User Preferences

Default and selected settings for both **General** and **External Product** preferences can be changed at any time and the new selections saved in the Marlin configuration file. When Marlin is subsequently started up, your preferences are read

from this file.

1. Click the Settings tab on the main menu and then select **User Preferences** from the drop-down menu.

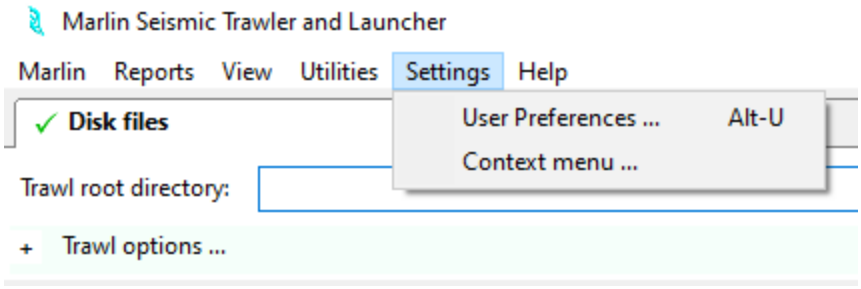
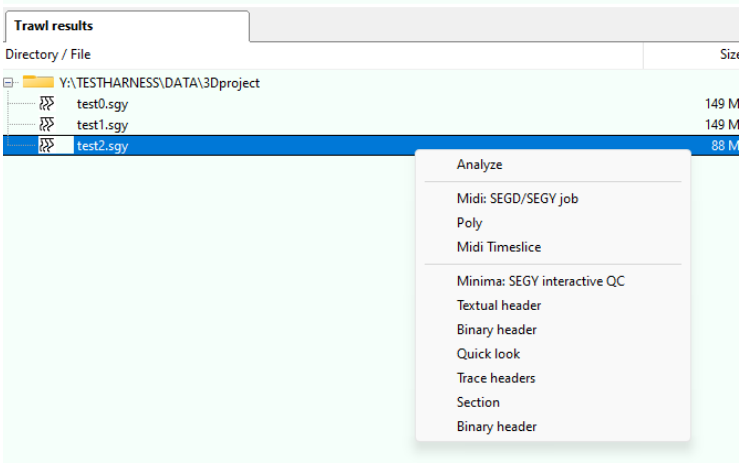


Figure 2-4 *Settings Menu*

The User Preferences window for General settings will open by default.

Context Menu

Settings, Context menu ... pops up a box to choose the product-specific quick-launch options to show on the Trawl results file context (right-click) menu.



Options can be selected to run in Midi and / or Minima if configured.

Midi:

When adding a config file a window will open showing a file tree of your system with all config files the trawl has found. When you select a config file that want to run, it will prompt you as to whether or not you want to save a new copy of this file without the arguments shown below.

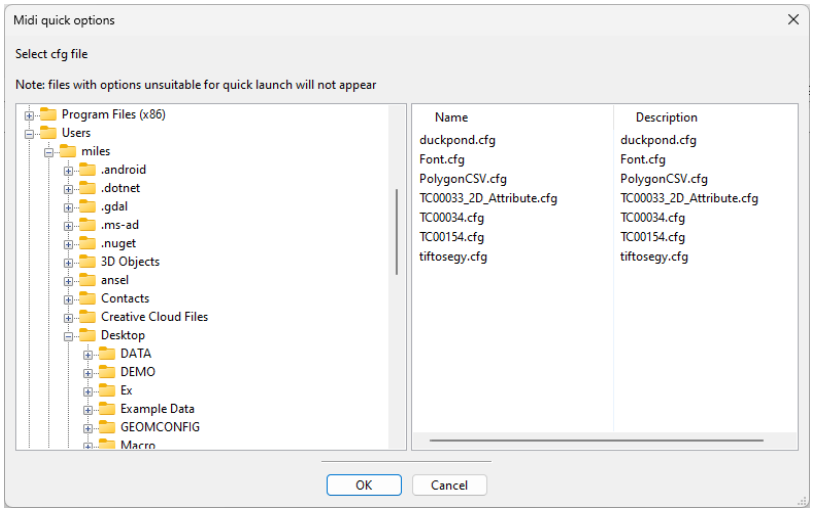


Figure 2-5 *Quick Options Config Selection*

Configuration files to run quick options should **not** include any of the following arguments:

- Those automatically supplied by Marlin: `format`, `input-directory`, `input-file`, `input-path`, `license-timeout`, `logfile`,`job`
- Those that use streams: `copy`, `synchronize`, `use`, `using`
- `include` or `macro`

If any of the automatically-supplied arguments above are found in the configuration file selected, Marlin will ask whether to write a new copy that excludes them.

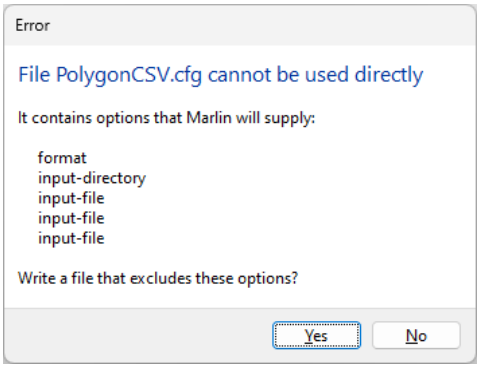


Figure 2-6 *Prompt to remove certain arguments within quick option config files*

Minima:

Select from a set of valid options read from the Minima installation.

One or more options (comma-separated) can be selected to run for each menu item.

Option settings are:

- Label : The label to display under the relevant product on the context menu.
- Multi input : Some Minima options only accept one input file per command and the Multi input check box will be inactive. Others, and all Midi jobs, accept one or more files and you can use the check box to choose the behaviour.

If several input files are selected, Multi input controls how they are passed to the launched product:

- Multi input On : all the selected files are passed at once, producing a single display panel, output etc.
- Multi input Off : a separate command is run for each input file, producing several sets of display panels, outputs etc.

When adding a set of one or more options that all support multi-file input then Multi input is **On** by default, otherwise Multi input is **Off**.

Menu items for each product can be defined or cleared individually with the + and - buttons, or en masse with Add all and Clear all.

General Settings

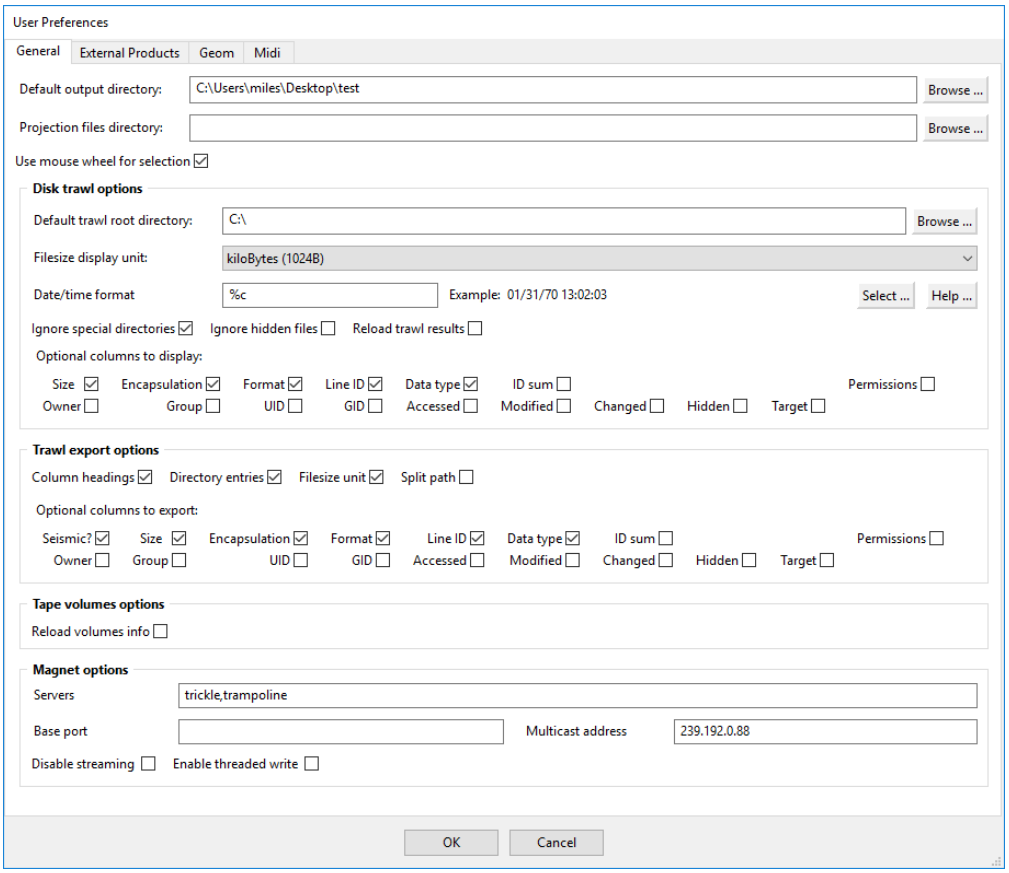
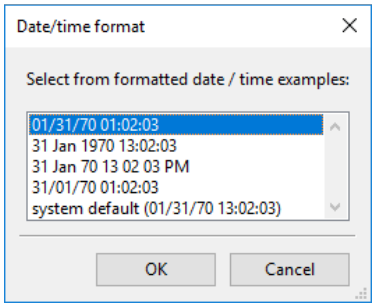


Figure 2-7 *User Preference General Panel*

1. Select the Default output directory. Type in your directory path or browse to your preferred directory using the Browse… button. The selected folder will be used as the output folder for general files, for example, job configuration and log files.
2. Select the Projection files directory. Type in your directory path or browse to your preferred directory using the Browse… button. The projection files are used when creating shapefiles with Midi. If not selected, the Midi default projections directory will be used.
3. Use mouse wheel for selection. If switched off, any mousewheel events for choice windows will be ignored. This helps reduce the chance of accidental changes being made to parameters.
4. Select the Date/time format. You can select the format of date/time by clicking **Select** and choosing one of the predefined formats.

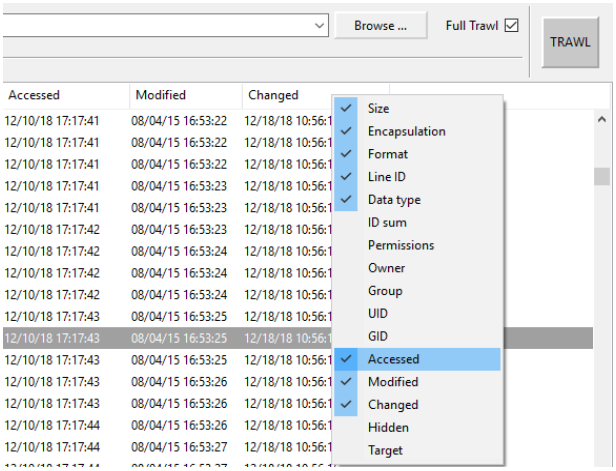


It is also possible to manually enter your own customised string. A full list of valid date/time format directives are given in "Time format directives" on page 19.

Date/time Format Examples

Format string	Format date/time
%d %b %Y %H:%M:%S	31 Jan 1970 13:02:03
%d %b %y %I %M %S %p	31 Jan 70 13 02 03 PM
%d/%m/%y %I:%M:%S	31/07/70 01:02:03
%m/%d/%y %I:%M;%S	01/31/70 01:02:03

The date/time formats are used for Accessed, Modified, and Changed which can be turned on and off via the trawl window column bar.



Default for Ignore special directories is ON. Special directories named Recycler or $Recycle.Bin will be ignored.

Select Reload trawl options if you would like Marlin to reload trawl results on startup.

5. Select columns that you would like to display in the trawl results tree.

   Note: Switching on or off in optional columns to display will have the same effect as if selected from the column header menu.

6. With Trawl export options you can format and select options for exporting the results of a disk trawl. Select to include:

   i. Column headings as the first line

   ii. Directory entries

   iii. Filesize unit

   iv. Split path – when selected will export Parent path and Directory/file as two columns.

7. Select Reload volumes info in the Tape volumes options if you would like Marlin to reload tape volumes on start-tup.

8. Magnet (a Troika product for tape access) options can be set.

   i. Check the Servers box to set or override the MAGNET_SERVERS environment variable that controls the servers Magnet should communicate with.

   ii. You can provide a single server hostname or provide a comma-separated list.

Directive	Description
%a	Abbreviated weekday name e.g. Mon
%A	Full weekday name e.g. Monday
%b	Abbreviated month name e.g. Jan
%B	Full month name e.g. January

Directive	Description
%c	Default date and time string
%d	Day of month (01 - 31)
%H	Hour, 24-hour clock (00 - 23)
%I	Hour, 12-hour clock (00 - 12)
%j	Day of year (01 - 366)
%m	Month of year (01 - 12)
%M	Minute (00 - 59)
%p	am / pm string
%S	Second (00 - 61, allows for leap seconds)
%U	Week in year with Sunday as first day of week (00 - 53)
%w	Day in week (0 - 6)
%W	Week in year with Monday as first day of week (00 - 53)
%x	Default date string
%X	Default time string
%y	Year without century (00 - 99)
%Y	Year with century e.g. 2017
%Z	Time zone name
%%	Literal % character

Table 2-1 *Time format directives*

External Product Settings

If any of the Geom. Magma, Maxim, Midi, and Minima external products are installed and available you can assign product settings for each of these.

1. Click the **Settings** tab on the main menu and then select **User Preferences** from the drop-down menu. The User Preferences window for General settings will open by default. Select the **External products** tab to go to the **External Products** settings page.

Output File Viewers

These settings allow you to determine which software opens each of your outputs. For instance, doing this gives you the ability to open text in either Microsoft Excel, Notepad++ or other similar applications. This is particularly useful for video and image outputs as often default video players are often limiting in terms of supported file formats.

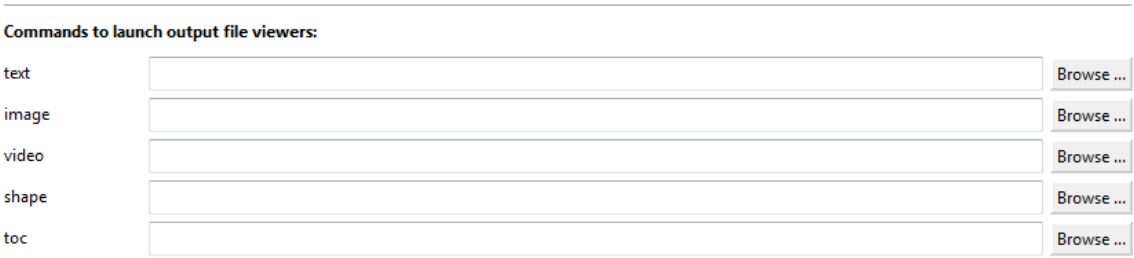


Figure 2-8 *Output File Viewers*

Midi Settings

The options on this page are only used when launching Midi.

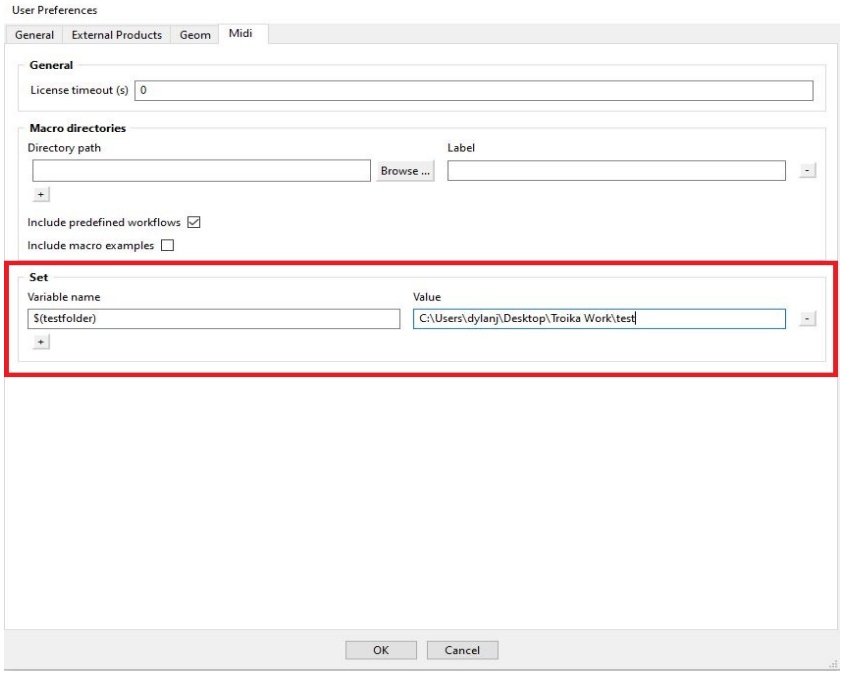


Figure 2-9 *User Preferences Midi Interface*

Licence Timeout (s)

Licence timeout option to set the time to wait for a Midi licence in seconds.

Macro Directories

Choose and add any directories in which to look for Midi macro definition files. Optionally enter the label each directory will have in the macro selection box; if no label is entered, the selection box will show the directory path. Multiple directory definitions can be set using the + button. These are on by default.

Include predefined workflows

The predefined are split up into various sections; Analysis, Conditioning, Cutting SEGY, Full Workflows, Loading Workflows, SEGD Workflows. Each workflow is given a detailed description as how to use it and which paramenters are required. These are on by default.

Include Macro Examples

If On, the macro selection box will automatically add the Examples/MACROS directories from the Marlin and Midi installations, labelled as, for example, MARLIN EXAMPLES: MACROS.

Quick Options

Directory in which to store Midi configuration files used to run quick option jobs launched from the Trawl files context menu.

Set

Any variables defined here will be set at the start of all Midi jobs launched. See the previous screenshot for an example.

Geom Settings

The options on this page are only used when launching Geom.

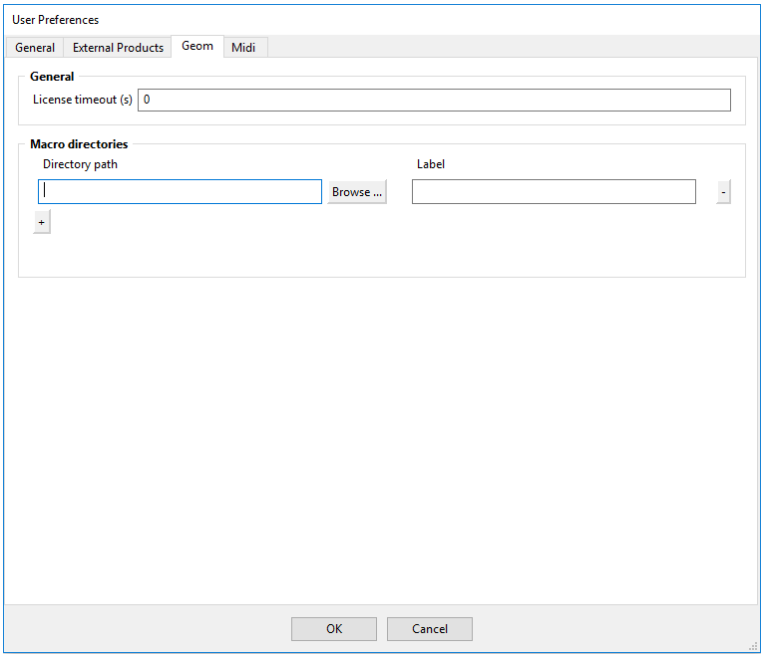


Figure 2-10 *User Preferences Midi Interface*

Licence Timeout (s)

Licence timeout option to set the time to wait for a Geom licence in seconds.

Macro Directories

Choose and add any directories in which to look for Geom macro definition files. Optionally enter the label each directory will have in the macro selection box; if no label is entered, the selection box will show the directory path. Multiple directory definitions can be set using the + button. These are on by default.

Reports - Data Duplication

A Data Duplication report can be generated which will compare the partial and full checksum for all files in the trawl results. The report will match checksums and identify possible duplicates. The Data Duplication report highlights any possible duplications within your trawl by reading the first megabyte of each file to calculate the part checksum. By right-clicking the Part checksum, you can perform a checksum in order to fully verify the full SHA 256 checksum.

1. Click the Reports tab on the main menu and then select Data duplication from the drop-down (Figure 2-11 below)

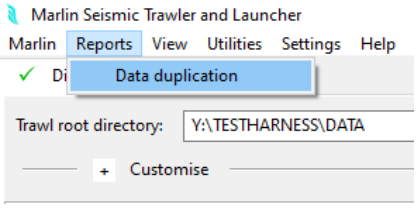
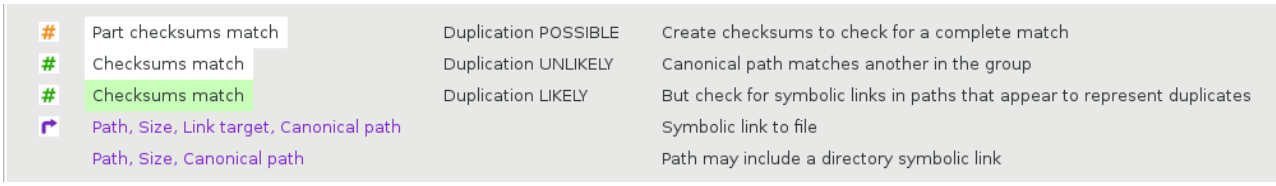


Figure 2-11 *Reports Menu Data Duplication*

1. If duplicates are found a duplication table will open (Figure 2-12 on the facing page) The report will group files by checksum and lists the encapsulated file size for each file.
2. Once you have right-clicked the data and performed a full checksum it will provide you with a full SHA 256 checksum and auto-update the report.
3. To save the report click the Export tool button to produce a file dialogue where you can select a directory and filename for the report. The report will export to a comma-separated values text file.

The Data Duplication report compares all files in the trawl results and reports any that have multiple file matches. This can be used to show that duplicate files may be present.

Data duplications may include different encapsulations - the checksum is calculated beneath the encapsulation layer, therefore files with matching checksum may have different encapsulation filesizes.
WARNING: Caution should be taken when identifying files for de-duplication and checks made that candidates do not include symbolic links which represent the same file.



Simply right click on the part checksum and select "Full Checksum" to run a full SHA 256 checksum on the files selected.

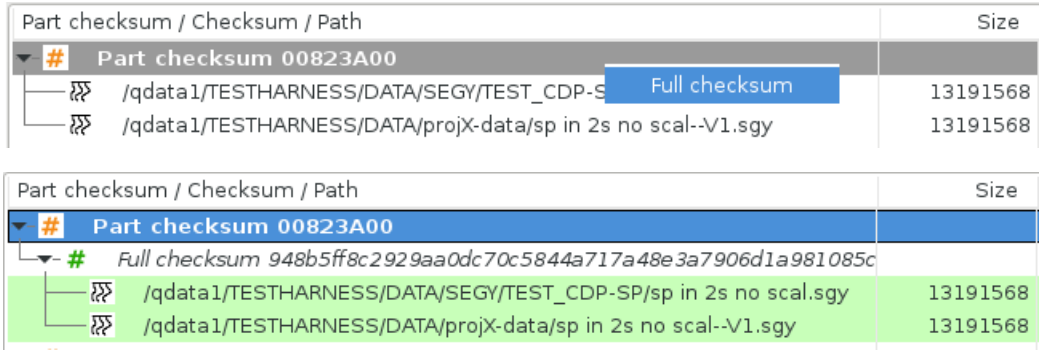


Figure 2-12 *Duplication comparison report before and after*

Symbolic Links

Symbolic links to files are shown in purple within the Data Duplication window and are shown in the trawl results as purple with an arrow icon; an extra trawl results column Target shows the target name. When selecting Data Duplication through the report menu you will be able to see linked targets and canonical paths where symbolic links are involved. shows a symbolic link being used with information on the linked target and the canonical path.

Symbolic links to other files within a checksum group are including in the report, but they aren't marked with the green "likely duplicate" highlight. Items within a group are sorted by canonical path first, then trawl path, so make it easier to see which files have the same canonical path.

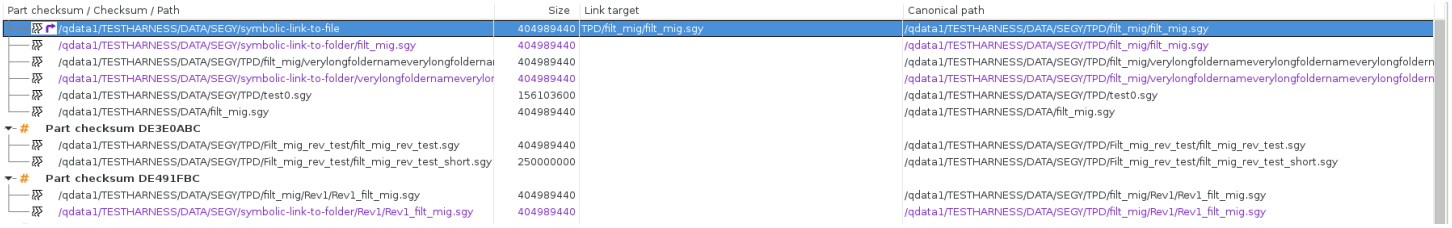


Figure 2-13 *Data Duplication report showing symbolic links*

View

Marlin is able to launch Maxim and Midi, associated command-line products. and the **View, Launch Panel** is used to toggle on or off the display panel for these products at the bottom of the display window. You can choose to show or hide individual launch panels by selecting them on or off in the View drop down.

1. Click the View tab on the main menu and then select Launch Panel from the drop-down .

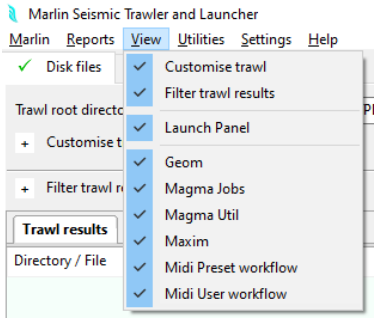


Figure 2-14 *View Menu - Launch Panel*

2. Click to toggle **on** will display the product launch panel at the bottom of the Marlin window. This enables product selection, parameter entry and launch.

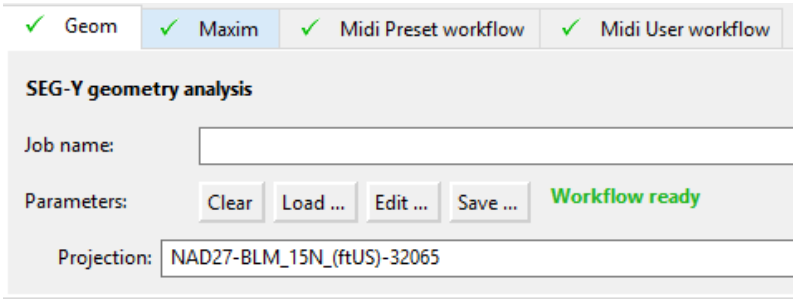


Figure 2-15 *Product Launch Panel*

3. Click to toggle **off** will hide the display panel.

Utilities

Checkout license

This attempts to checkout a MARLIN_GUI license to enable the main Marlin functions (trawl and reporting, Disk files and Tape volumes panels, launch all available Troika products).

On Windows, Marlin will prompt for the license server/file location if necessary.

Utilities, Checkout license is only available when Marlin is running without a license

Refresh macros

To reset macros used in a workflow or Geom, click **Refresh Macros** from the Utilities drop down menu located in the top toolbar. This allows the user to refresh macros if they are editing or changing them.

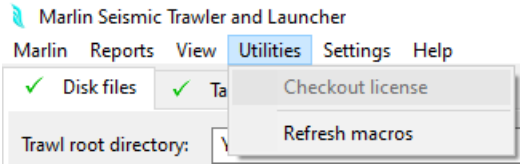


Figure 2-16 *Refresh Macro*

Help

Marlin Help Resources

The Marlin Help Menu option will give access to multiple Help resources for Marlin and any associated products.

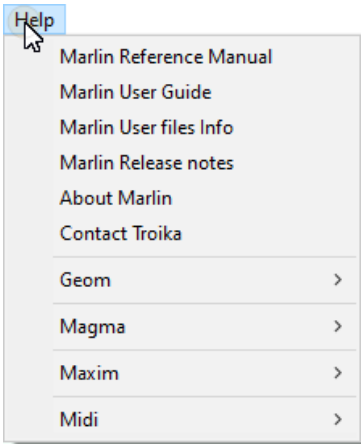


Figure 2-17 *Help menu options*

If any menu options are greyed out it means that the associated product is not installed or the path to the product has not yet been set.

Marlin Reference Manual

Selecting this option will display this document which contains reference information regarding Marlin's functionality.

Marlin User Guide

Selecting this option will open a copy of this PDF document in the default PDF reader.

Marlin Release Notes

This brings up a copy of the developer HTML Release Notes in the associated browser.

Marlin User files info

Produces an information box that shows where the user files (preferences, error logs) are written.

About Marlin

This displays information about the Marlin program including the version number.

Contact Troika

Contains a .pdf with addresses for our sales (sales@troika-int.com),support (support@troika-int.com), info (info@troika-int.com).

Help for Products Launched from Marlin

Additional Help menu options provide information for Maxim and Midi, the command-line products that can be launched from Marlin. Minima GUI has its own product Help menus.

Geom GUI Help

Reference help for the product launch panel and parameters input, relating to launching the product from Marlin.

Geom Help

Reference help for the product options, relating to the command-line product itself.

Geom User Guide

User Guide for the product. User Guides contain information such as background, examples and screenshots.

Magma Help/User Guides/Reference Manual

This contains Magma Jobs GUI Help, Magma Util GUI Help, Magma Userguide, Magma ToC User Guide, Magma Reference Manual, and Magma Release Notes

Maxim GUI Help

Reference help for the product launch panel and parameters input, relating to launching the product from Marlin.

Maxim Help

Reference help for the product options, relating to the command-line product itself.

Maxim User Guide

User Guide for the product. User Guides contain information such as background, examples and screenshots.

Maxim Release Notes

Product release notes.

Midi GUI Help

Reference help for the product launch panel and parameters input, relating to launching the product from Marlin.

Midi Help

Reference help for the product options, relating to the command-line product itself.

Midi User Guide

User Guide for the product. User Guides provide information about the product with useful examples and screenshots.

The Help information displayed is provided from the installed product(s); these menu options are therefore not available unless the product is configured.

CHAPTER 3

Using Marlin

This section shows how to set up and run a trawl then interpret the results.

Running Marlin

Marlin is designed to trawl for seismic data and with a valid licence will launch the associated products of Maxim, Midi and Minima. The program can be run from a command line utility, but is usually launched from the Marlin Graphical User Interface (GUI):

1. Click on the desktop icon 

   or

2. Select Marlin GUI from the Windows start menu, or for Linux, run:

   %{marlin_install_directory}/marlinGUI

Marlin will trawl for seismic data on and display information for the files that are found.

To start a disk trawl select the **Disk files** tab (located on the top left of the Marlin interface).

Disk Files Panel

The Disk files panel is used to trawl a disk and to display the information for files that are found.

1. To start a disk trawl select the **Disk files** tab (located on the top left of the Marlin interface).
2. Select from the Trawl root directory list. Manually enter, or browse to the directory folder that you wish to trawl for seismic data

   The recent directories list is set up of up to 5 recently-used directories, in chronological order with the most recently trawled at the top.

3. Toggle Full trawl **on** or **off**
   i. Full trawl **on** will expand the directory structure and show all of the seismic files that have been found.
   ii. Full trawl **off** will only show the directories that contain seismic data somewhere in the directory structure.

   Full trawl mode can be switched on after an initial trawl, for example, to perform a full trawl of a single subdirectory. Depending on the contents of any subdirectories, Full trawl mode on could significantly expand the total trawl time required

4. Select the (+) button located below the **Trawl root directory** to view customise trawl options. This will open the customise panel (Figure 3-1 on the facing page). Available options are:
   i. Files with suffixes are added to the results - even if Marlin does not recognise the format. When a trawl is run only the files matching the selected values are added to the tree. Multiple filter values, separated by commas, can be used.
   ii. To restrict the trawl results that are displayed values can be entered manually or selected from the drop-down lists of acceptable values using the browse ... buttons (Figure 3-1). Filter options are:

a. Encapsulation – only matching files will be added to the tree

b. Format - only matching files will be added to the tree

a. File name - searches for full words or single characters within the filenames. This feature allows multiple searches with the use of commas between each.

c. Line ID – one or more strings can be entered. When a trawl is performed, only files with a line ID including one of the match values will be added to the tree. For example, the Line ID filter 101,103 would match NAV-101 and NAV103

d. Data type - only matching files will be added to the tree

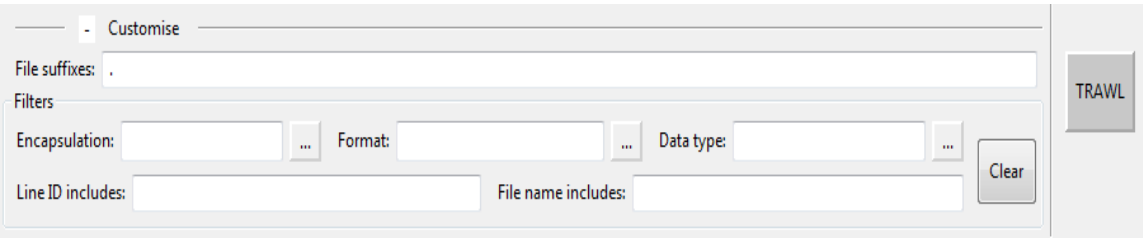


Figure 3-1 *Trawl Options*

5. Click the **CLEAR** button to remove the selections from all filters. Changing the filter values will not update the results tree until a new trawl is performed.

> If a filter is not applied, all data types are searched during the trawl. When a trawl is performed, only files matching the selected values will be added to the tree. Filter values are **not** case-sensitive. The filters (Encapsulation, Format, Line ID, Data type) can be used together if required. Double-quoted strings are also allowed as a filter value

Tape Volumes

The Tape Volumes panel is used to manage input and output tape volumes and any related information. The volume lists can be loaded from and saved to text files. Volumes can be assigned to Volume sets and have devices allocated for use as input to or output from other products.

On exit from Marlin, the current volumes list is saved to the file *volslist.txt*. When Marlin is subsequently started up, if the **reload volumes info** option has been selected in **Settings -> User Preferences -> General** then the volumes are reloaded from this file.

Loading and querying volumes can be interrupted via the STOP button below the tree.

> The *volslist.txt* file is stored in a user-specific location dependent on the operating system; to view the location select Marlin User file Info from the Help menu. An information window will open providing the details.

1. Select the Tape Volumes tab to open the tapes volumes panel. Options are displayed for managing items in the volumes tree.
2. Select from the given volume and device options. Available options are described in the following sections.

Volumes

Quickstart

Volumes, Quickstart adds a container with basic auto-named input and output volumes. It can help when you may want to run a quick job on a single tape and are not concerned with volume or volume set naming (although the names can be changed before launching jobs).

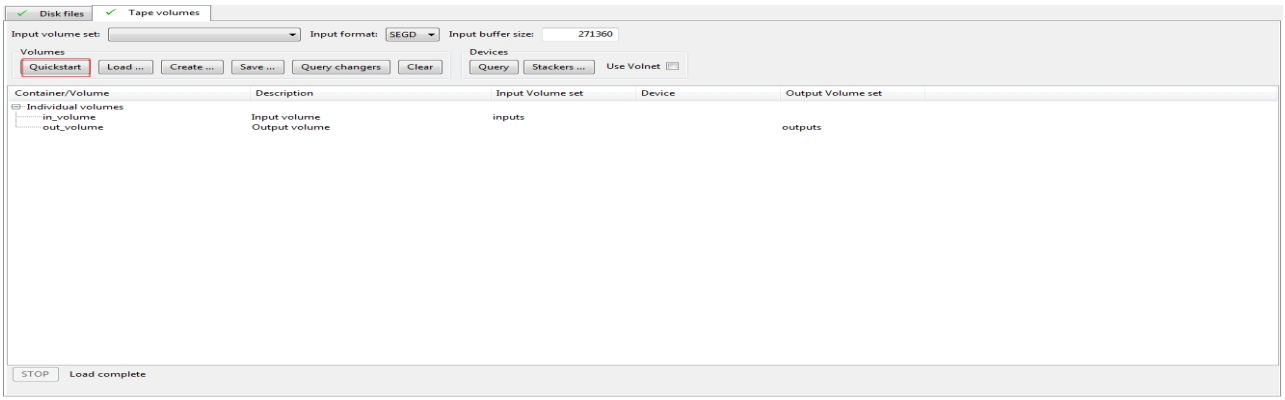


Figure 3-2 *Tape volumes - Quickstart*

Load

Load adds items to the tree with volumes information from a text file where each line of the text file represents one item in the tree. The fields within each line are comma-delimited and can hold the following information:

Identifier,Volume,Description,Input_volume_set,Output_volume_set

Valid identifiers are provided in the table below:.

Identifier	Description
%A	Auto-output "pseudo-volume"
%C	Changer container
%I	"Individual" container (volumes not in changer)
%V	Volume

Table 3-1 *Volumes load identifiers*

If the identifier is not recognised or the identifier column is missing, Load will assume that the line represents a volume and will create an individual volumes container if necessary. Missing columns beyond the container or volume name will be ignored. Load can therefore handle text files that simply contain a list of volume names, one per line.

```
Examples of files that can be loaded.
Files with a container and identifiers:
%C,SurveyABC_vols,
%V,ABC001,ABC volumes,inputs
%V,ABC002,ABC volumes, inputs
%V,SCR001,Scratch volume for output,outputs
For files without any container or identifiers:
ABC001
ABC002
```

Create

Create pops up an input box for entry of the information for single volumes. For each volume you must supply the name plus any optional description and input or output volume set name.

On Create, the new entries will be added to the tree in a new "Individual volumes" container.

Save

The**Save** option will save the current volumes panel information to a file of the your choice.

Clear

Clear removes all contents from the tree.

Unless located in a changer, volume "containers" in the tree and volume descriptions are just for convenience.

Devices

Query

When additional devices have been added, a network problem has been resolved or to discover drives that are local or on the network. To see drives on the network you will have to install Magnet on the system that has the drives attached to it.

Stackers

Select Stackers to define any devices which have stackers. A list of available devices will pop up and can be assigned as stackers by entering the stacker size.

Use Volnet

Use Volnet is a toggle option. If **on**, devices are assigned via Troika's **Volnet**. If **off**, devices are assigned in the Marlin volumes tree.

Volnet must be installed and configured separately

Container Options

Volume containers are in the tree to help with the organisation of groups of volumes. These options do not have a physical equivalent apart from those representing changer libraries.

1. Select one of the containers in the tree and right-click. A pop-up window with a list of all options will open (Figure 3-3 below).

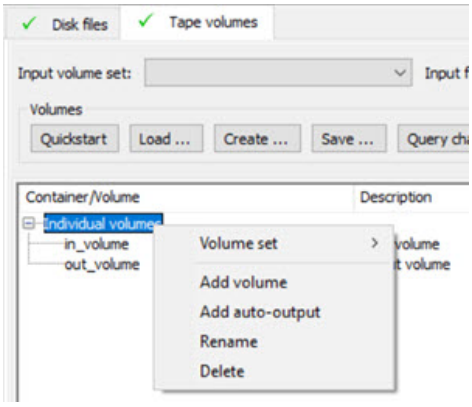


Figure 3-3 *Volume Container options*

Volume Set

Available options are input, output and clear.

- Selecting an input or output **Volume set** will assign this to all volumes in the container.
- Volume set names can be selected from a list or a new one entered.
- **Clear** will clear all input and output volume sets from volumes in the container.

Volume set is not available for changers, as these are likely to hold a mix of volumes.

Add volume

Add volume prompts for volume information then adds the new volume to the container. This option is not available for changers, as these manage their own contents.

Add auto-output

Add auto-output adds a pseudo-volume named AUTO to the container. This can have a device assigned and be passed as output when launching a command-line product.

Rename

Rename prompts for the new container name then updates the tree. This option is not available for changers, where the name is fixed.

Delete

Use Delete to remove a selected container and its contents from the tree. This option is not available for changers or if multiple containers have been selected.

Volume options

To bring up the menu, **right-click** on a volume in the tree.

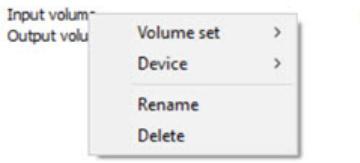


Figure 3-4 *Volume menu options*

Volume set

Available options are input, output and clear.

- Selecting an input or output volume set will assign this to thevolume.
- Volume set names can be selected from a list or a new one entered.
- **Clear** will clear all input and output volume sets from the volume.

Device

Use **Device** to select the tape device to use to access the volume.

If the Use Volnet option is Off and a list of available devices has not already been built, Marlin will query for these before presenting a selection box. The devices available for selection will depend on whether or not the volume is located in a changer.

Selecting **Clear** will clear the device from the volume.

Device will not be available if Use Volnet is 'On' - when 'On', Volnet will handle the device assignment.

Rename

Rename prompts for a new volume name then updates the tree.

This option is not available for volumes in a changer or for special AUTO pseudo-volumes.

Delete

Delete removes the volume from the tree.

This option is not available for volumes in a changer.

CHAPTER 4

Marlin Trawl Options

Marlin will trawl either on disk or from a tape volume and display information for the files that are found. The trawl results will be saved to a file *trawl.txt* when you exit Marlin.

To start a disk trawl select either the Disk files or Tape volumes tab (located on the top left of the Marlin interface).

Overview Trawl

1. Clicking the trawl button TRAWL starts the trawl process. The Trawl time frame will depend on the number, type of files and subdirectories within the selected folder; these aspects affect the response time of the program. Figure "Overview trawl in progress" below shows the progress and result display of an overview trawl. Whilst trawling, directories show in green in the trawl results whilst being trawled.

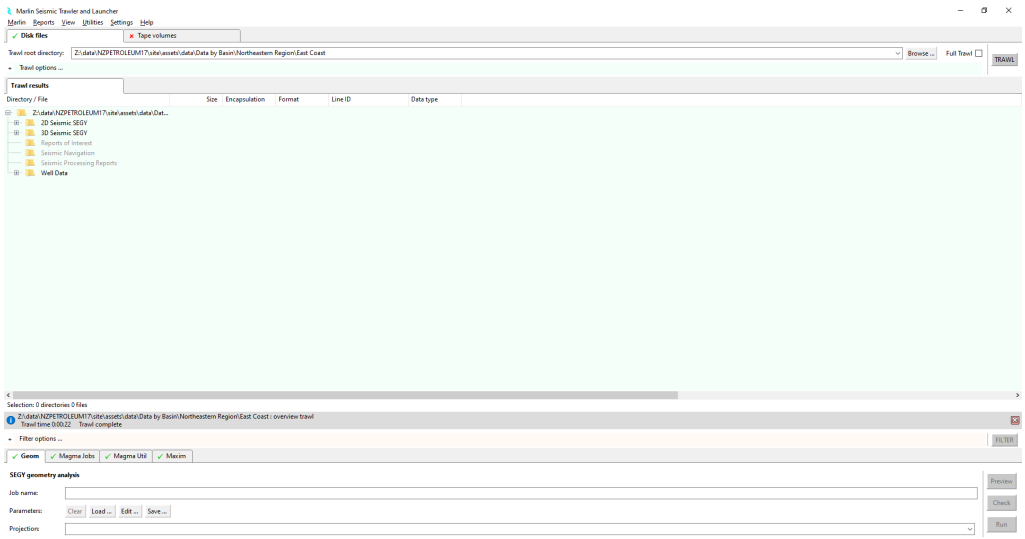


Figure 4-1 *Overview trawl in progress*

2. On completion, the results are displayed as directory trees (as customised in the disk files panel). Where the directory contains 'matching' files these will be listed in bold text, if a directory is found that contains no 'matching' files then this is displayed in low-lighted text. The figure below shows the results for an overview trawl of SEG-Y format files in the directory Q:\data\NZPETROLEUM17\site\assets\data\Data by Basin\Northeastern Region\East Coast.

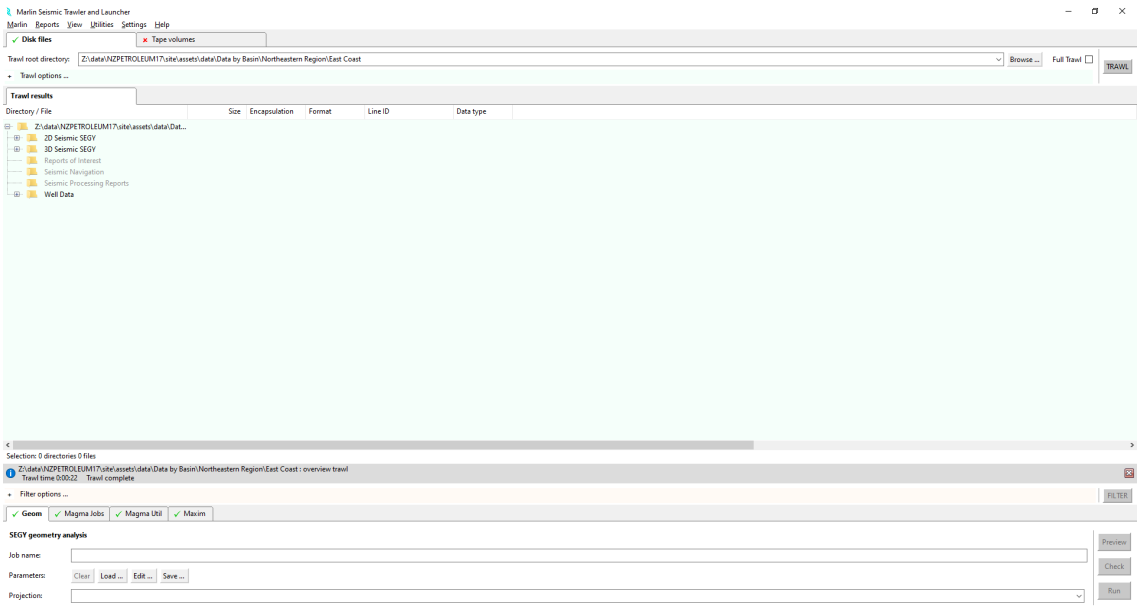


Figure 4-2 *Overview trawl results display*

3. To expand a sub-directory after running an interactive trawl, click (+). The contents will be revealed and the basic meta-data for each file displayed. See Figure 4-2 above for an example of an expanded sub-directory showing files and their meta-data.

4. To abandon a trawl click the STOP button 

The trawl will stop after the current file or directory and the tree will remain incomplete.

Full Trawl

1. To perform a Full trawl, tick the Full Trawl Check box Full Trawl ☑ In Full Trawl mode all directory trees are expanded and the file contents displayed. For a quicker interactive trawl, leave the Full Trawl box unchecked.

2. Click the TRAWL button to start the trawl process. Figure 4-3 below shows the results of a full trawl. In Full Trawl mode all directory trees and the file contents are displayed.

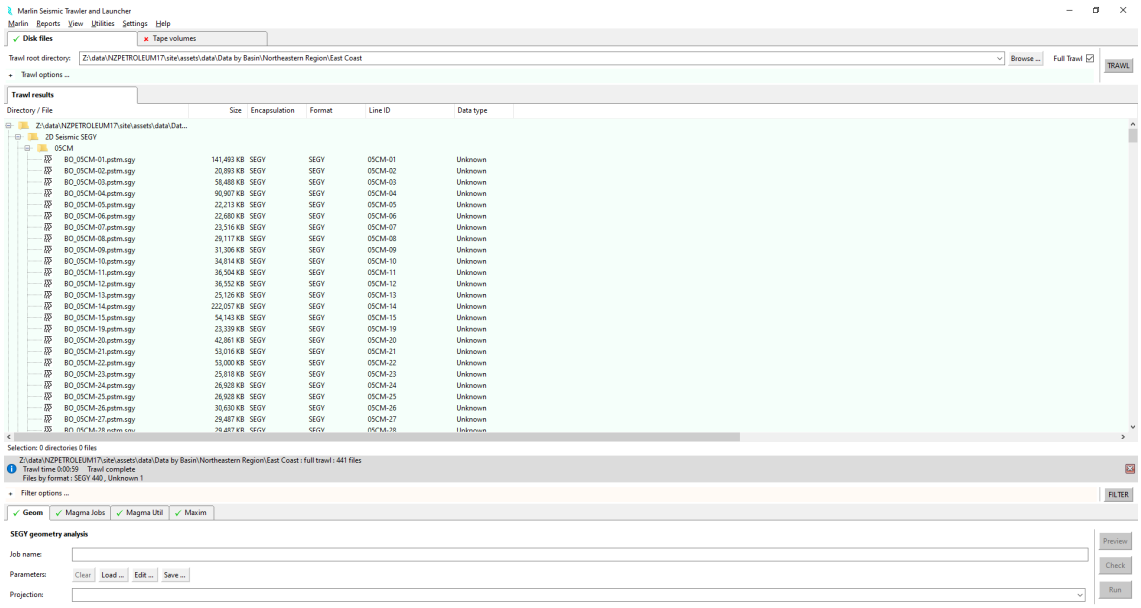


Figure 4-3 Full Trawl Display

Trawl results

Clicking on any column header will sort the results within each directory in ascending order using that column. Each further click in the same column will reverse the sort order. The order will be saved for reload on the next startup and used if results are exported.

After performing a Trawl you have the option to switch the result columns on or off in the results tree.

1. Right-click on the column heading bar in the results panel. A pop-up window with a list of all display options will open Figure 4-4 on the facing page.

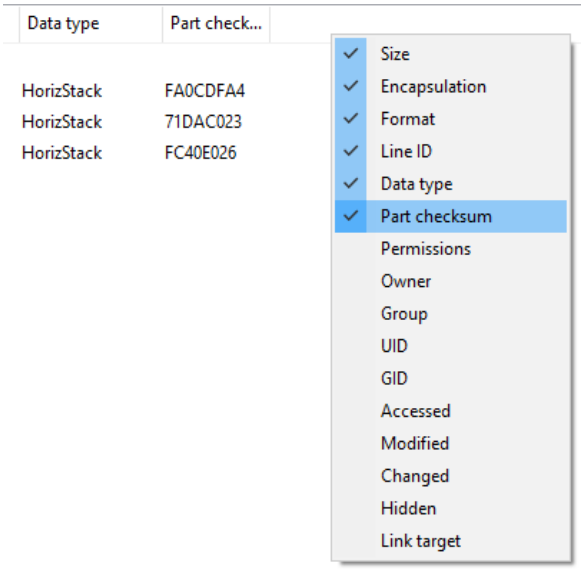
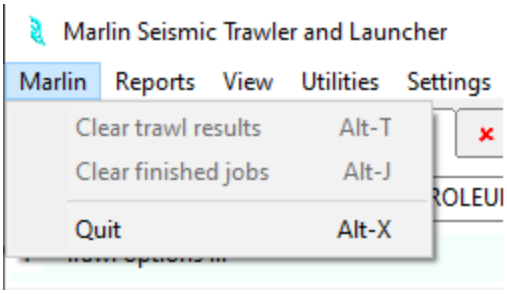


Figure 4-4 *Result column on/off options*

When using Linux, directories where access has been denied will be shown as red instead of the normal greyed out. In windows, an error window will appear to explain that access has been denied.

Clear Trawl Results



Clear Trawl Results Button

Clicking this will clear any existing trawl and filtered trawl results.

Hidden Files

Hidden files can be identified within the directory by selecting the Hidden option as seen above in "Result column on/off options" on the previous page

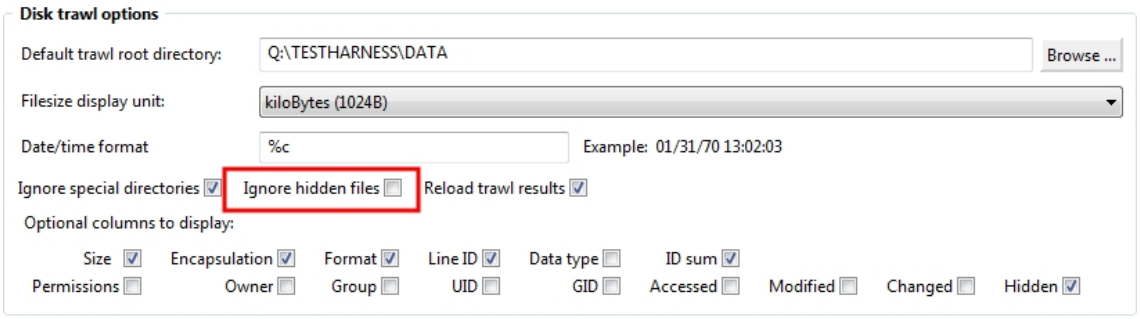


Figure 4-5 *Ignore hidden files option*

Export Trawl Results

Export... writes the trawl results for the selected directories to comma-separated values text files. For each directory selected, the results exported include those for all the directory's children trawled.

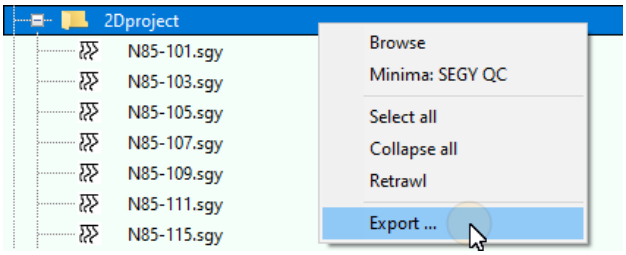


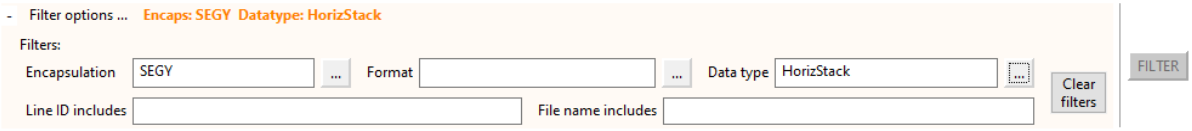
Figure 4-6 *Export Trawl*

See **Settings, User Preferences, General, Trawl export options** to set output content and formatting. The directory / file path is always exported (although it can be split into parent path and name); other columns are optional. Information is exported even if columns are not currently visible in the tree.

Note that poor column selection can produce unhelpful reports. For instance, excluding the Seismic? column can remove the ability to distinguish between directories that were trawled and found to contain seismic files (Y), trawled and found not to contain seismic files (N), could not be trawled because access was denied (-) or were not completely trawled (?)

Filter trawl results

Filter trawl results works like Customise trawl, but displays a subset of the trawl results in a new tab as a convenience. The results displayed can be worked with as in the main trawl results panel.



The Filtered trawl results tab can be closed with the X on the tab; this must be done before the results can be re-filtered or a different trawl can be run. Jobs can be run from the filter trawl results windows the same way they can from a normal trawl window.

Figure 4-7 *Filtered trawl tabs*

A re-trawl can not be performed until the filtered trawl results window is closed by the cross on the tab.

Directory/Folder Options

An option is available for viewing a directory/folder in the tree. The Minima product will also appear in the menu if this has been configured to be launched from Marlin in the Settings, User Preferences, External Products settings.

Browse

1. Right-click on a directory/folder in the tree. The Directory/folder menu will pop-up.

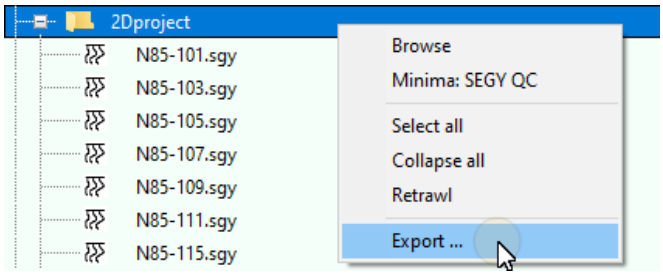


Figure 4-8 *Directory/folder menu*

2. Select from the available options to browse a directory/folder or launch Minima. above shows the result after right-clicking on Q:/Data/.../../05CM from the directory tree and selecting Browse.

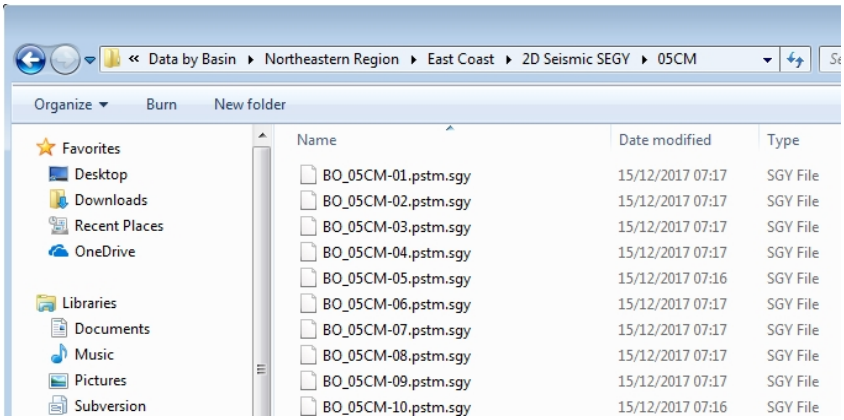


Figure 4-9 *Browse window for Q:/Data/Data by Basin/.../.../../05CM*

Minima

Minima versions will prompt for a project and add the selected SEG-Y files.

A valid Minima licence is required to launch Minima.

Collapse All

Selecting **Collapse All** will collapse tree items and its contents.

To expand after applying Collapse All, click the (+) button next to the required directory in the tree.

Select All

The **Select All** feature selects all subsidiary files/folders within a selected folder.

Retrawl

This options retrawls the selected folder/subfolder. This feature also retrawls folders that are greyed out or are without seismic data.

File Options

Analyze

Select Analyze to display format-specific information for a file.

1. Right-click on a file in the tree. An Analyze option button will display.

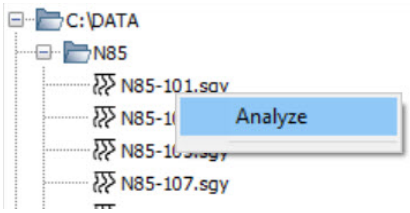


Figure 4-10 *Analyze option*

2. Click on **Analyze** to open a display window which shows the analysis information for the selected file (Figure 4-11 below). The Encapsulation and internal format of the file will also be shown at the top of the analyze window.

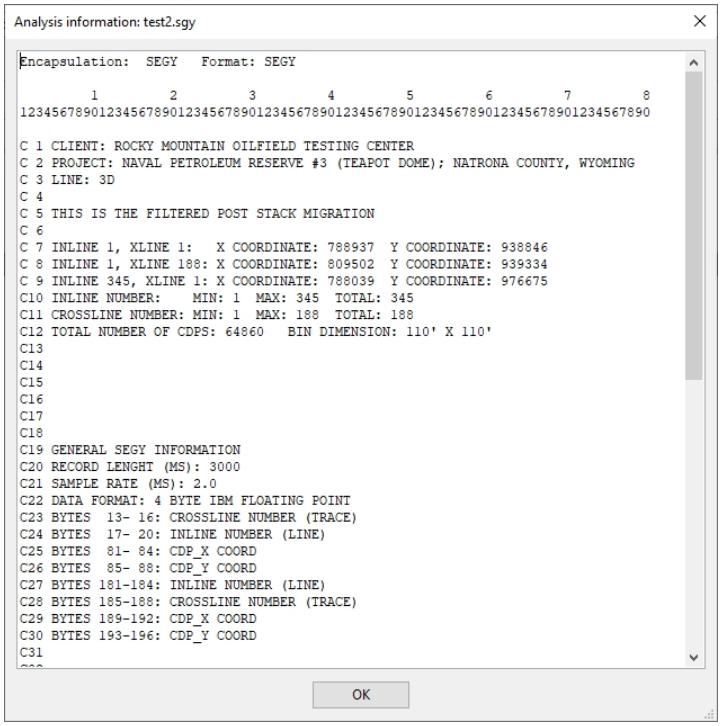


Figure 4-11 *Analysis information display for a selected file*

Minima SEGY QC

Minima will be launched and will prompt for a project to open. It will open the project and add all SEGY files currently selected in Marlin (including all SEGY format files in any directories/folders selected).

Minima will prompt as to whether or not the file is 2D, 3D, or unassigned. Once chosen, Minima will have opened a temportary project for you which can be saved upon closing Minima.

Files within Marlin can also be dragged into the Minima application.

CHAPTER 5

External Product Launch

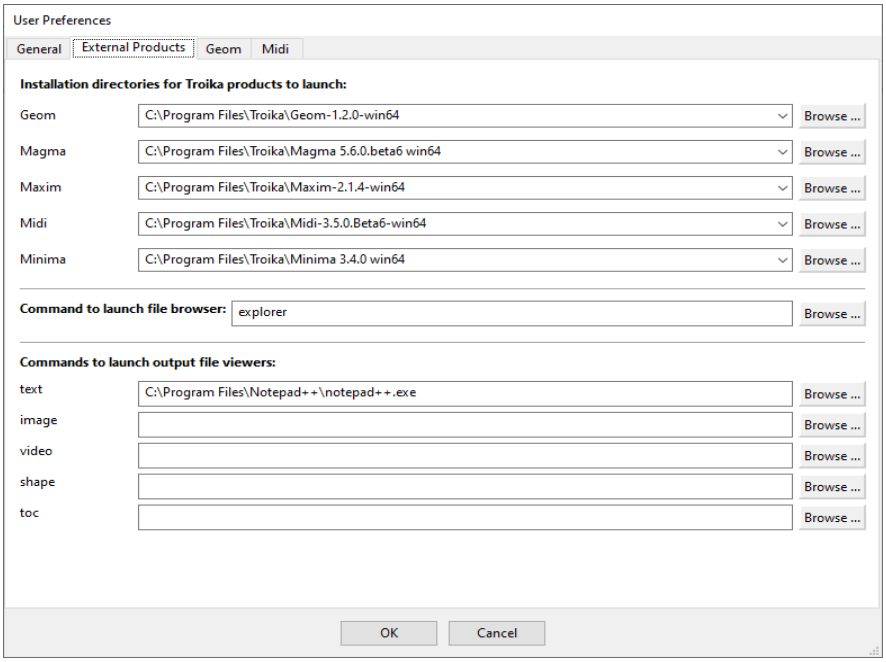
Once Seismic Data Files have been discovered, it is possible to launch other licensed Troika products to QC/Examine selected directories and files.

External Product Launch

The external troika products that can be configured to launch from Marlin are:

Geom	Fast 3D Dataset Geographical Analysis
Magma	Seismic Data Recovery
Maxim	Rode Manipulation
Midi	SEGD & SEGY Manipulation, QC, MetaData Extraction
Minima	SEGY QC and Manipulation

External products must have been installed (separately) and with each installation directory selected via the menu option in **Settings -> User Preferences -> External Products**



If the selected installation is not a product version that this version of Marlin can launch, a warning will be displayed. A different product version will need to be installed and selected.

When Maxim, Magma, Geom, or Midi products are installed and their installation paths configured a Product Panel will appear at the bottom of the main Trawl Panel (see below).

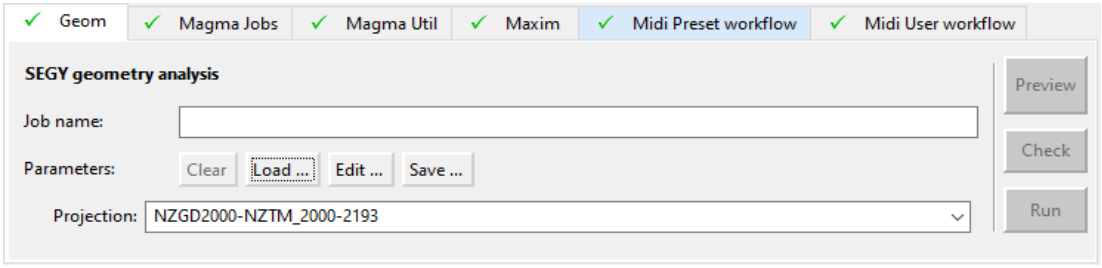


Figure 5-1 *Maxim and Midi product launch options*

External products which are not in use or not installed can be removed from the product launch panel via the View drop-down option from the top menu bar.

Minima Launch

Minima can be launched by selecting a directory (or file) from the trawl results window and right-clicking.

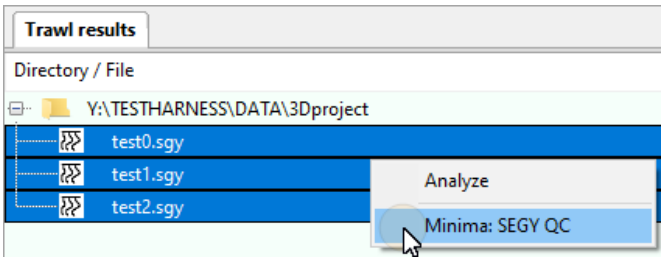


Figure 5-2 *Minima right-click functionality*

Maxim Launch

Maxim is designed to process SEG RODE (Record Oriented Data Encapsulation) format files.

Maxim can be used to either list the metadata or run encapsulate and restore the underlying files to disk.

Maxim Launch Tab

Maxim is implemented as a command line utility, as well as an interactive panel within Marlin which can be used to Examine Metadata and Restore from RODE files. RODE (Record Oriented Data Encapsulation) is a Society of Exploration Geophysicists (SEG) Format Standard that is used for the encapsulation of Record Oriented Tape Data to produce media neutral datasets that can reside on disk or tape and can be transported across networks whilst maintaining the inherent record orientation.

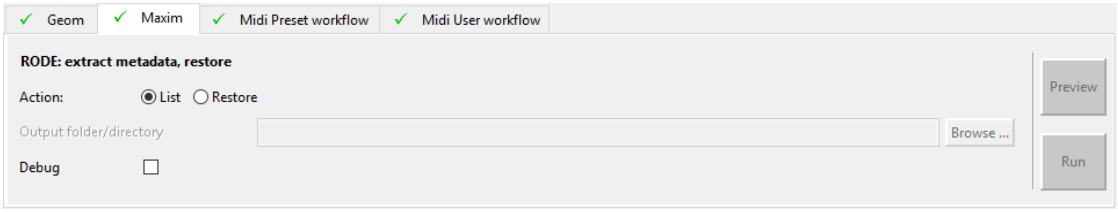


Figure 5-3 *Midi Launch Tab*

Extract Metadata

1. Select **Maxim** from the tab options at the top of the Product Panel.
2. Select the RODE folder/file you wish to examine from the tree in the results panel

   Note: Preview and Run options will remain greyed out if a RODE folder/file has not been selected in the tree results.

3. Select **List** from the Action options. Press **Run**.
   i. Progress will be shown in the Jobs Panel.
   ii. Job status is shown at the bottom of the panel.
   iii. The process is complete when *End of output* is displayed at the end of the results list.
   iv. Results will be displayed in the Jobs Panel.

   Note: See the section on Jobs Output for jobs page details.

RODE Restore

1. Select **Maxim** from the tab options at the top of the Product Panel.
2. Select the RODE folder/file you wish to examine from the tree in the results panel

   Note: Preview and Run options will remain greyed out if a RODE folder/file has not been selected in the tree results.
3. Select **Restore** from the Action options. The *output folder/directory* will be enabled. Click on **Browse** and browse to the required directory where the restored RODE files are to saved.
4. Select **Run**
   i. Progress will be shown in the Jobs Panel.
   ii. Job status is shown at the bottom of the panel.
   iii. The process is complete when *End of output* is displayed at the end of the results list.
   iv. Results will be displayed in the Jobs Panel as shown in Figure 5-4 below

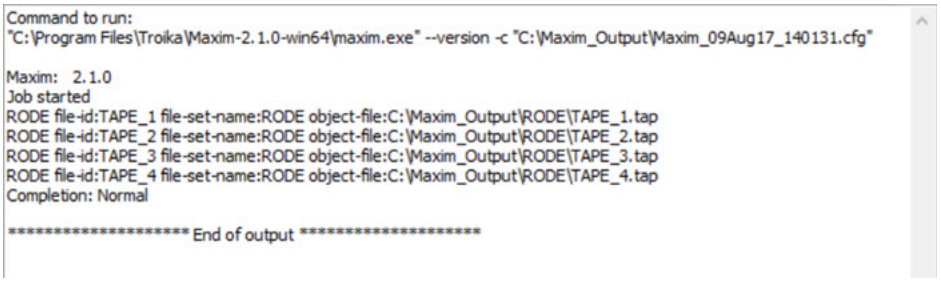


Figure 5-4 *Maxim restore results display*

   v. RODE files will be restored in the specified output directory as shown above

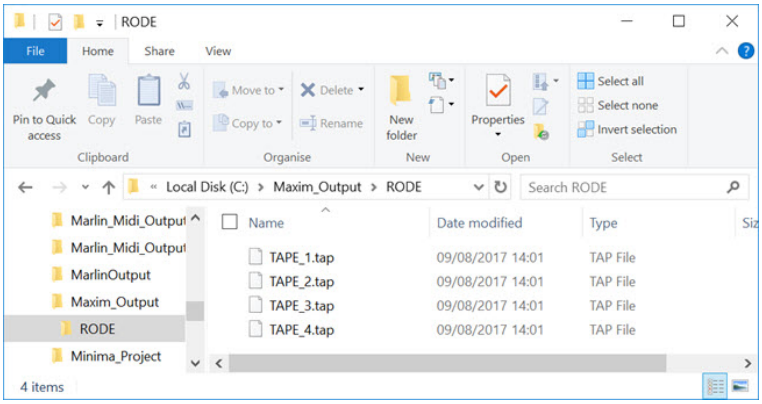


Figure 5-5 *Maxim RODE restore output directory*

Magma Jobs and Utility Panel

This can be used to load .mag5 Magma job files into Marlin in order to select and swap files within the .mag5 file with files selected within a Marlin trawl.

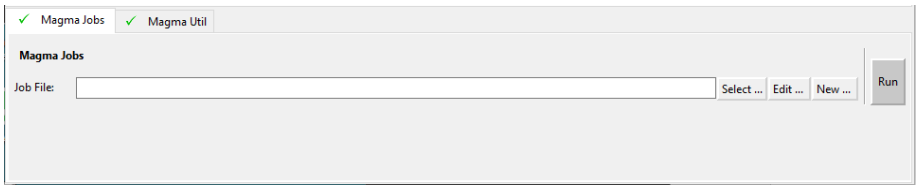


Figure 5-6 *Magma Jobs Tab Window*

Information on how to use the Magma Jobs and Magma Utility panels can be found within the Magma section of the drop down Help Menu.

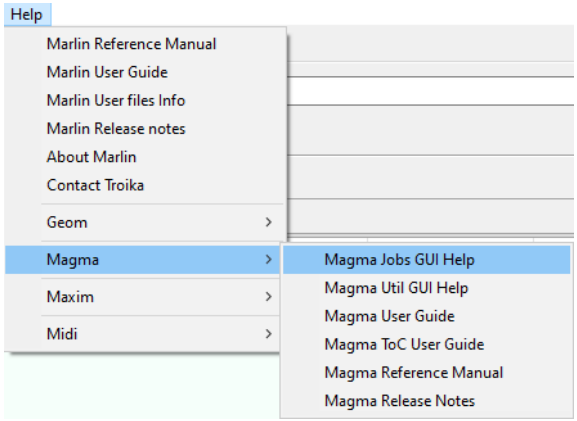


Figure 5-7 *Magma Help Menu*

Our clients use Magma for many purposes including:

- Tape Copying
- Demultiplex
- Reformatting Tape data
- Quality Control procedures
- Format compliance checks

Using Magma through Marlin allows the user to utilize the Marlin trawl functionality to run magma jobs from the trawl results. The Magma Utility in Marlin allows the user all of the functionality found in Magma's "Utility" drop down menu, as well the ability to load in Magma job from .mag5 files and run then in Marlin by swapping out the input files with those found within the Marlin Trawl.

Midi Launch

Midi can be used to process a file (or sets of files) that have been discovered during the Trawl. It can also be used to process Tape volumes that have been defined/discovered in the Tape Volumes panel.

Some items are assigned to **Midi Advanced**. These are additional options which require a Midi Advanced licence to run.

Midi Setup

Midi can be launched in one of two modes :

- ***Midi Preset workflow*** is used to configure and launch Midi jobs using complete predefined workflows (macros).
- ***Midi User workflow*** is used to configure and launch ad-hoc (and saved) Midi jobs. It has fields for key input data parameters and Parameters buttons to manage other options and job contents.

Midi Preset Workflow

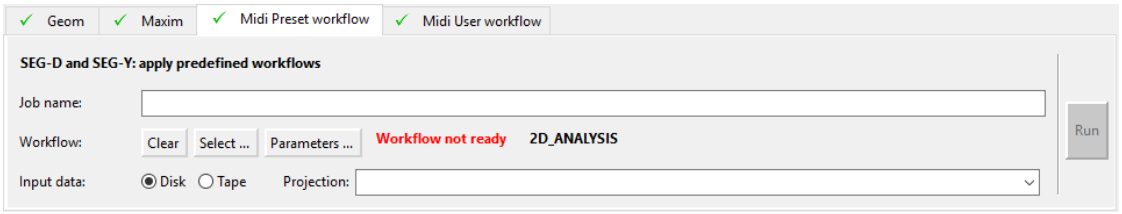


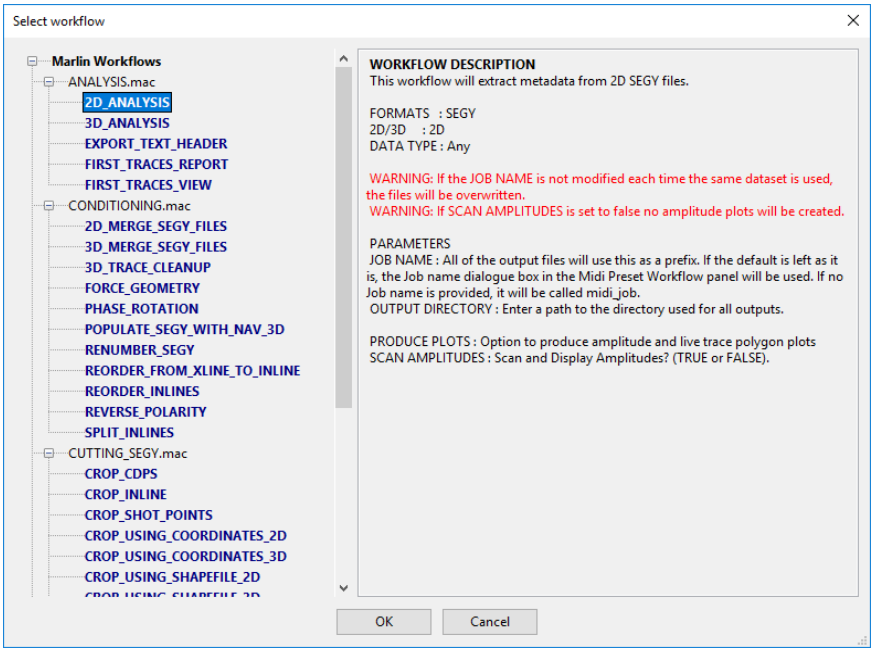
Figure 5-8 *Midi Preset Workflow*

The Midi Preset workflow launch panel is used to launch Midi jobs using predefined workflows.

The specific workflow is chosen via the Select button. This brings up a list of all the predefined workflows found in all the configured macro directories (see Settings, User Preferences, Midi, Macro directories).

*By click the **Clear** button it clears the current preset in use.*

Midi is shipped with example workflows as seen in the images on the next page. These are examples of commonly used workflows within Marlin. Each workflow example gives a description of its functionality and how to correctly input the parameters.



Directories are listed in order as in User Preferences, followed by those from the Midi examples if in use; files and workflows within each directory are sorted alphabetically.

Macro/workflow names are in navy and highlighting a workflow shows its details.

To configure a workflow, select it and click on **OK** and the parameter screen is displayed (If no parameters are required, the panel shows only the workflow name and description). The Parameter fields will already contain any default values that have been preconfigured in the workflow.

The Parameters button pops up the same input panel and can be used to view or modify the parameters before running the job or to run the same workflow later with different input values.

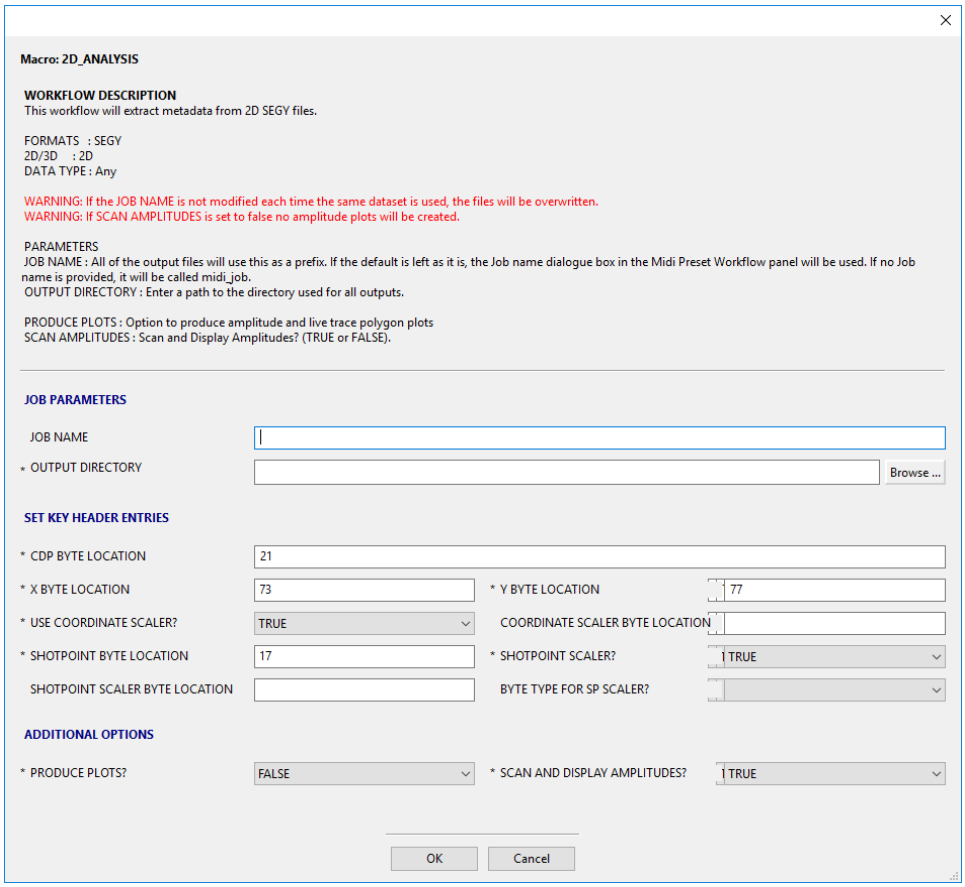


Figure 5-9 *Macro Example: 2D Analysis Workflow*

The state of parameters and macro name are displayed in the launch panel to the right of the Workflow buttons. Possible parameter states are:

- None: "No SEGD/SEGY data selected".
- Workflow not ready:**{WorkflowName}** : Parameters are partially-defined and not ready for use.
- Workflow ready:**{WorkflowName}** Parameters are defined and ready for use (or no parameters are required for the selected macro).

If the parameters are incomplete or macro definitions missing, hovering over the **Run** button in the preset workflows tab or **Run** and **Preview** button in User workflows should show a hover tip of "... parameters incomplete..".

Midi can be used on either SEGD or SEGY files but not both in a single job. Input format is only entered for tape input; for disk file input, Marlin retrieves the format from the trawl results.

Select input data items of the relevant type as follows:

Disk Files

In the Disk files pane, select files for input to Midi from the trawl results tree. Multiple files can be selected individually, multiply or by selecting one or more directories. Note that files will not be recognised within a directory until it has been trawled, either by expanding the directory item in the results tree or by using the Full Trawl option.

Tape volumes

In the Tape volumes pane, select the input volume set name, input format and any input tape options. A Midi job accepts a single input volume set; all tape volumes with the corresponding volume set name and a valid device will be used as input data.

Projection

The projections list is the names of .prj files in the projections directory (set in Settings, User preferences, General, Projection file directory, or if not set,from the environment variable MARVEL_PROJECTIONS_PATH or <Midi installation directory>/projections). Select the projection matching the input data (no reprojection is performed, so this will also match the output data).

The projection is currently used only when creating shapefiles with Midi/Marvel.

If set, the input data projection automatically includes a variable named $(projection). This can be used in preset-workflows without the need for an input argument.

```
marvel output-directory="$(output)" \
inline-item=inline \
crossline-item=xline \
x-item=x \
y-item=y \
projection=$(projection) \
drop-dead=true \
stack=true \
numbering-option=auto \
mode=image \
colour=rwb \
percent-extreme=$(extreme_value) \
maintain-aspect-ratio=false \
attributes=Azimuth,$${%3.1f}marvel_azimuth$,"job",$$jobname \
size=0,0 \
(output-file="$(jobname)-shape" type=poly item=fold text="$(jobname) Shape") \
(output-file="$(jobname)-outline" type=outline text="$(jobname) Live trace outline")
```

Run

Creates the necessary configuration file from the current argument settings and runs the job.

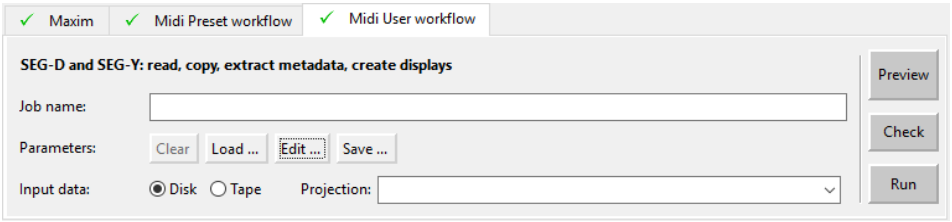
Arguments are written to a configuration (.cfg) file which is then passed as part of the Midi launch command. Configuration and log files are named using the job name and a timestamp.

For information on job progress and output files see the main Marlin help.

The Run button is not enabled until valid input data and a workflow have been selected and all mandatory arguments have been entered. If not enabled, hovering over the button will show a tooltip explaining why.

If the workflow uses streams, a box will popup to allow the assignment of input files to these. This can be done by entering stream names in the grid, or selecting one or more input files and using the context (right-click) menu to set the required stream name. (The macro description should include stream information to help with this!)

Midi User workflow



Midi will run without any set parameters to generate a list of a selected file, or files in a selected directory, but to run Midi and successfully use its features, parameters need to be set and job options selected.

A job flow can be created from scratch using the Edit... button and then selecting 'building blocks' of modules and control statements. Alternatively ***User workflows*** can be used to run preconfigured .

Marlin 3.6.0 introduced the ability to load a Midi configuration file from the Midi User workflow tab. Note: Any # comments within Marvel sections of the configuration file will load incorrectly and should be removed before loading into Marlin.

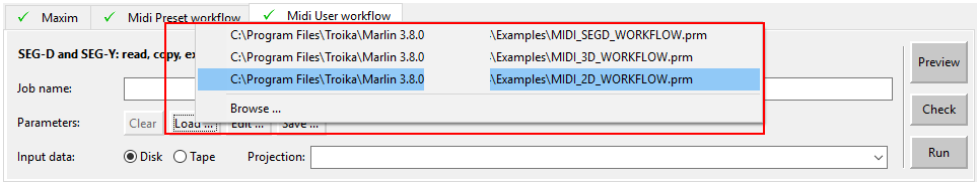
Example workflows are provided with the software and are found in the *Examples* folder in the software installation directory:

- MIDI_2D_WORKFLOW
- MIDI_3D_WORKFLOW
- MIDI_SEGD_WORKFLOW

To select a workflow:

1. Click on 

2. Marlins provides a list of the last five recently opened Midi parameters/config files when load is selected.



3. Browse to the directory and select the required workflow, for example **MIDI_2D_WORKFLOW**

4. Click on Edit ... The Midi parameters input box will open to display the Job flow editor panel (Figure 5-10 below).
    i. select an item in the navigation tree to display the associated input parameters
    ii. ✓ indicates when all compulsory input fields are populated and ready to run
    iii. ✗ indicates that information is missing e.g. a compulsory field is empty or a Marvel item has no associated Marvel output

> If available, previously loaded values will be displayed, though if none, the Midi default values are used.

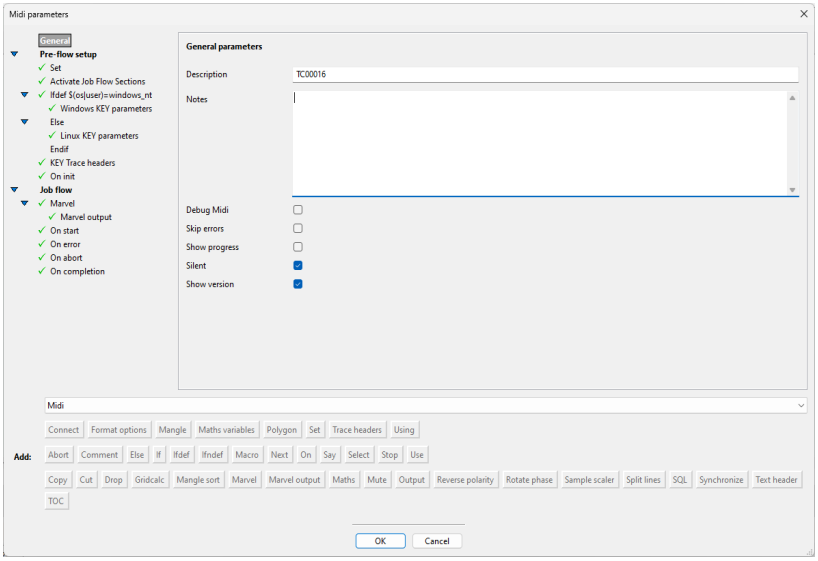
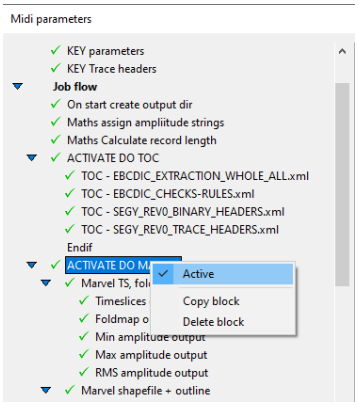


Figure 5-10 *Midi parameter input options*

5. Marlin allows the user to activate and de-activate individual parameters by right clicking them and deselecting the activate button.



This feature allows the user the ability to turn specific parameters of the Midi/Geom job on and off.

6. Click on Check to ensure that there are no invalid parameters present within the macro before midi runs it. This will run the Midi job in parse-only mode to check the arguments.

   If no invalid parameters are found the following message will show:

```
Configuration Parsing Completed, Parse Only Requested
Completion: Normal
******************** End of output ********************
```

Marlin has the ability to copy parameter blocks using right click, the block will be copied and placed immediately below, it can then be edited and moved to its desired position in the flow.

Midi Control Parameters

The user can adapt and control set jobs with the use of control parameters. These allow the addition of conditional blocks to Pre-flow Setup and Job Flow sections.

The following screens show the control parameter options for Midi, Midi Advanced & Workflow. There is a pull down selection to control which of these sets are visible at any time. Buttons will be highlighted or greyed out depending on the selected workflow. In this example the highlighted buttons show available Job flow parameters with the greyed-out buttons being Pre-flow features.

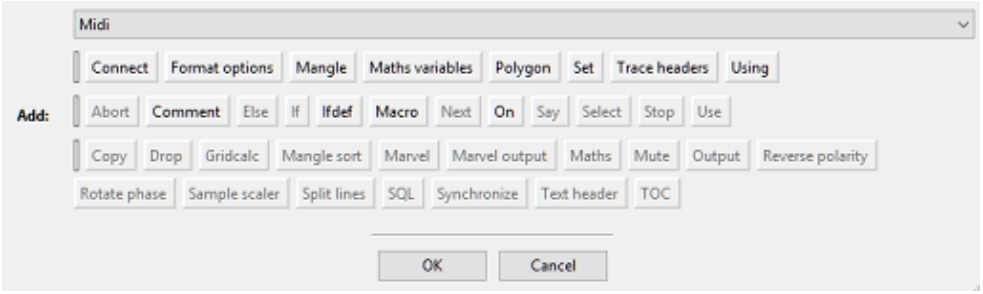


Figure 5-11 *Midi control parameter options*

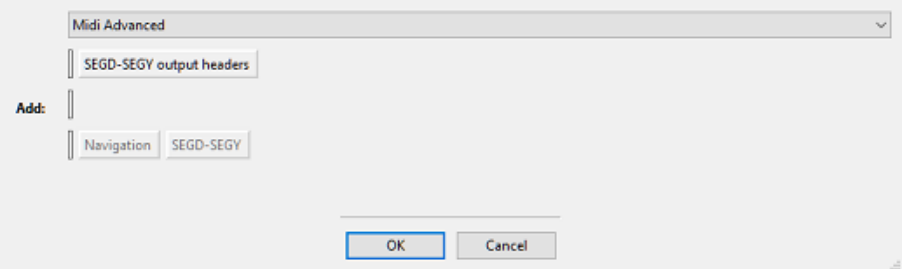


Figure 5-12 *Midi Advanced control parameter options*

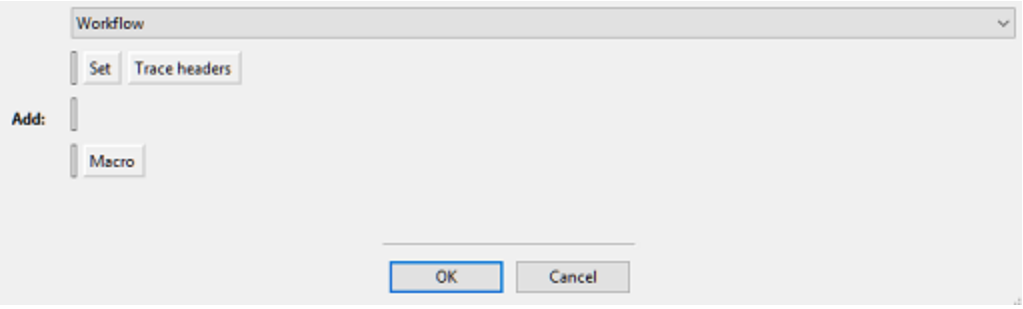


Figure 5-13 *Workflow control parameter options*

There is also a **Favourites** section where you can choose a sub-set of your most used control items. Add items by right clicking on their button and click Add to favourites in the mini-menu. You can remove items from favourites in a similar fashion from the Favourites panel.

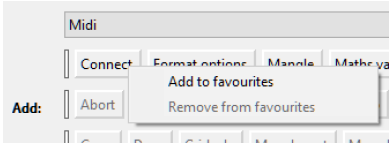


Figure 5-14 *Adding a control item to Favourites*

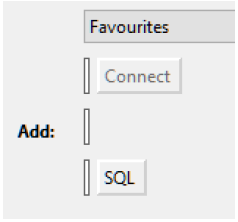


Figure 5-15 *Selected control items in Favourites*

Pre-flow and Job-flow command parameter options are presented in the Tablebelow.

Note: Full descriptions can be found in the Midi user guide.

Pre-flow and Job-Flow Command Statements

Control Item	Job-flow parameters	Pre-Flow	Job-Flow
Connect	Establishes an ODBC connection with a database	Y	N
Format Options	set options for data format and toggle on or off the ability to skip SEGD test records	Y	N
Math variables	Initialise variables for use in Maths state-ments	Y	N
Polygon	Define and name a polygon for use with Select	Y	N
Set	Define environmental variables that will be used elsewhere in the Midi job	Y	Y
Trace headers	Defines custom header entries	Y	N
Using	Defines the input stream names that will be used by Copy, Synchronize or Use.	Y	N
Mangle	Creates a Mangle Datastore	Y	N
Abort –	Forces Midi to abort and report that the job is finished with an error	N	Y
Comment –	Writes a comment line in the Midi con-figuration file	Y	Y
If	defines the start of a run-time con-ditional block. Endif is added to define the end of the block.	N	Y
Else	Add else to existing if - endif construct.	N	Y
Ifdef	defines the start of a parse-time con-ditional block. Endif is added to define the end of the block.	Y	Y
Macro	Identifies a Macro to run within the job flow	Y	Y
Next	forces a new input or output	N	Y

Control Item	Job-flow parameters	Pre-Flow	Job-Flow
On	launches the external command supplied when the specified event in the job flow occurs. Possible events are init, start, inputchaged, inputclosed, outputchanged, abort, error & completion	Y	N
Say	Outputs a message in the job standard output (log window) Marlin looks for Say notifications if appending to an output file as well as creating a new one and adds a "Say" view button to the job output page	N	Y
Select	One or more select statements can be entered to restrict the set of traces on which succeeding operations will be performed	N	Y
Stop	forces Midi to stop and report that the job is finished	N	Y
Use	Sets the current input streams.	N	Y
Cut	Cuts all samples from a trace.	N	Y
Copy	Copies trace header values from the stream(s) supplied if any (in order of precedence if more than one) to the current stream.	N	Y
Drop	This drops the current trace	N	Y
Gridcalc	Given a grid definition this populates trace headers with x,y coordinates based on a traces inline & crossline numbers.	N	Y
Mangle	Creates a Mangle Datastore	Y	N
Mangle sort	Sort input traces from a Mangle datastore according to up to 3 header items	N	Y
Marvel	Defines default settings for a Marvel command. Must be followed with Marvel output pages which define the output	N	Y
Marvel output	Defines an output that Marvel should produce	N	Y

Control Item	Job-flow parameters	Pre-Flow	Job-Flow
Maths	Allows mathematical operations	N	Y
Mute	Zeroes all samples in a trace	N	Y
Output	Defines seismic data to be written to tape	N	Y
Reverse Polarity	Reverses the input trace polarity	N	Y
Rotate Phase	Rotates the phase of SEGY data samples by the angle supplied	N	Y
Sample scaler	Applies a scaler to all data samples	N	Y
Split lines	Identifies line breaks in data (so that data parts can be directed to separate outputs)	N	Y
SQL	Executes an SQL command in the processing flow	N	Y
Synchronize	Synchronizes traces for the streams in use according to the trace headers specified.	N	Y
Text Header	Writes supplied ied text at the specified position of the SEGY textual file header . This can overwrite existing data.	N	Y
TOC	Produces Table of Content text files Endif is added to define the end of the block.	N	Y

Table 5-1 *Pre-flow and Job-flow command statements*

Control Item	Description	Pre-Flow	Job-Flow
SEGD - SEGY output headers	Allows the user to define trace header entries for the output SEGY file. Names defined here are only referenced on the SEGD-SEGY page. Using	Y	N

Control Item	Description	Pre-Flow	Job-Flow
Navigation merge	Allows the user the ability to merge or compare navigation with seismic. This has the capability to merge SPS data, navigation data from a 3 or 4 column file or a UKOOA (P1/84)P/190 file with seismic data(SEGD or SEGY), inserting the relevant location information, as well as elevation or water depth information, if available.	Y	N
Navigation (Midi Advanced)	Merges shot x,y information from an SPS file into the trace headers	Y	N
SEG-D-SEG-Y (Midi Advanced	Converts SEG-D input to SEG-Y format using trace header mappings	Y	N

Pre-flow Setup

The Pre-flow setup is used to provide definitions and set options before the job actions are carried out. The defined variables are then passed down the job flow to other modules.

Use the Pre-flow setup to define variables that should be set at the beginning of a job before the data is read. These variables will then be employed in other modules through the job flow.

General

Use this section to describe and add notes to the workflow. For example, the notes can be used to describe the workflow, provide information on which Pre-flow variables have been set and to describe what the specific workflow will produce.

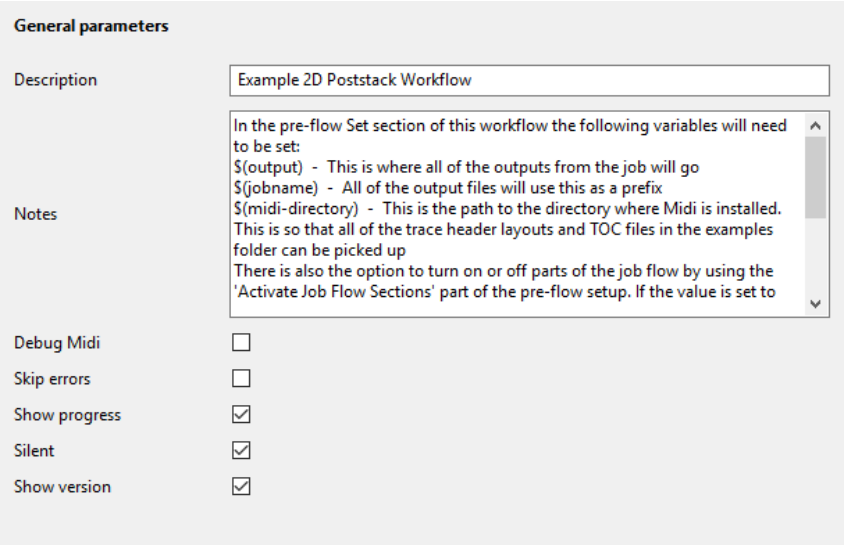


Figure 5-16 *Midi User Workflow - General parameters*

Control the detail of the Marlin log output by using the Debug and Silent tick boxes.

It is generally desirable to set Silent **ON** and debug **OFF**.

i. Debug ON will produce additional lines that are useful for debugging jobs that fail or produce unexpected results.

ii. If you encounter errors but still wish to process the dataset to completion, then check Skip Errors **ON**.

iii. "Show progress" If On, progress % will be displayed in the job status bar at the bottom.

iv. When Silent is OFF (Default) the primary ensemble number is displayed for each ensemble processed, this has the tendency to slow down processing significantly - It is generally desirable to set Silent **ON** and debug **OFF**.

v. Show Version will show which version of Midi you are using at the top of your job.

You may be asked to turn Debug on by Troika Support (*support@troika-int.com*) to help with any required troubleshooting.

Set

Set is used to define variables that are used in the Job Flow parameters. For example,

- $(output) – sets the output directory path
- $(jobname) – a job name is useful for naming configuration and log files. If not given, Midi is used as the default.

Add additional fields with the add button 

Remove fields with the subtract button 

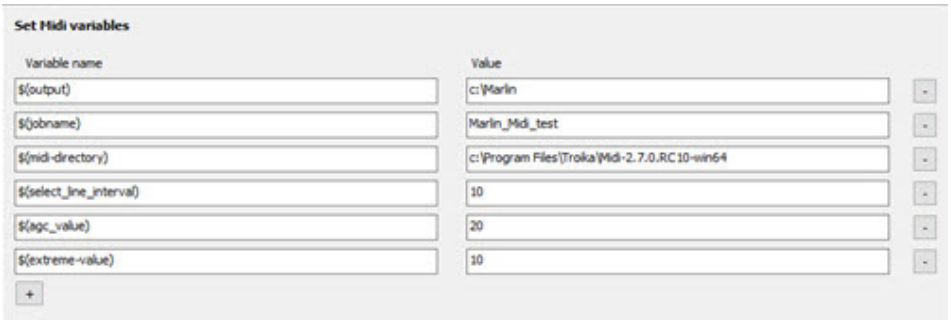


Figure 5-17 *Set Midi variables*

All blocks can be renamed (though this is not recommended for **if, ifdef** and **select**) by selecting the block name and selecting again so the Block title becomes an editable text field. An example is illustrated in Figure 5-8.

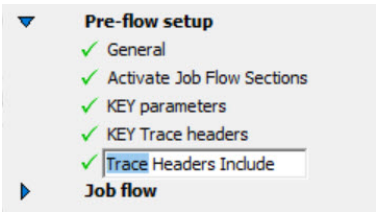


Figure 5-18 *Flow parameter block rename*

Trace Headers

The user can use trace headers to define custom entries. Change the trace headers section when necessary to reflect the byte locations in the data. The defined names can be referenced in commands on optional pages such as Select. Figure 5-9 shows example header definitions.

Figure 5-19 *Trace header definitions option panel*

Please refer to the Midi documentation for more information on the definitions and usage of Trace Headers.

On init

Use only in Pre-flow. The command supplied will be run before any traces are input to the flow.

Marvel Output

Marvel output defines an output that Marvel should produce. Settings are taken from the parent Marvel page or the Midi default unless specified.

Format Options

SEG data format options can be set. Figure 4-7 gives an illustration of how items relate to SEG-D or SEG-Y.

1. Use **SEGY revision** for trace header definitions. Valid options are
    i. none
    ii. full
    iii. rev0
    iv. rev1
2. Use the binary header information to determine the correct header item to use as the ensemble item, CDP, FFID etc. If the information in the binary header is incorrect then the user can override by giving the offset into the trace header for the item that holds the ensemble number. -1 is the default and means use the standard location for the datatype identified in the binary header. Only change this if you get unexpected results, find the binary header is incorrect and can determine the Primary Ensemble location in the trace headers.
3. Use **Output binary header** to set the value of a SEG-Y binary header location/item. This would usually only be used if a binary header value is wrong and needs to be corrected. **Use this option with extreme caution!**

see the Midi User Guide for details of the differences in defined header configurations.

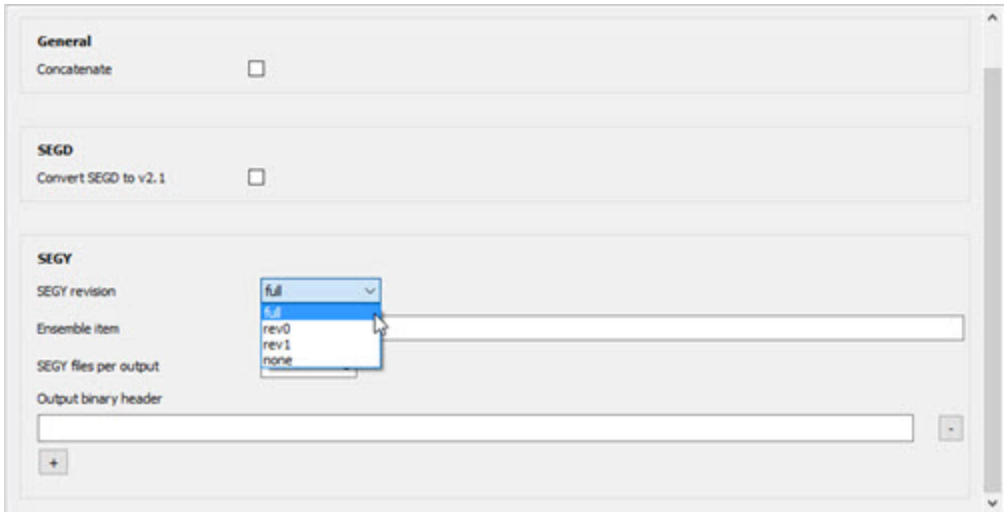


Figure 5-20 *SEG Format Options*

Maths Variables

Maths variables can be defined for use on optional Maths blocks. These perform mathematical operations on trace header values. There are many variances and the decision to use the maths variable option will be dependent on the

desired workflow. Variables can be initialised in the Pre-flow setup and can also be changed during the job run by a Maths item.

Polygon

This option allows the user to define a polygon for use later by **Select** or **If** – it produces a polygon-definition line in the Midi configuration file.

Use Polygon to define the coordinates for including or excluding data. This information is passed by a Select statement or an If block to produce the cut of the data.

A new option "shape-format=<format>" has been added to the marvel commands. Currently the default (if this option isnt included) is SHAPE format. There is now support for a csv format "shape-format=csv".

Note: See the Midi User Guide for more details.

SEG-D to SEG-Y Output Headers (Midi Advanced)

This option allows the user to set SEG-Y header definitions for the output SEG-Y file from a SEG-D input. The SEG-Y definitions are used in the SEG-D to SEG-Y command when setting the mapping of information from the SEG-D input to the SEG-Y output headers.

Note: See the Midi User Guide for more details.

Job Flow

Job flow variables can be used for substitution in fields within the Job flow sections.

Refer to the Midi User Guide for detailed guidance on each variable.

Ifdef

Ifdef checks whether a name is defined or has a given value and is used to turn on or off parts of the job flow. **Ifdef** will make an assessment before any data is read to determine if a part of the job flow should be used or not. For example:

```
To evaluate blocks ONCE before any data is read:
set $(do_section1)=true
set $(my_trace_headers)=true
ifdef $(my_trace_headers)=true
segy-revision none
include /mytraceheaders.def
else
segy-revision full
endif
ifdef $(do_section1)
marvel ...
toc-definition ...
toc-output ...
endif
ifdef $(USER|USERNAME)="brian"
say-line "Hello Brian"
endif
```

On

This option allows the user to specify external commands to be run at specified events during the job. Events supported are:

- **start** : After parsing and before processing
- **error** : If errors are encountered during parsing
- **abort** : When the job is aborting due to fatal errors
- **completion** : When the job is shutting down due to normal completion

The '***on error***' option should be used as early as possible in the configuration file, but the positioning of the other 'on' option is not important.

Comment

Comment is used to write a comment line in the Midi configuration file and can be used in both the Pre-flow and Job flow sections. These comments will be added to the Midi configuration file and commented out.

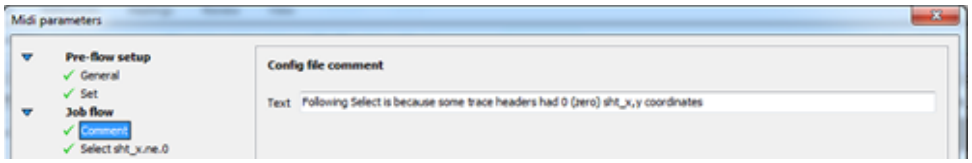


Figure 5-21 *Config file comment*

TOC

TOC produces Table of Contents text files. TOC definition files must already have been created.

You can have as many TOC modules as you like. You can put them inside conditional blocks and after selects to produce table of contents for sub-sets of the input data stream.

To produce a TOC output file 3 values must be supplied:

i. Output Directory/Folder
ii. TOC definition file to use
iii. Name of the output file

Note: See the separate TOC User Guide for TOC definition file contents and syntax.

A TOC example is given in Figure 5-12 and shows the use of Job flow variables when configuring a TOC output. The user can setup generic re-usable workflows with many TOC/Marvel/Output sections and quickly adjust them to use different parameters throughout the sections (e.g. a new output directory).

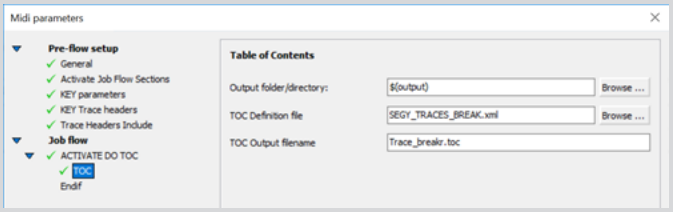


Figure 5-22 *Midi TOC example parameter settings*

Variables can be accessed and used in TOC files using the environment method. TOC definition lines as given in Figure 5-9 will produce the following lines (highlighted in bold) in the TOC output file header:

Output= C:\TRKDEMO\PROJECTS\UG

Config= C:\TRKDEMO\CONFIG

Input File First CDP Last CDP

segy-101.sgy 1001 2980

segy-103.sgy 1001 2082

To add additional headers use +

To delete a definition use - at the right-hand end of the appropriate definition line.

The TOC User Guide provides examples and information on how to create TOC files.

Output

Output defines seismic data to be written to disk or tape. Use to specify your output.

General output parameters are at the top of the page, followed by those specific to disk and tape output. A Midi job can write seismic data to multiple outputs on disk or tape; selection of the output medium via the Disk or Tape button will enable the relevant fields.

For example, a user can specify output of all of the data to tape or disk by using an Output module at the top of a job flow, then use a Select statement to pass selected traces to another output module.

1. **Disk output**

   Output encapsulation must be selected, along with the system for naming output files:

   - **Manual** : Supply one or more output filenames.
   - **Auto** : Supply a filename base for auto-output file naming.
   - **As input** : Output files will be given similar names to input files (disk input only).

   If not entered here, the output folder/directory will default to that selected in the Marlin User Preferences.

2. **Tape output**

   An output volume set must be selected. If the required volume set is not displayed in the dropdown menu, it has not yet been set up in the Tape volumes tree. If the output volume set contains an Auto pseudo-volume rather than actual volume names, the auto-output volume basename must be supplied.

Split lines

Split lines define where to identify line breaks within the data. The input stream can be split into sub-sets (lines) by identifying gaps (or jumps) in any trace header or record timestamp.

For example use Splitlines for:

i. splitting field data into lines by finding gaps in ffid/shots or timestamps
ii. splitting 3D data into inlines for archiving

There can only be one active Split lines block per job. If you specify multiple active Split lines blocks the Midi job will fail. You can insert Split lines blocks within Ifdef blocks when the conditions mean that only one Split lines block is active at runtime.

Maths

Maths allows mathematical operations to be carried out. Multiple operations can be carried out in a Maths block by adding additional lines using +

Marvel

Marvel is Midi's method for producing graphical images. These can be used to visually QC datasets e.g. Trace Plots, Time Slices, GIS Shapefiles, Survey Outlines etc.

1. Marvel is used to define the default settings for a Marvel command and must be followed by one or more Marvel output pages which define the outputs.

Marvel output

Marvel output defines an output that Marvel should produce. Settings are taken from the parent Marvel page or the Midi default unless entered here.

1. Multiple Marvel output pages can be associated with each Marvel item.
2. Each Marvel block can contain one or more Marvel output sub-blocks that normally share a set of attributes and types thus the Marvel block can set default values for the child Marvel output sub-blocks (Figure 5-23 below).

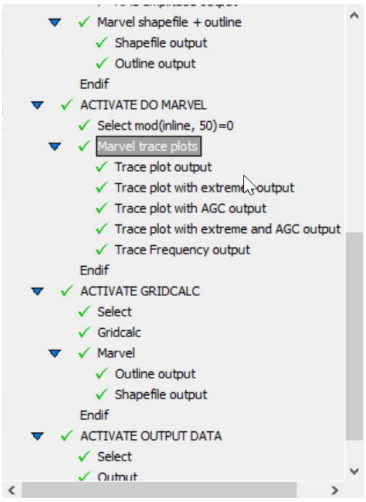


Figure 5-23 *Marvel blocks in job flow*

3. Marvel defines default settings for its child Marvel output sub-blocks followed by one or more Marvel output pages defining the outputs.
4. Figure 5-24 on the facing page shows the Marvel parameters which apply to all associated outputs and cannot be set on individual Marvel output pages.

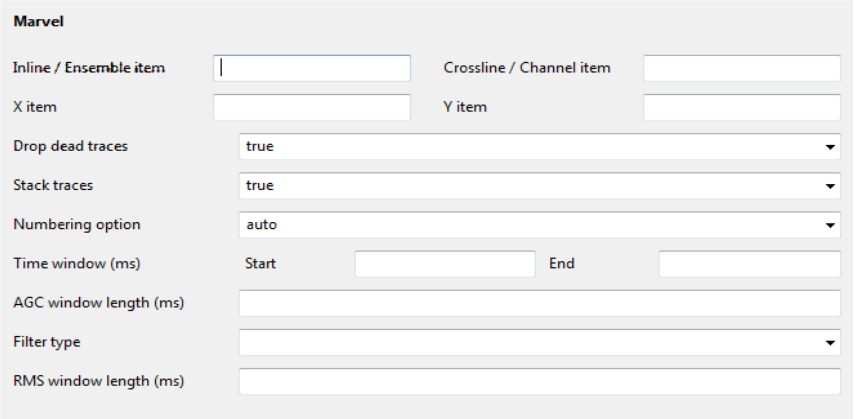


Figure 5-24 *Marvel parameters for all associated outputs*

5. Figure 5-25 below shows the default value parameters; they apply to all associated outputs unless overridden on individual Marvel output pages. Marvel output defines an output that Marvel should produce.

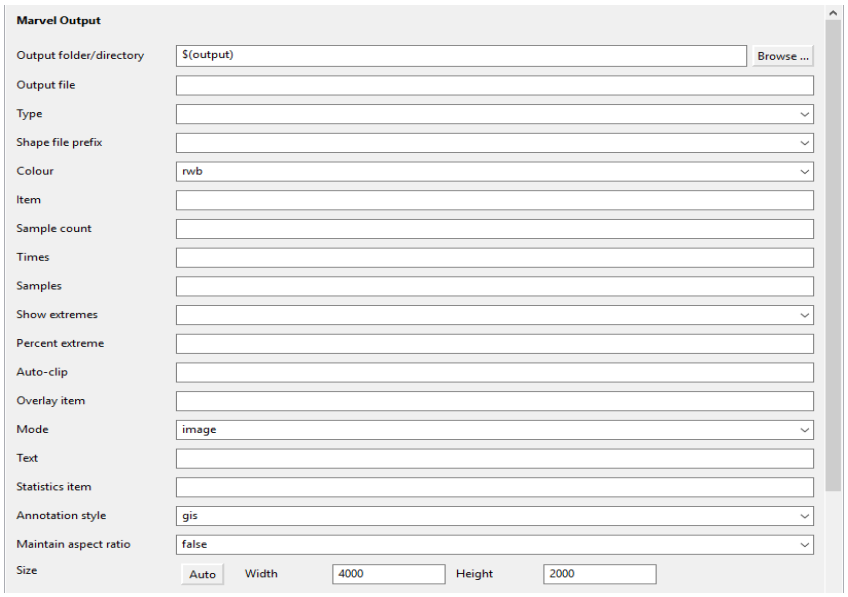


Figure 5-25 *Default parameters which can be overwritten on output*

Marvel and Marvel output pages have an Auto button next to the width and height fields, which sets them both to zero, telling Midi to calculate the image size.

```
The following illustrates how Marvel blocks are set to produce different display out-
puts and provides the parameter details used with GRIDCALC to create a shapefile.
```

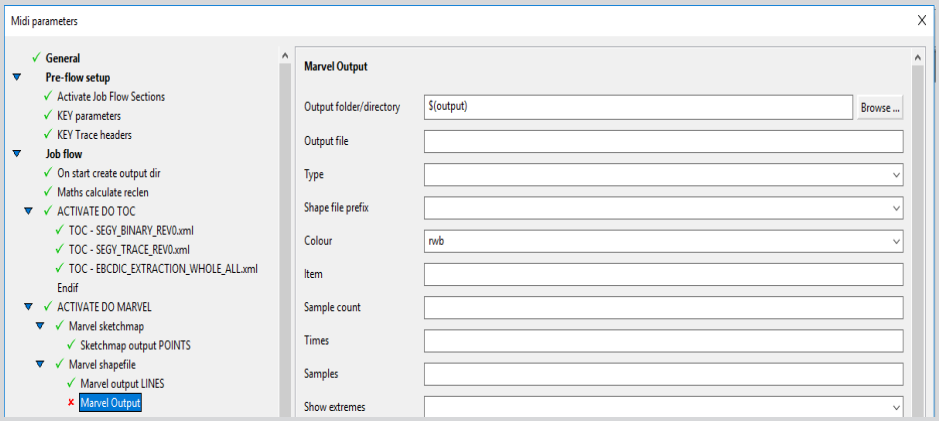


Figure 5-26 *Gridcalc parameters used to create a shapefile*

Please refer to Appendix 1 for detailed descriptions and illustrated examples of Marvel

Projections

The projection file should match the input data and is used in conjunction with the Marvel types of poly and lines. No reprojection is done.

If no projection file is selected (this is the default) the shapefile set is created without a projection file (.prj) altogether and GIS users will have to set the CRS when they load the shapefiles into the GIS system.

Note: This is specified in the main Midi page and applies to ALL Marvel blocks. This means that Midi expects that all input data contains coordinate data in the same Coordinate Reference System. Therefore, for each job, you should not select datasets/folders that contain files from different surveys/vintages etc.

The projection file will be copied to the shapefile set with the filename matching the filename of the shapefile specified in the Marvel block.

It is recommended that you name your projection files so that users can easily recognise them for selection for example:

Use the EPSG Code
- 23030.prj
- 23031.prj

Use the CRS Descriptions from your GIS systems
- ED50-UTM_zone_30N.prj
- ED50-UTM_zone_31N.prj

Use the CRS Descriptions from your GIS systems + the EPSG code
- ED50-UTM_zone_30N-23030.prj
- ED50-UTM_zone_31N-23031.prj

Marlin/Midi looks for projection files in the Projection files directory specified in **Marlin – User Preferences – General Settings.**

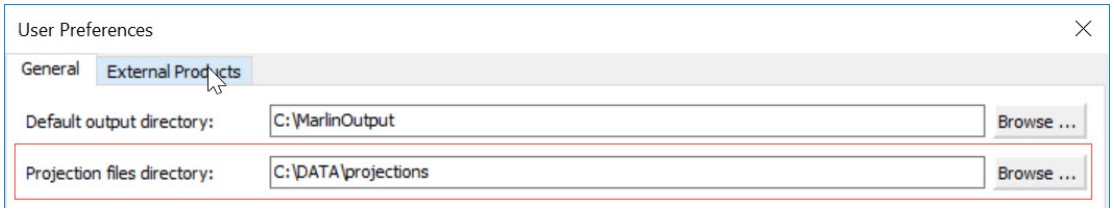


Figure 5-27 *User preferences - projection files directory*

For example, the following files are in the directory/folder specified in the configuration field Projection files directory.

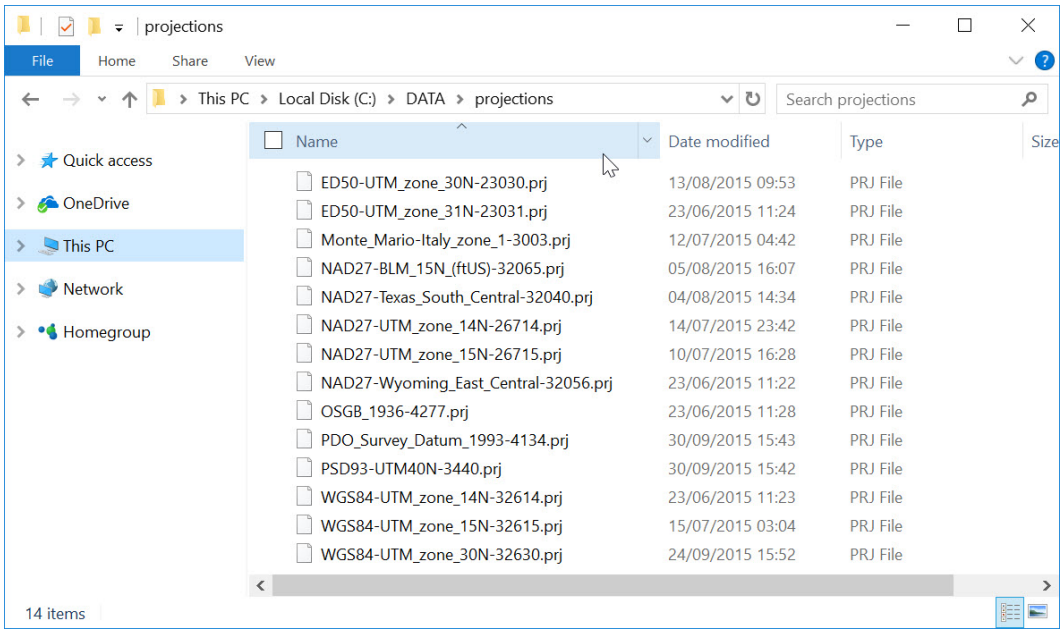


Figure 5-28 *Projection directory/folder*

The dataset being used is the Teapot Dome 3D survey which has X,Y coordinates in NAD27/Wyoming East Central (EPSG:32056). Select the matching projection file from the dropdown list.

Gridcalc

Gridcalc is primarily used to work out the geometry for pre-stack data in preparation for workstation loading. Grid calculations enable the user to create a predefined grid within the corner parameters entered and display them. The Item parameters used can be header items or math variables.

Please refer to the Midi user guide for details.

Live trace outline and shapefile displays generated using Gridcalc on the Teapot Dome 3D dataset are shown in Figure 5-29 on the facing page

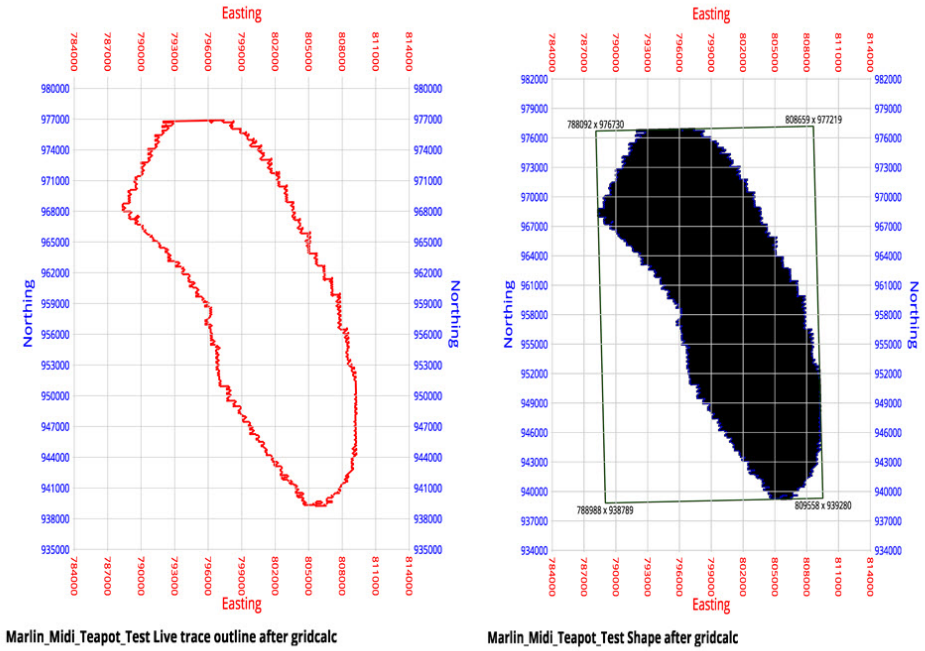


Figure 5-29 *Gridcalc shapefile display output*

Reverse Polarity

This will reverse the polarity of SEGY data samples and updates the polarity flag in the binary header. It is not valid for SEGD data

Rotate phase

Rotate phase rotates the phase of SEGY data samples by the angle supplied.

Sample scaler

Sample scaler applies a scaler to all data samples.

Connect

Use to establish an ODBC connection with a database. It is used to allow SQL communication via the connection name that is entered.

SQL

This will execute an SQL command in the processing flow which is sent to a database. An ODBC connection to the database must have been set up with a Connect page.

Using

Using defines the input stream names that will be used by Copy, Synchronize or Use. When the Midi job is previewed or run, the user is prompted to associate all input files with the defined streams.

Synchronize

Synchronize uses the header item name supplied to synchronize traces for the streams in use (defined in the most recent Use page). Stream names must have been supplied with a ***Using*** command; Synchronize will be marked as invalid until this has been done.

Streams

There is the ability to read multiple inputs as separate Streams in Midi . This has many potential uses but an example is that Geometry trace headers can be copied from one input file (master) to other files..

The syntax requires that each Stream has to be declared by name and each input file can be assigned to a stream. One of more files can also be attatched to a single stream.

When using streams within the Job-flow section it is possible to assign each stream a unique name for each stream as seen in the image below. For more information regarding streams, select Help, Midi, Midi User Guide.

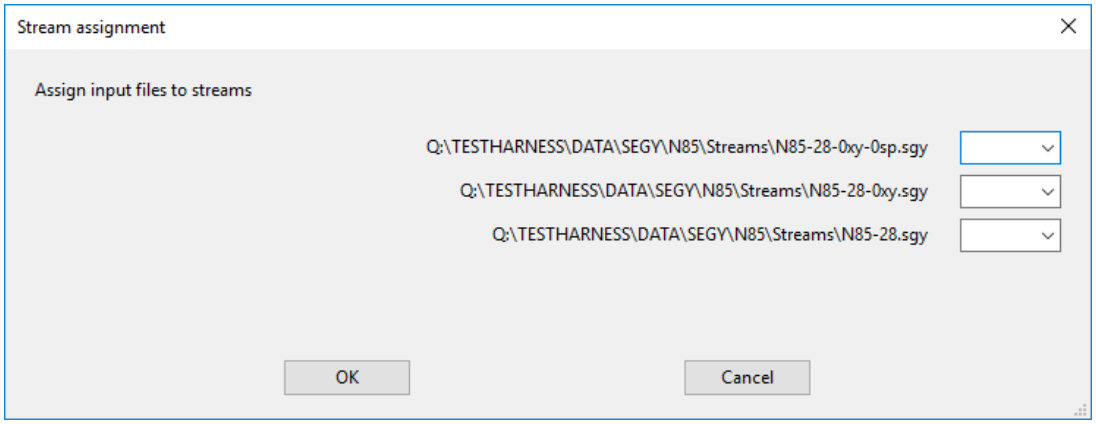


Figure 5-30 *Stream Assignment window*

Cut

Cut sample ranges from traces. One or two Arguments must be specified. If only start is specified then each selected trace is cut from the start time (or depth) to the end of data. If start and end are specified then each selected trace is cut from the start time (or depth) to the specified end time (or depth). Units available are ms, m/ft, Hz.

Copy

Copy copies trace header values from the stream(s) supplied if any (in order of precedence if more than one) to the current stream. If none are supplied here, values are copied from the streams supplied with Using.

Drop

This drops the current trace i.e. it is not passed on for further processing. This would normally called within a conditional block.

Mangle

Mangle defines a Mangle datastore file to create. The input SEGY files will be attached and read via this datastore.

Mangle sort

Mangle sort will sort input traces from a Mangle datastore according to up to 3 header items. Mangle must have been used in the preflow setup to create the datastore.

Mute

Mute allows you to mute/ignore multiple sections of the data within an output.

Text header

Text header allows text in a card of the SEGY textual file header to be replaced with the text supplied, optionally between specified column positions.

Saving Job Workflow Parameters

By default, the current configuration is saved ON PROGRAM EXIT and is reloaded the next time you start Marlin.

Saving Parameters

Current Job flow parameters can be saved into a re-loadable parameters file. This facility can be used to create re-usable workflows for specific datatypes (e.g. Field SEGY, 3D post-stack).

Note: User Preferences and Program settings are not saved here, only the Midi launch parameters.

The **Save** parameter file button is found in the Midi panel at the bottom of the Marlin interface (Figure 5-31 below). Selecting **Save** will bring up a file dialogue from which you can choose directory locations and filenames.

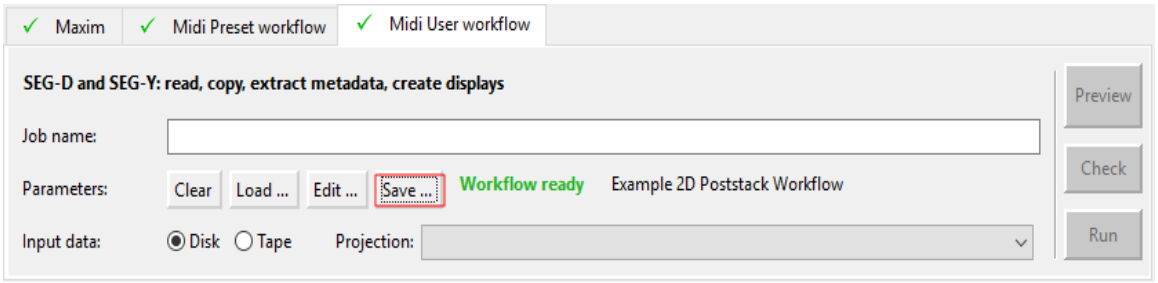


Figure 5-31 *Midi parameter save option*

Geom

Geom is a high speed SEGY 3D Data Geographical Analysis tool which allows the user to collect fast information on:

- Textual Headers
- Trace Headers
- Bin Spacing
- Inlines/Crossline and X/Y Coordinates
- Geometrical Corner Points
- Shapefiles
- Cornerpoint Plots
- Logfile including all of above
- Ability to export Header Definitions for integration into Macros or other text files.

Geom launch panel

The **Geom** launch panel is used to configure and launch Geom jobs to analyse SEG-Y geometry. It has fields for key input data parameters and *Parameters* buttons to manage other options and job contents.

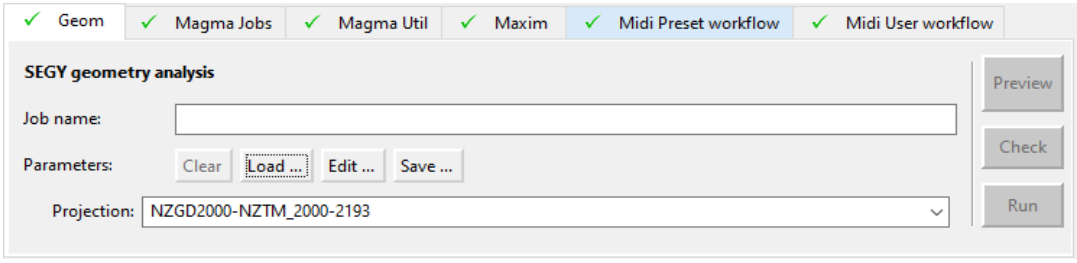


Figure 5-32 *Geom Panel*

Job name

A *Job name* is not compulsory, but is used for the naming of the log files. If not supplied, `geom_job` will be used.

Parameters

Geom setup and job flow parameters can be cleared, loaded, entered/edited and saved via the ***Clear***, ***Load ...***, ***Edit ...*** and ***Save ...*** buttons.

When Geom is started with **Run** it will use the current parameters. Defining parameters is not compulsory - Geom can be run without parameters and will use its internal defaults.

Loading and saving parameter files is not required, but can be used to set up "templates" and reuse them later. Parameters are saved in Marlin internal format; they can be reloaded from either this or Geom configuration file format.

Load ... pops up a menu to load one of the 5 most-recently loaded files or browse for a different one. If macros used by the selected file are not defined you will be warned that the file cannot be loaded; if unrecognised parameters are encountered on reload they will be ignored. Note that Marlin does not recognise the Geom *include* command - prebuilt

blocks are included using *macro*. When Marlin is closed, the current parameters will be recorded and reloaded on the next Marlin startup.

The parameters state and job description, if any, are displayed in the panel to the right of the buttons. Possible parameter states are:

- None: No parameters are defined - the only item is the *General* page in its default state and there are no *Geom* items.
- **Parameters not ready**: Parameters are partially-defined and not ready for use (***Edit*** ... will show incomplete items with a red cross in the items tree) or items use undefined macros.
- **Parameters ready**: Parameters are defined and ready for use (***Edit*** ... will show all items with a green tick in the items tree) and no undefined macros are used.

See the Parameters input box section for details of the parameters available.

Input data

Geom can only be used on SEG-Y files on disk.

Select input data items as follows:

Disk files

In the **Disk files** pane, select files for input to Geom from the trawl results tree. Multiple files can be selected individually, multiply or by selecting one or more directories. Note that files will not be recognised within a directory until it has been trawled, either by expanding the directory item in the results tree or by using the *Full Trawl* option.

Projection

The projections list is the names of `.prj` files in the projections directory (set in *Settings, User preferences, General, Projection file directory*, or if not set,from the environment variable MARVEL_PROJECTIONS_PATH or `<Geom installation directory>/projections`). Select the projection matching the input data (no reprojection is performed, so this will also match the output data).

When a projection is selected, its value will be used to set the Geom `--projection` argument. The projection is used only when creating shapefiles.

Preview

Displays the content of the configuration file that would be created to control the job, based on the current parameter settings.

Arguments are constructed for input data and job parameters. They are displayed grouped as when running the job and can optionally be written to disk.

The **Preview** button is not enabled until valid input data has been selected and any mandatory parameters have been entered. If not enabled, hovering over the button will show a tooltip explaining why.

Check

Creates the necessary configuration file from the current parameter settings and runs the job in parse-only mode, where Geom stops after parsing the arguments. If Geom detects any bad or missing arguments, the job will show an error completion status, otherwise it will complete normally. Messages relating to bad or missing arguments will appear in the job output window in red.

Arguments are constructed as in **Preview** and written to a configuration (`.cfg`) file which is then passed as part of the Geom launch command. The configuration file is named using the job name and a timestamp. No logfile is created.

For information on job progress and output files see the main **Marlin** help.

The **Check** button is not enabled until valid input data has been selected and any mandatory parameters have been entered. If not enabled, hovering over the button will show a tooltip explaining why.

Run

Creates the necessary configuration file from the current parameter settings and runs the job.

Arguments are constructed as in **Preview** and written to a configuration (`.cfg`) file which is then passed as part of the Geom launch command. Configuration and log files are named using the job name and a timestamp.

For information on job progress and output files see the main **Marlin** help.

The **Run** button is not enabled until valid input data has been selected and any mandatory parameters have been entered. If not enabled, hovering over the button will show a tooltip explaining why.

Parameters input box

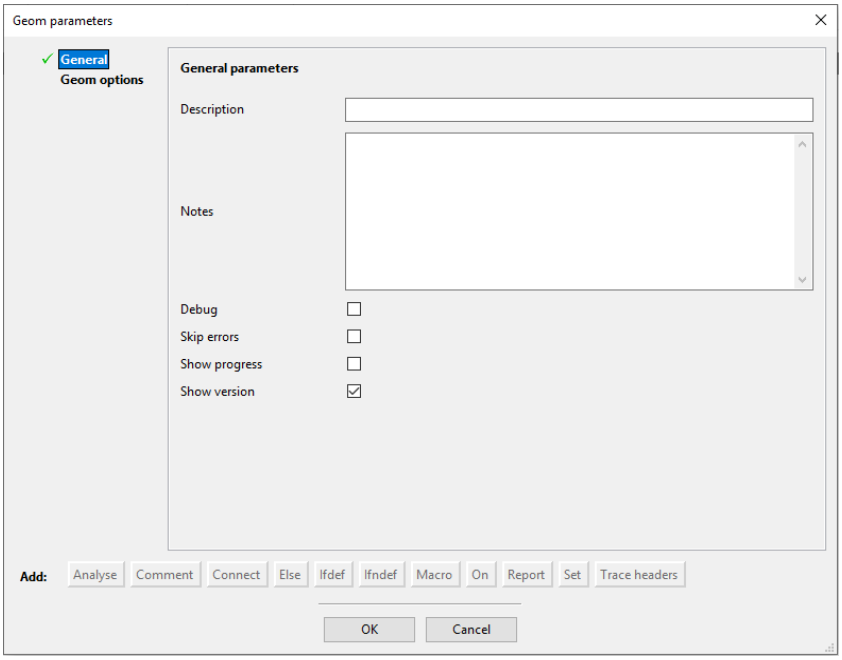


Figure 5-33 *Geom Parameters*

Values displayed when the box pops up will be those previously set/loaded or if none, the Geom default values.

Selecting an item in the navigator tree on the left-hand side will show the associated input page, if any. The item's tick or cross icon shows whether the page is ready to run i.e. all compulsory input fields have been populated.

Geom analyses each file as a whole rather than processing traces in order; the order of items in the navigation tree is therefore for user convenience only and does not affect running of the job.

Marlin will put a yellow box around parameters that are invalid when the user if given "Workflow not ready".

Optional items can be added with the *Add* buttons below the panels; a button is enabled only when it is valid to add that item below the current position in the navigator tree. ***Ifdef*** and ***Ifndef*** also add an associated ***Endif***item. **Geom** items or blocks can be moved within the tree by dragging to a new position in the tree or can be copied or deleted via the item's right-click menu.

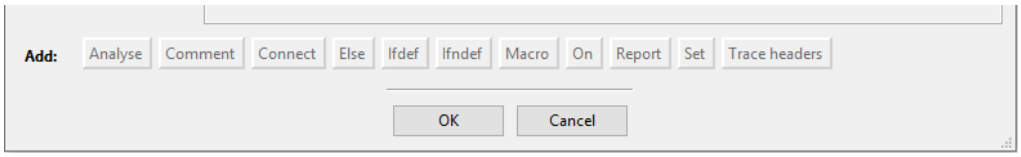
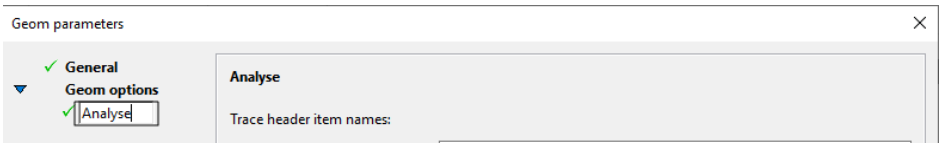


Figure 5-34 *Geom Parameters Add*

Most items can be renamed for quick reference (click twice on the tree item and edit); the exception is the ***Geom*** section item.



Unless renamed by the user, control items ***Ifdef***,***Ifndef***, ***Macro*** and ***On*** are automatically renamed using the condition, macro name or main value entered on the parameters page. If the user removes an item name it will revert to its default or automatic value. Note that on Linux, renaming must be completed by entering return.

Right-clicking on the ***Geom*** section and selecting ***Clear*** will remove all items from the section

Geom allows the user to activate and de-activate individual parameters by right clicking them and deslecting the activate button.

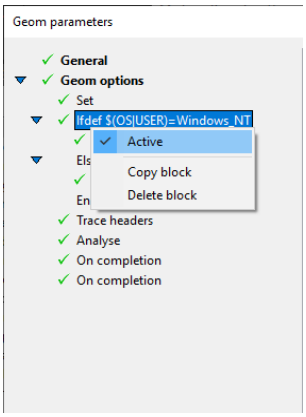


Figure 5-35 *Geom parameters active toggle*

This feature allows the user the ability to turn specific parameters of the Midi/Geom job on and off.

Add buttons

Buttons are present for all possible Geom parameter groups.

Input field types

Free text

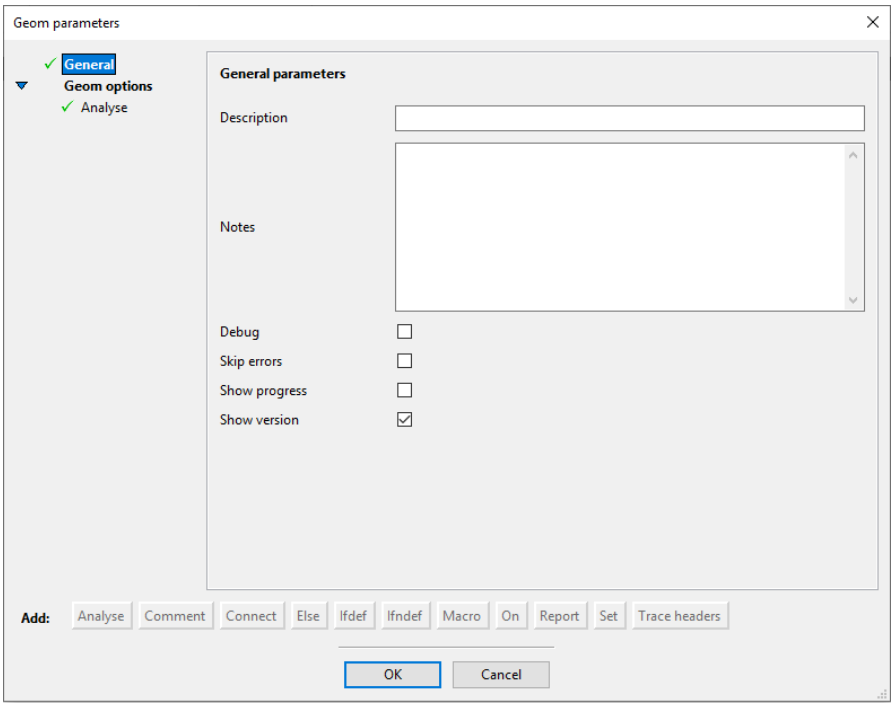
Single or multiple values can be entered. See the *Geom Help* or for syntax.
Where a text box allows multiple lines to be entered, the arguments constructed will have a space and back-slash inserted before newline(s) to generate valid commands in the configuration file.

Choice
Pulldown menus are used where there is a limited set of valid options. In other cases it is also possible to enter a value or variable name instead of selecting from the list.

Multi-entry fields
Where multiple entries are allowed and these could be long or complex, a single field or set of fields is shown initially. To enter additional sets of values, use the **+** button beneath the fields to add new rows. To remove or clear a row, use the **-** button on the right-hand side or remove the text (empty rows are not a problem and will be ignored when building the Geom configuration file).

General parameters

The General parameters allows you to add a description and notes to the parameter file. The description given will be outputed in the config file produced when the job has finished. *Description* and *Notes* are for information only and do not affect the running of the Geom job.



The ***General*** page is always present and contains descriptive text and job control flags:

- Debug - This will give the user information about any bugs, errors or abnormalities in the running of the job.
- Skip errors - This will allow Geom to ignore errors within the Data.

- Show progress - This will show the progress of the Geom job at the bottom of the job window. This is only effective when analysing very large files/file.
- Show version - This will show which version of Geom is running at the start of the Job as well as within the config that produced.

If *Show progress* is switched on, progress messages are displayed in the job status bar at the bottom of the window.

Geom options

Analyse

The ***Analyse***page switches on geometry analysis and allows the user to set the trace header names to use and output files to produce. If trace header names are not entered, Geom will use internal defaults according to the input data file SEG-Y revision.

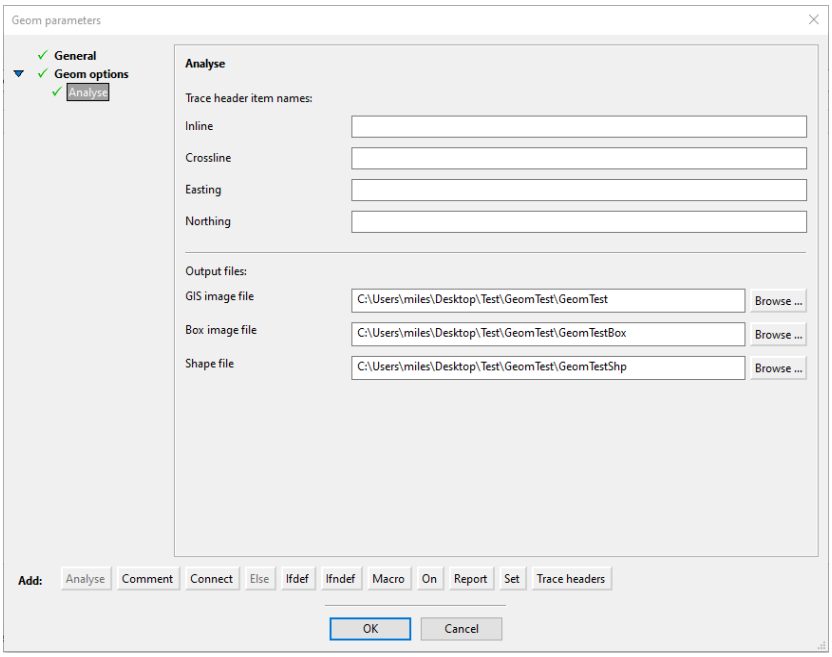


Figure 5-36 *Geom Analyse*

Analysis results are reported in the job log. All output files are optional.

Only one ***Analyse*** page can be added and this cannot be in an ***Ifdef***/***Ifndef*** block.

The output files section at the bottom allows you to select the output destination and name for your GIS image file and Shape file. Select the browse button and then edit the last part of the path to edit the name of your file.

Connect

Midi can interact with databases via Open Database Connectivity (ODBC) connections. You will need to have the relevant

ODBC driver installed for your specific type of Database. You will then need to configure an OBDC Data source for your

database.

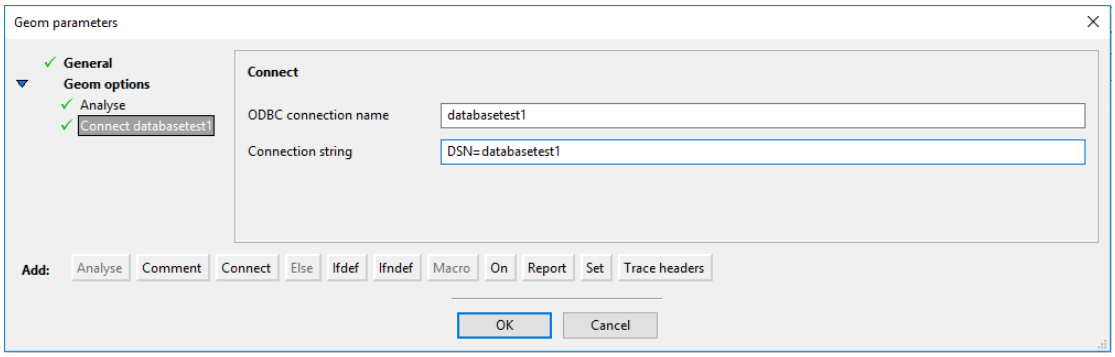
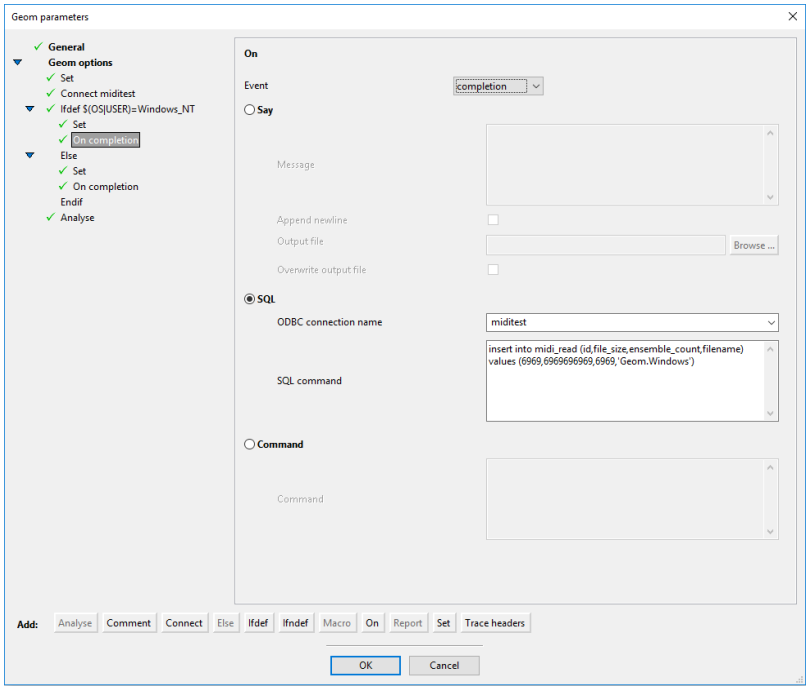


Figure 5-37 *Geom Connect Parameters*

A connect sequence must end with a On command. For example in the screenshot below it shows we have chosen for the meta data to be sent to the SQL database upon completion.



The SQL command above is " insert into database_example (id,file_size,ensemble_count,filename) values (123,56789,8765,'Geom.Windows')

The SQL command section also allows the use of Geom's internal variables seeen in "Internal Variables" on page 92.

Report

The ***Report*** page allows the user to select additional items to report in the job log.

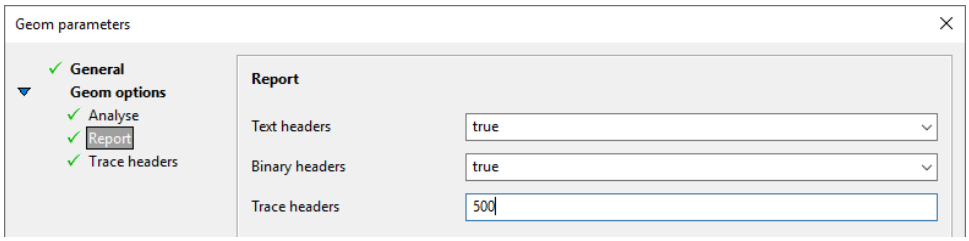


Figure 5-38 *Geom Report Parameters*

Only one ***Report*** page can be added and this cannot be in an ***Ifdef*** / ***Ifndef*** block.

Textual Headers - Selecting **true** will show the textual header in the output and selecting false will show not. True must be selected for this to show as by defualt it will not.

Binary Headers - Selecting **true** will show the Binary Header in the output and selecting false will show not. True must be selected for this to show as by defualt it will not.

Trace Headers - Select a number from 1 - 2000 (Maximum). It will show the first number of traces selectedfrom the beginning, middle, and end.

Set

The ***Set*** page allows the user to define variables that will be expanded elsewhere in the Geom arguments. Names defined here can be referenced on other pages.

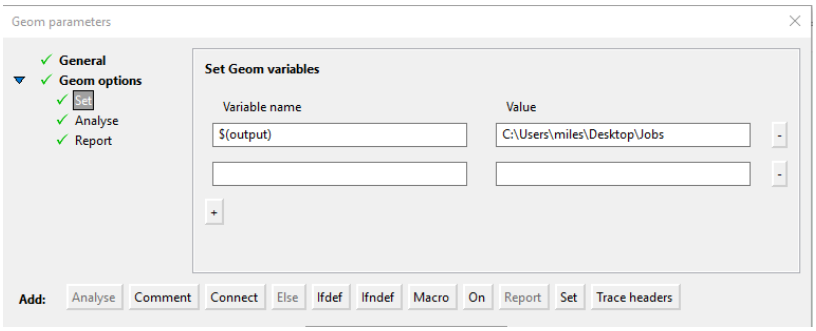


Figure 5-39 *Geom Set Parameters*

Trace headers

The ***Trace headers*** page allows the user to define custom trace header entries. Names defined here can be referenced on the ***Analyse*** page.

See "Trace Header Detect" on page 89 for information about the "Detect" functionality which can be inputted into the trace header input boxes to make use of Geoms trace header detection functionality.

Furthermore, Geom gives you the ability to define your own trace headers. This can be done through a config file (or marlin gui) or by including a macro file with pre-set trace headers defined.

If you decide to define or change certain trace headers, only those specified will be given in the output. However not recommend, if you require one tracer header to be changed but want all of the trace headers to be shown within your

output then it is possible to edit the internal Geom header definition files found in the Geom installation folder (C:\Program Files\Troika\Geom-1.0.0-win64\defs).

header-definition will accept the following formats:

`header-definition 190` The header will be named 190, with a data type of int4 (the default)

`header-definition 190:int4` The header will be named 190:int4, with a data type of int4

`header-definition 190:int2` Again the name is taken from the offset and type, this allows multiple definitions at the same offset but with different data type

`header-definition var:190:int4` Standard definition, name is obviously var in this case.

inline, crossline, northing and easting will all accept a pre-defined name item, "190" or "190:int4" or "var" for example. If the predefine header is a standard named item as in the above var:190:int4 then only the name should be specified so in this example it would be "var".

inline, crossline, northing and easting will also accept and auto define headers, headers that have not yet been defined. This is done using the same rules as header-definition. Here's an example snippet from a configuration file.

```
header-definition 13
inline 13
crossline 17
easting x:191:int4
northing 181:coor4
```

In the above example,

Inline will use the predefined header named "13"

Crossline will create and use a header item named 17 with a data type of int4

Easting will create and use a header item named x with an offset of 191 and a data type of int4

Northing will create and use a header item named 181::coor4 with an offset of 181 and a data type of coor4

The trace header report will report all defined headers, wether defined using header-definition or auto-defined by inline, crossline etc.

Note:

An unnamed item "123:int2" will use the name "123:int2S" in order to maintain uniqueness, where as unnamed item "123" will use the name "123", this allows for the following example:

```
header-definition 123
header-definition 123:int2
header-definition 123
```


Trace Header Detect

Geom has the ability to detect the inline/crossline, X/Y trace headers. Geom reads the data and calculates which trace headers to use.

Below are some basic examples of a short and long version of the same command line jobs using the Detect functionality:

Config Outline

```
version

set $(jobname)=TestDetect

set $(output)=Y:\Path\to\Output
set $(input)=Y:\Path\to\Input

input-directory $(input)
input-file *.sgy

inline detect
crossline detect
northing detect
easting detect

report-trace-headers 50
report-text-headers
report-binary-headers

analyse

logfile $(output)/test.lst

shape-file $(output)/shape-$$input-file-name$
gis-image-file $(output)/gis-$$input-file-name$
```

Command Line

```
geom --input-file Y:\Path\to\Input.sgy --analyse true --gis-image-file Y:\Path\to\Out-
put\Detect.png --inline detect --crossline detect --easting detect --northing detect
--report-trace-headers 50 --logfile Y:\Path\to\logfile.lst
```

In the above job, we a producing a plot and outputting the textual , binary, and trace headers using the Geom detect functionality in order to calculate the trace headers.

Control parameters

These parameters allow job control such as conditional blocks to be added.

Comment

Comment

Comments can be multi-line. If any line does not start with **#**, this will be inserted before writing to the Geom configuration file. Completely blank lines are removed, but lines with **#** only can be used for spacing.

Else

Else

Only one ***Else*** can be inserted in each ***Ifdef*** or ***Ifndef*** block.

Ifdef

Ifdef Endif

Ifdef and ***Ifndef*** blocks can be nested within an ***Ifdef*** block.

Ifndef

Ifndef IfdefEndif

Ifdef# and ***Ifndef*** blocks can be nested within an ***Ifndef*** block.

Macro

For Macros to be selectable you must designate your macro folder within User Preferences, Geom - ***Macro*** *Settings, User Preferences, Geom, Macro directories***OK**

Macros can be used to control & present pre-defined work-flows to end-users. Users can be prompted for input of variables during the execution of a geom/midi job. You should consider pre-defining work-flows when your work is pre-dominantly fixed and repeatable. It can be useful in minimising user errors.

Macros are incorporated into Geom jobs via the 'include' command. Examples of macros that Geom can include are trace header definition macros which can be loaded into instead of having to manually enter them into the 'Trace Header' tab each time, as well as, the ability to send meta data collected to a text file.

There is no need to quote argument values containing spaces.

See Macro argument definitions for more information.

On

Geom allows for:

- start (is executed after parsing and before processing any input files, so the input $$ variables have not yet been set. If you want access to the $$input-directory before the input file is processed then you should use "on input-changed".)
- parsing-error|error
- processing-error|error
- abort
- completion

- input-changed
- input-processed

Some examples may include:

```
on parsingerror say-line $$input-path$
on processingerror say-line $$input-file-seq$ $$input-path
```

or…

```
on start echo 5
on start echo 4
on start echo 3
on start echo 2
on start echo 1
on start echo START
on inputchanged echo INPUT-CHANGED
on inputchanged say-line $$input-file-name$
on inputchanged say-line $$input-file-extension$
on inputchanged say-line $$input-path$
on inputchanged say-line $$input-file-seq$
on inputprocessed echo INPUT-PROCESSED
on inputprocessed say-line $$input-file$
on completion say-line $$input-directory$
on completion echo COMPLETE
```

```
on completion say-line >$(output)/$$input-file-name$-headers.mac define-macro $$in-
put-file-name$-headers
on completion say-line >>$(output)/$$input-file-name$-headers.mac header-definition
$$geom_inline_header
on completion say-line >>$(output)/$$input-file-name$-headers.mac header-definition
$$geom_crossline_header
on completion say >>$(output)/$$input-file-name$-headers.mac header-definition
$$geom_northing_header
on completion say >>$(output)/$$input-file-name$-headers.mac header-definition
$$geom_easting_header
```

Internal Variables

Current Input:			
$$input-directory$	The directory name of the current input file	$$input-path$	The full path of the current input file
$$input-file$	The filename of the current input file - e.g. test0.sgy - Wildcards are allowed in name. Record selection parameters can also be appended to the file name (name [:shotseqtape\|ffid\|sourcepointnum=[from [- to],...])	$$input-file-seq$	The sequence number of the file for the current trace
$$input-file-name$	The name of the file without the extension -e.g. test0	$$geom_tracecount$	The current trace's sequence count within whole job.
$$input-file-extension$	Type of file extension - e.g. sgy	$$geom_filesize$	The size of the file
Four corners:			
$$geom_x1,2,3,4$	This is written as $$geom_x1$ and will give you the specified x corner point.	$$geom_inline1,2,3,4$	This will give you give you the inline chosen.
$$geom_y1,2,3,4$	This is written as $$geom_y1$ and will give you the specified y corner point.	$$geom_cross-line1,2,3,4$	This will give you give you the crossline chosen.
$$geom_bc_x1,2,3,4$	This is written as $$geom_bc_y1$ and will give you the first bin center for x corner point.		
$$geom_bc_y1,2,3,4$	This is written as $$geom_bc_x1$ and will give you the first bin center for y corner point.		
General Geometry:			
$$geom_azimuth$		$$geom_mininline$	
$$geom_adimuth_radi-ans$		$$geom_maxinline$	
$$geom_north-southinline$		$$geom_mincrossline$	
$$geom_inline_incre-ment$		$$geom_maxcrossline$	

$$geom_crossline_increment$		$$geom_inline_header$	
$$geom_binheight$		$$geom_crossline_header$	
$$geom_binwidth$		$$geom_northing_header$	
$$geom_sortorder$		$$geom_easting_header$	
$$geom_minx$			
$$geom_maxx$			
$$geom_miny$			
$$geom_maxy$			

Macro Argument Definitions

An argument can have some or all of the following tags: description type, label-width, field-width, min, max, values, optional.

Marlin (as well as Geom and Midi) only accepts alphanumeric characters , - (Hyphens) and _ (Underscores)

Argument definitions in Geom and Midi macro files have the form:

```
%argument $(my_argument_name)=[default_value] #tag[...] #tag
[=...] .... #'field label string'
```

Argument definitions can have some or all of the following tags, which control the input fields added to the macro parameters page in the GUI.

#type

The type of input field to use. If #type is not supplied it will default to str. Possible values are:

dirpath	Directory path (must exist)
filepath	File path (exists)
newfilepath	File path (does not exist)
float	Floating point number
int	Integer number
choice	Dropdown menu
str	Text string

Parameters can be set as #optional

Directory (Browse to)

```
%argument $(dirpath) \
#type=dirpath \
#'Directory path'
```

Using this argument adds a browse button/direction to your macro as seen below in the example. This path must exist for this to work.

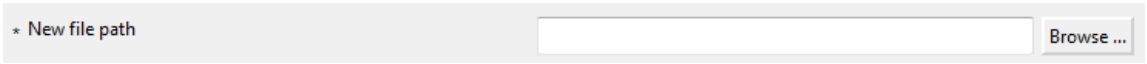
File Path (Exists)

```
%argument $(filepath)= \
#type=filepath \
#'Existing file path'
```

New File Path

```
%argument $(Newfilepath)= \
#type=newfilepath \
#'New file path'
```

This allocates a path for new files.



String (Text)(+longer)

```
%argument $(MyText)= \
#type=str \
#optional \
#'Hello World This is a string'
```

For example:

%argument $(example)=

The text within the brackets can be unique to your specification. This feature can be used in many situations, for example

Choice

```
%argument $(choice)= \
 #type=choice \
 #values=aaa,bbb,ccc \
 #'Example drop down menu'
```


This feature allows you to add dropdown menu to the macro GUI. Macro #choice fields restrict the user to selecting from the list of values supplied, plus a blank entry for optional parameters if #optional is added. If the parameter has no default value in the macro definition, or the default value is not in the valid values list, the first value in the list will be used as the default (blank for optional parameters).

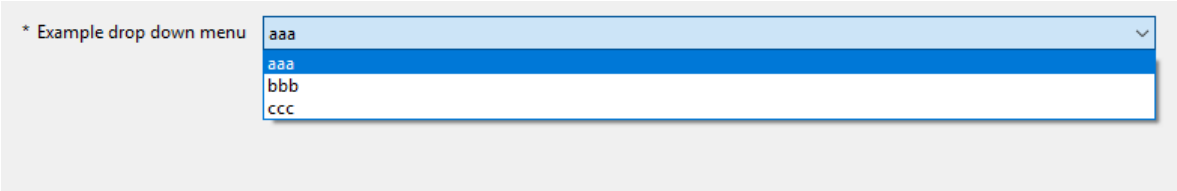


Figure 5-40 *Choice dropdown menu*

floating-point

Floating point number are decimal numbers.

```
%argument $(floatnum)= \
 #type=float \
 #min=-1.5 \
 #max=4.78 \
 #label-width=0 \
 #field-width=0 \
 #'Floating point number'
```

Integer number

Integer number are full numbers and will not accept floating numbers.

```
%argument $(intnum)= \
#type=int \
#min=105 \
#max=3000 \
#label-width=0 \
#field-width=0 \
#'Integer number'
```

float and **int** fields have a yellow background when they contain invalid input. Input is invalid if a number less than #min or greater than #max if supplied or it does not match the field type, unless a Midi format variable name. For example, $(mynumber) is valid, 26.5a and *mynumber* are not.

#column

Marlin uses the macro #column tag to organise fields in the macro input panel. If #column is not supplied, column 1 is assumed. A new row will be used after an #argument-header or if the #column number is <= the previous one.

When column= is used sequentially as in 1,2,3,4, all of the arguments will appear on the same line. When starting back at 1 or specifying no column at all, a new line will be created.

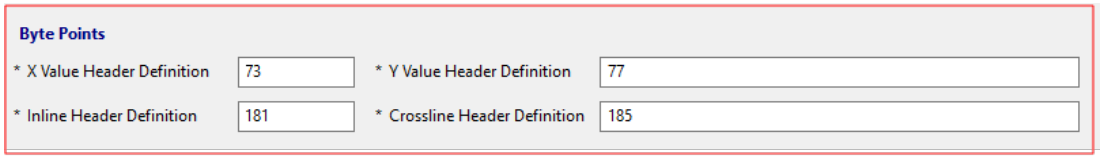


Figure 5-41 *Example of columns being used within a macro*

Below is the syntax used within the macro that has created the two columns per line as seen above in Figure 5-41 above

```
%argument-header Byte Points

%argument $(x)=73 #column=1 #type=str #label-width=0 #field-width=0 #'X Value Header
Definition

%argument $(y)=77 #column=2 #type=str #label-width=0 #field-width=0 #'Y Value Header
Definition

%argument $(inline)=181 #column=1 #type=str #label-width=0 #field-width=0 #'Inline
Header Definition

%argument $(crossline)=185 #column=2 #type=str #label-width=0 #field-width=0
#'Crossline Header Definition
```

For example,Figure 5-42 below shows the result of #column=1, #column=2, #column=2

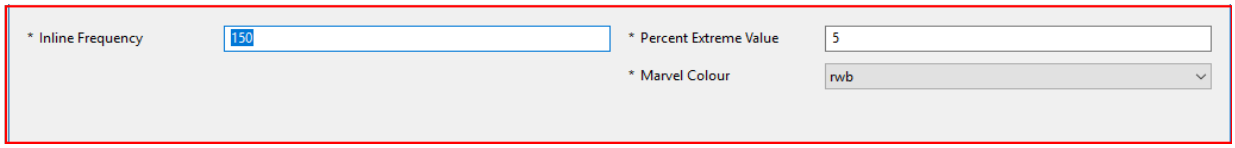


Figure 5-42 *Example of columns being used within a macro (1,2,2)*

```
%argument $(inline_freq)=150 #column=1 #label-width=0 #field-width=0 #'Inline Fre-
quency

%argument $(extreme_value)= #column=2 #label-width=0 #field-width=0 #type=int #min=0
#max=25 #'Percent Extreme Value

%argument $(setColourVal)=rwb #column=2 #type=choice #val-
ues=rwb,rgb,rb,wiggle,wiggle-fill #label-width=0 #field-width=0 #'Marvel Colour
```

#optional

The user does not have to supply a value for this argument to run the macro. #optional does not have a value.

Compulsory arguments (without the #optional tag) are preceded by an asterisk in the GUI

#min, #max

The minimum and maximum valid values. Only used when #type is float or int, either or both can be specified.

For float fields, #min and/or #max values are shown as a tip when hovering over the field label.

#values

Dropdown menu options, supplied as a comma-separated list. Only used when #type is choice.

#label-width

The width of the field label in pixels. If not supplied, the label will be as wide as needed to display the label text.

Any labels with #label-width=0 will match the widest of these i.e. all will be the same width as needed to display the longest text (this lines up the start of the input fields).

#field-width

The width of the input field in pixels. If not supplied, the field width will be the default for the relevant field type.

If #field-width=0 the field will extend to the right-hand side of the panel.

Examples

```
%argument $(MyFloatnumber)=2.5 \
                            #type=float \
                           #min=-1.5 \
                           #max=4.78 \
  #optional \
                           #'Floating point number'
%argument $(MyChoice)= \
                    #type=choice \
                    #values=option1,option2,option3 \
                    #'Select an option'
```

Macros

Macros allow the user to create powerful customizable workflows to batch multiple files and to streamline tasks. As well as being able to create macros within the "Midi User Workflow" panel of marlin it is also possible to write your own. Macros can be defined and embedded within a configuration file or they can be defined externally in a file that would be referenced using an include statement in the configuration file (we recommend that macro definition files use the .mac extension - this ensures consistency and that they will be recognised by troika's Marlin package if you use it)

%argument-header

Using this argument allows you to add headers to the macro in order to split it up in to separate parts as seen below.

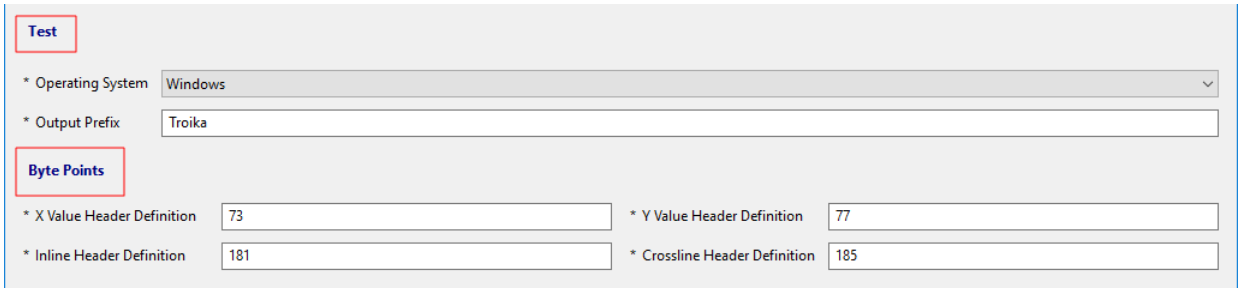


Figure 5-43 *Example of argument-header use in macros*

We recommend that you use the %description lines to help users understand the purpose of the Macro and to avoid adding them if you start to use Marlin.

To add an warning to an argument header as seen above, follow the syntax below:

```
%argument-header Header
%argument-header %warning This text is red
```

This will show up as:

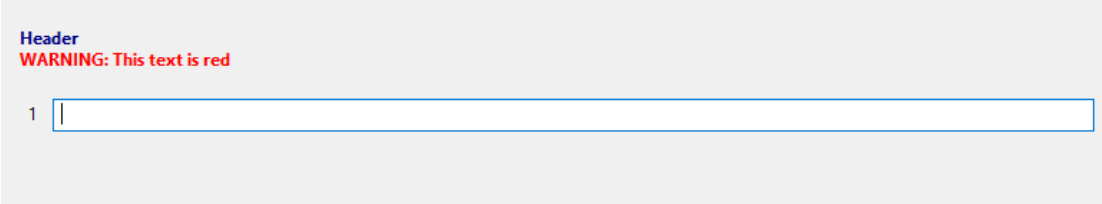


Figure 5-44 *Argument header warning*

To add red text to macro description headers use the following:

```
%description %warning Use with extreme caution This will
overwrite potentially useful existing header values
```

This will show up as:

WARNING: Use with extreme caution, this will overwrite potentially useful existing header values

Macro Argument Definitions

An argument can have some or all of the following tags: description type, label-width, field-width, min, max, values, optional.

Marlin (as well as Geom and Midi) only accepts alphanumeric characters , - (Hyphens) and _ (Underscores)

Argument definitions in Geom and Midi macro files have the form:

```
%argument $(my_argument_name)=[default_value] #tag[...] #tag
[=...] .... #'field label string'
```

Argument definitions can have some or all of the following tags, which control the input fields added to the macro parameters page in the GUI.

#type

The type of input field to use. If #type is not supplied it will default to str. Possible values are:

dirpath	Directory path (must exist)
filepath	File path (exists)
newfilepath	File path (does not exist)
float	Floating point number
int	Integer number
choice	Dropdown menu
str	Text string

Parameters can be set as #optional

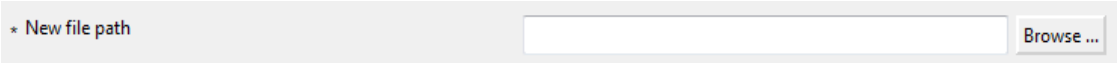
Directory (Browse to)

```
%argument $(dirpath) \
#type=dirpath \
#'Directory path'
```

Using this argument adds a browse button/direction to your macro as seen below in the example. This path must exist for this to work.

File Path (Exists)

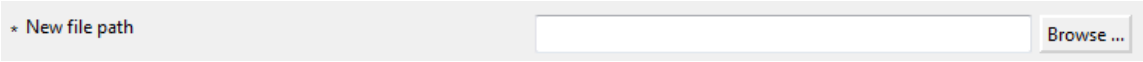
```
%argument $(filepath)= \
#type=filepath \
#'Existing file path'
```



New File Path

```
%argument $(Newfilepath)= \
#type=newfilepath \
#'New file path'
```

This allocates a path for new files.



String (Text)(+longer)

```
%argument $(MyText)= \
#type=str \
#optional \
#'Hello World This is a string'
```

For example:

%argument $(example)=

The text within the brackets can be unique to your specification. This feature can be used in many situations, for example

Choice

```
%argument $(choice)= \
 #type=choice \
 #values=aaa,bbb,ccc \
 #'Example drop down menu'
```

This feature allows you to add dropdown menu to the macro GUI. Macro #choice fields restrict the user to selecting from the list of values supplied, plus a blank entry for optional parameters if #optional is added. If the parameter has no default value in the macro definition, or the default value is not in the valid values list, the first value in the list will be used as the default (blank for optional parameters).

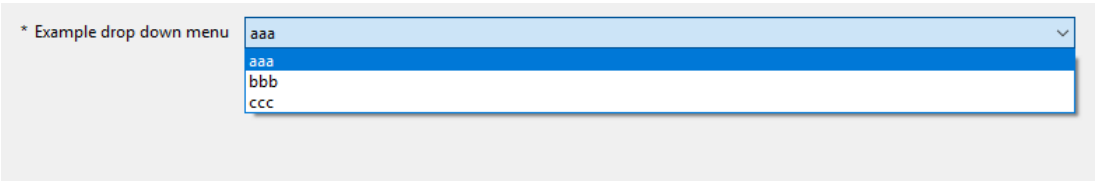


Figure 5-45 *Choice dropdown menu*

floating-point

Floating point number are decimal numbers.

```
%argument $(floatnum)= \
 #type=float \
 #min=-1.5 \
 #max=4.78 \
 #label-width=0 \
 #field-width=0 \
 #'Floating point number'
```

Integer number

Integer number are full numbers and will not accept floating numbers.

```
%argument $(intnum)= \
#type=int \
#min=105 \
#max=3000 \
#label-width=0 \
#field-width=0 \
#'Integer number'
```

float and **int** fields have a yellow background when they contain invalid input. Input is invalid if a number less than #min or greater than #max if supplied or it does not match the field type, unless a Midi format variable name. For example, $(mynumber) is valid, 26.5a and *mynumber* are not.

#column

Marlin uses the macro #column tag to organise fields in the macro input panel. If #column is not supplied, column 1 is assumed. A new row will be used after an #argument-header or if the #column number is <= the previous one.

When column= is used sequentially as in 1,2,3,4, all of the arguments will appear on the same line. When starting back at 1 or specifying no column at all, a new line will be created.

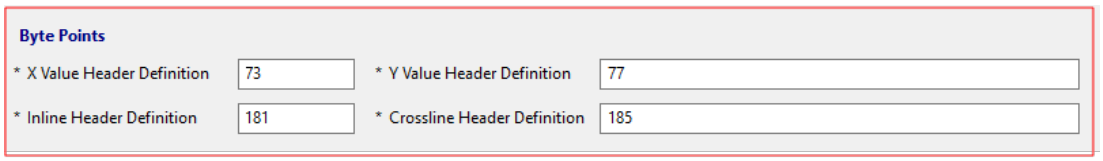


Figure 5-46 *Example of columns being used within a macro*

Below is the syntax used within the macro that has created the two columns per line as seen above in Figure 5-46 above

```
%argument-header Byte Points

%argument $(x)=73 #column=1 #type=str #label-width=0 #field-width=0 #'X Value Header
Definition

%argument $(y)=77 #column=2 #type=str #label-width=0 #field-width=0 #'Y Value Header
Definition
```

```
%argument $(inline)=181 #column=1 #type=str #label-width=0 #field-width=0 #'Inline Header Definition

%argument $(crossline)=185 #column=2 #type=str #label-width=0 #field-width=0 #'Crossline Header Definition
```

For example,Figure 5-47 below shows the result of #column=1, #column=2, #column=2

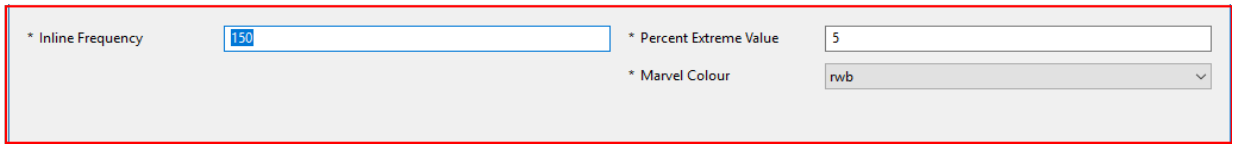


Figure 5-47 *Example of columns being used within a macro (1,2,2)*

```
%argument $(inline_freq)=150 #column=1 #label-width=0 #field-width=0 #'Inline Frequency

%argument $(extreme_value)= #column=2 #label-width=0 #field-width=0 #type=int #min=0 #max=25 #'Percent Extreme Value

%argument $(setColourVal)=rwb #column=2 #type=choice #values=rwb,rgb,rb,wiggle,wiggle-fill #label-width=0 #field-width=0 #'Marvel Colour
```

#optional

The user does not have to supply a value for this argument to run the macro. #optional does not have a value.

Compulsory arguments (without the #optional tag) are preceded by an asterisk in the GUI

#min, #max

The minimum and maximum valid values. Only used when #type is float or int, either or both can be specified.

For float fields, #min and/or #max values are shown as a tip when hovering over the field label.

#values

Dropdown menu options, supplied as a comma-separated list. Only used when #type is choice.

#label-width

The width of the field label in pixels. If not supplied, the label will be as wide as needed to display the label text.

Any labels with #label-width=0 will match the widest of these i.e. all will be the same width as needed to display the longest text (this lines up the start of the input fields).

#field-width

The width of the input field in pixels. If not supplied, the field width will be the default for the relevant field type.

If #field-width=0 the field will extend to the right-hand side of the panel.

Job Panel

Launching a job will display the jobs output panel on the right-hand side of the Marlin window (Figure 5-48 below).

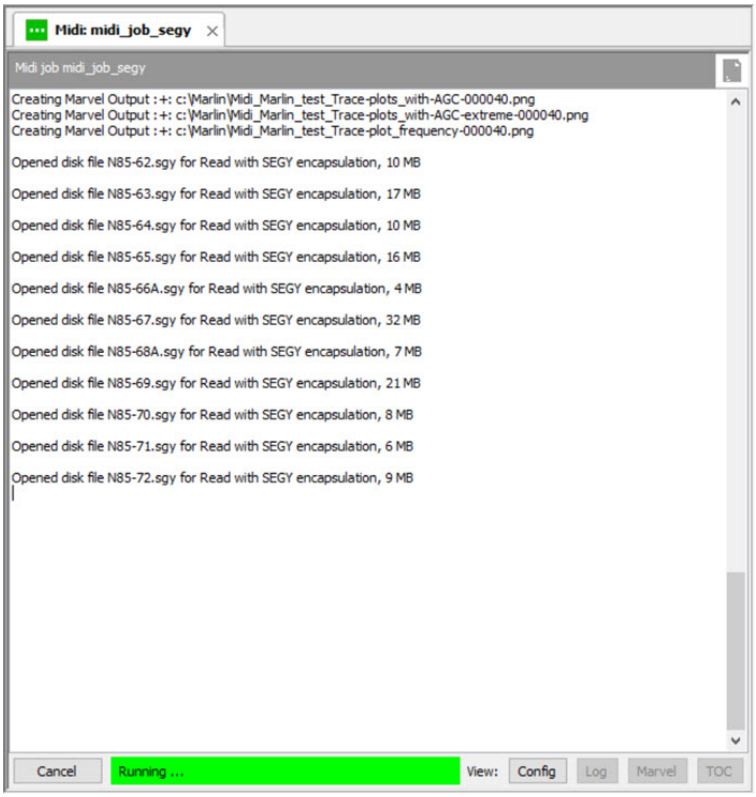


Figure 5-48 *Jobs output panel*

1. A new page will open for each job with the job name displayed in a tab at the top of the display panel.
2. Multiple jobs can be run simultaneously.

   Note: *Produce a split screen to watch more than one job output - drag a job page tab and dock at a different edge of the jobs output panel.*

3. Close the jobs output panel by selecting (x) on the job page tab after the job has completed.

Job pages

As a job is run, the job command is displayed at the top of the job panel and is followed by the output from the job executable as the job runs.

1. Use the **Cancel** button at the bottom left of the job panel to terminate a job.

   Note: Some jobs may ignore the signal and continue to run. These will need to be terminated via the operating system.

2. Use the **View** button at the bottom right of the job panel to view text and graphic files produced by the job.

Note: Configuration (.cfg) files can be viewed when the job is running. The **Log** and **Marvel** buttons will only be enabled when the job has finished.

Job Status

Job status is indicated as follows:

- **Running** - green status bar shows *Running* and a green square is displayed on the job tab
- **Complete, status OK** - green status bar shows and a green tick is displayed on the job tab.
- **Complete, status OK with warning** - amber status bar shows message *Job complete with warnings or debug info* and a warning triangle is displayed on the job tab
- **Ended with errors** - status bar shows message *Job ended with errors* and a red red circle is displayed on the job tab
- **Cancelled** - status bar shows message *Job cancelled by user* and a red circle is displayed on the job tab

Clear Jobs

To clear all finished jobs navigate to the **Marlin** drop down menu and select **Clear finished jobs**. This closes all job output pages expect those that are still running. The shortcut for this is **Alt-J**.

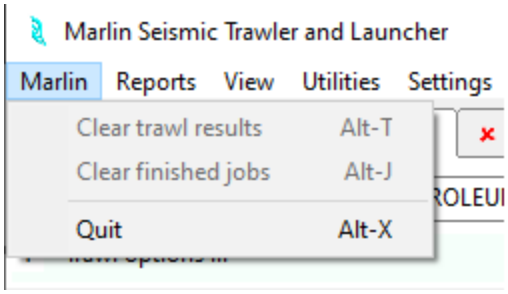


Figure 5-49 *Clear finished jobs*

Outputs

Located in bottom right corner of the job panel are the output options as seen below in the image.

Config - Will open the config file in whichever .txt/.cfg reader you have set in the Preferences.

Log - Will open the Log of the job

Images (previous Marvel) - This will show a list of all shapefiles and images (.png's) created in the job.

Say - Say notifications if appending to an output file as well as creating a new one and will be listed in the Say list that appear when selected.

TOC - Lists all of the TOC (Table of Contents) xmls created in the job.

The Images (Marvel) and TOC output buttons have the option to open the output destination folder to quickly check the outputs.

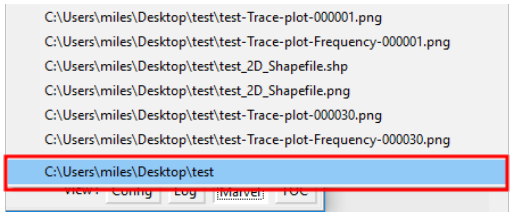


Figure 5-50 *Open output folder*

Command Line Operation

The command-line trawl utility will perform a basic disk trawl and produce a CSV-format report file. (The report file contains the same information as that produced by trawling via the GUI then exporting.)

Using the –f (Full trawl) option Marlin will completely trawl all subdirectories encountered. Otherwise, subdirectories are partially trawled to identify whether or not they contain seismic files.

The executable will be found in the Marlin installation directory.

Windows Usage is:

```
{path_to_marlin_install}\marlin_trawl [-h] [-f] trawldirpath rptfile
```

Linux Usage is:

```
{path_to_marlin_install}/marlin_trawl [-h] [-f] trawldirpath rptfile
```

Arguments:

`-h or --help`	Display help message and exit
`-f or --full`	Perform full trawl
`trawldirpath`	Path to the directory to trawl
`rptfile`	Path to the report file to write

CHAPTER 6

Appendices

The following Appendices give further supporting information.

Appendix 1 - Marvel Input Parameters

Troika's Marvel application is used for generating QC images. Marvel input and output parameters are set in blocks within the job flow.

inline-item / ensemble-item

These identify the trace header or maths variable that will be used to dimension the plot.

1. For 3D data surfaces and traces - typically the header containing the inline number, e.g.

   `inline-item=opt1` (i.e. SEGY header byte 181-184:int4)

2. For 2D data surfaces and traces the separate lines need to be identified - typically use the internal variable, e.g.

   `$$input_file_count`

3. For Field shot traces - produce separate plots per shot. Specify:

   `ensemble-item=ffid with mode set to images`

crossline-item / channel-item

These identify the trace header or maths variable that will be used to dimension the plot.

1. For 3D data surfaces and traces - typically the header containing the crossline number,

   `xline-item=opt2` (i.e. SEGY header byte 185-188:int4)

2. For 2D data surfaces and traces the separate traces within the line needs to be identified - typically use CDP
3. For Field shot traces specify:

   `channel-item=chan`

x-item

This identifies the trace header that contains the X (Easting) coordinate. The default is rec_x.

```
x-item=sht_x
```

y-item

This identifies the trace header that contains the Y (Northing) coordinate. The default is rec_y.

```
y-item=sht_y
```

drop-dead traces

- When set to false ALL traces will be processed by Marvel
- When set to true traces with trctype equating to 'dead' will be dropped by Marvel

numbering-option

This is used when the input data trace numbering does not increment in ones, for example, when the data has been decimated or when the survey design produced non-unary increments.

- auto: attempt to automatically determine the numbering (this is the default)
- increment: the lines are numbered with an increment, e.g., 2,4,6,8

- decimation: the lines have be decimated, e.g., 2,4,6,8

Marvel Output Parameters

Some of these output parameters can be set in the parent Marvel block to act as defaults for all of the child Marvel output sub-blocks.

Note: These defaults should be set before adding the sub-blocks

Output folder/directory

1. This is the name given to the directory where generated output files will be saved. For example,

   ```
   output-directory="C:/Projects/Project123"
   ```

2. Internally defined Environment Variables in the file name can be used. For example,

   after

   ```
   set $(output)=job123
   ```

   use

   ```
   output-directory="$(output)"
   ```

output file

1. This is the name given to the file that will be produced. The appropriate file extension will be appended (.bmp, .shp etc.). For example,

   ```
   output-file="minamp"
   ```

2. Internally defined Environment Variables in the file name can be used. For example,

   after

   ```
   set $(jobname)=job123
   ```

   use

   ```
   output-file="$(jobname)-minamp
   ```

type

type specifies the type of plot to produce. Select from the drop-down list The following table lists available plot types that can be produced.

Type	Description
points	vector points at x,y locations for value of ***item***
surface	interpolated surface for value of ***item*** over x,y locations
outline	live trace outline
lines	polyline of x,y locations for value of item
poly	produces a GIS shapefile and an optional image
grid	produces a grid line for the value of item between the x,y locations

Type	Description
cartesian	produces a cartesian display

The following types are used for the rendering of trace data

Type	Description
trace	produces an image of the seismic traces passed to the marvel block
analysis	produces a frequency domain image the seismic traces passed to the marvel block

Table 6-1 *Available Marvel plot types*

Trace and Analysis must be run in separate Marvel blocks from other types, but can be run together in a seperate block.

colour

Use ***colour*** to specify the colour algorithm used in producing the image. A list of available options is provided in Table 6-2. The effect of using different colour specifiers on trace plots is illustrated Figure 6-1 on the facing page.

Command	Description	Use
rgb	red,green,blue	good for header items, better coverage of min to max
rwb	red,white,blue (default)	good for trace sample retains the zero crossing in white
rb	red,blue	
bw	black,white	
wb	white,black	
bwb	black,white,black	
red	red	
blue	blue	
green	green	
wiggle	wiggle	
wiggle-fill	wiggle with fill	

Table 6-2 *Marvel colour algorithms*

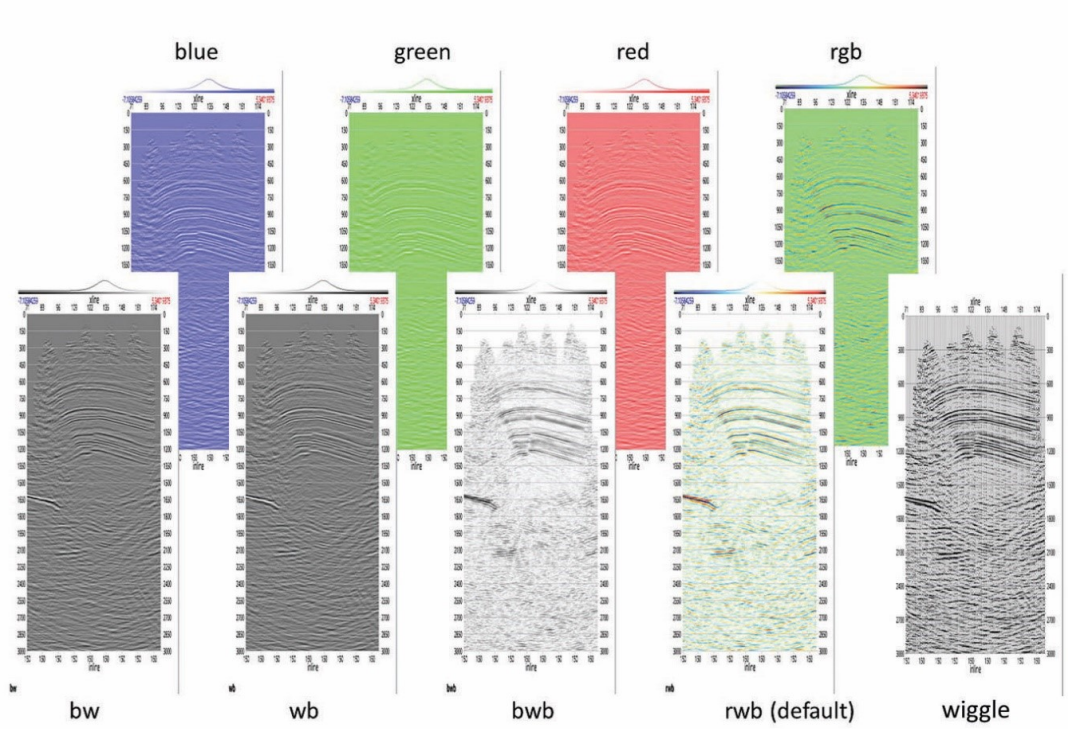


Figure 6-1 *Illustration of different image specifiers*

show extremes

Set to ***true*** or ***false***

- when true AND the specified colour map is not rwb or rgb the extreme values are displayed in bright green
- when true AND the specified colour map is not rwb or rgb OR when false the extreme data values are not plotted

Figure 6-2 on the next page shows an exaggerated case of using show-extremes where the percent-extreme has been set to 95% on a post-stack 3D inline.

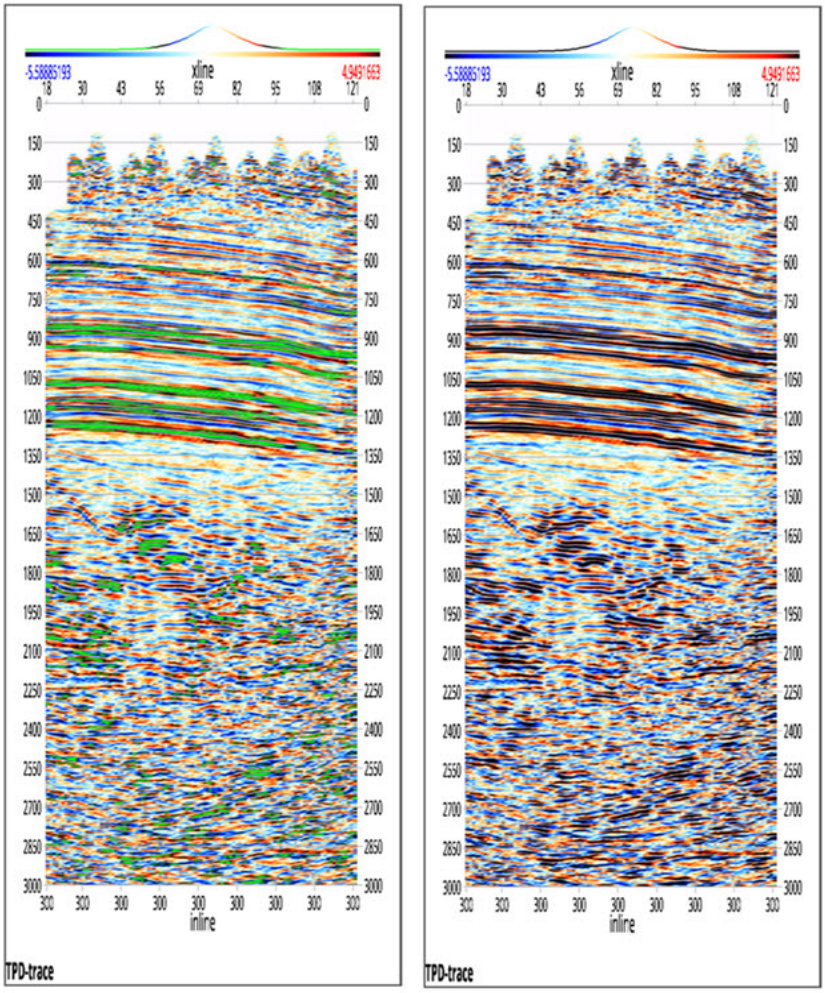


Figure 6-2 *Example of 3D inline using show-extreme and percent-extreme*

percent extreme

Use ***percent-extreme*** to specify the amount of data to 'treat' as extreme and to plot as bright green. This option eliminates high amplitude data allowing lower amplitudes to become visible. Figure 6-3 on the facing page shows the effect of using different levels of percent-extreme (0,5,20,50) on a shot record.

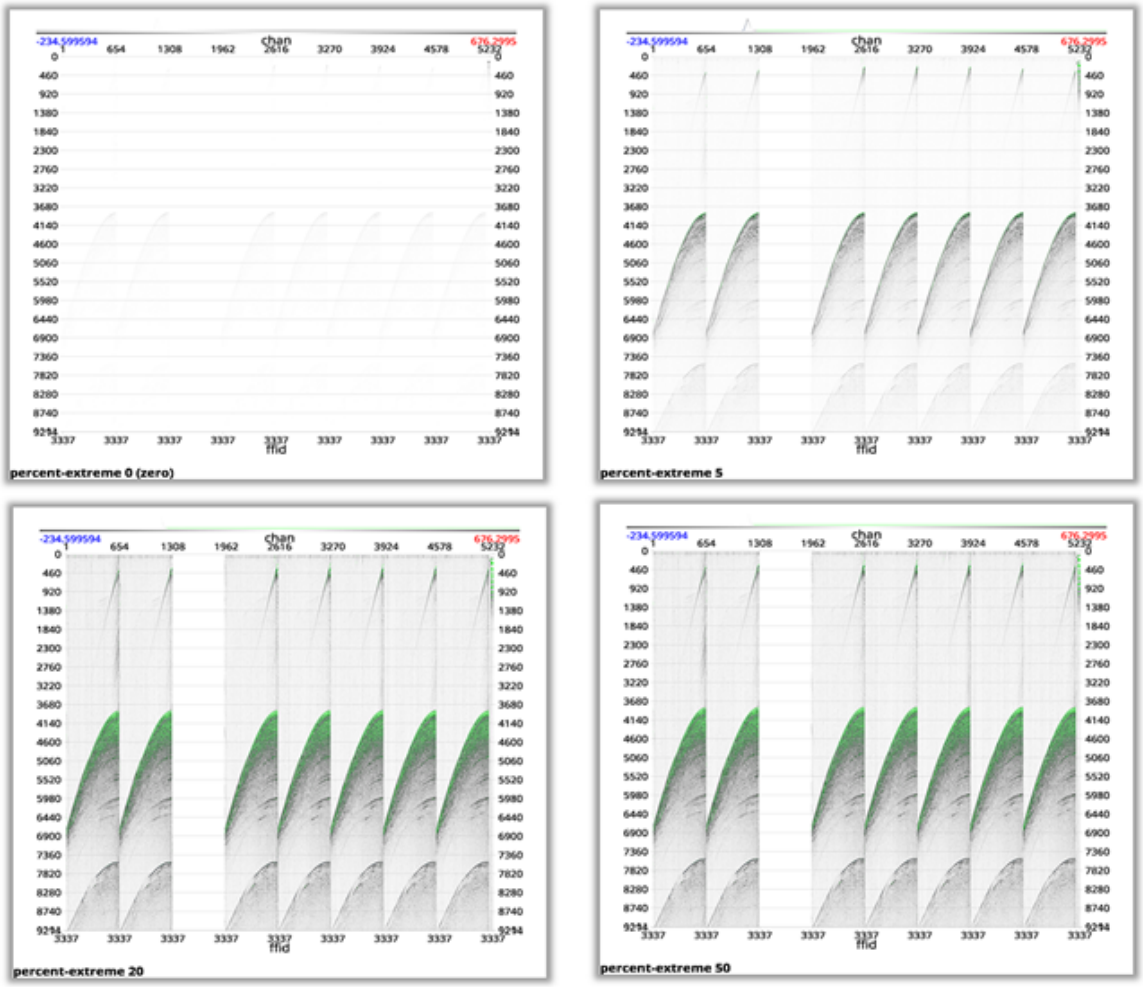


Figure 6-3 *Effect of 0,5,20 and 50 percent extreme on a shot record. With a zero value the lower amplitudes are masked by the high amplitude values at the beginning of events and in the auxiliarytraces. Percent-extreme suppresses these high amplitudes and displays them bright green.*

auto-clip

Use auto-clip to clip data values to an absolute value or to a range of minimum and maximum values (min_value, max_value). There is a default auot-clip value but it is exceptional large in magnitude (approx +/-1e308) and this is applied unless a range is supplied. If you see auto-clip messages during midi imaging you should examine the values that they are displaying and apply/adjust your clipping values accordingly.

Note: The job output will show when auto-clip has been applied.

```
Examples include:
```

auto-clip= value	Interpreted as
100.0	-100 to 100
-12000,8000	
2e9	-2000000000.0 to 2000000000.0
2.4e-6	-0.0000024 to 0.0000024
-7e-02,3e02	-0.07 to 300

overlay item

Overlay item is the header item or maths variable which gives the time at which to overlay points.

mode

Use ***mode*** to specify the display output modes. Select from the drop-down options given in Table 6-3.

mode options

Command	Description
image	will output a single image from all the input traces. **Note:** Use this carefully, with selects, to avoid producing very large plots
images	will output a series of images based on a change in the inline/ensemble-item, for example, representing individual shots or inlines
movie	will output a movie sequence of all the generated images with 1 frame per inline/ensemble-item
movie, images	will output both a movie sequence and a series of images

Table 6-3 *mode options*

text

Use text to add annotation at the lower left of an output image. Variables can be used within the text:

```
for example with "2D" given as the jobname:

text="$(jobname) - Shapefile using type=lines would give a plot with this annota-
tion...
```

statistics item

Using type=poly or type=lines will capture a number of statistics as internal maths variables which summarise the geometry of the datasets. For a 3D dataset the statistics include:

- min/max inline/crossline
- inline/crossline numbering increment
- bin height/width
- bin extent grid points at bin extremes or centres
- azimuth in degrees and radians

The statics-item field defines a prefix which is used when creating these variables.

```
For example, use to sub-set the data by geographic location and then get summaries
for each set.
```

annotation-style

Use annotation-style to annotate the image. Available options are:

- box (default)
- gis - it is recommended that a size x,y be specified where x and y are equal

The following figure illustrates each of the annotation styles with surface plot images (item=fold) created using the Teapot Dome 3D survey.

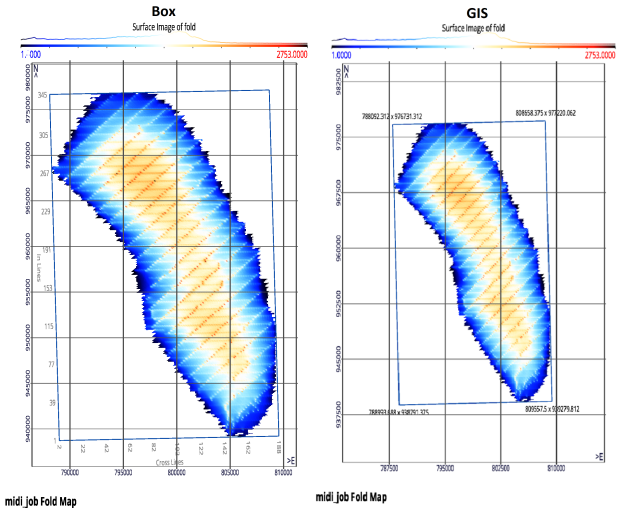


Figure 6-4 *Annotation styles*

size

Use size to specify the width (x) and height (y) in pixels of the output image/movie.

Note: if left blank, or if either the height and/or width are entered as 0 (zero), Midi will auto-size the plot based on the input data.

Note: Height and width must be 0 (zero) or greater and cannot exceed 16, 384 pixels.

Maintain-aspect-ratio

This option adjusts the image size by making the x & y intervals the same and maintaining the length of the longest axis.

Appendix 2 - Installation

Installation on a Microsoft Windows Operating Platform

1. Run the appropriate installer executable, for example, Marlin-5.1.0-win64.exe and follow the installation wizard
2. Specify the directory where Marlin will be installed. Browse to a preferred directory, or use the default location
3. Setup will begin installing the Marlin files in the preferred directory and will prompt when complete.

Installation on a Linux Operating Platform

1. Run the appropriate installer executable, for example, Marlin-5.1.0-rhel7-x86_64.run and follow the installation wizard
2. Specify the directory where Marlin will be installed. Browse to a preferred directory, or use the default location
3. Setup will begin installing the Marlin files in the preferred directory and will prompt when complete.

Appendix 3: Common FlexNet Troubleshooting

Can't checkout licence popup:

Create .flexlmrc file

This will often not be created upon fresh set up of a Flex Licnese server on Linux. You must create this by doing the following:

```
cd ~
```

Next...

```
touch .flexlmrc
```

```
nano .flexlmrc
```

Then do the following:

FLEXnet uses a "cache file" $HOME/.flexlmrc which sometimes becomes stale if the license file or server moves. It is safe to remove this file completely, or one can edit the line entries within the file.

Make sure that this .flexlmrc file is created within the same user the software will be running from.

The relevant line should read such as this:

```
TROIKA_LICENSE_FILE=@license_server.
```

If this issue persists or you have access to LMTOOLS then refer to the "Client Area" on the Troika Website or speak with your license department.