



&



(Chart Enhancement Macros for Crystal Reports)

MAY, 2010

Copyright:

Copyright 2010 by Three |D| Graphics. All rights reserved. This document may not be reproduced or disclosed in whole or in part by any means without the written consent of Three |D| Graphics.

Three |D| Graphics

11340 West Olympic Blvd., #352, Los Angeles, CA. 90064

Telephone: 1.310.231.3330

Fax: 1.310.231.3303

Email: crchart@threedgraphics.com

Web: <http://www.threedgraphics.com>

MAY, 2010

◆ Table of Contents ◆

Section 1: About CRChart	1-1
System Requirements	1-1
Setup Instructions	1-2
Deploying Your CRChart Solution	1-2
Using CRChart with .NET on a Server	1-2
General Usage Notes	1-3
Reading Macros from the Registry	1-6
Order of Evaluation	1-6
Persistence	1-7
Compatibility with Existing Chart Library	1-8
Using Macros in Visual Basic	1-8
Error Reporting	1-8
Sample Reports	1-9
Using Crystal Reports Fields/Functions in Macros	1-10
Numeric Parameters	1-10
String Parameters	1-12
Getting Help	1-13
CRChart Viewer (CRViewer)	1-13
CRChart Enterprise ONLY Macros	1-16
Section 2: Auto Arrange Macros	2-1
@AA (Auto Arrange)	2-2
@AA2 (Auto Arrange with Frame Adjustment)	2-3
@AA3 (Auto Arrange with Frame & Legend Adjustment)	2-4
@AA4 (Auto Arrange with Maximized Frame Adjustment)	2-5
Section 3: Axis & Grid Lines Macros	3-1
@AREA_GRID (Grid Lines above Area)	3-2
@AXIS (Assign Series to Axis)	3-3
@DX (X-Axis Divisions)	3-4
@DY (Y-Axis Divisions)	3-5
@DY2 (Y2-Axis Divisions)	3-6
@EXTEND_LOGAXIS (Extend Log Axis)	3-7
@FORCE_Y2 (Assign Series to Axis based on Series Label)	3-8
@GRIDLINES_ON_TOP (Grid Lines Front/Behind Risers)	3-9
@GX (X-Axis Grid Style)	3-10
@GY (Y-Axis Grid Style)	3-11
@NAP (Numeric Auto Precision)	3-12
@OFFSCALE_Y1 (Y1-Axis Off-Scale Values)	3-13
@PX (X-Axis Precision)	3-15
@PY (Y1-Axis Precision)	3-16
@PY2 (Y2-Axis Precision)	3-17
@SC (Y-Axis Scale)	3-18
@SCALE_INTERVAL (Scale Interval on Y1, Y2, or X-Axis)	3-19
@SCX (X-Axis Scale)	3-20
@SCY_AUTOLOG (Improve Log Axis Automatic Scale)	3-21
@SCY2 (Y2-Axis Scale)	3-22
@TIMEAXIS (Time Axis)	3-23
@X_AXIS_MODE (X-Axis Mode)	3-24
@X_AXIS_MODE2 (@X_AXIS_MODE with Start Month/Year & Duration) ..	3-25
@X1_TIE (Tie X-Axis Gridlines to Values)	3-26
@Y_ZERO (Include/Exclude Zero in Y1-Auto-Scale)	3-28
@Y1_FORCE_PERCENT (Y1-Axis Percent Format)	3-29
@Y1_FORCE_PERCENT2 (Y1-Axis Percent/Numeric Format)	3-30

Chart Enhancement Macros for Crystal Reports

@Y1_INVERT (Y1-Axis Invert).....	3-31
@Y1BASE (Y1-Axis Base Line).....	3-32
@Y2_FORCE_PERCENT (Y2-Axis Percent Format).....	3-33
@Y2_INVERT (Y2-Axis Invert).....	3-34
@Y2BASE (Y2-Axis Base Line).....	3-35
@Y2SLAVE (Y2-Axis Slave to Y1).....	3-36
@Y2SLAVE2 (Y1/Y2 Slave to Max Value)	3-37
@ZEROLINE (Draw Zero Line with Axis Labels).....	3-38
Section 4: Series & Groups.....	4-1
@CALC_PERCENT_SERIES (Calculate Percent Series)	4-2
@FORCE_ABSOLUTE (Force Series Absolute)	4-3
@FORCE_SERIES_COUNT (Force Series Count)	4-4
@IG (Ignore Group)	4-5
@IS (Ignore Series)	4-6
@LIMIT_VISIBLE_GROUPS (Limit Visible Groups)	4-7
@MIN_GROUPS (Control Bar Size).....	4-8
@PERCENT_SERIES (Create Ratio Series).....	4-9
@RG (Reverse Group)	4-10
@RS (Reverse Series).....	4-11
@SINGLE_GROUP (Single Group in Scatter Chart)	4-12
@SORT (Sort Series/Groups)	4-13
@STEP_LINE (Series Stepped Line)	4-20
@STEP_LINE2 (Series Stepped Line at Values)	4-21
@STOP (Force Assign Elements to Series One).....	4-22
@SWAP (Swap Series/Groups).....	4-23
@TOTAL_GROUP (Create a Total Group).....	4-24
Section 5: Labels.....	5-1
@3DLABEL (Adjust Labels in a 3D Chart).....	5-2
@AGL (Alias Group Label)	5-3
@APPEND_DATATEXT (Append String to Data Text).....	5-4
@ASL (Alias Series Label).....	5-5
@ASL_DP (Alias Series Label/Data Point)	5-6
@DATATEXT (Data Text Mode).....	5-7
@DT (Show/Hide Series-Specific Data Text).....	5-9
@DT_CENTERED (Data Text special formatting in Stacked Charts)	5-10
@DT_SERIES (Data Text Series-Dependent Font)	5-11
@DTP (Data Text Position)	5-12
@FORCE_DATATEXT_CURRENCY (Force Data Text to Currency Format)....	5-14
@GROUP_LABELS_ON_BASELINE (Group Labels on Baseline).....	5-15
@NEG_SS (Series-Specific @NEG_STYLE)	5-16
@NEG_STYLE (Negative Value Style)	5-17
@PDT (Precision Data Text).....	5-18
@RDT (Rotate Data Text).....	5-19
@XSKIP (X-Axis Skip Labels)	5-21
@XSKIP2 (X-Axis Skip/Force Last Label)	5-22
@XSKIP3 (Max X-Axis Labels/Auto Adjust Skip)	5-23
Section 6: Riser & Markers.....	6-1
@3DLINES (Draw Risers as Ribbons on 2.5D Line Charts)	6-2
@ABS_BAR (Absolute Bars for Negative Values)	6-3
@BUBBLEMODE (Bubble Draw Mode)	6-4
@COND_GROUP_LABEL (Color Riser by Group Label)	6-6
@COND_GROUP_LABEL2 (Color Riser by Group Label Prefix)	6-7
@DLT (Markers Only, Lines Only, Marker & Lines).....	6-8

@FORCE_DATA LINE (Force Data Line)	6-9
@FORCE_FULL_BARS (Force Full Bars)	6-10
@HIDE_ZERO (Hide Zero Riser/Marker)	6-12
@HL (Highlight Riser/Marker)	6-13
@LINE_BREAK (Control Null Data Behavior)	6-14
@LS (Line Style)	6-15
@MARKER (Marker Shapes)	6-16
@MCOLOR (Marker/Riser Colors)	6-18
@PAT (Riser/Marker Pattern)	6-19
@RISER_BORDER (Riser Border)	6-21
@RISER_OVERLAP (Riser Overlap)	6-22
@RISER_WIDTH (Riser Width)	6-23
@SMOOTH_LINE (Smooth/Straight Lines)	6-24
@SZ (Size of Markers)	6-25
@Y_HEADROOM (Riser Headroom)	6-26
Section 7: Data Manipulation Macros	7-1
@DATASET_MERGE (Reorganize Dataset)	7-2
@DP (Data Point Override)	7-4
@DPC (Data Point Clear)	7-5
@FORECAST (Add Blank Groups)	7-6
@GM (Group Major)	7-7
@IR (Insert Row)	7-8
@STRIP_ZERO (Strip Zero Values)	7-9
@USER_SERIES (User-Defined Series)	7-10
Section 8: Color & Special Effects	8-1
@ALPHA (Alpha Channel Transparency)	8-2
@AUTO_COLOR (Automatic Color Mode)	8-3
@BEVEL (Bevel Chart Object)	8-4
@COLOR_FILE (Load a Color Scheme File)	8-6
@COLOR_MODE (Color Mode)	8-7
@COLOR_SCHEME (Activate a Color Scheme)	8-8
@COND_COLOR & @COND_COLOR2 (Conditional Colors)	8-9
@CURVED_LINES (Enable Curved Lines)	8-11
@DEFINE_SCHEME (Define Color Scheme)	8-12
@GCOLOR (Color Chart Object)	8-13
@HQ (Enable High-Quality Rendering)	8-14
@SHADOW (Drop Shadow)	8-15
Section 9: Trend Lines	9-1
@MEAN (Mean Line)	9-2
@MOVA (Moving Average Line)	9-3
@TRENDLINE (Trend Line)	9-4
@TRENDLINE_ALLDATA (Linear Regression Line)	9-5
@TRENDLINE2 (Trend Line with Width & Style)	9-6
Section 10: User-Defined Areas & Lines	10-1
@CX (X-Axis Line with Color)	10-2
@CXY (X/Y Coordinates Line with Color)	10-3
@CY (Y1-Axis Line with Color)	10-4
@CY2 (Y1-Axis Line with Color, Width & Style)	10-5
@INIT_USERLINES (Initialize User-Defined Lines)	10-7
@USER_CIRCLE (Outlined Circle)	10-8
@USER_CIRCLE_ABOVE (Outlined Circle above Chart Area)	10-10
@UF/@USER_FILL (Color-Filled Rectangle)	10-12

@USER_FILL2 (Pattern-Filled Rectangle)	10-13
@USER_FILL_CIRCLE (Color-Filled Circle)	10-15
@USER_FILL_CIRCLE_ABOVE (Color-Filled Circle above Chart Area)	10-16
@USER_FILL_CIRCLE2 (Pattern-Filled Circle)	10-17
@USER_FILL_CIRCLE2_ABOVE (Pattern-Filled Circle above Chart Area)	10-19
@USER_MARKER (User-Defined Marker)	10-21
@USER_MARKER2 (User-Defined Marker with Value)	10-22
@USER_RECT (Outlined Rectangle)	10-23
@UW (User-Defined Vertical Band)	10-25
@WC (Color @UW Vertical Band)	10-26
@X (X-Axis Line at Value)	10-27
@XG (X-Axis Line at Group)	10-28
@XSZ (X-Axis Line with Label)	10-29
@XSZL (X-Axis Line with Label on Left/Lower)	10-30
@XSZN (X-Axis Line with Label & Value)	10-31
@XSZNL (X-Axis Line with Label & Value on Left/Lower)	10-32
@XY (X/Y Coordinates Line)	10-33
@XY_DP2 (Data Point Line)	10-34
@Y (Y1-Axis Line)	10-35
@YSZ (Y1-Axis Line with Label)	10-36
@YSZL (Y1-Axis Line with Label on Left)	10-37
@YSZN (Y1-Axis Line with Label & Value)	10-38
@YSZN2 (@YSZN with Label & Value Above Line)	10-39
@YSZNL (Y1-Axis Line with Label & Value on Left)	10-40
Section 11: Chart Type Macros	11-1
@3DSCAT (3D Scatter Chart)	11-2
@AUDIO (Audiogram)	11-3
@COMBO (Combo Bar/Line/Area Chart)	11-4
@COMPARE2 (2-Series Absolute Bar Chart)	11-5
@CONNECT2 (Special Draw Mode for Scatter/Bubble Charts)	11-6
@GRAPHTYPE (Graph Type)	11-7
@MEKKO (Marimekko Chart)	11-10
@PARETO (Pareto Chart)	11-11
@POLAR (Polar Chart)	11-12
@POLAR_SPIKE (Polar Spike Chart)	11-13
@PVA (Plan vs. Actual Chart)	11-14
@RIVER (Floating Area Series)	11-15
Section 12: Box Plot Macros	12-1
@BP/BP1 (Box Plot with Square Tail)	12-2
@BP2 (Box Plot with T-Style Tail)	12-3
@BP3 (Box Plot with I-Style Tail)	12-4
@BPH (Box Plot Orientation (Horizontal/Vertical))	12-5
@BPW (Box Plot Width)	12-6
@IN (Move First Box Plot In)	12-7
@MC (Marker Colors for Box Plots)	12-8
@MK (Number of Markers)	12-9
@MS (Marker Shapes for Box Plots)	12-10
Section 13: Gantt Chart Macros	13-1
@ACTUAL_DAY (Actual Day Line)	13-2
@ACTUAL_MONTH (Actual Month Band)	13-3
@GANTT (Gantt Chart)	13-4
@GANTT2(Enhanced Gantt Chart)	13-5
@GANTT_COLORS (Gantt Riser/Marker Colors)	13-6

@HOUR_SCALE (Minor Axis Hour Scale)	13-7
@SCH (@HOUR_SCALE Min/Max)	13-8
Section 14: Gauge Macros	14-1
@GAUGE_BORDER_STYLE (Gauge Border Style)	14-2
@GAUGE_BORDER_THICKNESS (Gauge Border Thickness)	14-3
@GAUGE_COLOR (Color Gauge Bands)	14-4
@GAUGE_MULTIPLE_NEEDLES (Multiple Needles)	14-5
@GAUGE_NEEDLE_STYLE (Gauge Needle Style)	14-6
@GAUGE_STYLE (Gauge Style)	14-8
@GAUGE_THRESHOLD (Gauge Band Threshold)	14-9
Section 15: Pie Chart Macros	15-1
@DATATEXT_PIE (Data Text Mode for Pie Charts)	15-2
@PIE_NEG (Negative Values in Pie Legend)	15-3
@PIE_ROTATE (Pie Rotation Start Point)	15-4
@SMART_PIE_LABELS (Enhanced Pie Label Layout Engine)	15-5
@SMART_PIE_SETTINGS (Customize Smart Pie Labels)	15-6
Section 16: Macros for Waterfall Charts	16-1
@WATERFALL (Waterfall Chart)	16-2
@WATERFALL2 (Waterfall Chart with Total Group)	16-3
@WATERFALL4 (Waterfall Chart with Color Parameters)	16-4
@WF_CENTERTEXT (Center Waterfall Data Text)	16-5
@WF_CONNECT (Waterfall Feeler Lines)	16-6
Section 17: Miscellaneous	17-1
@EB (Error Bars)	17-2
@EB3 (Error Bar with Medium Band)	17-3
@FAH (Free All Highlights)	17-4
@FONTANGLE (Font Angle)	17-5
@FONTNAME (Font Name)	17-6
@FONTSIZE (Font Size)	17-7
@FRAME (Frame Size/Location)	17-8
@HAT (Hat on Error Bars)	17-9
@LEGEND (Legend Size/Location)	17-10
@LEGEND_ORDER (Force Legend Order)	17-11
@LEGEND_WRAP_WIDTH (Legend Wrap Width)	17-12
@ORD_SPACE (Extend Line/Area Charts to Frame Edge)	17-13
Section 18: Troubleshooting Macros & Notes	18-1
@DEBUG (Show Debug Information)	18-2
@G1 (Force Parameter Substitution Lookups to use Group 1 instead of Group 0)	18-3
@PARAM_COUNT_FIXUP (Debug Macro)	18-4
@PARAM_FIXUP (Parameter Fix-Up)	18-5
@RESET (Reset Internal Data Range)	18-6
Crystal Reports PDF Export Limitation	18-7
Appendix A: Alphabetical Index	A-1



Section 1: About CRChart

CRChart is a replacement charting library for Crystal Reports and Business Object XI. It adds significant new charting capabilities for Crystal Reports designers and developers. This “replacement library” is 100% compatible with Crystal Reports and Business Object XI products. It simply expands your charting capabilities with additional features:

- Gantt Charts
- Box Plots
- 3D Scatter Charts
- User programmable lines on any axis (or free floating)
- User programmable markers at any point on the chart
- Standard Error Bars & Error Bars with a Median Band
- Pivot functions (Swap series/group, data reversal, etc...)
- Conditional Coloring and Formatting
- Runtime editing functions for most chart properties
- Drop Shadow and Alpha Channel transparency effects
- Ability to use any Crystal Reports field or function as an input parameter to CRChart macros

CRChart is available in two configurations: Developers Edition and CRChart Enterprise. The Enterprise edition includes the following additional features.

- High-Quality Rendering
- Enhanced Gauge Functionality
- Enhanced Pie Label Layout Engine
- Enhanced Gantt Charts

These charting features are accessed through a set of special macro commands that are added to your custom chart module.

System Requirements

In order to use these macros, your system must be equipped with:

- Microsoft Windows XP, NT, 2000, Vista, or Windows 7
- One of the following Crystal Reports:
 - Crystal Reports 2008 (Crystal Reports 12.0)
 - Business Object XI Release 2 (Crystal Reports 11.5)
 - Business Object XI Release 1 (Crystal Reports 11)
 - Crystal Reports 10
 - Crystal Reports 9
 - Crystal Reports 8.5

NOTES:

- Crystal Reports 11, 11.5 and 2008 (i.e., 12.0) have been updated to the January 2008 HotFix/ServicePak level

- Crystal Reports 10 is frozen at the CRChart Release 3.52 level. In this release of CRChart, only the new X_DATE_FORMAT and X_ROTATE macros will work with Crystal Reports 10. All other new macros in this and any subsequent versions of CRChart will not work with Crystal Reports 10.
- Crystal Reports 9 is frozen at the CRChart Release 3.12 level. All new macros in this and any subsequent versions of CRChart will not work with Crystal Reports 9.
- Crystal Reports 8.5 is only supported for maintenance and bug fixes. All new macros in this and any subsequent versions of CRChart will not work with Crystal Reports 8.5.
- The description of each macro identifies the Crystal Reports version that is needed for individual macros.
- Limited versions of Crystal Reports are included in some versions of Microsoft Visual Basic 6 and Visual Studio.NET. These stripped down versions are not compatible with CRChart. You must have a real copy of Crystal Reports, such as Crystal Reports Standard, Developer, or Enterprise Edition.

Setup Instructions

- 1) Make a backup copy of your existing SSCSDK.DLL.
- 2) Depending on the version of Crystal Reports you are using, copy the CRChart SSCSDK.DLL file to one of the following locations:

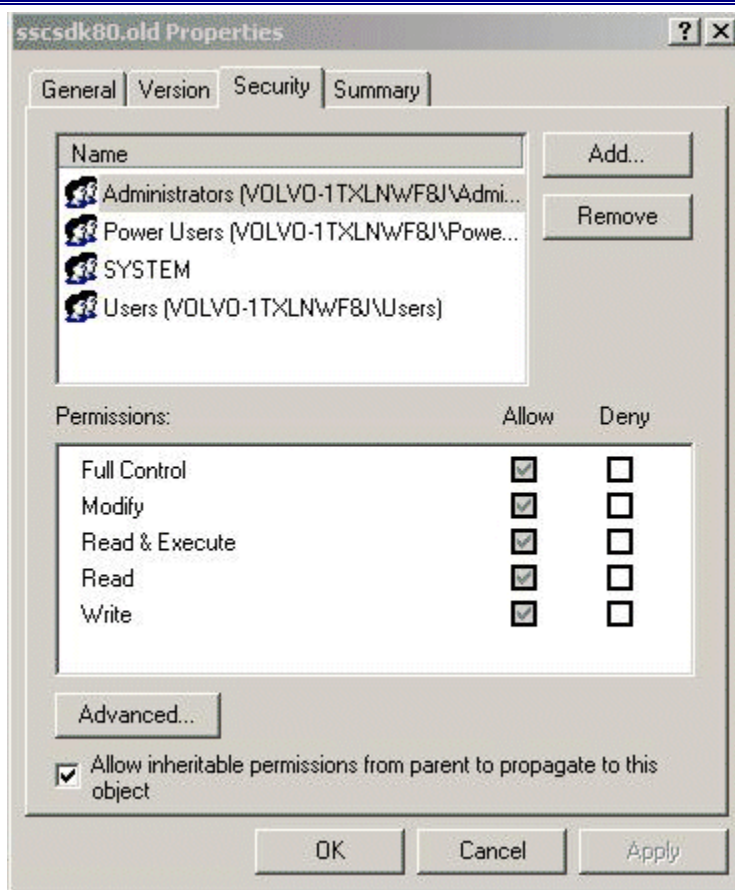
Version	Path
12.0 (Crystal Reports 2008)	C:\Program Files\Business Objects\Business Objects Enterprise 12.0\win32_x86
11.5 (Business Object XI, Release 2)	C:\Program Files\Business Objects\Common\3.5\bin
11 (Business Object XI, Release 1)	C:\Program Files\Common Files\Business Objects\3.0\bin
10.x	C:\Program Files\Common Files\Crystal Decisions\2.5\bin
9.x	C:\Program Files\Common Files\Crystal Decisions\2.0\bin
8.x	C:\Program Files\Seagate Software\Shared

Deploying Your CRChart Solution

For developers who are preparing applications for distribution that use CRChart macros, the charting library (SSCSDK.DLL) file must be shipped with your application.

Using CRChart with .NET on a Server

If CRChart is installed with Crystal Reports 11.x (or higher) and .NET running on a server, you must set the security properties of SSCSDK.DLL.

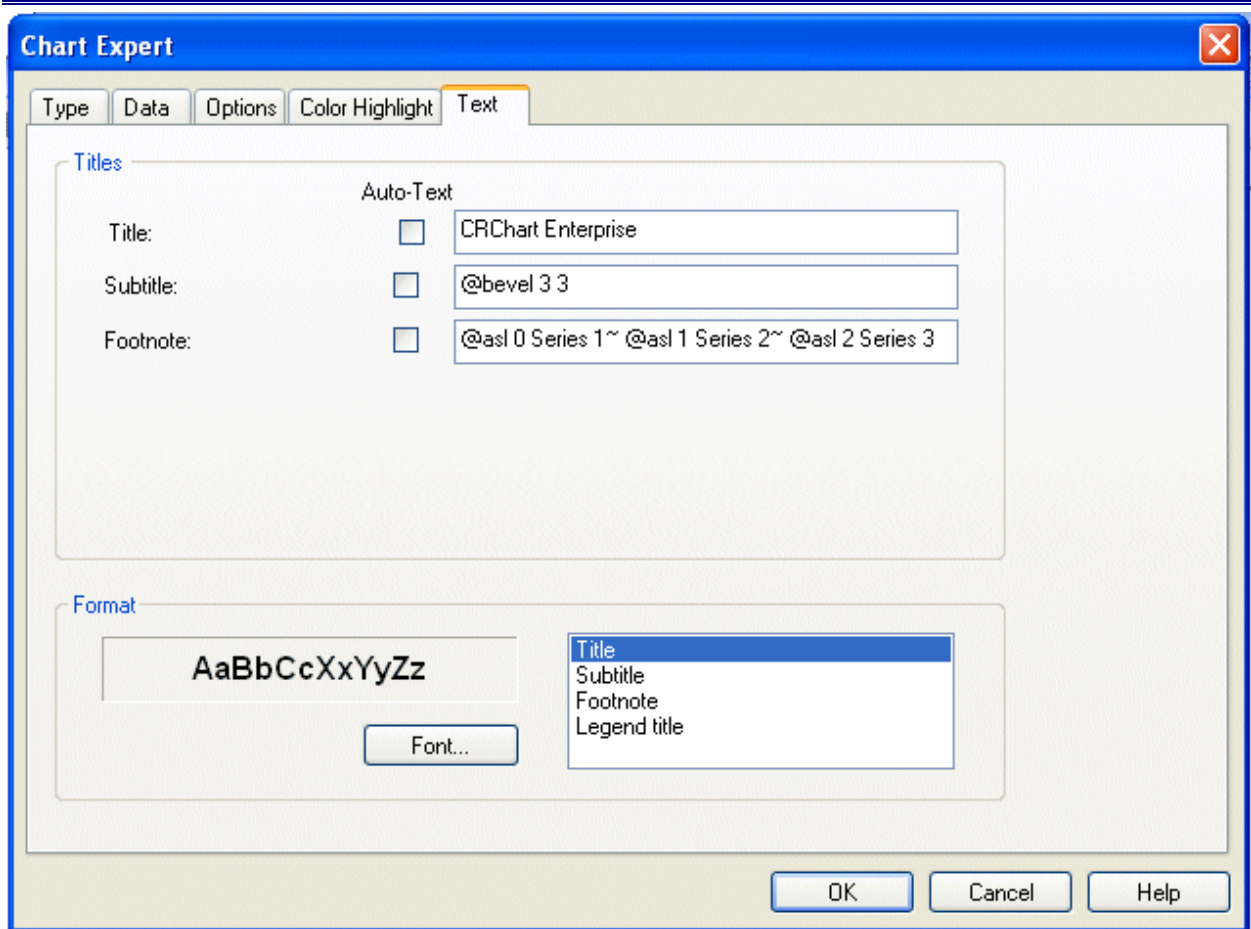


- Check the “Allow inheritable permission from parent to propagate to this object” checkbox.
- Click the OK button
- Restart the .NET server.

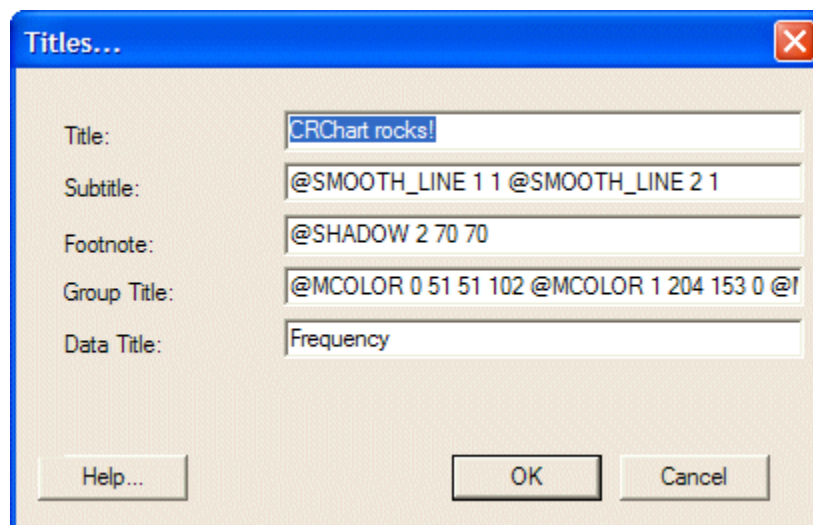
General Usage Notes

CRChart macros can be inserted in any chart title field (i.e., title, subtitle, footnote, etc.) field in a Crystal Reports chart. Chart titles are defined in the Chart Expert dialog or Chart Options or Titles dialog in some Crystal Reports versions.

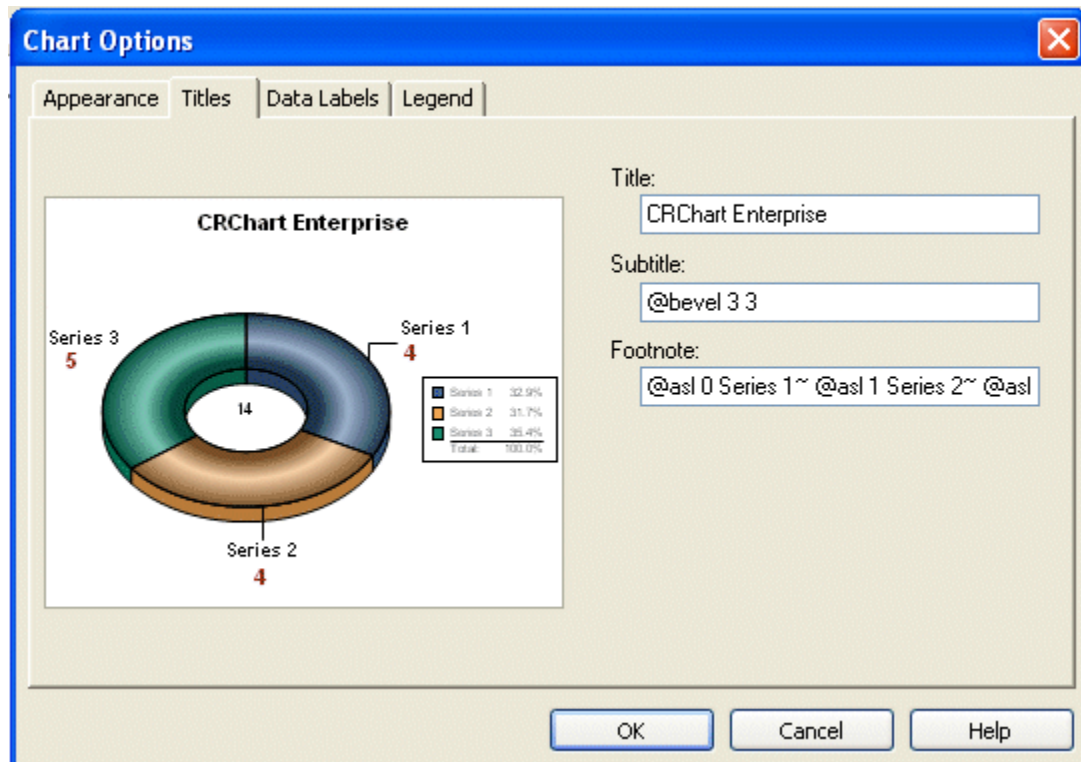
- Right-click on the chart background and choose Chart Expert to show the Chart Expert dialog. Click the Text tab to show chart title fields.



- For Crystal Reports Version 10 and lower, right click on the chart background and choose Chart Options to show the Chart Options menu. Choose Titles from the Chart Options menu to show the Titles dialog.



- For Crystal Reports Version 11 and higher, right click on the chart background and choose Chart Options to show the Chart Options dialog. Click the Titles tab to show chart title fields.



Even though macros are defined in the chart title fields, they will not appear as text in your chart. If you need to use a particular title field to define a chart title and to enter a macro, append a tilde (~) character and a space to the title and add the macro after the space. The space after the tilde is important. If it is not included, the macro will be ignored. **EXAMPLE:**

TitleText~ @3DSCAT

CRChart macros are not case-sensitive. All macros begin with an at-sign (@). There should be no space between the at-sign and the macro (i.e., @SWAP, not @ SWAP). Most macros include one or more parameters that further define the action of the macro. There must be one space after the macro and before the first parameter and a space between each subsequent parameter. **EXAMPLE:**

@USER_SERIES 2 3.6 3.8 MyNewSeries

Multiple macros may be defined in a single title field. When multiple macros are used, separate each macro with a space. **EXAMPLE:**

@BP2 @MK 8

If the macro includes a string and multiple macros are defined in the same title field, a tilde (~) character must be appended to the end of the string parameter to indicate the end of the first macro and beginning of the next. **EXAMPLE:**

@AGL 2 Alias Label~ @BP2

For macros that can be applied to a particular series in a chart, the *nSeries* parameter defines the series to which the macro is applied. In most cases, the *nSeries* parameter can be assigned a value in the range: minus one (-1)...*n* (where: *n* is the total number of series in the chart). For these macros, minus one is a special value that will apply the macro to all series in the chart. A value of zero (0) selects series 1.

Reading Macros from the Registry

CRChart can read macros directly from the registry.

For Crystal Reports 11, CRChart will look for a CRChart key at:

```
HKEY_LOCAL_MACHINE\SOFTWARE\Business Objects\Suite11.0\Crystal Reports
```

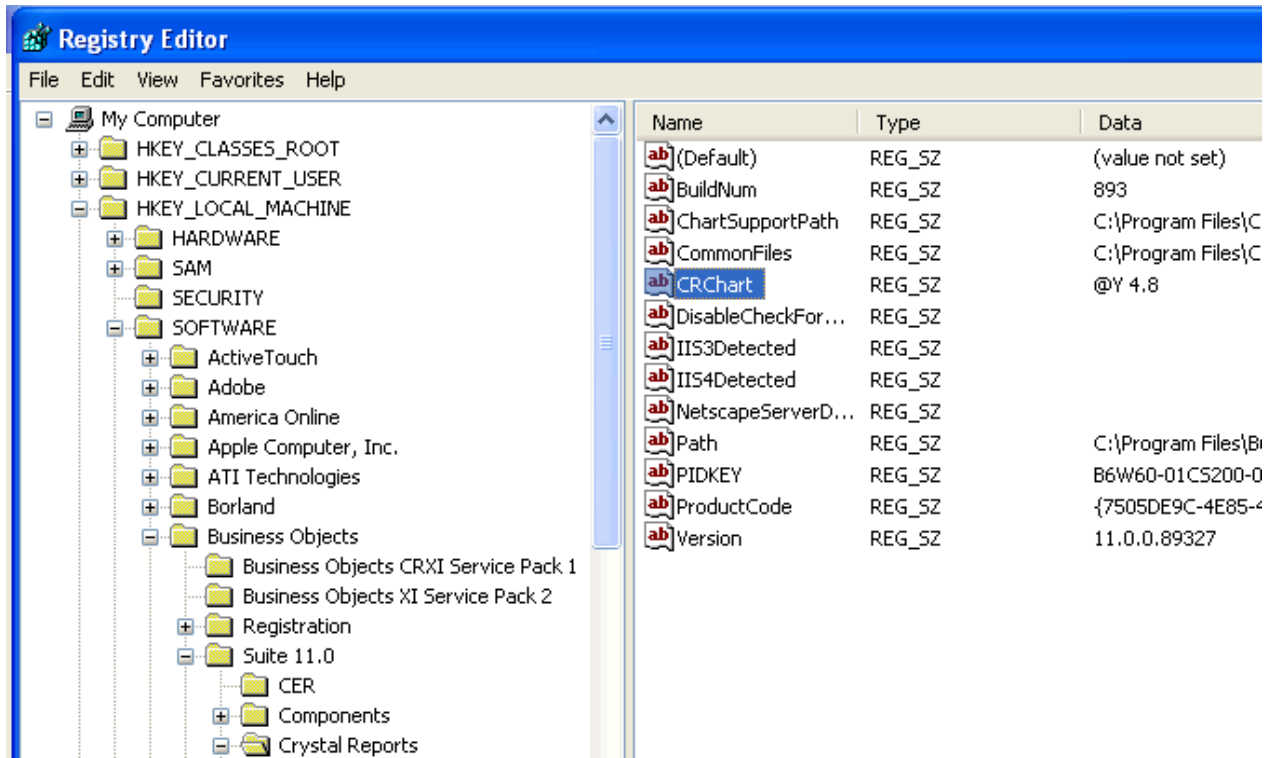
For Crystal Reports 11.5, CRChart will look for a CRChart key at:

```
HKEY_LOCAL_MACHINE\SOFTWARE\Business Objects\Suite11.5\Crystal Reports
```

For Crystal Reports 12.0, CRChart will look for a CRChart key at:

```
HKEY_LOCAL_MACHINE\SOFTWARE\Business Objects\Suite12.0\Crystal Reports
```

If CRChart finds the key at ANY of these locations, it will parse the string for macro commands in the key. Parsing occurs AFTER all other title strings are parsed. It is the last to be evaluated after title, subtitle, footnote, Y1-title, X-title, etc. **EXAMPLE:**



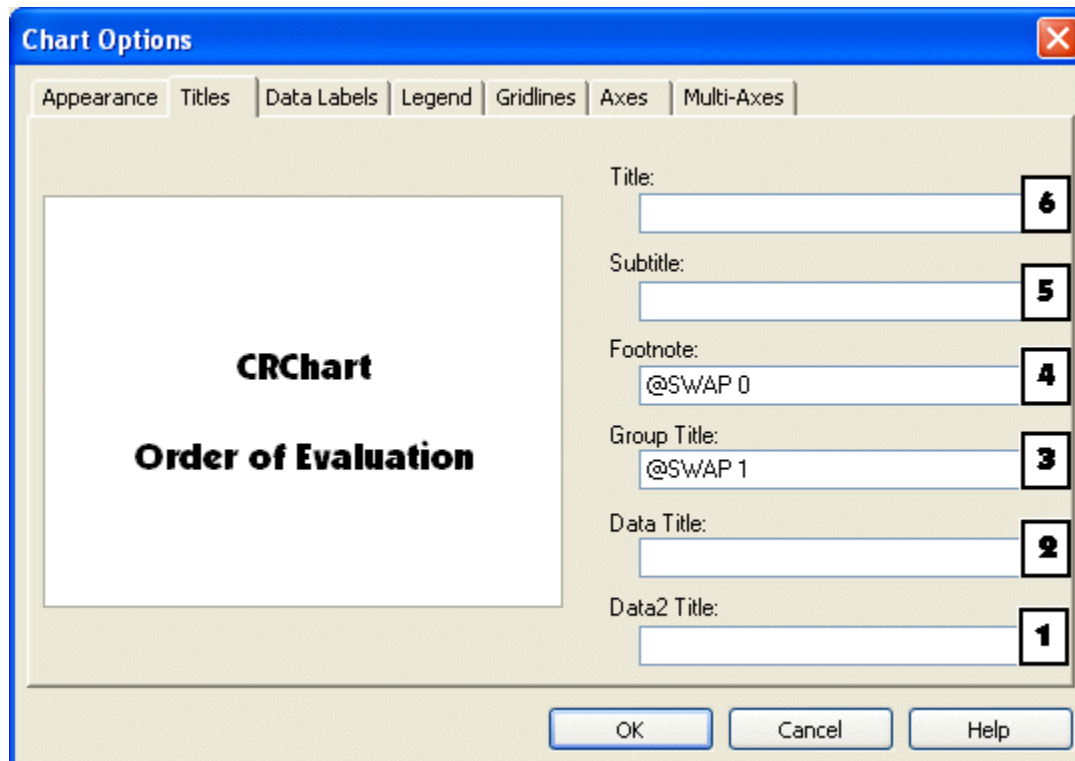
Order of Evaluation

Because chart enhancement macros can be defined in any chart title field (i.e., Y2 Axis Title, Y1 Axis Title, X Axis Title, Footnote, Subtitle, or Title) or in a registry key, you could potentially define conflicting macros. To avoid this potential conflict, the macros are evaluated in the following order:

1. Data2 (Y2-Axis) Title
2. Data (Y1-Axis) Title
3. Group (X-Axis) Title

4. Footnote
5. Subtitle
6. Title
7. Macro defined in registry key (Crystal Reports 11 or higher only)

For example, assume "@SWAP 0" is defined in the Footnote field and "@SWAP 1" is defined in the Group Title field.



In this example, the "@SWAP 0" macro would be used because it is evaluated after the "@SWAP 1" definition.

If multiple macros are defined in the same title field, macros are parsed from left-to-right. For example, assume the following macros are defined in the Footnote field:

```
@SWAP 0 @SWAP 1
```

In this example, "@SWAP 1" would be used because it is defined AFTER "@SWAP 0".

Persistence

Many of the chart enhancement macros set a property of the chart and that property will remain set, even if the macro is removed from the field. For example, if "@SWAP 1" is used to reverse the series/groups in the chart, the series/groups will remain reversed even if the "@SWAP 1" macro is removed. A "@SWAP 0" macro is needed to return the series/groups to their normal/default order.

Some of the chart enhancement macros are NOT persistent and their effect will disappear when the macro is removed. For example the user-defined lines (set by @X, @Y, and @XY) and user-defined series labels (set by @ASL) only remain in the chart while the macro definition is in place. When the macro is removed, the user-defined line and/or series labels disappear.

The description of each macro identifies whether or not the macro is persistent.

Compatibility with Existing Chart Library

Your existing reports with charts in them will look like they always have. The Chart Expert and Chart User Interface in Crystal Reports work like they always have. If you don't use the special macro commands in the title fields, you will notice no difference in your charting functionality. We work closely with Business Objects to ensure that CRChart is continuously upgraded to exactly match any bug fixes, enhancements or service pack changes made by Business Objects.

Using Macros in Visual Basic

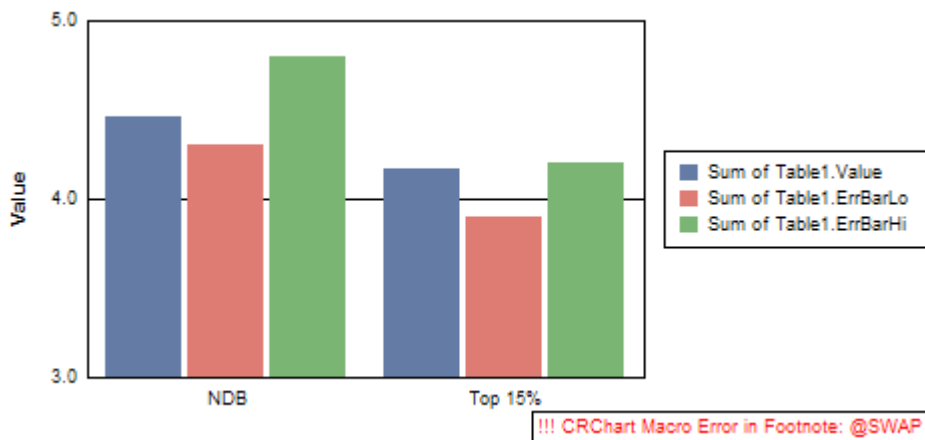
Macros can be used in Chart Expert that comes with Crystal Reports. These fields can also be accessed programmatically via the ChartObject class. The following example code shows how CRChart macros can be used to change chart properties at runtime.

```

Dim crGraphObj As CRAXDRT.GraphObject
Set crGraphObj =
crChart.OpenSubreport.Sections(1).ReportObjects.Item(1)
crGraphObj.FootNote = "@BP @SZ 35 "
....
crGraphObj.FootNote = crGraphObj.FootNote & "@MS " & CStr(iRow -
Fractile135) & " " & CStr(iMarkerNumInSSCSDK80) & " "
....
'Set marker color in chart
crGraphObj.GroupsTitle = crGraphObj.GroupsTitle & "@MC " & CStr(iRow
- Fractile135) & " " & CStr(r) & " " & CStr(G) & " " & CStr(B) & " "
....
'Control the Y1 axis scale on all plot areas
'Get Y Max and Y Min
GetCommonYMaxMin mvPlotYMaxMin, dYMax, dYMin
ScaleYMaxYMin dYMax, dYMin, strYMax, strYMin, iYDivision
....
crGraphObj.FootNote = crGraphObj.FootNote & "@SC " & strYMin & ", " &
strYMax & " " & "@MK " & CStr(UBound(vReportData_Table_Marker, 1) -
Fractile135)
crGraphObj.DataAxisDivisionMethod = crManualDivision
crGraphObj.DataAxisDivisionNumber = iYDivision
    
```

Error Reporting

If your macro encounters an error, a red message will be displayed in the footnote area of the chart. Example:



The error message indicates the field (e.g., Group Title, Footnote, Subtitle, Title, etc.) and the macro where the error occurred. The most common errors are:

- 1) missing parameter(s)
- 2) parameter is assigned an out-of-range value
- 3) missing space between macro and parameter or consecutive parameters.

Sample Reports

This document is available on line at:

http://www.threedgraphics.com/tdg/products/tools/crchart/html_docs/crchart.htm

The on-line version of this document includes additional examples and some sample reports. See the "Sample Reports" link in the document main page.

Using Crystal Reports Fields/Functions in Macros

You can use any field or function in Crystal Reports as a parameter for a CRChart Macro.

Numeric Parameters

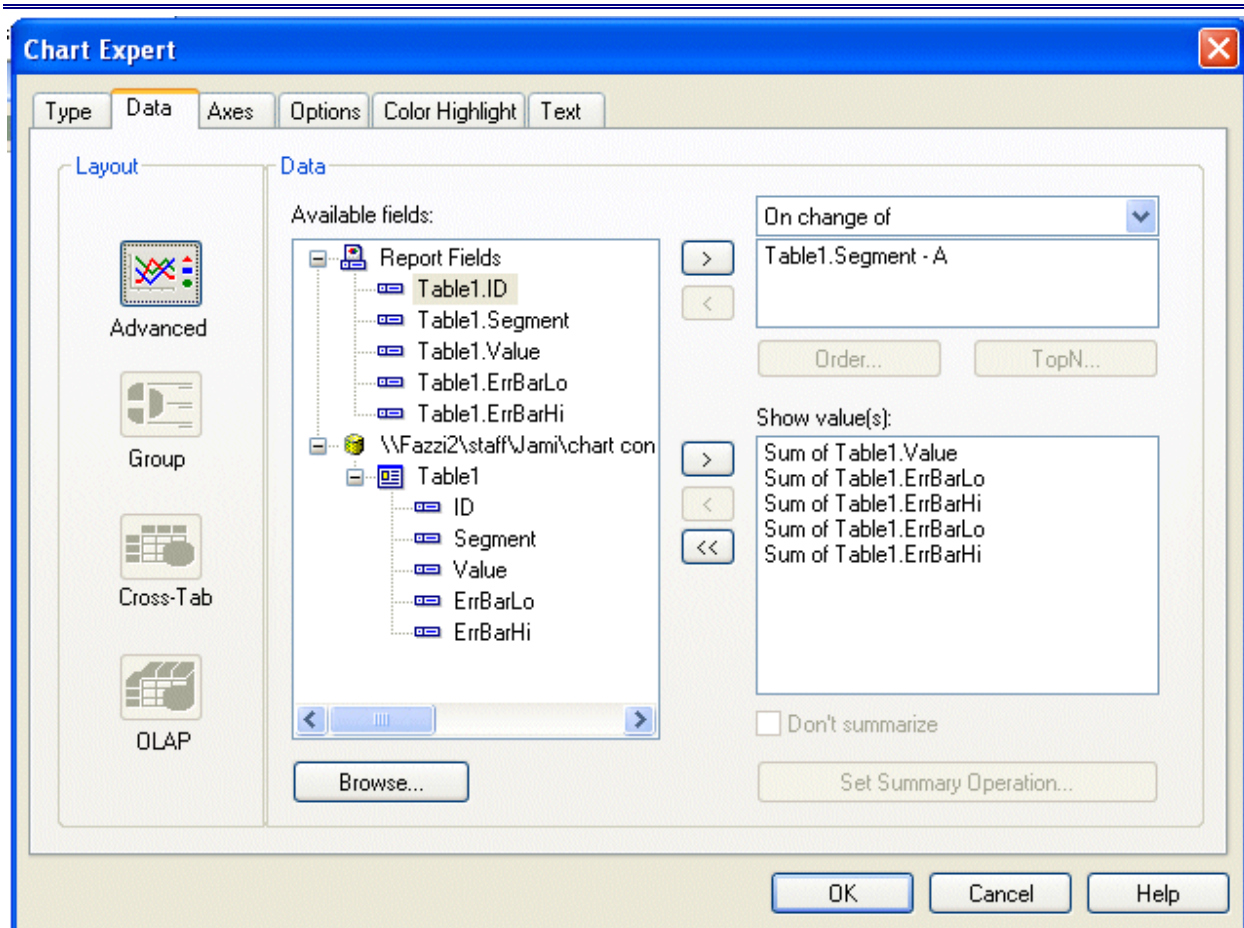
- Add the report field or function that you want to use with a CRChart macro to the end of "Show value(s)" list in the Data tab of the Chart Expert dialog.
- Make a note of the zero-based position of this field in the "Show value(s)" list.
- In your CRChart macro, use the letter "P" followed by the number that represents the position in the "Show value(s)" list. The letter "P" is case sensitive (i.e., @Y p5 will not work).

IMPORTANT NOTES:

- Do not reference an item in the "Show value(s)" list that is part of the dataset being graphed (i.e., do not use "P0"). This would cause that particular data series to disappear.
- You cannot use the same "P" parameter twice (e.g., @USER_FILL 0 1 P5 P5 is not valid). You could, however, drag the same field twice into the "Show value(s)" list so that they become P5 and P6 (e.g., @USER_FILL 0 1 P5 P6 is valid).
- The letter "P" is case sensitive (i.e., @Y p5 will not work).
- Only NUMERIC parameters (Integer, Boolean, Real) can be mapped.
- Numeric parameter substitution will not work with two "On change of" items. Use @DATASET_MERGE and String Parameters instead.

EXAMPLE:

In the Data tab of the Chart Expert dialog, the "Sum of Table1.ErrBarLo" and "Sum of Table1.ErrBarHi" fields are added at zero-based positions 3 and 4 in the "Show value(s)" list.



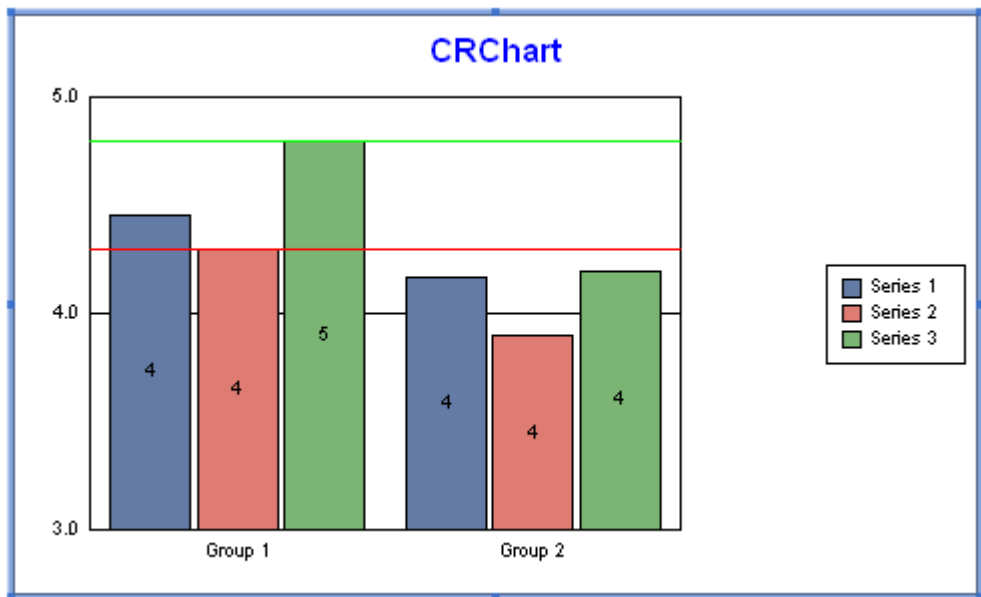
The @CY macro requires four numeric parameters identifying the location and color of a line to draw on the Y-Axis:

```
@CY fYValue nRed nGreen nBlue
```

In this example, the value of P3 (Sum of Table1.ErrBarLo) and P4 (Sum of Table1.ErrBarHi) are used as input parameters to identify the location of the lines:

```
@CY P3 255 0 0
@CY P4 0 255 0
```

The first @CY macro draws a red (255 0 0) line on the Y-Axis at value P3. The second @CY macro draws a green (0 255 0) line on the Y-Axis at value P4:



String Parameters

Legend labels that contain string~ prefixes can be extracted and used in CRChart macros that use numeric input parameters. Legend labels must be formatted with each prefix string terminated with a tilde (~) and a space:

String0~ String1~ ... Stringn~ Legend Label

Prefix strings must be numeric characters (0...9). Use the letter "S" and the zero-based position of the prefix string (e.g., S0, S1, S2, etc.) as an input parameter to any macro that requires a numeric (integer or real) value. When an Sn parameter is used as an input parameter to a CRChart macro, the prefix is stripped from the legend label and will not be shown in the legend area.

IMPORTANT NOTES:

- Sn parameters cannot be used as input parameters to macros that require a string parameter (e.g., @YSZ 1000 0 0 S0 will draw a line with the label "S0" and not the prefix at position S0).
- The letter "S" is case sensitive (i.e., @Y s1 will not work).

EXAMPLE:

The legend label strings contain the following prefixes:

1~ 2008~ 24~ TOYS
 1~ 2008~ 24~ TOOLS
 1~ 2008~ 24~ TENTS

The @X_AXIS_MODE2 macro requires three numeric parameters that identify the start month, start year, and number of elements to cast X-Axis labels into day/month/year strings:

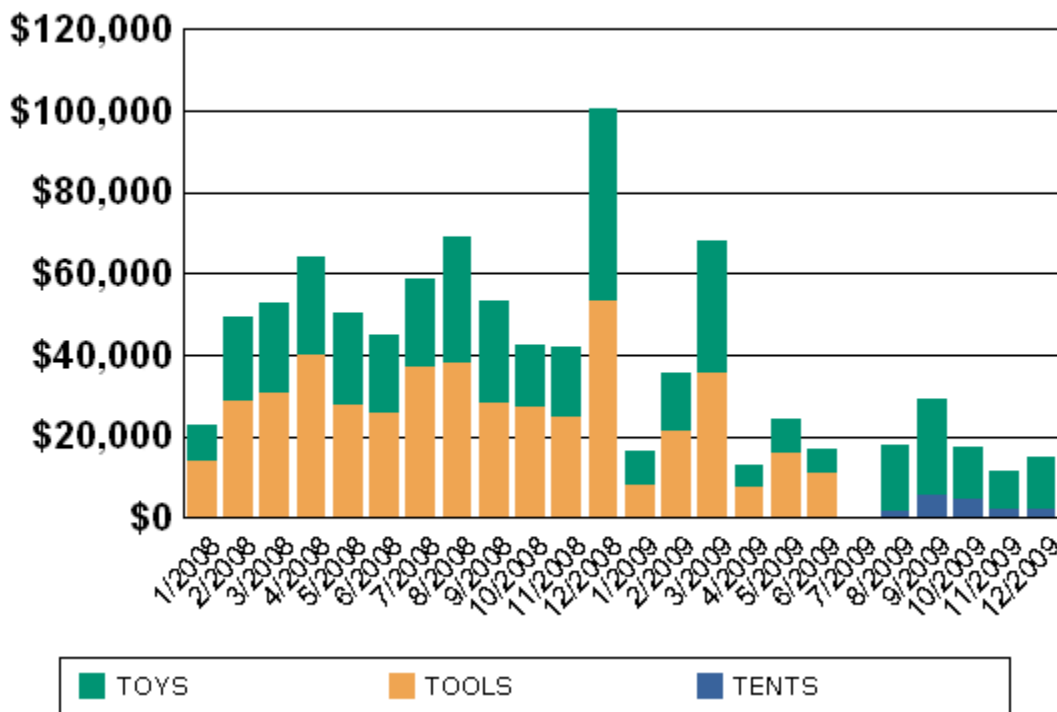
@X_AXIS_MODE2 nStartMonth nStartYear nElements

Value string prefixes from the legend labels are used as the input parameters to this macro:

@X_AXIS_MODE2 S0 S1 S2

In this example, S0 (1) is used for the macro's *nStartMonth* parameter, S1 (2008) is used for the *nStartYear* parameter, and S2 (24) is used for the *nElements* parameter.

Monthly Total Sales



This macro creates X-Axis label strings beginning at *nStartMonth* S0 (1) and *nStartYear* S1 (2008) for *nStartElements* S2 (24). Note that the label prefix strings (1~ 2008~ 24~) are not included in the legend labels. They have been stripped out for use in the `@X_AXIS_MODE2` macro.

Getting Help

If you have any problems or questions about using CRChart, there are several resources from which to obtain additional information.

- Contact the CRChart support department: **e-Mail:** crchart@threedgraphics.com or **Telephone:** (310) 231-3330
- Post your questions to fellow developers on the CRChart message board at: <http://www.threedgraphics.com/tdg/mb/>

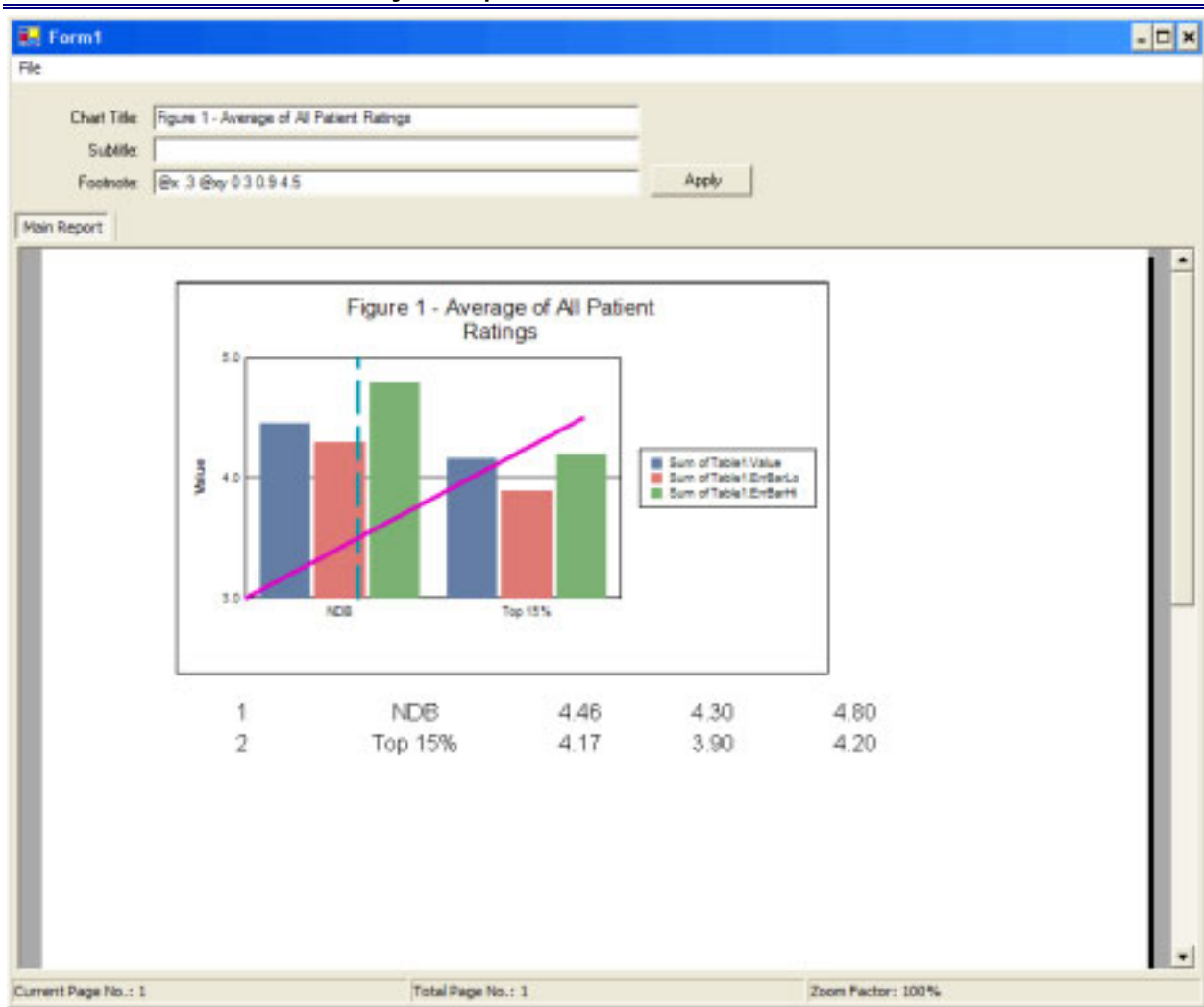
If you have a valid support contract, use one of the following:

- For CRChart Developers Edition: <http://www.threedgraphics.com/tdg/products/tools/crchart/support.php>
- For CRChart Enterprise: <http://www.threedgraphics.com/tdg/enterprise/sap/crce/support.php>

CRChart Viewer (CRViewer)

The CRChart Viewer (CRViewer) allows you to load any Crystal Reports report file (.rpt) that includes a chart and apply CRChart macros. CRViewer allows you to examine the results of CRChart macros outside of the Crystal Reports application. Example:

Chart Enhancement Macros for Crystal Reports



 **NOTE:** CRViewer requires Crystal Reports Application Server. Report Application Server (RAS) is included in Crystal Reports Enterprise 10, 11 and higher. See the CRViewer Usage Notes for more details.

When you launch the CRViewer application, it will attempt to load the report named "UserLineExample_After.rpt" from the Crystal Reports Application Server Reports directory (by default C:\Program Files\Crystal Decisions\Report Application Server 10\Reports). If the UserLineExample_After.rpt file does not exist at this location, use the File menu Load Report option to load a .rpt file into the viewer. Enter CRChart macros or text in the Chart Title, Subtitle, and Footnote fields. As shown in this example, the chart title "Figure 1 - Average of All Patient Ratings" is entered in the Chart Title field. CRChart macros @X .3 @XY 0.3 0.9 4.5 are entered in the Footnote field. Click the Apply button to apply the text and/or CRChart macros to the chart and see the result.

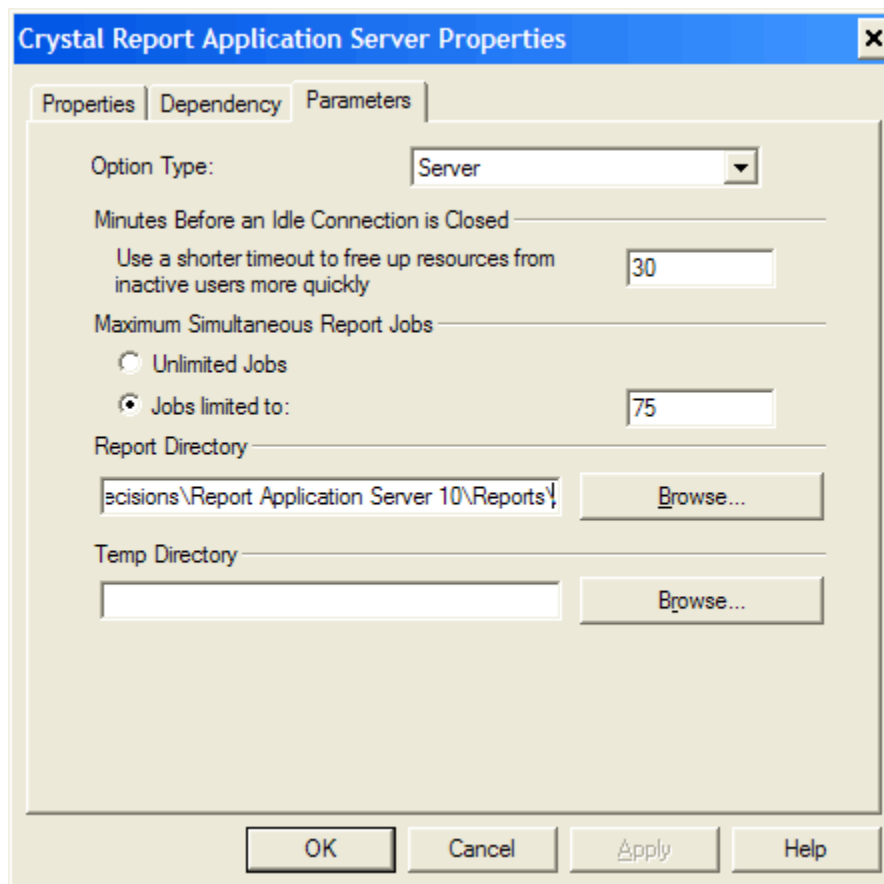
CRViewer is not included in the CRChart installation package. It can be downloaded separately from one of the following locations:

http://threedgraphics.com/tdg/products/tools/crchart/download_demo.php
<http://threedgraphics.com/tdg/products/tools/crchart/binaries/crviewer.zip>

The .ZIP file contains the CRViewer executable application (CRViewer.exe), source code, and example reports.

CRViewer Usage Notes:

- CRViewer requires Crystal Reports Application Server. Report Application Server (RAS) is included in Crystal Reports Enterprise 10, 11 and higher.
- If RAS is installed and running at the time you install CRViewer, you must stop and restart RAS before using CRViewer. (i.e., Select Start -> Crystal Enterprise 10-> Crystal Configuration Manager. Choose Crystal Report Application Server in the toolbar, click Stop, then Start.)
- CRViewer can only open reports from directories that are readable by RAS. Typically, this is the Report directory in the RAS install directory (c:\Program Files\Crystal Decisions\Report Application Server 10\Reports for CR 10). You will need to copy the sample .rpt files to that directory. The Parameters tab in the RAS Properties dialog shows the directory that is readable by RAS. Example:



- The CRViewer .ZIP file also includes the source code for the CRViewer application. You can load the build (CRViewer.sln) in Visual Studio 2003, modify it as required, and re-build the application to suit your needs. It is a straightforward C# application.

CRChart Enterprise ONLY Macros

The following macros are ONLY supported in the Enterprise edition of CRChart.

- @ABS_BAR; Absolute Bars for Negative Values
- @ACTUAL_DAY; Actual Day Line in Gantt Chart
- @ACTUAL_MONTH; Actual Month Band in Gantt Chart
- @AREA_GRID; Grid Lines on Area Fills
- @BEVEL; Draw a bevel effect on a chart object
- @COLOR_FILE; Load a color scheme file
- @CONNECT2; Special draw mode for bubble/scatter charts
- @CURVED_LINES; Enable/Disable curved lines in a line or area chart
- @CY2; Y-Axis Line with Color, Width, & Style
- @DATASET_MERGE;
- @DT_CENTERED; Data Text special formatting in Stacked Charts
- @DT_SERIES; Data Text Series-Dependent Font
- @EB3; Error Bars with Median Band
- @EXTEND_LOGAXIS; Extend Log Axis beyond Auto-Chosen Scale
- @FORCE_Y2; Assign a Series to an Axis based on Series Label
- @GANTT_COLORS; Define @GANTT2 chart riser/marker colors
- @GANTT2; Enhanced Gantt Chart Drawing Engine
- @GAUGE_BORDER_STYLE; Apply a gauge border style
- @GAUGE_BORDER_THICKNESS; Define the thickness of the gauge border
- @GAUGE_MULTIPLE_NEEDLES; Draw only one or all series as gauge needles
- @GAUGE_NEEDLE_STYLE; Select a gauge needle style
- @GAUGE_STYLE; Enable/Disable enhanced gauge drawing engine.
- @HQ; Enable/Disable High Quality rendering
- @MEKKO; Marimekko Chart
- @POLAR_SPIKE; Draw lines from data points to center of Polar Chart plot area
- @PVA; Plan vs. Actual Mode Chart
- @SMART_PIE_LABELS; Enable/Disable enhanced pie label layout engine
- @SMART_PIE_SETTINGS; Customize Enhanced pie label layout engine
- @TRENDLINE2; Trend Line with width & style
- @WATERFALL4; Waterfall Chart with Color Parameters
- @WF_CENTERTEXT; Center Waterfall Data Text
- @X_AXIS_MODE2; @X_AXIS_MODE with Start Month/Year & Duration parameters
- @Y_HEADROOM; Headroom for Y1-Axis Risers
- @ZEROLINE; Draw a Zero Line on the X- and/or Y-Axis

All other macros can be used in CRChart Developers Edition and CRChart Enterprise.

Section 2: Auto Arrange Macros

The following macros can be used to automatically arrange objects in a chart for optimal placement and appearance:

- @AA; Automatically arrange objects in a chart.
- @AA2; Automatically arrange objects in a chart with Frame adjustment.
- @AA3; Automatically arrange objects in a chart with Frame & Legend adjustment.
- @AA4; Automatically arrange objects in a chart with Maximized Frame adjustment.

@AA (Auto Arrange)

This macro automatically arranges elements in a chart.

SYNTAX:

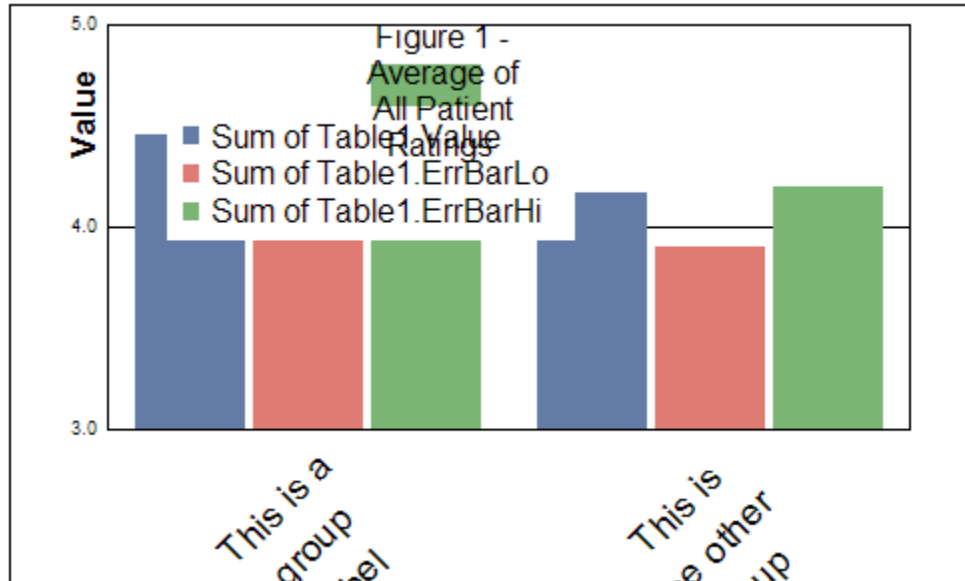
@AA

PARAMETERS:

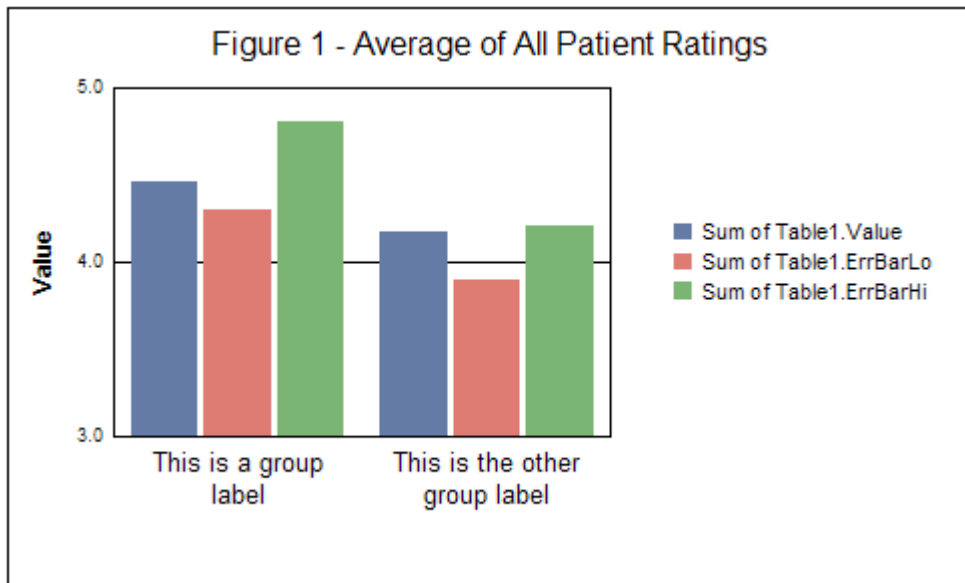
None

EXAMPLE:

Before @AA



@AA



PERSISTENT:

YES

@AA2 (Auto Arrange with Frame Adjustment)

This macro automatically arranges elements in a chart. It is the same as the @AA macro with the following exceptions:

- 1) It does not auto-size font labels. Each label keeps its current font size.
- 2) The *nFixup* parameter can be used to move the bottom of the chart frame up or down to provide more or less space for the X-axis labels

SYNTAX:

```
@AA2 nFixup
```

PARAMETERS:

nFixup; -16000...16000 specifies how much to move the bottom of the chart frame up or down.

PERSISTENT:

NO

REQUIREMENTS:

Crystal Reports 9 or higher

@AA3 (Auto Arrange with Frame & Legend Adjustment)

This macro automatically arranges elements in a chart. It is the same as the @AA macro with the following exceptions:

- 1) It does not auto-size font labels. Each label keeps its current font size.
- 2) The *nFixup* parameter can be used to move the bottom of the chart frame up or down to provide more or less space for X-axis labels
- 3) The *nLegendMode* parameter can be used to force the legend to a specific location.

SYNTAX:

```
@AA3 nFixup nLegendMode
```

PARAMETERS:

nFixup; -16000...16000 specifies how much to move the bottom of the chart frame up or down.

nLegendMode; 0...2 specifies the position to force the legend (0=left, 1=right, 2=bottom)

PERSISTENT:

NO

REQUIREMENTS:

Crystal Reports 9 or higher

@AA4 (Auto Arrange with Maximized Frame Adjustment)

This macro is the same as @AA2 except it more accurately maximizes the chart frame when there are no titles. The *nFixup* parameter can be used to move the bottom of the chart frame up or down to provide more or less space for the X-axis/Group labels

SYNTAX:

```
@AA4 nFixup
```

PARAMETERS:

nFixup; -16000...16000 specifies how much to move the bottom of the chart frame up or down.

PERSISTENT:

NO

REQUIREMENTS:

Crystal Reports 10 or higher



Section 3: Axis & Grid Lines Macros

These macros can be used to control the appearance of the axes and grid lines:

- @AREA_GRID; Activate the drawing of grid lines on top of area fills
- @AXIS; Assign a Series to an Axis
- @DX; X-Axis Divisions
- @DY; Y-Axis Divisions
- @DY2; Y2-Axis Divisions
- @EXTEND_LOGAXIS; Extend log axis scale beyond the auto-chosen scale
- @FORCE_Y2; Assign a Series to an Axis based on a Series Label
- @GRIDLINES_ON_TOP; Activate ability to draw gridlines ON TOP of risers instead of behind
- @GX; X-Axis Grid Style
- @GY; Y-Axis Grid Style
- @NAP; Numeric Auto Precision
- @OFFSCALE_Y1; Define handling of off-scale Values on the Y1-Axis
- @PX; X-Axis Precision
- @PY; Y1-Axis Precision
- @PY2; Y2-Axis Precision
- @SC; Y-Axis Scale
- @SCALE_INTERVAL; Scale Interval on the Y1, Y2, or X-Axis
- @SCX; X-Axis Scale
- @SCY_AUTOLOG; Improve auto-scaling for a log axis
- @SCY2; Y2-Axis Scale
- @TIMEAXIS; Create Time Axis
- @X_AXIS_MODE; X-Axis Mode
- @X_AXIS_MODE2; Like @X_AXIS_MODE except specify start month/year & number of months to extend
- @Y_ZERO; Include/Exclude zero to calculate Y1-axis auto-scale
- @X1_TIE; Tie X-Axis gridlines to data in scatter charts
- @Y1_FORCE_PERCENT; Y1-Axis force Percent Format
- @Y1_FORCE_PERCENT2; Y1-Axis force Percent/Numeric Format
- @Y1_INVERT; Y1-Axis Invert
- @Y1BASE; Y1-Axis Base Line
- @Y2_FORCE_PERCENT; Y2-Axis force Percent Format
- @Y2_INVERT; Y2-Axis Invert
- @Y2BASE; Y2-Axis Base Line
- @Y2SLAVE; Slave Y2-Axis to Y1-Axis
- @Y2SLAVE2; Slave Y1/Y2-axes to Max Value
- @ZEROLINE; Draw a zero line on the X- and/or Y-Axis

@AREA_GRID (Grid Lines above Area)

This macro activates drawing of grid lines above the area fills in area charts. These gridlines are independent of Y-Axis or X/Group-Axis grid lines.

SYNTAX:

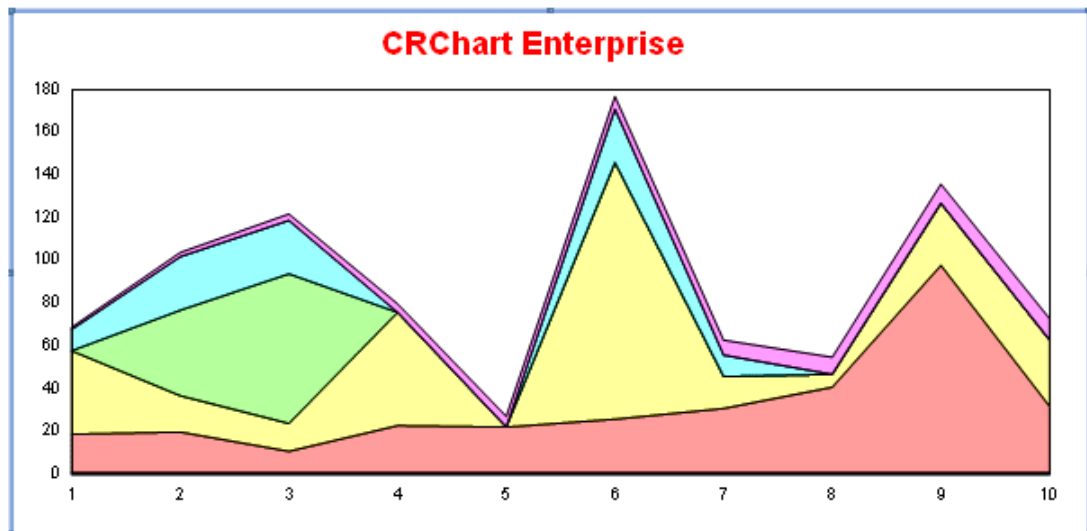
```
@AREA_GRID bShowGridlinesOnAreaFills
```

PARAMETERS:

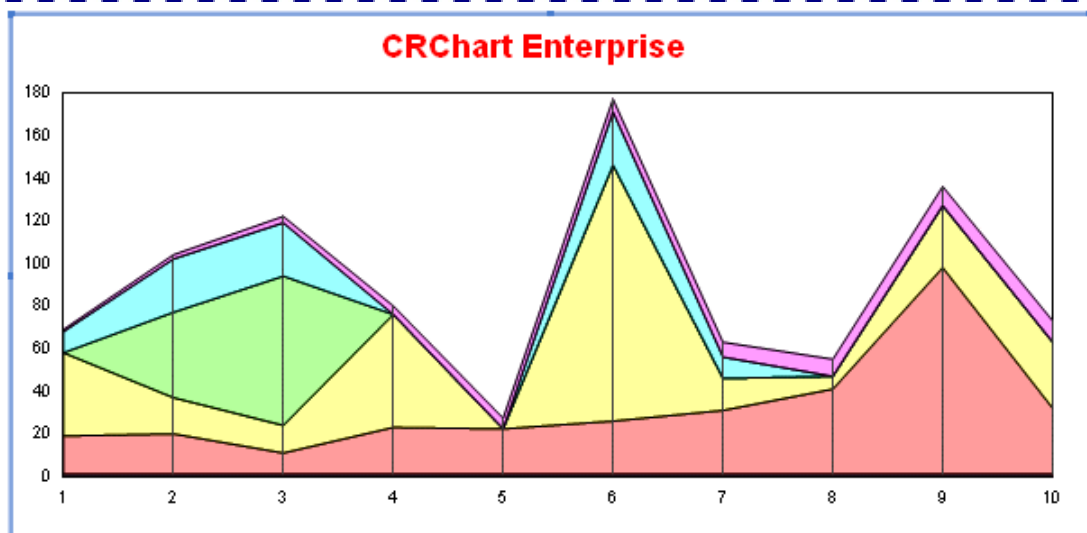
bShowGridlinesOnAreaFills; 0 = do not draw grid lines, 1 = draw grid on area fills.

EXAMPLE:

```
@AREA_GRID 0
```



```
@AREA_GRID 1
```



PERSISTENT:

NO

REQUIREMENTS:

- Crystal Reports 11 or higher
- **CRCHART Enterprise**

@AXIS (Assign Series to Axis)

In dual-Y and bi-polar axis charts, this macro assigns a series to the Y1 or Y2 axis.

SYNTAX:

```
@AXIS nSeries bAxis
```

PARAMETERS:

nSeries; -1...*n* (where: *n* = the total number of series in the chart).

-1 = apply to all series, 0 = Series 1, 1 = Series 2, etc.

bAxis; 0/1

0=assign *nSeries* to Y1-Axis

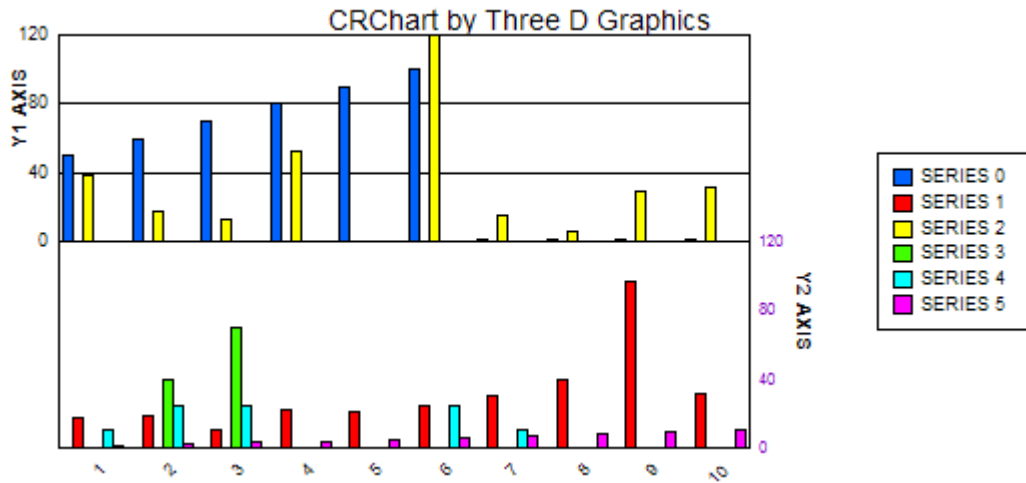
1=assign *nSeries* to Y2-Axis

EXAMPLE:

```
@GRAPHTYPE 18
```

```
@AXIS 0 0
```

```
@AXIS 1 1
```



PERSISTENT:

YES

@DX (X-Axis Divisions)

This macro sets the number of division on the X-Axis. It can only be used in a chart with a true X-Axis (e.g., Scatter, Bubble, or Polar).

SYNTAX:

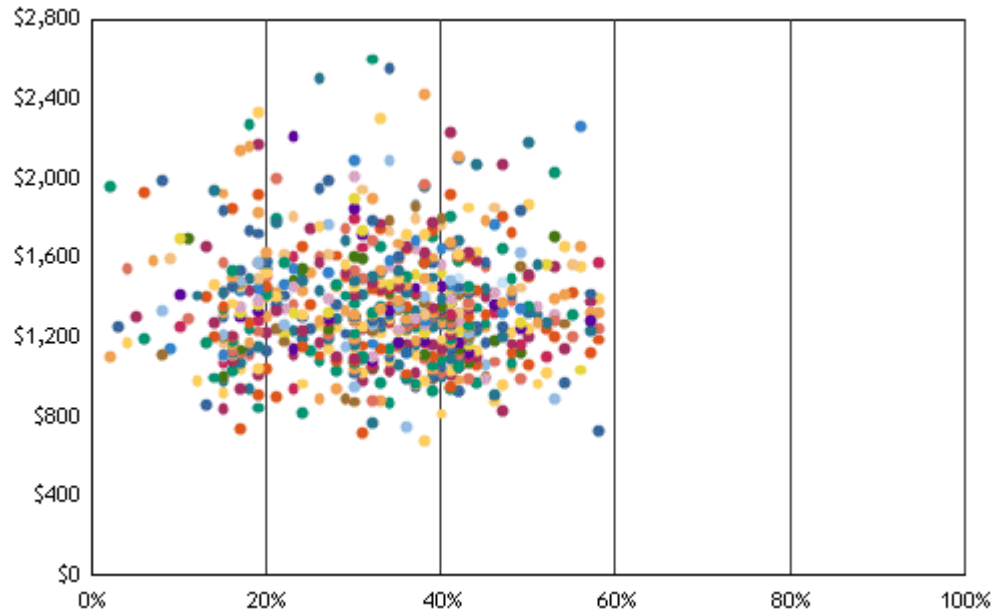
`@DX nDivisions`

PARAMETERS:

nDivisions; 1...99 divisions on the X-Axis

EXAMPLE:

`@DX 4`



PERSISTENT:

YES

ALSO SEE:

@DY to set the number of divisions on the Y-Axis

@DY2 to set the number of divisions on the Y2-Axis

@DY (Y-Axis Divisions)

This macro sets the number of division on the Y-Axis.

SYNTAX:

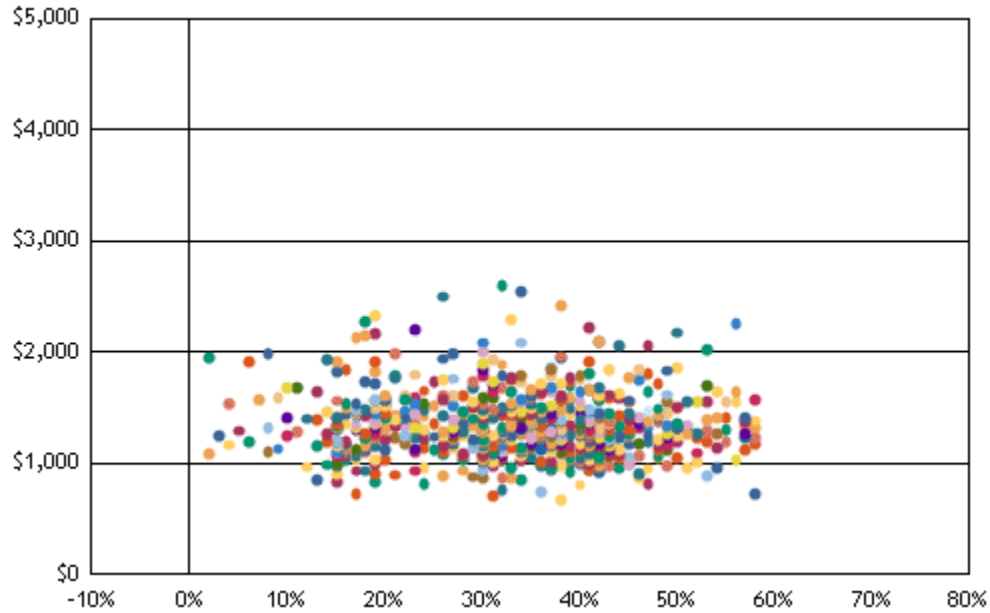
```
@DY nDivisions
```

PARAMETERS:

nDivisions; 1...99 divisions on the Y-Axis

EXAMPLE:

```
@DY 4
```



PERSISTENT:

YES

ALSO SEE:

@DX to set the number of divisions on the X-Axis

@DY2 to set the number of divisions on the Y2-Axis

@DY2 (Y2-Axis Divisions)

This macro sets the number of division on the Y2-Axis.

SYNTAX:

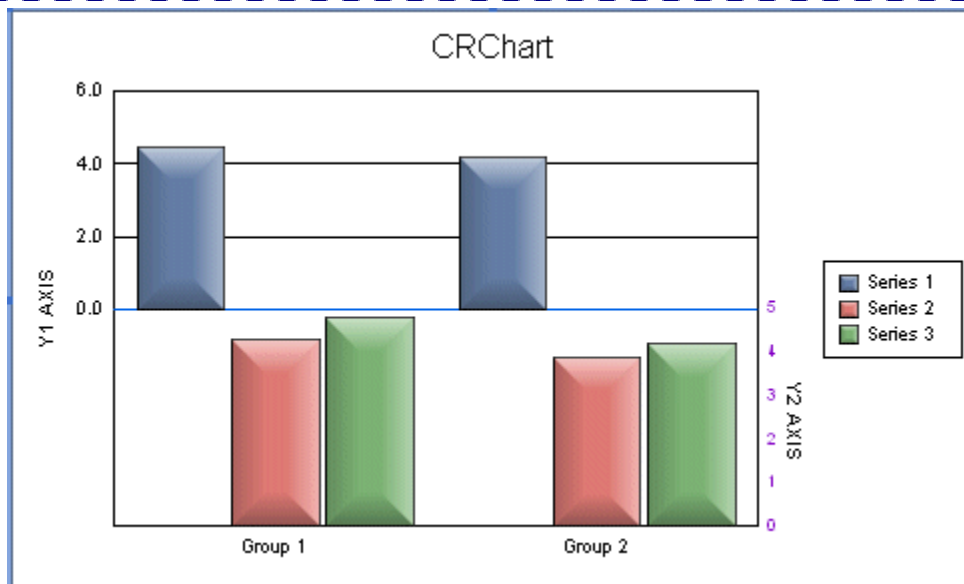
```
@DY2 nDivisions
```

PARAMETERS:

nDivisions; 1...99 divisions on the Y2-Axis

EXAMPLE:

```
@GRAPHTYPE 18  
@AXIS 1 1  
@DY 2  
@DY2 4
```



PERSISTENT:

YES

REQUIREMENTS:

Crystal Reports 9 or higher

ALSO SEE:

@DX to set the number of divisions on the X-Axis

@DY to set the number of divisions on the Y-Axis

@EXTEND_LOGAXIS (Extend Log Axis)

This macro can be used to extend a log axis scale beyond the auto-chosen scale.

SYNTAX:

```
@EXTEND_LOGAXIS nAxis nNeg nPos
```

PARAMETERS:

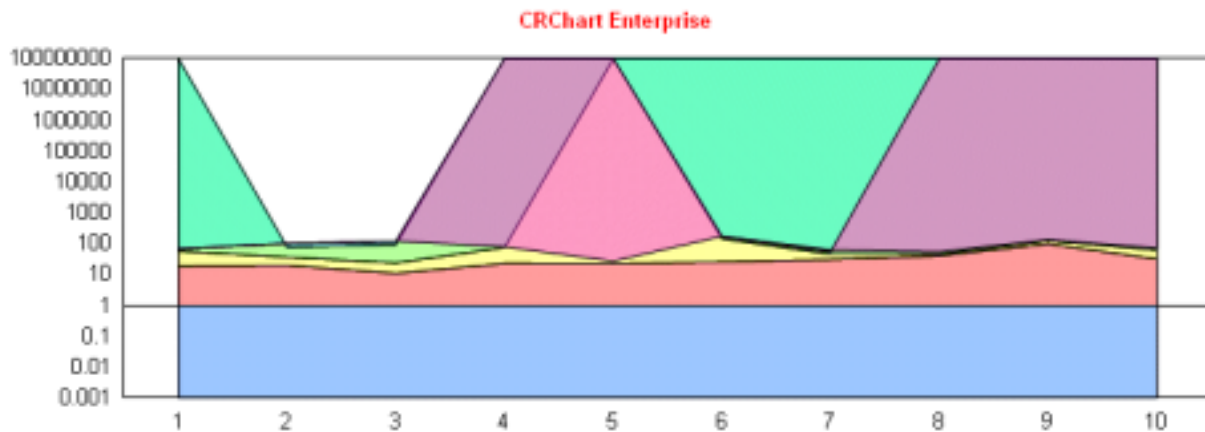
nAxis; 0=Y1-Axis, 1 = Y2-Axis, 2 = X=Axis

nNeg; -5...0 Lowest negative value on axis

nPos; 0...5 Highest positive value on axis

EXAMPLE:

```
@NAP 1
@EXTEND_LOGAXIS 0 -5 5
```



PERSISTENT:

NO

REQUIREMENTS:

- Crystal Reports 11 or higher
- **CRCHART Enterprise**

ALSO SEE:

@NAP

@FORCE_Y2 (Assign Series to Axis based on Series Label)

In dual-Y and bi-polar axis charts, this macro assigns one or more series to the Y2-axis based on a specified series label.

SYNTAX:

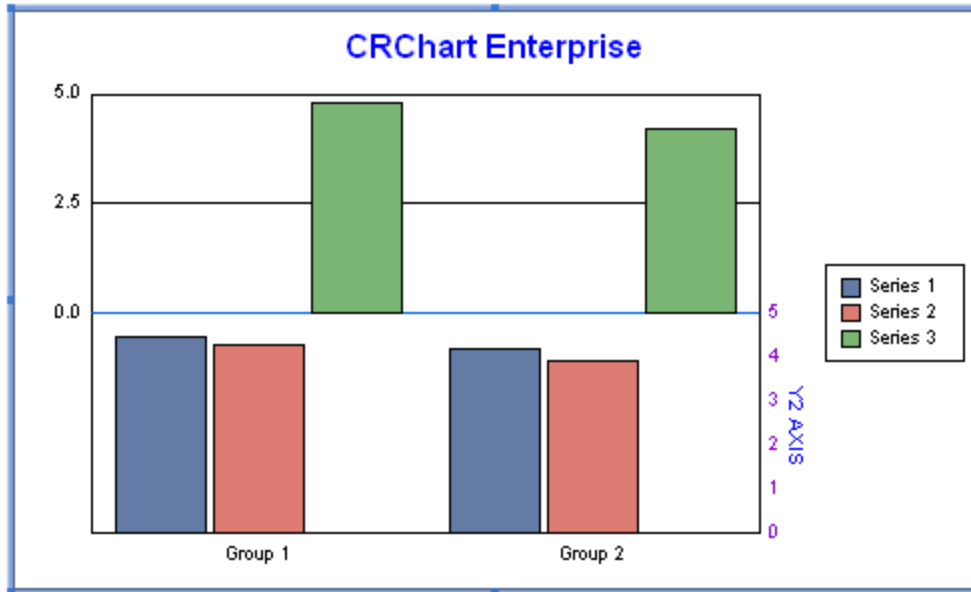
```
@FORCE_Y2 szUserSeries1~szUserSeries2~...szUserSeriesn~
```

PARAMETERS:

szUserSeries1~ szUserSeries2~ ... szUserSeriesn~; One or more series labels separated with title (~)

EXAMPLE:

```
@FORCE_Y2 Series 1~Series 2~
```



PERSISTENT:

NO

REQUIREMENTS:

- Crystal Reports 11.5 or higher
- **CRCHART Enterprise**

NOTES:

If multiple macros are defined in the same title field, this must be the last macro in the list. You cannot define other macros after this macro in the same title field.

@GRIDLINES_ON_TOP (Grid Lines Front/Behind Risers)

This macro activates drawing of grid lines in front of or behind risers.

SYNTAX:

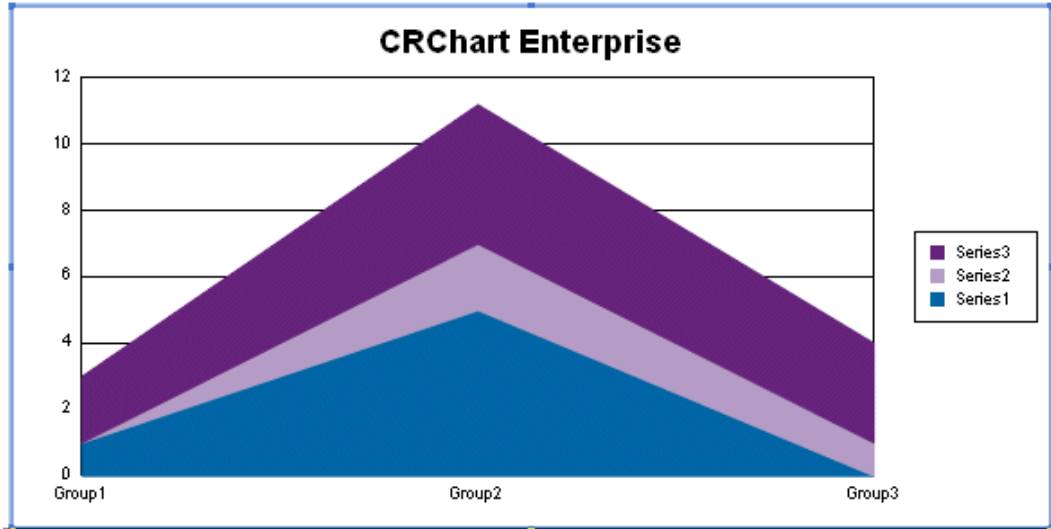
```
@GRIDLINES_ON_TOP bShowGridlinesOnTop
```

PARAMETERS:

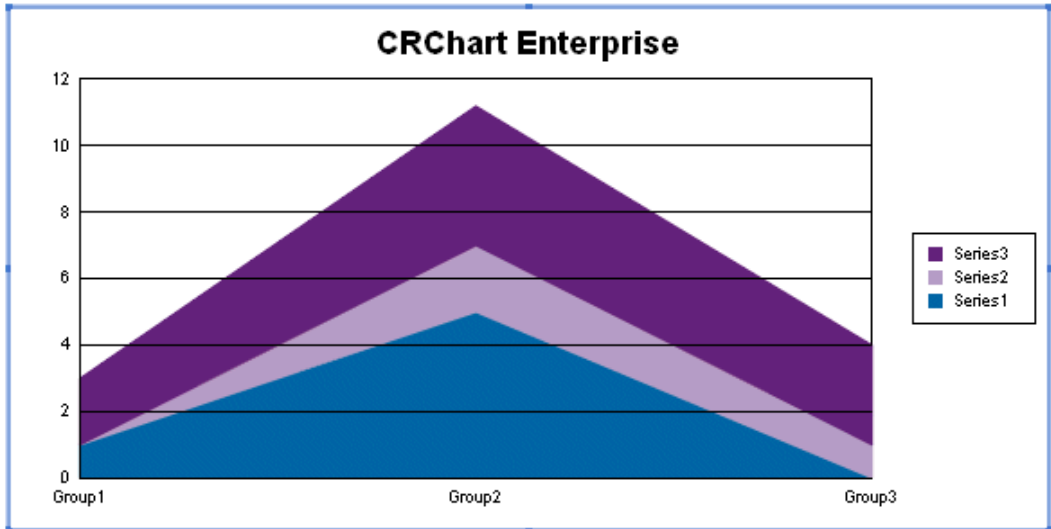
bShowGridlinesOnTop; 0=draw grid lines behind risers, 1 = draw grid lines in front of risers

EXAMPLE:

```
@GRIDLINES_ON_TOP 0
```



```
@GRIDLINES_ON_TOP 1
```



PERSISTENT:

YES

REQUIREMENTS:

Crystal Reports 11 or higher

@GX (X-Axis Grid Style)

In a chart with a true X-Axis (e.g., Scatter, Bubble, Polar, etc.), this macro sets the grid style to use on the X-Axis. In other chart types, it sets the grid style to use on the group/O1-Axis.

SYNTAX:

```
@GX nStyle
```

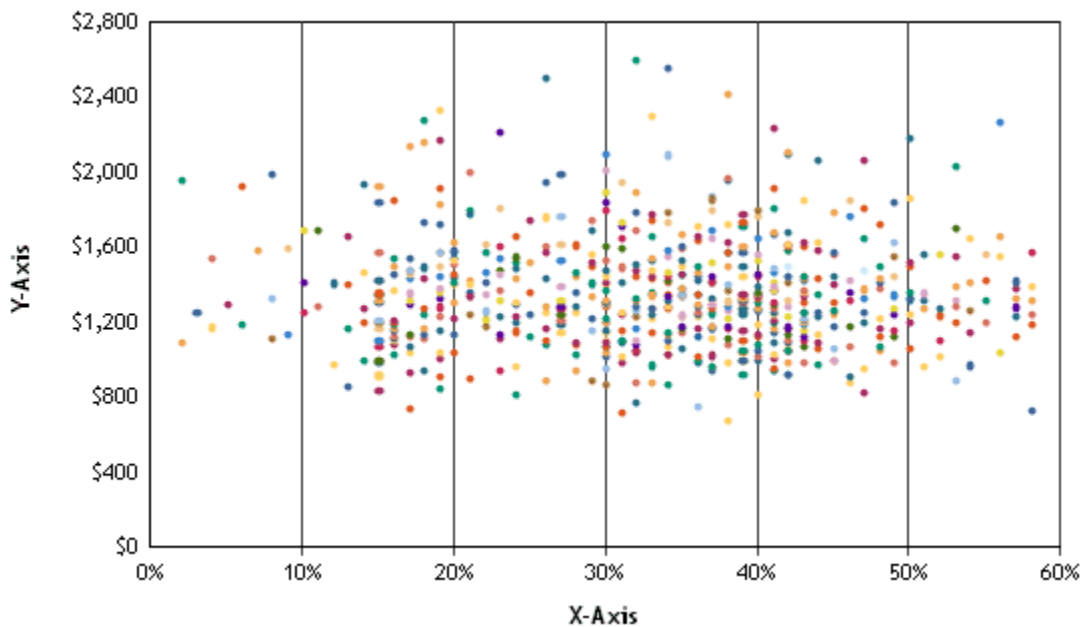
PARAMETERS:

nStyle; 0...5 selects one of the following grid/tick styles:

- 0 = No Grids or Ticks
- 1 = Standard Grid. No Tick
- 2 = Standard Grid. Outer Tick.
- 3 = No Grid. Inner Tick.
- 4 = No Grid. Outer Tick.
- 5 = No Grid. Inner and Outer Tick.

EXAMPLE:

```
@GX 2
```



PERSISTENT:

NO

ALSO SEE:

@GY

@GY (Y-Axis Grid Style)

This macro sets the Grid/Tick style on the Y-Axis.

SYNTAX:

```
@GY nStyle
```

PARAMETERS:

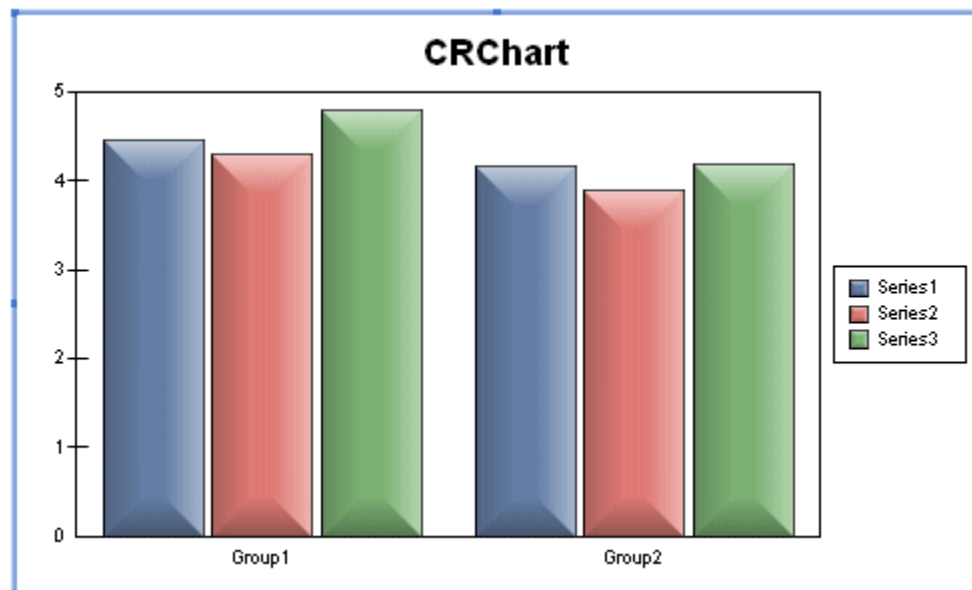
nStyle; 0...5 selects one of the following grid/tick styles:

- 0 = No Grids or Ticks
- 1 = Standard Grid. No Tick
- 2 = Standard Grid. Outer Tick.
- 3 = No Grid. Inner Tick.
- 4 = No Grid. Outer Tick.
- 5 = No Grid. Inner and Outer Tick.

EXAMPLE:

This example creates a chart with the grid/tick style 5; no grid lines, inner and outer ticks on the Y-Axis (the left side of this example chart).

```
@GY 5
```



PERSISTENT:

NO

ALSO SEE:

@GX

@NAP (Numeric Auto Precision)

This macro enables/disables improved numeric auto precision. When enabled, CRChart will do smarter precision calculations of values from the dataset and produce numeric axis values such as 0.09, 2.5, 22 rather than 0.09,2.50,22.00, for example.

SYNTAX:

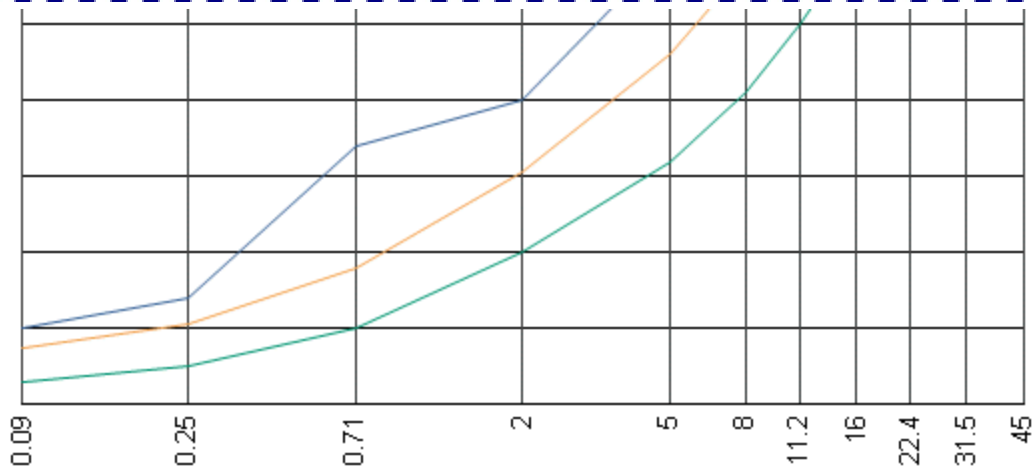
```
@NAP bActivate
```

PARAMETERS:

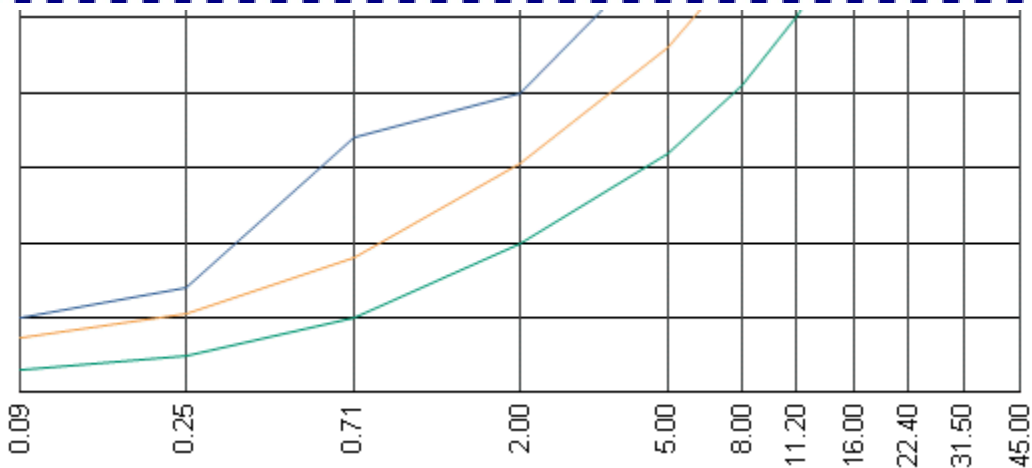
bActivate; 1=Enable Numeric Auto Precision, 0=Disable Numeric Auto Precision

EXAMPLE:

```
@NAP 1
```



```
@NAP 0
```



PERSISTENT:

NO

REQUIREMENTS:

Crystal Reports 10 or higher

@OFFSCALE_Y1 (Y1-Axis Off-Scale Values)

This macro can be used to specify how off-scale values are charted on the Y1-axis.

SYNTAX:

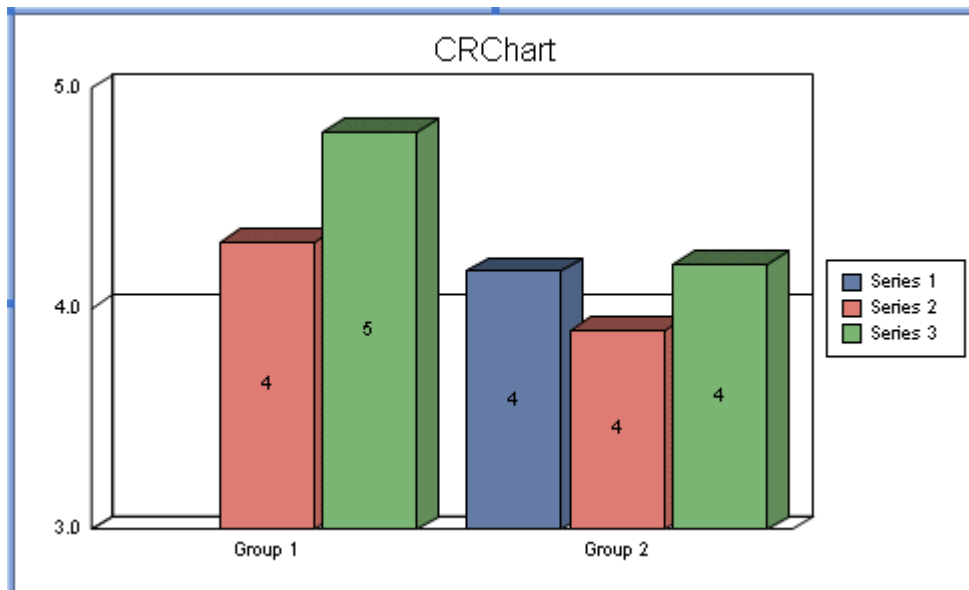
```
@OFFSCALE_Y1 nOffScaleMode
```

PARAMETERS:

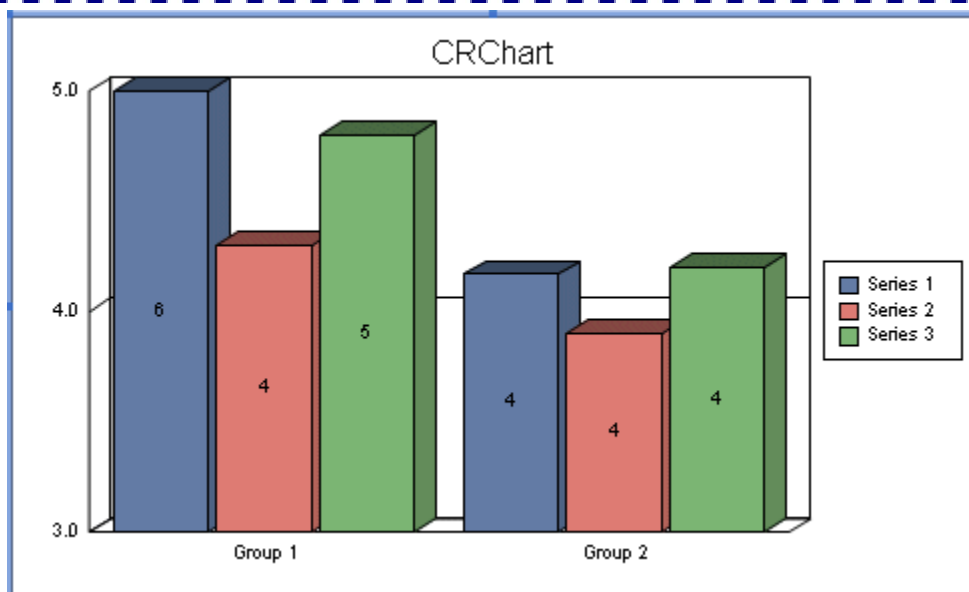
nOffScaleMode; 0...2. 0=Do not show off-scale values. 1=Graph off-scale values at scale maximum. 2=Clip off-scale values against chart frame

EXAMPLE:

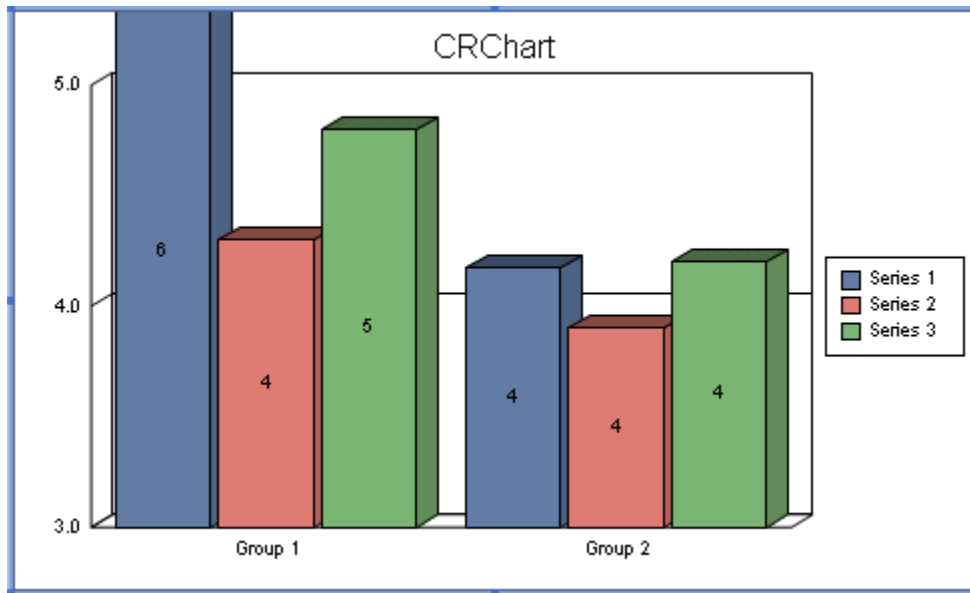
```
@DP 0 0 5.5  
@OFFSCALE_Y1 0 0
```



```
@OFFSCALE_Y1 0 1
```



```
@OFFSCALE_Y1 0 2
```



PERSISTENT:

NO

REQUIREMENTS:

Crystal Reports 9 or higher

NOTES:

In this release, @OFFSCALE_Y1 2 is only supported with 2.5D depth applied to the chart.

@PX (X-Axis Precision)

This macro sets the decimal precision of values on the X-Axis. It can only be used in a chart with a true X-Axis (e.g., Scatter, Bubble, Polar, etc.).

SYNTAX:

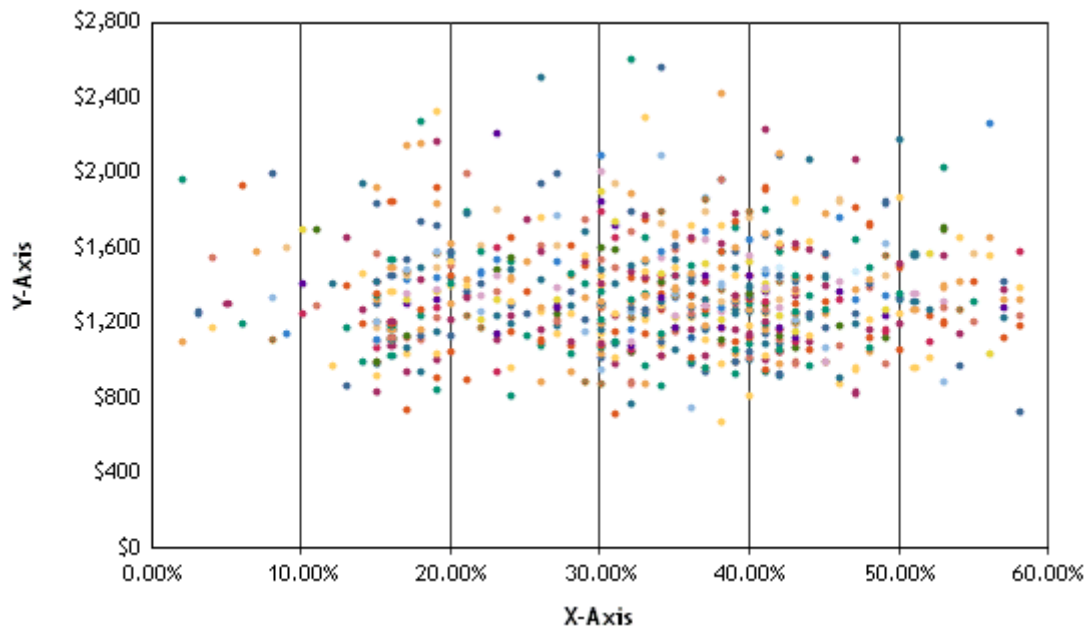
```
@PX nPrecision
```

PARAMETERS:

nPrecision; 0...9 Decimal places

EXAMPLE:

```
@PX 2
```



In this example chart, X-axis values are shown on the bottom of the chart.

PERSISTENT:

YES

ALSO SEE:

@NAP (Numeric Auto Precision), @PY (Y-Axis Precision)

@PY (Y1-Axis Precision)

This macro sets the decimal precision of values on the Y-axis.

SYNTAX:

```
@PY nPrecision
```

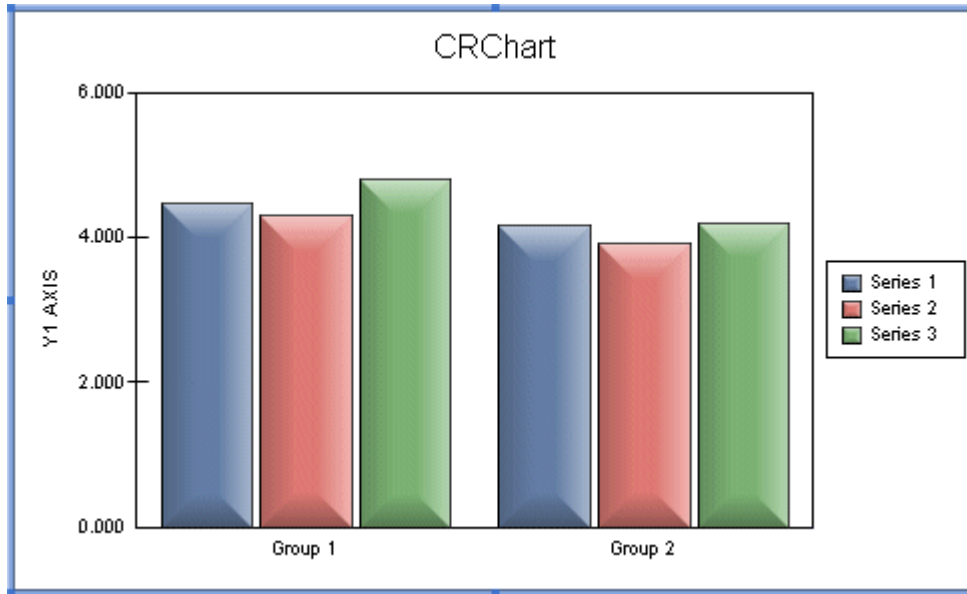
PARAMETERS:

nPrecision; 0...9 Decimal places

EXAMPLE:

This example sets the number of decimal places to be shown on the Y-axis to 3.

```
@PY 3
```



In this example chart, Y-axis values are shown on the left side of the chart.

PERSISTENT:

YES

ALSO SEE:

@NAP (Numeric Auto Precision), @PX (X-Axis Precision), @PY2 (Y2-Axis Precision)

@PY2 (Y2-Axis Precision)

In a dual-axis chart, this macro sets the decimal precision of values on the Y2-axis.

SYNTAX:

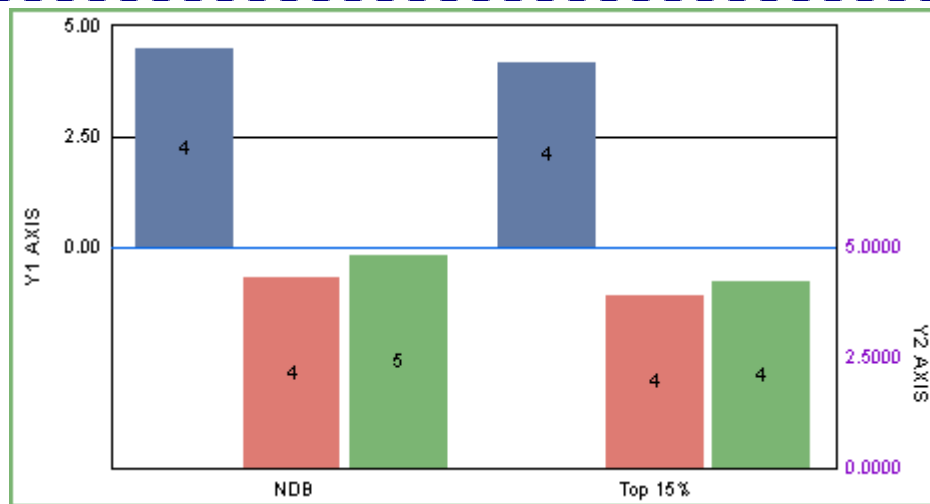
```
@PY2 nPrecision
```

PARAMETERS:

nPrecision; 0...9 Decimal places

EXAMPLE:

```
@PY 2
@PY2 4
```



In this example chart, Y-axis values are shown on the left side of the chart and Y2-axis values are shown on the right side of the chart.

PERSISTENT:

YES

REQUIREMENTS:

Crystal Reports 9 or higher

ALSO SEE:

@NAP (Numeric Auto Precision), @PX (X-Axis Precision), @PY (Y-Axis Precision)

@SC (Y-Axis Scale)

This macro sets the minimum and maximum values that can appear on the Y-axis.

SYNTAX:

```
@SC fMin fMax
```

PARAMETERS:

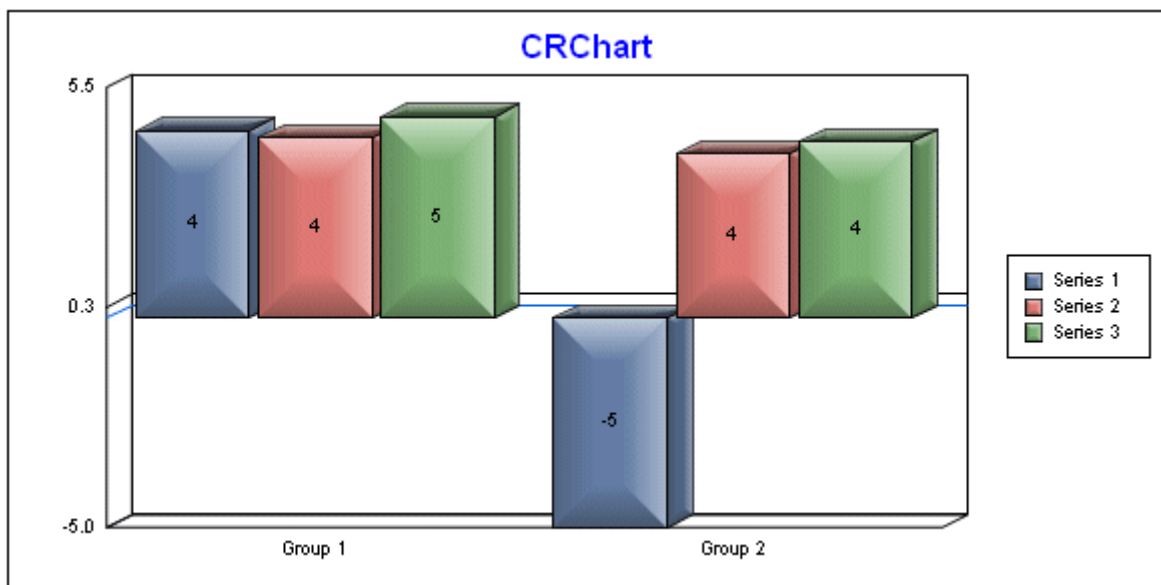
fMin; Minimum value to show on the Y-Axis

fMax; Maximum value to show on the Y-Axis

EXAMPLE:

This example sets the Y-Axis scale to go from a minimum value of -20.0 to a maximum value of 25.0

```
@SC -5 5.5
```



PERSISTENT:

YES

NOTES:

If *fMin* and *fMax* parameters are BOTH set to 0.0, the Y-Axis scale mode is reset to automatic (i.e., the charting library automatically calculates the Y-Axis scale based on the values in the data set).

ALSO SEE:

- @SCY2 to set Y2-Axis scale
- @SCX to set X-Axis scale
- @SCALE_INTERVAL; Scale Interval on the Y1, Y2, or X-Axis

@SCALE_INTERVAL (Scale Interval on Y1, Y2, or X-Axis)

This macro sets the interval at which values are drawn on the X-, Y1-, or Y2-Axis.

SYNTAX:

```
@SCALE_INTERVAL nAxis fGridStep
```

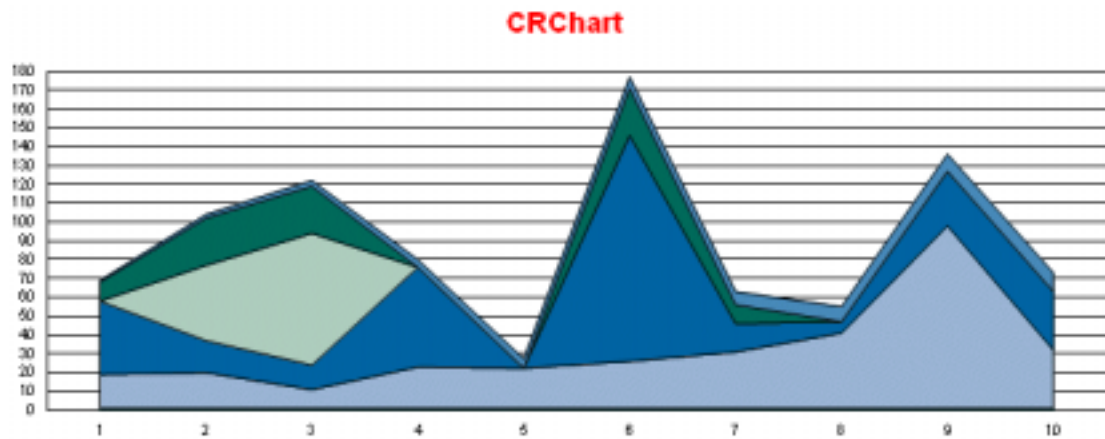
PARAMETERS:

nAxis; 0...2. 0 = Y1-Axis, 1 = Y2-Axis, 2 = X-Axis

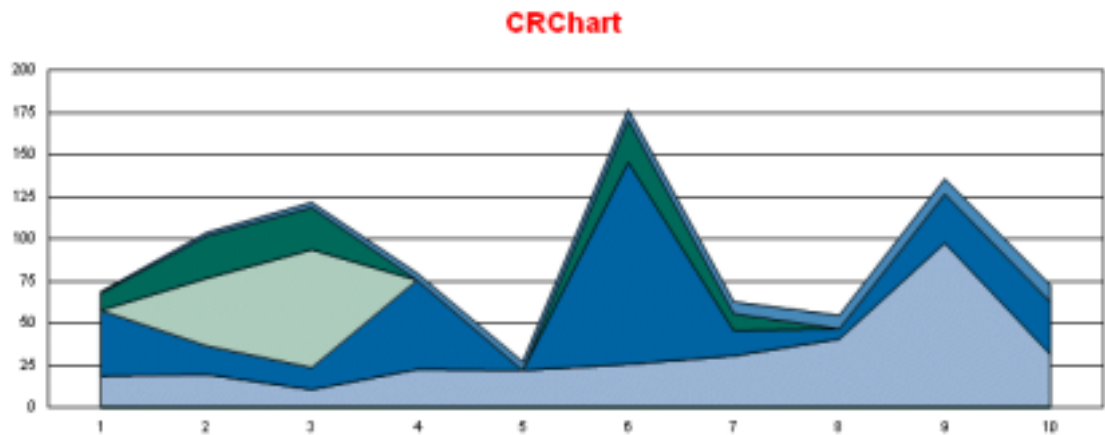
fGridStep; Scale Interval Value

EXAMPLE:

```
@SCALE_INTERVAL 0 10
```



```
@SCALE_INTERVAL 0 25
```



PERSISTENT:

YES

REQUIREMENTS:

Crystal Reports 11 or higher

ALSO SEE:

- @SCY to set Y1-Axis scale
- @SCY2 to set Y2-Axis scale
- @SCX to set X-Axis scale

@SCX (X-Axis Scale)

This macro sets the minimum and maximum values that can appear on the X-Axis. It can only be used in a chart with a true X-Axis (e.g., Scatter, Bubble, Polar, etc).

SYNTAX:

```
@SCX fMin fMax
```

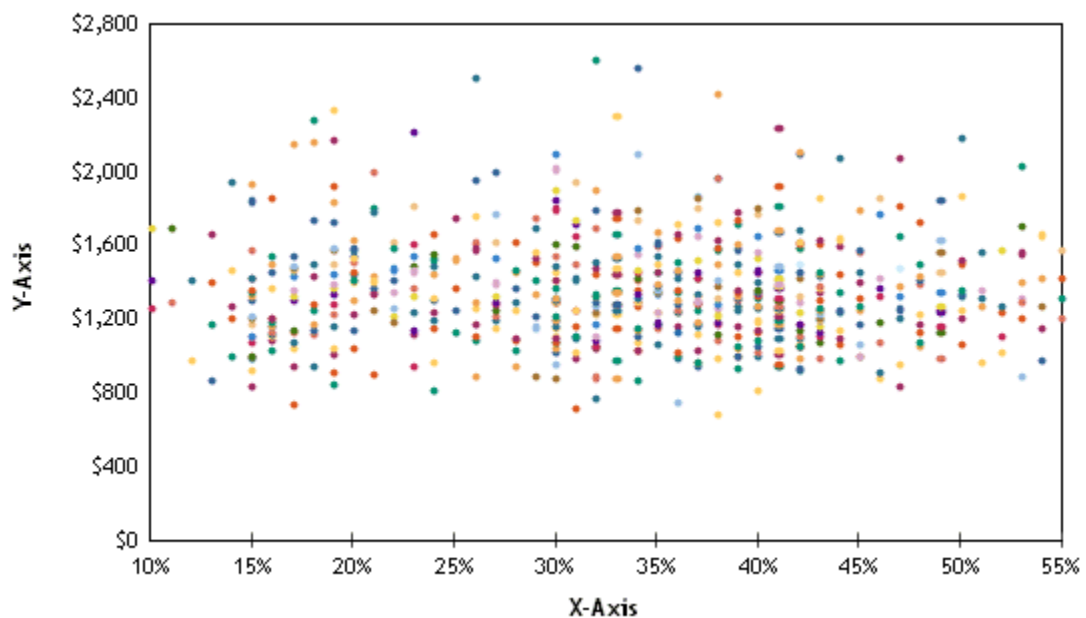
PARAMETERS:

fMin; Minimum value to show on the X-Axis

fMax; Maximum value to show on the X-Axis

EXAMPLE:

```
@SCX .10 .55
```



PERSISTENT:

YES

NOTES:

If *fMin* and *fMax* parameters are BOTH set to 0.0, the X-Axis scale mode is reset to automatic (i.e., the charting library automatically calculates the X-Axis scale based on the values in the data set).

ALSO SEE:

- @SC to set Y-Axis scale
- @SCY2 to set Y2-Axis scale

@SCY_AUTOLOG (Improve Log Axis Automatic Scale)

This macro improves automatic scaling on a logarithmic axis.

SYNTAX:

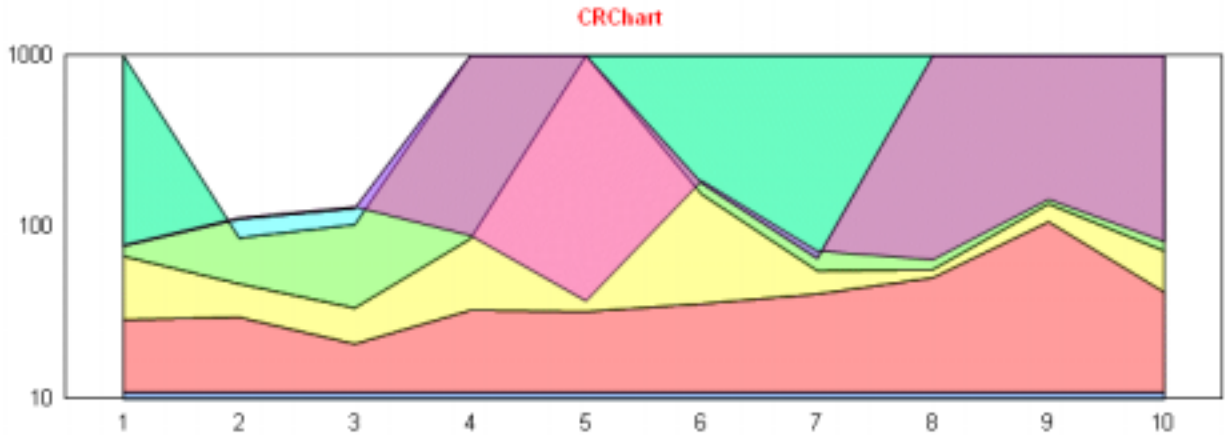
```
@SCY_AUTOLOG fMin
```

PARAMETERS:

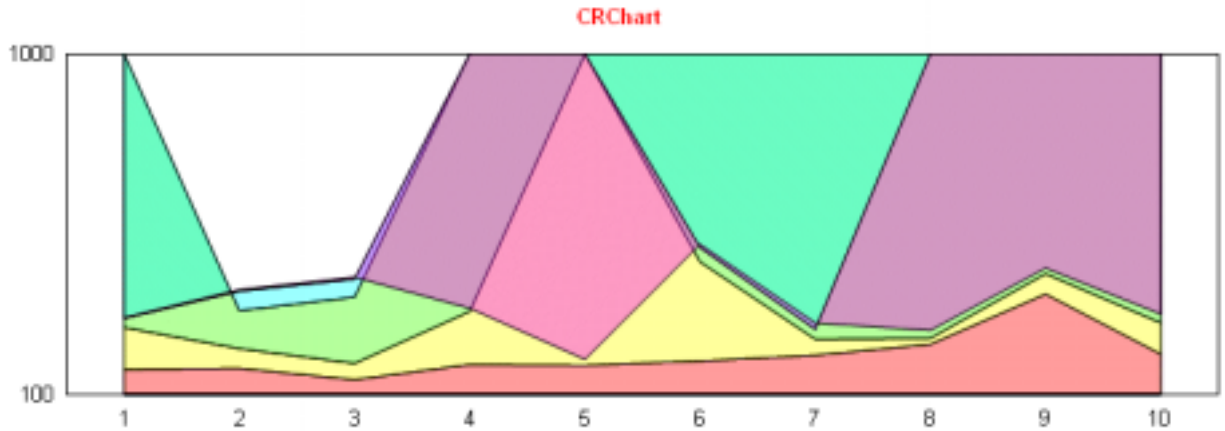
fMin; Minimum value to draw on log axis

EXAMPLE:

```
@SCY_AUTOLOG 10
```



```
@SCY_AUTOLOG 100
```



PERSISTENT:

YES

REQUIREMENTS:

Crystal Reports 11 or higher

ALSO SEE:

@EXTEND_LOGAXIS

@SCY2 (Y2-Axis Scale)

This macro sets the minimum and maximum values that can appear on the Y2-axis in a dual-axes chart.

SYNTAX:

```
@SCY2 fMin fMax
```

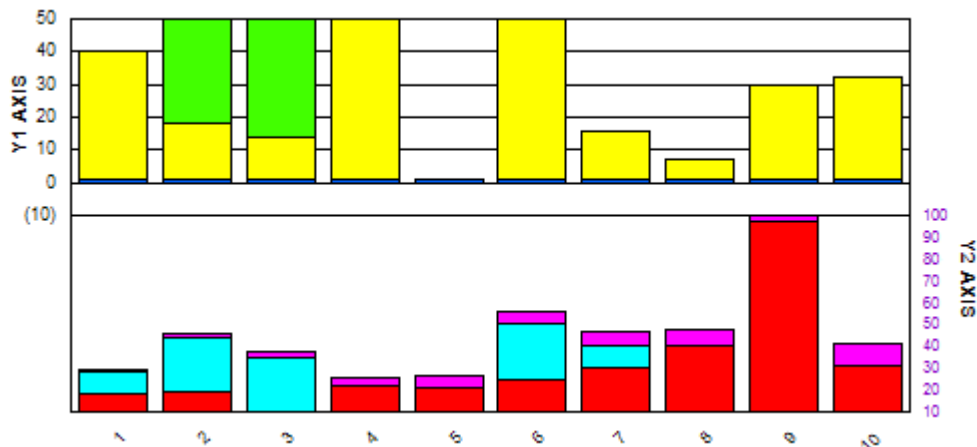
PARAMETERS:

fMin; Minimum value to show on the Y2-Axis

fMax; Maximum value to show on the Y2-Axis

EXAMPLE:

```
@SC -10 50
@SCY2 10 100
```



PERSISTENT:

YES

NOTES:

If *fMin* and *fMax* parameters are BOTH set to 0.0, the Y2-Axis scale mode is reset to automatic (i.e., the charting library automatically calculates the Y2-Axis scale based on the values in the data set).

ALSO SEE:

- @SC to set Y-Axis scale
- @SCX to set X-Axis scale

@TIMEAXIS (Time Axis)

This macro creates a time axis in bar, line, and area charts.

SYNTAX:

```
@TIMEAXIS fStart fStop fInterval
```

PARAMETERS:

fStart; Start point in time. It must be specified in 1901 date format as defined in Microsoft EXCEL.

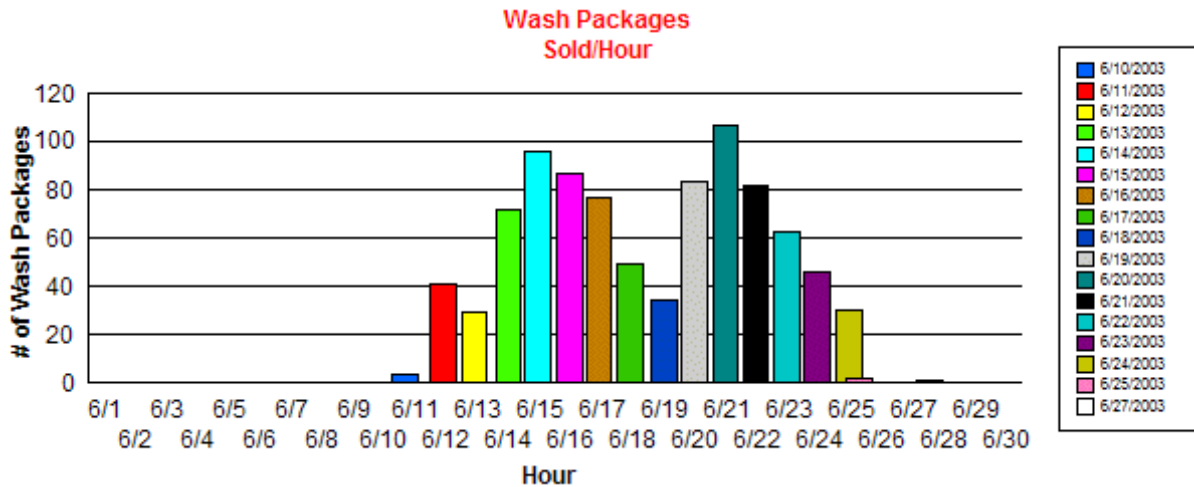
fStop; End point in time. It must be specified in 1901 date format as defined in Microsoft EXCEL.

fInterval; Amount of time between labels on axis. 1.0 = 1 day.

EXAMPLE:

This example sets the start date (*fStart*) to June 1, the stop date (*fStop*) to June 30, and the interval (*fInterval*) to 1 day.

```
@TIMEAXIS 37773 37802 1
```



PERSISTENT:

YES

REQUIREMENTS:

Crystal Reports 9 or higher

ALSO SEE:

@HOUR_SCALE, @X_AXIS_MODE, @X_AXIS_MODE2

@X_AXIS_MODE (X-Axis Mode)

This macro can be used to define an X-axis on a bar, line, or area chart that covers a specific range. It is specifically useful in a chart where the data is incomplete (i.e., it includes some but not all entries for a specified range). For example, the data may include entries for days 2, 3, 5, 14, 19, 20, and 30 in a given month. When this macro is not used, the chart will show seven group labels (2, 3, 5, 14, 19, 20, 30). If this macro is used to define groups 1 through 30, the chart will show 30 group/day labels with the seven defined groups/values in the correct position for each day.

SYNTAX:

```
@X_AXIS_MODE nMode nStart nStop
```

PARAMETERS:

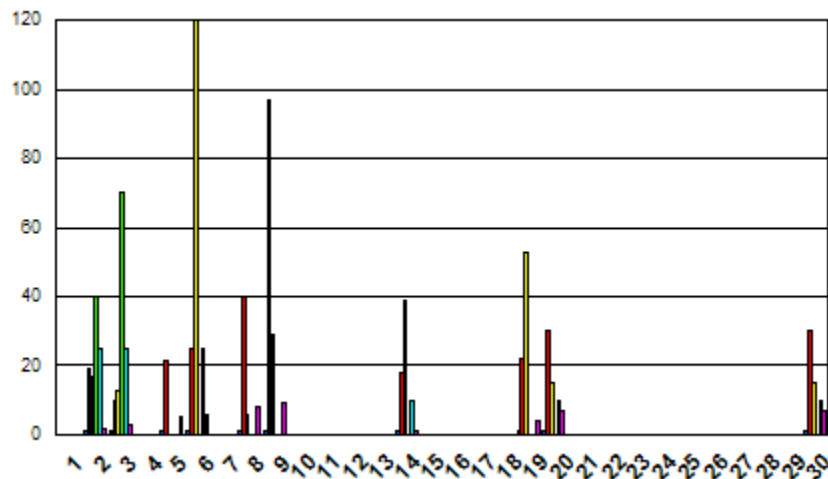
nMode; 0

nStart; -10000...10000 Starting group label

nStop; -10000...10000 Ending group label

EXAMPLE:

```
@X_AXIS_MODE 0 1 30
```



PERSISTENT:

NO

ALSO SEE:

@HOUR_SCALE, @X_AXIS_MODE2

NOTES:

- Label strings must be digits (e.g., 1999, 2000, 2001, etc.) that can be converted to integer values. Future releases will support time labels (e.g., 8:00am), month-day labels (e.g., June 1, June 2) and day-of-week labels (e.g., Monday, Tuesday).
- This macro will not work if group labels are aliased with the @AGL macro.

@X_AXIS_MODE2 (@X_AXIS_MODE with Start Month/Year & Duration)

This macro is like the @X_AXIS_MODE macro except it allows you to specify a start month/year and number of months to extend.

SYNTAX:

```
@X_AXIS_MODE2 nStartMonth nStartYear nElements
```

PARAMETERS:

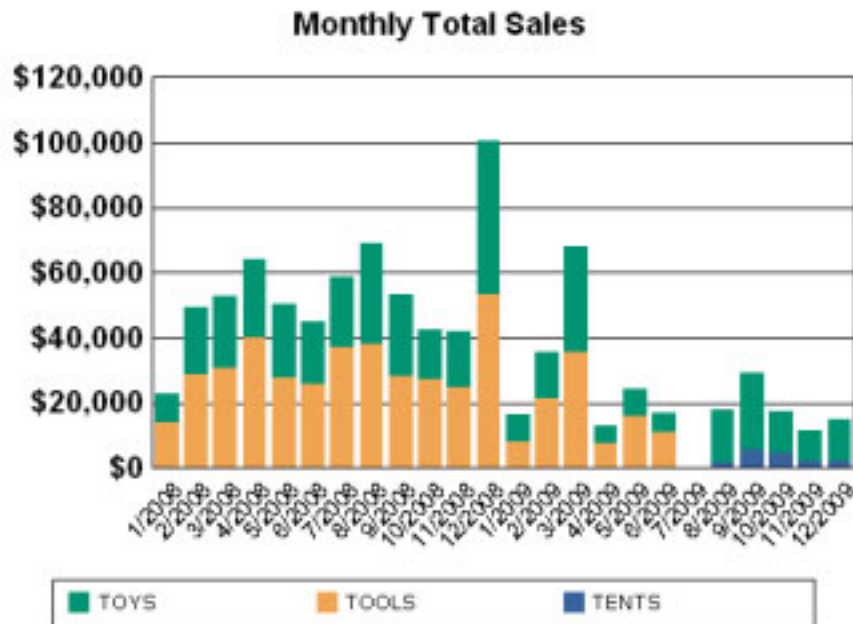
nStartMonth; 1...12 Start Month

nStartYear; 0...5000 Start Year

nElements; 0...5000 Number of Elements to Extend

EXAMPLE:

```
@X_AXIS_MODE2 1 2008 24
```



PERSISTENT:

NO

REQUIREMENTS:

- Crystal Reports 12 or higher
- **CRCHART Enterprise**

ALSO SEE:

@HOUR_SCALE, @X_AXIS_MODE

@X1_TIE (Tie X-Axis Gridlines to Values)

In scatter charts, this macro can be used to tie the X-Axis gridlines to X-Axis values.

SYNTAX:

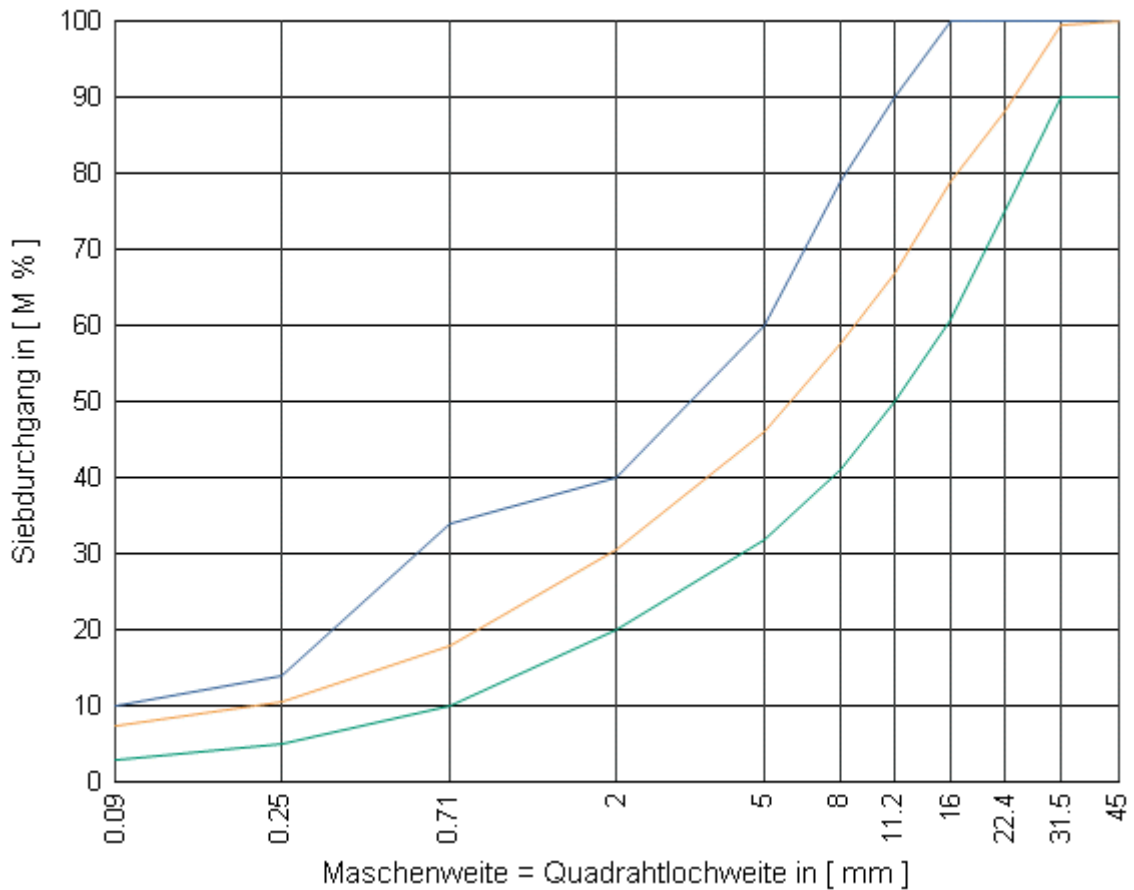
```
@X1_TIE bActivate
```

PARAMETERS:

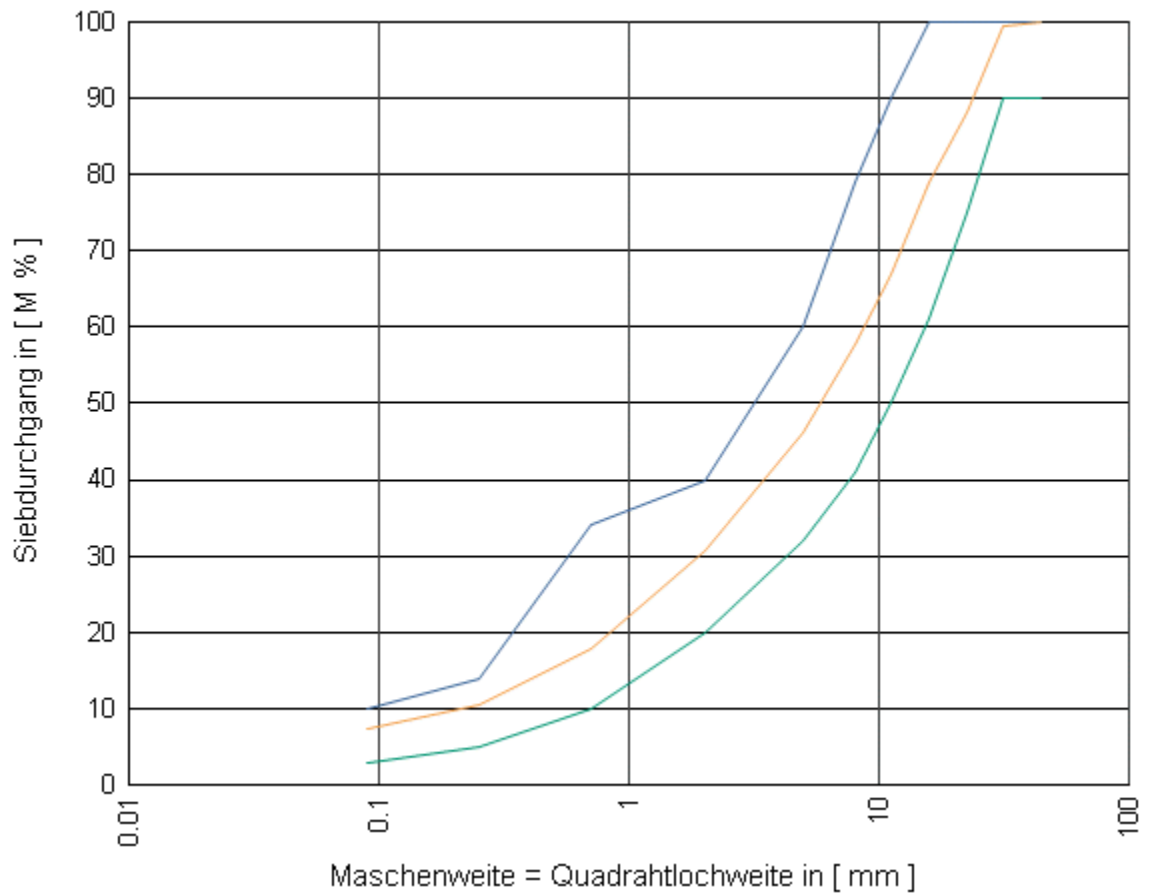
bActivate; 1=Tie X-axis gridline positions to X-Axis values, 0=Use X-axis grid scale calculations

EXAMPLE:

```
@X1_TIE 1
```



```
@X1_TIE 0
```

PERSISTENT:

NO

REQUIREMENTS:

Crystal Reports 10 or higher

@Y_ZERO (Include/Exclude Zero in Y1-Auto-Scale)

This macro includes/excludes zero in the calculation of Y1-Axis auto-scale.

SYNTAX:

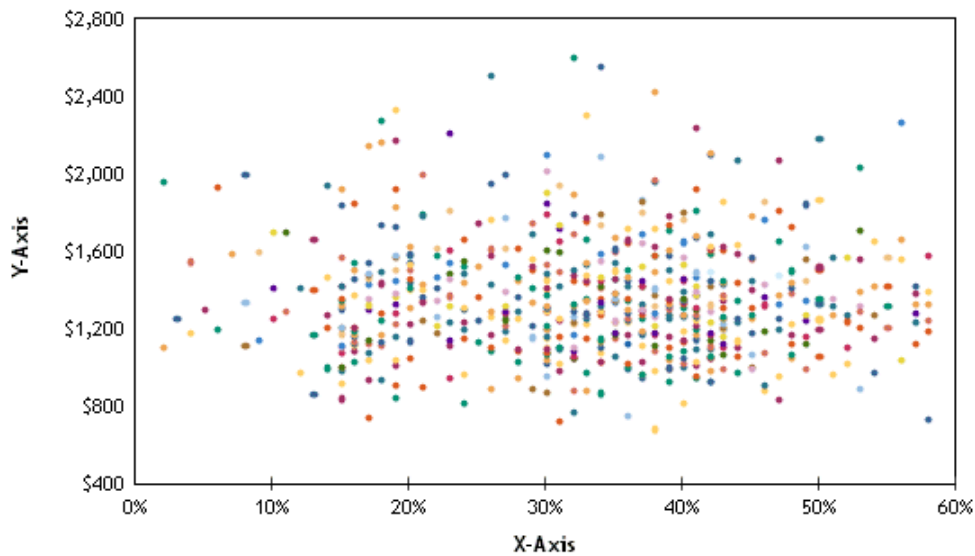
```
@Y_ZERO bExcludeZero
```

PARAMETERS:

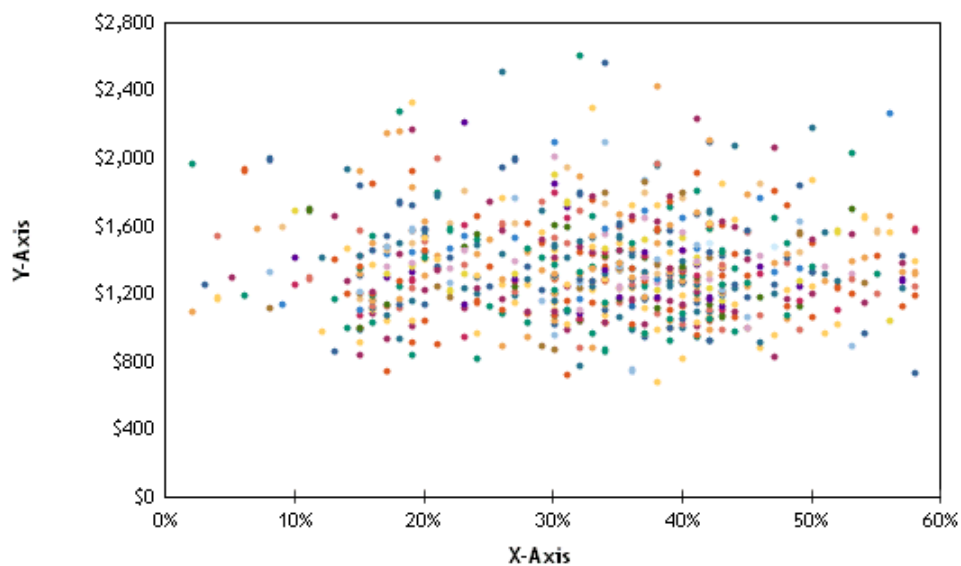
bExcludeZero; 1 = Zero is NOT used in calculating Y1-axis auto-scale. 0=Zero IS used in calculating Y1-axis auto-scale

EXAMPLE:

```
@Y_ZERO 1
```



```
@Y_ZERO 0
```



PERSISTENT:

NO

REQUIREMENTS:

Crystal Reports 10 or higher

@Y1_FORCE_PERCENT (Y1-Axis Percent Format)

This macro can be used to reformat Y1-axis labels using percent format.

SYNTAX:

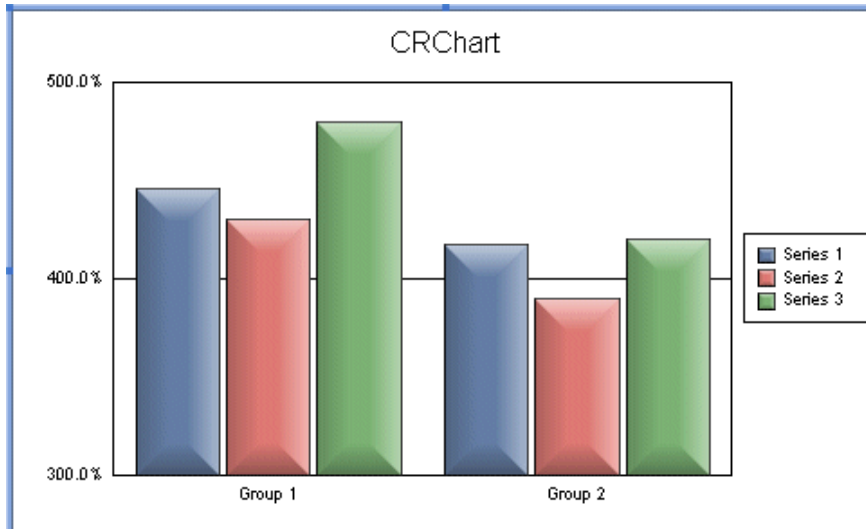
```
@Y1_FORCE_PERCENT bForce
```

PARAMETERS:

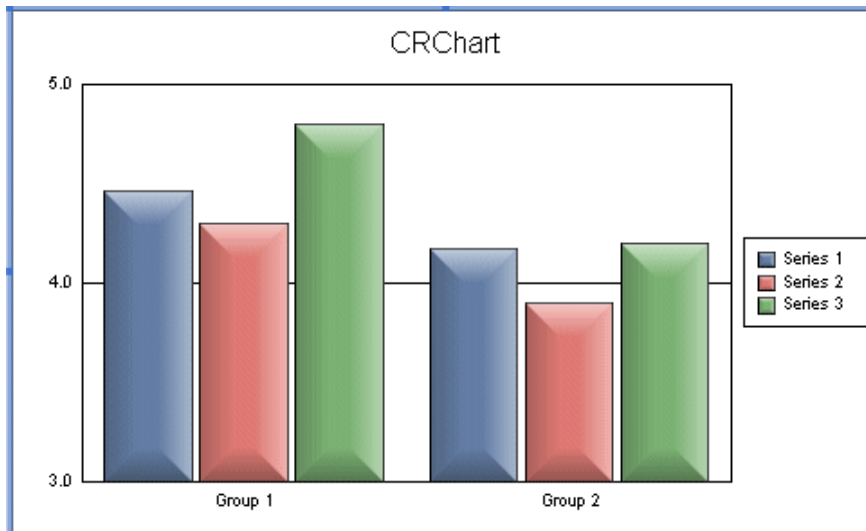
bForce; 0=Draw Y1-axis labels normally. 1=Use percent format.

EXAMPLE:

```
@Y1_FORCE_PERCENT 1
```



```
@Y1_FORCE_PERCENT 0
```



PERSISTENT:

NO

REQUIREMENTS:

Crystal Reports 9 or higher

@Y1_FORCE_PERCENT2 (Y1-Axis Percent/Numeric Format)

This macro can be used to reformat Y1-axis labels to use percentage or numeric format.

SYNTAX:

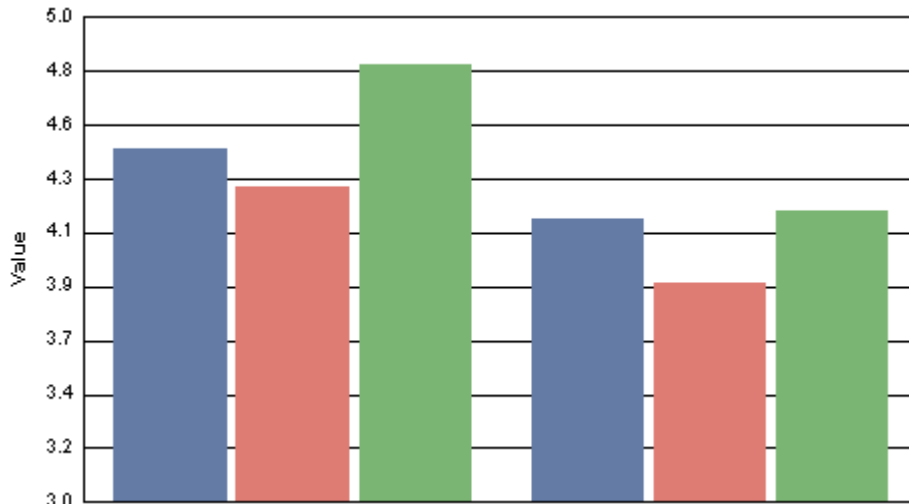
`@Y1_FORCE_PERCENT2 bForce`

PARAMETERS:

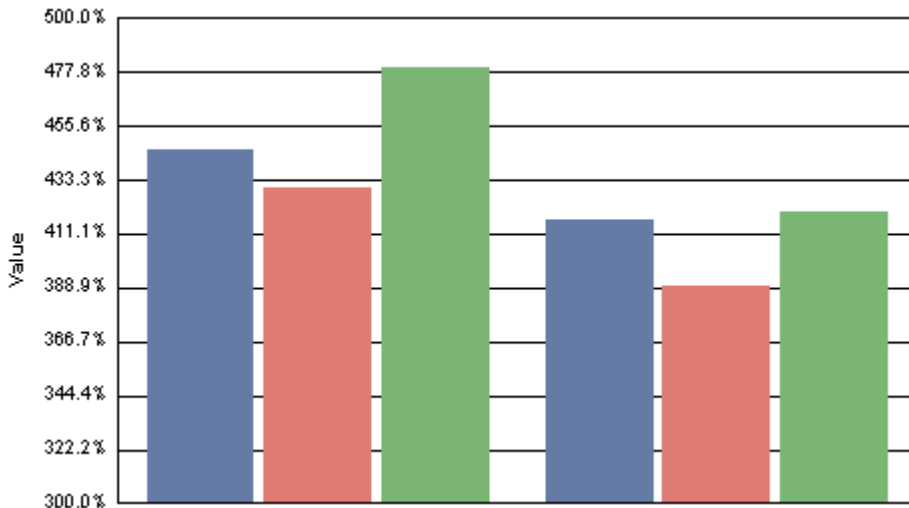
bForce; 0=Numeric Format. 1=Percent Format.

EXAMPLE:

`@Y1_FORCE_PERCENT2 0`



`@Y1_FORCE_PERCENT2 1`



PERSISTENT:

NO

REQUIREMENTS:

Crystal Reports 10 or higher

@Y1_INVERT (Y1-Axis Invert)

This macro inverts the values and labels on the Y1-axis.

SYNTAX:

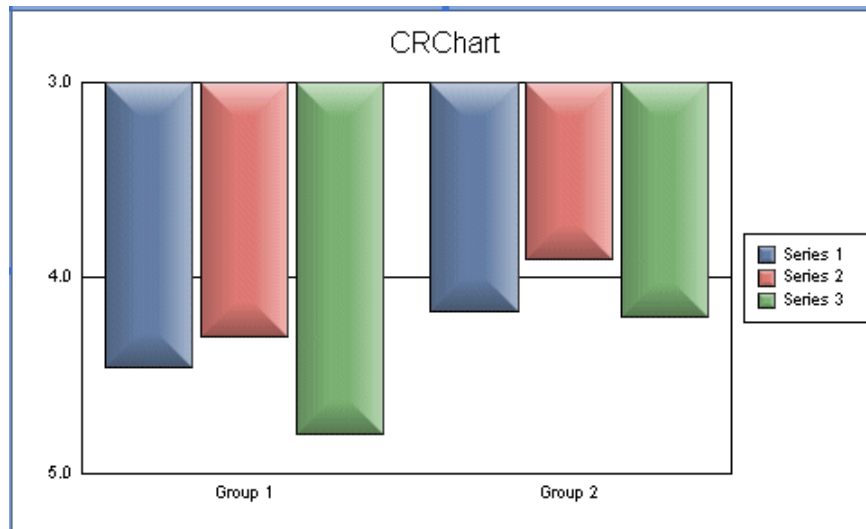
```
@Y1_INVERT bInvert
```

PARAMETERS:

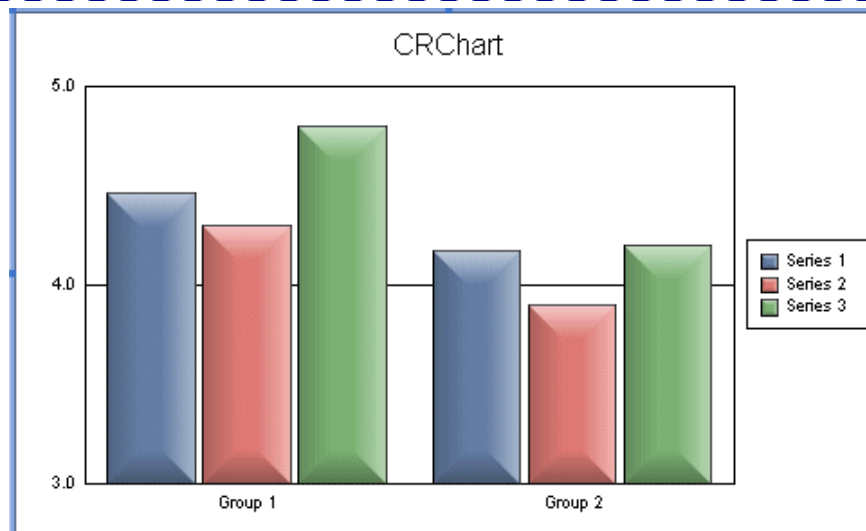
bInvert; 0=Draw values and labels normally. 1=Invert values and labels.

EXAMPLE:

```
@Y1_INVERT 1
```



```
@Y1_INVERT 0
```

**PERSISTENT:**

NO

REQUIREMENTS:

Crystal Reports 9 or higher

@Y1BASE (Y1-Axis Base Line)

This macro specifies a baseline position for the Y1-axis. The default value is 0.0. Values greater than *fBase* draw "Up" from the baseline. Values less than *fBase* draw "Down" from the baseline.

SYNTAX:

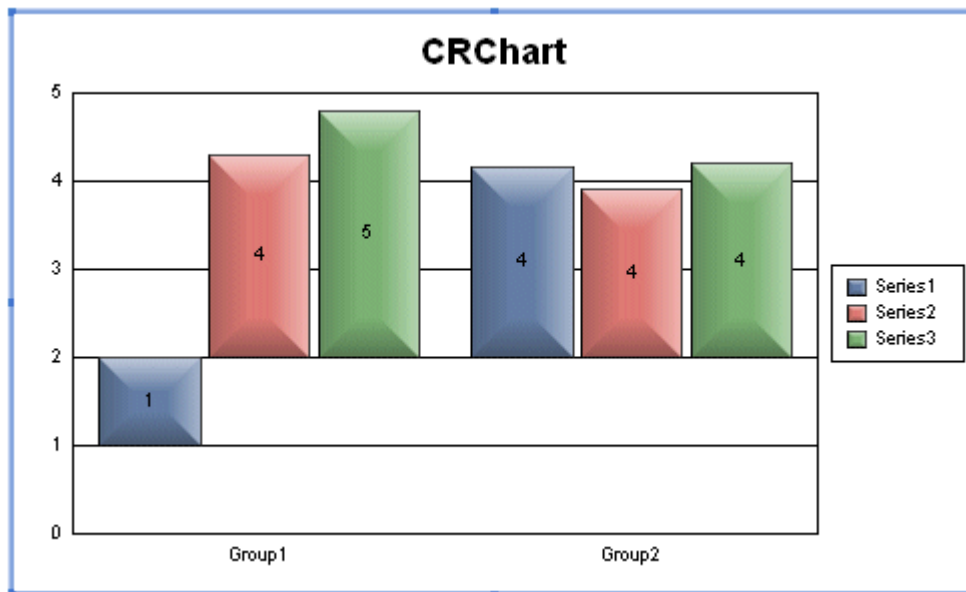
```
@Y1BASE fBase
```

PARAMETERS:

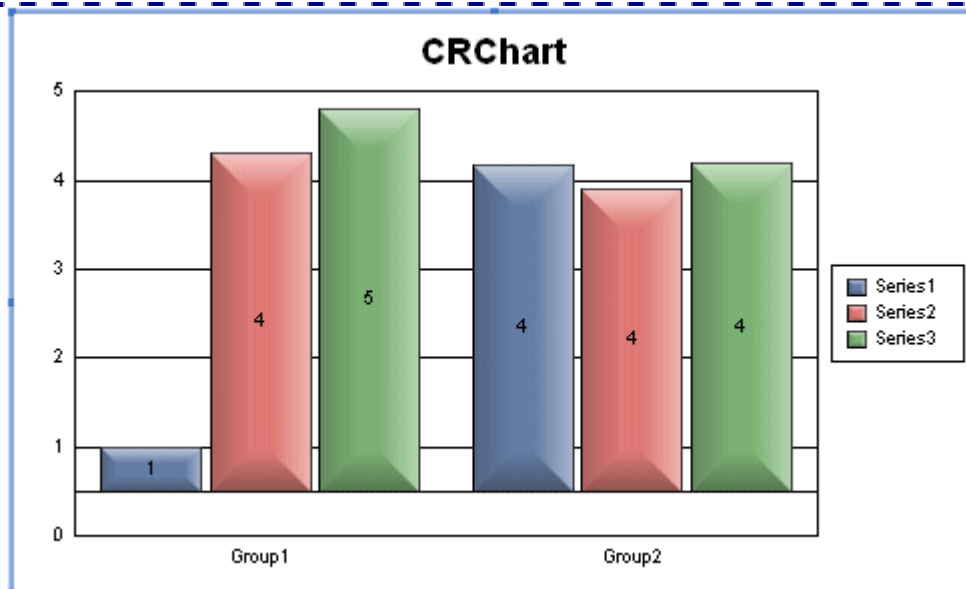
fBase; Base line value

EXAMPLE:

```
@Y1BASE 2
```



```
@Y1BASE .5
```



PERSISTENT:

NO

@Y2_FORCE_PERCENT (Y2-Axis Percent Format)

This macro can be used to reformat Y2-axis labels using percent format.

SYNTAX:

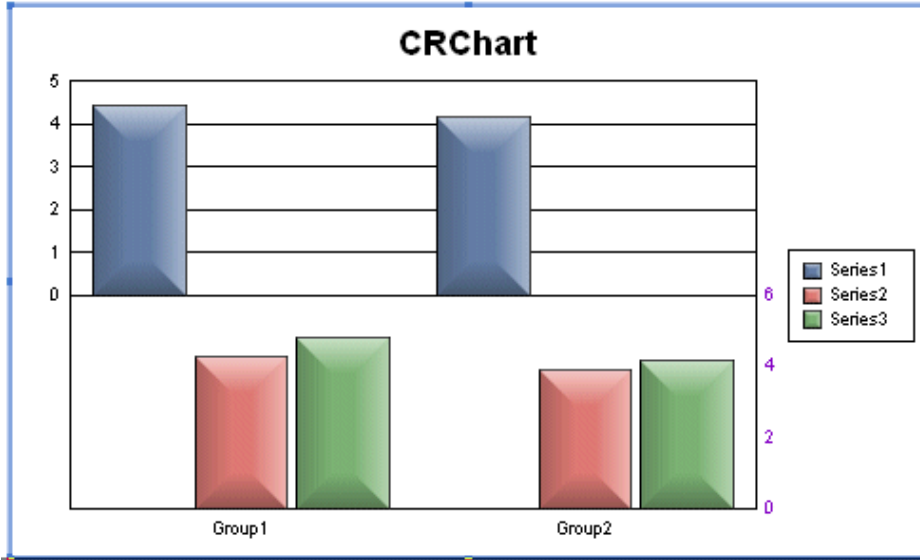
```
@Y2_FORCE_PERCENT bForce
```

PARAMETERS:

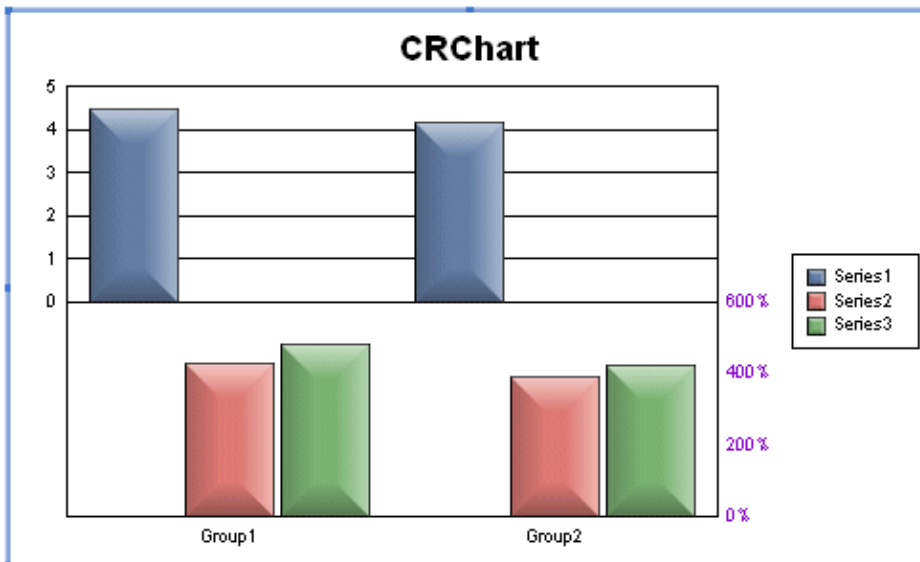
bForce; 0=Draw Y2-axis labels normally. 1=Use percent format.

EXAMPLE:

```
@Y2_FORCE_PERCENT 0
```



```
@Y2_FORCE_PERCENT 1
```



PERSISTENT:

NO

REQUIREMENTS:

Crystal Reports 10 or higher

@Y2_INVERT (Y2-Axis Invert)

This macro inverts the values and labels on the Y2-axis.

SYNTAX:

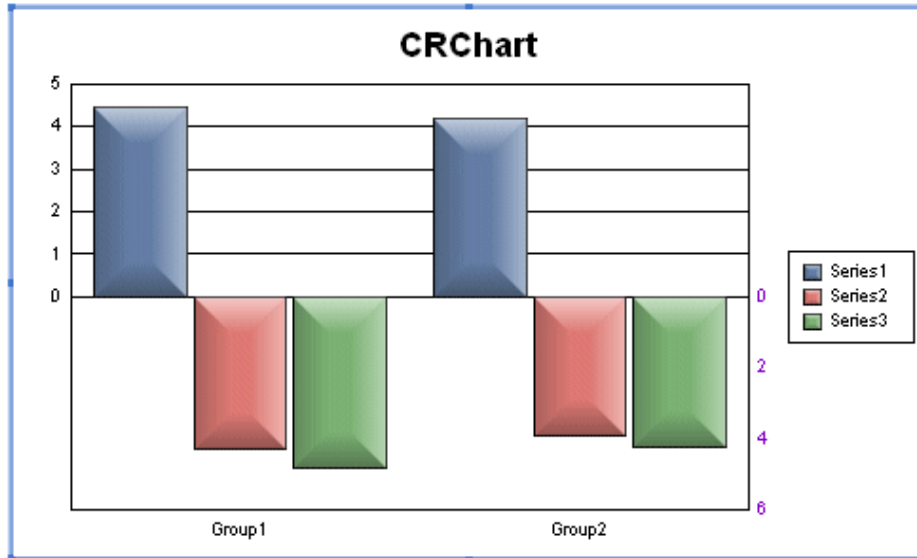
```
@Y2_INVERT bInvert
```

PARAMETERS:

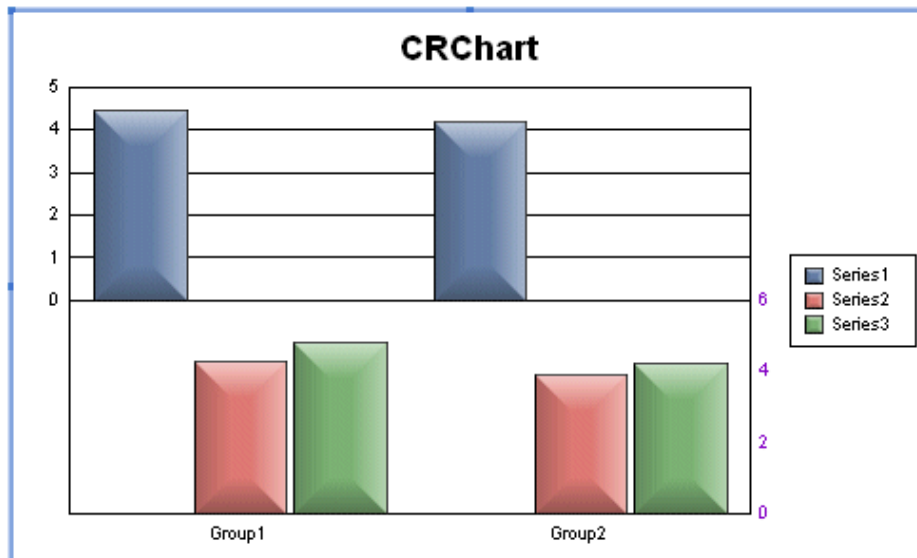
bInvert; 0=Draw values and labels normally. 1=Invert values and labels.

EXAMPLE:

```
@Y2_INVERT 1
```



```
@Y2_INVERT 0
```



PERSISTENT:

NO

REQUIREMENTS:

Crystal Reports 9 or higher

@Y2BASE (Y2-Axis Base Line)

For dual-Y and bi-polar charts, this macro specifies a baseline position for the Y2-axis. The default value is 0.0. Values greater than *fBase* draw "Up" from the baseline. Values less than *fBase* draw "Down" from the baseline.

SYNTAX:

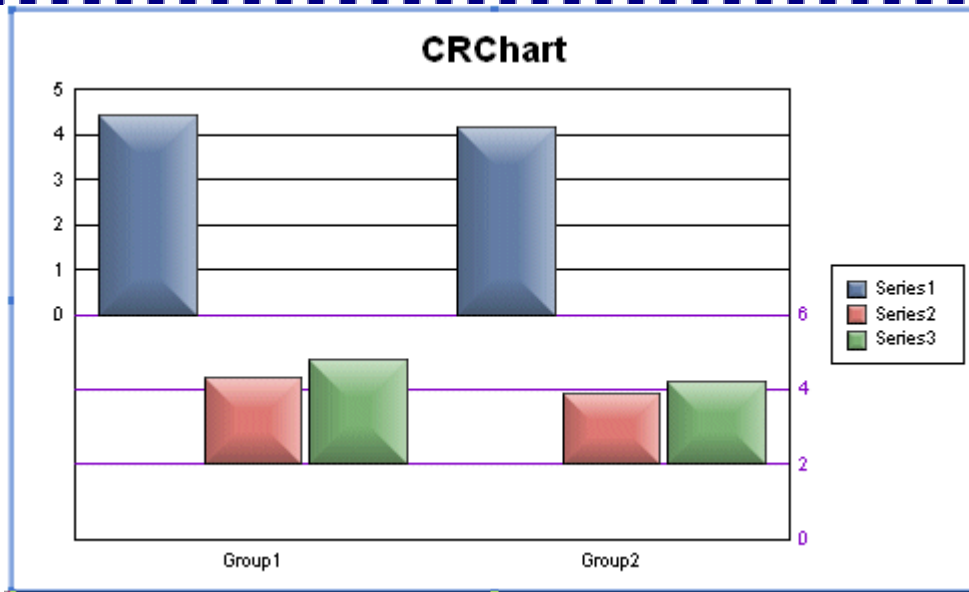
```
@Y2BASE fBase
```

PARAMETERS:

fBase; Base line value

EXAMPLE:

```
@Y2BASE 2
```



PERSISTENT:

NO

@Y2SLAVE (Y2-Axis Slave to Y1)

On a dual-Y axis chart, this macro forces the minimum/maximum values on the Y2-axis to be the same as the minimum/maximum values on the Y1-axis.

SYNTAX:

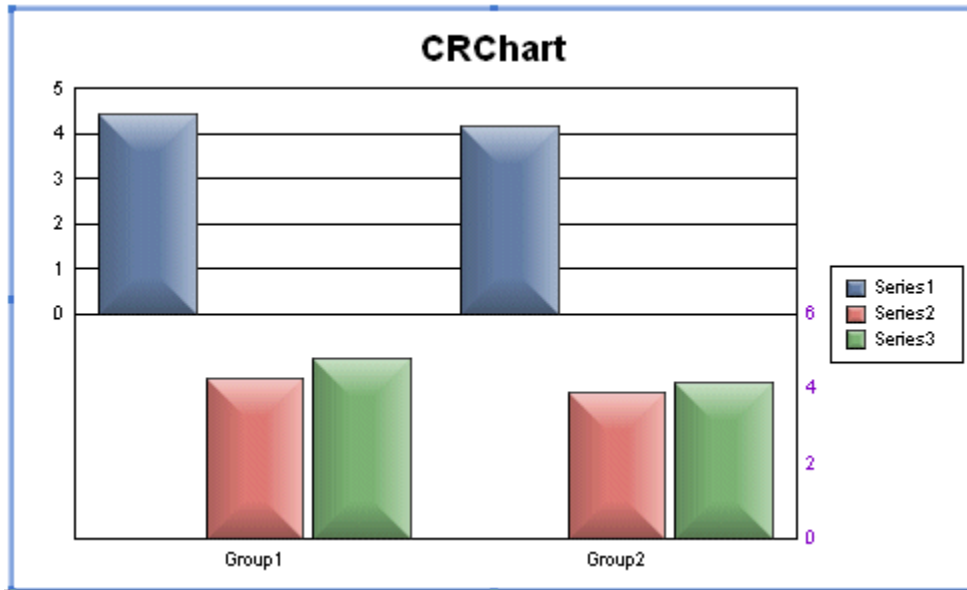
@Y2SLAVE

PARAMETERS:

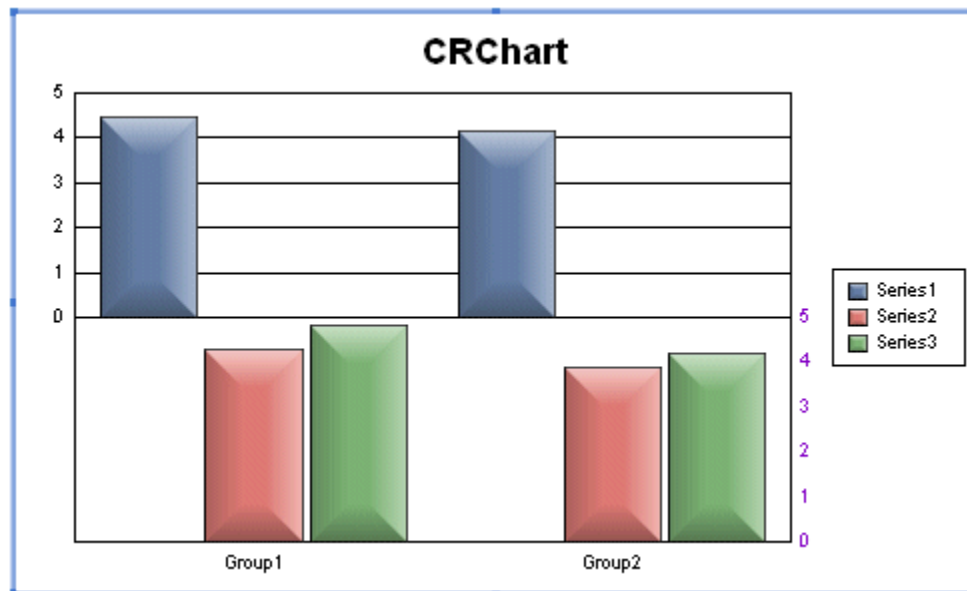
None

EXAMPLE:

Before @Y2SLAVE



@Y2SLAVE



PERSISTENT:

YES

@Y2SLAVE2 (Y1/Y2 Slave to Max Value)

On a dual-Y axis chart, this macro forces the minimum/maximum values to be the same on both axes (Y1 and Y2). CRChart determines the maximum value to use on both axes by calculating MAX (Y1's Maximum Value, Y2's Maximum Value) from the raw data that forms the chart.

SYNTAX:

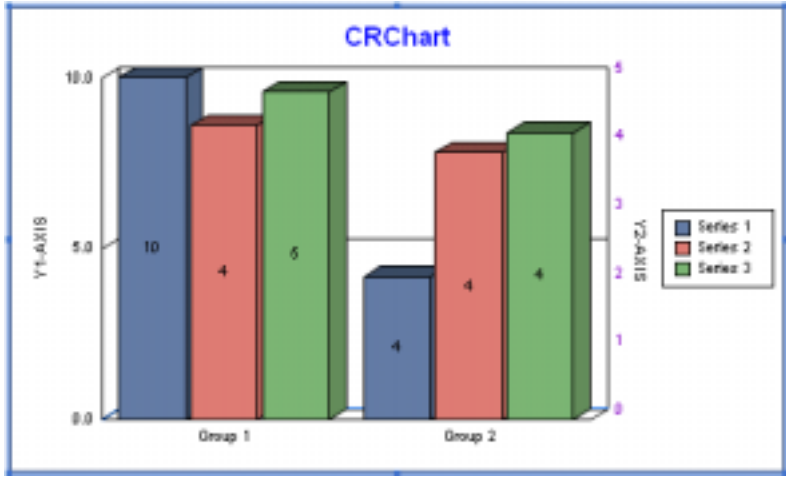
```
@Y2SLAVE2
```

PARAMETERS:

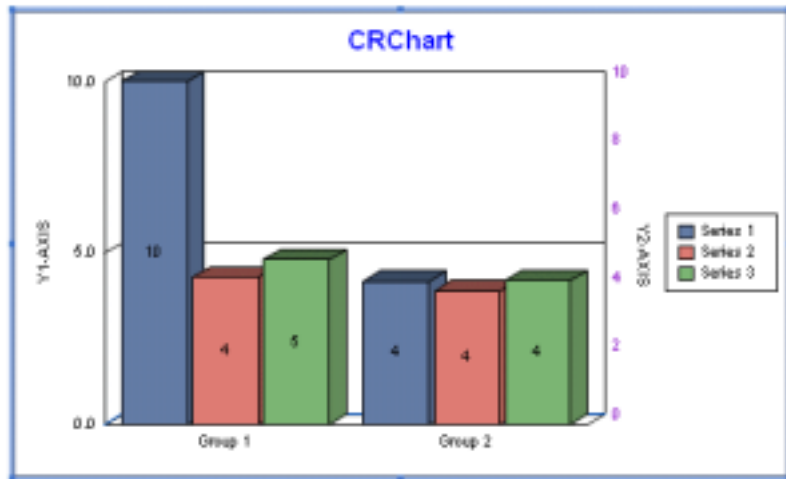
None

EXAMPLE:

Before @Y2SLAVE2



@Y2SLAVE2



PERSISTENT:

YES

REQUIREMENTS:

Crystal Reports 9 or higher

ALSO SEE:

@Y2SLAVE

@ZEROLINE (Draw Zero Line with Axis Labels)

This macro draws a zero line on the X- and/or Y-Axis using the specified color. Axis labels are drawn below the zero line (instead of on the chart base line).

SYNTAX:

```
@ZEROLINE bXZeroLineMode bYZeroLineMode rgbZeroLine
```

PARAMETERS:

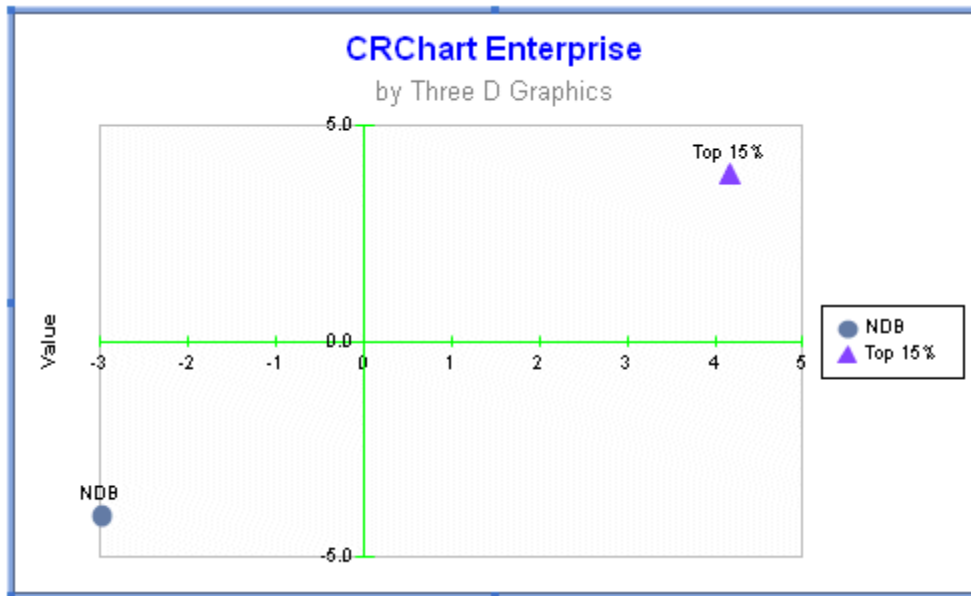
bXZeroLineMode; 1 = Draw zero line on X-Axis/0 = Do not draw zero line on X-Axis

bYZeroLineMode; 1 = Draw zero line on Y-Axis/0 = Do not draw zero line on Y-Axis

rgbZeroLine; 0x000000...0xFFFFFFFF Defines the color of the line. Example: 0xFF0000 (Red)

EXAMPLE:

```
@ZEROLINE 1 1 0x00FF00
```



PERSISTENT:

NO

REQUIREMENTS:

- Crystal Reports 11 or higher
- **CRCHART Enterprise**

Section 4: Series & Groups

These macros can be used to control series and groups.

- @CALC_PERCENT_SERIES; Calculate Percentage Series
- @FORCE_ABSOLUTE; Force Series to plot Absolute
- @FORCE_SERIES_COUNT; Force the number of Series in a chart
- @IG; Ignore a Group
- @IS; Ignore a Series
- @LIMIT_VISIBLE_GROUPS; Limit the number of Visible Groups
- @MIN_GROUPS; Add blank groups to control bar size
- @PERCENT_SERIES; Create a Ratio Series
- @RG; Reverse Groups
- @RS; Reverse Series
- @SINGLE_GROUP; Draw only the first Group in a Scatter Chart
- @SORT; Sort Series/Groups
- @STEP_LINE; Draw a Series Stepped Line
- @STEP_LINE2; Draw a Series Stepped Line at Values
- @STOP; Force Assign Elements to Series One
- @SWAP; Swap Series/Groups
- @TOTAL_GROUP; Create a Total Group

@CALC_PERCENT_SERIES (Calculate Percent Series)

This macro creates a percentage series by using two other series as the numerator (0...n) and denominator (0...n).

SYNTAX:

```
@CALC_PERCENT_SERIES nNumeratorSeries nDenominatorSeries  
szSeriesLabel
```

PARAMETERS:

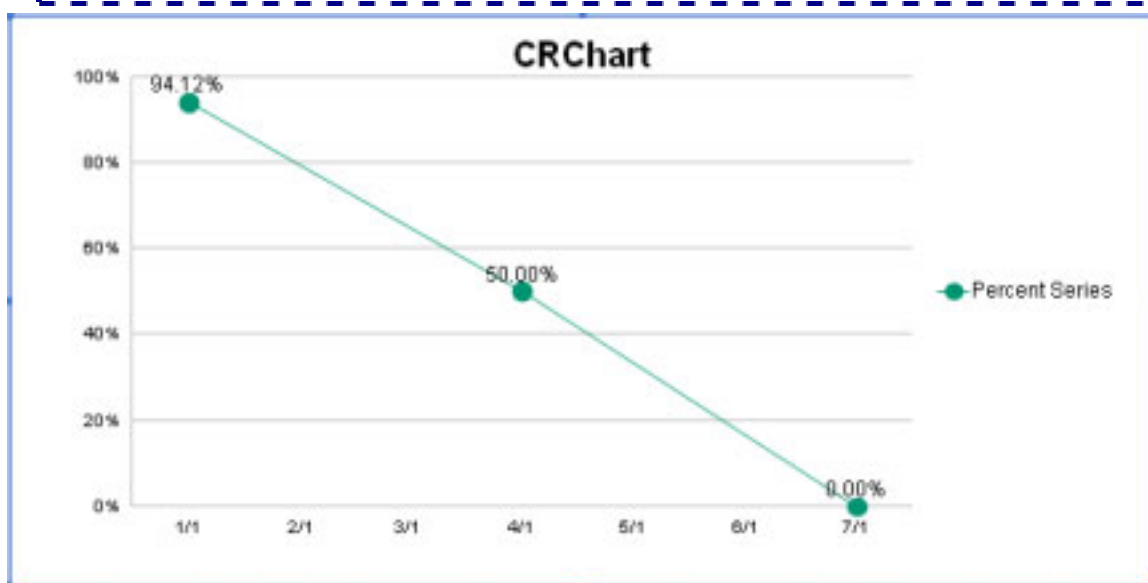
nNumeratorSeries; 0...n selects the numerator series

nDenominatorSeries; 0...n selects the denominator series

szSeriesLabel; new percent series label to use in legend area

EXAMPLE:

```
@CALC_PERCENT_SERIES 0 1 Percent Series
```



PERSISTENT:

NO

REQUIREMENTS:

Crystal Reports 10 or higher

ALSO SEE:

@PERCENT_SERIES

@FORCE_ABSOLUTE (Force Series Absolute)

In any stacked chart, this macro forces a specified series (*nSeries*) to plot absolute.

SYNTAX:

```
@FORCE_ABSOLUTE nSeries bAbs
```

PARAMETERS:

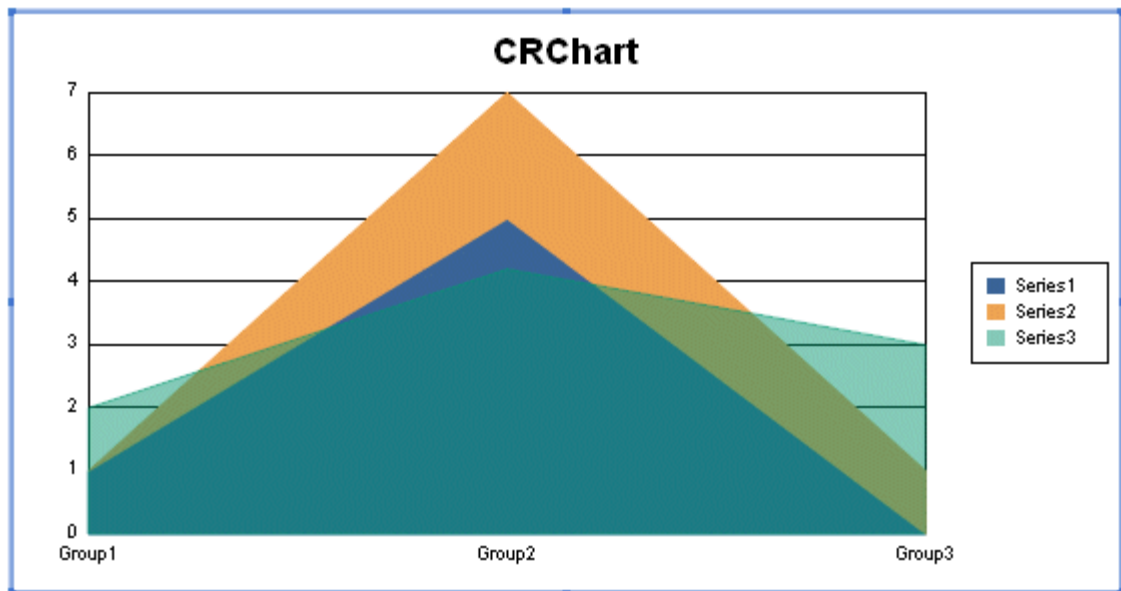
nSeries; 0...99 defines the series to draw absolute (0=Series 1)

bAbs; 1 = Force absolute, 0= Keep Stacked

EXAMPLE:

This example forces the third series to draw ABSOLUTE.

```
@FORCE_ABSOLUTE 2 1
```



PERSISTENT

NO

REQUIREMENTS:

Crystal Reports 10 or higher

@FORCE_SERIES_COUNT (Force Series Count)

This macro forces the number of series in the chart and number of series drawn in the legend to *nElements*. This macro is useful in some cases where the CRViewer shows more data than the user is expecting.

SYNTAX:

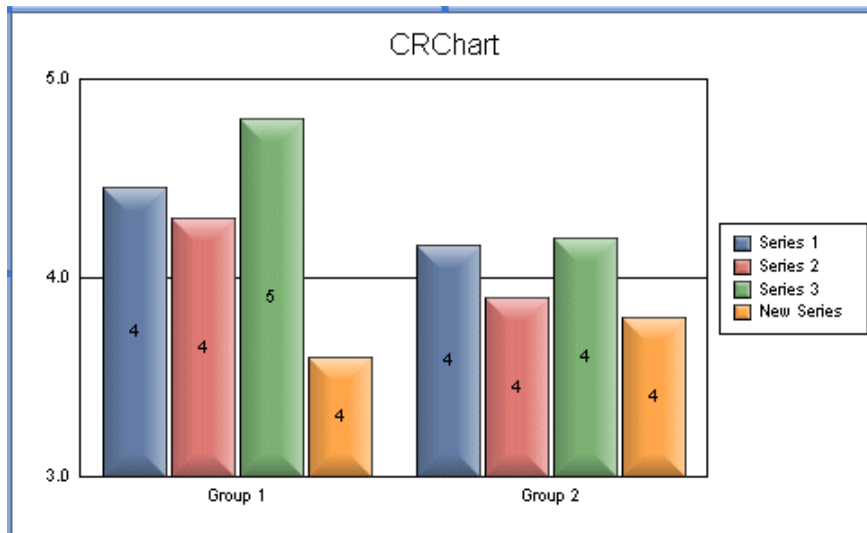
```
@FORCE_SERIES_COUNT nElements
```

PARAMETERS:

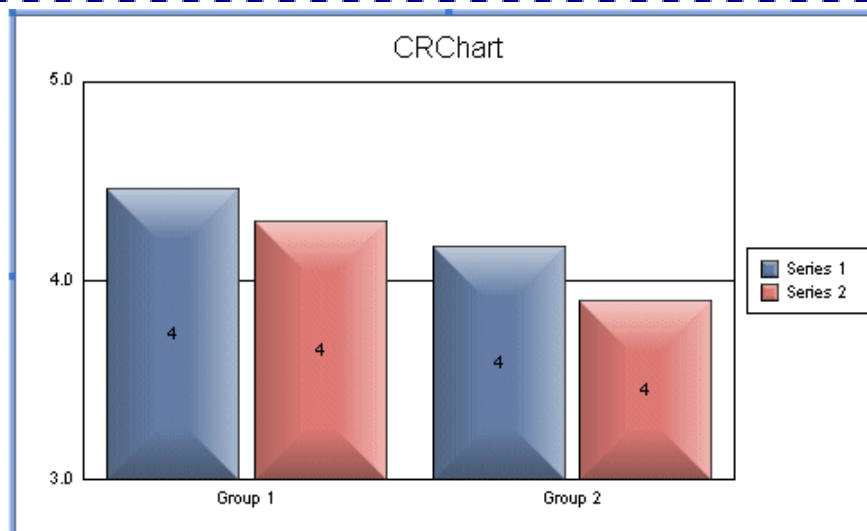
nElements; 0...1024 defines the number of series to draw

EXAMPLE:

```
@FORCE_SERIES_COUNT 4
```



```
@FORCE_SERIES_COUNT 2
```



PERSISTENT

NO

REQUIREMENTS:

Crystal Reports 10 or higher

@IG (Ignore Group)

This macro hides a specified group and its risers so that it is not drawn in the chart.

SYNTAX:

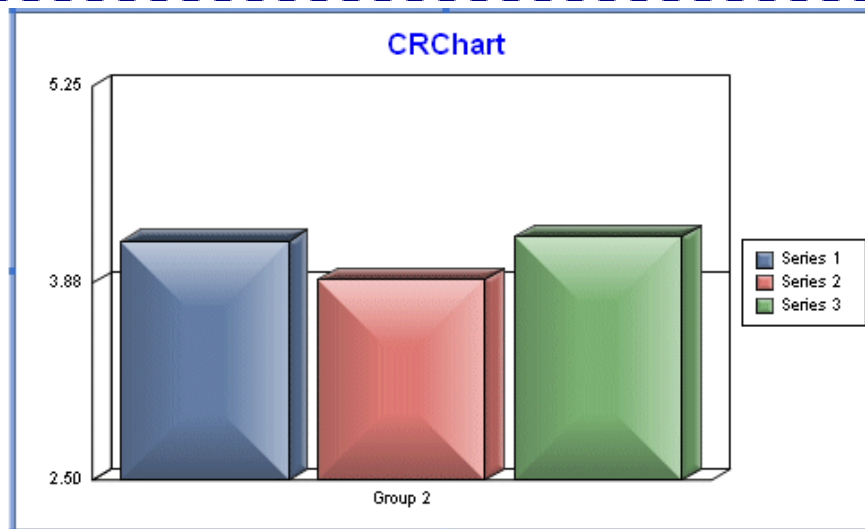
```
@IG nGroup
```

PARAMETERS:

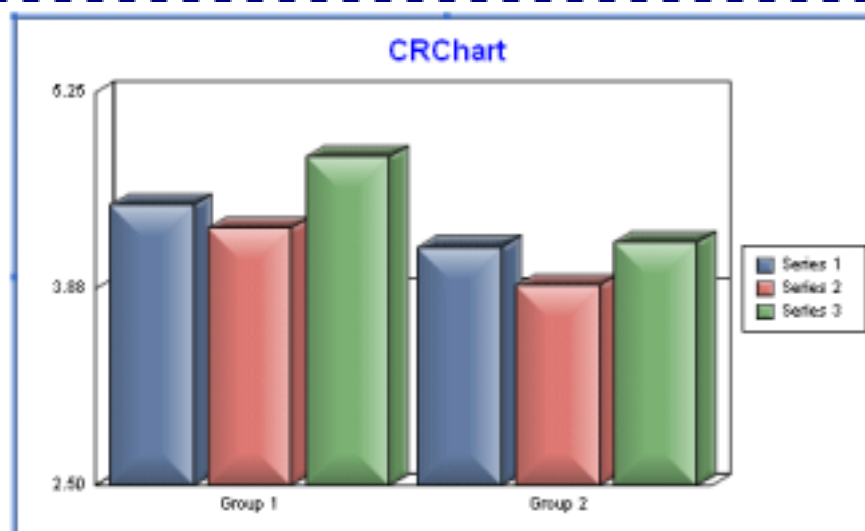
nGroup; -1...1024 specifies the group to hide. -1=Restore all previously ignored groups, 0 = Hide Group 1, 1 = Hide Group 2, etc.

EXAMPLE:

```
@IG 0
```



```
@IG -1
```



PERSISTENT:

YES

REQUIREMENTS:

Crystal Reports 9 or higher

@IS (Ignore Series)

This macro sets the specified series *nSeries* to "ignore" so that it will not appear in the chart. The special value of -1 "restores" all series so that they will all appear again.

SYNTAX:

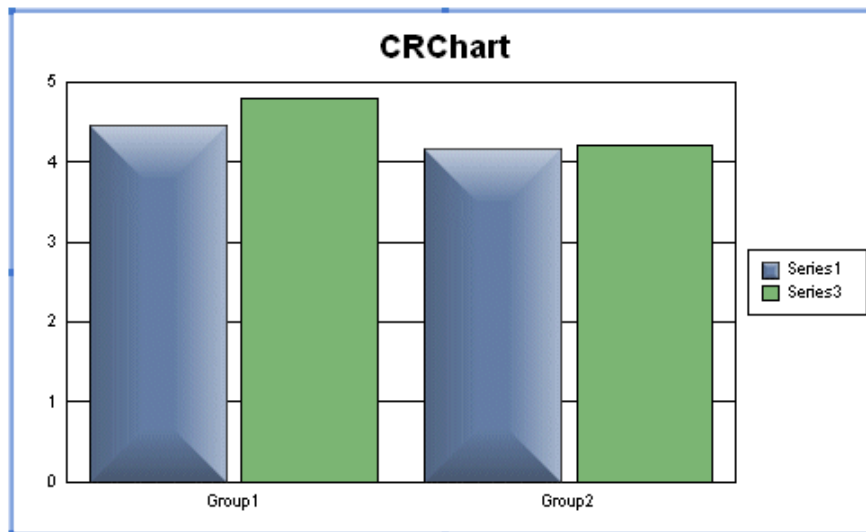
```
@IS nSeries
```

PARAMETERS:

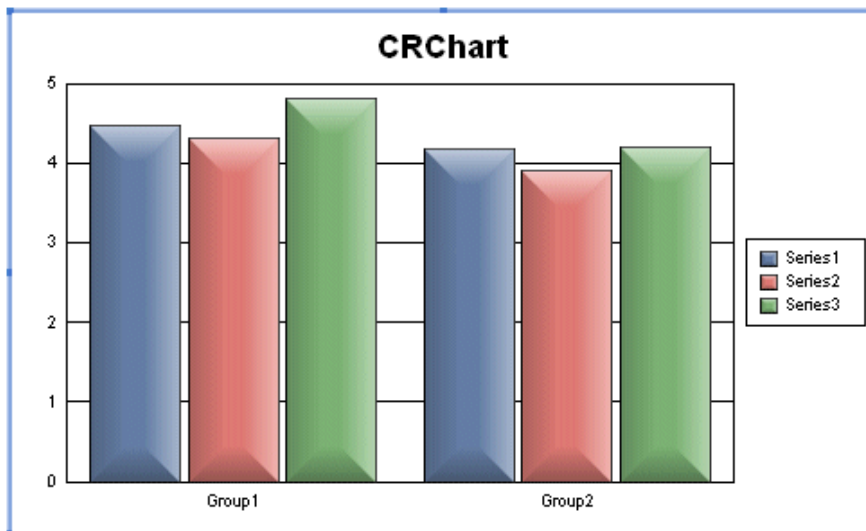
nSeries; -1...1024 specifies the series to hide. -1=Restore all previously ignored Series, 0 = Hide Series 1, 1 = Hide Series 2, etc.

EXAMPLE:

```
@IS 1
```



```
@IS -1
```



PERSISTENT:

YES

@LIMIT_VISIBLE_GROUPS (Limit Visible Groups)

This macro limits the number of visible groups in a chart by suppressing all data after *nGroup*. This macro is very useful for area charts where you wish to "cut off" data at some point in the chart.

SYNTAX:

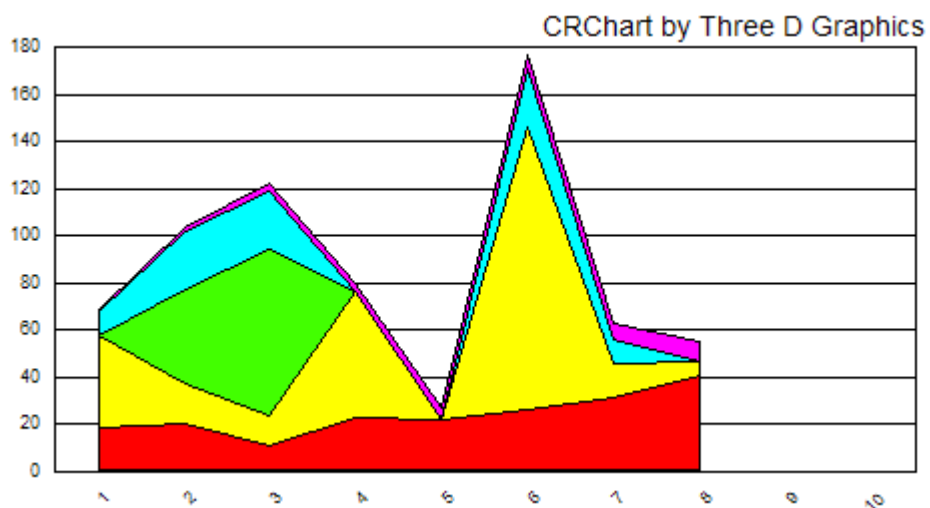
```
@LIMIT_VISIBLE_GROUPS nGroup
```

PARAMETERS:

nGroup; 0..1024. 0 = "no suppression" 1...1024 = number of groups that will be visible

EXAMPLE:

```
@GRAPHTYPE 1
@LIMIT_VISIBLE_GROUPS 8
```



PERSISTENT:

YES

NOTES:

This macro only works for Single-Y stacked chart types:

@GRAPHTYPE Value	Chart
1	Vertical Area Stacked
8	Horizontal Area Stacked
15	Vertical Bar Stacked
22	Horizontal Bar Stacked
29	Vertical Line Stacked
36	Horizontal Line Stacked

@MIN_GROUPS (Control Bar Size)

This macro adds blank groups and NULL data so that a consistent size bar can be represented. A chart with one bar and a chart with eight bars will draw the same size bar. The *nGroups* parameter specifies the static number of groups to use to calculate riser width (it is overwritten if there are more groups in data than *nGroups*).

SYNTAX:

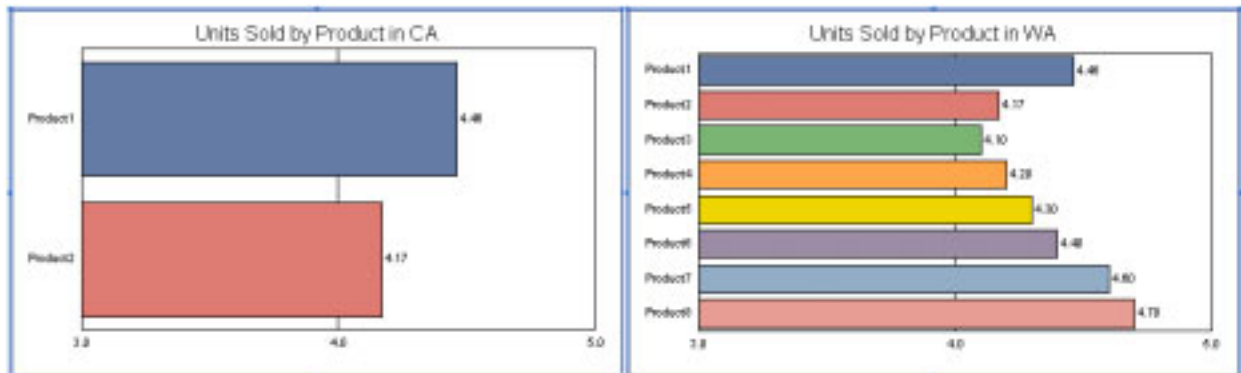
```
@MIN_GROUPS nGroups
```

PARAMETERS:

nGroups; 0...1024 static number of groups to pretend to use in the chart to calculate chart width

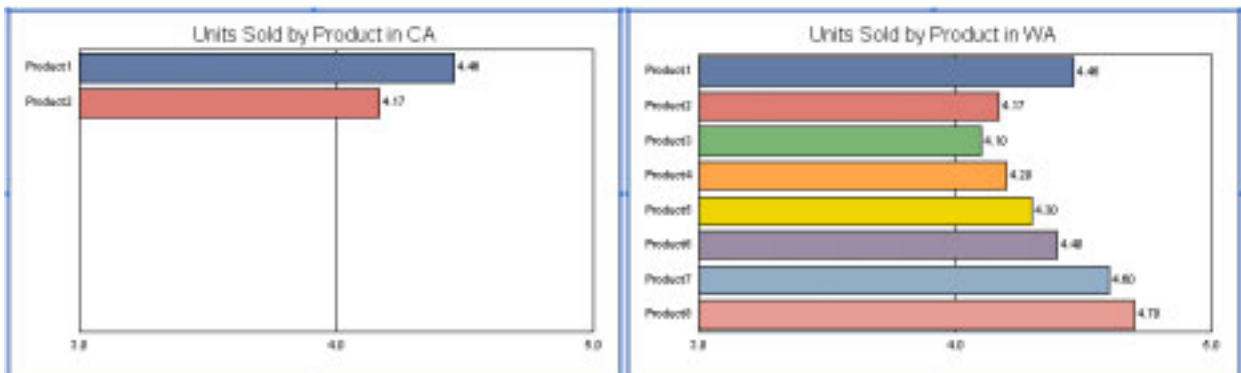
EXAMPLE:

This macro will GUARANTEE that the width of a bar in a single series chart will be identical regardless of the number groups. For example, a multi-page report where each page represents the sales of a product in a given state may have between 1 and 8 groups. Some states only carry one product, some carry 3 products, some carry ALL products. Without this macro, some states will have very wide bars:



@MIN_GROUPS 8 insures an eye-pleasing set of charts with consistent bar sizes.

```
@MIN_GROUPS 8
```



PERSISTENT:

NO

REQUIREMENTS:

Crystal Reports 10 or higher

@PERCENT_SERIES (Create Ratio Series)

This macro can be used to change the values of an existing series in a chart to show the ratio of two other series. The value of the ratio series (at *nTarget*) is calculated by dividing the value of series *nTop* by the value of the series at *nBottom*. Note that the target series (*nTarget*) must already exist in the chart.

SYNTAX:

```
@PERCENT_SERIES nTop nBottom nTarget
```

PARAMETERS:

nTop; 1...*n* (where: *n* = the total number of series in the chart) selects the first source series.

nBottom; 1...*n* (where: *n* = the total number of series in the chart) selects the second source series.

nTarget; 1...*n* selects the target series. It must be a series that currently exists in the chart.

EXAMPLE:

```
@AGL 0 Los Angeles~ @AGL 1 California
@PERCENT_SERIES 0 1 2
```



PERSISTENT:

NO

REQUIREMENTS:

Crystal Reports 9 or higher

ALSO SEE:

@CALC_PERCENT_SERIES

@RG (Reverse Group)

This macro reverses the order of groups in a chart.

SYNTAX:

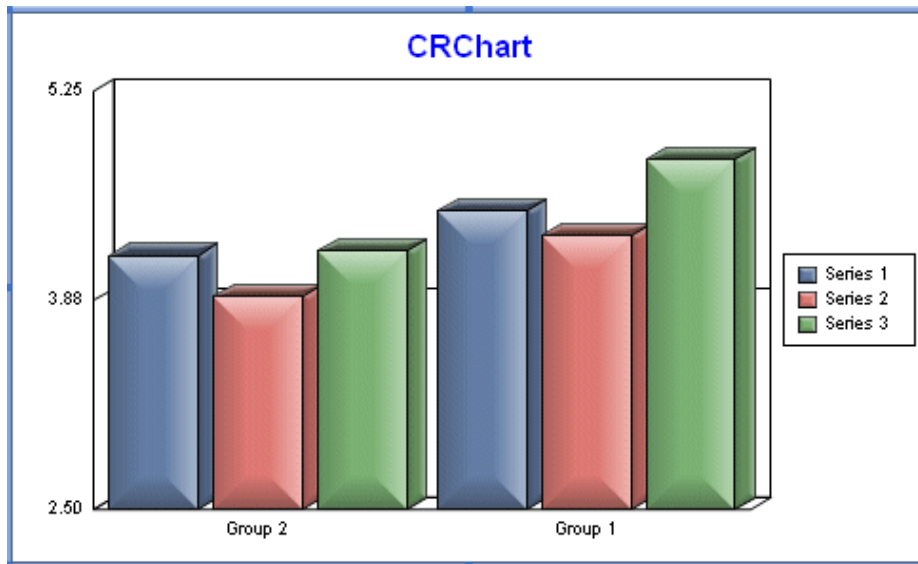
```
@RG bColReverse
```

PARAMETERS:

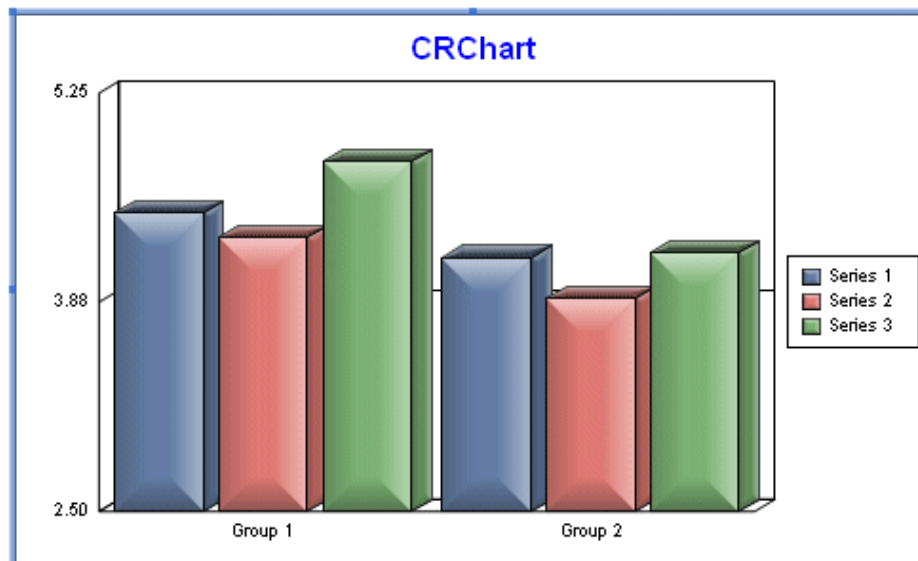
bColReverse; 1=true/reverse groups, 0=false/do not reverse groups.

EXAMPLE:

```
@RG 1
```



```
@RG 0
```



PERSISTENT:

YES

ALSO SEE:

@RS

@RS (Reverse Series)

This macro reverses the order of series in a chart.

SYNTAX:

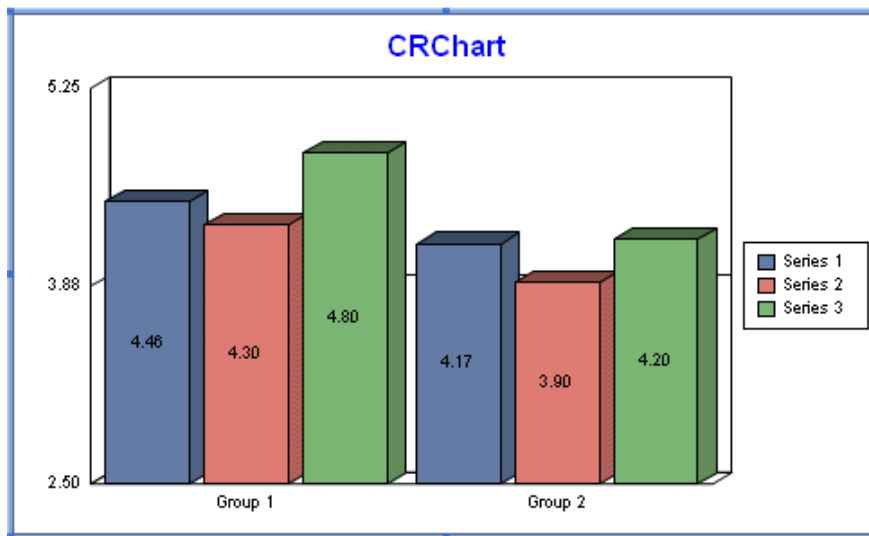
```
@RS bRowReverse
```

PARAMETERS:

bRowReverse; 1=true/reverse series, 0=false/do not reverse series.

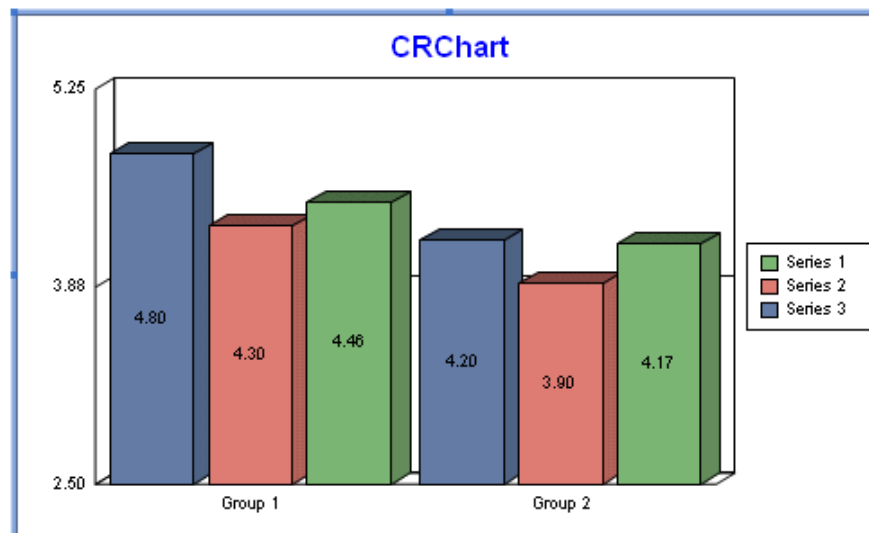
EXAMPLE:

```
@RS 0
```



```
@RS 1
```

```
@LEGEND_ORDER 1
```



PERSISTENT:

YES

ALSO SEE:

@LEGEND_ORDER, @RG

@SINGLE_GROUP (Single Group in Scatter Chart)

For scatter charts, this macro forces the chart to only display the first group.

SYNTAX:

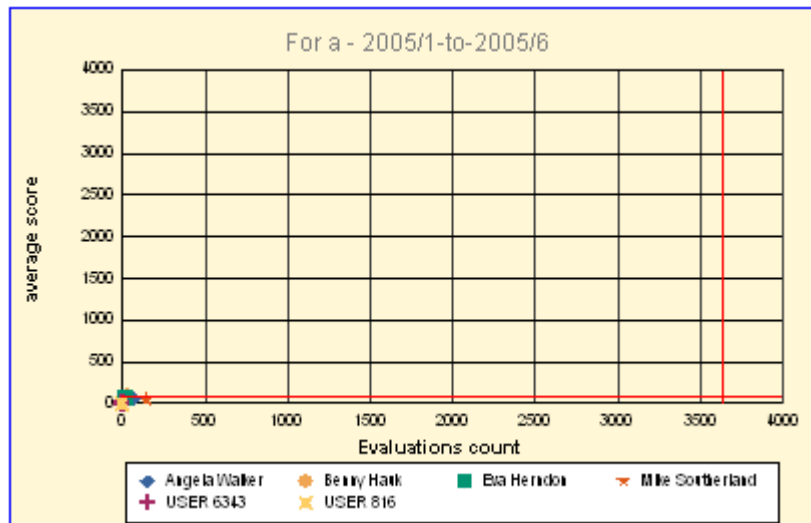
@SINGLE_GROUP

PARAMETERS:

None

EXAMPLE:

@Y P2
@X P3
@SINGLE_GROUP



PERSISTENT:

NO

REQUIREMENTS:

Crystal Reports 10 or higher

@SORT (Sort Series/Groups)

This macro can be used to sort series and groups. Risers and labels can be sorted by ascending/descending series, groups, series totals, group totals, or by a user-specified order defined within the data set. For a user-specified sort order ($nSort = 10$ or 11), define the order in which to sort groups in the first series column of the data set. You can use the @IS macro to eliminate the first series if you do not want the sort order series to appear in the chart.

SYNTAX:

```
@SORT nSort
```

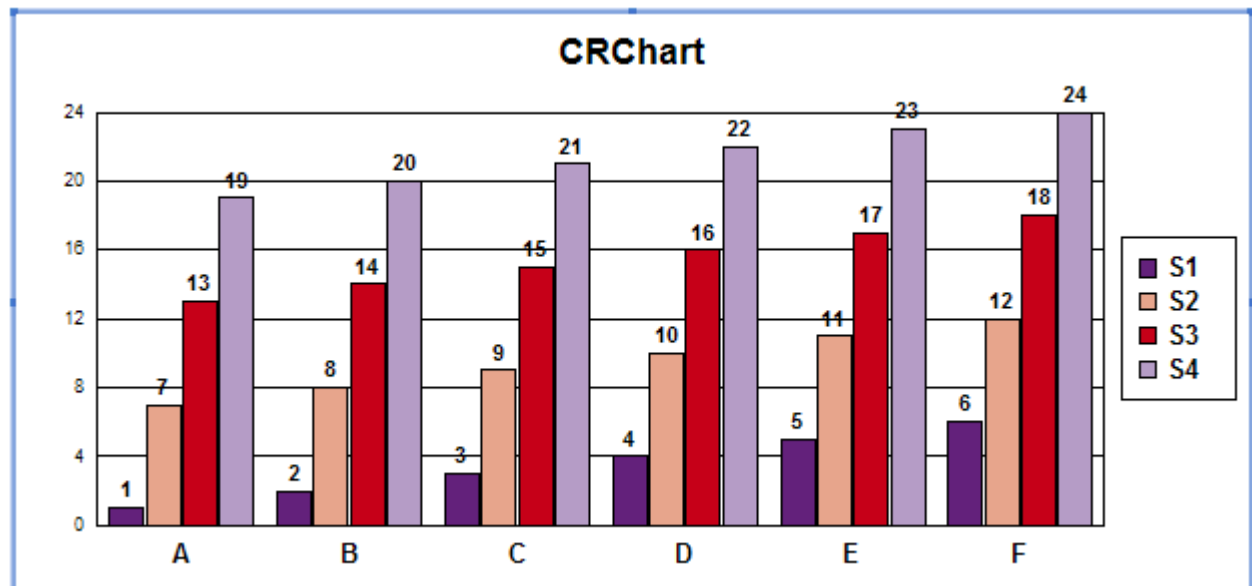
PARAMETERS:

$nSort$; 0...11 selects one of the following sorting options:

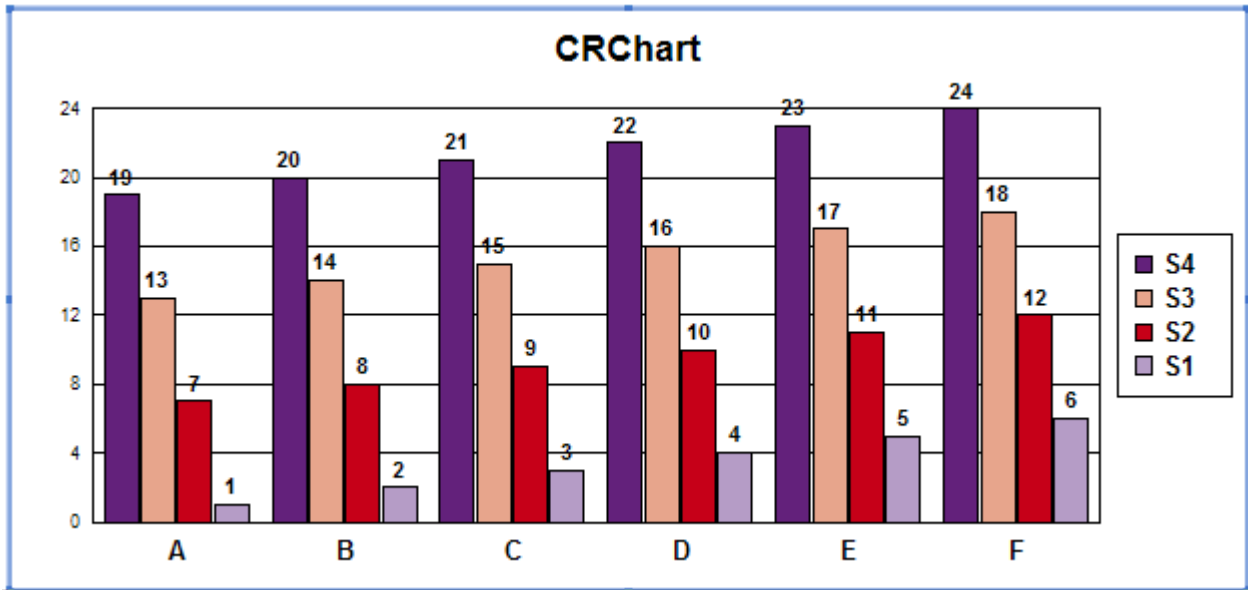
nSort	Sorting Option
0	Sort Series Labels in Alphabetical order (a...z)
1	Sort Series Labels in Reverse Alphabetical order (z...a)
2	Sort Groups Labels in Alphabetical order (a...z)
3	Sort Groups Labels in Reverse Alphabetical order (z...a)
4	Sort Series Totals in ascending numeric value (i.e. total all values in each series. Then 'rank' the series from smallest total to largest).
5	Sort Series Totals in descending numeric value
6	Sort Groups Totals in ascending numeric value
7	Sort Groups Totals in descending numeric value
8	First Series Key to Groups Ascending
9	First Series Key to Groups Descending
10	Sort Groups ascending according to the values specified in the Series 1 column of the data set
11	Sort Groups descending according to the values specified in the Series 1 column of the data set

EXAMPLE:

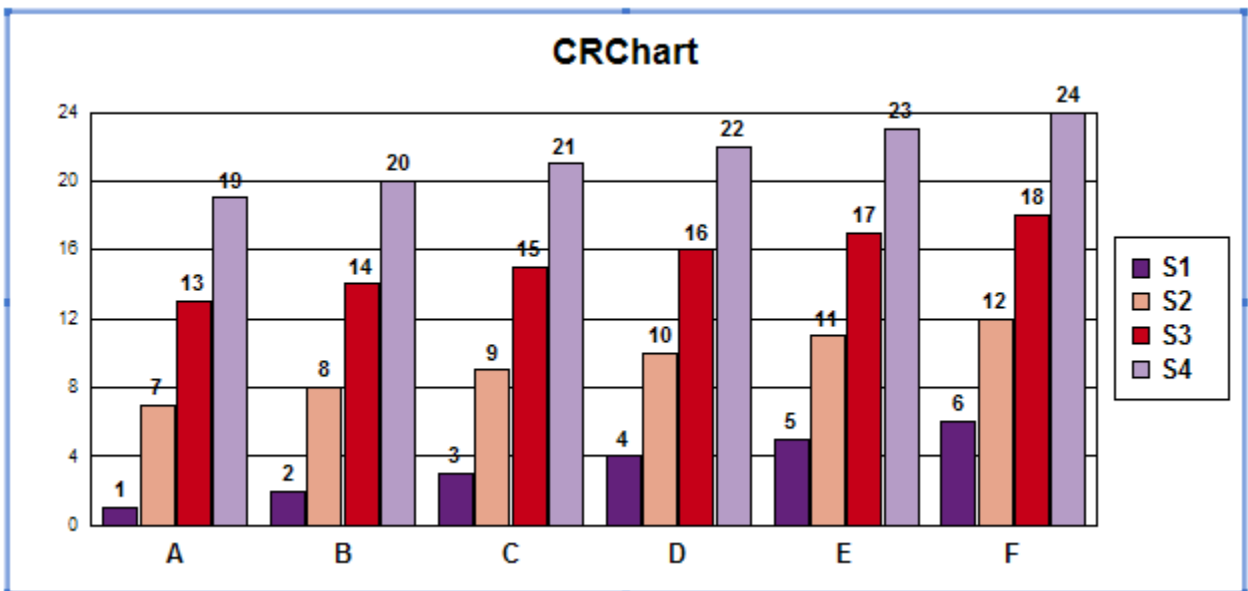
```
@SORT 0
```



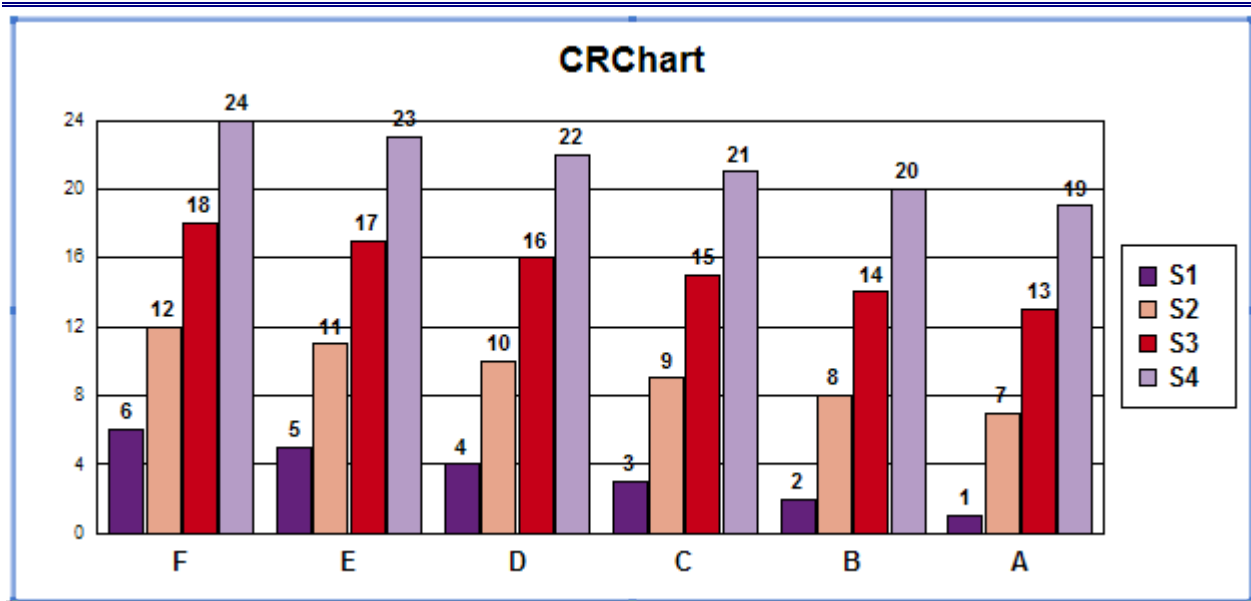
@SORT 1



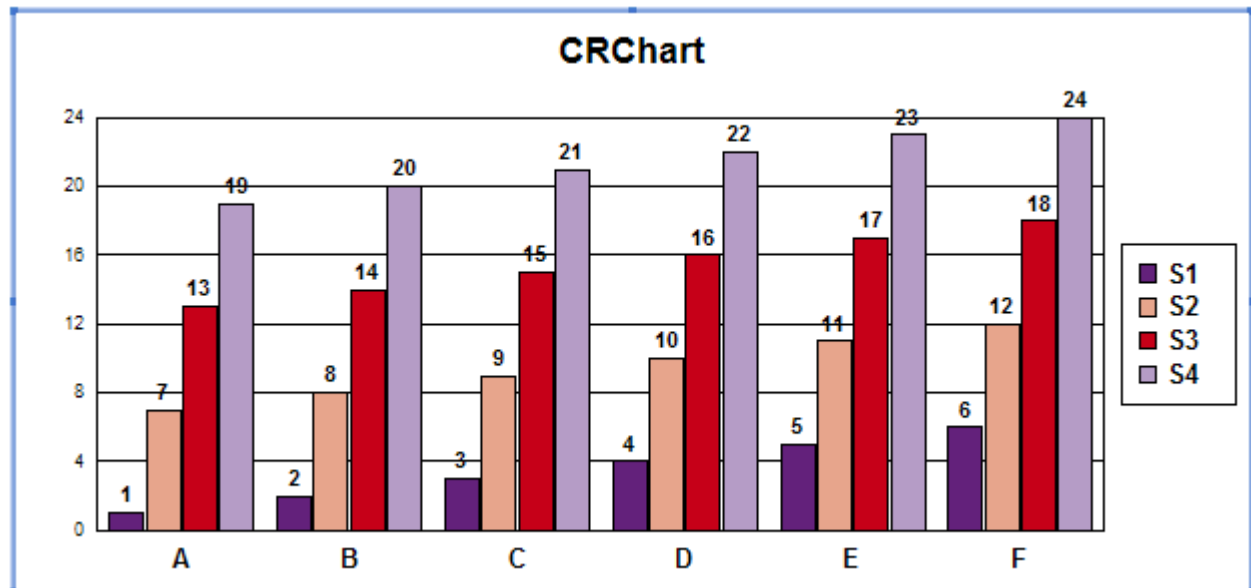
@SORT 2



@SORT 3

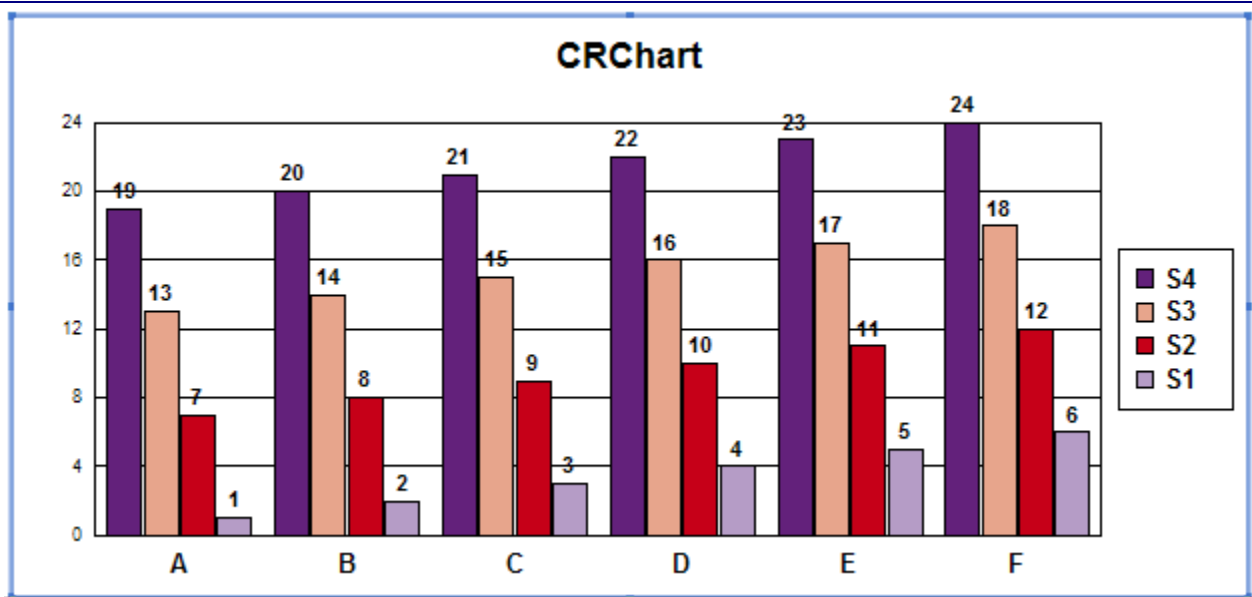


@SORT 4

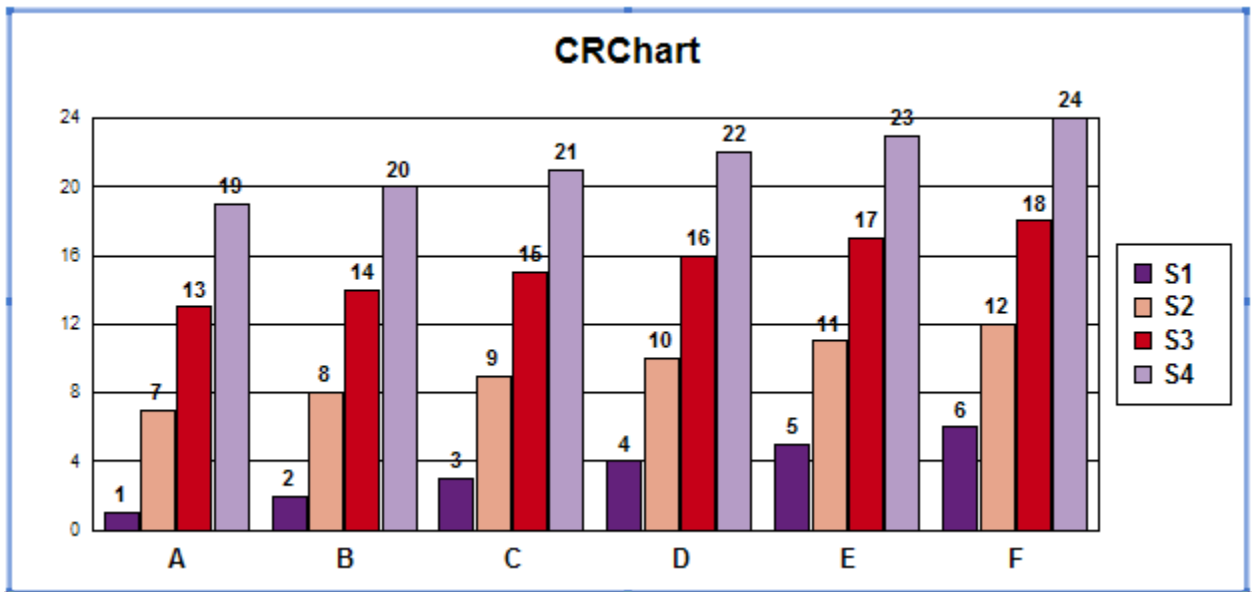


@SORT 5

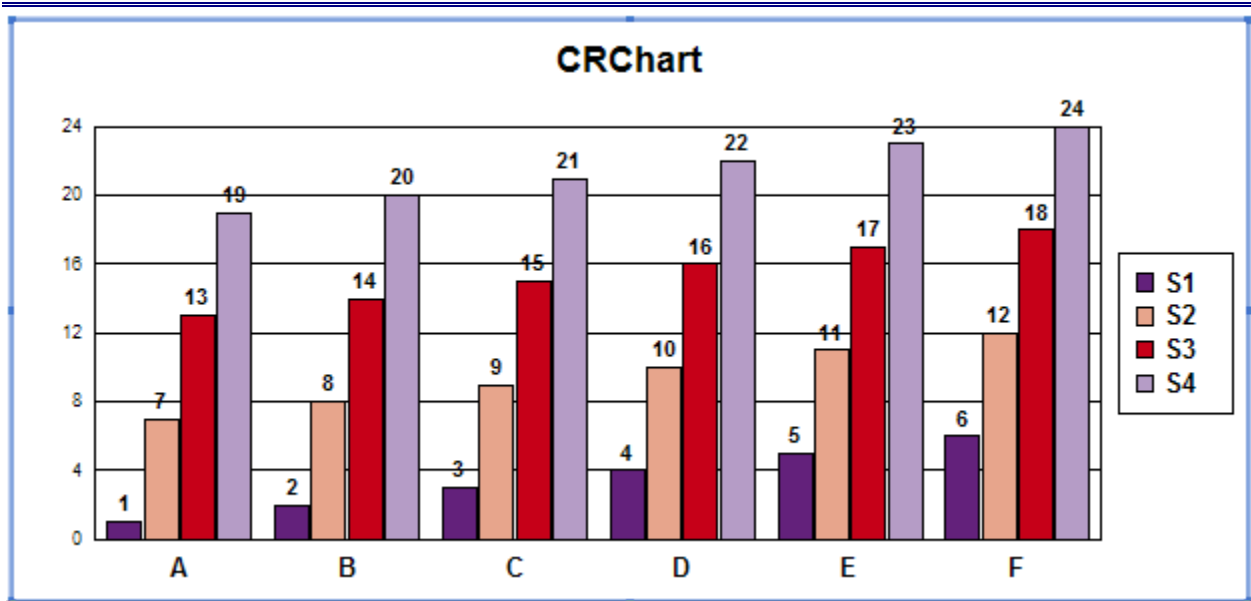
Chart Enhancement Macros for Crystal Reports



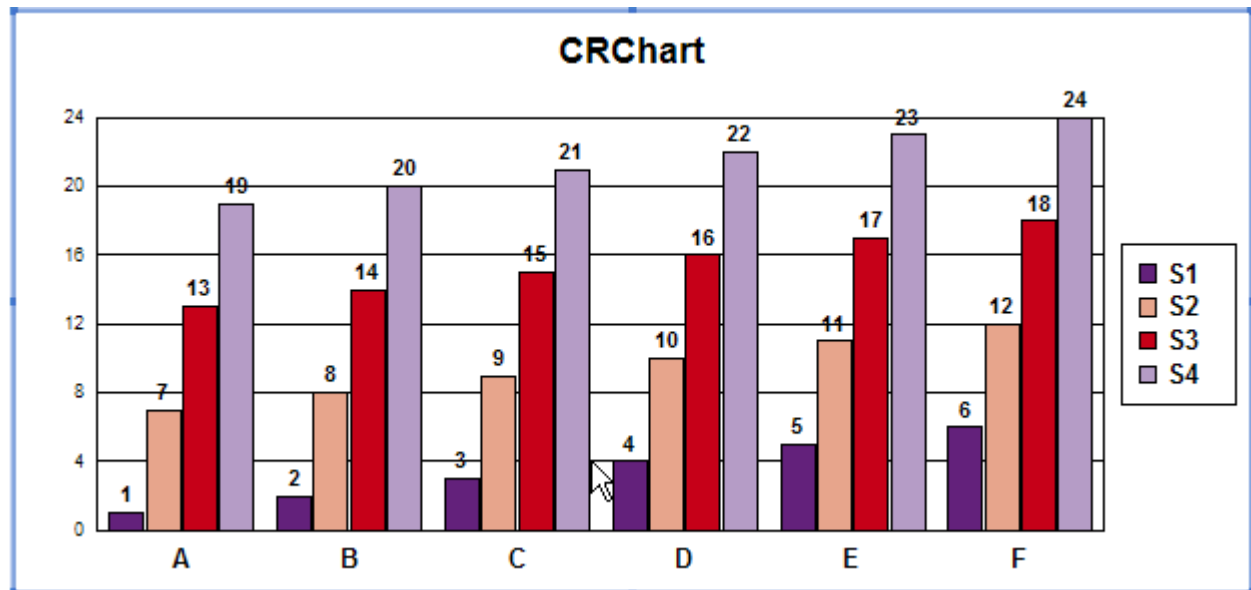
@SORT 6



@SORT 7

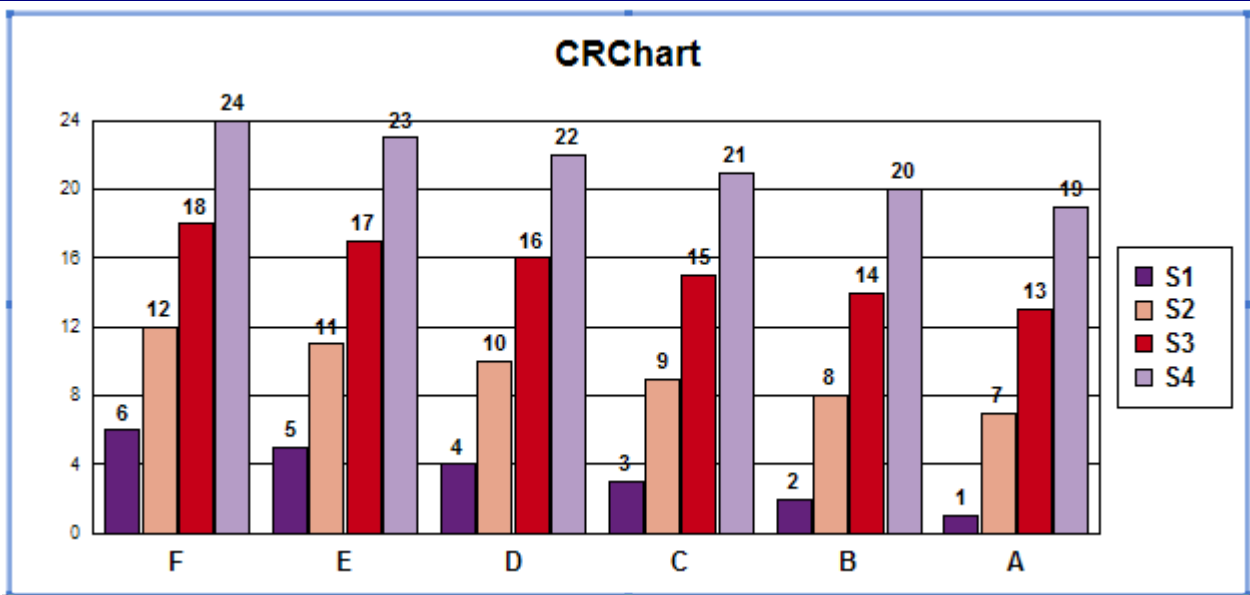


@SORT 8

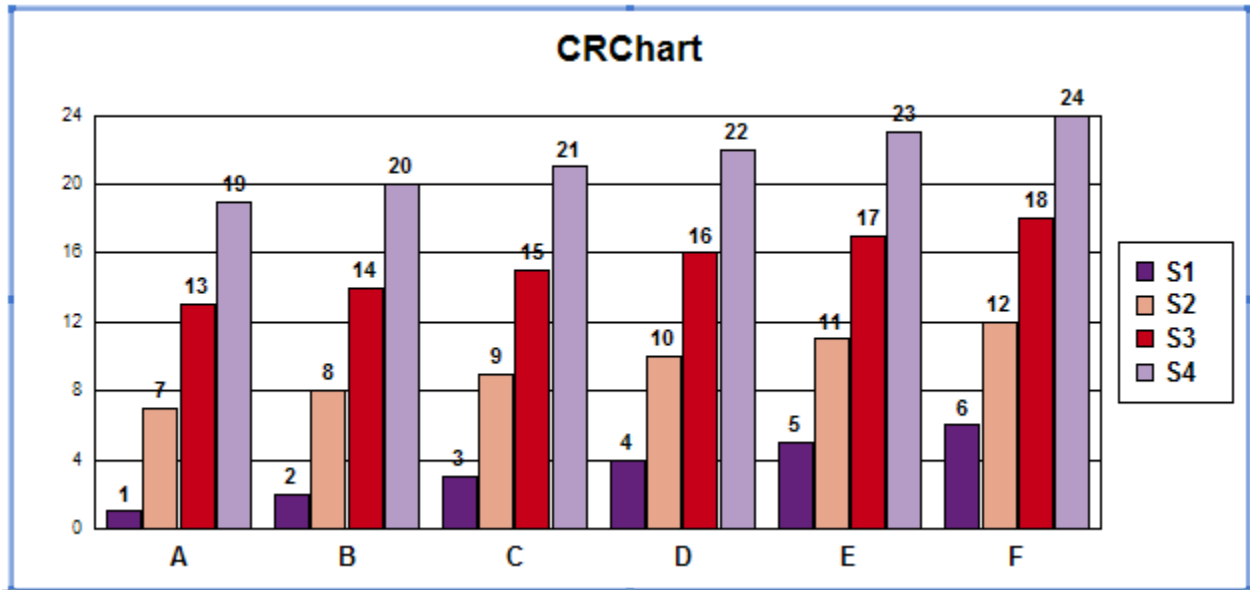


@SORT 9

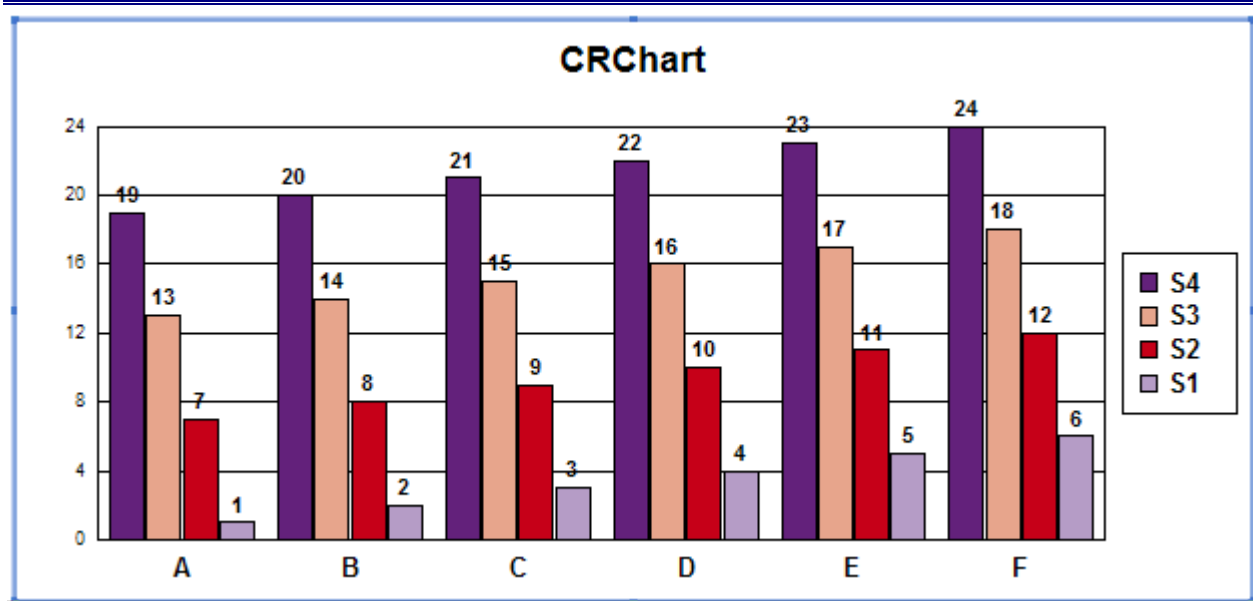
Chart Enhancement Macros for Crystal Reports



@SORT 10



@SORT 11



PERSISTENT:

NO

@STEP_LINE (Series Stepped Line)

In a line chart, this macro can be used to change any or all series in the chart to draw as a stepped line.

SYNTAX:

```
@STEP_LINE nSeries bStep
```

PARAMETERS:

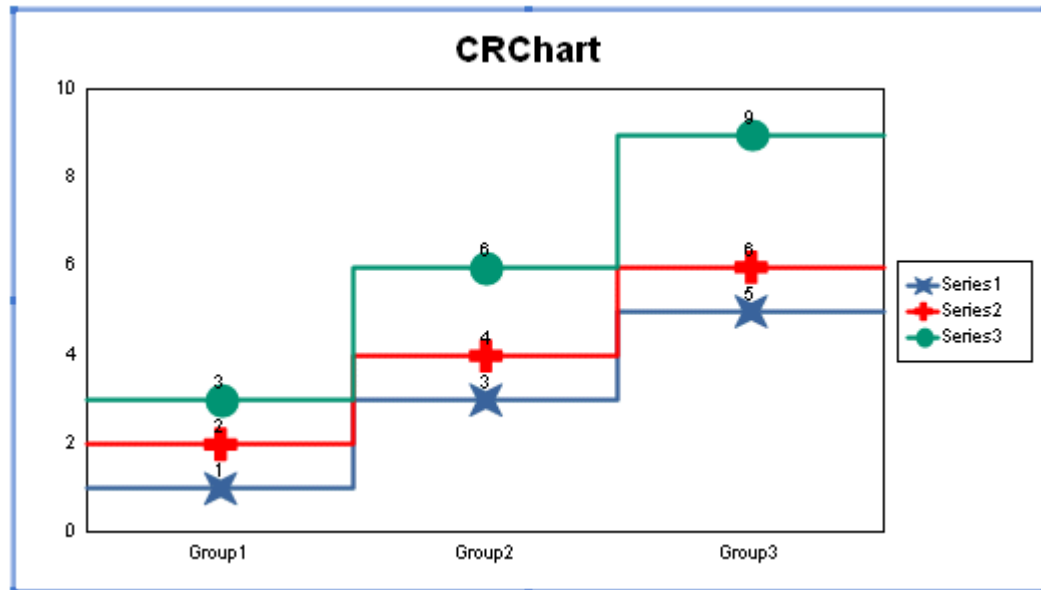
nSeries; -1...*n* (where: *n* = the total number of series in the chart).

-1 = apply to all series, 0 = Series 1, 1 = Series 2, etc.

bStep; 1 = draw *nSeries* as stepped line. 0 = draw *nSeries* normally.

EXAMPLE:

```
@STEP_LINE -1 1
```



PERSISTENT:

YES

REQUIREMENTS:

Crystal Reports 9 or higher

@STEP_LINE2 (Series Stepped Line at Values)

In a line chart, this macro can be used to change any or all series in the chart to draw as a stepped line that steps at values (not between).

SYNTAX:

```
@STEP_LINE2 nSeries bStep
```

PARAMETERS:

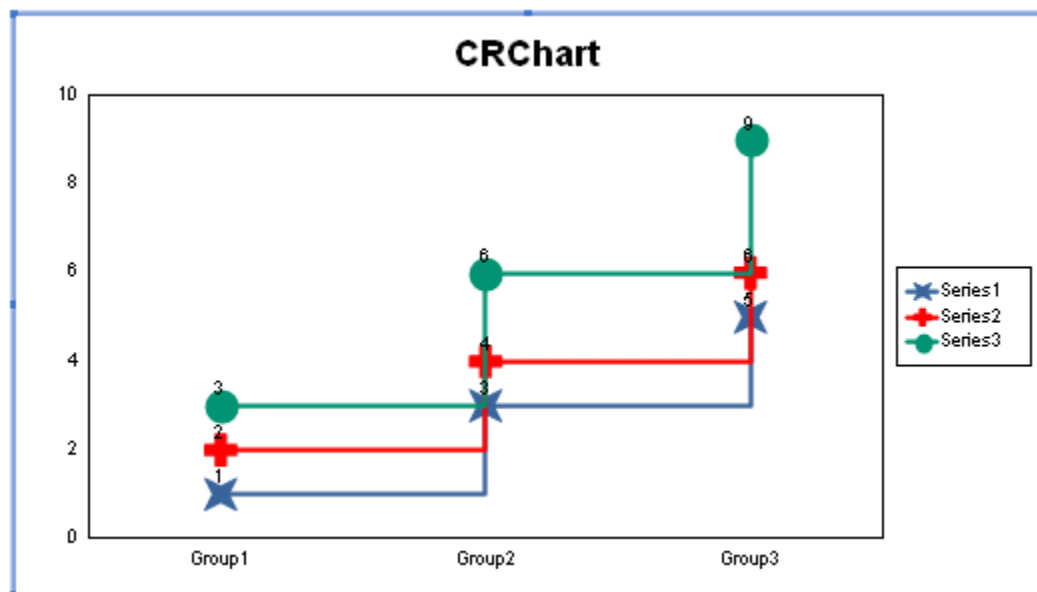
nSeries; -1...*n* (where: *n* = the total number of series in the chart).

-1 = apply to all series, 0 = Series 1, 1 = Series 2, etc.

bStep; 1 = draw *nSeries* as stepped line. 0 = draw *nSeries* normally.

EXAMPLE:

```
@STEP_LINE2 -1 1
```



PERSISTENT:

YES

REQUIREMENTS:

Crystal Reports 10 or higher

@STOP (Force Assign Elements to Series One)

This macro sets the number of elements in a scatter chart that are force-assigned to the first series.

SYNTAX:

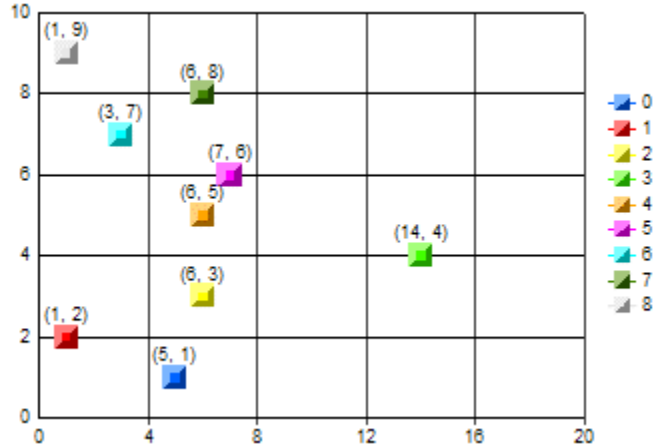
@STOP nElements

PARAMETERS:

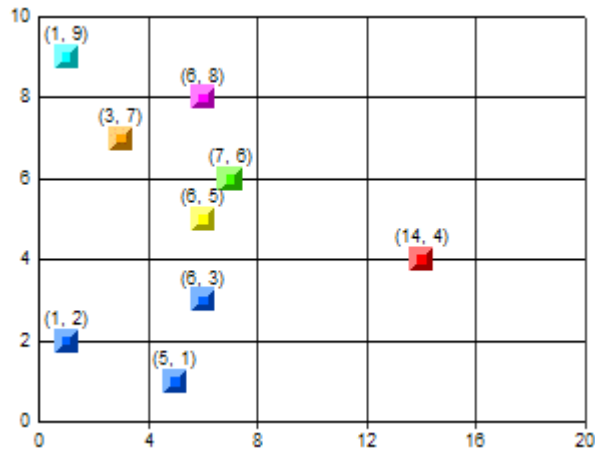
nElements; 0...1024 elements to force assign to first series.

EXAMPLE:

Before @STOP applied



@STOP 3



PERSISTENT:

NO

@SWAP (Swap Series/Groups)

This macro can be used to swap series and group orientation.

SYNTAX:

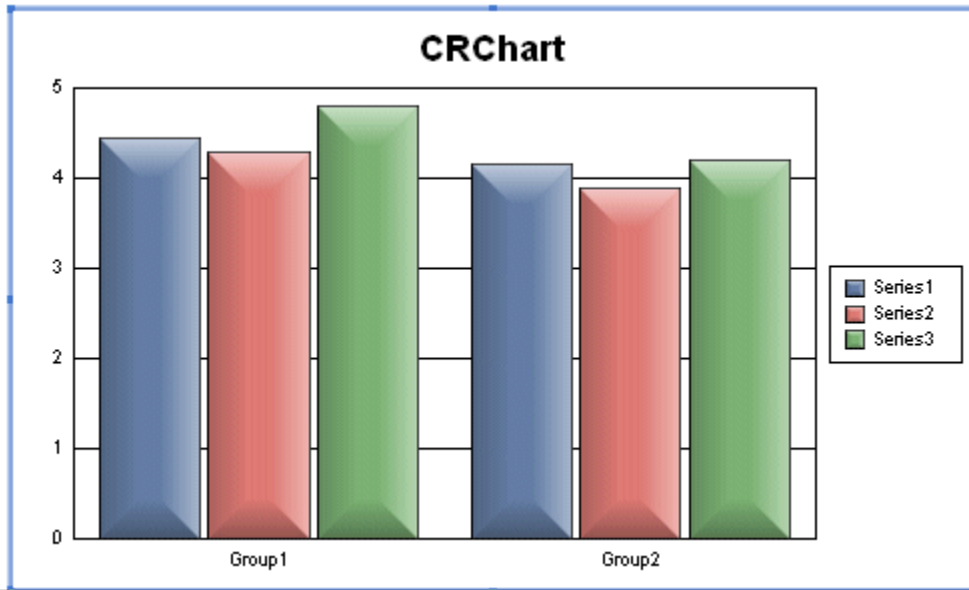
```
@SWAP bSwap
```

PARAMETERS:

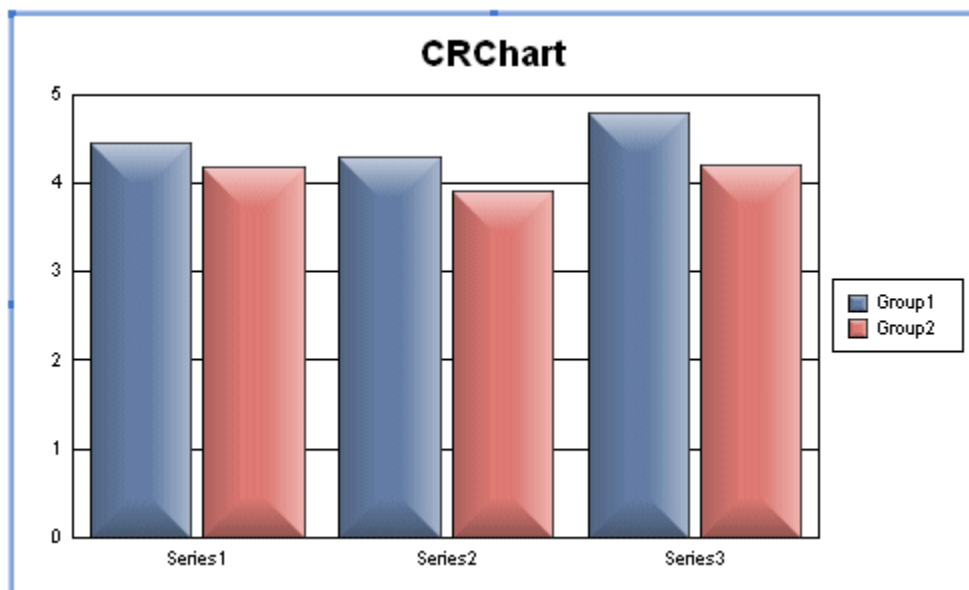
bSwap; 1 = swap series/group orientation, 0 = do not swap series/group orientation

EXAMPLE:

```
@SWAP 0
```



```
@SWAP 1
```



PERSISTENT:

YES

@TOTAL_GROUP (Create a Total Group)

This macro adds a new group to a chart and populates it with risers that are equal to the total of all previous groups in the chart. The optional label parameter (*szLabel*) can be used to label the group on the Group/O1-axis.

SYNTAX:

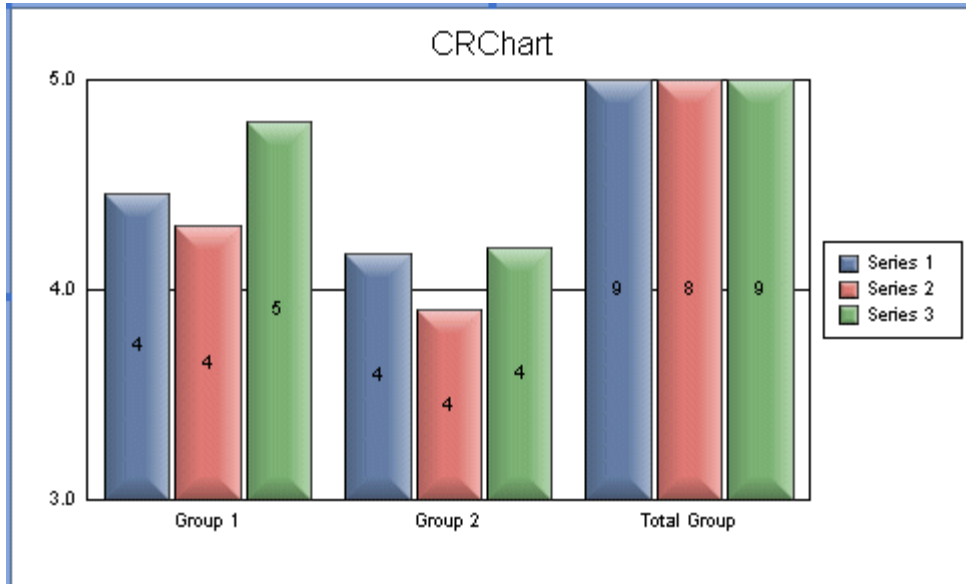
```
@TOTAL_GROUP szLabel
```

PARAMETERS:

szLabel; Optional label string. If you intend to define another macro in the same title field, terminate the label string with a '~'.

EXAMPLE:

```
@TOTAL_GROUP Total Group
```



PERSISTENT:

NO

REQUIREMENTS:

Crystal Reports 9 or higher

Section 5: Labels

Use these macros to manage series and group labels.

- @3DLABEL; Adjust labels in a 3D Chart.
- @AGL; Alias/Change a Group Label
- @APPEND_DATATEXT; Append a String to Data Text
- @ASL; Alias/Change a Series Label
- @ASL_DP; Map a sub-string from a label to the legend
- @DATATEXT; Select a Data Text Mode
- @DT; Show/Hide Series-Specific Data Text
- @DT_CENTERED; Data Text special formatting in Stacked Charts
- @DT_SERIES; Data Text Series-Dependent Font
- @DTP; Data Text Position
- @FORCE_DATATEXT_CURRENCY; Force data text to currency format
- @GROUP_LABELS_ON_BASELINE; Draw Group Labels on Baseline
- @NEG_SS; Series-Specific @NEG_STYLE
- @NEG_STYLE; Choose a style to indicate Negative Values
- @PDT; Precision Data Text
- @RDT; Rotate Data Text
- @XSKIP; Skip labels on the X-Axis
- @XSKIP2; Skip labels on the X-Axis and force last label
- @XSKIP3; Maximum X-axis labels/auto-adjust skip to match

@3DLABEL (Adjust Labels in a 3D Chart)

This macro can be used to change the position of labels in a 3D chart.

SYNTAX:

```
@3DLABEL nLabel nX nY
```

PARAMETERS:

nLabel = 0...3 selects which labels to adjust.

0=group labels (normally along the right floor of the 3D cube)

1=series labels (normally along the left floor of the 3D cube)

2=labels on the left side of the 3D cube

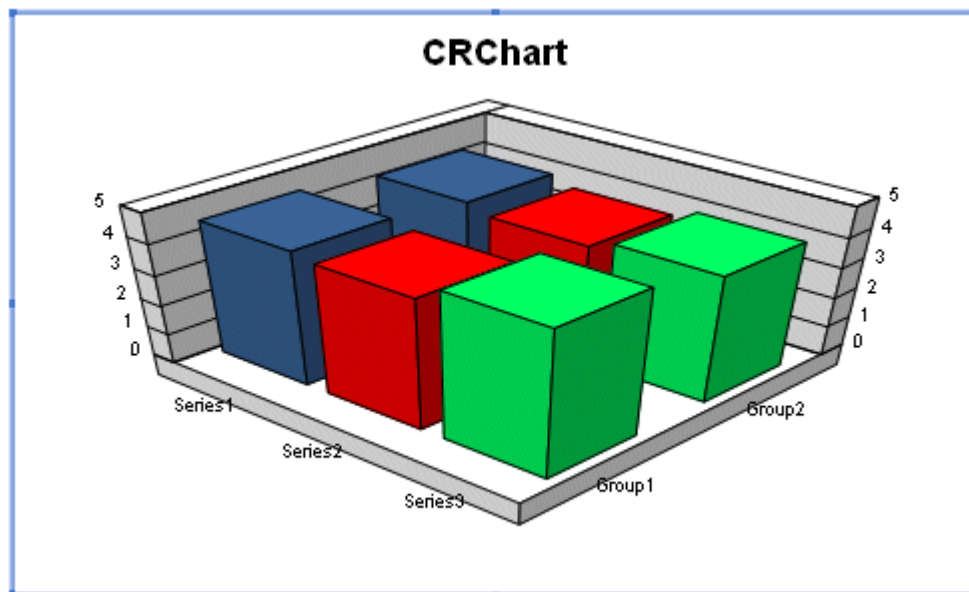
3=labels on the right side of the 3D cube.

nX = -2000...2000 selects the amount of adjustment in the X-direction. If *nLabel* is 2 or 3, negative values move labels up and positive values move labels down. If *nLabel* is 0 or 1, negative values move labels closer to the cube and positive values move labels further away from the cube.

nY = -2000...2000 selects the amount of adjustment in the Y-direction. Negative values move labels closer to the cube. Positive values move labels further away from the cube.

EXAMPLE:

```
@3DLABEL 0 0 1000  
@3DLABEL 1 0 1000
```



PERSISTENT:

YES

REQUIREMENTS:

Crystal Reports 9 or higher

@AGL (Alias Group Label)

This macro can be used to change a group's label.

SYNTAX:

```
@AGL nGroup szLabel
```

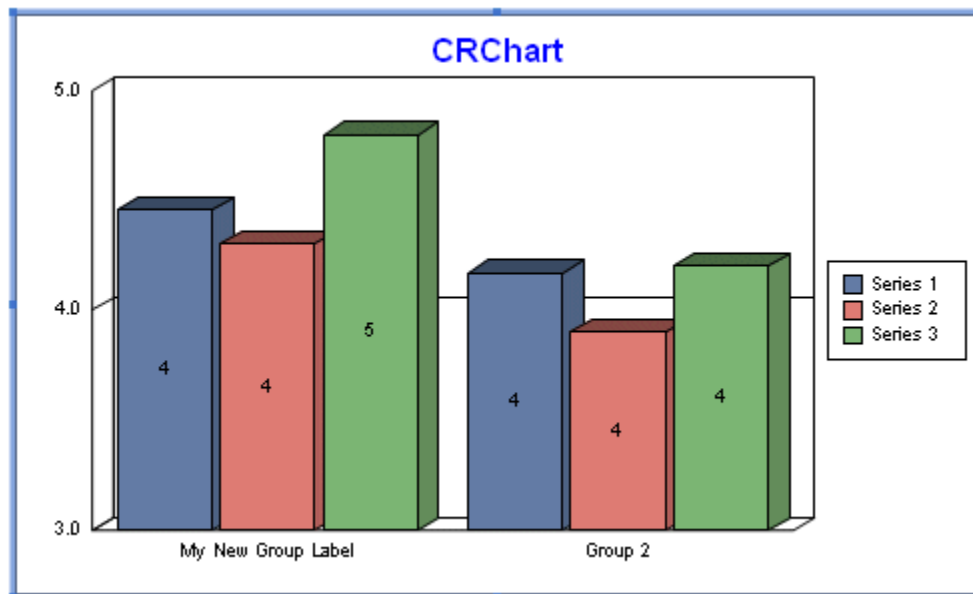
PARAMETERS:

nGroup; 0...number of groups in chart (0=Group 1). Defines the group on which to place the alias label.

szLabel; Group label. If you intend to define another macro in the same title field, terminate the label string with a '~'.

EXAMPLE:

```
@AGL 0 My New Group Label
```



PERSISTENT:

NO

ALSO SEE:

@ASL

@APPEND_DATATEXT (Append String to Data Text)

This macro can be used to append a string to each piece of data text in a chart.

SYNTAX:

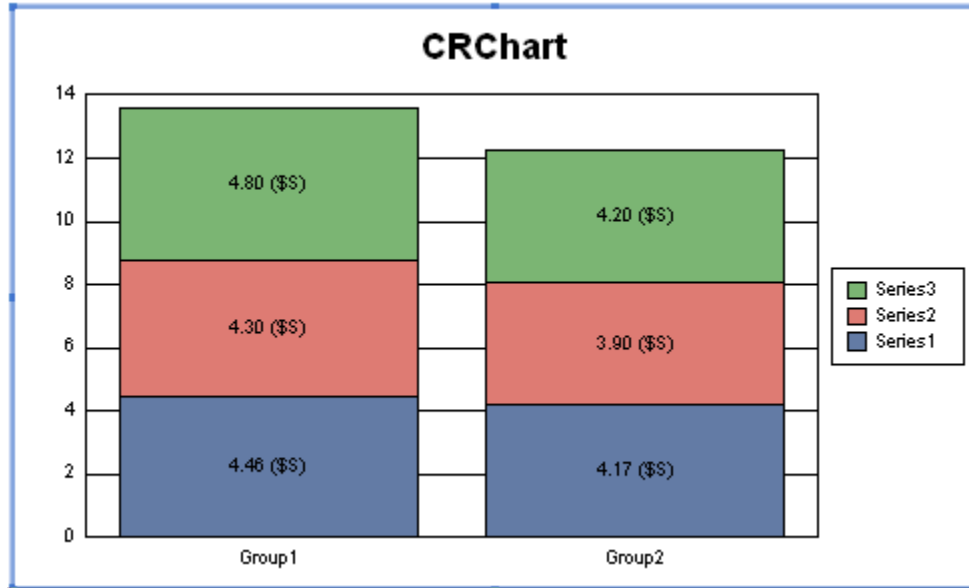
```
@APPEND_DATATEXT szString
```

PARAMETERS:

szString; String to append to data text. If you intend to define another macro in the same title field, terminate the label string with a '~'.

EXAMPLE:

```
@APPEND_DATATEXT ($s)
```



PERSISTENT:

NO

REQUIREMENTS:

Crystal Reports 9 or higher

@ASL (Alias Series Label)

This macro can be used to change a series label.

SYNTAX:

```
@ASL nSeries szLabel
```

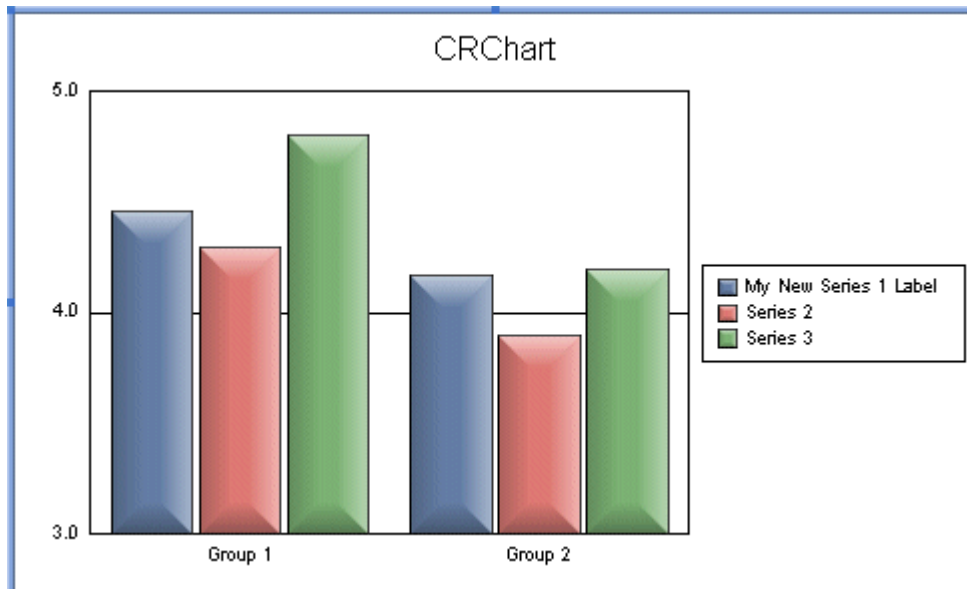
PARAMETERS:

nSeries; 0...number of series in chart (0=Series 1). Defines the series on which to place the alias label.

szLabel; Series label. If you intend to define another macro in the same title field, terminate the label string with a '~'.

EXAMPLE:

```
@ASL 0 My New Series 1 Label
```



PERSISTENT:

NO

ALSO SEE:

@AGL

@ASL_DP (Alias Series Label/Data Point)

If the first group label contains a tilde (~), this macro maps the sub-string to the left of the first tilde to the series (legend) label specified by *nSeries*. When group labels are drawn, the sub-string and tilde are stripped out so that neither appear on the group axis.

SYNTAX:

```
@ASL_DP nSeries
```

PARAMETERS:

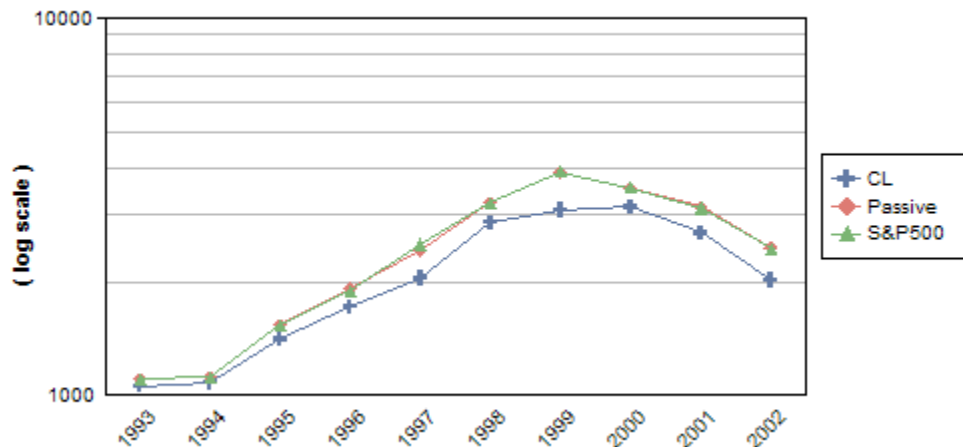
nSeries; 0...number of series in chart (0=Series 1).

EXAMPLE:

This example maps the sub string from group label zero to the first element in the legend:

```
@ASL_DP 0
@ASL 1 Passive~
@ASL 2 S&P500~
@SC 1000 5000
```

CRChart by Three D Graphics



PERSISTENT:

NO

ALSO SEE:

@ASL

@DATATEXT (Data Text Mode)

This macro sets the data text mode (i.e., values on risers, labels on risers, etc.). The *nValue* parameter identifies the type of data text to show.

SYNTAX:

```
@DATATEXT nValue
```

PARAMETERS:

nValue; Selects the data text to show:

0 = None

1 = Show Values

2 = Show Labels

When *nValue*=1, different data text values may be shown depending on the chart type (e.g., Absolute values in absolute charts. Cumulative values in stacked and percent charts). Add one of the following values to *nValue* to identify specific data text values to show.

4 (i.e., @DATATEXT 5) = Show Absolute values in stacked & percent charts

8 (i.e., @DATATEXT 9) = Show Total Values in a stacked chart

16 (i.e., @DATATEXT 17) = Show Z-Values in bubble charts

32 (i.e., @DATATEXT 33) = Show Riser values as a percentage

64 (i.e., @DATATEXT 65) = Show Y-Axis Values in Scatter & Bubble Charts

nValue is a bit field. So, multiple values can be added (OR'd) to show multiple data text values. Examples:

@DATATEXT 3 = Values (1) + Text (2)

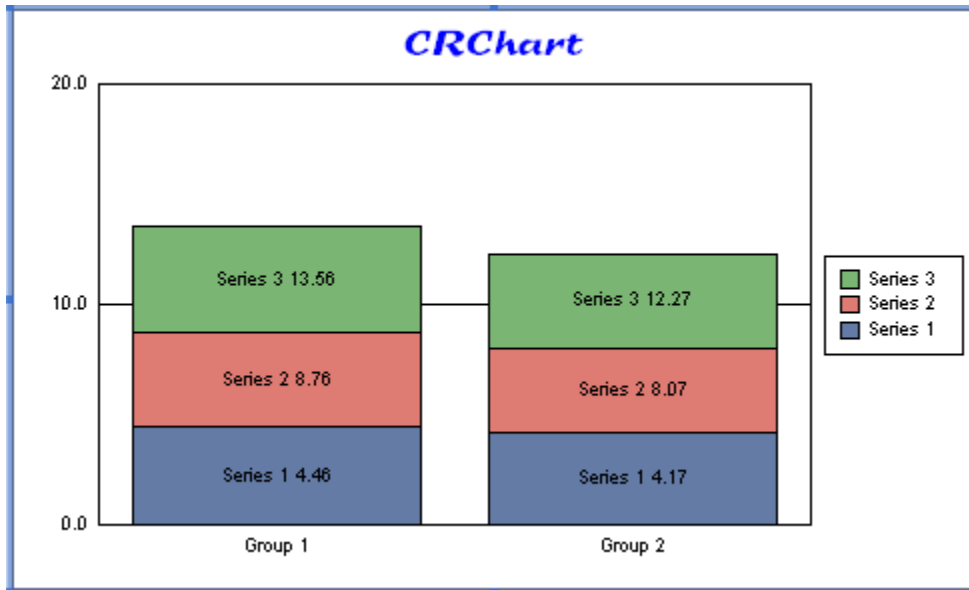
@DATATEXT 80 = Y-Axis Value (64) + Z-Axis Value (16)

@DATATEXT 39 = Riser value as a percentage (32) + Absolute Value (4) + Text (2) + Value (1)

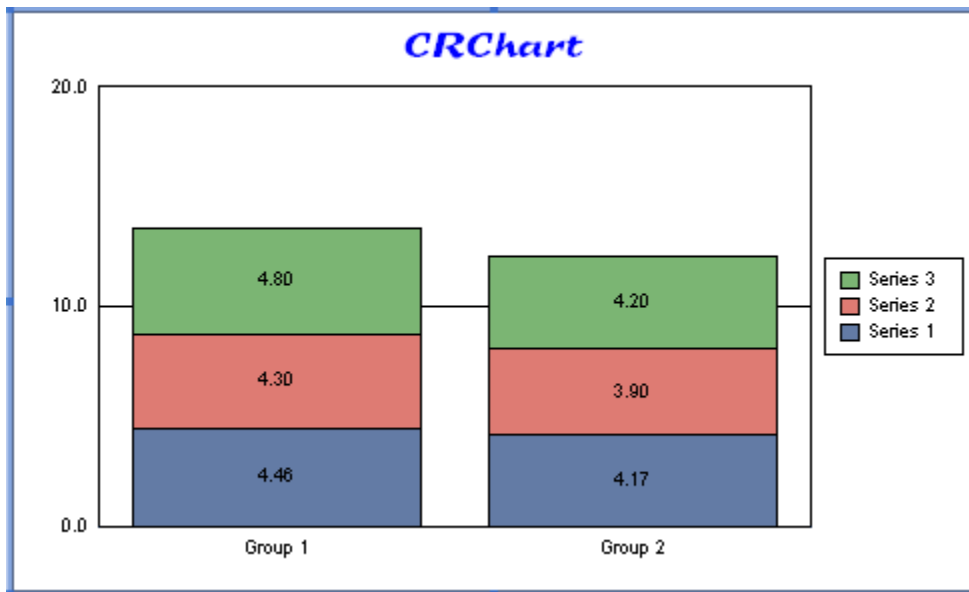
@DATATEXT 97 = Y-Axis Value (64) + Riser value as a percentage (32) + Value (1)

EXAMPLE:

```
@GRAPHTYPE 15  
@DATATEXT 3
```



```
@DATATEXT 5
```



PERSISTENT:

YES

@DT (Show/Hide Series-Specific Data Text)

When data text is enabled with @DATATEXT 1, this macro can be used to show/hide data text for a specified series.

SYNTAX:

```
@DT nSeries bShow
```

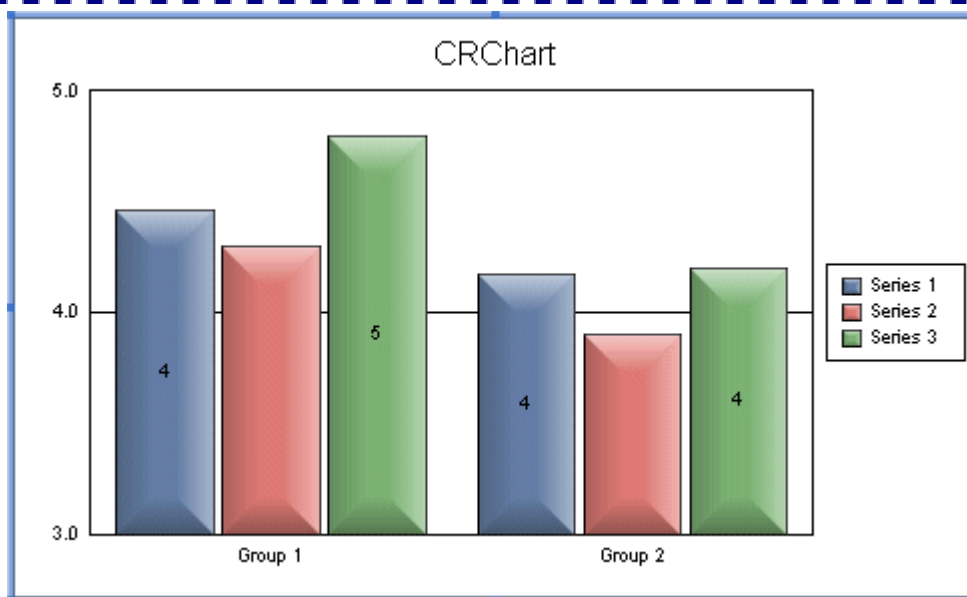
PARAMETERS:

nSeries; 0...511 specifies the series to show/hide data text (0=Series 1)

bShow; 1=Show Data Text, 0=Hide Data Text

EXAMPLE:

```
@DT 0 1
@DT 1 0
@DT 2 1
```



PERSISTENT:

YES

REQUIREMENTS:

Crystal Reports 10 or higher

@DT_CENTERED (Data Text special formatting in Stacked Charts)

In stacked charts where data text is not legible because the value of a riser is too small, this macro can be used to disable the data text or draw it above the stack.

SYNTAX:

```
@DT_CENTERED bCenterText nOverlapPercentage nExtraKerning
nStackMarkerSize
```

PARAMETERS:

bCenterText; 1 = Center Text, 1 = Do not center text

nOverflowPercentage; -100...100

< 0 makes data text stay on top of risers in more situations

> 0 make data text more likely to stack above riser

nExtraKerning; -1000..1000 Add or subtract extra vertical space between stacked labels drawing above stack.

> 0 add more space.

< 0 reduce space

nStackMarkerSize; -1...1000

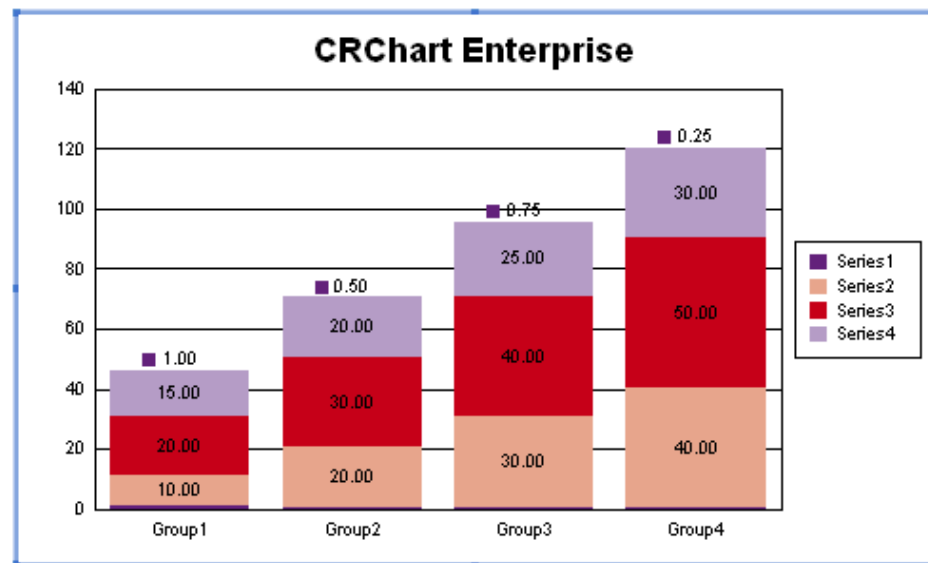
-1 = Labels will be color coded to marker color and draw above the stack

0 = Labels will not draw (labels do not fit and are not wanted)

1...1000 = Labels draw in standard global data text color. An additional rectangular marker of virtual size *nStackMarkerSize* is drawn to left of the data text label.

EXAMPLE:

```
@DT_CENTERED 1 -20 0 400
```



PERSISTENT:

YES

REQUIREMENTS:

- Crystal Reports 11 or higher
- **CRCHART Enterprise**

@DT_SERIES (Data Text Series-Dependent Font)

This macro sets data text on risers to have a Series-Dependent Font (instead of all sharing the same Font).

SYNTAX:

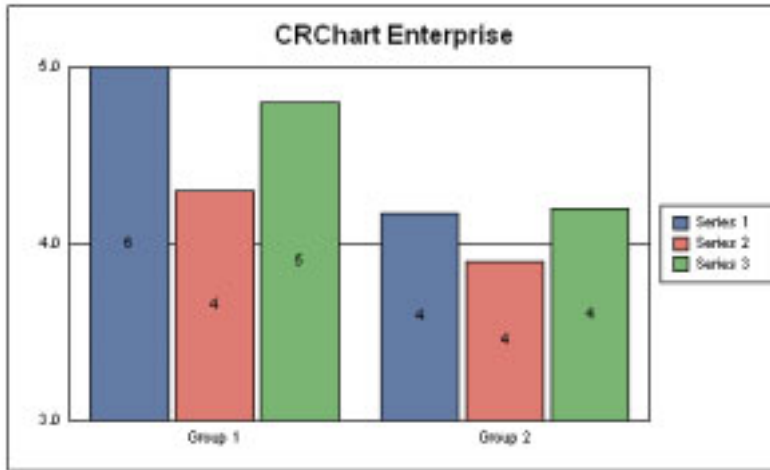
```
@DT_SERIES bDataTextIsSeriesDependent
```

PARAMETERS:

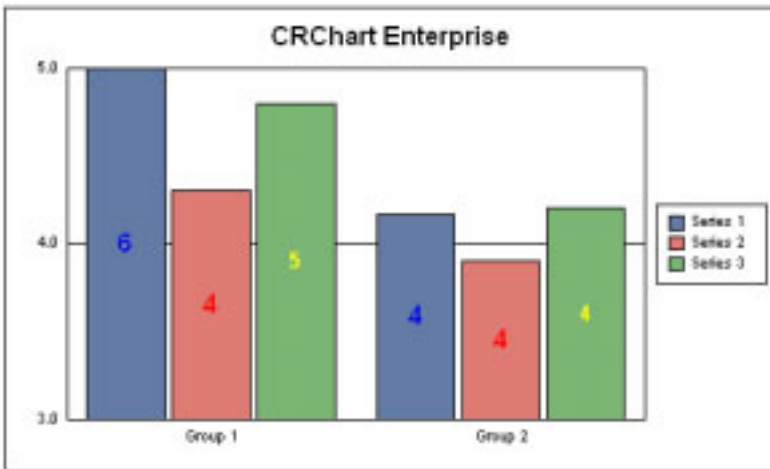
bDataTextIsSeriesDependent; 0 = Data text font is global per chart, 1 = Data text font is Per Series

EXAMPLE:

```
@DT_SERIES 0
```



```
@DT_SERIES 1
```



PERSISTENT:

NO

REQUIREMENTS:

- Crystal Reports 11 or higher
- **CRCHART Enterprise**

NOTES:

Use Crystal Reports designer to format data text items for individual series.

@DTP (Data Text Position)

This macros can be used to position data text for a specific series.

SYNTAX:

```
@DTP nSeries nLocation
```

PARAMETERS:

nSeries; -1...511 Series number (-1=all series, 0 = Series 1, 1 = Series 2, etc.)

nLocation; 0...4 data text location

0 = Data Text is placed in CENTER of riser.

1 = Data Text is placed just OUTSIDE the MINIMUM of the riser (under bottom of bar or data marker).

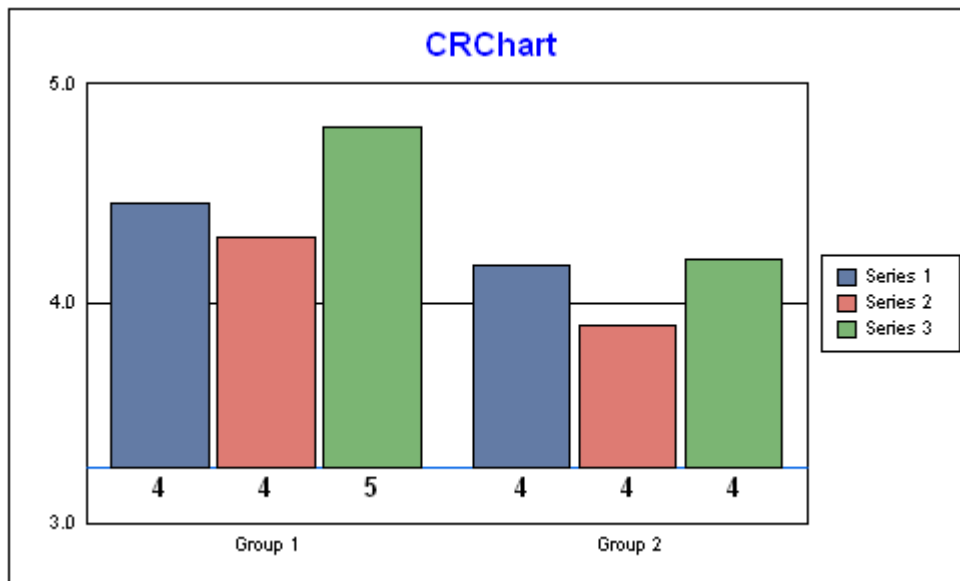
2 = Data Text is placed just INSIDE the MINIMUM of a riser (inside bottom of bar or data marker).

3 = Data Text is placed INSIDE the MAXIMUM of a riser (for a bar, text goes just inside the bar from the top of the riser; for a data marker, just inside the "top" side of the marker).

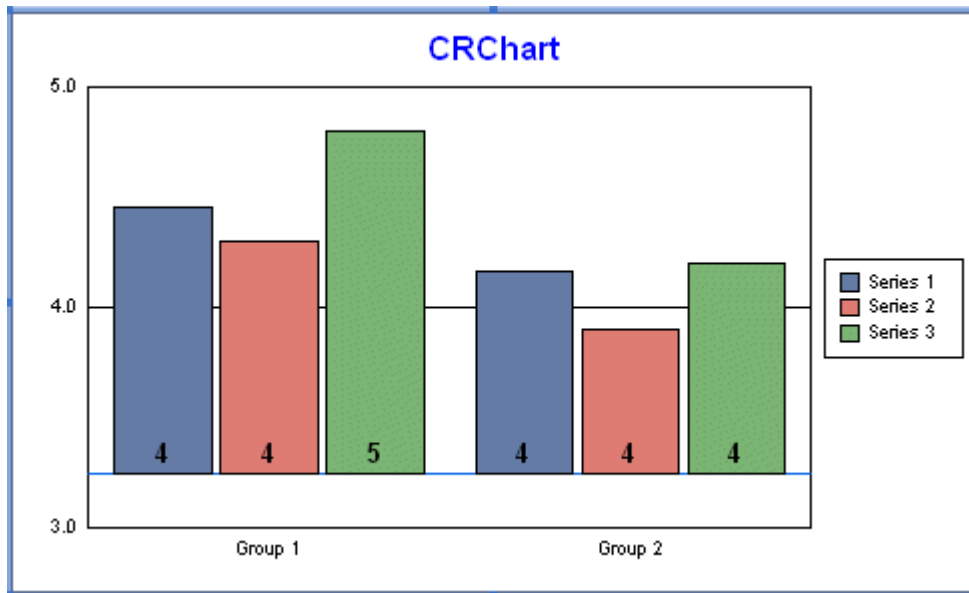
4 = Data Text is placed just OUTSIDE the MAXIMUM of the riser (on top of bar or data marker).

EXAMPLE:

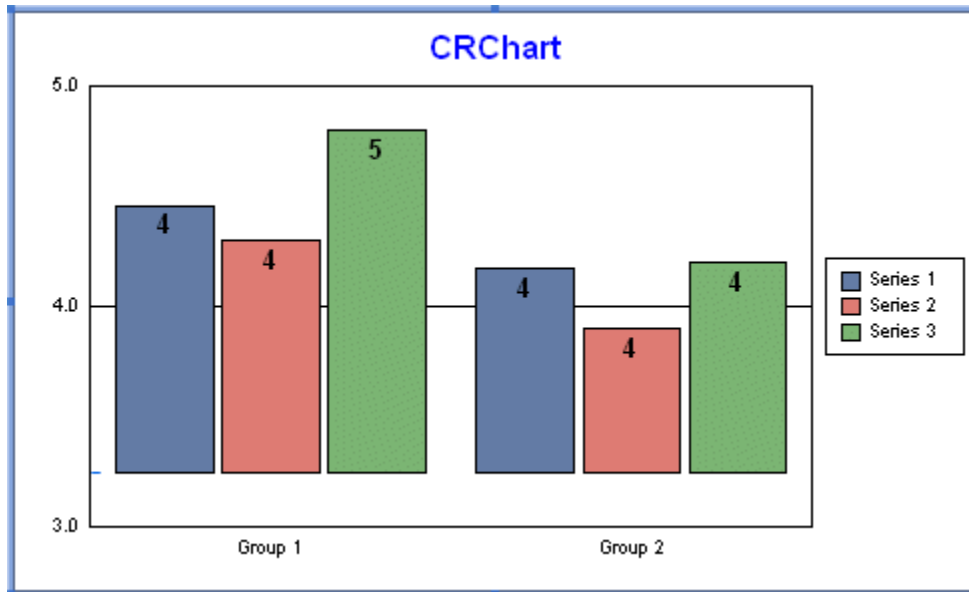
```
@DTP 1
```



```
@DTP 2
```

@DTP 3



PERSISTENT:

NO

REQUIREMENTS:

Crystal Reports 11 or higher

@FORCE_DATATEXT_CURRENCY (Force Data Text to Currency Format)

This macro forces data text numbers to be formatted with a given currency and precision.

SYNTAX:

```
@FORCE_DATATEXT_CURRENCY nCurrency nPrecision
```

PARAMETERS:

nCurrency; 0...3 selects a currency format.

0=US Dollars

1=British Pound

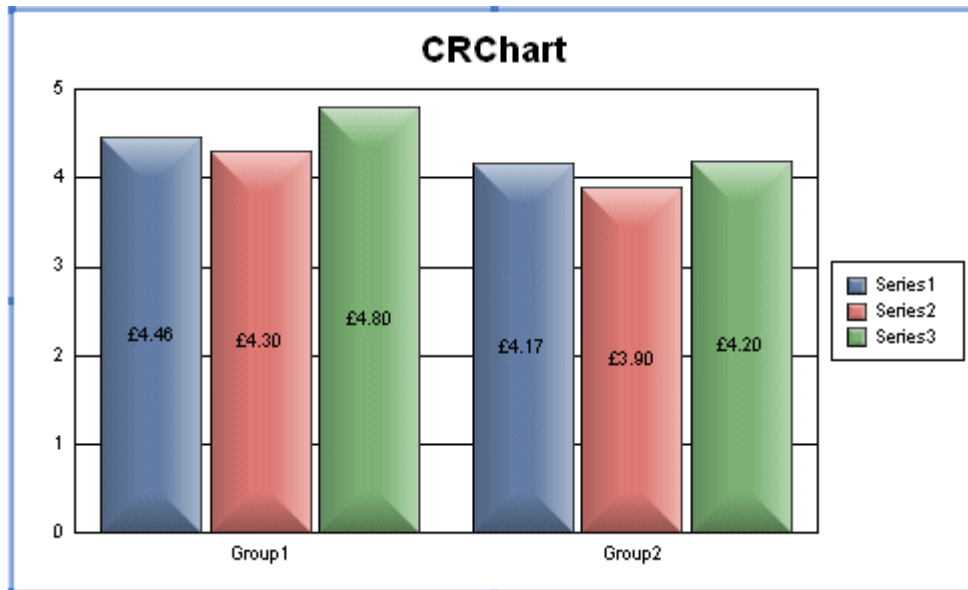
2=Japanese Yen

3=Euro

nPrecision; 0...3 = Number of decimal places

EXAMPLE:

```
@FORCE_DATATEXT_CURRENCY 1 2
```



PERSISTENT:

YES

REQUIREMENTS:

Crystal Reports 11 or higher

@GROUP_LABELS_ON_BASELINE (Group Labels on Baseline)

This macro can be used to draw group labels on the baseline of the chart instead of the axis/frame.

SYNTAX:

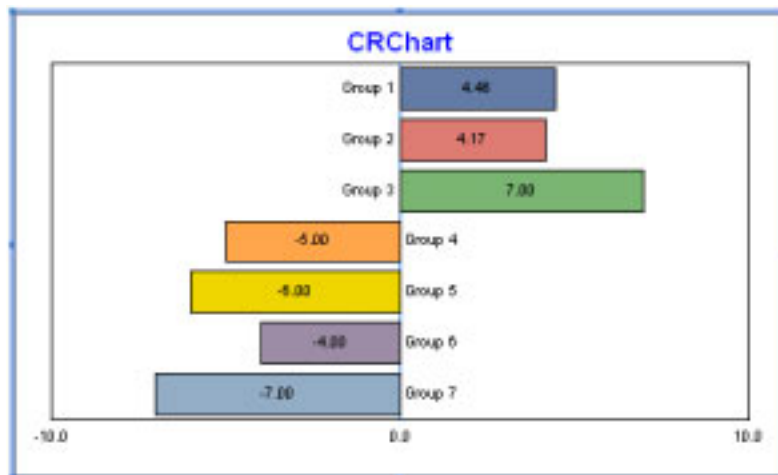
```
@GROUP_LABELS_ON_BASELINE bShowOnBaseLine
```

PARAMETERS:

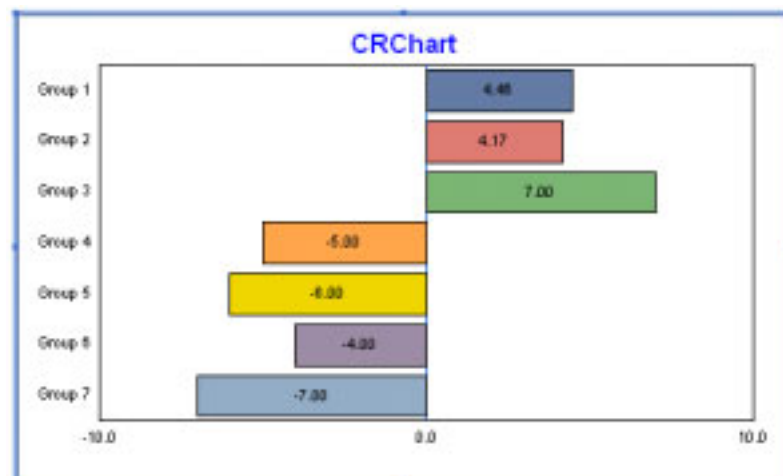
bShowOnBaseLine; 0=Draw group labels normally on the axis/frame. 1=Draw group labels on the baseline of the chart.

EXAMPLE:

```
@GROUP_LABELS_ON_BASELINE 1
```



```
@GROUP_LABELS_ON_BASELINE 0
```



PERSISTENT:

NO

REQUIREMENTS:

Crystal Reports 9 or higher

@NEG_SS (Series-Specific @NEG_STYLE)

When data text labels are enabled with the @DATATEXT macro or the "Show Data Labels" option in the Chart Options/Data Labels dialog, this macro sets the format of numeric labels (data text) with negative values for a specific series.

SYNTAX:

```
@NEG_SS nSeries bStyle
```

PARAMETERS:

nSeries; -1...n (where: n = the total number of series in the chart).

-1 = apply to all series, 0 = Series 1, 1 = Series 2, etc.

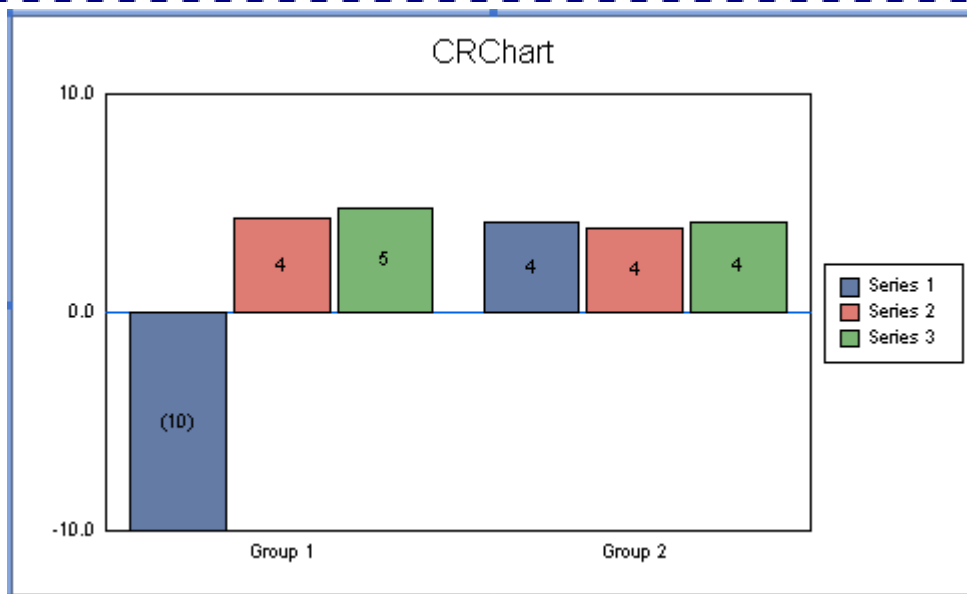
bStyle; 0/1

0 = format negative values with a minus sign (e.g., -1)

1 = format negative values with parenthesis (e.g., (1))

EXAMPLE:

```
@NEG_SS 0 1
```



PERSISTENT:

NO

REQUIREMENTS:

Crystal Reports 10 or higher

ALSO SEE:

@NEG_STYLE

@NEG_STYLE (Negative Value Style)

When data text labels are enabled with the @DATATEXT macro or the "Show Data Labels" option in the Chart Options/Data Labels dialog, this macro sets the format of all numeric labels in a chart that have negative values.

SYNTAX:

```
@NEG_STYLE bStyle
```

PARAMETERS:

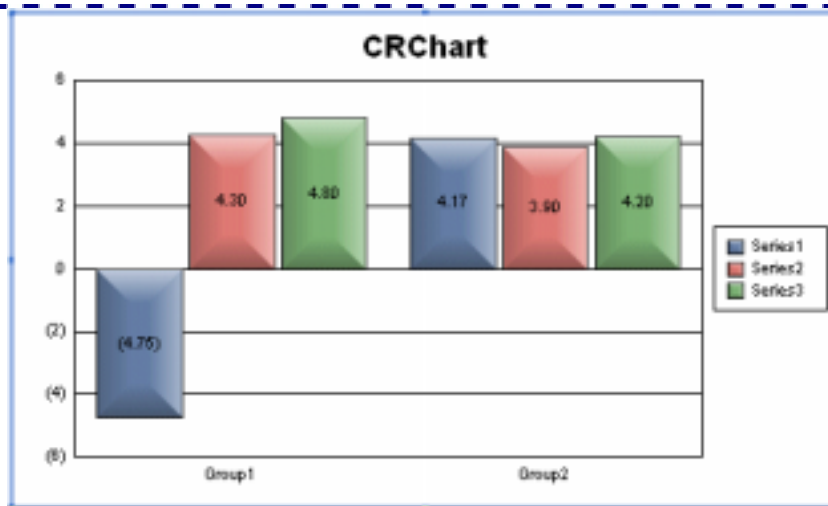
bStyle; 0/1

0 = format negative values with a minus sign (e.g., -1)

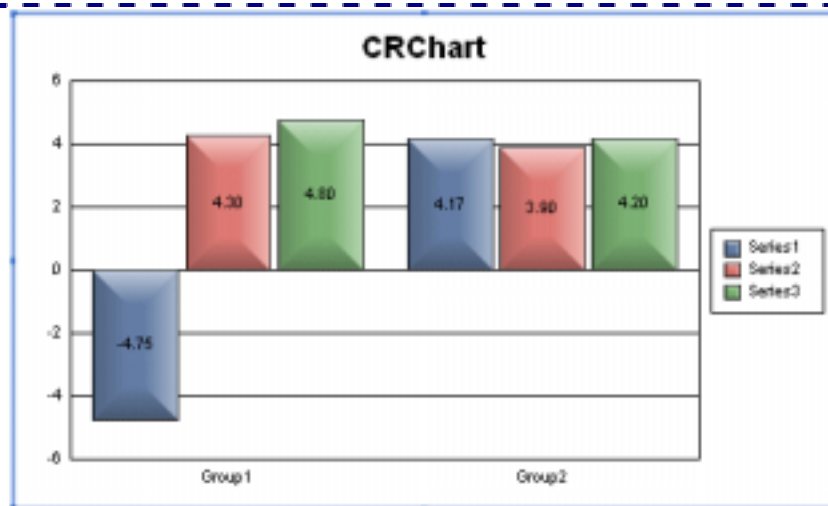
1 = format negative values with parenthesis (e.g., (1))

EXAMPLE:

```
@NEG_STYLE 1
```



```
@NEG_STYLE 0
```



PERSISTENT:

YES

ALSO SEE:

@NEG_SS

@PDT (Precision Data Text)

When data text values are set to number, percent, or currency format, this macro sets the number of decimal places to show with data text.

SYNTAX:

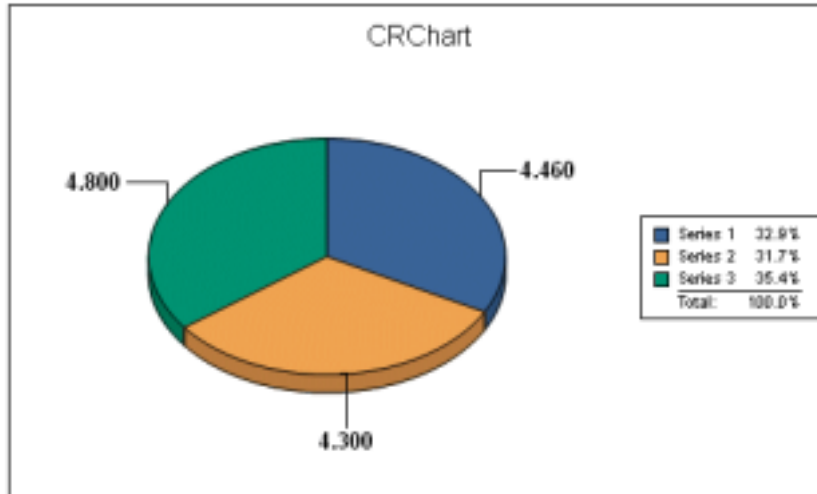
```
@PDT nPrecision
```

PARAMETERS:

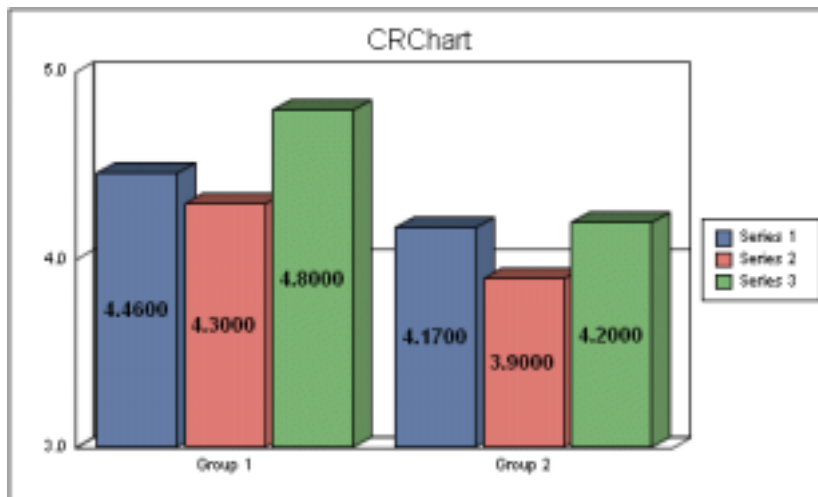
nPrecision; 0...9 number of decimal places

EXAMPLE:

```
@PDT 3
```



```
@PDT 4
```



PERSISTENT:

YES

REQUIREMENTS:

Crystal Reports 11 or higher

ALSO SEE:

@NAP (Numeric Auto Precision)

@RDT (Rotate Data Text)

This macro can be used to rotate data text or to draw data text in hotel mode (vertically).

SYNTAX:

```
@RDT nRotateMode
```

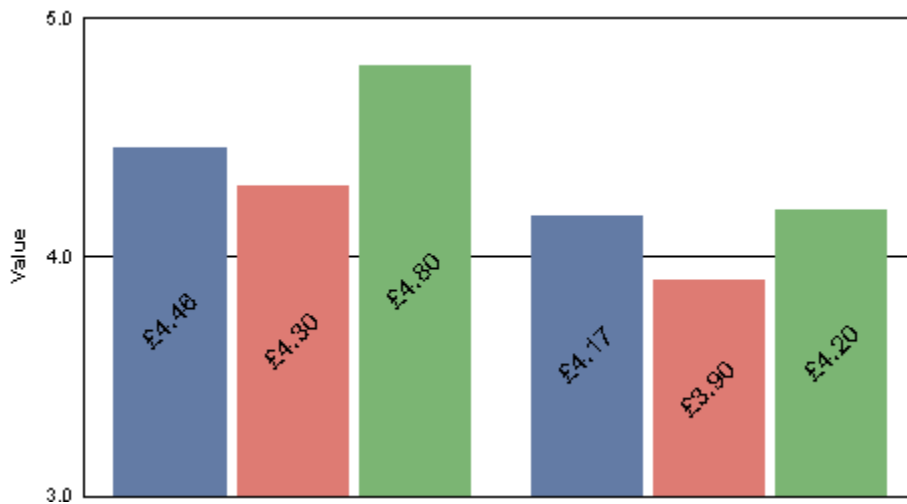
PARAMTERS:

nRotateMode; 0...6 selects one of the following:

- 0 = No rotation
- 1 = Hotel Mode
- 2 = Rotate data text 90 degrees
- 3 = Rotate data text 180 degrees
- 4 = Rotate data text 270 degrees
- 5 = Rotate data text 45 degrees
- 6 = Rotate data text 315 degrees

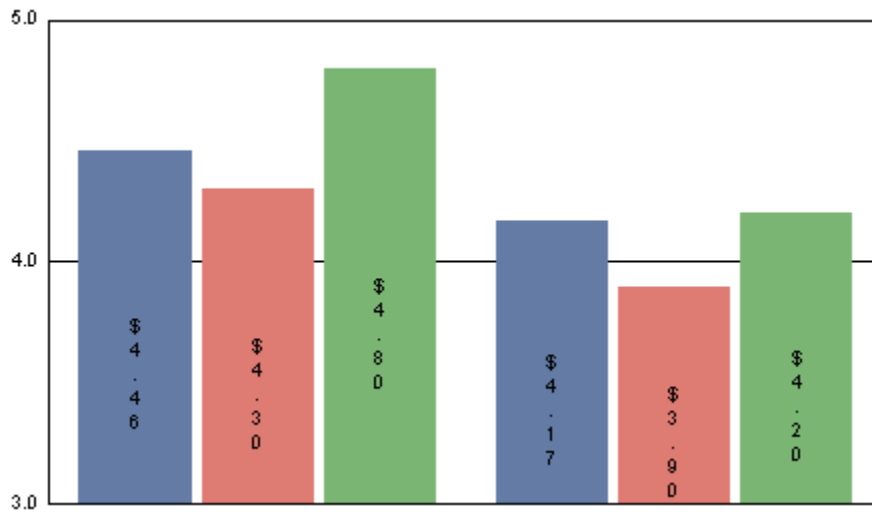
EXAMPLE:

```
@FORCE_DATATEXT_CURRENCY 1 2
@RDT 5
```



```
@FORCE_DATATEXT_CURRENCY 0 2
@RDT 1
```

Chart Enhancement Macros for Crystal Reports



PERSISTENT:

YES

REQUIREMENTS:

Crystal Reports 10 or higher

@XSKIP (X-Axis Skip Labels)

This macro specifies an interval at which to skip labels on a group or X-axis.

SYNTAX:

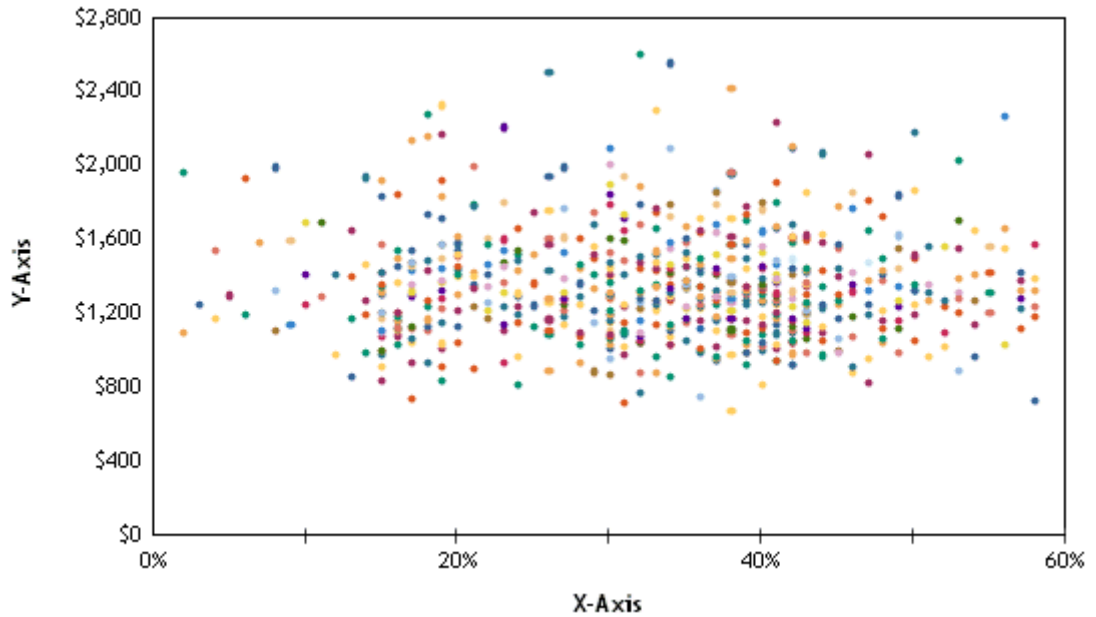
```
@XSKIP nSkip
```

PARAMETERS:

nSkip; skip value

EXAMPLE:

```
@XSKIP 1
```



PERSISTENT:

NO

ALSO SEE:

@XSKIP2, @XSKIP3

@XSKIP2 (X-Axis Skip/Force Last Label)

This macro is the same as the @XSKIP macro except it forces the last label to be visible regardless of the skip value.

SYNTAX:

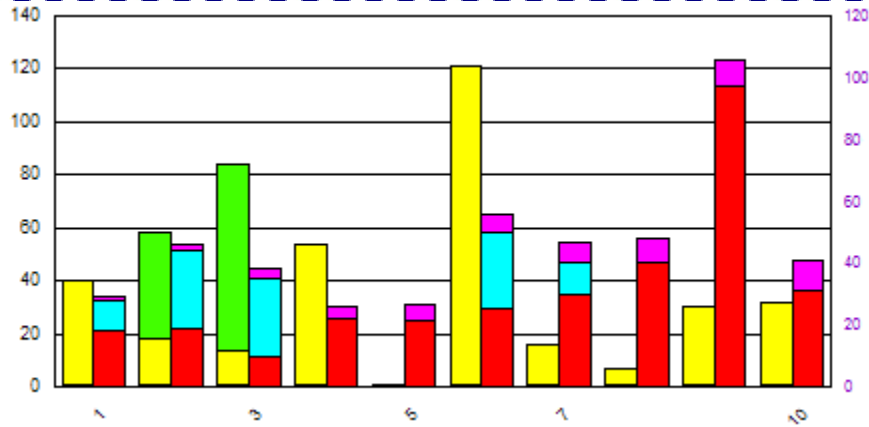
```
@XSKIP2 nSkip
```

PARAMETERS:

nSkip; skip value

EXAMPLE:

```
@XSKIP2 2
```



PERSISTENT:

NO

ALSO SEE:

@XSKIP, @XSKIP3

@XSKIP3 (Max X-Axis Labels/Auto Adjust Skip)

This macro specifies a maximum number of X-axis labels and auto-adjusts the skip to match.

SYNTAX:

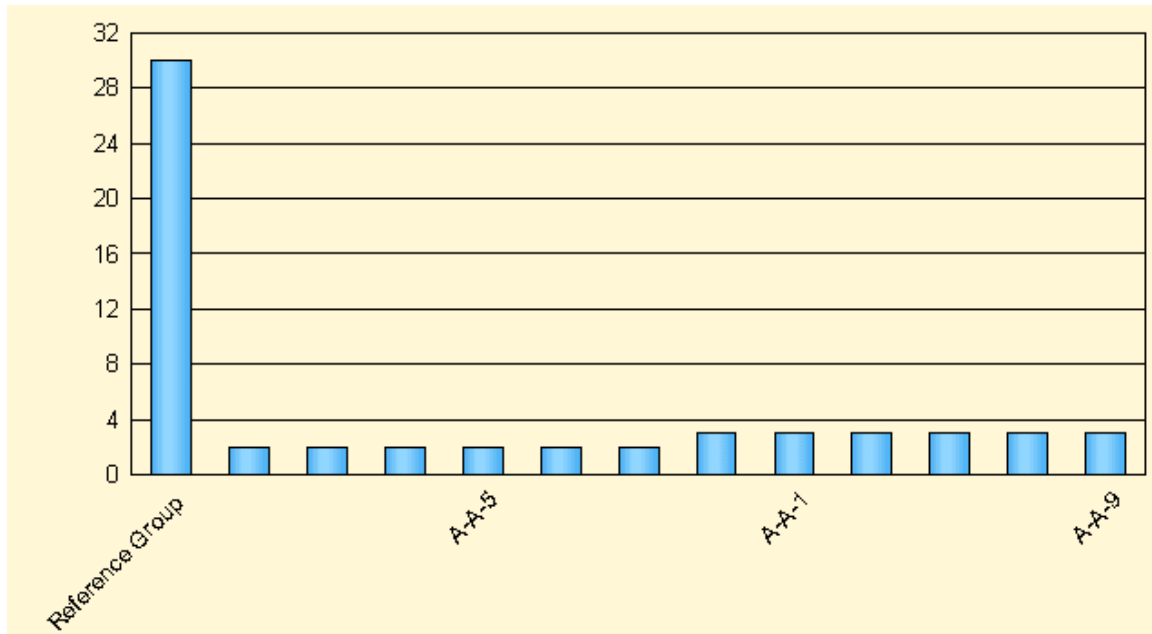
```
@XSKIP3 nMaxLabels
```

PARAMETERS:

nMaxLabels; specifies the maximum number of labels

EXAMPLE:

```
@XSKIP3 4
```



PERSISTENT:

NO

REQUIREMENTS:

Crystal Reports 10 or higher

ALSO SEE:

@XSKIP, @XSKIP2



Section 6: Riser & Markers

Use these macros to control and format risers and markers:

- @3DLINES; Draw Risers as Ribbons on 2.5D Line Charts
- @ABS_BAR; Draw negative values with positive risers on Y-Axis
- @BUBBLEMODE; Control appearance of bubbles in a bubble chart
- @COND_GROUP_LABEL; Color a riser based on a Group Label
- @COND_GROUP_LABEL2; Color a riser based on a Group Label prefix
- @DLT; Data Line Type: Marker Only, Lines Only, Markers & Lines
- @FORCE_DATA LINE; Force data line connecting all data points
- @FORCE_FULL_BARS; Force Full Bars
- @HIDE_ZERO; Hide Risers/Markers for zero data points
- @HL; Highlight a Riser/Marker
- @LINE_BREAK; Control Null Data Behavior in line charts
- @LS; Line Style
- @MARKER; Marker Shapes
- @MCOLOR; Marker/Riser Colors
- @PAT; Apply a Pattern to Risers/Markers
- @RISER_BORDER; Riser/Marker Borders
- @RISER_OVERLAP; Define the amount of overlap between risers in side-by-side/clustered bar charts
- @RISER_WIDTH; Define the Width of Risers in bar charts
- @SMOOTH_LINE; Connect data points with Smooth or Straight Line segments
- @SZ; Marker Size
- @Y_HEADROOM; Riser Headroom

@3DLINES (Draw Risers as Ribbons on 2.5D Line Charts)

In a line chart where 2.5D depth effect is applied, this macro can be used to force the risers to be drawn as ribbons.

SYNTAX:

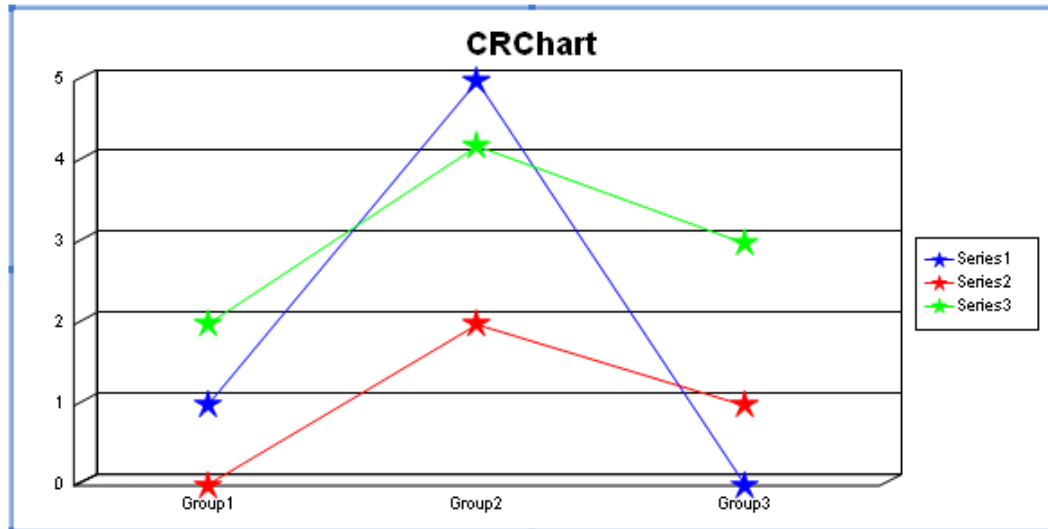
```
@3DLINES bWant3DLines
```

PARAMETERS:

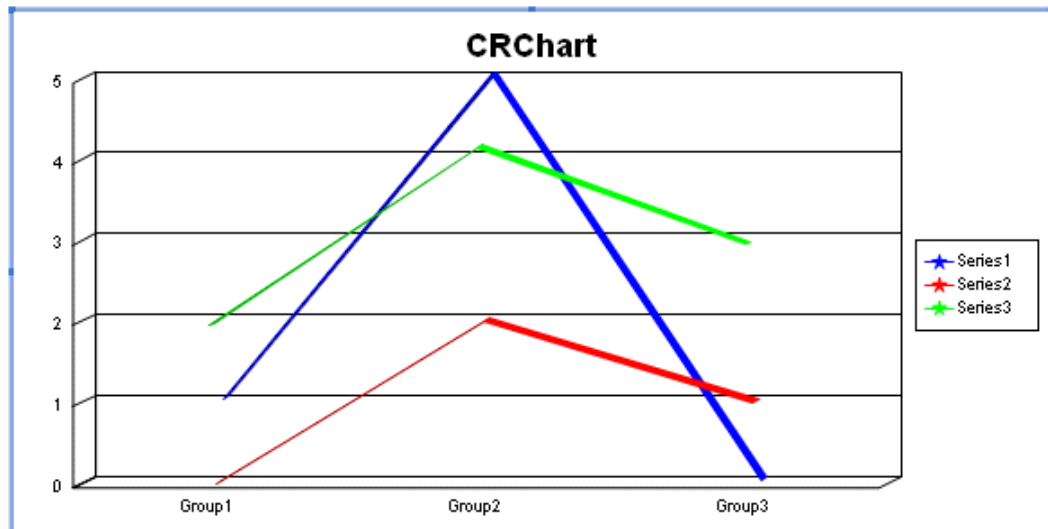
bWant3DLines: 0/1. 0=draw lines normally, 1=draw lines as ribbons

EXAMPLE:

```
@3DLINES 0
```



```
@3DLINES 1
```



PERSISTENT:

NO

REQUIREMENTS:

Crystal Reports 11 or higher

@ABS_BAR (Absolute Bars for Negative Values)

In side-by-side bar charts, this macro can be used to force negative values to draw as positive risers on the Y-Axis with negative color and data text.

SYNTAX:

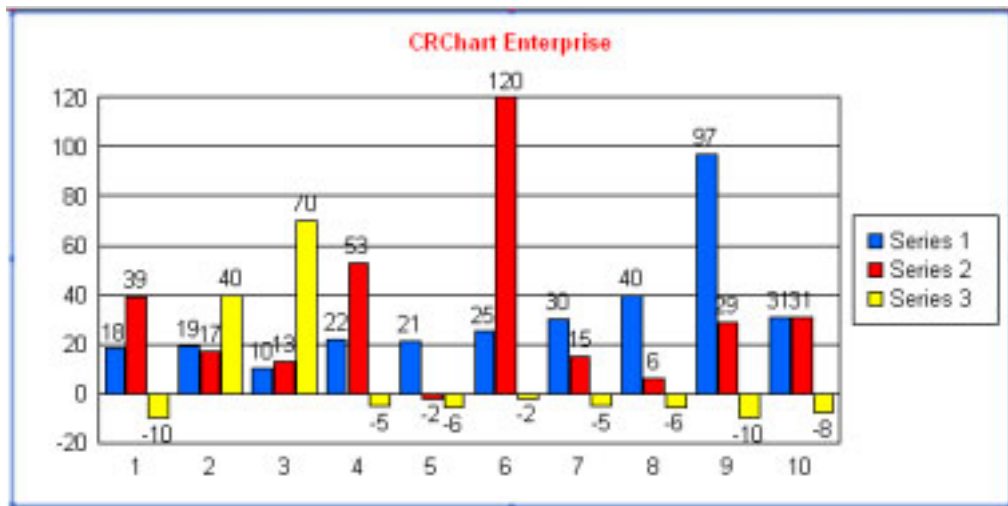
```
@ABS_BAR bAbsBar
```

PARAMETERS:

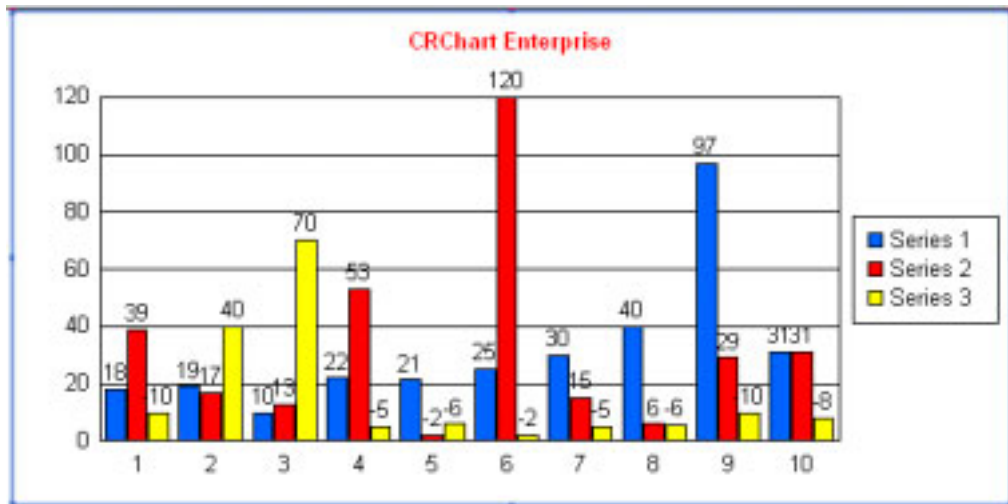
bAbsBar; 0/1. 0=Draw negative value risers normally. 1=Draw negative value risers on the positive Y-Axis

EXAMPLE:

```
@ABS_BAR 0
```



```
@ABS_BAR 1
```



PERSISTENT:

NO

REQUIREMENTS:

- Crystal Reports 11.5 or Higher
- **CRCHART Enterprise**

@BUBBLEMODE (Bubble Draw Mode)

This macro controls the appearance of bubbles in a bubble chart. When bubble mode is activated (*bActivate*=1), bubble sizes are calculated using relative area. If the largest bubble represents a value of 100 and the smallest represents a value of 1 (for example), the smallest bubble will be 1/100th the area of the largest bubble. A bubble that represents a negative value will be drawn using the absolute value - white filled with a black edge. In a data set such as 1, 50, -100, the -100 value is drawn as the largest bubble. When bubble mode is disabled (*bActivate*=0), bubble sizes are calculated using a linear interpolation between the maximum and minimum. Negative values are drawn as smaller bubbles. In a data set such as 1, 50, -100, the -100 value is drawn as the smallest bubble.

SYNTAX:

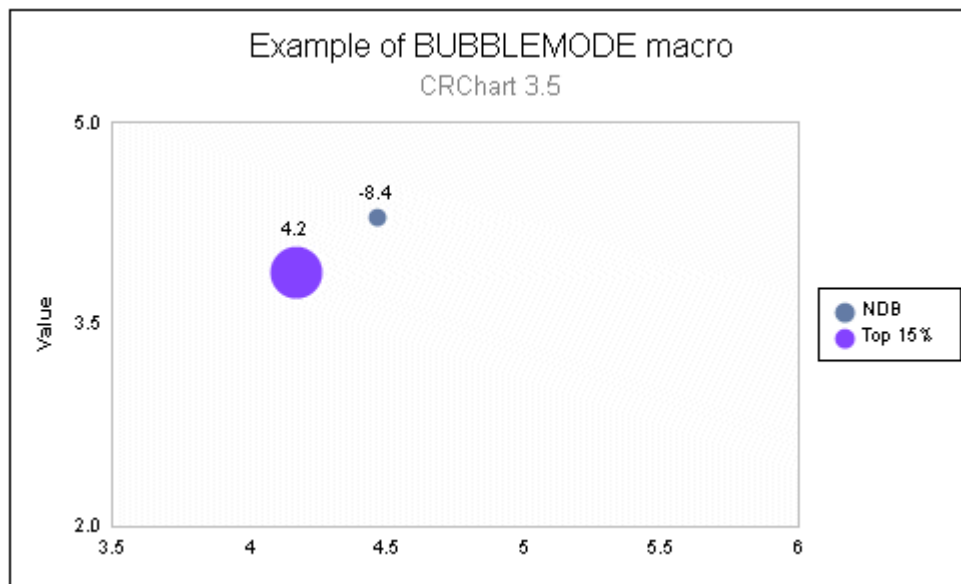
```
@BUBBLEMODE bActivate
```

PARAMETERS:

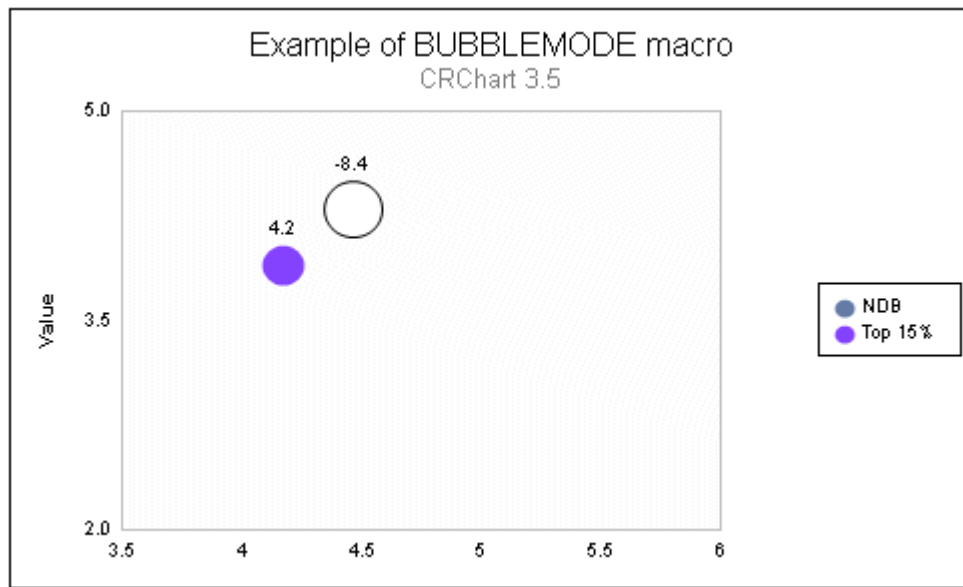
bActivate; 0=use normal Crystal Reports bubble size calculations, 1=activate Excel-Style bubbles

EXAMPLE:

```
@BUBBLEMODE 0
```



```
@BUBBLEMODE 1
```

PERSISTENT:

NO

REQUIREMENTS:

Crystal Reports 10 or higher

@COND_GROUP_LABEL (Color Riser by Group Label)

This macro will apply a color to the riser(s) at *nSeries* if the series' group label is *szGroupLabel*.

SYNTAX:

```
@COND_GROUP_LABEL nSeries nRed nGreen nBlue szGroupLabel
```

PARAMETERS:

nSeries; -1...*n* (where: *n* = the total number of series in the chart).

-1 = apply to all series, 0 = Series 1, 1 = Series 2, etc.

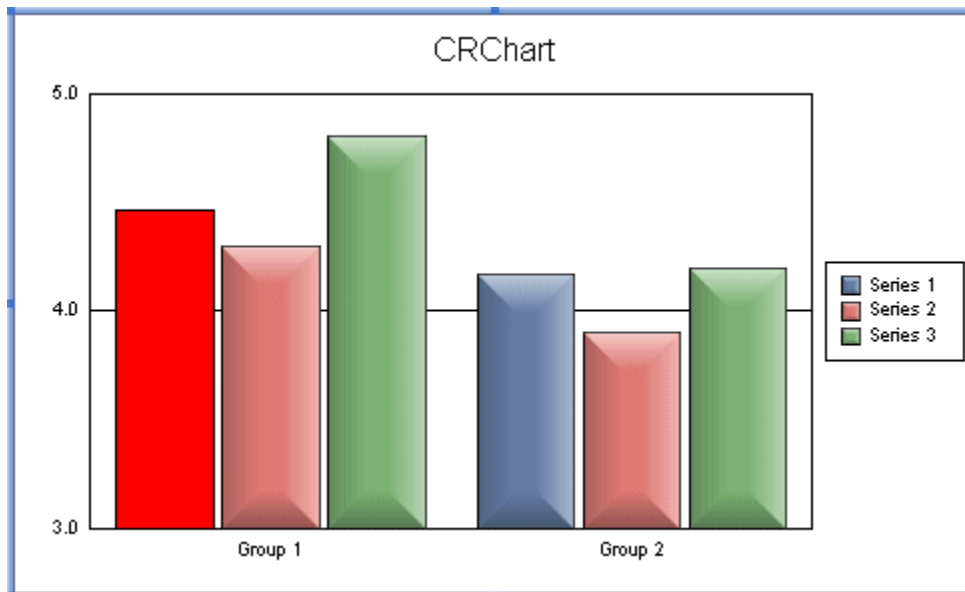
nRed, nGreen, nBlue; 0...255 color to use for series riser.

szGroupLabel; Group label string

EXAMPLE:

Apply RED (255 0 0) to Group 0 if the Group Label is "Group 1".

```
@COND_GROUP_LABEL 0 255 0 0 Group 1
```



PERSISTENT:

NO

ALSO SEE:

@COND_GROUP_LABEL2

NOTES:

- The color will only be applied to the first instance of *szGroupLabel* in the group labels. If two groups have the same label, the color is only applied to the first instance. The *szGroupLabel* cannot be specified as a runtime parameter (i.e., P3). It must be a literal string.
- The group label string (*szGroupLabel*) is case sensitive ("GROUP 1" will not match "Group 1").

@COND_GROUP_LABEL2 (Color Riser by Group Label Prefix)

This macro will apply a color to the riser(s) at *nSeries* when a group label prefix matches the group label. To use this macro, you must prefix the target label and a tilde (~) to each group label. When the macro finds a group label that matches the prefix, the color is applied to the riser.

SYNTAX:

```
@COND_GROUP_LABEL2 nSeries nRed nGreen nBlue
```

PARAMETERS:

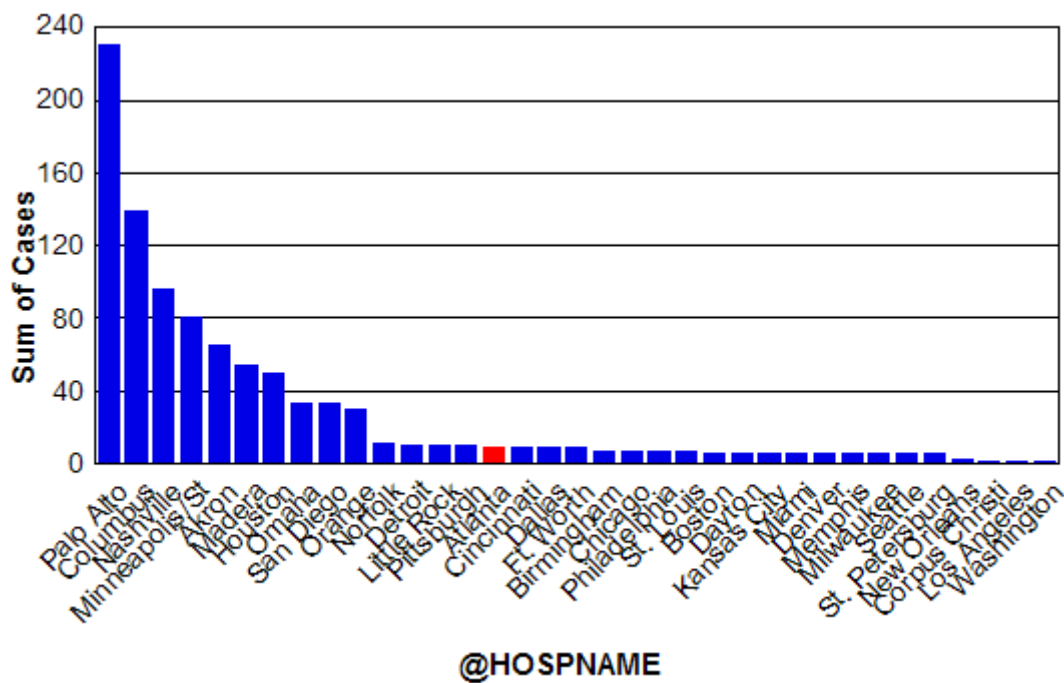
nSeries; -1...*n* (where: *n* = the total number of series in the chart).

-1 = apply to all series, 0 = Series 1, 1 = Series 2, etc.

nRed, *nGreen*, *nBlue*; 0...255 color to use for series riser.

EXAMPLE:

```
@COND_GROUP_LABEL2 -1 255 0 0
```



In this example, the "Atlanta~" string is prefixed to every group label in this chart.

PERSISTENT:

NO

ALSO SEE:

@COND_GROUP_LABEL

@DLT (Markers Only, Lines Only, Marker & Lines)

On Line and 2D-Scatter charts, this macro can be used to draw markers only, lines only, or markers and lines.

SYNTAX:

```
@DLT nSeries nType
```

PARAMETERS:

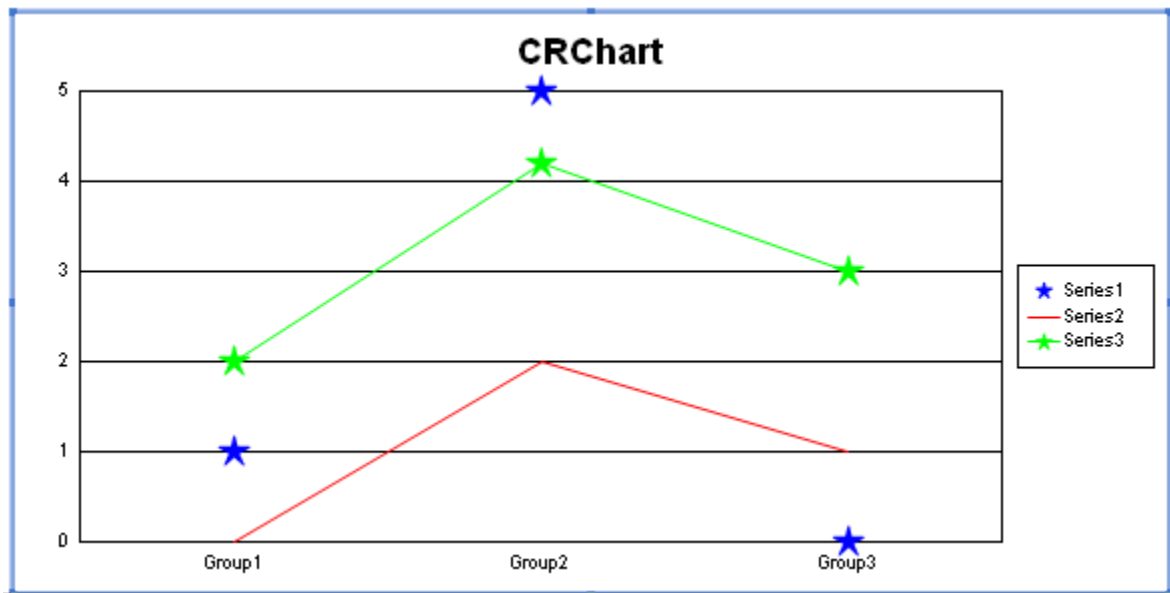
nSeries; -1...*n* (where: *n* = the total number of series in the chart).

-1 = apply to all series, 0 = Series 1, 1 = Series 2, etc.

nType; 1 = draw markers only, 2 = draw lines only, 3 = draw markers and lines.

EXAMPLE:

```
@DLT 0 1  
@DLT 1 2  
@DLT 2 3
```



PERSISTENT:

YES

NOTES:

If you use @GRAPHTYPE to create a line chart or 2D scatter chart, this macro must be before the graph type selection.

@FORCE_DATALINE (Force Data Line)

For scatter charts, this macro draws a data line connecting all data points even if the dataset implies one group and many series (i.e., each marker has a unique color).

SYNTAX:

```
@FORCE_DATALINE nMode
```

PARAMETERS:

nMode; 0...2

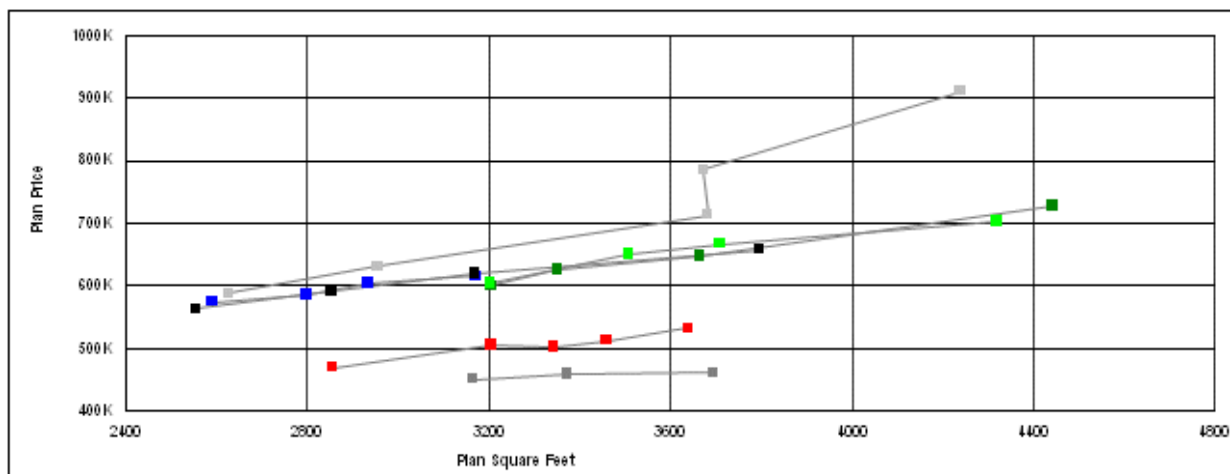
0=Do nothing.

1=Connect all data points in a scatter chart.

2=Connect all data points in a scatter chart, but use sequential legend entries with identical strings to determine where to put line breaks.

EXAMPLE:

```
@FORCE_DATALINE 1
```



PERSISTENT:

NO

REQUIREMENTS:

Crystal Reports 10 or higher

@FORCE_FULL_BARS (Force Full Bars)

For dual-Y stacked charts, the charting engine draws two side-by-side stacks. When the right-side stack is emphasized into lines, bars for the remaining left-side stack are thin and not centered on their group label. This macro forces the left stack to draw risers that are the full-width of the group area and centered on the group label.

SYNTAX:

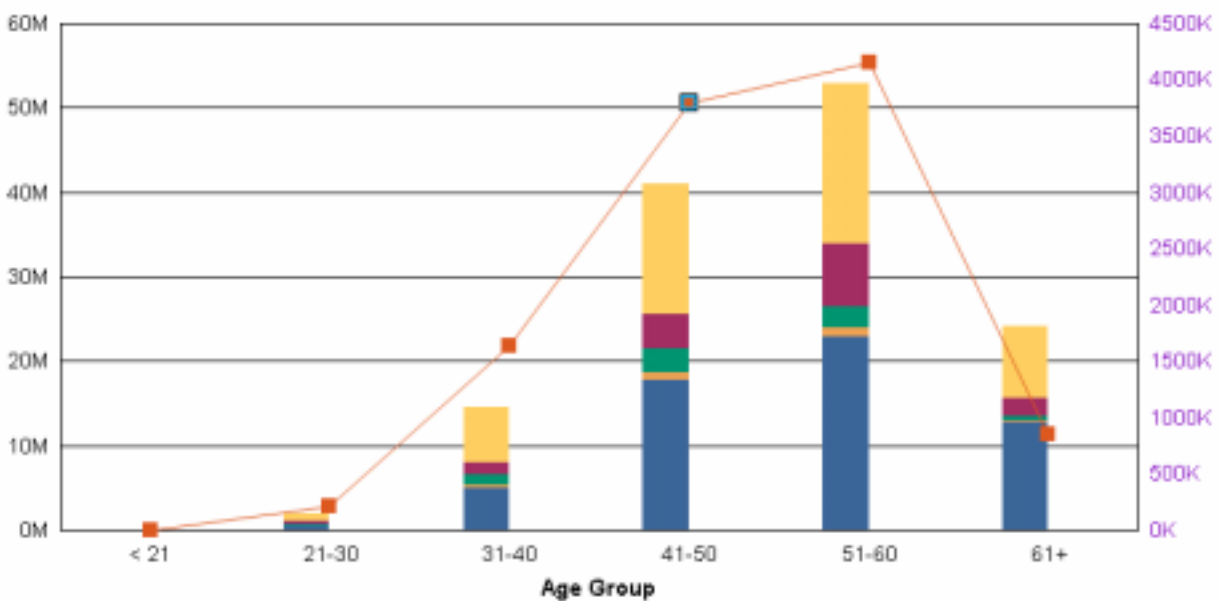
```
@FORCE_FULL_BARS bFull
```

PARAMETERS:

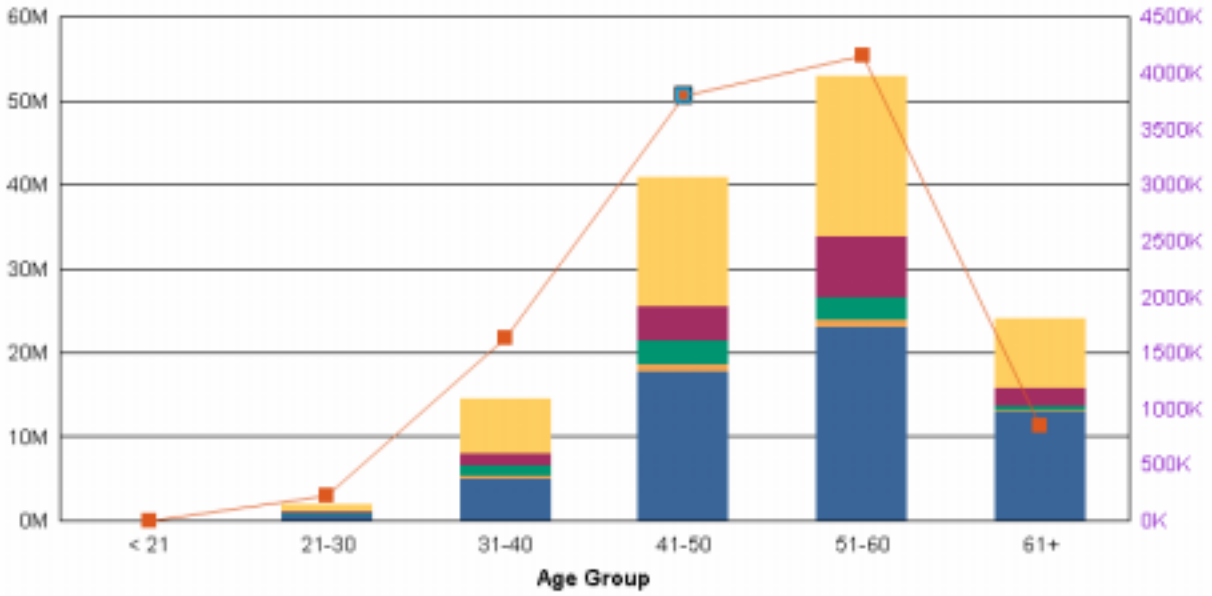
bFull; 0=disable full-width bars, 1=enable full-width bars

EXAMPLE:

```
@FORCE_FULL_BARS 0
```



@FORCE_FULL_BARS 1



PERSISTENT:

NO

REQUIREMENTS:

Crystal Reports 11 or higher

NOTES:

A stack can be "emphasized into lines" with the @COMBO macro or by selecting Series Options / Appearance / Show Selected Series As / Line.

@HIDE_ZERO (Hide Zero Riser/Marker)

This macro hides any riser or marker in a bar, line, area, 3D, or pie chart that is equal to 0.0. The value becomes "NULL Data" for purposes of all chart calculations and output.

SYNTAX:

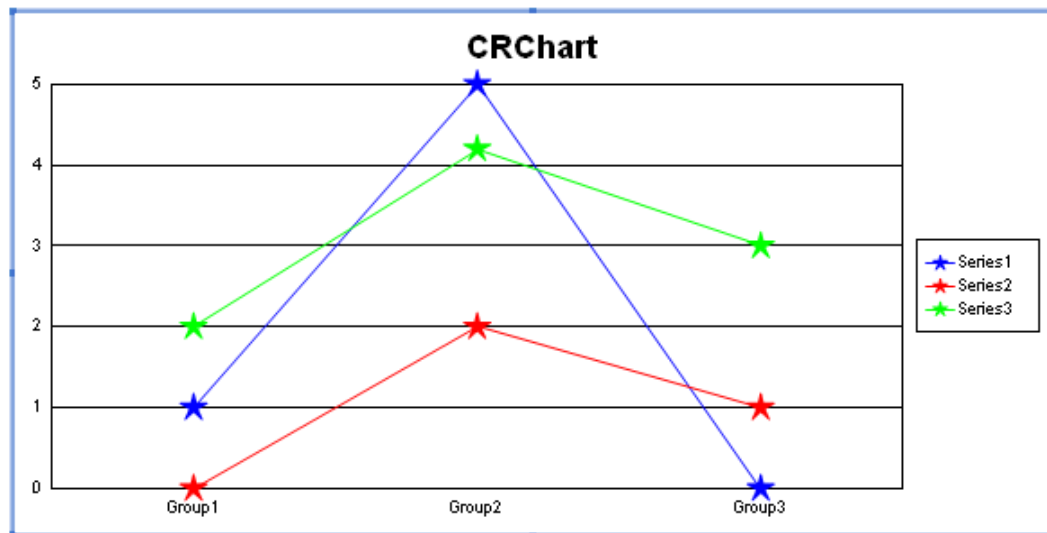
```
@HIDE_ZERO
```

PARAMETERS:

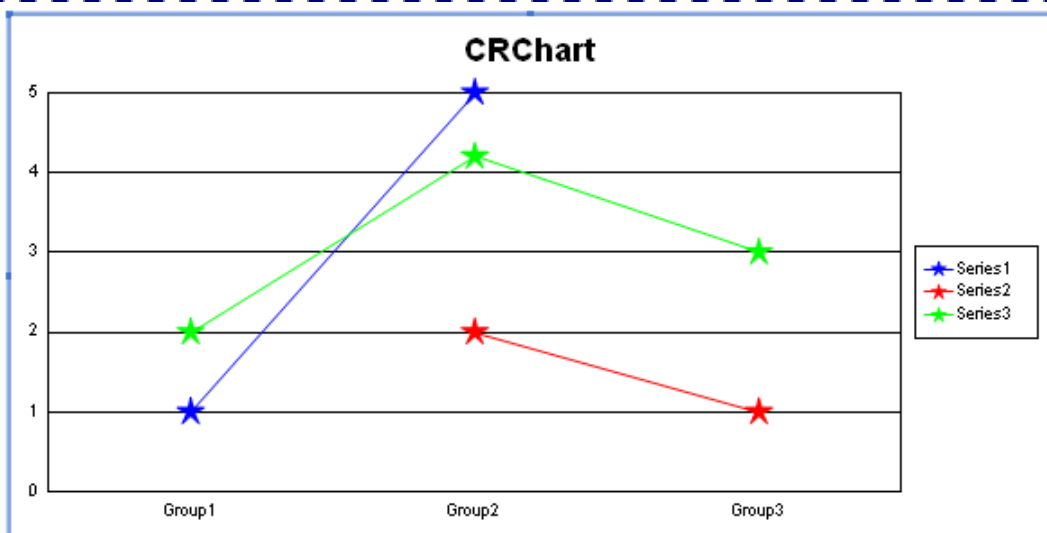
None

EXAMPLE:

Before @HIDE_ZERO



After @HIDE_ZERO



PERSISTENT:

NO

@HL (*Highlight Riser/Marker*)

This macro uniquely colors the marker identified by *nSeries* and *nGroup* with the color identified by *nRed*, *nGreen*, *nBlue*.

SYNTAX:

```
@HL nSeries nGroup nRed nGreen nBlue
```

PARAMETERS:

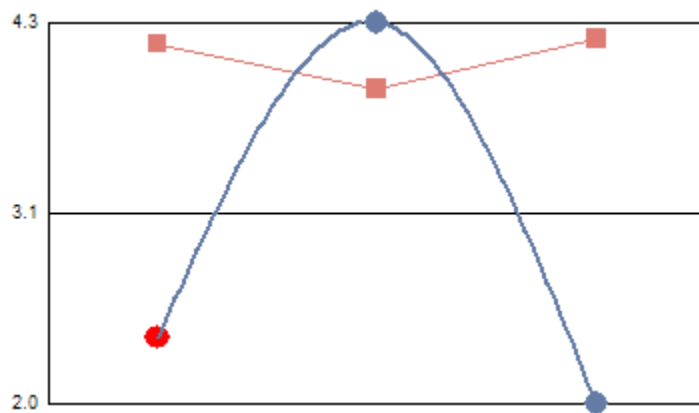
nSeries; -1...1024 Series Number (-1=all series, 0=Series 1, 1=Series 2, etc.)

nGroup; -1...1024 Group Number (-1=all groups, 0=Group 1, 1=Group 2, etc.)

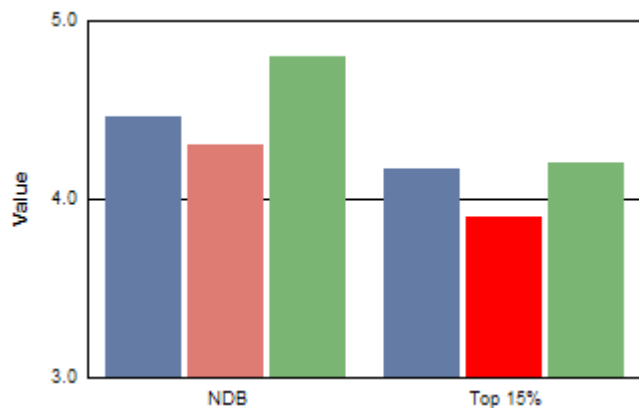
nRed, *nGreen*, *nBlue*: 0...255 specifies the RGB value to be applied to the riser/marker at *nSeries* and *nGroup*.

EXAMPLE:

```
@HL 0 0 255 0 0
```



```
@HL 1 1 255 0 0
```



PERSISTENT:

YES

@LINE_BREAK (Control Null Data Behavior)

This macro defines the behavior of missing data in line charts. For absolute line charts, the default behavior ignores NULLs. For stacked and percent line charts, the default behavior treats NULLs as zero.

SYNTAX:

```
@LINE_BREAK nBehavior
```

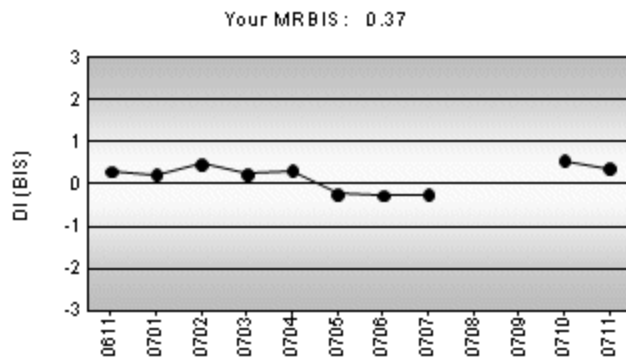
PARAMETERS:

nBehavior; 0...3 selects one of the following:

- 0 = Line charts do not break on NULL data (default)
- 1 = Absolute Lines break on NULL data, but Stacked line charts do not
- 2 = Stacked line charts break on null data, but absolute line charts do not
- 3 = All line charts break on NULL data

EXAMPLE:

```
@LINE_BREAK 3
```



PERSISTENT:

NO

REQUIREMENTS:

Crystal Reports 11 or higher

@LS (Line Style)

This macro assigns a thickness and style to a series line.

SYNTAX:

















```
@LS nSeries nWidth nStyle
```

PARAMETERS:

nSeries; -1...*n* (where: *n* = the total number of series in the chart). -1 = apply to all series, 0 = Series 1, 1 = Series 2, etc.

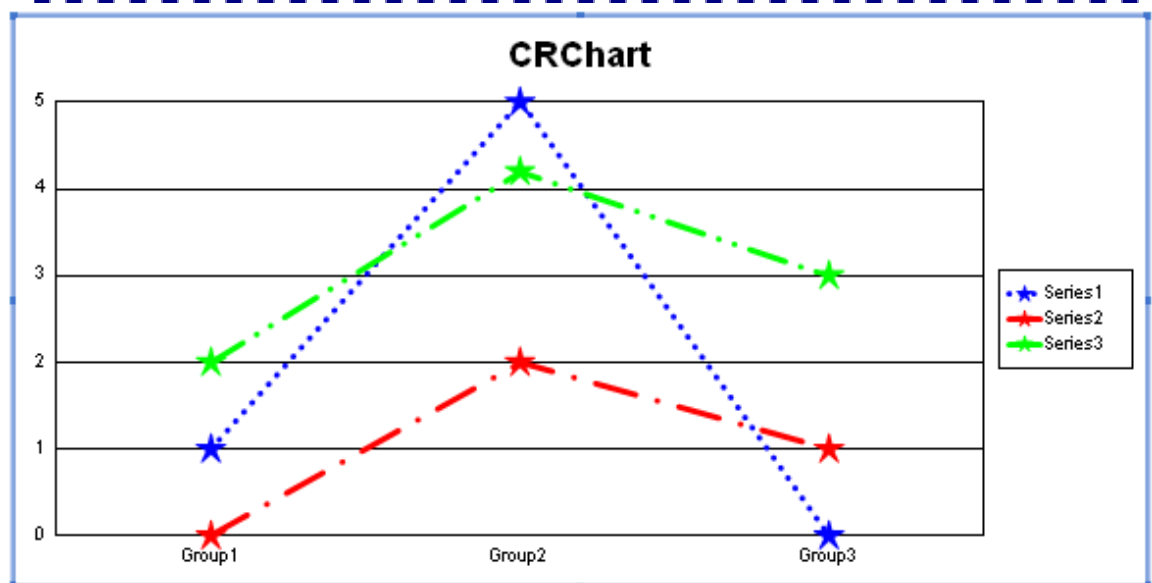
nWidth; 0...1000 selects the thickness of the line.

nStyle; 0...15 selects one of the following line styles.

0=		Solid
1=		Dashed
2=		Dotted
3=		Dot-Dash
4=		Dash-Dot-Dot
5=		Medium Dash
6=		Short Dash
7=		Long Dash
8=		Long Dot
9=		Dot-Dot-Dot
10=		Dash-Dash-Dot
11=		Dash-Dash-Dot-Dot
12=		Long Dash-Dot
13=		Long Dash-Dot-Dot
14=		Long Dash-Dash-Dot
15=		Long Dash-Dash-Dot-Dot

EXAMPLE:

```
@LS 0 100 2 @LS 1 100 3 @LS 2 100 4
```



PERSISTENT:

YES

@MARKER (Marker Shapes)

This macro sets the shape of markers for a particular series in a chart. It can be used in any chart that uses markers (Bubble, Scatter, Line Graph with Markers, etc.) except Box Plots. See the @MS macro to set the shape of markers in box plots.

SYNTAX:

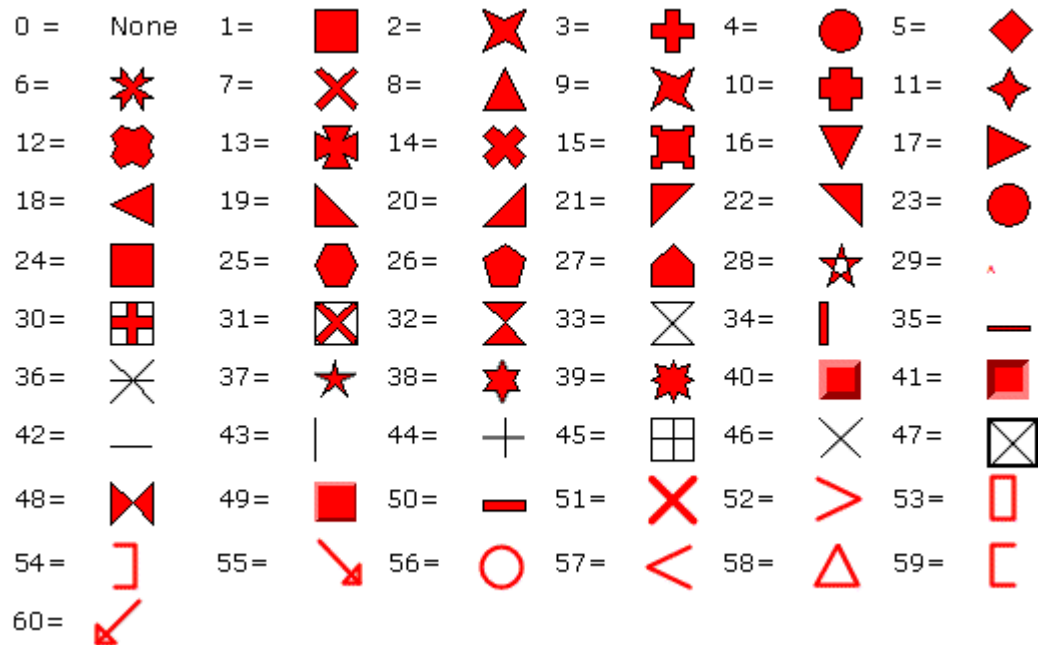
```
@MARKER nSeries nMarker
```

PARAMETERS:

nSeries; -1...*n* (where: *n* = the total number of series in the chart).

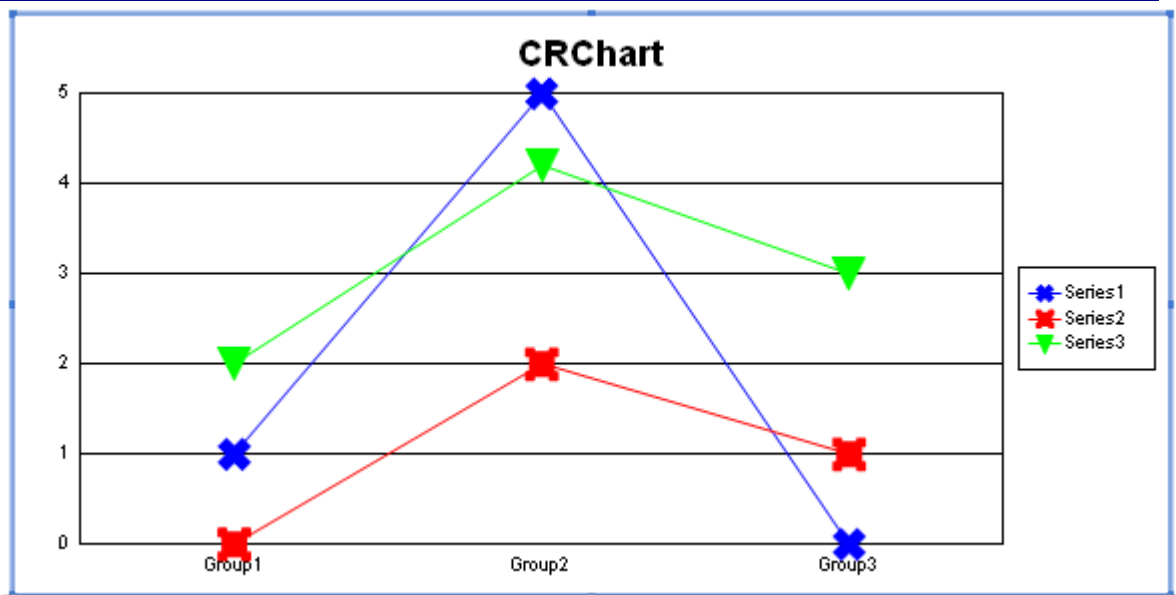
-1 = apply to all series, 0 = Series 1, 1 = Series 2, etc.

nMarker; 0...60 selects one of the following markers to apply to *nSeries*.



EXAMPLE:

```
@MARKER 0 14 @MARKER 1 15 @MARKER 2 16
```



PERSISTENT:
YES

@MCOLOR (Marker/Riser Colors)

This macro can be used to change the color of markers and risers in all chart types except box plots. Use the @MC macro if you want to change the color of markers in box plots.

SYNTAX:

```
@MCOLOR nSeries nRed nGreen nBlue
```

PARAMETERS:

nSeries; -1...*n* (where: *n* = the total number of series in the chart).
 -1=apply to all series, 0=Series 1, 1=Series 2, etc.

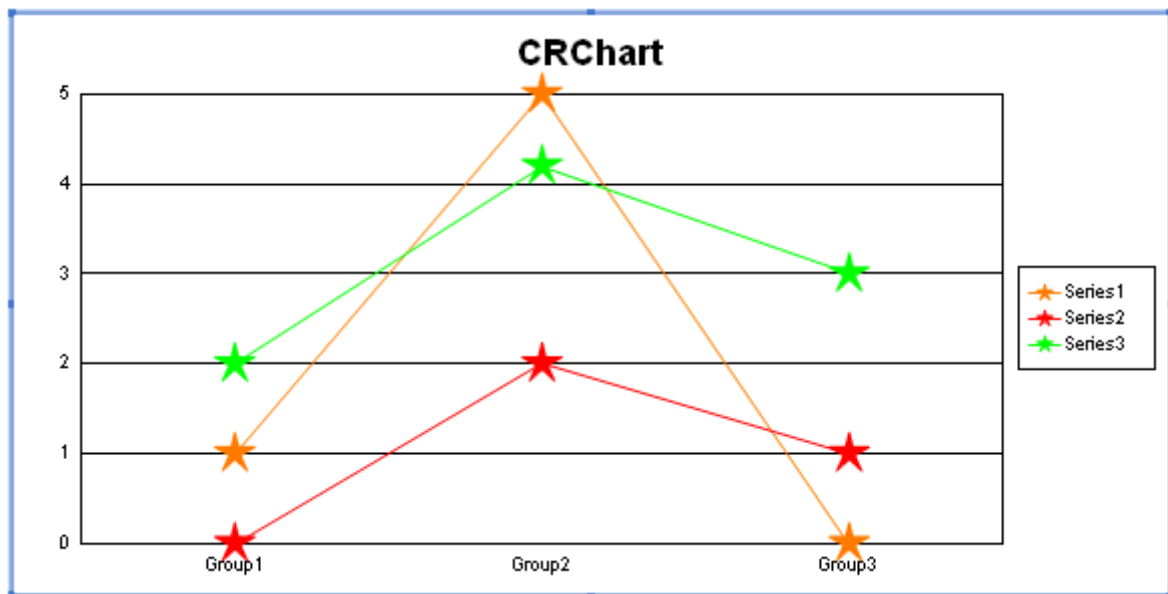
nRed; 0...255 defines the Red portion of RGB color selection.

nGreen; 0...255 defines the Green portion of RGB color selection.

nBlue; 0...255 defines the Blue portion of RGB color selection.

EXAMPLE:

```
@MCOLOR 0 255 125 0
```



PERSISTENT:

YES

ALSO SEE:

@GCOLOR to change the color of other chart objects.

@PAT (Riser/Marker Pattern)

This macro can be used to apply a pattern to risers and markers.

SYNTAX:

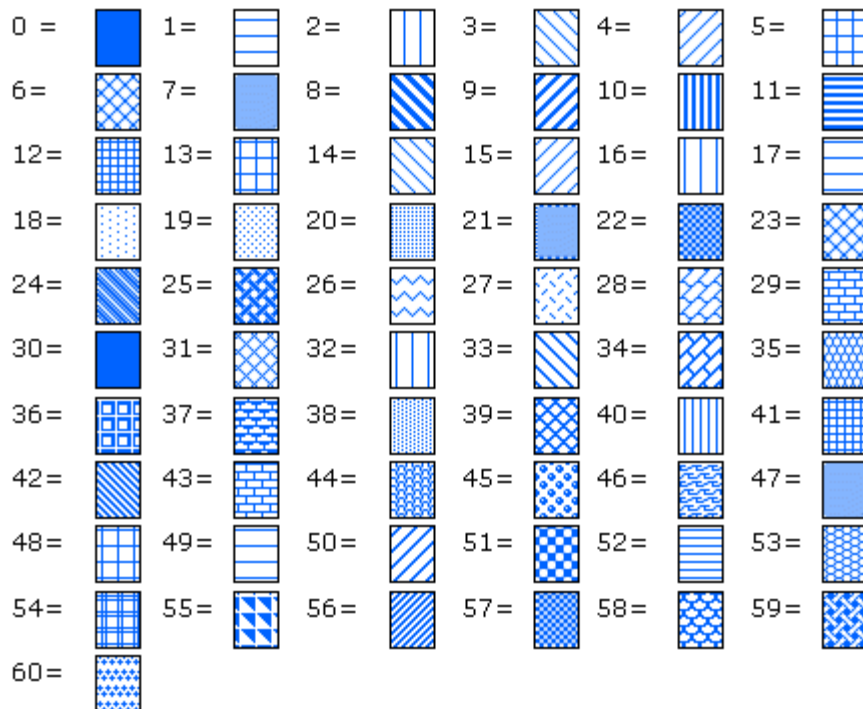
```
@PAT nSeries nPattern
```

PARAMETERS:

nSeries; -1...*n* (where: *n* = the total number of series in the chart).

-1 = apply to all series, 0 = Series 1, 1 = Series 2, etc.

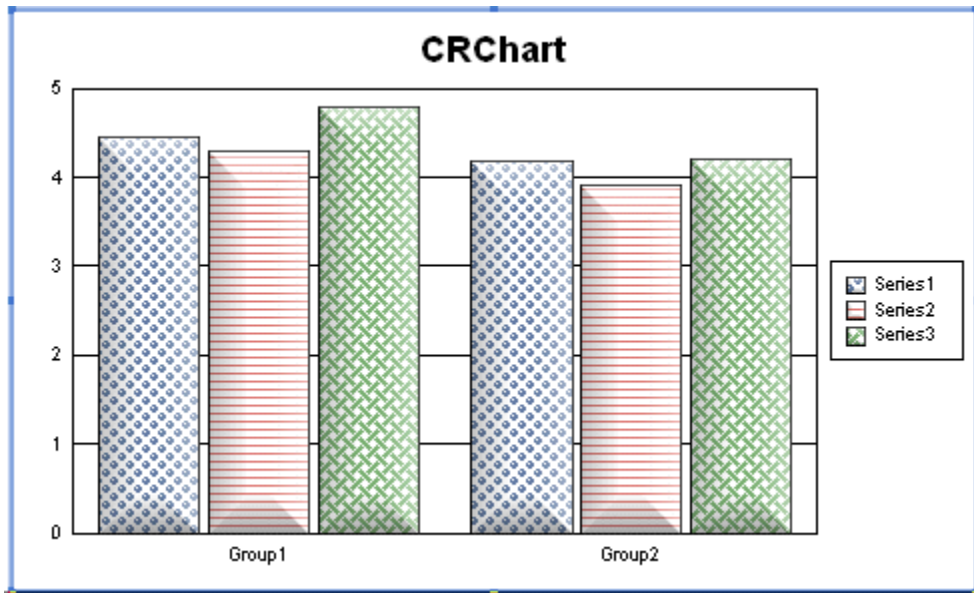
nPattern; -60...60. Use 0...60 to select one of the following patterns with a white background.



Use -1 to -60 to select one of these patterns with a transparent background.

EXAMPLE:

```
@PAT 0 45 1 52 2 25
```



PERSISTENT:
YES

@RISER_BORDER (Riser Border)

This macro enables/disables drawing of borders around risers/markers in a chart.

SYNTAX:

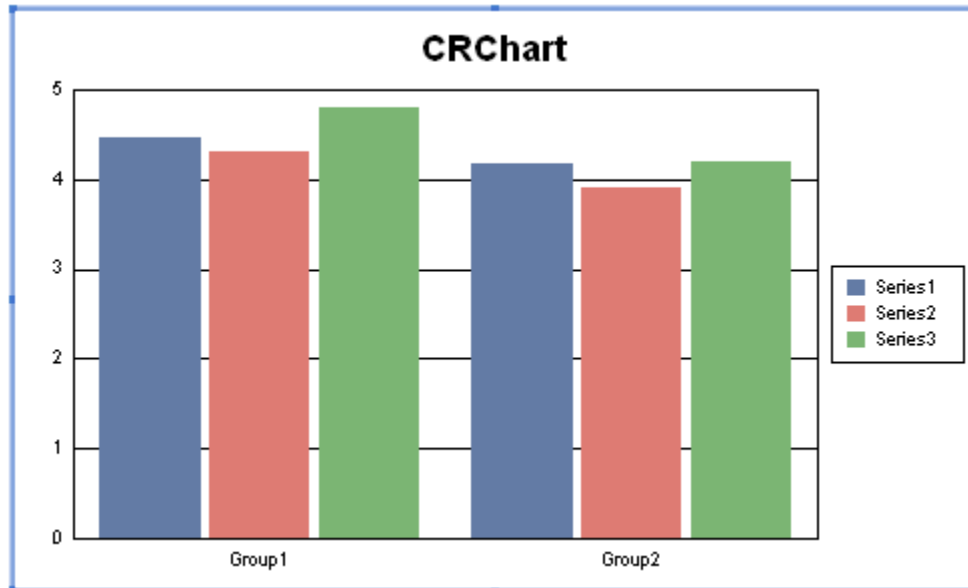
```
@RISER_BORDER bShow
```

PARAMETERS:

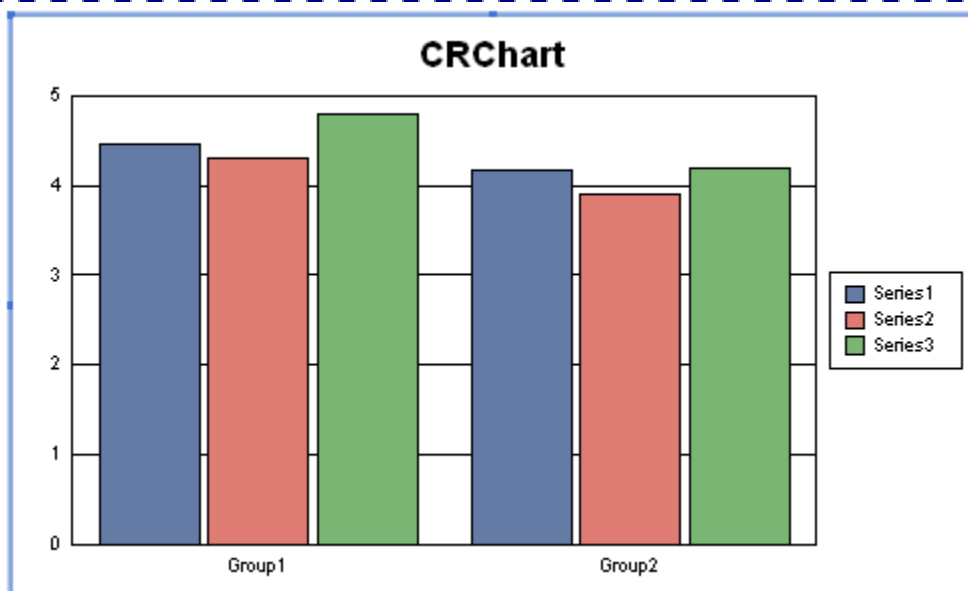
bShow; 0 = Turn OFF border line on risers/markers, 1= Turn ON border line on risers/markers.

EXAMPLE:

```
@RISER_BORDER 0
```



```
@RISER_BORDER 1
```



PERSISTENT:

YES

@RISER_OVERLAP (Riser Overlap)

This macro sets the amount of overlap between risers in a side-by-side/clustered bar chart.

SYNTAX:

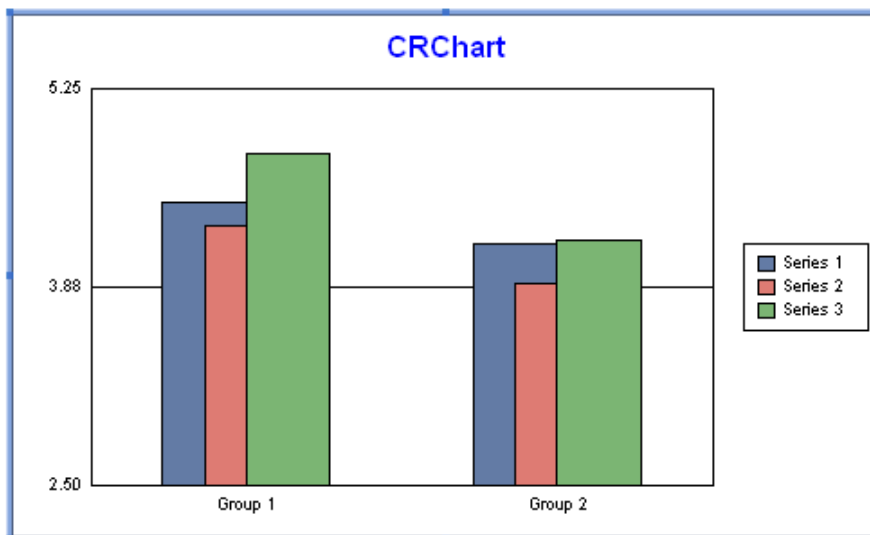
```
@RISER_OVERLAP nOverlap
```

PARAMETERS:

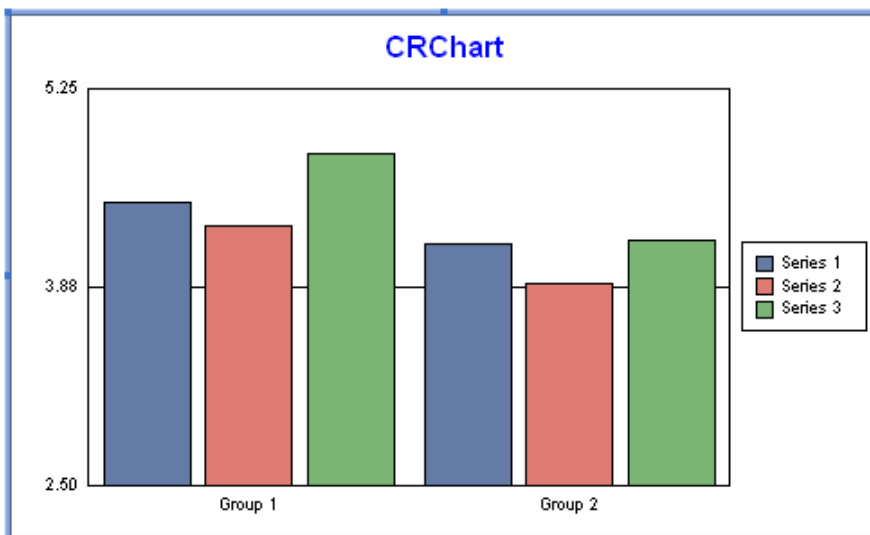
nOverlap; -100...100 selects the amount of overlap. Negative numbers make the risers overlap. A value of -100 will place all risers in a group draw on top of each other. Larger numbers will draw the risers farther apart.

EXAMPLE:

```
@RISER_OVERLAP -50
```



```
@RISER_OVERLAP 50
```



PERSISTENT:

YES

@RISER_WIDTH (Riser Width)

This macro can be used to change the width of risers in a bar chart.

SYNTAX:

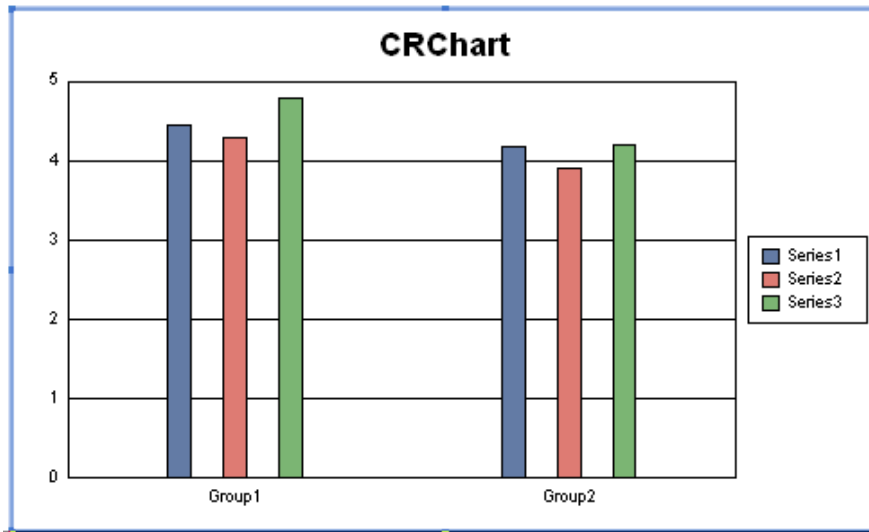
```
@RISER_WIDTH nWidth
```

PARAMETERS:

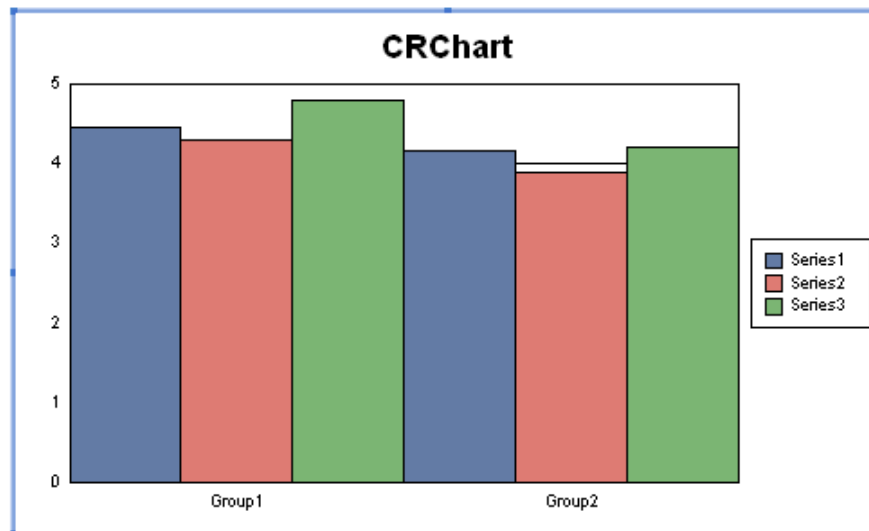
nWidth; 0...100 selects the width of risers.

EXAMPLE:

```
@RISER_WIDTH 20
```



```
@RISER_WIDTH 100
```



PERSISTENT:

YES

ALSO SEE:

@MIN_GROUPS

@SMOOTH_LINE (Smooth/Straight Lines)

This macro connects data points with a smooth line or straight line segments.

SYNTAX:

```
@SMOOTH_LINE nSeries bOnOff
```

PARAMETERS:

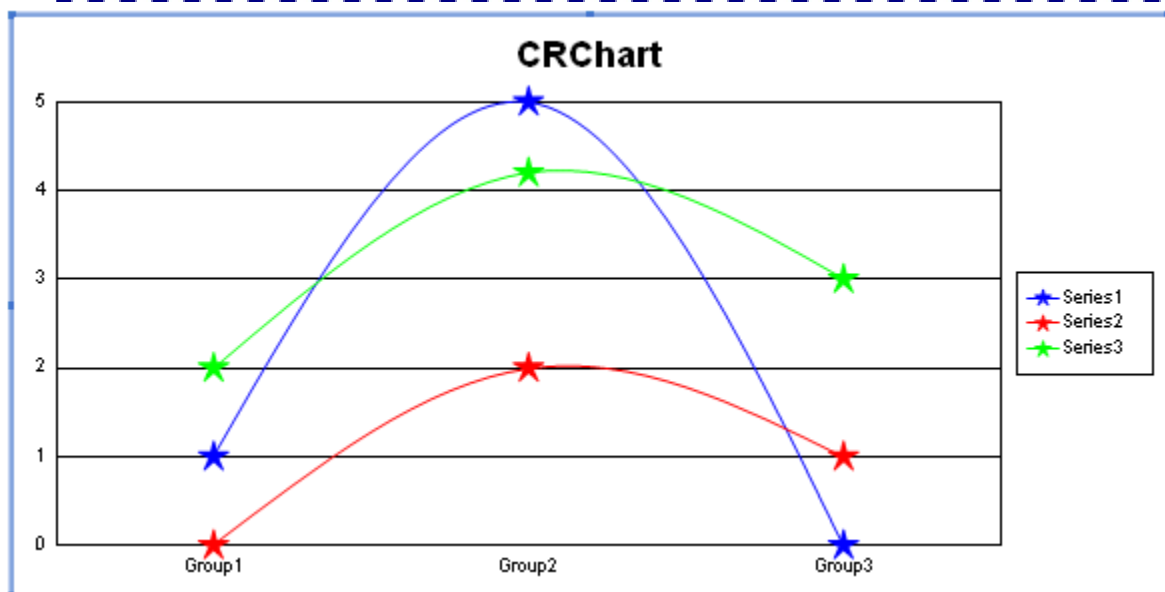
nSeries; -1...*n* (where: *n* = the total number of series in the chart).

-1 = apply to all series, 0 = Series 1, 1 = Series 2, etc.

bOnOff; 1 = connect data markers using a smooth line. 0 = connect data markers with straight-line segments (default).

EXAMPLE:

```
@SMOOTH_LINE -1 1
```



PERSISTENT:

YES

ALSO SEE:

@CURVED_LINES

@SZ (Size of Markers)

This macro sets the size of the markers in any chart type where a marker is drawn to represent a data point (i.e., Line charts, Scatter charts, Polar charts, Box Plots).

SYNTAX:

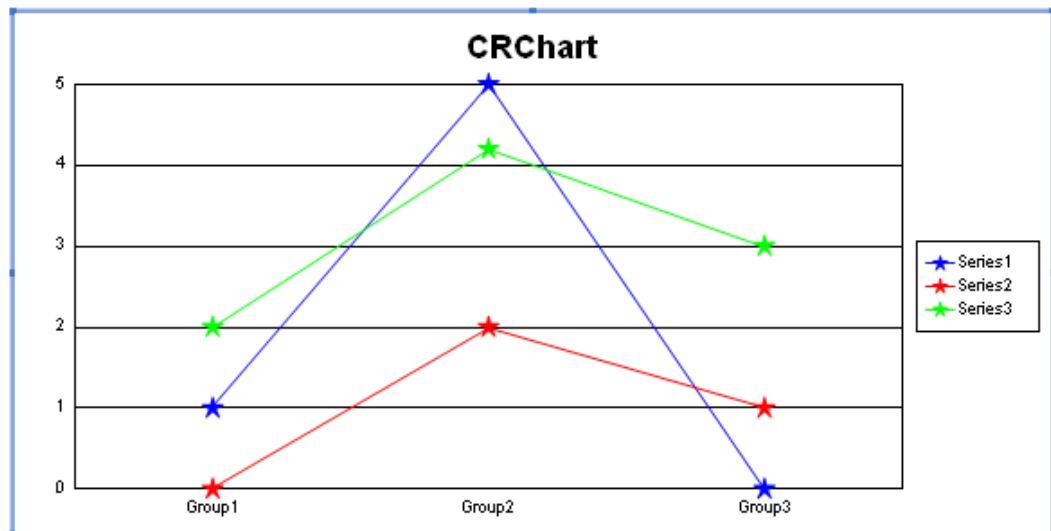
```
@SZ nValue
```

PARAMETERS:

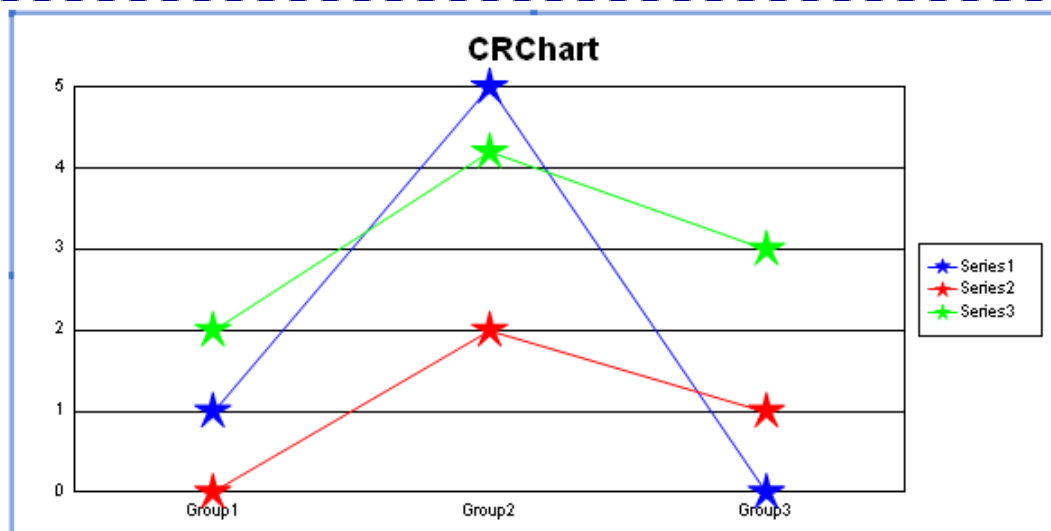
nValue; Size of markers (1...100)

EXAMPLE:

```
@SZ 50
```



```
@SZ 100
```



PERSISTENT:

NO

@Y_HEADROOM (Riser Headroom)

This macro adds *nTop* percentage to the biggest riser value and *nBottom* percentage to the smallest riser values for use in calculating the auto-scale on the Y1-axis. This has the end-result of causing the auto-scale routines to pick larger values for the axis min/max and therefore gives the risers more "headroom" which is useful if data text is crowding the axis min or max lines.

SYNTAX:

```
@Y_HEADROOM nBottom nTop
```

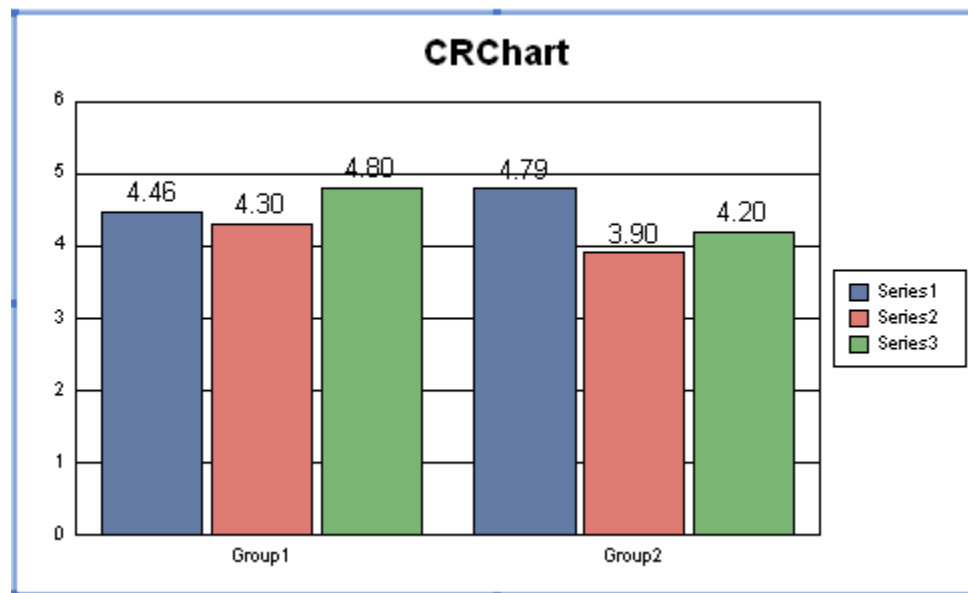
PARAMETERS:

nBottom; 0...100 percentage to add to the biggest riser value

nTop; 0...100 percentage to add to the smallest riser value

EXAMPLE:

```
@Y_HEADROOM 0 10
```



PERSISTENT:

NO

REQUIREMENTS:

- Crystal Reports 11 or higher
- **CRCHART Enterprise**

Section 7: Data Manipulation Macros

Use these macros to manage data and data text:

- @DATASET_MERGE; Reorganize Data Set
- @DP; Data Point Override
- @DPC; Data Point Clear
- @FORECAST; Add Blank Groups
- @GM; Read data in Column Major or Row Major order
- @IR; Insert Row (i.e., create a user-defined series of data)
- @STRIP_ZERO; Strip Zero Values
- @USER_SERIES; Create a User-Defined Series

@DATASET_MERGE (Reorganize Dataset)

When multiple identical group labels exist in a dataset, this macro will reorganize the matching group labels into “virtual” groups and create a new series for each of the identical groups. The original data is read into the chart as one or more series (Series 0 ... Series *n*) and many different group labels. With @DATASET_MERGE, the data is reorganized with a new series labels when group labels change.

SYNTAX:

```
@DATASET_MERGE bAppendSeriesLabel
```

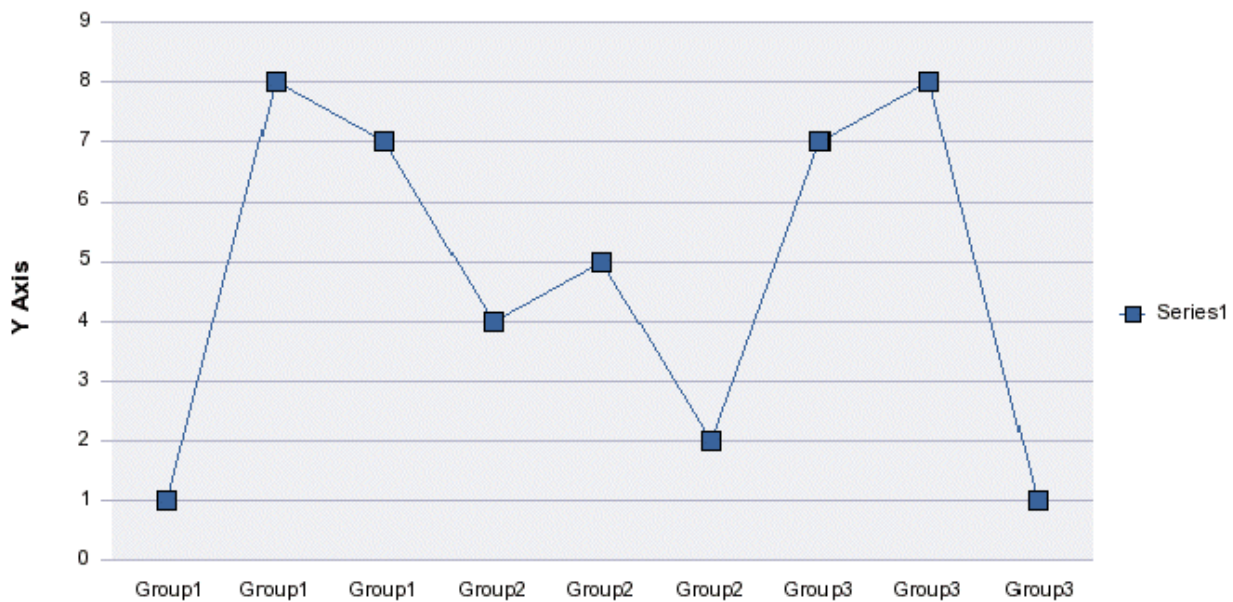
PARAMETERS:

bAppendSeriesLabel; 1 = Appendix Series Label (e.g., Series1:Group1), 0 = Do not append Series Label (e.g., Group 1, Group 2, etc.).

EXAMPLE:

The data set consists of 1 series and 9 groups:

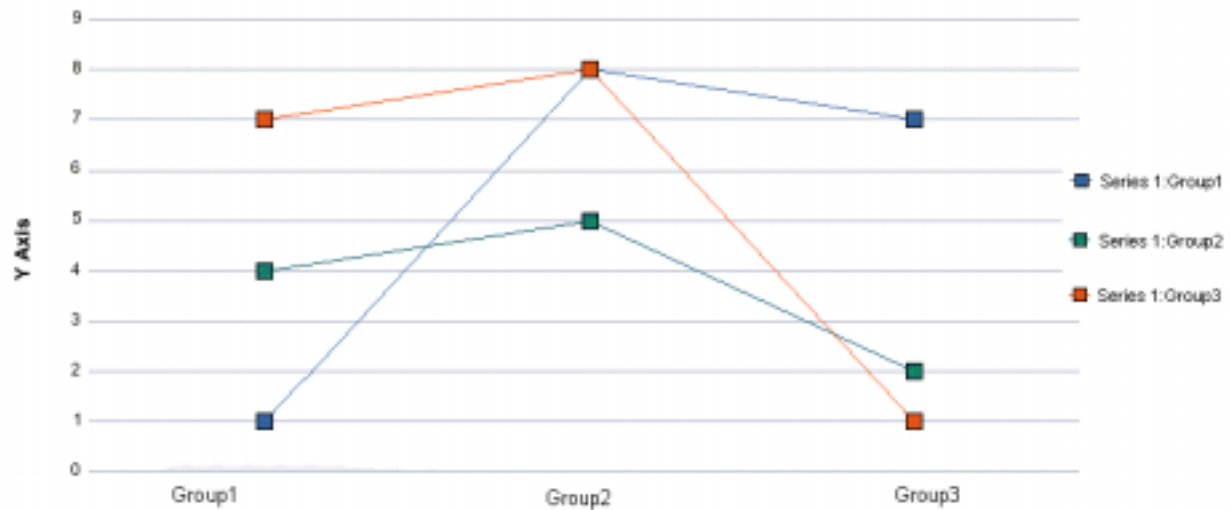
	Group1	Group1	Group1	Group2	Group2	Group2	Group3	Group3	Group3
Series1	1	8	7	4	5	2	7	8	1



```
@DATASET_MERGE 1
```

After @DATASET_MERGE is applied, the data used to draw the chart is reorganized as shown in the following table.

Series1:Group1	Series1:Group2	Series1:Group3
1	4	7
8	5	8
7	2	1

**PERSISTENT:**

YES

REQUIREMENTS:

- Crystal Reports 11 or higher
- **CRCHART Enterprise**

NOTES:

If more than one "On change of" data item is required to plot a chart, CRChart numeric parameter substitutions (using Pn) will not work. @DATASET_MERGE can be used to avoid this situation. This macro basically does one "On change of". See Using Crystal Reports Fields/Functions in CRChart Macros for more information about parameter substitution.

@DP (Data Point Override)

This macro can be used to arbitrarily set a value for a bar, line, area, or pie chart by specifying a series, group and value.

SYNTAX:

```
@DP nSeries nGroup fValue
```

PARAMETERS:

nSeries; -1...*n* (where: *n* = the total number of series in the chart).

-1 = apply to all series, 0 = Series 1, 1 = Series 2, etc.

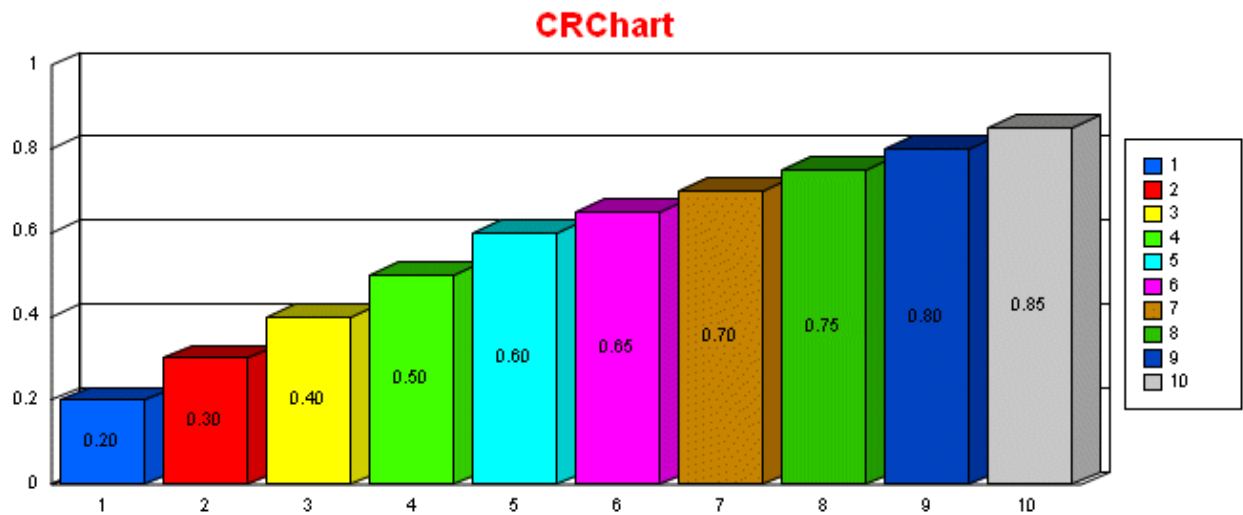
nGroup; -1...*n* (where: *n* = the total number of groups in the chart).

-1 = apply to all groups, 0 = Group 1, 1 = Group 2, etc.

fValue; The REAL value to be assigned to *nSeries/nGroup*.

EXAMPLE:

```
@DP 0 0 .20 @DP 0 1 .30 @DP 0 2 .40 @DP 0 3 .50 @DP 0 4 .60  
@DP 0 5 .65 @DP 0 6 .70 @DP 0 7 .75 @DP 0 8 .80 @DP 0 9 .85
```



PERSISTENT:

NO

ALSO SEE:

@DPC

@DPC (Data Point Clear)

This macro can be used to arbitrarily CLEAR a value (i.e., set to NULL) for a specified series and group in a bar, line, are, or pie chart.

SYNTAX:

```
@DPC nSeries nGroup
```

PARAMETERS:

nSeries; -1...*n* (where: *n* = the total number of series in the chart).

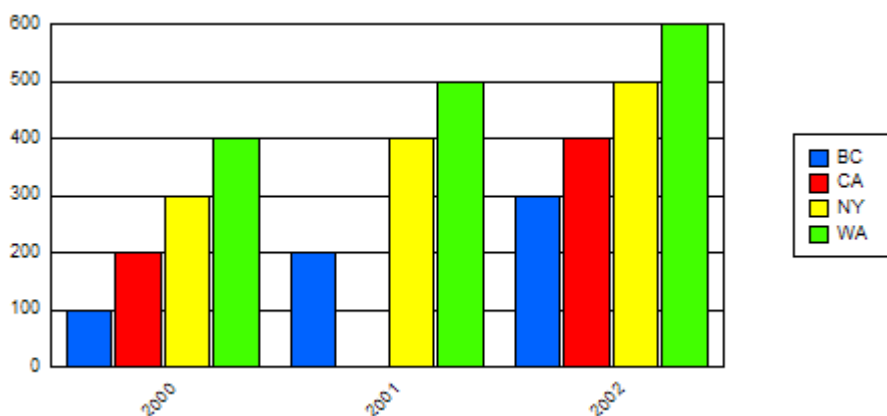
-1 = apply to all series, 0 = Series 1, 1 = Series 2, etc.

nGroup; -1...*n* (where: *n* = the total number of groups in the chart).

-1 = apply to all groups, 0 = Group 1, 1 = Group 2, etc.

EXAMPLE:

```
@DPC 1 1
```



PERSISTENT:

NO

ALSO SEE:

@DP

@FORECAST (Add Blank Groups)

This macro adds blank groups to the end of a chart.

SYNTAX:

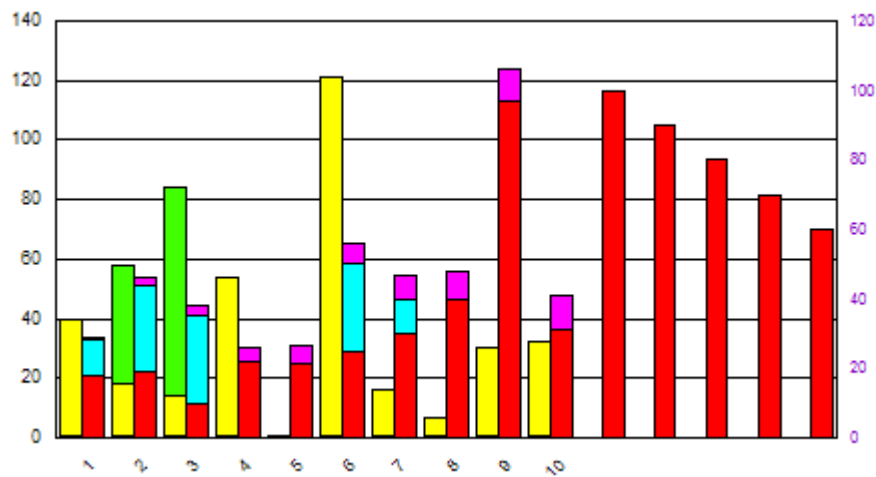
```
@FORECAST nGroups
```

PARAMETERS:

nGroups; 0...1024 groups

EXAMPLE:

```
@FORECAST 5  
@DP 1 10 100  
@DP 1 11 90  
@DP 1 12 80  
@DP 1 13 70  
@DP 1 14 60
```



PERSISTENT:

NO

ALSO SEE:

@DP (to assign data points to the new blank groups)

@GM (Group Major)

This macro reads from the internal data matrix in Column Major order instead of the default Row Major order.

SYNTAX:

```
@GM bVertFormat
```

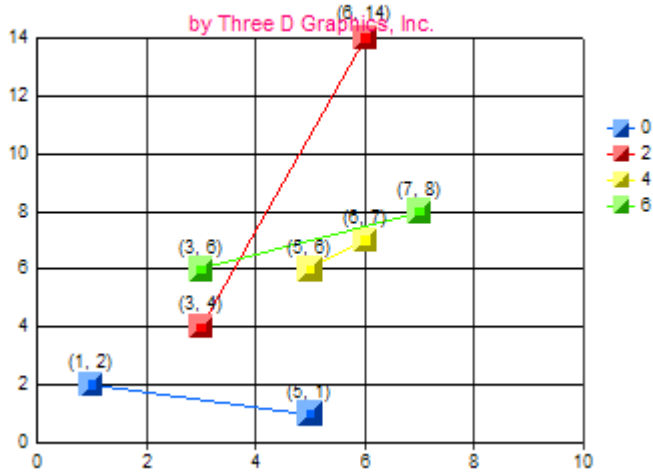
PARAMETERS:

bVertFormat; 1 = true (read data in column major order), 0 = false (read data in row major order)

EXAMPLE:

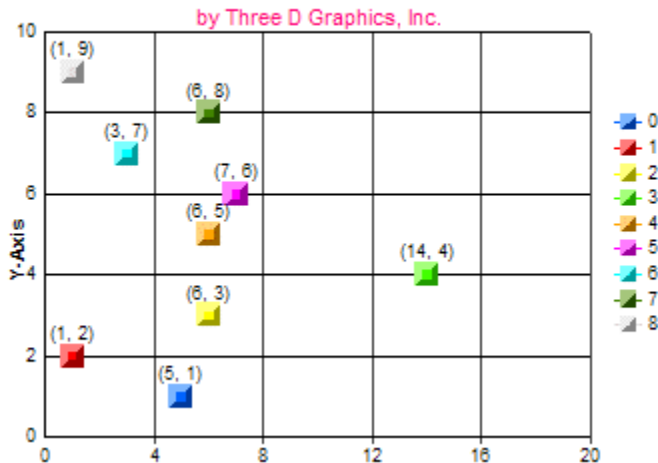
```
@GM 0
```

Enhanced Charting Functionality for Crystal Reports



```
@GM 1
```

Enhanced Charting Functionality for Crystal Reports



PERSISTENT:

NO

@IR (Insert Row)

This macro creates a user-defined series of data.

SYNTAX:

```
@IR nSeries nElements fValue1 fValue2 ... fValueN szSeriesName
```

PARAMETERS:

nSeries; Series to insert row. -1 = append to end of data set.

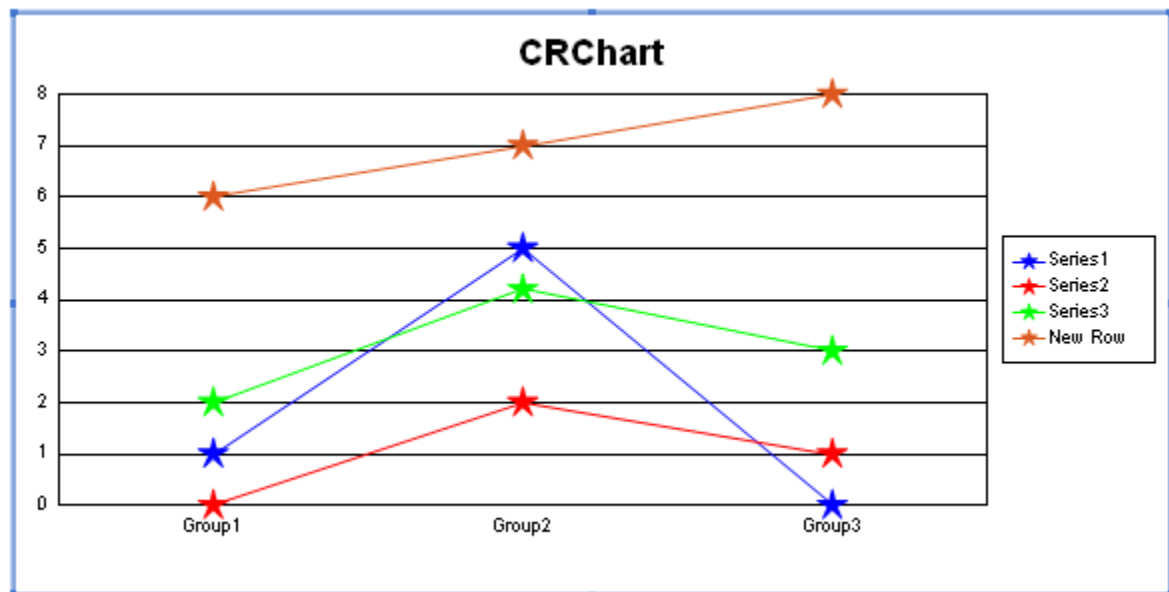
nElements; 1...1024 defines the number of *fValues* that follow. For example if *nElements* is 3, it must be followed by 3 *fValues* that will be assigned to the first 3 groups of the new series.

fValue1 fValue2 ... fValueN; Values to assign to each *nElements*.

szSeriesName; Name of the new series that will appear in the legend. Add a tilde (~) character to the series name string if you intend to define another macro in the same title field.

EXAMPLE:

```
@IR -1 3 6 7 8 NewRow
```



PERSISTENT:

YES

@STRIP_ZERO (Strip Zero Values)

This macro will remove all risers/markers with a value of 0.0 after the specified series.

SYNTAX:

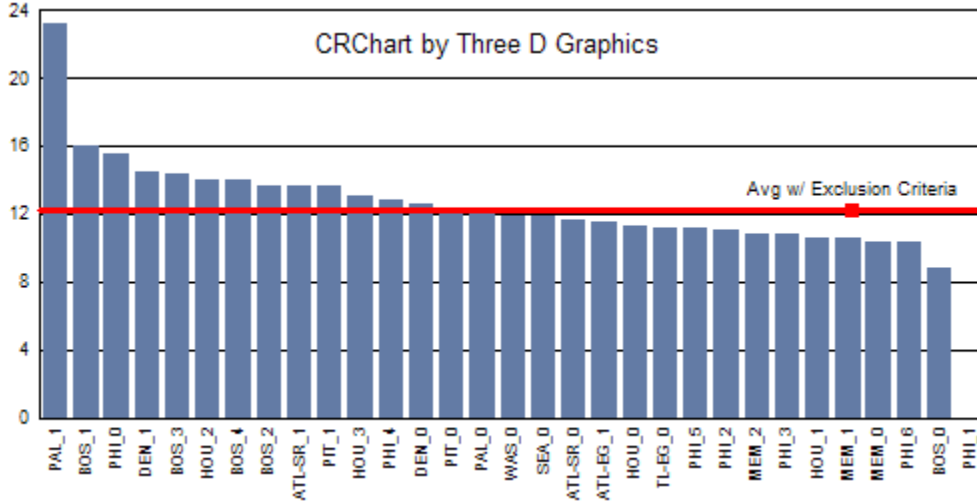
```
@STRIP_ZERO nSeries
```

PARAMETERS:

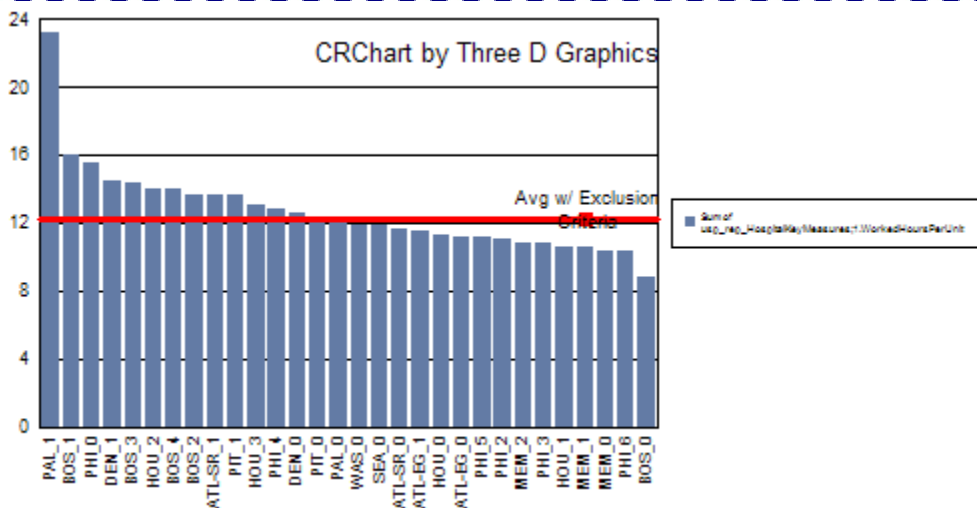
nSeries; -1...256 Series Number (-1 = all series, 0 = series 1, 1 = series 2, etc.)

EXAMPLE:

Chart Before @STRIP_ZERO



@STRIP_ZERO 0



PERSISTENT:

YES

@USER_SERIES (User-Defined Series)

This powerful macro can be used to define an arbitrary series of your own making. It will be appended to the end of the data coming from Crystal Reports and will therefore always be the last series in the legend.

SYNTAX:

```
@USER_SERIES nElements fValue1 fValue2 ... fValueN szSeriesName
```

PARAMETERS:

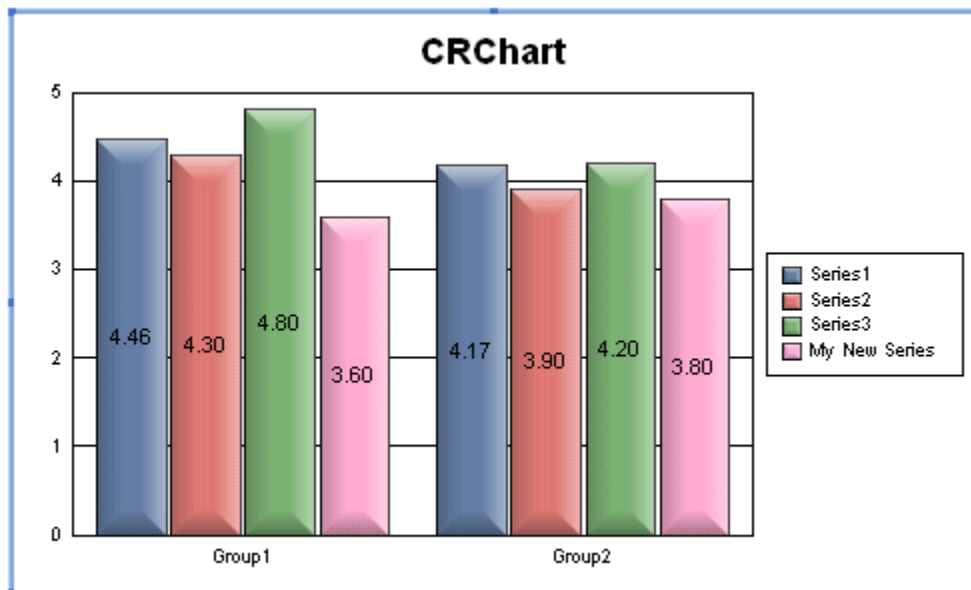
nElements; 1...1024 defines the number of *fValues* that follow. For example if *nElements* is 3, it must be followed by 3 *fValues* that will be assigned to the first 3 groups of the new series.

fValue1 fValue2 ... fValueN; Values to assign to each *nElements*.

szSeriesName; Name of the new series what will appear in the legend. Add a tilde character (~) to this string if you intend to define another macro in the same title field.

EXAMPLE:

```
@USER_SERIES 2 3.6 3.8 My User Series
```



PERSISTENT:

NO

Section 8: Color & Special Effects

The following macros can be used to apply color and special effects to a chart:

- @ALPHA; Apply Alpha Channel Transparency to a riser or marker
- @AUTO_COLOR; Activate Automatic Color Mode
- @BEVEL; Draw a bevel effect on a chart object
- @COLOR_FILE; Load a color scheme File
- @COLOR_MODE; Choose a Color Mode (Color by Series or Color by Group)
- @COLOR_SCHEME; Activate a pre-defined color scheme
- @COND_COLOR & @COND_COLOR2; Apply color to risers (bar/line/area) based on conditions
- @CURVED_LINES; Apply curved lines to an line or area chart
- @DEFINE_SCHEME; Define Color Scheme
- @GCOLOR; Color a Chart Object
- @HQ; Enable/Disable high quality rendering
- @SHADOW; Apply a Drop Shadow to a chart object

Also see the @MC macro in "Box Plot Macros" (Section 12) to define markers colors in Box Plots.

Also see the @MCOLOR and @PAT macros in "Risers & Markers" (Section 6) to apply a color or a pattern to risers and markers.

@ALPHA (Alpha Channel Transparency)

This macro sets the Alpha Channel Transparency of markers and risers on a chart. The *nValue* parameter selects the amount of opaqueness/transparency.

SYNTAX:

```
@ALPHA nSeries nValue
```

PARAMETERS:

nSeries; -1...*n* (where: *n* = the total number of series in the chart).

-1 = apply to all series, 0 = Series 1, 1 = Series 2, etc.

nValue; 0...255 selects the transparent level.

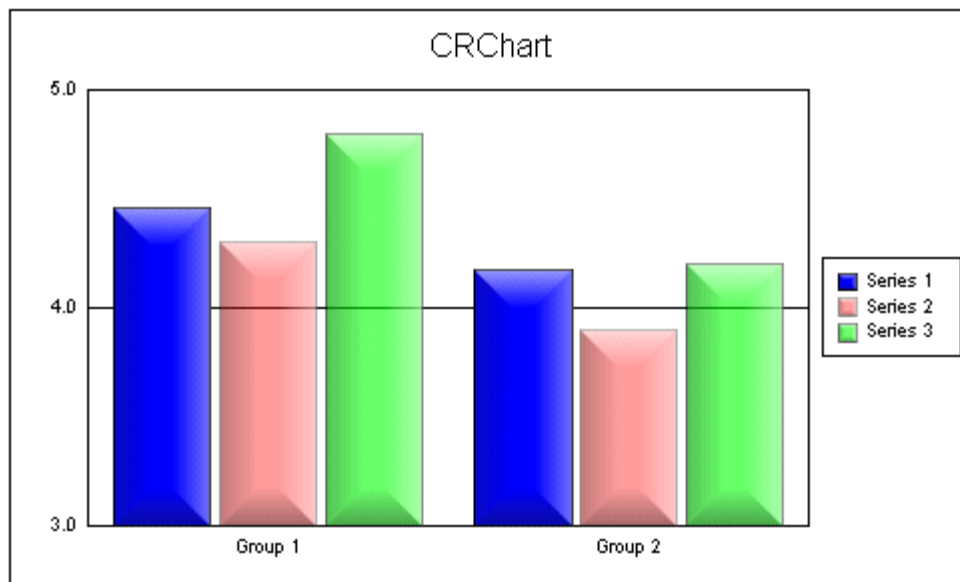
255 (the default) = no transparency.

0 = fully transparent.

EXAMPLE:

The example creates a chart with a transparency level of 100 on series 1 and a level of 150 on series 2.

```
@ALPHA 1 100  
@ALPHA 2 150
```



PERSISTENT:

YES

@AUTO_COLOR (Automatic Color Mode)

This macro enables/disables automatic color mode. When a single series appears in a BAR chart and this macro is enabled, the chart is automatically set to color-by-group.

SYNTAX:

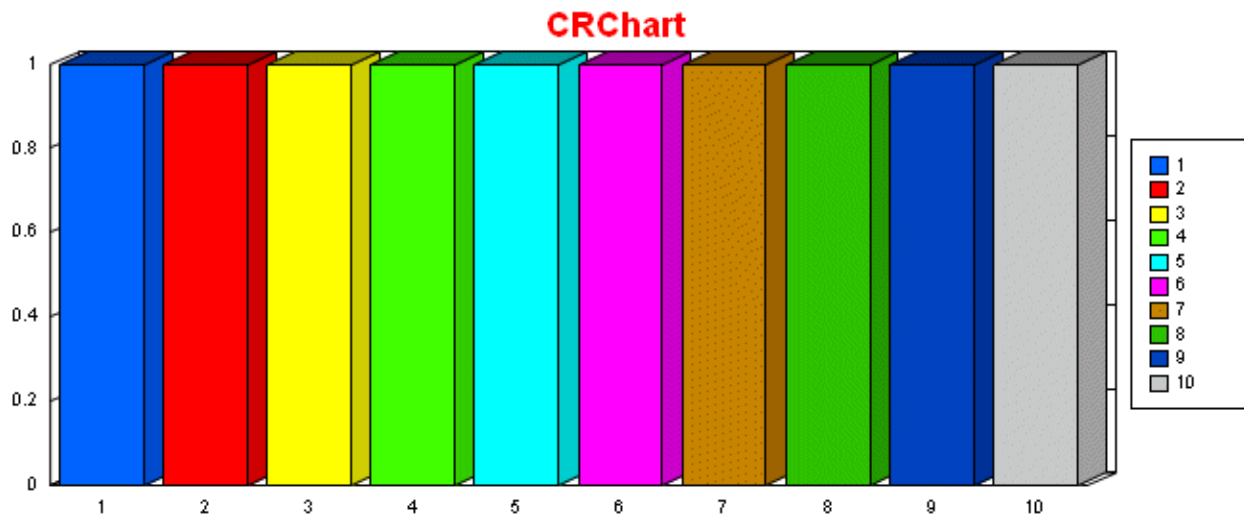
```
@AUTO_COLOR bActivate
```

PARAMETERS:

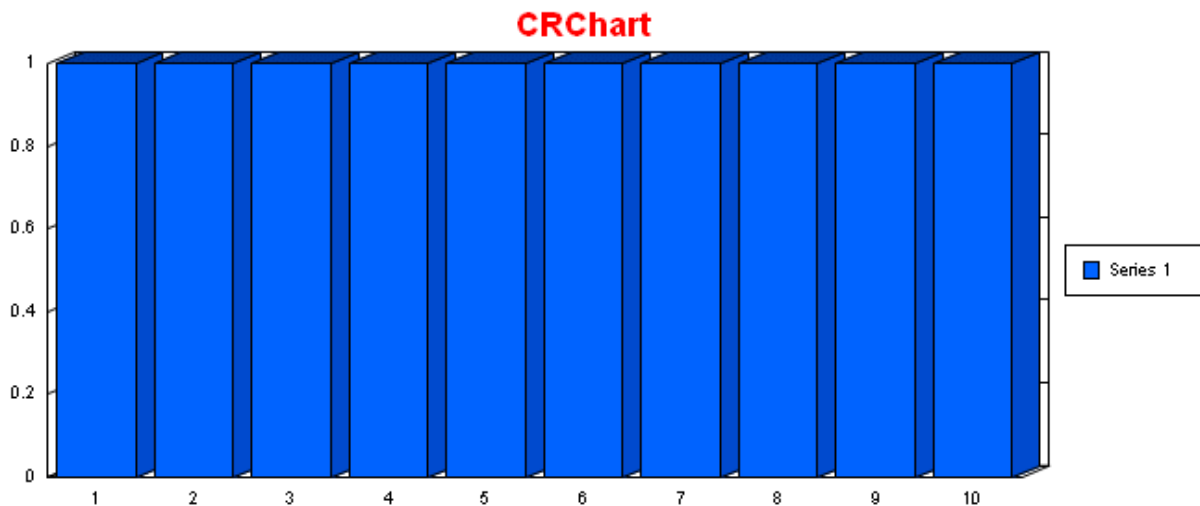
bActivate: 0=Disable Auto-Color Mode, 1=Enable Auto-Color Mode

EXAMPLE:

```
@AUTO_COLOR 1
```



```
@AUTO_COLOR 0
```



PERSISTENT:

YES

REQUIREMENTS:

Crystal Reports 11 or higher

@BEVEL (Bevel Chart Object)

This macro can be used to apply a bevel effect to a chart object.

SYNTAX:

```
@BEVEL nObject nBevelType
```

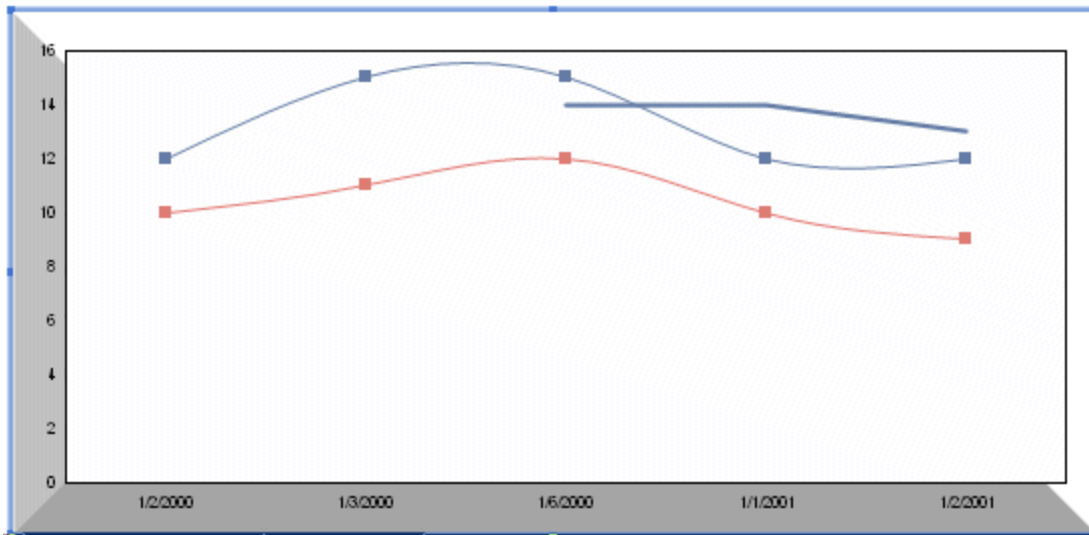
PARAMETERS:

nObject; 1...3. 1=Chart Background, 2=Chart Frame. 3=Risers

nBevelType; 0...3. 0=None, 1=Smooth Edge, 2=Chisel Edge, 3=Donut. Bevel types 1 and 2 can only be applied to rectangle and polygons objects. Bevel type 3 can only be applied to ellipses and slices.

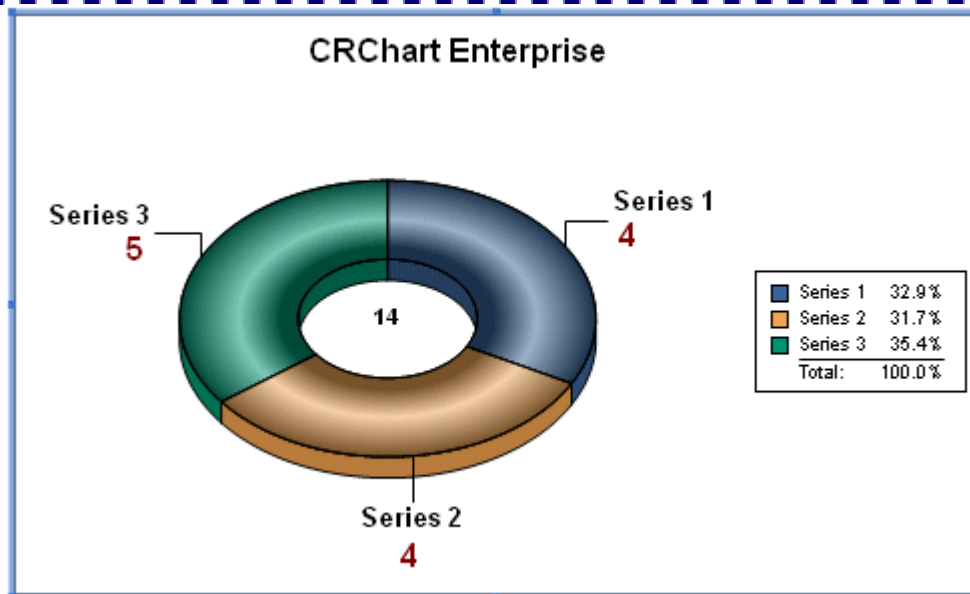
EXAMPLE:

```
@BEVEL 1 1
```



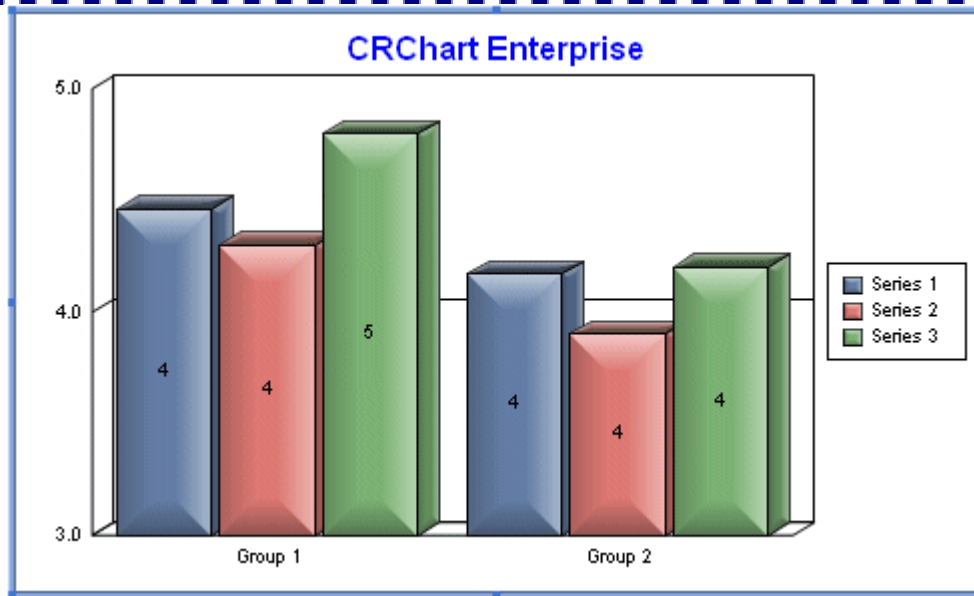
EXAMPLE:

```
@BEVEL 3 3
```



EXAMPLE:

```
@BEVEL 3 1
```

**PERSISTENT:**

YES (You can use *nBevelType* zero (0) to remove the bevel)

REQUIREMENTS:

- Crystal Reports 9 or higher
- **CRCHART Enterprise**

NOTES:

This macro will automatically enable the high-quality drawing engine (@HQ 1).

@COLOR_FILE (Load a Color Scheme File)

This macro loads a color scheme from the crchart_colors.txt file. The file must exist in the same directory where the charting library file (sscsdk80.dll) is installed (see Setup Instructions for details). The file can be populated with two types of line items: # comment lines and comma-separated hex values that define a color schemes defined. Example:

```
# comment
0x9160c7, 0xb8a6cc, 0x31a412, 0x7734d9, 0x6c192e, 0x4dd346, 0xd30ec7,
0x89d1c0
0xc70818, 0xbc587a, 0x93b919, 0x4afbf2, 0xc96c87, 0xe8f9ce, 0x378edc,
0xbd01df
```

The number of colors in one color scheme is defined by the number of colors in the first scheme definition. Extra colors are ignored, and missing colors are set to black.

SYNTAX:

```
@COLOR_FILE nScheme
```

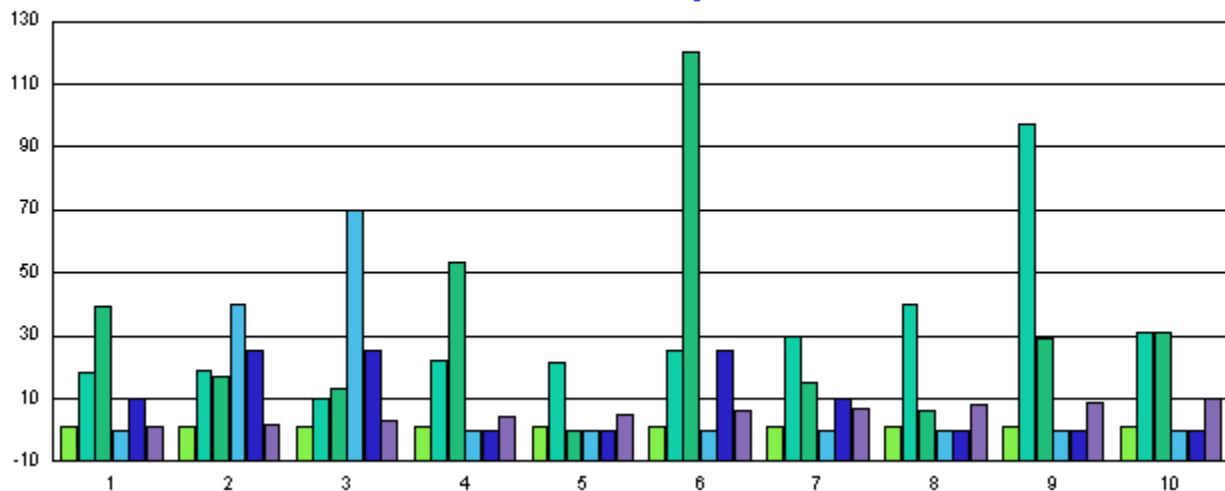
PARAMETERS:

nScheme; 0...1000 selects a color scheme definition from the crchart_colors.txt file (0=selects the first color scheme definition).

EXAMPLE:

```
@COLOR_FILE 1
```

CRChart Enterprise



PERSISTENT:

YES

REQUIREMENTS:

- Crystal Reports 12 or higher
- **CRCHART Enterprise**

ALSO SEE:

@COLOR_SCHEME, @DEFINE_SCHEME

@COLOR_MODE (Color Mode)

This macro sets the color mode (Color by Series or Color by Group) to be used in a chart.

SYNTAX:

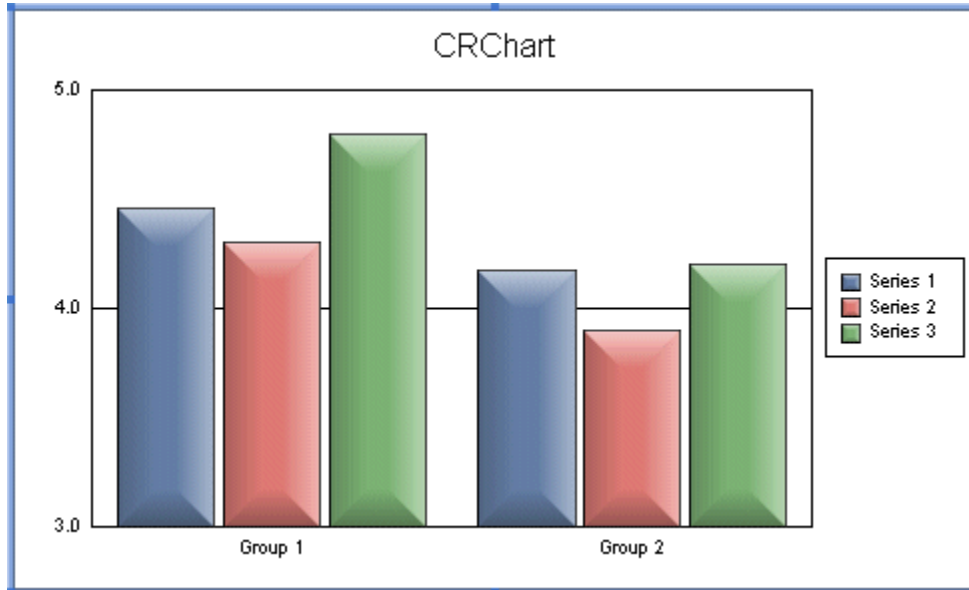
```
@COLOR_MODE bColorMode
```

PARAMETERS:

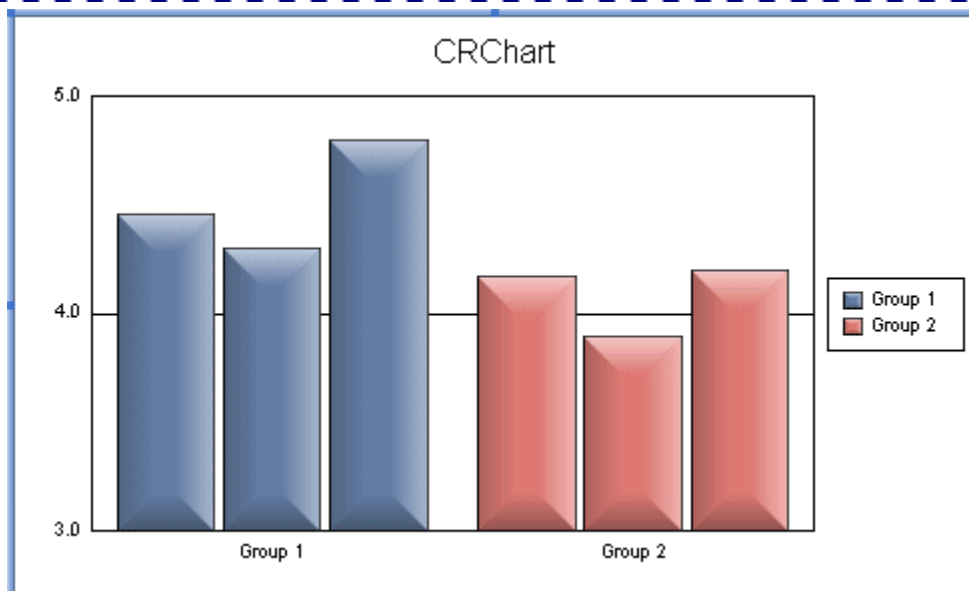
bColorMode; 0 = Color By Series, 1 = Color By Group

EXAMPLE:

```
@COLOR_MODE 0
```



```
@COLOR_MODE 1
```

**PERSISTENT:**

NO

@COLOR_SCHEME (Activate a Color Scheme)

This macro activates one of six preset color schemes that will be used to color chart risers/markers. Each color scheme consists of a group of eight colors that is repeated after the first eight series.

SYNTAX:

```
@COLOR_SCHEME nScheme
```

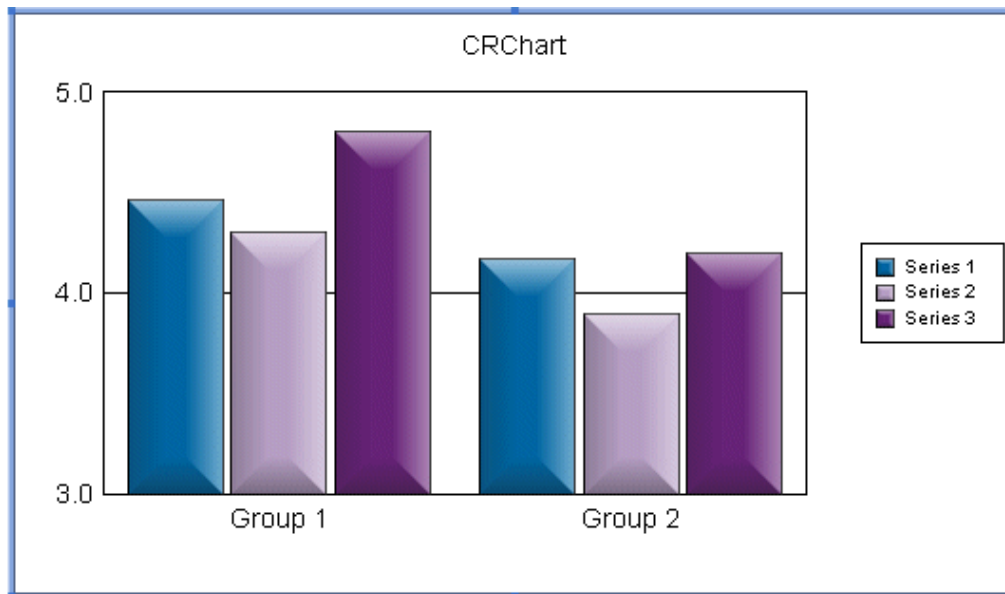
PARAMETERS:

nScheme; 0...5 selects one of the following color schemes

nScheme	Color Scheme
0	
1	
2	
3	
4	
5	

EXAMPLE:

```
@COLOR_SCHEME 4
```



PERSISTENT:

YES

REQUIREMENTS:

Crystal Reports 10 or higher

ALSO SEE:

@DEFINE_SCHEME, @COLOR_FILE

@COND_COLOR & @COND_COLOR2 (Conditional Colors)

These macros create a “conditional color” that will be applied to a marker/riser when a specified condition is matched.

SYNTAX:

```
@COND_COLOR nSeries nGroup nCondition fValue nRed nGreen nBlue
@COND_COLOR2 nSeries nGroup nCondition fValue nRed nGreen nBlue
```

PARAMETERS:

nSeries; -1...*n* (where: *n* = the total number of series in the chart).

-1 = apply to all series, 0 = Series 1, 1 = Series 2, etc.

nGroup; -1...*n* (where: *n* = the total number of groups in the chart).

-1 = apply to all groups, 0 = Group 1, 1 = Group 2, etc.

nCondition; 0...7 selects one of the following conditions:

0 = if the value of a bar/line/area marker is LESS THAN *fValue*, the Conditional color specified by *nRed/nGreen/nBlue* will be used.

1 = if the value of a bar/line/area marker is LESS THAN OR EQUAL TO *fValue*, the Conditional color specified by *nRed/nGreen/nBlue* will be used.

2 = if the value of a bar/line/area marker is GREATER THAN *fValue*, the Conditional color specified by *nRed/nGreen/nBlue* will be used.

3 = if the value of a bar/line/area marker is GREATER THAN OR EQUAL TO *fValue*, the Conditional color specified by *nRed/nGreen/nBlue* will be used.

4 = if the value of a bar/line/area marker is EQUAL TO *fValue*, the Conditional color specified by *nRed/nGreen/nBlue* will be used.

5 = if the value of a bar/line/area marker is NOT EQUAL TO *fValue*, the Conditional color specified by *nRed/nGreen/nBlue* will be used.

6 = if the current group is GREATER THAN OR EQUAL TO *nGroup*, the Conditional color specified by *nRed/nGreen/nBlue* will be used. This can be used to change the color of the riser based on the Group ID alone which is useful for something like a projection. See Example. When this condition is used, the *fValue* parameter is ignored.

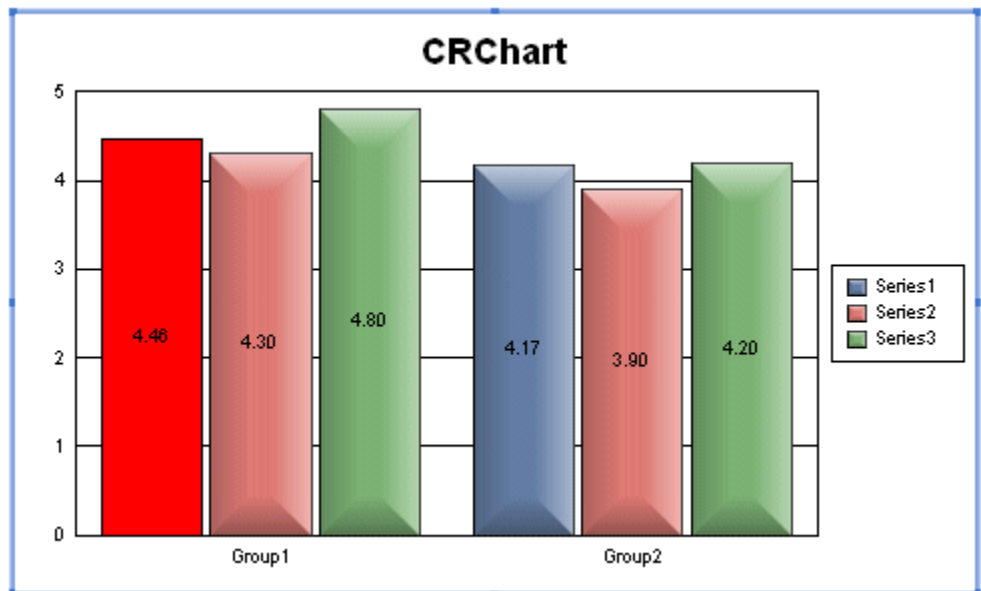
7 = force all series in *nGroup* to the conditional color regardless of *fValue*.

fValue; Value to compare the riser value to in order to determine whether or not to apply the Conditional color

nRed, nGreen, nBlue; 0...255 specifies the RGB value of the Conditional color.

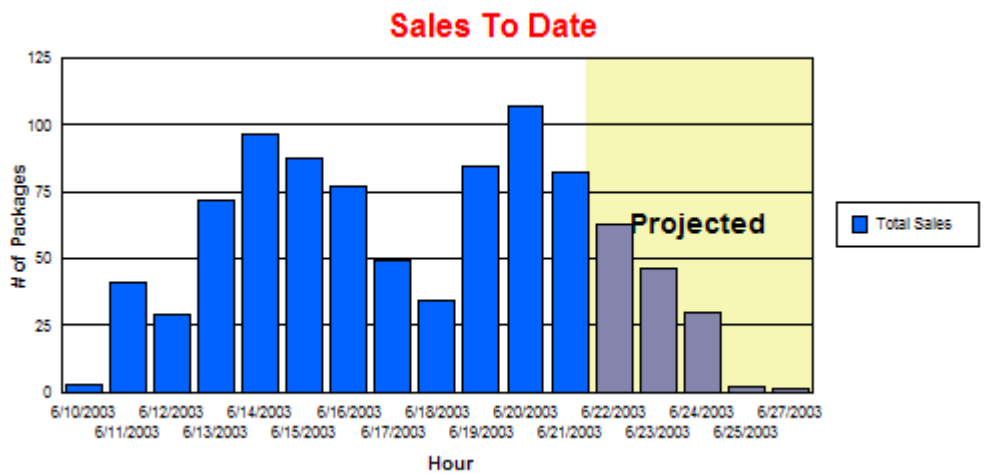
Examples:

```
@COND_COLOR 0 0 0 4.75 255 0 0
```



```

@USER_FILL .7 1 0 1 245 245 180 Projected
@COND_COLOR -1 12 6 0 133 133 173
@ASL 0 Total Sales
    
```



PERSISTENT:

NO

NOTES:

You can set two conditional colors per chart using @COND_COLOR and @COND_COLOR2. However, you can also use the *nSeries* and *nGroup* settings to apply to ALL RISERS (*nSeries* = -1, *nGroup* = -1), ALL GROUPS IN A SERIES (*nSeries* = 0...*n*, *nGroup* = -1), ALL SERIES IN A GROUP (*nSeries* = -1, *nGroup* = 0...*n*) or A PARTICULAR RISER (*nSeries* = 0...*n*, *nGroup* = 0...*n*).

@CURVED_LINES (Enable Curved Lines)

This macro enables/disables curved lines in a line or area chart.

SYNTAX:

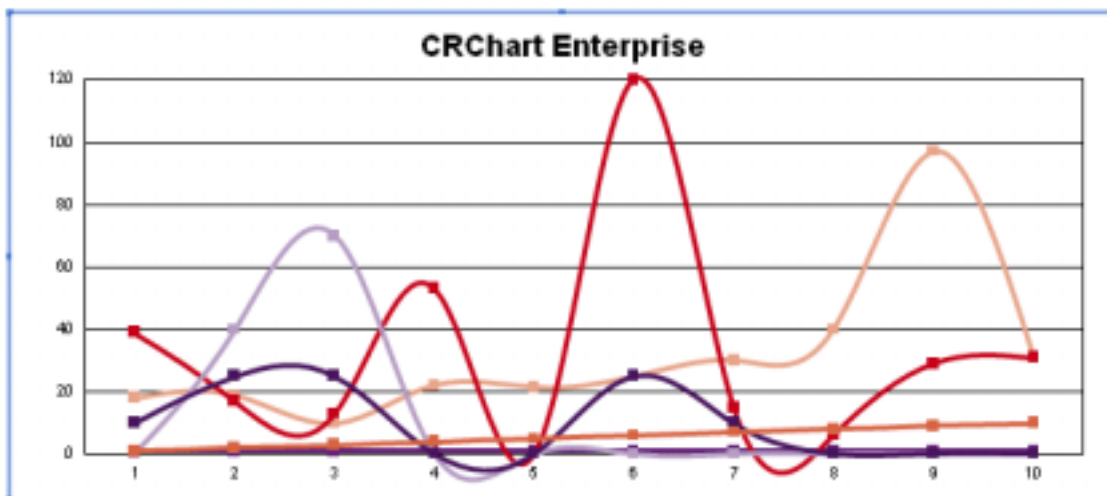
```
@CURVED_LINES bEnable
```

PARAMETERS:

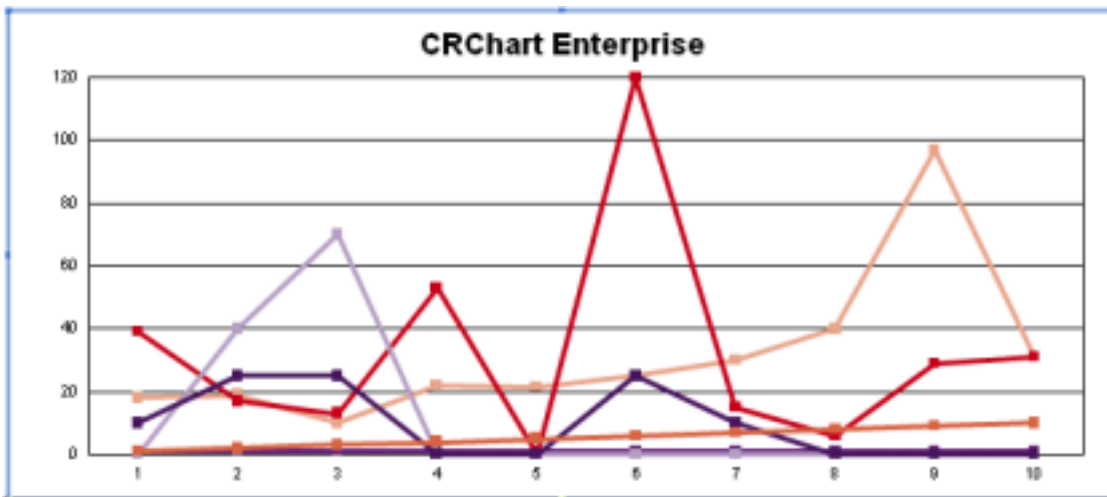
bEnable; 0=Disable Curved Lines, 1=Enable Curved Lines

EXAMPLE:

```
@CURVED_LINES 1
```



```
@CURVED_LINES 0
```



PERSISTENT:

YES

REQUIREMENTS:

- Crystal Reports 9 or higher
- **CRCHART Enterprise**

NOTES:

This macro will automatically enable the high-quality drawing engine (@HQ 1).

@DEFINE_SCHEME (Define Color Scheme)

This macro can be used to define an 8-series color scheme using Red-Green-Blue values that will be used to color markers/risers. An RGB value can be hex (0xFF0000=red) or decimal (16711680=red).

SYNTAX:

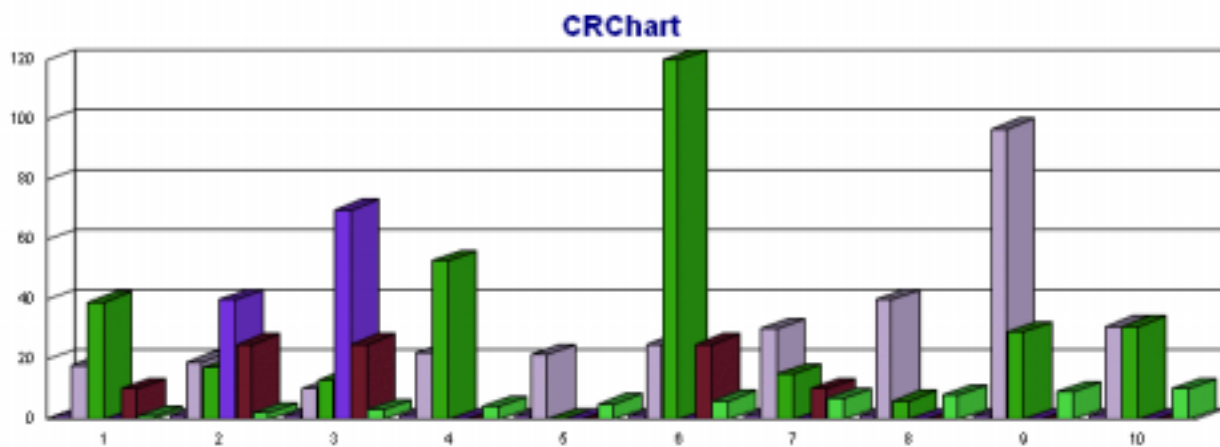
```
@DEFINE_SCHEME rgb0 rgb1 rgb2 rgb3 rgb4 rgb5 rgb6 rgb7
```

PARAMETERS:

rgb0...rgb7; specifies a Red-Green-Blue value in hex or decimal format

EXAMPLE:

```
@DEFINE_SCHEME 0x9160c7 0xb8a6cc 0x31a412 0x7734d9 0x6c192e 0x4dd346  
0xd30ec7 0x89d1c0
```



PERSISTENT:

YES

REQUIREMENTS:

Crystal Reports 10 or higher

ALSO SEE:

@COLOR_SCHEME, @COLOR_FILE

@GCOLOR (Color Chart Object)

This macro can be used to change the color of major objects in a chart.

SYNTAX:

```
@GCOLOR nObject nRed nGreen nBlue
```

PARAMETERS:

nObject: 0...14 selects one of the following chart objects:

- 0 = Chart Frame
- 1 = Legend Frame
- 2 = Title
- 3 = Subtitle
- 4 = Footnote
- 5 = Y1 Axis Title
- 6 = Y2 Axis Title
- 7 = X Axis Title
- 8 = Y1 Axis Labels
- 9 = Y2 Axis Labels
- 10 = X Axis Labels
- 11 = Series Labels on Legend
- 12 = Y1 Major Gridlines
- 13 = Y2 Major Gridlines
- 14 = X1 or O1 Major Gridlines

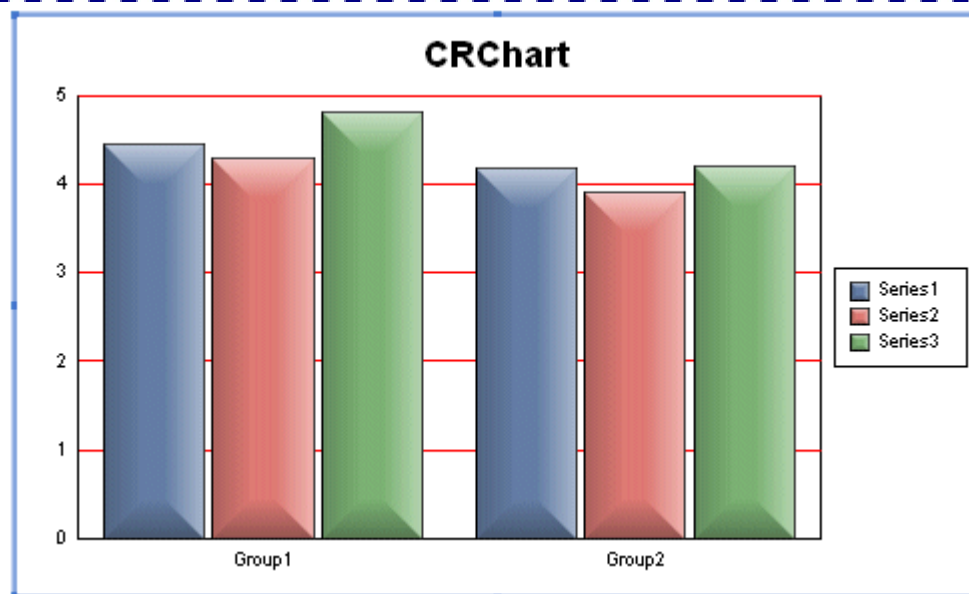
nRed: 0...255 defines the Red portion of RGB color selection.

nGreen: 0...255 defines the Green portion of RGB color selection.

nBlue: 0...255 defines the Blue portion of RGB color selection.

EXAMPLE:

```
@GCOLOR 12 255 0 0
```

**PERSISTENT:**

YES

ALSO SEE:

@MCOLOR (Marker/Riser Color)

@HQ (Enable High-Quality Rendering)

This macro enables/disables high-quality rendering. High-Quality rendering will apply anti-aliasing to all chart elements and greatly improve the overall appearance of these charts.

SYNTAX:

```
@HQ bEnable
```

PARAMETERS:

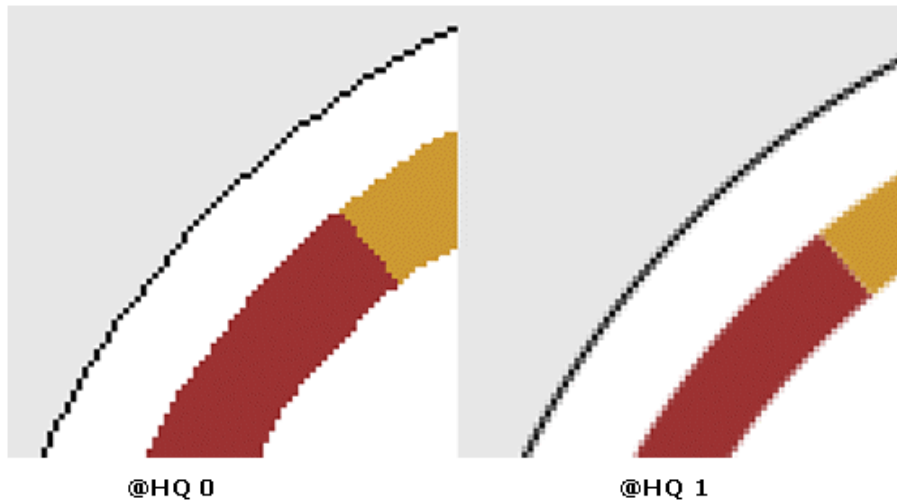
bEnable; 0/1

0=Disable High-Quality Rendering (i.e., use the standard drawing engine)

1=Enable High-Quality Rendering

EXAMPLE:

Close-Up View of High-Quality Rendering



PERSISTENT:

NO

REQUIREMENTS:

- Crystal Reports 9 or higher
- **CRCHART Enterprise**

NOTES:

This macro will automatically be enabled (@HQ 1) when another macro requires high-quality drawing. The following macros require high-quality rendering:

@BEVEL, @CURVED_LINES, @GAUGE_BORDER_STYLE,
@GAUGE_BORDER_THICKNESS, @GAUGE_MULTIPLE_NEEDLES,
@GAUGE_NEEDLE_STYLE, @GAUGE_STYLE.

@SHADOW (Drop Shadow)

This macro applies a drop shadow effect to an object in the chart

SYNTAX:

```
@SHADOW nObject nXOffset nYOffset
```

PARAMETERS:

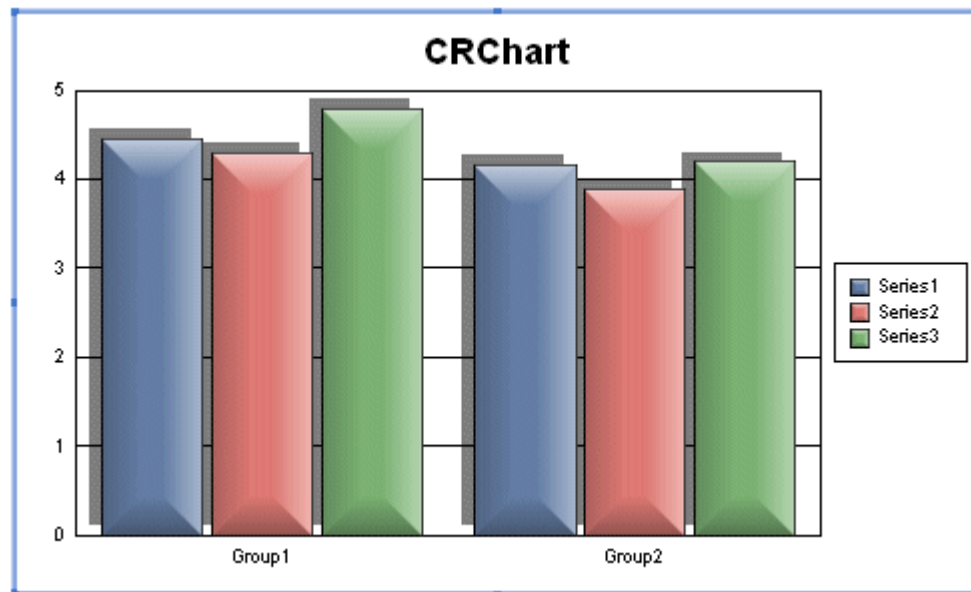
nObject; 0...12 selects one of the following objects:

<i>nObject</i>	<i>Chart Object</i>
0	Chart Frame
1	Legend Frame
2	Title
3	Subtitle
4	Footnote
5	Y1-Axis Title
6	Y2-Axis Title
7	X-Axis Title
8	Y1-Axis Labels
9	Y2-Axis Labels
10	X-Axis Labels
11	Series Labels on Legend
12	Data Markers

nXOffset/nYOffset; -1000...1000. If *nXOffset* and/or *nYOffset* are set to 0 (the default), it means there is no shadow.

EXAMPLE:

```
@SHADOW 12 -400 500
```



PERSISTENT:

YES



Section 9: Trend Lines

These macros can be used to create and format user-defined lines and trend lines:

- @MEAN; Enable/disable a mean average line across a specified series
- @MOVA; Standard or scientific Moving Average Line to a series
- @TRENDLINE; Trend Line across a series
- @TRENDLINE_ALLDATA; Linear Regression Line through all data points
- @TRENDLINE2; Trend Line across a series with Width & Style

@MEAN (Mean Line)

This macro enables/disables a mean average line across a specified series.

SYNTAX:

```
@MEAN nSeries bShow
```

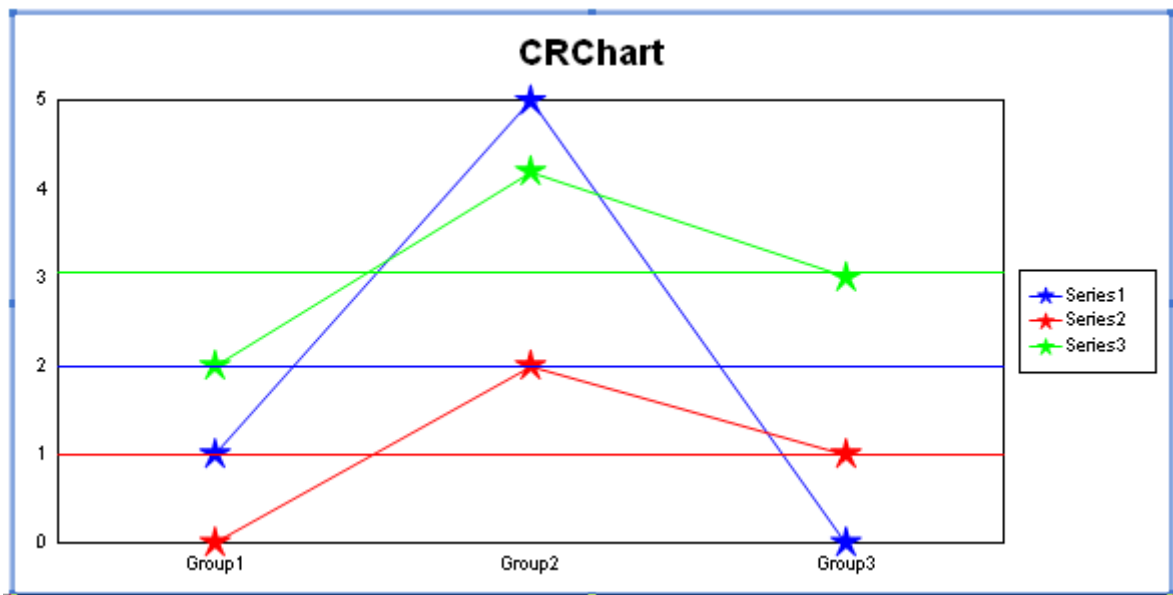
PARAMETERS:

nSeries; 0...number of series in chart (0=Series 1).

bShow; 1 = Draw mean curve line for *nSeries*, 0 = Do not draw mean curve line for *nSeries*.

EXAMPLE:

```
@MEAN 0 1  
@MEAN 1 1  
@MEAN 2 1
```



PERSISTENT:

YES

@MOVA (Moving Average Line)

This macro applies a scientific or standard moving average line to a specified series. Note that the *bSciMovMode* and *nPeriod* parameters are universal so they will apply to ALL moving average lines being drawn on the chart.

SYNTAX:

```
@MOVA nSeries bShow bSciMovMode nPeriod
```

PARAMETERS:

nSeries; 0...511 defines the series to draw absolute (0=Series 1)

bShow; 1 = SHOW moving average. 0 = HIDE moving average.

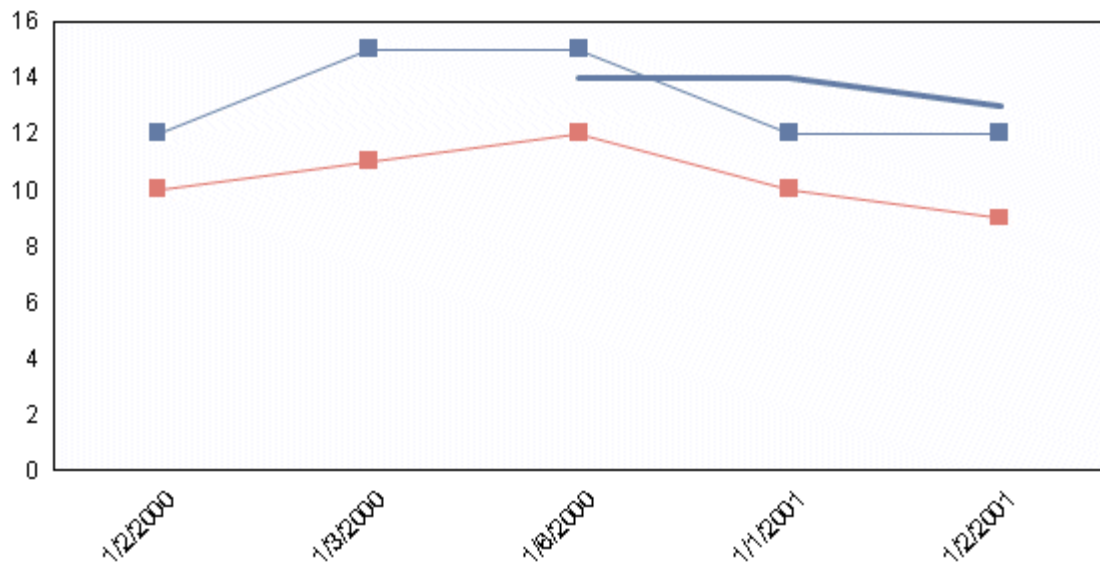
bSciMovMode; 1 = Scientific moving average. 0 = Standard moving average

nPeriod; 0...1000 periods to use in moving average calculation.

EXAMPLE:

This example sets a normal 3-day moving average to the first series.

```
@MOVA 0 1 0 3
```



PERSISTENT:

YES

REQUIREMENTS:

Crystal Reports 10 or higher

ALSO SEE:

@TRENDLINE to draw a trend line in a chart

@TRENDLINE_ALLDATA to draw a linear regression line through all data points in a chart

@TRENDLINE (Trend Line)

This macro draws a trend line across a specified series.

SYNTAX:

```
@TRENDLINE nSeries nValue
```

PARAMETERS:

nSeries; 0...511 Series (0 = Series 1) to apply the trend line.

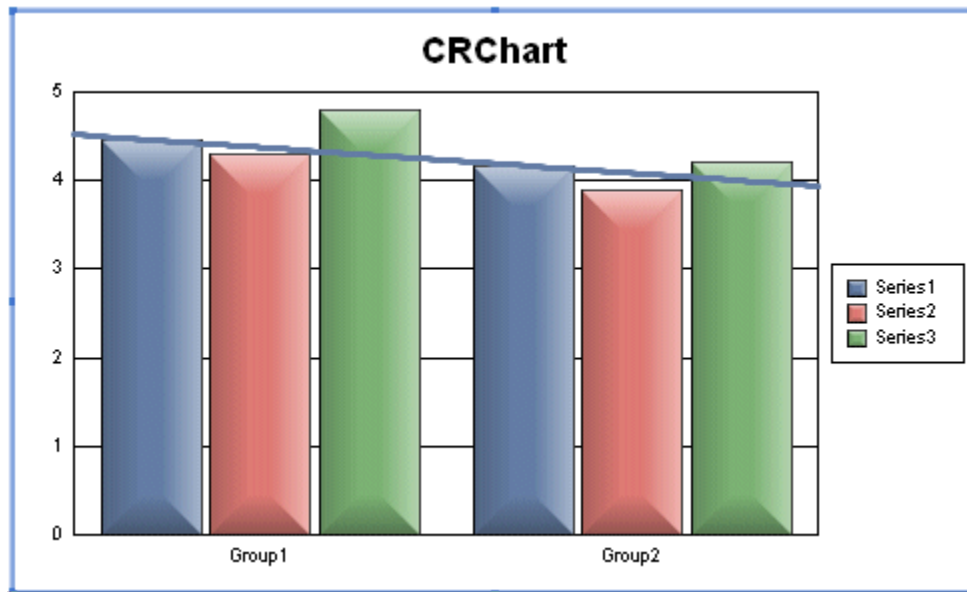
nValue; Bitwise flags (0...127) to activate one or more of the following trend lines:

- 1 = MEAN
- 2 = Standard Deviation
- 4 = Linear Regression
- 8 = Natural Log Regression
- 16 = Polynomial Regression
- 32 = Exponential Regression
- 64 = Log Regression

EXAMPLE:

This example draws both Linear AND Polynomial regression lines on the first series:

```
@TRENDLINE 0 20
```



PERSISTENT:

YES

REQUIREMENTS:

Crystal Reports 9 or higher

ALSO SEE:

- @MOVA to draw a moving average line in a chart
- @TRENDLINE_ALLDATA to draw a linear regression line through all data points in a chart

@TRENDLINE_ALLDATA (Linear Regression Line)

This macro draws a linear regression line through all data points in a scatter chart.

SYNTAX:

```
@TRENDLINE_ALLDATA bShowLinearLine bShowEquation
```

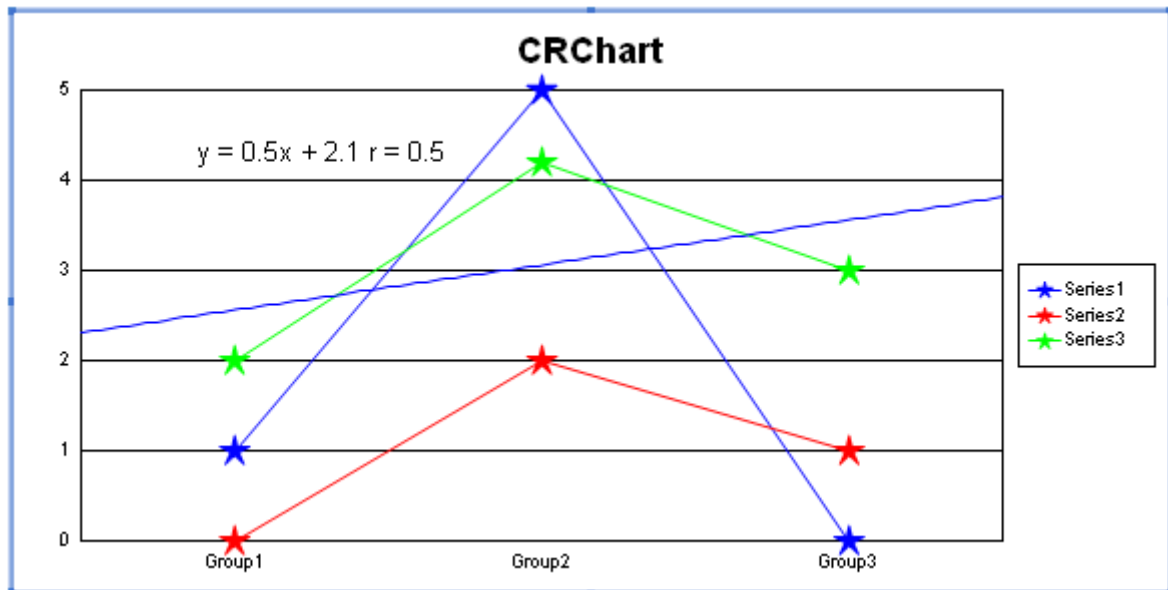
PARAMETERS:

bShowLinearLine; 1=Show Linear Regression Line, 0=Hide Linear Regression Line

bShowEquation; 1=Show Equation, 1=Hide Equation

EXAMPLE:

```
@TRENDLINE_ALLDATA 1 1
```



PERSISTENT:

YES

REQUIREMENTS:

Crystal Reports 10 or higher

ALSO SEE:

- @MOVA to draw a moving average line in a chart
- @TRENDLINE to draw a trend line

@TRENDLINE2 (Trend Line with Width & Style)

This macro draws a trend line across a specified series.

SYNTAX:

```
@TRENDLINE2 nSeries nValue nWidth nStyle
```

PARAMETERS:

















nSeries; 0...511 Series (0 = Series 1) to apply the trend line.

nValue; Bitwise flags (0...127) to activate one or more of the following trend lines:

- 1 = MEAN
- 2 = Standard Deviation
- 4 = Linear Regression
- 8 = Natural Log Regression
- 16 = Polynomial Regression
- 32 = Exponential Regression
- 64 = Log Regression

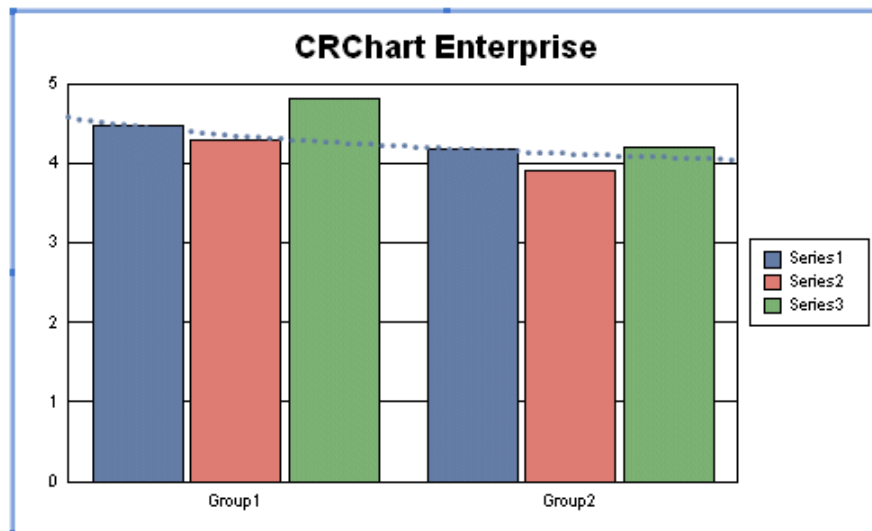
nWidth; 0...1000 selects the thickness of the line.

nStyle; 0...15 selects one of the following line styles.

- 0=  **Solid**
- 1=  **Dashed**
- 2=  **Dotted**
- 3=  **Dot-Dash**
- 4=  **Dash-Dot-Dot**
- 5=  **Medium Dash**
- 6=  **Short Dash**
- 7=  **Long Dash**
- 8=  **Long Dot**
- 9=  **Dot-Dot-Dot**
- 10=  **Dash-Dash-Dot**
- 11=  **Dash-Dash-Dot-Dot**
- 12=  **Long Dash-Dot**
- 13=  **Long Dash-Dot-Dot**
- 14=  **Long Dash-Dash-Dot**
- 15=  **Long Dash-Dash-Dot-Dot**

EXAMPLE:

```
@TRENDLINE2 0 8 500 2
```

**PERSISTENT:**

YES

REQUIREMENTS:

- Crystal Reports 11 or higher
- **CRCHART Enterprise**



Section 10: User-Defined Areas & Lines

These macros can be used to draw user-defined lines, circles, rectangles, and markers. Circles and rectangles can be outlined, color filled, or pattern filled and can be drawn in front of or behind the chart area:

- @CX; X-Axis Line with Color
- @CXY; Line between two X/Y Coordinates with Color
- @CY; Y-Axis Line with Color
- @CY2; Y-Axis Line with Color, Style & Width
- @INIT_USERLINES; Initialize all user-defined lines
- @UF; Same as @USER_FILL
- @USER_CIRCLE; Draw a User-Defined Outlined Circle
- @USER_CIRCLE_ABOVE; Draw a User-Defined Outlined Circle above the Chart Area
- @USER_FILL; Draw a User-Defined Color-Filled Rectangle
- @USER_FILL_CIRCLE; Draw a User-Defined Color-Filled Circle
- @USER_FILL_CIRCLE_ABOVE; Draw a User-Defined Color-Filled Circle above the Chart Area
- @USER_FILL_CIRCLE2; Draw a User-Defined Pattern-Filled Circle
- @USER_FILL_CIRCLE2_ABOVE; Draw a User-Defined Pattern-Filled Circle Above the Chart Area
- @USER_FILL2; Draw a User-Defined Pattern-Filled Rectangle
- @USER_MARKER; Draw a User-Defined Marker at X/Y coordinates
- @USER_MARKER2; Draw a User-Defined Marker at X/Y coordinates with Value
- @USER_RECT; Draw a User-Defined Outlined Rectangle
- @UW; Draw a vertical band
- @WC; Color @UW vertical band
- @X; X-Axis Line at Value
- @XG; X-Axis Line at Group
- @XSZ; X-Axis Line with Label
- @XSZL; X-Axis Line with Label on Left
- @XSZN; X-Axis Line with Label & Value
- @XSZNL; X-Axis Line with Label & Value on Left
- @XY; Line between two X/Y Coordinates
- @XY_DP2; Line between two Data Points (Scatter Charts)
- @Y; Y1-Axis Line
- @YSZ; Y1-Axis Line with Label
- @YSZL; Y1-Axis Line with Label on Left
- @YSZN; Y1-Axis Line with Label & Value
- @YSZN2; @YSZN with Label on Top of Line
- @YSZNL; Y1-Axis Line with Label & Value on Left

CRChart supports a maximum of 20 user-defined lines. User-defined lines are drawn with: @CX, @CXY, @CY, @CY2, @X, @XG, @XSZ, @XSZL, @XSZN, @XSZNL, @XY, @XY_DP2, @Y, @YSZ, @YSZL, @YSZN, @YSZN2, and @YSZNL.

@CX (X-Axis Line with Color)

This macro adds a user-defined line on the X-axis at *fValue*. Use the *nRed*, *nGreen*, and *nBlue* parameters to specify the RGB color of the line. The line is drawn horizontally or vertically depending on the chart orientation.

SYNTAX:

```
@CX fValue nRed nGreen nBlue
```

PARAMETERS:

fValue; Value at which to add the user-defined line on the X-axis

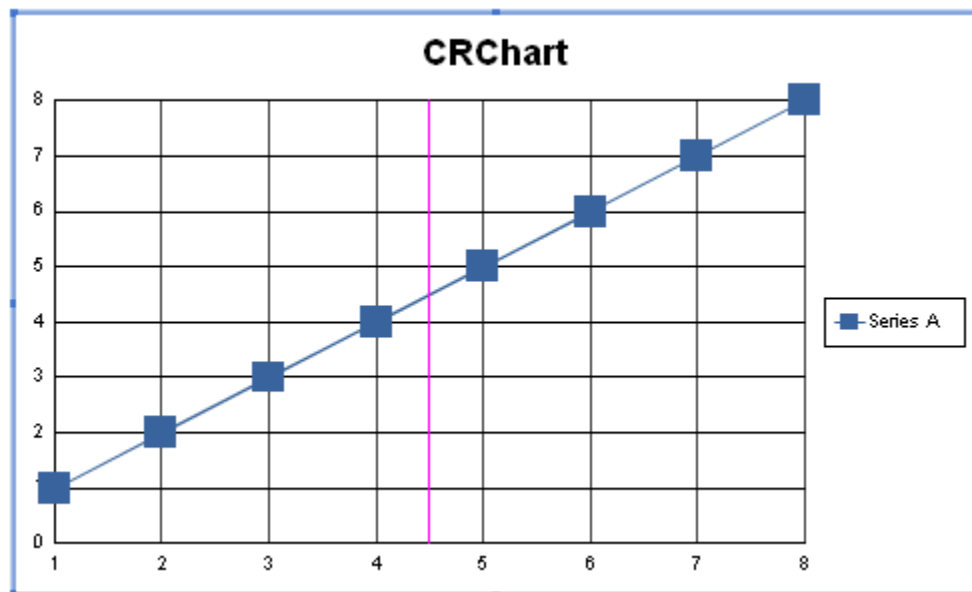
nRed; 0...255 specifies the RED portion of the RGB color

nGreen; 0...255 specifies the GREEN portion of the RGB color

nBlue; 0...255 specifies the BLUE portion of the RGB color

EXAMPLE:

```
@CX 2.5 255 0 255
```



PERSISTENT:

NO

REQUIREMENTS:

Crystal Reports 9 or higher

NOTES:

CRChart supports a maximum of 20 user-defined lines. User-defined lines are drawn with: @CX, @CXY, @CY, @CY2, @X, @XG, @XSZ, @XSZL, @XSZN, @XSZNL, @XY, @XY_DP2, @Y, @YSZ, @YSZL, @YSZN, @YSZN2, and @YSZNL.

@CXY (X/Y Coordinates Line with Color)

This macro adds a user-defined line that starts at location *fxBegin*, *fyBegin* and stops at location *fxEnd*, *fyEnd*. For charts with a true X-Axis (e.g., Scatter, Bubble, Polar, etc.), *fxBegin* and *fxEnd* define the value on the X-Axis where the line will be drawn. For bar, line, or area charts, *fxBegin* and *fxEnd* must be set to a value in the range 0.0 to 1.0 that defines a percentage of the X (or ordinal)-Axis length. Use the *nRed*, *nGreen*, and *nBlue* parameters to specify the RGB color of the line.

SYNTAX:

```
@CXY fxBegin fyBegin fxEnd fyEnd nRed nGreen nBlue
```

PARAMETERS:

fxBegin; Beginning x-coordinate

fyBegin; Beginning y-coordinate

fxEnd; Ending x-coordinate

fyEnd; Ending y-coordinate

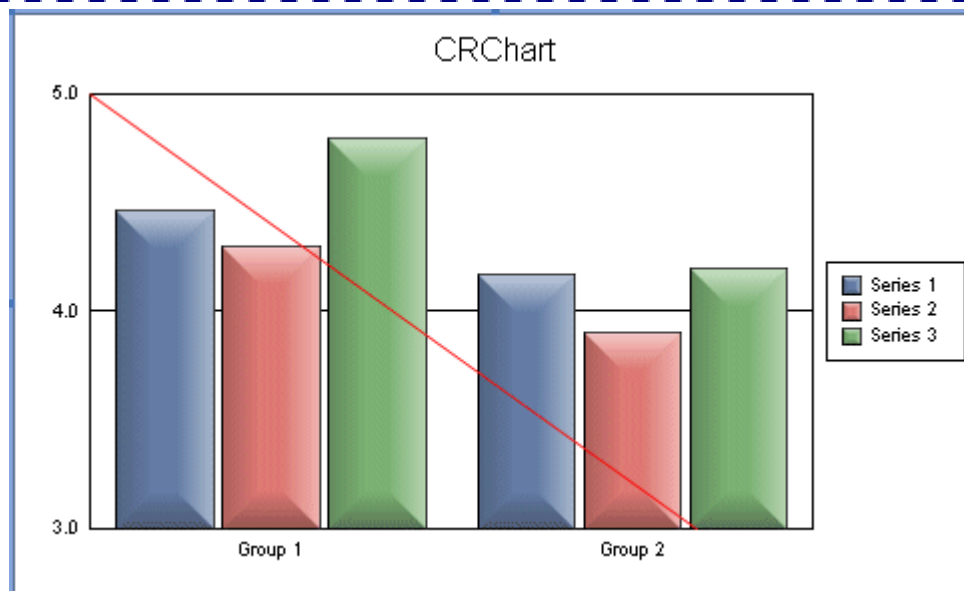
nRed; 0...255 specifies the RED portion of the RGB color

nGreen; 0...255 specifies the GREEN portion of the RGB color

nBlue; 0...255 specifies the BLUE portion of the RGB color

EXAMPLE:

```
@CXY 3.5 3 0 5 255 0 0
```



PERSISTENT:

NO

NOTES:

CRChart supports a maximum of 20 user-defined lines. User-defined lines are drawn with: @CX, @CXY, @CY, @CY2, @X, @XG, @XSZ, @XSZL, @XSZN, @XSZNL, @XY, @XY_DP2, @Y, @YSZ, @YSZL, @YSZN, @YSZN2, and @YSZNL.

@CY (Y1-Axis Line with Color)

This macro adds a user-defined line on the Y1-axis at value *fyValue*. Use the *nRed*, *nGreen*, and *nBlue* parameters to specify the RGB color of the line. The line is drawn horizontally or vertically depending on the chart orientation.

SYNTAX:

```
@CY fyValue nRed nGreen nBlue
```

PARAMETERS:

fyValue; Value at which to add the user-defined line on the Y1-axis

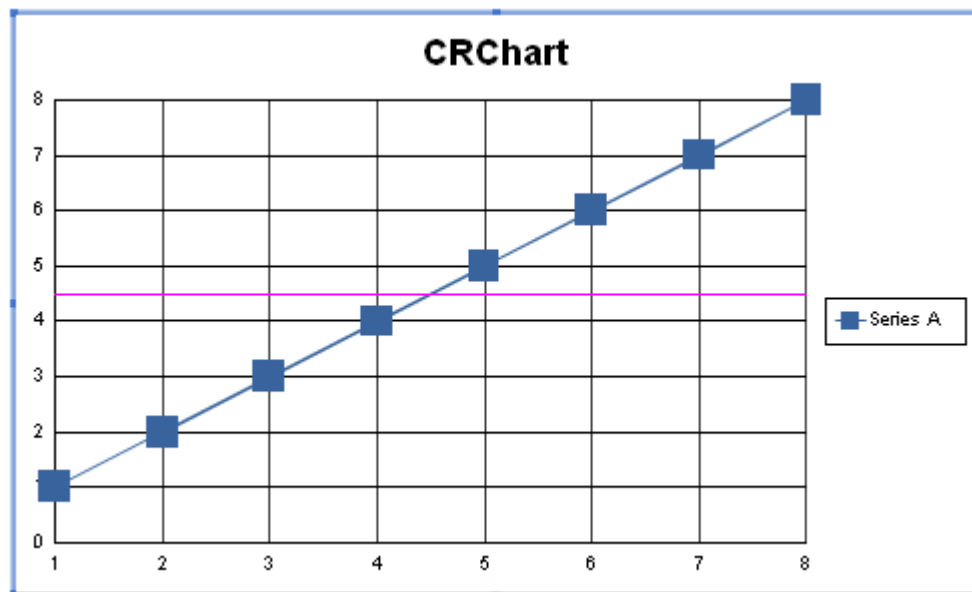
nRed; 0...255 specifies the RED portion of the RGB color

nGreen; 0...255 specifies the GREEN portion of the RGB color

nBlue; 0...255 specifies the BLUE portion of the RGB color

EXAMPLE:

```
@CY 4.5 255 0 255
```



PERSISTENT:

NO

NOTES:

CRChart supports a maximum of 20 user-defined lines. User-defined lines are drawn with: @CX, @CXY, @CY, @CY2, @X, @XG, @XSZ, @XSZL, @XSZN, @XSZNL, @XY, @XY_DP2, @Y, @YSZ, @YSZL, @YSZN, @YSZN2, and @YSZNL.

@CY2 (Y1-Axis Line with Color, Width & Style)

This macro adds a user-defined line on the Y1-axis at value *fYValue*. Use the *nRed*, *nGreen*, and *nBlue* parameters to specify the RGB color of the line. The line is drawn horizontally or vertically depending on the chart orientation. The *nWidth* and *nStyle* parameters define the width and style of the line.

SYNTAX:

```
@CY2 fYValue nRed nGreen nBlue nWidth nStyle
```

PARAMETERS:

fYValue; Value at which to add the user-defined line on the Y1-axis













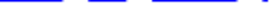



nRed; 0...255 specifies the RED portion of the RGB color

nGreen; 0...255 specifies the GREEN portion of the RGB color

nBlue; 0...255 specifies the BLUE portion of the RGB color

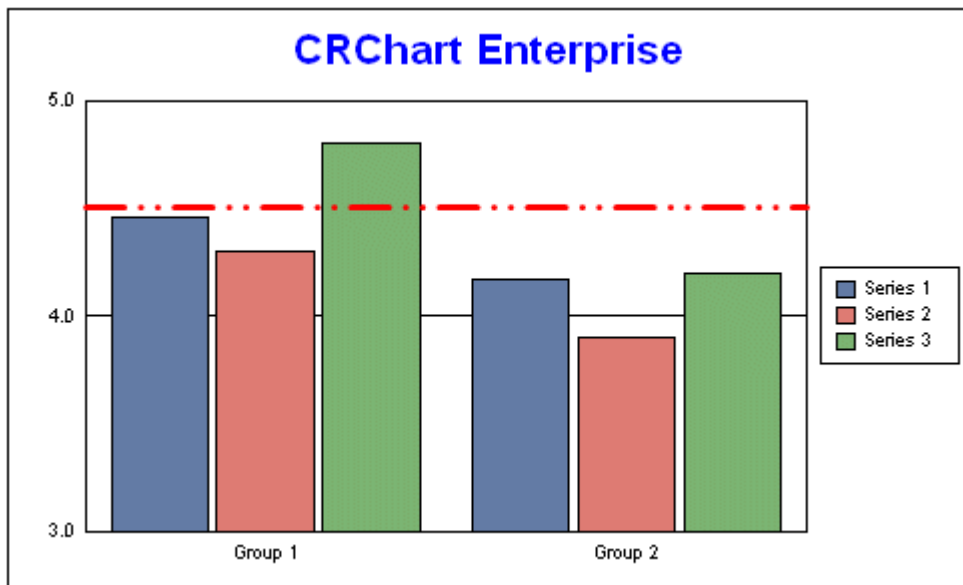
nWidth; 0...1000 selects the thickness of the line.

nStyle; 0...15 selects one of the following line styles.

0=		Solid
1=		Dashed
2=		Dotted
3=		Dot-Dash
4=		Dash-Dot-Dot
5=		Medium Dash
6=		Short Dash
7=		Long Dash
8=		Long Dot
9=		Dot-Dot-Dot
10=		Dash-Dash-Dot
11=		Dash-Dash-Dot-Dot
12=		Long Dash-Dot
13=		Long Dash-Dot-Dot
14=		Long Dash-Dash-Dot
15=		Long Dash-Dash-Dot-Dot

EXAMPLE:

```
@CY2 4.5 255 0 0 500 4
```



PERSISTENT:

NO

REQUIREMENTS:

- Crystal Reports 11 or higher
- **CRCHART Enterprise**

NOTES:

CRChart supports a maximum of 20 user-defined lines. User-defined lines are drawn with: @CX, @CXY, @CY, @CY2, @X, @XG, @XSZ, @XSZL, @XSZN, @XSZNL, @XY, @XY_DP2, @Y, @YSZ, @YSZL, @YSZN, @YSZN2, and @YSZNL.

@INIT_USERLINES (Initialize User-Defined Lines)

This macro initializes all user-defined lines to the following parameters: width=1 pixel, pattern=solid, color=BLACK. User-defined lines are drawn with: @CX, @CXY, @CY, @CY2, @X, @XG, @XSZ, @XSZL, @XSZN, @XSZNL, @XY, @XY_DP2, @Y, @YSZ, @YSZL, @YSZN, @YSZN2, and @YSZNL.

SYNTAX:

```
@INIT_USERLINES
```

PARAMETERS:

None

PERSISTENT:

NO

REQUIREMENTS:

Crystal Reports 10 or higher

NOTES:

CRChart supports a maximum of 20 user-defined lines.

@USER_CIRCLE (Outlined Circle)

In 2D charts, this macro fills a portion of the chart frame with an outlined circle. Set *fStartX*/*fStopX* to zero to select the lower left corner of the chart frame.

SYNTAX:

```
@USER_CIRCLE fStartX fStopX fStartY fStopY nRed nGreen nBlue
nLineStyle nThickness szPhrase
```

PARAMETERS:

fStartX; 0.0...1.1 X-Axis start location

fStopX; 0.0...1.1 X-Axis stop location

fStartY; 0.0...1.1 Y-Axis start location

















fStopY; 0.0...1.1 Y-Axis stop location

nRed; 0...255 defines the RED portion of the RGB color

nGreen; 0...255 defines the GREEN portion of the RGB color

nBlue; 0...255 defines the BLUE portion of the RGB color

nLineStyle; 0...15 selects the outline style

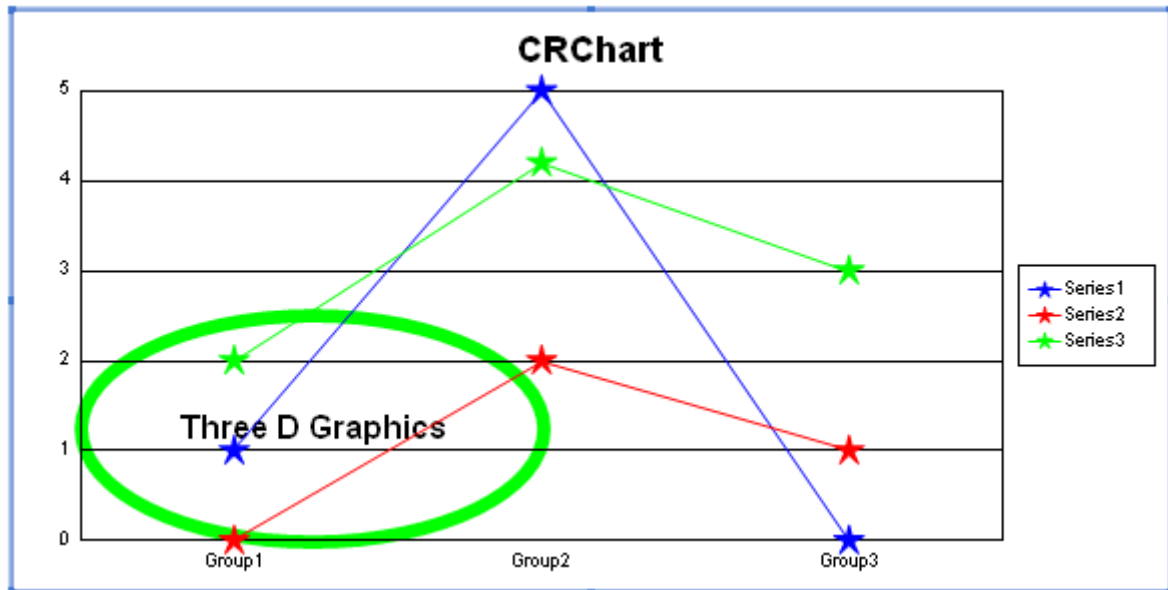
0=		Solid
1=		Dashed
2=		Dotted
3=		Dot-Dash
4=		Dash-Dot-Dot
5=		Medium Dash
6=		Short Dash
7=		Long Dash
8=		Long Dot
9=		Dot-Dot-Dot
10=		Dash-Dash-Dot
11=		Dash-Dash-Dot-Dot
12=		Long Dash-Dot
13=		Long Dash-Dot-Dot
14=		Long Dash-Dash-Dot
15=		Long Dash-Dash-Dot-Dot

nThickness; 0...1000 selects the thickness of the outline.

szPhrase; Optional phrase. Add a tilde character (~) to this string if you intend to define another macro in the same title field.

EXAMPLE:

```
@USER_CIRCLE 0.0 0.5 0.0 0.5 0 255 0 0 1000 Three D Graphics
```

**PERSISTENT:**

NO

REQUIREMENTS:

Crystal Reports 9 or higher

NOTES:

- CRChart supports a maximum of 20 user-defined areas. User-defined areas are created with: @UF, @USER_CIRCLE..., @USER_FILL..., @USER_RECT, and @UW.
- @UF, @USER_CIRCLE..., @USER_FILL..., and @USER_RECT are independent of the X or Y axis values/scales.
- This macro can only be used in a 2D chart where depth effect has not been applied with Chart Options/Appearance/Use Depth or Chart Expert/Type/Use depth effect.

@USER_CIRCLE_ABOVE (Outlined Circle above Chart Area)

In 2D charts, this macro fills a portion of the chart frame with an outlined circle that is drawn in front of chart risers. Set *fStartX* and *fStopX* to zero to select the lower left corner of the chart frame.

SYNTAX:

```
@USER_CIRCLE_ABOVE fStartX fStopX fStartY fStopY nRed nGreen nBlue
nLineStyle nThickness szPhrase
```

PARAMETERS:

fStartX; 0.0...1.1 X-Axis start location

fStopX; 0.0...1.1 X-Axis stop location

fStartY; 0.0...1.1 Y-Axis start location
















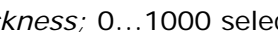
fStopY; 0.0...1.1 Y-Axis stop location

nRed; 0...255 defines the RED portion of the RGB color

nGreen; 0...255 defines the GREEN portion of the RGB color

nBlue; 0...255 defines the BLUE portion of the RGB color

nLineStyle; 0...15 selects the outline style

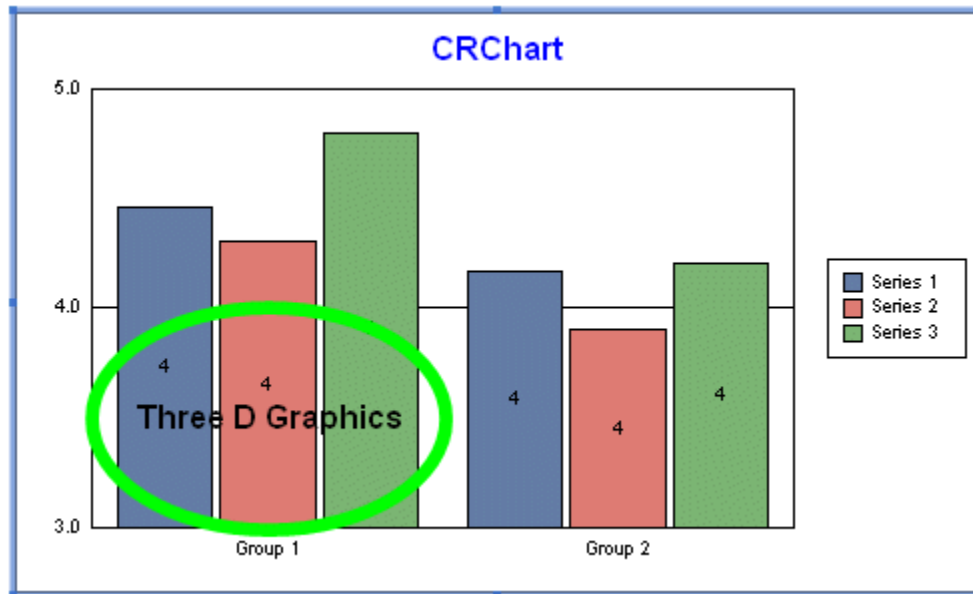
0=		Solid
1=		Dashed
2=		Dotted
3=		Dot-Dash
4=		Dash-Dot-Dot
5=		Medium Dash
6=		Short Dash
7=		Long Dash
8=		Long Dot
9=		Dot-Dot-Dot
10=		Dash-Dash-Dot
11=		Dash-Dash-Dot-Dot
12=		Long Dash-Dot
13=		Long Dash-Dot-Dot
14=		Long Dash-Dash-Dot
15=		Long Dash-Dash-Dot-Dot

nThickness; 0...1000 selects the thickness of the outline.

szPhrase; Optional phrase. Add a tilde character (~) to this string if you intend to define another macro in the same title field.

EXAMPLE:

```
@USER_CIRCLE_ABOVE 0.0 0.5 0.0 0.5 0 255 0 0 1000 Three D Graphics
```

**PERSISTENT:**

NO

REQUIREMENTS:

Crystal Reports 9 or higher

NOTES:

- CRChart supports a maximum of 20 user-defined areas. User-defined areas are created with: @UF, @USER_CIRCLE..., @USER_FILL..., @USER_RECT, and @UW.
- @UF, @USER_CIRCLE..., @USER_FILL..., and @USER_RECT are independent of the X or Y axis values/scales.
- This macro can only be used in a 2D chart where depth effect has not been applied with Chart Options/Appearance/Use Depth or Chart Expert/Type/Use depth effect.

@UF/@USER_FILL (Color-Filled Rectangle)

In 2D charts, these macros fill a portion of the chart frame with a color-filled rectangle and optional phrase. Set *fStartX* and *fStopX* to zero to select the lower left corner of the chart frame.

SYNTAX:

```
@UF fStartX fStopX fStartY fStopY nRed nGreen nBlue szPhrase
```

or

```
@USER_FILL fStartX fStopX fStartY fStopY nRed nGreen nBlue szPhrase
```

PARAMETERS:

fStartX/fStopX; 0.0...1.1 X-Axis start/stop locations

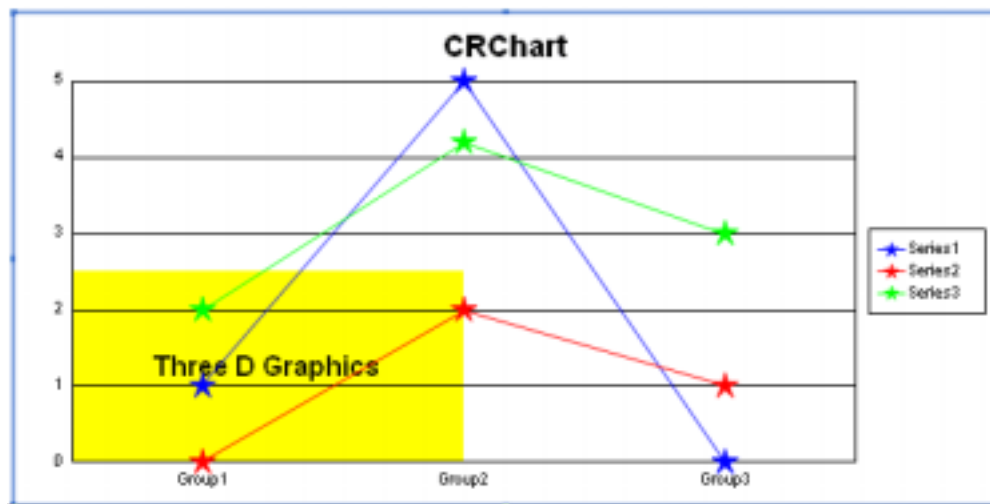
fStartY/fStopY; 0.0...1.1 Y-Axis start/stop locations

nRed; 0...255, *nGreen*; 0...255, *nBlue*; 0...255

szPhrase; Optional phrase. Add a tilde character (~) to this string if you intend to define another macro in the same title field.

EXAMPLE:

```
@USER_FILL 0.0 0.5 0.0 0.5 255 255 0 Three D Graphics
```



PERSISTENT:

NO

REQUIREMENTS:

Crystal Reports 9 or higher

NOTES:

- CRChart supports a maximum of 20 user-defined areas. User-defined areas are created with: @UF, @USER_CIRCLE..., @USER_FILL..., @USER_RECT, and @UW.
- @UF, @USER_CIRCLE..., @USER_FILL..., and @USER_RECT are independent of the X or Y axis values/scales.
- This macro can only be used in a 2D chart where depth effect has not been applied with Chart Options/Appearance/Use Depth or Chart Expert/Type/Use depth effect.

@USER_FILL2 (Pattern-Filled Rectangle)

In 2D charts, this macro fills a portion of the chart frame with a pattern-filled rectangle and optional phrase. Set *fStartX* and *fStopX* to zero to select the lower left corner of the chart frame.

SYNTAX:

```
@USER_FILL2 fStartX fStopX fStartY fStopY nRed nGreen nBlue nPattern
szPhrase
```

PARAMETERS:

fStartX; 0.0...1.1 X-Axis start location

fStopX; 0.0...1.1 X-Axis stop location

fStartY; 0.0...1.1 Y-Axis start location

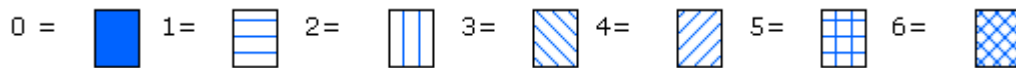
fStopY; 0.0...1.1 Y-Axis stop location

nRed; 0...255

nGreen; 0...255, *nBlue*; 0...255

nBlue; 0...255

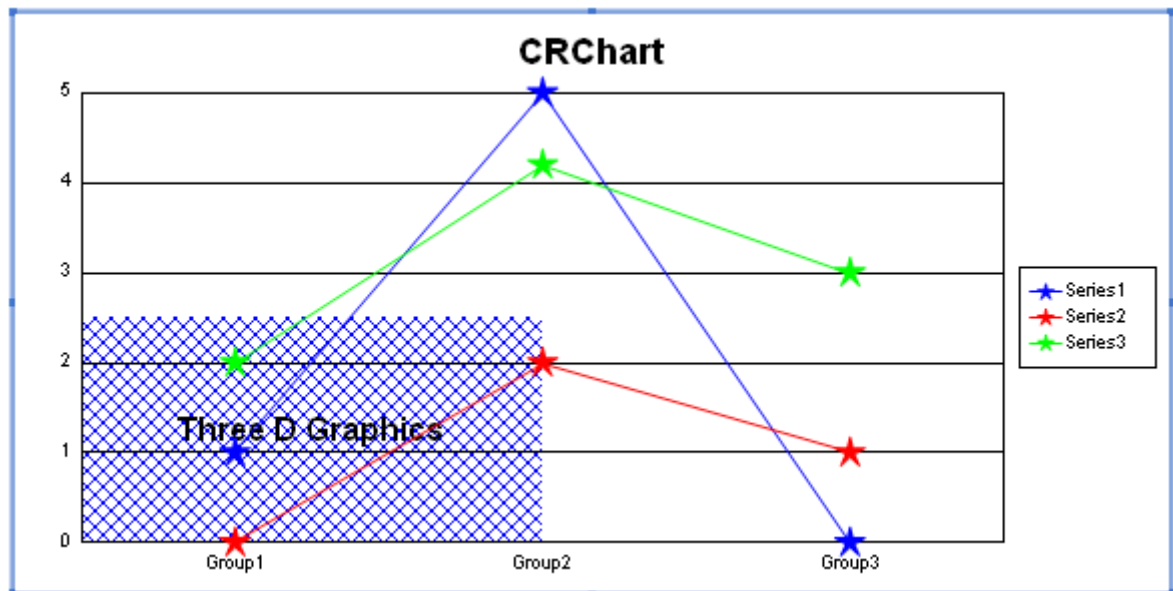
nPattern; -6...6. Positive value show one of the following patterns with a white background. Negative values show one of the following patterns with a transparent background.



szPhrase; Optional phrase. Add a tilde character (~) to this string if you intend to define another macro in the same title field.

EXAMPLE:

```
@USER_FILL2 0.0 0.5 0.0 0.5 0 0 255 6 Three D Graphics
```



PERSISTENT:

NO

REQUIREMENTS:

Crystal Reports 9 or higher

NOTES:

- CRChart supports a maximum of 20 user-defined areas. User-defined areas are created with: @UF, @USER_CIRCLE..., @USER_FILL..., @USER_RECT, and @UW.
- @UF, @USER_CIRCLE..., @USER_FILL..., and @USER_RECT are independent of the X or Y axis values/scales.
- This macro can only be used in a 2D chart where depth effect has not been applied with Chart Options/Appearance/Use Depth or Chart Expert/Type/Use depth effect.

@USER_FILL_CIRCLE (Color-Filled Circle)

In 2D charts, this macro fills a portion of the chart frame with a color-filled circle and optional phrase. Set *fStartX* and *fStopX* to zero to select the lower left corner of the chart frame.

SYNTAX:

```
@USER_FILL_CIRCLE fStartX fStopX fStartY fStopY nRed nGreen nBlue
szPhrase
```

PARAMETERS:

fStartX; 0.0...1.1 X-Axis start location

fStopX; 0.0...1.1 X-Axis stop location

fStartY; 0.0...1.1 Y-Axis start location

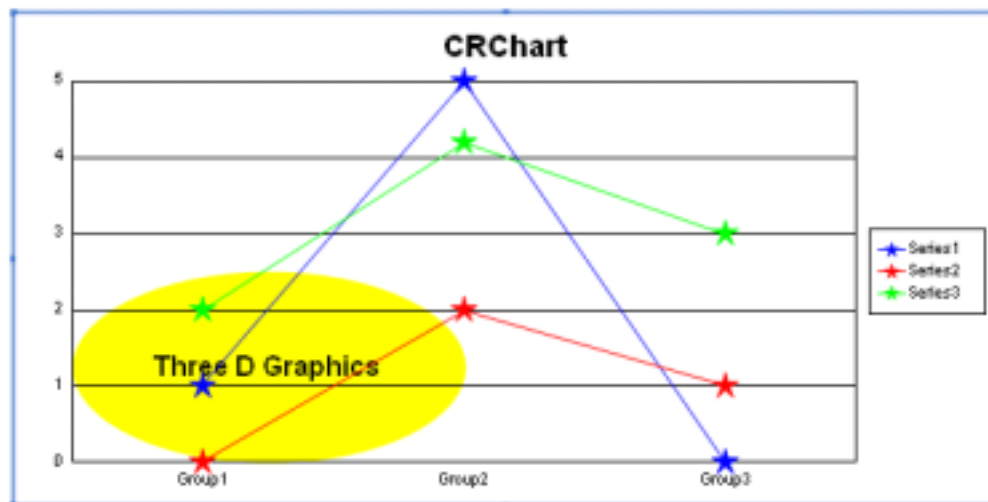
fStopY; 0.0...1.1 Y-Axis stop location

nRed; 0...255, *nGreen*; 0...255, *nBlue*; 0...255

szPhrase; Optional phrase. Add a tilde character (~) to this string if you intend to define another macro in the same title field.

EXAMPLE:

```
@USER_FILL_CIRCLE 0.0 0.5 0.0 0.5 255 255 0 Three D Graphics
```



PERSISTENT:

NO

REQUIREMENTS:

Crystal Reports 9 or higher

NOTES:

- CRChart supports a maximum of 20 user-defined areas. User-defined areas are created with: @UF, @USER_CIRCLE..., @USER_FILL..., @USER_RECT, and @UW.
- @UF, @USER_CIRCLE..., @USER_FILL..., and @USER_RECT are independent of the X or Y axis values/scales.
- This macro can only be used in a 2D chart where depth effect has not been applied with Chart Options/Appearance/Use Depth or Chart Expert/Type/Use depth effect.

@USER_FILL_CIRCLE_ABOVE (Color-Filled Circle above Chart Area)

In 2D charts, this macro fills a portion of the chart frame with a color-filled circle and optional phrase. The circle and phrase are drawn in front of the chart risers. Set *fStartX* and *fStopX* to zero to select the lower left corner of the chart frame.

SYNTAX:

```
@USER_FILL_CIRCLE_ABOVE fStartX fStopX fStartY fStopY nRed nGreen
nBlue szPhrase
```

PARAMETERS:

fStartX/fStopX; 0.0...1.1 X-Axis start/stop locations

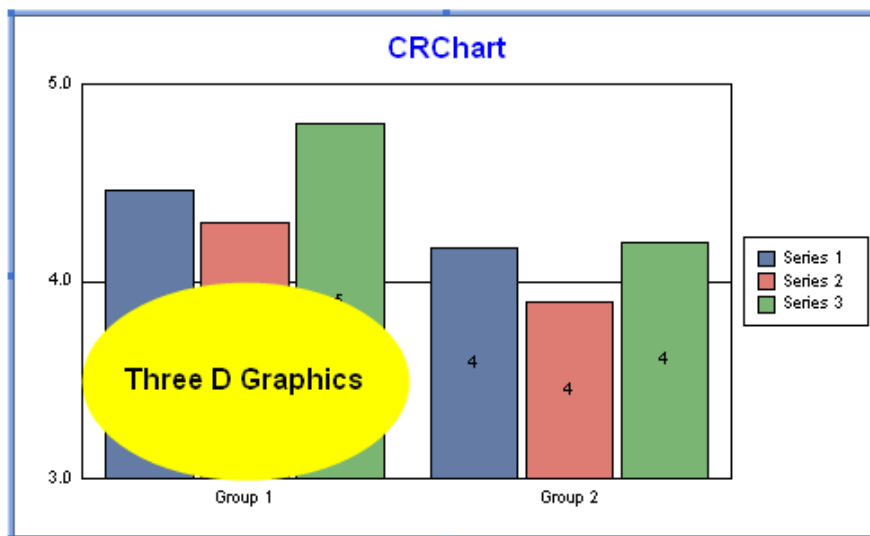
fStartY/fStopY; 0.0...1.1 Y-Axis start/stop locations

nRed; 0...255, *nGreen*; 0...255, *nBlue*; 0...255

szPhrase; Optional phrase. Add a tilde character (~) to this string if you intend to define another macro in the same title field.

EXAMPLE:

```
@USER_FILL_CIRCLE_ABOVE 0.0 0.5 0.0 0.5 255 255 0 Three D Graphics
```



PERSISTENT:

NO

REQUIREMENTS:

Crystal Reports 9 or higher

NOTES:

- CRChart supports a maximum of 20 user-defined areas. User-defined areas are created with: @UF, @USER_CIRCLE..., @USER_FILL..., @USER_RECT, and @UW.
- @UF, @USER_CIRCLE..., @USER_FILL..., and @USER_RECT are independent of the X or Y axis values/scales.
- This macro can only be used in a 2D chart where depth effect has not been applied with Chart Options/Appearance/Use Depth or Chart Expert/Type/Use depth effect.

@USER_FILL_CIRCLE2 (Pattern-Filled Circle)

In 2D charts, this macro fills a portion of the chart frame with a pattern-filled circle and optional phrase. Set *fStartX* and *fStopX* to zero to select the lower left corner of the chart frame.

SYNTAX:

```
@USER_FILL_CIRCLE2 fStartX fStopX fStartY fStopY nRed nGreen nBlue
nPattern szPhrase
```

PARAMETERS:

fStartX; 0.0...1.1 X-Axis start location

fStopX; 0.0...1.1 X-Axis stop location

fStartY; 0.0...1.1 Y-Axis start location

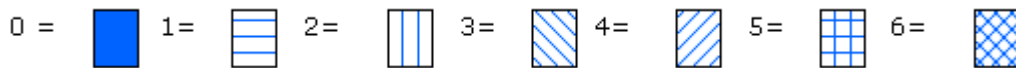
fStopY; 0.0...1.1 Y-Axis stop location

nRed; 0...255

nGreen; 0...255

nBlue; 0...255

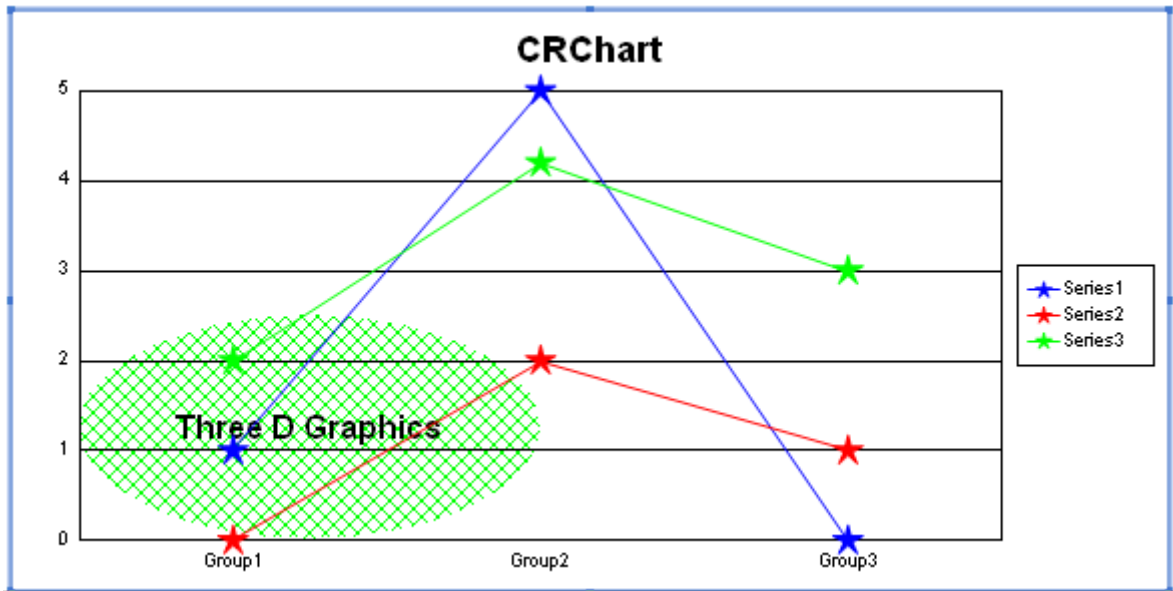
nPattern; -6...6. Positive value show one of the following patterns with a white background. Negative values show one of the following patterns with a transparent background.



szPhrase; Optional phrase. Add a tilde character (~) to this string if you intend to define another macro in the same title field.

EXAMPLE:

```
@USER_FILL_CIRCLE2 0.0 0.5 0.0 0.5 0 255 0 6 Three D Graphics
```



PERSISTENT:

NO

REQUIREMENTS:

Crystal Reports 9 or higher

NOTES:

- CRChart supports a maximum of 20 user-defined areas. User-defined areas are created with: @UF, @USER_CIRCLE..., @USER_FILL..., @USER_RECT, and @UW.
- @UF, @USER_CIRCLE..., @USER_FILL..., and @USER_RECT are independent of the X or Y axis values/scales.
- This macro can only be used in a 2D chart where depth effect has not been applied with Chart Options/Appearance/Use Depth or Chart Expert/Type/Use depth effect.

@USER_FILL_CIRCLE2_ABOVE (Pattern-Filled Circle above Chart Area)

In 2D charts, this macro fills a portion of the chart frame with a pattern-filled circle and optional phrase. The circle and phrase are drawn in front of the chart risers. Set *fStartX* and *fStopX* to zero to select the lower left corner of the chart frame.

SYNTAX:

```
@USER_FILL_CIRCLE2_ABOVE fStartX fStopX fStartY fStopY nRed nGreen
nBlue nPattern szPhrase
```

PARAMETERS:

fStartX; 0.0...1.1 X-Axis start location

fStopX; 0.0...1.1 X-Axis stop location

fStartY; 0.0...1.1 Y-Axis start location

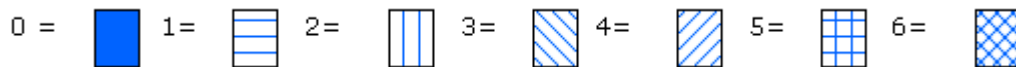
fStopY; 0.0...1.1 Y-Axis stop location

nRed; 0...255

nGreen; 0...255

nBlue; 0...255

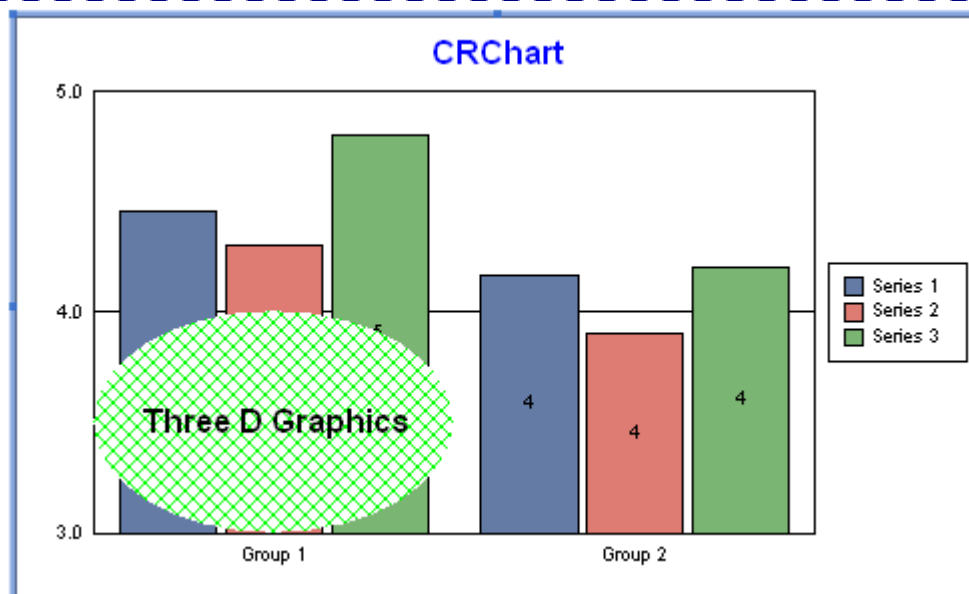
nPattern; -6...6. Positive value show one of the following patterns with a white background. Negative values show one of the following patterns with a transparent background.



szPhrase; Optional phrase. Add a tilde character (~) to this string if you intend to define another macro in the same title field.

EXAMPLE:

```
@USER_FILL_CIRCLE2_ABOVE 0.0 0.5 0.0 0.5 0 255 0 6 Three D Graphics
```



PERSISTENT:

NO

REQUIREMENTS:

Crystal Reports 9 or higher

NOTES:

- CRChart supports a maximum of 20 user-defined areas. User-defined areas are created with: @UF, @USER_CIRCLE..., @USER_FILL..., @USER_RECT, and @UW.
- @UF, @USER_CIRCLE..., @USER_FILL..., and @USER_RECT are independent of the X or Y axis values/scales.
- This macro can only be used in a 2D chart where depth effect has not been applied with Chart Options/Appearance/Use Depth or Chart Expert/Type/Use depth effect.

@USER_MARKER (User-Defined Marker)

This macro adds a user-defined marker with optional text (*szPhrase*) to a chart. *fX* must be value that is between the minimum and maximum values shown on the X-Axis. *fY* must be value that is between the minimum and maximum values shown on the Y-Axis.









SYNTAX:

```
@USER_MARKER fX fY nShape nRed nGreen nBlue szPhrase
```

PARAMETERS:

fX; X-position, *fY*; Y-position

nShape; 0...7 selects one of the following markers:

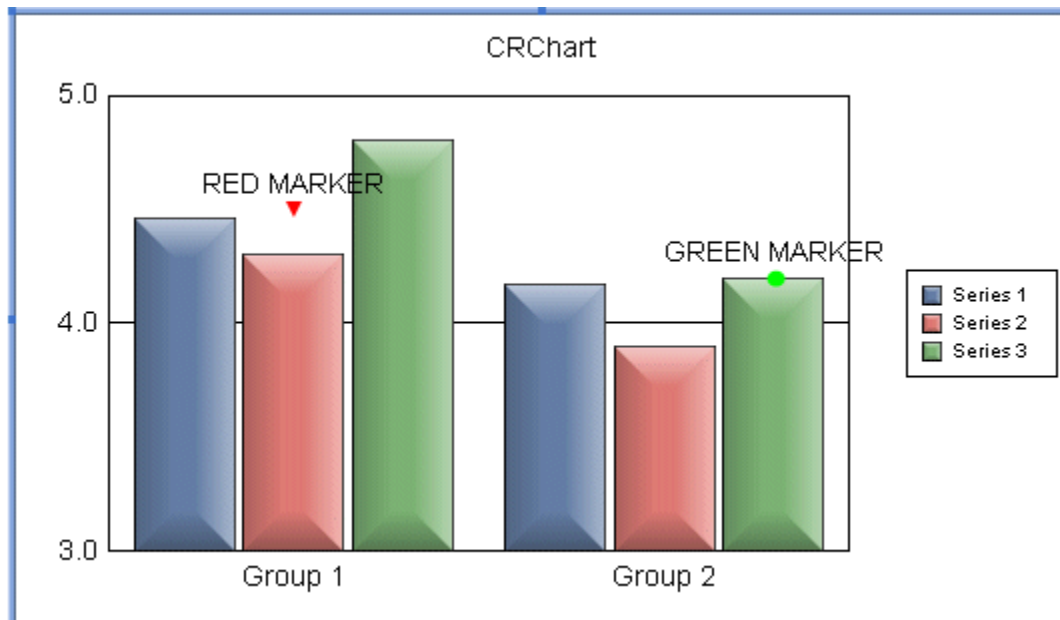
0=  1=  2=  3= 
 4=  5=  6=  7= 

nRed; 0...255, *nGreen*; 0...255, *nBlue*; 0...255 define the color of the marker.

szPhrase; Optional phrase. Add a tilde character (~) to this string if you intend to define another macro in the same title field.

EXAMPLE:

```
@USER_MARKER 1.0 4.5 7 255 0 0 RED MARKER
@USER_MARKER 2.3 4.2 1 0 255 0 GREEN MARKER
```



PERSISTENT:

NO

NOTES:

CRChart supports a maximum of eight user markers defined with @USER_MARKER and @USER_MARKER2.

ALSO SEE:

@USER_MARKER2

@USER_MARKER2 (User-Defined Marker with Value)

This macro adds a user-defined marker with optional text to a chart. With this macro, you can also specify a null marker and a value to append to the phrase (*szPhrase*). *fX* must be value that is between the minimum and maximum values shown on the X-Axis. *fY* must be value that is between the minimum and maximum values shown on the Y-Axis.









SYNTAX:

```
@USER_MARKER2 fX fY nShape nRed nGreen nBlue fValue szPhrase
```

PARAMETERS:

fX; X-position, *fY*; Y-position

nShape; 0...8. 0...7 selects one of the following markers:

0=  1=  2=  3= 
 4=  5=  6=  7= 

8=null/no marker

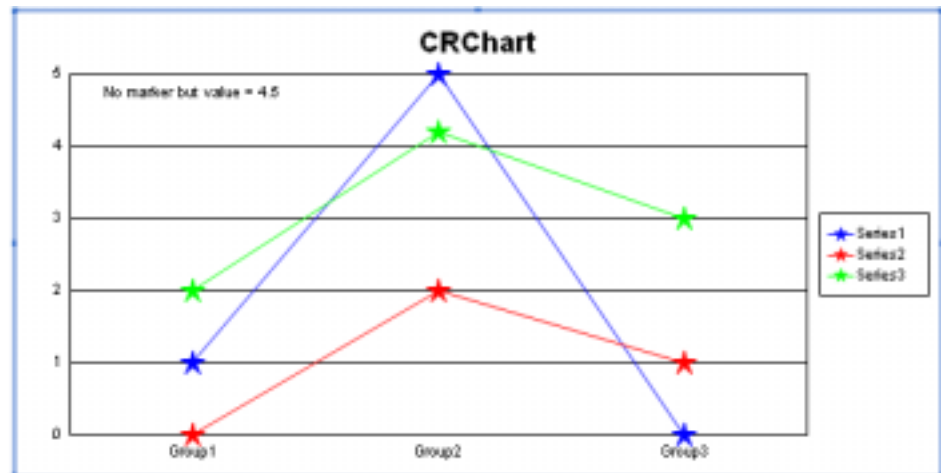
nRed; 0...255, *nGreen*; 0...255, *nBlue*; 0...255 define the color of the marker.

fValue; Value to append to *phrase*.

szPhrase; Optional phrase. Add a tilde character (~) to this string if you intend to define another macro in the same title field.

EXAMPLE:

```
@USER_MARKER2 1.0 4.5 8 0 0 0 4.5 No marker but value =
```



PERSISTENT:

NO

REQUIREMENTS:

Crystal Reports 9 or higher

NOTES:

CRChart supports a maximum of eight user markers defined with @USER_MARKER and @USER_MARKER2.

ALSO SEE:

@USER_MARKER

@USER_RECT (Outlined Rectangle)

In 2D charts, this macro fills a portion of the chart frame with an outlined rectangle and optional phrase. Set *fStartX* and *fStopX* to zero to select the lower left corner of the chart frame.

SYNTAX:

```
@USER_RECT fStartX fStopX fStartY fStopY nRed nGreen nBlue nLineStyle
nLineThickness szPhrase
```

PARAMETERS:

fStartX; 0.0...1.1 X-Axis start location

fStopX; 0.0...1.1 X-Axis stop location

fStartY; 0.0...1.1 Y-Axis start location

















fStopY; 0.0...1.1 Y-Axis stop location

nRed; 0...255 defines the RED portion of the RGB color

nGreen; 0...255 defines the GREEN portion of the RGB color

nBlue; 0...255 defines the BLUE portion of the RGB color

nLineStyle; 0...15 selects the outline style

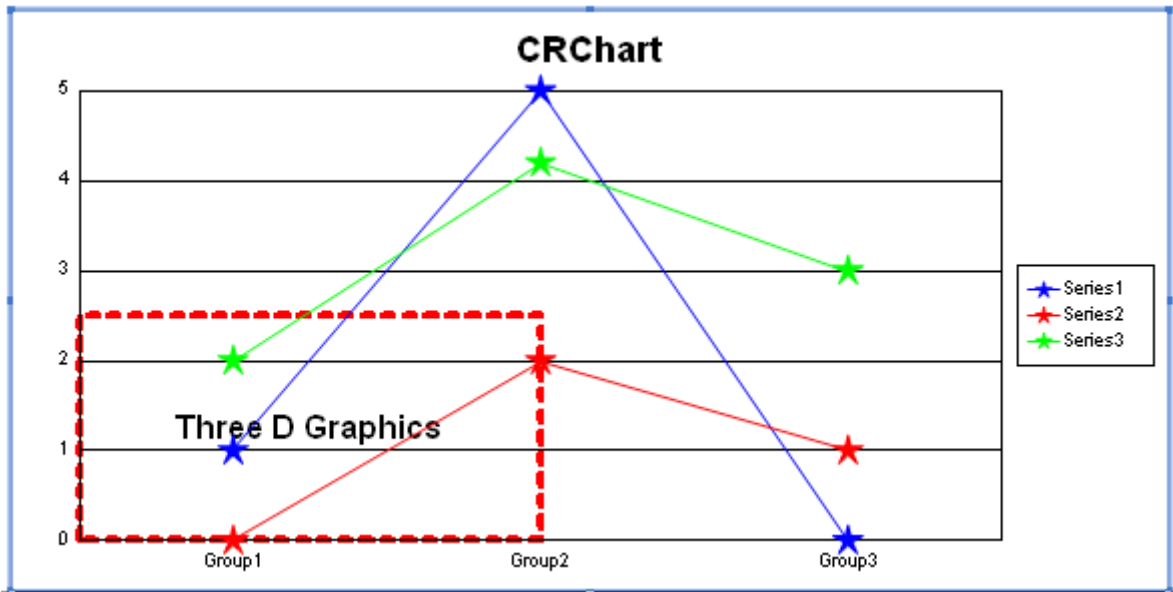
0=		Solid
1=		Dashed
2=		Dotted
3=		Dot-Dash
4=		Dash-Dot-Dot
5=		Medium Dash
6=		Short Dash
7=		Long Dash
8=		Long Dot
9=		Dot-Dot-Dot
10=		Dash-Dash-Dot
11=		Dash-Dash-Dot-Dot
12=		Long Dash-Dot
13=		Long Dash-Dot-Dot
14=		Long Dash-Dash-Dot
15=		Long Dash-Dash-Dot-Dot

nLineThickness; 0...1000 Line Thickness

szPhrase; Optional phrase. Add a tilde character (~) to this string if you intend to define another macro in the same title field.

EXAMPLE:

```
@USER_RECT 0.0 0.5 0.0 0.5 255 0 0 2 400 Three D Graphics
```



PERSISTENT:

NO

REQUIREMENTS:

Crystal Reports 9 or higher

NOTES:

- CRChart supports a maximum of 20 user-defined areas. User-defined areas are created with: @UF, @USER_CIRCLE..., @USER_FILL..., @USER_RECT, and @UW.
- @UF, @USER_CIRCLE..., @USER_FILL..., and @USER_RECT are independent of the X or Y axis values/scales.
- This macro can only be used in a 2D chart where depth effect has not been applied with Chart Options/Appearance/Use Depth or Chart Expert/Type/Use depth effect.

@UW (User-Defined Vertical Band)

This macro draws a band on the chart background from *fStartX* to *fStopX* using the color defined by @WC. The default color is white.

SYNTAX:

```
@UW fStartX fStopX szPhrase
```

PARAMETERS:

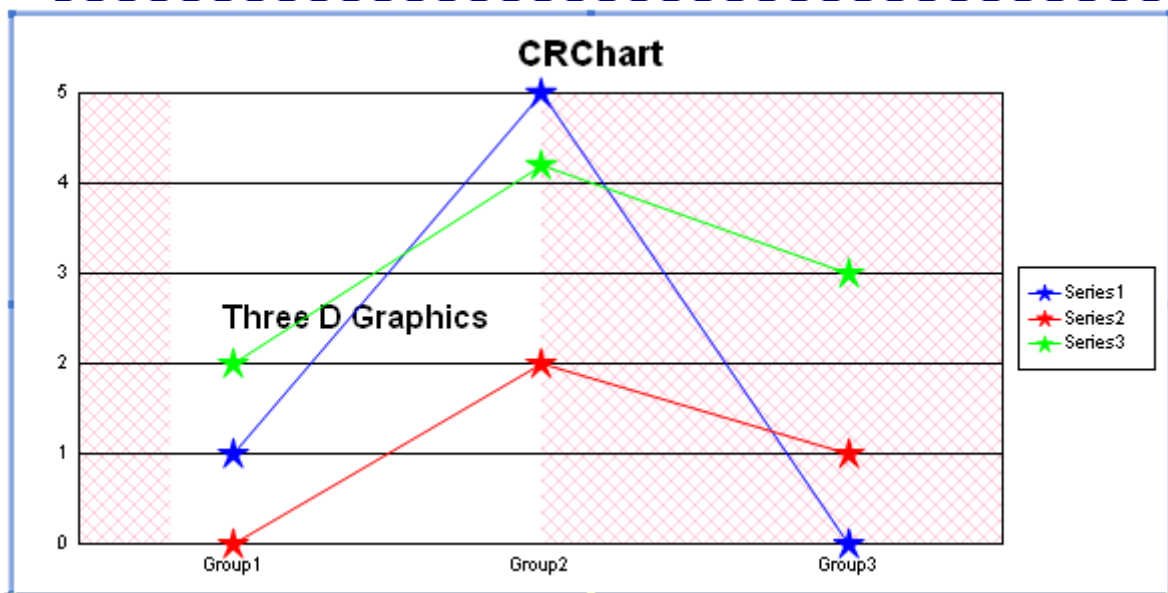
fStartX; 0.0...1.0 X-Axis start location

fStopX; 0.0...1.0 X-Axis stop location

szPhrase; Optional phrase. Add a tilde character (~) to this string if you intend to define another macro in the same title field.

EXAMPLE:

```
@UW .1 .5 Three D Graphics
```



PERSISTENT:

NO

REQUIREMENTS:

Crystal Reports 10 or higher

NOTES:

- CRChart supports a maximum of 20 user-defined areas. User-defined areas are created with: @UF, @USER_CIRCLE..., @USER_FILL..., @USER_RECT, and @UW.
- This macro can only be used in a 2D chart where depth effect has not been applied with Chart Options/Appearance/Use Depth or Chart Expert/Type/Use depth effect.

ALSO SEE:

@WC

@WC (Color @UW Vertical Band)

This macro specifies the color of a vertical band defined by the @UW macro.

SYNTAX:

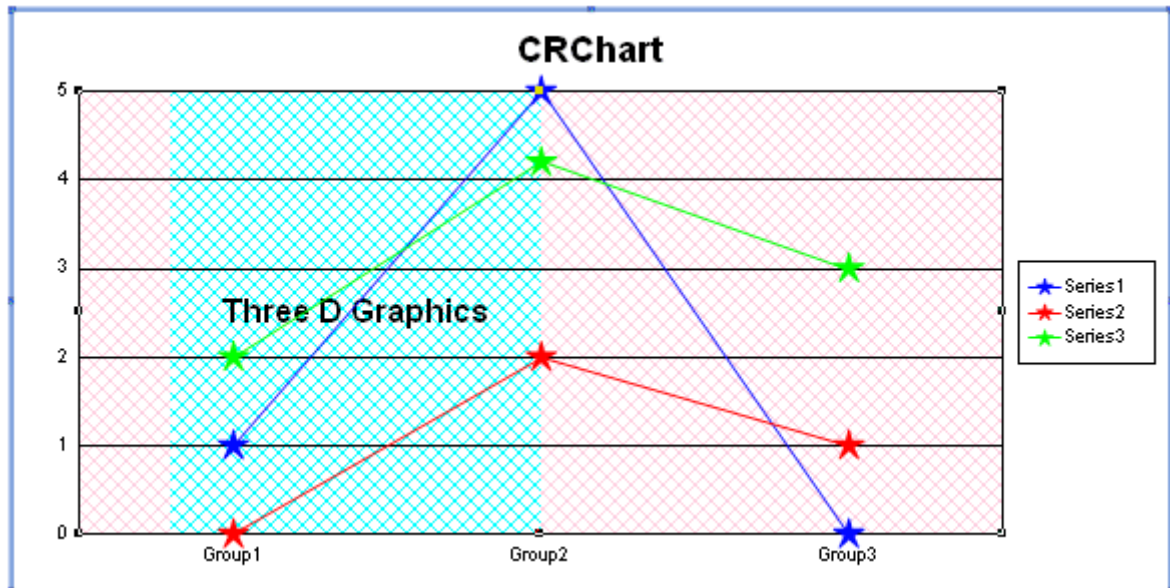
```
@WC nRed nGreen nBlue
```

PARAMETERS:

nRed; 0...255, *nGreen*; 0...255, *nBlue*; 0...255

EXAMPLE:

```
@UW .1 .5 Three D Graphics  
@WC 0 255 255
```



PERSISTENT:

NO

REQUIREMENTS:

Crystal Reports 10 or higher

ALSO SEE:

@UW

@X (X-Axis Line at Value)

This macro adds a user-defined line on the X-Axis. For charts with a true X-Axis (e.g., Scatter, Bubble, Polar, etc.), *fxValue* defines the value on the X-Axis where the line will be drawn. For bar, line, or area charts, *fxValue* must be set to a value in the range 0.0 to 1.0 that defines a percentage of the X (or ordinal)-Axis length. For example @X .5 will draw a line that is 50% of the distance between the left and right sides of the chart frame. The line is drawn horizontally or vertically depending on the chart orientation.

SYNTAX:

```
@X fxValue
```

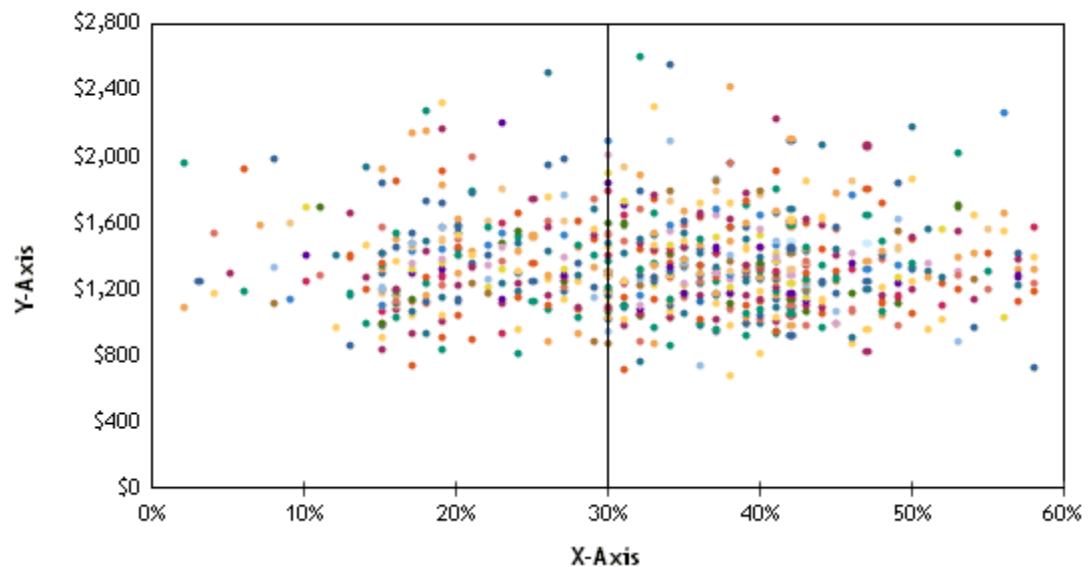
PARAMETERS:

fxValue; Value at which to add the user-defined line on the X-axis

EXAMPLE:

```
@X .3
```

CRChart



PERSISTENT:

NO

NOTES:

CRChart supports a maximum of 20 user-defined lines. User-defined lines are drawn with: @CX, @CXY, @CY, @CY2, @X, @XG, @XSZ, @XSZL, @XSZN, @XSZNL, @XY, @XY_DP2, @Y, @YSZ, @YSZL, @YSZN, @YSZN2, and @YSZNL.

@XG (X-Axis Line at Group)

This macro is like the @X macro except it draws a line at a specified group. It allows you place the line more accurately (using *groupID*) on Bar/line/area/Box Plots. The line is drawn horizontally or vertically depending on the chart orientation.

SYNTAX:

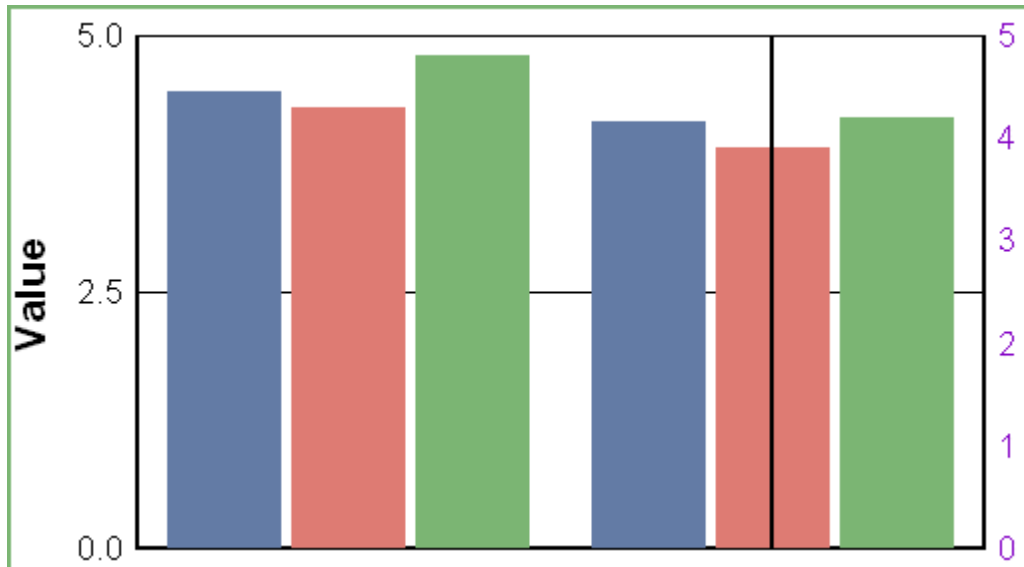
```
@XG groupID
```

PARAMETERS:

groupID; Group at which to add the user-defined line on the X-axis

EXAMPLE:

```
@XG 1
```



PERSISTENT:

NO

REQUIREMENTS:

Crystal Reports 9 or higher

NOTES:

CRChart supports a maximum of 20 user-defined lines. User-defined lines are drawn with: @CX, @CXY, @CY, @CY2, @X, @XG, @XSZ, @XSZL, @XSZN, @XSZNL, @XY, @XY_DP2, @Y, @YSZ, @YSZL, @YSZN, @YSZN2, and @YSZNL.

@XSZ (X-Axis Line with Label)

This macro adds a user-defined line on the X-axis at value *fValue* with the label *sZLabel*. For vertical orientation, the line is drawn vertically with the label on the top side of the chart. For horizontal orientation, the line is drawn horizontally with the label on the right side of the chart.

SYNTAX:

```
@XSZ fValue nXAdjust nYAdjust sZLabel
```

PARAMETERS:

fValue; Value at which to add the user-defined line on the X-axis

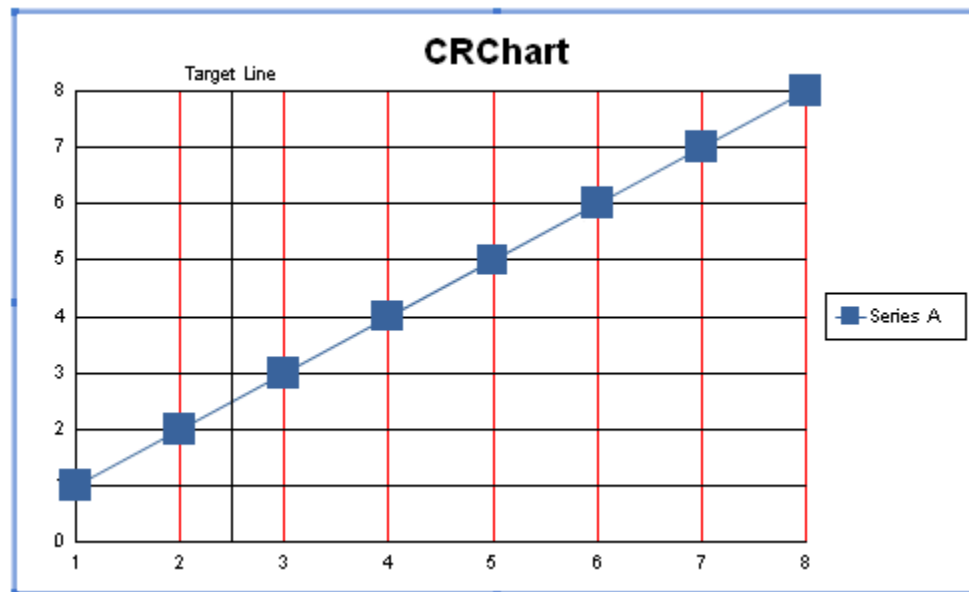
nXAdjust; -16000...16000 adjusts the label closer to or further away from the line.

nYAdjust; -16000...16000 adjusts the label closer to or further away from the line.

sZLabel; Label string to show next to the line at *fValue*. Add a tilde (~) character to the end of the string if you intend to define other macros in the same title field.

EXAMPLE:

```
@GCOLOR 14 255 0 0 @XSZ 2.5 0 0 Target Line
```



PERSISTENT:

NO

REQUIREMENTS:

Crystal Reports 10 or higher

ALSO SEE:

@XSZL, @XSZN, @XSZNL

NOTES:

CRChart supports a maximum of 20 user-defined lines. User-defined lines are drawn with: @CX, @CXY, @CY, @CY2, @X, @XG, @XSZ, @XSZL, @XSZN, @XSZNL, @XY, @XY_DP2, @Y, @YSZ, @YSZL, @YSZN, @YSZN2, and @YSZNL.

@XSZL (X-Axis Line with Label on Left/Lower)

This macro adds a user-defined line on the X-axis at value *fValue* with the label *sZLabel*. For vertical orientation, the line is drawn vertically with the label on the bottom side of the chart. For horizontal orientation, the line is drawn horizontally with the label on the left side of the chart.

SYNTAX:

```
@XSZL fValue nXAdjust nYAdjust sZLabel
```

PARAMETERS:

fValue; Value at which to add the user-defined line on the X-axis

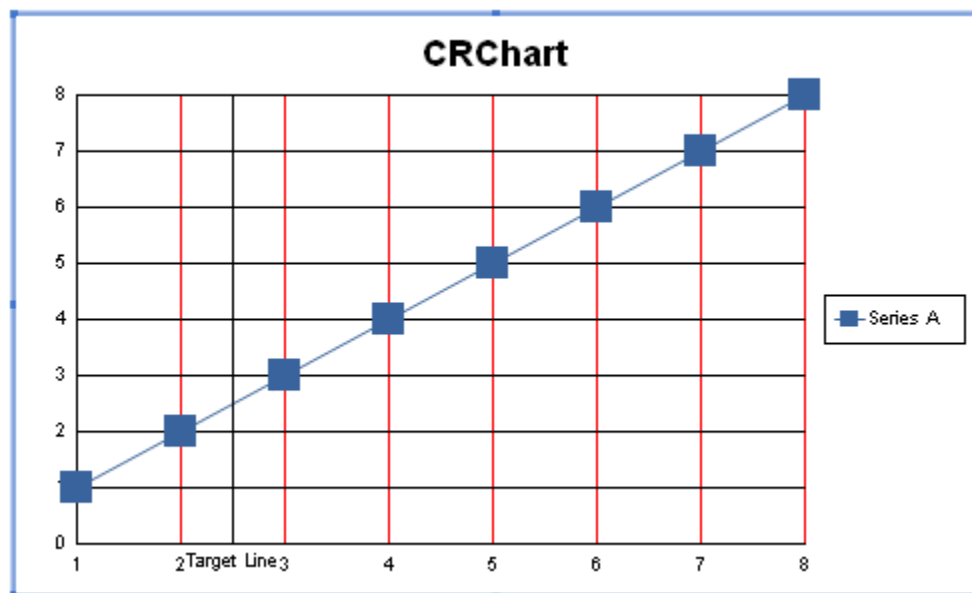
nXAdjust; -16000...16000 adjusts the label closer to or further away from the line.

nYAdjust; -16000...16000 adjusts the label closer to or further away from the line.

sZLabel; Label string to show next to line. Add a tilde (~) character to the end of the string if you intend to define other macros in the same title field.

EXAMPLE:

```
@GCOLOR 14 255 0 0 @XSZL 2.5 0 0 Target Line
```



PERSISTENT:

NO

REQUIREMENTS:

Crystal Reports 10 or higher

ALSO SEE:

@XSZ, @XSZN, @XSZNL

NOTES:

CRChart supports a maximum of 20 user-defined lines. User-defined lines are drawn with: @CX, @CXY, @CY, @CY2, @X, @XG, @XSZ, @XSZL, @XSZN, @XSZNL, @XY, @XY_DP2, @Y, @YSZ, @YSZL, @YSZN, @YSZN2, and @YSZNL.

@XSZN (X-Axis Line with Label & Value)

This macro adds a user-defined line on the X-axis at value *fValue* with the label *sZLabel*. The value of *fValue* is appended to *sZLabel*. For vertical orientation, the line is drawn vertically with the label and value on the top side of the chart. For horizontal orientation, the line is drawn horizontally with the label and value on the right side of the chart.

SYNTAX:

```
@XSZN fValue nXAdjust nYAdjust sZLabel
```

PARAMETERS:

fValue; Value at which to add the user-defined line on the X-axis

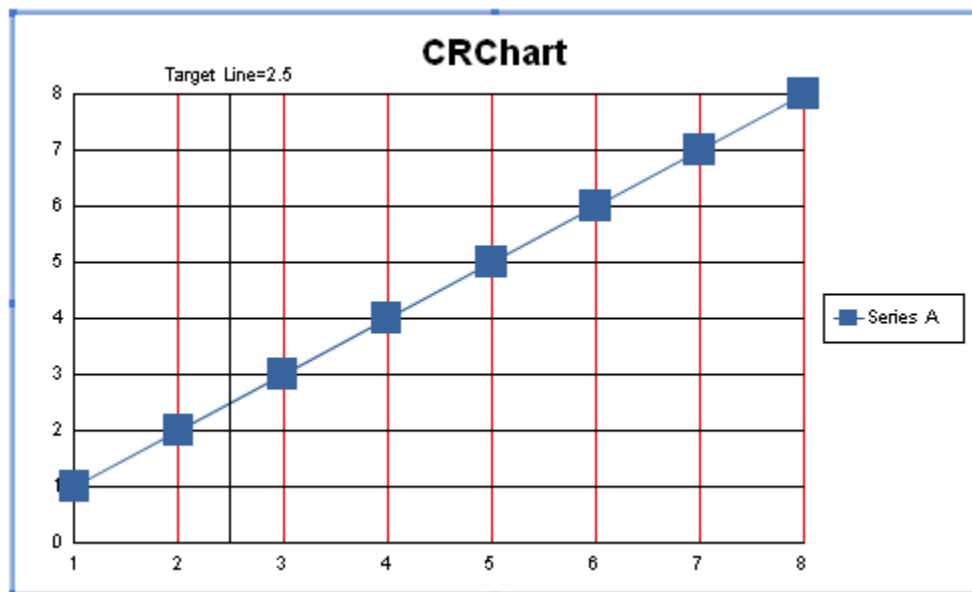
nXAdjust; -16000...16000 adjusts the label closer to or further away from the line.

nYAdjust; -16000...16000 adjusts the label closer to or further away from the line.

sZLabel; Label string to show next to line. Add a space to the end of the label if you want a space to appear between the label and *fValue*. Add a tilde (~) character to the end of the string if you intend to define other macros in the same title field.

EXAMPLE:

```
@GCOLOR 14 255 0 0 @XSZN 2.5 0 0 Target Line=
```



PERSISTENT:

NO

REQUIREMENTS:

Crystal Reports 10 or higher

ALSO SEE:

@XSZ, @XSZL, @XSZNL

NOTES:

CRChart supports a maximum of 20 user-defined lines. User-defined lines are drawn with: @CX, @CXY, @CY, @CY2, @X, @XG, @XSZ, @XSZL, @XSZN, @XSZNL, @XY, @XY_DP2, @Y, @YSZ, @YSZL, @YSZN, @YSZN2, and @YSZNL.

@XSZNL (X-Axis Line with Label & Value on Left/Lower)

This macro adds a user-defined line on the X-axis at value *fValue* with the label *sZLabel*. The value of *fValue* is appended to *sZLabel*. For vertical orientation, the line is drawn vertically with the label and value on the bottom side of the chart. For horizontal orientation, the line is drawn horizontally with the label and value on the left side of the chart.

SYNTAX:

```
@XSZNL fValue nXAdjust nYAdjust sZLabel
```

PARAMETERS:

fValue; Value at which to add the user-defined line on the X-axis

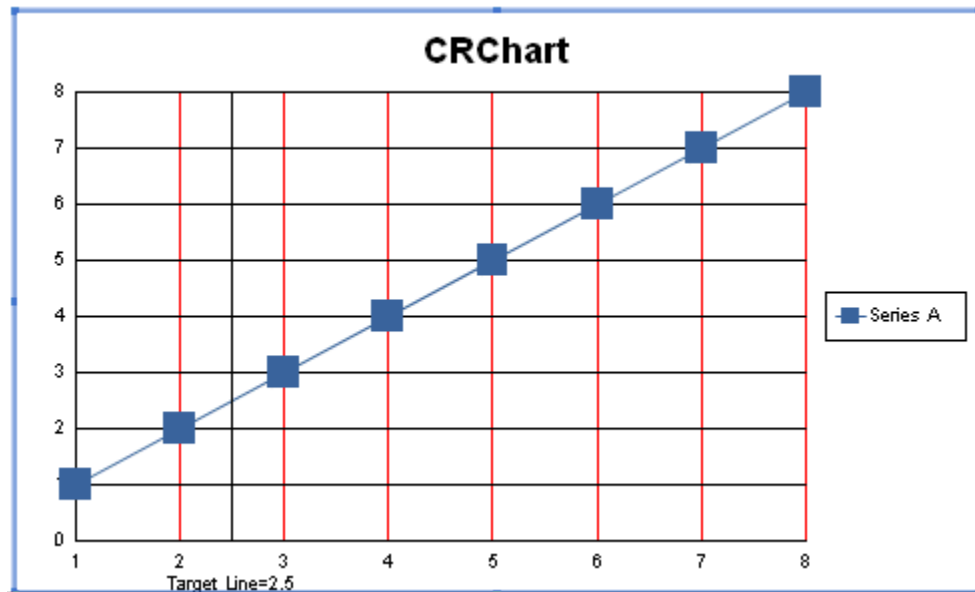
nXAdjust; -16000...16000 adjusts the label closer to or further away from the line.

nYAdjust; -16000...16000 adjusts the label closer to or further away from the line.

sZLabel; Label string to show next to the line at *fValue*. Add a space to the end of the label if you want a space to appear between the label and *fValue*. Add a tilde (~) character to the end of the string if you intend to define other macros in the same title field.

EXAMPLE:

```
@GCOLOR 14 255 0 0 @XSZNL 2.5 0 0 -1500 Target Line=
```



PERSISTENT:

NO

REQUIREMENTS:

Crystal Reports 10 or higher

ALSO SEE:

@XSZ, @XSZL, @XSZN

NOTES:

CRChart supports a maximum of 20 user-defined lines. User-defined lines are drawn with: @CX, @CXY, @CY, @CY2, @X, @XG, @XSZ, @XSZL, @XSZN, @XSZNL, @XY, @XY_DP2, @Y, @YSZ, @YSZL, @YSZN, @YSZN2, and @YSZNL.

@XY (X/Y Coordinates Line)

This macro adds a user-defined line that starts at location *fxBegin*, *fyBegin* and stops at location *fxEnd*, *fyEnd*. For charts with a true X-Axis (e.g., Scatter, Bubble, Polar, etc.), *fxBegin* and *fxEnd* define the value on the X-Axis where the line will be drawn. For bar, line, or area charts, *fxBegin* and *fxEnd* must be set to a value in the range 0.0 to 1.0 that defines a percentage of the X (or ordinal)-Axis length.

SYNTAX:

```
@XY fxBegin ny1 nx2 ny2
```

PARAMETERS:

fxBegin; Beginning X-coordinate

fyBegin; Beginning Y-coordinate

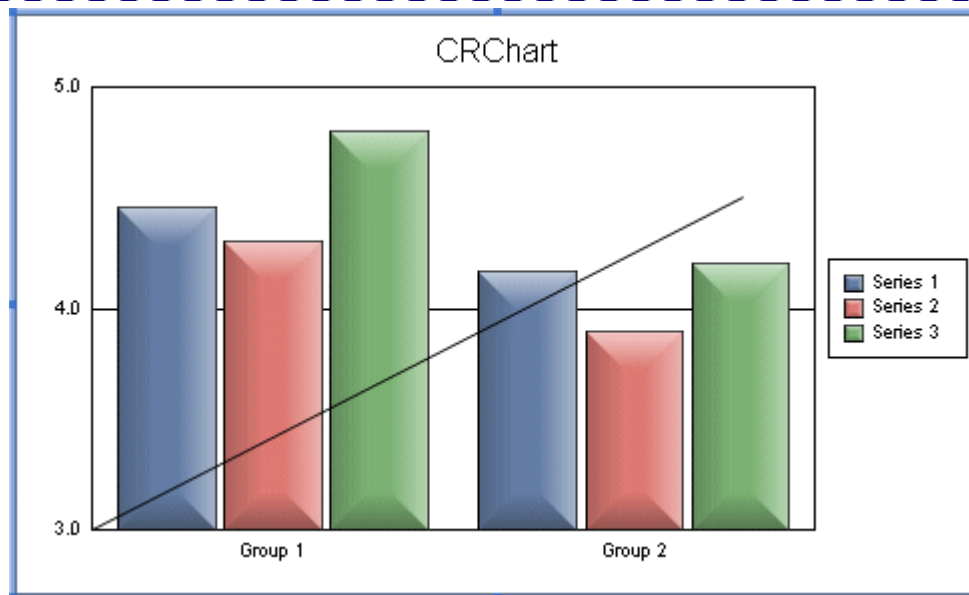
fxEnd; Ending X-coordinate

fyEnd; Ending Y-coordinate

EXAMPLE:

This example adds a free line to the chart. The line starts at X=0, Y=3 and ends at X=0.9, Y=4.5.

```
@XY 0 3 0.9 4.5
```



PERSISTENT:

NO

NOTES:

CRChart supports a maximum of 20 user-defined lines. User-defined lines are drawn with: @CX, @CXY, @CY, @CY2, @X, @XG, @XSZ, @XSZL, @XSZN, @XSZNL, @XY, @XY_DP2, @Y, @YSZ, @YSZL, @YSZN, @YSZN2, and @YSZNL.

@XY_DP2 (Data Point Line)

On a scatter chart, this macro draws a user-defined line between any two points. The points are specified in terms of series and groups.

SYNTAX:

```
@XY_DP2 nSeriesStart nGroupStart nSeriesStop nGroupStop
```

PARAMETERS:

nSeriesStart; 0...1024 Zero-based series number to start drawing line.

nGroupStart; 0...1024 Zero-based group number to start drawing line.

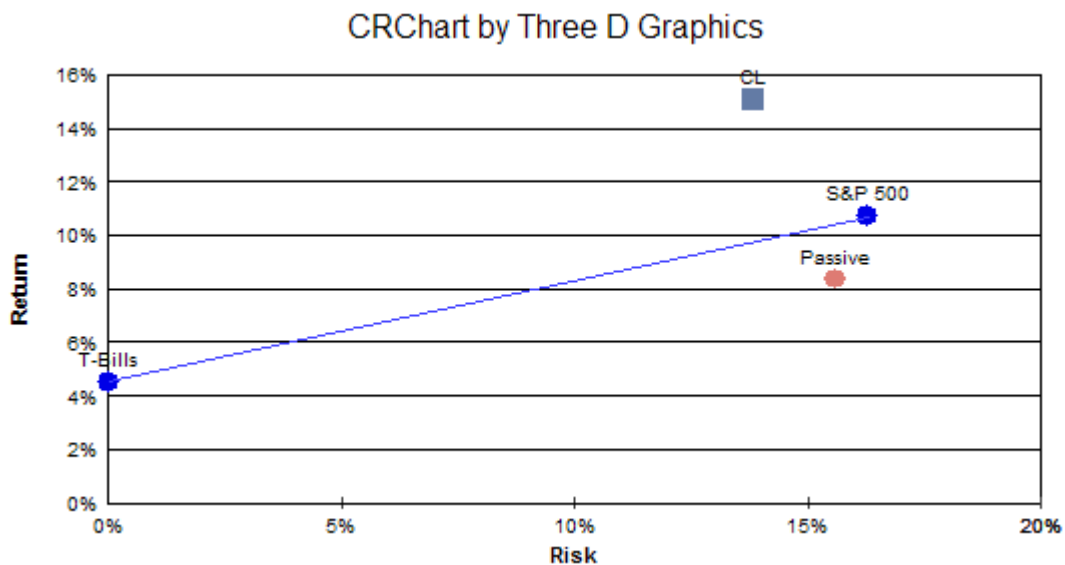
nSeriesStop; 0...1024 Zero-based series number to stop drawing line.

nGroupStop; 0...1024 Zero-based group number to stop drawing line.

EXAMPLE:

This example draws a line between the first point in series 2 and the first point in series 3.

```
@XY_DP2 2 0 3 0
```



PERSISTENT:

NO

NOTES:

CRChart supports a maximum of 20 user-defined lines. User-defined lines are drawn with: @CX, @CXY, @CY, @CY2, @X, @XG, @XSZ, @XSZL, @XSZN, @XSZNL, @XY, @XY_DP2, @Y, @YSZ, @YSZL, @YSZN, @YSZN2, and @YSZNL.

@Y (Y1-Axis Line)

This macro adds a user-defined line on the Y1-axis at value *fY1Value*. The line is drawn horizontally or vertically depending on the chart orientation.

SYNTAX:

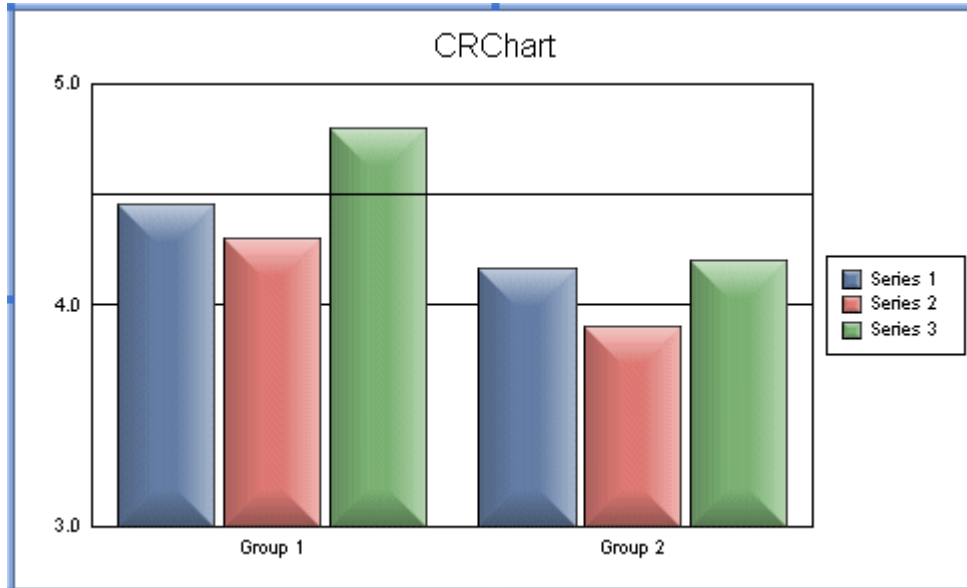
```
@Y fY1Value
```

PARAMETERS:

fY1Value; Value at which to add the user-defined line on the Y1-axis

EXAMPLE:

```
@Y 4.5
```



PERSISTENT:

NO

NOTES:

CRChart supports a maximum of 20 user-defined lines. User-defined lines are drawn with: @CX, @CXY, @CY, @CY2, @X, @XG, @XSZ, @XSZL, @XSZN, @XSZNL, @XY, @XY_DP2, @Y, @YSZ, @YSZL, @YSZN, @YSZN2, and @YSZNL.

@YSZ (Y1-Axis Line with Label)

This macro adds a user-defined line on the Y1-axis at value *fValue* with the label *sZLabel*. For vertical orientation, the line is drawn horizontally with the label on the right side of the chart. For horizontal orientation, the line is drawn vertically with the label on the bottom side of the chart.

SYNTAX:

```
@YSZ fValue nXAdjust nYAdjust sZLabel
```

PARAMETERS:

fValue; Value at which to add the user-defined line on the Y1-axis

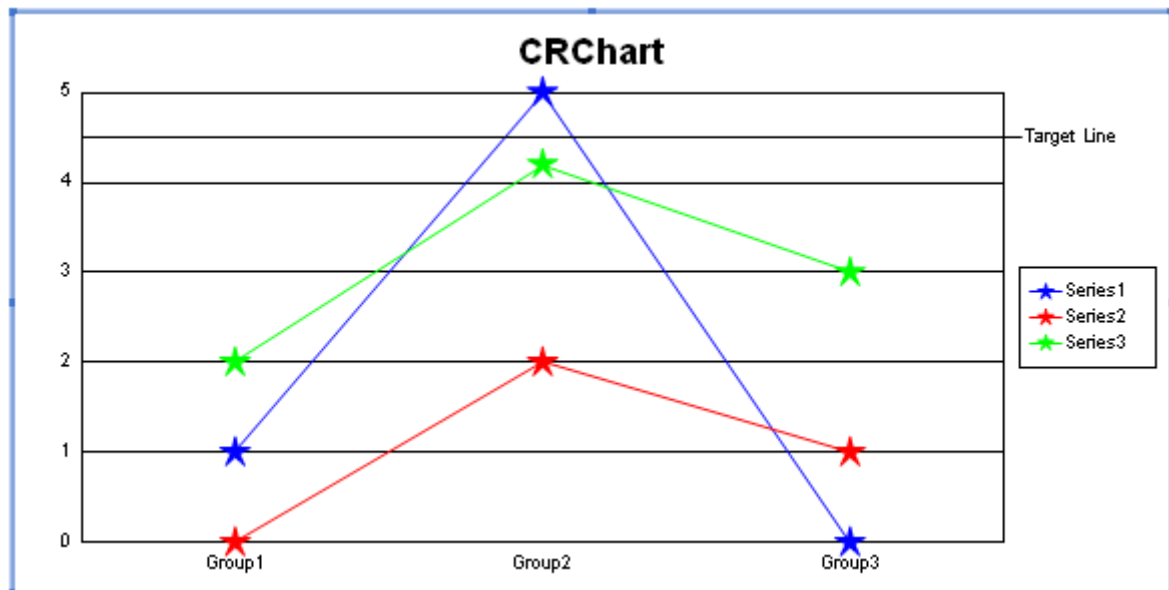
nXAdjust; -16000...16000 adjusts the label closer to or further away from the line.

nYAdjust; -16000...16000 adjusts the label closer to or further away from the line.

sZLabel; Label string to show next to the line at *fValue*. Add a tilde (~) character to the end of the string if you intend to define other macros in the same title field.

EXAMPLE:

```
@YSZ 4.5 0 0 Target Line
```



PERSISTENT:

NO

REQUIREMENTS:

Crystal Reports 9 or higher

NOTES:

CRChart supports a maximum of 20 user-defined lines. User-defined lines are drawn with: @CX, @CXY, @CY, @CY2, @X, @XG, @XSZ, @XSZL, @XSZN, @XSZNL, @XY, @XY_DP2, @Y, @YSZ, @YSZL, @YSZN, @YSZN2, and @YSZNL.

ALSO SEE:

@YSZL, @YSZN, & @YSZNL

@YSZL (Y1-Axis Line with Label on Left)

This macro adds a user-defined line on the Y1-axis at value *fValue* with the label *sZLabel*. For vertical orientation, the line is drawn horizontally with the label on the left side of the chart. For horizontal orientation, the line is drawn vertically with the label and value on the top side of the chart.

SYNTAX:

```
@YSZL fValue nXAdjust nYAdjust sZLabel
```

PARAMETERS:

fValue; Value at which to add the user-defined line on the Y1-axis

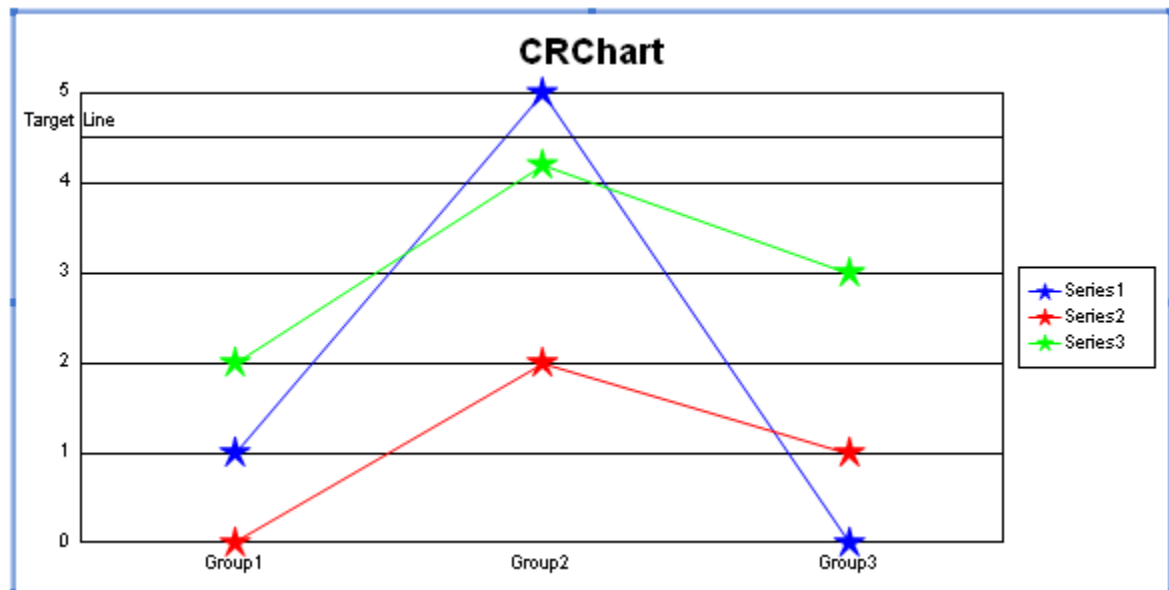
nXAdjust; -16000...16000 adjusts the label closer to or further away from the line.

nYAdjust; -16000...16000 adjusts the label closer to or further away from the line.

sZLabel; Label string to show next to the line at *fValue*. Add a tilde (~) character to the end of the string if you intend to define other macros in the same title field.

EXAMPLE:

```
@YSZL 4.5 1600 900 Target Line
```



PERSISTENT:

NO

REQUIREMENTS:

Crystal Reports 9 or higher

NOTES:

CRChart supports a maximum of 20 user-defined lines. User-defined lines are drawn with: @CX, @CXY, @CY, @CY2, @X, @XG, @XSZ, @XSZL, @XSZN, @XSZNL, @XY, @XY_DP2, @Y, @YSZ, @YSZL, @YSZN, @YSZN2, and @YSZNL.

ALSO SEE:

@YSZ, @YSZN & @YSZNL

@YSZN (Y1-Axis Line with Label & Value)

This macro adds a user-defined line on the Y1-axis at value *fValue* with the label *sZLabel*. The value of *fValue* is appended to *sZLabel*. For vertical orientation, the line is drawn horizontally with the label and value on the right side of the chart. For horizontal orientation, the line is drawn vertically with the label and value on the bottom side of the chart.

SYNTAX:

```
@YSZN fValue nXAdjust nYAdjust sZLabel
```

PARAMETERS:

fValue; Value at which to add the user-defined line on the Y1-axis

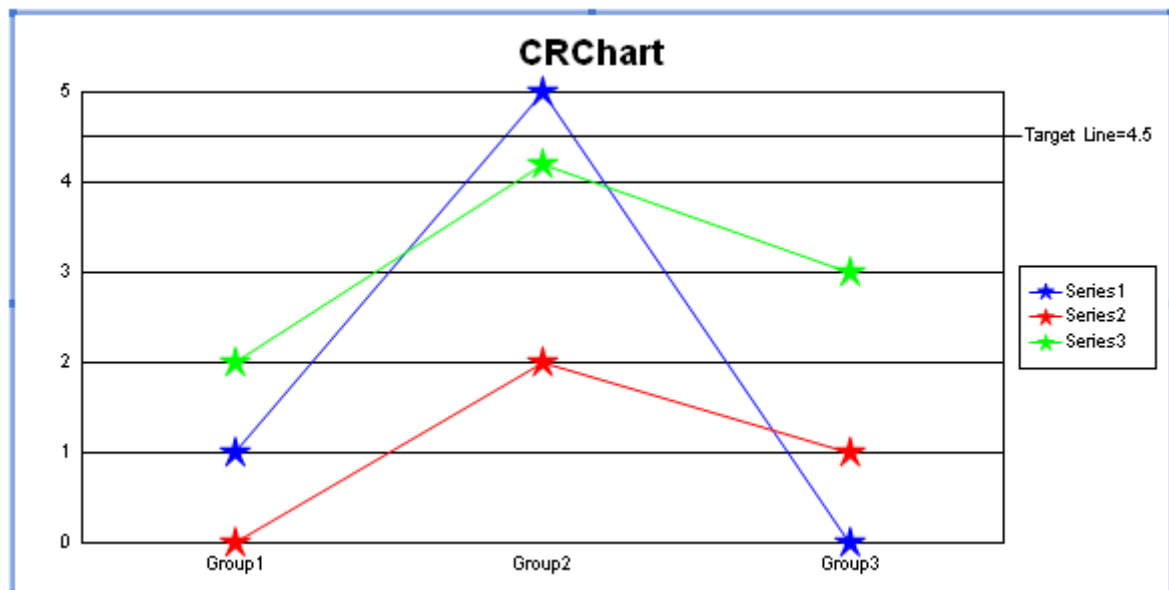
nXAdjust; -16000...16000 adjusts the label closer to or further away from the line.

nYAdjust; -16000...16000 adjusts the label closer to or further away from the line.

sZLabel; Label string to show next to the line at *fValue*. Add a space to the end of the label if you want a space to appear between the label and *fValue*. Add a tilde (~) character to the end of the string if you intend to define other macros in the same title field.

EXAMPLE:

```
@YSZN 4.5 0 0 Target Line=
```



PERSISTENT:

NO

REQUIREMENTS:

Crystal Reports 9 or higher

NOTES:

CRChart supports a maximum of 20 user-defined lines. User-defined lines are drawn with: @CX, @CXY, @CY, @CY2, @X, @XG, @XSZ, @XSZL, @XSZN, @XSZNL, @XY, @XY_DP2, @Y, @YSZ, @YSZL, @YSZN, @YSZN2, and @YSZNL.

ALSO SEE:

@YSZ, @YSZL, & @YSZNL

@YSZN2 (@YSZN with Label & Value Above Line)

This macro adds a user-defined line on the Y1-axis at value *fValue* with the label *sZLabel*. The value of *fValue* is appended to *sZLabel*.

SYNTAX:

```
@YSZN2 fValue nXAdjust nYAdjust sZLabel
```

PARAMETERS:

fValue; Value at which to add the user-defined line on the Y1-axis

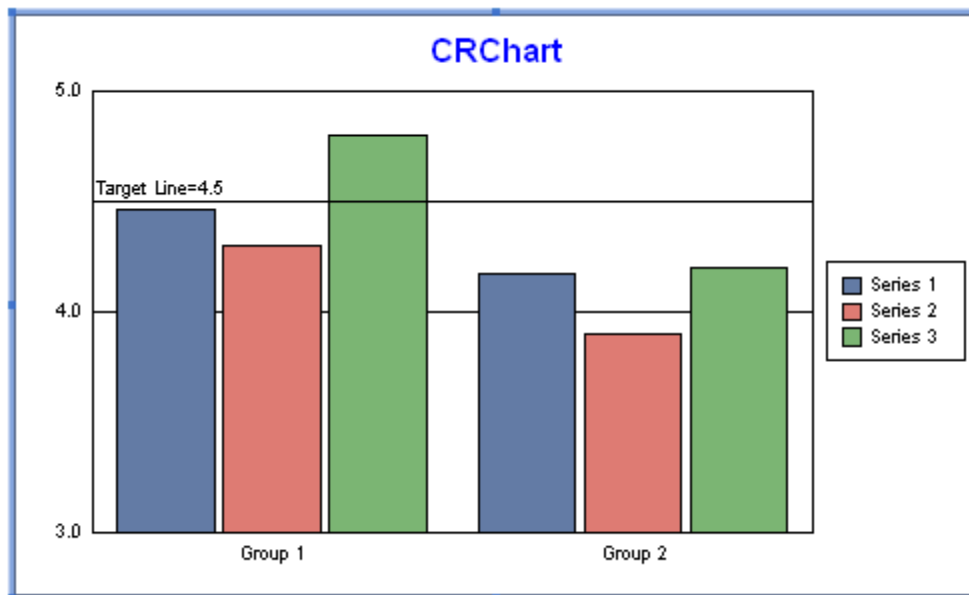
nXAdjust; -16000...16000 adjusts the label closer to or further away from the line.

nYAdjust; -16000...16000 adjusts the label closer to or further away from the line.

sZLabel; Label string to show next to the line at *fValue*. Add a space to the end of the label if you want a space to appear between the label and *fValue*. Add a tilde (~) character to the end of the string if you intend to define other macros in the same title field.

EXAMPLE:

```
@YSZN2 4.5 0 0 Target Line=
```

**PERSISTENT:**

NO

REQUIREMENTS:

Crystal Reports 11 or higher

NOTES:

CRChart supports a maximum of 20 user-defined lines. User-defined lines are drawn with: @CX, @CXY, @CY, @CY2, @X, @XG, @XSZ, @XSZL, @XSZN, @XSZNL, @XY, @XY_DP2, @Y, @YSZ, @YSZL, @YSZN, @YSZN2, and @YSZNL.

ALSO SEE:

@YSZ, @YSZL, @YSZN, @YSZNL

@YSZNL (Y1-Axis Line with Label & Value on Left)

This macro adds a user-defined line on the Y1-axis at value *fValue* with the label *sZLabel*. The value of *fValue* is appended to *sZLabel*. For vertical orientation, the line is drawn horizontally with the label and value on the left side of the chart. For horizontal orientation, the line is drawn vertically with the label and value on the top side of the chart.

SYNTAX:

```
@YSZNL fValue nXAdjust nYAdjust sZLabel
```

PARAMETERS:

fValue; Value at which to add the user-defined line on the Y1-axis

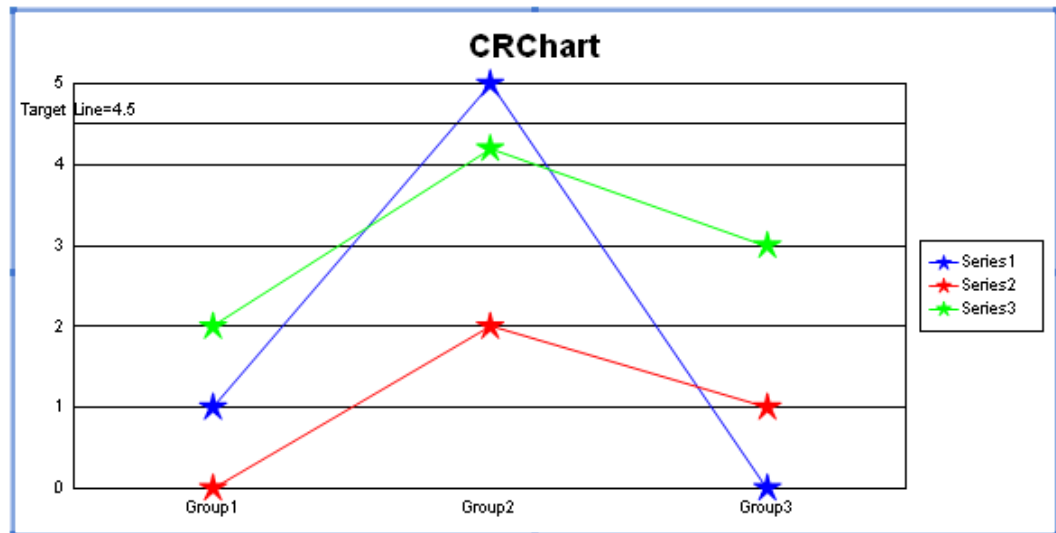
nXAdjust; -16000...16000 adjusts the label closer to or further away from the line.

nYAdjust; -16000...16000 adjusts the label closer to or further away from the line.

sZLabel; Label string to show next to line. Add a space to the end of your label if you want a space to appear between the label and *fValue*. Add a tilde (~) character to the end of the string if you intend to define other macros in the same title field.

EXAMPLE:

```
@YSZNL 4.5 2600 900 Target Line=
```



PERSISTENT:

NO

REQUIREMENTS:

Crystal Reports 9 or higher

NOTES:

CRChart supports a maximum of 20 user-defined lines. User-defined lines are drawn with: @CX, @CX1, @CX2, @CX3, @CX4, @CX5, @CX6, @CX7, @CX8, @CX9, @CX10, @CX11, @CX12, @CX13, @CX14, @CX15, @CX16, @CX17, @CX18, @CX19, @CX20, @CY, @CY1, @CY2, @CY3, @CY4, @CY5, @CY6, @CY7, @CY8, @CY9, @CY10, @CY11, @CY12, @CY13, @CY14, @CY15, @CY16, @CY17, @CY18, @CY19, @CY20, @X, @XG, @XSZ, @XSZL, @XSZNL, @XY, @XY_DP2, @Y, @YSZ, @YSZL, @YSZN, @YSZN2, and @YSZNL.

ALSO SEE:

@YSZ, @YSZL, & @YSZN

Section 11: Chart Type Macros

These macros change the chart type:

- @3DSCAT; Change the chart type to a 3D Scatter Chart
- @AUDIO; Change the chart type to an Audiogram
- @COMBO; Change the chart type to a Combo Chart
- @COMPARE2; Change the chart type to a 2-Series Absolute Bar Chart
- @CONNECT2; Special draw mode for scatter/bubble charts
- @GRAPHTYPE; Select a Graph Type
- @MEKKO; Marimekko Chart
- @PARETO; Change the chart type to a Pareto Chart
- @POLAR; Change the chart type to a Polar Chart
- @POLAR_SPIKE; Draw a line from data point to center of Polar Chart plot area
- @PVA; Plan vs. Actual Chart
- @RIVER; Draw two series as a floating area (i.e., river)

In all cases, the data being supplied to the chart should be compatible with the selected chart type.

ALSO SEE:

Section 12: Box Plot Macros

Section 13: Gantt Chart Macros

Section 14: Gauge Macros

Section 15: Pie Chart Macros

Section 16: Waterfall Chart Macros

@3DSCAT (3D Scatter Chart)

This macro changes the chart type to a 3D Scatter chart.

SYNTAX:

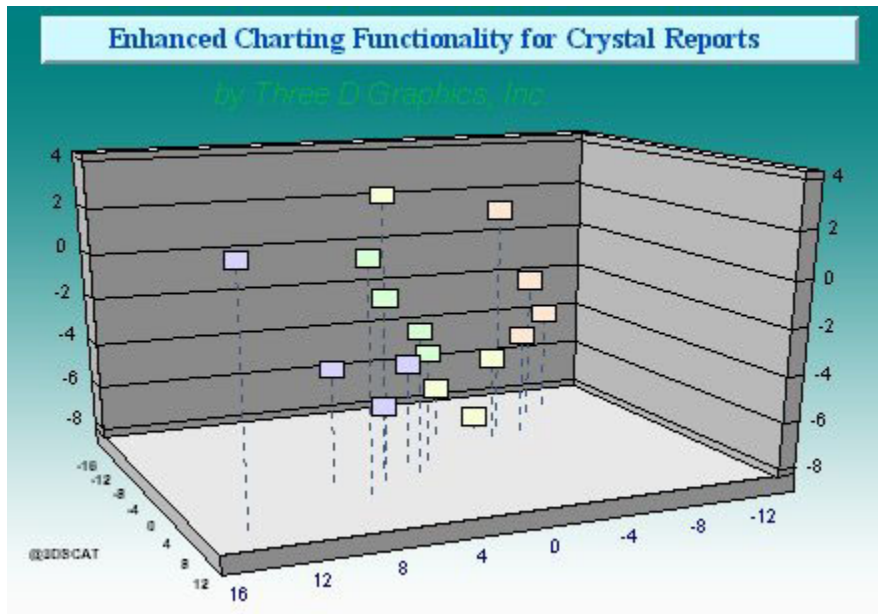
@3DSCAT

PARAMETERS:

None

EXAMPLE:

@3DSCAT



PERSISTENT:

YES

@AUDIO (Audiogram)

This macro creates an audiogram chart.

SYNTAX:

@AUDIO

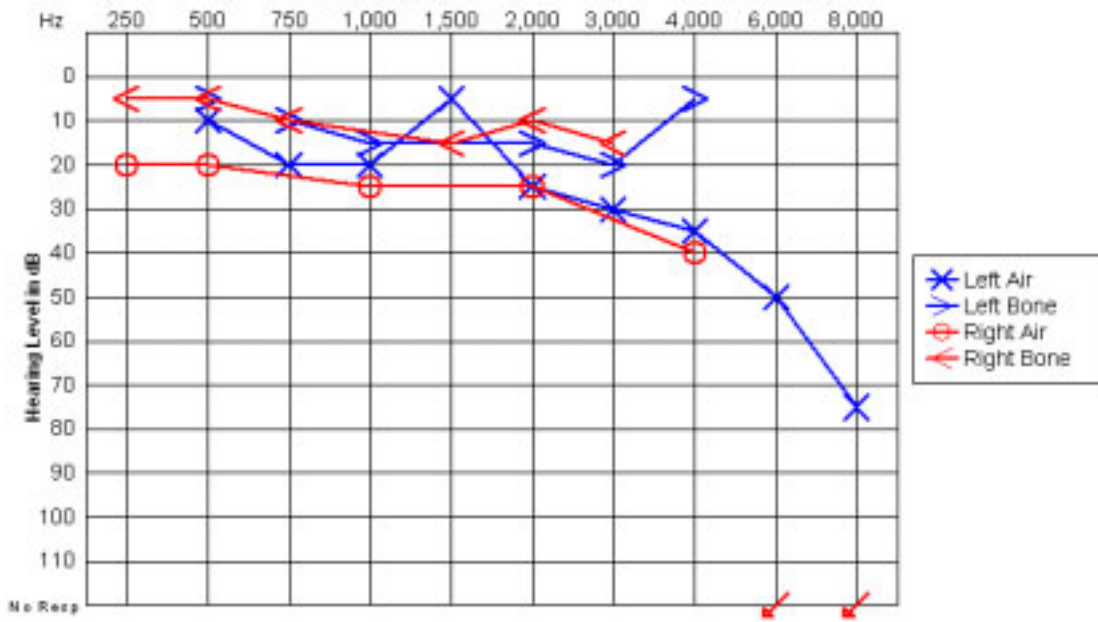
PARAMETERS:

None

EXAMPLE:

@AUDIO

Pure Tone Audiogram **Patient:** PatientTest2 **Encounter date:** January 25, 2005 Headphones used.



Pure Tone Average dB	Speech Audiometry					
Air right	SRT Rt	MCL Rt	SD@MCL Rt	UCL Rt	SD Other Rt	@ dB
Air left	SRT Lt	MCL Lt	SD@MCL Lt	UCL Lt	SD Other Lt	@ dB
Bone right	Remarks					
Bone left						
	Reliability					
	Audiologist:					

PERSISTENT:

YES

REQUIREMENTS:

Crystal Reports 9 or higher

@COMBO (Combo Bar/Line/Area Chart)

This macro creates a combination bar/line/area chart.

SYNTAX:

```
@COMBO nSeries nStyle
```

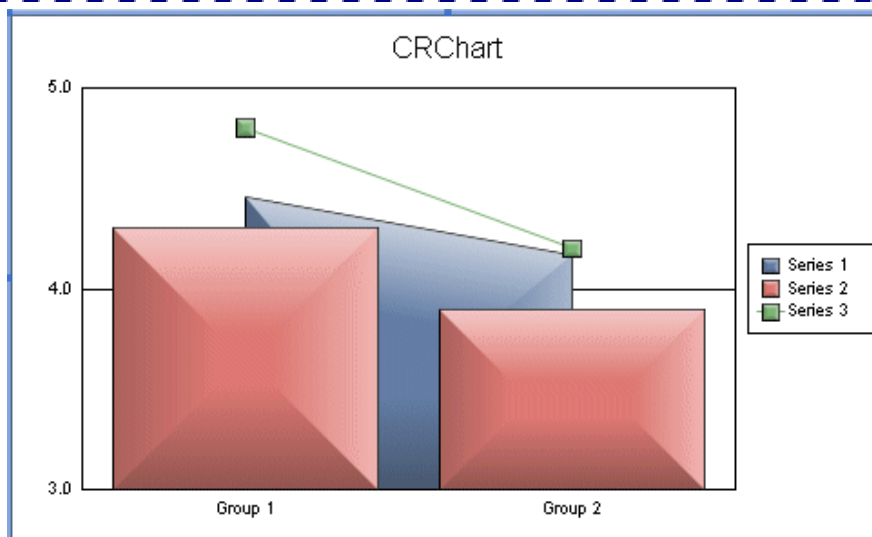
PARAMETERS:

nSeries; -1...*n* (where: *n* = the total number of series in the chart). -1 = apply to all series, 0 = Series 1, 1 = Series 2, etc.

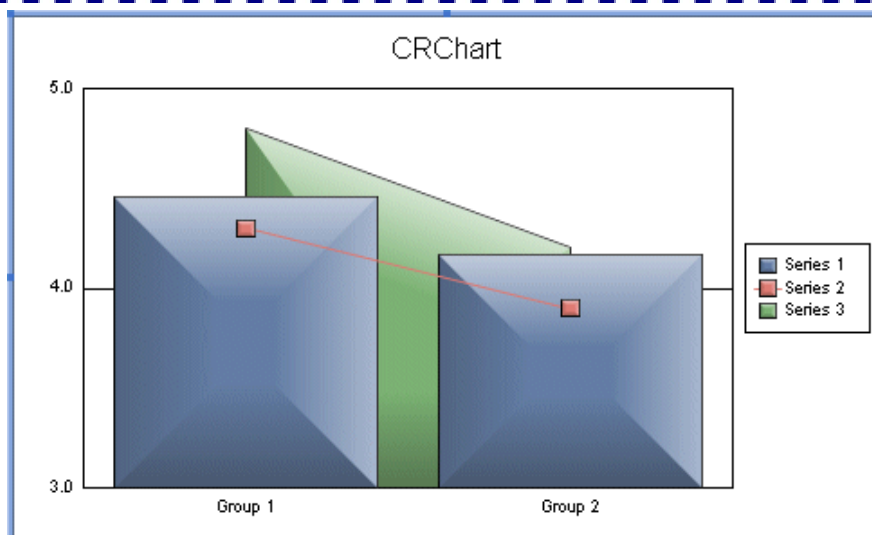
nStyle; 0...2 (0= Bar, 1=Line, 2=Area)

EXAMPLE:

```
@COMBO 0 2 @COMBO 1 0 @COMBO 2 1
```



```
@COMBO 0 0 @COMBO 1 1 @COMBO 2 2
```



PERSISTENT:

YES

@COMPARE2 (2-Series Absolute Bar Chart)

This macro creates a 2-series absolute bar chart where the first series is about twice as wide as the second series. The second series will be about one-half the width of the normal width of series one.

SYNTAX:

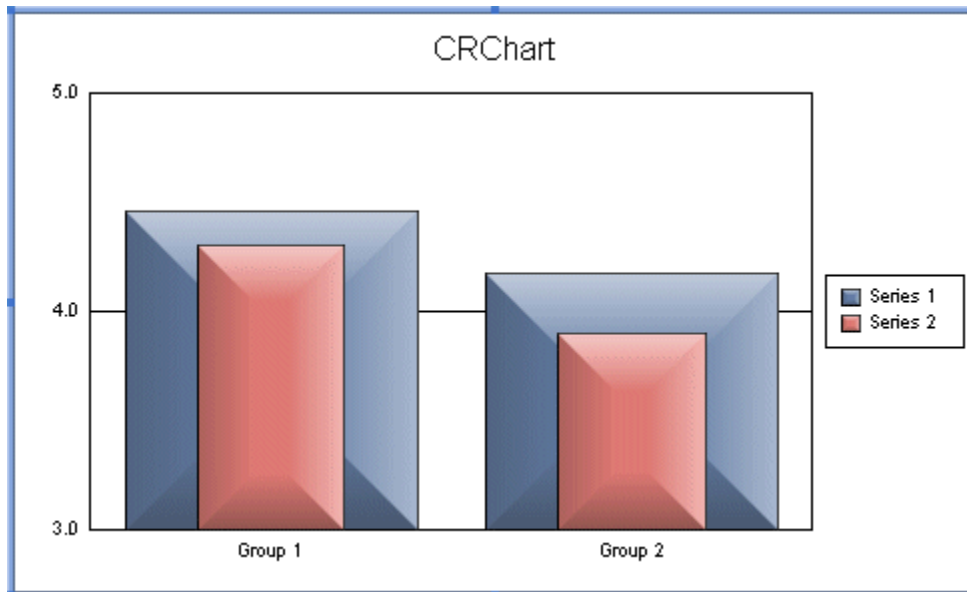
```
@COMPARE2 bCompare
```

PARAMETERS:

bCompare; 0/1

EXAMPLE:

```
@COMPARE2 1
```

**PERSISTENT:**

YES

REQUIREMENTS:

Crystal Reports 10 or higher

@CONNECT2 (Special Draw Mode for Scatter/Bubble Charts)

This macro enables/disables a special draw mode for scatter/bubble charts with exactly 2 groups per series. Marker shapes are set to filled circles and the data line type is set to markers and lines.

SYNTAX:

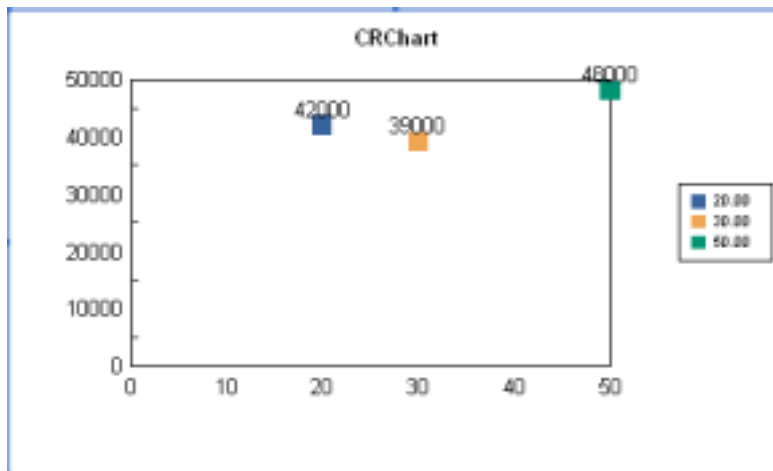
```
@CONNECT2 bConnect2
```

PARAMETERS:

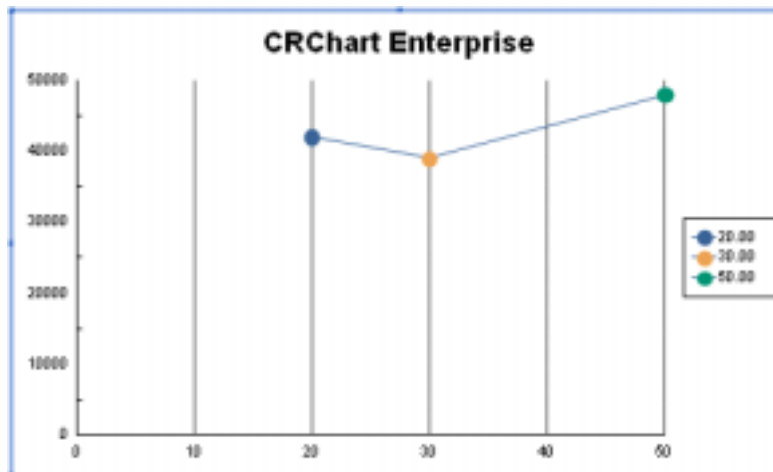
bConnect2; 1=Enable special draw mode, 0=Disable special draw mode

EXAMPLE:

```
@CONNECT2 0
```



```
@CONNECT2 1
```



PERSISTENT:

YES

REQUIREMENTS:

- Crystal Reports 11 or higher
- **CRCHART Enterprise**

@GRAPHTYPE (Graph Type)

This macro selects a different graph type and assigns it to the chart that is shown in the report.

SYNTAX:

```
@GRAPHTYPE nGraph
```

PARAMETERS:

nGraph; 0...90 selects one of the following graph types:

nGraph	Chart
0	Vertical Area Absolute
1	Vertical Area Stacked
2	Vertical Area Bi-Polar Absolute
3	Vertical Area Bi-Polar Stacked
4	Vertical Area Dual-Y Absolute
5	Vertical Area Dual-Y Stacked
6	Vertical Area Percent
7	Horizontal Area Absolute
8	Horizontal Area Stacked
9	Horizontal Area Bi-Polar Absolute
10	Horizontal Area Bi-Polar Stacked
11	Horizontal Area Dual-Y Absolute
12	Horizontal Area Dual-Y Stacked
13	Horizontal Area Percent
14	Vertical Bar Side-by-Side
15	Vertical Bar Stacked
16	Vertical Bar Dual-Y Side-by-Side
17	Vertical Bar Dual-Y Stacked
18	Vertical Bar Bi-Polar Side-by-Side
19	Vertical Bar Bi-Polar Stacked
20	Vertical Bar Percent
21	Horizontal Bar Side-by-Side
22	Horizontal Bar Stacked
23	Horizontal Bar Dual-Y Side-by-Side
24	Horizontal Bar Dual-Y Stacked
25	Horizontal Bar Bi-Polar Side-by-Side
26	Horizontal Bar Bi-Polar Stacked
27	Horizontal Bar Percent
28	Vertical Line Absolute
29	Vertical Line Stacked
30	Vertical Line Bi-Polar Absolute
31	Vertical Line Bi-Polar Stacked
32	Vertical Line Dual-Y Absolute
33	Vertical Line Dual-Y Stacked

Chart Enhancement Macros for Crystal Reports

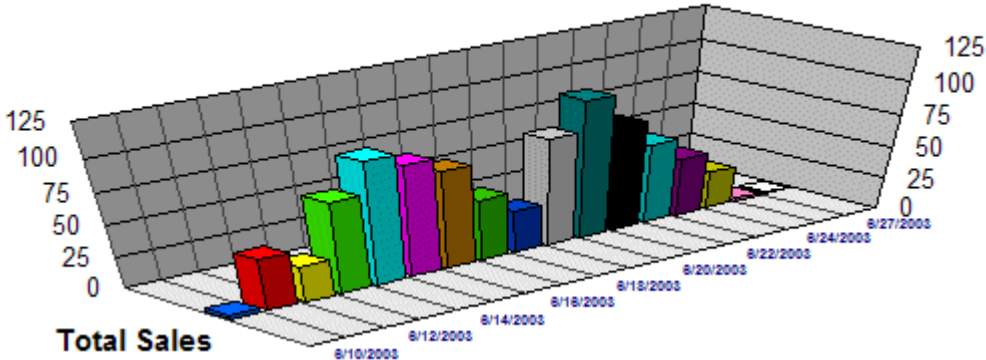
nGraph	Chart
34	Vertical Line Percent
35	Horizontal Line Absolute
36	Horizontal Line Stacked
37	Horizontal Line Bi-Polar Absolute
38	Horizontal Line Bi-Polar Stacked
39	Horizontal Line Dual-Y Absolute
40	Horizontal Line Dual-Y Stacked
41	Horizontal Line Percent
42	Pie
43	Ring Pie
44	Multiple Pie
45	Multiple Ring Pies
46	Multiple Proportional Pies
47	Multiple Proportional Ring Pies
48	Pie Bar
49	Ring Pie Bar
50	X/Y Scatter
51	X/Y Scatter Dual-Y
52	X/Y Scatter with Labels
53	X/Y Scatter Dual-Y with Labels
54	Polar
55	Polar Dual-Y
56	Radar
57	Radar Stacked
58	Radar Dual-Y
59	Radar Stacked Dual-Y
60	Bubble
61	Bubble Dual-Y
62	Gantt
63	High-Low Stock Chart
64	High-Low Dual-Y Stock Chart
65	High-Low-Open Stock Chart
66	High-Low-Open Dual-Y Stock Chart
67	High-Low-Open-Close Stock Chart
68	High-Low-Open-Close Dual-Y Stock Chart
69	Spectral Map
70	Vertical Histogram
71	Horizontal Histogram
72	Table
73	3D Riser – Bars
74	3D Riser – Pyramids

nGraph	Chart
75	3D Riser – Octagons
76	3D Riser – Cut-Corner Bars
77	3D Floating – Cubes
78	3D Floating – Spheres
79	3D Connect Group – Areas
80	3D Connect Group – Ribbons
81	3D Connect Group – Steps
82	3D Connect Series – Areas
83	3D Connect Series – Ribbons
84	3D Connect Series – Steps
85	3D Surface
86	3D Surface with Sides
87	3D Honeycomb Surface
88	3D X/Y/Z Scatter Chart
89	3D X/Y/Z Scatter Chart with Labels
90	Box Plot

EXAMPLE:

```
@GRAPHTYPE 73
```

CRChart by Three D Graphics



PERSISTENT:

YES

@MEKKO (Marimekko Chart)

This macro creates a Marimekko chart. Marimekko charts are two dimensional graphs that analyze multiple data series against two variables, the X and Y axes. Its function is to display a system of interrelated values so that both groups and relative sizes of the elements can be seen at the same time. In a Marimekko chart, the width of the columns is proportional to data represented by the columns. Individual segment height is a percentage of the respective bar total value.

SYNTAX:

```
@MEKKO
```

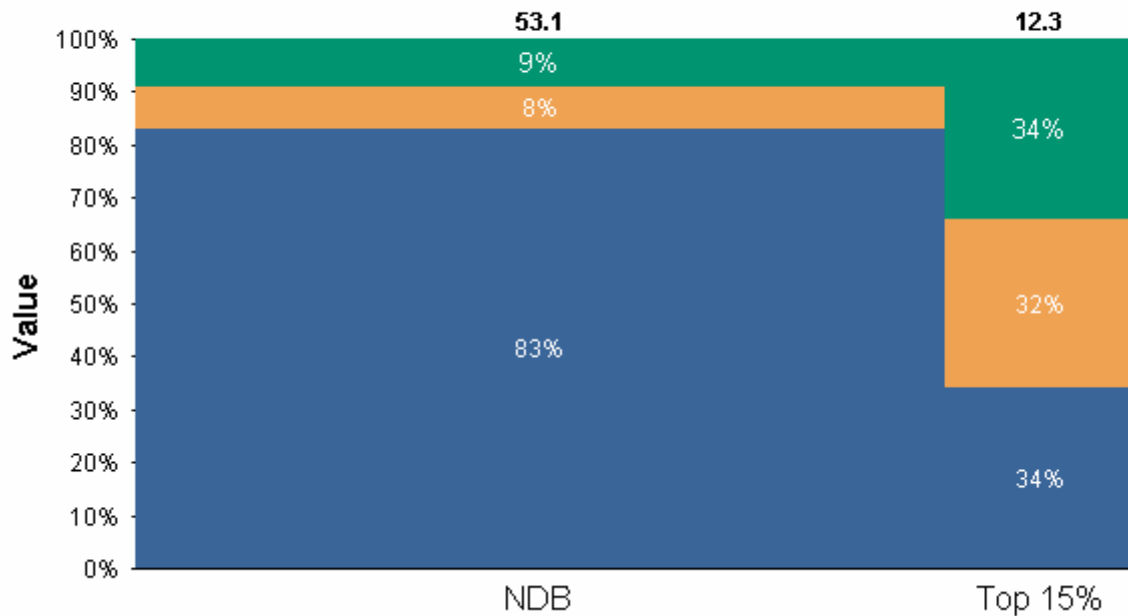
PARAMETERS:

None.

EXAMPLE:

```
@MEKKO
```

Marimekko Example in CRChart / Enterprise



PERSISTENT:

YES

REQUIREMENTS:

- Crystal Reports 11 or higher
- **CRCHART Enterprise**

@PARETO (Pareto Chart)

This macro creates a Pareto chart. If *bType* is zero, a simple Pareto chart is created. If *bType* is one, a Classic Pareto chart with a cumulative percentage line is created.

SYNTAX:

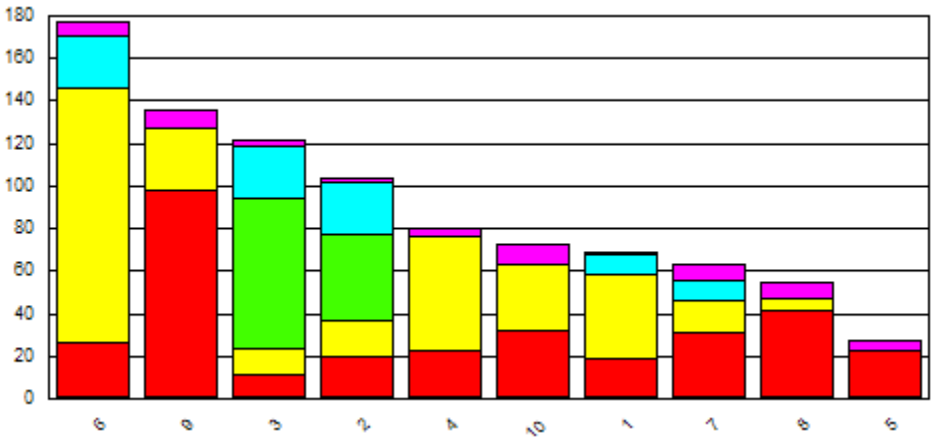
```
@PARETO bType
```

PARAMETERS:

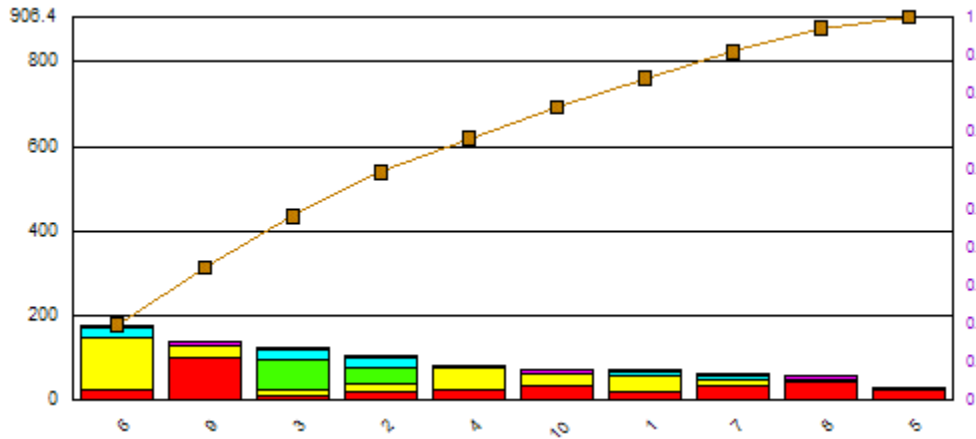
bType; 0 = create a simple Pareto chart. 1 = create a Classic Pareto chart with a cumulative percentage line.

EXAMPLE:

```
@PARETO 0
```



```
@PARETO 1
```



PERSISTENT:

YES

@POLAR (Polar Chart)

This macro changes the chart type to a Polar (circular scatter) chart.

SYNTAX:

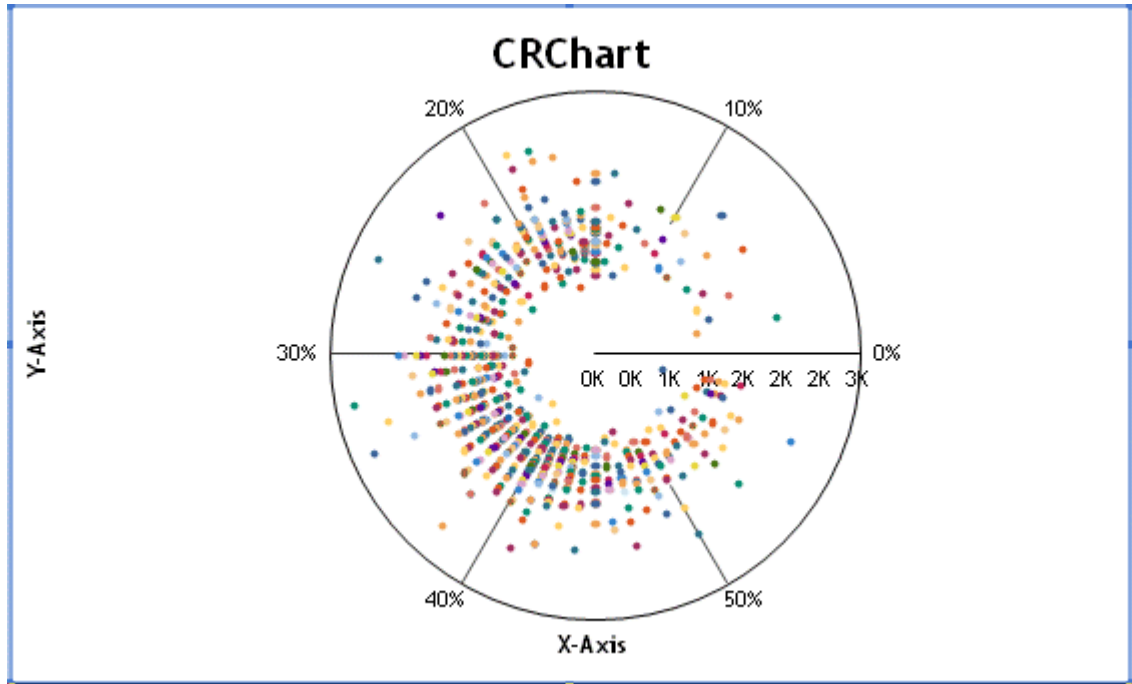
```
@POLAR
```

PARAMETERS:

None

EXAMPLE:

```
@POLAR
```



PERSISTENT:

YES

@POLAR_SPIKE (Polar Spike Chart)

This macro draws a line from data points to the center of a Polar Chart plot area.

SYNTAX:

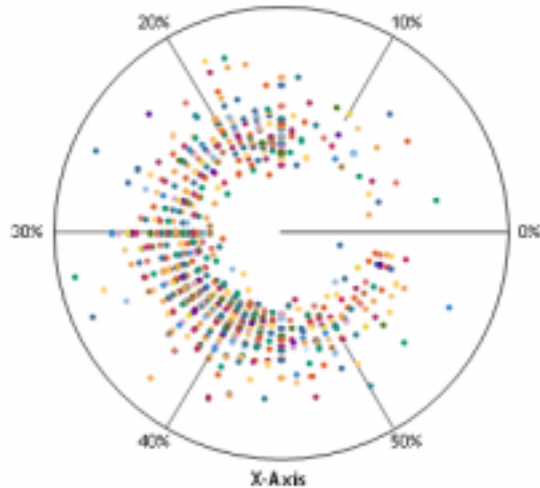
```
@POLAR_SPIKE bSpike
```

PARAMETERS:

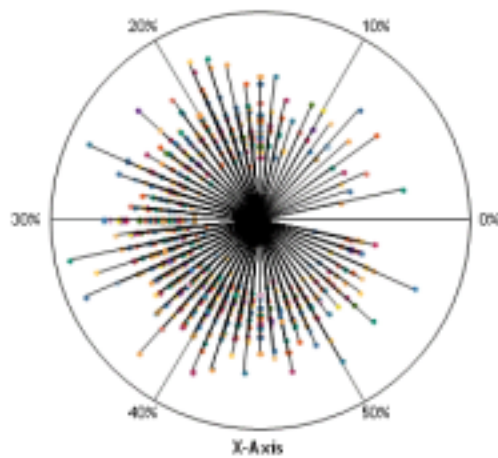
bSpike; 0/1. 0 = Disable lines, 1 = Enables lines.

EXAMPLE:

```
@POLAR_SPIKE 0
```



```
@POLAR_SPIKE 1
```



PERSISTENT:

NO

REQUIREMENTS:

- Crystal Reports 11 or higher
- **CRCHART Enterprise**

@PVA (Plan vs. Actual Chart)

In a stacked bar chart with more than two series, this macro creates a special Plan vs. Actual mode chart. The series 2 risers draw half the width of series 1 risers. If the series 2 value is below the series 1 value, the riser is colored red and is drawn down from the plan value.

SYNTAX:

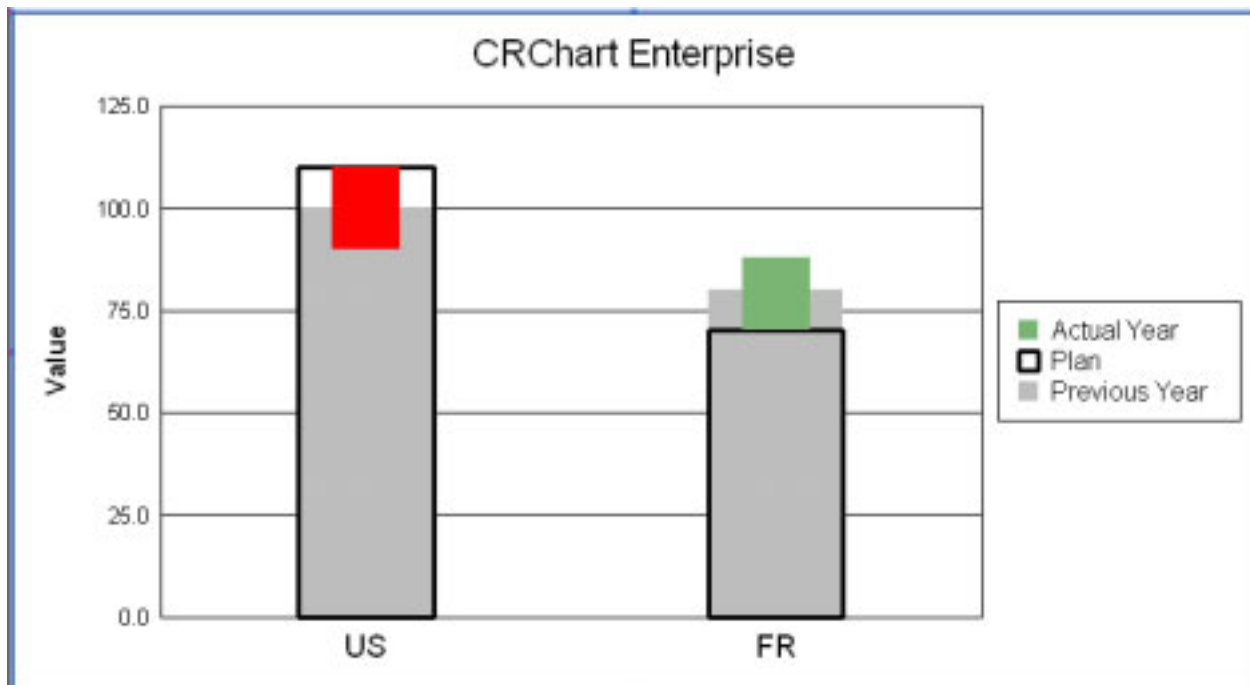
```
@PVA bPlanActual
```

PARAMETERS:

bPlanActual; 0 = Disable / 1 = Enable Plan vs. Actual Mode

EXAMPLE:

```
@DP 0 0 100 @DP 0 1 80 @DP 1 0 110 @DP 1 1 70 @DP 2 0 90 @DP 2 1 88
@FORCE_ABSOLUTE 0 1
@PVA 1
```



PERSISTENT:

NO

REQUIREMENTS:

- Crystal Reports 11 or higher
- **CRCHART Enterprise**

@RIVER (Floating Area Series)

In a three-series graph (normally line chart), this macro changes the first two series into a floating area (i.e., river) behind the third series. Set *bRiverMode*=1 to activate. Set the *bShowLegend* parameter to one to add the river area as an entry in the legend with its own *szRiverLabel* string.

SYNTAX:

```
@RIVER bRiverMode bShowLegend szRiverLabel
```

PARAMETERS:

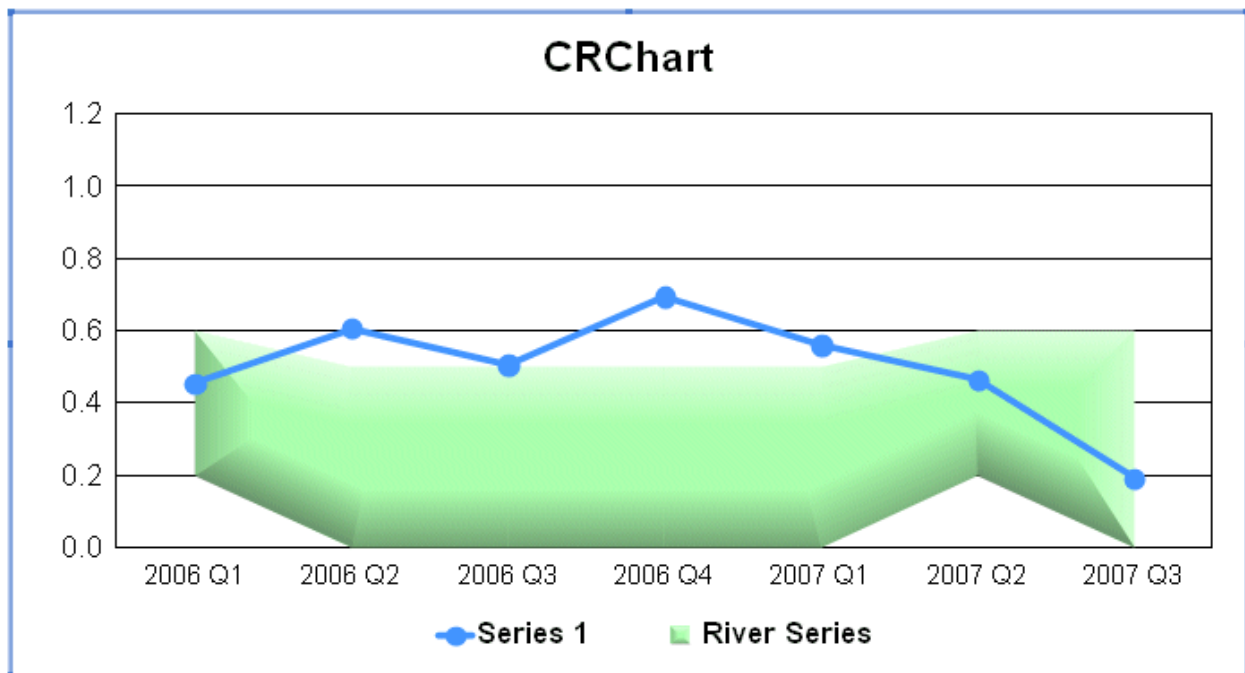
bRiverMode; 1=enable river mode, 0=disable river mode

bShowLegend; 1=add river area as an entry in the legend, 0=don't show river area in legend

szRiverLabel; label string to use in legend if *bShowLegend*=1

EXAMPLE:

```
@RIVER 1 1 River Series
```



PERSISTENT:

NO

REQUIREMENTS:

Crystal Reports 11 or higher



Section 12: Box Plot Macros

These macros create and modify box plot charts:

- @BP/BP1; Create a box plot chart with a square-style tail
- @BP2; Create a box plot chart with a T-style tail
- @BP3; Create a box plot chart with a I-style tail
- @BPH; Box Plot Orientation (Horizontal/Vertical)
- @BPW; Use the sixth data value to determine the width of Box Plots
- @IN; Move the First Box Plot In/Right by a specified number of virtual units
- @MC; Define Marker Colors in Box Plots
- @MK; Define the Number of Markers in Box Plots
- @MS; Define Marker Shapes in Box Plots

Also see the @SZ macro in Section 6 (Risers & Markers) to set the size of markers in box plots.

@BP/BP1 (Box Plot with Square Tail)

These macros change the chart type to a Box Plot with a square tail (standard). Each box in a Box Plot requires five values. Each set of five values form the "box" and define the location of the markers on top of each box.

SYNTAX:

@BP or @BP1

PARAMETERS:

None

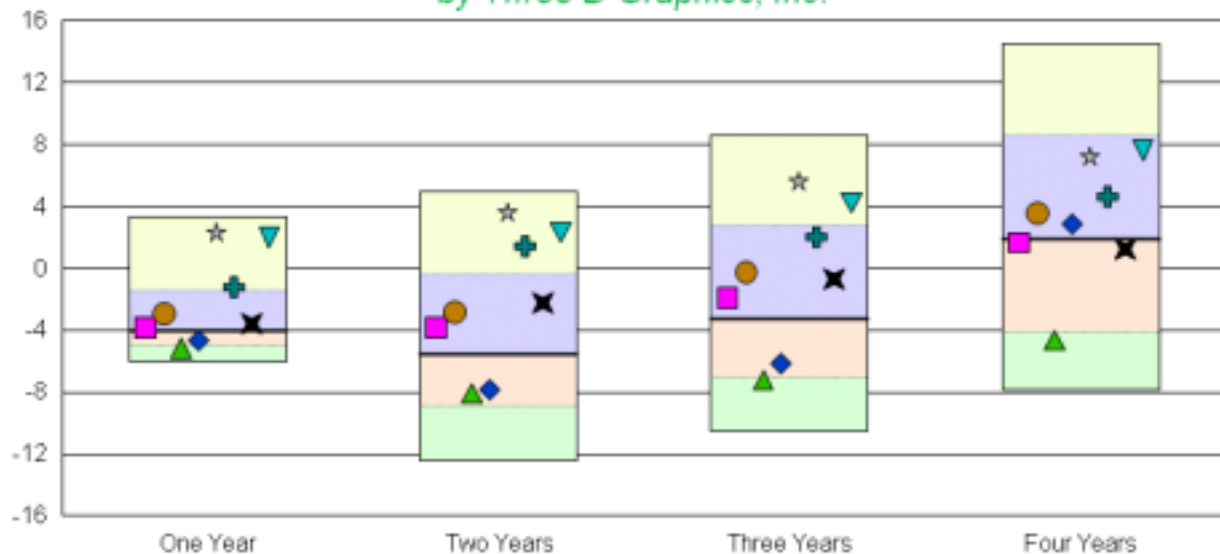
EXAMPLE:

This example creates a standard box plot (@BP).

@BP

Enhanced Charting Functionality for Crystal Reports

by Three D Graphics, Inc.



PERSISTENT:

NO

ALSO SEE:

@BP2, @BP3

NOTES:

The default marker shape for markers on box plots are:

- Series 1 Series 2
- Series 3 Series 4
- Series 5 Series 6
- Series 7 Series 8

These default marker shapes can be changed using the "@MS" macro.

@BP2 (Box Plot with T-Style Tail)

This macro changes the chart type to a Box Plot with a T-Style tail.

SYNTAX:

@BP2

PARAMETERS:

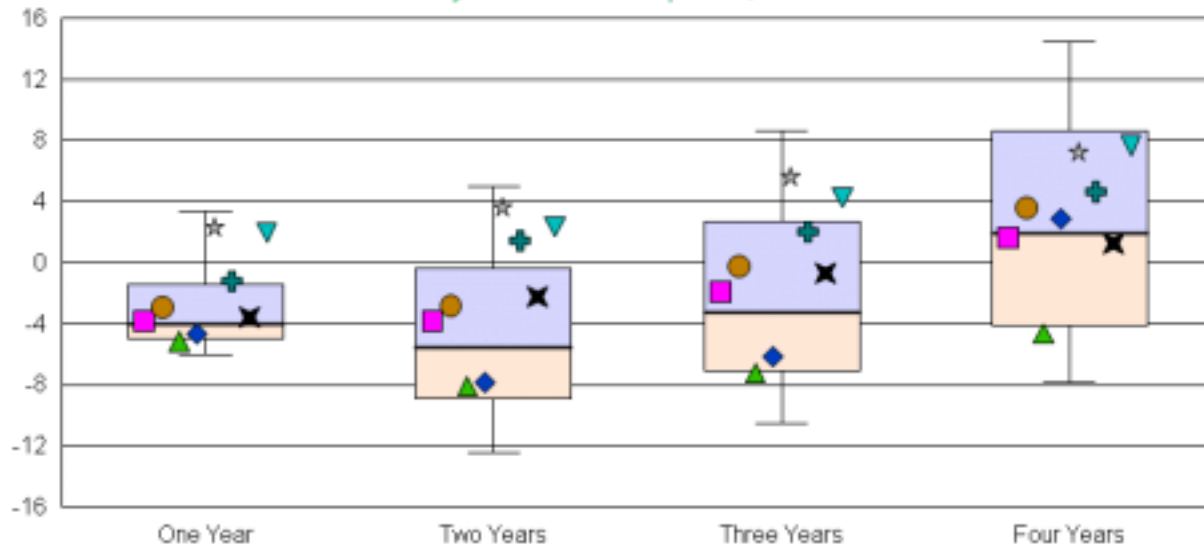
None

EXAMPLE:

@BP2

Enhanced Charting Functionality for Crystal Reports

by Three D Graphics, Inc.



PERSISTENT:

NO

ALSO SEE:

@BP, @BP1, @BP3

NOTES:

The default marker shape for markers on box plots are:

- | | | | |
|----------|---|----------|---|
| Series 1 | ■ | Series 2 | ● |
| Series 3 | ▲ | Series 4 | ◆ |
| Series 5 | ★ | Series 6 | + |
| Series 7 | ✖ | Series 8 | ▼ |

These default marker shapes can be changed using the "@MS" macro.

@BP3 (Box Plot with I-Style Tail)

This macro changes the chart type to a Box Plot with an I-Style tail.

SYNTAX:

@BP3

PARAMETERS:

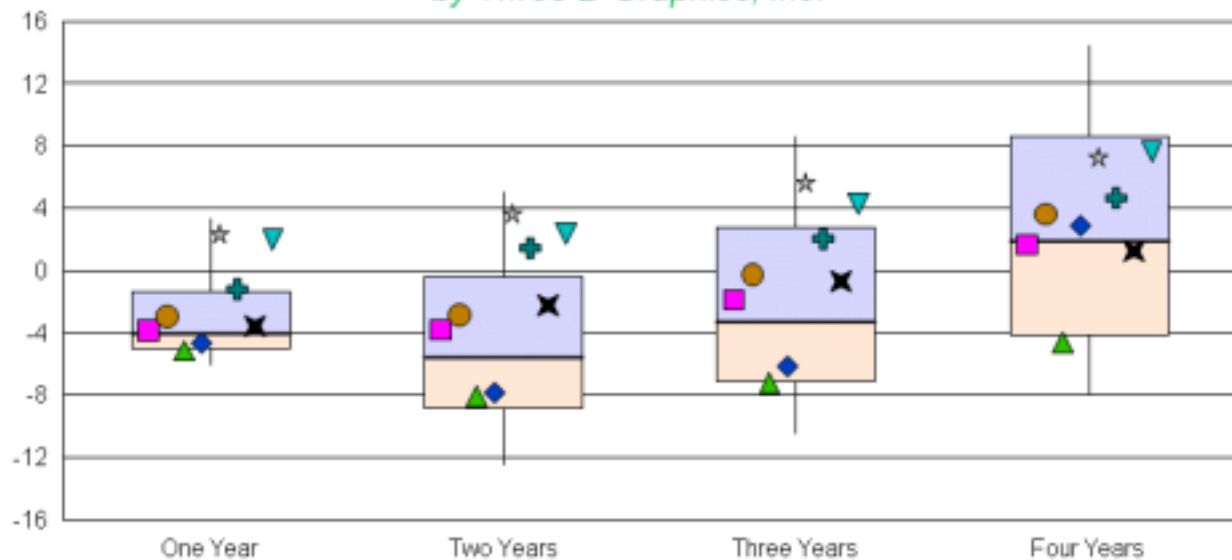
None

EXAMPLE:

@BP3

Enhanced Charting Functionality for Crystal Reports

by Three D Graphics, Inc.



PERSISTENT:

NO

ALSO SEE:

@BP, @BP1, @BP2

NOTES:

The default marker shape for markers on box plots are:

- | | | | |
|----------|---|----------|---|
| Series 1 | ■ | Series 2 | ● |
| Series 3 | ▲ | Series 4 | ◆ |
| Series 5 | ★ | Series 6 | + |
| Series 7 | ✕ | Series 8 | ▼ |

These default marker shapes can be changed using the "@MS" macro.

@BPH (Box Plot Orientation (Horizontal/Vertical))

This macro can be used to change the orientation of a Box Plot chart.

SYNTAX:

```
@BPH bOrient
```

PARAMETERS:

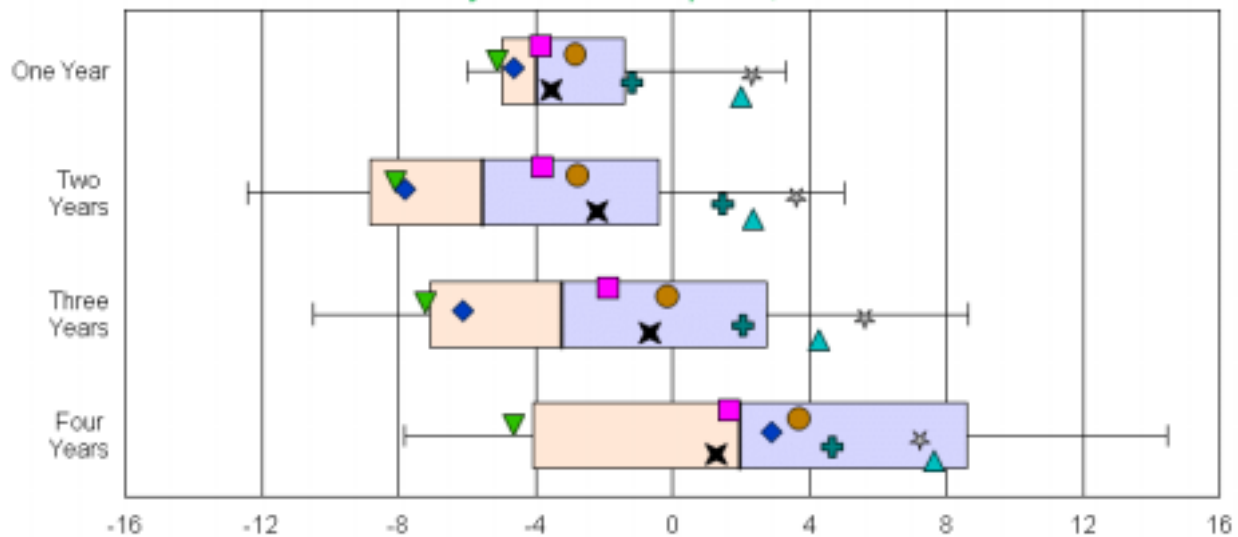
bOrient; 0 = Vertical Box Plot, 1 = Horizontal Box Plot

EXAMPLE:

```
@BP2 @SZ 24 @BPH 1
```

Enhanced Charting Functionality for Crystal Reports

by Three D Graphics, Inc.

**PERSISTENT:**

NO

REQUIREMENTS:

Crystal Reports 10 or higher

@BPW (Box Plot Width)

When this macro is used in a box plot chart, the width of each box plot riser is determined by a sixth data value. The largest value gets 100% (normal) width. The width of all other risers (box plots) is a percentage of the largest value. Note that this macro is the same as @BP except that it causes the special draw with width being determined by a 6th variable.

SYNTAX:

@BPW

PARAMETERS:

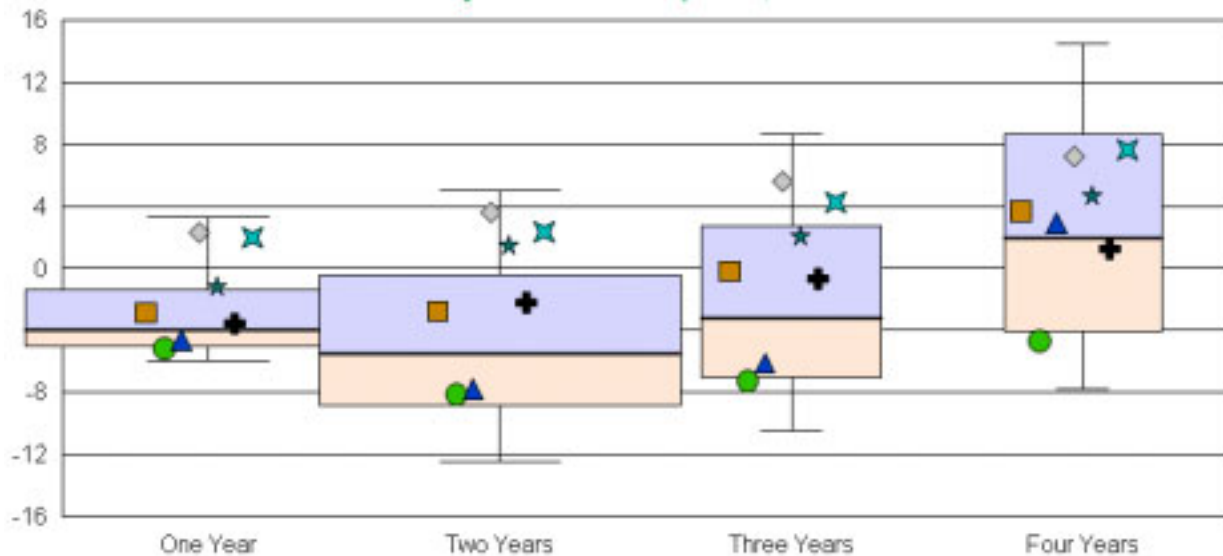
None

EXAMPLE:

@BPW

Enhanced Charting Functionality for Crystal Reports

by Three D Graphics, Inc.



PERSISTENT:

NO

REQUIREMENTS:

Crystal Reports 9 or higher

ALSO SEE:

@BP, @BP1, @BP2, @BP3

@IN (Move First Box Plot In)

In a Box Plot Chart, this macro will move the first box to the right by a specified number of virtual units.

SYNTAX:

```
@IN nUnits
```

PARAMETERS:

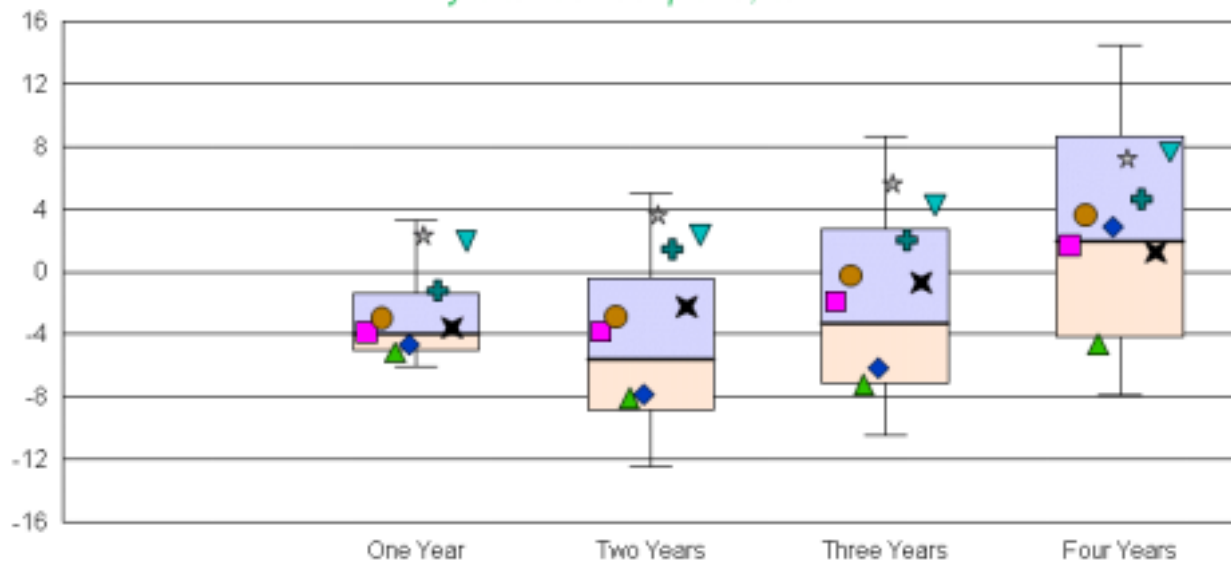
nUnits; Number of virtual units (0...16000) to move the first box to the right.

EXAMPLE:

```
@BP 2
@IN 5000
```

Enhanced Charting Functionality for Crystal Reports

by Three D Graphics, Inc.

**PERSISTENT:**

NO

ALSO SEE:

@BP, @BP1, @BP2, @BP3

@MC (Marker Colors for Box Plots)

For Box Plots only, this macro sets the color of a particular series in the chart.

SYNTAX:

```
@MC nSeries nRed nGreen nBlue
```

PARAMETERS:

nSeries; Series Number (1...8)

nRed; 0...255 defines the Red portion of RGB color selection.

nGreen; 0...255 defines the Green portion of RGB color selection.

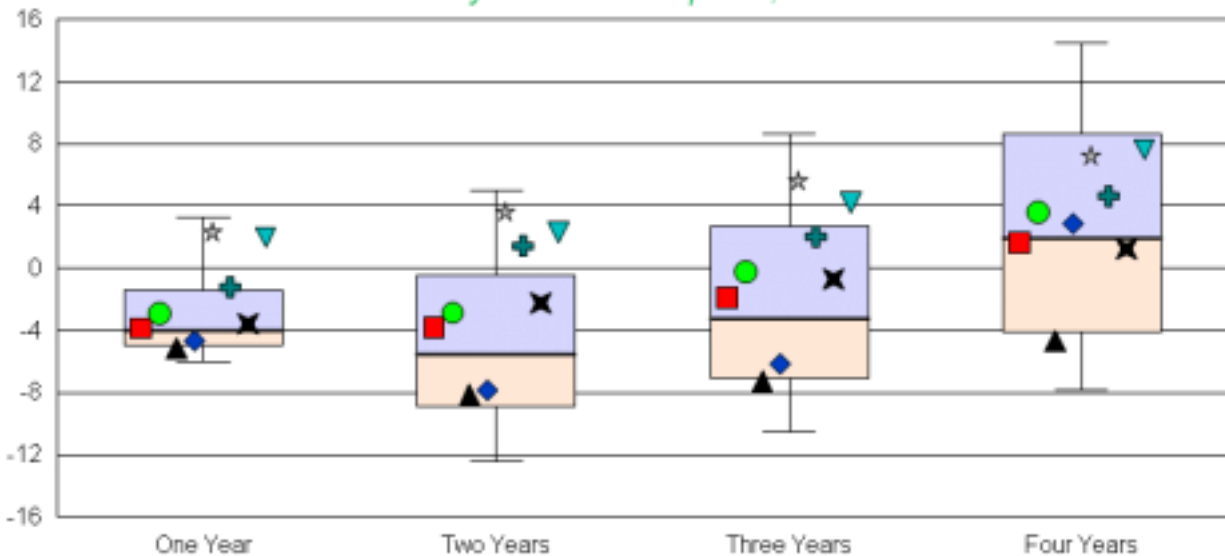
nBlue; 0...255 defines the Blue portion of RGB color selection.

EXAMPLE:

```
@BP 2 @MC 1 255 0 0 @MC 2 0 255 0
```

Enhanced Charting Functionality for Crystal Reports

by Three D Graphics, Inc.



PERSISTENT:

YES

ALSO SEE:

@GCOLOR to change the color of other chart objects.

NOTES:

This macro is for box plot charts only, Use the @MCOLOR macro to change the color of markers and risers in other chart types.

@MK (Number of Markers)

This macro sets the number of markers to be created on top of a Box Plot.

SYNTAX:

```
@MK nMarkers
```

PARAMETERS:

nMarkers; Number of markers (1...8)

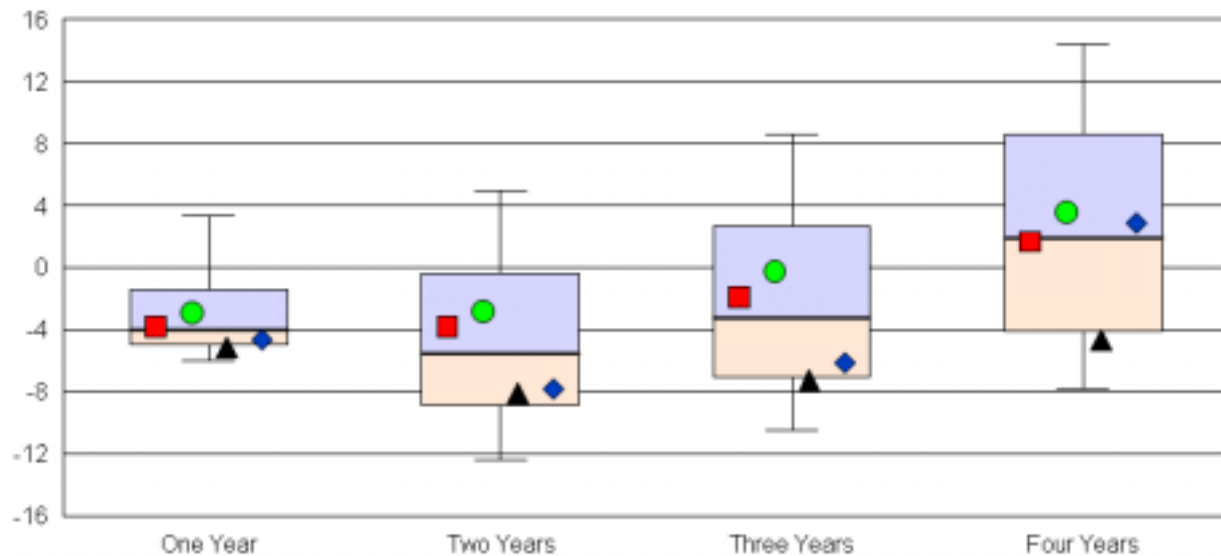
EXAMPLE:

This example will create a standard box plot (@BP) with 4 markers (@MK 4) on top of the boxes.

```
@BP2 @MK 4
```

Enhanced Charting Functionality for Crystal Reports

by Three D Graphics, Inc.



PERSISTENT:

NO

ALSO SEE:

@BP, @BP1, @BP2, @BP3, @MS

NOTES:

The default marker shape for markers on box plots are:

Series 1	■	Series 2	●
Series 3	▲	Series 4	◆
Series 5	★	Series 6	+
Series 7	✖	Series 8	▼

These default marker shapes can be changed using the "@MS" macro.

@MS (Marker Shapes for Box Plots)

For Box Plots only, this macro sets the shape of markers for a particular series in a chart.









SYNTAX:

```
@MS nSeries nMarker
```

PARAMETERS:

nSeries; Series Number (1...8).

nMarker; 1...8 selects the marker to assign to series *nSeries*:

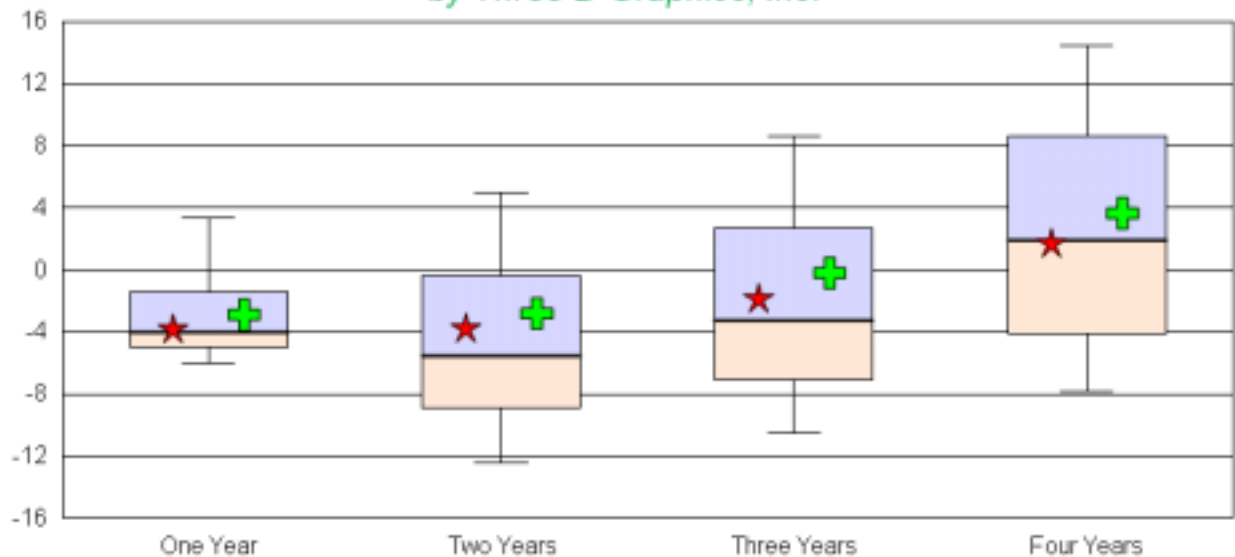
1=  2=  3=  4= 
 5=  6=  7=  8= 

EXAMPLE:

```
@BP2
@MK 2
@SZ 36
@MS 1 5
@MS 2 6
```

Enhanced Charting Functionality for Crystal Reports

by Three D Graphics, Inc.



PERSISTENT:

NO

NOTES:

This macro is for box plot charts only. Use the @MARKER macro to select marker shapes in other chart types.

ALSO SEE:

- @SZ to set the size of markers in box plots
- @MC to change the color of markers in box plots

Section 13: Gantt Chart Macros

- @ACTUAL_DAY; Actual Day Line
- @ACTUAL_MONTH; Actual Month Band
- @GANTT; Change the chart type to a Gantt Chart
- @GANTT2; Enable Improved Gantt Chart Drawing Engine
- @GANTT_COLORS; Gantt Riser/Marker Colors
- @HOUR_SCALE; Draw minor axis hour scale on a time axis
- @SCH; Set Min/Max for Gantt charts that use @HOUR_SCALE

@ACTUAL_DAY (Actual Day Line)

When the enhanced Gantt chart drawing engine is enabled with the @GANTT2 macro, this macro can be used to draw a line indicating the current day.

SYNTAX:

```
@ACTUAL_DAY DayRGB
```

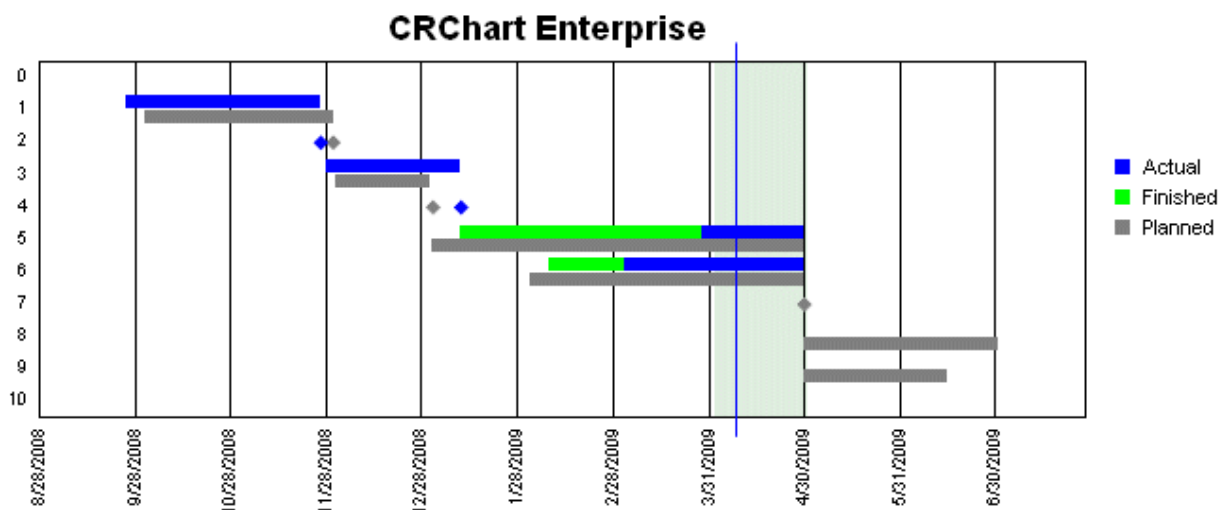
PARAMETERS:

DayRGB; 0x000000...0xFFFFFFFF Defines the color of the current day line.

Example: 0xFF0000 (Red)

EXAMPLE:

```
@ACTUAL_DAY 0x0000FF
```



PERSISTENT:

NO

REQUIREMENTS:

- Crystal Reports 11.6 or higher
- **CRCHART Enterprise**

ALSO SEE:

@GANTT2, @ACTUAL_MONTH, @GANTT_COLORS

@ACTUAL_MONTH (Actual Month Band)

When the enhanced Gantt chart drawing engine is enabled with the @GANTT2 macro, this macro can be used to define a color band to draw across the current month.

SYNTAX:

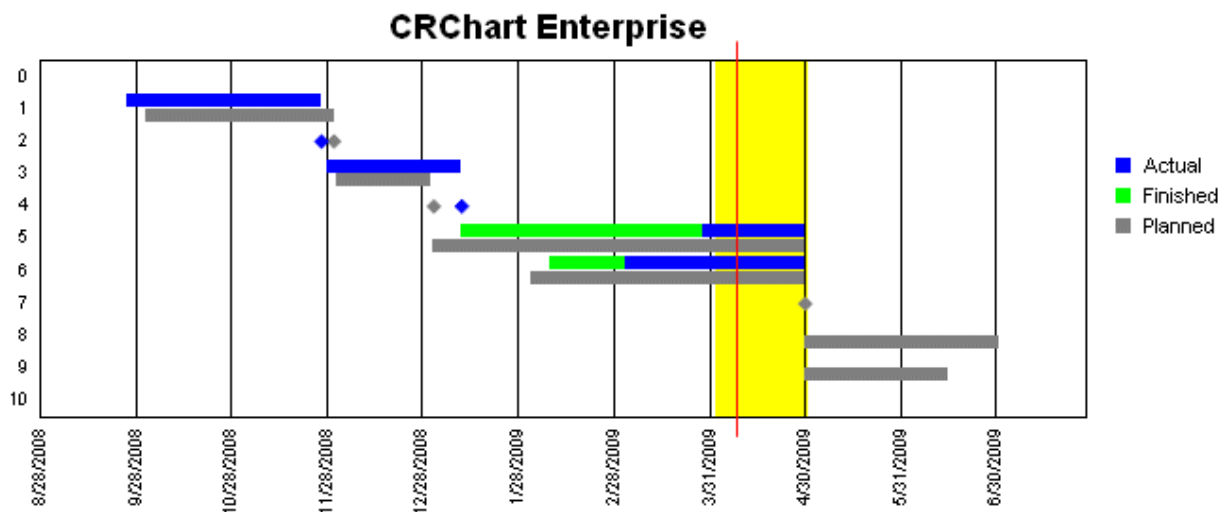
```
@ACTUAL_MONTH monthRGB
```

PARAMETERS:

monthRGB; 0x000000...0xFFFFFFFF Defines the color of the current month color band. Example: 0xFF0000 (Red)

EXAMPLE:

```
@ACTUAL_MONTH 0xFFFF00
```



PERSISTENT:

NO

REQUIREMENTS:

- Crystal Reports 11.5 or higher
- **CRCHART Enterprise**

ALSO SEE:

@ACTUAL_DAY, @GANTT2, @GANTT_COLORS

@GANTT (Gantt Chart)

This macro creates a Gantt Chart with the specified parameters. A Gantt Chart is intended to show the status of tasks in a project between a scheduled start date and stop date or start date and duration.

SYNTAX:

```
@GANTT bTimeAxis bDurationMode bGroupCompress
```

PARAMETERS:

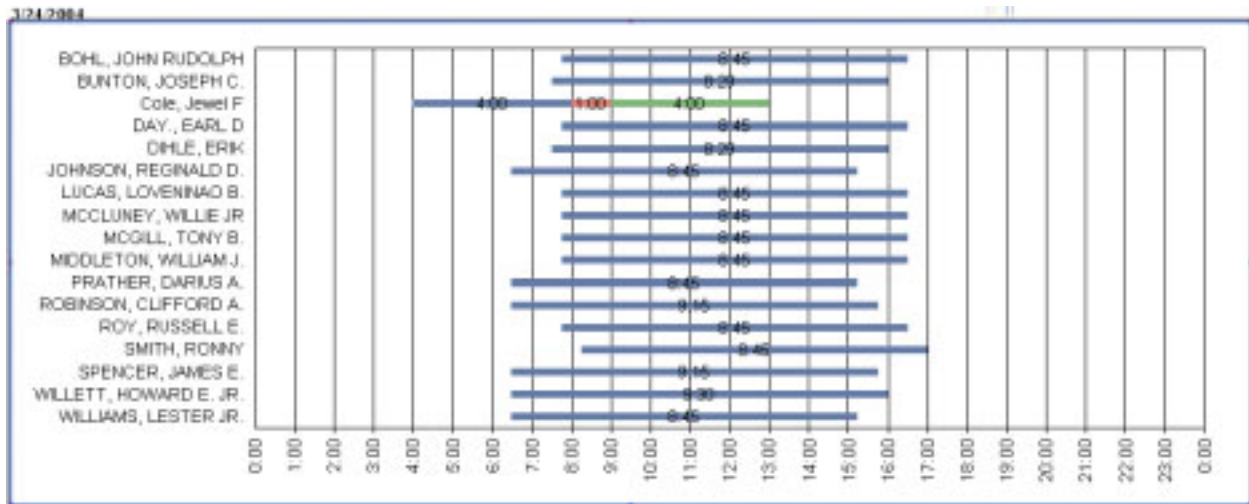
bTimeAxis; 1 = use time axis, 0 = do not use time axis

bDurationMode; 1 = Gantt data is Start, Duration, 0 = Gantt data is Start, Stop

bGroupCompress; 1 = use group labels to calculate the number of blocks per group entry, 0 = do not use group labels to calculate the number of blocks per group entry

EXAMPLE:

```
@GANTT 1 1 1
```



PERSISTENT:

YES

@GANTT2(Enhanced Gantt Chart)

This macro enables the improved Gantt Chart drawing engine and creates a Gantt Chart with the specified parameters. A Gantt Chart is intended to show the status of tasks in a project between a scheduled start date and stop date or start date and duration.

SYNTAX:

```
@GANTT2 bTimeAxis bDurationMode bGroupCompress
```

PARAMETERS:

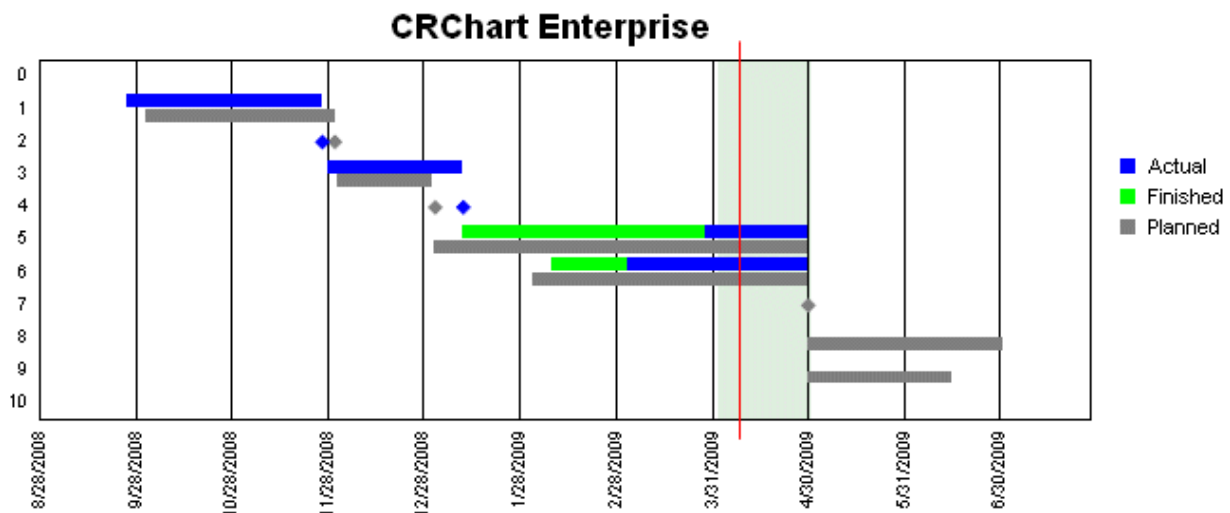
bTimeAxis; 1 = use time axis, 0 = do not use time axis

bDurationMode; 1 = Gantt data is Start, Duration, 0 = Gantt data is Start, Stop

bGroupCompress; 1 = use group labels to calculate the number of blocks per group entry, 0 = do not use group labels to calculate the number of blocks per group entry

EXAMPLE:

```
@GANTT2 1 0 1
@GANTT_COLORS 0x808080 0x0000FF 0x00FF00
@ACTUAL_DAY 0xFF0000
@ACTUAL_MONTH 0xE0EEEE0
```



PERSISTENT:

YES

REQUIREMENTS:

- Crystal Reports 11.5 or higher
- **CRCHART Enterprise**

ALSO SEE:

@ACTUAL_DAY, @ACTUAL_MONTH, @GANTT_COLORS

@GANTT_COLORS (Gantt Riser/Marker Colors)

When the enhanced Gantt chart drawing engine is enabled with the @GANTT2 macro, this macro can be used to define the color of the planned, actual, and finished risers.

SYNTAX:

```
@GANTT_COLORS PlannedRGB ActualRGB FinishedRGB
```

PARAMETERS:

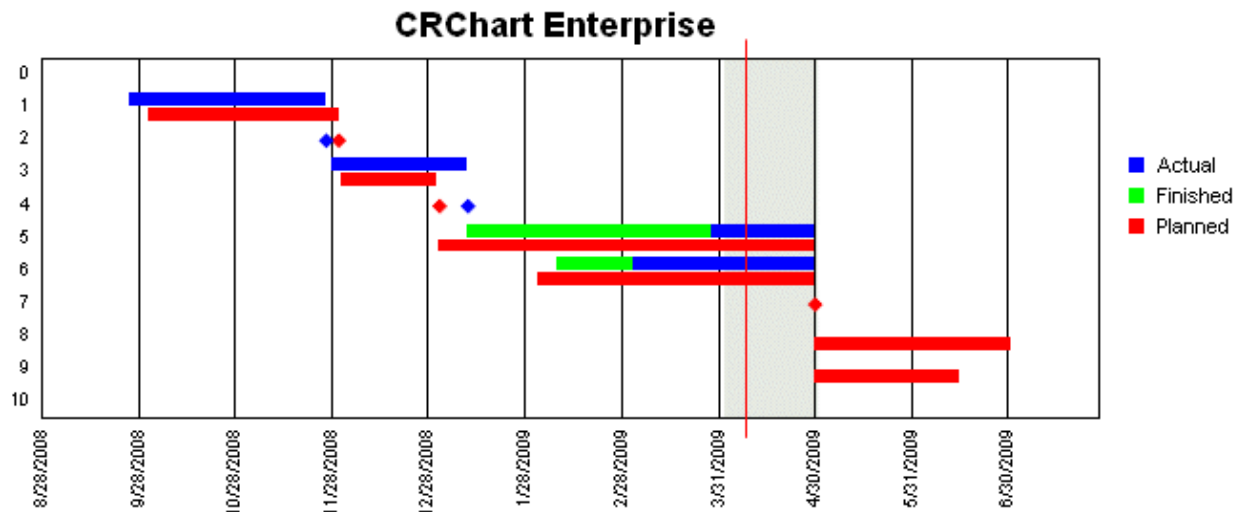
PlannedRGB; 0x000000...0xFFFFFFFF Defines the color of the planned riser and legend marker. Example: 0xFF0000 (Red)

ActualRGB; 0x000000...0xFFFFFFFF Defines the color of the actual riser and legend marker. Example: 0xFF0000 (Red)

FinishedRGB; 0x000000...0xFFFFFFFF Defines the color of the finished riser and legend marker. Example: 0xFF0000 (Red)

EXAMPLE:

```
@GANTT_COLORS 0xFF0000 0x0000FF 0x00FF00
```



PERSISTENT:

NO

REQUIREMENTS:

- Crystal Reports 11.5 or higher
- **CRCHART Enterprise**

ALSO SEE:

@ACTUAL_DAY, @ACTUAL_MONTH, @GANTT2

@HOUR_SCALE (Minor Axis Hour Scale)

When Y-Axis minor gridlines are enabled, this macro draws a minor axis hour scale on a time axis in a Gantt chart.

SYNTAX:

```
@HOUR_SCALE bActivateHours nInterval szHourFormat
```

PARAMETERS:

bActivateHours; 0=do not show hours, 1=show hours

nInterval; 1...24 interval to show hours. For example, a value of 6 shows a label at every sixth hour: 6AM, Noon, 6PM, etc.

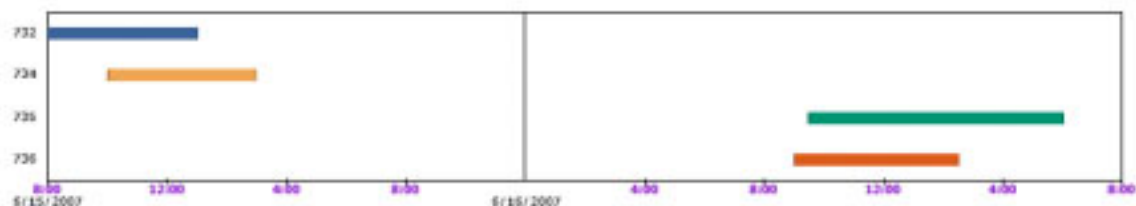
szHourFormat; Label format string. Use standard Windows syntax: h=12-hour AM/PM time, H=24-hour time, h:mm=hours:minutes (e.g., 3:00), etc.

EXAMPLE:

```
@HOUR_SCALE 1 6 HH~
```



```
@HOUR_SCALE 1 4 h:mm~
```



PERSISTENT:

NO

REQUIREMENTS:

Crystal Reports 11 or higher

NOTES:

Y-Axis minor gridlines must be enabled.

@SCH (@HOUR_SCALE Min/Max)

For Gantt charts that use @HOUR_SCALE, this macro lets you specify a manual scale minimum and maximum. The values are given in a range of 0...1, where .25 = 6AM, .5 = NOON, .75 = 6PM and so on.

SYNTAX:

```
@SCH fMin fMax
```

PARAMETERS:

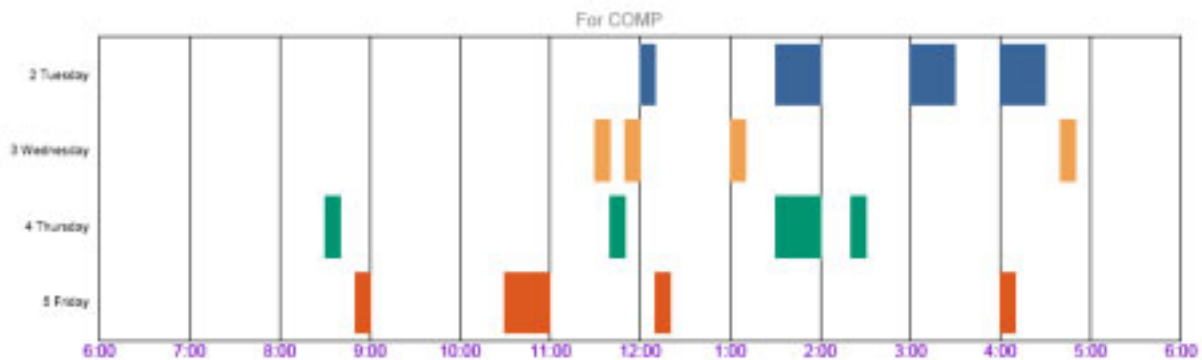
fMin; 0...1 Minimum Hour .25=6AM, .5=NOON, .75=6PM, etc.

fMax; 0...1 Maximum Hour .25=6AM, .5=NOON, .75=6PM, etc.

EXAMPLE:

```
@SCH .25 .75
```

EU	684	48
RDC - COMP - Tuesday	0	11



PERSISTENT:

NO

REQUIREMENTS:

Crystal Reports 11 or higher

NOTES:

Because of rounding errors, it may sometimes be better to put in values that are slightly higher, like 0.7500001, in order to see the last gridline.

Section 14: Gauge Macros

These macros can be used to format and control the appearance of gauges.

- @GAUGE_BORDER_STYLE; Select gauge border
- @GAUGE_BORDER_THICKNESS; Control the thickness of the new gauge engine
- @GAUGE_COLOR; Control the color of any band on the gauge
- @GAUGE_MULTIPLE_NEEDLES; Draw all or only first series as a gauge needle
- @GAUGE_NEEDLE_STYLE; Select a needle style
- @GAUGE_STYLE; Enable/Disable new gauge drawing engine
- @GAUGE_THRESHOLD; Define Gauge Band Thresholds

@GAUGE_BORDER_STYLE (Gauge Border Style)

When gauge style is enabled (@GAUGE_STYLE 1), this macro can be used to select a gauge border style.

SYNTAX:

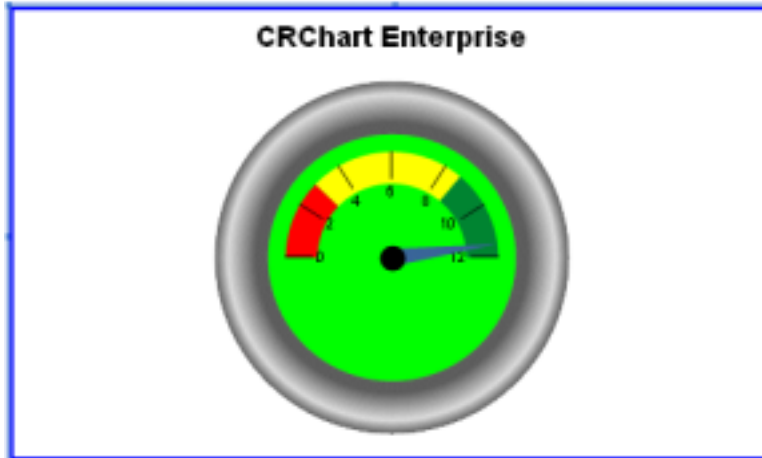
```
@GAUGE_BORDER_STYLE nStyle
```

PARAMETERS:

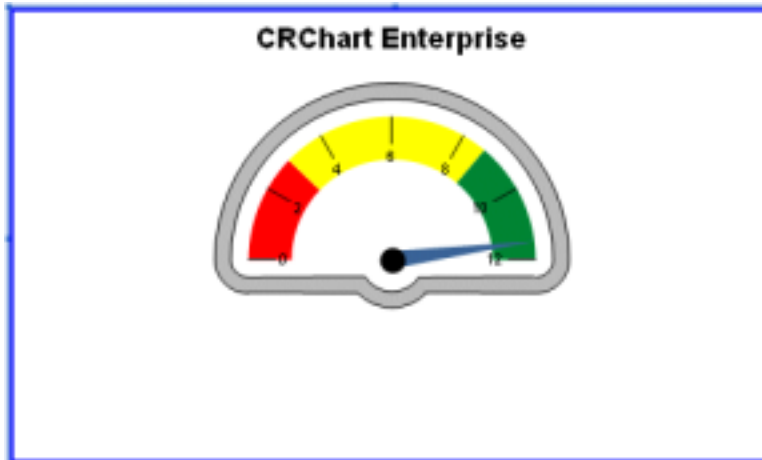
nStyle; 0...6 selects a border style. 0=None, 1=Simple Round, 2=3D, 3=Embossed, 4=Donut, 5=Metallic, 6=Clipped.

EXAMPLE:

```
@GAUGE_BORDER_STYLE 4
```



```
@GAUGE_BORDER_STYLE 6
```



PERSISTENT:

NO

REQUIREMENTS:

- Crystal Reports 9 or higher
- **CRCHART Enterprise**

NOTES:

This macro will automatically enable the high-quality drawing engine (@HQ 1).

@GAUGE_BORDER_THICKNESS (Gauge Border Thickness)

When gauge style is enabled (@GAUGE_STYLE 1), this macro controls the thickness of the gauge border.

SYNTAX:

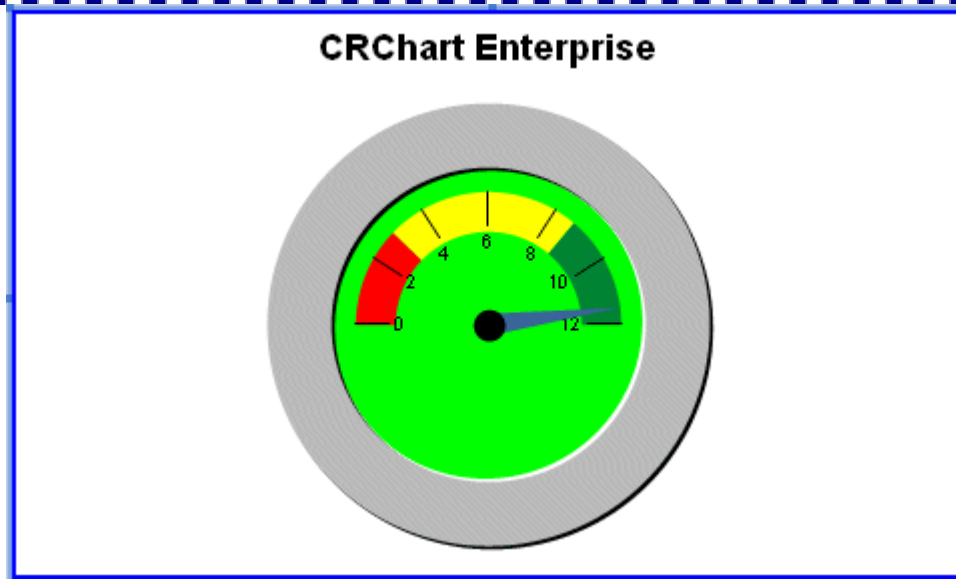
```
@GAUGE_BORDER_THICKNESS nThick
```

PARAMETERS:

nThick; 0...100 selects the thickness of the border, as a percentage of the overall possible thickness. 0=Single Line, 100=All Border.

EXAMPLE:

```
@GAUGE_BORDER_THICKNESS 50
```



PERSISTENT:

NO

REQUIREMENTS:

- Crystal Reports 9 or higher
- **CRCHART Enterprise**

NOTES:

This macro will automatically enable the high-quality drawing engine (@HQ 1).

@GAUGE_COLOR (Color Gauge Bands)

This macro can be used to apply a different color to each of the gauge bands.

SYNTAX:

```
@GAUGE_COLOR nBand nRed nGreen nBlue
```

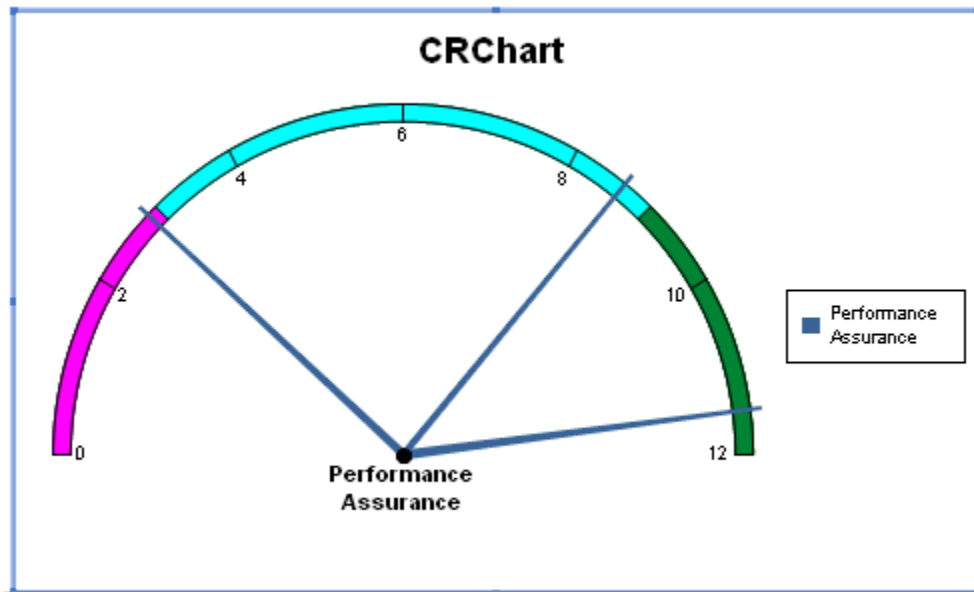
PARAMETERS:

nBand; 0...5 selects the color band.

nRed, *nGreen*, *nBlue*; 0...255 color to use for *nBand*.

EXAMPLE:

```
@GAUGE_COLOR 0 255 0 255  
@GAUGE_COLOR 1 0 255 255
```



PERSISTENT:

NO

REQUIREMENTS:

Crystal Reports 10 or higher

@GAUGE_MULTIPLE_NEEDLES (Multiple Needles)

When gauge style is enabled (@GAUGE_STYLE 1) and a gauge chart includes more than one series, this macro controls the number of needles.

SYNTAX:

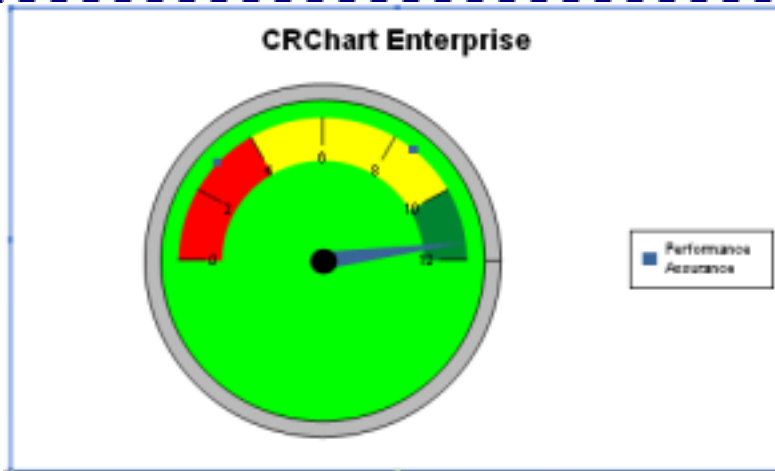
```
@GAUGE_MULTIPLE_NEEDLES bEnable
```

PARAMETERS:

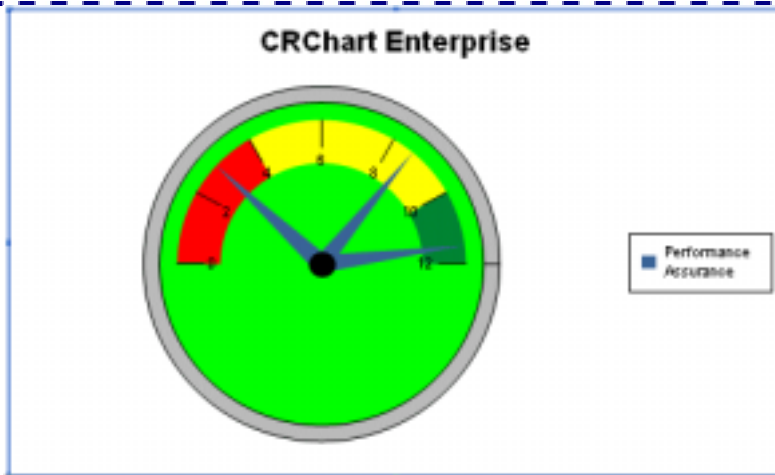
bEnable: 0=Draw first series as a needle, draw all other series as markers.
 1=Draw all series as needles.

EXAMPLE:

```
@GAUGE_STYLE 1 @GAUGE_MULTIPLE_NEEDLES 0
```



```
@GAUGE_STYLE 1 @GAUGE_MULTIPLE_NEEDLES 1
```



PERSISTENT:

NO

REQUIREMENTS:

- Crystal Reports 9 or higher
- **CRCHART Enterprise**

NOTES:

This macro will automatically enable the high-quality drawing engine (@HQ 1).

@GAUGE_NEEDLE_STYLE (Gauge Needle Style)

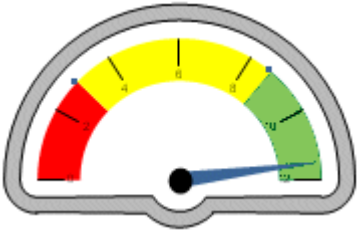
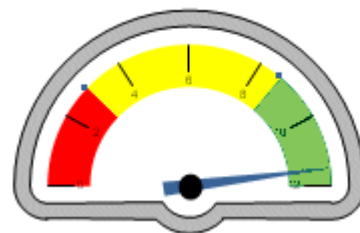
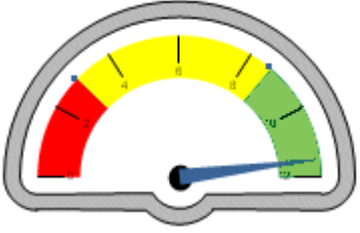
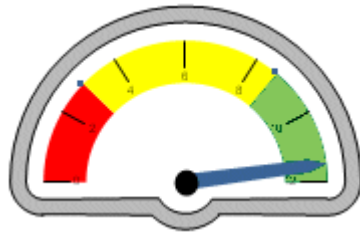
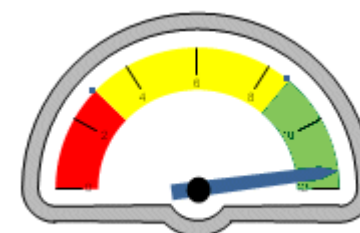
When gauge style is enabled (@GAUGE_STYLE 1), this macro can be used to select a needle style.

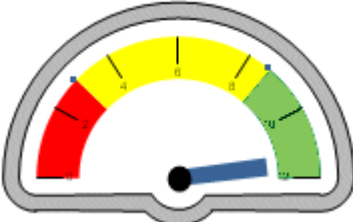
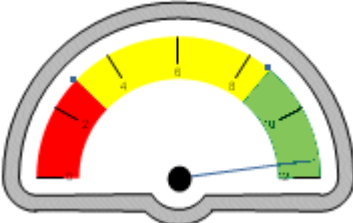
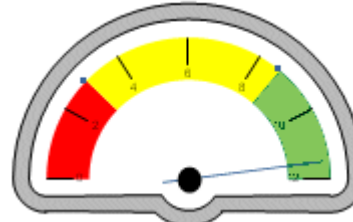
SYNTAX:

@GAUGE_NEEDLE_STYLE nStyle

PARAMETERS:

nStyle; 0...7 selects one of the following needle styles:

nStyle	Example	Description
0		Triangle
1		Triangle with extended end
2		Triangle above base
3		Steeple
4		Steeple with extended end

<i>nStyle</i>	Example	Description
5		Rectangle
6		Thin
7		Thin with extended end

PERSISTENT:

NO

REQUIREMENTS:

- Crystal Reports 9 or higher
- **CRCHART Enterprise**

NOTES:

This macro will automatically enable the high-quality drawing engine (@HQ 1).

@GAUGE_STYLE (Gauge Style)

This macro enables/disables the enhanced gauge drawing engine.

SYNTAX:

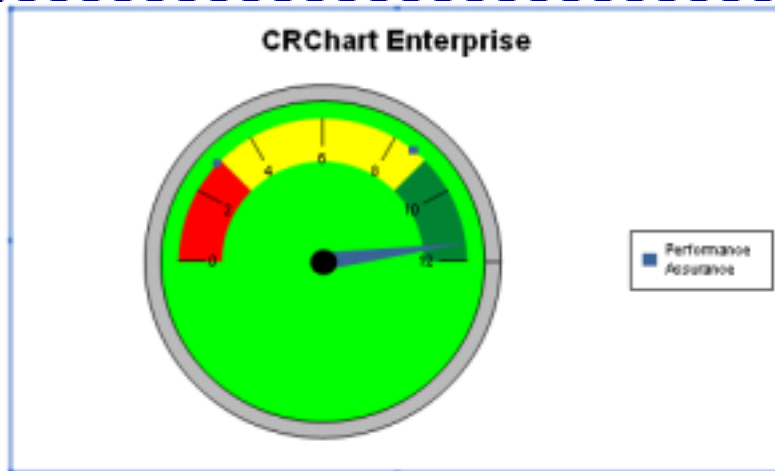
```
@GAUGE_STYLE bEnable
```

PARAMETERS:

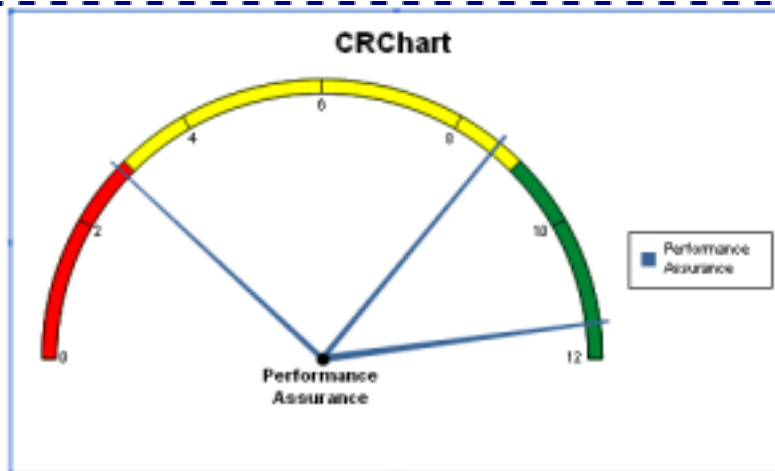
bEnable: 0=Use standard gauge drawing engine. 1=Use Enhanced Gauge Drawing Engine.

EXAMPLE:

```
@GAUGE_STYLE 1
```



```
@GAUGE_STYLE 0
```



PERSISTENT:

NO

REQUIREMENTS:

- Crystal Reports 9 or higher
- **CRCHART Enterprise**

NOTES:

This macro will automatically enable the high-quality drawing engine (@HQ 1).

@GAUGE_THRESHOLD (Gauge Band Threshold)

This macro changes the threshold value between the color bands in a gauge chart.

SYNTAX:

```
@GAUGE_THRESHOLD nBand fThreshold
```

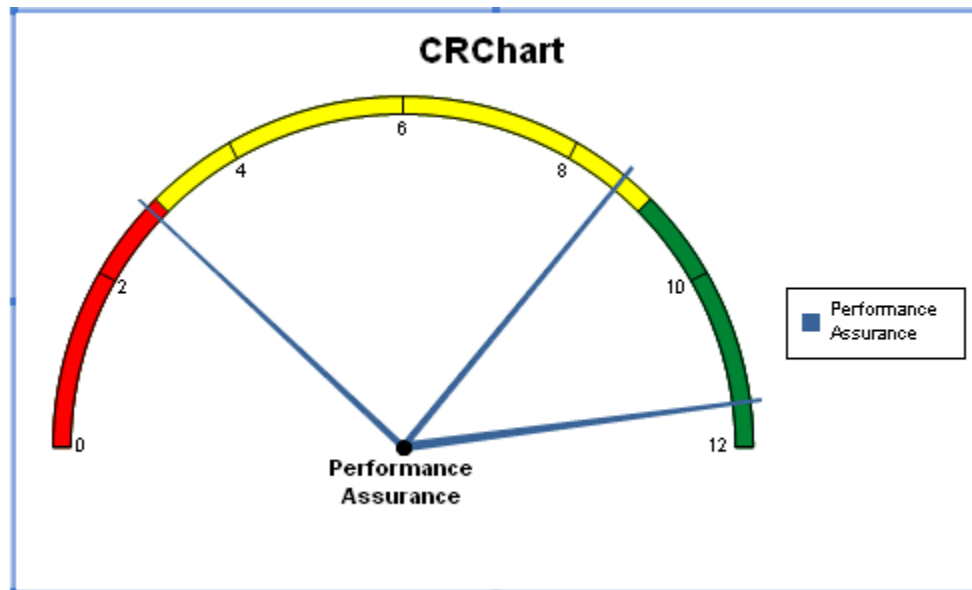
PARAMETERS:

nBand; 0...4 selects the color band

fThreshold; selects the threshold between color band *nBand* and *nBand*+1

EXAMPLE:

```
@GAUGE_THRESHOLD 0 3
@GAUGE_THRESHOLD 1 9
```



PERSISTENT:

NO

REQUIREMENTS:

Crystal Reports 10 or higher



Section 15: Pie Chart Macros

These macros can be used to format and control the appearance of pie charts:

- @DATATEXT_PIE; Control the appearance of data text in a pie chart
- @PIE_NEG; Enable handling of negative values in the legend area of a pie chart
- @PIE_ROTATE; Set Pie Rotation Start Point
- @SMART_PIE_LABELS; Enable/Disable Enhanced pie label layout engine
- @SMART_PIE_SETTINGS; Customize Enhanced pie label layout engine

@DATATEXT_PIE (Data Text Mode for Pie Charts)

This macro sets the data text mode in pie charts.

SYNTAX:

```
@DATATEXT_PIE nValue
```

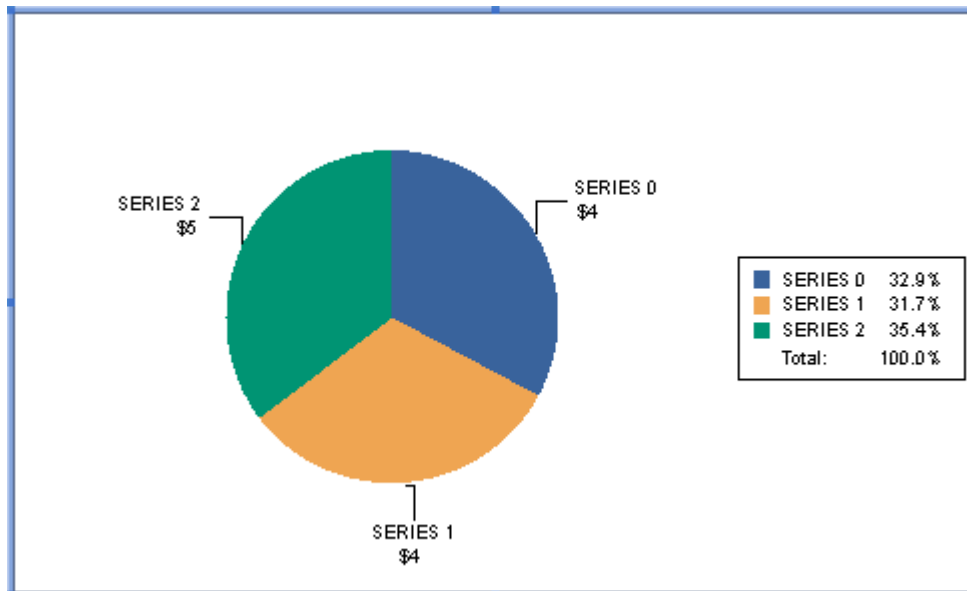
PARAMETERS:

nValue; Selects the data text to show. It can be one of the following:

- 0 = NO Labels on Pie
- 1 = VALUE labels on Pie
- 2 = Series Labels on Pie
- 3 = Value and Series Labels on Pie

EXAMPLE:

```
@DATATEXT_PIE 3
```



PERSISTENT:

NO

REQUIREMENTS:

Crystal Reports 9 or higher

@PIE_NEG (Negative Values in Pie Legend)

This macro enables handling of negative values that may be shown in the legend area of a pie chart.

SYNTAX:

@PIE_NEG

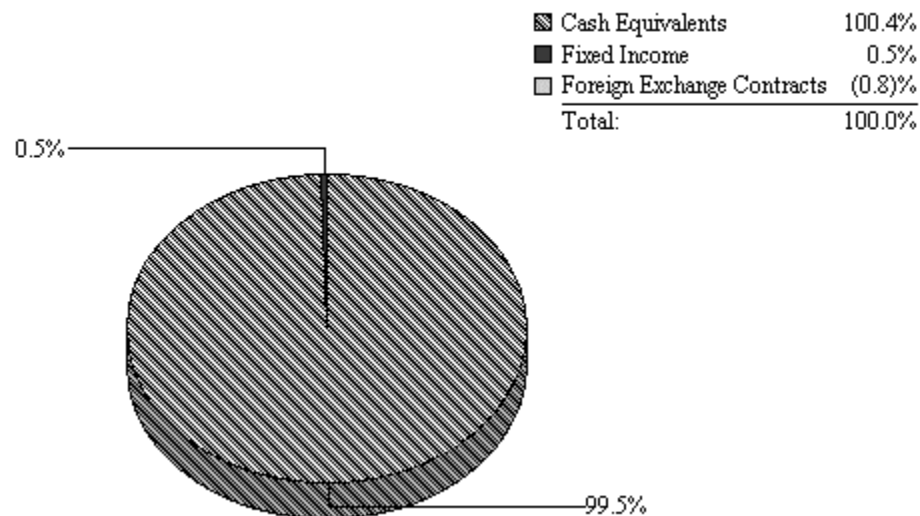
PARAMETERS:

None

EXAMPLE:

@PIE_NEG

Asset Allocation

**PERSISTENT:**

YES

NOTES:

The legend in a pie chart is enabled in the Look section of the Chart Options dialog. In addition to Show Legend, you can select Show Values and/or Show Percentage. These selections will show the total value and/or percentage that each pie section represents.

@PIE_ROTATE (Pie Rotation Start Point)

This macro specifies the rotation start angle for pie charts.

SYNTAX:

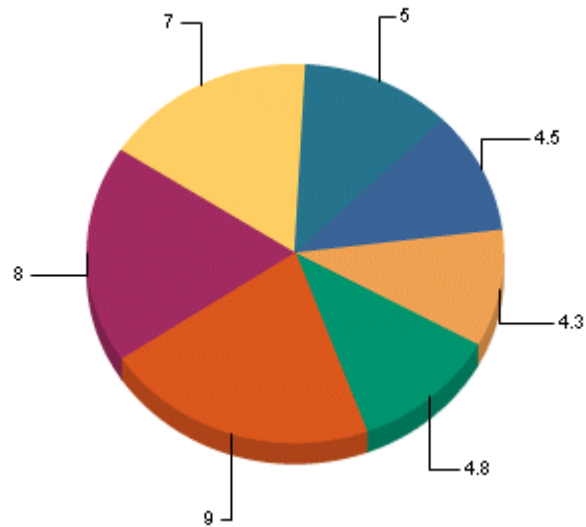
```
@PIE_ROTATE nRotation
```

PARAMETERS:

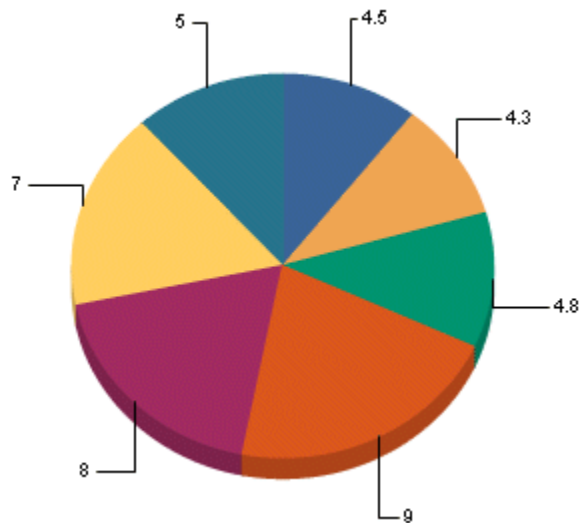
nRotation; 0...359 degrees to rotate pie

EXAMPLE:

```
@PIE_ROTATE 45
```



```
@PIE_ROTATE 90
```



PERSISTENT:

NO

REQUIREMENTS:

Crystal Reports 10 or higher

@SMART_PIE_LABELS (Enhanced Pie Label Layout Engine)

This macro enables/disables the enhanced pie label layout engine.

SYNTAX:

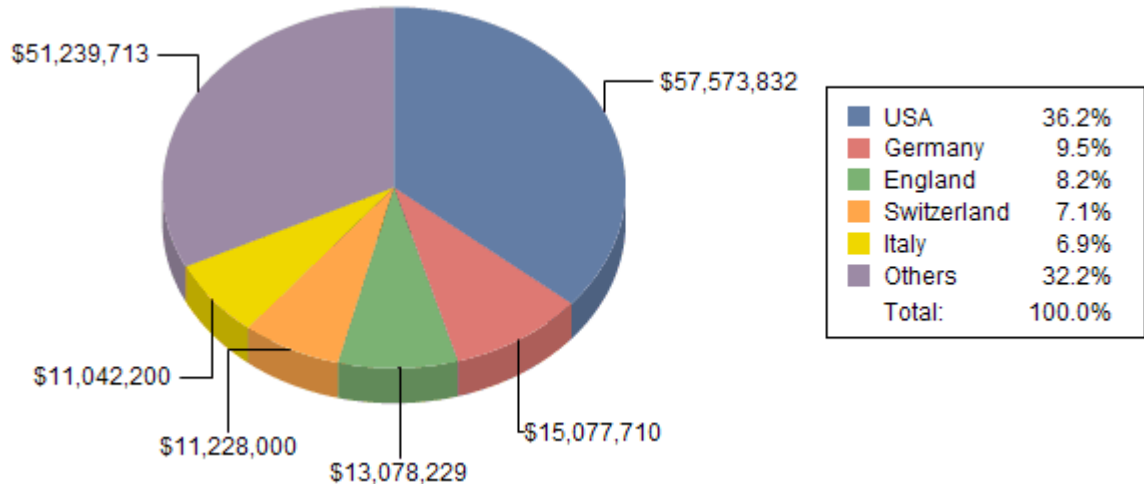
```
@SMART_PIE_LABELS bEnable
```

PARAMETERS:

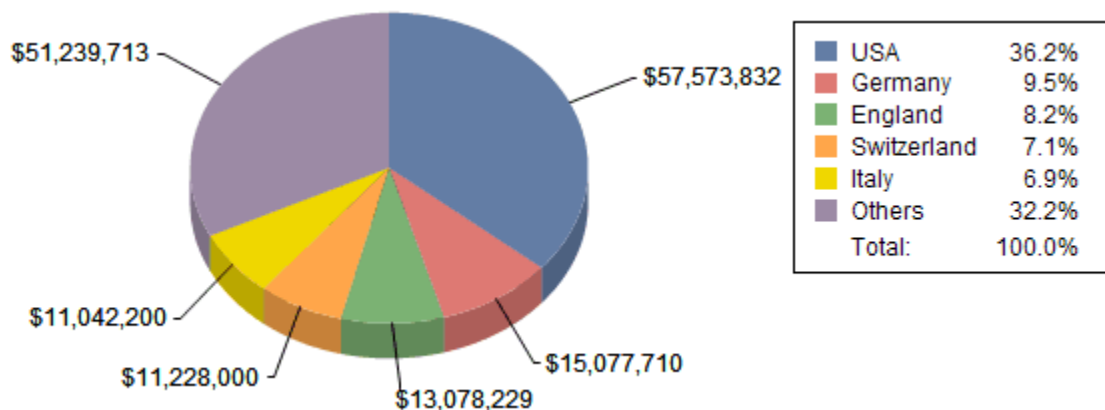
bEnable; 0=use standard pie engine, 1=use enhanced pie label layout engine

EXAMPLE:

```
@SMART_PIE_LABELS 0
```



```
@SMART_PIE_LABELS 1
```



PERSISTENT:

NO

REQUIREMENTS:

- Crystal Reports 9 or higher
- **CRCHART Enterprise**

@SMART_PIE_SETTINGS (Customize Smart Pie Labels)

When the enhanced pie label layout engine is enabled with @SMART_PIE_LABELS 1, this macro can be used to fine-tune the treatment of pie labels.

SYNTAX:

```
@SMART_PIE_SETTINGS iShrinkLabel iTruncateLabel iMovingLabel  
iShrinkPieRadius iLabelPadding iSliceReorder iLabelInsidePie
```

PARAMETERS:

iShrinkLabel; -1...8

-1 = Use the Pie Label Placement Default Setting (8)

0 = DO NOT shrink pie label font sizes

1...8 = Number of font sizes to evaluate to achieve the best result.

iTruncateLabel; -1...8

-1 = Use the Pie Label Placement Default Setting (0)

0 = truncate on every font size

1...8 = Start truncating labels after this many font sizes have been evaluated.

iMovingLabel; -1...5

-1 = Use the Pie Label Placement Default Setting (5)

0...5 = How aggressive to be when moving labels

iShrinkPieRadius; -1...0

-1 = Use the Pie Label Placement Default Setting (1)

0 = DO NOT Shrink pie radius before shrinking fonts

1 = Shrink pie radius before shrinking fonts

iLabelPadding; 0...5

-1 = Use the Pie Label Placement Default Setting (3)

0...5 = Amount of label padding

iSliceReorder; -1...0

-1 = Use the Pie Label Placement Default Setting (0)

0 = DO NOT Reorder slices

1 = Reorder slices as needed

iLabelInsidePie; -1...0

-1 = Use the Pie Label Placement Default Setting (1)

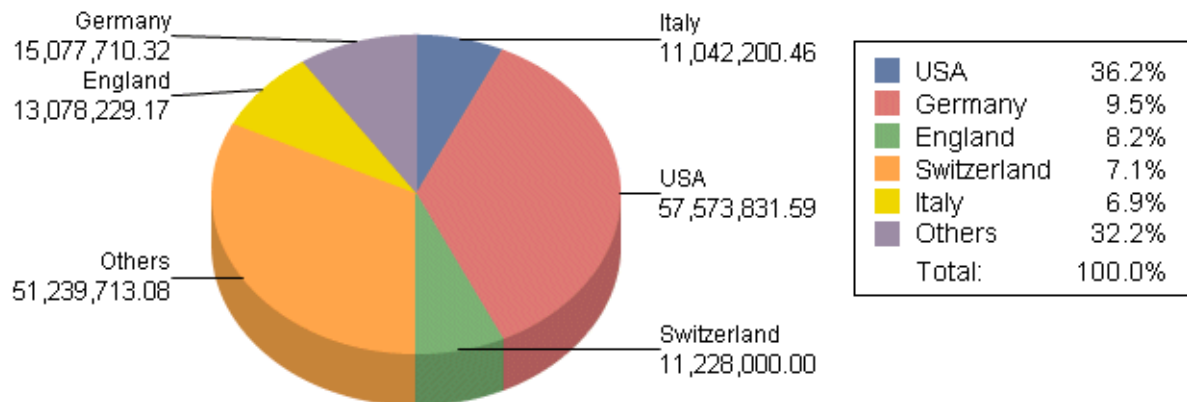
0 = DO NOT Force labels inside or outside the pie

1 = Force some labels inside or outside the pie as needed

EXAMPLE:

```
@SMART_PIE_LABELS 1  
@SMART_PIE_SETTINGS 4 4 0 0 1 0 0
```

CRChart Enterprise

**PERSISTENT:**

NO

REQUIREMENTS:

- Crystal Reports 9 or higher
- **CRCHART Enterprise**



Section 16: Macros for Waterfall Charts

These macros create and format waterfall charts:

- @WATERFALL; Create a normal Waterfall Chart
- @WATERFALL2; Create a Waterfall Chart with Total Group
- @WATERFALL4; Waterfall Chart with Color Parameters
- @WF_CENTERTEXT; Center data text in a Waterfall Chart
- @WF_CONNECT; Assign a line style to feeler lines in a waterfall chart

@WATERFALL (Waterfall Chart)

This macro creates a waterfall chart.

SYNTAX:

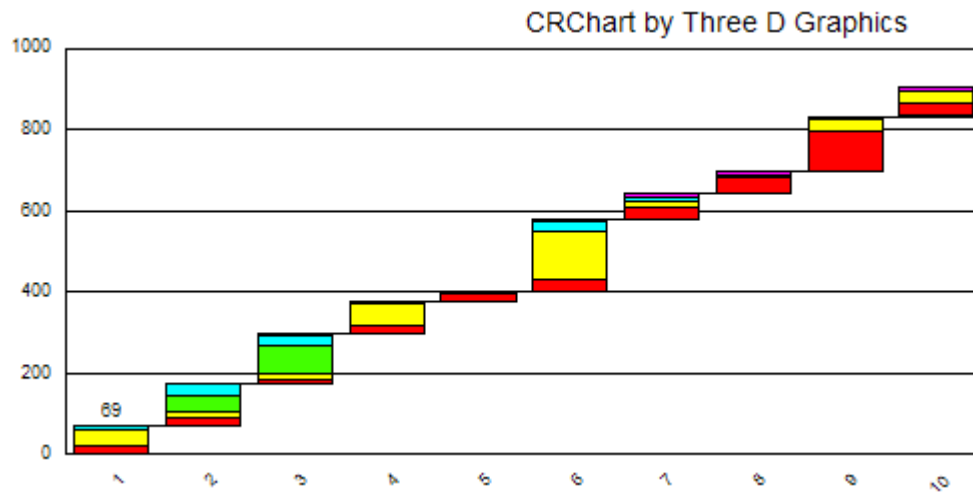
@WATERFALL

PARAMETERS:

None

EXAMPLE:

@WATERFALL



PERSISTENT:

YES

ALSO SEE:

@WATERFALL2, @WATERFALL4

@WATERFALL2 (Waterfall Chart with Total Group)

This macro creates a waterfall chart and forces the last group in the chart to be a TOTAL. This forces the last value to start at the base line instead of being another stair in the waterfall's staircase.

SYNTAX:

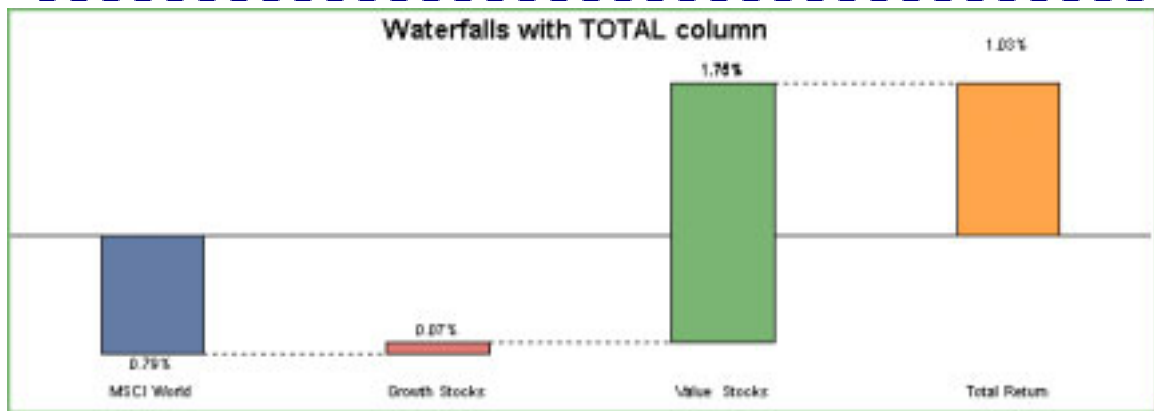
@WATERFALL2

PARAMETERS:

None

EXAMPLE:

@WATERFALL2



PERSISTENT:

YES

REQUIREMENTS:

Crystal Reports 9 or higher

ALSO SEE:

@WATERFALL, WATERFALL4

@WATERFALL4 (Waterfall Chart with Color Parameters)

This macro creates a waterfall chart with color parameters for positive, negative, current, and total risers. The string parameter (*pSz*) identify the risers to be colored with *rgbCurr* and *rgbTotal*.

SYNTAX:

```
@WATERFALL4 rgbPositive rgbNegative rgbCurr rgbTotal pSzCurr~
pSzTotal
```

PARAMETERS:

rgbPositive; Color to draw riser(s) with positive values

rgbNegative; Color to draw riser(s) with negative values

rgbCurr; Color to draw riser(s) with the group label string identified by *pSz*

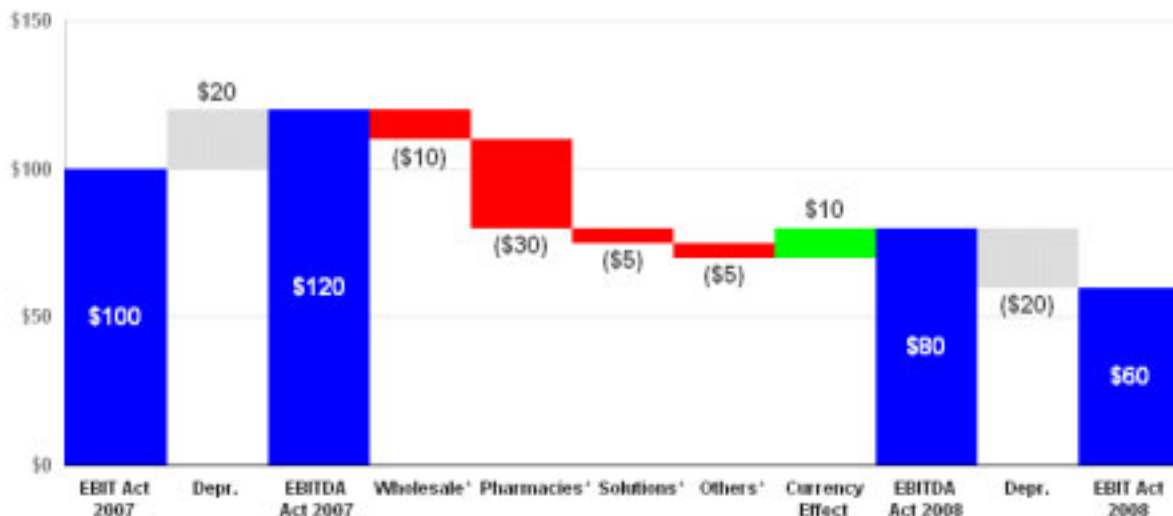
rgbTotal; Color to draw riser(s) with the group label string identified by *pSz*

pSzCurr/pSzTotal; Group label strings identifying *rgbCurr* and *rgbTotal* risers. The two strings must be separated with a tilde and space and shown in the example.

EXAMPLE:

```
@WATERFALL4 0x00FF00 0xFF0000 0xDDDDDD 0x0000FF Depr.~ EBITDA~
```

CRChart/Enterprise with WATERFALL4 macro



PERSISTENT:

NO

REQUIREMENTS:

- Crystal Reports 11 or higher
- **CRCHART Enterprise**

@WF_CENTERTEXT (Center Waterfall Data Text)

This macro specifies where data text is drawn in a waterfall chart.

SYNTAX:

```
@WF_CENTERTEXT bCenterText nOverlapPercentage nExtraKerning
nStackMarkerSize
```

PARAMETERS:

bCenterText; 1 = Center Text, 0 = Do not center text

nOverlapPercentage; -100...100

< 0 makes data text stay on top of risers in more situations

> 0 make data text more likely to stack above riser

nExtraKerning; -1000..1000 Add or subtract extra vertical space between stacked labels drawing above stack.

> 0 add more space.

< 0 reduce space

nStackMarkerSize; -1...1000

-1 = Labels will be color coded to marker color and draw above the stack

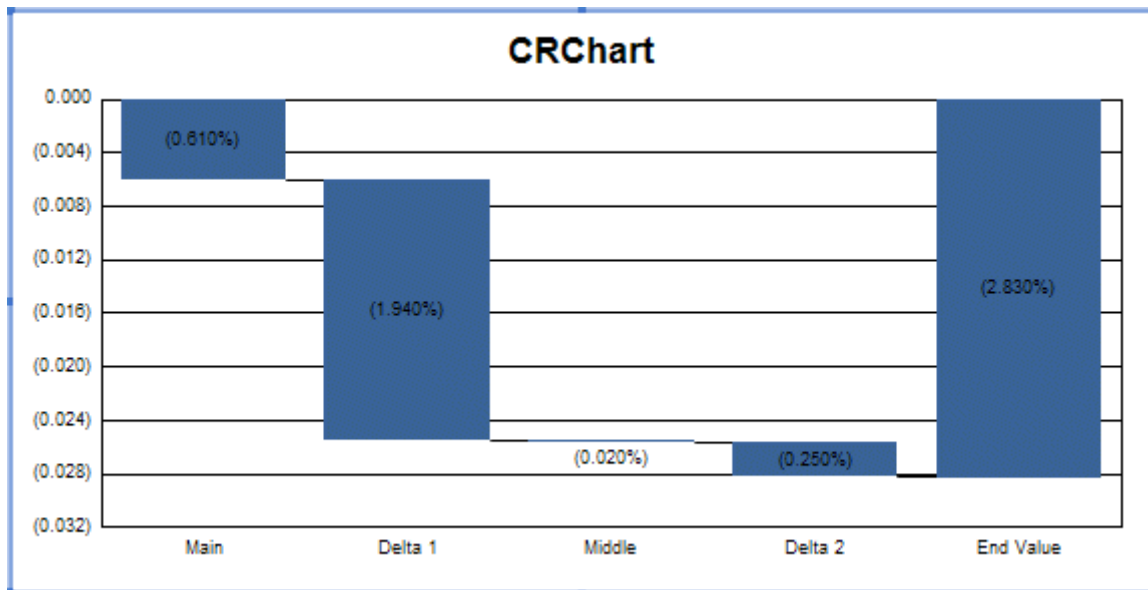
0 = Labels will not draw (labels do not fit and are not wanted)

1...1000 = Labels draw in standard global data text color. An additional rectangular marker of virtual size *nStackMarkerSize* is drawn to left of the data text label.

bCenterText; 1=Center data text, 0=Draw data text normally

EXAMPLE:

```
@WF_CENTERTEXT 1 0 -20 400
```



PERSISTENT:

NO

REQUIREMENTS:

- Crystal Reports 11 or higher
- **CRCHART Enterprise**

@WF_CONNECT (Waterfall Feeler Lines)

This macro assigns a line style to feeler lines in a waterfall chart.

SYNTAX:

```
@WF_CONNECT nStyle
```

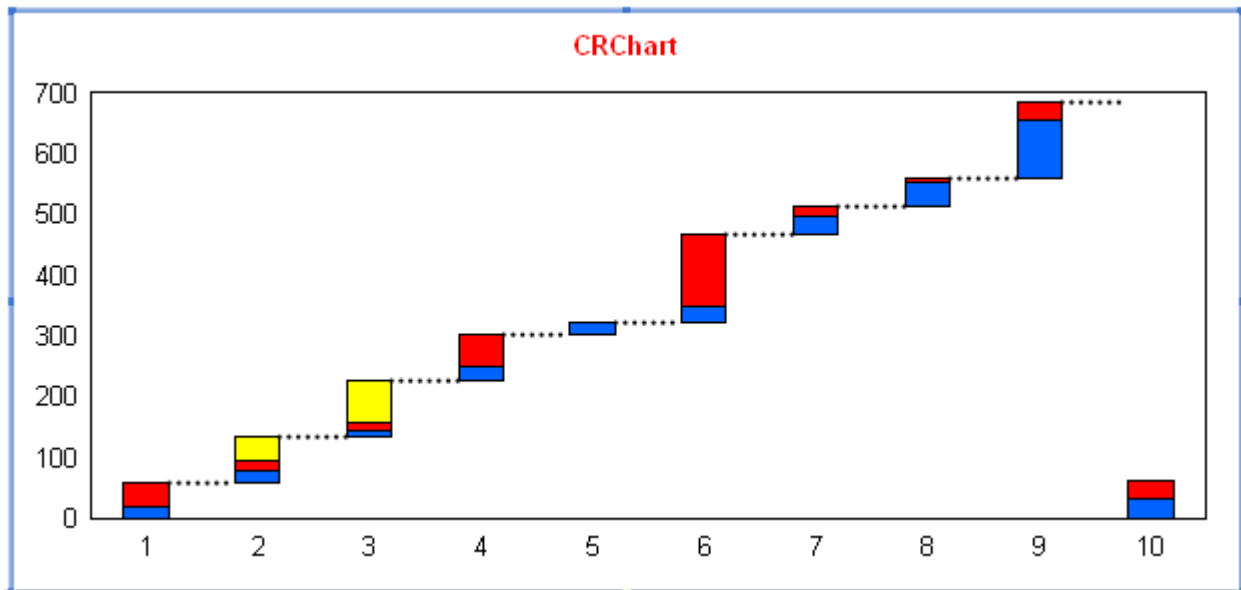
PARAMETERS:

nStyle; 0...7 selects one of the following line styles.

- 0 = Solid
- 1 = Dashed
- 2 = Dotted
- 3 = Dot-Dash
- 4 = Dash-Dot-Dot
- 5 = Medium Dash
- 6 = Short Dash
- 7 = Long Dash

EXAMPLE:

```
@WATERFALL2 @WF_CONNECT 2
```



PERSISTENT:

YES

REQUIREMENTS:

Crystal Reports 9 or higher

Section 17: Miscellaneous

- @EB; Adds error bars to standard bar/column charts
- @EB3; Error Bars with Median Band
- @FAH; Free All Highlights
- @FONTANGLE; Change the rotation angle of a text object
- @FONTNAME; Map a global font into particular font object on the chart
- @FONTSIZE; Change the font size of a text object
- @FRAME; Define frame size/location
- @HAT; Define the size of hats on Error Bars
- @LEGEND; Define legend size/location
- @LEGEND_ORDER; Force Legend Order
- @LEGEND_WRAP_WIDTH; Define the virtual wrap point for all legend text
- @ORD_SPACE; Extend Line/Area Charts to Frame Edge

@EB (Error Bars)

This macro adds error bars to standard bar/column charts. The data set that is used to draw the chart must be in the following form:

Value 1: Series Value

Value 2: Error High Value

Value 3: Error Low Value

SYNTAX:

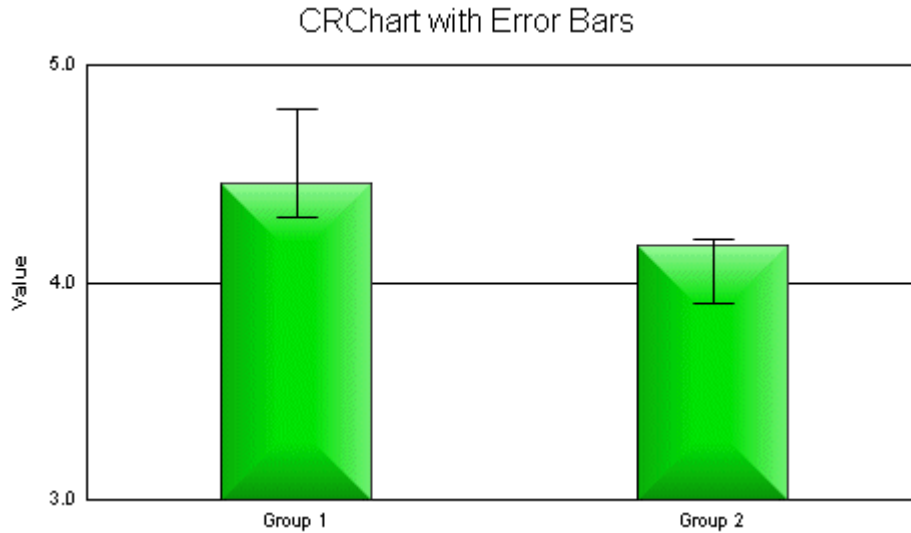
```
@EB bShow
```

PARAMETERS:

bShow; 0 = turn off error bars, 1 = turn on error bars

EXAMPLE:

```
@EB 1  
@HAT 68
```



PERSISTENT:

NO

ALSO SEE:

@HAT (Hat on Error Bars)

@EB3 (Error Bar with Medium Band)

This macro draws error bars with a median band. The data set that is used to draw the chart must be in the following form: Value 1: Series Value, Value 2: Error High Value, Value 3: Error Low Value.

SYNTAX:

```
@EB3 bShowErrorBars nHatPercent nMarkerPercent nMarkerShape
```

PARAMETERS:

bShowErrorBars; 0 = do not draw error bars, 1 = draw error bars

nHatPercent; 0...100 width of hat on error bar

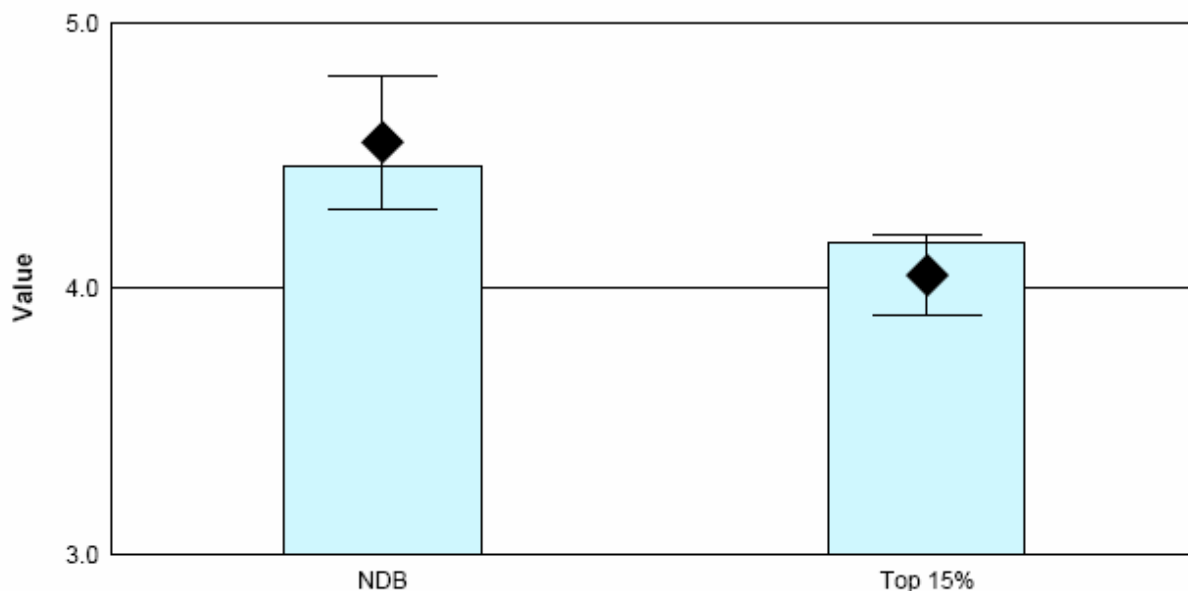
nMarkerPercent; 0...100 size of marker above error bar

nMarkerShape; 0...60 selects a marker shape (see @MARKER)

EXAMPLE:

```
@EB3 1 50 50 5
```

*Confidence Intervals with Median Values in
CRChart/Enterprise*

**PERSISTENT:**

NO

REQUIREMENTS:

- Crystal Reports 11 or higher
- **CRCHART Enterprise**

@FAH (Free All Highlights)

This macro clears all highlights and removes any custom formatting applied to a chart.

SYNTAX:

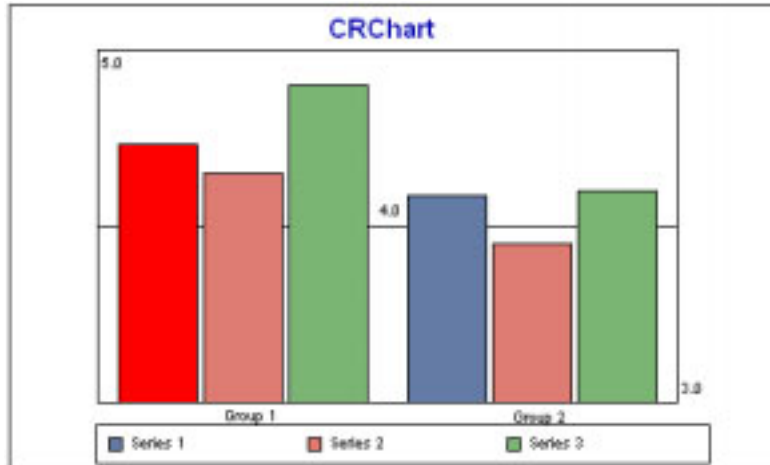
@FAH

PARAMETERS:

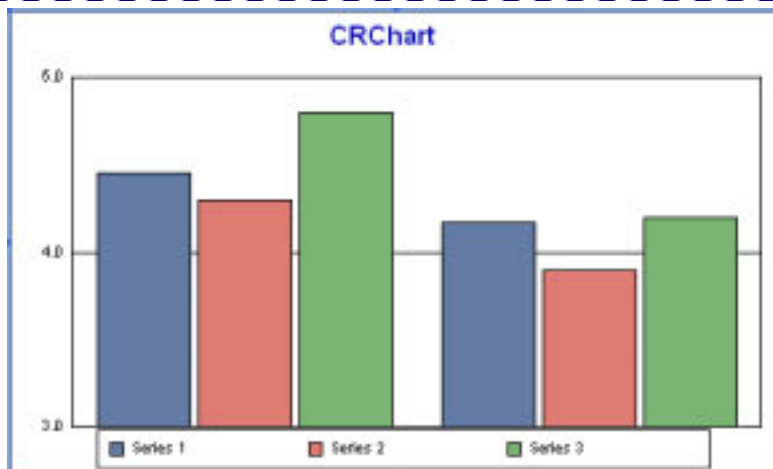
None

EXAMPLE:

Chart before @FAH applied



@FAH



PERSISTENT:

YES

REQUIREMENTS:

Crystal Reports 11 or higher

@FONTANGLE (Font Angle)

This macro can be used to change the rotation angle of a text object in a chart.

SYNTAX:

```
@FONTANGLE nObject nAngle
```

PARAMETERS:

nObject; 1...11 selects one of the following chart objects:

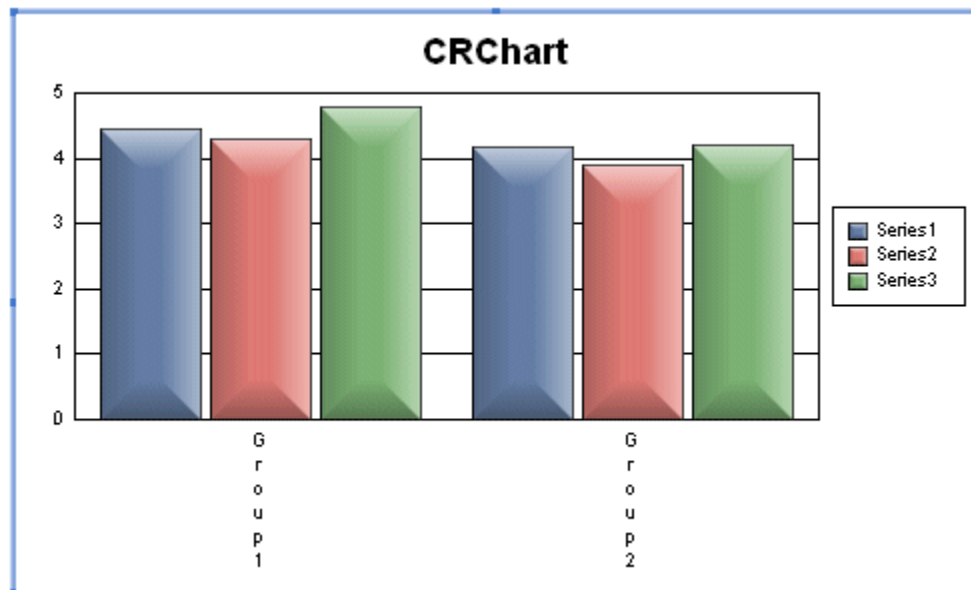
- 1 = Title
- 2 = Subtitle
- 3 = X1-Axis Title
- 4 = Y1-Axis Title
- 5 = Y2-Axis Title
- 6 = Footnote
- 7 = Data Text
- 8 = O1-Axis Labels or X1-Axis Labels depending on the chart type
- 9 = Y1-Axis Labels
- 10 = Y2-Axis Labels
- 11 = Legend Text

nAngle; 0...6 applies one of the following angles to *nObject*:

- 0 = Normal, Horizontal Characters
- 1 = Vertical/Hotel-Mode Characters
- 2 = Rotate Characters 90 Degrees
- 3 = Rotate Characters 180 Degrees
- 4 = Rotate Characters 270 Degrees
- 5 = Rotate Characters 45 Degrees
- 6 = Rotate Characters 315 Degrees

EXAMPLE:

```
@FONTANGLE 8 1
```



PERSISTENT:

YES

REQUIREMENTS:

Crystal Reports 9 or higher

@FONTNAME (Font Name)

This macro can be used to assign a global font to a font object in a chart. It is useful when you need to dynamically change a font to look better in another language (Japanese, for example).

SYNTAX:

```
@FONTNAME nObject nFontIndex
```

PARAMETERS:

nObject; 1...11 selects one of the following chart objects:

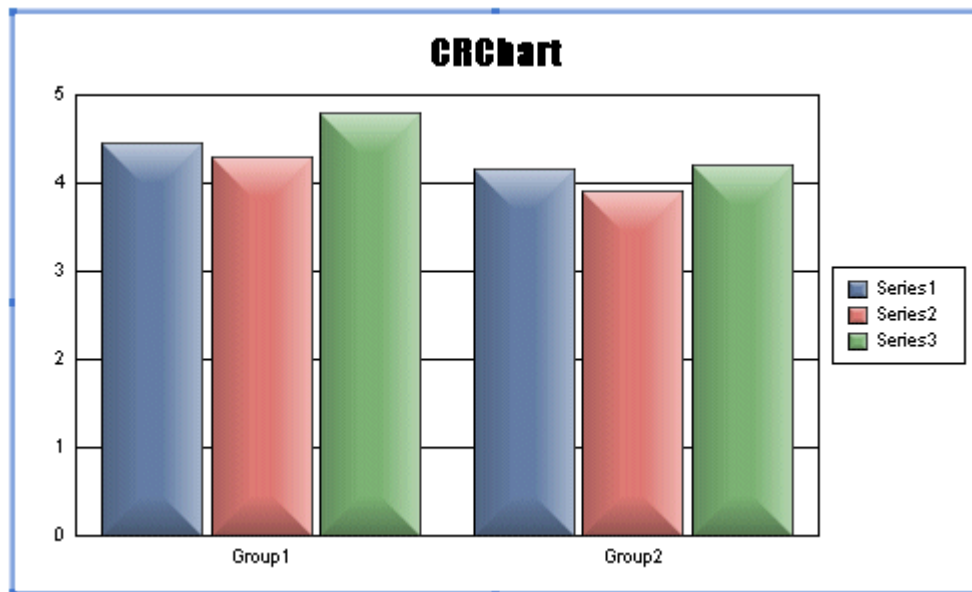
- 1 = Title
- 2 = Subtitle
- 3 = X1-Axis Title
- 4 = Y1-Axis Title
- 5 = Y2-Axis Title
- 6 = Footnote
- 7 = Data Text
- 8 = O1-Axis Labels or X1-Axis Labels depending on the chart type
- 9 = Y1-Axis Labels
- 10 = Y2-Axis Labels
- 11 = Legend Text

nFontIndex; 0...2 selects one of the following global fonts

- 0=Arial
- 1=MS PGothic
- 2=Impact

EXAMPLE:

```
@FONTNAME 1 2
```



PERSISTENT:

YES

REQUIREMENTS:

Crystal Reports 11 or higher

@FONTSIZE (Font Size)

This macro sets the point size of a text object in a chart.

SYNTAX:

```
@FONTSIZE nObject nSize
```

PARAMETERS:

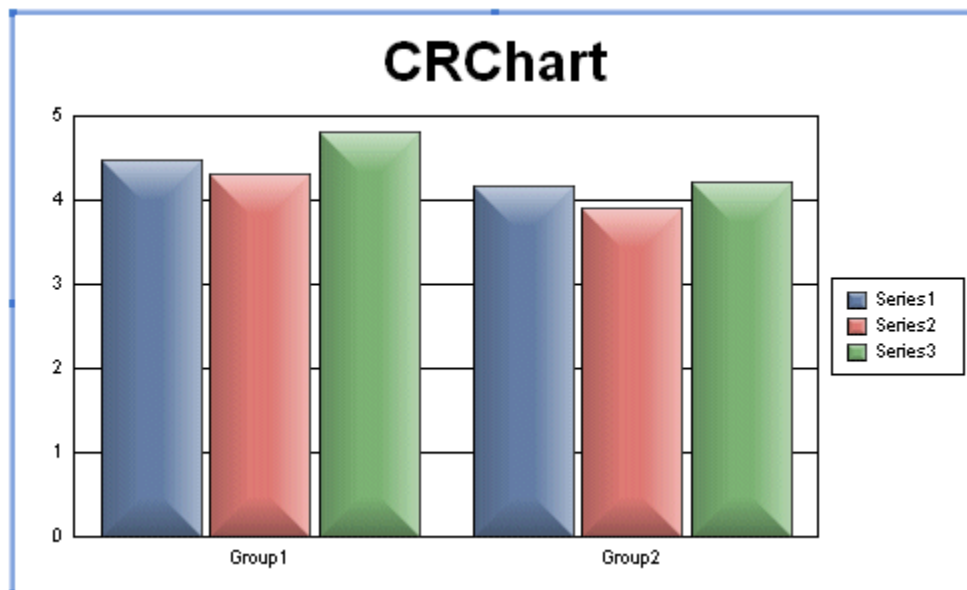
nObject; 1...11 selects one of the following chart objects:

- 1 = Title
- 2 = Subtitle
- 3 = X1-Axis Title
- 4 = Y1-Axis Title
- 5 = Y2-Axis Title
- 6 = Footnote
- 7 = Data Text
- 8 = O1-Axis Labels or X1-Axis Labels depending on the chart type
- 9 = Y1-Axis Labels
- 10 = Y2-Axis Labels
- 11 = Legend Text
- 12 = Series labels in Pie Charts
- 13 = Value labels in Pie Charts

nSize; any INT16 value that defines a font point size

EXAMPLE:

```
@FONTSIZE 1 20
```



PERSISTENT:

NO

REQUIREMENTS:

Crystal Reports 9 or higher

@FRAME (Frame Size/Location)

This macro can be used to specify a fixed size/location for the chart frame. If you want the chart frame to be the exact same size and in the same location on each page of a report, this macro will position the chart frame at the specified X/Y coordinates.

SYNTAX:

```
@FRAME nUpperLeftX nUpperLeftY nLowerRightX nLowerRightY
```

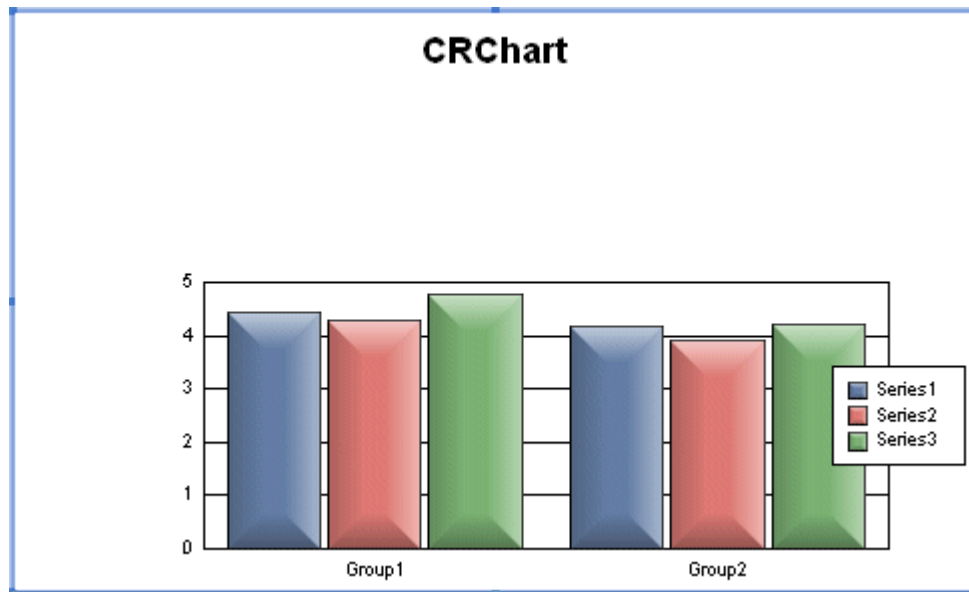
PARAMETERS:

nUpperLeftX, nUpperLeftY; -16382...+16382 specifies the X/Y position of the upper left corner of the chart frame in virtual coordinates

nLowerRightX, nLowerRightY; -16382...+16382 specifies the X/Y position of the lower right corner of the chart frame in virtual coordinates

EXAMPLE:

```
@FRAME -10000 1110 13383 -14000
```



PERSISTENT:

NO

REQUIREMENTS:

Crystal Reports 10 or higher

@HAT (Hat on Error Bars)

This macro sets the width of the "hat" portion of an error bar that is created by the @EB macro.

SYNTAX:

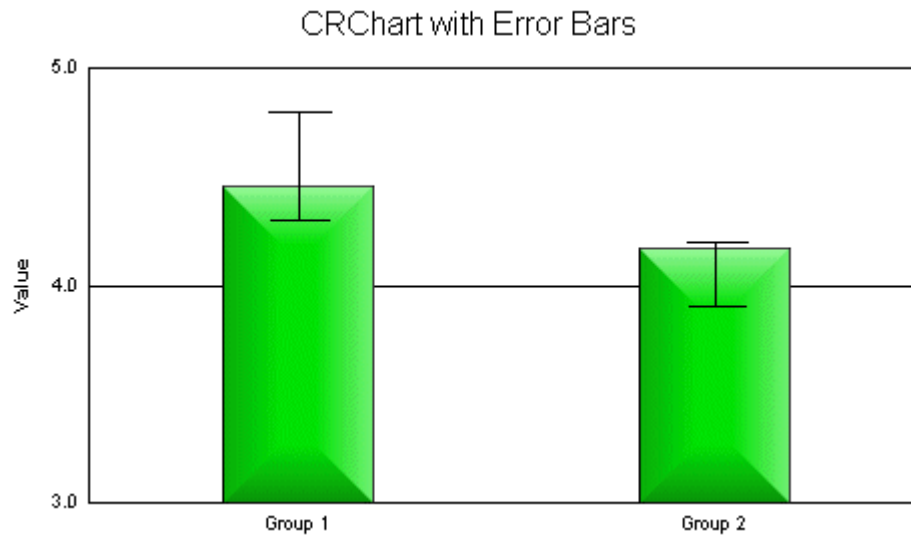
```
@HAT nWidth
```

PARAMETERS:

nWidth; Width of Hat (0...100), 0=No Hat, 100=Widest Possible Hat.

EXAMPLE:

```
@EB 1  
@HAT 90
```



PERSISTENT:

NO

ALSO SEE:

@EB, @EB3

@LEGEND (Legend Size/Location)

This macro can be used to specify a fixed size/location for the chart legend. If you want the chart legend to be the exact same size and in the same location on each page of a report, this macro will position the chart legend at the specified X/Y coordinates.

SYNTAX:

```
@LEGEND nUpperLeftX nUpperLeftY nLowerRightX nLowerRightY
```

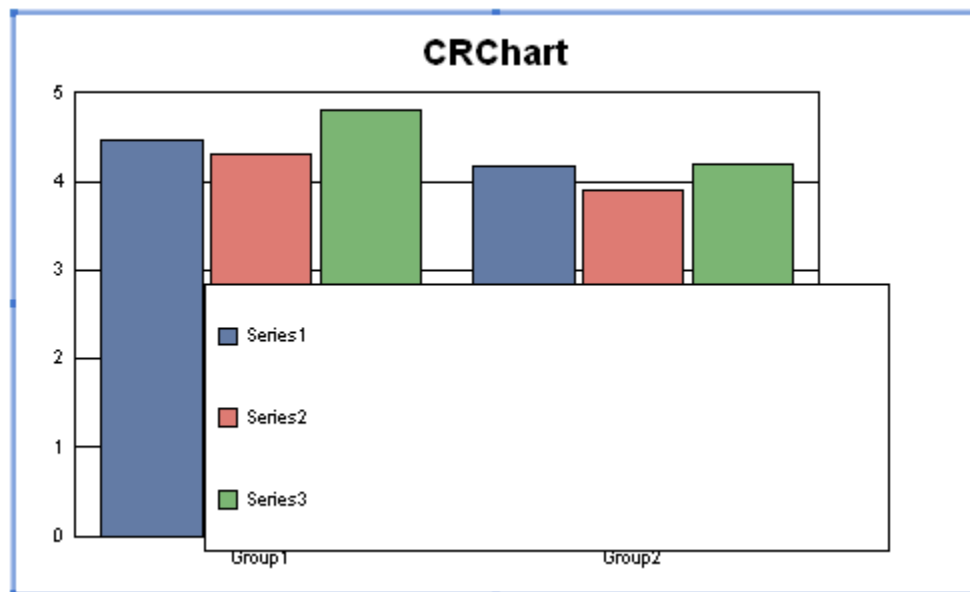
PARAMETERS:

nUpperLeftX, nUpperLeftY; -16382...+16382 specifies the X/Y position of the upper left corner of the chart legend in virtual coordinates

nLowerRightX, nLowerRightY; -16382...+16382 specifies the X/Y position of the lower right corner of the chart legend in virtual coordinates

EXAMPLE:

```
@LEGEND -10000 1110 13383 -14000
```



PERSISTENT:

NO

REQUIREMENTS:

Crystal Reports 10 or higher

@LEGEND_ORDER (Force Legend Order)

This macro can be used to control the order in which series are drawn in the legend.

SYNTAX:

```
@LEGEND_ORDER nForceLegendOrder
```

PARAMETERS:

nForceLegendOrder; 0...2.

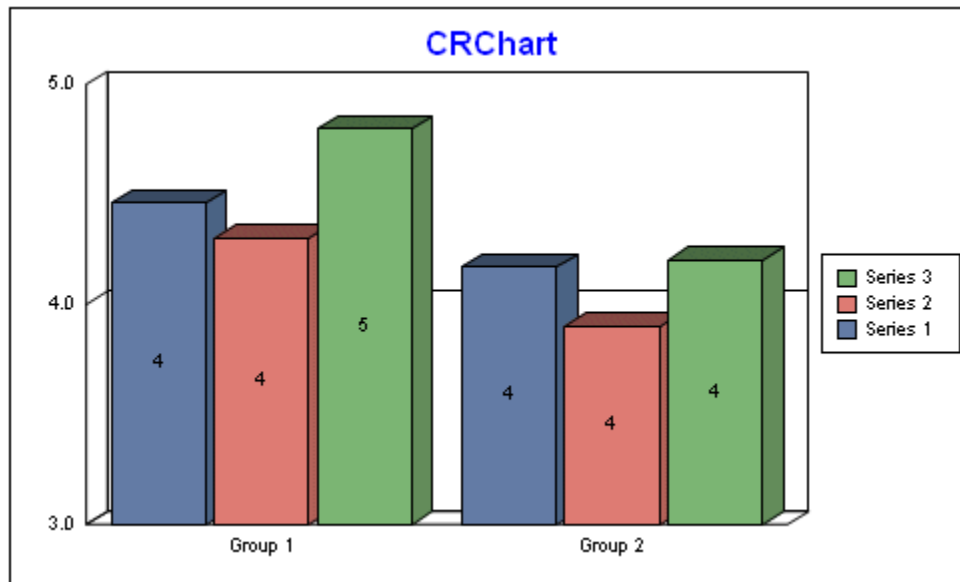
0 = Use internal logic to determine legend order

1 = Force legend order to Series 0... Series N

2 = Force legend order to Series N ... Series 0

EXAMPLE:

```
@LEGEND_ORDER 2
```



PERSISTENT:

NO

REQUIREMENTS:

Crystal Reports 9 or higher

ALSO SEE:

@LEGEND, @LEGEND_WRAP_WIDTH, @RS

@LEGEND_WRAP_WIDTH (Legend Wrap Width)

This macro can be used to define a virtual wrap point for all legend text. It overrides the system default of 6500 to create very wide legends that do not wrap onto a second line.

SYNTAX:

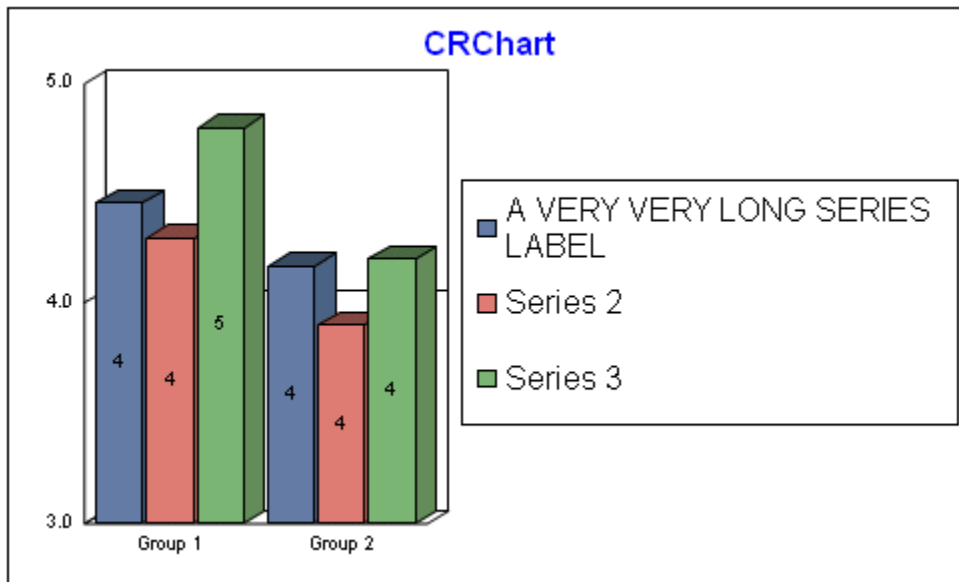
```
@LEGEND_WRAP_WIDTH nWrapPoint
```

PARAMETERS:

nWrapPoint; 0...16000 defines the virtual wrap point for all legend text

EXAMPLE:

```
@ASL 0 A VERY, VERY LONG SERIES LABEL  
@LEGEND_WRAP_WIDTH 16000
```



PERSISTENT:

NO

REQUIREMENTS:

Crystal Reports 10 or higher

@ORD_SPACE (Extend Line/Area Charts to Frame Edge)

This macro can be used to specify how line and area charts are drawn. Set *nMode* to zero to select normal drawing mode - inset from the chart frame. Set *nMode* to one to select extended drawing mode - chart is extended to chart frame.

SYNTAX:

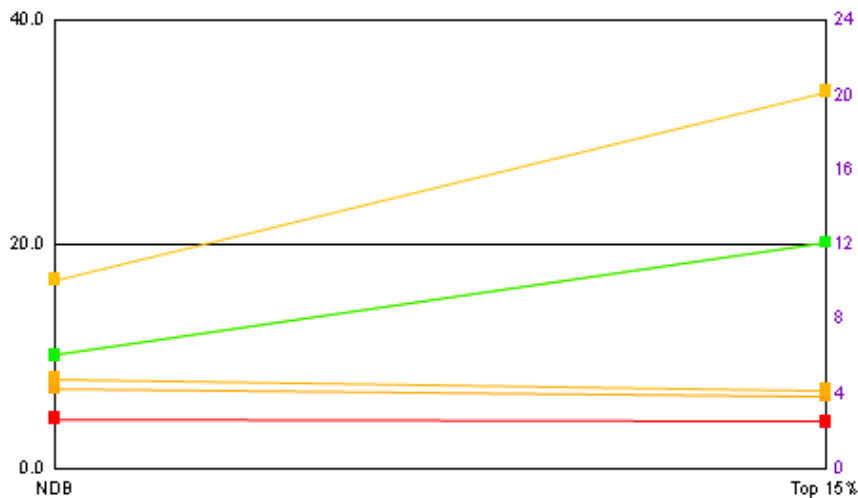
```
@ORD_SPACE nMode
```

PARAMETERS:

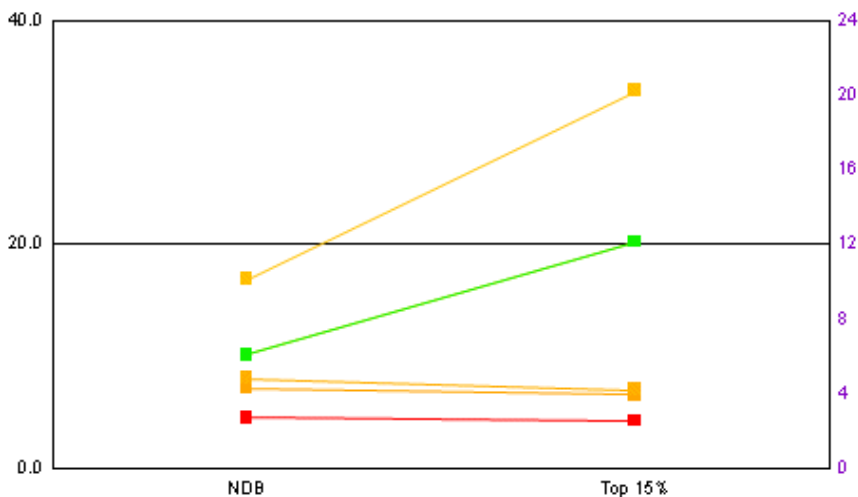
nMode; 0=normal drawing mode (inset from chart frame), 1=extended drawing mode (draw chart extended to frame edge)

EXAMPLE:

```
@ORD_SPACE 1
```



```
@ORD_SPACE 0
```



PERSISTENT:

NO

REQUIREMENTS:

Crystal Reports 10 or higher



Section 18: Troubleshooting Macros & Notes

- @DEBUG; Show Debug Information
- @G1; Force parameter substitution lookups to use group 1 instead of group 0
- @PARAM_COUNT_FIXUP; Debug Macro
- @PARAM_FIXUP; Fix parameters from Crystal Reports Fields/Functions.
- @RESET; Reset Internal Data Range

@DEBUG (Show Debug Information)

This macro provides useful information for tracking problems that may occur in CRChart. Do not use this macro unless you are instructed to do so by Three D Graphics technical support.

SYNTAX:

`@DEBUG`

PARAMETERS:

None

PERSISTENT:

NO

REQUIREMENTS:

Crystal Reports 10 or higher

@G1 (Force Parameter Substitution Lookups to use Group 1 instead of Group 0)

This macro can be used to force parameter substitution lookups to use group one instead of group zero.

SYNTAX:

```
@G1 bSwap
```

PARAMETERS:

bSwap; 0/1

0 = Use group zero for parameter substitution lookups

1 = Use group one for parameter substitution lookups

PERSISTENT:

NO

REQUIREMENTS:

Crystal Reports 11 or higher

@PARAM_COUNT_FIXUP (Debug Macro)

This macro provides useful information for tracking problems that may occur in CRChart. Do not use this macro unless you are instructed to do so by Three D Graphics technical support.

SYNTAX:

```
@PARAM_COUNT_FIXUP nFixup
```

PARAMETERS:

nFixup; -1...9

PERSISTENT:

N/A

REQUIREMENTS:

Crystal Reports 10 or higher

@PARAM_FIXUP (Parameter Fix-Up)

If you are using a field or function in Crystal Reports as a parameter for a CRChart Macro and do not achieve the expected results, this macro can be used to correct this problem. See "Using Crystal Reports Fields/Functions in CRChart Macros" for more information about using fields and functions with CRChart macros. Normally, this macro is only needed in charts with a numeric X-axis.

SYNTAX:

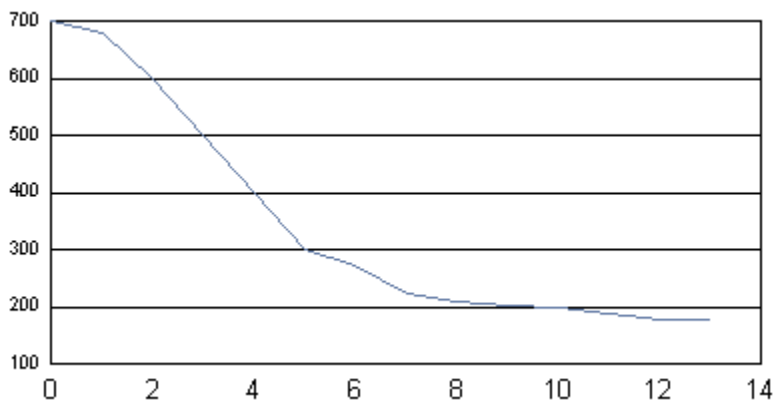
```
@PARAM_FIXUP nIndex
```

PARAMETERS:

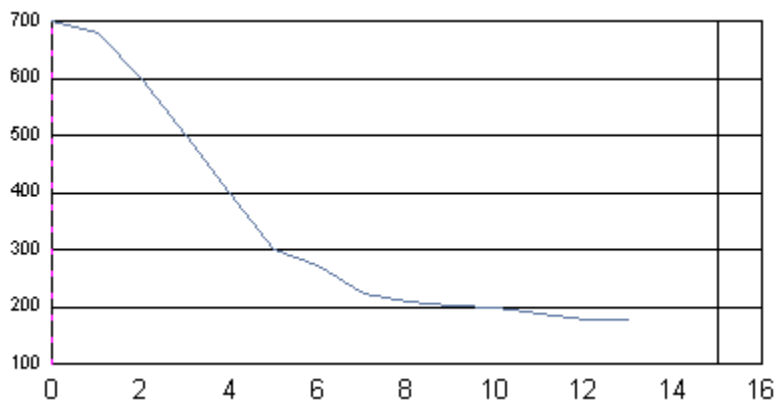
nIndex; 1=Enable parameter fix-up, 0=Disable parameter fix-up

EXAMPLE:

```
@X P1
@PARAM_FIXUP 0
```



```
@X P1
@PARAM_FIXUP 1
```



In this example, the parameter-driven user-defined line (@X P1) only appears when the @PARAM_FIXUP 1 macro is applied.

PERSISTENT:

NO

@RESET (*Reset Internal Data Range*)

In some unusual cases, CRChart macros are not applied until the user clicks on the chart. This macro solves this problem. It will reset the internal data range (useful for tracking parameter substitution errors). Do not use this macro unless you are instructed to do so by Three D Graphics technical support.

SYNTAX:

`@RESET`

PARAMETERS:

None

PERSISTENT:

NO

REQUIREMENTS:

Crystal Reports 10 or higher

Crystal Reports PDF Export Limitation

A limitation in Crystal Reports PDF export, prevents CRChart from creating charts in a PDF with certain visual effects, such as partial transparency and gradients. Instead of removing the visual effect, CRChart generates the chart as a static, non-scalable image to work around this limitation.

If such a PDF is printed or viewed at 100% zoom, this workaround is unnoticeable. It only becomes apparent when you zoom in on the chart: it will look pixilated and blurry. Unfortunately, CRChart cannot control this behavior. Macros that will cause this PDF workaround include all macros that automatically enable high-quality rendering (@HQ).



Appendix A: Alphabetical Index

Sec: Document Section where the macro is described

2. Auto-Arrange Macros	8. Color & Special Effects	14. Gantt Chart Macros
3. Axis & Grid Lines	9. Trend Lines	15. Pie Chart Macros
4. Series & Groups	10. User-Defined Areas & Lines	16. Waterfall Chart Macros
5. Labels	11. Chart Type Macros	17. Miscellaneous
6. Risers & Markers	12. Box Plot Macros	18. Troubleshooting
7. Data Manipulations	13. Gauge Macros	

Requirements: Identifies minimum Crystal Reports version and CRChart version (where applicable).

Macro	Description	Sec	Requirements
@3DLABEL	Auto arrange 3D chart labels	5	Crystal Reports 9
@3DLINES	Draw Risers as Ribbons on 2.5D Line Charts	6	Crystal Reports 11
@3DSCAT	Create a 3D Scatter Chart	11	None
@AA	Automatically arrange chart objects	2	None
@AA2	Automatically arrange chart objects with Frame adjustment.	2	Crystal Reports 9
@AA3	Automatically arrange chart objects with Frame & Legend adjustment.	2	Crystal Reports 9
@AA4	Automatically arrange chart objects with Maximized Frame adjustment.	2	Crystal Reports 10
@ABS_BAR	Absolute Bars for Negative Values	6	Crystal Reports 11.5 CRCHART Enterprise
@ACTUAL_DAY	Actual Day Line in a GANTT2 chart	13	Crystal Reports 11.5 CRCHART Enterprise
@ACTUAL_MONTH	Actual Month Band in a GANTT2 chart	13	Crystal Reports 11.5 CRCHART Enterprise
@AGL	Alias/Change a Group Label	5	None
@ALPHA	Apply Alpha Channel Transparency to a riser or marker	8	None
@APPEND_DATATEXT	Append a String to Data Text	5	Crystal Reports 9
@AREA_GRID	Grid Lines above Area	3	Crystal Reports 11
@ASL	Alias/Change a Series Label	5	None
@ASL_DP	Map a sub-string from a label to the legend	5	None
@AUDIO	Change the chart type to an Audiogram	11	Crystal Reports 9
@AUTO_COLOR	Automatic Color Mode	8	Crystal Reports 11
@AXIS	Assign a Series to an Axis	3	None
@BEVEL	Bevel effect chart objects	8	Crystal Reports 9 CRCHART Enterprise
@BP/BP1	Box plot chart with a square-style tail	12	None
@BP2	Box plot chart with a T-style tail	12	None
@BP3	Box plot chart with a I-style tail	12	None
@BPH	Box plot chart orientation	12	Crystal Reports 10
@BPW	Box plot riser width	12	Crystal Reports 9
@BUBBLEMODE	Bubble Size in Bubble Charts	6	Crystal Reports 10
@CALC_PERCENT_SERIES	Calculate Percent Series	4	Crystal Reports 10

Chart Enhancement Macros for Crystal Reports

Macro	Description	Sec	Requirements
@COLOR_FILE	Load a Color Scheme File	8	Crystal Reports 12 CRCHART Enterprise
@COLOR_MODE	Color Mode (Color by Series or Group)	8	None
@COLOR_SCHEME	Activate a pre-defined color scheme	8	Crystal Reports 10
@COMBO	Combo Bar/Line/Area Chart	11	None
@COMPARE2	Create a 2-Series Absolute Bar Chart	11	Crystal Reports 10
@COND_COLOR & @COND_COLOR2	Color risers (bar/line/area) based on conditions	8	None
@COND_GROUP_LABEL	Color a riser based on a Group Label	6	None
@COND_GROUP_LABEL2	Color a riser based on a Group Label prefix	6	None
@CONNECT2	Special Draw Mode for Scatter/Bubble Charts	11	Crystal Reports 11 CRCHART Enterprise
@CURVED_LINES	Apply curved lines to a line or area chart	8	Crystal Reports 9 CRCHART Enterprise
@CX	X1-Axis Line with Color	10	Crystal Reports 9
@CXY	Line between two X/Y Coordinates with Color	10	None
@CY	Y1-Axis Line with Color	10	None
@CY2	Y1-Axis Line with Color, Width & Style	10	Crystal Reports 11 CRCHART Enterprise
@DATASET_MERGE	Reorganize Dataset	7	Crystal Reports 11 CRCHART Enterprise
@DATATEXT	Data Text Mode	5	None
@DATATEXT_PIE	Control appearance of pie chart data text	15	Crystal Reports 9
@DEBUG	Show Debug Information	18	Crystal Reports 10
@DEFINE_SCHEME	Define riser color scheme	8	Crystal Reports 10
@DLT	Data Line Type: Markers Only, Lines Only, Markers & Lines	6	None
@DP	Data Point Override	7	None
@DPC	Data Point Clear	7	None
@DT	Show/Hide Series-Specific Data Text	5	Crystal Reports 10
@DT_CENTERED	Data Text special formatting in Stacked Charts	5	Crystal Reports 11 CRCHART Enterprise
@DT_SERIES	Data Text Series-Dependent Font	5	Crystal Reports 11 CRCHART Enterprise
@DTP	Data Text Position	5	Crystal Reports 11
@DX	Number of X-Axis Divisions	3	None
@DY	Number of Y-Axis Divisions	3	None
@DY2	Number of Y2-Axis Divisions	3	Crystal Reports 9
@EB	Error bars in standard bar/column charts	17	None
@EB3	Error Bar with Medium Band	17	Crystal Reports 11 CRCHART Enterprise
@EXTEND_LOGAXIS	Extend Log Axis	3	Crystal Reports 11 CRCHART Enterprise
@FAH	Free All Highlights	17	Crystal Reports 11
@FONTANGLE	Font Rotation angle of a text object	17	Crystal Reports 9

Macro	Description	Sec	Requirements
@FONTNAME	Map a global font onto a font object	17	Crystal Reports 11
@FONTSIZE	Font size of a text object	17	Crystal Reports 9
@FORCE_ABSOLUTE	Force Series to plot Absolute	4	Crystal Reports 10
@FORCE_DATALINE	Force data line connecting all data points	6	Crystal Reports 10
@FORCE_DATATEXT_CURRENCY	Force data text to currency format	5	Crystal Reports 11
@FORCE_FULL_BARS	Force Full Bars	6	Crystal Reports 11
@FORCE_SERIES_COUNT	Force Series Count	4	Crystal Reports 10
@FORCE_Y2	Assign Series to Axis based on Series Label	3	Crystal Reports 11.5 CRCHART Enterprise
@FORECAST	Add Blank Groups	7	None
@FRAME	Define frame size/location	17	Crystal Reports 10
@G1	Force Parameter Substitution Lookups to use Group 1 instead of Group 0	18	Crystal Reports 11
@GANTT	Create a Gantt Chart	13	None
@GANTT2	Enhanced Gantt Chart	13	Crystal Reports 11.5 CRCHART Enterprise
@GANTT_COLORS	Gantt Riser/Marker Colors	13	Crystal Reports 11.5 CRCHART Enterprise
@GAUGE_BORDER_STYLE	Gauge border	14	Crystal Reports 9 CRCHART Enterprise
@GAUGE_BORDER_THICKNESS	Gauge engine thickness	14	Crystal Reports 9 CRCHART Enterprise
@GAUGE_COLOR	Gauge band colors	14	Crystal Reports 10
@GAUGE_MULTIPLE_NEEDLES	Gauge multiple needles	14	Crystal Reports 9 CRCHART Enterprise
@GAUGE_NEEDLE_STYLE	Gauge needle style	14	Crystal Reports 9 CRCHART Enterprise
@GAUGE_STYLE	Enable/Disable new gauge drawing engine	14	Crystal Reports 9 CRCHART Enterprise
@GAUGE_THRESHOLD	Gauge Band Thresholds	14	Crystal Reports 10
@GCOLOR	Color a Chart Object	8	None
@GM	Read data in Column or Row Major order	7	None
@GRAPHTYPE	Graph Type	11	None
@GRIDLINES_ON_TOP	Grid Lines Front/Behind Risers	3	Crystal Reports 11
@GROUP_LABELS_ON_BASELINE	Group Labels on Baseline	5	Crystal Reports 9
@GX	Grid Style for the X-Axis	3	None
@GY	Grid Style for the Y-Axis	3	None
@HAT	Size of hats on Error Bars	17	None
@HIDE_ZERO	Hide Risers/Markers for zero data points	6	None
@HL	Highlight a Riser/Marker	6	None
@HOUR_SCALE	Minor axis HOUR scale on a time axis	13	Crystal Reports 11
@HQ	High quality rendering	8	Crystal Reports 9 CRCHART Enterprise
@IG	Ignore a Group	4	Crystal Reports 9
@IN	Move First Box Plot In/Right	12	None

Chart Enhancement Macros for Crystal Reports

Macro	Description	Sec	Requirements
@INIT_USERLINES	Initialize user-defined lines	10	Crystal Reports 10
@IR	Insert Row	7	None
@IS	Ignore a Series	4	None
@LEGEND	Define legend size/location	17	Crystal Reports 10
@LEGEND_ORDER	Force Legend Order	17	Crystal Reports 9
@LEGEND_WRAP_WIDTH	Virtual wrap point for legend text	17	Crystal Reports 10
@LIMIT_VISIBLE_GROUPS	Limit Visible Groups	4	None
@LINE_BREAK	Null Data Behavior	6	Crystal Reports 11
@LS	Line Style	6	None
@MARKER	Define Marker Shapes	6	None
@MC	Marker Colors in Box Plots	12	None
@MCOLOR	Marker Colors	6	None
@MEAN	Mean average line	9	None
@MEKKO	Marimekko Chart	11	Crystal Reports 11 CRCHART Enterprise
@MIN_GROUPS	Control bar size	4	Crystal Reports 10
@MK	Number of Markers in Box Plots	12	None
@MOVA	Standard/scientific Moving Average Line	9	Crystal Reports 10
@MS	Marker Shapes in Box Plots	12	None
@NAP	Numeric Auto Precision	3	Crystal Reports 10
@NEG_SS	Series-Specific @NEG_STYLE	5	Crystal Reports 10
@NEG_STYLE	Negative Values Style	5	None
@OFFSCALE_Y1	Off-scale Values on the Y1-Axis	3	Crystal Reports 9
@ORD_SPACE	Draw line charts to frame edge or inset	17	Crystal Reports 10
@PARAM_COUNT_FIXUP	Debug Macro	18	Crystal Reports 10
@PARAM_FIXUP	Fix parameters from Crystal Reports Fields/Functions.	18	None
@PARETO	Create a Pareto Chart	11	None
@PAT	Apply Pattern to Riser	6	None
@PDT	Precision Data Text	5	Crystal Reports 11
@PERCENT_SERIES	Create Ratio Series	4	Crystal Reports 9
@PIE_NEG	Negative values in legend area of a pie chart	15	None
@PIE_ROTATE	Pie rotation start point	15	Crystal Reports 10
@POLAR	Polar Chart	11	None
@POLAR_SPIKE		11	Crystal Reports 11 CRCHART Enterprise
@PVA	Plan vs. Actual Chart	11	Crystal Reports 11 CRCHART Enterprise
@PX	X-Axis Precision	3	None
@PY	Y1-Axis Precision	3	None
@PY2	Y2-Axis Precision	3	Crystal Reports 9
@RDT	Rotate Data Text	5	Crystal Reports 10

Macro	Description	Sec	Requirements
@RESET	Reset Internal Data Range	18	Crystal Reports 10
@RG	Reverse Groups	4	None
@RISER_BORDER	Enable/Disable Riser Borders	6	None
@RISER_OVERLAP	Overlap between risers in side-by-side/clustered bar charts	6	None
@RISER_WIDTH	Riser Width in bar charts	6	None
@RIVER	Create floating area (river) from 2 series	11	Crystal Reports 11
@RS	Reverse Series	4	None
@SC	Define Y-Axis Scale	3	None
@SCALE_INTERVAL	Scale Interval on Y1, Y2, or X-Axis	3	Crystal Reports 11
@SCH	@HOUR_SCALE Min/Max	13	Crystal Reports 11
@SCX	Define X-Axis Scale	3	None
@SCY_AUTOLOG	Improve Log Axis Automatic Scale	3	Crystal Reports 11
@SCY2	Define Y2-Axis Scale	3	None
@SHADOW	Apply a Drop Shadow	8	None
@SINGLE_GROUP	Draw only the first Group in a Scatter Chart	4	Crystal Reports 10
@SMART_PIE_LABELS	Enable/Disable Enhanced pie label layout engine	15	Crystal Reports 9 CRCHART Enterprise
@SMART_PIE_SETTINGS	Customize Enhanced pie label layout engine	15	Crystal Reports 9 CRCHART Enterprise
@SMOOTH_LINE	Connect data points with Smooth or Straight Line segments	6	None
@SORT	Sort Series/Groups	4	None
@STEP_LINE	Series Stepped Line	4	Crystal Reports 9
@STEP_LINE2	Series Stepped Line at Values	4	Crystal Reports 10
@STOP	Force Assign Elements to Series One	4	None
@STRIP_ZERO	Strip Zero Values	7	None
@SWAP	Swap Series/Groups	4	None
@SZ	Size of Markers in Scatter or Box Plot charts	6	None
@TIMEAXIS	Time Axis	3	Crystal Reports 9
@TOTAL_GROUP	Create a Total Group	4	Crystal Reports 9
@TRENDLINE	Trend Line across a series	9	Crystal Reports 9
@TRENDLINE2	Trend Line with Width & Style	9	Crystal Reports 11 CRCHART Enterprise
@TRENDLINE_ALLDATA	Linear Regression Line through all data points	9	Crystal Reports 10
@UF	Same as @USER_FILL	10	Crystal Reports 9
@USER_CIRCLE	User-Defined Outlined Circle	10	Crystal Reports 9
@USER_CIRCLE_ABOVE	User-Defined Outlined Circle above the Chart Area	10	Crystal Reports 9
@USER_FILL	User-Defined Color-Filled Rectangle	10	Crystal Reports 9
@USER_FILL_CIRCLE	User-Defined Color-Filled Circle	10	Crystal Reports 9
@USER_FILL_CIRCLE_ABOVE	User-Defined Color-Filled Circle above the Chart Area	10	Crystal Reports 9
@USER_FILL_CIRCLE2	User-Defined Pattern-Filled Circle	10	Crystal Reports 9

Chart Enhancement Macros for Crystal Reports

Macro	Description	Sec	Requirements
@USER_FILL_CIRCLE2_ABOVE	User-Defined Pattern-Filled Circle Above the Chart Area	10	Crystal Reports 9
@USER_FILL2	User-Defined Pattern-Filled Rectangle	10	Crystal Reports 9
@USER_MARKER	User-Defined Marker at X/Y coordinates	10	None
@USER_MARKER2	User-Defined Marker at X/Y coordinates with Value	10	Crystal Reports 9
@USER_RECT	User-Defined Outlined Rectangle	10	Crystal Reports 9
@USER_SERIES	User-Defined Series	7	None
@UW	User-Defined Vertical Band	10	Crystal Reports 10
@WATERFALL	Create a normal Waterfall Chart	16	None
@WATERFALL2	Create a Waterfall Chart with Total Group	16	Crystal Reports 9
@WATERFALL4	Waterfall Chart with Color Parameters	16	Crystal Reports 11 CRCHART Enterprise
@WC	Color an @UW Vertical Band	10	Crystal Reports 10
@WF_CENTERTEXT	Center Data Text in a Waterfall Chart	16	Crystal Reports 11
@WF_CONNECT	Line style of feeler lines in a waterfall chart	16	Crystal Reports 9
@X	X-Axis Line at Value	10	None
@X_AXIS_MODE	X-Axis Mode	3	None
@X_AXIS_MODE2	@X_AXIS_MODE with Start Month/Year & Duration	3	Crystal Reports 12 CRCHART Enterprise
@X1_TIE	Tie X-Axis gridlines to values	3	Crystal Reports 10
@XG	X-Axis Line at Group	10	Crystal Reports 9
@XSKIP	Skip labels on X-Axis	5	None
@XSKIP2	Skip labels on X-Axis/Force Last Label	5	None
@XSKIP3	Max X-labels/auto-adjust skip to match	5	Crystal Reports 10
@XSZ	X-Axis Line with Label	10	Crystal Reports 10
@XSZL	X-Axis Line with Label on Left	10	Crystal Reports 10
@XSZN	X-Axis Line with Label & Value	10	Crystal Reports 10
@XSZNL	X-Axis Line with Label & Value on Left	10	Crystal Reports 10
@XY	X/Y Coordinates Line	10	None
@XY_DP2	Line between two Data Points (Scatter Charts)	10	None
@Y	Y-Axis Line	10	None
@Y_HEADROOM	Riser Headroom	6	Crystal Reports 11 CRCHART Enterprise
@Y_ZERO	Include/Exclude Zero for Auto Scale	3	Crystal Reports 10
@Y1_FORCE_PERCENT	Y1-Axis Percent Format	3	Crystal Reports 9
@Y1_FORCE_PERCENT2	Y1-Axis Percent/Numeric Format	3	Crystal Reports 10
@Y1_INVERT	Invert the Y1-Axis Invert	3	Crystal Reports 9
@Y1BASE	Y1-Axis Base Line	3	None
@Y2_FORCE_PERCENT	Y2-Axis use Percent Format	3	Crystal Reports 10
@Y2_INVERT	Y2-Axis Invert	3	Crystal Reports 9
@Y2BASE	Y2-Axis Base Line	3	None
@Y2SLAVE	Slave Y2-Axis to Y1-Axis	3	None

Macro	Description	Sec	Requirements
@Y2SLAVE2	Slave Y1/Y2-axes to Max Value	3	Crystal Reports 9
@YSZ	Y-Axis Line with Label	10	Crystal Reports 9
@YSZL	Y-Axis Line with Label on Left	10	Crystal Reports 9
@YSZN	Y-Axis Line with Label & Value	10	Crystal Reports 9
@YSZN2	@YSZN with Label & Value Above Line	10	Crystal Reports 11
@YSZNL	Y-Axis Line with Label & Value on Left	10	Crystal Reports 9
@ZEROLINE	Draw Zero Line with Axis Labels	3	Crystal Reports 11 CRCHART Enterprise