



Time Series

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Description

This seminar is designed specifically to explore the creation of time-based columns in Diver.

Contents:

- Preparing DivePlans for Time Series
- Using Named Groups
- The Time Series Control Panel
- The Period Comparison wizard
- Period Comparison vs. Time Series Control Panel
- Examples



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Time-based Columns

Use Period or Date Dimensions to create columns that:

- Restrict summing values to only those rows that fall within a defined time group
- Can be used in the definition of other columns that, e.g., compare the difference, or percent difference, of 2 periods
- Dynamically adjust results when the user selects a different Time Dimension, or when a different start or end value for a specified period is chosen

Time-based columns might:

- Compare this year (YTD) to the same period last year (Last YTD) or this month (MTD) to last month (Last MTD)
- Show a rolling 3, 6, or 12 month trend
- Use a QuickView to change the definition of "Current"



Preparing DivePlans

- In order to create time-based columns, the DivePlan must contain Date or Period Dimensions

- *Date (month/day/year) fields need to be identified during the Build process*
- *Period fields must be identified in Diver*

- You can:

- *Promote Info Fields to Dynamic Dimensions and use them*
- *Use Date Roll-Up to create new time-based Dynamic Dimensions which are then available*



Preparing DivePlans – Date Roll-Up

Wizard for creating new Dynamic Dimensions from Period or Date Dimensions

Includes the following:

- Week (requires Date)
- Month Name
- Day of the Week
- Quarter
- Year

Considerations:

- Limited Calendar
- Performance of Dynamic Dimensions

Dynamic Dimensions

Info Fields:

- Ship Year
- Customer County ID
- Customer Status
- Customer Chain
- Customer Name
- Customer ID
- Customer State
- Customer City
- Customer Zipcode
- Sales Manager
- MonthYear

Dimensions:

- Ship Year
- Customer County ID
- Customer Status
- Customer Chain
- Customer Name
- Customer State
- Customer City
- Customer Zipcode
- Sales Manager
- MonthYear

Alphabetize List

>> <<

Date Roll-Up... OK Cancel



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Preparing DivePlans Identifies Periods by Their String Format

DI-Diver

Discharge Year-Month [discharges_2.mdl-Dive A]

Discharge Year-Month	Discharges	Days	Expected Days	Charges	Payments	Operating Costs	Dir Var Cost	Severity Ills	ICU
Totals	23,489	81,076	81,183	6					
2008-01	1,614	4,437	4,426						
2008-02	1,059	4,620	4,622						
2008-03	2,000	5,010	5,010						
2008-04	1,914	5,048	5,059						
2008-05	1,927	5,201	5,223						
2008-06	1,944	5,157	5,121						
2008-07	2,071	5,343	5,300						
2008-08	2,013	4,895	4,723						
2008-09	1,916	5,240	5,253						
2008-10	2,103	5,410	5,446						
2008-11	1,987	5,600	5,614						
2008-12	2,043	5,279	5,284						

Edit Column - Dimension Options

Column Name: Discharge Year-Month

Column Size: 100 Pixels

Fill to Data

Set Size

Format:

None

Number: Decimal Places: []

Date: Format: [MM/DD/YYYY]

Period: Type: [Months]

Format: [MM/YY]

Example: 2009-01

OK Cancel



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Preparing DivePlans Date Option Only if in Model Build – This Reformats the Date Display

The screenshot shows the DI-Driver software interface. The main window displays a data table with columns: Discharge Date, Number of Discharges, Total Discharge Days, Avg LOS, Total Charges, Total Operating, and Total Payments. The 'Discharge Date' column is highlighted. A 'Dimension Options' dialog box is open, showing the 'Discharge Date' column selected. The dialog has options for 'Format' (None, Number, Date, Fixed) and 'Set Size' (100 Pixels). The 'Date' format is selected, and the format is set to 'MM/DD/YYYY'. The 'Set Size' is set to 100 Pixels. The dialog also has 'OK' and 'Cancel' buttons.

Discharge Date	Number of Discharges	Total Discharge Days	Avg LOS	Total Charges	Total Operating	Total Payments
Totals	29,710	75,445	2.6			
01/07/2009	58	84	1.1			
01/08/2009	75	380	5.1			
01/09/2009	69	266	3.9			
01/10/2009	72	187	2.6			
01/11/2009	76	203	2.7			
01/12/2009	71	187	2.6			
01/13/2009	62	253	4.1			
01/14/2009	89	89	1.3			
01/15/2009	54	243	3.8			
01/16/2009	48	179	2.6			
01/17/2009	87	142	2.1			
01/18/2009	64	157	2.5			
01/19/2009	63	150	2.5			
01/20/2009	62	199	3.2			
01/21/2009	64	152	2.4			



Time-based Columns - Usage

- Time-based columns are filtered columns
- Valid Dimension values appear in the Dive Window, but their numbers are not included in the filtered column totals
- A blank in a column means the Dimension value has results within the Model set, but not the time period
- A zero value denotes no number for that period
- For this reason, ad-hoc DivePlans should include the unfiltered column along with time-based columns



Time-based Columns

Three ways to create time-based columns:

- Using Named Groups
- The Time Series Control Panel
- The Period Comparison wizard

Let's start by using Named Groups in Calculated Columns...



Named Groups

- Groupings of Dimension values that can be used as column filters, not specific to just time-based Dimensions
- Named Groups are part of the Add Column functionality
- Characteristic of a DivePlan



Named Groups

Advantages:

- Familiar and integrated as part of the Add Column functionality
- Can be used in other ways, i.e. as QuickView selections
- Can be used in new column definitions over and over, and in combination
- Not as complex as Time Series Control Panel



Named Groups

- Period and Date Dimension Named Groups can include members in three ways:
 - *Explicit list of values*
 - *Excluding a list of values (defined by what it is not)*
 - *Range with logic that will "roll" with data updates*
- Range Named Groups take the last value in the Dimension as the definition of when is now, i.e. the "Current" last period



The Edit Named Groups Dialog

Edit Named Groups [X]

List Group: Save Group Remove

Group Dimension: Define Group By:

From:

Current +/- Month(s) Year: +/-

Month Year: +/-

To:

Current +/- Month(s) Year: +/-

Month Year: +/-

Add group and close Close



Period Named Groups Values

Edit Named Groups [X]

List Group: Save Group Remove

Group Dimension: Define Group By:

Values:

2006-01
2006-02
2006-03
2006-04
2006-05
2006-06
2006-07
2006-08
2006-09

>> <<

Selected:

--

Exclude Values

Add group and close Close



Named Groups

- Predefined groupings of “Date” Dimension

Values

- hard-coded (2009-01-01 to 2009-01-31 = January 2009)

Range

- relative (Current - 1 to Current = last 2 days)

- Predefined groupings of “Period” Dimension

Values

- hard-coded (2009-01, 2009-02, 2009-03 = Q1)

Range

- relative (Current - 1 to Current = last 2 months)



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Named Groups

Tip:
Dive on the Dimension on which the Named Group is created to verify it is defined properly

Ship Month	Cases On Hand Current Month	Cases On Hand Last Month	
Totals	31,635	33,670	
2009-08			
2009-09			
2009-10			
2009-11			
2009-12			
2010-01			
2010-02			
2010-03			
2010-04			
2010-05		33,670	
2010-06	31,635		



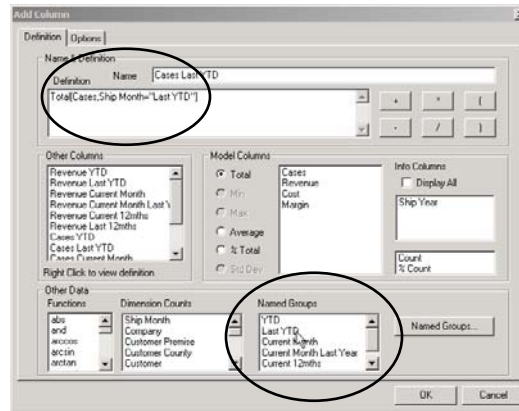
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Named Groups

Available to be applied as a filter to any column
<Summary Type> [<Summary Name>,<Dimension>="<Named Group>"]



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Report With Time-Based Calcs Using Named Groups

Customer Chain: PICADILLY (082)
Supplier: SoBe Beverages (060)

Brand [3 Years : Months (0ve A)]

Brand	Cases		YTD Cases		Dollars		YTD Dollars	
	YTD	Last YTD	Change Cases	Percent Change	YTD	Last YTD	Change Dollars	Percent Change
Total	81.00	51.00	10.00	19.81	189.82	145.37	28.45	20.12
Lit H2O	38.00	21.00	17.00	80.98	110.87	81.53	88.14	79.88
SoBe	4.00	4.00	4.00	100.00	5.20	5.20	5.20	100.00
SoBe 30 Tea	3.00	8.00	-5.00	-62.50	7.84	20.58	-12.74	-61.90
SoBe Adventure Rush	3.00	3.00	0.00	0.00	8.07	8.05	0.02	0.25
SoBe Essential	7.00	7.00	-7.00	-100.00	18.53	18.53	-18.53	-100.00
SoBe Lean	8.00	2.00	6.00	300.00	20.56	5.14	15.42	300.00
SoBe Power	5.00	7.00	-2.00	-28.57	13.48	19.92	-6.44	-32.33
SoBe Zen Blend		3.00	-3.00	-100.00		7.62	-7.62	-100.00



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Time Series vs. Named Groups

- Can create multiple periods and multiple types or columns (summaries, differences and percent differences) quickly
- Definition of "Current" can be controlled by the developer, not just defined as the last value in the Model
- Can have multiple definitions of "Current"
- More flexible, but as a result, more complex
- Can create Time Series QuickViews which allow end-users to adjust Period definitions
- Set Current time QuickView will open to latest value

Time Series columns:

- Can only be created, edited, and deleted using the Time Series Control Panel
- Edits from the Edit Column dialog cannot be applied to Time Series columns



The Time Series Control Panel

Another way to do essentially the same thing as Named Groups:

- Select a Time Dimension
- Define a Set of Grouped Values
- Apply to Columns



The Time Series Control Panel

Creates columns...

- 1) Name the Time Series
- 2) Choose Time Dimension
- 3) Define "Current" end period
- 4) Create "Period" types
- 5) Add column types (current, prior, difference, % difference)
- 6) Apply all to Data or DimCount Columns

Stores everything in...

- ... DivePlan
- ... Marker

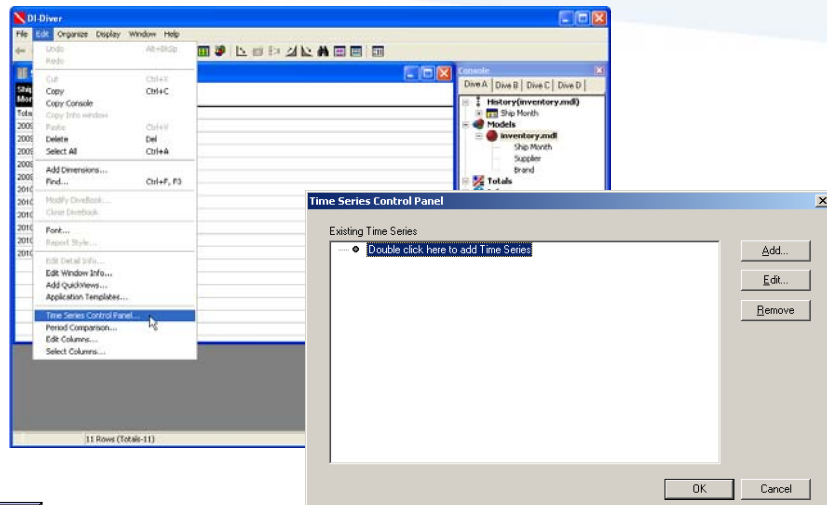


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Times Series Control Panel



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The Time Series Control Panel

General

Name:

Include Time Series Label in Quickview Bar

Time Dimension

Time Dimension:

Create Time Dimension QuickView

Prompt on initial selection

Current Date

Name:

Create Current Date QuickView

Prompt on initial selection

Current Date Definition:

Custom:

< Back Next > Cancel



The Time Series Control Panel Wizard Add Template

Time Series Type

Select Template: Replace Add

- YTD vs Last YTD
- HYTD vs Last HYTD
- HYTD vs Same HYTD Last Year
- QTD vs Last QTD
- QTD vs Same QTD Last Year
- MTD vs Last MTD
- MTD vs Same MTD Last Year
- Current Period vs YTD
- Current Period vs Previous Period
- Rolling Periods

Periods

Time Series Column Types

< Back Next > Cancel



The Time Series Control Panel Wizard Data Columns (Step 5)

Columns

Data Columns

Revenue Total
Cases Total

Revenue Total (Data Column)

Summaries Discounts

Up Down

< Back Finish Cancel



The Time Series Control Panel Wizard (Results) Adding a Template

Company [2 Years : Months-Dive A]						
Company	Revenue Total	Cases Total	Revenue Total YTD	Revenue Total Last YTD	Revenue Total Delta YTD vs. Last YTD	Revenue Total % Change YTD vs. Last YTD
Totals	3,050,563.58	1,137,010	984,750.95	899,773.20	84,977.75	9.44
Alpha Brands	1,351,770.04	502,281	409,836.45	407,404.18	2,432.27	0.60
Delta Brands	300,670.93	121,881	100,898.83	85,614.51	15,284.32	17.85
Omega Brands	1,398,122.61	512,848	474,015.67	406,754.51	67,261.16	16.54



The Time Series Wizard – Create New Periods

Time Series Type

Select Template: Blank Remove All Add

Periods

Add... Edit... Remove

Time Series Column Types

Add... Edit... Remove

< Back Next > Cancel



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The Time Series Wizard – Create New Periods (Step 4)

Time Series Edit Period

Period Name: Current 2 Months

Period Definition

Start: 2010/05

Use End Date: Current Date Use End Date's Period +/- -1 Month(s)

Pick Date 2010/05 Use End Date's Year +/- 0 Year(s)

Create Start QuickView Prompt on initial selection

End: 2010/05

Use End Date: Current Date Use End Date's Period +/- Month(s)

Pick Date 2010/05 Use End Date's Year +/- 0 Year(s)

Create End QuickView Prompt on initial selection

OK Cancel



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The Time Series Wizard – Define Column Types

Time Series Type

Select Template: Blank Remove All Add

Periods

Current 2 Months (Start = 2010/05, End = 2010/06)
Same 2 Mos Last Year (Start = 2010/06, End = 2010/06)

Add...
Edit...
Remove

Time Series Column Types

Add...
Edit...
Remove

< Back Next > Cancel



The Time Series Wizard – Define Column Types

Add Time Series Column

Select Column Type: Percent Difference

Select Period 1: Current 2 Months

Select Period 2: Same 2 Months Last Year

OK Cancel

Time Series Column Types

Current 2 Months Total
Same 2 Months Last Year Total
Percent Difference of Current 2 Months and Same 2 Months Last Year

Add...
Edit...
Remove



The Time Series Control Panel Wizard (Results) Create New Periods

Company [3 Years : Months-Dive A]					
Company	Revenue Total	Cases Total	Cases Total Current 2 Months	Cases Total Same 2 Months Last Year	Cases Total % Change Current 2 Months vs. Same 2 Months Last Year
Totals	4,640,648.03	1,732,483	149,900.00	139,184.00	7.70
Alpha Brands	2,064,652.85	768,484	62,143.00	66,086.00	-5.97
Delta Brands	462,368.78	187,292	14,976.00	13,902.00	7.73
Omega Brands	2,113,626.40	776,707	72,781.00	59,196.00	22.95



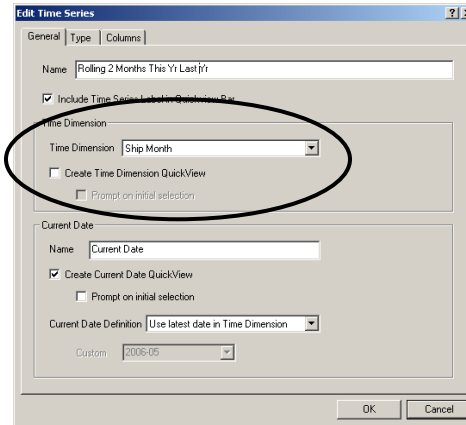
The Time Series Control Panel Wizard

- Options
 - Create Time Dimension QuickView
 - Include a Time Series label
 - Set the definition of the Current time
 - Create a Current QuickView



The Time Series Control Panel Wizard Options Time Dimension QuickView

- Time Dimension allows you to set the Dimension used for the Period values
- Checking Create Time Dimension QuickView places a Time Series QuickView that allows you to change the Time Dimension
- Common uses: Changing between Calendar and Fiscal Months or between Months and Dates



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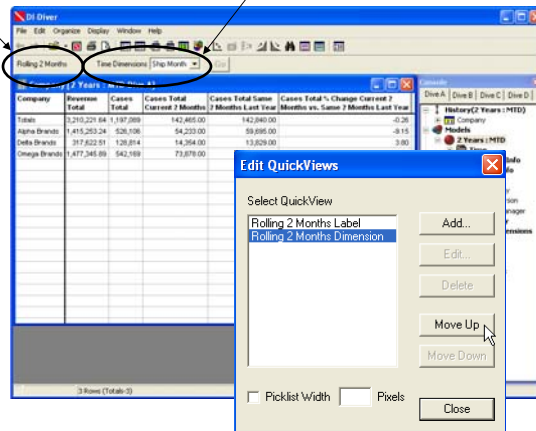


The Time Series Control Panel Wizard Options Time Series Label

- Time Series label is set to display on the QuickView bar by default
- Only displays if a Time Series QuickView is present
- Appears in the Edit QuickViews dialog to allow positioning
- Most frequently label is left as "Time Series" and not displayed

Time Series label

Time Dimension QuickView



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The Time Series Control Panel Wizard Options Set Definition of Current

"Current" determines the end time for a Period. Can be used as the baseline for relative Start and End.

- Last date in model
 - Default
 - Can be affected by data integrity issues
- System Date
 - Uses server date
 - Might be different
- Date Built
 - Uses the Model date
- Custom
 - Presents a dropdown to select a static time
- Extract Date
 - Uses the Model Extract time variable, if defined

The screenshot shows the 'Edit Time Series' dialog box with the 'Current Date' section highlighted. The 'Current Date Definition' dropdown menu is open, showing the following options: 'Last date in model', 'System Date', 'Date Built', 'Custom', 'Extract Date', and 'Date set by QuickView'. The 'Last date in model' option is selected.



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The Time Series Control Panel Wizard Options Set Definition of Current

Date set by QuickView

- Most common setting, lets user change
- Best to change Name to just "Current" when Time is Month

Options:

- Prompt on initial selection
- Offset (+ or - from set value)
- Default Value
- Last date in model (default)
- System Date
- Date Built
- Custom
- Extract Date
- Save value in DivePlan
 - Uses value that was in QuickView when Marker was saved

The screenshot shows the 'Edit Time Series' dialog box with the 'Current Date' section highlighted. The 'Current Date Definition' dropdown menu is open, showing the following options: 'Last date in model', 'System Date', 'Date Built', 'Custom', 'Extract Date', and 'Save value in DivePlan'. The 'Date set by QuickView' option is selected.



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Time Series Current QuickView - Usage

- The Current QuickView sets the ending time for the Periods associated with it
- For YTD comparisons this is very helpful in January, as one can set Current to be December in order to get a rich set of comparison data
- It can be very confusing however, as "YTD" is now defined as the last year
- In this example, Current is set to January 2009, so YTD is 2009, not 2010 and Last YTD is 2008 and not in the Model, so blanks display

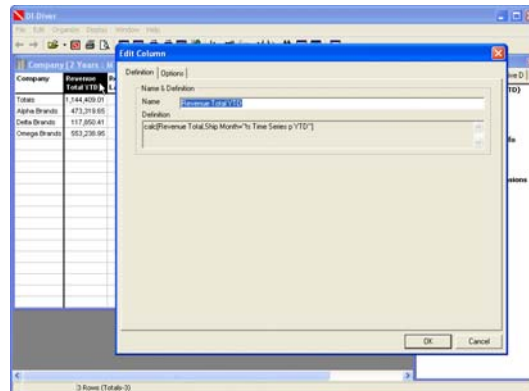
Brand	Current	Current	Current	Current	Current	Current	Current
	YTD	Last YTD	Change	MTD	Last Year	Change	%
Totals	711.00	711.00	711.00	711.00	711.00	711.00	
Chang's Cherry	88.00	88.00	88.00	88.00	88.00	88.00	
Blue's Amazing Juice	524.00	524.00	524.00	524.00	524.00	524.00	
Fruit Doodles	33.00	33.00	33.00	33.00	33.00	33.00	
Philly Root Beer	19.00	19.00	19.00	19.00	19.00	19.00	
Special Blend	28.00	28.00	28.00	28.00	28.00	28.00	
Sobona Red	28.00	28.00	28.00	28.00	28.00	28.00	



Time Series Columns

Editing

- Use Time Series Control Panel
- Can change name from Edit Columns
- Definition area will be grayed out

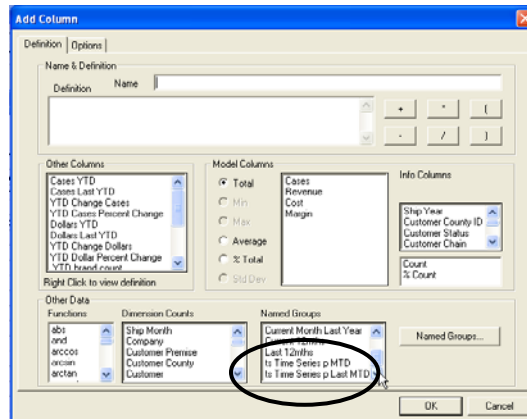




Time Series Periods

Periods will appear at the bottom of the Named Groups list box in the Add Column dialog

Columns created with these Named Group periods are not Time Series columns and will not be updated by Time Series QuickViews



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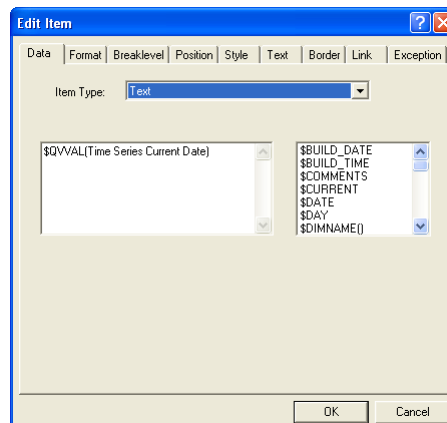
Time Series QuickViews

Report View

- Time Series QuickViews are filters on columns and not parent dives, so they are not displayed with Parent Info
- A Report Item can be added using the Report Variable:

`$QVVAL(Time Series QuickView_Name)`

Hint: Look at the Edit QuickView dialog list for the full name of the QuickView



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The Period Comparison Wizard

- Quickly creates common Time Series Period Comparisons
- Defaults to replacing columns in the Dive Window
- Simple interface requires 5 clicks
- Edited and deleted from the Time Series Control Panel wizard
- Treated the same as Time Series



The Period Comparison Wizard

Ship Month	Cases On Hand
Totals	202,745
2009-03	1
2009-09	0
2009-10	0
2009-11	0
2009-12	0
2010-01	24,130
2010-02	35,898
2010-03	34,076
2010-04	33,235
2010-05	33,670
2010-06	31,836



The Period Comparison Wizard

Ship Month	Cases On Hand
Totals	202,745
2009-09	1
2009-09	0
2009-10	0
2009-11	0
2009-12	0
2010-01	34,130
2010-02	35,898
2010-03	34,076
2010-04	33,335
2010-05	33,670
2010-06	31,835



The Period Comparison Wizard

Available

- Number of Discharges
- Total Discharge Days
- Avg LOS
- Total Charges**
- Total Operating Costs
- Total Payments
- Avg Chrg per Discharge
- Avg Chrg per Day
- Pct Discharges

Selected

- Total Charges (Data Column)

Data Columns Dim Counts

Period Comparison Columns

Current Previous Difference Percent Difference

Remove all non Time Series columns



The Period Comparison Wizard (Results)

Hospital	Total Charges YTD	Total Charges Last YTD	Total Charges Delta YTD vs. Last YTD	Total Charges % Change YTD vs. Last YTD	Patient YTD	Patient Last YTD	Patient Delta YTD vs. Last YTD	Patient % Change YTD vs. Last YTD
Totals	14,332,028.00	14,552,871.00	-220,843.00	-1.52	5,659.00	5,548.00	111.00	2.00
Brown County Hospital	4,990,244.00	5,349,358.00	-359,114.00	-6.71	1,931.00	1,884.00	47.00	2.49
Community Medical Center	5,320,034.00	5,419,093.00	-99,059.00	-1.83	1,541.00	1,582.00	-41.00	-2.59
Powers Memorial Hospital	4,021,750.00	3,784,420.00	237,330.00	6.27	2,187.00	2,082.00	105.00	5.04



Period Comparison

- Re-running the Period Comparison wizard replaces the current Period Comparison columns
- Periods appear in the Report View as Current: and Prior:
- Represented by \$CURRENT and \$PRIOR Report variables
- Deleted from the Time Series Control Panel
- Like Time Series columns in Add Column dialog



Period Comparison (PC) vs. Time Series (TS)

When to use the Period Comparison wizard

- You want a quick five-step wizard
- The standard Templates are sufficient
- Current can be defined as the last value in the Dimension

When to use the Time Series Control Panel

You want to:

- Create QuickViews
- Create more than one Time Series
- Edit your Time Series
- Delete your Time Series or Period Comparison
- Use an optional "Current" definition
- Label your Custom Period Comparison
- Need more flexible Period definitions



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Example: Sold / Un-Sold

Customer	Cases Total	Prior Period	Current Period	Unsold
Subtotals	1,766.00			
BROOKLYN LODGE OF L (00763)	37.00			Yes
DEANTA CORP (01474)	279.00			Yes
DOMINOLA RESTAURANT (02183)	1.00			Yes
GOOD TIMES BILLIARD (02184)	106.00			Yes
HILTON BOYSBOWLING (02297)	1.00			Yes
KITTY O'SHEA'S INC (02843)	328.00			Yes
SAKURA BANA (04482)	3.00			Yes
TWIN PIZZA PIT (05290)	5.00			Yes
VILLAGE REST_OROU (05454)	126.00			Yes
W COLLINS, INC. (05497)	1.00			Yes
WORKMANS HALL OF NO (05652)	6.00			Yes
YKURNT CO INC (05881)	178.00			Yes



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Example: Current QuickView

DI-Driver

File Edit Organize Display Window Help

Current: 2010-03 Supplier: Amazing Beverages, Inc. (003)

Brand [2 Years : MTD-Dive A]

Brand	Cases YTD	Cases Last YTD	Cases Change	Cases % Change	Cases MTD	Cases Last Year	Cases MTD Change	Cases % Change MTD
Totals	4,707.00	4,437.00	270.00	6.09	800.00	652.00	148.00	22.70
Champ Cherry	623.00	572.00	51.00	8.92	65.00	70.00	-5.00	-7.14
Elliott's Amazing Juices	3,025.00	2,878.00	147.00	5.11	542.00	447.00	95.00	21.25
Fruit Buddies	385.00	378.00	-13.00	-3.44	55.00	49.00	6.00	12.24
Rodeo Root Beer	296.00	223.00	73.00	32.74	96.00	31.00	65.00	209.68
Second Wind	265.00	218.00	47.00	21.56	17.00	40.00	-23.00	-57.50
Sedona Red	133.00	188.00	-35.00	-20.83	25.00	15.00	10.00	66.67

6 Rows (Totals=6)



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Example: Time Dimension

DI-Driver - [Primary Physician [trendstar_rev.mdl.Dive A]]

File Edit Organize Display Window Help

Time Dimensions: Discharge Year-Month Current: 2010-03 Hospital: Powers Memorial Hospital

Page 1a

Hospital: Powers Memorial Hospital Based on: Discharge Year-Month As of: 2010-03

Primary Physician	Discharges				Charges			
	YTD	Last YTD	Change	% Var	YTD	Last YTD	Change	% Var
Alvarado, Dixie (697285394)	1,844.00	1,681.00	163.00	9.70	1,617,860.00	1,369,461.00	248,399.00	18.14
Alvarado, Richard (593615917)		2.00	-2.00	-100.00		14,836.00	-14,836.00	-100.00
Andrews, Derrick (487220574)	2.00	1.00	1.00	100.00	7,906.00	1,511.00	6,395.00	423.23
Atkins, Perry (694824356)	2.00	1.00	1.00	100.00	12,714.00	4,517.00	8,197.00	181.47
Avery, Ernest (433380590)		1.00	-1.00	-100.00		1,637.00	-1,637.00	-100.00
Bailey, Charlene (131319827)		1.00	-1.00	-100.00		583.00	-583.00	-100.00
Baldwin, Ben (482208792)		1.00	-1.00	-100.00		25,532.00	-25,532.00	-100.00
Ball, Mike (418668542)		1.00	-1.00	-100.00				
Barnes, Juan (406424728)								
Barrera, Amber (187947787)	12.00	13.00	-1.00	-7.69	34,649.00	8,394.00	26,255.00	312.78
Battle, Katrina (582564776)								
Beasley, Wallace (721623114)		1.00	-1.00	-100.00		4,409.00	-4,409.00	-100.00
Bentley, Rosemary (604103158)								
Black, Seth (158910406)	5.00	5.00	0.00	0.00	53,824.00	23,710.00	30,114.00	127.01
Bolton, Harold (524137792)								
Booth, Rudy (623853247)		1.00	-1.00	-100.00		1,497.00	-1,497.00	-100.00
Bowers, Carolyn (708177838)								
Brown, Andrew (643227104)								

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