



Grid Size

Horizon Gridding Project Paper IV

When setting up horizon gridding, the user is presented with **Grid Spacing** and **Grid Size** parameters. In the WorkFlow Manager, this is found on the Stratigraphic Sequence and Horizon Modeling menu under the **Per Zone Parameters** tab. These parameters may vary from zone to zone, so, in the upper part of this window, you must first select the zone you wish to edit:

The screenshot shows a software interface with two main panels. The left panel, titled "Zone/Horizon name", contains a list of three zones: "layer3top", "layer2top", and "layer1top". Each zone has a diamond-shaped selection icon to its left and an "In" button to its right. The "layer2top" zone is currently selected, indicated by a blue diamond icon. The right panel, titled "parameters", has three tabs: "parameters", "Per zone parameters", and "Report". The "Per zone parameters" tab is active. It displays the following settings:

	X	Y
Rotation angle	0	degrees (clockwise)
Pivot	6054846.220000	2104969.360000
Length	7000.000000	4200.000000
Grid spacing	42.168675	42.424242
Grid size	167	100

At the bottom of the "Per zone parameters" panel, there is a button labeled "Reset grid size to default".

Horizon surfaces are created by calculating regularly-spaced grids based on the input data. The minimum tension algorithm used in this calculation seeks to achieve a relatively smooth surface that passes through all the data points.



Horizon Gridding Project Paper IV

The number of output X-columns and Y-rows (also known as the **Grid Size**) is the primary control over this calculation. Ideally you would want a single scattered data point in each cell of the grid. The program offers the user a default value but this default is only based on the number of data points, not their separation distance. The default sizes, as shown in the table below, can be changed. The overall number of grid nodes is selected based on the table below and then the X/Y cell size is calculated so that the cells are generally square (in other words, the default number of X-columns and Y-row is based on the aspect ratio of the X/Y ranges).

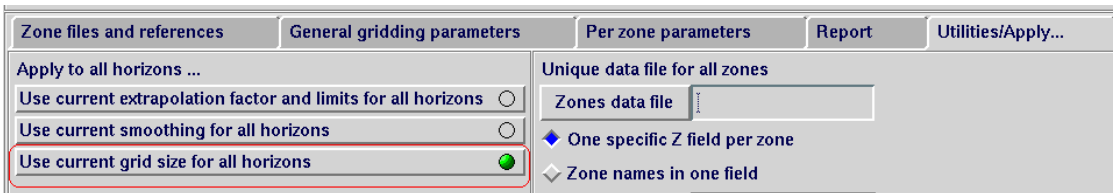
number of scattered data points	number of grid nodes
< 50	500
50–250	2500
250–1000	10000
4000	20000
15000	30000
60000	50000
>60000	75000

This default is ideal if the data are randomly scattered but often the spacing of your data may vary widely—for example, sparse in one area, but clustered in another; the clustered area could require a higher number of grid nodes to meet the recommended one data point per cell. In this case, the user should manually refine the grid size to suite the more closely spaced data. In this screen example shown above, the grid cell dimensions are about 42 units x 42 units. If the critical data in your horizon are, however, spaced 20 units apart, then doubling the number of X-Columns and Y-rows would be a good idea.

Just uniformly making the grid larger, however, is not a good idea because it will increase calculation time and does not ensure a better gridded surface. Also, the maximum supported number of rows and columns is 1201x1201.

A user can edit the number of X-Columns and Y-Rows either by changing those numbers directly (**grid size**) or by changing the dimension of the individual cells (**grid spacing**). If you change the **grid spacing** number, the program will modify it slightly to make it divide evenly into the model range.

If you want to use a certain grid size on all horizons, then go to the Utilities/Apply window and select **Use Current Grid Size for All Horizons**.



© 2007 Dynamic Graphics, Inc. All Rights Reserved.

All rights reserved. No part of this publication may be reproduced, translated, or transmitted in any form or by any means, electronic or mechanical, including photocopying, recording, use or capture in any information storage or retrieval system, or otherwise, without the express prior written permission of Dynamic Graphics, Inc.

The information contained in this document is subject to change without notice and should not be taken as a commitment, representation, or warranty on the part of Dynamic Graphics, Inc. Further, Dynamic Graphics, Inc. assumes no responsibility for errors that may appear in this document.

Dynamic Graphics, Inc.

This documentation and software described herein is under license for use by the original licensee only and may be used only in strict accordance with the terms of such license.

Dynamic Graphics and logo, *EarthVision* and the EarthVision logo are registered trademarks of Dynamic Graphics, Inc. (Marca Registrada); *Workflow Manager*, the *Workflow Manager* logo, *Well-Architect* and *CoViz* are registered trademarks of Dynamic Graphics, Inc. The *WellArchitect* logo, and the *CoViz* logo are trademarks of Dynamic Graphics, Inc. All other trademarks belong to their respective owners.

RESTRICTED RIGHTS LEGEND

Use, duplication or disclosure by the Government is subject to restrictions as set forth in subparagraph (c)(1)(ii) of the Rights in Technical Data and Computer Software clause at Defense Federal Acquisition Regulation 252.227-7013 (OCT. 88). Unpublished—rights reserved under the copyright laws of the United States.

