4 Survey - 4.5 Manage

4.5.12 Manage Seismic Data

4.5.13 Manage Seismic Prestack Data

4.5.14 Manage Sessions

4.5.12 Manage Seismic Data

Poststack Seismic data should be managed from these windows. There are separate managers for poststack 3D and poststack 2D. Access these via *Survey > Manage > Seismics...* or via the icon.

They all use common management icons on their right hand side:

 Change the location of the file on disk

 Rename

 Toggle read-only on/off

 Delete

 Set as the default object for its kind.

The top filter is used to filter-out the objects with selected names. For instance, to display all volumes that start with letter S use "S*".

4.5.12.1 Manage 3D Seismic Data

The 3D Seismic file management window lists poststack volumes loaded in the survey. Information related to the selected volume is displayed in the central field and personal/survey-related notes can be added and saved in the bottom field.
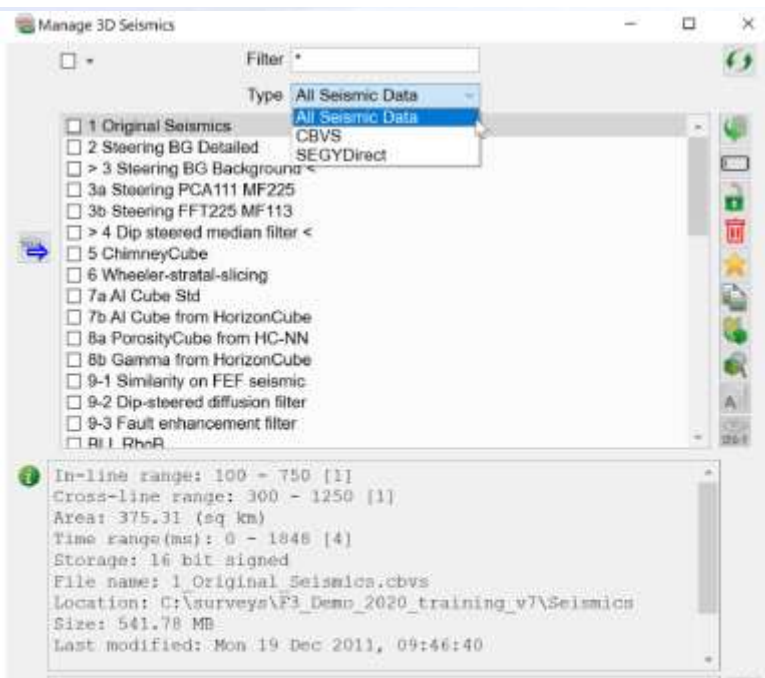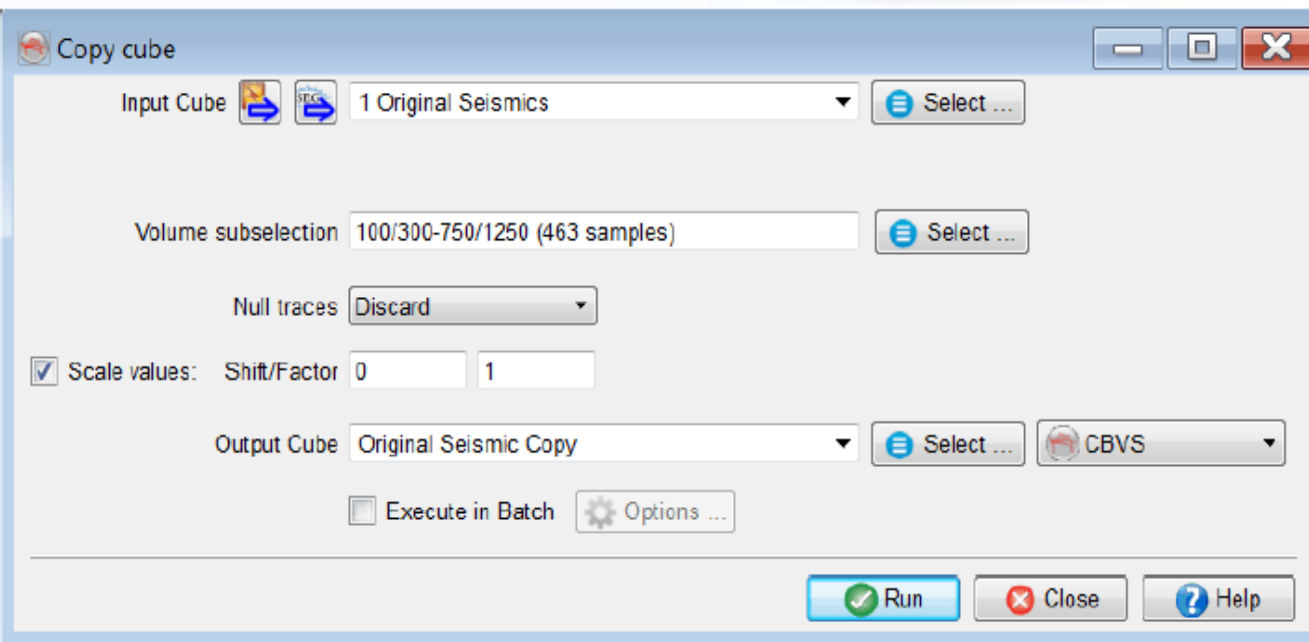

Alongside the standard actions (change disk location, rename, remove etc), the user may also Copy the volume to another volume (different size, format, sampling rate, ...), Merge several overlapping or consecutive volumes and/or Browse in the file.
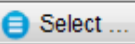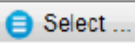
4.5.12.1.1 Copy Cube

Any volume can be copied into a new volume. The Volume subselection defines the selection of the input cube to be copied and the Format/Scaling sub menu allows to specify how to store the new cube. Rectangular volumes are not required by OpendTect. Therefore null traces are dismissed by default. They can be added back with the *Null traces > Add*, within the inline/crossline range of the input volume. Larger volumes can be obtained while using the *Null traces > Add* option and the volume subselection menu.
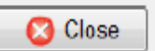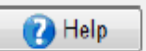
4.5.12.1.1 Copy Cube
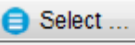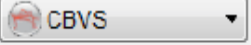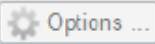

If the input cube is multi-component (e.g spectral decomposition cube with different components, right), an option will be available allowing the user to choose between all available components. *All* components is the default setting.

4.5.12.1.1.1 Input Selection

Select Cube — □ ✕

Select Input Cube

Filter `*`

1 Original Seismics
2 Steering BG Detailed
3 Steering BG Background
3a Steering PCA111 MF225
3b Steering FFT225 MF113
4 Dip steered median filter
5 ChimneyCube
6 Wheeler-stratal-slicing

✓ OK   ✕ Cancel   ?

..._v7\Seismics\1_Original_Seismics.cbvs
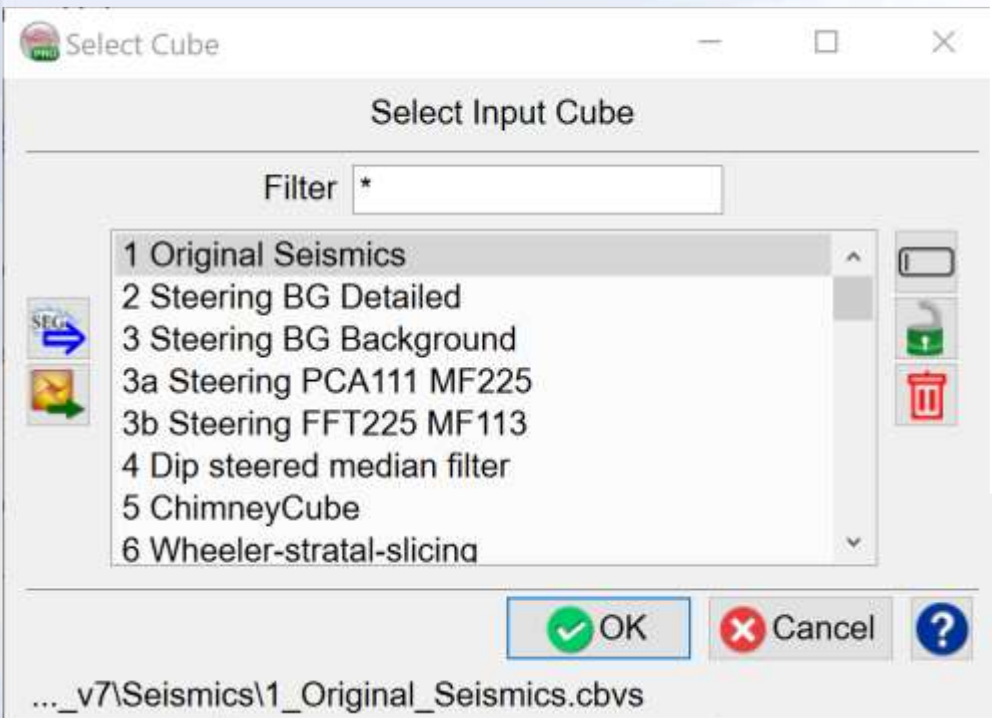
The input selection for copy cube can be done from the list of stored cubes or from:

SEG-Y SEG-Y directly

PetrelDirect link

The stored cubes in this list can be, as is standard on all input selection UIs:

renamed

locked/unlocked, or

deleted.

Users also have the option to filter the selection using the topmost dialogue box.

4.5.12.1.1.2 Volume Sub-Selection

This standard menu is available when *importing/exporting* a volume, line, or horizon, copying a cube or horizon, or processing an attribute.

4.5.12.1.1.2 Volume Sub-Selection

In all those processes, the output might be limited with respect to the available input data. The limitation may be:

- A rectangular part of the survey, possibly with a larger horizontal and vertical stepout
- An area limited by an OpendTect polygon. The area within the polygon can be as well by decimated horizontal by using larger stepouts
- A table of positions from an OpendTect pointset or from a text file. The text file should contain inline and crossline values without header
- All: This last option will output the maximum number of trace with respect to the available data and possible stepouts
- The use of larger *vertical* stepouts will cause the data to be decimated in the given direction. Please note that an anti-alias filter (using the frequency filter attribute) should be applied before decimating data. The copy-cube does not do it.
- The use of smaller *vertical* stepouts will cause the data to be interpolated with a polynomial interpolation. This is mostly appropriate for seismic data.
- Volumes tagged as Vint, Vrms or Vavg are not using a polynomial interpolation of the input amplitudes, as soon as Z start, Z stop and/or Z step are changed. Instead they are converted to the corresponding time-depth relation that is linearly interpolated (vertically), before back converting the interpolated TD function to the input type.

- The copy-cube option does not do lateral interpolation of the data (but it can decimate). Use the Velocity gridder step of the volume builder to laterally grid a coarse volume.

4.5.12.1.1.3 Format & Scaling
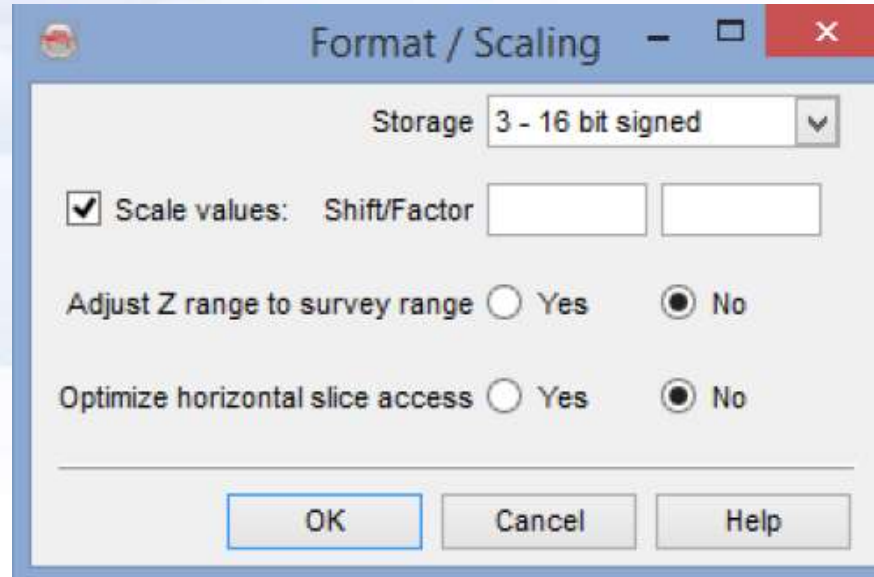
This standard menu allows the change of the following elements:

- Change between storage type. Please note that this might clip your data.
- Scale the values given a linear equation.
- Adjust the Z range to the survey range by repeating the bounding samples up and down.
- Optimize the horizontal slice access. This will change the sorting mode in the volume on disk, and will cause inline/crossline accesses to be significantly slower based on the volume size.

4.5.12.1.1.4 Output Cube
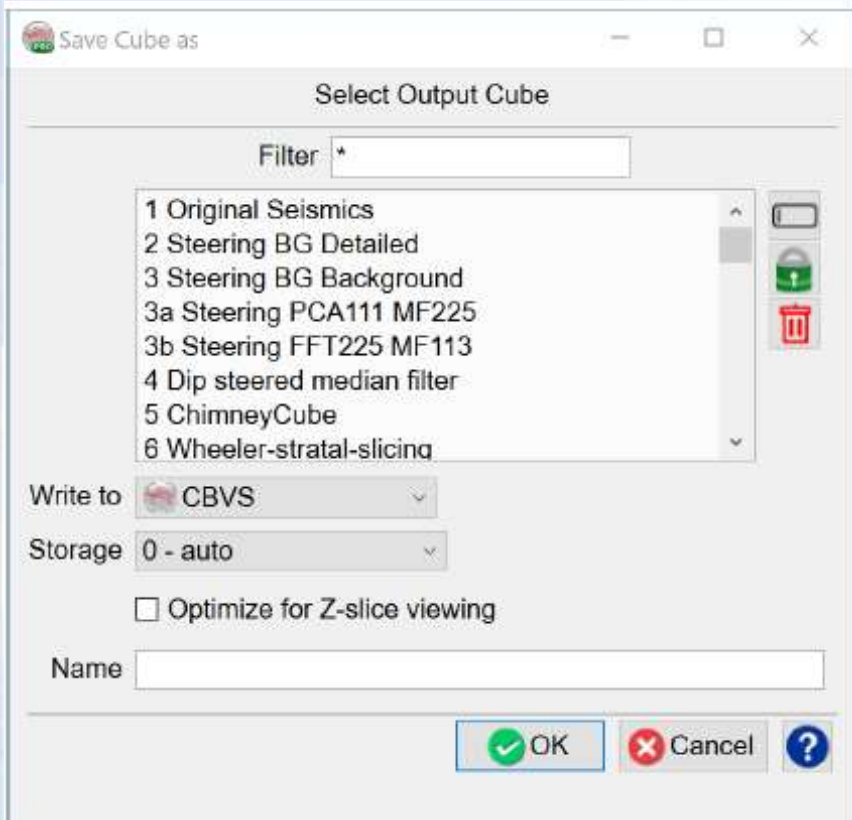
This standard dialogue box allows the user to name the output cube and select its properties.

The icons on the right, specifically permit the user to:

    ☐ rename

    🔒 lock/unlock, or

    🗑 delete

Write to allows for outputting as either CBVS (OpendTect's internal format) or SEG-Y.

4.5.12.1.1.4 Output Cube

Storage gives the following options:

Storage: 0 - auto

- 0 - auto
- 1 - 8 bit signed
- 2 - 8 bit unsigned
- 3 - 16 bit signed
- 4 - 16 bit unsigned
- 5 - 32 bit signed
- 6 - 32 bit unsigned
- 7 - 32 bit floating point
- 8 - 64 bit floating point
- 9 - 64 bit signed

Optimize for Z-slice viewing processes the output cube in such a way that it allows for faster scrolling through the volume in the vertical dimension.

4.5.12.1.2 Merge Files

The icon is used to merge sub-volumes into one single volume. OpendTect processing time can be reduced by distributing automatically or manually batch jobs over multiple computers.

When merging two cubes, the duplicate traces can be stacked when merging e.g. two seismic cubes (the merging cube will reduce noise) or the traces of the first cube can be used. Priorities are set in alphanumerical order, as the volumes appear in the manager from top to bottom.

Select the input files from the multiple entry list and specify the *Output* file name. The user can remove the original files at a latter stage (use the *Remove* button in the seismic file manager).
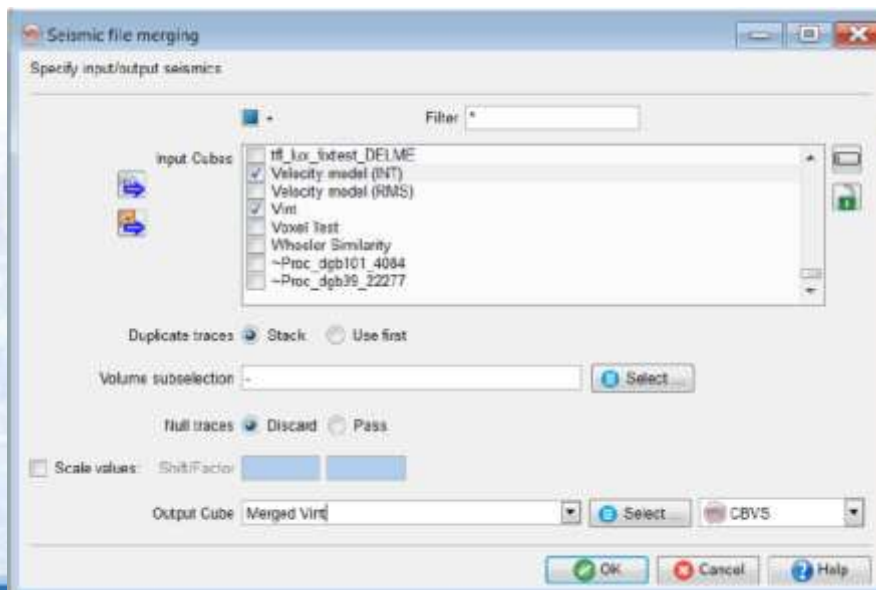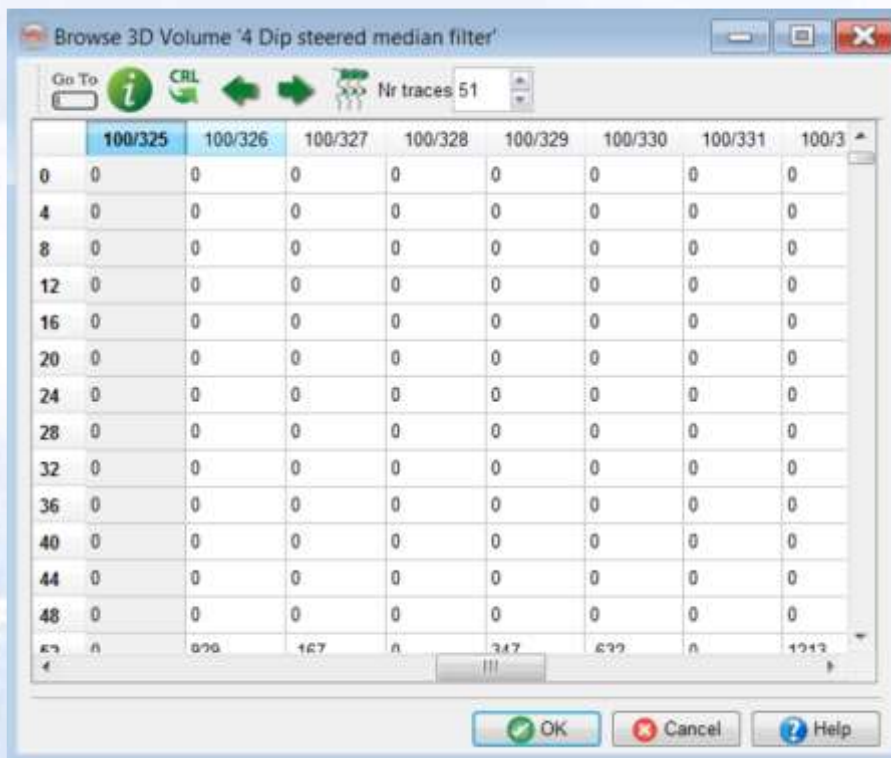
Cbvs files can be *browsed/edited* (edit the cube locations, positions, trace samples, etc) by pressing the 🔍 icon. In the window that pops up (see below), sample values can be changed by editing any cell (similarly to an MS Excel sheet). Editing is disabled if the cube is write protected.

Several options are available:

Go To Brings you directly to a new position (inline/crossline).

ⓘ Check selected trace information like: x/y coordinates, inline/crossline, vertical **z** ranges, number of samples.

CRL Switch to browse through Crosslines (and back to Inlines)

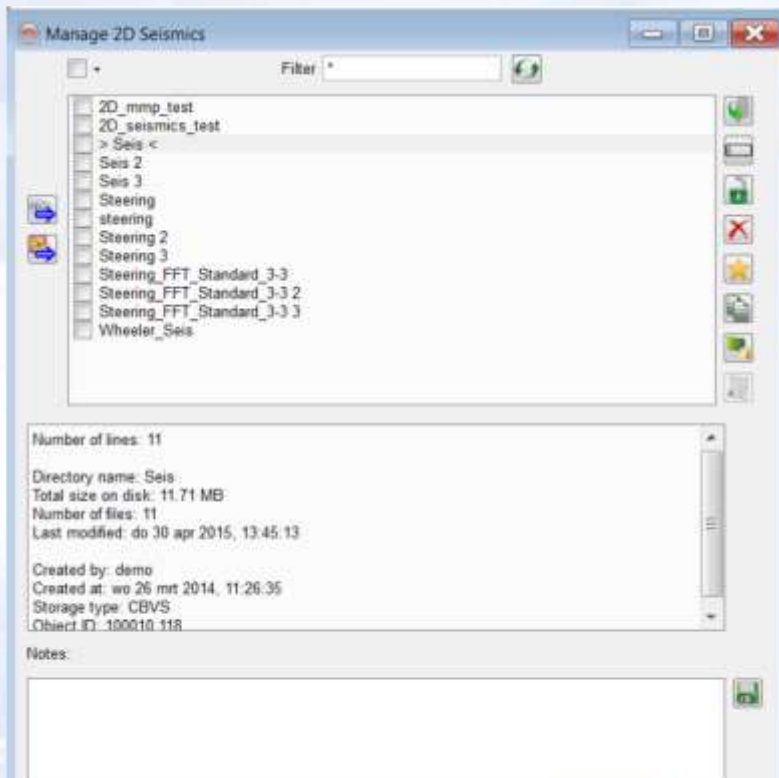◀ Step a preset number of inline/crossline positions to the left.

▶ Step a preset number of inline/crossline positions to the right.

View the currently highlighted trace(s).

4.5.12.2 Manage 2D Seismic Data

2D surveys in OpendTect are grouped in datasets. These datasets have their own manager (shown below), separate from the Manage 2D Seismic Lines window.


In addition to standard rename/delete options, the following actions can be applied on datasets: Copy all or part of the dataset to a new dataset, Access the 2D Lines Manager (alternatively, double-click on the dataset name), Dump the geometry (positions) to a text file.

4.5.12.2.1 Manage 2D Seismic Lines

Accessed via the 'Manage 2D Seismics' window, either by double-clicking on a data-set name or via the icon.
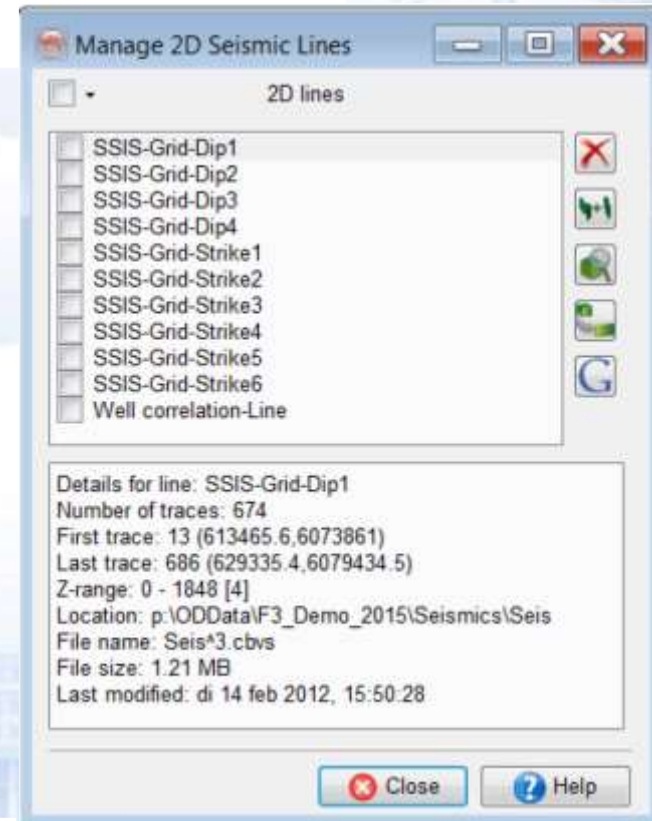
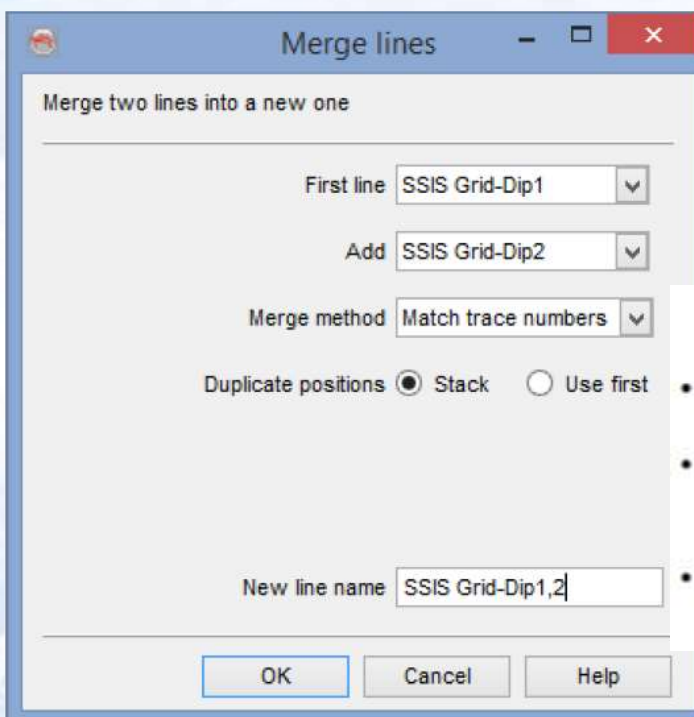Lines can be renamed (☐) and deleted (✖). The following actions can also be made on the lines: ⋈ Merge of several lines to a new line, ⬛ Extraction (projection) from 3D volumes along the 2D lines, G Export of the geometry to GoogleEarth.

4.5.12.2.1.1 Merge 2D Lines

Two 2D lines can be merged together to create a single 2D line. The ⚲ icon opens the merging window. The merge can be either of 2 lines with about the same geometry, or to append two (consecutive) lines to each other.

Merge lines

Merge two lines into a new one

First line: SSIS Grid-Dip1

Add: SSIS Grid-Dip2

Merge method: Match trace numbers

Duplicate positions: ● Stack ○ Use first

New line name: SSIS Grid-Dip1,2

OK   Cancel   Help

There are three alternative merging methods:

- Match trace numbers: Assumes the lines are at the same location, containing different attributes to be stacked and referenced using the same trace number array.
- Match coordinates: Same as above, but with different trace number arrays. Then the match will be based on coordinates, with a search radius to match the traces. Please note that traces will be renumbered in this mode.
- Bluntly append. Append the line specified at the "Add" field line after the "First line". Please note that traces will be renumbered in this mode.

4.5.12.2.1.2 Extract 2D Attributes from 3D Volumes

This extraction tool, started from the ⬛ icon, can be used to project a 3D volume onto 2D lines. This allows then to display the 3D volume along the lines, and to use the data from the 3D volume with 2D lines in the 2D attribute set.
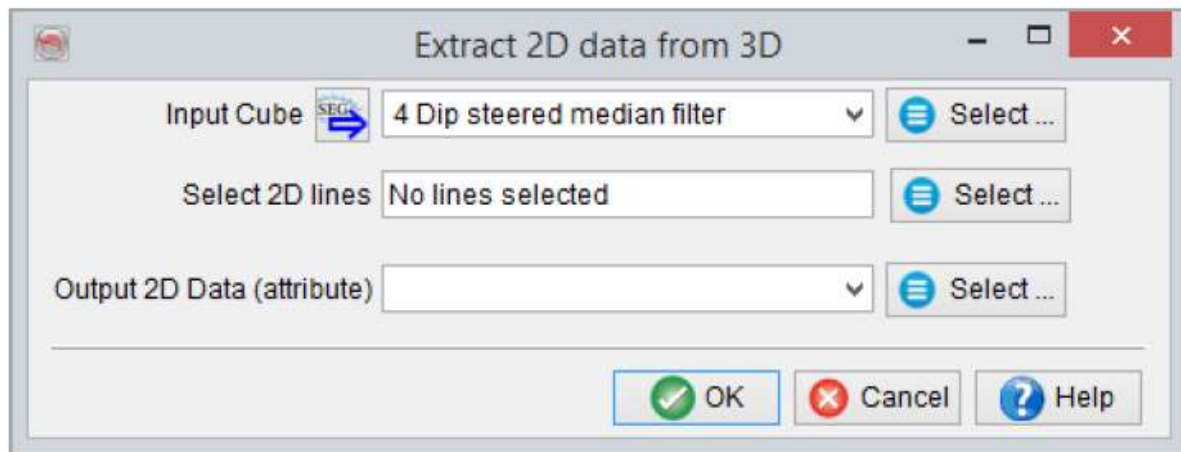
All lines may be processed, or a selection of lines made in the lines manager before going to this window. The settings are trivial: the 3D volume must be selected and an attribute name must be provided.
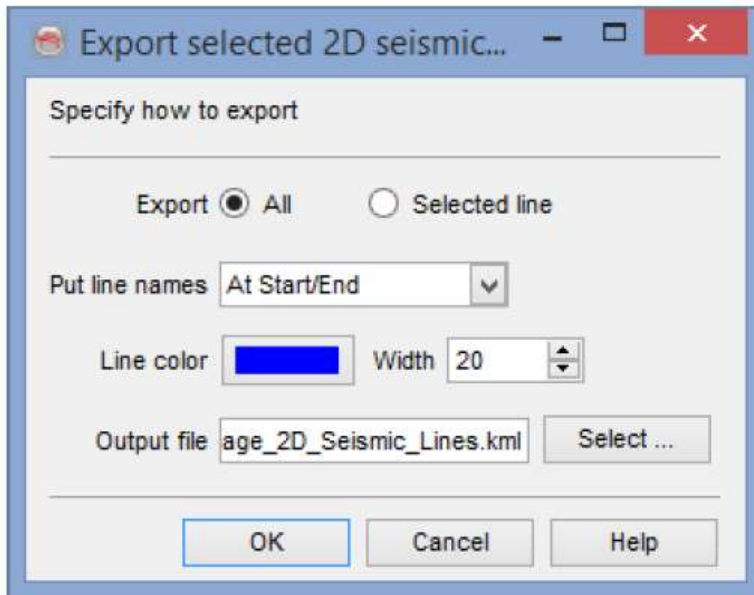
Please note that the polynomial interpolation does not fit an application of this tool to 3D seismic data.

4.5.12.2.1.3 Export 2D Geometry to Google Earth

This window (see below),launched with the G icon, is to export the 2D lines geometry in to a *.kml file. Different methods are supported (Start/End or both etc.) for labeling the line-names in the Google Earth file. The line color field is also editable. The width represents the thickness of the lines. The *Output file* field specifies the output location and name of the exported file (Format - kml).

Export the 2D lines in a Google KML file.

4.5.13 Manage Seismic Prestack Data

Prestack seismic data should be managed from these windows. There are separate managers for prestack 3D and prestack 2D. Access these via *Survey > Manage > Seismics Prestack...* or via the icon.

They all use common management icons on their right hand side:

Change the location of the file on disk

Rename

Toggle read-only on/off

Delete

Set as the default object for its kind.

The top filter is used to filter-out the objects with selected names. For instance, to display all volumes that start with letter S use "S*".

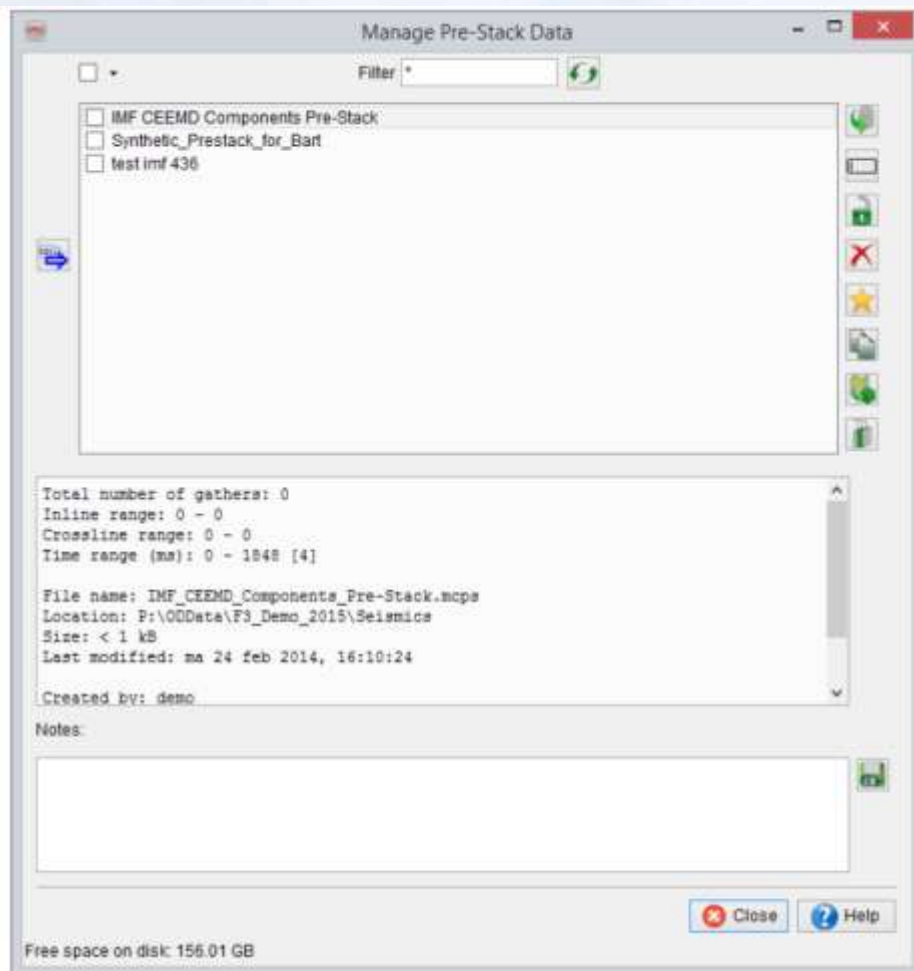# 4.5.13.1 Manage 3D Prestack Data

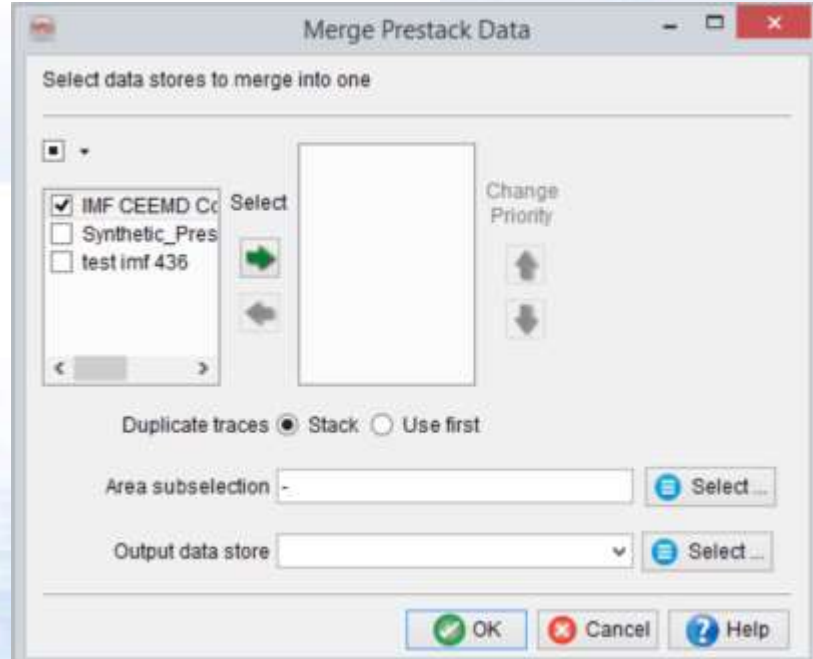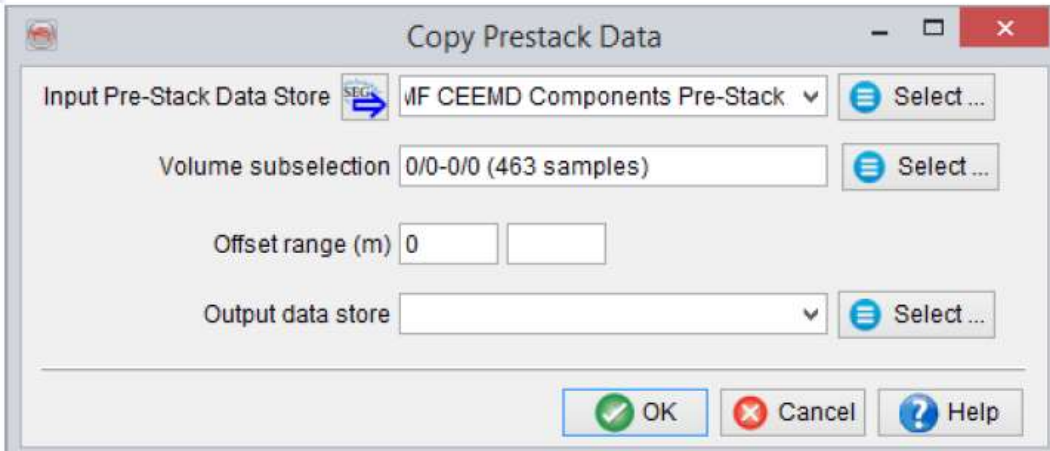This window is opened via *Survey > Manage > Seismics Prestack > 3D...*

Most options are common to the other managers: change file location, rename, lock, delete. '*Notes*' may be anything of interest to the survey and may be added to, edited and saved multiple times.

The options copy cube and merge blocks of lines work similarly to the 3D poststack seismic manager.

Prestack data stores are present on the disk in a folder of the same name within the survey ("Seismics" sub-folder). This folder contains one file per inline for quicker access, with auxiliary files. The manager will display information about the entire prestack data store: Folder name, number of files etc.

A prestack specific option, accessible via 🔧, allows creation of a prestack data store from two or more poststack volumes. This can be used to create prestack data from a partial stack volume for AVO attributes extraction. A specific offset must be set in front of each volume.
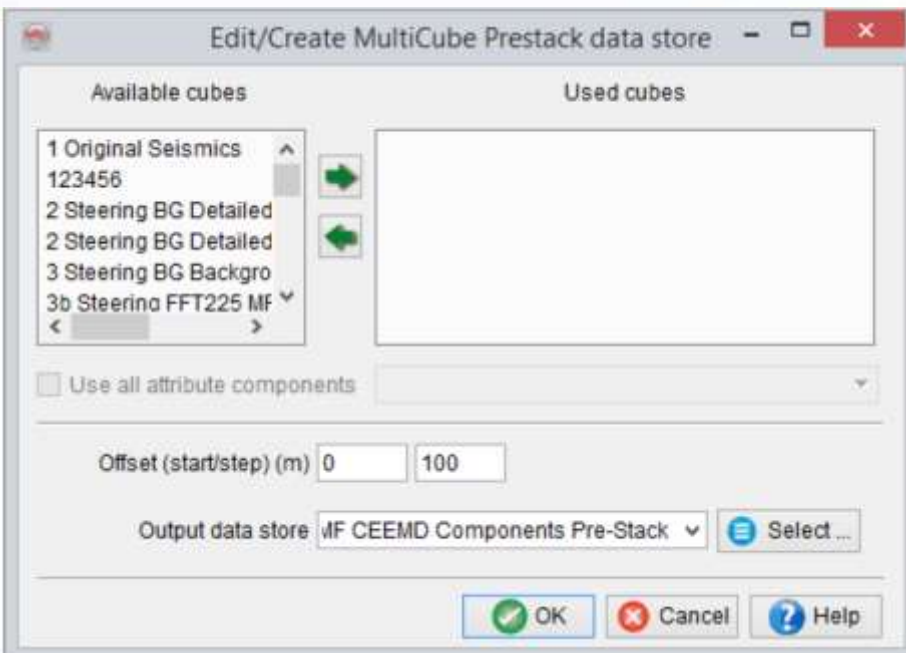
This option may also be employed in creating a multi-component cube for attributes with more than one component. For example, using this option, a user may create a multi-component Spectral Decomposition cube with each of the included frequencies given a pseudo-offset value. In the example (below), a multi-component Spectral Decomposition cube has been created, and for simplicity, the pseudo-offset used is a multiple of the frequency component. [The actual value used in these pseudo is irrelevant in this case, affecting only the width of the prestack display

(which can be altered by right-clicking on the prestack displayed in the scene and choosing 'Properties...']

No new file is written to the disk. Therefore deleting a poststack volume used in the prestack data store will cause problems. Please use same option to remove or modify the previously set multiple volume selection.

4.5.13.2 Manage 2D Prestack Data

This window is opened via *Survey* > *Manage* > *Seismics Prestack* > *2D...*

Manage Pre-Stack Data

Filter *

Options found here are common to the other managers: change file location, rename, lock, delete and set as default. '*Notes*' may be anything of interest to the survey and may be added to, edited and saved multiple times.
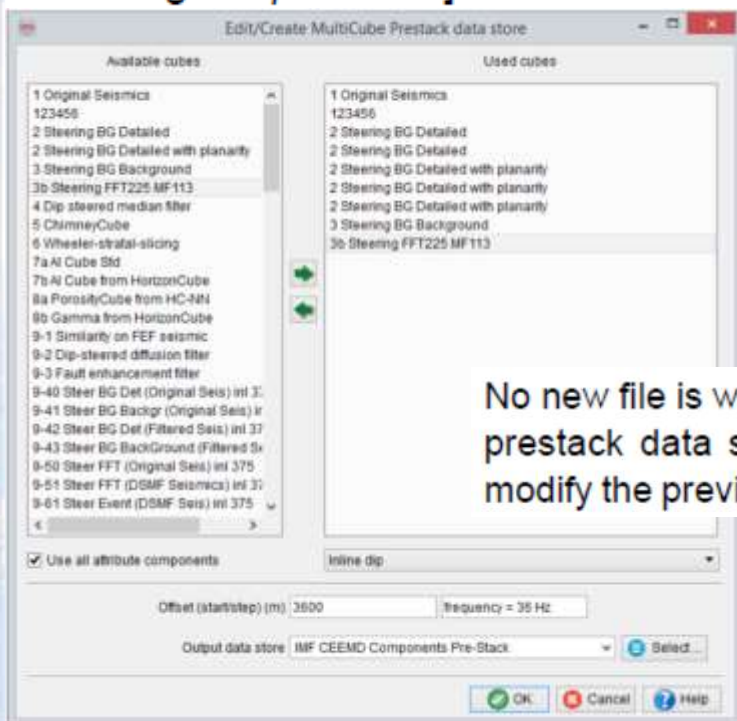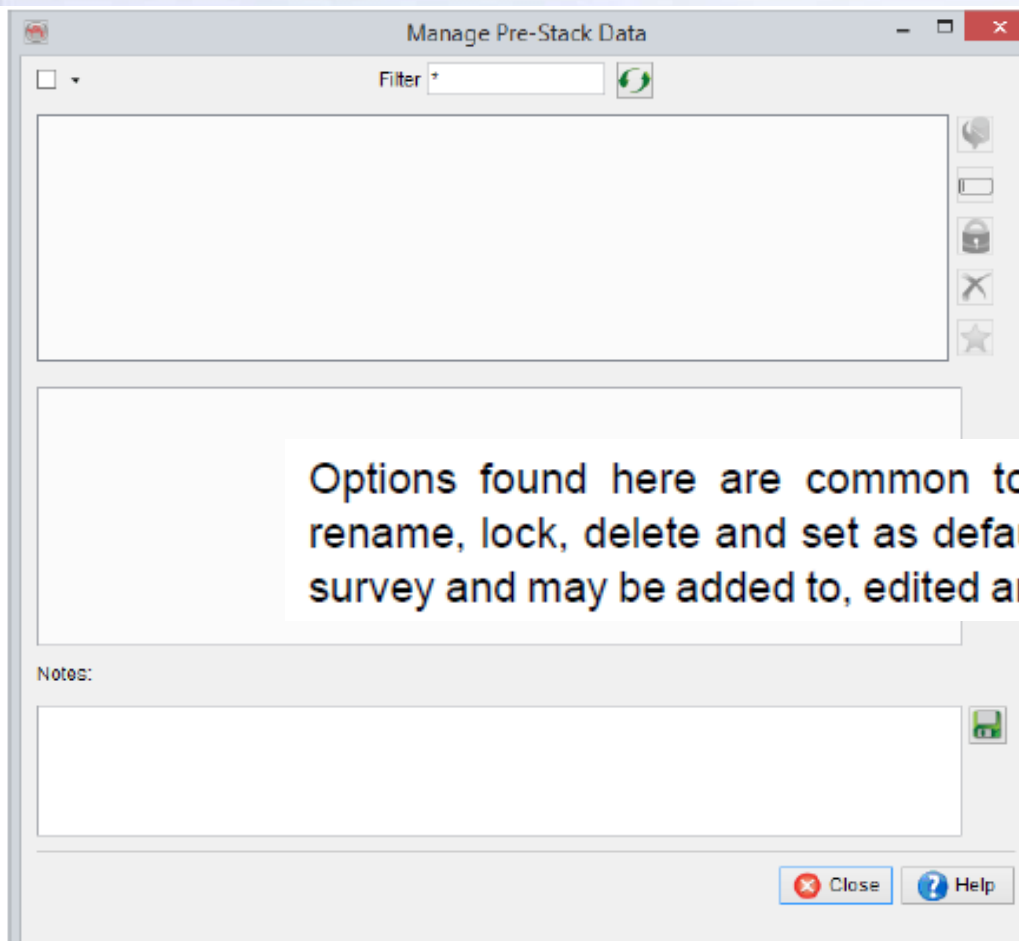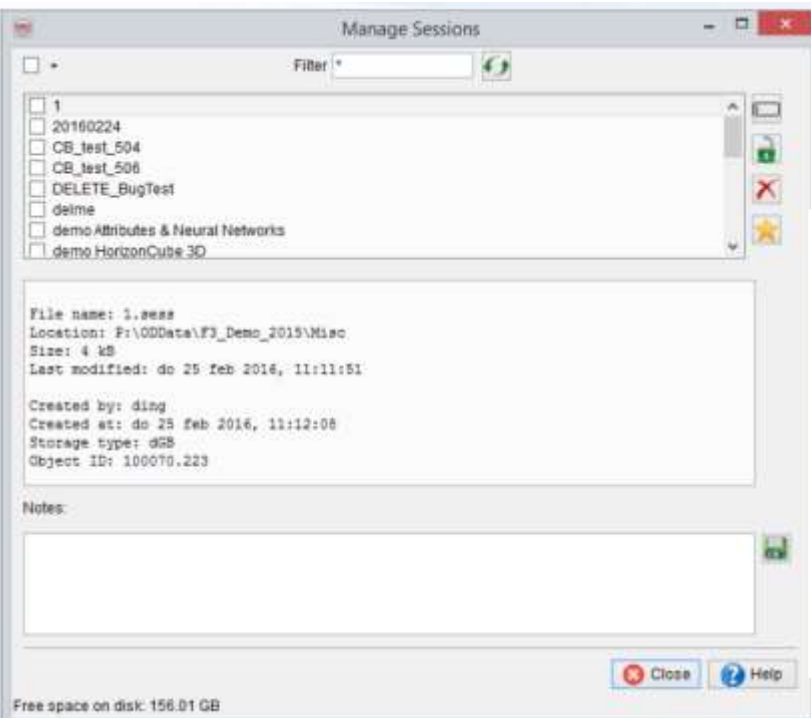
Notes:

Close   Help

4.5.14 Manage Sessions

Sessions in OpendTect are generally used to save and to retrieve the specific settings of a scene. This can help the user to resume work from previous settings.

These sessions can be managed via: *Survey > Manage > Sessions...*

Sessions will save all settings of the displayed elements, and they can be saved/restored at any time from *Survey > Session*.

The following options are available:

☐ Rename

🔒 Toggle read-only on/off

❌ Delete

⭐ Set as the default object for its kind.

The '*Notes*' box is a free-text field where you may add notes related to the session, if desired, and save them.