

Imported Model Building Window

Import Table

- You will need to first import velocities into a database table – refer to the “Importing ASCII Tables” PDF for instructions
- Open the table and make sure everything looks correct

Flatirons™ Refraction Statics --- v18.02.13 --- Project: stratton --- Version: Default

Project Database Sort Picking DelayTime P-SV Tomography TomoVNS Uphole QC Window Help ScreenCapture

Multimap x Basemap x Receiver x Shot x Trace x System x VELO

Table Crossplots Duplicate entries

Reload list of columns
Clear selected columns (selects all!)

Select visible columns:
EASTING
ELEV1
ELEV2
NORTHING
SURFACE
THICK1
THICK2
VEL1
VEL2
VEL3
VELOID

Add column
Drop nonrequired columns
Column modifications...
Export options...
Kill / resurrect

Sorting options
Primary EASTING Use Descend
Secondary EASTING Use Descend

Filtering options
Column: EASTING Use Minimum 0 Maximum 0
EASTING Use Minimum 0 Maximum 0

SELECT * FROM VELO

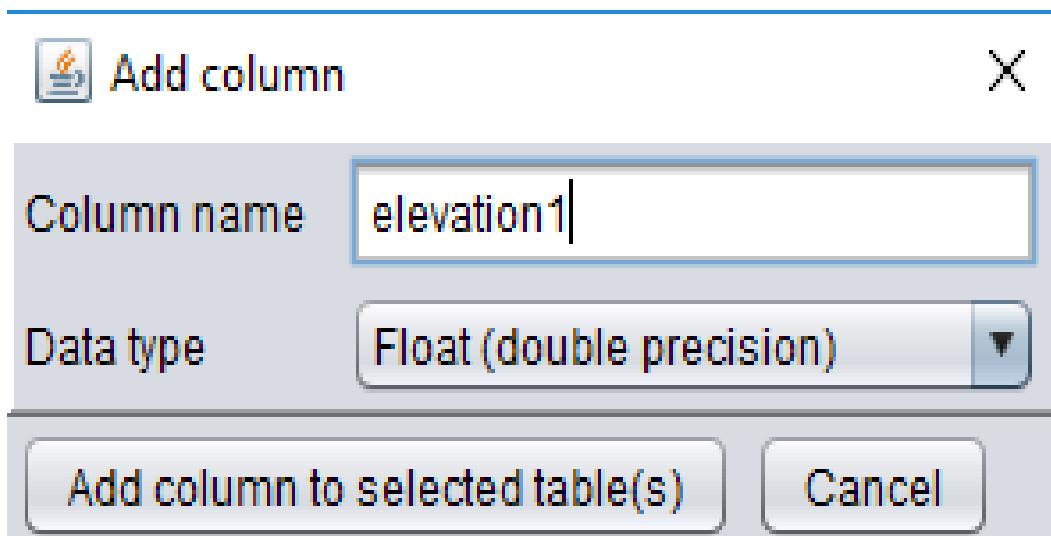
Open saved SQL statement Save current query Prior queries dialog... Query returned 1027 rows

VELOID	EASTING	NORTHING	THICK1	THICK2	VEL1	VEL2	VEL3	ELEV1	ELEV2	SURFACE
1000	2194119...	707147.0...	5.00000	10.00000	1125.000...	1876.000...	6701.000...	85.00000	75.00000	90.00000
1001	2194120...	707821.0...	5.00000	10.00000	1125.000...	1876.000...	6701.000...	86.00000	76.00000	91.00000
1002	2193431...	708260.0...	5.00000	10.00000	1125.000...	1876.000...	6701.000...	85.00000	75.00000	90.00000
1003	2193431...	708700.0...	5.00000	10.00000	1125.000...	1876.000...	6701.000...	85.00000	75.00000	90.00000
1004	2193431...	708921.0...	5.00000	10.00000	1125.000...	1876.000...	6701.000...	85.00000	75.00000	90.00000
1005	2193430...	709361.0...	5.00000	10.00000	1125.000...	1876.000...	6701.000...	86.00000	76.00000	91.00000
1006	2193430...	709580.0...	5.00000	10.00000	1125.000...	1876.000...	6701.000...	86.00000	76.00000	91.00000
1007	2193430...	710019.0...	5.00000	10.00000	1125.000...	1876.000...	6701.000...	86.00000	76.00000	91.00000
1008	2192550...	709799.0...	5.00000	10.00000	1125.000...	1876.000...	6701.000...	87.00000	77.00000	92.00000
1009	2192550...	709579.0...	5.00000	10.00000	1125.000...	1876.000...	6701.000...	87.00000	77.00000	92.00000
1010	2192550...	709139.0...	5.00000	10.00000	1125.000...	1876.000...	6701.000...	87.00000	77.00000	92.00000
1011	2192551...	708698.0...	5.00000	10.00000	1125.000...	1876.000...	6701.000...	86.00000	76.00000	91.00000
1012	2192551...	708479.0...	5.00000	10.00000	1125.000...	1876.000...	6701.000...	86.00000	76.00000	91.00000
1013	2192551...	708260.0...	5.00000	10.00000	1125.000...	1876.000...	6701.000...	86.00000	76.00000	91.00000
1014	2192551...	708041.0...	5.00000	10.00000	1125.000...	1876.000...	6701.000...	85.00000	75.00000	90.00000
1015	2191682...	706291.0...	5.00000	10.00000	1125.000...	1876.000...	6701.000...	85.00000	75.00000	90.00000
1016	2191672...	706499.0...	5.00000	10.00000	1125.000...	1876.000...	6701.000...	84.00000	74.00000	89.00000
1017	2191683...	706951.0...	5.00000	10.00000	1125.000...	1876.000...	6701.000...	85.00000	75.00000	90.00000
1018	2191672...	707378.0...	5.00000	10.00000	1125.000...	1876.000...	6701.000...	86.00000	76.00000	91.00000
1019	2191671...	707818.0...	5.00000	10.00000	1125.000...	1876.000...	6701.000...	86.00000	76.00000	91.00000
1020	2191671...	708259.0...	5.00000	10.00000	1125.000...	1876.000...	6701.000...	85.00000	75.00000	90.00000
1021	2191670...	708698.0...	5.00000	10.00000	1125.000...	1876.000...	6701.000...	86.00000	76.00000	91.00000
1022	2191671...	709139.0...	5.00000	10.00000	1125.000...	1876.000...	6701.000...	88.00000	78.00000	93.00000
1023	2191670...	709579.0...	5.00000	10.00000	1125.000...	1876.000...	6701.000...	85.00000	75.00000	90.00000
1024	2191670...	710019.0...	5.00000	10.00000	1125.000...	1876.000...	6701.000...	85.00000	75.00000	90.00000
1025	2190790...	709798.0...	5.00000	10.00000	1125.000...	1876.000...	6701.000...	90.00000	80.00000	95.00000
1026	2190791...	709359.0...	5.00000	10.00000	1125.000...	1876.000...	6701.000...	89.00000	79.00000	94.00000
1027	2190791...	708919.0...	5.00000	10.00000	1125.000...	1876.000...	6701.000...	88.00000	78.00000	93.00000
1028	2190791...	708698.0...	5.00000	10.00000	1125.000...	1876.000...	6701.000...	87.00000	77.00000	92.00000
1029	2190791...	708478.0...	5.00000	10.00000	1125.000...	1876.000...	6701.000...	87.00000	77.00000	92.00000
1030	2190791...	708259.0...	5.00000	10.00000	1125.000...	1876.000...	6701.000...	87.00000	77.00000	92.00000
1031	2190791...	708038.0...	5.00000	10.00000	1125.000...	1876.000...	6701.000...	87.00000	77.00000	92.00000
1032	2190791...	707818.0...	5.00000	10.00000	1125.000...	1876.000...	6701.000...	87.00000	77.00000	92.00000

Free memory: 1974 MB

Import Table

- If your imported table has layer depths instead of elevations, you'll need to first add elevation columns and compute the values
- If you already have these imported, you can skip this step
- In the imported table, select “Add column” in the bottom left
- Add an elevation column for each depth column in the table

A screenshot of a software dialog box titled "Add column". The dialog has a title bar with a close button (X) in the top right corner. Below the title bar, there are two input fields. The first is labeled "Column name" and contains the text "elevation1". The second is labeled "Data type" and is a dropdown menu currently showing "Float (double precision)". At the bottom of the dialog, there are two buttons: "Add column to selected table(s)" and "Cancel".

Add column [X]

Column name: elevation1

Data type: Float (double precision) ▼

Add column to selected table(s) Cancel

Import Table

- Select “Column modifications” from the bottom left, then select “Open column math dialog”
- Use the column math dialog to compute the elevations of each layer – subtract the depth from the surface to find the first layer elevation, then on from there to compute each one – the syntax for SQL column math can be found in the dialog examples

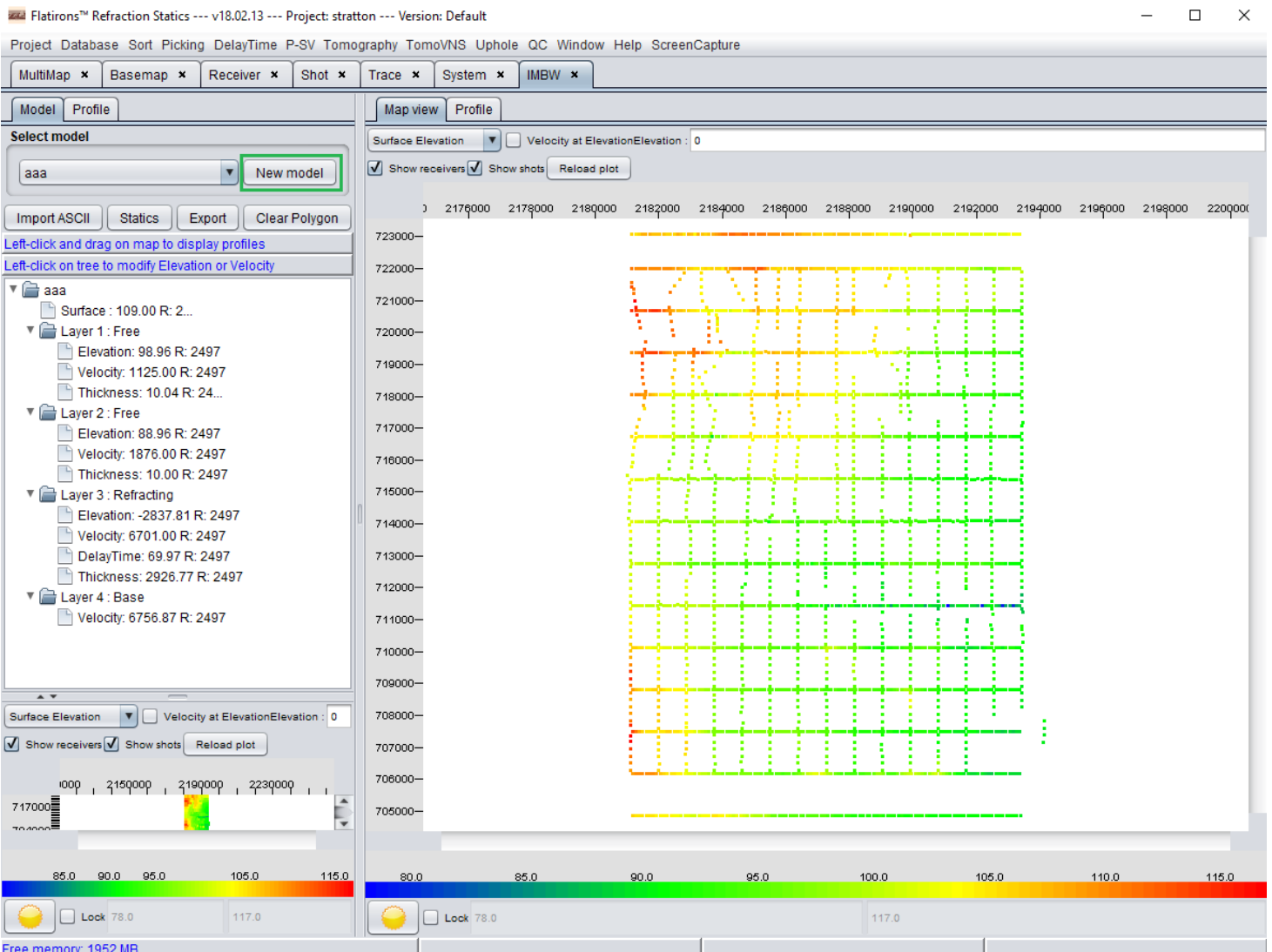
Edit the update statement

```
ELEVATION1 = SURFACE - THICK1|
```

```
UPDATE VELO SET ELEVATION1 = SURFACE - THICK1
```

IMBW

- From the DelayTime menu, select “Imported lay model building window”
- On the left hand side, select “New model”

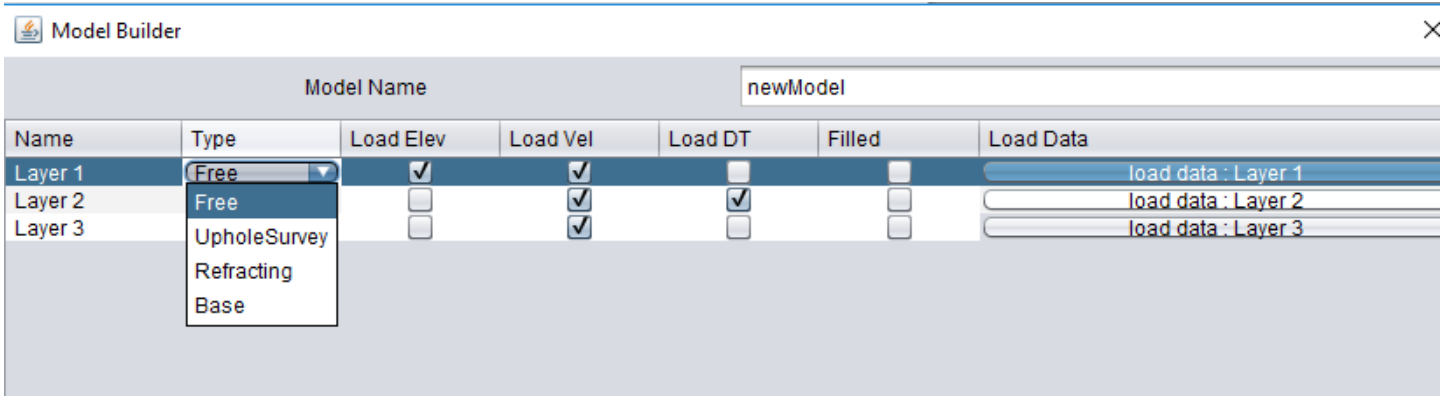


New Model

- There are four types of layers in the IMBW – free, uphole, refracting, and base
- Uphole layers use the uphole wizard; we will ignore this option here. Please refer to the Uphole documentation for details
- Free layers are just that, the user defines the elevation and velocity for that layer
- Refracting layers use delay time data
- There is one base layer, which is always the deepest

New Model

- You need one free layer for each imported layer, and one refracting layer for each delay time layer (branch)
- The base layer represents everything under the last free or refracting layer

A screenshot of the "Model Builder" software interface. The window title is "Model Builder" and the model name is "newModel". The interface shows a table with columns for Name, Type, Load Elev, Load Vel, Load DT, Filled, and Load Data. There are three layers listed: Layer 1, Layer 2, and Layer 3. Layer 1 is currently set to "Free" type, and its dropdown menu is open, showing options: Free, UpholeSurvey, Refracting, and Base. Layer 2 is set to "Free" type, and Layer 3 is set to "UpholeSurvey" type. The "Load Data" column contains "load data : Layer 1", "load data : Layer 2", and "load data : Layer 3" respectively.

Name	Type	Load Elev	Load Vel	Load DT	Filled	Load Data
Layer 1	Free	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	load data : Layer 1
Layer 2	Free	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	load data : Layer 2
Layer 3	UpholeSurvey	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	load data : Layer 3

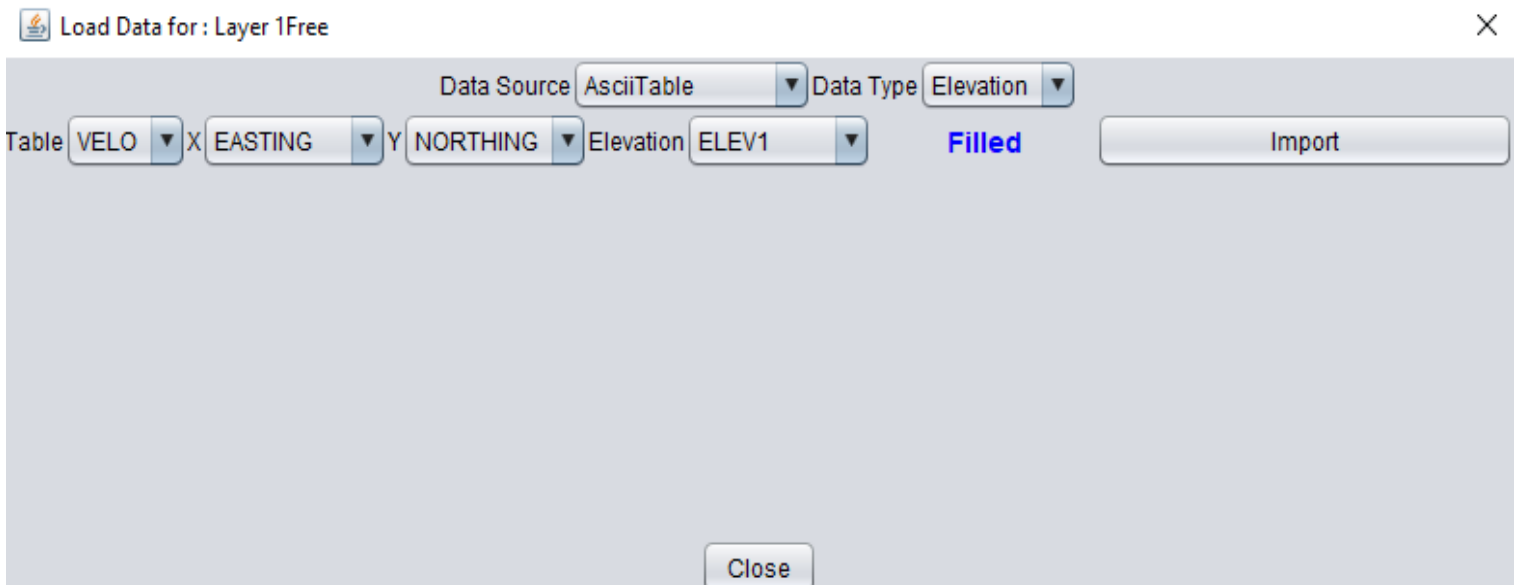
Free Layers

- Set a free layer for each imported layer you have (e.g., if you have 3 velocities, but only 2 elevations/thicknesses, you have 2 layers)
- For each free layer, make sure “LoadElev” and “LoadVel” are checked, but that “Load DT” is not (these are defaults), then click “Load data” and follow the steps on the next 2 pages

Model Name							newModel
Name	Type	Load Elev	Load Vel	Load DT	Filled	Load Data	
Layer 1	Free	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	load data : Layer 1	
Layer 2	Free	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	load data : Layer 2	
Layer 3	Base	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	load data : Layer 3	

Free Layers

- Select “AsciiTable” from the “Data Source” drop-down
- Select “Elevation” from the “Data Type” drop-down
- Select the correct values for the imported table name, the X column, the Y column, and the Elevation column
- Click the “Import” button

A screenshot of a software dialog box titled "Load Data for : Layer 1Free". The dialog has a close button (X) in the top right corner. It contains several configuration options: "Data Source" is set to "AsciiTable", "Data Type" is set to "Elevation", "Table" is set to "VELO", "X" is set to "EASTING", "Y" is set to "NORTHING", and "Elevation" is set to "ELEV1". A "Filled" status indicator is shown in blue text. An "Import" button is located on the right side, and a "Close" button is at the bottom center.

Load Data for : Layer 1Free

Data Source: AsciiTable Data Type: Elevation

Table: VELO X: EASTING Y: NORTHING Elevation: ELEV1 Filled

Import

Close

Free Layers

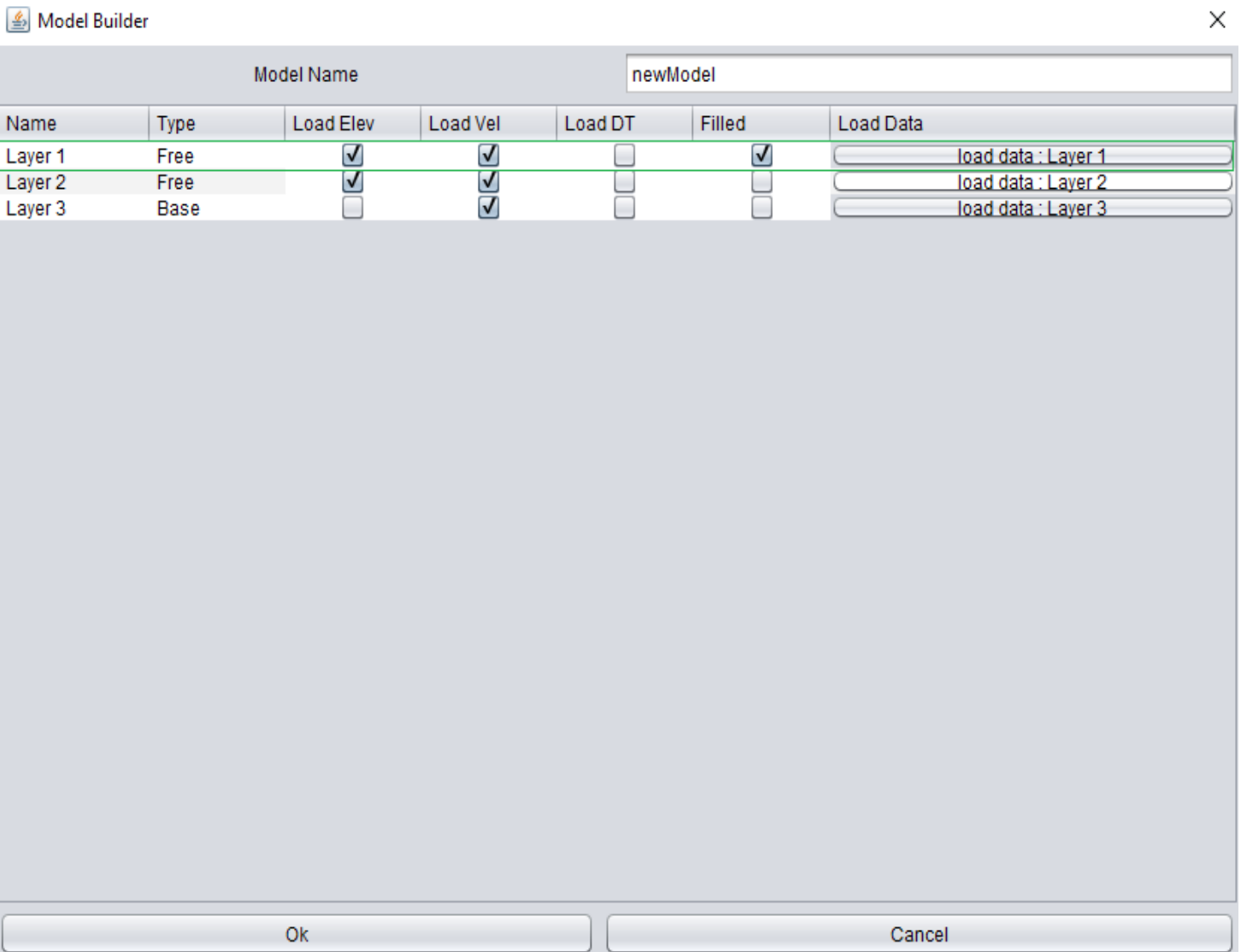
- Without closing the window, select “Velocity” from the “Data Type” drop-down, then select the appropriate velocity column – *this is the velocity above the elevation you just specified*
- Click “Import”

The screenshot shows a dialog box titled "Load Data for : Layer 1Free" with a close button (X) in the top right corner. The dialog contains the following elements:

- Data Source:** A dropdown menu set to "AsciiTable".
- Data Type:** A dropdown menu set to "Velocity".
- Table:** A dropdown menu set to "VELO".
- X:** A dropdown menu set to "EASTING".
- Y:** A dropdown menu set to "NORTHING".
- Velocity:** A dropdown menu set to "VEL1".
- Status:** The word "Filled" is displayed in blue text.
- Buttons:** An "Import" button is located on the right side, and a "Close" button is located at the bottom center.

Free Layers

- The main dialog will now show “Filled” for that layer
- Remember to do this for each free layer being imported

A screenshot of the "Model Builder" dialog box. The title bar shows "Model Builder" and a close button. The "Model Name" field contains "newModel". Below is a table with columns: Name, Type, Load Elev, Load Vel, Load DT, Filled, and Load Data. The "Layer 1" row is highlighted and has the "Filled" checkbox checked. The "Layer 2" row has "Load Elev" and "Load Vel" checked. The "Layer 3" row has "Load Vel" checked. At the bottom are "Ok" and "Cancel" buttons.

Name	Type	Load Elev	Load Vel	Load DT	Filled	Load Data
Layer 1	Free	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	load data : Layer 1
Layer 2	Free	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	load data : Layer 2
Layer 3	Base	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	load data : Layer 3

Refracting Layers

- Now add a refracting layer for each branch in your delay time model
- For each refracting layer, follow the instructions on the next two pages

Model Builder ×

Model Name:

Name	Type	Load Elev	Load Vel	Load DT	Filled	Load Data
Layer 1	Free	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="text" value="load data : Layer 1"/>
Layer 2	Free	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="text" value="load data : Layer 2"/>
Layer 3	Refracting	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="text" value="load data : Layer 3"/>
Layer 4	Refracting	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="text" value="load data : Layer 4"/>
Layer 5	Base	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text" value="load data : Layer 5"/>

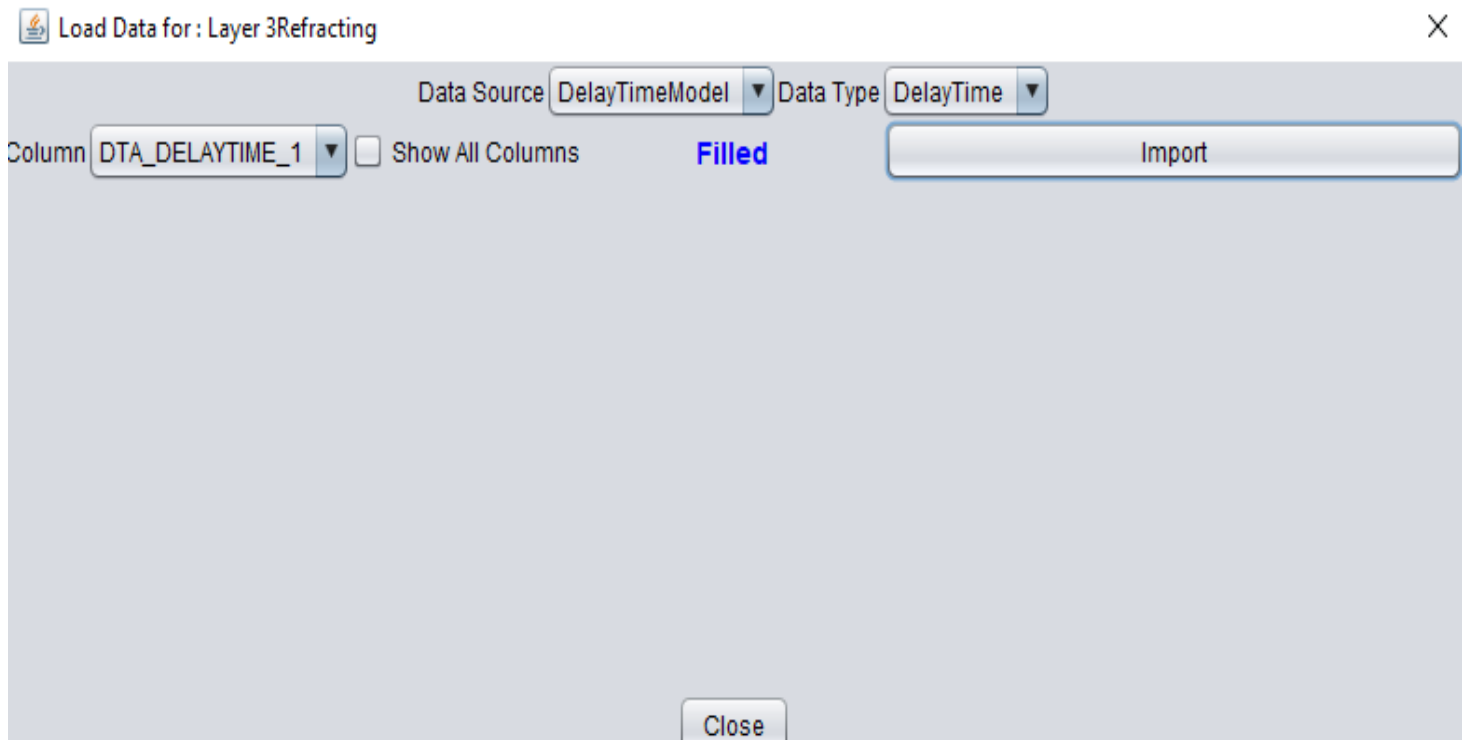
Ok Cancel

Refracting Layers

- For the first refracting layer:
 - Select “Velocity” from the “Data Type” drop-down
 - If you still have an unused imported velocity, select “AsciiTable” from the “Data Source” drop-down, and import the last velocity into this first refracting layer
 - If you do not have any more imported velocities, select “DelayTimeModel” from the “Data Type” drop down, and import “DTA_Velocity0” here

Refracting Layers

- Regardless of which velocity was imported, select “DelayTimeModel” from the “Data Source” drop-down, then select “DelayTime” from the “Data Type” drop-down
- Select “DTA_DelayTime1”, then click “Import”

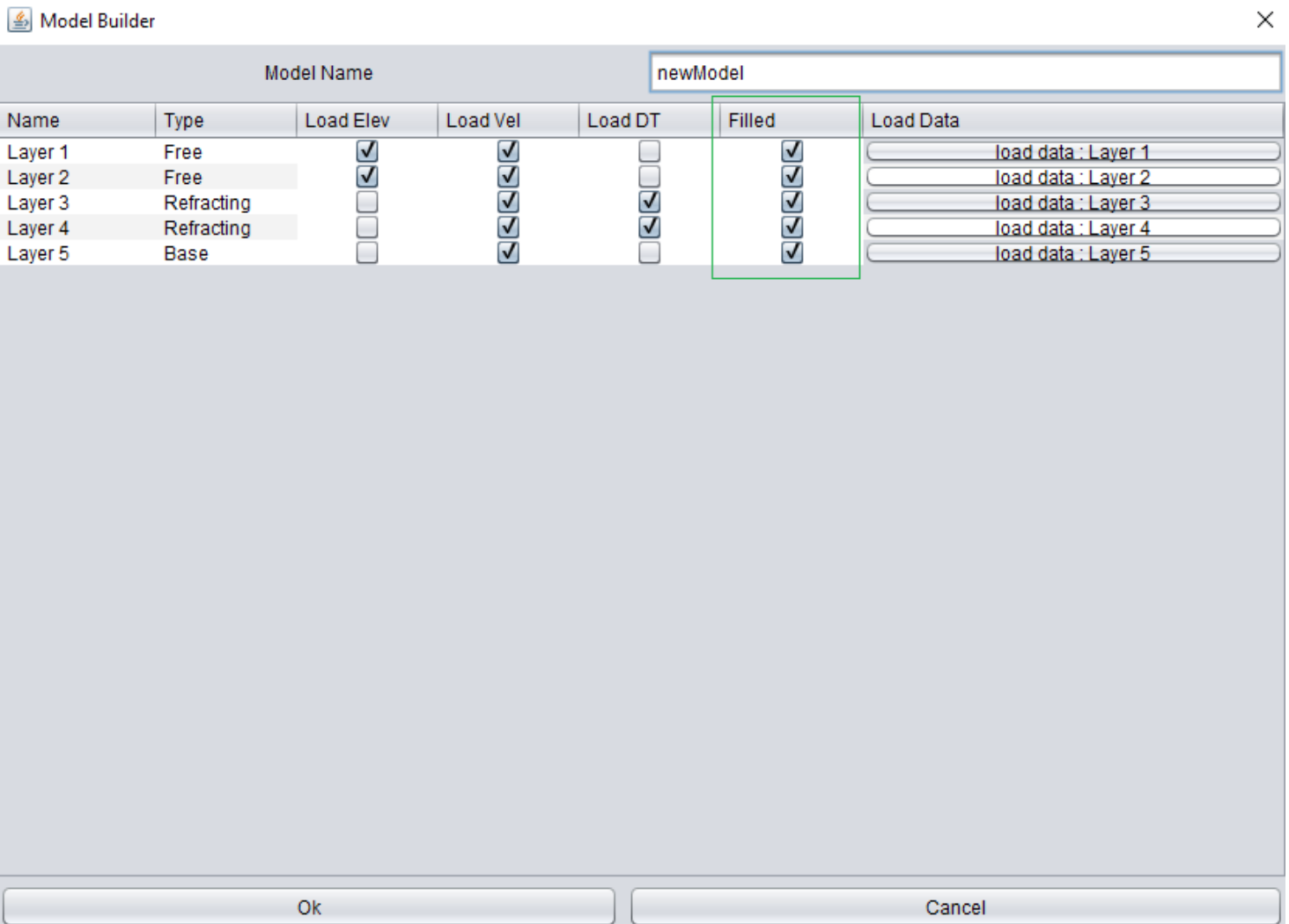


Refracting Layers

- For the rest of the refracting layers (if you have more than one):
 - Select “DelayTimeModel” from the “Data Source” drop-down
 - Select “Velocity” from the “Data Type” drop-down
 - Import the Velocity above the layer
 - for DelayTime layer 2, import DTA_Velocity1, etc.
 - Select “DelayTime” from the “Data Type” drop-down
 - Import the delay time for that layer
 - for DelayTime layer 2, import DTA_DelayTime2, etc.

Base Layer

- Once all free and refracting layers have been filled, the Base layer will fill automatically
- Click “Create model” when finished loading all data



The screenshot shows the 'Model Builder' dialog box with the following configuration:

Name	Type	Load Elev	Load Vel	Load DT	Filled	Load Data
Layer 1	Free	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	load data : Layer 1
Layer 2	Free	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	load data : Layer 2
Layer 3	Refracting	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	load data : Layer 3
Layer 4	Refracting	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	load data : Layer 4
Layer 5	Base	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	load data : Layer 5

The 'Model Name' field is set to 'newModel'. The 'Filled' column is highlighted with a green box, indicating that all layers are filled. The 'Load Data' column shows buttons for each layer's data load.

Buttons: Ok, Cancel

View Model

- In the IMBW main window, the table on the left-hand side shows mouse-over data for the imported model
- Select the Profile tab on the right hand side, then draw profiles on the map in order to view a 2D slice

