PowerView Tips and Resources

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HALLIBURTON

PowerView 2003.19.2

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Appendix A: PowerView Tips

Here are some important concepts to remember as you use PowerView:

Selecting and Displaying Data Items

- Most data items are automatically marked **Visible** when you select them in the Select Session Data dialog box. If a data item does not appear in a display, check to make sure **Visible** has been toggled on.

  You must also click **Apply** or **OK** in the Select Session Data dialog box before any item will display.

- To quickly turn data items on or off, click on **Inventory** in the task bar on the right-hand side of a window. A data tree appears, listing all categories and individual items you selected in the Select Session Data dialog box. Check in the appropriate boxes to deselect or select items. The display updates immediately.

  If you have chosen a ZGF picture in the Select Session Data dialog box, the **Inventory Task Pane** will list the elements contained in that particular ZGF.

  You can move the **Inventory Task Pane** to either side of or to the bottom of the window.

  Make sure that whatever you toggle on or off in the **Inventory Task Pane** can be viewed in the current window. For instance, do not toggle off seismic from the **Inventory Task Pane** in a Well Correlation view.

- In Release 2003.19.1, PowerView introduced automatic selection of seismic Sections. Once your have chosen 2D lines or 3D surveys, you need only perform a few mouse clicks to make the seismic appear in Sections. Additional preliminary steps of selecting seismic volumes in the Select Session Data dialog box are not necessary.

- Beginning with R2003.19.1, current seismic priority determines which seismic appears in a Section. That is, when PowerView

finds the first seismic file to match the highest priority, the software displays that data item. To change the priority order of seismic files, open the **Seismic Priority** tab of the Contents dialog box (**View > Seismic Priority Lists**), highlight the file you want to have the highest priority, and press **Move to Top**.

- To see the seismic priority list of a 2D line, move your cursor over it. A tooltip appears with the information.

- If you are choosing data for one tab view, then move to another, the software will automatically switch you to the Select Session Data dialog box for the new tab view. This will be reflected in the titlebar of the Select Session Data dialog box. For instance, if you are selecting data for **Map 1**, then move to **Section 2**, the titlebar will change from **Select Session Data (Map 1)** to **Select Session Data (Section 2)**.

  To keep the dialog titlebar from updating, deselect **Implicit Dialog Refocus** in the **View** menu.

- In Release 2003.19.1, a new tab view, Well Correlation, became part of PowerView. By displaying wells and well data vertically and a fixed distance apart, the Well Correlation view lets you perform pick interpretation in an uncluttered but more detailed format.

- To open a new Map or Section while you are working in the bottom list of the Select Session Data dialog box, highlight the name of a horizon or seismic file. Then click on the **New Tab** icon above the list. The new tab will bear the name of the horizon or seismic file you highlighted, and the tab view will display the item. This procedures works with horizons and seismic files only.

- To drag and drop a tab directly onto the desktop, use the icon labeled **Use Btn 1: Undock This Tab**. It is located in the top right-hand corner of the PowerView window.

- If you add seismic to an empty Section tab, it will not appear until you have chosen a Section. You can do this by

  — using one of the icons in the Section Selector toolbar

  — making a choice in the Section From List dialog box, available by selecting **Select > Section from List...** in the main menu or by clicking on the **Section from List** icon in the Section Selector toolbar.

If seismic still does not appear in a Section:

— Make sure the **Visible** check for the seismic file is toggled on.

— Compare the domain listed in the main menu's **Select Domain** text field with your seismic's **Domain** column, shown in the bottom list of the Select Session Data dialog box. They may conflict. If so, use the **Select Domain** pulldown menu in the toolbar to change the domain of the Section and make it match the volume. Or, turn off the **Domain Match** toggle in the bottom list of the Select Session Data dialog box.

— Check that the Section you selected is within the red outline on the Map.

— In the **Seismic** tab of the Select Session Data dialog box, check the seismic extents of the file. If the Section lies outside the volume extents, no seismic will appear in the Section.

- When working with seismic files in the **Display Order** tab of the Contents dialog box, the software displays only one volume for a specific attribute per 3D project. For example, to overlay two volumes, both of which are **Amplitude** (**Amp**), you must define one as a different attribute (**Other_1**) and manipulate the seismic display template for those attributes individually.

- If Vip projects do not appear in the data tree of the Select Session Data dialog box, do as follows:

  — Check to see that you have clicked on the **Browse** tab in the Select Session Data dialog box. Vip projects are listed in that data tree, not in the data tree of the **Active** tab.

  — If no projects appear in the **Browse** tab, make sure you have set the environmental variable `VIP_DATA_HOME` and specified the directory where Vip data is to be located. Even if you have set the environmental variable, Vip projects will not appear unless the variable points to the correct directory for Vip data.

- Three domains are available: Time (**TWT),** depth **(TVDSS** and **TVD)**, and Frequency. **TWT, TVDSS** and **FREQ** are choices in the main toolbar. You can select **TVD** in the Select Display Datum dialog box (**File > Display Datum**). **FREQ** works with SpecD

data. A certain layer is processed at different frequencies, and you use the **FREQ** domain to show the data at different frequencies.

- PowerView has two dialog boxes in which you can "share" data items among active and "target" views. These dialog boxes are Contents; and Modes, Scale and Position. In the right side of these dialog boxes, a checkbox, selected by default, says, **Only apply settings from this tab.** If you want to share more than one kind of data with a view, be sure that this option is toggled off.

  — "Sharing" dialog boxes have a **Source** view and one or more **Target** views. If you want a **Target** view to include data items in the **Source** view, push the **Share Source** button in the Contents or Modes, Scale and Position dialog boxes. If you want the **Source** view to share what is in a **Target** view, push **Share Target**.

  — To designate a new **Source** view, place your cursor in the appropriate row and press Mouse Button 2. The row becomes gray, and the word **Source** appears in the **Type** column.

- To make a discontinuous multipanel display while you are in **Point to Point** mode, use the Button 3 popup menu available in a Map. Click MB1 to start a line, MB1 to end it, and MB3 to open the popup menu. Select **Break**. Repeat as many times as desired. Then, to display the multipanel, click MB2 or press MB3 and select **Begin Display**.

- Be sure to press <Return> when you enter data into the text fields of the Select Session Data dialog box and other lists. You must also press <Return> after you type in new weights when performing **Math Blending** in the Image Composer. The new value will not be accepted until you do.

- To change the histogram scaling value for the color bar, you can use the pulldown menu in the **Hist. Scale** column in a list of selected data items. Or, you can type in a number.

- To quickly change the opacity of a display, use the **Opacity** adjustor within the **Parameters** box at the bottom of a histogram. Click on the arrow next to the word **Parameters** to expand the box.

- To quickly reset the area-of-interest display for a survey, right-click on the survey name in a list of selected session items and

choose **Reset IL AOI**, **Reset XL AOI**, or **Reset Both**. Then click **Apply** or **OK**.

- Only **Math Blended** composed images can be saved as horizons or used as input grids to create other composed images.
- Do not use a GeoProbe shared volume in the Volume Composer.
- Do not use a Mouse Button 3 menu while you are running the Slide Show (**Window > Slide Show...**).
- You can use session files from Release 2003.19.1 in Release 2003.19.2. Landmark recommends that you resave older session files after they have been successfully restored. Doing so will help ensure continued compatibility.
- After loading data and constructing your layout of tabs and windows, save a session file *before* you begin interpretation.

Color Display

- Most PowerView color bars are displayed with the maximum value at the top and the minimum value at the bottom. This design is the same as that for the SeisWorks Seismic View color bar. Only **Time** horizons in the Map will be displayed with the minimum value at the top and the maximum at the bottom, as in the SeisWorks Map View.
- The default color bars are different for horizons and seismic volumes. For horizons, the default is **0_Spectrum**. For seismic, it is **Greyscale**.
- When you want to select a new color bar from **File > Open** in the Color Editor, you can choose from one of three lists: **System**, with a static list of palettes; **GeoProbe**, which contains the static palettes available in GeoProbe; and **User**, which consists of color bars that you have created. However, if you click on the **Open a color palette** icon in the Color Editor, you will see all color bars, including the ones you created.
- A shortcut to choosing a color bar is to right-click in the Color Bar task pane. Then click on **Select Colors** and choose from either **System. GeoProbe,** or **User**, as described directly above.

Window and Tab Display Behavior

- To create an instant tab when working in a Map or Section, o click on the **New Tab** icon in the PowerView main toolbar. If you are working in a Map, the new tab will be a Map tab. If you are working in a Section, the new tab will be for a Section, and if you are in a Well Correlation view, the new view will be for a Well Correlation display.

- If you create a Map tab from another Map tab, the display in the original Map tab will be replicated in the new Map tab. The same principle applies to Sections and Well Correlation views.

- If you create a new Section tab from a Map tab, the new Section tab inherits properties from an existing Section tab. Likewise, a Map tab created from a Section tab takes on the properties of an existing Map tab. The tab from which a new tab inherits is always the most recently active tab of that type.

  If you create a new tab and one of the same category does not exist, the new tab takes on some of the properties of the source tab, while other properties will take on default values appropriate for the new tab type.

- You can rename a *tab* manually. To do so, click a tab name with Mouse Button 3. When the Tab Manager Menu appears, click on **Rename**. An Input message box appears. Type the new name in the text field and click **OK**.

  You cannot rename a *window.*

- When you display a horizon or a seismic volume in a tab view, its name and a thumbnail of its associated color bar appear at the top of the color histogram in the window. If you display two or more data items, up and down arrows appear alongside the names. Clicking on the arrows show you the names of the other data items and their associated color bars. This functionality is not for animating through data items or changing the display order.

- Lock icons in the menubar apply only to actions you take in the Modes, Scale and Position (V**iew > Modes, Scale and Position**) dialog box. Clicking on the **Unlock Modes, Scale and Position** icon temporarily unlocks a tab view from other views. Clicking on the **Relock Modes, Scale and Position** icon relocks the view to the other views. A view that has been unlocked is indicated by the appearance of the **Relock Modes, Scale and Position** icon in

appropriate fields of the **View Groups** interface of the Modes, Scale and Position dialog box.

- **Preserve Aspect Ratio** in the **View** menu is off by default for Sections and Well Correlation views. Once you are satisfied with your aspect ratio, toggle this option on.

- To make a cross-hair appear when you turn on the Point Marker, click on the box that says **Display a cross-hair at the marker location**. You find this option in **View > Contents > View Properties** tab **> Marker** tab. Then click **Apply** or **OK**.

The TransformView

- This tool lets you calculate attributes on the fly. As you work with it, you may want to resize the TransformView. Landmark recommends that you freeze it first. To do so, click on <F4>, and check the **Resize** button in the **TransformView** pane in the Task Pane. Then move your cursor up, down, and sideways within the Transform View to manipulate its size.

  The resizing operation ends when you take your finger off the mouse.

- Open the TransformView in a window with a *single* Section.

- You can zoom the display within the TransformView window. To do so, use the up or down arrows in the **TV Window Zoom** text field in the Task Pane.

Interpretation

- Beginning with 2003.19.1, you can interpret both 3D and 2D data.

- When you select an interpretation mode, the software displays a Task Pane with functionality for that interpretation mode. You can also access the panes by clicking on **Interpretation** in the Task Bar on the right-hand side of the window.

Horizons

- **Multi-Volume Track** in horizon interpretation lets you pick multiple horizons on multiple seismic volumes simultaneously or multiple horizons on a single seismic volume simultaneously.

Use the **Wizard** in the **Horizon Interpretation** pane of the Task Pane to complete a job. Then press **Open Window** to see the results.

When you work with Multi-Volume Track, start from a new session instead of a saved session.

- You can use the special autotracker ezTracker Plus for horizons in PowerView. The prefix or suffix "ezT" is attached to horizons autocreated in ezTracker Plus.

- If you want to clean up horizons in a Map, use **Polygon Track**. If you want to extend your interpretation in a Section, use **Area Track**. A red band in the Map designates the zone of your tracking. See the "Horizon Interpretation" chapter in the *PowerView Guide* for more information.

Faults

- Use the **Convert to Segment** option to interpret a triangulated fault quickly. With Mouse Button 3, click on or near the triangulated fault and select the conversion option from the resulting popup menu.

- A fault segment can have no more than 64 points.

- You use the ezValidator to align horizons across faults. You can unfault all horizons at once, and animate the unfaulting. If you enter an interpretation mode while you are using ezValidator, the ezValidator will automatically revert to **View** and cease its operation. To resume use of the ezValidator, toggle on one of the unfaulting options under **View**.

- Load a set of faults and faulted horizons before you enter ezValidator.

- In Release 2003.19.1, PowerView introduced a fault autotracker, which is called smartFault in Maps.

  This autotracker picks fault traces on horizontal time or depth slices. It works best with a special fault attribute volume generated from coherency data, but it can also pick faults directly from the coherency data.

For more information on smartFault, see the “Fault Interpretation” chapter in the *PowerView Guide*.

Well Picks

- You can interpret surface picks or faults picks in PowerView.
- Beginning with Release 2003.12.2, you create surface names under the **Surfaces** tab in the Create Interpretation Object dialog box. You can open this box from the Mouse Button 3 popup menu during well pick interpretation. Select **Create Surfaces** to do so. Or click on the **Create Surfaces** icon at the top of the Well Pick Interpretation Task Pane.
- You can use the Mouse Button 3 popup menu to remove wells from a display during well pick interpretation. Move your cursor near wells you want to remove, and click Mouse Button 3. The menu now includes the option **Remove Well** with the name of the well after it. Click on the well to remove it. To make it appear again, press Mouse Button 3 again and select **Turn All Wells On**.
- When you are in well pick interpretation, you can link all picks of the same name on a continuing surface. This process is called Auto-Regridding. For more information, see the “Well Pick Interpretation” chapter in the *PowerView Guide*.

Polygons/Centerlines

- Beginning with Release 2003.19.1, PowerView provides direct creation and interpretation of centerlines in a Map. Among the features of centerline interpretation is centerline clipping. Use this functionality when you are drawing a new centerline and cross another centerline. Then the centerline you are drawing will automatically be terminated where it meets the existing centerline.
- Beginning with Release 2003.12.2, you can work with both open and closed polygons.
- To quickly smooth polygons, use one of these methods:
  - — Click on a polygon, and select **Smooth Polygons** from the Button 3 popup menu
  - — In the **Polygon Info** section of the Task Pane, select one or more polygons from the list and click on the icon labeled **Smooth selected polygons**.

- You can automatically generate polygons for a horizon that has been fully interpreted, interpolated, or processed using ezTracker Plus. To do so, use the **Auto Poly** panel in the Polygon Interpretation task pane.

- PowerView lets you extend the range of polygons by graphically joining them. For instructions, see the "Joining Polygons" section of the "Polygon Interpretation" chapter in the *PowerView Guide*.

2D Seismic Shift Management

Displaying Mistie Values

Mistie values appear in a Map only after you have made proper choices in the **Display** column of the **Horizon** tab in the Select Session Data or Contents dialog boxes. By default, **Data Only** is selected in the **Display** column; click in the text field of the desired horizon and select **Mistie Only** to see the mistie values without the horizon displayed. Select **Data and Mistie** to see the horizon and the mistie value at the same time. Press **Apply** or **OK** after making your selections.

Appendix B: Gridding and Contouring Behavior

PowerView contains the following gridding and contouring algorithms:

- **Refinement Gridding** and **B-Spline Gridding** — These two surface modeling algorithms are significantly faster than anything available in Z-MAP Plus. Since gridding speed may be increased by a factor of 10 or more, PowerView can construct models from larger data sets than ever before possible.

- **Contouring** — The contouring routine is faster than traditional algorithms and less prone to leaving color holes in maps. **Contouring** uses new display parameters, including fault annotations that conform to industry standards. Its combination of speed, multiple viewing windows, and the ability to simultaneously display surfaces from different sources has the potential to greatly enhance integrated data exploration.

All but a few settings in gridding and contouring have default values, so you can quickly generate grids and contour maps, then refine them with customized settings if you like.

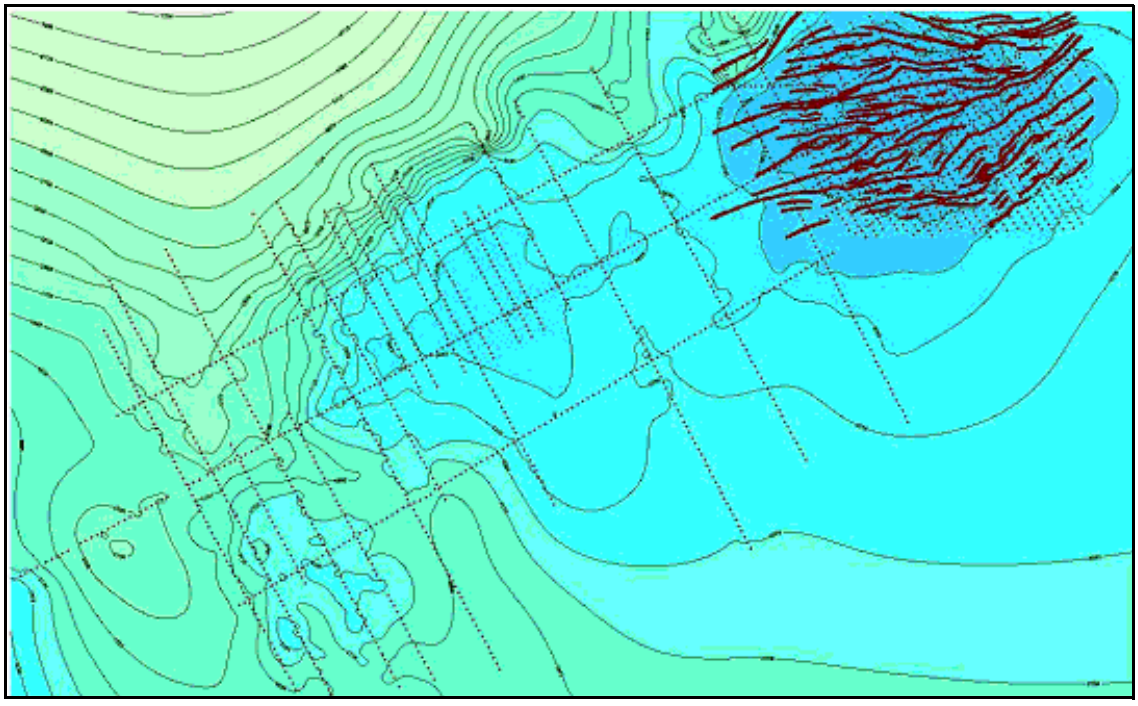
Refinement Gridding

The **Refinement Gridding** algorithm takes full advantage of the large memory on modern computers and incorporates several innovative ideas to speed up processing.

Refinement Gridding is the default gridding algorithm for Grid and Contour and is the gridding algorithm you use if you want to include faults in the grid. This algorithm also works well on unfaulted data and is particularly effective at producing a grid that optimizes the appearance of both regional trends and local detail.

Refinement Gridding conducts a series of refinements until the target grid cell size is reached, passing the surface model through a biharmonic filter to produce a minimum curvature surface (page 17).

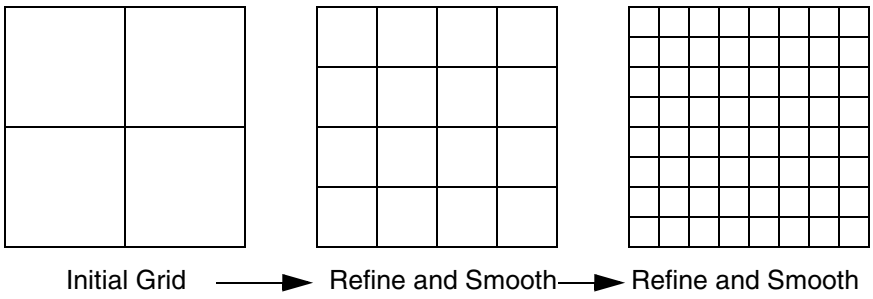
The following example shows a grid generated with Refinement Gridding from data that includes complex faulting.



In the example, the surface model used for tracing the contours has 275 rows and 450 columns. The input data has 42,000 seismic shot points and 6,000 fault segments. The model took only a few seconds to generate using Linux.

Description of the Refinement Gridding Algorithm

Refinement Gridding starts with a coarse grid whose nodes are initialized with the average values of the input data. The grid is refined into a series of finer grids until the target grid cell size is reached.



At each refinement level, the surface model passes through a biharmonic filter, producing a minimum curvature surface. Each iteration ties the surface back to the actual data points, ensuring that the surface model closely honors the input data points.

Refinement Gridding's iterative refine and filter approach results in a surface model that

- varies smoothly from point to point.
- extrapolates above or below actual data values.
- continues trends beyond the data into void areas.

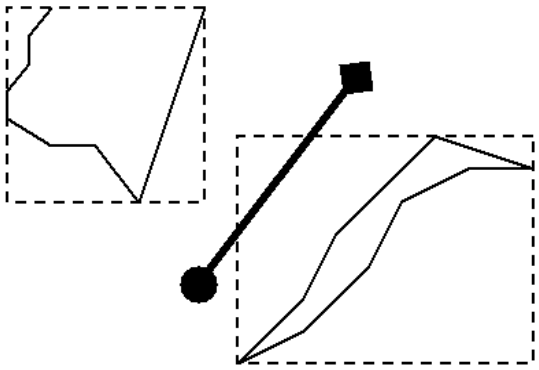
Working at coarse spacing imposes the low spatial frequencies of the data on the surface, and working at finer spacing imposes the higher spatial frequencies of the data on the surface. Another way of saying this is that working at coarse spacing imposes the regional trends of the data on the surface while progressing to finer spacing generates a surface that closely honors the data.

Fault Processing in Refinement Gridding

Fault traces are supplied as input to the Refinement Gridding algorithm as a sequence of records, one for each fault vertex. Each record is assumed to have four fields: *x, y,* segment ID, and vertical separation. The vertical separation value may or may not exist. If vertical separation is a null value, the fault is opaque.

Each fault trace defines a single line fault or fault cutout, and is stored in working memory in a simple data structure with the coordinates of a bounding box, as shown in the following example. If the algorithm needs to know whether a 2D line crosses a fault trace (for example, a 2D line that joins a data point and a grid node), the question is answered relatively efficiently because for most fault traces the line does not cross the bounding box. For this reason, the detailed problem of checking for crossing with individual fault segments is focused on a limited subset of fault traces.

The heavy line with markers at each end connects a data value to a grid node. Only one of the two fault traces must be checked to see whether it crosses this line because the line crosses only one of the bounding boxes around the fault traces.

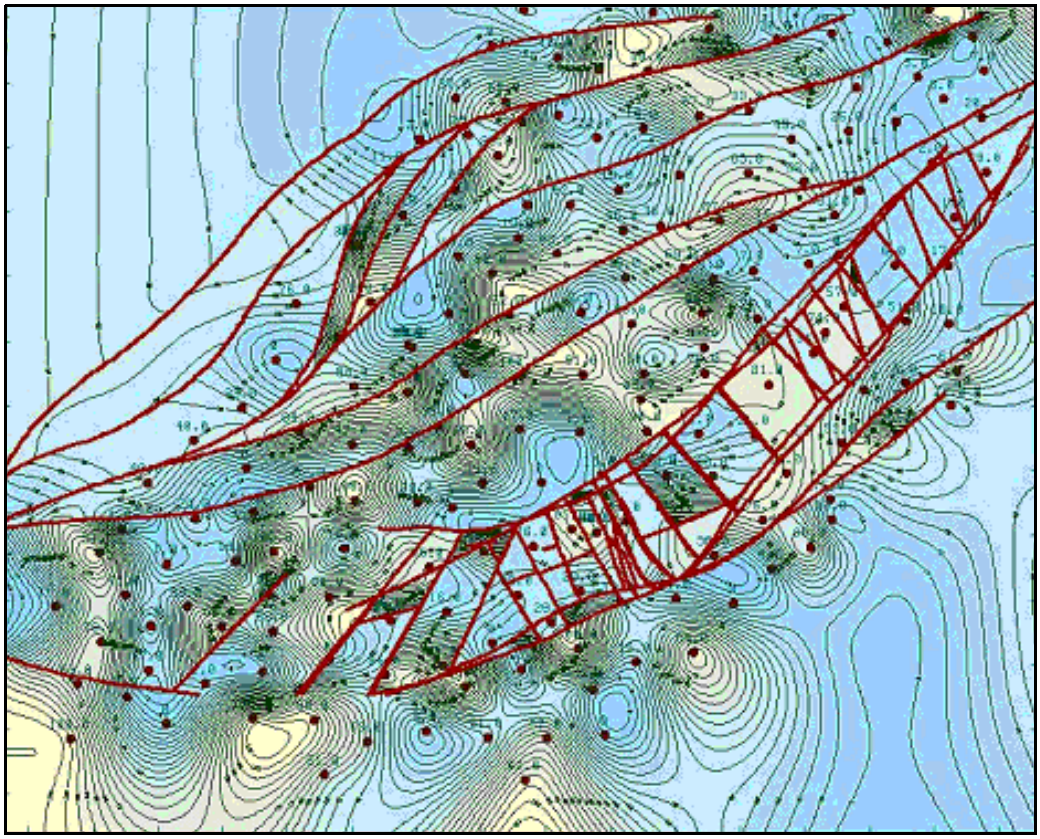


Fault Blocks in Refinement Gridding

As a grid is refined, the nodes in newly revealed fault blocks must be initialized before they can be smoothed. A potential problem with most surface modeling paradigms is that small fault blocks are not represented at some of the coarser grid spacings.

To solve this problem, Refinement Gridding uses a fast bleed of data from already filled nodes through open ends of fault blocks. If fault blocks are closed, the algorithm simply ignores opaque fault barriers to pick up values from nodes in normally off-limits neighboring fault blocks.

The following example shows the usefulness of the fault block fill-in process with a highly faulted well data set. Many of the smaller fault blocks contain only one or two wells, and others have no wells.



B-Spline Gridding

The B-Spline Gridding algorithm is a very fast algorithm for generating unfaulted surface models from scattered data.

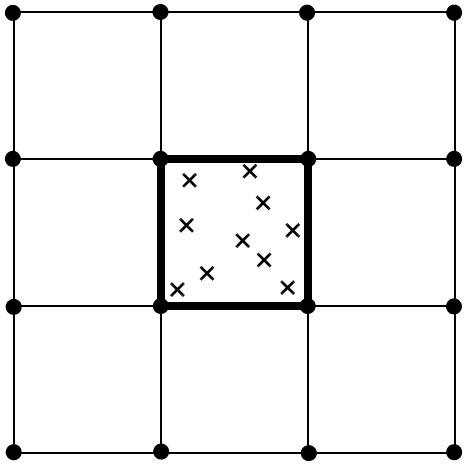
Description of the B-Spline Gridding Algorithm

B-Spline Gridding creates a series of increasingly fine control lattices to generate a sequence of bicubic B-Spline functions whose sum approaches the target interpolation function. B-Spline Gridding is fast, making it ideal for gridding large datasets that have no faults included or that have one million or more data points.

As in Refinement Gridding, working at the initially coarse spacing imposes the regional trends of the data on the surface while progressing to a finer spacing generates a surface that closely honors the data.

The B-Spline Gridding algorithm produces a surface model that closely honors the original control points, varies smoothly from point to point, and continues trends beyond the data into void areas.

The B-Spline algorithm starts by enclosing all data points in a single cell and extrapolating nodes for eight surrounding cells, as shown in the following example. The 16 grid nodes that result are initialized to an average value of all data points.

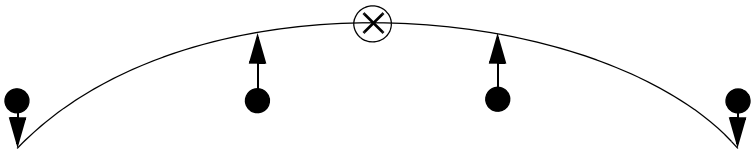


In this example, a dataset of 10 points is enclosed in a single grid cell, and eight surrounding grid cells are extrapolated.

All 16 nodes are initialized to the average values of the 10 data points.

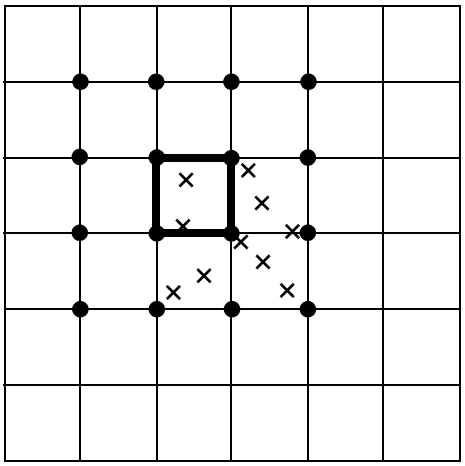
A bicubic B-Spline function is fit to each data point, based on input from the control point itself and the 16 surrounding nodes. To make the function fit the control point exactly, the 16 node values are adjusted up or down from their initial value. A cross-section view of this adjustment is shown in the following illustration.

A bicubic B-Spline curve is fit through each data point, forcing the values for the 16 surrounding nodes to be adjusted up or down.

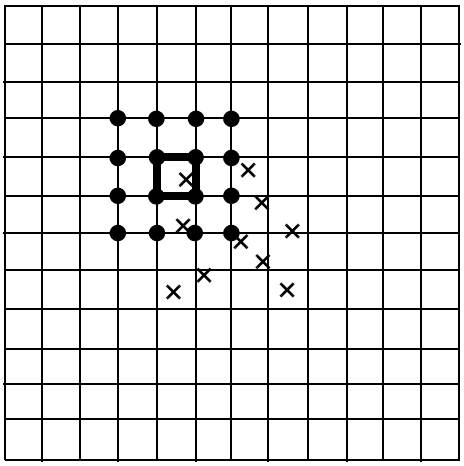


When the process is finished, each grid node has a new value based on every data point. For example, if the dataset contains 10 data points, a new value for each node is computed 10 times. The 10 values are averaged to produce the final node value for the current refinement pass.

The grid is refined by using cubic B-Spline interpolation, and the process is repeated. As shown in the following illustrations, after one refinement the area occupied by the data points is divided into four cells. After a second refinement the area occupied by the data points is divided into 16 cells. (The grid contains 16 cells that could potentially contain one or more data points.)



After first refinement



After second refinement

After each refinement, the bicubic B-Spline curve is fit through each data point again, using an equation based on the value of each point and its new set of 16 surrounding nodes. The curve fits the data point, and the node values are adjusted. The process continues until the grid reaches the target cell size.

Contouring

The Contouring algorithm uses the Cell Priority contouring approach. This approach is not new, but until recently, the limitations of computer memory made it impractical. In Cell Priority contouring, the following events occur:

1. A smooth surface model is developed from a grid cell, based on interpolated grid nodes surrounding the grid cell.
2. A refined grid is superimposed on the cell.
3. Z-values for the new nodes are interpolated.
4. Contour segments for the cell are generated from the model.

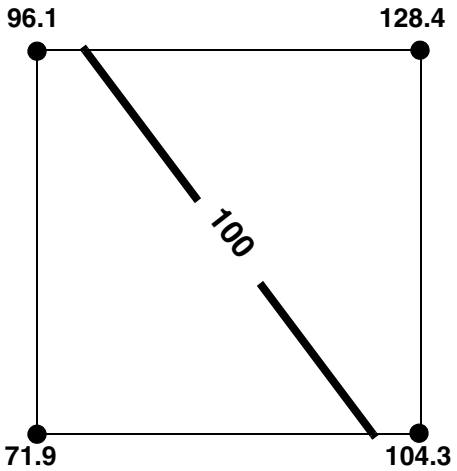
Each grid cell is processed in sequence, then the segments are retrieved from storage and assembled into complete contours. Ultimately, the smoothness of the contours is controlled by how densely the grid cells are refined.

The **Refinement** parameter controls the number of points needed to represent a contour. The coarser the refinement, the more angular the contours, as fewer points are used to represent the lines. The finer the refinement, the smoother the contours, as more points are used to represent the lines. You can use any of five refinement options, ranging from **Very Coarse** to **Very Fine**.

At the **Very Coarse** setting, no refinement is performed.

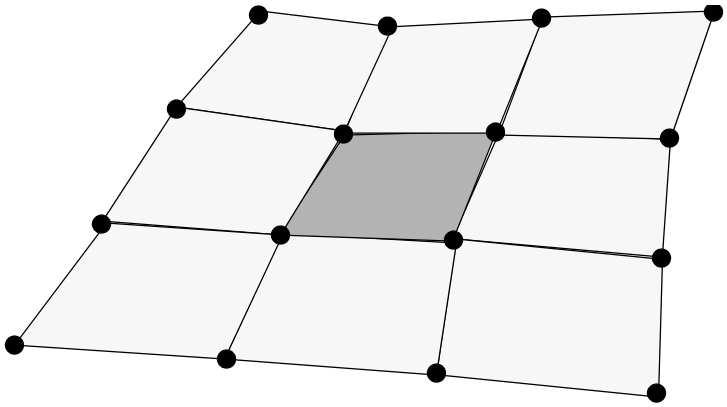
Using linear interpolation, the algorithm finds the point at which a contour segment crosses a cell boundary between the two Z values at the nodes marking the ends of the cell edge.

The program locates the entrance and exit points—the points at which the contour segment enters and exits the cell. The contour segment is treated as a straight line between these two points.



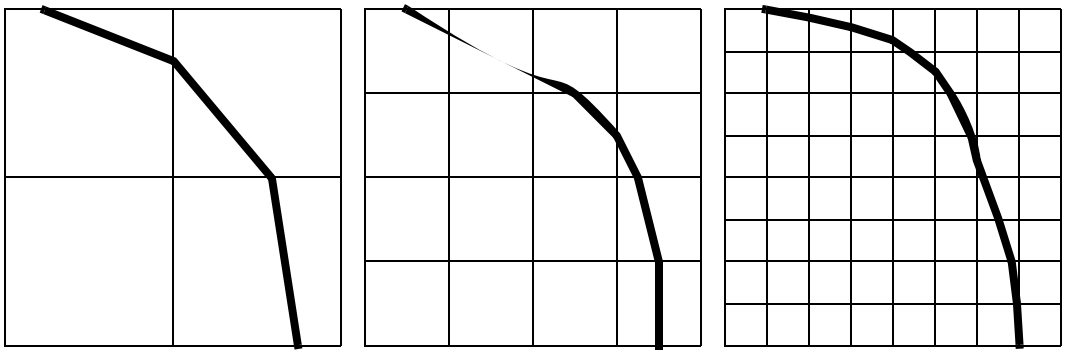
The coarsest refinement is very fast, but results in linear contours with a faceted look. Contours are not smooth, and any auxiliary data that exists is ignored.

A step up from the **Coarsest** (linear) method uses a refined grid cell. To refine each grid cell, the application uses additional nodes (for a total of 16 grid nodes) around the grid cell. The data from the additional nodes is used to create a smooth model.



Sixteen Nodes Used to Create a Surface Model for a Grid Cell

Linear interpolation is then applied to each cell in the refined grid.



At **Coarse** refinement, the cell is refined by a factor of 2.

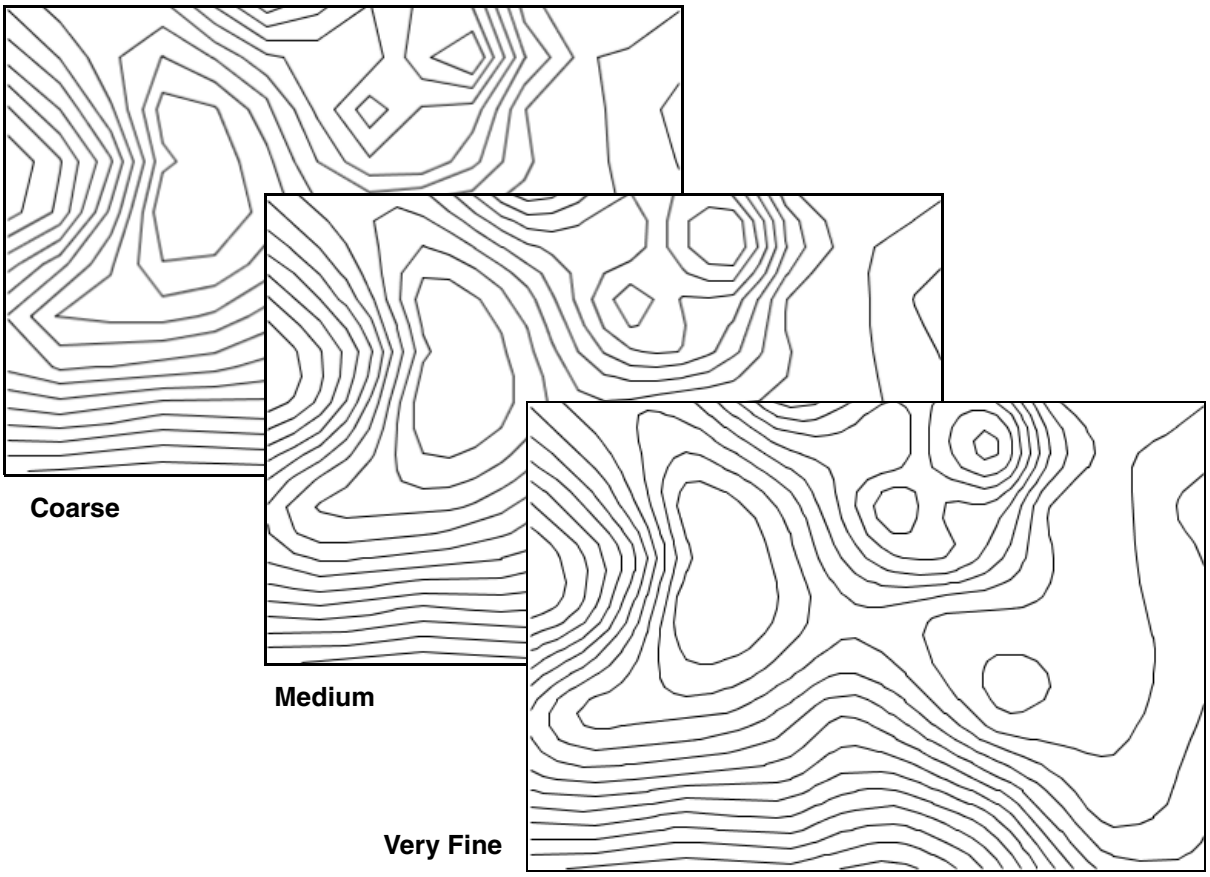
At **Medium** refinement, the cell is refined by a factor of 4.

At **Fine** refinement, the cell is refined by a factor of 8. (For **Very Fine**, the refinement factor is 16.)

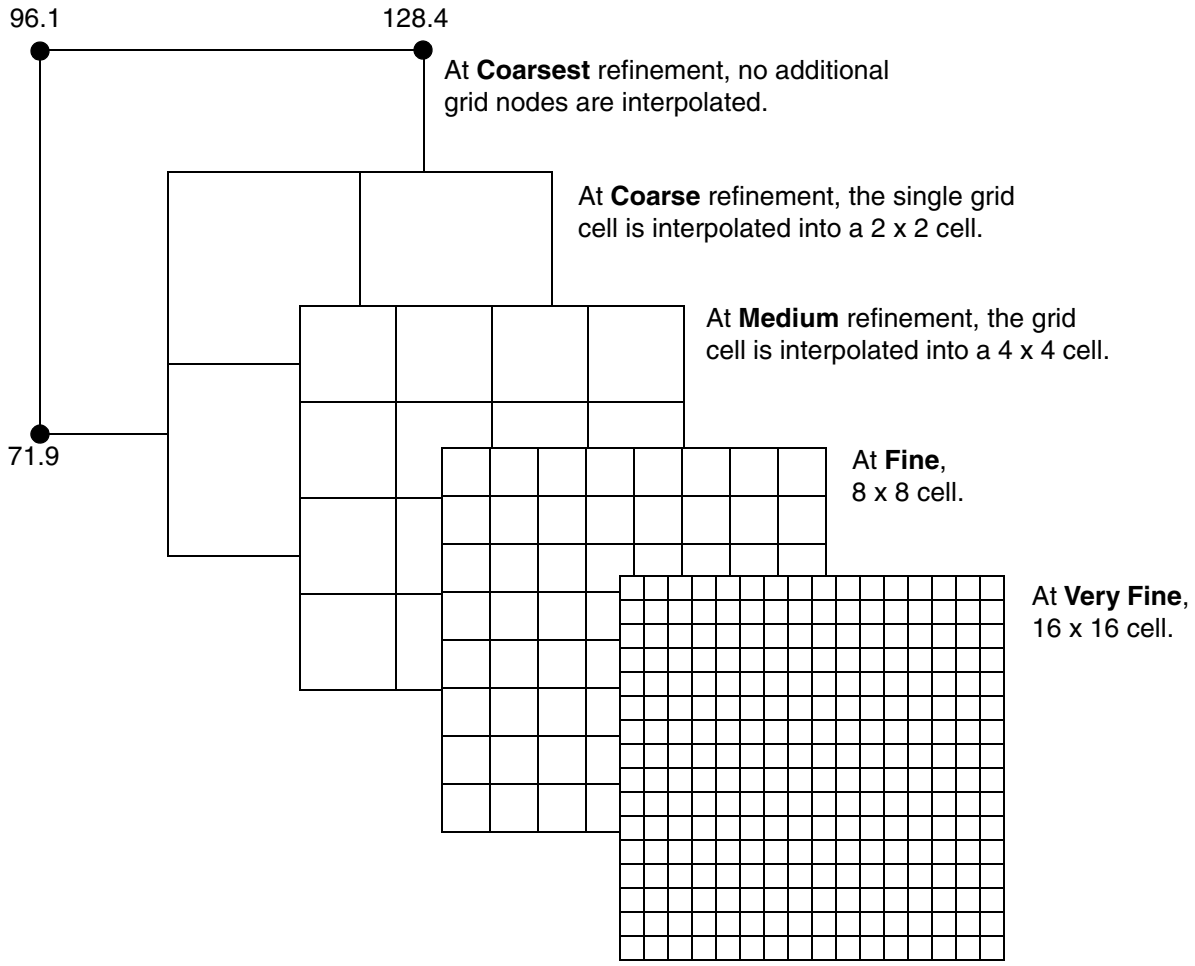
Effect of Refinement Levels on a Contour: Detailed View

The following examples show contours becoming smoother at a higher refinement level.

As refinement changes from **Coarse** to **Very Fine**, contours appear less angular and increasingly smooth.



Effect of Refinement Levels on a Contour: Map View



Effect of Refinement Levels on Number of Grid Cells

Once all the individual cells are processed and complete closed contours are assembled, the program uses line generalization to eliminate unnecessary points.

Appendix C: Working with Large Projects

When you work with large projects, you may wish to consider some of the following scenarios to improve overall workflow performance or stability.

General Considerations

The Used Memory gauge

The Used Memory gauge is located in the status bar in the extreme bottom right corner of each PowerView window. As you use memory, the red shown in the example here increases. When you see mostly red in the gauge, you are running out of memory.

- On 32 bit architecture, the default jvm size is 1200m. In some circumstances, this size may not be large enough. If the Used Memory gauge remains in a high position, or the applications fail with "Insufficient Memory" messages in the run directory .log file, increase the memory by setting the following variable:

  ```
  setenv POWERVIEW_MEMORY 1700m
  ```

  If the environmental variable is set too high on a 32 bit machine, PowerView does not start because the java virtual machine (jvm) cannot be initiated. The maximum may vary by machine, but it is normally between 2000m and 1200m.

- If possible, use 64 bit architecture Linux machines for larger projects. PowerView is 64 bit enabled here and can manage more information in memory. The default jvm size for 64 bit is about 5GB.

- You may also have to adjust the memory size for ezTracker Plus. Current defaults are 1200m for 32 bit systems and 2500m for 64 bit systems. To increase these sizes, use the following environmental variable:

  ```
  setenv PVEZT_JAVAXMX 2600
  ```

Running ezTracker Plus

- The default checkpoint interval—that is, when the tracked data is saved to disk—is now every 500,000 traces. On large surveys, this default may affect the tracking performance by writing and checkpointing too often. For example, a 40m trace survey may checkpoint 80 times. Before starting the ezTracker Plus job for the

first time, use Ctrl + Mouse Button 1 on the **Run ezTracker Plus** button. When the ezTracker Plus Run Options dialog box appears, adjust the parameters.

- When you are tracking a strong event without faults—like the water bottom—you can reduce both initial and final tile sizes to three. This strategy will force one iteration and minimize the loop tie requirements. You may also see a slight improvement in performance if you use the **Cross Correlation** or **Peak to Peak** tracking methods in the **Advanced** tab of ezTracker Plus. Tests have shown improved tracking results from **Cross Correlation** when compared to **Peak to Peak**.

  For more information about ezTracker Plus, see the "Horizon Interpretation" chapter in the *PowerView Guide*.

Working with Multiple Projects

- When possible, use the **Inventory Task Pane** to deactivate 2D line lists or 3D surveys you are not working with. This strategy reduces Map clutter with one click and makes views update or zoom faster. 3D project outlines are still displayed by default for ease of reference, but they do not affect display performance.

- When you work in a 3D project with many 2D lines, the 2D line intersections can affect the display performance of horizons in Sections. When you no longer need this display for reference during interpretation, turn it off by deselecting the **2D Intersections** box in the **Section Intersections** panel under the **HorizonSection** tab of the Contents dialog box (**View > View Properties > HorizonSection** tab).

- Set the seismic priority in **View > Seismic Priority List...** for each 3D and 2D project. Seismic is then automatically selected in the next new session, and you save time when many projects exist.

- Use the **Set/Clear AOI** icon on the Map to keep the Map focused on the current area of interest. You can still temporarily zoom out with the isotropic zoom.

In the Section

Working Within a Reduced Area

By default, PowerView displays the entire line, including the entire time/depth range for a Section. If possible, reduce the area for the large 3D surveys that you work with at any one time. To do so:

— Use the Select Z Range By Domain dialog box to manually set the desired Section *z* range (**Select > Z Ranges...**).

— In the **2D/3D Projects** tab at the bottom of the Select Session Data dialog box, click Mouse Button 3 within one of the AOI inline or xline columns for a 3D project. When a pulldown menu appears, choose **Select IL/XL AOI From Map**. In the Map, hold down Mouse Button 1 and drag it until you have selected the desired working area. When you release the button, the ranges change in the appropriate AOI line columns. The software then restricts seismic Sections and Map horizons to the range.

Caching One Full Inline or XLine

- It is important that a full Section (inline or crossline) be held in cache. The default seismic cache sizes are 40:40:25 for brick files (.bri); uncompressed cache (.cmp); and compressed (.cmp). Compute the required sizes, then set the following environmental variable:

  ```
  setenv LGC_PV_SEISCACHE_MAX 50:50:40
  ```

  In general, you should stay below 100:100:75. If this size is not large enough, you may want to consider turning off the seismic read-ahead in the **SeismicCache** tab in the **View Properties** tab of the Contents dialog box. Otherwise, the read-ahead may compete with the Section reads.

  Special Note: More cache does not always mean faster performance. It is important to find the right number based on experience with the project and the network environment.

Populating the Local Disk Cache

- If you have a large amount of free local disk, cache the primary volume by using the Cache Manager under **View > View Properties > SeismicCache** tab. Here you can

cache all lines, crosslines, or a specific increment to disk. If you use an increment, set the line selection to the same frequency. Then normal selections will always find a line in your cache.

In general, disk-cached lines and crosslines display in about one second, regardless of the size. If you find this strategy useful and want it activated by default for new sessions, set the PV_USE_LDISC to “ro” (read only) or “updated” (read-write). For best performance, you may want to pre-populate the cache and use the read-only option.

For more details, see “Seismic Caching” in the “Setting Properties” chapter of the *PowerView Guide*.

Well Curves, Especially with Colored Fill

- If you do not need curves turned on in the Section all the time, use the **Inventory Task Pane** to temporarily turn them off. Click on the main **Log Curves** branch to do so.

Horizon Data

Local Temporary Cache

- Horizon data displayed in the system may be cached to a local disk. This disk should have enough space to hold horizons of the size and number that you will be working with at one time. If the available space is insufficient, the system will revert to rereading horizons from the remote project drive. This process can be slow.

- By default, this disk location will be the system tmp directory. You can control this location with the following environmental variable:

  `setenv LGC_HZN_TMPDIR <local drive/directory with lots of space>`

- You can also set the limit of disk space that will be used. The system will validate your disk with sufficient space for the request and will not allow the request to exceed 90 percent of the free space. This size is in MB. The environmental variable is

  `setenv PV_HZN_MAXTMP 5000`

Note: If, when running PowerView, it fails with a native code exception, this local disk cache directory may not be properly cleaned by the exit handler. It is a good idea to check the location occasionally to ensure no older files remain. Delete any that you find.

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