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GeoFrame Data Connector Online Help

Schlumberger

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1 Information Resources

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Schlumberger Product Documentation

About Schlumberger

Schlumberger is the leading oilfield services provider, trusted to deliver superior results and improved E&P performance for oil and gas companies around the world. Through our well site operations and in our research and engineering facilities, we develop products, services, and solutions that optimize customer performance in a safe and environmentally sound manner.

Online Documentation

Documentation is provided in the following electronic formats on the Schlumberger product CD:

- Adobe® Acrobat® PDF files
- Online help

You must have Adobe® Reader® installed to read the PDF files. Adobe Reader installation programs for common operating systems are available for a free download from the Adobe Web site at *www.adobe.com*.

Typestyle Conventions

The following conventions are observed throughout this guide:

- **Bold** text is used to designate file and folder names, dialog titles, names of buttons, icons, and menus, and terms that are objects of a user selection.
- **MB1** is the left mouse button; **MB2** is the middle mouse button; **MB3 is** the right mouse button.
- *Italic* text is used for word emphasis, defined terms, and manual titles.
- Monospace text (`Courier`) is used to show literal text as you would enter it, or as it would appear onscreen.
- Throughout the guide, there may be references to other chapters and to other **GeoFrame** documents. Some of these references may also be active jump points (or hyperlinks) indicated by blue text.
- A series of boldface, italicized commands separated by greater than sign (>) (for example, **Borehole> Symbols**) shows the menu from which the command is accessed. For example, to choose **Borehole> Symbols**, move the pointer to the **Borehole** menu, hold down **MB1** and drag the pointer to the **Symbols** command and release.
- In **GeoFrame** documentation, the following procedural words have a precise meaning:
  - Choose means to move the pointer to a command name, or to a menu option and click **MB1**.
  - Select means to move the pointer to an object in the graphics area of a window, or to a name (or option) in a pull-down list, and click **MB1**.
  - Enter means to type data via the keyboard and press the **Enter** key (or click either **OK** or **Apply**).

Command Bar

Most dialog boxes contain a row of buttons near the bottom. Each of these keys has a standard function that is performed when you click **MB1**.

- Click **OK** to close the dialog box and perform the function.
- Click **Apply** to perform the function without closing the dialog box.
- Click **Reset** to clear any entries and to return the dialog box to its default state.
- Click **Cancel** to close the dialog box without changing its state.
- Click **Help** to display the user documentation.

Standard GeoFrame Icons

The standard **GeoFrame** icons shown in **Table 1** are displayed on the left and right ends of the one-line help at the bottom of each application main window:

Table 1 Standard **GeoFrame** Icons

Icon	Description
	Opens the **GeoFrame Application Manager** from its icon state.
 Open  Closed	• When the **ITC door** is open, the application can receive updates from other applications. • When the **ITC door** is closed, receiving events are blocked. An event is an update or selected data item.
	The **ITC broadcast** icon sends events to one or more open applications.
	Opens the **ITC Filter** dialog box to select which events to send and which events to receive. The selections will vary from one application to another.

Alert Statements

The alerting statements are Notes, Cautions, and Warnings. These statements are formatted in the following style:

Note: *Information that is incidental to the main text flow, or to an important point or tip provided in addition to the previous statement or instruction.*

Caution: *Advises of machine or data error that could occur should the user fail to take or avoid a specified action.*

Warning: *Requires immediate action by the user to prevent actual loss of data or where an action is irreversible, or when physical damage to the machine or devices is possible.*

Contacting Schlumberger

Technical Support

Schlumberger has sales and support offices around the world. For Technical Support for SIS software, go to **support.slb.com**.

2 GeoFrame Data Connector Introduction

In This Section

Overview

The **GeoFrame Data Connector** plug-in for Petrel facilitates the direct exchange of data between **GeoFrame** and Petrel. Easy-to-use interfaces and map-based GIS selection provide rapid and reliable movement of data.

The following data can be exported from **GeoFrame** as seismic and .zip files using **Basemap** for import into Petrel:

- 3D stacked **IESX** and **Charisma** seismic data exported in ZGY format (available on Linux only)
- 2D stacked **IESX** and **Charisma** seismic data exported in SEGY format
- 2D and 3D seismic interpretation (horizons and faults) as interpretation models
- Fault boundaries
- Well data (boreholes, deviation surveys, checkshots, logs, lithofacies, and markers)

The following data can be exported from Petrel as .zip files and imported into **GeoFrame** using **Basemap**:

- 3D seismic interpretation (horizons and faults) into new interpretation models
- Well data (boreholes, deviation surveys, markers, and log curves)

This document is divided into five sections:

- Exporting data from **GeoFrame**
- Importing **GeoFrame** data into Petrel
- Exporting data from Petrel
- Importing Petrel data into **GeoFrame**
- Installation of the **GeoFrame Data Connector** plug-in

A table listing the data types that can be exported from **GeoFrame** to Petrel and their related versions can be viewed in **Appendix A GeoFrame to Petrel on page 68**.

A table listing the data types from Petrel to **GeoFrame** and their related versions can be viewed in **Appendix B Petrel to GeoFrame on page 74**.

Note: *A gf_data_manager license is required to launch the **GeoFrame** exporter/importer in **Basemap**. An OCEAN_SLB_GF_DATA_CONNECTOR license is required to launch the **GeoFrame** data connector in Petrel.*

3 Export to Petrel

In This Section

Overview

2D and 3D seismic interpretation, 2D and 3D stacked seismic data, and well data can be exported from **Basemap** for use in Petrel. These data can be exported using user drawn polygons, saved rectangular and polygonal **IESX Areal** paths, GIS data, and **GeoViz** RAM volume definitions. Multiple output files can be sent to a user-selected directory.

Note: *A gf_data_manager license is required to launch and run* ***Export to Petrel****.*

GeoFrame to Petrel Workflow

Petrel > Export to Petrel

The following is a simple workflow for exporting seismic, interpretation models, and well data to ZGY and Zip files. The assumption has been made here that the **GeoFrame Data Connector** plug-ins have already been installed (see **Chapter 7: Installation on page 64**). Details on all options are listed below the workflow.

▶ ***To Export 2D and 3D Stacked Seismic, Interpretation Models, and Well Data to SEGY, ZGY, and Zip Files***

1 Open **Basemap** and select **Petrel > Export to Petrel**.

The **Export Data for Petrel Project** dialog box opens.

2 Select your areal extent using either: the **Graphic Mode** or **List Mode**.

a. If using **Graphic Mode**, you can select by manually drawing a polygon or selecting from posted GIS polygons.

b. **List Mode** gives you several options for selecting existing polygons. Make your selection.

3 Make Seismic, Interpretation Model, and/or Well Data selections.

a. If making seismic selections, do the following:

- Click the **Seismic Tab**, select the domain, the 3D survey(s) and/or 2D lines, then class, and review and change any parameter selections.
- Click **MB1** on the **Output Seismic Volume** button to put the selections in the **Output Selections (cont)** list.
- Repeat for as many survey/class pairs as needed.
- Click the **Interpretation Tab**, select the survey(s) and/or 2D lines, review and change any parameter selections, then click **MB1** on **Output Horizons and Faults**.
- Repeat for as many surveys and 2D lines as needed if multiple surveys and/or 2D lines were not selected.

b. All fault boundaries that are contained in or intersect the selected output polygon can be selected for export by clicking **Output Fault Boundaries**.

c. If making well data selections, do the following:

- Click the **Well Data Tab**, select the log curves, lithofacies data, and markers to transfer.
- Click **MB1** on **Output Well Data**.

• • • • • •

Note: ***Well Data*** *tab will be dimmed if no boreholes are posted on the map.*

4 Review your selections in the **Output Selections** section, and adjust the list as needed using the **Scissors** () icon.

5 Go to the **Petrel Output Controls** section and select the output directory where you want to export the ZGY and Zip files.

Make any output **Projection** or **Unit** changes at this time. Verify CRS settings set as needed.

6 Click **OK** or **Apply**.

The export begins with a progress report opening. When the progress report is no longer on the screen, the export is complete.

7 Go to a Windows PC and open Petrel to start loading the ZGY file.

8 Load your 3D interpretation by locating the **Import from GeoFrame** folder in the **Processes** section on Petrel's data tree.

9 Open the folder and select **Import an interpretation model** which opens the **Import an interpretation model** dialog box and load your model(s) and fault boundaries here.

10 With the folder still open, select **Import well information** which opens the **Import well information** dialog box and load your well data here.

11 Now, select **Import 2D seismic and interpretation** option to open the **Import 2D seismic and interpretation** dialog box where you can load your 2D seismic and interpretation.

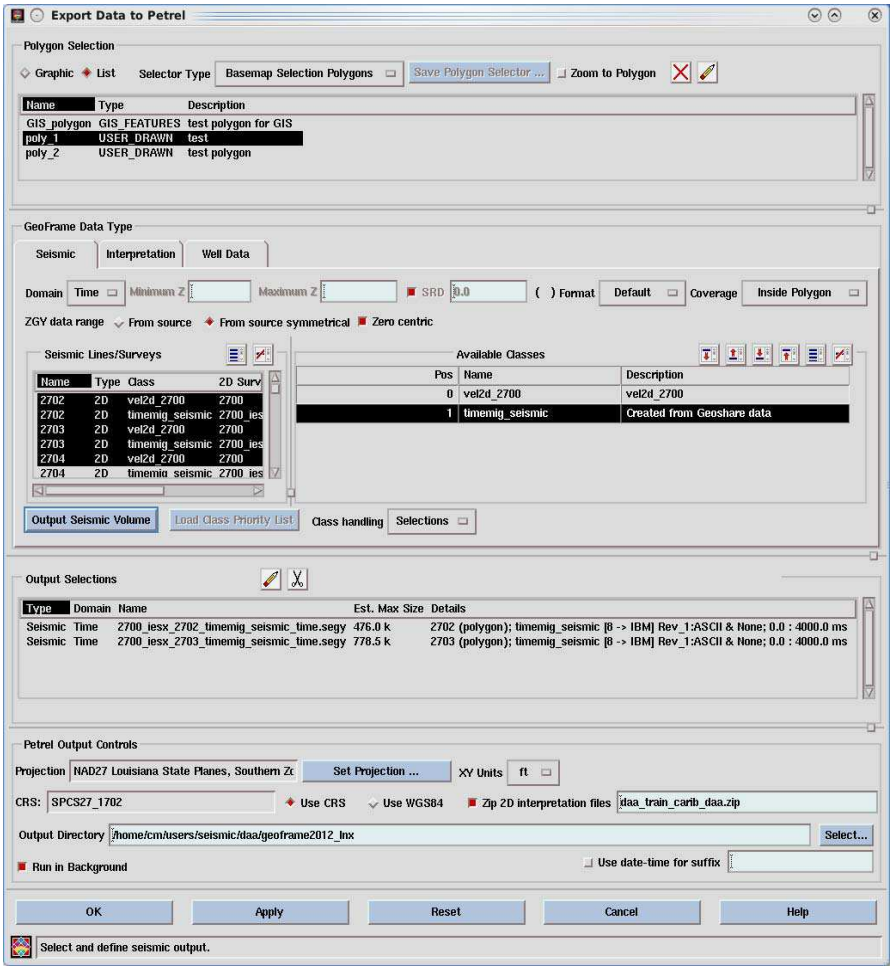

Fig. 1 Export Data for Petrel Project dialog box

Export Data for Petrel Project

The following describes the parameters and their usage rules for exporting 2D and 3D stacked seismic data, interpretation models, fault boundaries, and well data using the **Export Data to Petrel** dialog box. The **Export Data to Petrel** dialog box contains the following sections and **Command Bar**:

Option	Description
Polygon Selection	Select the areal extents (XYs) of the export area. Data for export can be selected in two ways: • **Graphic Mode** - Draw a polygon over the area that you want to export data from on the basemap or graphically select GIS polygons to use as the limits. • **List Mode** - Use existing **IESX** Areal Paths (rectangular or polygonal), saved **Basemap** selection polygons, **GeoViz** RAM Volume Definitions, or Data Boundaries.
GeoFrame Data Type	Select stacked seismic, interpretation, and well data to export using **Seismic Tab**, **Interpretation Tab**, and **Well Data Tab**.
Output Selections	Multiple seismic and interpretation selections can be made and will list with information such as **Type** (**Interpretation** or **Seismic**), **Domain**, **Name**, and any related **Details**. A **Clear** button is available to completely empty the list or items can be selectively removed from the list by clicking **MB1** on the item and then clicking the **Scissors**() icon. ***Tip:*** *Parameter changes can be made to selections in the* ***Output Selections*** *list without having to remove them from the list. To make changes, click* ***MB1*** *to highlight the item in the list you want to change. Edit the parameters, such as* ***Z range*** *or* ***Coverage****, in the* ***GeoFrame Data Type*** *section and then click* ***MB1*** *on* ***Output Seismic Volume****.*

Option	Description
Output Selections (cont)	***Note:*** *Only one* ***Polygon Selection*** *can be made per export run. If you try to select another polygon after the* ***Output Selections*** *section has been populated, you will receive a confirmation message stating that this list will be cleared if another polygon selection is made.*
Petrel Output Controls	Defines how the data selections listed in the **Output Selections** area will be exported to the Zip file.

Graphic Mode

GIS polygons can also be used to select the XY area for output. With the GIS data displayed and while in **Graphic** mode (use **MB3 > Select (Point)** Mode), click **MB1** on the GIS polygons to define the areal extent. The selected polygons will have a yellow outline until **MB3 > Break** is clicked. Then the outline turns red indicating these are the selections that will be used as the XY extents for export. At any time, if you want to reselect your polygons, click **MB3 > Clear** to start the selection process over again.

Note: *To make polygon selection easier, turn polygon fill ON (a transparency factor can also be used) to allow you to pick anywhere on the polygon.*

▶ ***To Graphically Make a Selection Polygon***

1 Toggle ON the **Graphic** radio button (use **MB3 > Draw (Poly)** Mode).

2 Click **MB1** to draw (**MB2** to remove points) the polygon.

Once complete, click **MB3** on the canvas and select **Break**.

The **MB3** options are:

Option	Description
Break	Completes the polygon. Use this when you have finished drawing your polygon.
Clear	Removes all the points you have picked, to restart the polygon draw.
Draw (Poly)	Always ON, constantly in drawing mode.
Save	Opens the **Save Polygon Selector** dialog box and allows you to save the polygon for later use.

Save Polygon Selector

The **Save Polygon Selector** dialog box contains the following options and **Command Bar**:

Option	Description
Name	Enter the name of the polygon you want to save.
Remark	Enter additional information about the polygon you want to save.

List Mode

▶ ***To Use Saved Rectangles and Polygons in the Selection Area***

1 Toggle ON the **List** radio button.

2 Select one of the following from the **Selector Type** option list:

Option	Description
Basemap Selection Polygons	Lists the polygons saved using the **Graphic polygon** drawing method.
IESX Areal Paths	Lists all the rectangular and polygonal paths in the project.
Posted IESX Areal Paths	Only posted rectangular and polygonal paths are displayed.
GeoViz RAM Volume Definitions	Use the XY extents of any saved **GeoViz** RAM volumes. The volume definitions only display for the 3D surveys that are posted on the **Basemap**. ***Note: GeoViz*** *RAM volume definitions are available for* ***IESX*** *definitions only and are not implemented for* ***Charisma****.* ***Note:*** *Any trace decimation done when creating the RAM volume is ignored and only the XY extents are honored.*
Data Boundaries	Lists any Inclusive Data boundaries in the project.

Note: ***IESX*** *areal paths can also be used to limit the extent of* ***Charisma*** *surveys.*

Note: *Z ranges contained in the rectangular and polygonal paths are not considered or used during the export process.*

Polygon Selection

The **Polygon Selection** section also contains the following elements:

Option	Description
Save Polygon Selector	Opens the **Save Polygon Selector** dialog box where a name and optional remarks are entered to save your graphic polygon selection. ***Note:*** *This option is only highlighted when you are in the* ***Graphic*** *select mode and a polygon has been created or GIS selections have been made.*
Show Extent	When toggled ON, **Show Extent** will cause **Basemap** to unzoom to the extents of the Polygon Selection.
	Deletes **Basemap** Selection Polygons.

Seismic Tab

The **Seismic** tab contains the following elements:

Option	Description
Domain	Select **Time** or **Depth**.
Minimum and Maximum Z	Select the **Z** range to export after the input class has been selected. Default is the full Z range of the class. Available only when a single 3D survey/class or 2D line/class selection is made.
Z Units	Ability to export depth data using feet (ft) or meters (m) for **Z-units** only available when **Domain** is set to **Depth**. **Time** is always exported in milliseconds (ms).
SRD	Turn ON to apply project's **Seismic Reference Datum** (**SRD**) to ZGY exported seismic. Available only for **Charisma** seismic. By default, the project's **SRD** is automatically populated in the text entry box located next to the **SRD** toggle, but can be changed to another user-defined value. ***Note:*** *Active when* ***Domain*** *is toggled to* ***Depth***.
Format	Select the output format 8, 16, or 32-bit for the 3D ZGY and 2D SEGY files. Default selection is the current format of the class.

Option	Description
Coverage	Select the containment method for seismic trace output. The options are: • **Entire Survey/ Line** - Overrides any polygon selections and exports data for the entire survey and/or 2D line. • **Bounding Box** - Builds a rectangular box parallel to the 3D survey orientation from the selected polygon and populates the entire rectangle with live traces (if live traces are available). • **Inside Polygon** (Default) - Exports data within the polygon selection. ***Note:*** *When exporting using a polygonal path, dead traces will be used to fill in the gaps when creating the rectangular (Petrel requires surveys to be rectangular) dimensions needed for the output 3D survey. The bounding box is built parallel to the 3D survey orientation.*
ZGY data range	Allows you to select the method for ZGY export. • **From source** - The output ZGY file will contain the input source data range exactly as it is stored in the **GeoFrame** database. • **From source symmetrical** - The output ZGY file will contain the input source data range symmetrical to the highest absolute value. • **Zero centric** - If you are exporting to an 8 bit or 16 bit resolution ZGY file, toggle this option ON to adjust the target data range so that the original data zero value is preserved.
Seismic Lines/ Surveys	Lists the 3D surveys and 2D lines available for selection. 2D and 3D surveys posted on the basemap and selected by the polygon are listed and available for selection.
Available Classes	Lists the available classes (versions) available for export. This list is dependent on the survey selection.

Option	Description

Class handling	• **Selections** - Attempts to export a 3D survey and/or 2D line (if highlighted in **Seismic Lines/ Surveys** list) for each class selected in the **Available Classes** list.
	• **Class Order -** Will export only one class of data for each 3D survey and/or 2D line selected in the **Seismic Lines/ Surveys** list. The order of output is based upon the class order in the **Available Classes** list, with output being from top to bottom. That is, for each highlighted 3D survey or 2D line, the **Available Classes** list is searched from top to bottom and the first class it finds for the 3D survey or 2D line will be put in the **Output Selections** list. To change the order that classes are exported, select a class(es) and use the four (4) icons to reorder them.
	  •  - Moves the selected class down in the list.
	  •  - Moves the selected class up in the list.
	  •  - Moves the selected class to the bottom of the list.
	  •  - Moves the selected class to the top of the list.

Load Class Priority List	Loads the **Class Priority** settings made in **Seis% DV**. Selecting this will reorder the classes in the **Available Classes** list. The **Class Priority** list can be set in **Seis% DV Define > Class priority**.
Output Seismic Volume	Click this button to put the survey/class pair and its parameters in the **Output Selections** area. ***Tip:*** *If parameters exist in the O**utput Selections** area and a change is needed on an item, highlight the item change the parameter(s) and click **Output Seismic Volume**.*

GeoFrame “conditions” the seismic data prior to export to ensure it will load into Petrel. The following is useful information pertaining to 2D seismic export/import:

- Traces at the beginning or end of 2D lines that do not contain navigation are not exported. In cases where there is no navigation in the middle of a 2D line, it will be interpolated, and the traces exported.
- 2D lines imported into Petrel will be named by the **GeoFrame** survey name and class separated by two colons - survey::class.
- If a selected 2D line falls outside the polygon in the middle of the line, live traces will be exported for the portion of the line that falls within the polygon. Dead traces with navigation are exported for the portion of the line that are outside the polygon.
- The Petrel importer (**Input data** dialog box) is used to load the data so be sure to select the correct loading template.
- 2D seismic is exported using SEGY Revision 1 with no extended headers. This format is used so line information can be written in ASCII in the textual header for later review and identification purposes.
- In some unusual cases, for example huge changes in navigation but no trace or CDP increments changes, Petrel may load a 2D line in parts and put them in a 2D line folder. Lines of this nature will be identified in the **Status** column of the **Results of import** section of the **Import 2D seismic and interpretation data** dialog box, where you are asked to review them.
- If there are duplicate trace numbers in a 2D line in **GeoFrame**, only the first duplicate trace will be imported into Petrel and the others ignored.
- If there is duplicate navigation for adjacent traces, the traces with duplicate navigation are not exported. The exporter uses the rule that if adjacent X and Y locations are less than or equal to one, they are considered duplicates and will not be exported. Sometimes due to rounding errors, the exporter may export these traces and Petrel will consider them as duplicate traces.
- It is a good practice to run a full scan on the 2D lines after they have been loaded in Petrel.

Interpretation Tab

The **Interpretation** tab contains the following elements:

Option	Description
Domain	Select **Time** or **Depth**.
Coverage	Select the containment method for seismic trace output.
Output Fault Boundaries	Click this button to export all the fault boundaries that fall within or intersect your selected polygon.
Output Horizons and Faults	Once the selections are made, click this button to put in the **Output Selections** section. ***Tip:*** *A* ***Select All*** *icon is available for multiple survey selection.*

Note: *Model export is limited to the current **Time** or **Depth** model. To select a different model you must exit all **IESX** applications, and reselect the models from the **IESX Session Manager**. If you are running standalone **Basemap**, you must exit and restart **Basemap** and reselect the models from the **Model Selector** dialog box.*

Well Data Tab

The **Well Data** tab contains the following elements:

Option	Description
Transfer Logs	Choose one of the following from the **Transfer Logs** option list: • **LCPS** - Allows you to select an existing **Log Curve Preference System** (**LCPS**) to choose the logs to send to Petrel. Selecting this option activates the **Select** button which opens the **Select LCPS** dialog box where you can select an existing **LCPS**. • **User Logs** - Selecting this option activates the **User Logs** button, which opens the **Log Codes** dialog box where you can select the log curves to transfer by code type. • **All Logs** - All the logs for the selected boreholes will be transferred. That is, the preferred logs code is transferred if it is set. If the preferred logs code is not set, then the latest time stamped version of a log code is transferred. Multiple logs of the same log code are not transferred. • **None** - No logs are transferred.
Transfer Lithofacies	Choose one of the following from the **Transfer Lithofacies** option list: • **Lithology Versions** - Allows you to send one or more **Lithology** versions to Petrel. Selecting this option activates **Select** which opens the **Lithology Version Selection** dialog box, where you can select one or more lithology versions. • **None** - No lithofacies data is transferred. • **All Versions** - All the lithofacies data for the selected boreholes is transferred.

Option	Description
Transfer Markers	Choose the markers to send to Petrel by selecting one of the options from the **Transfer Markers** option list: • **Surface Set** - Allows you to transfer a collection of markers for the selected boreholes to Petrel. This can be an existing set or can be created within this option using the create **Surface Set** icon. • **All Surfaces** - All the markers for the selected boreholes will be transferred. • **None** - No markers are transferred.
Output Well Data button	Click this button to put your well selections into the **Output Selections** section for export. The **Output Name** text box is for informational purposes only and reports the name that will be given to the output zip file name.

Note: *The **Well** tab will only be highlighted if boreholes are posted on the map.*

Note: *For a borehole to be included in a transfer file its well top must be included within the selection polygon.*

Transfer Rules / General Information

Option	Description
Boreholes	The Working Datum (WD) is transferred from **GeoFrame** to the Kelly Bushing (KB) of Petrel. Well Symbols are mapped between **GeoFrame** and Petrel and are consistent with the way OpenSpirit maps them. The preferred deviation survey is transferred to Petrel using True Vertical Depth (TVD). The preferred checkshot survey is transferred using TVD, if TVD is not found, the Measured Depth (MD) is used. If the preferred checkshot for a borehole you are transferring belongs to (referenced from) another borehole it will not be transferred and it is your responsibility to load it in Petrel. A workaround for this problem would be to include the borehole that owns the checkshot in the export, and then once the Zip file is imported into Petrel, open the **Settings > Time** tab of the borehole you want the checkshot assigned to and assign it manually by using the shared checkshot option.
Logs	**GeoFrame** log codes are mapped to Petrel well log templates. There are many more log codes in **GeoFrame** than Petrel well log templates. Therefore, some **GeoFrame** log codes may be mapped to a different well log template in Petrel. The original **GeoFrame** log code is placed in the Log's comments for your review. Also, you will see a list of log codes in the Petrel Message window, if the log codes in Petrel are different from **GeoFrame**.

Option	Description
Logs (cont)	A workaround is to check the global log template, rename or create a new global log template, and reassign to each log code (can compare with comment of each log). Discrete logs (Facies logs, etc.) and time logs are currently not exported. When the **Preview** option is selected, the **Available Log Curve Tool** (**ALCT**) is displayed to show your current selections. Some of the log export rules and information are explained below when a project **LCPS** is set: • The **LCPS** selected in the **Export Borehole Data to Zip** dialog box supersedes the project **LCPS**. • The project **LCPS** is not used if you use the **User Logs** option. The preferred log code will be used rather than the **LCPS** settings. • If the project **LCPS** is set and **User Logs** is selected with no preferred logs set, the latest time stamped log will be exported. • It is recommended that you preview your log export selections any time a **LCPS** is used, since a **LCPS** is project based and can be changed by another user without you realizing it.
Lithofacies	Lithofacies are transferred using MD values. Facies names are transferred, however not all colors or patterns are transferred. If the colors are standard **GeoFrame** colors without a number extension, they transfer properly. If they have a numeric extension, for example `MistyRose3`, they will transfer in Black. A workaround is to assign the closest color that does not have a numeric extension. **GeoFrame** has 64 basic predefined patterns along with user-defined patterns. Petrel has 34 basic predefined patterns. A mapping of the patterns is defined by default between **GeoFrame** and Petrel. To manually change the colors and patterns, you can edit the `gf_path_map.txt` file.

Option	Description
Markers	Markers are transferred using MD values. If there are no MD values the marker is not transferred. If a marker to be transferred is indexed in something other than MD (for example, TVD) the marker value transferred will still be the MD value. If the **Marker Preference System** (**MPS**) is active, markers will also be filtered based on those settings. Marker colors are not transferred and are assigned according to Petrel standards. Markers must be associated to a surface before transfer.
Output Selections	The seismic, interpretation, and well data selections are listed here. The types of data, domain, name, estimated size, and details of the data are listed here. •  - Removes all selections from the list. • **Move**  - Removes the highlighted selection from the list.

Petrel Output Controls The **Petrel Output Controls** section contains the following elements:

Option	Description
Projection	By default, shows the **Projection** system used to create the map will be used for the export.
Set Projection	Select another projection to use for exporting.
XY Units	Allows you to change the XY units of the data you are exporting. You can select: • m • ft • ftus

Option	Description
CRS	**CRS** is the Coordinate Reference System code that is used to match the coordinate system output by **GeoFrame** with the coordinate system of Petrel. The CRS code listed in **GeoFrame** can be seen in Petrel's **Coordinate reference system selection** dialog box. When a Zip file is imported into Petrel, if there is a match between the coordinate system in the Zip file and a coordinate system available in Petrel, the XY data will be converted from the Zip file coordinate system to the Petrel project's coordinate system. Currently, the following data items are imported to Petrel using XY values using the **GeoFrame data connector:** • Fault boundaries • Well surface locations • Well deviation survey XY values If no coordinate system match is found between the Zip file and Petrel, an information message is displayed with a choice of continuing or cancelling the import. If the choice to continue is made, no coordinate conversion is done and the data's XY values are loaded as is, only unit conversion is performed. **GeoFrame** can have user-defined coordinate systems beyond those that are pre-defined. These coordinate systems do not have a CRS name that can be matched with Petrel. To handle cases like this, the **Use WGS84** option can be used. This will export the data as latitude/longitude in a neutral coordinate system and allow Petrel to perform the coordinate system conversion to the project's coordinate system. ***Note:*** *3D stacked seismic cannot be exported using the* ***Use WGS84*** *option. It will be exported using the currently selected CRS.*
Zip 2D interpretation Files	Toggle ON to put all the 2D interpretation files into a single Zip file.

Option	Description
Output Directory	Specify the directory where the files will be output. The directory must already exist and you must be able to write to it. A sub-directory (1 level) will be created for you if you type in a sub-directory name that does not exist.The following output file naming convention is used: • **Seismic** - `<survey_name>_<class_name>_<domain>.zgy` • **Interpretation -** `<interpretation_model_name>_<survey_name>_<domain>.zip` • **Fault boundaries -** `<interpretation_model_name>_Fault_Boundaries_<domain>.zip` • **Well data -** `BOREHOLES_LIST_<Log curves>_<markers>.zip` • **GF_PETREL_OUT_DIR** - Set this environment variable and the output files by default are located in the specified directory. Set the command by: `setenv GF_PETREL_OUT_DIR directory_path` or use BasemapEnvVars.txt and enter the line: `GF_PETREL_OUT_DIR directory_path`
Select	Opens the **Select directory for data output** dialog box to make the directory selection or manually enter it in the text entry box next to the **Select** button.
Run	Select an option from the option list. • **Background** - ON by default, this option allows the export to take place in the background, which means you can execute other tasks with less performance impact. ***Note:*** *Graphically drawn polygons must be saved in order to use this option.* • **Immediate** - Runs the export in **Foreground** on the current map as soon as **OK** or **Apply** is clicked. • **Write File Only** - Allows you to write an XML file `(outSummary.xml)` that lists the items to export that can be used later by a command line tool to import the data into Studio.
Use date-time for suffix	With this button ON, a date-time stamp is automatically added to the output files. If this button is turned OFF, a suffix can be manually entered in the text entry area next to the button. You cannot have both a date-time and manually entered suffix.

Progress Report / Log File

Once you are satisfied with your selections, click **OK** or **Apply**. The export begins, and a progress dialog box opens which reports information on the polygon used for export. The dialog box shows on the survey/class being exported (output file name, Line/CDP/Z range, Projection, Datum, Ellipsoid, Units, and export percentage complete) and interpretation model export information.

A log file (`bmap_petrel_run.log`) is also created in the directory where the ZGY and Zip files are exported. This contains the export information from the progress report along with information about the interpretation export. Also, a log file (`bmap_petrel_batch.inf`) is created in the directory where well data is exported when not all well data is exported and when well data is exported with saved polygon. When well data is exported with an unsaved polygon, the same log file appears in the **Process Messages** dialog box instead of a log file. If a date-time suffix is used in the export that will be appended to the log file name.

Export Framework 3D to Petrel

The **Export Framework to Petrel** option allows you to export a **Time** or **Depth** framework model to a zip file. This zip file can be loaded into Petrel using a **GeoFrame Data Connector** plug-in for Petrel.

With the exception of **Fault Intersections**, **Original Horizons Grids**, **Truncated Fault Grids**, and **Fault Polygon Sets**, which are always exported, you have control over exporting all the other **Framework 3D** data such as **Original Fault Grids**, **Fault Tip Loops**, etc.

▶ *To Export A Structural Framework*

1 Open **Framework3D** from the **Seismic Catalog** (or **Visualization Catalog**).

2 Select **File > Export Framework to Petrel.**

The **Export Framework to Petrel** dialog box opens.

3 Click on the structural model to export from the **Select Structural Framework to Export** list.

4 Review the **Framework Data for Petrel Model** (always exported) list.

5 Click on the buttons of any additional data to export in the **Additional Framework Data to Export** section.

Use the **Select All** icon if you want to export all the data.

6 Click **Select File** to open the standard **Select Output File** dialog box where you can output the Zip file to the directory of your choice.

If no selection is made, a default file name, consisting of the model name and survey, will be output to your default directory (`/project directory/CPS`).

Important: *You can use the **Output File** text entry box to type in an output file name if you want to export the Zip file to your default directory (`/project directory/CPS`) and bypass the **Select File** button.*

7 Click **OK** to export the file.

Note: ***Framework 3D** models are exported using the grid library's **Local Coordinate System (LCS)**. No coordinate conversion is done when the model is imported into Petrel.*

Export Framework to Petrel

The **Export Framework to Petrel** dialog box (see **Fig. 2**) contains the following options and a **Command Bar**:

Option	Description
Select Structural Framework to Export	A list of structural frameworks in the project available for export. Use **Find** to locate a structural framework if the list is long. You can get detailed information on the structural framework by clicking the **Information** ( ) icon.
Framework Data for Petrel Model	A read-only list of framework data that are always exported.
Additional Framework Data to Export	Select any additional framework data you want to export.
Output File	You can enter the output filename in this text field, or select a directory and enter an output filename by clicking **Select File** to open the **Select Output File** dialog box.

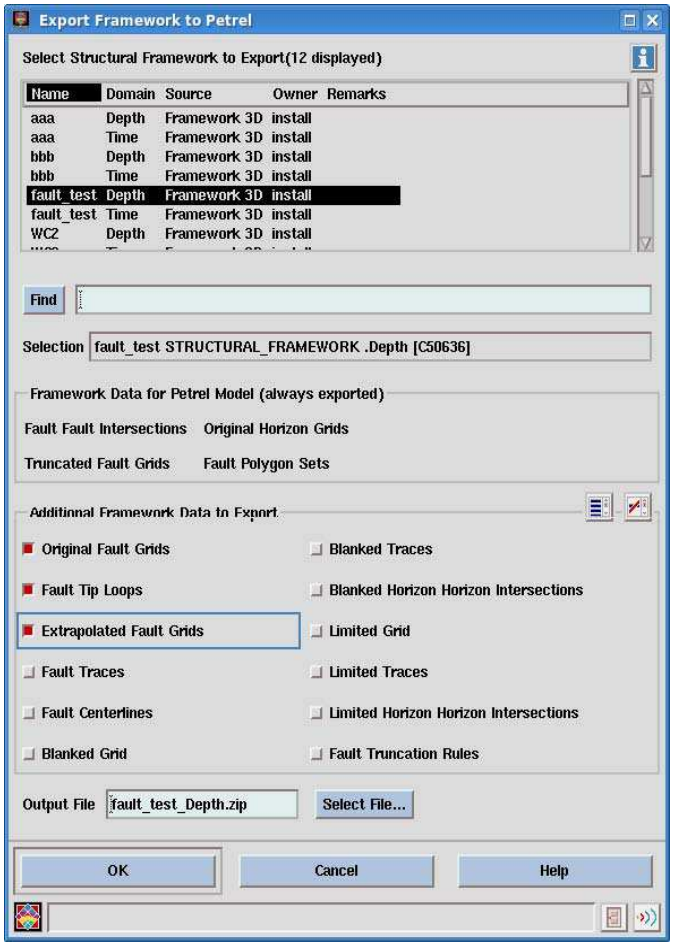

Fig. 2 Export Framework to Petrel dialog box

4 Import to Petrel

In This Section

Overview

2D and 3D stacked seismic data, 2D and 3D seismic interpretation and well data exported from **GeoFrame** can be imported into Petrel. 2D stacked seismic data is exported as SEGY, 3D stacked seismic data as ZGY, 2D and 3D seismic interpretation and well data as Zip files.

These exported data can be imported into Petrel using the **GeoFrame** data connector plug-in and in the case of the 3D stacked seismic ZGY files, the standard Petrel loader.

Reading a ZGY File Into Petrel

ZGY formatted 3D stacked seismic files can be exported from **GeoFrame** (Linux only) using **Basemap** or **ZGY Utility**. These files can then be read into Petrel.

▶ *To Read the ZGY Data into Petrel*

1. Open Petrel, click **MB3** on the data tree and select **Import (on tree)**.

   The **Import file** dialog box opens.

2. In the **Import file** dialog box, toggle **Look in** to the directory your ZGY file is in.

3. Toggle the **Files of type** option to **Seismic data in ZGY bricked format (*.zgy)**.

4. Select the ZGY file from the list and click **Open**.

   The **Import data** dialog box opens where you can enter a new vintage (class/version) of data or use the default vintage, verify settings, confirm correct **Coordinate** reference system is selected, confirm unit conversions are correct, and click **OK**.

   The data is now available to be displayed in Petrel.

Petrel Plug-in Usage

Once the plug-in is installed, you can locate it in Petrel by looking for **Import from GeoFrame** in the **Processes** list. Once you have located this entry, open the folder and you will see the following options:

- **Export 3D seismic interpretation**
- **Import 3D interpretation and Fault Boundaries (2D and 3D)**
- **Export well information**
- **Import well information**
- **Import a Framework 3D model**
- **Import 2D seismic and interpretation data**

Import 3D interpretation and Fault Boundaries (2D and 3D)

▶ ***To Import an Interpretation Model***

1 Select **Import 3D interpretation and Fault Boundaries (2D and 3D)**.

The **Import 3D interpretation and Fault Boundaries** (**2D** and **3D**) dialog box opens (see **Fig. 3 on page 37**).

2 Select the survey in Petrel to load the interpretation model into and click the blue arrow.

The survey field is populated.

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Note: *When loading fault boundaries, a survey selection is not required.*

3 Use the **Browse** option to select the interpretation model Zip file to import.

4 (Optional) Supply a **Name prefix**/**suffix** by clicking the button and supplying a name.

5 Click **OK**.

The interpretation model now loads into the selected survey.

When the interpretation model loads, the horizons and fault sticks appear in the Petrel Input pane as a sub folder under the **Seismic** folder called “GeoFrame: Interpretation Model_Survey_Name”. The fault boundaries appear as a separate folder in the Petrel Input pane named “GeoFrame fault boundaries: Interpretation Model_Survey Name”.

When the **Import 3D interpretation and Fault Boundaries (2D and 3D)** option is selected, the **Import 3D interpretation Fault Boundaries (2D and**

3D) dialog box opens with the following **Import model** tab option and **Command Bar**:

Option	Description
Seismic survey	Select the name of a survey and click the blue arrow.
Interpretation model to import	Use **Browse** to locate an interpretation model Zip file to import.
Name prefix (optional)	Toggle this option ON and enter a name in the **Name prefix** field.
Name suffix (optional)	Toggle this option ON and enter a name in the **Name suffix** field.

There is also an **Info** tab which provides instructions on how to use this import tool.

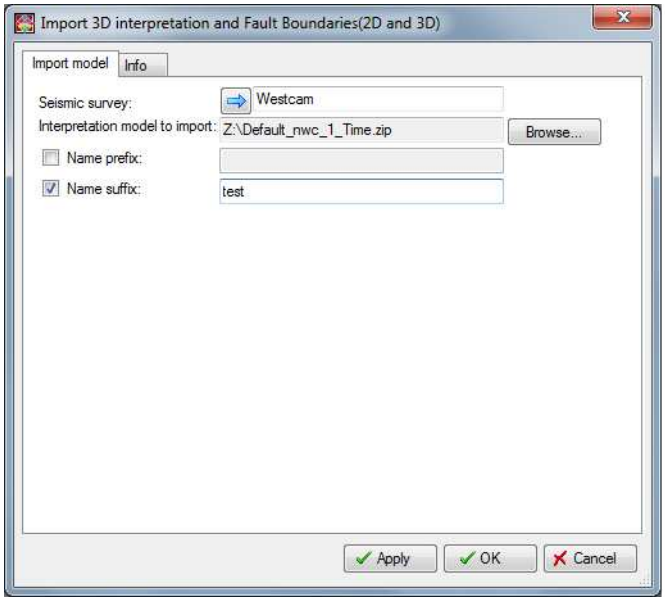

Fig. 3 Import 3D interpretation and Fault Boundaries (2D and 3D) dialog box

Import well information

▶ ***To Import Well Information***

1 Select **Import well information.**

The **Import well information** dialog box opens (see **Fig. 4 on page 38**).

2 Use the **Browse** option to select the well Zip file to import.

3 (Optional) Supply a **Name prefix**/ **suffix** by clicking the button and supplying a name.

4 Click **OK**.

The well data now loads.

When the **Import well information** option is selected, the **Import Well Information** dialog box (see **Fig. 4**) opens with the following **Import wells** tab option and **Command Bar**:

Option	Description
Well file to import	Use **Browse** to locate a well Zip file to import.
Name prefix (optional)	Toggle this option ON and enter a name in the **Name prefix** field.
Name suffix (optional)	Toggle this option ON and enter a name in the **Name suffix** field.

There is also an **Info** tab which provides instructions on how to use this import tool.

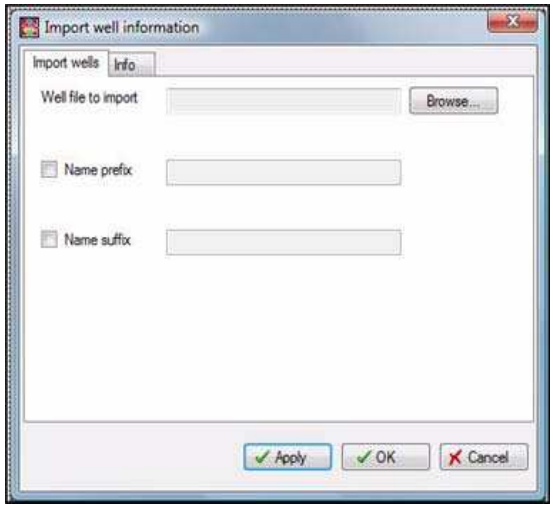

Fig. 4 Import Well Information dialog box

Import a Framework 3D model

The **Import a Framework 3D model** dialog box (see **Fig. 5**) opens with the following **Import model** tab option and **Command Bar**:

Option	Description
Framework to import	Use **Browse** to locate a framework model Zip file to import.
Name prefix (optional)	Toggle this option ON and enter a name in the **Name prefix** field.
Name suffix (optional)	Toggle this option ON and enter a name in the **Name suffix** field.

There is also an **Info** tab which provides instructions on how to use this import tool.

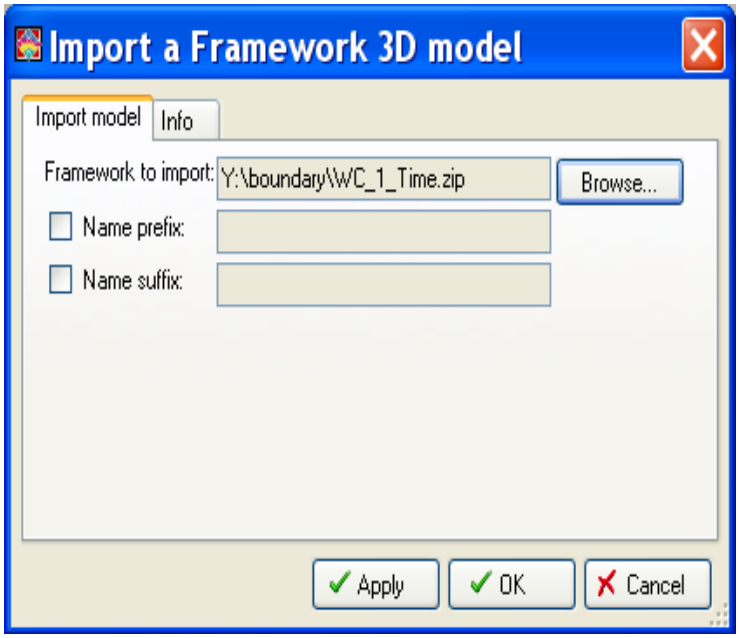

Fig. 5 Import a Framework 3D model dialog box

Import 2D seismic and interpretation data

2D seismic and interpretation exported from **Basemap** using the **Petrel > Export to Petrel** tool can be imported into Petrel using the **Import 2D seismic and interpretation data** option found in the **GeoFrame data connector** folder in the **Processes** pane. When this option is selected, the **Import 2D seismic and interpretation data** dialog box (see **Fig. 6 on page 41**) opens with the information on the **Seismic** tab presented.

Important: *Only 2D seismic and interpretation files exported from **Basemap > Petrel > Export to Petrel** should be loaded using this dialog box. Any files that were created outside of **Basemap > Petrel > Export to Petrel** may not be properly conditioned and you may have trouble associating the interpretation to the 2D lines due to naming conventions used when the export/import process is done.*

The **Seismic** tab includes the following parameters and results section:

Option	Description
2D survey	Survey to contain the 2D lines to be loaded. Select an existing survey from the Petrel Input pane and click the blue arrow icon.
New 2D survey name	Rather than performing the option above, you can enter a new survey name in the adjacent text box. The name entered here overrides the selection in the **2D survey** option.

Option	Description
Associate	Performs the data selection and initiates the load. Click **Associate** to open the **Import file** dialog box to make SEG-Y file selections. If a coordinate system has already been selected for the project, the 2D seismic will begin to load as soon as **OK** is selected. If no coordinate system has been selected for the Petrel project, a prompt will appear asking you to select a coordinate system or to select null. If null is selected, the coordinates for the 2D seismic will be identical to those used when exporting from **GeoFrame**. As the load starts, you are presented with the standard Petrel Input data dialog box with information and options pertaining to the first line you are about to load. Review this, make any changes (none are required), and click **OK** to review the next line or **OK** for all to have the load continue without stopping for the rest of the lines.
Result of import	Sortable spreadsheet that reports the lines loaded, the location of the SEG-Y file of the 2D line, and the loading status. ***Note:*** *If you are only loading 2D seismic into the Petrel project, you can* ***MB3*** *click on the* ***2D survey*** *in the* ***Input*** *pane and select* ***Import 2D Seismic from GeoFrame****. This will open the* ***Import file*** *browser to select the 2D lines and then the Petrel importer (****Input data*** *dialog box) is used to load the data.*

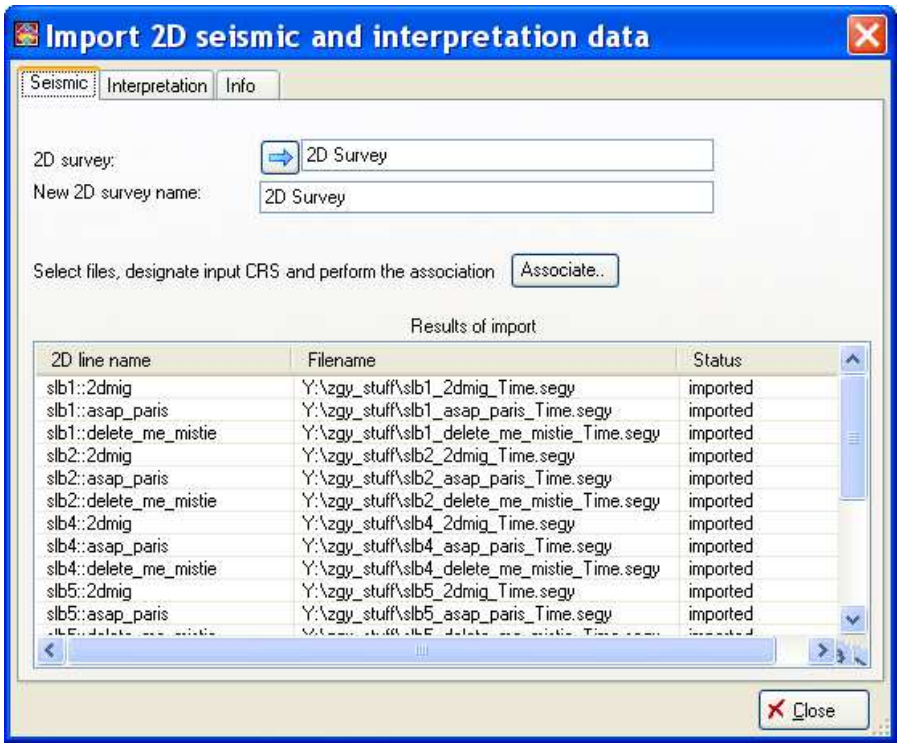

Fig. 6 Import 2D seismic and interpretation data dialog box with **Seismic** tab selected

The **Interpretation** tab (see **Fig. 7 on page 43**) includes the following parameters and results section:

Option	Description
2D survey	Survey to contain the 2D line interpretation to be loaded. Select an existing survey from the Petrel Input pane and click the blue arrow icon. 2D seismic must be available before interpretation can be loaded.
Interpretation folder	Folder that will contain the loaded 2D line interpretation. Select an existing interpretation folder from the Petrel Input pane and click the blue arrow icon.

Option	Description
New interpretation folder name	If you want to import the interpretation into a new folder or if no folder exists enter a new name in the adjacent text box. By default, if you had previously loaded 2D seismic data, the name in the New interpretation folder name will default to “surveyname_interp”, so that can be used, or leave it blank and a new folder with the name “surveyname_interp” will be created automatically. If this folder already exists, the interpretation will be written to it.
Interpretation file	Performs the interpretation zip file selection. Click **Browse** to open the **Open** dialog box to make an interpretation file selection. Only one zip file can be selected at a time, so if you have multiple zip files to load, say horizons/faults and then a separate fault boundaries file, simply run the import option twice.
Load onto 2D lines based on these options	This option allows you to load interpretation to multiple classes/versions of 2D lines by three methods: • **All lines** - Loads the interpretation to all the classes that exist for the 2D lines. • **First line** - Loads the interpretation to the first class of the 2D line that the importer encounters. • **Preferred class** - Only loads the interpretation to the class specified in the Preferred class text box.
Import	Initiates the load.
Results of import	Sortable spreadsheet that reports the horizons and faults loaded, the 2D lines the interpretation is loaded on, and the loading status.

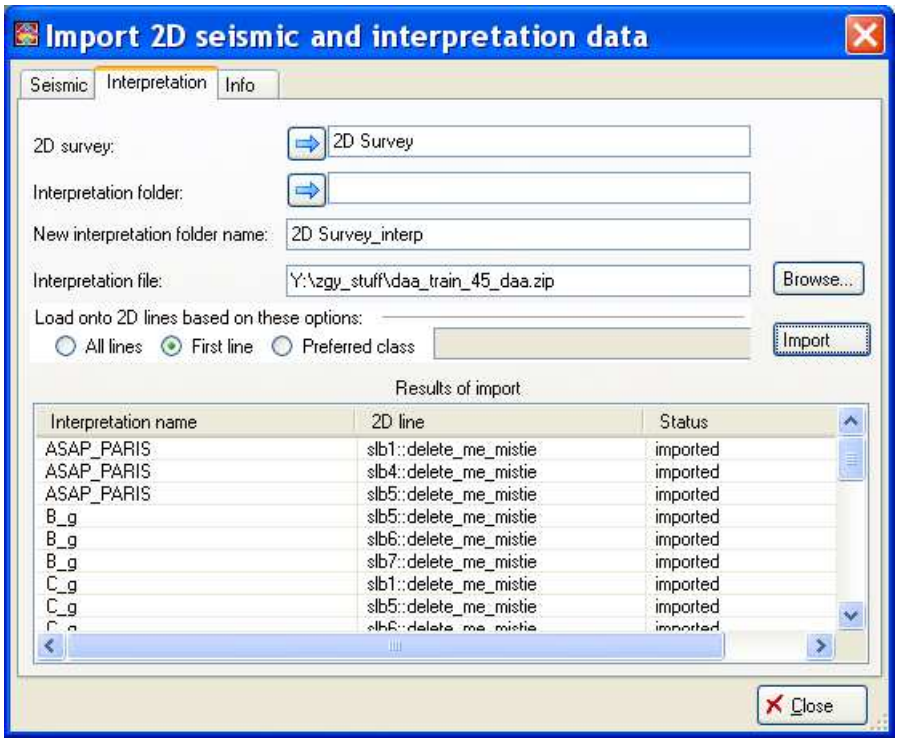

Fig. 7 Import 2D seismic and interpretation data dialog box with **Interpretation** tab selected

The following workflow leads you through loading 2D seismic and interpretation in the same run. You do not have to load both at the same time. You can load seismic only, or just interpretation. But remember, that you must have seismic loaded prior to loading interpretation.

Loading 2D seismic

▶ *To Load 2D Seismic*

1. Locate and open the **GeoFrame data connector** folder on the **Processes** pane. Double click **Import 2D seismic and interpretation data** to open the **Import 2D seismic and interpretation data** dialog box.
2. With the **Seismic** tab open, select an existing 2D survey from the Petrel Input pane and click the blue arrow next to the 2D survey option or enter a new name in the **New 2D survey name** text box.
3. Click **Associate** to open the **Import file** dialog box and make your SEG-Y file selections. If a coordinate system has already been selected for the project, the 2D seismic will begin to load as soon as **OK** is selected. If no coordinate system has been selected for the Petrel project, a prompt will appear asking you to select a coordinate system or to select null. If null is selected, the coordinates for the 2D seismic will be identical to those used to when exporting from **GeoFrame**.
4. As the load starts, you are presented with the standard Petrel Input data dialog box with information and options pertaining to the first line you are about to

load. Review this, make any changes (none are required), and click **OK** to review the next line or **OK for all** to have the load continue without stopping for the rest of the lines.

5 Once the lines have loaded, review the **Results of import** spreadsheet within the **Import 2D seismic and interpretation data** dialog box for inconsistencies.

Importing 2D Interpretation

▶ ***To import 2D Interpretation***

1 Select the **Interpretation** tab on the **Import 2D seismic and interpretation data** dialog box.

2 Select an existing 2D survey from the Input pane and click on the blue arrow next to the 2D survey option or if you loaded 2D seismic prior to selecting this tab the text box will be populated with the 2D survey name in which the seismic was loaded.

3 Select an existing Interpretation folder from the Input pane and click on the blue arrow next to the Interpretation folder option or type in a new name in the **New interpretation folder name** text box. By default, if you had previously loaded 2D seismic data, the name in the **New interpretation folder name** will default to “surveyname_interp”, so that can be used, or leave it blank and a new folder with the name “surveyname_interp” will be created automatically. If this folder already exists, the interpretation will be written to it.

4 Select the interpretation zip file to import. Click **Browse** to open the Open dialog box. Locate and select the directory and file containing the interpretation file. You can also manually enter the directory and file name in the text box next to **Interpretation file**.

5 Now select the option to load to multiple classes/versions of 2D lines by using **Load onto 2D lines based on these options**:

- **All lines -** Loads the interpretation to all the classes that exist for the 2D lines.
- **First line** - Loads the interpretation to the first class of the 2D line that the importer encounters.
- **Preferred class -** Only loads the interpretation to the class specified in the **Preferred class** text box.

6 Click **Import**.

The interpretation loads.

7 Once the interpretation has loaded, review the **Results of import** spreadsheet within the **Import 2D seismic and interpretation data** dialog box for inconsistencies.

5 Export to GeoFrame

In This Section

Overview

3D seismic interpretation and well data (boreholes, deviation surveys, and markers) can be exported from Petrel using the **GeoFrame data connector** plug-in as zip files. These data can be imported into **GeoFrame**.

Note: *An* `OCEAN_SLB_GF_DATA_CONNECTOR` *license is required to launch the* ***GeoFrame data connector****.*

Export 3D Interpretation

3D Interpretation, horizons and faults, can be transferred from Petrel to **GeoFrame** using zip files. Interpretation folders are selected from Petrel on a survey basis and imported into **GeoFrame** as new interpretation models. Then **Seismic Interp Copy & Merge** (**SINC**) can be used to merge the interpretation into existing interpretation models, if desired.

Export 3D Seismic Interpretation, a **GeoFrame data connector** option in Petrel, allows you to output horizons and faults to zip files that can be imported into **GeoFrame**. When this option is selected, the **Export 3D seismic interpretation** dialog box (see **Fig. 8 on page 48**) opens with the following **Export interpretation** tab option and **Command Bar**:

Option	Description
Seismic survey	Select 3D survey that you want to export horizon and fault interpretation from.
Interpretation folder	Select the interpretation folder or sub-folder to export.
Export file	Select **Browse** to open the **Export archives** dialog box to select an output directory and then supply a file name. The default output directory is `My Documents`. A `.zip` will automatically be appended to the output filename. The selection lists in the **Export file** text box.
Domain	Select the domain, **Time** or **Depth**, of the interpretation to export.

The interpretation exported is based on the Petrel survey and the interpretation folder selected. Any interpretation folder or sub-folder may be selected and only the interpretation that belongs to the selected survey will be exported.

There is also an **Info** tab which provides instructions on how to use this export tool.

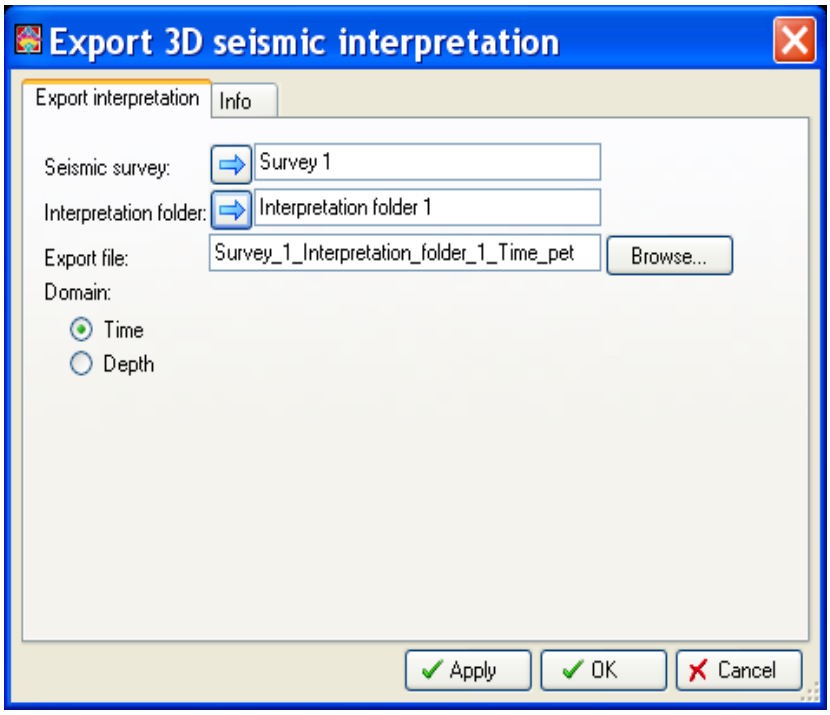

Fig. 8 Export 3D Seismic Interpretation dialog box

Export 3D Interpretation Data Workflow

Once the plug-in is **installed**, you can locate it in Petrel by looking for **GeoFrame data connector** in the **Processes** list. Once you have located this entry, open the folder and you will see the following options:

- **Export 3D seismic interpretation**
- **Import 3D interpretation and Fault Boundaries (2D and 3D)**
- **Export well information**
- **Import well information**
- **Import a Framework 3D model**
- **Import 2D seismic and interpretation data**

▶ *To Export 3D Interpretation Data From Petrel*

1. Select **Export 3D seismic interpretation** and the **Export 3D seismic interpretation** dialog box (see **Fig. 8 on page 48**) opens.
2. Select the survey that you want to export the interpretation from and click on the blue arrow.

   The **Seismic Survey** field is populated.
3. Select an interpretation folder (this can be any folder or sub-folder that contains horizons and/or faults) and click on the blue arrow.

   The **Interpretation folder** field is populated.
4. Use the **Browse** option to select the interpretation Zip file name to export. Enter the directory and name for the output file.
5. Select the output **Domain** - **Time** or **Depth**.
6. Click **OK**.

   The **Interpretation folder** now exports into the specified export file name.

Note: *If horizons are domain converted, the **Depth** or **Time** attribute needs to be converted to a separate interpretation to be exported. To convert, right click the **Z attribute** and select **Convert to separate interpretation** before exporting interpretation data from Petrel.*

Export Well Data

Well data (boreholes, deviation surveys, markers, and log curves) can be transferred from Petrel to **GeoFrame** using zip files. Borehole and well marker folders are selected from Petrel and imported into **GeoFrame** into a borehole set.

Export well information, a **GeoFrame data connector** option in Petrel, allows you to output boreholes, deviation surveys, and markers to zip files that can be imported into **GeoFrame**. When this option is selected, the **Export well information** dialog box opens (see **Fig. 9 on page 52**) with the **Export well** and **Info** tabs.

Option	Description
Borehole folder	Select the borehole folder that you want to export the boreholes and deviations surveys from.
Export markers	Toggle ON to enable the export of markers to the .zip file.
Export logs	Toggle ON to export all the continuous log curves contained in the selected boreholes. Only continuous log curves are exported. ***Note:*** *No match and merge rules apply to log curve transfer. A log curve will be transferred each time regardless of whether it already exists in the destination* ***GeoFrame*** *project.*
Marker folder	Select the well top folder that you want to export the markers from. This is optional and not required if markers are not being transferred. ***Note:*** *Two way time (TWT) values of markers are not exported because checkshots cannot be exported*.
Preview	Allows you to open the **Preview Data** dialog box to review the current borehole and marker selections. Two date filters are available to only copy wells and markers from a date forward (see **Fig. 10 on page 53**).
Borehole Date Filter	To exclude boreholes created before a certain date enter the date using the Petrel standard syntax (MMM/DD/YYYY).
Marker Date Filter	To exclude markers created before a certain date enter the date using the Petrel standard syntax (MMM/DD/YYYY).

Option	Description
Export file	Select **Browse** to open the **Export archives** dialog box to select an output directory and then supply a file name. The default output directory is `My Documents`. A .zip will automatically be appended to the output filename. The selection lists in the **Export file** text box. If no name is entered, a default name is supplied. The name will be based on the data types selected. The name is "borehole folder_Logs_marker folder".
Coordinates	Displays the coordinate system information that is currently assigned to the project. To export the well data in a different coordinate system, click **Coordinates** to open the **Coordinate reference system selection** dialog box where you can select the new coordinate system using Petrel's standard selector.
CRS	Displays the name of the coordinate reference system.
Use CRS / Use WGS84	**Use CRS** to export the well data using the selected coordinate system. Useful when you have an exact match in **GeoFrame**. **Use WGS84** can be used to export the well data's coordinates in WGS84 and can be useful when coordinate systems do not match between Petrel and **GeoFrame**.

There is also an **Info** tab that provides instructions on how to use this export tool.

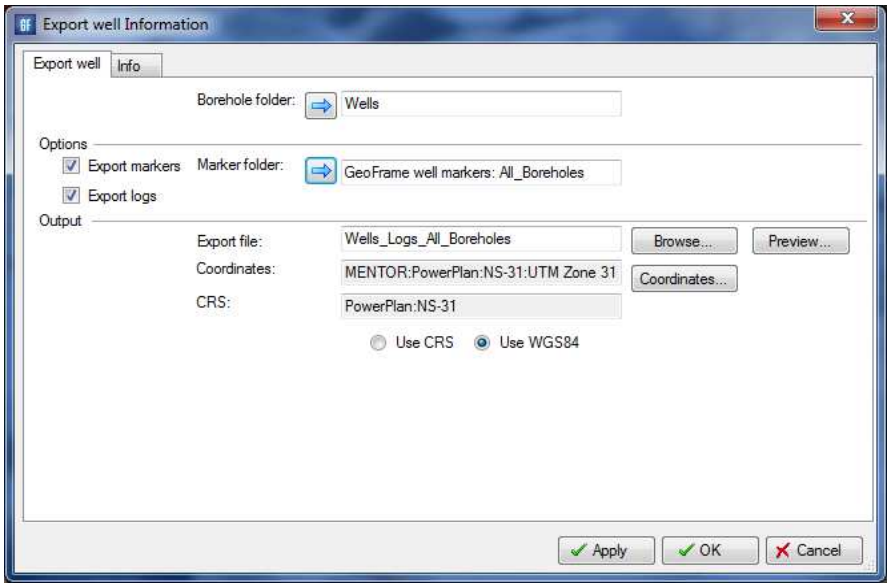

Fig. 9 Export well Information dialog box

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Note: *Empty boreholes with XY coordinates of (0,0) for (x,y) will not be exported.*

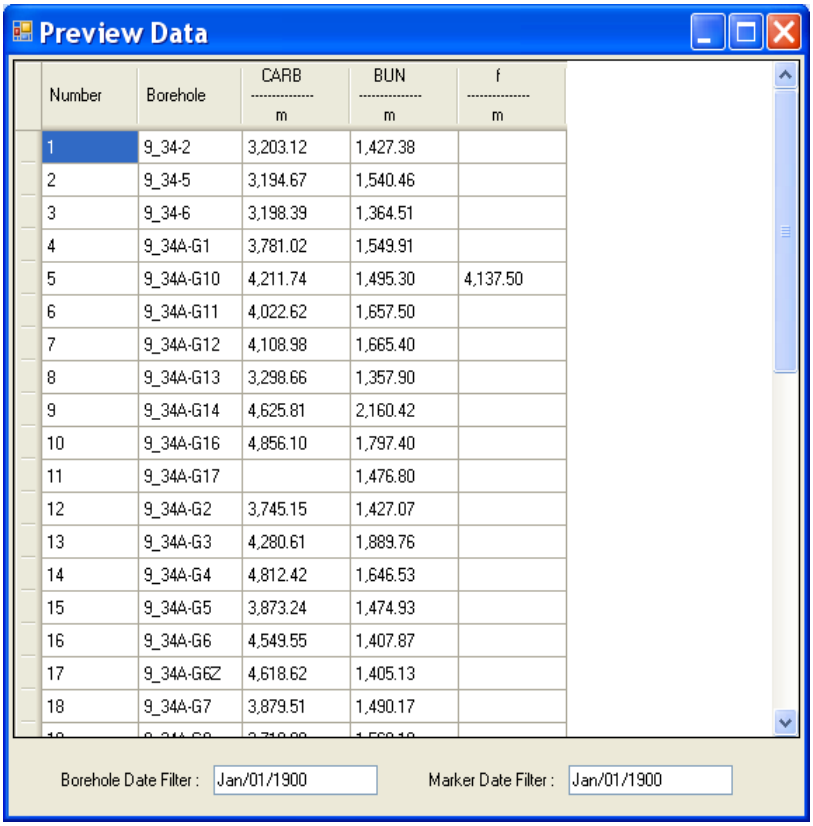

Fig. 10 Preview Data dialog box

Export Well Data Workflow

Once the plug-in is **installed**, you can locate it in Petrel by looking for **GeoFrame data connector** in the **Processes** list. Once you have located this entry, open the folder and you will see the following options:

- **Export 3D seismic interpretation**
- **Import 3D interpretation and Fault Boundaries (2D and 3D)**
- **Export well information**
- **Import well information**
- **Import a Framework 3D model**
- **Import 2D seismic and interpretation data**

▶ *To Export Well Data From Petrel*

1. Select **Export well information** and the **Export well Information** dialog box opens.
2. Select the borehole folder that you want to export the well data from and click on the blue arrow next to **Borehole folder**.

   The **Borehole folder** field is populated.
3. In **Options**, toggle ON **Export markers** to export markers and enable the **Marker Folder** option. Toggle ON **Export logs** to export all the continuous logs for the selected boreholes.
4. Select the well top folder that you want to export the markers from and click the blue arrow next to the **Well top folder**.

   The **Well top folder** field is populated and the **Export file** field's default export file name is appended with a the marker folder's name.
5. (Optional) Click **Preview** to open the **Preview Data** dialog box to review the boreholes and markers that will be sent to **GeoFrame**.
6. (Optional) At the bottom of this **Preview Data dialog** box, there is a date filter that can be used to limit the boreholes and markers sent to **GeoFrame**. Any boreholes and markers that were created on or after the date entered will be sent. Enter the dates (syntax example is `Jan/25/2011`) in the **Borehole Date Filter** and **Marker Date Filter** text boxes. Click **Enter** after typing in the dates and the **Preview Data** dialog box will be filtered with the updated borehole list.
7. Use the **Browse** option to select the well data Zip file name to export.
8. Select the directory and enter the name for the output file.
9. Select a coordinate system to export the well data in by clicking **Coordinates** to open the standard Petrel Coordinate reference system selection dialog box and make a selection and click **OK** or export using WGS84 which is ON by default.

   If a coordinate system is selected, information will populate the **Coordinates** and **CRS** text boxes.
10. Click **OK**.

    The well data now exports into the specified export file name.

6 Import to GeoFrame

In This Section

Overview

3D seismic interpretation and well data (boreholes, deviation surveys, and markers) exported from Petrel as zip files can be imported in **GeoFrame**. These exported data can be imported into **GeoFrame** using **Basemap > Petrel > Import from Petrel**.

Note: *A* `gf_data_manager` *license is required to run this option.*

Petrel > Import from Petrel

Basemap is used to import 3D data exported from Petrel into **GeoFrame** using **Petrel > Import from Petrel > Import Interpretation**. When this option is selected, the **Import Seismic Interpretation from Petrel** dialog box opens with the following options (see **Fig. 11 on page 58**) and **Command Bar**:

Option	Description
Select 3D Survey	Select the 3D survey to load the interpretation into. The selected survey name does not have to be the same as the survey used to export in Petrel. The Inline/CDP ranges that match between the input file and the output file will be imported. Click the  icon to launch the **General Attribute Editor** for the survey and then click **To Entity Geometry** to open the **Grid Library Editor** to view the survey information on the selected survey.
Interpretation File	Use **Select File** to open the **Select Interpretation File** dialog box, which is the standard **GeoFrame** file selector, and select a zip file exported from Petrel. The selection lists in the **Interpretation File** text box. ***Note:*** *An environment variable, GF_PETREL_OUT_DIR, can be set as a default directory for the import from Petrel and the export to Petrel so that when the import or export dialog box is opened, it will automatically be populated with that directory. To set the variable, in a* ***GeoFrame*** *xterm, type:* `setenv GF_PETREL_OUT_DIR "desired output directory".` ***Note: Import from Petrel*** *only recognizes Zip files exported from Petrel, and does not support Zip files exported from* ***GeoFrame*** *or other applications.*
Interpretation Model Name	Enter a new interpretation model name. This must be a new name and cannot be a name of an existing interpretation model in the domain of the incoming interpretation.
Launch "Seismic Interp Copy & Merge" after Import	This option allows you to start **SINC** after the import is complete to merge interpretation from the new interpretation model into an existing model. This functions for both **Charisma** and **IESX** interpretation. Please refer to the online documentation for information regarding **SINC** and usage differences for **Charisma** and **IESX**.

Note: *When **GeoFrame** exports horizon patches to Petrel, there are double colons inserted between the horizon name and the patch name (example, horizon_red::patch_A). When this horizon patch is imported from Petrel into **GeoFrame**, the double colons identify it as a horizon with a patch name and it will be imported into **GeoFrame** without the colons and is used as the separator of the horizon name and the patch name. For the example above, this will be split into horizon_red with a patch of patch_A.*

Note: *A `gf_data_manager license` is required to launch and run **Import from Petrel**.*

Fig. 11 Import Seismic Interpretation from Petrel dialog box

Import Interpretation Workflow

▶ *To Import 3D Interpretation Data From Petrel into GeoFrame*

1. Open the **GeoFrame** project you want to import the interpretation into, start **Basemap**, and choose a map to open.
2. From the menu bar select **Petrel > Import from Petrel > Import Interpretation** and the **Import Seismic Interpretation from Petrel** dialog box opens (see **Fig. 11**).
3. Select the survey from the **Select 3D Survey** section that you want to import the interpretation from Petrel into. Survey names do not have to be the same.
4. Click **Select File** to open the **Select Interpretation File** dialog box to select the interpretation zip file you exported from Petrel.
5. Make the selection and click **OK**.
6. Type a new model name in the **Interpretation Model Name** text box.

   This is the model that the interpretation will be written to.
7. (Optional) Toggle the "**Launch Seismic Interp Copy & Merge" after Import** button **ON** if you want to start **SINC** after the import is complete to merge interpretation from the new interpretation model into an existing model. For information regarding **SINC** usage, see **Seismic Interpretation Copy & Merge** online help.
8. Click **OK** to start the import.

Import Well Data

Well data (boreholes, deviation surveys, markers, and log curves) can be transferred from Petrel to **GeoFrame** using zip files. Petrel borehole and well marker folders exported as Zip files can be imported into **GeoFrame** using **Basemap > Petrel > Import from Petrel > Import Wells**.

Import Wells, allows you to import the boreholes, deviation surveys, markers, and log curves that were exported from Petrel as Zip files. The following rules apply when the boreholes and markers are loaded:

- Boreholes, surfaces, markers, and log curves will be imported according to the default **GeoFrame Match-Merg**e rules.
- All new data items imported from Petrel are assigned Petrel as their **Source** and their **Remarks** field will contain the Petrel project name and the user name of the Petrel exporter.
- For boreholes that find a match in **GeoFrame**, no new fields will be created, but there is a field name in the zip file and for boreholes that do not find a match, that field name will be used in **GeoFrame**. If there is an existing field with that name, it will be used. If not, a new field with that name will be created.
- The KB of a well will not be updated unless a well is new or does not have a preferred deviation survey.
- If a borehole is loaded with a missing Unique Well Identifier (UWI), the UWI will be set to the borehole name.
- The deviation survey automatically becomes the preferred deviation survey for boreholes that do not exist in **GeoFrame**.
- When loading a deviation survey to a matched borehole in **GeoFrame** and there is not a preferred survey set, it will be set as preferred.
- When loading a deviation survey to a matched borehole in **GeoFrame** with a preferred deviation survey set, the deviation survey is loaded but not set to preferred. You must perform this task manually.
- Deviation surveys are transferred as Inclinometry Data - MD, TVD, DX, and DY arrays - and default to grid north referenced.
- Checkshots are currently not transferred.
- Markers are transferred with their MD values. No time values are transferred.
- Markers are assigned Petrel as the **Source** and the **Remarks** field is populated with Exported from the Petrel project "project_name" by user "user_name".

When this option is selected, the **Import Wells from Petrel Project** dialog box (see **Fig. 12**) opens with the options and a **Command Bar**:

Option	Description
Import Archive	Opens the **Select Petrel Well Archive File** dialog box that allows you to select the Zip file created in Petrel to load into **GeoFrame** using the **GeoFrame** standard file selector.
Borehole Set	Allows you to select the borehole set to transfer the boreholes into. Click **Borehole Set** to open the **Select Borehole Set** dialog box that contains the options: • **Query from** - Displays the project name in a read only text box. • **Collection -** Select the borehole set from a list of all the borehole sets in the project. The  icon can be used to open the **Collection Editor** for the selected borehole set. This can be used to view the boreholes that are currently in the borehole set. **Find** can be used to locate a borehole set if you have a large number of borehole sets in the list. If no borehole set selection is made the boreholes will be loaded to the Wells From Petrel borehole set which will be automatically created when **OK** or **Apply** is clicked. ***Note:*** *Only list based borehole sets are listed and available for selection.* • **Project Match Rule** - Displays the name of the current **Match Rule** in place for the project. • **Merge Rules** - Displays the merge rules that are in effect for importing boreholes.

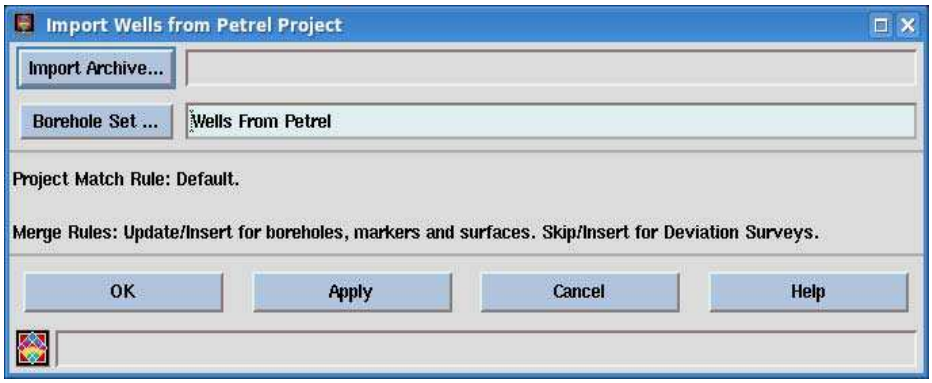

Fig. 12 Import Wells from Petrel Project dialog box

Import Wells Workflow

▶ *To Import Well Data From Petrel into GeoFrame*

1. Open the **GeoFrame** project you want to import the well data into, start **Basemap**, and choose a map to open.
2. From the menu bar, select **Petrel > Import from Petrel > Import Wells** and the **Import Wells from Petrel Project** dialog box opens.
3. Click **Import Archive** to open the **Select Petrel Well Archive File** dialog box to select the well data zip file you exported from Petrel.
4. Make the selection and click **OK**.

   The **Import Archives** text box populates with the input file name.
5. Click **Borehole Set** to open the **Select Borehole Set** dialog box and select the borehole set to load to or use the “Wells From Petrel” default borehole set name.

   The **Borehole Set** text box populates with the borehole set selected.
6. (Optional) Review the Project Match Rule and Merge Rules.
7. Click **OK**.

   The well data is loaded into **GeoFrame**.

7 Installation

In This Section

Plug-in Access and Installation

The **GeoFrame data connector** plug-in is loaded through the **Ocean Plug-in Manager**. The file extension on the plug-in file is a `.pip` file. Instructions for installing the file are listed below for a fresh install to Petrel 2013.1 and a re-install in Petrel 2012.x, where x could be 2012.1 through 2012.6.

The **GeoFrame data connector** plug-in for Petrel 2013.1 and Petrel 2012.x can be accessed from the Ocean Store and is also included in **GeoFrame** 2012_SP_3. The plug-in is 64-bit only and is license controlled. The license is `OCEAN_SLB_GF_DATA_CONNECTOR` and can be obtained when ordering the plug-in from the Ocean Store. If you run **Bedrock**, you no longer need a `gf_geoframe_server` license.

If you are planning on running the **GeoFrame**/ **Studio**/ **Petrel** workflow for Petrel 2013.1, you must have Studio Manager installed and then install `GeoFrame2012SP3ProjectIndexerforStudio2013.msi`. For Petrel 2012.x, you must load the `GeoFrame2012SP3ProjectIndexerforDEM2012.msi` file. Instructions for loading these files and workflow information can be found in the **GeoFrame**/ **Studio**/ **Petrel Integration** document.

▶ *To Install The GeoFrame Data Connector Plug-in For Petrel 2013.1*

1. Install **GeoFrame** 2012_SP_3.
2. Open a **GeoFrame** xterm.
3. Type in the following at the prompt: `cd $sp1/workstation`
4. Locate the `GeoFrame2012SP3DataConnectorForPetrel2013.1.pip` file using the `ls` command or some other appropriate command.
5. Copy this file to the PC where Petrel 2013.1 is installed.

• • • • • •

Note: *If the PC has access to UNIX/Linux directories through, for example, a SAMBA server, then this can be used rather than performing the copy.*

6. Open Petrel 2013.1 and select **Help > Ocean Plug-in Manager**.

   The **Ocean Plug-in Manager** dialog box opens.

7. Click Install plug-in to open the Install Plug-in dialog box. Locate the `GeoFrame2012SP3DataConnectorForPetrel2013.1.pip` file and click **Open**.

   The **Ocean Plug-in Manager** opens, and the plug-in installs with information listed about the installation.

8. Verify the **GeoFrame Data Connector** lists with a green check next to it in the **Ocean Plug-in Manage**r dialog box. Exit Petrel.
9. Restart Petrel and verify that the **GeoFrame data connector** is listed and checked in the Ocean plug-ins folder in the **Select license package** dialog box. Check the box next to the **GeoFrame data connector**. If the box cannot be checked or is dimmed, this may indicate you do not have the proper license for the plug-in. The license is `OCEAN_SLB_GF_DATA_CONNECTOR` and can be obtained from the Ocean Store.

10 Click **OK** in the **Select license package** dialog box to open Petrel.

11 Locate the **Bedrock server** and **GeoFrame data connector** folders in the **Processes** pane.

12 Select the option you want to start transferring data from/to **GeoFrame**.

• • • • • •

Note: *Once the plug-in has been installed using the* `.pip` *file using the Ocean Plug-in Manager in Petrel, the Ocean Plug-in Manager should be used for any future un-installation or installations.*

▶ *To Install The GeoFrame Data Connector Plug-in For Petrel 2012.x With An Existing GeoFrame Data Connector Plug-in Installed*

1 Install **GeoFrame** 2012_SP_3.

2 Open a **GeoFrame** xterm.

3 Type in the following at the prompt: `cd $sp1/workstation`

4 Locate the `GeoFrame2012SP3DataConnectorForPetrel2012.2.pip` file using the ls command or some other appropriate command.

5 Copy this file to the PC where Petrel 2012.x is installed.

• • • • • •

Note: *If the PC has access to UNIX/Linux directories, through for example a SAMBA server, then this can be used rather than performing the copy.*

6 When you have previously installed the **GeoFrame** data connector plug-in for Petrel 2012.x, you must uninstall it prior to installing the new plug-in.

7 To uninstall the plug-in, open 2012.x and select **Help > Ocean Plug-in Manager**.

The Ocean Plug-in Manager dialog box opens.

8 Locate **GeoFrame Data Connector** in the list of installed plug-ins and click **MB1** on it. Information displays about the plug-in and **Disable** and **Uninstall** options appear.

Locate and click **MB1** on **Uninstall**. The plug-in uninstalls. Exit Petrel.

9 Open Petrel 2012.x and select **Help > Ocean Plug-in Manager**.

The **Ocean Plug-in Manager** dialog box opens.

10 Click **Install** plug-in to open the **Install Plug-in** dialog box.

11 Locate the `GeoFrame2012SP3DataConnectorForPetrel2012.2.pip` file and click **Open**.

The **Ocean Plug-in Manager** opens, and the plug-in installs with information listed about the installation.

12 Verify the **GeoFrame Data Connector** lists with a green check next to it in the **Ocean Plug-in Manager** dialog box. Exit Petrel.

13 Restart Petrel and verify that the **GeoFrame data connector** is listed and checked in the Ocean plug-ins folder in the **Select license package** dialog box. Check the box next to the **GeoFrame data connector**. If the box cannot be checked or is dimmed, this may indicate you do not have the proper license for the plug-in. The license is `OCEAN_SLB_GF_DATA_CONNECTOR` and can be obtained from the Ocean Store.

14 Click **OK** in the **Select license package** dialog box and Petrel opens.

15 Locate the **Bedrock server** and **GeoFrame data connector** folders in the **Processes** pane. Select the option you want to start transferring data from/to **GeoFrame**.

A GeoFrame to Petrel

In This Section

GeoFrame to Petrel

Supported Functions	GeoFrame Version	Petrel Version
Well Data boreholes **checkshots** **deviation surveys** **markers** **lithofacies** **log curves** **Seismic** **3D ZGY export** **3D seismic interpretation** **2D SEGY** **2D seismic interpretation** **Framework 3D models**	**GeoFrame** 2012_SP_3	Petrel 2013.1 Petrel 2012.1 through 2012.6
Well Data boreholes **checkshots** **deviation surveys** **markers** **lithofacies** **log curves** **Seismic** **3D ZGY export** **3D seismic interpretation** **2D SEGY** **2D seismic interpretation** **Framework 3D models**	**GeoFrame** 2012_SP_2	Petrel 2012.1 through Petrel 2012.5
Well Data boreholes **checkshots** **deviation surveys** **markers** **lithofacies** **log curves** **Seismic** **3D ZGY export** **3D seismic interpretation** **2D SEGY** **2D seismic interpretation** **Framework 3D models**	**GeoFrame** 2012_SP_1	Petrel 2012.2 Petrel 2012.1

Supported Functions	GeoFrame Version	Petrel Version
Well Data boreholes **checkshots** **deviation surveys** **markers** **lithofacies** **log curves** **Seismic** **3D ZGY export** **3D seismic interpretation** **2D SEGY** **2D seismic interpretation** **Framework 3D models**	**GeoFrame** 2012	Petrel 2012.1 Petrel 2011.2
Well Data boreholes **checkshots** **deviation surveys** **markers** **lithofacies** **log curves** **Seismic** **3D ZGY export** **3D seismic interpretation** **2D SEGY** **2D seismic interpretation** **Framework 3D models**	**GeoFrame** 4.5_TK_2	Petrel 2011.1 Petrel 2010.2
Well Data boreholes **checkshots** **deviation surveys** **markers** **log curves** **Seismic** **3D ZGY export** **3D seismic interpretation** **2D SEGY** **2D seismic interpretation** **Framework 3D models**	**GeoFrame** 4.5_TK_1	Petrel 2010.2 Petrel 2010.1
Well Data boreholes **checkshots** **deviation surveys** **markers** **log curves** **Seismic** **3D ZGY export** **3D seismic interpretation** **2D SEGY** **Framework 3D models**	**GeoFrame** 4.5_SP_5	Petrel 2010.2 Petrel 2010.1

Supported Functions	GeoFrame Version	Petrel Version
Well Data boreholes **checkshots** **deviation surveys** **markers** **log curves** **Seismic** **3D ZGY export** **3D seismic interpretation** **2D SEGY** **Framework 3D models**	**GeoFrame** 4.5_SP_4	Petrel 2010.2
Well Data boreholes **checkshots** **deviation surveys** **markers** **log curves** **Seismic** **3D ZGY export** **3D seismic interpretation** **2D SEGY** **Framework 3D models**	**GeoFrame** 4.5_SP_3	Petrel 2010.1
Well Data boreholes **checkshots** **deviation surveys** **markers** **log curves** **Seismic** **3D ZGY export** **3D seismic interpretation** **2D SEGY** **Framework 3D models**	**GeoFrame** 4.5_SP_2	Petrel 2009.2
Well Data boreholes **checkshots** **deviation surveys** **markers** **log curves** **Seismic** **3D ZGY export** **3D seismic interpretation** **2D SEGY** **Framework 3D models**	**GeoFrame** 4.4_GP_5	Petrel 2009.2 Petrel 2009.1

Supported Functions	GeoFrame Version	Petrel Version
Well Data boreholes **checkshots** **deviation surveys** **markers** **log curves** **Seismic** **3D ZGY export** **3D seismic interpretation** **2D SEGY** **Framework 3D models**	**GeoFrame** 4.5_SP_1	Petrel 2009.2 Petrel 2009.1
Well Data boreholes **checkshots** **deviation surveys** **markers** **log curves** **Seismic** **3D ZGY export** **3D seismic interpretation** **2D SEGY** **Framework 3D models**	**GeoFrame** 4.4_GP_4	Petrel 2009.2 Petrel 2009.1
Well Data boreholes **checkshots** **deviation surveys** **markers** **log curves** **Seismic** **3D ZGY export** **3D seismic interpretation** **2D SEGY** **Framework 3D models**	**GeoFrame** 4.5	Petrel 2009.1 Petrel 2008.1
Well Data boreholes **checkshots** **deviation surveys** **markers** **log curves** **Seismic** **3D ZGY export** **3D seismic interpretation** **2D SEGY** **Framework 3D models**	**GeoFrame** 4.4_TK_2	Petrel 2009.1 Petrel 2008.1

Supported Functions	GeoFrame Version	Petrel Version
Well Data boreholes **checkshots** **deviation surveys** **markers** **log curves** **Seismic** **3D seismic interpretation** **Framework 3D models**	**GeoFrame** 4.4_GP_3	Petrel 2009.1 Petrel 2008.1
Well Data boreholes **checkshots** **deviation surveys** **markers** **log curves** **Seismic** **3D seismic interpretation** **Framework 3D models**	**GeoFrame** 4.4_GP_2	Petrel 2009.1 Petrel 2008.1
Seismic **3D seismic interpretation** **Framework 3D models**	**GeoFrame** 4.4_GP_1	Petrel 2008.1 Petrel 2007.1

B Petrel to GeoFrame

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Petrel to GeoFrame

Supported Functions	GeoFrame Version	Petrel Version
Well Data **boreholes** **deviation surveys** **markers** **log curves** **3D seismic interpretation**	**GeoFrame** 2012_SP_3	Petrel 2013.1 Petrel 2012.1 through 2012.6
Well Data **boreholes** **deviation surveys** **markers** **log curves** **3D seismic interpretation**	**GeoFrame** 2012_SP_2	Petrel 2012.1 through Petrel 2012.5
Well Data **boreholes** **deviation surveys** **markers** **log curves** **3D seismic interpretation**	**GeoFrame** 2012_SP_1	Petrel 2012.2 Petrel 2012.1
Well Data **boreholes** **deviation surveys** **markers** **3D seismic interpretation**	**GeoFrame** 2012	Petrel 2012.1 Petrel 2011.2
Well Data **boreholes** **deviation surveys** **markers** **3D seismic interpretation**	**GeoFrame** 4.5_TK_2	Petrel 2011.1 Petrel 2010.2
3D seismic interpretation	**GeoFrame** 4.5_TK_1	Petrel 2010.2 Petrel 2010.1
3D seismic interpretation	**GeoFrame** 4.5_SP_5	Petrel 2010.2 Petrel 2010.1
3D seismic interpretation	**GeoFrame** 4.5_SP_4	Petrel 2010.2
3D seismic interpretation	**GeoFrame** 4.5_SP_3	Petrel 2010.1
3D seismic interpretation	**GeoFrame** 4.5_SP_2	Petrel 2009.2

Supported Functions	GeoFrame Version	Petrel Version
3D seismic interpretation	**GeoFrame** 4.5_SP_1	Petrel 2009.2 Petrel 2009.1
3D seismic interpretation	**GeoFrame** 4.5	Petrel 2009.1 Petrel 2008.1

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