

**Oracle[®] Retail Grade
User Guide
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Contents

Preface	v
Customer Support	v
1 Overview	1
2 Breakpoints Administration Workbook	3
Overview.....	3
Procedures.....	3
Create a Breakpoints Administration Template Workbook.....	3
Breakpoint Administration Worksheet Overview.....	4
3 Generate Breakpoint Grades using the Breakpoints Method	7
Overview.....	7
Procedures.....	7
Open the Generate Breakpoint Grades Template Wizard.....	7
Generate Breakpoint Grades Wizard	8
4 Generate Clusters Using the Clustering Method	9
Overview.....	9
Procedures.....	9
Open the Generate Clusters Template Wizard.....	9
Generate Clusters Wizard	10
5 Cluster and Breakpoint Grade Review	13
Overview.....	13
Procedures.....	13
Open the Cluster Review Template Workbook	13
Cluster Review Wizard.....	14
Cluster Review Workbook.....	14
6 Delete Clusters	19
Overview.....	19
Procedures.....	19
Open the Delete Cluster Run Template Wizard.....	19
Delete Cluster Run Wizard	20

Customer Support

- <https://metalink.oracle.com>

When contacting Customer Support, please provide:

- Product version and program/module name.
- Functional and technical description of the problem (include business impact).
- Detailed step-by-step instructions to recreate.
- Exact error message received.
- Screen shots of each step you take.

Overview

Grade is a clustering tool that provides insight into how various parts of a retailer's operations can be grouped together. Typically, a retailer may cluster stores over item sales to create logical groupings of stores based upon sales of particular products. This provides increased visibility to where products are selling, and it allows the retailer to make more accurate decisions in merchandising. Beyond this traditional use of clusters, Grade is flexible enough to cluster any business measure based on products, locations, time, promotions, customers, or any hierarchy configured in the solution. Key Grade functionality includes:

- Two methods of creating Grades/Clusters:
 - Breakpoints:** the sorting of data points into groups based on user-defined indexes
 - Clustering Algorithm:** the optimization of data points into clusters based on the user-defined number of clusters
- **'Group By' capabilities:** support the segmentation of clusters for more detailed and focused cluster generation
- **Clustering statistics:** provide insight into the relationship of members within a cluster and how all clusters relate to one another
- **Cluster What-if'ing:** allows user changes to members assigned to clusters and the review of recalculated clustering statistics

Regardless of the method employed to create clusters, Grade is designed to support the decision-making process necessary to create effective and actionable groupings of data. The following chapters describe the process to generate grades/clusters and analyze results. All of Grade's functionality exists in the following templates:

1. Breakpoints Administration workbook
2. Generate Breakpoint Grades wizard
3. Generate Clusters wizard
4. Cluster Review workbook
5. Delete Clusters wizard

Information on the functionality of the above templates is provided in the following sections.

Breakpoints Administration Workbook

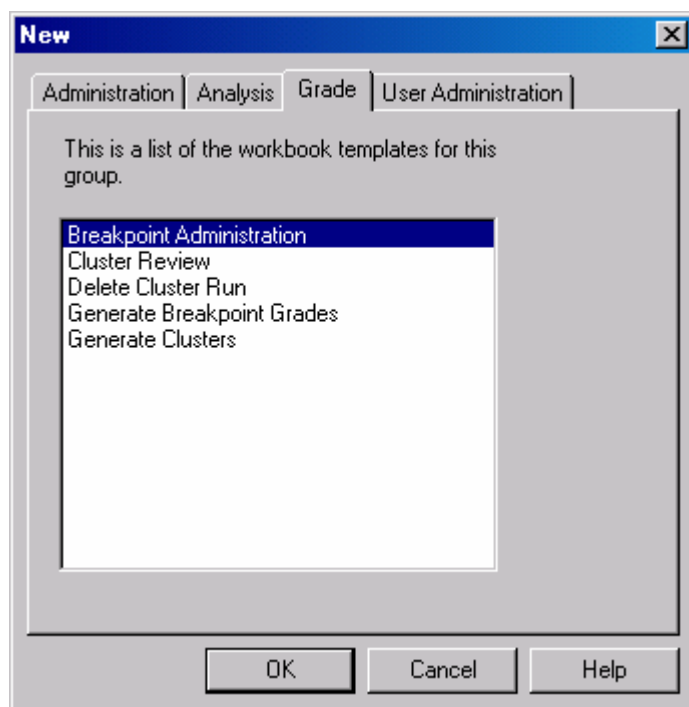
Overview

The Breakpoints Administration workbook is used with the breakpoints method of grading. In this workbook, the user sets the index to average for each breakpoint. This includes the ability to set multiple breakpoint configurations to allow for Grades to be produced and compared using different breakpoint settings.

Procedures

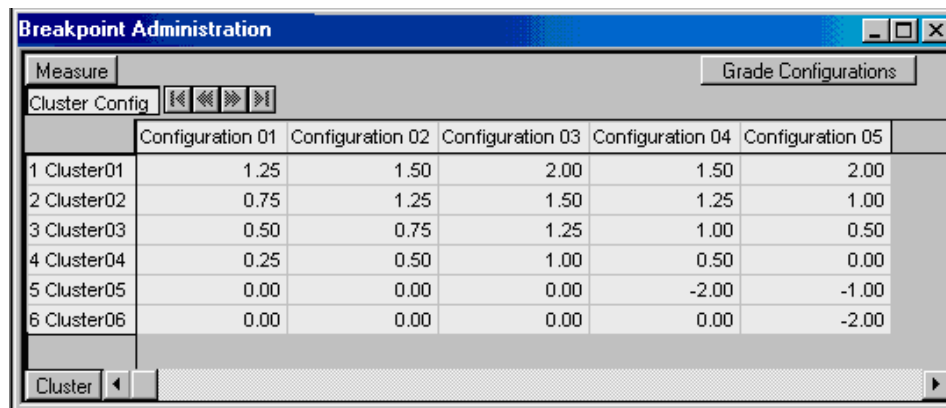
Create a Breakpoints Administration Template Workbook

1. In the Simple or Local Domain, select New from the File menu.
2. Select the Grade tab to display a list of workbook templates.
3. Select Breakpoints Administration.
4. Click **OK**.



Breakpoint Administration Worksheet Overview

If the breakpoints method is to be used to generate grades, you must go through the process of setting of the Index to Average for each grade's breakpoint range. The following is an example of the Breakpoint Administration worksheet:



The screenshot shows a software window titled "Breakpoint Administration". It contains a "Measure" tab and a "Grade Configurations" tab. Below these is a "Cluster Config" section with navigation buttons. The main area is a table with the following data:

	Configuration 01	Configuration 02	Configuration 03	Configuration 04	Configuration 05
1 Cluster01	1.25	1.50	2.00	1.50	2.00
2 Cluster02	0.75	1.25	1.50	1.25	1.00
3 Cluster03	0.50	0.75	1.25	1.00	0.50
4 Cluster04	0.25	0.50	1.00	0.50	0.00
5 Cluster05	0.00	0.00	0.00	-2.00	-1.00
6 Cluster06	0.00	0.00	0.00	0.00	-2.00

At the bottom, there is a "Cluster" label and a scroll bar.

Breakpoint Administration Worksheet

On the Breakpoint Administration worksheet, for a Configuration/Cluster intersection, set the Index to Average to be used by the Breakpoints algorithm for sorting data points into grades. The number of configurations available in this worksheet is based on the Maximum Number of Clusters configured in the Grade Plug-In. Only one configuration is required for use with the breakpoints method.

Breakpoints should be set from high Index to Average to low Index to Average starting with the first Cluster ordered in the list of available clusters.

Note: The Cluster Labels may vary based on the configuration.

In the above screenshot, the Index to Average is set as the following for Configuration 01:

- 1 Cluster01: 1.25
- 2 Cluster02: 0.75
- 3 Cluster03: 0.50
- 4 Cluster04: 0.25
- 5 Cluster05: 0.00

Using this example, the Breakpoints algorithm groups data based on the following:

- 1 Cluster01: Sort all data with an Index to Average at or above 1.25 into 1 Cluster01.
- 2 Cluster02: Sort all data with an Index to Average from 0.75 to 1.24 into 2 Cluster02.
- 3 Cluster03: Sort all data with an Index to Average from 0.50 to 0.74 into 3 Cluster03.
- 4 Cluster04: Sort all data with an Index to Average from 0.25 to 0.49 into 4 Cluster04.
- 5 Cluster05: Sort all data with an Index to Average from 0.00 to 0.24 into 5 Cluster05.
- 6 Cluster06: No data points will be assigned to 6 Cluster06.
- Junk Cluster: Using the above example, all data points with an Index to Average that is less than 0.00 will be sorted into the 'Junk Cluster'.
- No Cluster: Any data points with null values in history (no loaded history) will not be graded. See the 'Cluster Review Workbook' for more information on Cluster Membership results.

Generate Breakpoint Grades using the Breakpoints Method

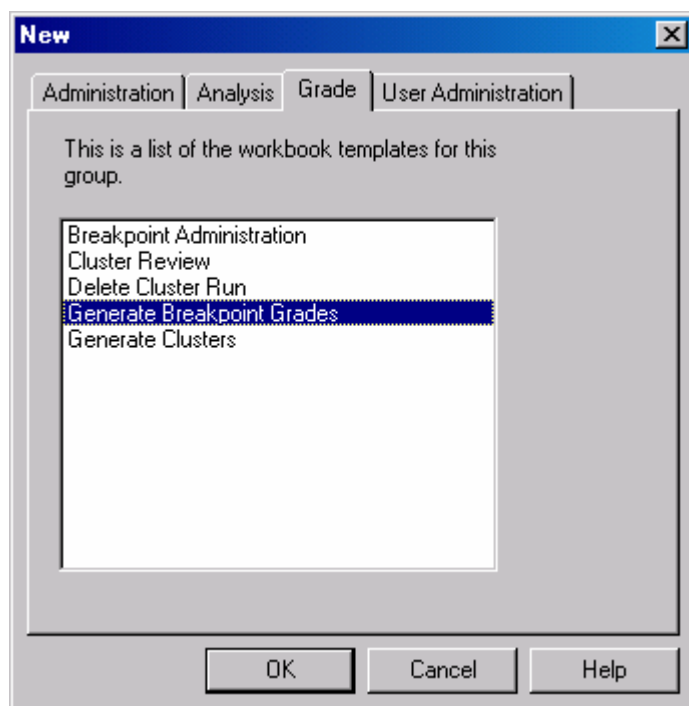
Overview

The Generate Breakpoint Grades wizard allows you to range the input data and hierarchies that will be used to produce grades based on the Breakpoints method.

Procedures

Open the Generate Breakpoint Grades Template Wizard

1. Within the Simple or Local Domain, select New from the File menu.
2. Select the Grade tab to display a list of workbook templates.
3. Select Generate Breakpoints Grades.
4. Click **OK**.



Generate Breakpoint Grades Wizard

The following steps outline the wizard process required to use the Generate Breakpoint Grades wizard:

1. **Select Source Measure for Cluster Analysis.**
This wizard screen is a single select pick-list that includes all source measures defined at the time of the domain install. See the Grade Configuration Guide for more information on the Grade configuration.
2. **Select Hierarchy and Dimension to Cluster On.**
The 'Cluster On' dimension is the hierarchy dimension that will be used in the grading process. All positions in this dimension are sorted into grades based on the Breakpoints Configuration that will be selected later in this wizard process. The hierarchy dimensions available in this view are ranged on the base intersection of the selected Source Measure.
3. **Optional: Select Hierarchy and Dimension to Group By.**
'By Group' is an optional setting that is used to partition data along a hierarchy dimension. This functionality allows for grades to be further segmented along multiple hierarchy dimensions. Grades are generated independently for each position within the selected dimensions. The dimensions displayed are equal to or higher than the 'Cluster On' dimension.
4. **Select Products.**
Select the merchandise positions from the two-tree hierarchy wizard that will be used in the grade generation process. The hierarchy dimensions available to be selected in this view are ranged on the base intersection of the selected Source Measure.
5. **Select Locations.**
Select the location positions from the two-tree hierarchy wizard that will be used in the grade generation process. The hierarchy dimensions available to be selected in this view are ranged on the base intersection of the selected Source Measure.
6. **Select Calendar.**
Select the calendar positions from the two-tree hierarchy wizard that will be used in the grade generation process. The hierarchy dimensions available to be selected in this view are ranged on the base intersection of the selected Source Measure.
7. **Select Configuration Name.**
Select the Breakpoint Configuration that will be used to produce the grades. These configurations must be set prior to generating grades using the Breakpoint Administration workbook.
8. **Set Grade Run Name.**
Assign a label that will be used to identify the clustering run.
9. **Select Next or Finish.**
If **Next** is selected, "Break Point Run Succeeded" is displayed once the grading process is completed. If **Finish** is selected this message will be skipped.

Generate Clusters Using the Clustering Method

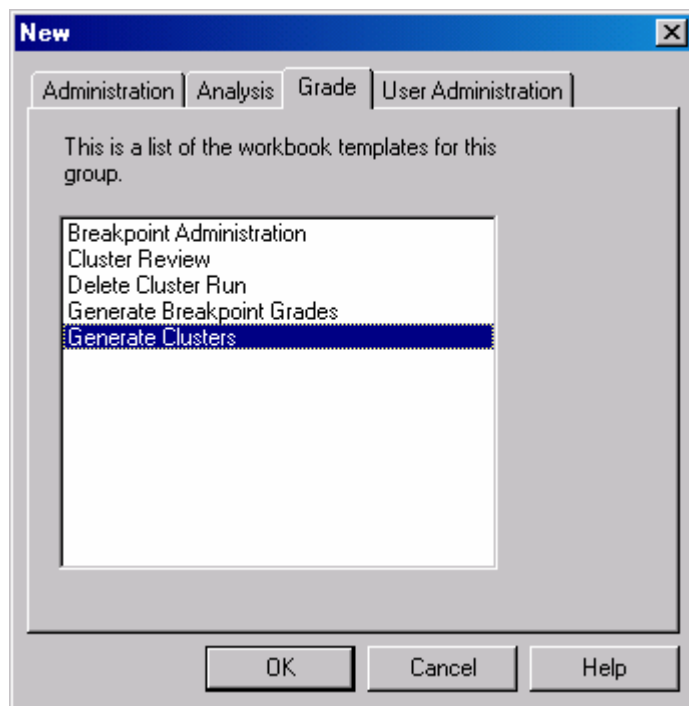
Overview

The Generate Clusters wizard allows you to range the input data and hierarchies that will be used to produce clusters based on the Clustering (BaNG) method.

Procedures

Open the Generate Clusters Template Wizard

1. Within the Simple or Local Domain, select New from the File menu.
2. Select the Grade tab to display a list of workbook templates.
3. Select Generate Clusters Template.
4. Click **OK**.



Generate Clusters Wizard

The following steps outline the wizard process required to use the Generate Clusters wizard:

1. **Select Source Measure for Cluster Analysis.**
This wizard screen is a single select pick-list that includes all source measures defined at the time of the domain install. See the Grade Configuration Guide for more information on the Grade configuration.
2. **Select Hierarchy and Dimension to Cluster On.**
The 'Cluster On' dimension is the hierarchy dimension that is used by the clustering algorithm. All positions in this dimension will be optimally assigned to a cluster. The hierarchy dimensions available to be selected in this view are ranged on the base intersection of the selected Source Measure.
3. **Select Hierarchy and Dimension to Cluster Over.**
The 'Cluster Over' dimension allows you to define the dimension in which data will be aggregated. The algorithm uses the positions in this dimension as the coordinates when clustering. The hierarchy dimensions available to be selected in this view are ranged on the base intersection of the selected Source Measure and the 'Cluster On' dimension. The dimension chosen should be at or above the base intersection of the selected Source Measure.
4. **Optional: Select Hierarchy and Dimension to Group By.**
'By Group' is an optional setting that is used to partition data along a hierarchy dimension. This functionality allows for clusters to be further segmented along multiple hierarchy dimensions. Clusters are generated independently for each position within the selected dimensions. The dimensions displayed are equal to or higher than the 'Cluster On' and 'Cluster Over' dimensions.
5. **Select Products.**
Select the merchandise positions from the two-tree hierarchy wizard that will be used by the clustering algorithm. The hierarchy dimensions available to be selected in this view are ranged on the base intersection of the selected Source Measure.
6. **Select Locations.**
Select the location positions from the two-tree hierarchy wizard that will be used by the clustering algorithm. The hierarchy dimensions available to be selected in this view are ranged on the base intersection of the selected Source Measure.
7. **Select Calendar.**
Select the calendar positions from the two-tree hierarchy wizard that will be used by the clustering algorithm. The hierarchy dimensions available to be selected in this view are ranged on the base intersection of the selected Source Measure.
8. **Set Name of Clusters.**
Assign a label that will be used to identify the clustering run.

9. Set Number of Clusters.

Define the number of clusters that are generated during the cluster generation process. If a 'Group By' dimension was selected, this is the number of clusters that will be generated for each data partition within the dimension. The number of clusters that may be generated is based on the maximum number of clusters configured in the Grade configuration. See the Grade Configuration Guide for more information on Grade solution configuration.

10. Select **Next** or **Finish**.

If **Next** is selected, "Cluster Run Succeeded" is displayed once the grading process is completed. If **Finish** is selected this message will be skipped.

Cluster and Breakpoint Grade Review

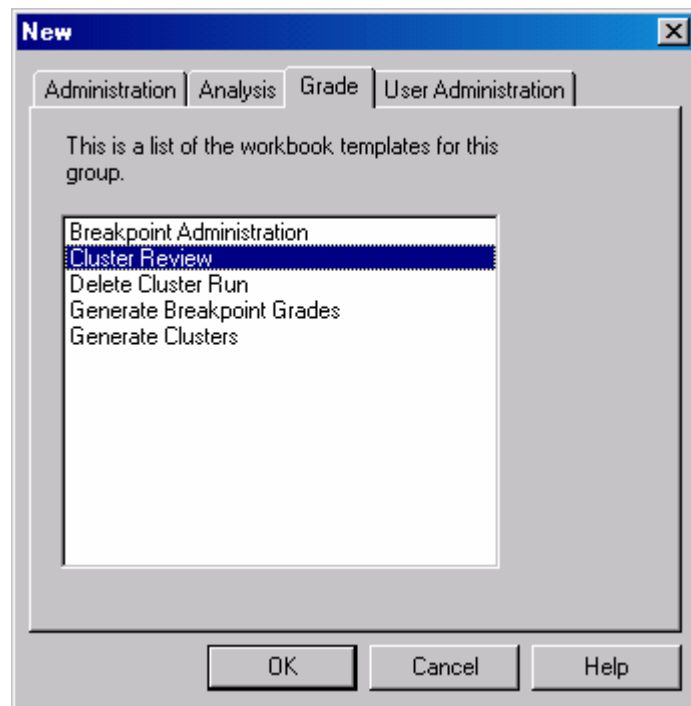
Overview

The Cluster Review workbook is a view of grade or cluster results and statistics. This workbook supports grade/cluster what-if'ing; the re-assignment of members to grades/clusters on the fly and the recalculation of clustering statistics. In addition, measures from different cluster runs may be inserted into the workbook to compare results.

Procedures

Open the Cluster Review Template Workbook

1. Within the Simple or Local Domain, select New from the File menu.
2. Select the Grade tab to display a list of workbook templates.
3. Select Cluster Review.
4. Click **OK**.



Cluster Review Wizard

The following steps outline the wizard process that is required to review grade and cluster results using the Cluster Review wizard:

1. Select Grade Birth to Review.
This wizard screen is a single select pick-list that includes the Cluster Run Name and date/time stamp (birth date) of all cluster runs stored in the domain.
2. Select additional measures to include in the workbook.
This wizard screen displays all measures in the domain with the 'Insertable' measure property set to 'true.' All measures generated as part of the clustering process for the birth date selected in the previous step are included in the base workbook template. These measures should not be selected in this wizard; however, measures associated with other cluster runs may be selected for comparison (for example, to compare results using Breakpoints vs. the Clustering method). To compare cluster results in this workbook, it is required that the cluster run(s) measures are generated with the same 'Cluster On' and 'Group By' dimensions.

Cluster Review Workbook

The Cluster Review Workbook contains the following workbook tabs and worksheets:

- Cluster Results workbook tab
 - [Cluster Membership worksheet](#)
 - [Cluster Statistics worksheet](#)
 - [Cluster Centroid Statistics worksheet](#)
 - [Source Data worksheet](#)
- Cluster Input Summary workbook tab
 - [Summary worksheet](#)

Cluster Results Tab

Cluster Membership Worksheet

	Cluster Membership	Squared Distance from Centroid
Barcelona	3 Cluster03	106.78
Berlin	1 Cluster01	91930.24
Boston	5 Cluster05	28706.04
Catalog Store	1 Cluster01	715377.64
Chicago	2 Cluster02	25.00
Dusseldorf	3 Cluster03	2.78
E-Osk	5 Cluster05	392591.76
E-Store	5 Cluster05	24469.90
Lille	3 Cluster03	1.78
London-Kensington	3 Cluster03	75.11
London-Oxford Street	1 Cluster01	101251.24
Madrid	4 Cluster04	0.00
Minneapolis	5 Cluster05	47337.33
Montreal	5 Cluster05	29731.61
New York City	1 Cluster01	5155.24
Paris	1 Cluster01	87734.44

Field	Description
Cluster Membership	<p>Displays the positions that are assigned to a cluster/grade.</p> <p>Positions may be reassigned to another cluster and the cluster statistics will recalculate based on these user changes.</p> <p>If changes are made to Cluster Membership, the data must be committed for changes to be stored.</p>
Squared Distance from Centroid	<p>Displays the squared Euclidean distance from the centroid of the cluster to the centroid of the closest cluster index.</p>

Cluster Statistics Worksheet

Cluster Statistics					
Product					Measure
141 Short Sleeve					
	Closest Cluster	Cluster Cohesion	Cluster Portion	Squared Closest Cluster Distance	
1 Cluster01	4	200289.76	0.24	518688.04	
2 Cluster02	3	25.00	0.10	145415.11	
3 Cluster03	4	31.56	0.29	140375.11	
4 Cluster04	3	0.00	0.05	140375.11	
5 Cluster05	2	83295.10	0.33	336897.33	
Cluster					

Field	Description
Closest Cluster	The nearest cluster index. Valid only for clusters generated using the Clustering (BaNG) method.
Cluster Cohesion	Measures how “tight” a cluster is. It is the average of the squared Euclidean distance of each point in the cluster to the centroid. Valid only for clusters generated using the Clustering (BaNG) method.
Cluster Portion	The ratio of points in a cluster versus all clusters. Valid only for clusters generated using the Clustering (BaNG) method.
Squared Closest Cluster Distance	The squared Euclidean distance from a point in a cluster to its centroid. Valid only for clusters generated using the Clustering (BaNG) method.

Cluster Centroid Statistics Worksheet

Cluster Centroid Statistics					
Product	Cluster				
141 Short Sleeve					
	1 Cluster01	2 Cluster02	3 Cluster03	4 Cluster04	5 Cluster05
Cluster Centroid GenId (04/11/2005 17:25)	3064.20	1588.00	1969.33	2344.00	1007.57
Cluster Centroid to Average Ratio GenId (04)	1.62	0.84	1.04	1.24	0.53
Measure					

Field	Description
Cluster Centroid	The average of all points that have been clustered.
Cluster Centroid to Average Ratio	The ratio of the centroid to the average of all points. Valid only for clusters generated using the Clustering (BaNG) method.

Source Data Worksheet

Source Data								
Product	Measure	Calendar						
10000010Leather Loafer - Black 6 B	Clustering Data Source GenId (I							
		12/30/2000	12/31/2000	1/1/2001	1/2/2001	1/3/2001	1/4/2001	1/5/2001
Barcelona		0.60	0.00	0.30	0.60	0.90	0.30	0.30
Berlin		1.00	0.00	0.50	1.00	1.50	0.50	0.50
Boston		0.40	0.00	0.20	0.40	0.60	0.20	0.20
Catalog Store		1.20	0.00	0.60	1.20	1.80	0.60	0.60
Chicago		0.60	0.00	0.30	0.60	0.90	0.30	0.30
Dusseldorf		0.60	0.00	0.30	0.60	0.90	0.30	0.30
E-Osk		0.00	0.00	0.00	0.00	0.00	0.00	0.00
E-Store		0.40	0.00	0.20	0.40	0.60	0.20	0.20
Lille		0.60	0.00	0.30	0.60	0.90	0.30	0.30
London-Kensington		0.80	0.00	0.40	0.80	1.20	0.40	0.40
Location								

Field	Description
Clustering Data Source	The data used to generate the clusters/grades.

Cluster Input Summary Workbook Tab

Overview

The Cluster Input Summary workbook tab is a view to the settings used to generate the grades/clusters being reviewed in the workbook.

Summary Worksheet

The screenshot shows a 'Summary' dialog box with the following settings:

Cluster By Group Intersection	SCLS
Cluster Method	BANG
Cluster Run Name	Store Grades by Subclass
Dimension to Cluster	STR
Dimension to Cluster Over	SCLS
Measure to Cluster	DPOS
Number Of Clusters	5

At the bottom, there is a 'Measure' button and a scroll bar.

Field	Description
Cluster By Group Intersection	Displays 'Group By' dimension(s) if selected during the cluster generation process.
Cluster Method	Displays the method used to generate the grades/clusters. 'BreakPoint' or 'BaNG' are valid methods.
Cluster Run Name	Displays the name assigned by the user to the cluster run at the time the clusters were generated.
Dimension to Cluster	Displays the 'Cluster On' dimension selected by the user during the cluster generation process.
Dimension to Cluster Over	Displays the 'Cluster Over' dimension selected by the user during the cluster generation process. A value will only be displayed in this field if the BaNG method was used.
Measure to Cluster	Displays the measure selected as the clustering Data Source during the cluster generation process.
Number of Clusters	Displays the number of clusters used during the cluster generation process.

Delete Clusters

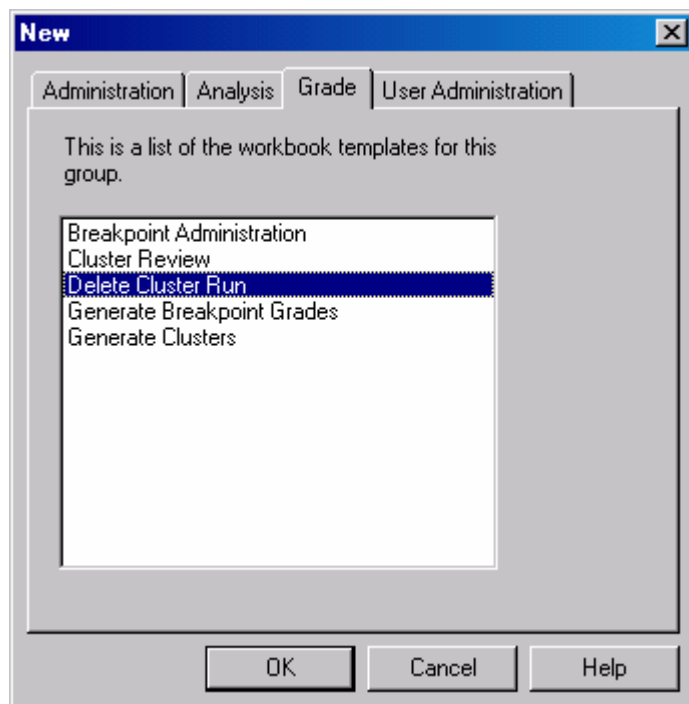
Overview

The Delete Cluster Run wizard allows you to delete clusters from the system based on Cluster Run Label and generation date (birth date).

Procedures

Open the Delete Cluster Run Template Wizard

1. Within the Simple or Local Domain, select New from the File menu.
2. Select the Grade tab to display a list of workbook templates.
3. Select Delete Cluster Run.
4. Click **OK**.



Delete Cluster Run Wizard

The following steps outline the wizard process required to use the Delete Cluster Run wizard:

1. Select Cluster Run to Delete.
This wizard screen is a single select pick-list that includes the Cluster Run Label and the date/time stamp (birth date) for all cluster runs currently stored in the system. Select the Cluster Run Label to be deleted.
2. Select **Next** or **Finish**.
If **Next** is selected, “Delete Cluster Run Succeeded” is displayed once the cluster deletion process is completed.