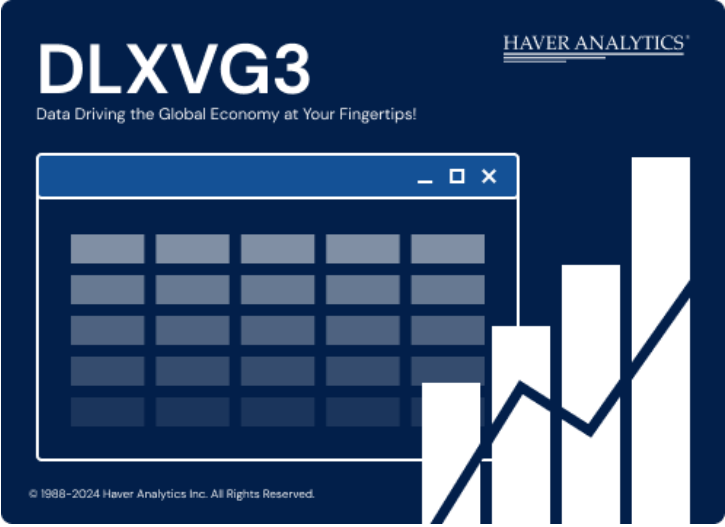




USER MANUAL

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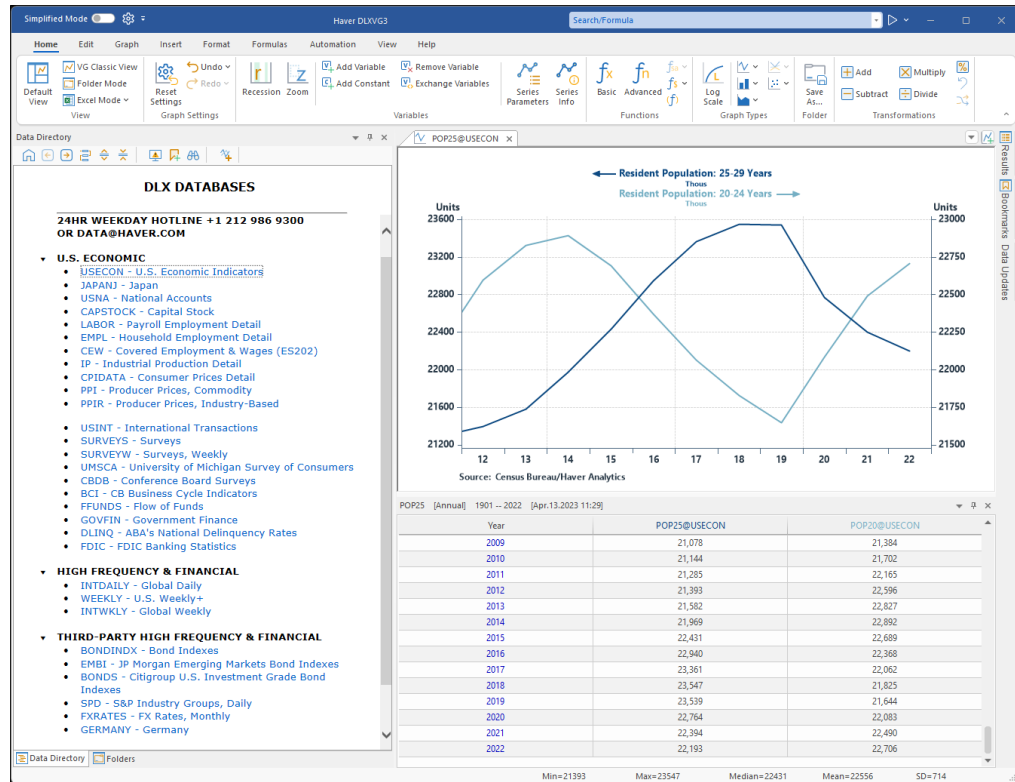
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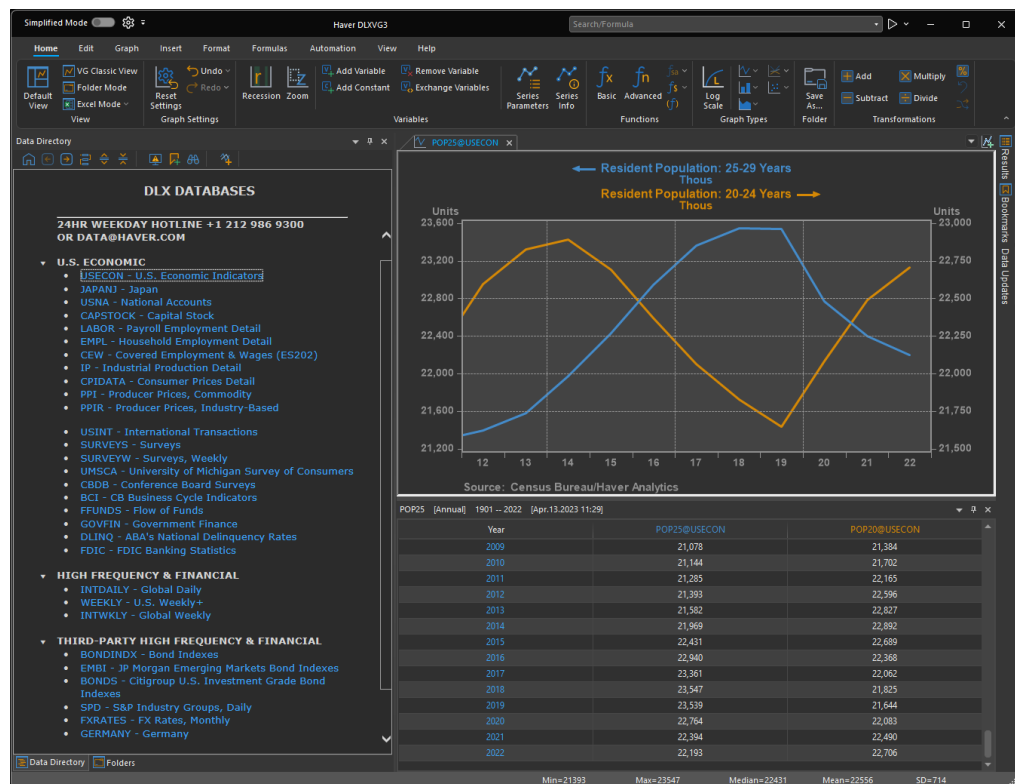
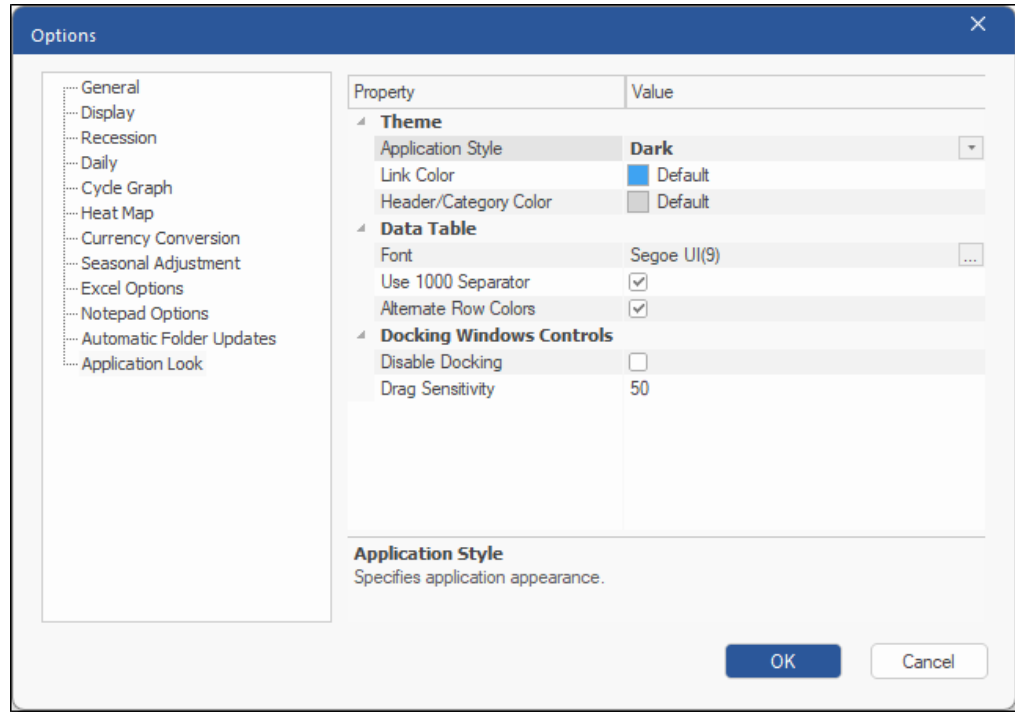
What's New in DLXVG3 6.022

Interface

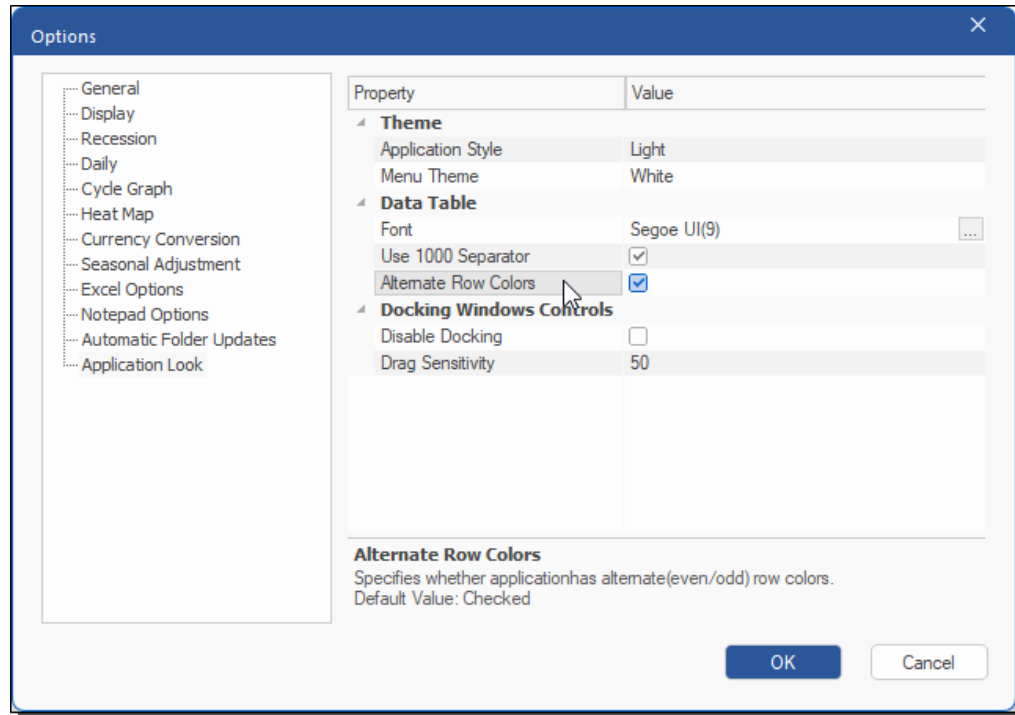
- Fresh new look with [Ribbons](#) replacing previous drop-down menus:



- New Dark Mode plus options to change text color in Data Directory available under Options (gear icon in upper left corner) > Application Look:



- New option to have Alternating Row Colors in the Data Table in either Light or Dark Mode. Also available under Options > Application Look:



Year	POP25@USECON	POP20@USECON
2009	21,078	21,384
2010	21,144	21,702
2011	21,285	22,165
2012	21,393	22,596
2013	21,582	22,827
2014	21,969	22,892
2015	22,431	22,689
2016	22,940	22,368
2017	23,361	22,062
2018	23,547	21,825
2019	23,539	21,644
2020	22,764	22,083
2021	22,394	22,490
2022	22,193	22,706

- New option to display commas in values in the Data Table available under Options > Application Look > Data Table > Use 1000 Separator

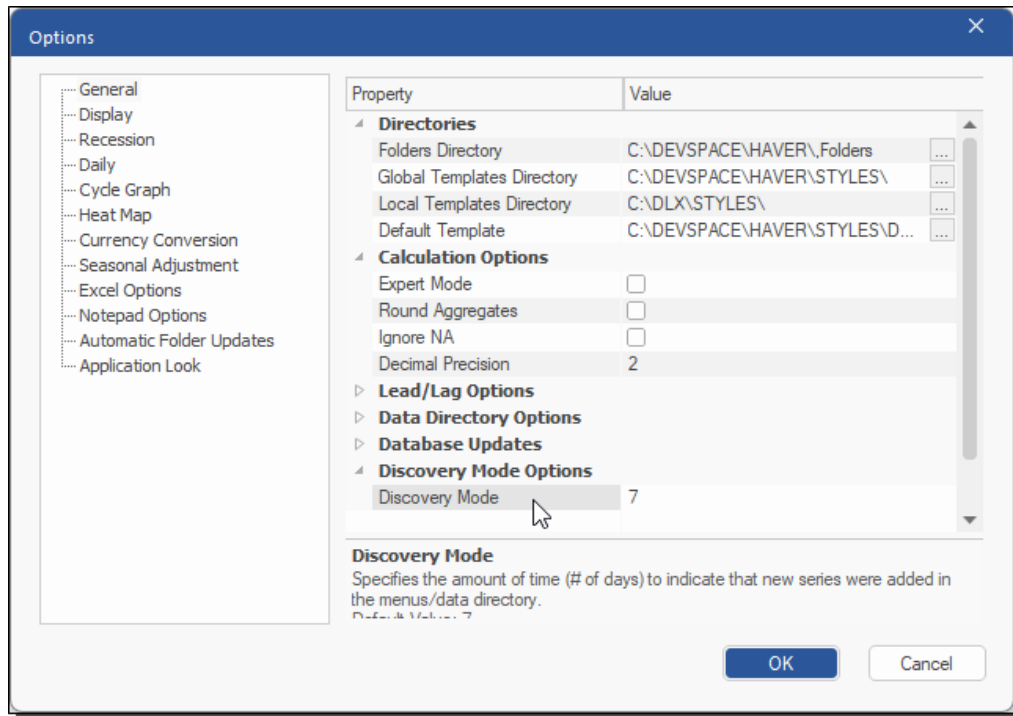
- New HeatMap options for Data Table. Available in three formats: Graph Values, Table Values, All Values, three types: Color Scales, Data Bars and Arrow Sets and two format styles: 2-color scale or 3-color scale:

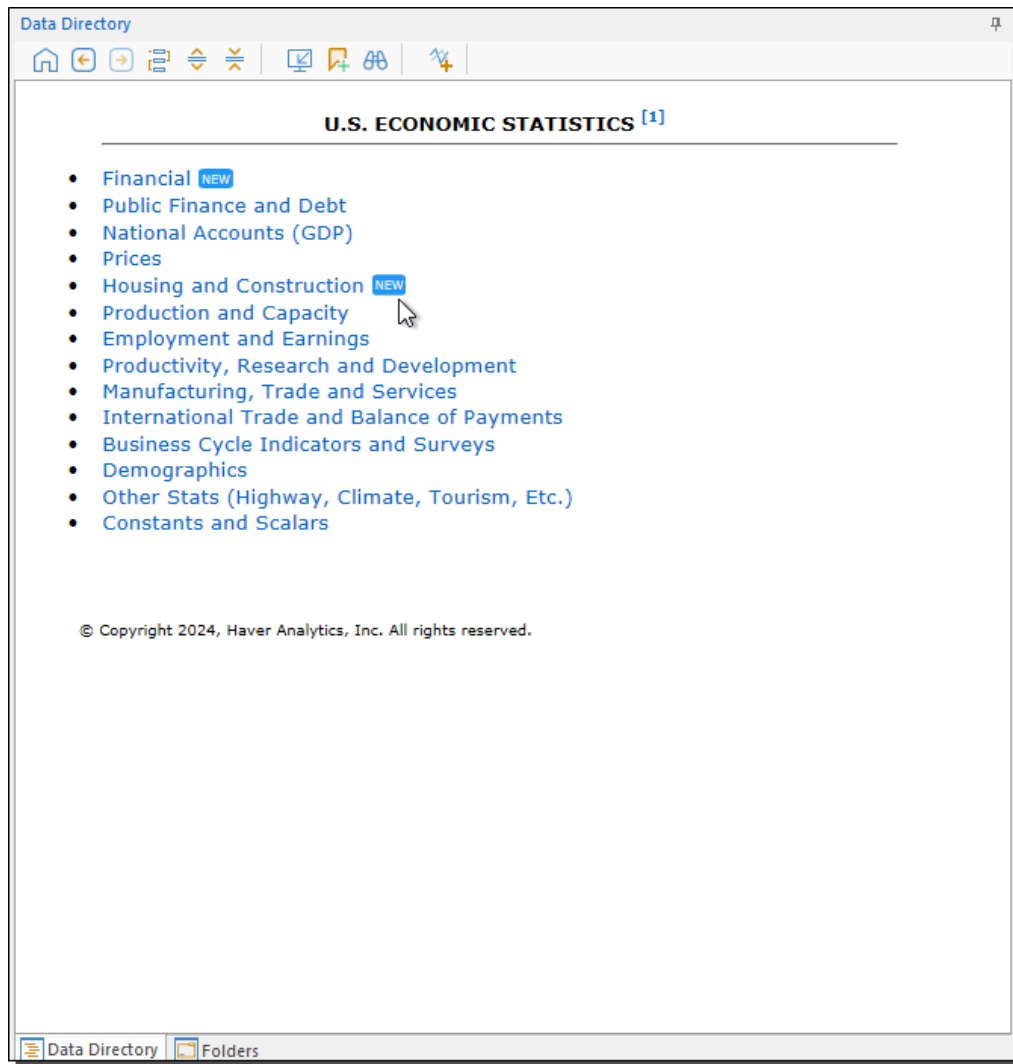
Year	POP25@USECON	POP20@USECON
2009	21,078	21,384
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Year	POP25@USECON	POP20@USECON
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2018	23,547	21,825
2019	23,539	21,644
2020	22,764	22,083
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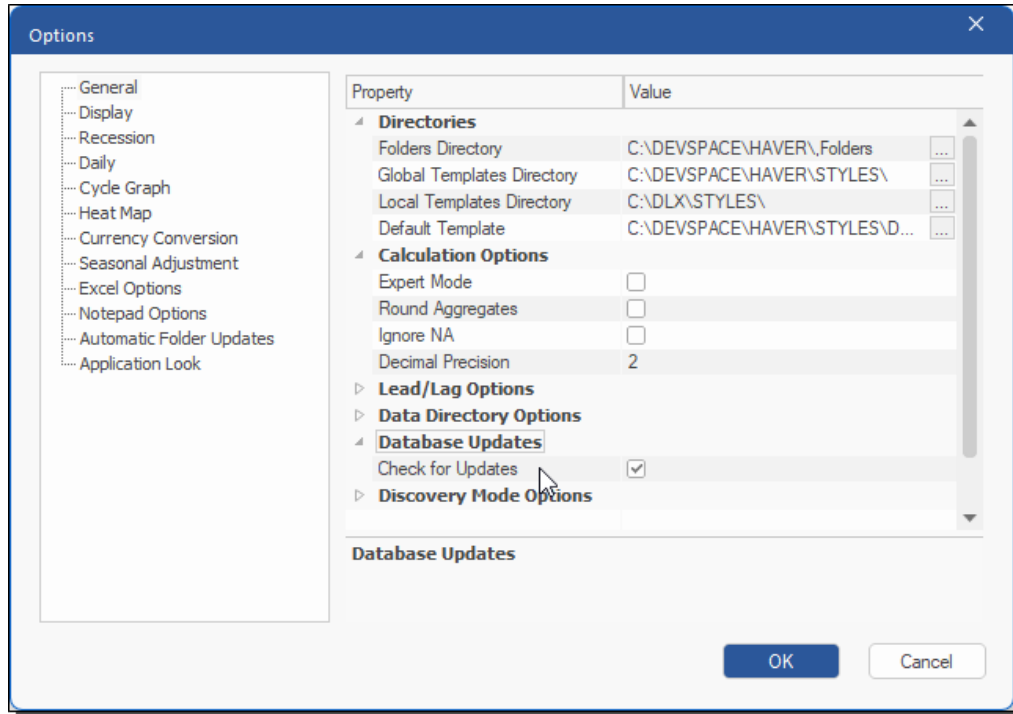
Year	POP25@USECON	POP20@USECON
2009	↓	↓
2010	↓	↘
2011	↓	→
2012	↓	↑
2013	↘	↑
2014	↘	↑
2015	→	↑
2016	↗	↗
2017	↑	→
2018	↑	↘
2019	↑	↓
2020	↗	→
2021	→	↗
2022	→	↑

- New Discovery Mode in Data Directory! This new feature showcases all the new additions to our databases. Options to set # of days to indicate new series added in Options > General > Discovery Mode Options & an additional option to disable Discovery Mode to help with loading the database list for slow networks in Options > General > Discovery Mode Options > Disable for 'Database List' (only available in DLXVG3)





- New Database Update option in Options > General > Database Updates to display a warning if your databases have not been updated within the last 72 hours:



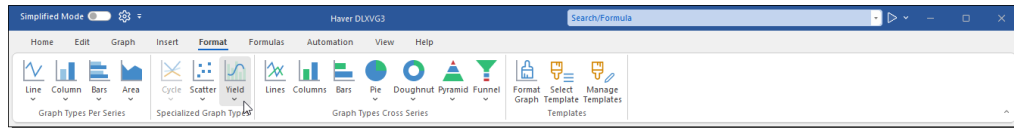
- New option to search within your folders using the formula bar/search bar and ability to use the Esc key to stop a folder search:



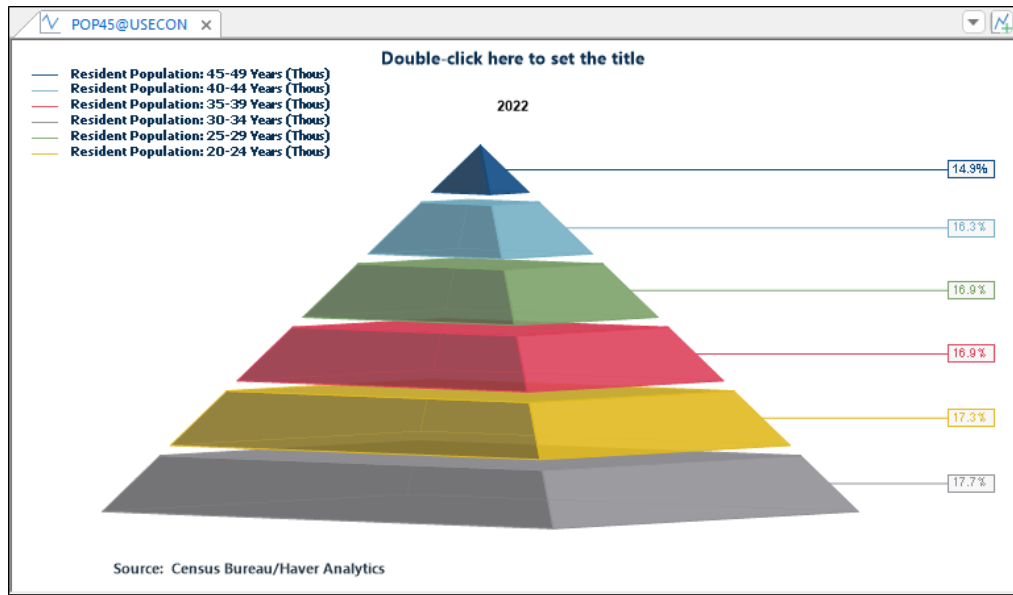
- New to Direct only: Update Monitor and Automatic Folder Updates (previously only available in DLXVG3 Classic) with option to "Disable 'Data Update' Feature" if needed available through Options > Automatic Folder Updates
- New to Direct only: Japanese Menus available for Japan database
- New Setup Addins option under Help Ribbon

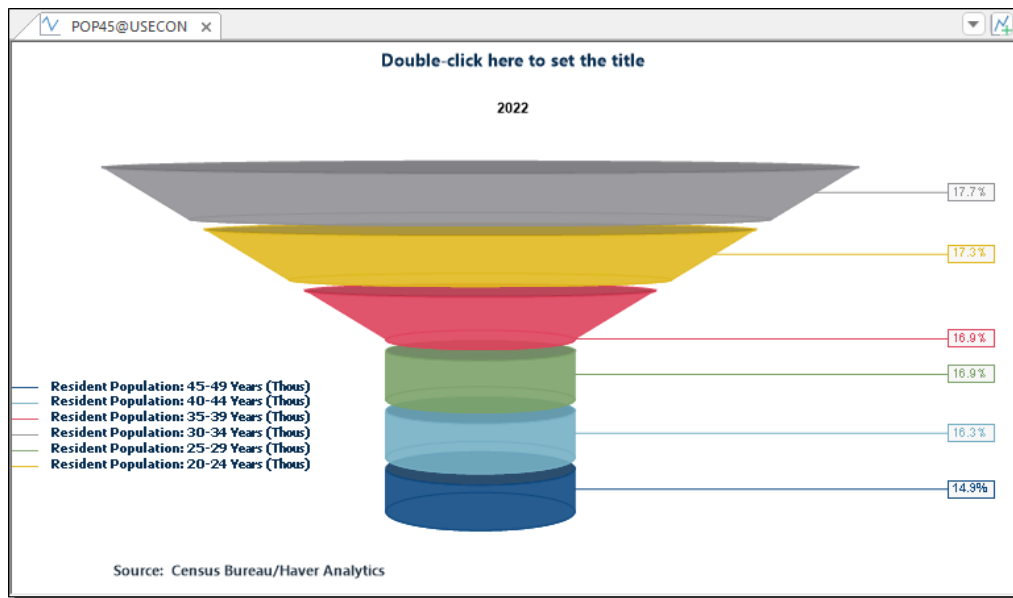
Graphs

- Ability to have up to **24** series on a graph (increased from previous maximum of 8)
- New graph type: [Yield Curves](#) – with options to have multiple dates of the same yield curve with new keyboard shortcuts to add dates, edit dates or remove dates or compare several different yields across the same point in time:

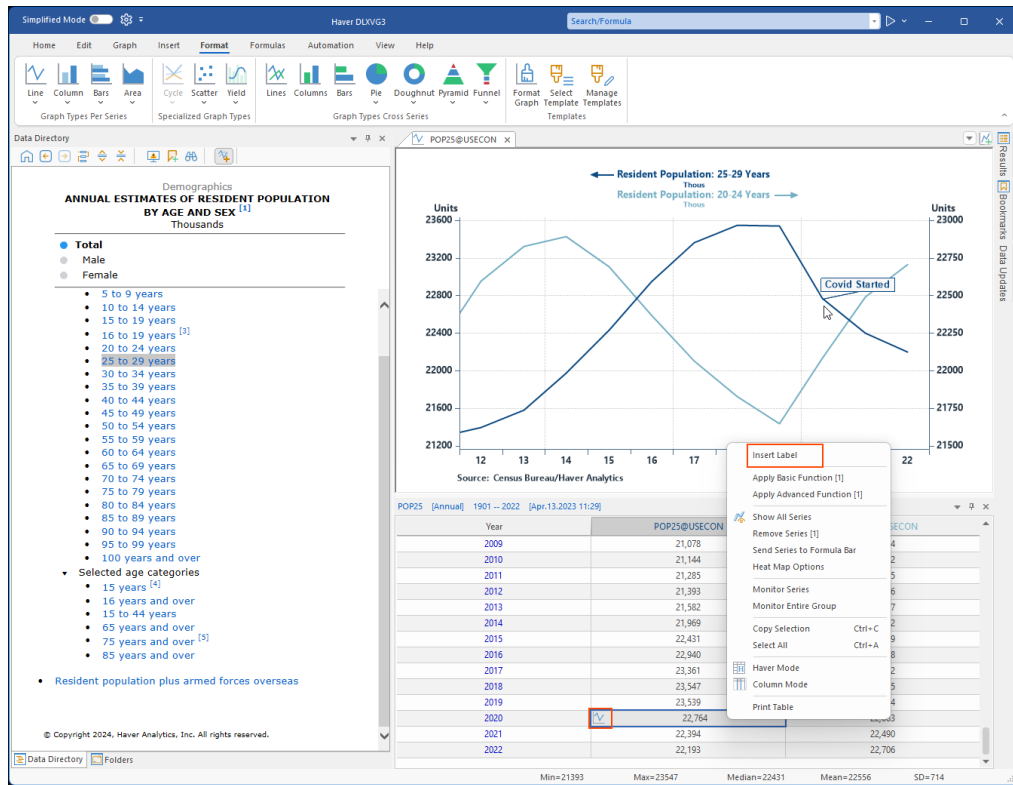


- New graph types: horizontal bars – named Bar Graph, and previous Bar Graphs renamed to Column Graph
- [New cross-series graph types](#): Funnel, Funnel 3D, Pyramid and Pyramid 3D:





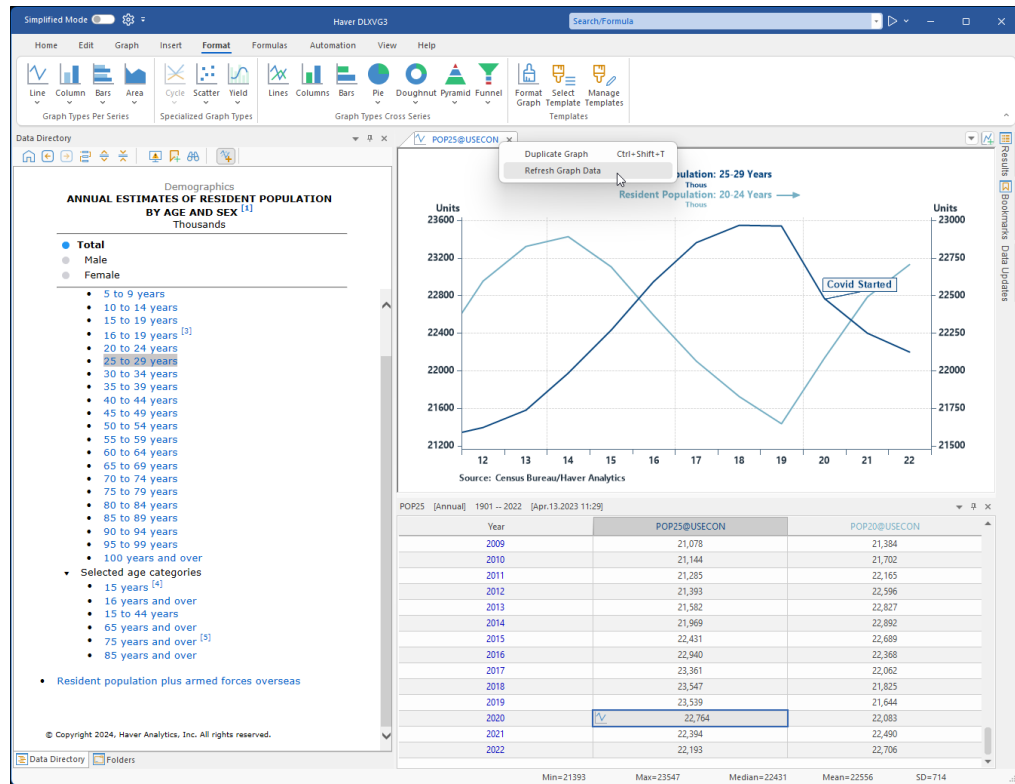
- New Dynamic Label Option can be inserted through the data table tied to a specific data point in time series:



- New ability to apply Basic or Advanced Functions through the data table
- Increased functionality of [Scatter Graphs](#) to allow for multiple countries comparisons
- New template option for graph to be on top and legends on the bottom
- New template option to automatically re-size legends so they always fit on the graph
- Invert scale option added for horizontal bar graphs in Template Options > Axes
- New ability to enter Start and End Year in YYYYQ or YYYYMM format
- New option to "Show Lines on Top" for Reference Lines in Template Options
- New Language selection for months in Templates and Options
> General > Language Options for Graph Dates

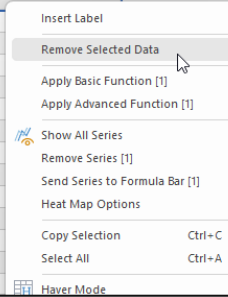
Data

- New Refresh Graph Data Option for open graph tabs:



- Added a Mean Line to Cycle Graphs
- Ability to apply transformations while keeping both parents on the graph, basically generating a new series, by holding down the Alt key while clicking (or typing) your operator (+-%*/). The original functionality of removing parents and leaving just the transformed series will remain as default.
- New option to remove selected data point through right click in data table or through formula bar function:

Month	IP@USECON	IP541@USECON
2023 - Jan	102.7	103.0
2023 - Feb	102.8	102.3
2023 - Mar	102.8	100.8
2023 - Apr	103.2	101.3
2023 - May	103.0	101.2
2023 - Jun	102.4	100.8
2023 - Jul	103.1	100.7
2023 - Aug	103.1	100.3
2023 - Sep	103.3	101.0
2023 - Oct	102.6	100.8
2023 - Nov	102.9	100.7
2023 - Dec	102.6	100.3
2024 - Jan	101.5	98.8
2024 - Feb	102.6	101.3
2024 - Mar	102.4	101.1
2024 - Apr	102.4	99.6
2024 - May	103.3	100.5
2024 - Jun	104.0	100.4



- Daily cycle dates now available in Cycle Graphs

Misc

- Ability to open more than one series from data directory to the graph by highlighting, right-clicking and selecting “Send Selection to Graph [x]” with the x representing the number of series selected which can now be up to 24 series:

Data Directory

Demographics

ANNUAL ESTIMATES OF RESIDENT POPULATION BY AGE AND SEX ^[1]

Thousands

- **Total**
- Male
- Female

- 5 to 9 years
- 10 to 14 years
- 15 to 19 years
- 16 to 19 years ^[3]
- 20 to 24 years
- 25 to 29 years
- 30 to 34 years
- 35 to 39 years
- 40 to 44 years
- 45 to 49 years
- 50 to 54 years
- 55 to 59 years
- 60 to 64 years
- 65 to 69 years
- 70 to 74 years
- 75 to 79 years
- 80 to 84 years
- 85 to 89 years
- 90 to 94 years
- 95 to 99 years
- 100 years and over

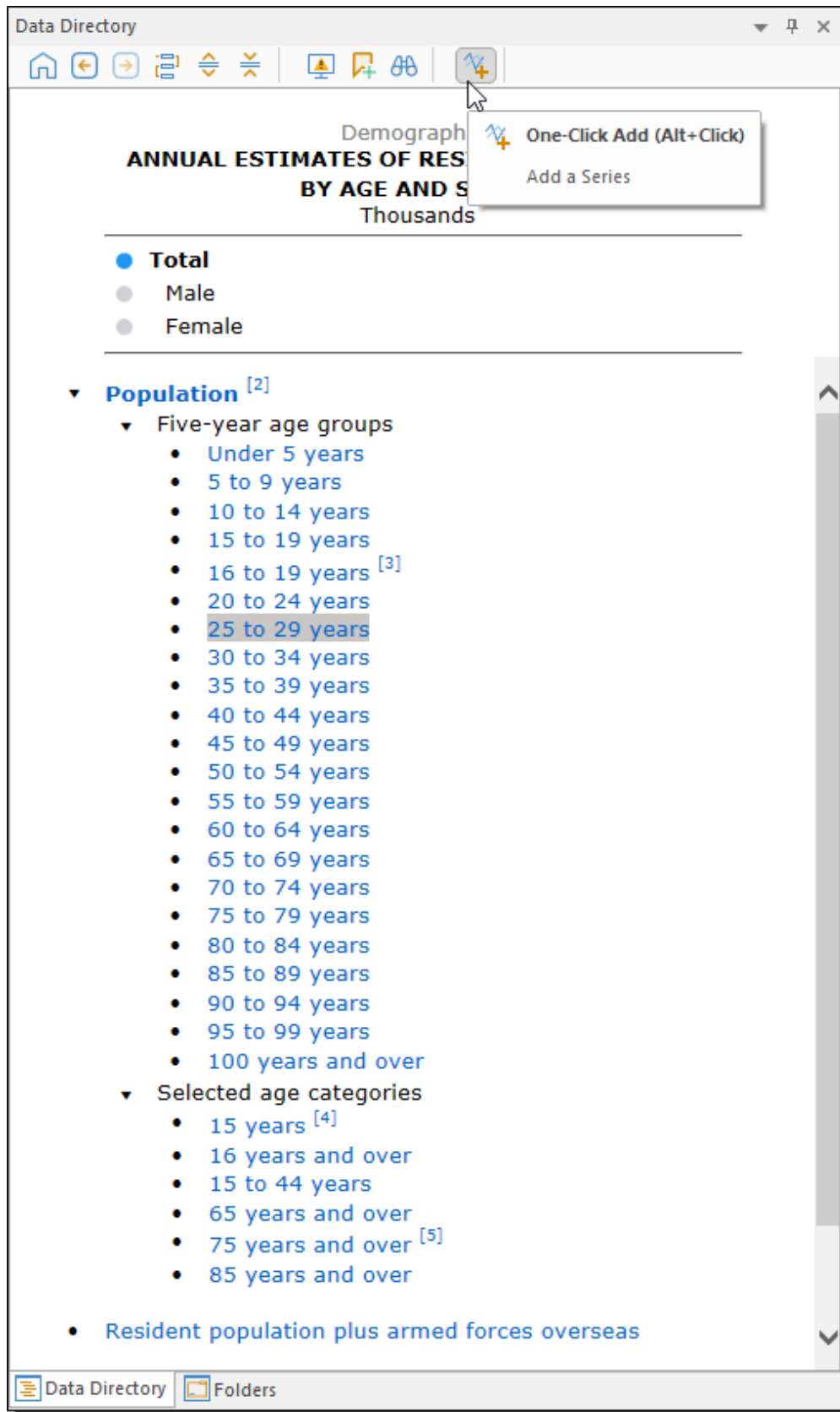
- ▼ Selected age categories
 - 15 years ^[4]
 - 16 years and over
 - 15 to 44 years
 - 65 years and over
 - 75 years and over ^[5]
 - 85 years and over

- Resident population plus armed forces overseas

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Data Directory Folders

- Ability to add series with one click by toggling on the One-Click Add ( ALT + select series)



- New keyboard shortcuts Alt + Down Arrow Key to add a new series to the graph
- New keyboard shortcuts Ctrl + Down Arrow Key to replace the primary series on the graph
- Ability to open more than one series from the formula bar to the graph by separating series with a semi-colon “;”:



- Ability to copy and paste codes directly with Excel (tab-spaced) into the formula bar and open them on a single graph
- Ability to extend or limit trend lines in the [Formula Bar](#)
- New Hodrick-Prescott Filter function through [Formula Bar](#) with additional options in Options > Hodrick-Prescott HP Filter
- New Hodrick-Prescott Filter cyclical function through [Formula Bar](#)
- New Absolute Value Function through [Formula Bar](#)
- New Natural Logarithm Function through [Formula Bar](#)
- PAC file support for proxies now available (only applicable for DLXVG3 Direct)
- %userprofile% now works for path in Directories

Getting Started

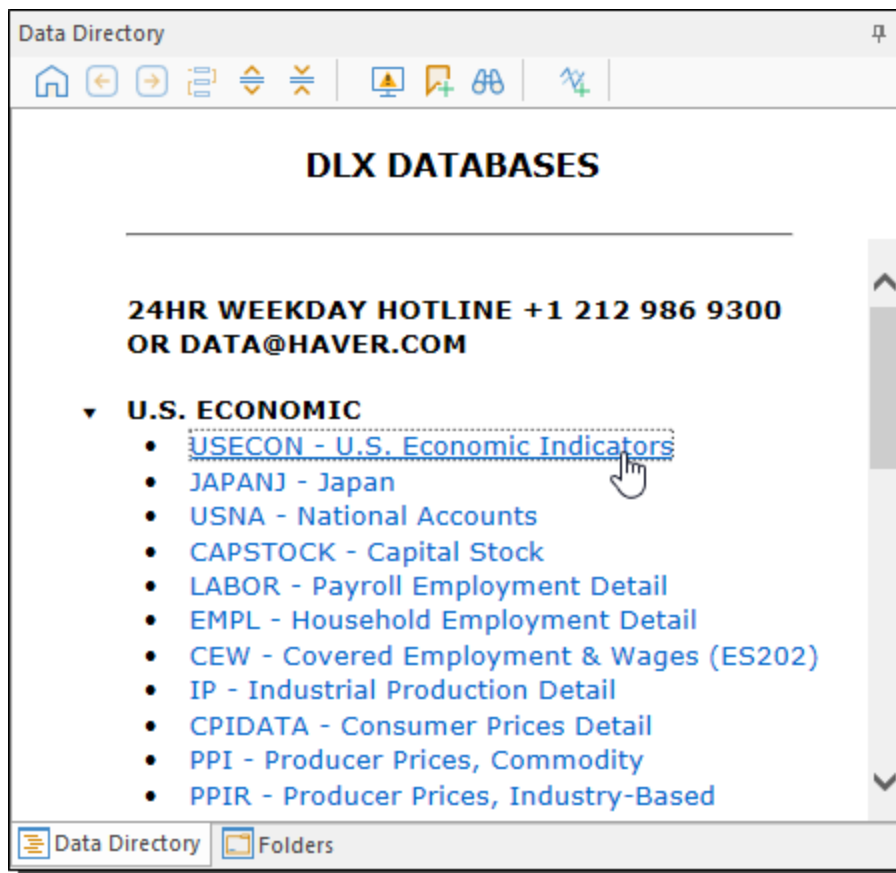
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Browse for a Data Series

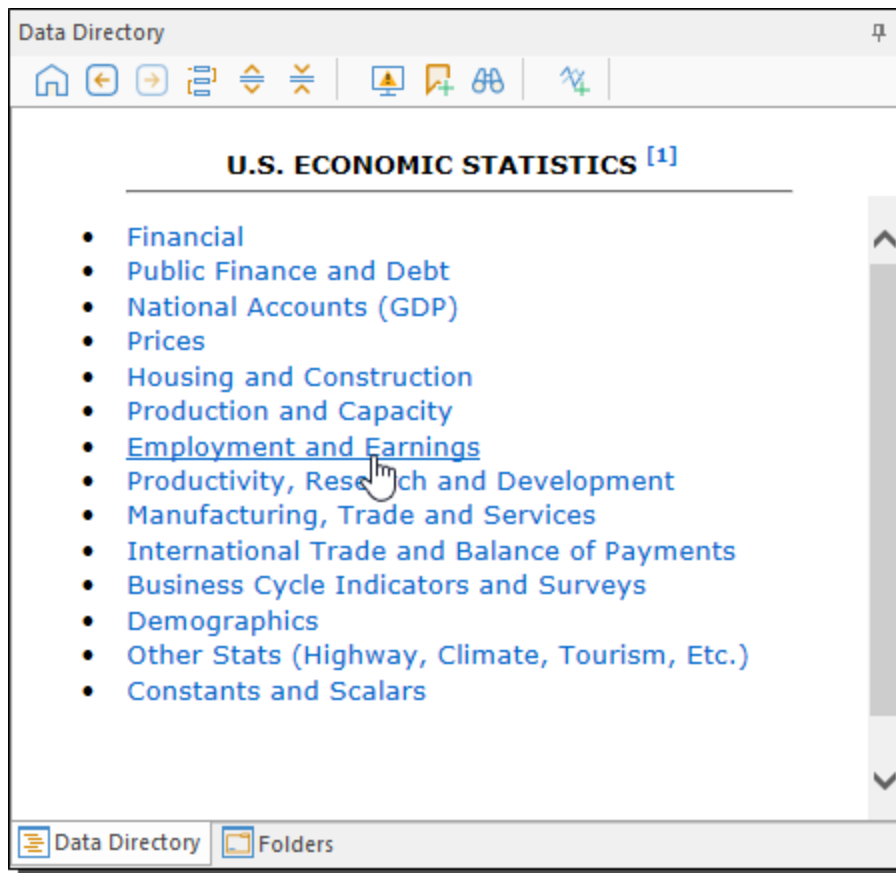
DLXVG3 displays a data series in two formats: as a graph and a data table. Navigate through the menus in the data directory to view the contents of the databases and select a series to display.

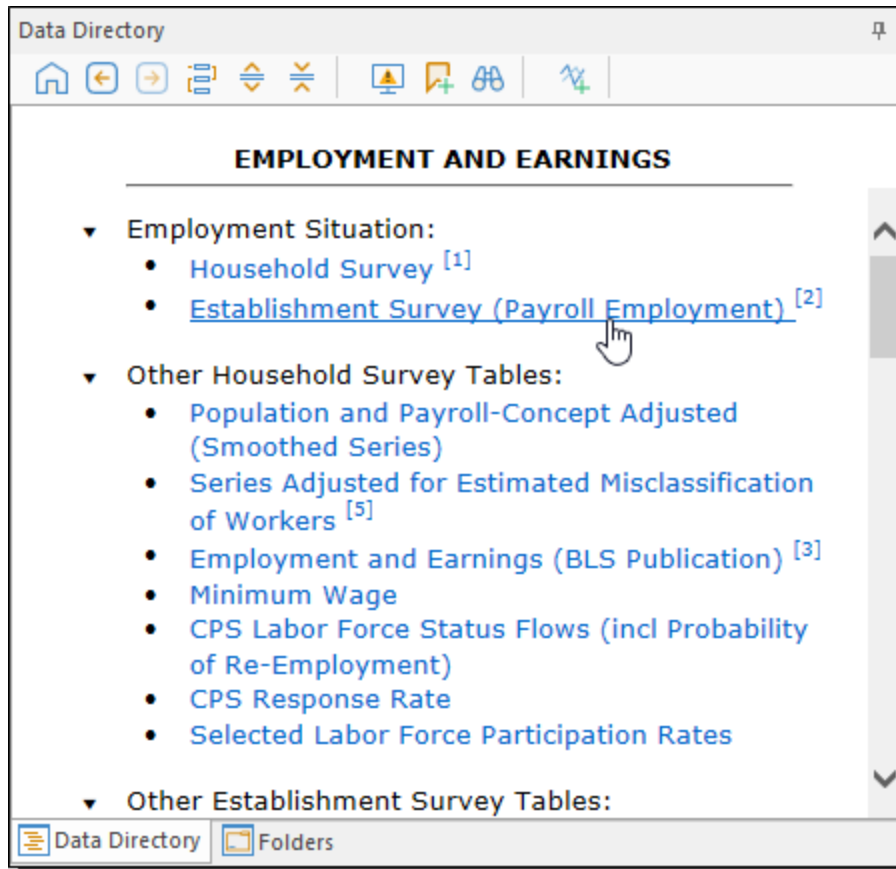
Displaying a data series

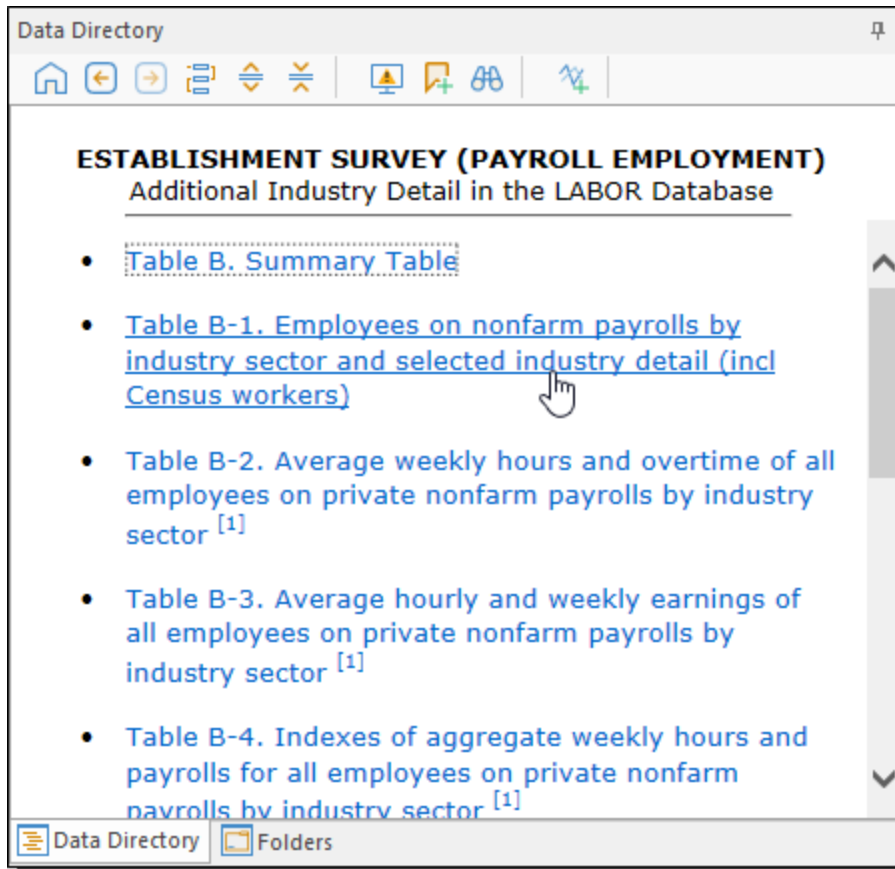
1. Select a database.

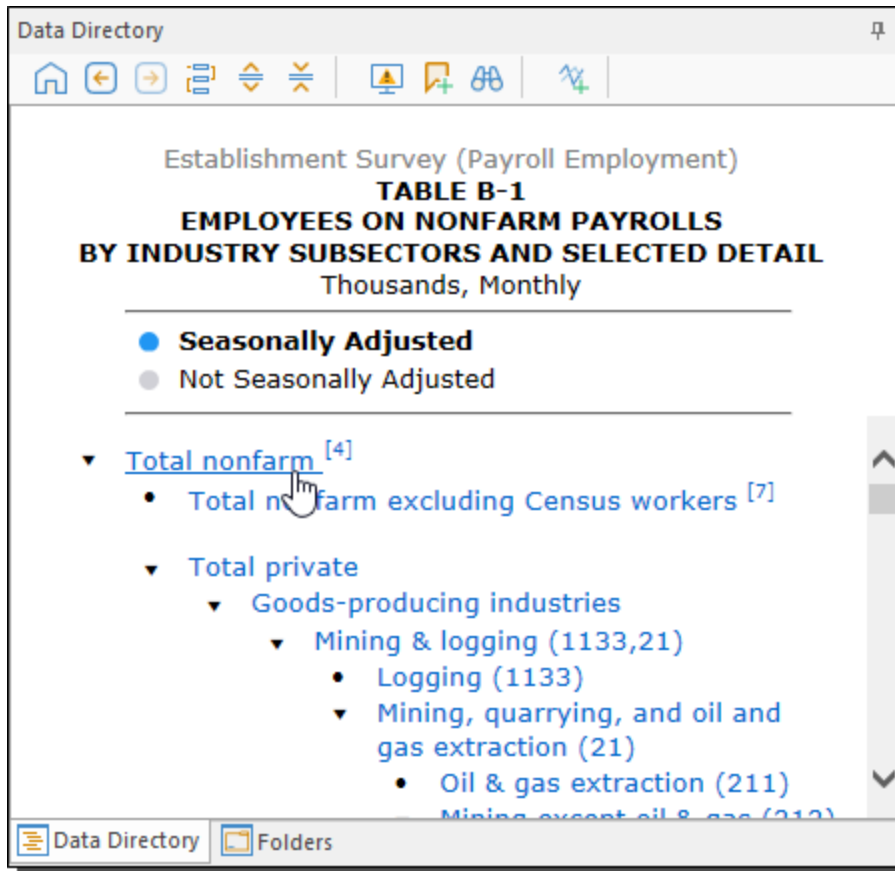


2. Click through the menus to select a data series.

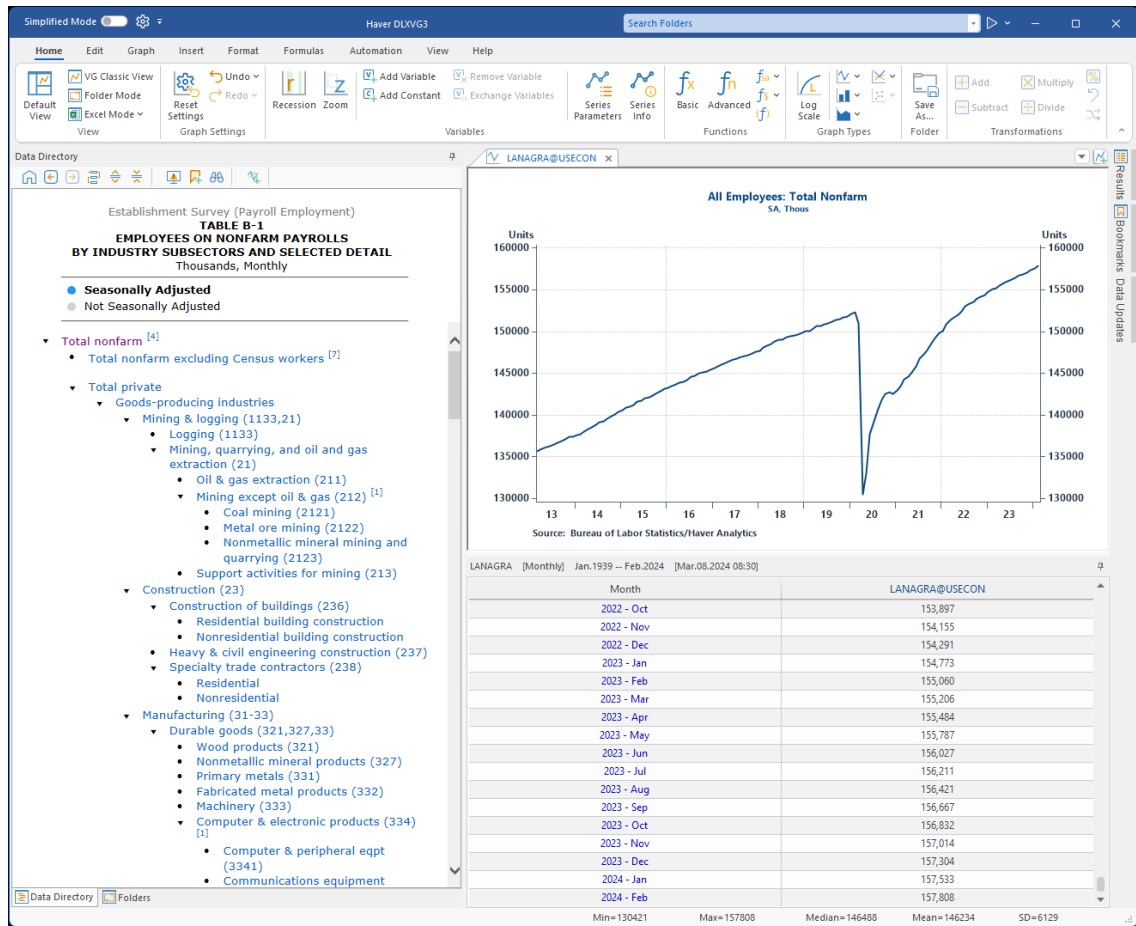








3. The workspace now contains three windows: the [data directory](#), the [graph area](#) and the [data table](#).

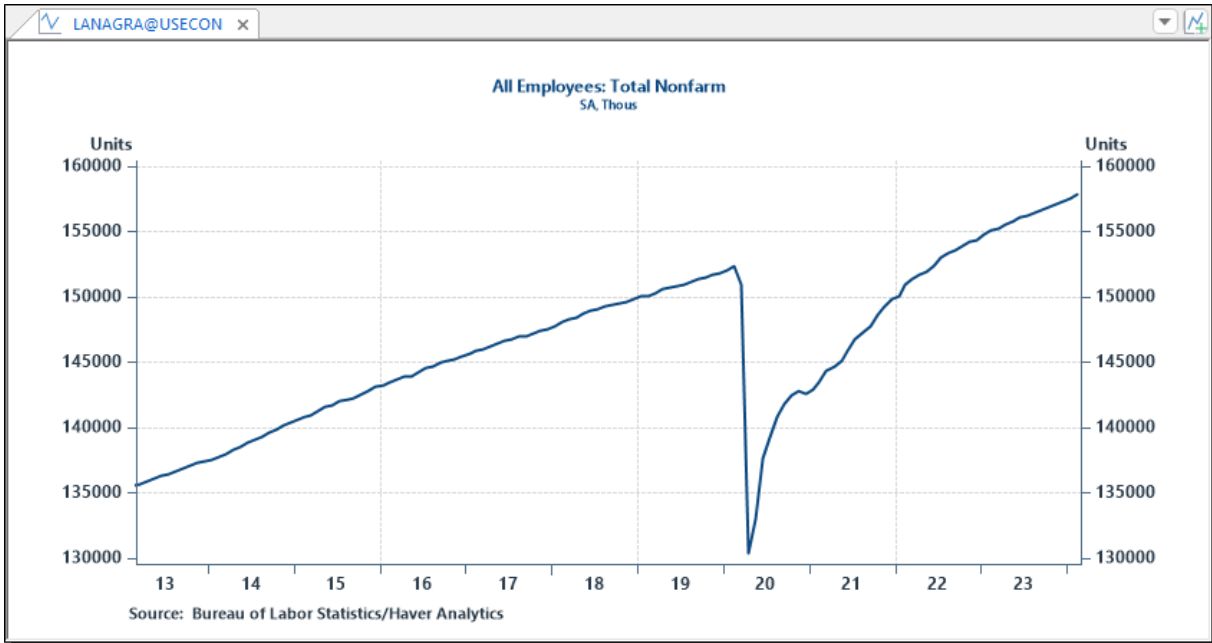


This is the default view.

Building a Graph

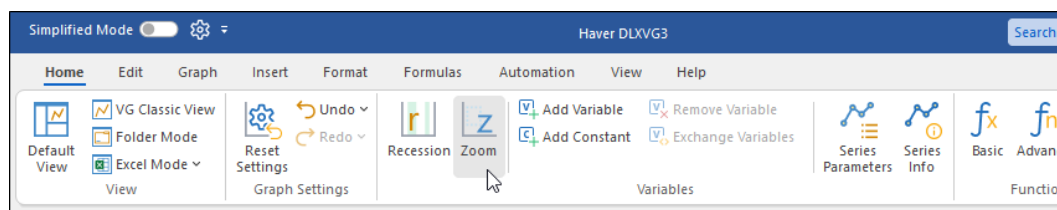
DLXVG3's graphs can be customized in many different ways. Here we explore some basic functions and options to customize your graph.

Let's continue using the data series from the section [Browse for a Data Series](#):

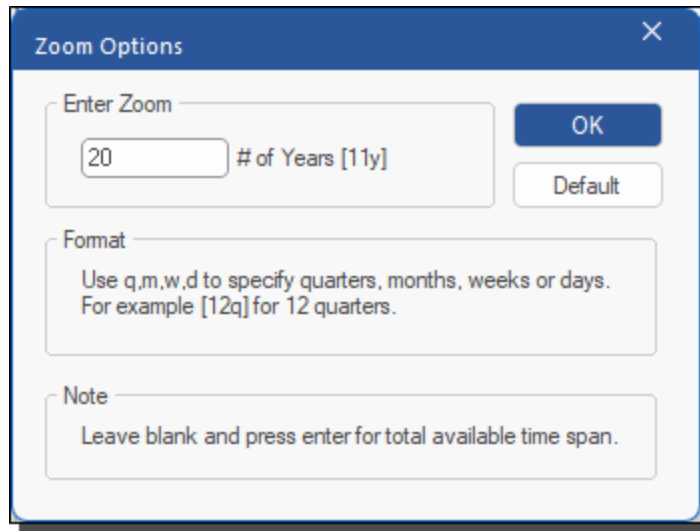


1. Set a zoom

- The zoom function is used to modify the number of periods shown on the x-axis of the graph.
- Select **Zoom** in the ribbon:



- Then enter the desired number of years, for example, 20 years, you can also add a specific frequency [i.e. q for quarters]:



Zoom Options

Enter Zoom

20 # of Years [11y]

OK

Default

Format

Use q,m,w,d to specify quarters, months, weeks or days.
For example [12q] for 12 quarters.

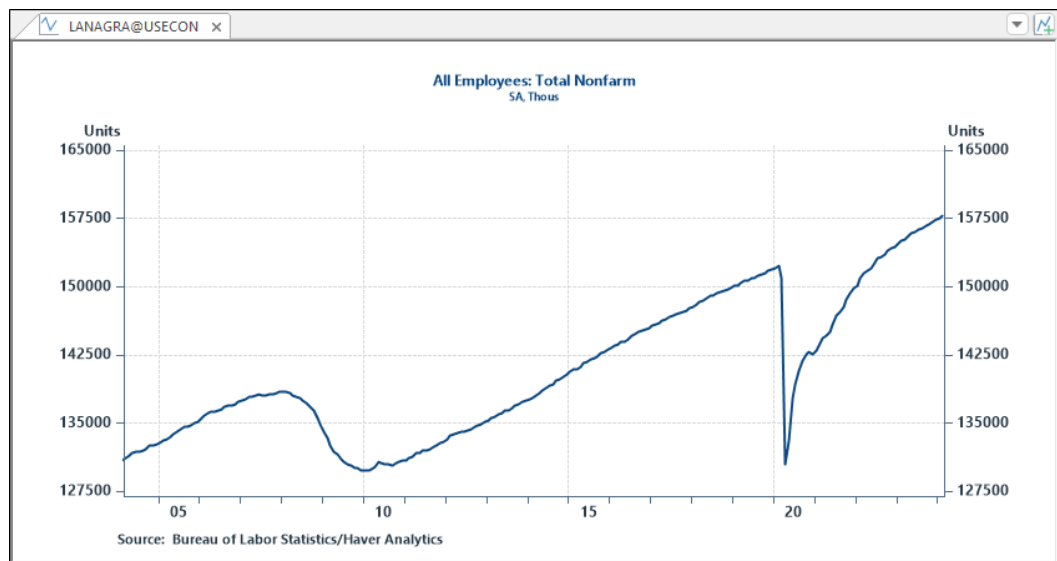
Note

Leave blank and press enter for total available time span.



The number shown in the brackets represents the current selection.

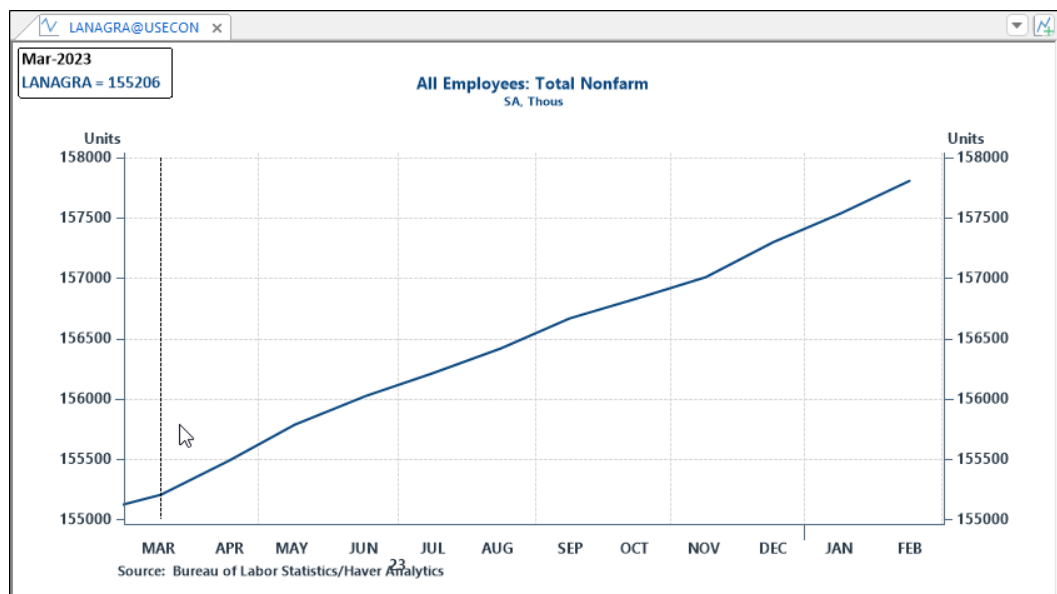
Notice that the graph now displays 20 years of data:



See [Zoom](#) for more information.

2. Viewing data on the graph

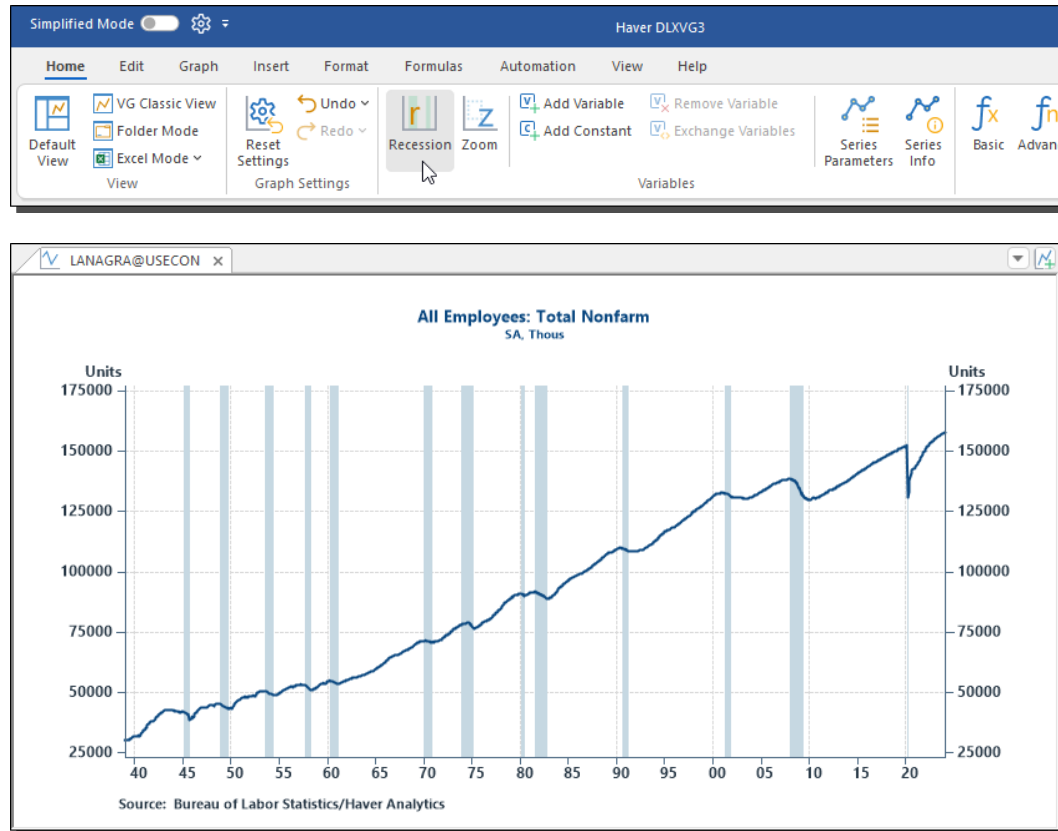
- The Y-axis scaling is automatically determined by the software based on the data values for the series displayed. When you change the zoom, as we did in step 1, the scaling is automatically adjusted for the new data values. As you can see in the example above, the scaling was from 130,000 to 160,000 Units when the default zoom of 11 years was applied and was from 127,500 to 165,000 Units when the zoom was set to 20 years.
- By default, the series that is listed first will always use the left scale, and all other series on the graph will use the right scale but this can be customized.
- In the graph shown above, notice that the data on the far left appears to be cut off. This is because the graph extends past the end of the visible zoom to the previous data point not currently shown on the graph.
- If we zoom the graph to 1 year for example, you can see that the lowest value on Mar 2023 is 155206, but the lowest value on the y-axis is 155000. This is because the off screen value on Feb 2023 is 155060.



See [Scaling](#) for more information.

3. Apply recession shading

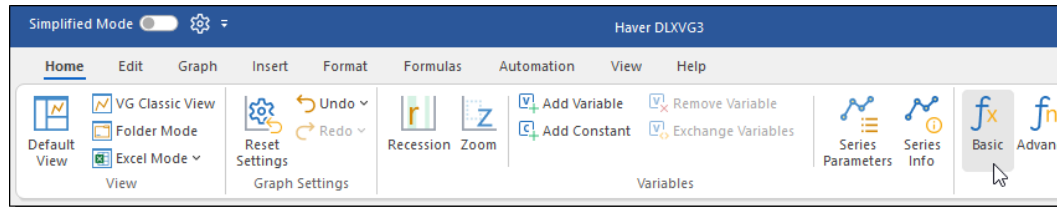
- Select **Recession** in the toolbar.



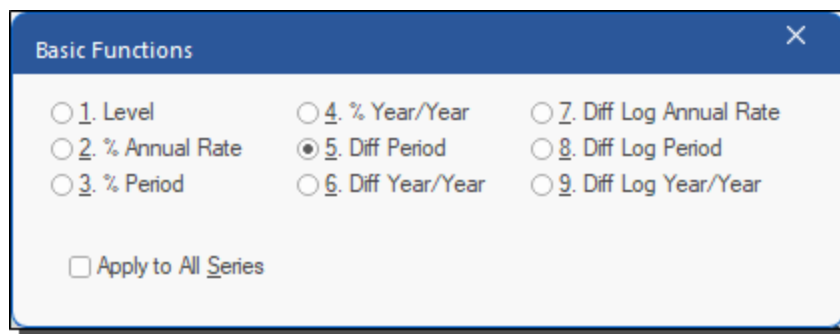
 The default recession shading is set to USA. However, the default can be changed to another country or to a custom recession. Please note that in the image above the zoom option has been set to all available data which can be achieved by clicking on the **Zoom** button (or **Z** on the keyboard) and simply clicking the **OK** button. See [Recession Shading](#) for more information.

4. Apply a basic function

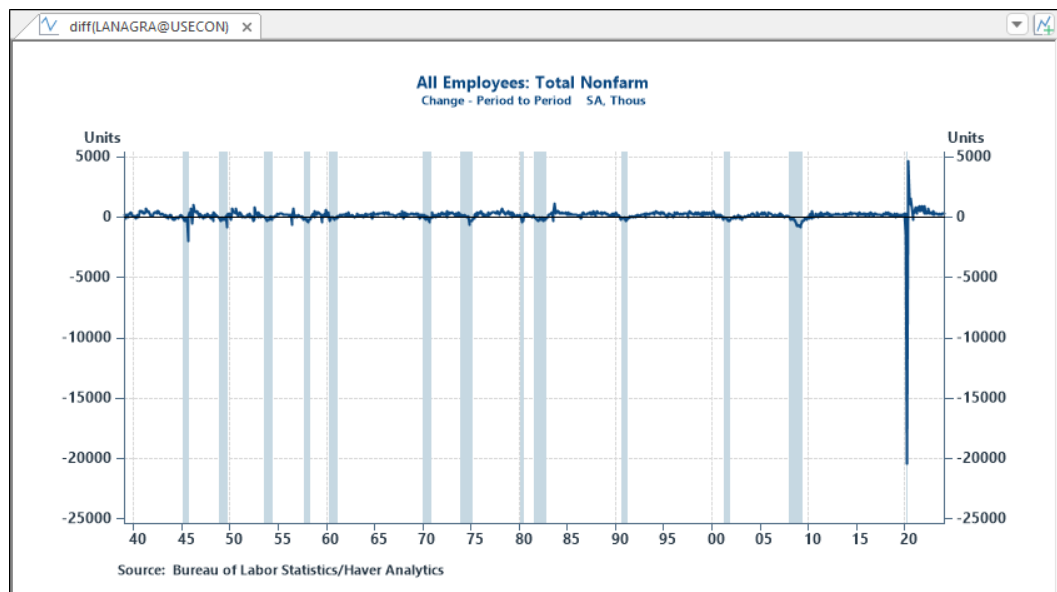
- Select **Basic Functions** in the toolbar.



- For example, apply a "period to period" function to this series by selecting option 5 from the menu below:

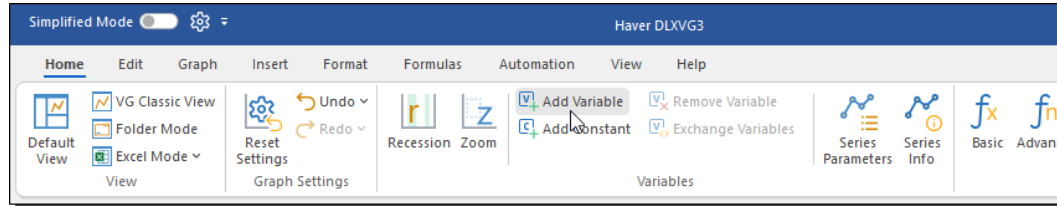


The series is now displayed with the "diff period" function applied. In this example, we have calculated the number of jobs created each month.

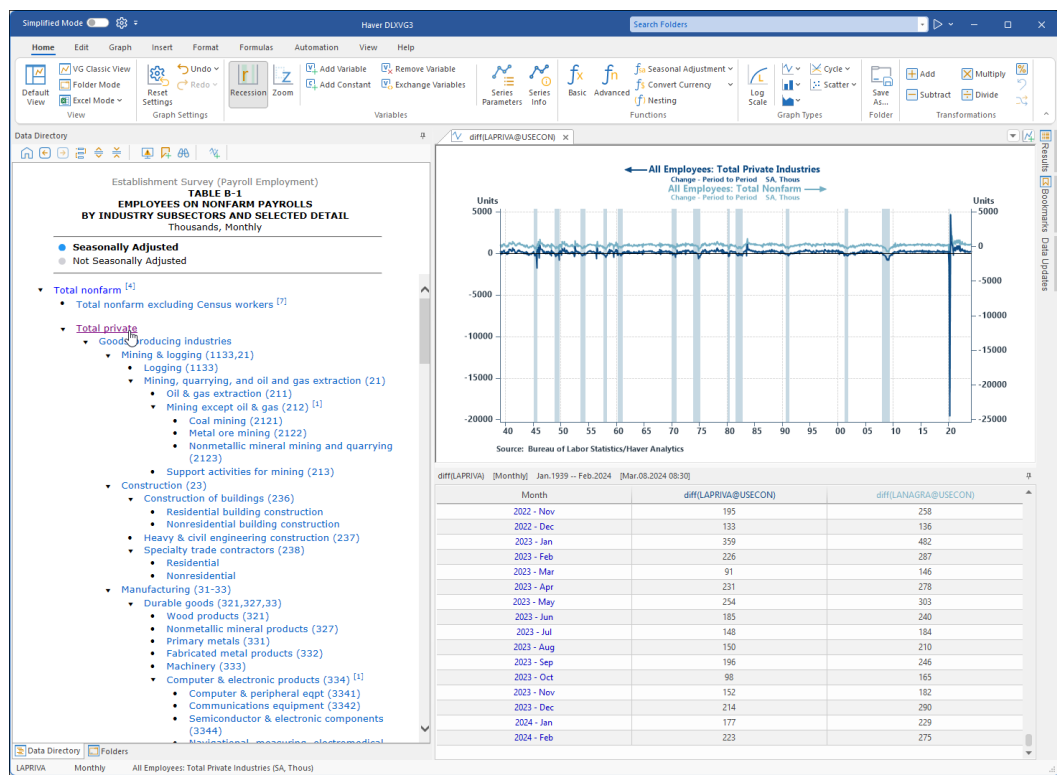


5. Add a variable

- To view multiple series on a graph, add a variable and select a new series.
- Select **Add Variable** in the toolbar.



- Select **Total Private** as illustrated below



- The data table is displayed in [Column Mode](#) by default. This can be changed to [Haver Mode](#) by right clicking on the data table:

diff(LAPRIVA) [Monthly] Jan.1939 -- Feb.2024 [Mar.08.2024 08:30]

Month	diff(LAPRIVA@USECON)	diff(LANAGRA@USECON)
2022 - Nov	195	258
2022 - Dec	133	
2023 - Jan	359	
2023 - Feb	226	
2023 - Mar	91	
2023 - Apr	231	
2023 - May	254	
2023 - Jun	185	
2023 - Jul	148	
2023 - Aug	150	
2023 - Sep	196	
2023 - Oct	98	
2023 - Nov	152	
2023 - Dec	214	
2024 - Jan	177	
2024 - Feb	223	

Context Menu:

- Insert Label
- Apply Basic Function [1]
- Apply Advanced Function [1]
- Show All Series
- Remove Series [1]
- Send Series to Formula Bar
- Heat Map Options
- Monitor Series
- Monitor Entire Group
- Copy Selection Ctrl+C
- Select All Ctrl+A
- Haver Mode
- Column Mode

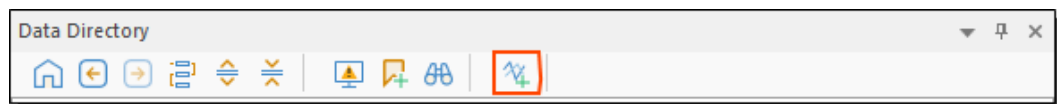
diff(LAPRIVA) [Monthly] Jan.1939 -- Feb.2024 [Mar.08.2024 08:30]

	Month	Month	Month	Quarter	Year
	899	626	539	1,977	4,123
2022	263	865	495	1,573	
	239	258	418	1,169	
	540	244	248	1,150	
	331	195	133	752	6,035
2023	359	226	91	694	
	231	254	185	598	
	148	150	196	521	
	98	152	214	451	2,947
2024	177	223	---	---	
	---	---	---	---	
	---	---	---	---	
	---	---	---	---	

See [Variables and Constants](#) and [Data Tables](#) for more information.

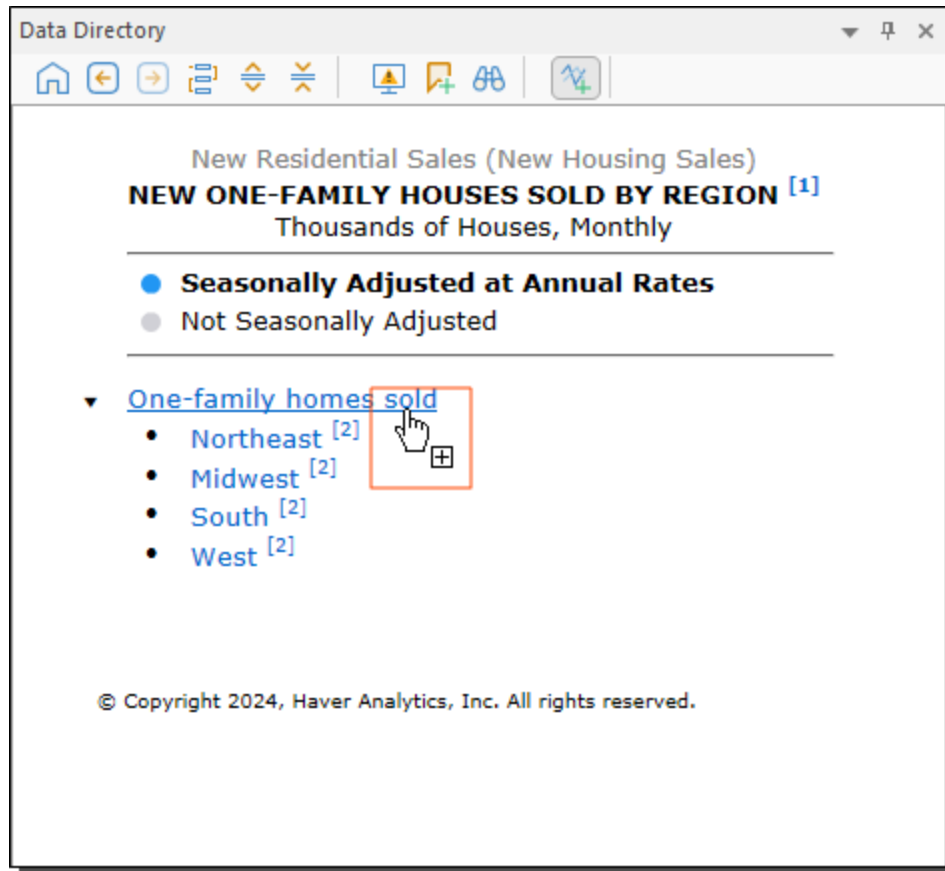
- NEW** There is now a new and faster way to add variables to a graph using

One-Click Add:



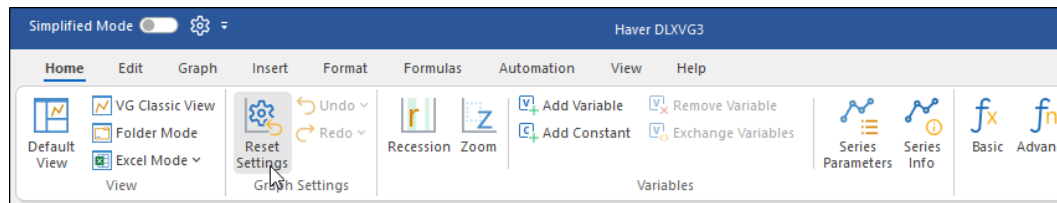
Simply click on the highlighted button above which turns it on (and remains on until you click on it again) and you can now add by simply clicking on them.

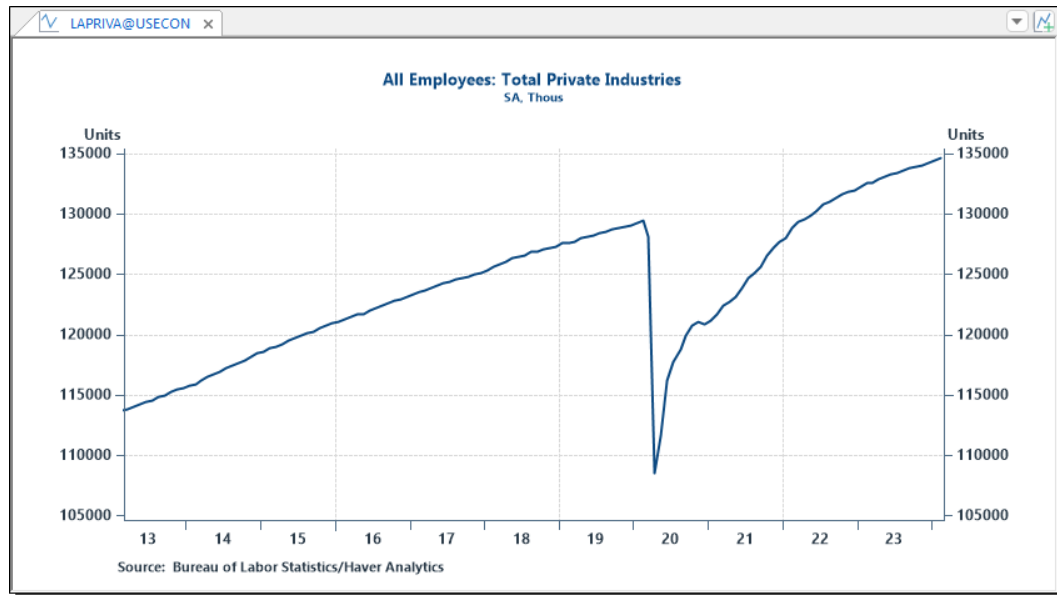
Notice that the cursor while hovering over a series will now have a plus-sign added:



6. Reset graph settings

- To restore the graph to its original settings select **Reset Settings** in the toolbar:





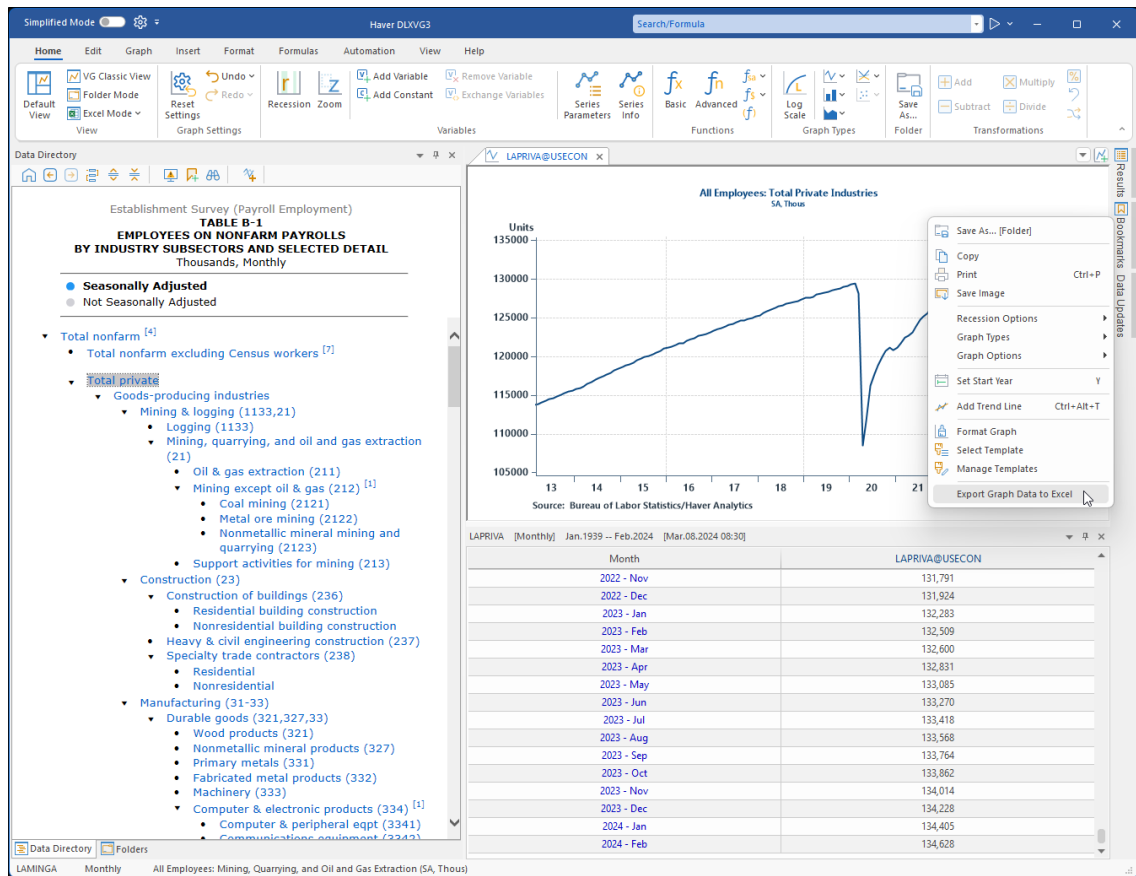
 This will restore the original settings for the primary series, which in this case is LAPRIVA@USECON and remove all other series from the graph, in this case LANAGRA@USECON

 The primary series/active series/active variable is the series listed first.

Export Graph Data to Excel

DLXVG3's graphs can be exported into Excel.

1. Right click on the graph area and select Export Graph Data to Excel



2. A new instance of Excel will open with the data placed in a spreadsheet:

	A	B
1	May-113 *M Disaggregate_All	LAPRIVA@USECON
2	.DESC	All Employees: Total Private Industries (SA, Thous)
3	May-13	114231
4	Jun-13	114439
5	Jul-13	114576
6	Aug-13	114815
7	Sep-13	114986
8	Oct-13	115211
9	Nov-13	115473
10	Dec-13	115553
11	Jan-14	115747
12	Feb-14	115887
13	Mar-14	116152
14	Apr-14	116444
15	May-14	116680
16	Jun-14	116954
17	Jul-14	117172
18	Aug-14	117414
19	Sep-14	117666
20	Oct-14	117880
21	Nov-14	118158
22	Dec-14	118417



The data retrieval will use the start date displayed on the graph and a dynamic end date so the data can be updated next month.

3. Proceed to edit or save the spreadsheet as you would in Excel.

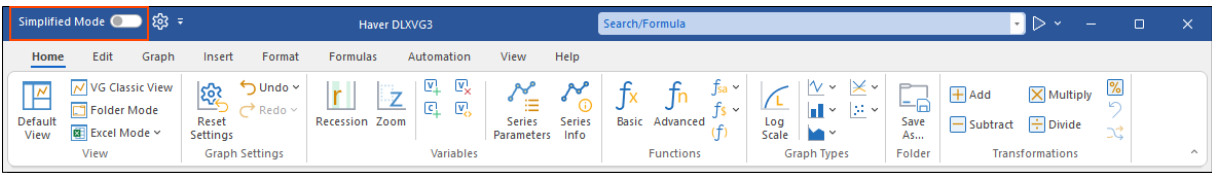
The Workspace

Ribbon	40
Data Directory	54
Graph Area	58
Data Table	66
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Ribbon

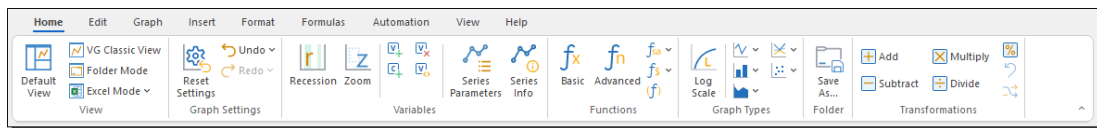
DLXVG3's new and improved workspace now has a Ribbon replacing the old menu bar.

You have the option to view the Ribbon in its default expanded state or toggle on Simplified Mode:

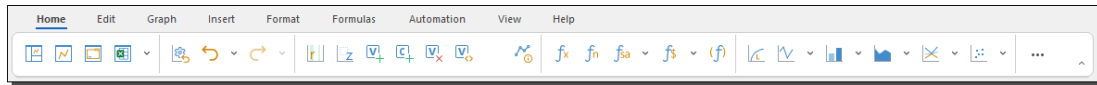


Home

Normal:



Simplified:



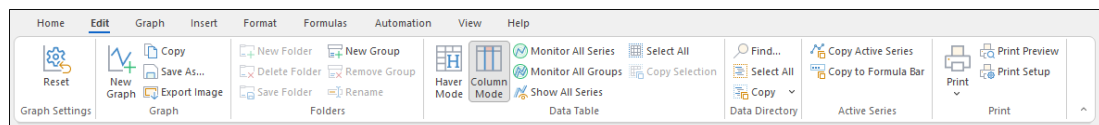
The Home Ribbon contains all the same options as the previous menu bar.

Item	Shortcut Keys	Description
Default View		Restores the original directory-data-graph view
VG Classic View	SHIFT + C	Toggles Classic View where the graph takes up the whole screen
Folder Mode		Show Folders Window
Excel Mode	CTRL + E	Opens the workspace into Excel Mode (DLXFIND) where you can input codes directly from DLXVG3 into an Excel Spreadsheet
Reset Graph Settings	CTRL + R	Reset Graph Settings back to default - removes all functions, graph types, formatting changes, etc
Undo	CTRL + Z	Undo previous commands

Item	Shortcut Keys	Description
Redo	CTRL + Y	Redo previous commands
Recession	R	Toggles Recession Shading on/off
Zoom	Z	Opens a dialog box where you can zoom in/out with a specified time span
Add Variable	ALT + V	Add a variable to the graph - duplicates the current primary variable
Add Constant	CTRL + ALT + V	Opens up a dialog box to insert a constant number as a variable
Remove Variable	CTRL + V	Removes the right most variable listed in the data table
Exchange Variables	ALT + X	With 3 or more variables on the graph, opens a dialog box to exchange multiple variables.
Series Parameters	ALT + F10	
Series Info	CTRL + I	Opens a dialog box to display the descriptions for all series on the graph
Basic Functions	F	Opens a dialog box to select basic functions
Advanced Functions	ALT + F	Opens a dialog box to select advanced functions
Seasonal Adjustment	SHIFT + S	Applies seasonal adjustment to primary series if applicable with drop-down options to change the seasonal adjustment settings
Convert Currency	\$	Applies currency conversion to primary series if applicable with drop-down options to change the currency applied
Nesting	CTRL + ALT + F	Toggles on/off nesting of functions to allow more than one function to be applied to a series
Log Scale	L	Toggles Log Scale on the Y-axis when applicable
Line Graph		Applies Line Graph - with drop-downs to apply to one or more series on the graph
Column Graph		Applies Column Graph - with drop-downs to apply to one or more series on the graph
Area Graph		Applies Area Graph - with drop-downs to apply to one or more series on the graph
Cycle Graph		Applies a cycle graph. Only applies to the primary

Item	Shortcut Keys	Description
		series if more than one series in on the graph
Scatter Graph		Applies a scatter graph. Need 2+ series for this to be enabled
Graph Save As	CTRL + S	Save Graph in a Folder
Add	+	Adds two series together - if more than 2 series are open on the graph, will add the two left most series in the data table
Subtract	-	Subtracts two series - if more than 2 series are open on the graph, will subtract the left most series in the data table from the following series to the right of it
Multiply	*	Multiples two series together - if more than 2 series are open on the graph, will multiple the two left most series in the data table
Divide	/	Divides two series - if more than 2 series are open on the graph, will divide the left most series in the data table from the following series to the right of it
Percent	%	Perform percent function on two series - if more than 2 series are open on the graph, will use the left most series in the data table as the numerator and the following series to the right of it as the denominator
Undo	SHIFT + R	Undo two variable transformation
Exchange Transformation	SHIFT + X	Exchange two variable transformation

Edit

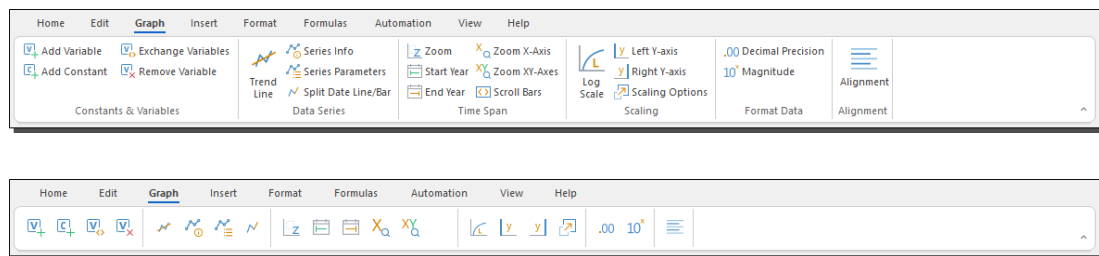


Item	Shortcut Keys	Description
Reset Graph Settings	CTRL + C	Reset Graph Settings back to default - removes all functions, graph types, formatting changes, etc

Item	Shortcut Keys	Description
New Graph	CTRL + C	Opens a new tab to create a new graph
Graph Copy	CTRL + C	Copies the current graph and sends it to the clipboard
Graph Save As	CTRL + S or SHIFT + F	Toggles on Folder Mode so the current graph can be renamed and saved to a folder
Export Image		Exports graph image to be saved as a .png, .jpg, .bmp or .emf
New Folder		In Folder Mode, creates a new subfolder
Delete Folder		In Folders Mode, deletes a subfolder
Save Folder	CTRL + S	Saves a graph that was previously saved to a folder and sent to active view
New Group		Creates a new Folder Group where you can then add subfolders
Remove Group		Opens the Remove Folder Group dialog box where you can select a folder group to be removed from the Folders Directory
Rename		In Folders Mode, renames the Graph, Subfolder or Folder Group that is currently selected.
Haver Mode		Displays only the primary series in the data table along with aggregated values in the last columns when applicable. Data is read from left to right, top to bottom
Column Mode		Displays multiple series of the same frequencies and includes the ability to exchange or delete series.
Monitor All Series		Adds all series in the data table to your Monitored list in the Data Updates Window
Monitor All Groups		Adds all groups from all series in the data table to your Monitored list in the Data Updates Window
Show All Series		Shows all series open in current graph by displaying the lowest frequency among all series
Select All	CTRL + A	Selects all columns in the data table
Copy Selection	CTRL + C	Copies all columns selected in the data table

Item	Shortcut Keys	Description
Find		Searches for text on the current page in the data directory
Select All	CTRL + A	Highlights all text on the current page in the data directory
Copy Selection Copy Path		Copies highlighted selection Copies the path you took to arrive at the current page/series of the data directory you are currently on
Copy Active Series	SHIFT + N	Copies the active series and sends it to the clipboard
Copy to Formula Bar	SHIFT + ALT + N	Sends the active series to the formula bar
Print	CTRL + P	Option to Print Active Graph or Print Data Table - opens a dialog where you can select the range of data you wish to print
Print Preview		Opens the Print Preview in the graph area so you can see how a document looks before printing it.
Print Setup		Opens a dialog where you can select the default printer, paper size, and orientation for the document.

Graph

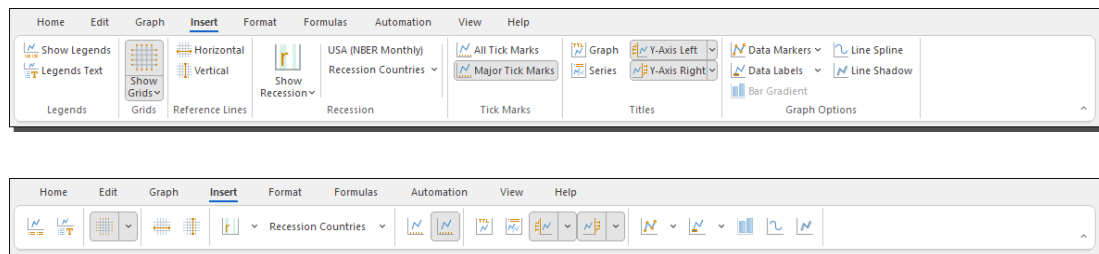


Item	Shortcut Keys	Description
Add Variable	ALT + V	Add a variable to the graph - duplicates the current primary variable
Add Constant	CTRL + ALT + C	Opens up a dialog box to insert a constant number as a variable
Exchange	ALT + X	Opens a dialog box where you can drag and drop vari-

Item	Shortcut Keys	Description
Variables		ables to rearrange their order when there are 3+ variables. If there are only 2 variables, it will simply exchange them.
Remove Variable	CTRL + V	Removes the bottom variable shown on the graph.
Trend Line	CTRL + ALT + T	Inserts a linear trend line for the primary series.
Series Info	CTRL + I	Opens a dialog box which displays the codes and labels for the all series displayed in current graph
Series Parameters	ALT + F10	Opens a dialog box which displays the parameters for all series displayed in the current graph tab
Split Date Line/Bar		Opens a dialog box where you can specify a Year, Month and Day to split the series at that time period with a different color/style for the line/bar
Zoom	Z	Opens a dialog box where you can zoom in/out with a specified time span.
Zoom X-Axis		Toggles on mouse-controlled zoom in the graph area where you can select the time span you wish to zoom in to
Zoom XY-Axis		Toggles on mouse-controlled zoom in the graph area where you can select the a specific area in the graph to zoom in to
Start Year	Y	Opens the Time Span dialog box where you can set the start year of the graph in YYYY, YYYYQ or YYYYMM format
End Year	C	Opens the Time Span dialog box where you can set the end year of the graph in YYYY, YYYYQ or YYYYMM format or select last datapoint
Scroll Bars		Toggles on Scroll Bars in the graph area for mouse controlled scrolling through the X-Axis
Log Scale	L	Toggles on Log Scale on the Y-Axis
Left Y-Axis	ALT + S	Opens the Scaling Options dialog box fully expanded to access both Left Y-Axis Settings and Right Y-Axis Settings
Right Y-Axis	SHIFT + ALT + S	Opens the Scaling Options dialog box fully expanded to access both Left Y-Axis Settings and Right Y-Axis Settings

Item	Shortcut Keys	Description
Scaling Options	S	Opens the Scaling Options dialog box where you can select More Options to see the expanded view
Decimal Precision	.	Opens a dialog box where you can change the growth rate decimal precision
Magnitude	M	Opens a dialog box where you can change the magnitude to Thousands, Millions, Billions, Trillions, Quadrillions, a custom value from 0, 3-26 or Default
Alignment	ALT + A	Opens a dialog box where you can apply a frequency of Quarterly, Monthly, Annual or None.

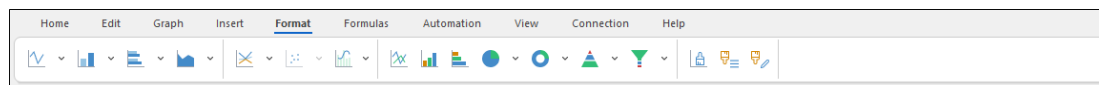
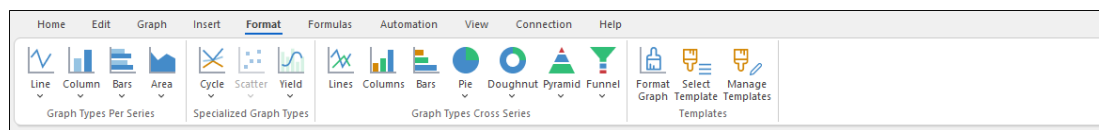
Insert



Item	Shortcut Keys	Description
Show Legends	CTRL + L	Toggles on/off legends on the graph
Legends Text	CTRL + ALT + L	Opens a Set Graph's legends dialog box to edit the text for the legends on the graph
Grids	G	Opens a dialog box/drop-down where you can apply horizontal, vertical, both or neither grid style
Horizontal Reference Line	ALT + H	Opens a dialog box to select from dynamic and/or constant values to apply as (a) horizontal reference line(s) on the graph
Vertical Reference Line	SHIFT + V	Opens a dialog box to select dates for up to 5 vertical reference lines on the graph
Show Recession	R	Toggles Recession on/off with drop-down option to choose between Recession Shading or Recession Lines
Recession Countries		Displays current default Recession chosen on top with a drop-down to pick between pre-defined Recession Countries or Custom Recessions.

Item	Shortcut Keys	Description
All Tick Marks	K	Toggles on/off all tick marks on graph
Major Tick Marks	CTRL + K	Toggles on/off all major tick marks on graph
Graph Titles	ALT + T	Opens a dialog box to set the Top Title for the graph
Series Titles	T	Opens a dialog box to edit/remove the series titles for all series on the graph
Y-Axis Left Title		Toggles on/off Y-Axis Left Title with drop-down option to edit the text
Y-Axis Right Title		Toggles on/off Y-Axis Right Title with drop-down option to edit the text
Data Markers		Toggles on/off Data Markers with drop-down to select from Circle, Triangle, Rectangle or Rhombus
Data Labels		Toggles on/off Data Labels with drop-down option to choose from None, All or Last
Bar Gradient		Toggles on/off Bar Gradient when graph type is either a Column or Bar Graph
Line Spline		Toggles on/off Line Spline when graph type is a line graph which makes the line appear smooth
Line Shadow		Toggles on/off Line Spline when graph type is a line graph which adds a shadow to the line

Format

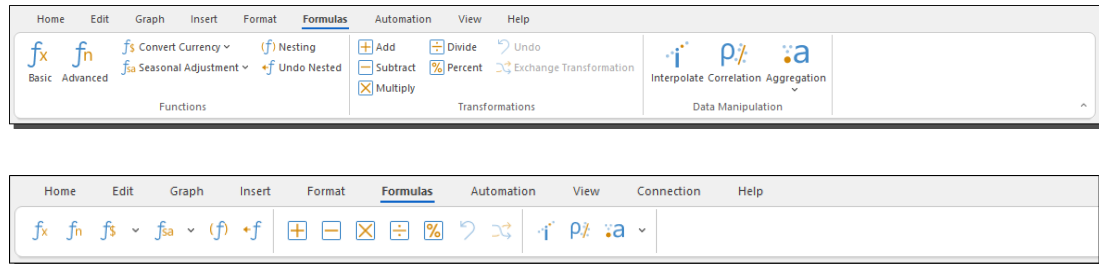


Item	Shortcut Keys	Description
Line Graph		Default Graph Type, can be applied to one or all series on the graph. Also option to apply Step Lines.
Column Graph	B	Can be applied to one or all series on the graph with options for a Stacked Column Graph or 100% Stacked

Item	Shortcut Keys	Description
		Column Graph
Bars Graph		Horizontal Bar Graphs must be applied to all series on the graph or as a Stacked Bar Graph or 100% Stacked Bar Graph
Area Graph		Can be applied to one or all series on the graph with options for a Stacked Area Graph or 100% Stacked Area Graph
Cycle Graph		Specialized graph type applied only to the primary variable
Scatter Graph		Specialized graph type with 2-24 series
Yield Graph		Specialized graph type with options to compare the same Yield Graph across multiple time spans or multiple Yield Graphs across the same time span
Cross Series Graph - Lines		Displays all series on the graph as Line Graphs across one point in time
Cross Series Graph - Columns		Displays all series on the graph as Column Graphs across one point in time
Cross Series Graph - Bars		Displays all series on the graph as Bar Graphs across one point in time
Cross Series Graph - Pie		Displays all series on the graph as a Pie Graph across one point in time with an additional option for a Pie Exploded Graph
Cross Series Graph - Doughnut		Displays all series on the graph as a Doughnut Graph across one point in time with an additional option for a Doughnut Exploded Graph
Cross Series Graph - Pyramid		Displays all series on the graph as a Pyramid Graph across one point in time with an additional option for a 3D Pyramid Graph
Cross Series Graph - Funnel		Displays all series on the graph as a Funnel Graph across one point in time with an additional option for a 3D Funnel Graph
Format Graph		Opens the Template Options Windows with options to customize the current graph tab
Select Template		Opens Style and Color Window where you can select another default or custom template to apply to the cur-

Item	Shortcut Keys	Description
		rent graph. This will also become your new default template.
Manage Template		Opens the Templates Options Windows with options to edit your template and create a new template

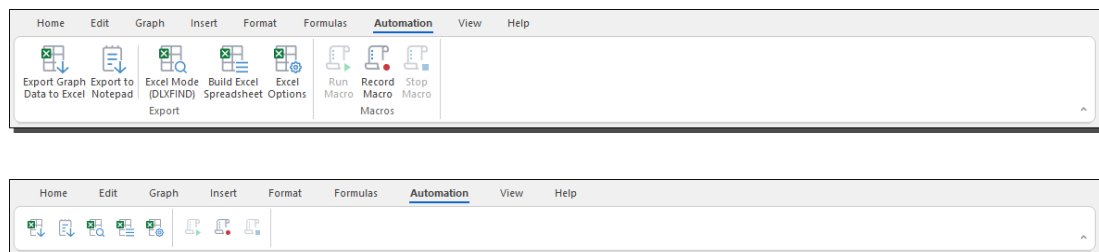
Formulas



Item	Shortcut Keys	Description
Basic Functions	F	Opens a dialog box to select basic functions
Advanced Functions	ALT + F	Opens a dialog box to select advanced functions
Seasonal Adjustment	SHIFT + S	Applies seasonal adjustment to primary series if applicable with drop-down options to change the seasonal adjustment settings
Convert Currency	\$	Applies currency conversion to primary series if applicable with drop-down options to change the currency applied
Seasonal Adjustment	SHIFT + S	Applies seasonal adjustment to the primary series.
Nesting	CTRL + ALT + F	Toggles on/off nesting of functions to allow more than one function to be applied to a series
Undo Nested	CTRL + ALT + R	Removed the last added nested function
Seasonal Adjustment Settings	CTRL + ALT + S	Opens a dialog box to specify the data used.
Undo Nested	CTRL + ALT + R	Removes the most recent nested function.
Add	+	Adds two series together - if more than 2 series are open on the graph, will add the two left most series in the data table
Subtract	-	Subtracts two series - if more than 2 series are open

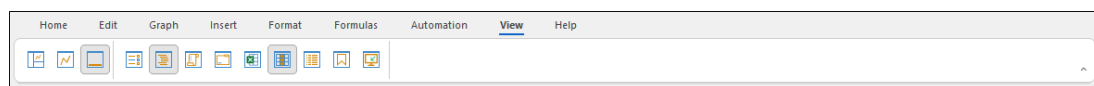
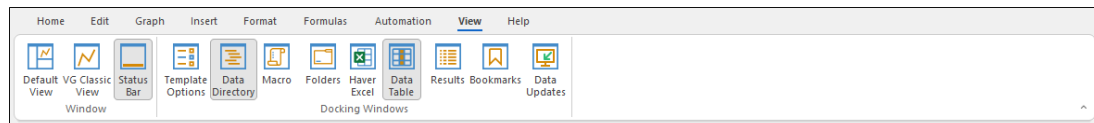
Item	Shortcut Keys	Description
		on the graph, will subtract the left most series in the data table from the following series to the right of it
Multiply	*	Multiplies two series together - if more than 2 series are open on the graph, will multiply the two left most series in the data table
Divide	/	Divides two series - if more than 2 series are open on the graph, will divide the left most series in the data table from the following series to the right of it
Percent	%	Perform percent function on two series - if more than 2 series are open on the graph, will use the left most series in the data table as the numerator and the following series to the right of it as the denominator
Undo	SHIFT + R	Undo two variable transformation
Exchange Transformation	SHIFT + X	Exchange two variable transformation
Interpolate	I	Toggles on/off interpolation for the primary series to fill in missing values
Correlation	ALT + C	Toggles on/off correlation on the graph between the two left most series in the data table
Aggregation	A CTRL + ALT + A	Opens a dialog box where you can apply a frequency of Weekly, Monthly, Quarterly, Annual or None with drop-down option to change the Aggregation Type with options of Default, Average, Sum or EOP

Automation



Item	Shortcut Keys	Description
Export Graph Data to Excel		Exports current series and time span displayed on the graph to an Excel spreadsheet
Export to Notepad		Opens the workspace into Notepad Mode for exporting series codes into a notepad
Excel Mode (DLXFIND)		Opens the workspace into Excel Mode (DLXFIND) where you can input codes directly from DLXVG3 into an Excel Spreadsheet
Build Excel Spreadsheet		Displays a blank spreadsheet in place of the spreadsheet with the ability to populate codes and create your own spreadsheet
Excel Options		Opens a dialog box to select the default parameters and options selected when exporting graph data to excel
Run Macro		Runs a macro when Macros window is open and a macro is selected
Record Macro	CTRL + M	Starts recording a macro - a list of all your actions
Stop Macro	CTRL + ALT + M	Ends the recording of a macro

View



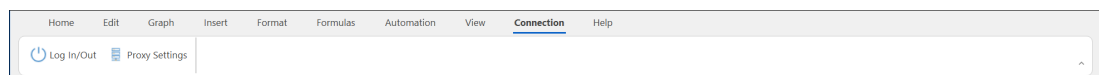
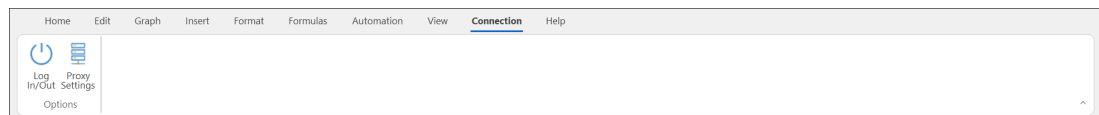
Item	Shortcut Keys	Description
Default View		Restores the original directory-data-graph view
VG Classic View		Toggles on/off Classic View where the graph takes up the whole screen
Status Bar		Toggles on/off the status bar at the bottom of the application window
Template Options		Opens the template options window in format graph mode

Item	Shortcut Keys	Description
Data Directory		Toggles on/off the Data Directory window
Macro		Toggles on/off the Macro window
Folders		Toggles on/off the Folders window
Haver Excel		Toggles on/off the Excel Spreadsheet interface in the data table
Data Table		Toggles on/off the Data Table window
Results		Toggles on/off the Search Results window
Bookmarks		Toggles on/off the Bookmarks window
Data Updates		Toggles on/off the Data Updates window

Connection



This is only available in DLXVG3 Direct



Item	Shortcut Keys	Description
Log In/Out		Logs you out of Direct and opens up the dialog box to Log back in
Proxy Settings		Opens a dialog box with options for your proxy settings and server connection

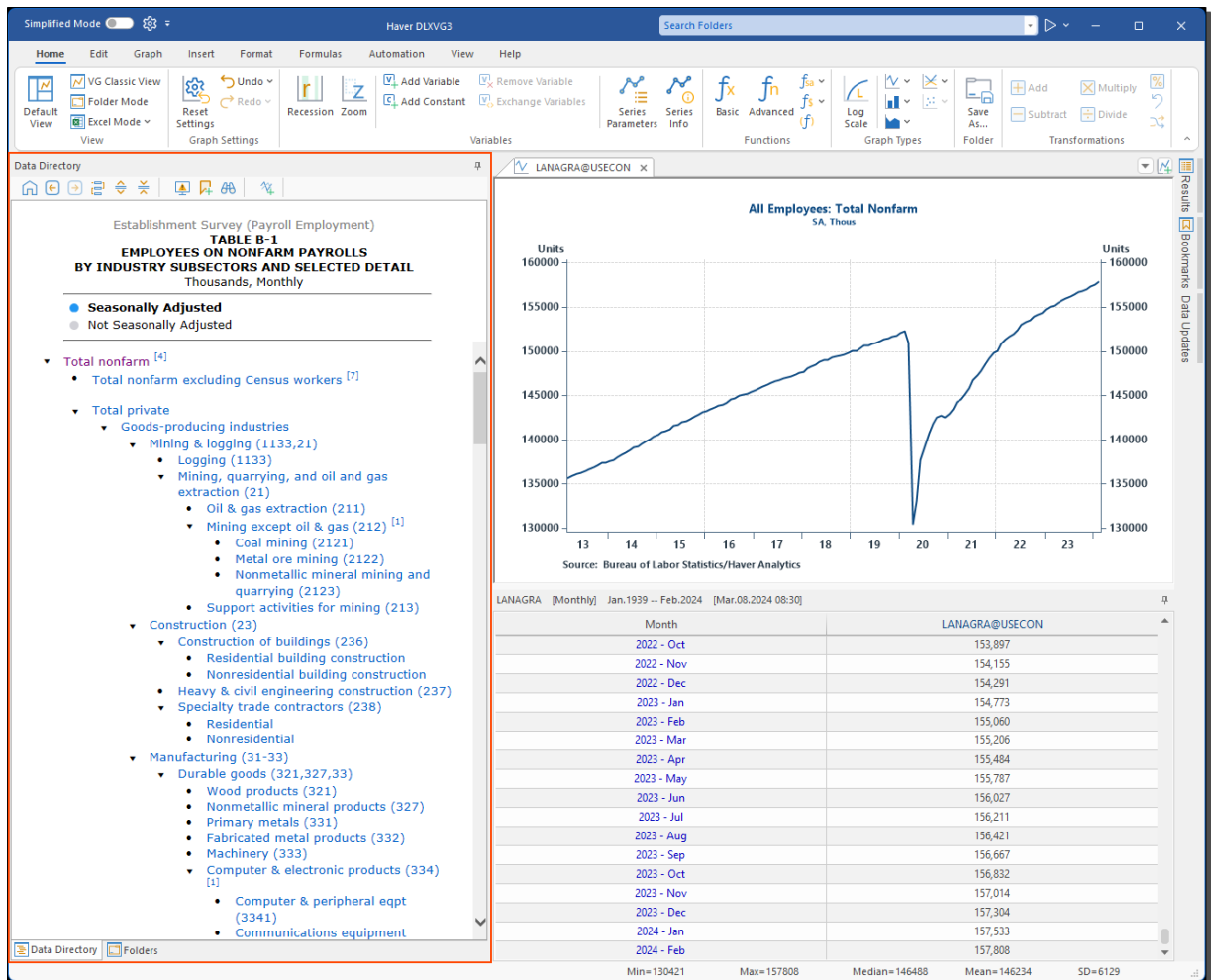
Help



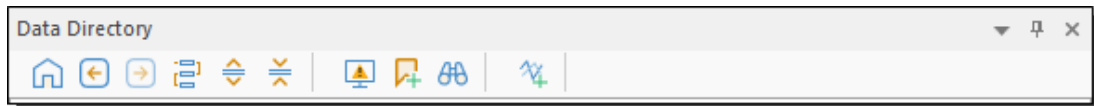
Item	Shortcut Keys	Description
PowerPoint Add-In		Automatically loads the PowerPoint Add-In if it exists in the same directory as VG3
Excel Add-In		Automatically loads the Excel Add-In if it exists in the same directory as VG3
Contact Us		Displays contact information for Haver Analytics
Help Topics	F1	Opens the DLXVG3 help files in another window
Country Codes		Opens a dialog box with Country Names and their corresponding GEO Codes and ISO Codes
About DLXVG3		Displays the version number, account number and environment variables with option to copy to clipboard

Data Directory

Consists of the menu navigation bar and menus.



About the Menu Navigation Bar



-  Home - restores the menu page to the list of databases subscribed
-  Navigation Arrows - navigates between menu pages within the selected database

-  Hierarchy - displays the list of menu items selected to arrive at the current menu page
-  Expand / Collapse all items on a page.
-  [Show Data Updates](#) - displays the most recent data updates
-  [Add a Bookmark](#) - creates a new bookmark for the current menu page
-  [Search](#) - places your cursor in the Search/Formula bar
- **NEW**  [One-Click Add](#) - Enables adding series to a graph by simply clicking on the data directory

Navigate Through the Menus to Find Data

Manual navigation

See [Browse for a Data Series](#).

NEW You can now open more than one series from the data directory to the graph by highlighting, right-clicking and selecting “Send Selection to Graph [x]” where the x represents the number of series selected, up to a maximum of 24.

NEW Once you have selected a series through the menus, you can now use two new keyboard shortcuts to change or add more series to your graph:

-  ALT + Down Arrow Key adds a new series to the graph
-  CTRL + Down Arrow Key replaces the newly added series on the graph

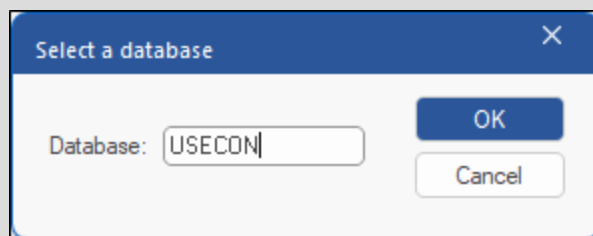
Using shortcut keys

- Use  ALT + D to open a database, followed by  N for the code. If the code is unknown, navigate to the series manually.
- Use  ALT + N to enter the series in the form CODE@DATABASE directly in the formula bar.

Example 1

View U.S. monthly unemployment rate, LR@USECON by using  ALT + D, followed by  N.

1. To open the database,  ALT + D and enter USECON



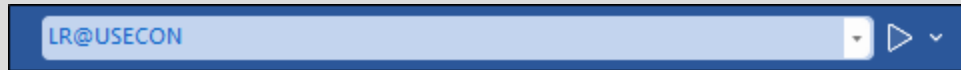
2. To open the series,  N and enter LR



Example 2

View U.S. monthly unemployment rate, LR@USECON by using  ALT + N.

1.  ALT + N and enter LR@USECON:



2. Click  or  ENTER

Using Find

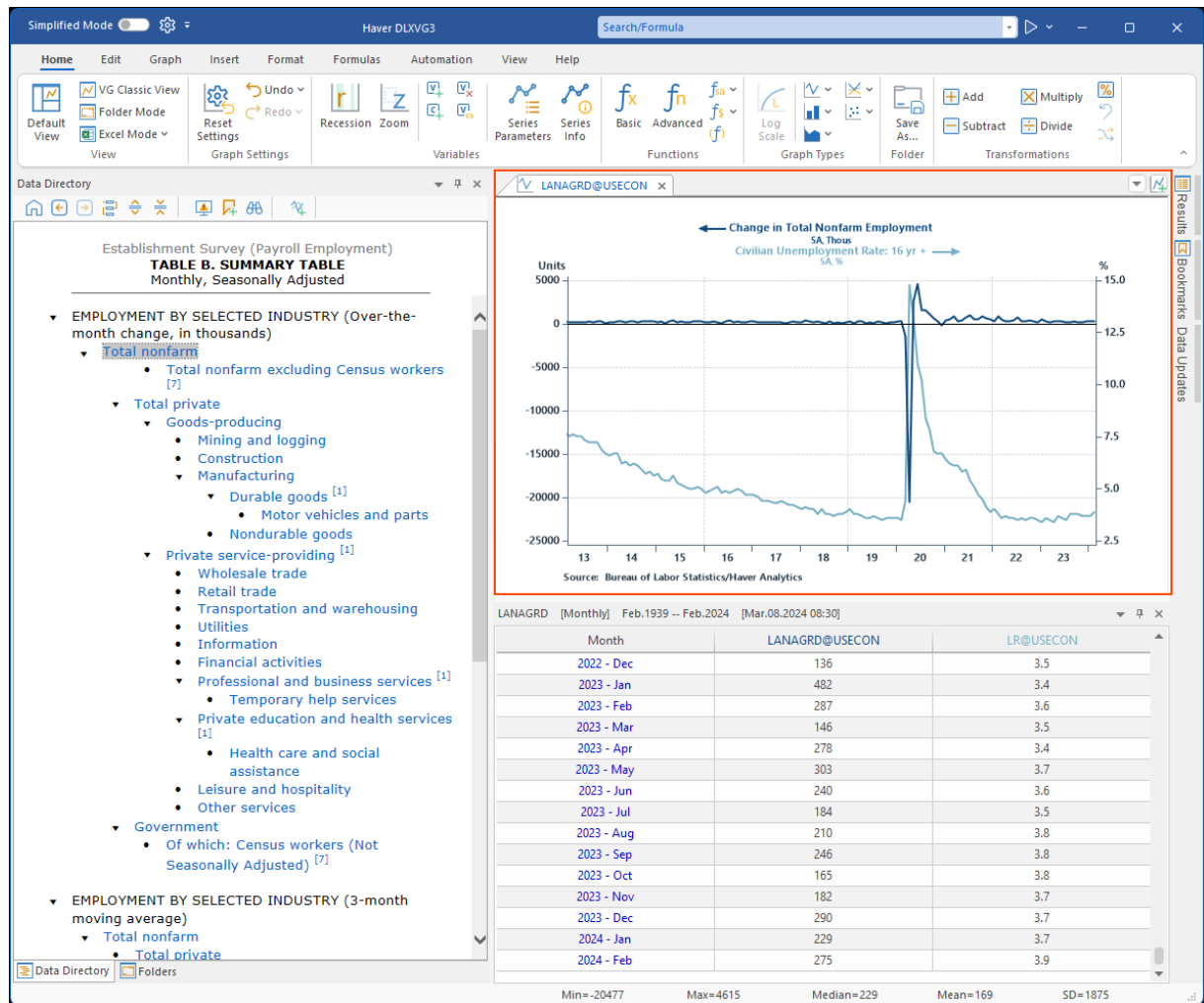
Navigate to a menu page in the Data Directory and then right-click and select "Find" to search for a word or phrase on that page.

Copy Hierarchy

Copy the Hierarchy in the Data Directory by right-clicking and selecting "Copy Hierarchy". The hierarchy now displays the series path by default. To display/ copy the hierarchy from previous versions which displayed menu headers go to Options > General > Data Directory Options > Hierarchy to Show and select the drop-down arrow and choose Hierarchy.

Graph Area

After browsing through the menus and clicking on a series, DLXVG3 will graph its data observations in the Graph Area.



About Data Snapshots

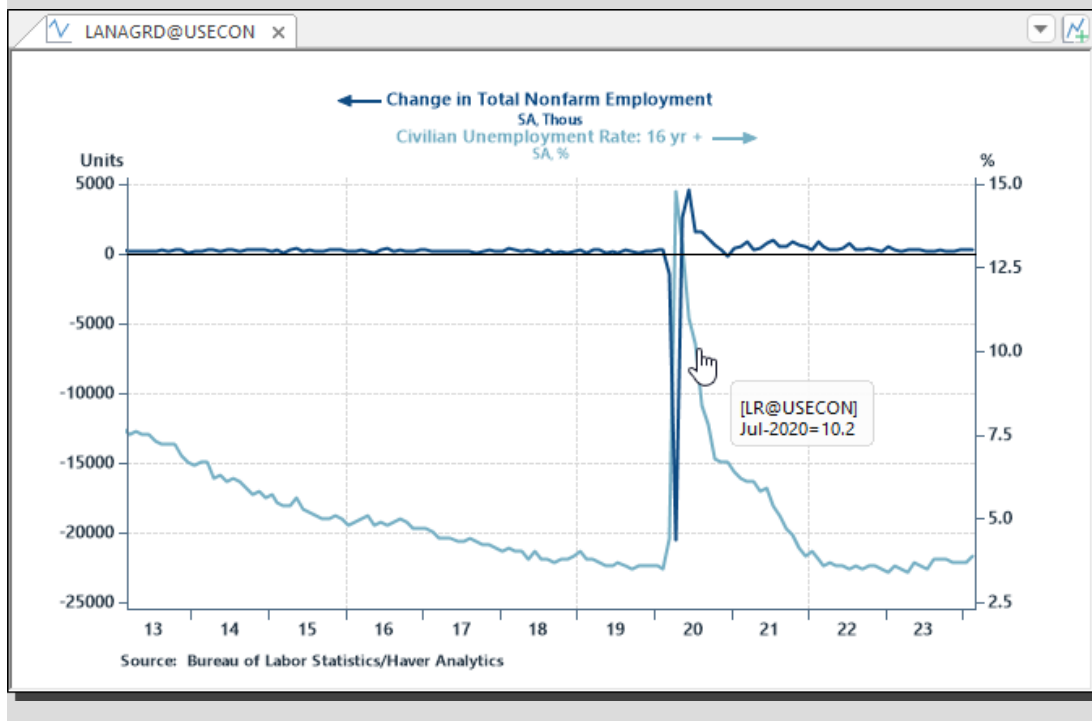
Data snapshots provide data point values on a series when performing one of the following:

Hovering over a data point

Displays a dot on the data point observed and its code@database, date and value in a snapshot.

Example

Observation of LR@USECON and LANAGRD@USECON.

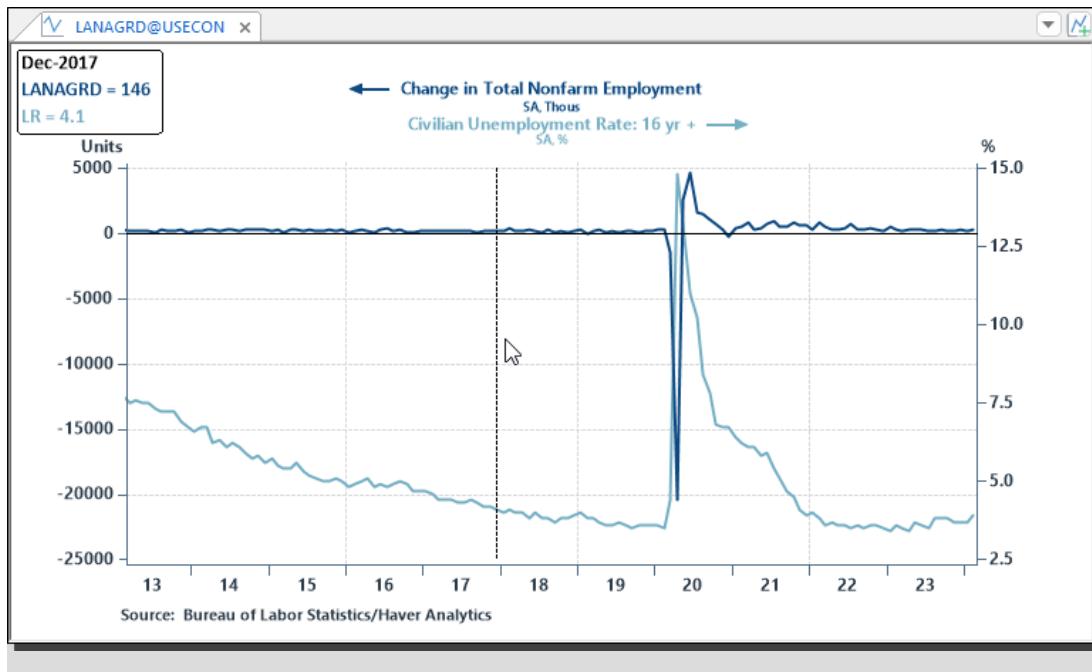


Clicking on the graph

Displays a dotted line and a snapshot at the top left corner of the graph of the date observed, the codes and their values.

Example

Observation of LR@USECON and LANAGRD@USECON.



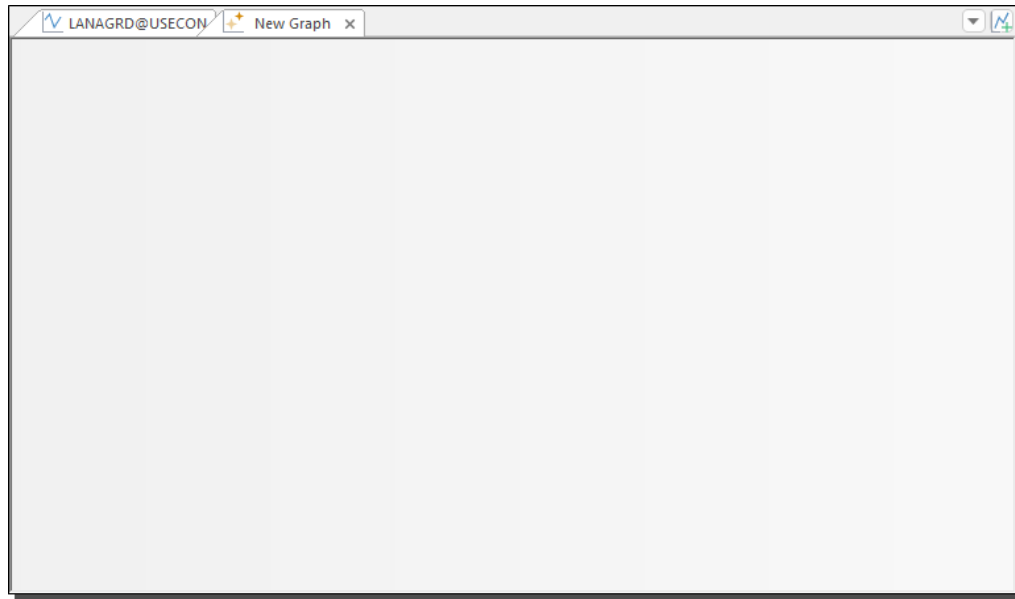
About Tabs

Use multiple tabs to switch back and forth between different graphs.

Display a graph in a new tab

1. Do one of the following to open a new tab:

- Click the New Graph button 
-  CTRL + T



2. Open a new series or a saved graph.

 *The type of graph that you have opened is indicated by its icon in the tab.*

-  Represents a new blank tab
-  Represents an active graph
-  Represents a saved graph
-  Represents a saved graph that has been sent to active view

About the Active Tab Button

The active tab button (*located at the top right corner of the graph area*) stores the list of all graphs opened in the graph area. Use the button to quickly access an opened graph.

 *When the number of graphs opened is greater than the number of tabs visible, the active tab button changes from  to .*

Access an opened graph via the active tab button

1. Click the active tab button  or  or
2. Select the graph from the list

Duplicate or Refresh an Active Graph

Create a copy of an active graph in a new tab to add/remove variables, functions and transformations without having to start from scratch.

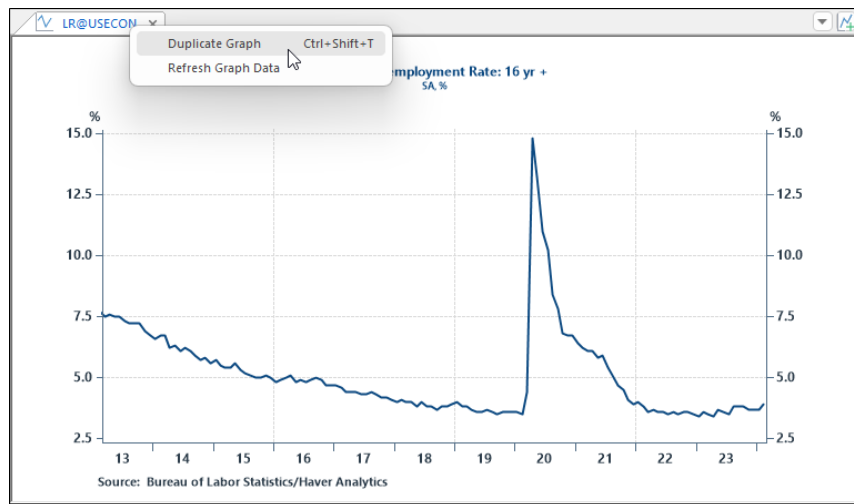
You can also now Refresh an Active Graph to bring in any new data to a graph if an update occurred after the series was already selected and opened on the graph.

1. Select the active graph.

 If the graph is a saved graph, right click the graph area and select Send to Active View or use the shortcut  ALT + V

2. Right click on the tab and select one of the following:

- Duplicate Graph or  CTRL + SHIFT + T



- **NEW** Refresh Graph Data

Edit/Format Graph Items and Other Options

Edit graph items (such as titles, scaling, etc.) on a graph in active view

1. Double click on the item
2. Make the changes
3. Click OK or  ENTER

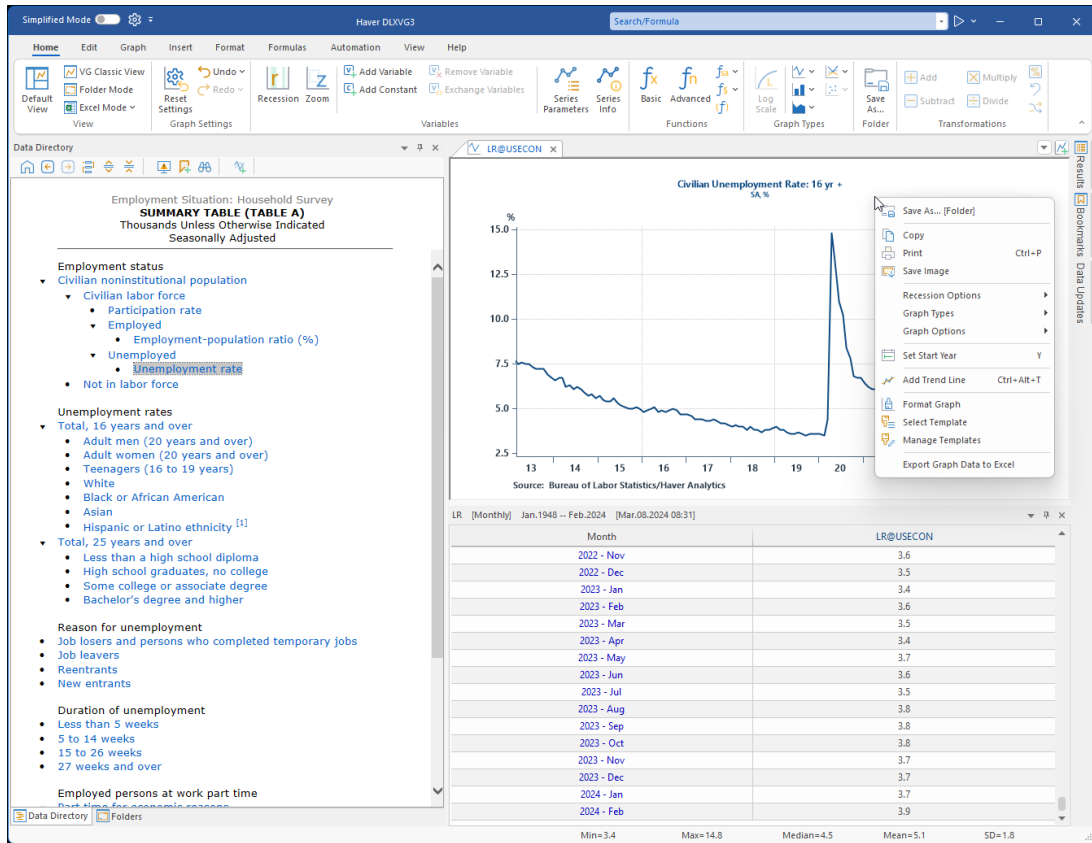
Format an item's color, style, etc. on a graph in active view

1. Right click the item
2. Make the changes
3. Click Save  to apply the format to the current graph

 Click the drop-down arrow to save the changes to your current template or [create a new template](#).

Graph option shortcuts

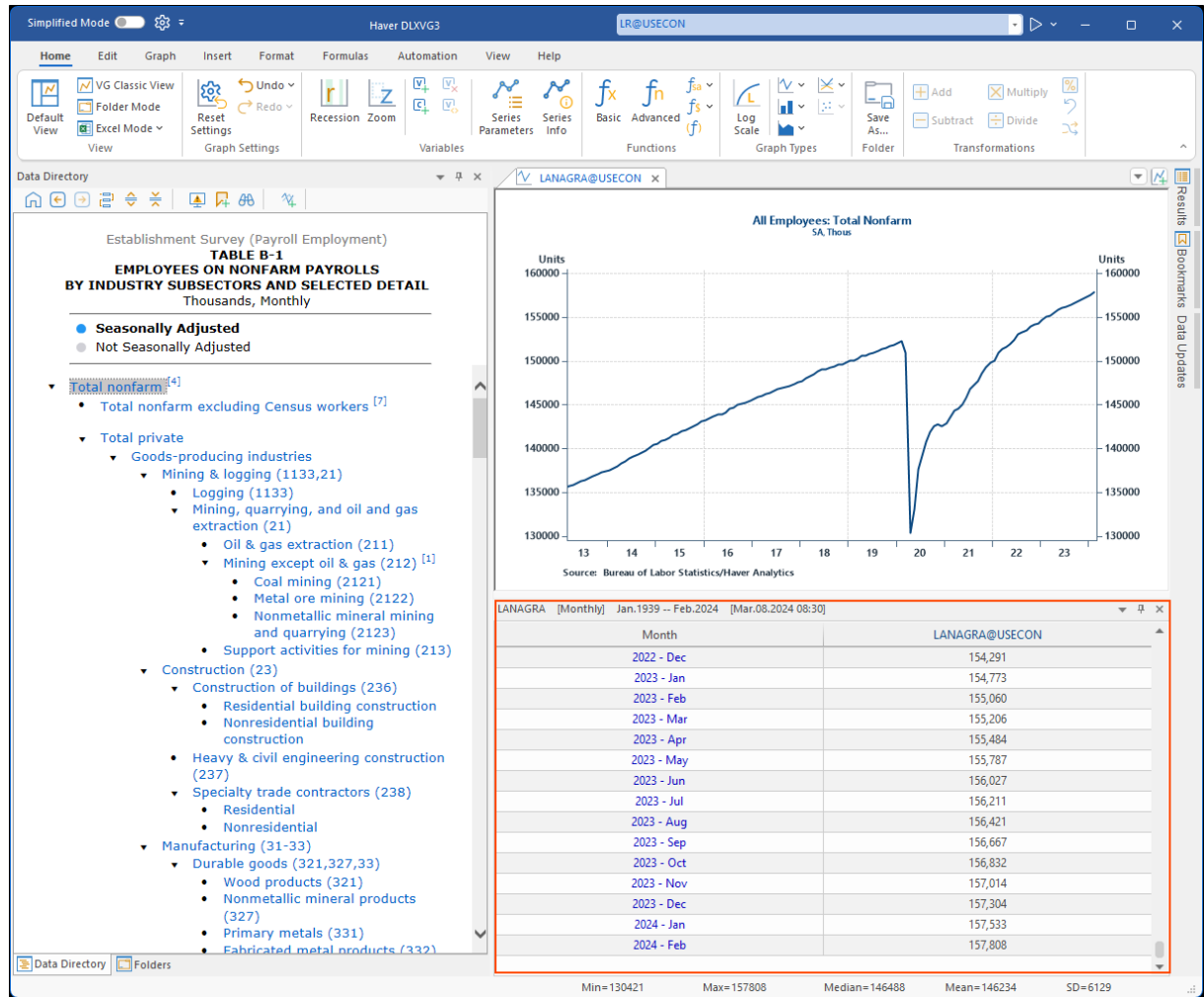
Right click on the graph to display the graph options such as save, copy, print, graph types, graph options, format, select and manage templates.



 When the graph is not in active view, some of the options shown above will be grayed out and some additional options will be available, such as the option to send the graph to active view.

Data Table

After browsing through the menus and clicking on a series, DLXVG3 displays its data observations on the data table.



About the Data Table

The title bar

Displays the following info for the **active series**¹:

¹The first variable listed on a graph; all operations/functions will be applied to this series.

- Series name
- Frequency
- Time span
- Date & time of the last update

The data table

Displays the observations of the data series. The background color of the data table indicates the type of data displayed. The following is a list of background colors and their meanings. The colors vary slightly depending on if you are viewing the application in Light or Dark Mode:

- White/Dark Gray- data observations from an active graph
- Blue/Teal - data observations from a saved graph
- Yellow/Gold - data observations with aggregation, interpolation or magnitude applied

Data observation mode

The data table displays the observations in one of two ways:

- [Haver Mode](#)
- [Column Mode](#)

Haver Mode

Haver Mode displays data aggregated to lower frequencies in addition to the original frequency. Monthly observations are read from left to right.



*If there is more than one variable in the graph, only the data values for the **active series**¹ are displayed.*

¹The first variable listed on a graph; all operations/functions will be applied to this series.

View data in Haver Mode

1. Right click on the data table
2. Select **Haver Mode**

Example

View U.S. Unemployment Rate in Haver Mode. The table below shows monthly values followed by yearly aggregated values in the column titled Year. The data observations for January and February 2024 are 3.7 and 3.9 respectively.

LR [Monthly] Jan.1948 -- Feb.2024 [Mar.08.2024 08:31]

	Month	Month	Month	Quarter	Year
2022	4.0	3.8	3.6	3.8	
	3.7	3.6	3.6	3.6	
	3.5	3.6	3.5	3.5	
	3.6	3.6	3.5	3.6	3.6
2023	3.4	3.6	3.5	3.5	
	3.4	3.7	3.6	3.6	
	3.5	3.8	3.8	3.7	
	3.8	3.7	3.7	3.7	3.6
2024	3.7	3.9	---	---	
	---	---	---	---	
	---	---	---	---	
	---	---	---	---	---

Column Mode

Column Mode does not display aggregated values as above. In this mode, you have the ability to view data for multiple series of the same frequency and remove variables.

View data in column mode

1. Right click on the data table
2. Select **Column Mode**

Example

View U.S. Unemployment Rate in Column Mode. In the table below, only monthly values (the default frequency) of the series are displayed.

LR [Monthly] Jan.1948 -- Feb.2024 [Mar.08.2024 08:31]	
Month	LR@USECON
2022 - Dec	3.5
2023 - Jan	3.4
2023 - Feb	3.6
2023 - Mar	3.5
2023 - Apr	3.4
2023 - May	3.7
2023 - Jun	3.6
2023 - Jul	3.5
2023 - Aug	3.8
2023 - Sep	3.8
2023 - Oct	3.8
2023 - Nov	3.7
2023 - Dec	3.7
2024 - Jan	3.7
2024 - Feb	3.9

View data of different frequencies

By default, column mode displays values of data series that are of the same frequency as the active series. To also view variables of different frequencies do the following:

1. Right click on the data table
2. Select **Show All Series**



Data series of lower frequencies will display repeated values to line up with the higher frequency.

Remove a variable from the data table

1. Right click the cell of the variable
2. Select **Remove Series**

Send Series to Formula Bar

This is useful for saving a transformed series and/or duplicating it with another series at a later time.

1. Right click on the series in the data table
2. Select **Send Series to Formula Bar** or ALT + SHIFT + N to send the active series to the formula bar



You can now select multiple series columns in the data table and send multiple series to the formula bar

NEW Apply Functions

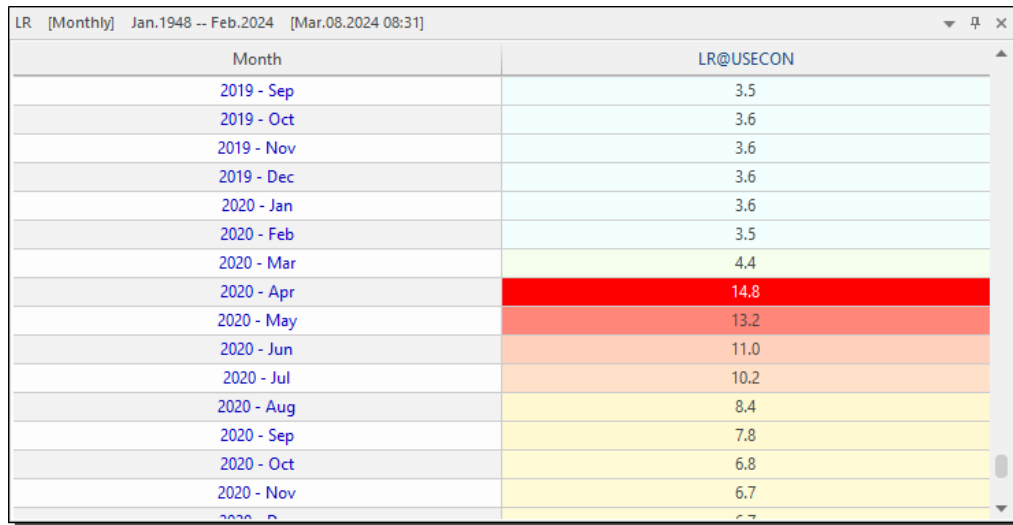
New ability to apply functions to series through the data table. This is useful for applying a function to all series in the data table or a select few.

1. Use CTRL + Click to select non consecutive series in the data table or SHIFT + Click/ simply highlight consecutive series.
2. Right click in the data table
3. Select "[Basic Functions](#)" on page 121 or "[Advanced Functions](#)" on page 124.

NEW Heat Map, Data Bars and Arrow Sets

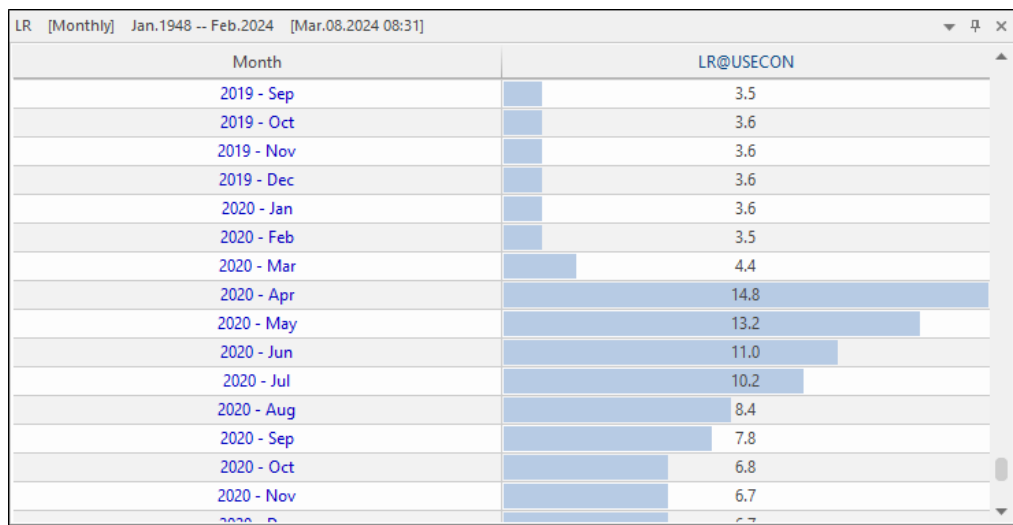
Three new visual components have been added to the data table:

1. Heat Map



As the above image shows, colors can be selected to show increase and decrease in values. More explanation on customization can be found further down this page.

2. Data Bars



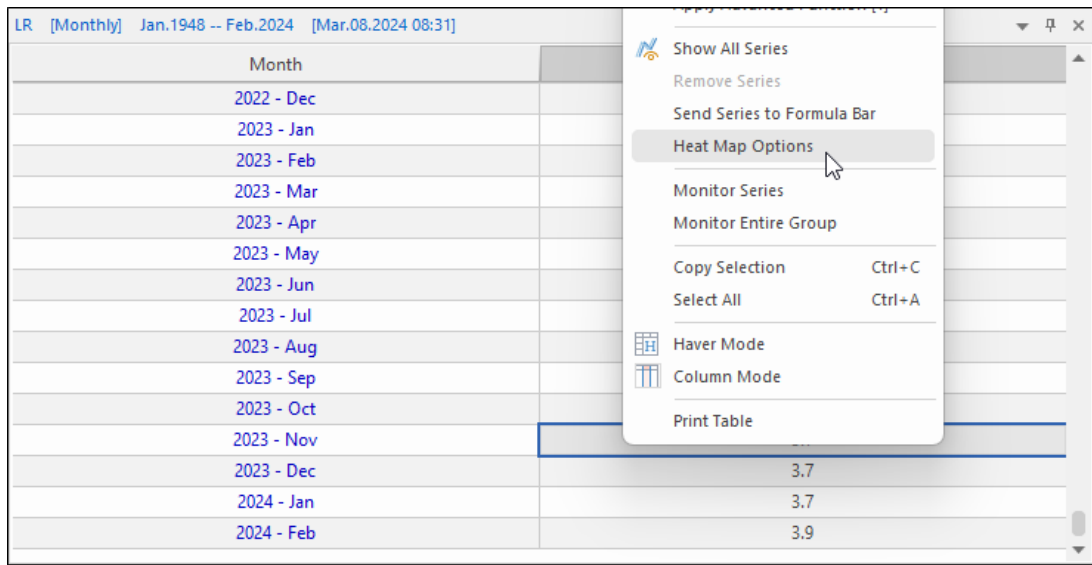
As the above image shows, horizontal bars are used show increase and decrease in values. More explanation on customization can be found further down this page.

3. Arrow Sets

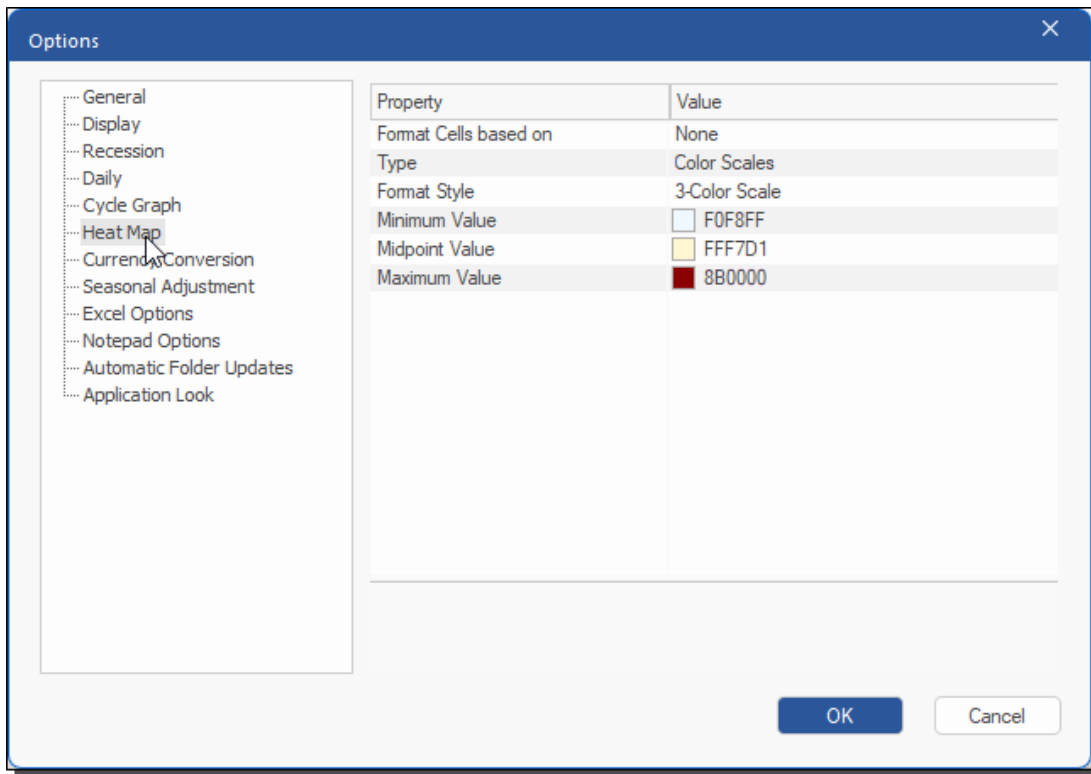
Month	LR@USECON
2019 - Sep	3.5
2019 - Oct	3.6
2019 - Nov	3.6
2019 - Dec	3.6
2020 - Jan	3.6
2020 - Feb	3.5
2020 - Mar	4.4
2020 - Apr	14.8
2020 - May	13.2
2020 - Jun	11.0
2020 - Jul	10.2
2020 - Aug	8.4
2020 - Sep	7.8
2020 - Oct	6.8
2020 - Nov	6.7

As the above image shows, arrows are used show increase and decrease in values. More explanation on customization can be found further down this page.

In order to enable these options and to customize them, simply right-click on the data table and choose **Heat Map Options**:



In the Options dialog, click on Heat Map:



The following is the description of available options:

- **Format Cells based on**
 - None: Removes all visual elements
 - All Values: Visual element spans the entire range of the data value for the series.
 - Graph Values: Visual element spans only the range shown on the graph.
 - Table Values: Visual element spans only the range shown on the data table.
- **Type**

- **Color Scales:** Enables heat map using a color gradient for a range of values selected in Format Cells. The color indicates where each value falls in the range selected.
- **Data Bars:** Enables data bars where a colored data bar represents a value. The higher the value within the range selected, the longer the bar.
- **Arrow Sets:** Enables a set of 5 arrows. Set of icons represents values relative to the range selected in Format Cells

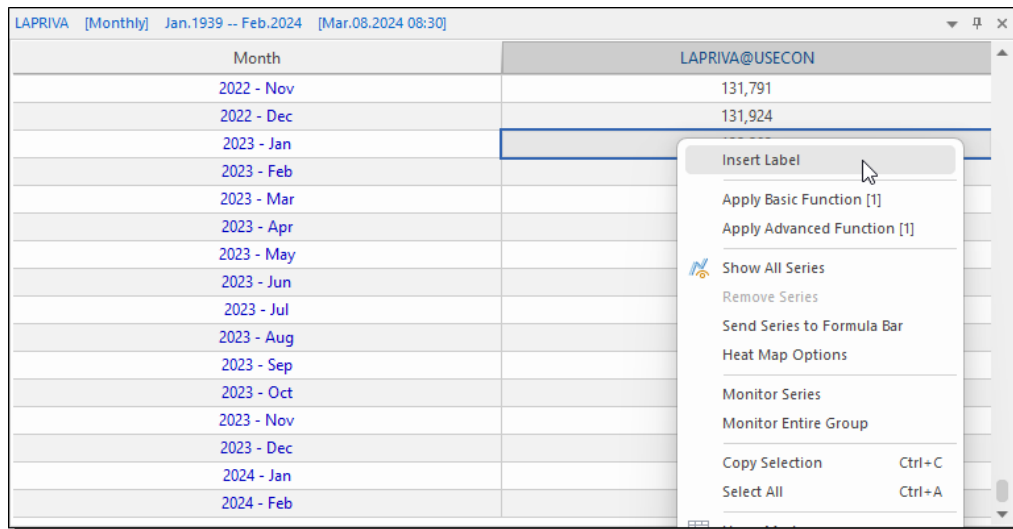
• **Format Style** [*Applies only to Color Scales / Heat map*]

- **2-Color Scale:** Color gradient is chosen between the Minimum Value color and Maximum Value
- **3-Color Scale:** Color gradient is chosen between the Minimum Value color, Midpoint Value color and Maximum Value

NEW Dynamic Label

New option to add a dynamic label to the graph that is tied to a specific data point:

1. Right click on the desired data value in the data table
2. Select "Insert Label":



3. Type in desired text. Option to have a multi-line comment.
4. Click OK

 *To edit the font and outline of the data label, right click on the data label in the graph to open up Template Options. Alternatively you can right-click in the graph area and select Format Graph > Lines > Data Point Options*

NEW Remove Selected Data

New option to remove a data point(s) from a series, in effect turning them into NA:

1. Right click on the desired data value in the data table or select a range of periods first and then right click

2. Select "Remove Selected Data":

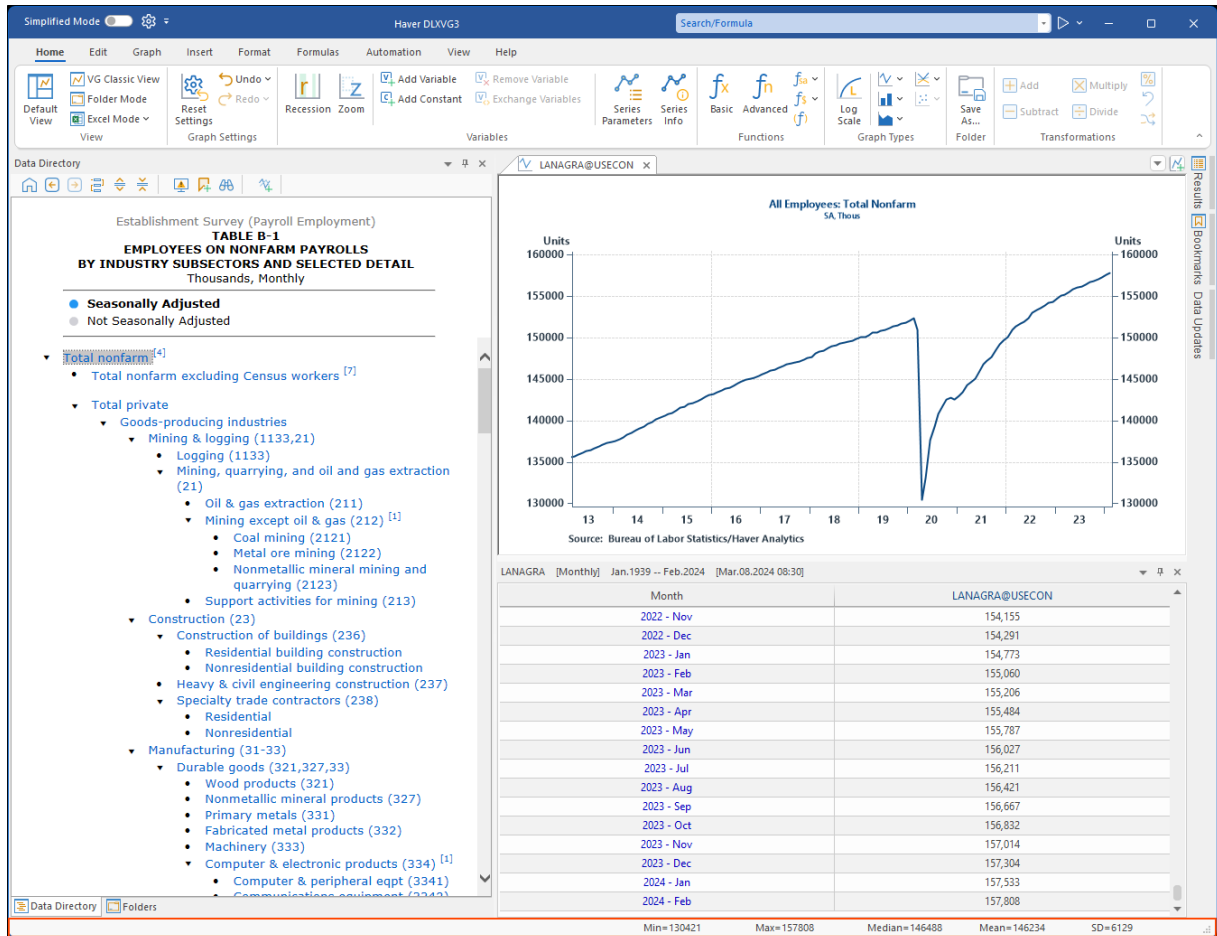
Month	IP@USECON	IP541@USECON
2023 - Jan	102.7	103.0
2023 - Feb	102.8	102.3
2023 - Mar	102.8	100.8
2023 - Apr	103.2	101.3
2023 - May	103.0	101.2
2023 - Jun	102.4	100.8
2023 - Jul	103.1	100.7
2023 - Aug	103.1	100.3
2023 - Sep	103.3	101.0
2023 - Oct	102.6	100.8
2023 - Nov	102.9	100.7
2023 - Dec	102.6	100.3
2024 - Jan	101.5	98.8
2024 - Feb	102.6	101.3
2024 - Mar	102.4	101.1
2024 - Apr	102.4	99.6
2024 - May	103.3	100.5
2024 - Jun	104.0	100.4

3. The value will turn into a NA represented by "---"

 You can also remove datapoints using the formula `Setna(code@data-base,YYYYMM)` or `Setna(code@database,YYYYMM:YYYYMM)` to remove a range of data points.

Status Bar

The status bar appears at the bottom of the DLXVG3 interface and keeps you informed of certain information depending on the action performed.



While Selecting a Series

When navigating through a database and hovering over a series, the following information can be found in the status bar on the bottom left of the workspace:

LANAGRA Jan-1939 All Employees: Total Nonfarm (SA, Thous)

- Series code
- Start date of series
- Brief description of series

When a Graph is Displayed

When a series is displayed in the graph area, the following values can be found in the status bar on the bottom right of the workspace:

Min=129733	Max=145798	Median=136819	Mean=136598	SD=4361
------------	------------	---------------	-------------	---------

- Min
- Max
- Median
- Mean
- SD (Standard Deviation)



This information is calculated based on the data currently shown in the graph. If you [zoom](#) in/out, the values in the status bar will recalculate accordingly.

When a Trend Line has been Applied

When a trend line has been applied to a series, the values for -intercept and slope are added to the status bar as illustrated below:

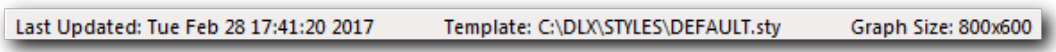
Y-Int=132502.067	Slope=61.587	Min=132563.653	Max=140631.513	Median=136597.583	Mean=136597.583	SD=2346.702
------------------	--------------	----------------	----------------	-------------------	-----------------	-------------

- y -intercept
- Slope
- Min
- Max
- Median
- Mean
- SD (Standard Deviation)

 This information is calculated based on the data currently shown in the graph. If you [zoom](#) in/out, the values in the status bar will recalculate accordingly.

While Selecting a Saved Graph

When in [Folder Mode](#) and hovering over a saved graph, the following information can be found in the status bar on the bottom left of the workspace:

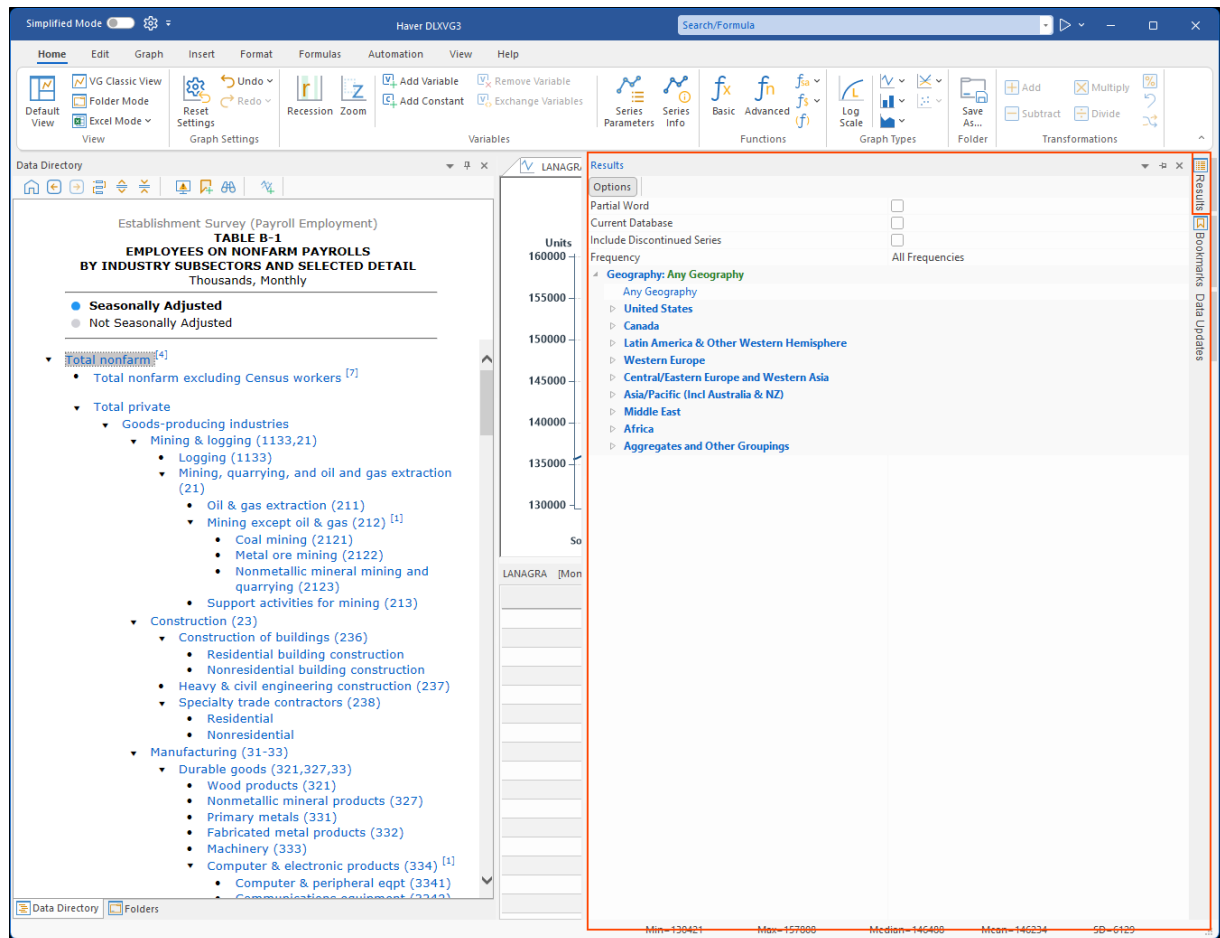


Last Updated: Tue Feb 28 17:41:20 2017 Template: C:\DLX\STYLES\DEFAULT.sty Graph Size: 800x600

- Date and Time last updated
- Template used and location
- Graph Size

Search

Use the search feature to find specific series or keywords within the databases. Narrow your search with the Options below.



 Only in DLXVG3 Classic, Search Time Limit option in Options > General > Search > Search Options

NEW Only in DLXVG3 Direct, new option for AI Search (listed first above 'Partial Word')

About the Search Panel

Item	Description
Options	Partial Word

Item	Description
	• Current Database • Include Discontinued Series • Frequency
Select Geography	Select from the listed regions to filter your search.
Found Matches Description Search results include the following: • Found - the series found in the form of code@database • Matches - the number of matches found on a particular menu page • Description - a description of the first match on a page	

Begin Your Search

1. Enter your query in the search box by doing one of the following:

- Click directly in the search/formula bar:



- Click the search button from the menu navigation bar



-  CTRL + F

2. (Optional) Open the search panel by doing one of the following to apply/change any search options

- Go to View > Results
- Click the Search tab on the edge of the workspace

3. To run the search:

- Click search  from the search/formula bar or  ENTER
- If you performed Step 2, then select "Apply"

4. The search results are returned in the Results Window

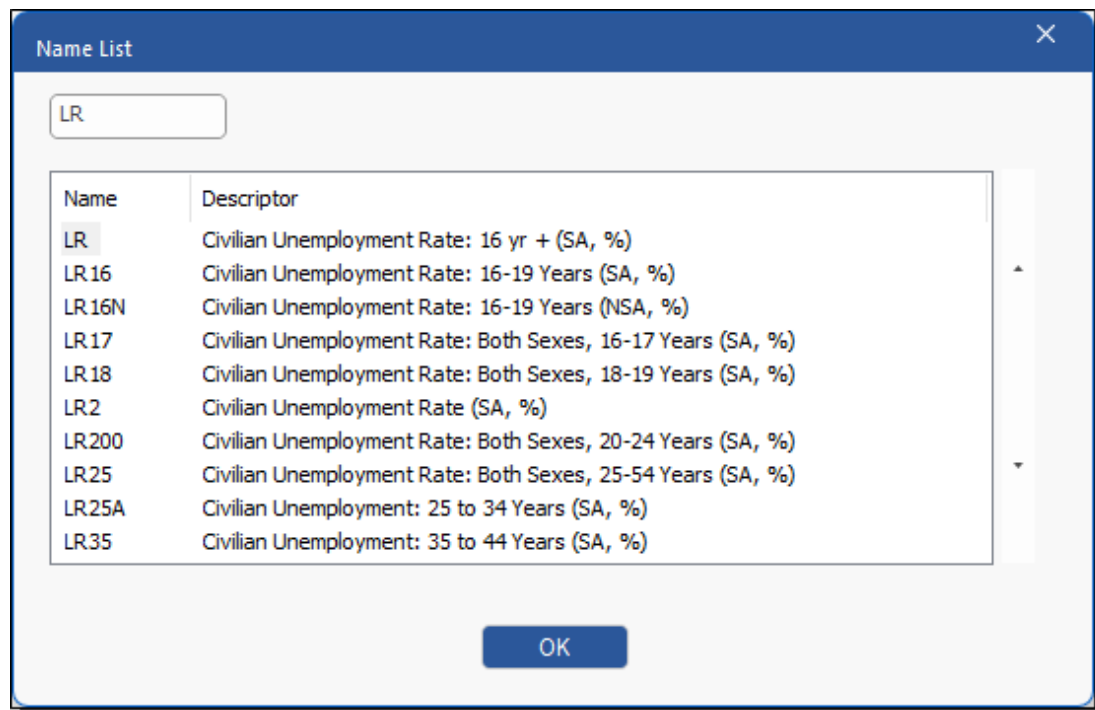
5. (Optional) To see more results, click [Click to show more...](#)

 To keep the search tab opened, click on the pin .

Use the Name List

 Only available in DLXVG3 Classic.

The name list offers a quick way to search for series mnemonics in the current database.

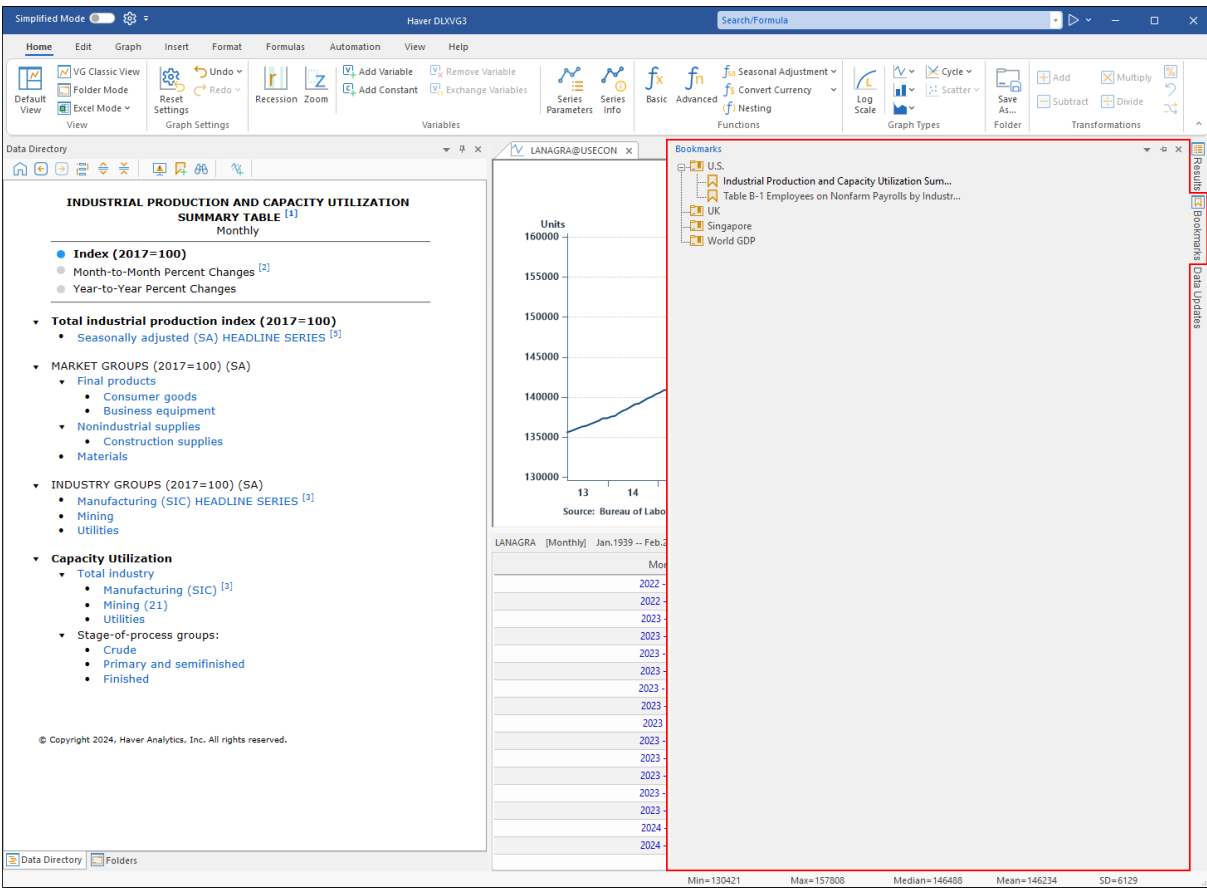


Use the name list

1. Open a database: Click one of the databases from the menu OR  ALT + D
2. Open the name list with  ctrl + n
3. Enter part of the series name
4. Find and select the series
5. Click OK or  ENTER

Bookmarks

Bookmarks can be created and stored, enabling you to quickly navigate to your favorite or frequent menu pages.



Accessing My Bookmarks

To open the bookmarks panel do one of the following:

- Go to View > Bookmarks
- Click on the Bookmarks tab on the edge of the workspace



To keep the bookmarks tab opened, click on the pin .

Create, Rename or Delete Bookmarks

Create a bookmark

1. Navigate to the desired menu page you wish to bookmark
2. Click add a bookmark from the navigation menu bar



3. Enter the name for your bookmark
4.  ENTER or click outside the name

 *The default name for a bookmark is now the heading name in the data directory.*

Rename a bookmark

1. [Open](#) the bookmarks panel
2. Right click the bookmark you want to rename
3. Select Rename
4. Enter the new name for your bookmark
5.  Enter or click outside the name

Delete a bookmark

1. [Open](#) the bookmarks panel
2. Right click on the bookmark you wish to delete, then select Delete

Organize Bookmarks

Create folders

1. [Open](#) the bookmarks panel
2. Right click anywhere in the bookmarks panel

3. Select New Folder

Rearrange bookmarks/folders

1. [Open](#) the bookmarks panel
2. Select the item
3. Drag and drop it to where you want

Delete bookmarks/folders

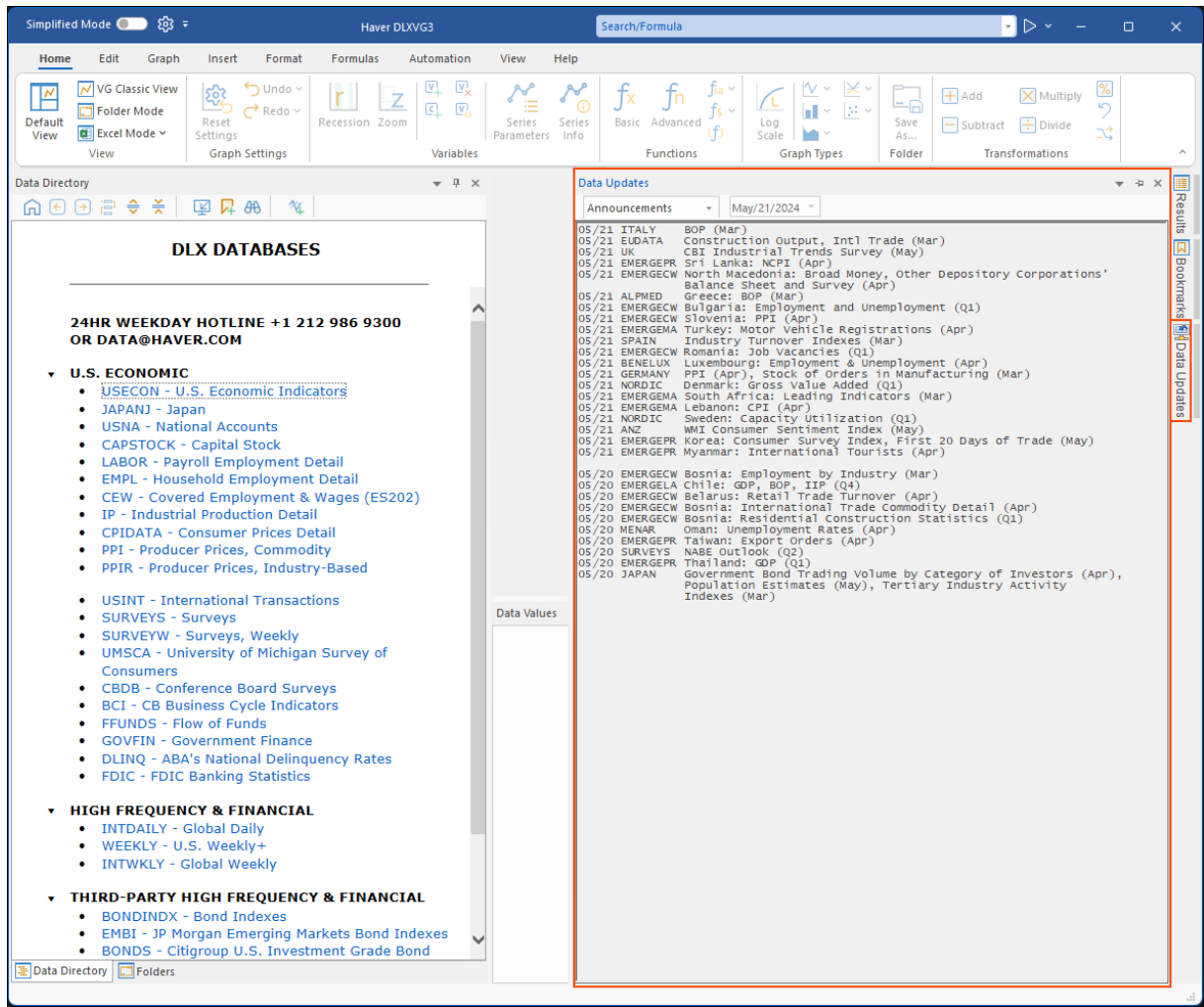
1. [Open](#) the bookmarks panel
2. Right click the item
3. Select Delete



Deleting a folder will delete all contents residing in it.

Data Updates

The Data Update feature incorporates the functionality of a legacy application called "DLX Update Monitor." This can be used to view recent announcements and track data updates.



 For VG3 Classic, it only includes updates that were last ran from "Update Haver Databases." If you are not seeing an expected update, please run "Update Haver Databases."

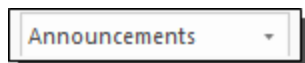
 For VG3 Direct, you have the option to disable refreshing the data updates by going to *Options > Automatic Folder Updates > Disable 'Data Update' Feature*. This will also disable Automatic Folder Updates.

View a Data Update

1. Open the data updates panel by doing one of the following:
 - Click show data updates from the navigation menu bar



- Click the Data Updates tab on the edge of the workspace
2. Click on the drop-down arrow of the data updates panel



and select a category to view the groups in that category



By default, updates are sorted based on time. To sort based on Database, Group, Series or Descriptor click the corresponding column header.

3. Double click on the group you wish to view
4. The series in that group will be listed on the bottom half of the data updates panel along with the number of series updated:
 - If a group has more than 100 series associated with it, the number of series will show 100+
 - To see additional series in that group, scroll down to the bottom of the list and select
Click here for more series in this group
 - A maximum of 100 series will be listed at a time
5. Double click on the desired series to add it to the active graph

Monitor a Group

To view your list of monitored groups, click the drop-down next to Announcements and select Monitored. There are two ways to monitor a group:

1. Using the data table:
 - [Open](#) a data series
 - Right click on the series in the data table
 - Select Monitor Entire Group
2. Using the data updates panel:
 - Repeat the steps above to [view a recent data update](#)
 - Click the check box next to the group you wish to monitor



If DLXVG3 is not the active window at the time of an update for a monitored series, it will flash in the background to notify you of the update. When a group you are monitoring is updated, the group will be bolded and the data updates icon will change to a green star  until you view the update.

Monitor a Data Series

To view your list of monitored series and groups, click the drop-down next to Announcements and select Monitored. There are two ways to monitor a data series:

- Using the data table:
 1. [Open](#) a data series
 2. Right click on the series in the data table
 3. Select Monitor Series

- Using the data updates panel:
 1. Repeat the steps above to [view a recent data update](#)
 2. Click the check box next to the series you wish to monitor

To monitor multiple series at one time:

- Using the data table:
 1.  Shift and select more than one column in the data table
 2. Right click and select "Monitor Series"
- Using the Import button:
 1. Open data updates panel or repeat the steps above to [view a recent data update](#)
 2. Click the drop-down arrow of the data updates panel and select Monitored
 3. Click the Import button
 4. Select a .txt or .log file with a list of series codes in the format of code@database with one series code per line

 To easily create a .txt file with a list of codes you can use the [Export Codes to Notepad](#) feature.

 If DLXVG3 is not the active window at the time of an update for a monitored series, it will flash in the background to notify you of the update. When a data series you are monitoring is updated, the data series will be bolded and the data updates icon will change to a green star  until you view the update.

Customize Data Updates

There are a few ways you can customize how you view the data updates monitor:

1. Maximize List Height:

- Open the Data Updates Tab
- Select a category from the drop-down menu (Monitored, All, etc.)
- Right click in the window and select Maximize List Height



Right click in the window again and select Restore List Height to restore the window to the original height

2. Sort based on a specific column:

- Open the Data Updates Tab
- Select a category from the drop-down menu (Monitored, All, etc.)
- Click on any of the column headers to sort by that column in ascending order
- *(Optional)* To sort by descending order, click the same column header again

3. View updates from a particular date:

- Open the Data Updates Tab
- Select a category from the drop-down menu (All, U.S., etc.)
- Click  next to the date to select a different date



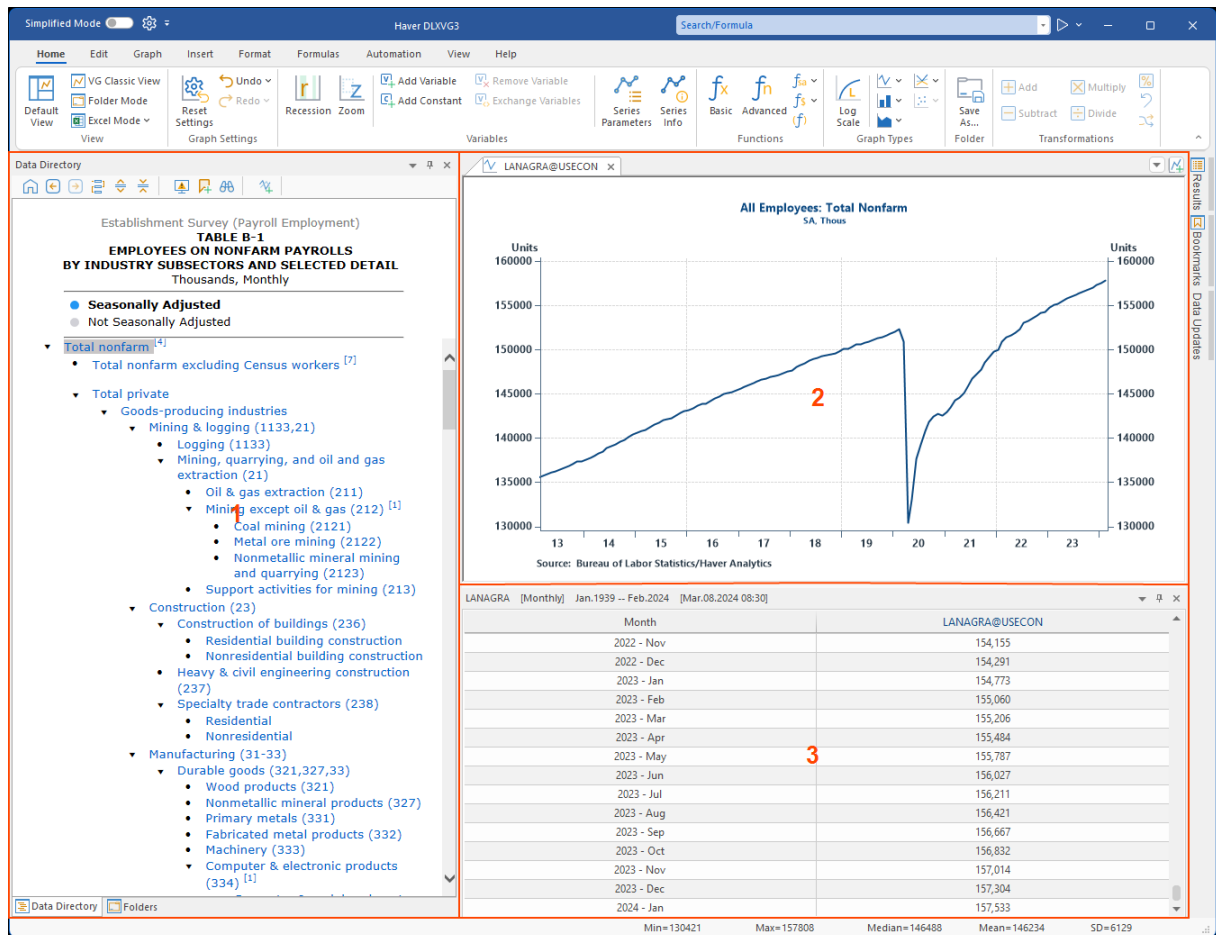
Click on the month in the calendar to select a different month in the year and then you can click on the year to select a different year

Customize the Workspace

Default View	93
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Ribbon & Quick Access Toolbar	105

Default View

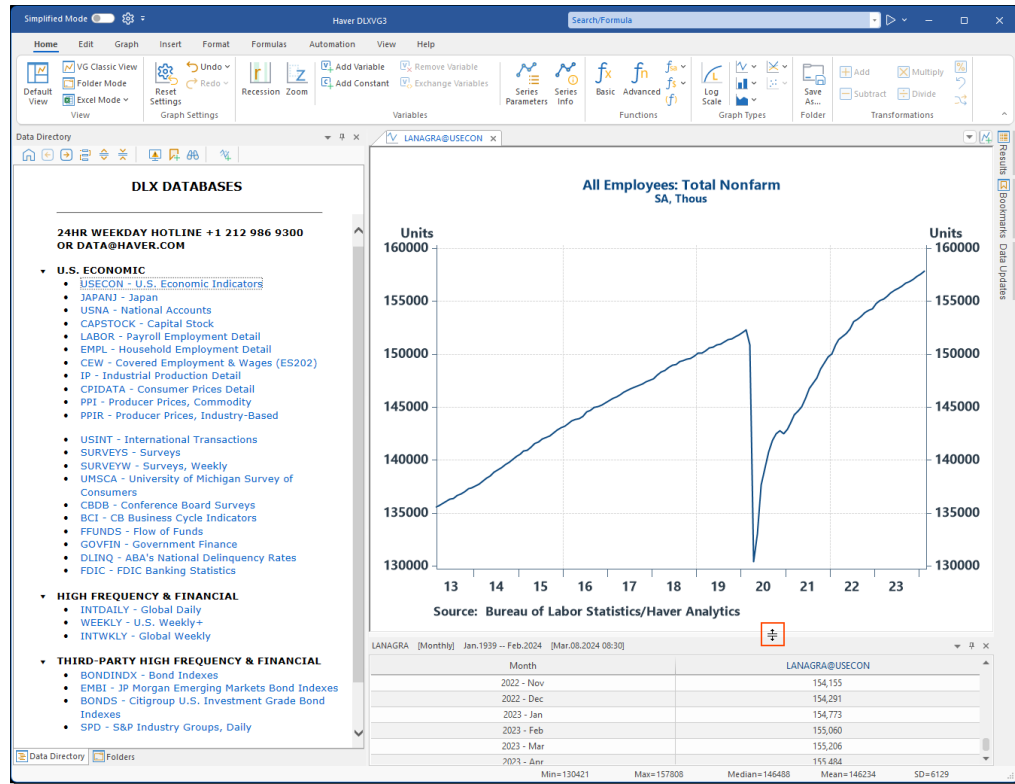
The default view of the workspace consists of 3 windows:



1. [Data Directory](#)
2. [Graph Area](#)
3. [Data Table](#)

Customize the Default View

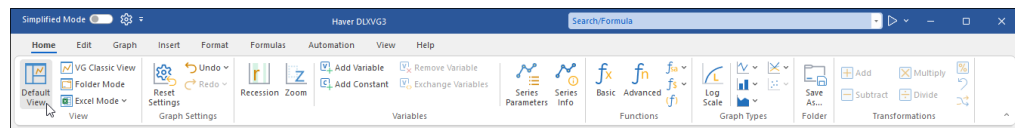
1. You can resize each area to fit your needs. In the image below the "Data Table" portion has been reduced to increase the "Graph Area":



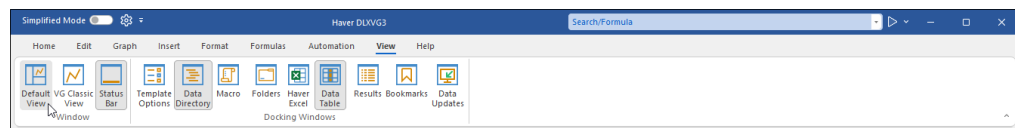
Restore the Default View

Do one of the following:

- Click "Default View" on the Home Ribbon under the View section:

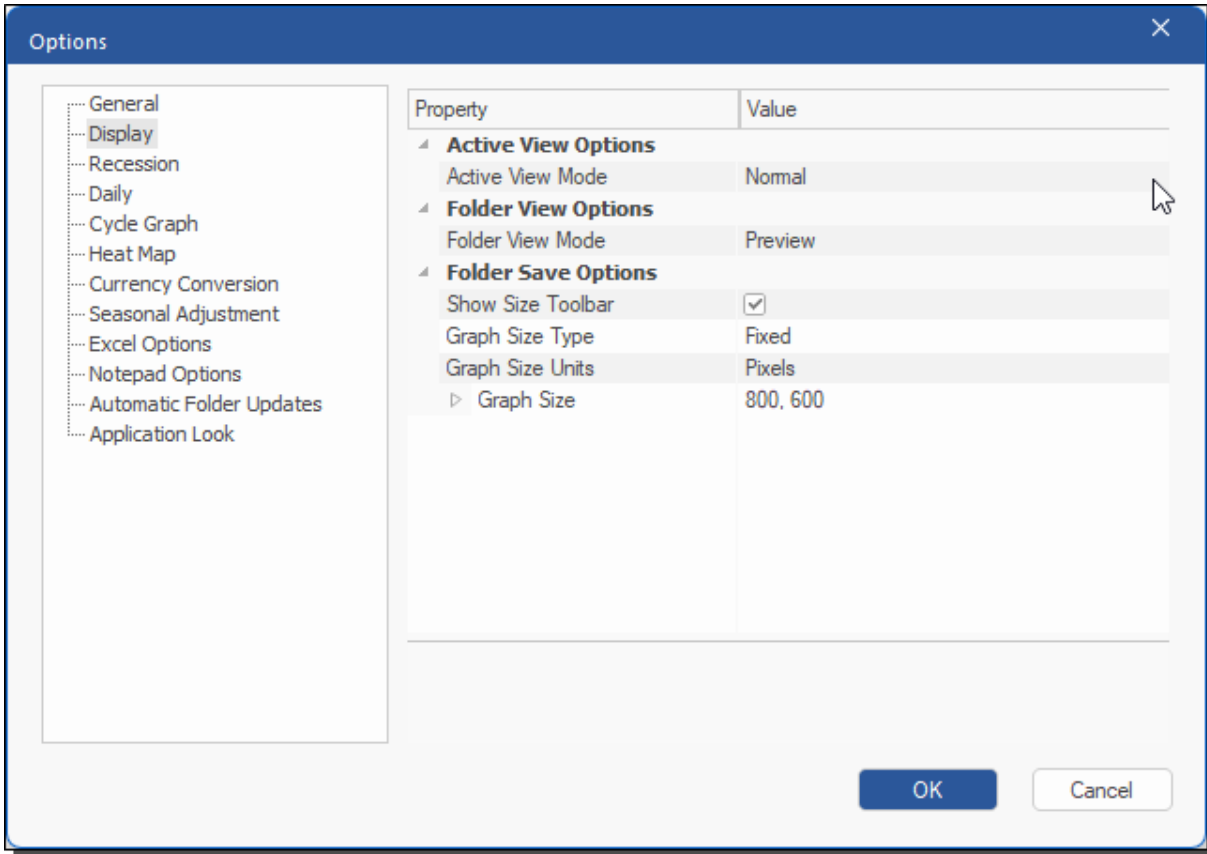


- Go to View > Default View:



Active View Modes

There are now 3 active view modes to choose from. To select a mode go to Options > Display and select the drop-down under Active View Mode.

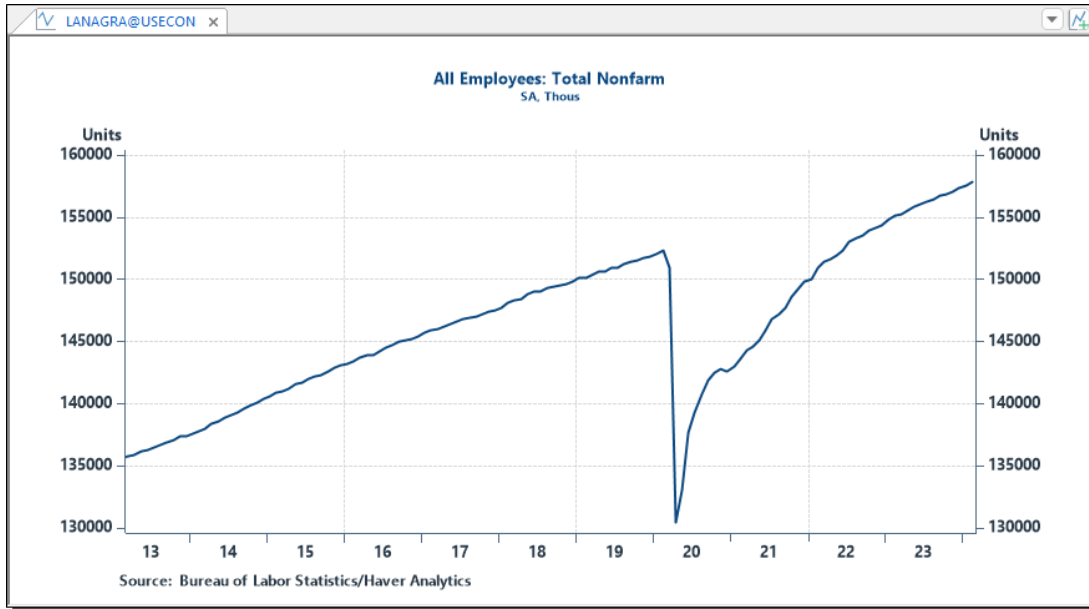


Normal Mode

This is the default mode when you first run VG3. The graph is drawn to fill the area provided in the graph area, which means that the graph will be redrawn when this area is re-sized.

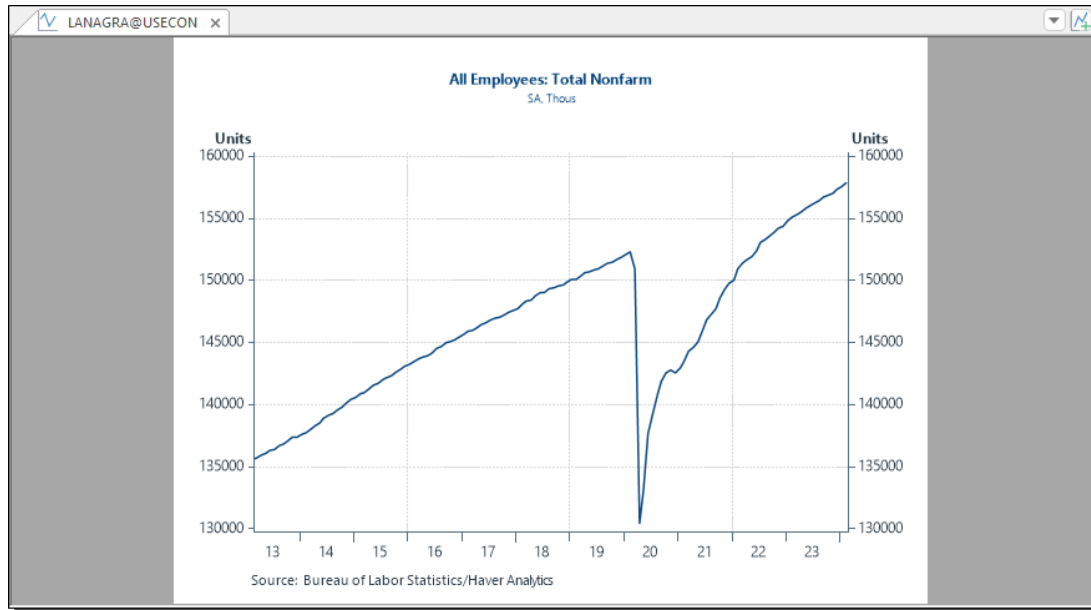


There may be discrepancies between the image shown in active view and folder view if you use a custom location for anything that appears in the graph area, such as Titles and Legends.



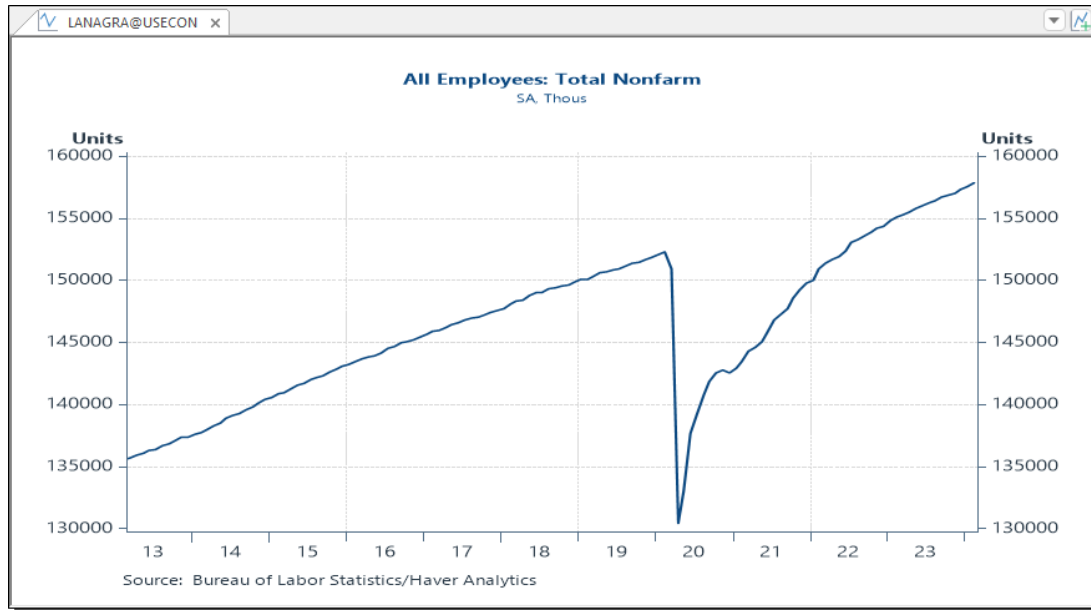
Publication Mode

This mode is intended for users who plan to insert their VG3 graphs into presentations or publish them. In this mode, the aspect-ratio of the graph is maintained in active view based on the graph size indicated under Options > Display > Folder Save Options > Graph Size so that the image appears exactly as it will in folder view. This will ensure that all custom locations on the graph will appear exactly the same in both active view and folder view.



Compatibility Mode

This mode is identical to the previous version of VG3, Version 4x when using the default image size of 800x600. The size of the image is determined by the graph size indicated under Options > Display > Folder Save Options > Graph Size and then that image is either stretched or shrunk to fit the space available in the graph area. The image that you see in active view is exactly the image that will be saved in folder view.



Folder View Modes

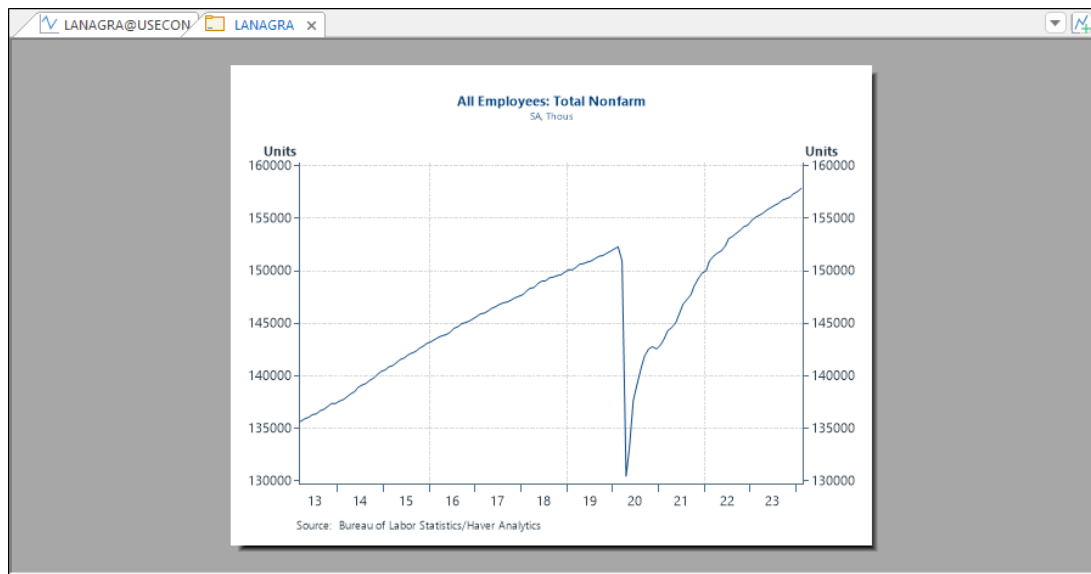
There are now 2 folder view modes to choose from:

Preview Mode

This is the new default folder view mode when you first run VG3. The image in folder view is shown with the correct aspect ratio based on the size of the graph. This allows you to see an accurate representation of the graph that is saved.

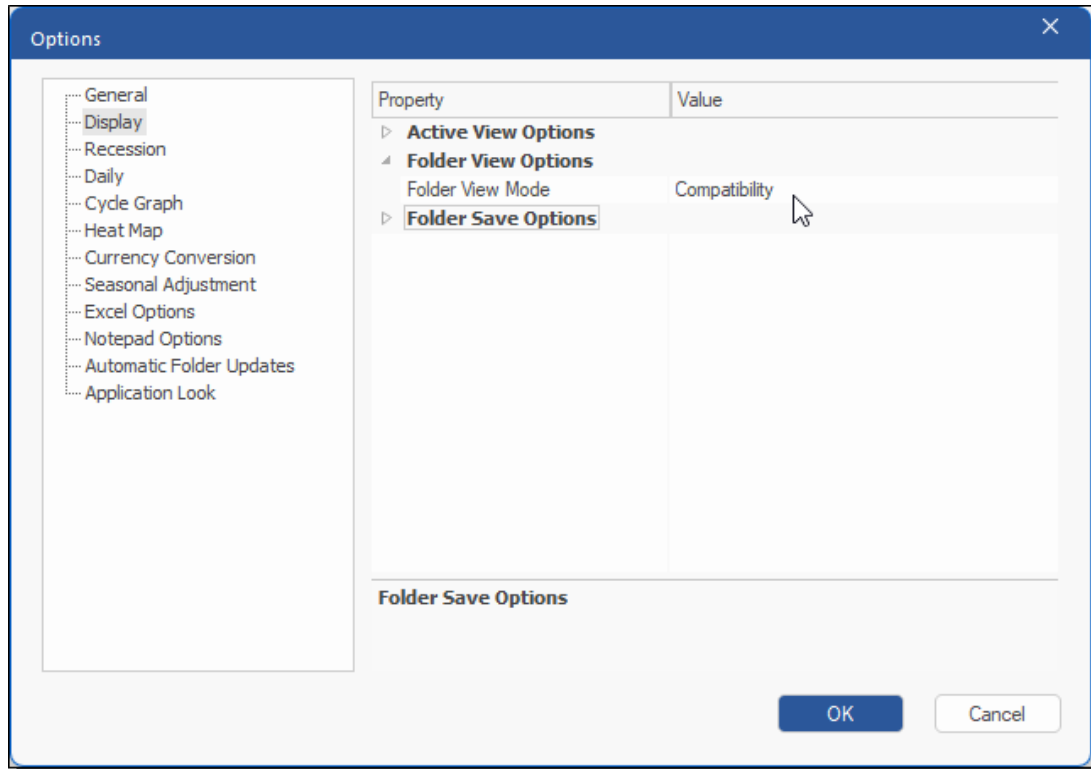


If you have graphs of varying sizes in your folders, the images will no longer all look the same in this mode.



Compatibility Mode

This mode is identical to the previous version of VG3, Version 4x. The image that you see is either stretched or shrunk to fill the entire space available in the graph area. To activate this mode click on Options > Display > Folder View Options:

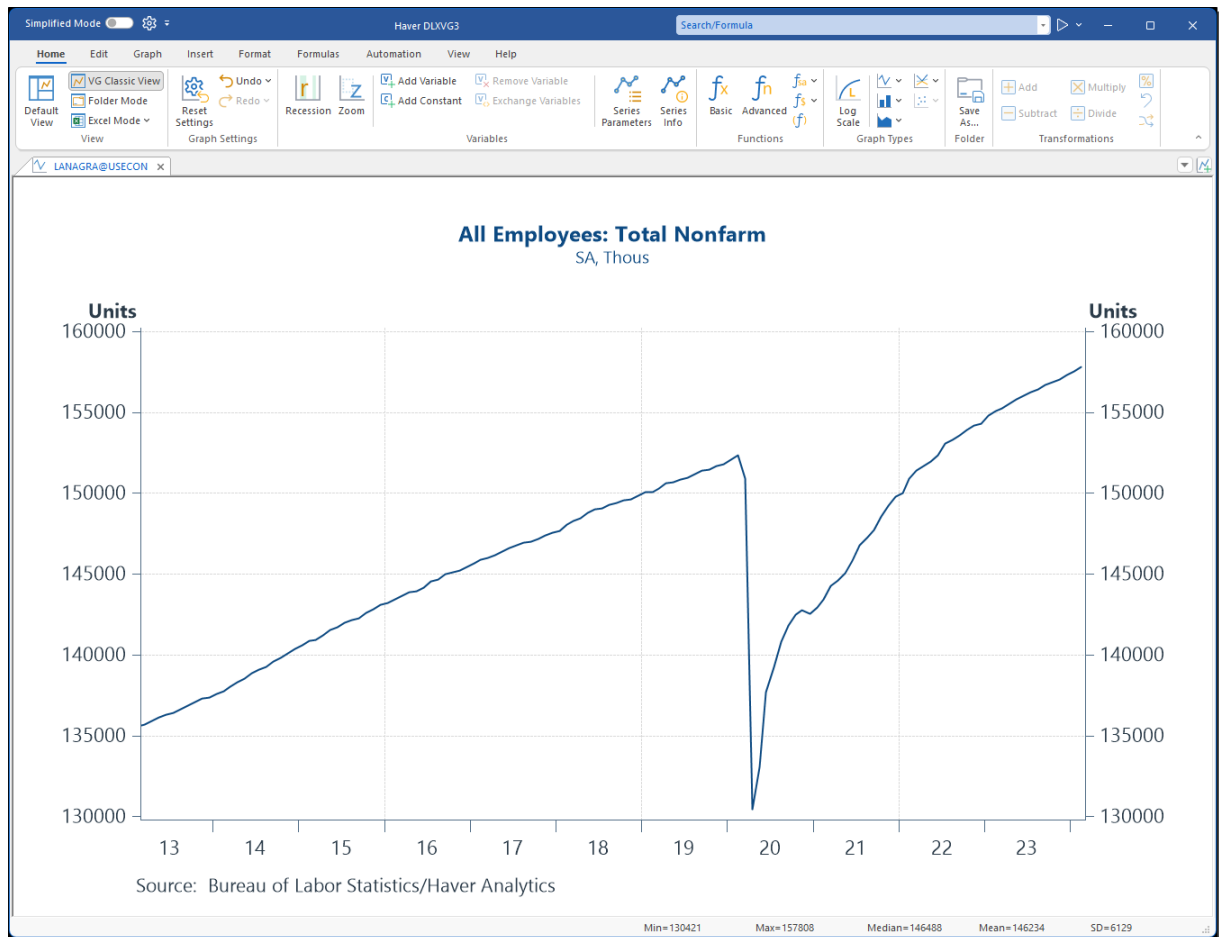


The image is now changed to Compatibility mode:



Classic View

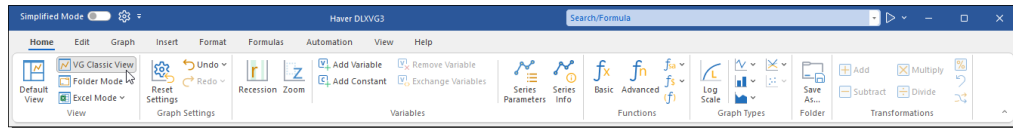
Classic View provides full-screen sequential presentation, as shown below. This may be preferable when operating with large fonts or if you want to view a graph more clearly. It is particularly useful when viewing several graphs simultaneously in a multi-monitor environment. DLXVG3 supports concurrent instances of the program.



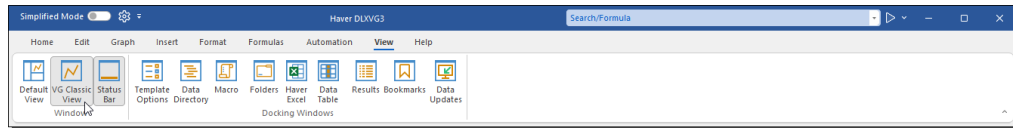
Turn on/off Classic View

Do one of the following:

- Click VG Classic View in the View section of the Home Ribbon:



- Go to View > VG Classic View



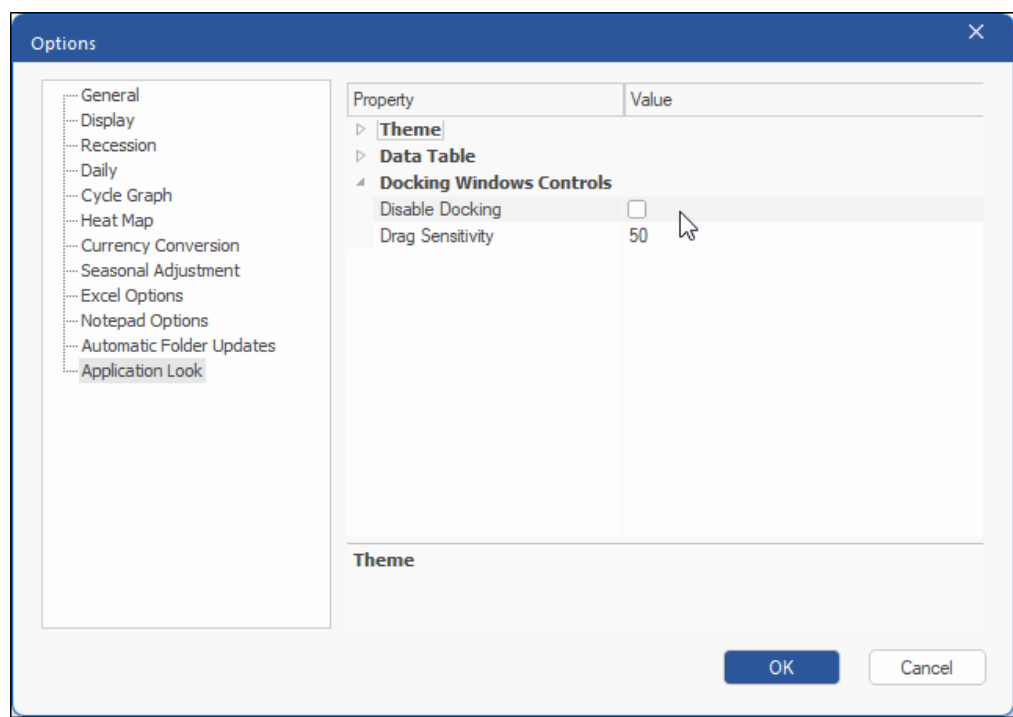
-  SHIFT + C

Docking Windows

Customize your DLXVG3 workspace by moving, hiding or removing docking windows. Docking windows can be repositioned to another location in the workspace, used as floating windows or set to auto-hide so only tabs representing each window are displayed.

Enable Docking

1. Go to Options > Application Look > Docking Windows Controls
2. Uncheck **"Disable Docking"**



Move Docking Windows

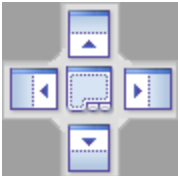
1. Repeat the steps above to enable docking
2. Click the drop-down arrow at the top right of the window:



3. Select Floating

4. Drag and drop the floated window to a small square to snap it into place.

-  - Left side
-  - Top side
-  - Right side
-  - Bottom side

-  or  to dock to the selected area of the work-space

Auto-hide Docking Windows

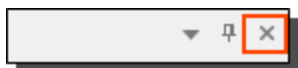
1. Repeat the steps above to enable docking
2. Select the pin at the top right of the window:



 Select the pin again  to dock the window.

Close Docking Windows

1. Repeat the steps above to enable docking
2. Click close at the top of the window:



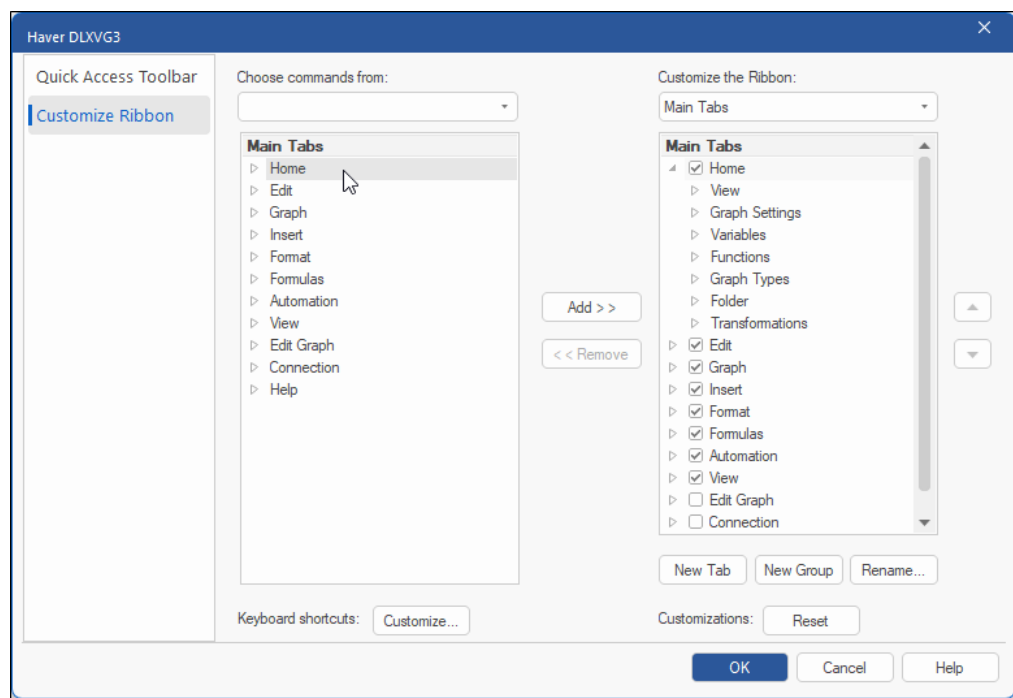
Ribbon & Quick Access Toolbar

Customize the Ribbon & Quick Access Toolbar to personalize your workspace. For example, you can create custom ribbons for your preferred commands or add your most frequently used commands to the quick access toolbar.

Open the Customize Window

To begin customizing, open the Customize window by doing one of the following:

- Right click anywhere on the ribbon and select Customize
- Select the drop-down arrow to the right of the Quick Access Toolbar and select More Commands



Expressions, Functions and More

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Variables and Constants

What is a variable?

- A Data Series
- A Constant
- A [Trend Line](#)

Variables can turn into new variables with manipulation from mathematical operations and/or functions.



NEW You can perform a maximum of 24 calculations for each variable on the graph

Add a Variable to the Graph

NEW Up to 24 variables can be displayed in a graph. When a new variable is inserted to a graph, it becomes the **active series**¹. The active series will:

- Display its code in the graph tab
- Have its title listed first
- Have its code listed in the title bar of the data table
- Display its values in [Haver Mode](#) or reside in the leftmost column in [Column Mode](#)
- Control the left Y-axis scale

¹The first variable listed on a graph; all operations/functions will be applied to this series.

Add a data series

1. To add another series to the graph, do one of the following:
 - Click add variable  from the Variables section of the Home Ribbon
 -  ALT + V
 -  CTRL + Select a series from the data directory
 -  Enable One-Click Add in Data Directory and then select another series
2. Select the series you wish to open by doing one of the following:
 - Navigate through the menus to select the series
 -  ALT + N to enter the series in the format code@database in the formula bar and select  or  ENTER
 -  ALT + D to open the database, and navigate through it via the menus or  N to enter the code name and select OK or  ENTER

 *Follow these steps if there is at least one data series already open on the graph. If it is a blank tab, follow step 2 first.*

Add a constant

1. Open the constant value dialog by doing one of the following:
 - Click add a constant variable  from the Variables section of the Home Ribbon
 -  CTRL + ALT + C

2. Enter a value
3. Click OK or  ENTER

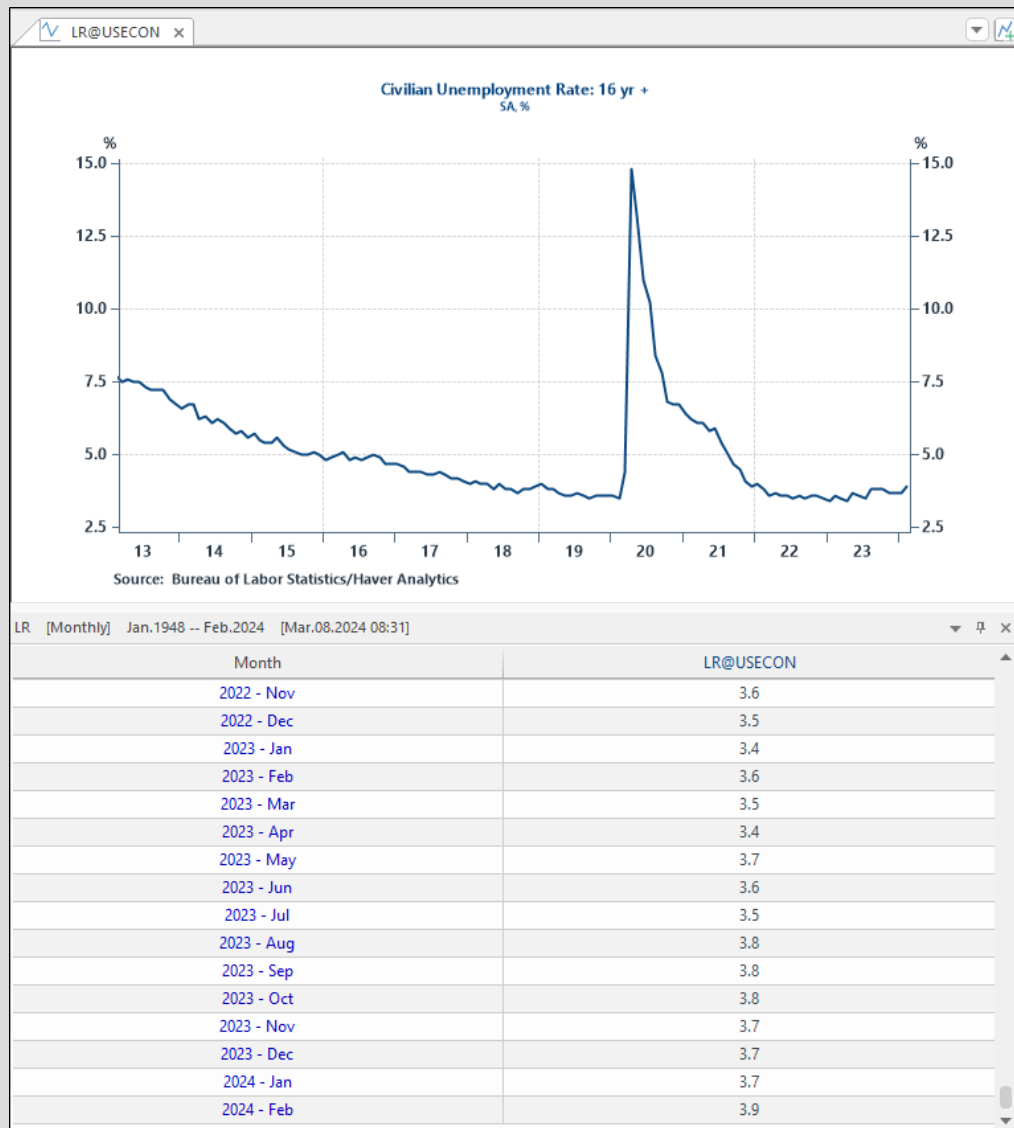
Add a trend line

See [Insert a Trend Line](#).

Example

Add LANAGR@USECON to the LR@USECON graph.

1. The graph originally contains U.S. Unemployment Rate (LR@USECON).

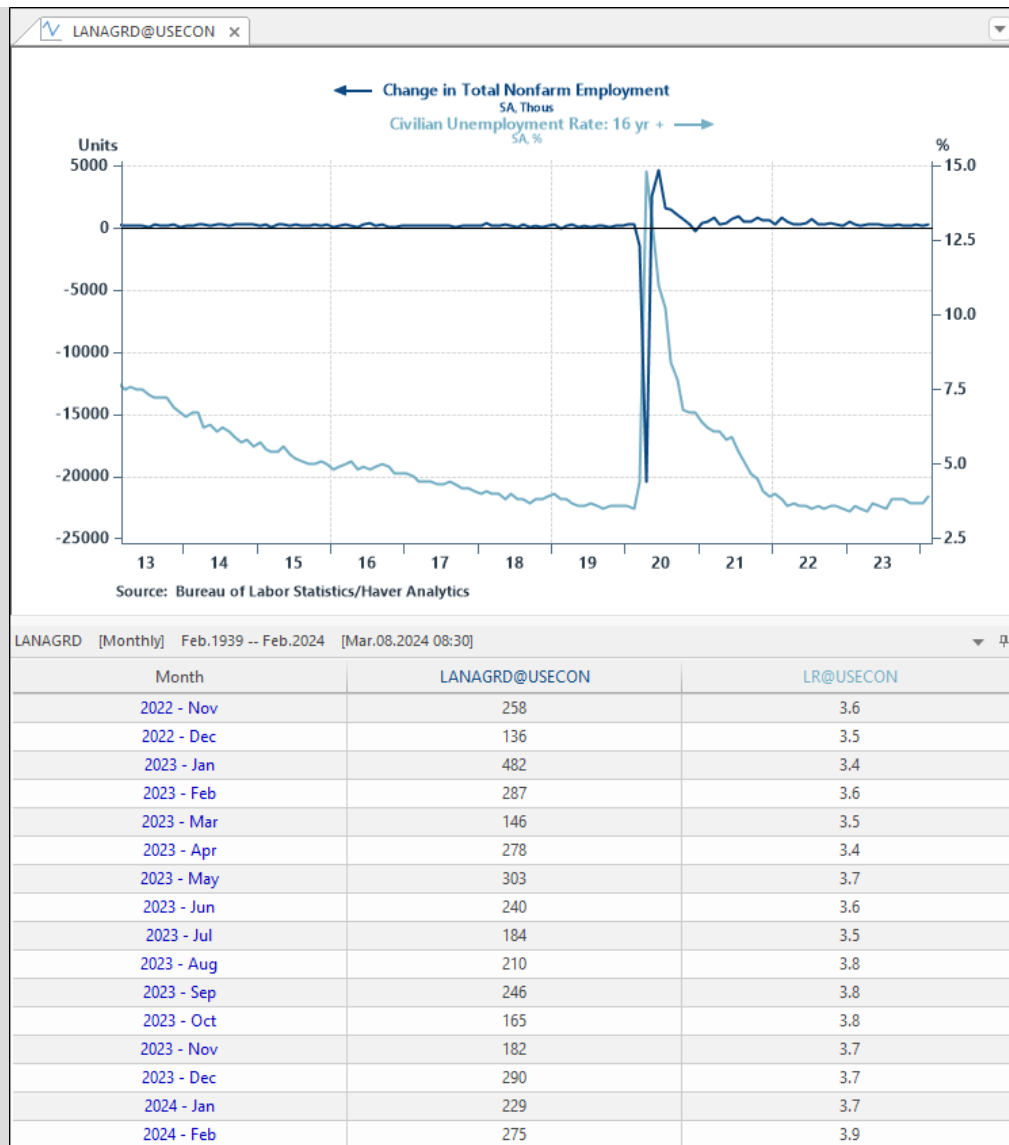


2. Add a variable to the graph by doing one of the following:

- Click add variable  from the Variables section of the Home Ribbon
-  ALT + V

3. Insert U.S. Total Nonfarm Employment (LANAGRD@USECON) by doing one of the following:

-  ALT + N to enter LANAGR D in the formula bar and select  or  ENTER
 *Not required to enter LANAGR D@USECON as we are already in the USECON database*
-  N to enter LANAGR D and select OK or  ENTER
 *Not required to use  ALT + D as we are already in the USECON database*



Notice that LANAGRD@USECON is now the **active series**¹.

Remove a Variable

¹The first variable listed on a graph; all operations/functions will be applied to this series.

When choosing to remove a variable, the last variable listed in the titles will be the variable that is removed.

1. Ensure that the variable you wish to remove is the last variable
 - If it's not at the bottom of the list of titles, exchange variables to move the variable to the bottom of the list
2. Remove the variable by doing one of the following:
 - Click remove variable  from the Graph Settings toolbar
 -  CTRL + V
 - If in [Column Mode](#), right click the series you wish to remove and select **Remove Series**

NEW You can now remove multiple series at once by highlighting multiple columns ( CTRL + Click) and then right clicking on the data table and selecting **Remove Series**.

Exchange Variables

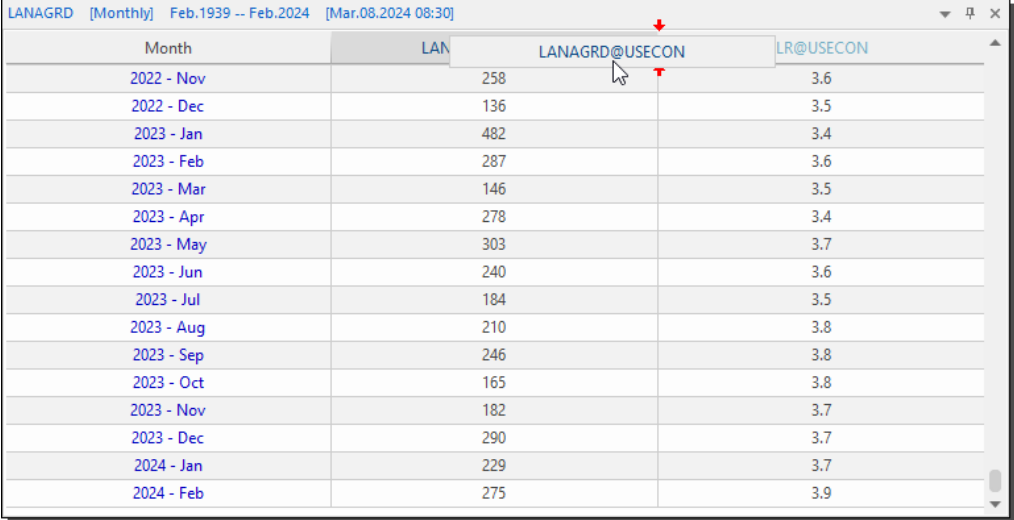
Why exchange variables?

- To reorder titles
- To make a variable active (move the variable to the top of the list)
- To enable a variable to be removed (move the variable to the bottom of the list)

Exchange two variables

If there are only two variables in the graph, exchange them by doing one of the following:

- Click exchange multiple variables  from Variables section of the Home Ribbon
- Move series by clicking on the name of the series on the data table and dragging it to the new location:



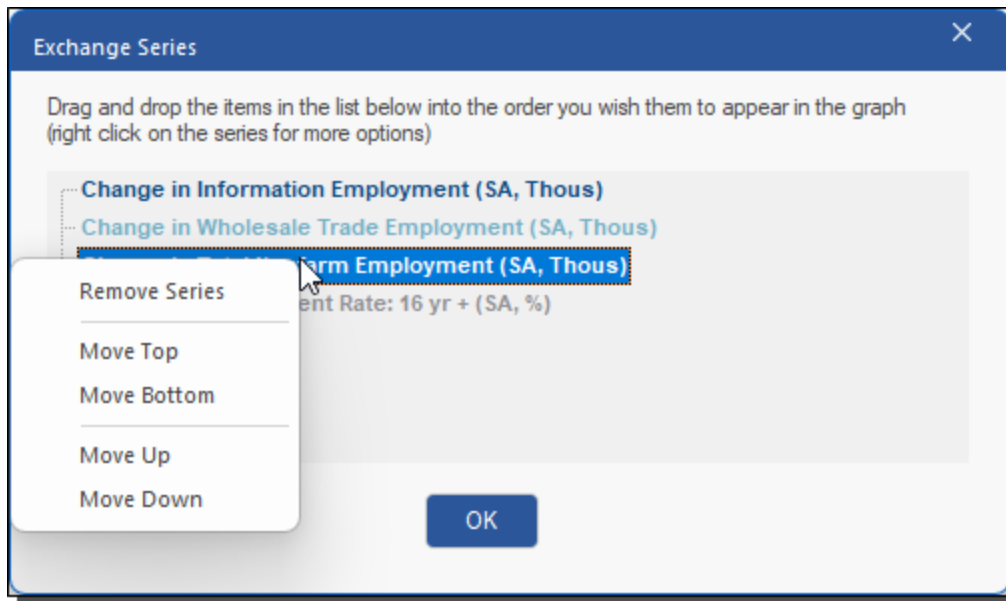
Month	LAN	LANAGRD@USECON	LR@USECON
2022 - Nov	258		3.6
2022 - Dec	136		3.5
2023 - Jan	482		3.4
2023 - Feb	287		3.6
2023 - Mar	146		3.5
2023 - Apr	278		3.4
2023 - May	303		3.7
2023 - Jun	240		3.6
2023 - Jul	184		3.5
2023 - Aug	210		3.8
2023 - Sep	246		3.8
2023 - Oct	165		3.8
2023 - Nov	182		3.7
2023 - Dec	290		3.7
2024 - Jan	229		3.7
2024 - Feb	275		3.9

-  ALT + X

Exchange multiple variables

1. Open the Exchange Series window by doing one of the following:
 - Click the exchange multiple variables  from the Variables section of the Home Ribbon
 -  ALT + X
2. Select the variable you wish to move by dragging and dropping it in the list
3. Click OK or  ENTER

 Right click a variable to get additional options: remove series, move to top/bottom or move up/down.



Exchange multiple variables through data table

1. Select the column header of the variable you wish to move using the left mouse button
2. While holding the button down, drag the variable to a new column in the data table:

Month	LAINFOD@	LANAGRD@USE...	LAWTRDD@USECON	LANAGRD@USE...	LR@USECON
2022 - Nov	13		6.4	258	3.6
2022 - Dec	-13		13.0	136	3.5
2023 - Jan	-28		11.2	482	3.4
2023 - Feb	-18		12.5	287	3.6
2023 - Mar	5		9.2	146	3.5
2023 - Apr	-1		-1.0	278	3.4
2023 - May	-3		7.2	303	3.7
2023 - Jun	-7		1.4	240	3.6
2023 - Jul	-28		16.3	184	3.5
2023 - Aug	-18		1.5	210	3.8
2023 - Sep	11		11.7	246	3.8
2023 - Oct	-26		11.9	165	3.8
2023 - Nov	17		6.9	182	3.7
2023 - Dec	13		7.4	290	3.7
2024 - Jan	6		-3.3	229	3.7
2024 - Feb	2		-1.2	275	3.9



In the example above, LANAGRD@USECON is being moved in front of LAINFOD@USECON.

3. The variables will be rearranged as follows:

- Moving the variable to the left will place it in front of the variable you have selected
- Moving the variable to the right will place it behind the variable you have selected



Only variables visible in the data table will change positions while exchanging variables through the data table. If a variable is not present in the data table (because it is a different frequency than the primary variable) it will remain in its own position. To change the position of these variables, right click the data table and select Show All Series so that all variables of all frequencies will be visible in the data table.

7-Day Daily Data

NEW DLXVG3 can now display 7-Day Daily data which includes weekend data.

You have the option to control how daily data is displayed by going to Options > Daily and choosing between Auto, 5-day or 7-day:

Option

- Auto - will display either 5-day (regular daily) or 7-day daily in the data table depending on the series chosen. This is the default option
- 5-day: will only display Monday-Friday values in the data table. The header will have a [D5] to designate that this option is selected. Even if a 7-day daily series is shown on the graph, the weekend values will not be shown in the data table
- 7-day: will always display Monday-Sunday values in the data table. The header will have a [D7] to designate that this option is selected. Even if only 5-day daily series are shown on the graph, the weekend dates will be shown in the data table with N/As.



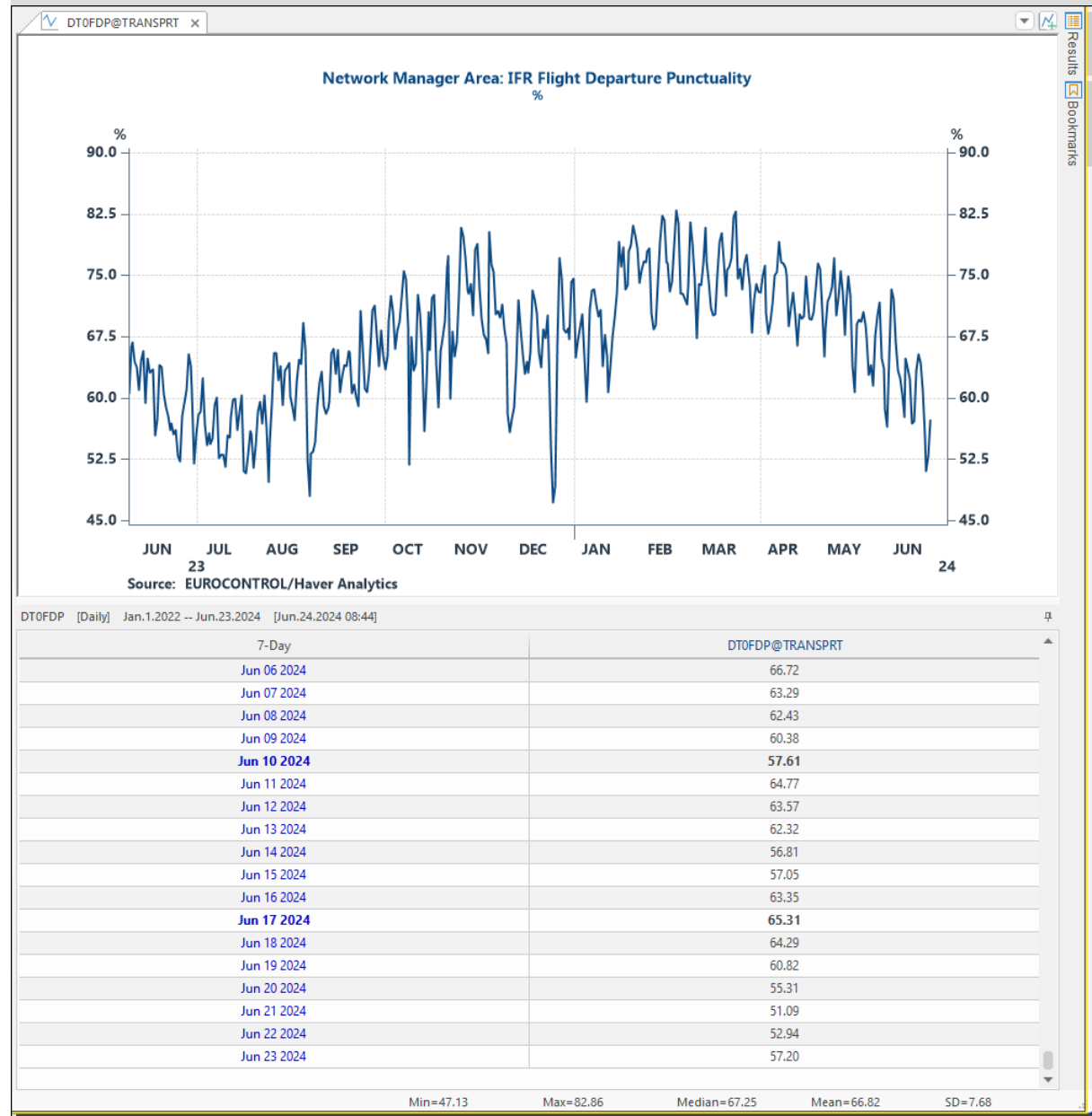
When viewing a 7-day daily series, the Monday date in the data table will be bolded.

Weekend

- Connect - will connect the Friday-Monday values for 5-day series when viewing them on the same graph as 7-day series to produce a smooth line. This is the default option.
- Not Connect - will display the 5-day series with only the Monday-Friday values, resulting in a segmented line when viewing it on the same graph as a 7-day series,

Example

The graph displays the 7-day daily series DT0FDP@TRANSPRT.



Trend Line

DLXVG3 uses a linear trend line to reveal a linear relationship between two variables, x and y , in the form

$$y = \beta x + \alpha$$

where β is the slope and α is the y -intercept, and are calculated as follows where n represents the number of data points.

$$\alpha = \frac{n \sum xy - \sum x \sum y}{n \sum x^2 - (\sum x)^2}$$

$$\beta = \frac{\sum y - \alpha \sum x}{n}$$

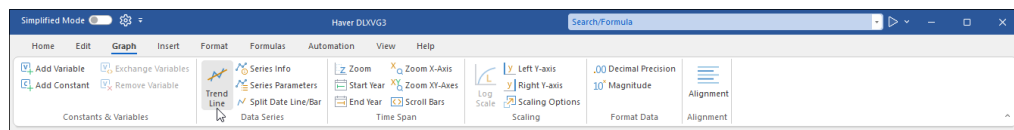


The trend line is calculated with the number of data points that are visible on the graph. To change the number of data points on the graph, [zoom](#) in/out of the graph. This will also change the slope and y -intercept as indicated in the [status bar](#).

Insert a Trend Line

Do one of the following:

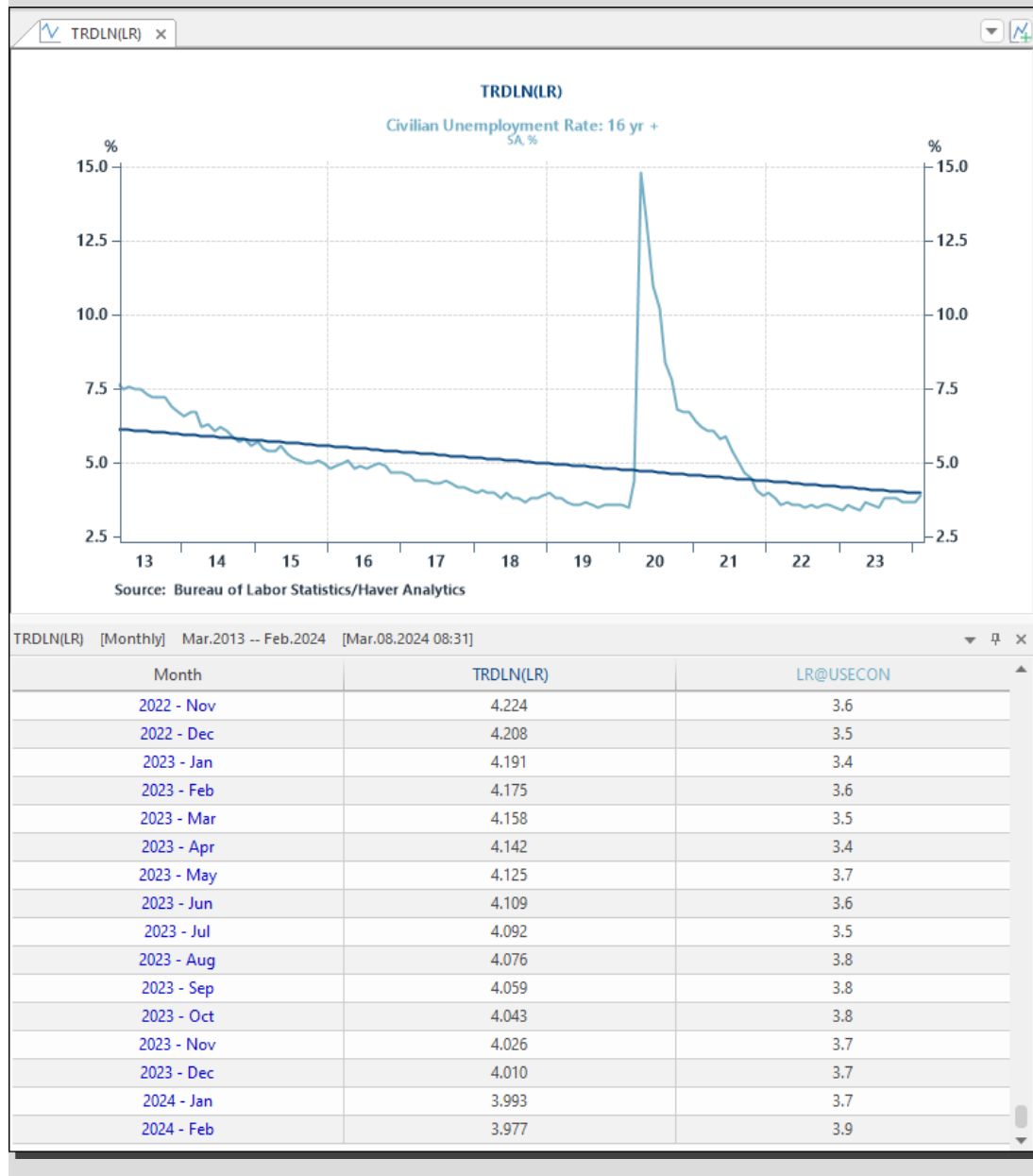
- Click Trend Line from the Data Series section of the Graph Ribbon:



-  CTRL + ALT + T
- Enter a trend line through the formula bar: TRDLN(code@database). For additional options, go to Formula Bar > [Apply Functions](#)

Example

The graph displays a trend line inserted to LR@USECON.



Remove a Trend Line

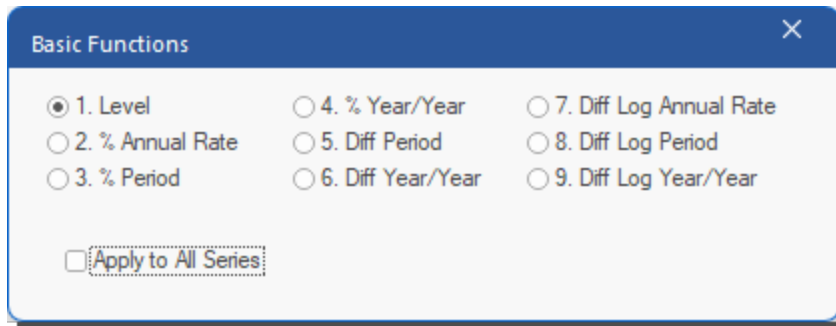
A trend line is treated just like a variable. Remove the trend line as you would [remove a variable](#).

Functions

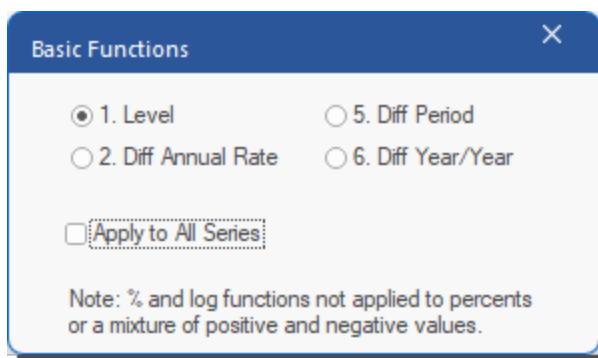
Apply functions to one or more variables.

Basic Functions

Apply a basic function



 This is the basic function dialog box when the primary series has a diff type of 0.



 This is the basic function dialog box when the primary series has a diff type of 1.

1. Ensure that the variable you wish to apply the function to is the **active series**¹.

¹The first variable listed on a graph; all operations/functions will be applied to this series.

2. Open the Basic Functions window as shown above by doing one of the following:

- Click **Basic** from the **"Functions"** section of the Home Ribbon:



- Click **Basic** from the Formulas Ribbon

-  F

3. Apply the function by doing one of the following:

- (Optional) If you want to apply this function to all series listed on the graph, check the checkbox for "Apply to All Series" first and then continue with one of the two options below:
- Select the function
- Use the keyboard shortcut to enter the number corresponding to the function

List of basic functions, their descriptions and formulas

Assume:

- npv = number of periods per year, i.e. the frequency of the data series
- nt = number of observations in the data series
- For a specified value of n , where n can be in the range of 1 to nt

Function	Description	Formula
1. Level (default)	Untransformed data	
2a. % Annual Rate (for dif type of 0)	Percentage change at compound annual rate	DIFA%(X) =

Function	Description	Formula
2b. Diff Annual Rate (for dif type of 1)	Period to Period difference change at annual rate	$\left(\left(\frac{x(t)}{x(t-1)} \right)^{npy} - 1 \right) \cdot 100$ DIFA(X) = $(x(t) - x(t-1)) * npy$
3. % Period	Period to period percentage change	DIFF%(X) = $\left(\left(\frac{x(t)}{x(t-1)} \right) - 1 \right) \cdot 100$
4. %Year/Year	Year over year percentage change	YRZR%(X) = $\left(\left(\frac{x(t)}{x(t-npy)} \right) - 1 \right) \cdot 100$
5. Diff Period	Period to period difference change	DIFF(X) = $x(t) - x(t-1)$
6. Diff Year/Year	Year over year difference change	YRZR(X) = $x(t) - x(t-npy)$
7. Diff Log Annual Rate	Log change - compound annual rate	DIFAL(X) =

Function	Description	Formula
		$\ln \left(\frac{x(t)}{x(t-1)} \right) \cdot npy \cdot 100$
8. Diff Log Period	Log change - period to period	DIFFL(X) = $\ln \left(\frac{x(t)}{x(t-1)} \right) \cdot 100$
9. Diff Log Year/Year	Year to year log change	YRYRL(X) = $\ln \left(\frac{x(t)}{x(t-npy)} \right) \cdot 100$

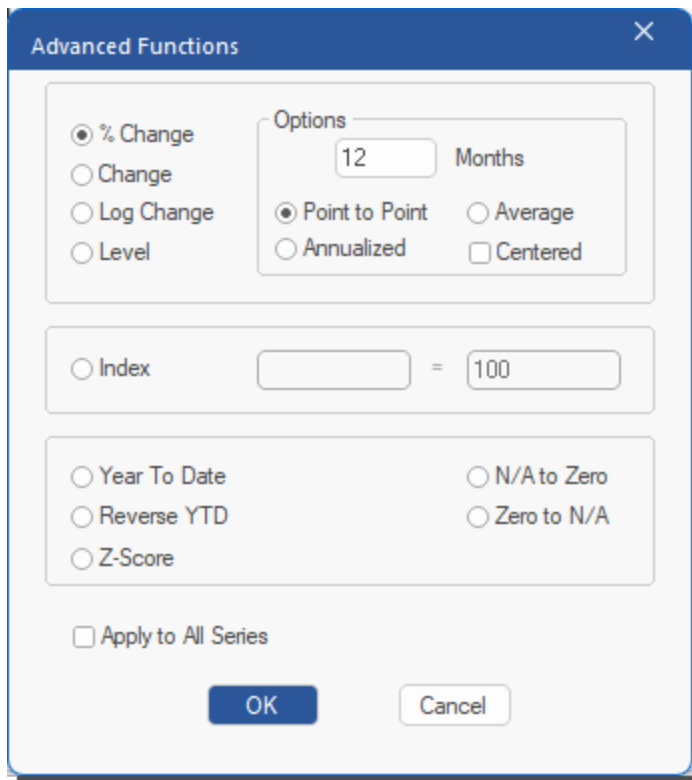
Advanced Functions

Advanced Functions are defined by four different parameters:

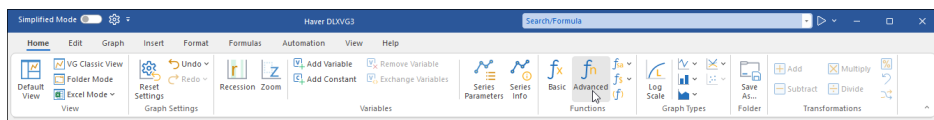
- Number of periods (*n*)
- Function (level, % change, change or log change)
- Mode (point-to-point, average or annualized)
- Centered or not centered

 *% change of a series cannot be applied to series that have a diff type of 1 (which means that it has a data value of 0 or a negative number)*

Apply an advanced function



1. Ensure that the variable you wish to apply the function to is the **active series**¹.
2. Open the Advanced Functions window by doing one of the following:
 - Click **Advanced** from the **"Functions"** section of the Home Ribbon:



- Click **Advanced** from the Formulas Ribbon
 -  **ALT + F**
3. (Optional) If you want to apply an advanced function to all series listed on the graph, check the checkbox for "Apply to All Series" first

¹The first variable listed on a graph; all operations/functions will be applied to this series.

4. Select the type of function and its options
5. Click OK or  ENTER

Index a series

1. With the Advanced Functions window open, select Index
2. Enter the date in one of the following formats:
 - YYYYMM (monthly)
 - YYYYQ (quarterly)
 - YYYY (annually)
3. *(Optional) If you want to apply the index to all series listed on the graph, check the checkbox for "Apply to All Series"*
4. Click OK or  ENTER

Other options in advanced function

The following options can be applied to any type of function or index:

- Year to date
- Reverse YTD
- N/A to Zero
- Zero to N/A
- Z-Score



The Z-Score is calculated based on the time span currently displayed on the graph.

List of advanced functions and their formulas:

Function	Formula
Point to Point % Change	DIFF%(X,n)=

Function	Formula
	$\left(\left(\frac{x(t)}{x(t-n)} \right) - 1 \right) \cdot 100$
Average % Change	DIFV%(X,n)= $\left(\left(\frac{x(t)}{x(t-n)} \right)^{1/n} - 1 \right) \cdot 100$
Annualized % Change	DIFA%(X,n)= $\left(\left(\frac{x(t)}{x(t-n)} \right)^{npy/n} - 1 \right) \cdot 100$
Point to Point % Change Centered	DIFF%C(X,n)= Same formula as Point to Point % Change using centered values
Average % Change Centered	DIFV%C(X,n)= Same formula as Average % Change using centered values
Annualized % Change Centered	DIFA%C(X,n)= Same formula as Annualized % Change using centered values
Point to Point Difference Change	DIFF(X,n)= $x(t) - x(t-n)$
Average Difference Change	DIFV(X,n)=

Function	Formula
	$\frac{x(t) - x(t - n)}{n}$
Annualized Difference Change	DIFA(X,n)= $\left(x(t) - x(t - n) \right) \cdot \frac{npy}{n}$
Point to Point Difference Change Centered	DIFFC(X,n)= Same formula as Point to Point Difference Change using centered values
Average Difference Change Centered	DIFVC(X,n)= Same formula as Average Difference Change using centered values
Annualized Difference Change Centered	DIFAC(X,n)= Same formula as Annualized Difference Change using centered values
Point to Point Log Change	DIFFL(X,n)= $\ln \left(\frac{x(t)}{x(t - n)} \right) \cdot 100$
Average Log Change	DIFVL(X,n)=

Function	Formula
	$\frac{\ln \left(\frac{x(t)}{x(t-n)} \right)}{n} \cdot 100$
Annualized Log Change	DIFAL(X,n)= $\ln \left(\frac{x(t)}{x(t-n)} \right) \cdot \frac{npv}{n} \cdot 100$
Point to Point Difference Log Change Centered	DIFFLC(X,n)= Same formula as Point to Point Log Change using centered values
Average Difference Log Change Centered	DIFVLC(X,n)= Same formula as Average Difference Log Change using centered values
Annualized Difference Log Change Centered	DIFALC(X,n)= Same formula as Annualized Difference Log Change using centered values
Moving Average	MOVV(X,n)= $\sum_{j=0}^{n-1} \frac{X(t-j)}{n}$
Annualized Moving Total	MOVA(X,n)=

Function	Formula
	$\sum_{j=0}^{n-1} (X(t-j)) \cdot \left(\frac{npv}{n} \right)$
Moving Total	MOVT(X,n)= $\sum_{j=0}^{n-1} X(t-j)$
Moving Average Centered	MOVVC(X,n)= Same formula as Moving Average using centered values
Annualized Moving Total Centered	MOVAC(X,n)= Same formula as Annualized Moving Total using centered values
Moving Total Centered	MOVTC(X,n)= Same formula as Moving Total using centered values
Index to a Year/Quarter/Month	INDEX(X,YYYY=100) OR INDEX(X,YYYYQ=100) OR INDEX (X,YYYYMM=100)= $x(t) = \frac{x(t)}{x(base)} \cdot BaseValue$
Year to Date	YTD(X)
Reverse Year to Date	DYTD(X)
N/A to Zero	NA2Z(X)
Zero to N/A	Z2NA(X)
Z-Score	ZS(X)=

Function	Formula
	$Z = \frac{X - \mu}{\sigma}$

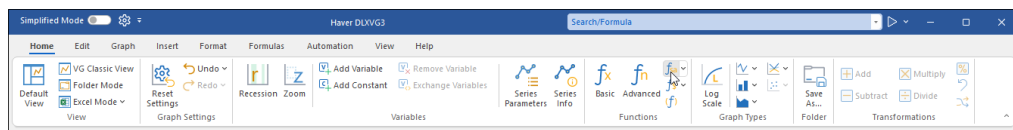
Seasonal Adjustment

Uses concurrent seasonal adjustment, which takes all the defaults of X-13ARIMA-SEATS. It determines whether to use a multiplicative or additive model based on the type Haver has set for the series. (Multiplicative model will always be used unless the series has a negative or zero value present). Seasonal adjustment can be only applied to a monthly or quarterly data series with at least 36 observations.

Apply seasonal adjustment

Do one of the following to apply seasonal adjustment:

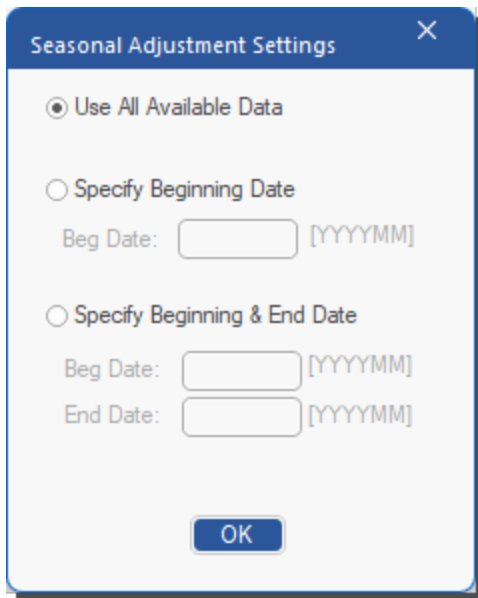
- Click **Seasonal Adjustment Function** from the "**Functions**" section of the Home Ribbon:



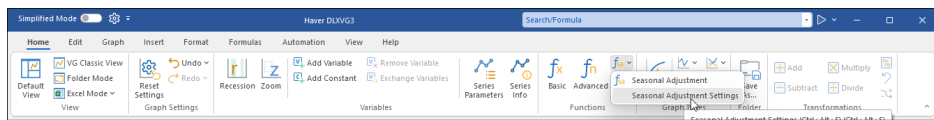
- Click **Seasonal Adjustment Function** from the Formulas Ribbon
-  SHIFT + S

Modify seasonal adjustment

Edit seasonal adjustment settings first, then apply seasonal adjustment.



1. Open seasonal adjustment settings by doing one of the following:
 - Click the drop-down arrow of **Seasonal Adjustment** and select **Seasonal Adjustment Settings**



- CTRL + ALT + S
2. Edit the selection then click OK or ENTER
 3. Apply seasonal adjustment as shown above

Currency Conversion

The currency conversion function uses data from the FXRATES database. The function simply divides the original series by the rate. The rate used depends on the aggregation type of the series being converted. If the series has an aggregation type of EOP, then the currency conversion function uses the EOP exchange rate. If the series has an aggregation type of AVG,

then the currency conversion function uses the average exchange rate.

Apply Currency Conversion

Convert any data series that has local currency data type (LocCur) or US\$ to a different currency by doing one of the following:

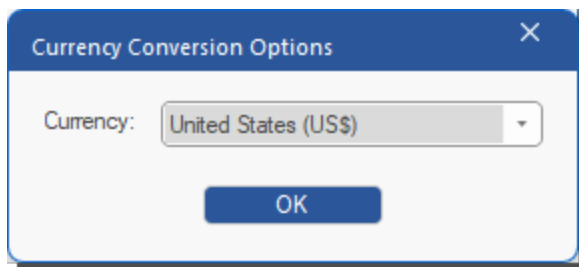
- Click **Currency Conversion Function** from the **"Functions"** section of the Home Ribbon:



- Click **Currency Conversion Function** from the Formulas Ribbon
-  \$

Select Currency

The default currency is US\$. You can choose from all the currencies available in the FXRATES database by doing one of the following:



- Go to Functions > Currency Conversion > Options > click on the drop-down and select the desired country (currency)



This selection will only be applied to the current graph. To change the default currency go to Options > Currency Conversion and select your desired country.

- Perform the currency conversion through the formula bar by entering the geo code or iso code for the country/currency you would like to convert to, ex: FX

(CODE@DATABASE, 111) or FX(CODE@DATABASE, USD) to convert to US\$



The currency conversion function will not work on indexes

Other Functions

There are additional functions only available through the formula bar:

Go [here](#) to see how to apply them.

- Cumulative Sum - sum all values of the series from the first data point available to the last
- Value - creates a scalar series by referencing a certain date
- **NEW** Hodrick-Prescott Filter [only available for monthly/quarterly/annual frequencies]
- **NEW** Hodrick-Prescott Filter cyclical [only available for monthly/quarterly/annual frequencies]
- **NEW** Absolute Value
- **NEW** Natural Logarithm
- **NEW** SetNA - removes specified data point or range of data points in a series

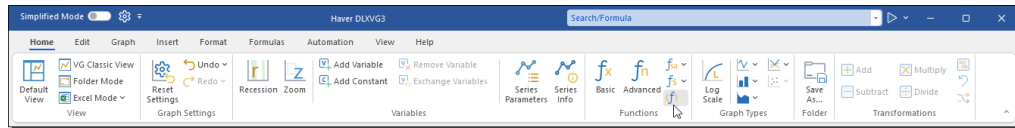
Nesting Functions

Apply multiple functions to an **active series**¹ by nesting functions.

Perform Nesting Functions

Toggle nesting of functions by doing one of the following:

- Click Nesting either from the Functions section of the Home Ribbon or Formulas Ribbon:



-  CTRL + ALT + F

The following is an example of nesting functions.

Example

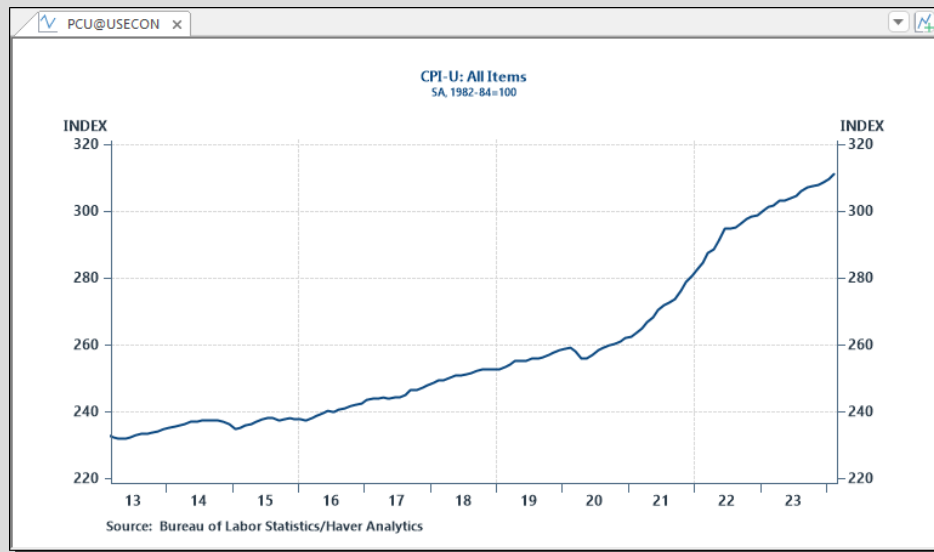
Apply a 3-month moving average to a consumer price index and then apply a period-to-period percent change on top of the previous function.

- Open PCU@USECON by doing one of the following:

- Navigate through the menus
-  ALT + D for USECON then N for PCU

¹The first variable listed on a graph; all operations/functions will be applied to this series.

-  ALT + N and enter PCU@USECON in the formula bar



2. Apply a 3 month moving average:

i. Open the Advanced Functions window by doing one of the following:

- Click  from the Functions section of the Home or Formulas Ribbon
-  ALT + F

ii. Select Level, Average and change the number of months to 3

iii. Click OK or ENTER

Advanced Functions [X]

☐ % Change
☐ Change
☐ Log Change
☒ Level

Options

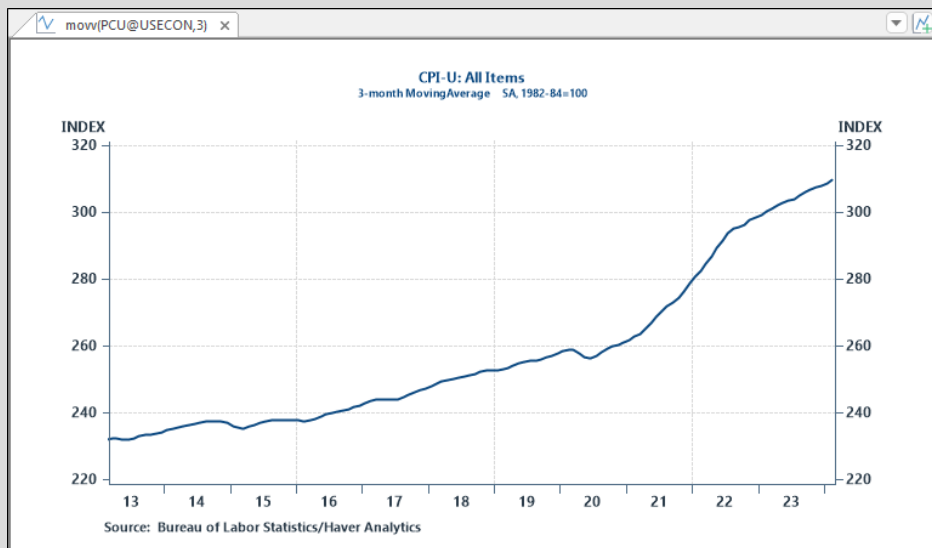
Months
☒ Average ☐ Annualized
☐ Total ☐ Centered

☐ Index =

☐ Year To Date ☐ N/A to Zero
☐ Reverse YTD ☐ Zero to N/A
☐ Z-Score

☐ Apply to All Series (Nested)

OK Cancel



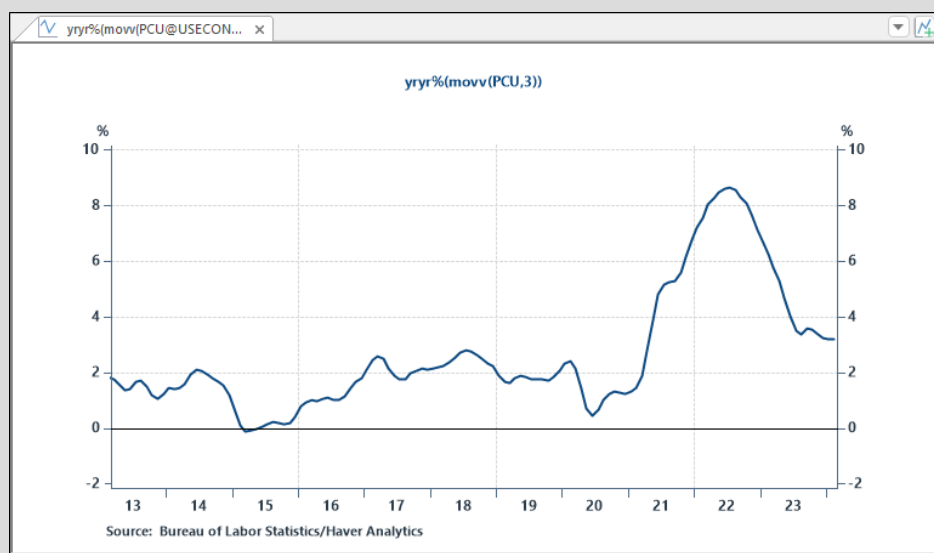
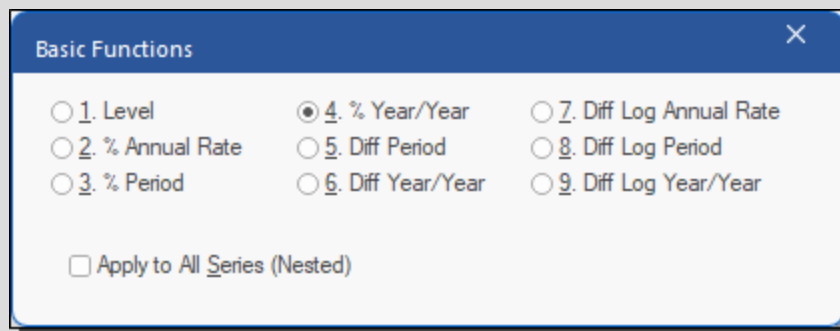
3. Toggle nesting of functions by doing one of the following:

- Click the nesting of functions button  from the Functions section of the Home or Formulas Ribbon

- Go to Functions > Nesting
-  CTRL + ALT + F

4. Apply a period to period percent change:

- Click  from the Functions section of the Home or Formulas Ribbon then select option 4
-  F then  4

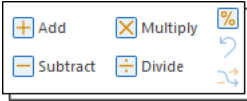


Nested functions is complete.

Transformations

A data transformation is a basic arithmetic operation applied to two variables.

The transformation toolbar, as shown below, will become available when at least two variables are on the graph.



Apply a basic arithmetic operation to two variables to create a new variable. You can then insert another variable to the graph to perform another transformation.

Perform Data Transformations

The following is an example of a data transformation.

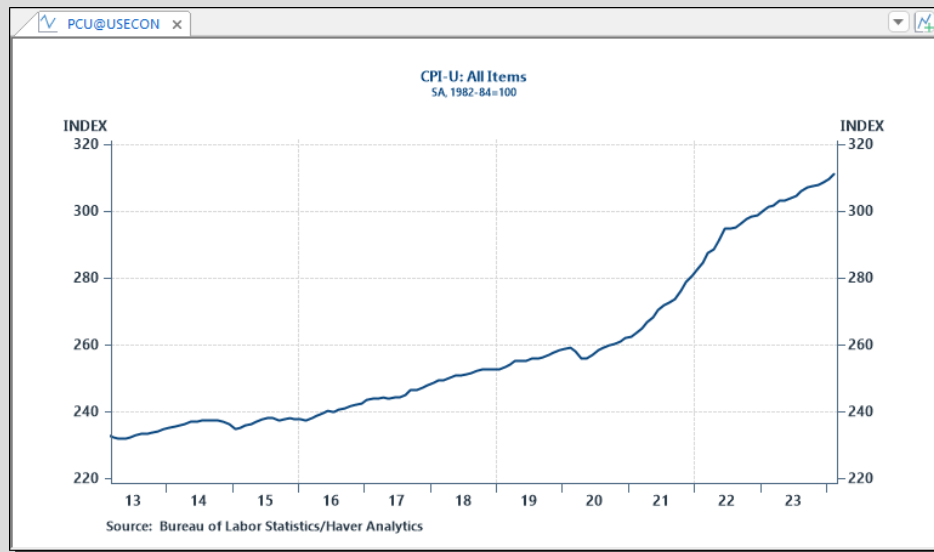
Example

Subtracting the year-over-year change in CPI from the federal funds rate to calculate a real interest rate and then adding the growth in real GDP.

1. Open PCU@USECON by doing one of the following:

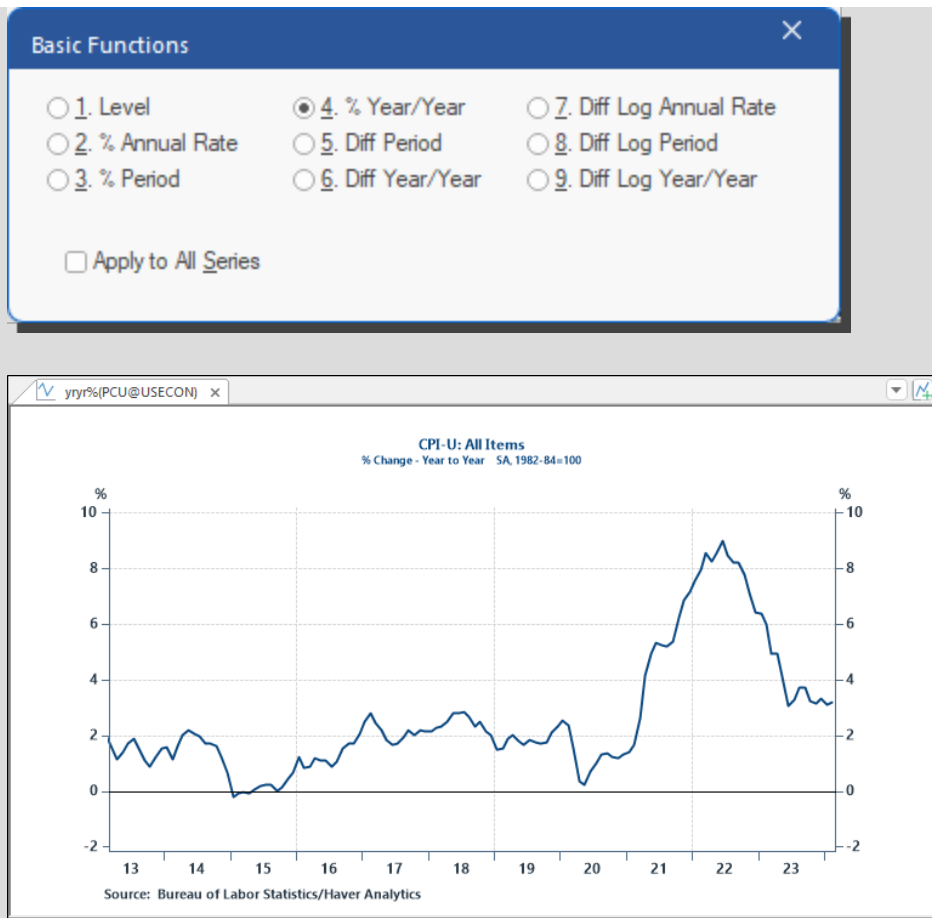
- Navigate through the menus.
-  ALT + D for USECON then N for PCU

-  ALT + N and enter PCU@USECON in the formula bar



2. Apply a period-to-period percent change to PCU@USECON by doing one of the following:

- Click  from the Functions section of the Home Ribbon then select option 4
-  F then  4



3. Add FFED@USECON

i. Add a variable by doing one of the following:

- Click  from the Variables section of the Home Ribbon
-  ALT + V

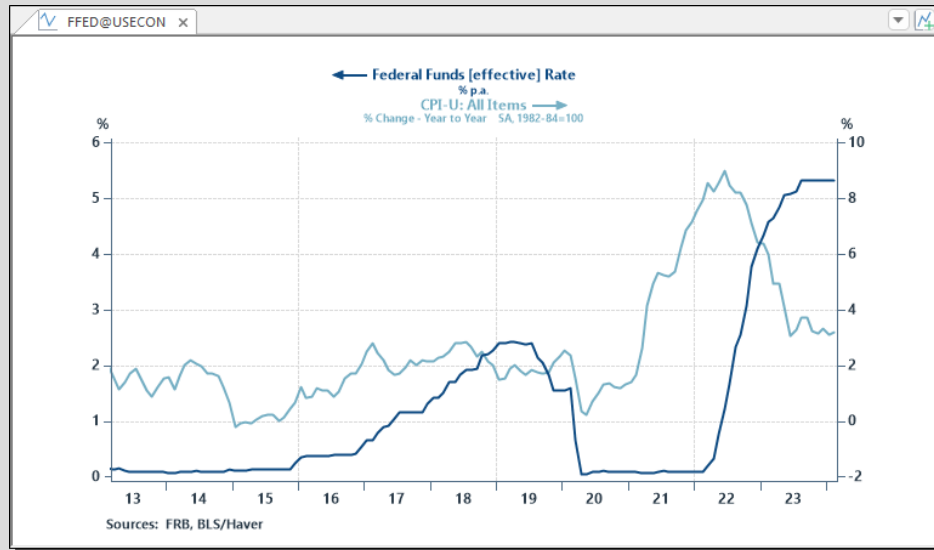
ii. Open FFED@USECON by doing one of the following:

- Navigate through the menus
-  N for FFED

 *Not required to use  ALT + D as we are already in the USECON database*

-  ALT + N and enter FFED in the formula bar

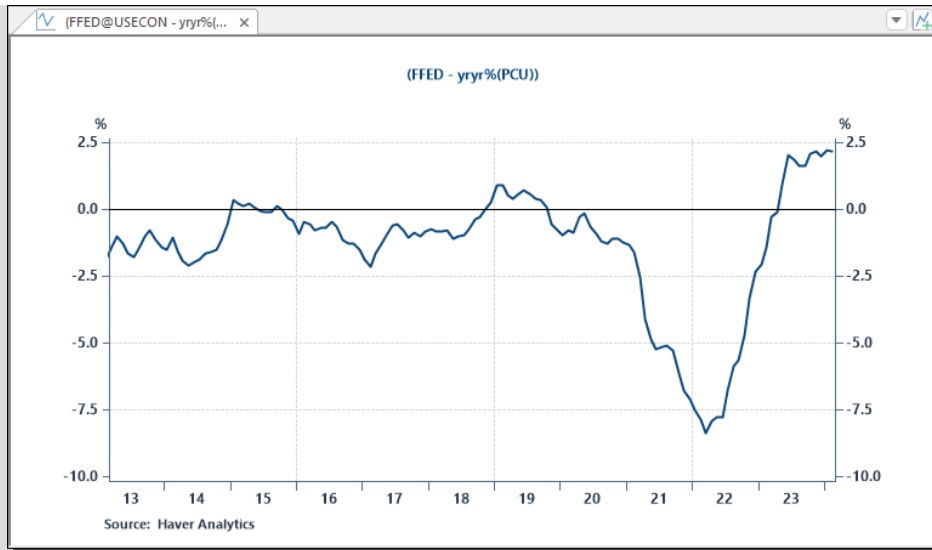
 *Not required to enter FFED@USECON as we are already in the USECON database*



4. Subtract YRYR%(PCU@USECON) from FFED@USECON by doing one of the following:

- Click  from the Transformations toolbar

- 



5. Add the GDPH@USECON series and apply a period to period percent change on it

i. Add a variable by doing one of the following:

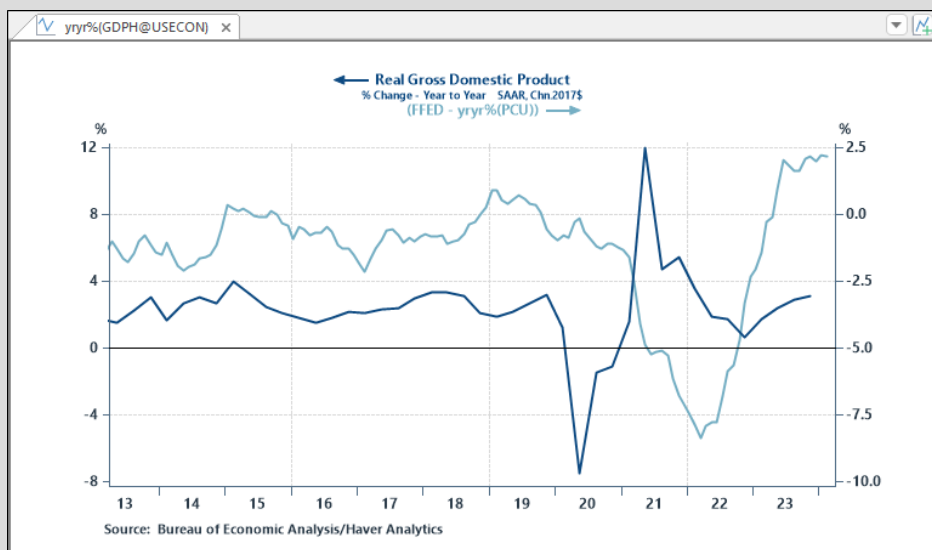
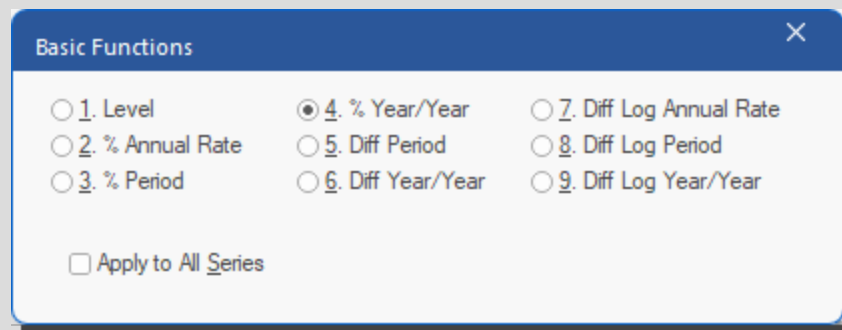
- Click  from the Graph Settings toolbar
-  ALT + V

ii. Open GDPH@USECON by doing one of the following:

- Navigate through it via the menus
-  N for GDPH
 *Not required to use  ALT + D as we are already in the USECON database*
-  ALT + N and enter GDPH in the formula bar
 *Not required to enter GDPH@USECON as we are already in the USECON database*

iii. Apply period-to-period percent change to GDPH@USECON by doing one of the following:

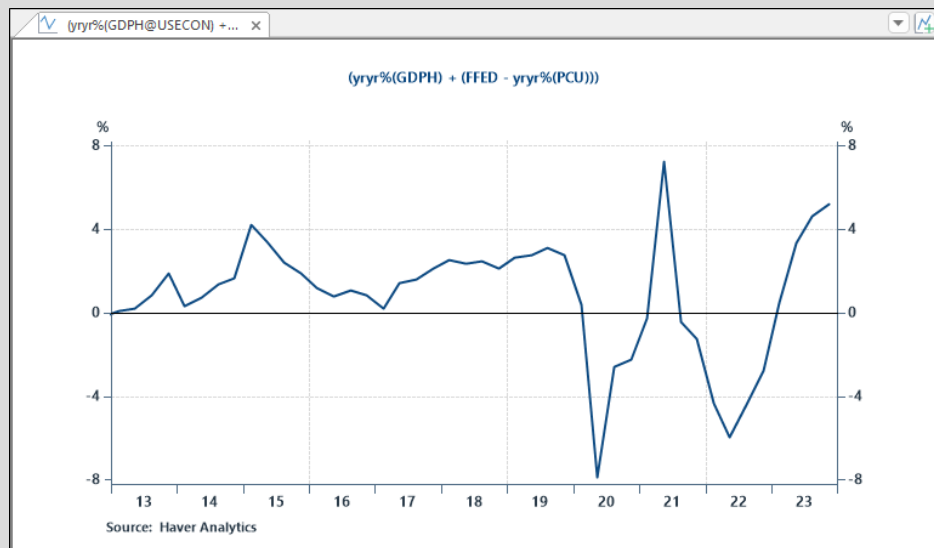
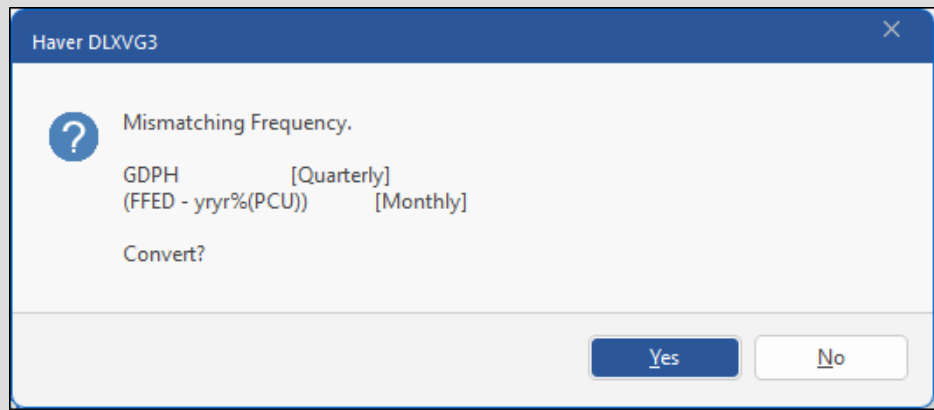
- Click  from the Functions section of the Home Ribbon
-  F then  4



6. Add yyr%(GDPH) to FFED-yyr%(PCU) by doing one of the following:

- Click  from the Transformations section in the Home Ribbon
-  +

- You will receive a pop-up asking if you want to convert frequencies since you are adding a quarterly series and a monthly series. Click Yes to proceed with the transformation.



The transformation is complete.

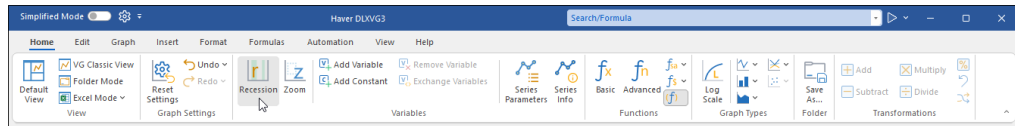
Recession Shading

A recession begins just after the economy reaches a peak of activity and ends as the economy reaches its trough. Between trough and peak, the economy is in expansion.

Apply Recession Shading

Turn on/off recession shading

- Click **Recession** from the Home Ribbon:

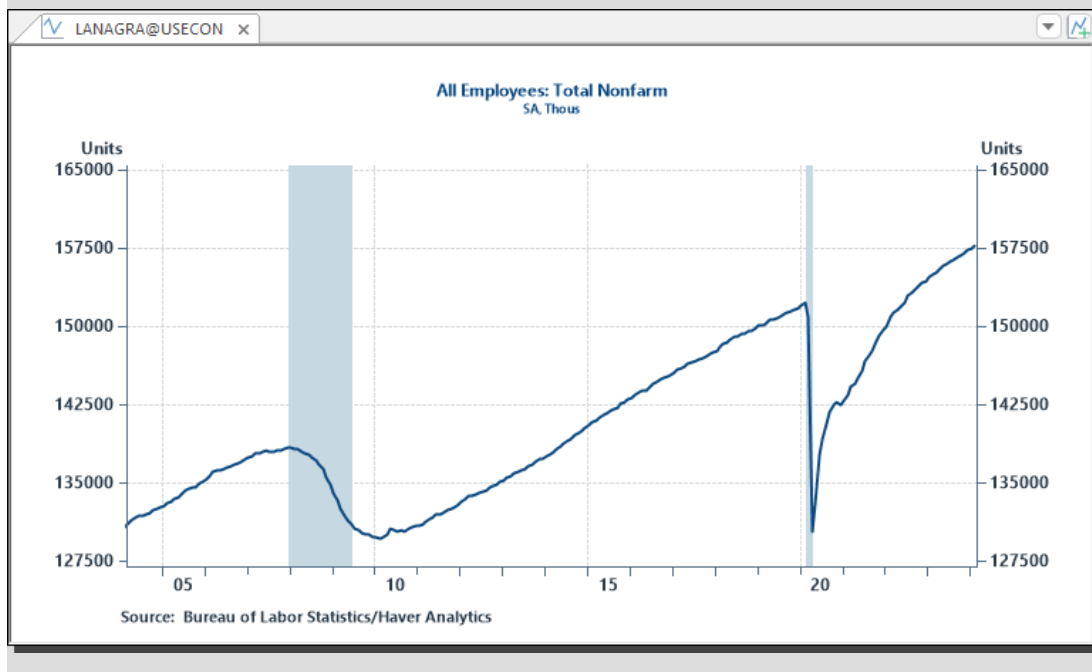


- Click **Recession** from the Insert Ribbon:

-  R

Example

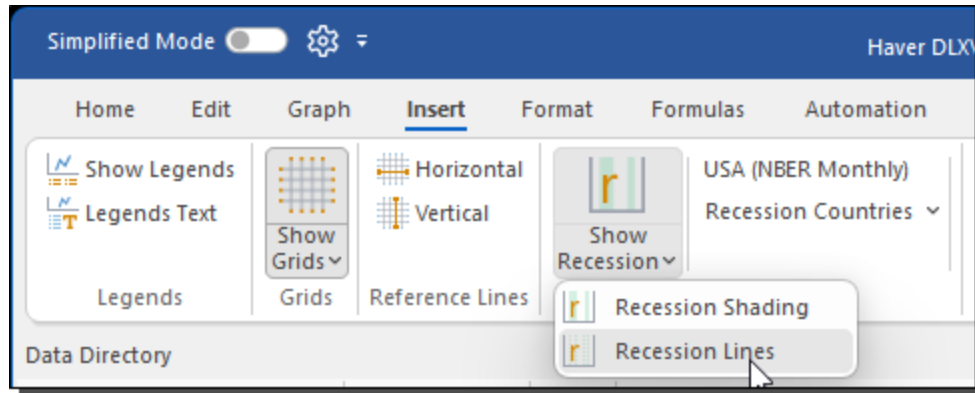
U.S. recession shading applied to LANAGRA@USECON.



Apply Recession Lines

Turn on/off recession lines

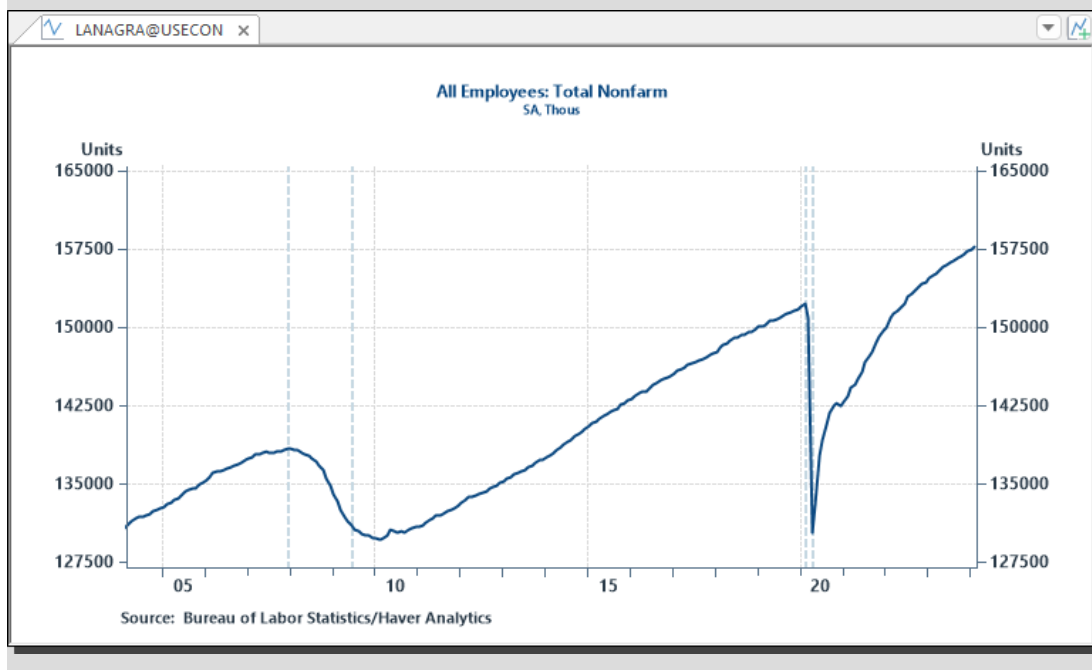
- Click the drop down arrow on **Show Recession** from the Insert Ribbon:



-  ALT + R

Example

U.S. recession lines applied to LANAGRA@USECON



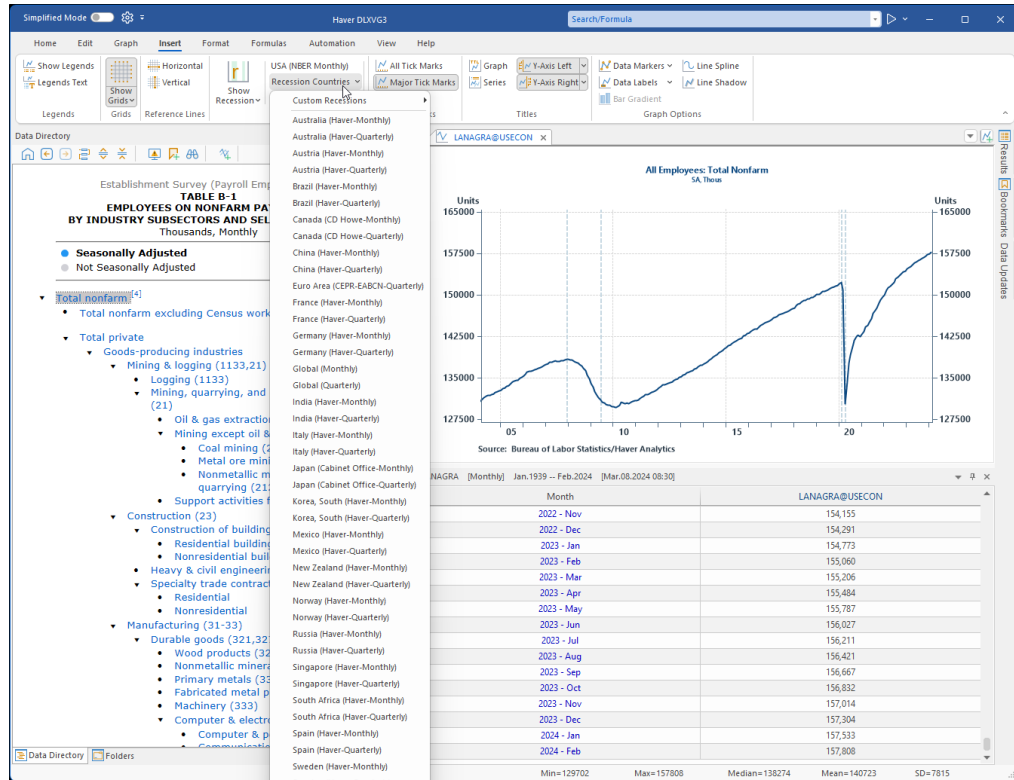
Change Default Recession Country

The default recession shading uses U.S. peaks/troughs.

Temporarily change recession country

This will apply to the current session of DLXVG3 and this country's recession will be applied to all active graphs with recession toggled on.

1. Click on **Recession Countries** from the Insert Ribbon:

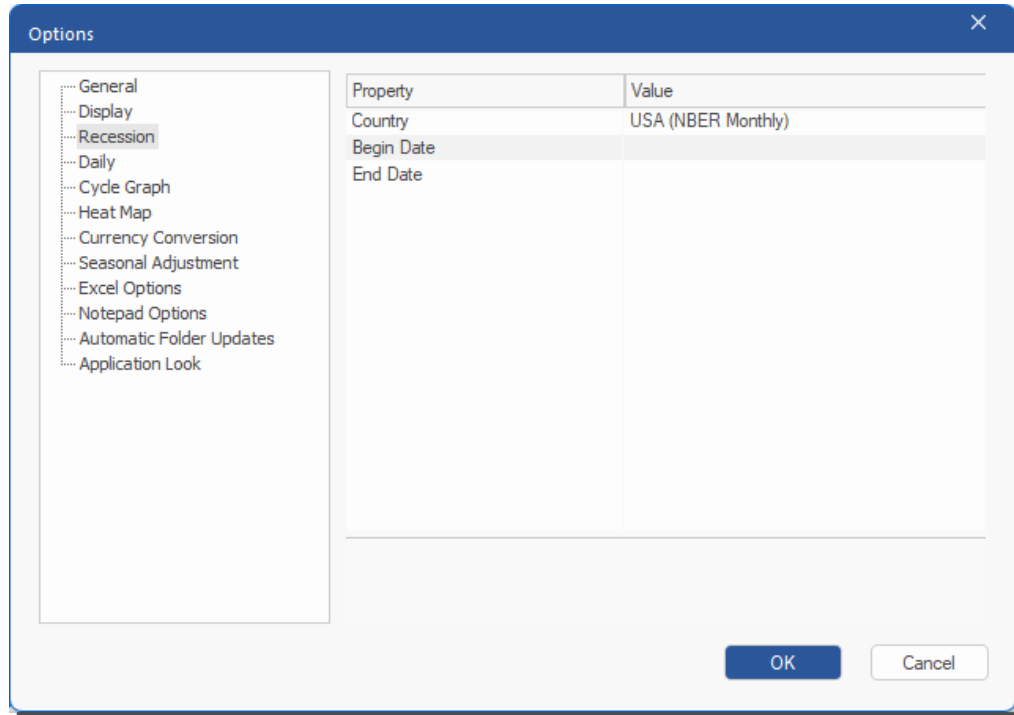


2. Select the country or custom recession

Change default recession country

1. Go to Options
2. Select Recession on the left

3. Change the default recession country from the drop-down list



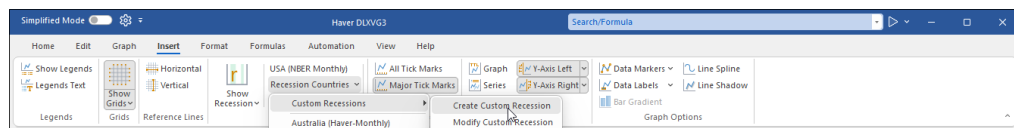
 *The recession does not change automatically based on the data source.*

You must manually change the recession country as explained above to match the data source. You can now set a custom recession as your default recession.

Create, Apply, Modify, or Delete a Custom Recession

Create a custom recession

1. Click on **Recession Countries > Custom Recession > Create Custom Recession** from Insert Ribbon



2. *(Optional)* Click the drop-down arrow next to "Insert data for" to populate the peaks and troughs for a countries recession and then modify it
3. Specify the peak and trough in 4-digit year and 2-digit month format (YYYYMM)
4. Enter the name of this custom recession in Recession Name

 *Right click on the table to add/delete/insert more peaks/troughs. You can also copy and paste.*

Apply a custom recession

1. Click on **Recession Countries > Custom Recession**
2. Click the name of the recession (on the bottom part of the drop down list) you want to apply

Modify a custom recession

1. Click on **Recession Countries > Custom Recession > Modify Custom Recession**
2. Select the custom recession you wish to modify from the drop down list
3. Edit the values
4. Click OK or  ENTER

Remove a custom recession

1. Click on **Recession Countries > Custom Recession > Remove Custom Recession**
2. Select the custom recession you wish to remove from the list
3. Click OK or  ENTER

Share a Custom Recession

Custom recessions can be shared by exporting/importing them into DLXVG3.

Export a custom recession

1. Click on **Recession Countries > Custom Recession> Export Custom Recession**
2. Select the custom recession
3. Click on the folder icon
4. Enter a name for the file, select the desired folder, then click **Open**
5. Click **Export**

 *Recession files are saved with a .rec extension.*

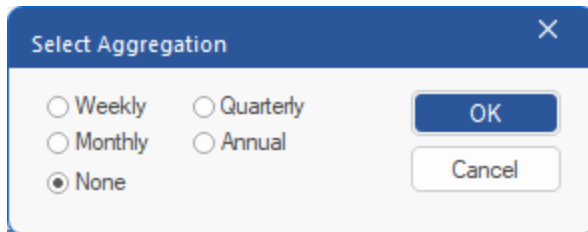
Import a custom recession

1. Click on **Recession Countries > Custom Recession > Import Custom Recession**
2. Browse to the folder of the custom recession file
3. Select the .rec file
4. Click **OK** or  ENTER

Aggregation

Values can be grouped together to form a single value of more significant meaning or measurement by using aggregation. You can aggregate a series to a lower frequency.

Change the Aggregation Frequency of a Series



1. Open the Aggregation window by doing one of the following:
 - Go to Formulas > Aggregation
 -  A
2. Select the aggregation frequency
3. Click OK or  ENTER

 When aggregation is on, it will be indicated by the symbol [A] next to the series(code@database) in the title bar in [Haver Mode](#) or in the data table in [Column Mode](#). Additionally, the background color of the table will be changed to gray.

 To turn off aggregation, open the Aggregation window and select None

Example

Change in U.S. Total Nonfarm Employment (LANAGRA@USECON) with quarterly aggregation applied as shown below

- [Haver Mode](#)

LANAGRA [A] [Quarterly] Q1.1939 -- Q4.2023 [Mar.08.2024 08:30]

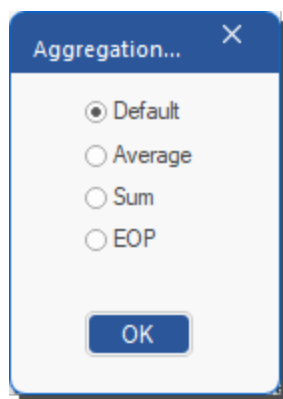
	Q1	Q2	Q3	Q4	Year
2009	133,291	131,433	130,461	129,976	131,290
2010	129,787	130,420	130,394	130,737	130,335
2011	131,057	131,748	132,154	132,720	131,920
2012	133,503	133,924	134,331	134,859	134,154
2013	135,500	136,078	136,615	137,239	136,358
2014	137,749	138,544	139,299	140,086	138,920
2015	140,773	141,479	142,128	142,826	141,801
2016	143,424	143,970	144,713	145,222	144,332
2017	145,820	146,383	146,893	147,347	146,611
2018	148,000	148,716	149,219	149,650	148,897
2019	150,141	150,695	151,149	151,639	150,906
2020	151,751	133,705	140,611	142,591	142,164
2021	143,544	145,153	147,231	149,175	146,276
2022	150,753	151,973	153,285	154,114	152,531
2023	155,013	155,766	156,433	157,050	156,066

- [Column Mode](#)

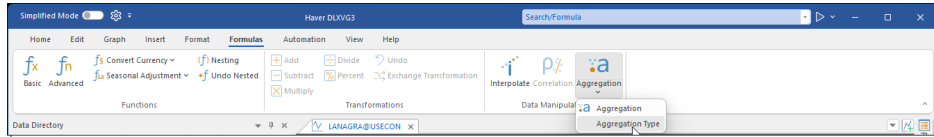
LANAGRA [Quarterly] Q1.1939 -- Q4.2023 [Mar.08.2024 08:30]

Quarter	LANAGRA@USECON[A]
2020 - Q2	133,705
2020 - Q3	140,611
2020 - Q4	142,591
2021 - Q1	143,544
2021 - Q2	145,153
2021 - Q3	147,231
2021 - Q4	149,175
2022 - Q1	150,753
2022 - Q2	151,973
2022 - Q3	153,285
2022 - Q4	154,114
2023 - Q1	155,013
2023 - Q2	155,766
2023 - Q3	156,433
2023 - Q4	157,050

Change the Aggregation Type



1. Open the Aggregation Type window by doing one of the following:
 - Go to Formulas > Aggregation > Click on the down arrow and choose Aggregation Types:



-  CTRL + ALT + A
2. Select the aggregation type
 3. Click OK or  ENTER

 By default an aggregation type is defined for every series. There are three different aggregation types: average, sum and end of period. The aggregation type will be undefined for an annual series or not allowed for certain series where aggregation would produce incorrect results.

Check the Aggregation Type

Series Parameters

← LANAGRA@USECON →

Frequency: Quarterly

Start Date: 391

End Date: 1234

of Periods: 340

Max # of Periods: 1034

Magnitude: 3

Decimal Precision: 0

Difference Type: 0 (Growth rates allowed)

Aggregation Type: Average

Data Type: Units

Update Group: E30

Geography: 111

Last Modified: Fri Mar 8 08:30:31 2024

Short Source: BLS

Long Source: Bureau of Labor Statistics

Copy to Clipboard



These are the series parameters for LANAGRA@USECON.

Look at the series parameters by doing one of the following:

- Go to Home > Series Parameters
-  ALT + F10

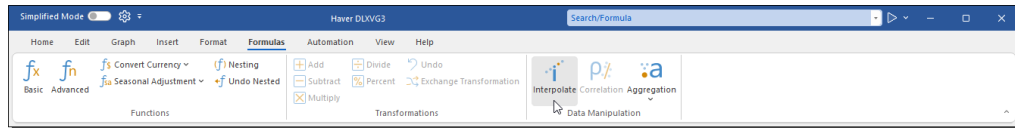
Interpolation

Interpolation produces estimated values for missing observations utilizing linear interpolation.

Turn on/off Interpolation

Do one of the following:

- Go to Formulas > Interpolate



-  |

 When interpolation is on, it is indicated by the symbol [I] next to the series (code@database) in the title bar in [Haver Mode](#) or in the data table in [Column Mode](#). Additionally, the background color of the table will be changed to gray.

Example

LANAGRA@USECON with interpolation applied as shown below.

- [Haver Mode](#)

LANAGRA [I] [Monthly] Jan.1939 -- Feb.2024 [Mar.08.2024 08:30]

	Month	Month	Month	Quarter	Year
	148,566	149,197	149,763	149,175	146,276
2022	150,014	150,876	151,370	150,753	
	151,642	151,928	152,348	151,973	
	153,038	153,281	153,536	153,285	
	153,897	154,155	154,291	154,114	152,531
2023	154,773	155,060	155,206	155,013	
	155,484	155,787	156,027	155,766	
	156,211	156,421	156,667	156,433	
	156,832	157,014	157,304	157,050	156,066
2024	157,533	157,808	---	---	
	---	---	---	---	
	---	---	---	---	
	---	---	---	---	---

- [Column Mode](#)

LANAGRA [Monthly] Jan.1939 -- Feb.2024 [Mar.08.2024 08:30]

Month	LANAGRA@USECON[I]
2022 - Nov	154,155
2022 - Dec	154,291
2023 - Jan	154,773
2023 - Feb	155,060
2023 - Mar	155,206
2023 - Apr	155,484
2023 - May	155,787
2023 - Jun	156,027
2023 - Jul	156,211
2023 - Aug	156,421
2023 - Sep	156,667
2023 - Oct	156,832
2023 - Nov	157,014
2023 - Dec	157,304
2024 - Jan	157,533
2024 - Feb	157,808

Formula Bar

Display a Series	159
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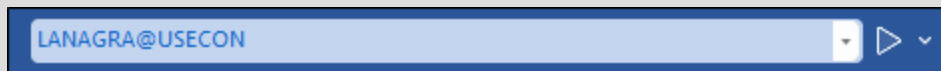
Display a Series

Quickly view a series by entering its name and database in the format "code@database" in the formula bar.

Example

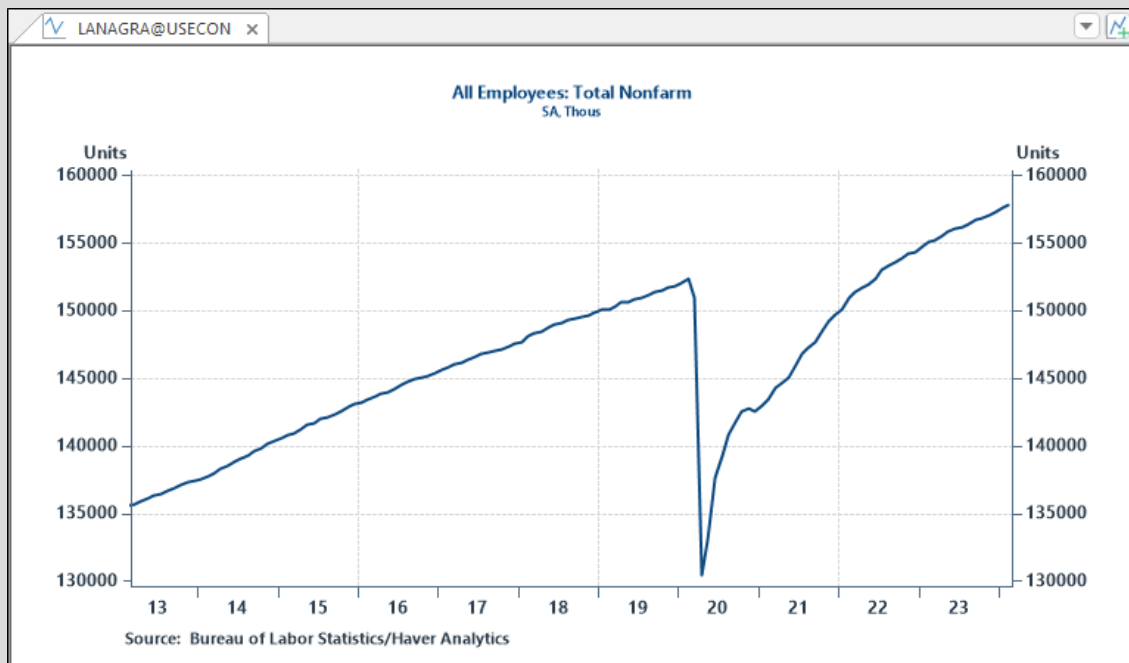
1. Click the formula bar to enter the series or  ALT + N

2. Enter the formula



3. Run the command by clicking  or  ENTER

4. The series will be displayed in the graph area



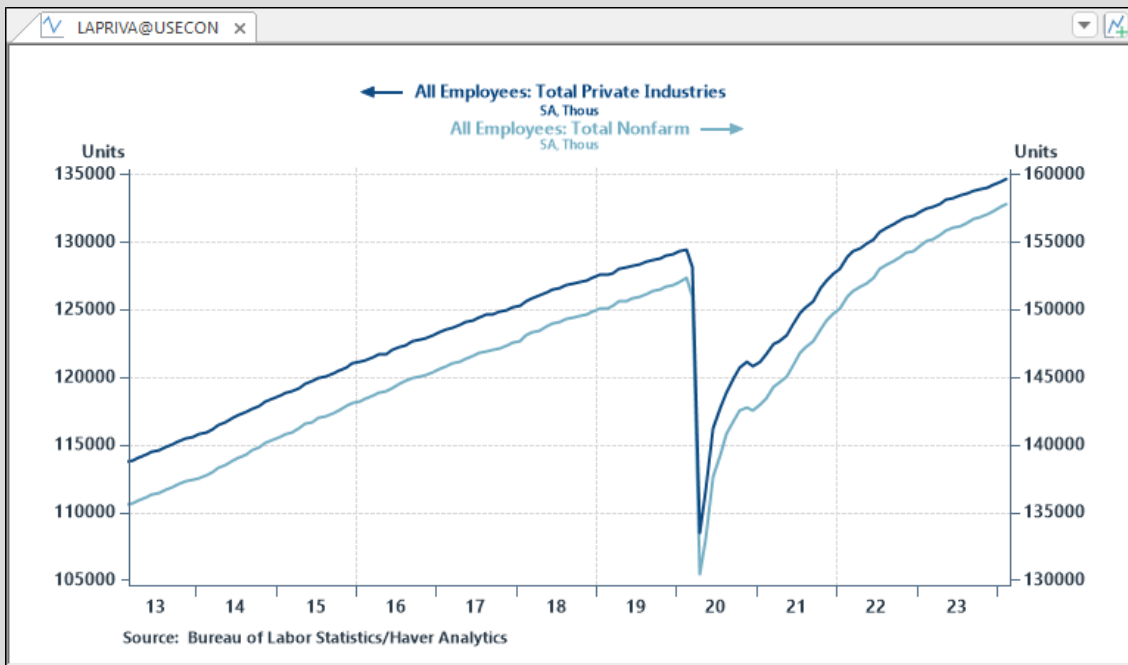
NEW You can now enter more than one series at a time through the formula bar, using the semi colon ";" as a delimiter.

Example 2

1. Click the formula bar to enter the series or  ALT + N
2. Enter the formula

LANAGRA@USECON;LAPRIVA

3. Run the command by clicking  or  ENTER
4. The series' will be displayed in the graph area



Apply Functions

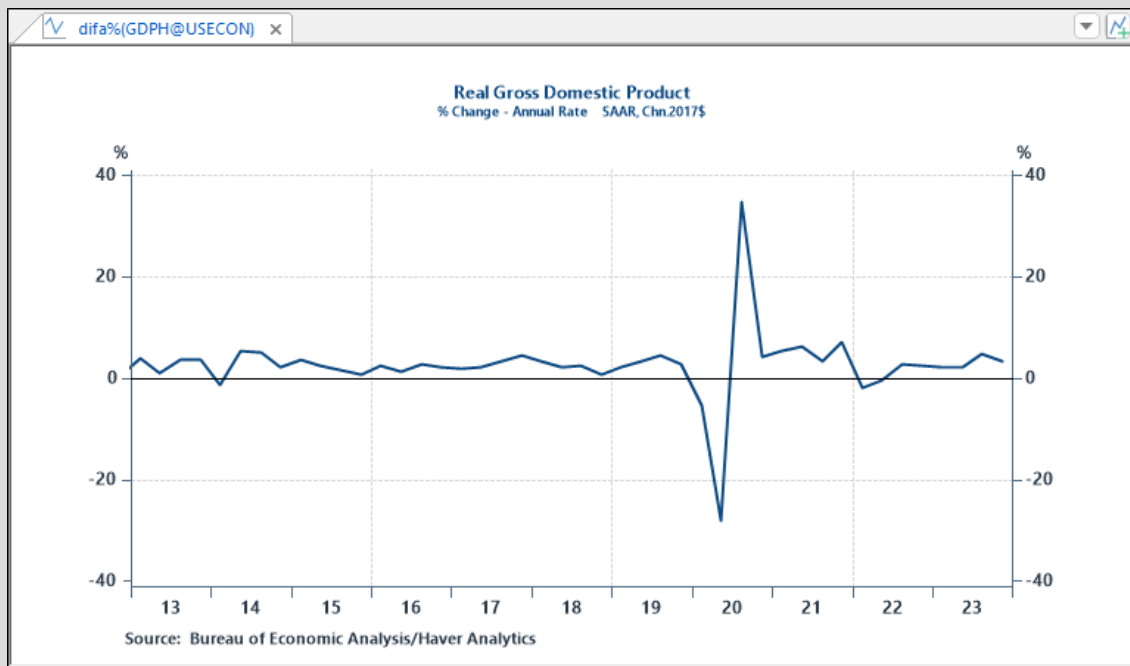
You can also enter functions in the formula bar.

Example

1. Click the formula bar to enter the series or  ALT + N
2. Enter the formula

`difa%(GDPH@USECON)`

3. Run the command by clicking  or  ENTER
4. The series will be displayed in the graph area



The following is a list of codes that you can apply. These commands can also be applied to codes in Excel.

Basic Functions

Apply any function (from the list below) to any series by entering the command in the formula bar.

Command	Function
CODE@DATABASE	Level (default)
DIFA% (CODE@DATABASE)	% Annual Rate
DIFF% (CODE@DATABASE)	% Period
YRZR% (CODE@DATABASE)	% Year/Year
YRZR (CODE@DATABASE)	Diff Year/Year
DIFF (CODE@DATABASE)	Diff Period
DIFAL (CODE@DATABASE)	Diff Log Annual Rate
DIFFL (CODE@DATABASE)	Diff Log Period
YRZRL (CODE@DATABASE)	Diff Log Year/Year

Advanced Functions

Apply any function (from the list below) to any series by entering the command in the formula bar.

For the table below, assume the following:

- nt = number of observations in the data series.
- For a specified value of n, where n is in the range of 1 to nt

Command	Function
DIFF% (CODE@DATABASE, n)	Point to Point % Change
DIFV% (CODE@DATABASE, n)	Average % Change
DIFA% (CODE@DATABASE, n)	Annualized % Change
DIFF%C (CODE@DATABASE, n)	Point to Point % Change Centered
DIFV%C (CODE@DATABASE, n)	Average % Change Centered
DIFA%C (CODE@DATABASE, n)	Annualized % Change Centered

Command	Function
DIFF (CODE@DATABASE, n)	Point to Point Difference Change
DIFV (CODE@DATABASE, n)	Average Difference Change
DIFA (CODE@DATABASE, n)	Annualized Difference Change
DIFFC (CODE@DATABASE, n)	Point to Point Difference Change Centered
DIFVC (CODE@DATABASE, n)	Average Difference Change Centered
DIFAC (CODE@DATABASE, n)	Annualized Difference Change Centered
DIFFL (CODE@DATABASE, n)	Point to Point Log Change
DIFVL (CODE@DATABASE, n)	Average Log Change
DIFAL (CODE@DATABASE, n)	Annualized Log Change
DIFFLC (CODE@DATABASE, n)	Point to Point Difference Log Change Centered
DIFVLC (CODE@DATABASE, n)	Average Difference Log Change Centered
DIFALC (CODE@DATABASE, n)	Annualized Difference Log Change Centered
MOVV (CODE@DATABASE, n)	Moving Average
MOVA (CODE@DATABASE, n)	Annualized Moving Total
MOVTC (CODE@DATABASE, n)	Moving Total
MOVVC (CODE@DATABASE, n)	Moving Average Centered
MOVAC (CODE@DATABASE, n)	Annualized Moving Total Centered
MOVTC (CODE@DATABASE, n)	Moving Total Centered
INDEX (CODE@DATABASE, YYYY=100)	Index to a Year
INDEX (CODE@DATABASE, YYYYQ=100)	Index to a Quarter
INDEX (CODE@DATABASE, YYYYMM=100)	Index to a Month
YTD (CODE@DATABASE)	Year to Date
DYTD (CODE@DATABASE)	Reverse Year to Date
NA2Z (CODE@DATABASE)	N/A to Zero
Z2NA (CODE@DATABASE)	Zero to N/A
ZS (CODE@DATABASE)	Z-Score

Additional Functions

Apply seasonal adjustment, a trend line, currency conversion, value function, cumulative sum function, HP Filter, HP Filter cyclical, Absolute Value Function, Natural Logarithm Function or remove (a) data point(s) to any series by entering the command in the formula bar.

NEW You can now extend/limit trend lines. See table below for more information:

For the table below, assume the following:

- Dates can be entered in the following formats depending on the frequency of the series:
 - YYYYMMDD (daily/weekly)
 - YYYYMM (monthly)
 - YYYYQ (quarterly)
 - YYYY (annually)

Command	Function
SA (CODE@DATABASE)	Seasonal Adjustment
SA (CODE@DATABASE, YYYYMM)	Seasonal Adjustment with beginning date specified
SA (CODE@DATABASE, YYYYMM:YYYYMM)	Seasonal Adjustment with beginning & end date specified
TRDLN (CODE@DATABASE)	Insert a Trend Line
TRDLN (CODE@DATABASE, StartDate)	Insert a Trend Line and designate a start date
TRDLN (CODE@DATABASE, StartDate:EndDate)	Insert a Trend Line and designate a start and end date
TRDLN (CODE@DATABASE, *, StartDate:EndDate)	Insert a Trend Line on full date span of series and extend/limit it to start and end date

Command	Function
TRDLN (CODE@DATABASE, StartDate, StartDate:EndDate)	Insert a Trend Line and designate a start date and extend/limit it to start and end date
TRDLN (CODE@DATABASE, StartDate:EndDate, StartDate:EndDate)	Insert a Trend Line on start and end date and extend/limit it to start and end date entered
TRDLN (CODE@DATABASE, StartDate:EndDate, StartDate)	Insert a Trend Line on start and end date and extend/limit it to start dated entered through end of data series
TRDLN (CODE@DATABASE, StartDate:EndDate, *)	Insert a Trend Line on start and end date and extend/limit it to the entire date span
FX (CODE@DATABASE, GEO CODE/ISO CODE)	Currency Conversion
VALUE (CODE@DATABASE, Date)	Value Function
CSUM (CODE@DATABASE)	Cumulative Sum
CSUM (CODE@DATABASE, StartDate)	Sums all values of the series from the specified start date to the last data point available
CSUM (CODE@DATABASE, StartDate:EndDate)	Sums all values of the series from the specified start and end date
HPF (CODE@DATABASE)	HP Filter applied to all data points
HPF (CODE@DATABASE, StartDate)	HP Filter applied from start date entered to the end of data series (dates will be converted to match the series frequency)
HPF (CODE@DATABASE, StartDate:EndDate)	HP Filter applied from start date entered to end date entered (dates will be converted to match the series frequency)
HPF (CODE@DATABASE, *, 150)	HP Filter applied on all data points + lambda overwrite 150,

Command	Function
	for example
HPF (CODE@DATABASE,StartDate:EndDate,150)	HP Filter applied from start date entered to end date entered + lambda overwrite 150, for example
HPFC ()	HP Filter cyclical - same options as HPF
ABS (CODE@DATABASE)	Absolute Value Function
LN (CODE@DATABASE)	Natural Logarithm Function
SetNA (CODE@DATABASE,StartDate:EndDate)	New function to remove selected data point or range of data. If you only want to remove one data point, StartDate needs to be the same as EndDate

Nest Functions and Apply Transformations

Functions can be combined and entered in the formula bar as a nested function or as transformations. Quickly display a nested function/transformation in the graph by using the formula bar.

Nested Function

Instead of manually applying functions and/or using keyboard shortcuts to create a nested function, simply enter the formula in the formula bar.

Example

Apply a 3-month moving average to a consumer price index and then apply a period-to-period percent change on top of the previous function.

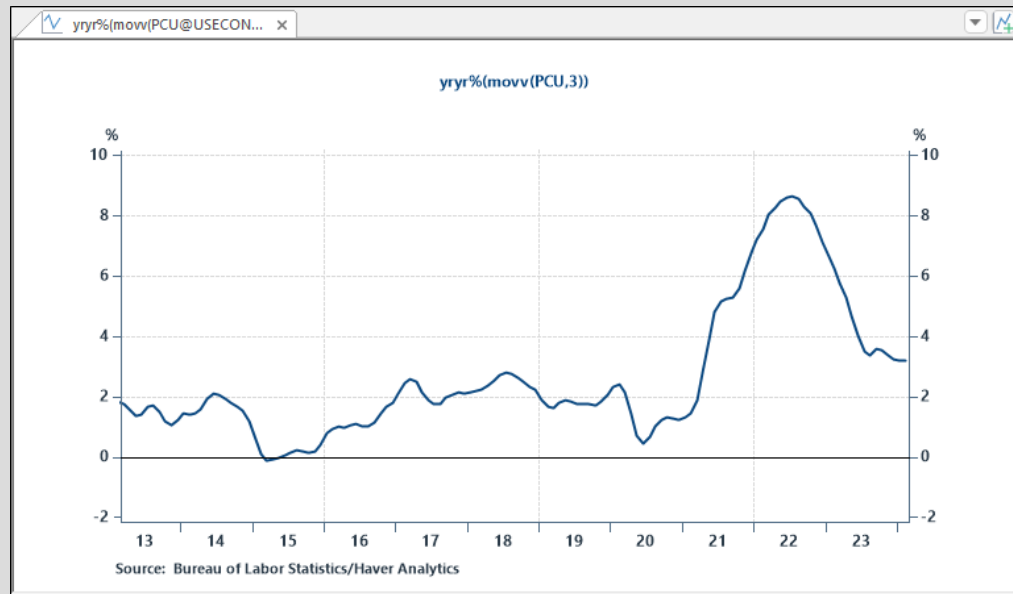
1. Click the formula bar to enter the series or  ALT + N
2. Enter the formula



YRYR%(MOVV(PCU@USECON,3))

3. Run the command by clicking  or  ENTER

4. The series will be displayed in the graph area



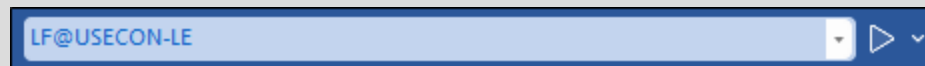
Transformation

Instead of manually creating transformations with the transformation tool-bar, simply enter the formula in the formula bar.

Example

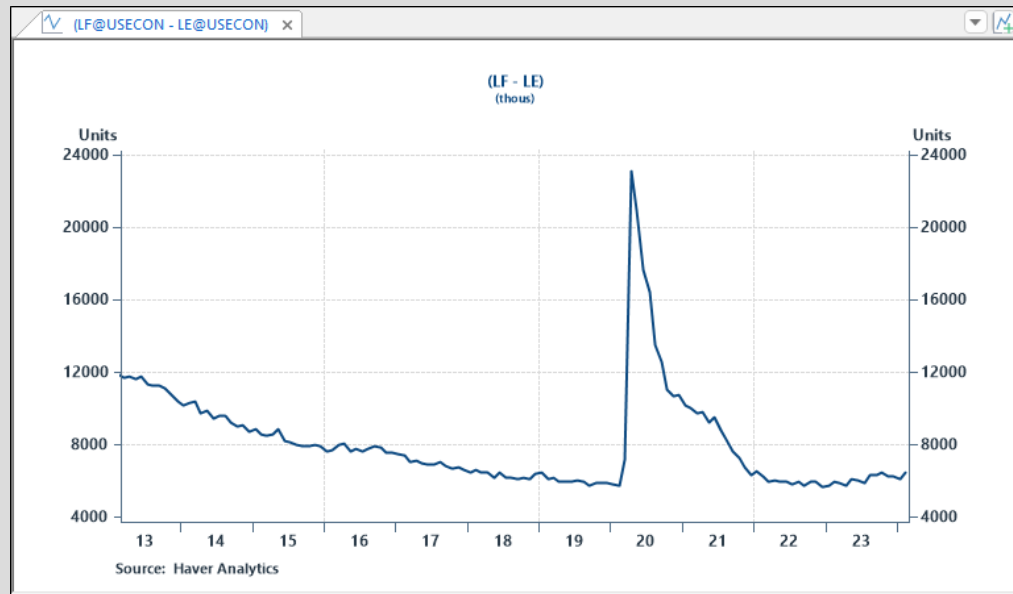
A transformation with codes from the same database: the difference of Civilian Labor Force and Civilian Employment in the U.S.

1. Click the formula bar to enter the series or ALT + N
2. Enter the formula



3. Run the command by clicking or ENTER

4. The series will be displayed in the graph area



 The @database does not need to be appended to succeeding codes if they are from the same database as the first code in the formula.

Example 2

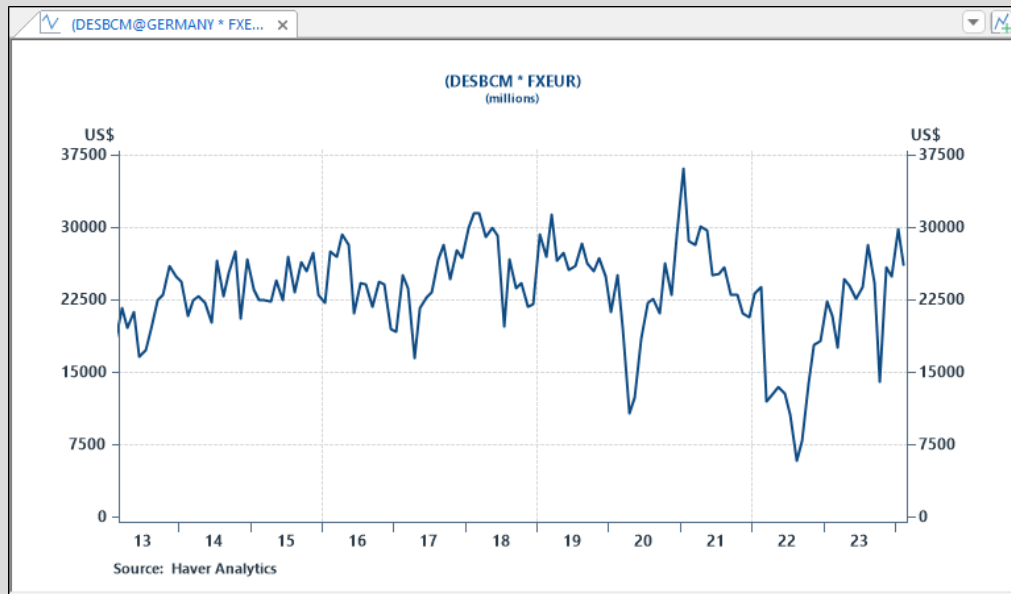
Transformation with codes from different databases: conversion of current account balance for Germany into dollars.

1. Click the formula bar to enter the series or  ALT + N
2. Enter the formula

DESBCM@GERMANY*FXEUR@USECON

3. Run the command by clicking  or  ENTER

4. The series will be displayed in the graph area



 This can also be done using the currency conversion function shortcut (FX) by entering `FX(DESBM@GERMANY, USD)` in the formula bar.

Combined Nested Function and Transformation

Instead of manually applying functions and/or using keyboard shortcuts to create a nested function with transformations as shown in the example here, simply enter the formula in the formula bar.

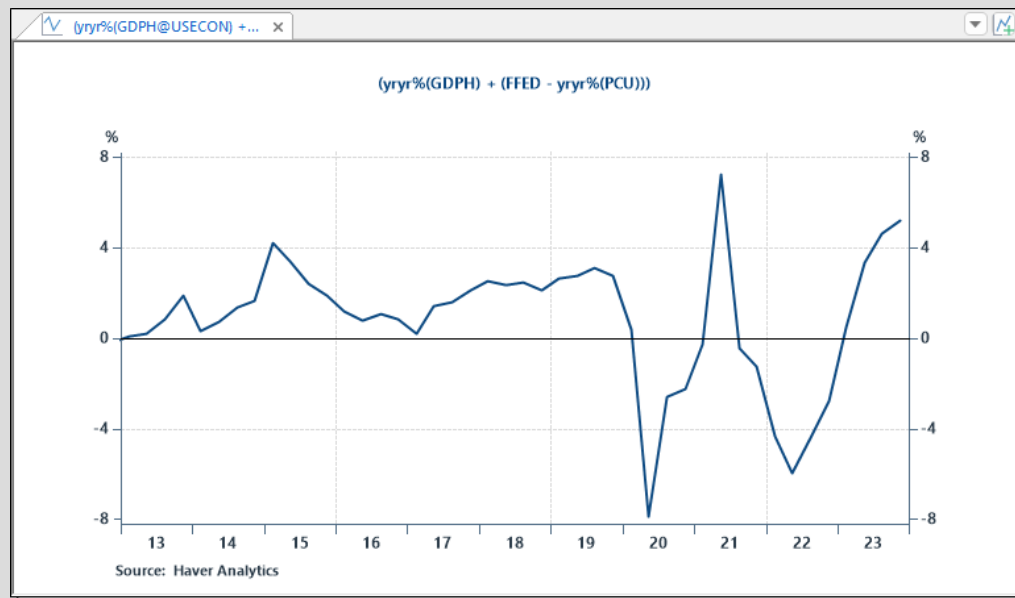
Example

Subtracting the year-over-year change in CPI from the federal funds rate to calculate a real interest rate and then adding the growth in real GDP.

1. Click the formula bar to enter the series or  ALT + N
2. Enter the formula

`YRGR%(GDPH@USECON)+(FFED-YRGR%(PCU))`

3. Run the command by clicking  or  ENTER
4. The series will be displayed in the graph area



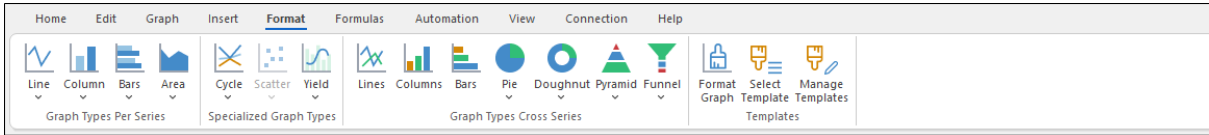
Customize Graphs

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Format Graph

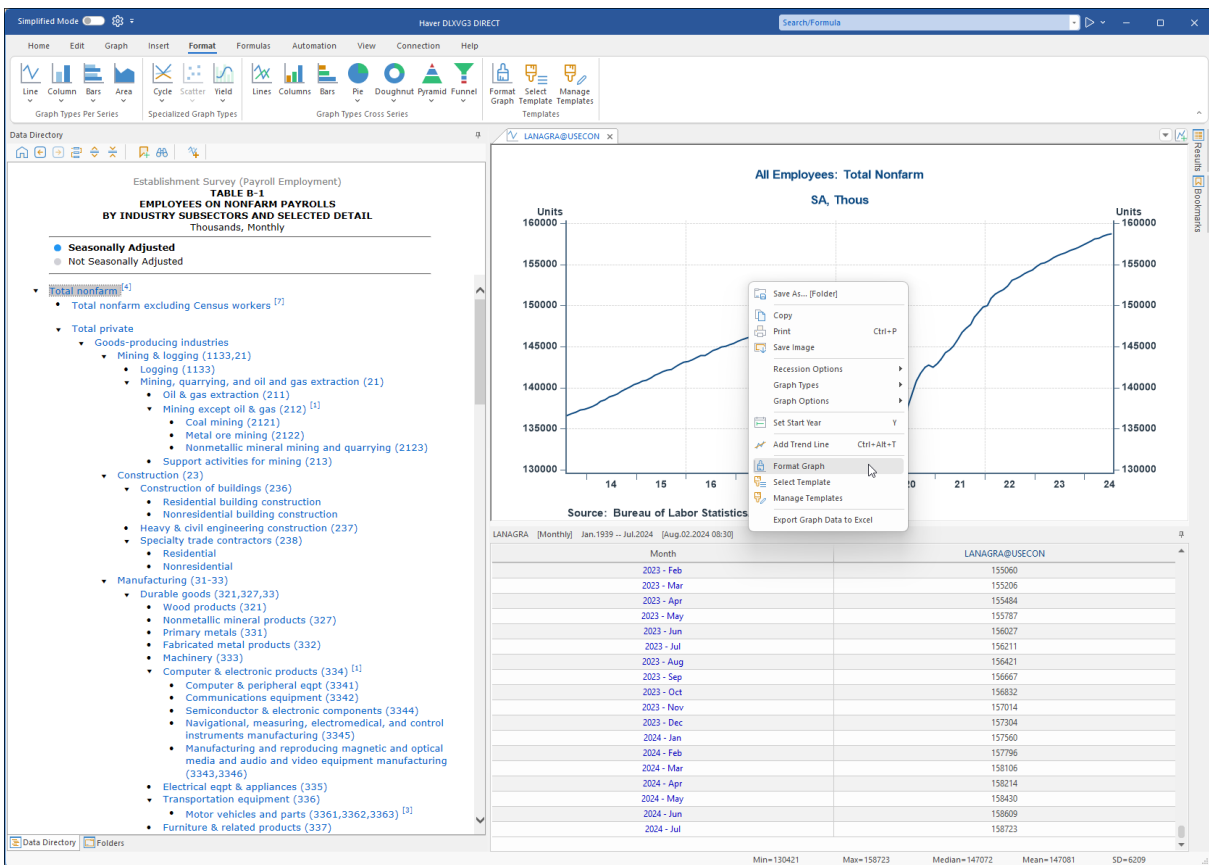
To open Template Options to format the current graph's style properties do one of the following:

- Right click on the graph and select Format Graph
- Go to Format > Format Graph



To make changes to multiple graphs or to save your custom settings as a new template, see

[Managing Templates.](#)



Alternatively, you can right click any graph item to quickly access its styles.

Axes

Style	Property
Border	- Type - borders to display from none to all four - Color - Width- thickness of each border
X-Axis	- Font - Color - Orientation (Horizontal, Vertical (Up), Vertical (Down), 45 Degrees, -45 Degrees) - Display Options (Interval Between Labels, Interval Label Frequency, Annual Label Position, Label Delimiter, Show Annual Horizontal Line, Show Tick Marks, Year, Quarter, Month)
Y-Axis Left	- Font - Color - Title (Show On/Off, Font, Color, Alignment, Orientation)
Y-Axis Right	- Font - Color - Title (Show On/Off, Font, Color, Alignment, Orientation)
Language Options for Graph Dates	- Monthly Date - Language selection - Quarterly Abbreviation - alternative to 'Q'
Inner Graph Tick Marks	Option to enable tick marks within the graph
Match Axes Colors/Titles	Option to set axes colors to match series titles
Axes #,#### Format	Option to display commas as thousands separators

Style	Property
Y-Axis Tick Marks	Option to turn On/Off
Y-Axis Minor Tick Marks	Choose to display between 0 and 5
Invert X-Axis (Bars only)	Option to invert scaling for Bar graph

Bars/Columns

Style	Property
Match Color	Option to match bar/line colors to title colors
Show Data Labels	- Show Data Label (None, All or Last) - Data Label Text (Value, Full Date, Short Date, Full Date & Value, Short Date & Value) - Data Label Font - Orientation (Horizontal, Vertical (Up), Vertical (Down)) - Location
Bar #	- Color - Style - Split Date (Color, Style)
Bar Width	Width between 1-10
Bar Offset	Offset space between bars between 0-10
Bar Border Color	Option to match bar color or select a different color
Bar Gradient	Show bar with gradient coloring

Graph Area

Style	Property
Background	• Graph Area Color • Plot Area Color
Border	• Color • Width
Grid	• Type (Both, Horizontal, Vertical, None) • Color • Width • Style • Show Lines on Top
Recession	• Type (None, Lines, Shading) • Color
Crop	• Crop Area • Option for equal side cropping
Graph Area Position	• Option to move graph area to a custom location or choose between Default v4 positioning, Default v5 positioning or Default Top positioning

Legend

Style	Property
View Options	• Show On/Off • Font Auto Resize • Position (Top Left, Top Right, Bottom Left, Bottom Right, Custom, Custom (Always Centered))

Style	Property
Text Options	• Font • Color • Orientation (Vertical, Horizontal, Matrix) • Format (Label, Code) • Maximum Length
Line Options	• Shape (None, Line, Arrow)

Lines

Style	Property
Match Color	• Option to match line/bar colors to title colors
Data Point Options	• Show Data Label (None, All or Last) • Data Label Text (Value, Full Date, Short Date, Full Date & Value, Short Date & Value) • Data Label Font • Data Label Outline (Box, Underline, None) • Show Data Marker (None, Circle, Triangle, Rectangle or Rhombus) • Data Marker Size • Data Marker Outline Color
Line #	• Color • Width • Style

Style	Property
	Split Date (Color, Style)
Line Spline	Toggle line spline
Line Shadow	Toggle line shadow

Misc

Style	Property
Source	- Font - Color - Alignment - Options (Full, Full+Haver, Short, Short+Haver, Custom, Custom+Haver, Haver+Custom, Haver, Custom+Full+Haver, Custom+Short+Haver, Full+Haver+Custom, Short+Haver+Custom, None) - Alternate source word - Custom source
Date and Time	- Font - Color - Alignment - Options (None, Date only, Time Only, Date+Time, Date Last Modified) - Format (MM/DD/YY, MM/DD/YYYY, MMM DD, YYY, DD.MM.YYYY, DD MMM YYYY)
Dynamic Text	- Font - Color

Style	Property
	• Position • Starting Phrase • Series Parameters (Ending Date Underlying Series, Ending Date Show, Beginning Date Underlying Series, Beginning Date Shown, Frequency Underlying Series, Frequency Shown, Date Last Modified, Short Source, Long Source) • Ending Phrase • Format (MM/DD/YY, MM/DD/YYYY, MMM DD, YYY, DD.MM.YYYY, DD MMM YYYY)
Horizontal Reference Line	• Color • Width • Style
Vertical Reference Line	• Color • Width • Style
Zero Reference Line	• Show On/Off • Color • Width • Style
Graph Size	• Graph Size Units (Default- Use VG3 Size, Pixels, Inches, Centimeters) • Graph Size

Style	Property
Show Scale Arrows	Option to show scale arrows with titles
Show Line/Bar Style for Uniscale	Option to show line/bar style with titles when uniscale is applied
Comma as Decimal Separator	Option to use European notation with comma as the decimal point
Area Graph Solid Color	Option to make the area graph a solid color instead of a gradient

Titles

Style	Property
Match Color	Option to match title colors to line colors
Top Title	- Font - Alignment - Color - Use as Master Title
Title #	- Font - Alignment - Color - Secondary Title (Font, Alignment, Color)
Hide Titles	Option to hide titles on graph (does not apply to top title or date title)
Show Labels	For graphs with 4 series or less the default options displays

Style	Property
	the full label when a single function is applied.

Other Graphs

Style	Property
Date Title	• Show On/Off • Font • Color • Alignment
Scatter Graph	• Marker (Type, Color, Outline Color, Size) • Axis (Type, Axes Tick Marks, Axes Minor Tick Marks) • X-Axis Title (Show On/Off, Font, Color, Alignment) • Regression Line (Show On/Off, Type, Color, Width, Style) • Time Line (Show On/Off, Color, Width, Style)
Cycle Graph	• Mean Line (Show On/Off, Color, Width, Style) • Marker (Type, Color, Outline Color, Size)
Other Graphs Data Label	• Show On/Off • Position • Data Label Font • Data Label Text (Name, Value, Percent)
Curve Line Options	• Line Spline • Line Shadow • Data Marker Options (Show Data Marker, Data Marker Size, Data Marker Outline Color)

Style	Property
Pyramid/Funnel Appearance	• Transparency • Vertical Gap
Columns;/Bars Appearance	• Color

Managing Templates

Use templates to apply saved formatting styles to graphs.

Create a Template

From format graph

Save the changes made in [Format Graph](#) as a new template:

- Click the drop-down arrow from Save 
- Select Save As New Template
- Enter the new template name
- Click OK or  ENTER

Creating a new template

1. Open Template Options by doing one of the following:
 - Right click on the graph > Manage Templates
 - Go to Format > Manage Templates
2. Click New Template 
3. Enter the new template name
4. Click OK or  ENTER
5. Select the number of series  (2-series is selected by default)
6. Format the graph styles for your 2-series, 4-series or 8-series template



The distinction between the templates is based on the titles tab. In the 2-series template, edits can be made to both the titles and secondary titles

for the first 2 series. In the 4-series template, edits can be made to the titles for up to 4 series. In the 8-series template, edits can be made to the titles for up to 8 series and the 'Use As Master Title' option is automatically selected.

Select a Template

Apply a template to the current graph

1. Open the Style and Color window by doing one of the following:
 - Right click on the graph > Select Template
 - Go to Format > Select Template
2. Select a template from the Template drop-down list
3. Click OK or  ENTER

Apply a template to a saved graph

1. Click on Folder Mode from the View section of the Home Ribbon or the Folders tab  at the bottom of the directory to enter Folder Mode and select a saved graph
2. Open the Style and Color window by doing one of the following:
 - Right click on the graph > Select Template
 - Go to Format > Select Template
3. Select a template from the Template drop-down list
4. Click OK or  ENTER

Apply a template to all graphs within a folder

1. Enter Folder Mode as shown above and select a folder
2. Open the Style and Color window by doing one of the following:
 - Right click on the folder > Select Template
 - Go to Format > Select Template
3. Select a template from the Template drop-down list
4. Click OK or  ENTER

Manage Templates

Make changes to existing templates

1. Open an active graph
2. Open the Template Options window by doing one of the following:
 - Right click on the graph > Manage Templates
 - Go to Format > Manage Templates
3. Format the styles for your 2,4 or 8-series graph template
 - See [Format Graph](#) for a detailed list of changes that can be made
4. Click save  to save changes made to the current template or on the drop-down arrow of save  to select one of the following:
 - Apply Format Graph Changes - applies the changes made to the current graph
 - Save Current Template - saves the changes made to the current template

- Save As New Template ... - saves the changes made to a new template

 To discard any changes made, click cancel .

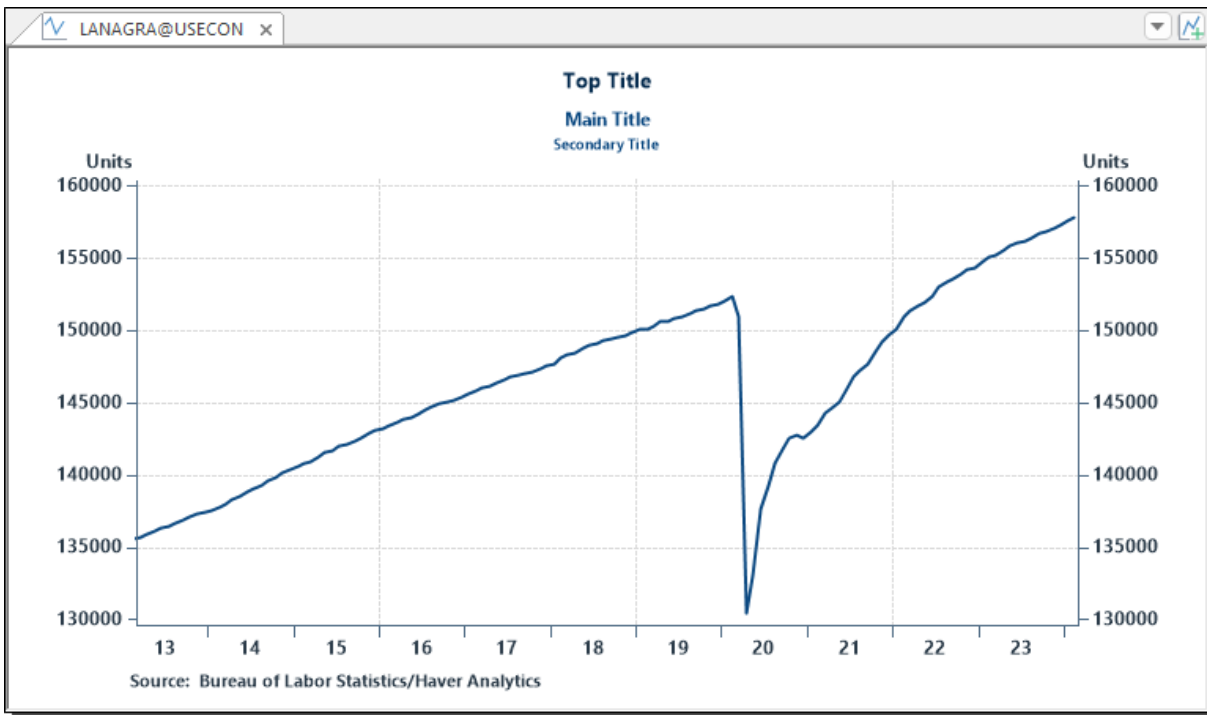
 If you used a template to create a saved graph and then make a change to that template, that change will be reflected in your saved graph when you update or send to active view. To ensure that properties are applied to a saved graph, use [Format Graph](#) to make the necessary changes.

Delete a template

1. Open an active graph
2. Open the Template Options window by doing one of the following:
 - Right click on the graph > Manage Templates
 - Go to Graph > Templates > Manage Templates
3. Select the graph you wish to delete from the Template drop-down list
4. Click  to delete the template

Titles, Legends and Source

Edit the text for graph titles, legends and source.



The default settings for titles are as follows according to the number of variables in the graph:

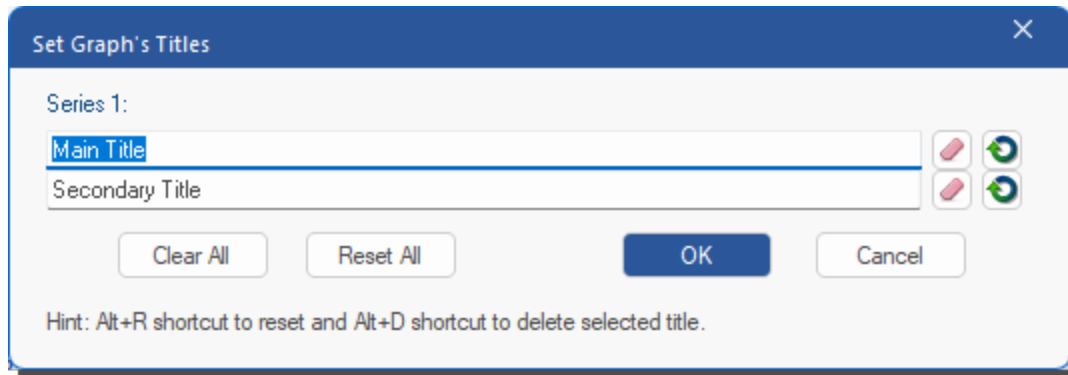
- 1 - 2 variables
 - Both main and secondary titles are displayed
- 3 - 4 variables
 - Only main titles are displayed
- 5+ variables
 - An editable master title appears

 *To change the default to display the main titles and top title go to Format or Manage Templates > Titles > **uncheck** "Use as Master Title" under Top Title.*

 *To modify the style of the titles, right click on the item.*

Main Title

Main titles are displayed by default when there are up to 4 variables in the graph.

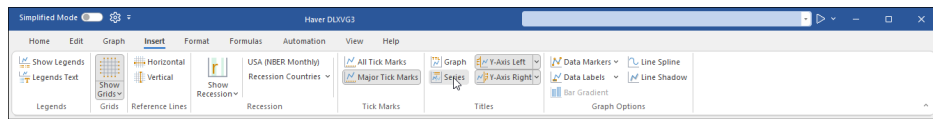


Edit the Main Title(s)

1. Open the title dialog by doing one of the following:

- Go to Insert > Series:

-



-

- Double click on the main title

2. Edit the text then click OK or ENTER

Move the Main Title(s)

1. Right click on the main title
2. Select the item
3. Drag and drop the item

Remove the Main Title(s)

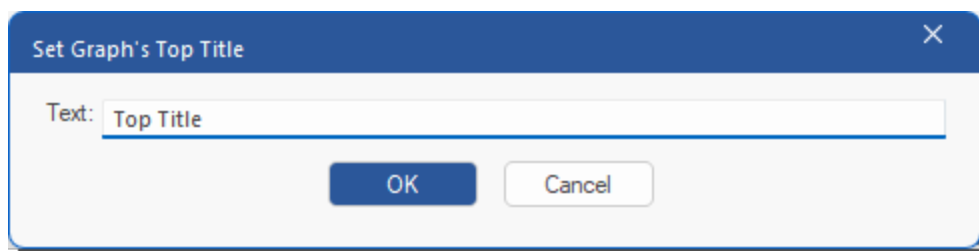
1. Right click the graph > Format Graph or Manage Template
2. Go to the Titles tab
3. Do one of the following:
 - Under Top Title, check "Use as Master Title"
 - Check the check box for "Hide Titles"

Clear/Reset the Main Title(s)

- With the title dialog open click the clear button  or Clear All for multiple titles
- With the title dialog open click the reset button  or Reset All for multiple titles

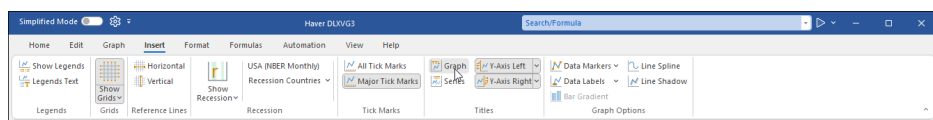
Top/Master Title

The top/master title is not displayed by default, but can be used as the graph's overall title.



Add a Top Title

1. Open the top title dialog by doing one of the following:
 - Go to Insert > Graph:



-  ALT + T
2. Edit the text and click OK or  ENTER

Move the Top Title

1. Right click the top title
2. Select the item
3. Drag and drop the item

Remove the Top Title

1. Right click the graph > Format Graph or Manage Template
2. Go to the Titles tab
3. Under Top Title, uncheck "Use as Master Title"

Delete the Top Title

1. Open the top title dialog by doing one of the following:
 - Go to Insert > Graph
 -  ALT + T
2. Delete the text and replace it with a blank space

Y-Axis Title

By default, Y-Axis' titles are not displayed.

Show Y-Axis Title

1. Go to Insert > Y-Axis Right/Left Title
2. Select Show Title

Edit Y-Axis Title

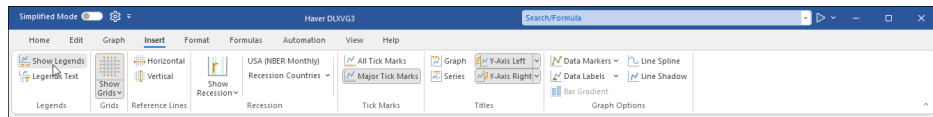
1. Do one of the following:
 - Go to Insert > Y-Axis Right/Left Title > Change Title
 - Double click on the Y-Axis Title
2. Edit the text and click OK or  ENTER

Legends

By default, legends are not displayed.

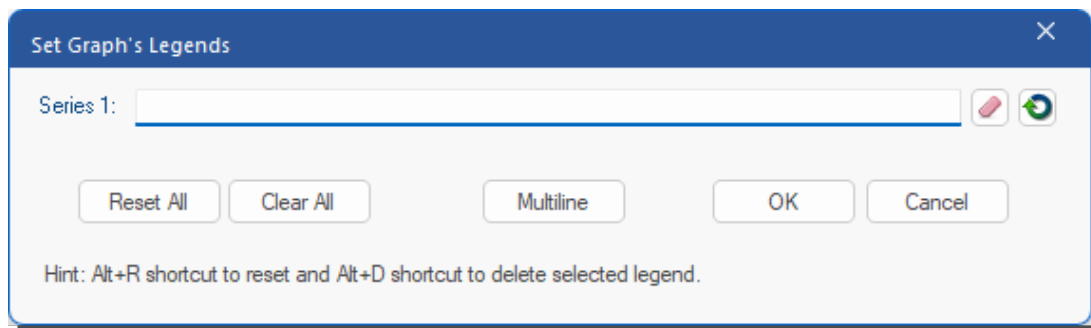
Show Legends

1. Do one of the following:
 - Insert > Show Legends:



-  CTRL + L

Edit Legends



1. Do one of the following:
 - Graph > Legends Text
 -  CTRL + ALT + L
 - Double click on the legends if displayed on graph
2. *(Optional)* Select Multiline if you would like multiple lines for legends
3. Edit the text and click OK or  ENTER

 *To modify the style of the legends, right click on the item.*

Source

By default, the full source/Haver Analytics is displayed.

Edit the source

1. Right click on the source
2. Edit the source's style property in Options
3. Click save from the template options toolbar

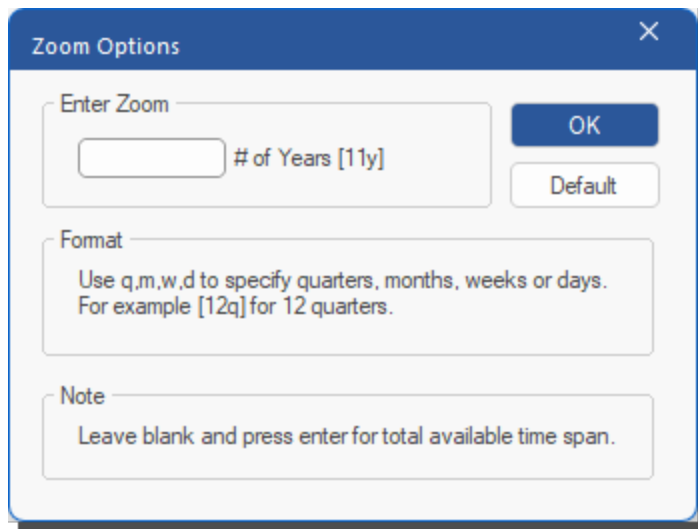
Modify Axes

Modify the X and Y axes on the graph.

X-axis

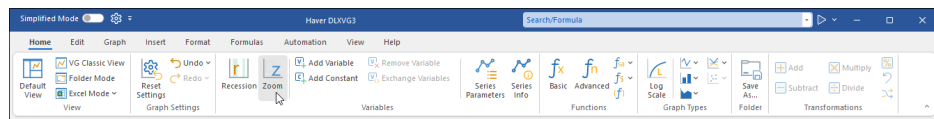
Zoom

Used to display more or less history by changing the number of years, quarters, months, weeks or days visible.



1. Open the zoom dialog by doing one of the following

- Go to Home > Zoom:



-  Z
- Double click on the X-axis

2. Enter the number and date frequency

3. Click OK or  ENTER

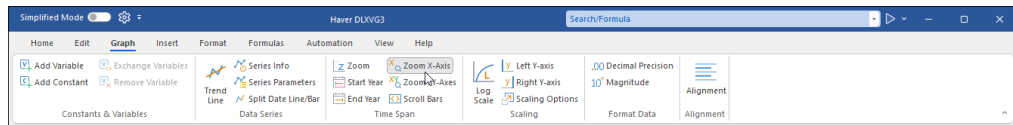
 The number shown in the brackets represents the current selection. The default value is 11 years for monthly, quarterly and yearly series.

 The following formats are available:

- 6y = 6 years
- 6q = 6 quarters
- 6m = 6 months
- 6w = 6 weeks
- 6d = 6 days
- leaving the entry blank = the total date span

X-Axis Zoom

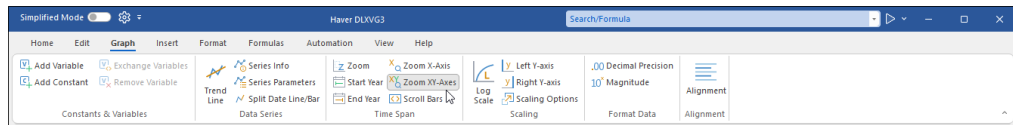
1. Click on Graph > Zoom X-Axis:



2. Use your mouse to highlight a certain time span of the X-Axis on the graph

XY-Axis Zoom

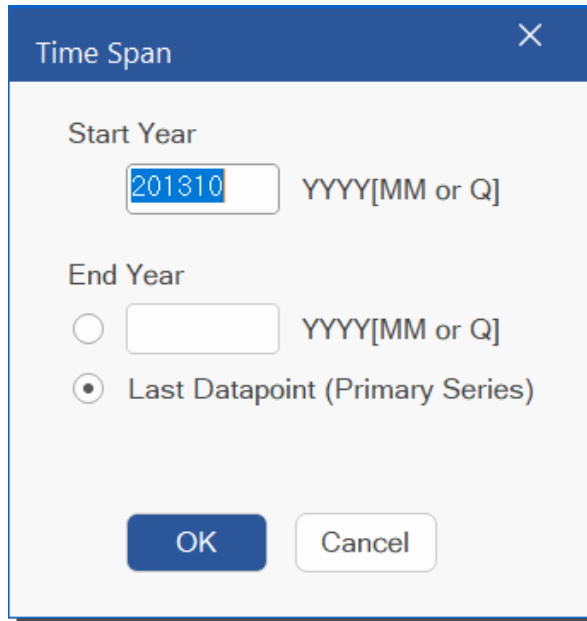
1. Click on Graph > Zoom XY-Axis:



2. Use your mouse to highlight a certain time span of both the X and Y-Axis on the graph

Start and End Year

Change the start and end date of the graph.



Time Span [X]

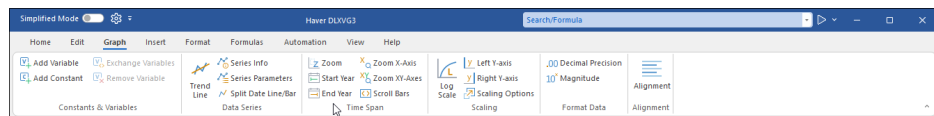
Start Year
 YYYY[MM or Q]

End Year
☐ YYYY[MM or Q]
☒ Last Datapoint (Primary Series)

OK Cancel

1. Open the time span dialog by doing one of the following:

- Go to Graph > Start Year
- Go to Graph > End Year
-  Y
-  C



2. Enter the start year in the format YYYY, YYYYQ or YYYYMM
3. Enter the end year in the format YYYY, YYYYQ or YYYYMM or select "Last Datapoint (Primary Series)"
4. Click OK or  ENTER

 Both start year and end year must be applied together.

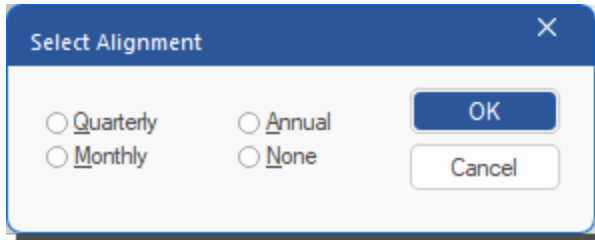
 End year and current year are now used interchangeably

Current Year

This functionality has been deprecated (no longer available) as of version 4.117. See above section for the new functionality.

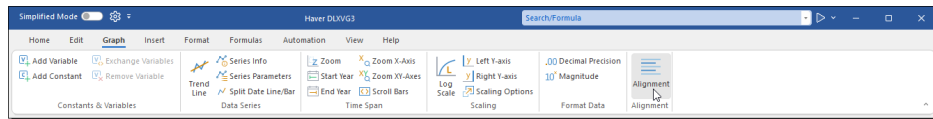
Alignment

Align graphs by frequency



1. Open the alignment dialog by doing one of the following:

- Go to Graph > Alignment:



-  ALT + A

2. Select frequency

3. Click OK or  ENTER

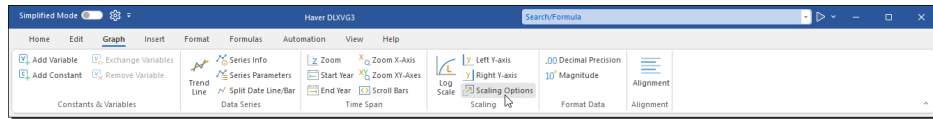
Y-axis

Scaling

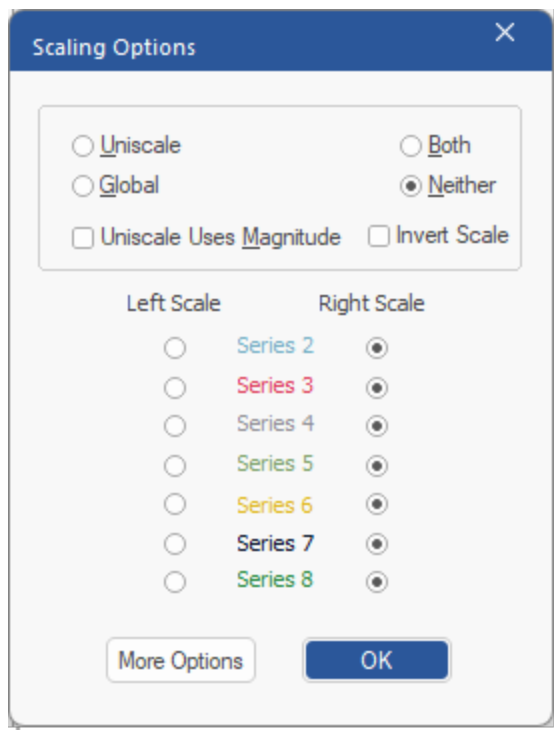
Change the scaling on the active graph.

1. Open Scaling Options by doing one of the following:

- Go to Graph > Scaling Options:



-  S
- Double click on the Y-axis



2. (Optional) Click the "More Options" button to see additional options for the left and right scale.
3. Make the necessary changes.

Four types of scales

- Uniscale - uses the same scale for all series
- Global - uses the scale for the entire lifetime of the series

- Both - uses both uniscale and global
- Neither (default) - uses neither uniscale nor global

Additional options

- Uniscale uses magnitude - scaling accounts for the magnitude of series to graph data points

When this option is selected, the magnitude of the series will be displayed in brackets in the Y-axis title and data snapshots when you hover over a data point and click on the graph.



For series with data types of % or Index, the value shown on the graph will be divided by 100, but the data snapshots will show the value that appears in the data table along with the data type in brackets.

- Invert Scale - click the check box to invert the scale
- Left/Right scale option for a series - the primary series always uses the left scale and if there is only one series open on the graph, the right scale options are grayed out
- Number of Ticks - control the number of ticks used for the y-axis values; you can choose between 3 and 25.
- Min/Max - to set the min and max number on the y-axis
- Incremental - to set the increment between ticks

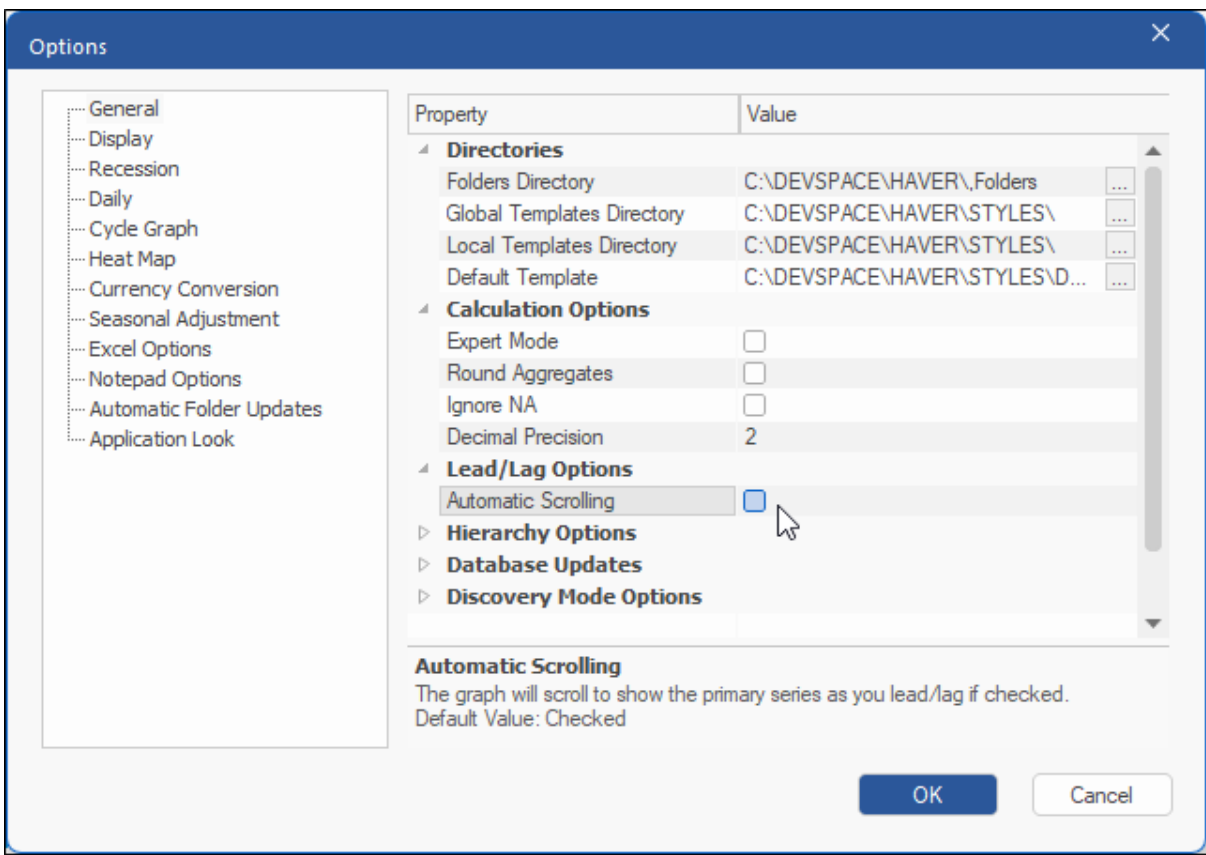
Lead and Lag

Lead and Lag is used to shift one variable ahead or back in time so that the movements of two variables are more closely aligned if there is a time lag between a change in one variable and its impact on another.

Apply Lead and Lag by doing one of the following:

- To lead a series use  CTRL + right arrow and to lag a series use  CTRL + left arrow
- Enter lead/lag through the formula bar: LL(CODE@DATABASE, -n) to lead a series and LL(CODE@DATABASE, +n) or LL(CODE@DATABASE, n) to lag a series where n is an integer.

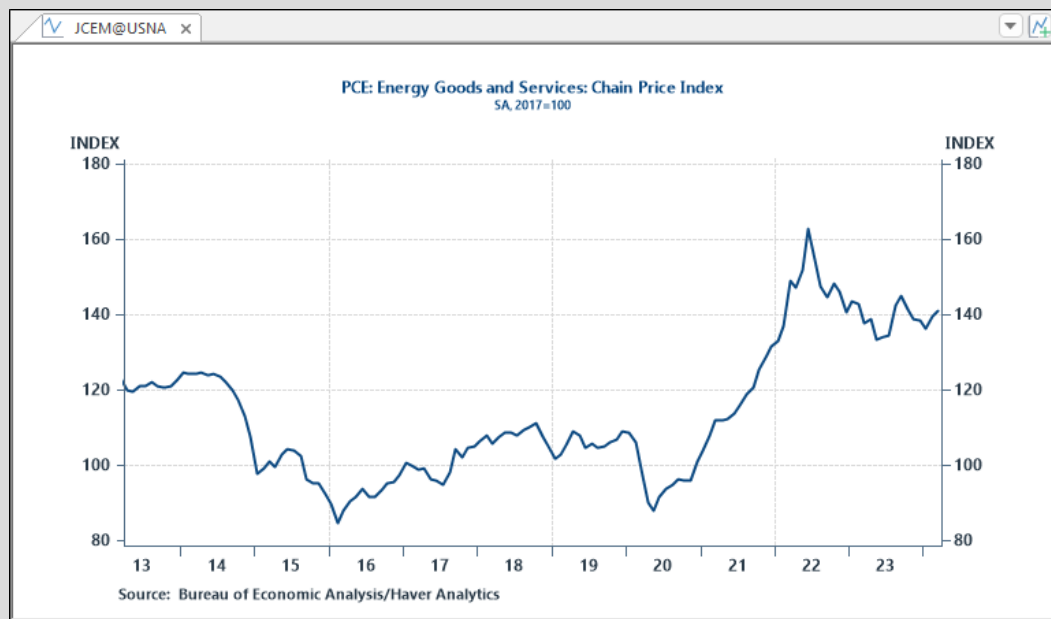
By default, the graph will scroll to show the primary series if it is lagged. If you want to turn off this option go to Options > General > Lead/Lag Options and uncheck the checkbox for "Automatic Scrolling":



Example 1

A change in the price of crude oil will impact the price consumers pay for energy, just not immediately. It usually takes around one month for a change in the price of crude oil to be reflected in consumer energy prices. We can create a graph to compare the two by doing the following:

1. Open JCEM@USNA by doing one of the following:
 - Navigate through the menus.
 -  ALT + D for USNA then N for JCEM
 -  ALT + N and enter JCEM@USNA in the formula bar

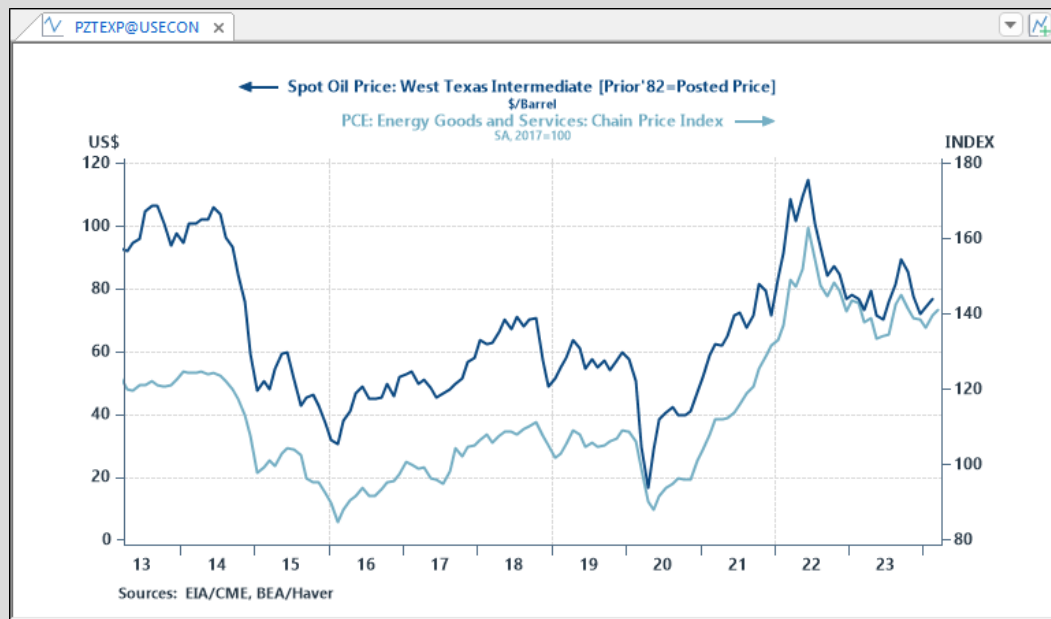


2. Add PZTEXP@USECON

- i. Add a variable by doing one of the following:
 - Click  from the Home Ribbon
 -  ALT + V

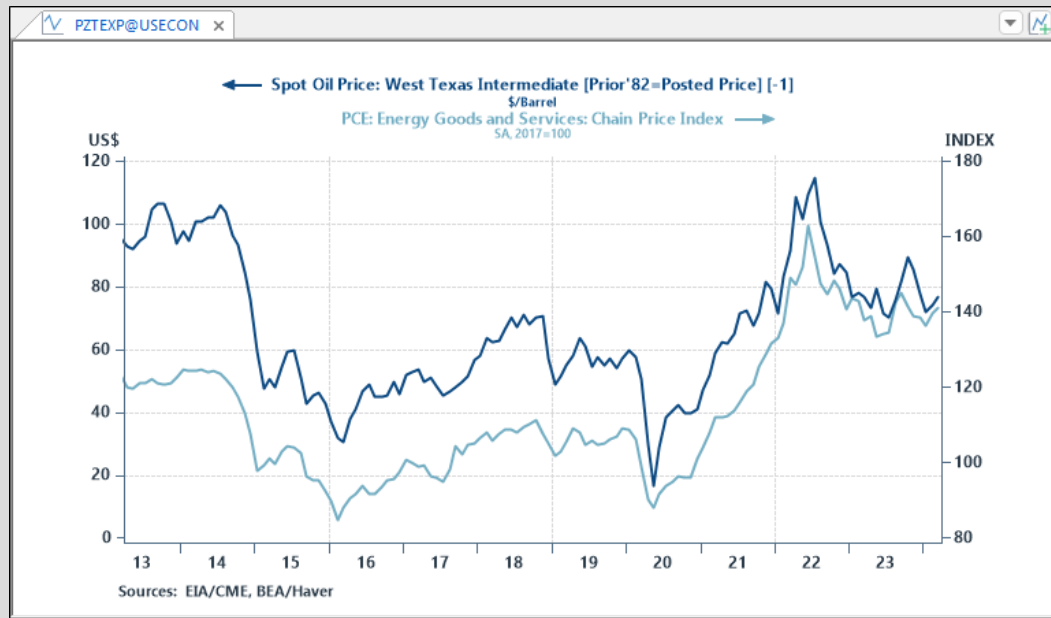
ii. Open PZTEXP@USECON by doing one of the following:

- Navigate through the menus
-  ALT + D for USECON  N for PZTEXP
-  ALT + N and enter PZTEXP@USECON in the formula bar



3. Apply a lead of one month to PZTEXP@USECON:

-  CTRL + right arrow



 Notice that there is a [-1] next to the title of PZTEXP@USECON to indicate a lead of 1 month has been applied.

 The variable will be listed as PZTEXP@USECON[-1] in the data table as well to indicate a lead of 1 month has been applied.

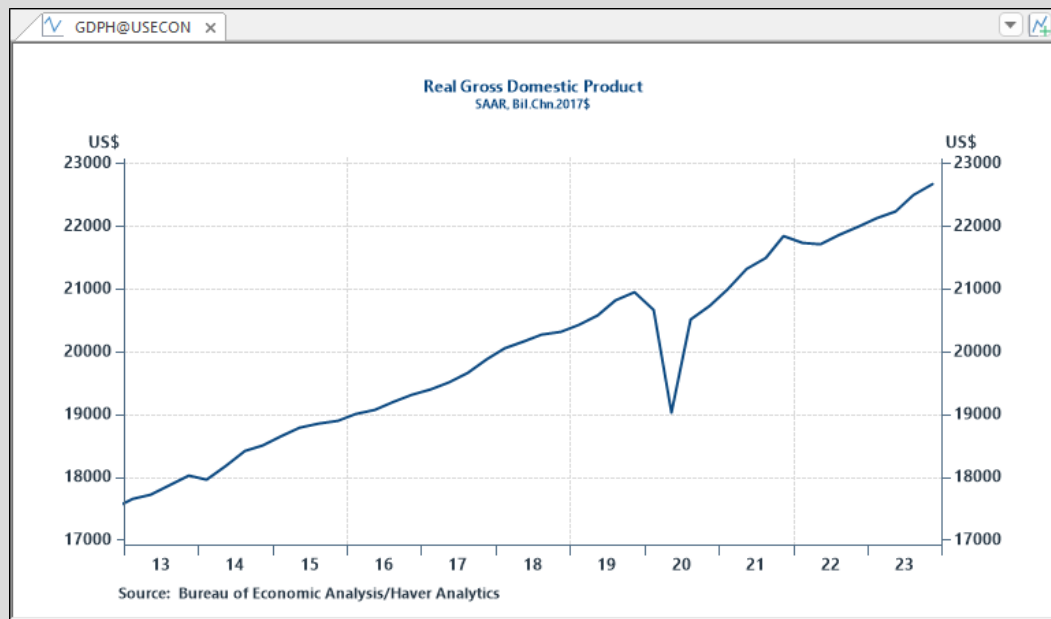
 To see the correlation between the two series on the graph, go to Formulas > Correlation or  ALT + C

Example 2

Changes in employment tend to lag the performance of the overall economy, that is, a weaker economy leads to weaker employment and a stronger economy leads to stronger employment, but not immediately. We can create a graph to compare the two by doing the following:

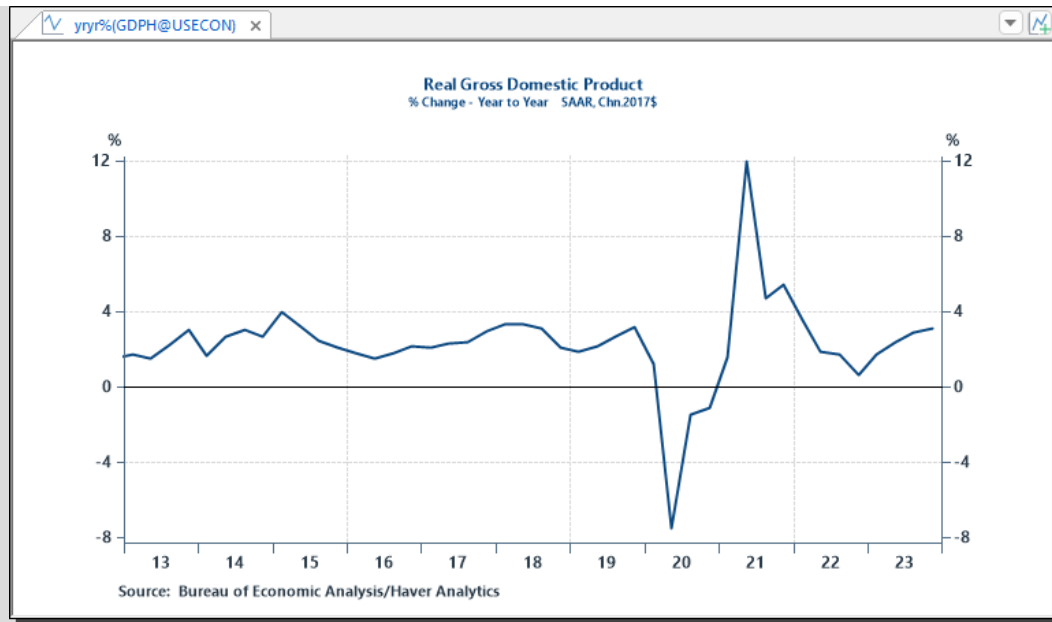
1. Open GDPH@USECON by doing one of the following:

- Navigate through the menus.
-  ALT + D for USECON then N for GDPH
-  ALT + N and enter GDPH@USECON in the formula bar



2. Apply function 4: y/y percent change to GDPH@USECON by doing one of the following:

-  F + 4
- Click  from the Functions section of the Home Ribbon then select option 4



3. Add LAPRIVA@USECON

i. Add a variable by doing one of the following:

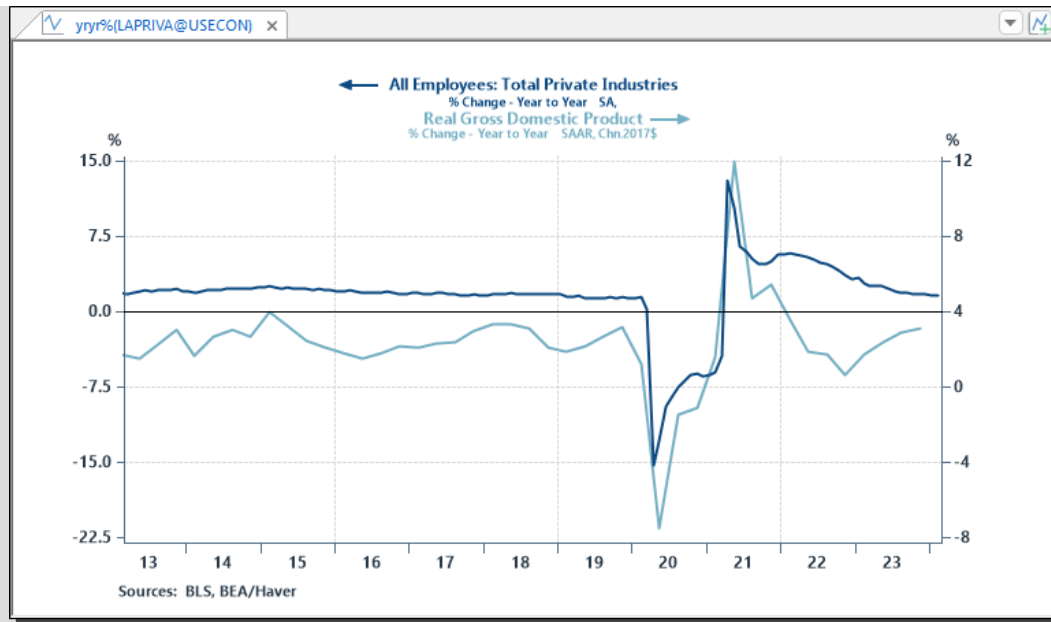
- Click  from the Home Ribbon
-  ALT + V

ii. Open LAPRIVA@USECON by doing one of the following:

- Navigate through the menus
-  N for LAPRIVA
-  *Not required to use  ALT + D as we are already in the USECON database*

-  ALT + N and enter LAPRIVA in the formula bar

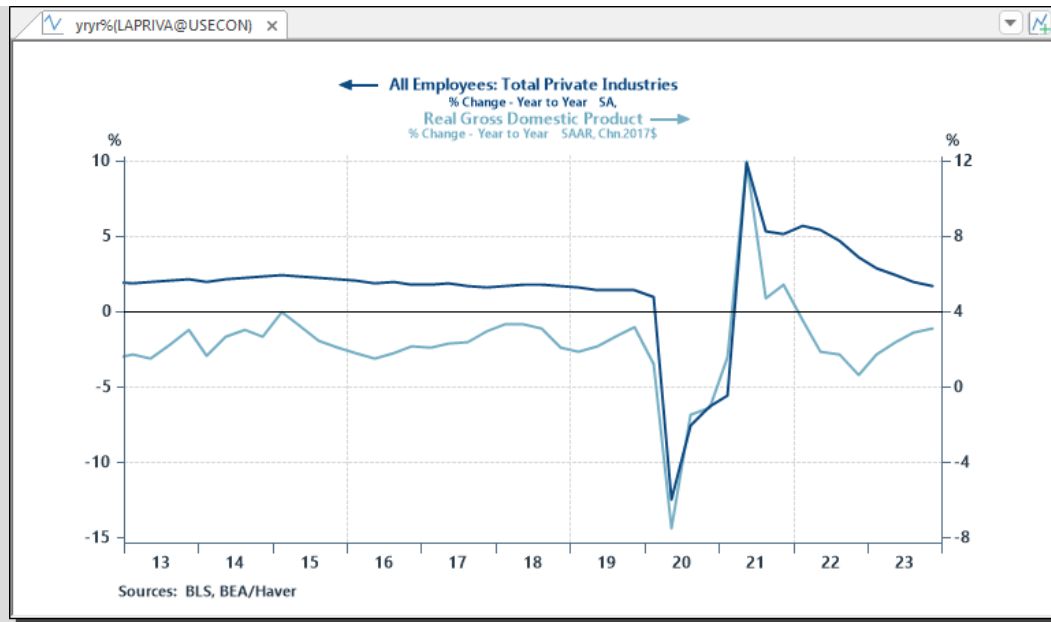
 *Not required to enter LAPRIVA@USECON as we are already in the USECON database*



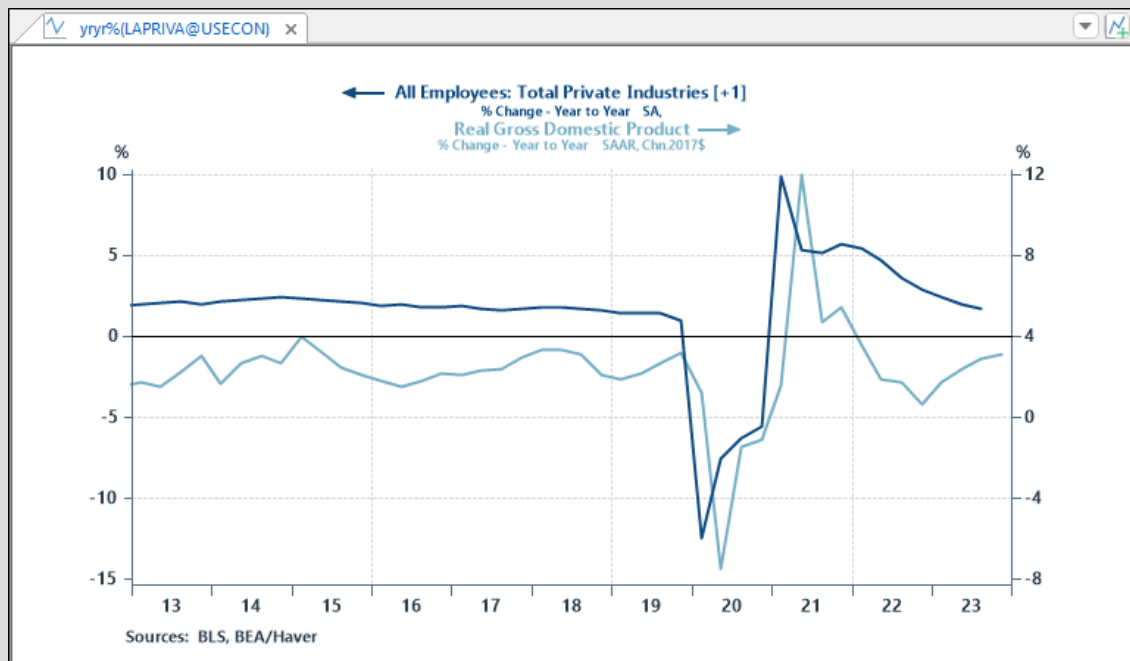
 Basic functions carry over when we add another variable, so `yyr%` was applied to `LAPRIVA@USECON` since we applied it to `GDPH@USECON`

4. Change the aggregation of `LAPRIVA@USECON` to quarterly by doing one of the following:

-  A + Q + Enter
- Go to Formulas > Aggregation, select Quarterly and click OK



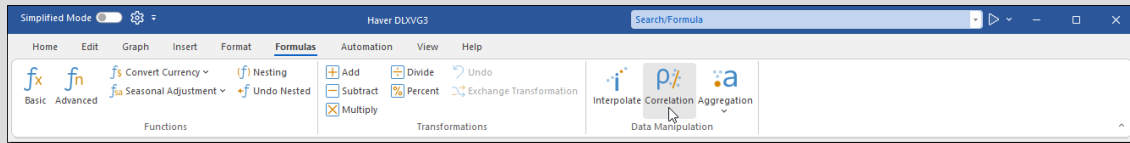
5. Apply a lag of one month to LAPRIVA@USECON by doing  CTRL + LEFT arrow



 Notice that there is a [+1] next to the title of LAPRIVA@USECON to indicate a lag of 1 month has been applied.

 The variable will be listed as LAPRIVA@USECON[+1] in the data table as well to indicate a lag of 1 month has been applied.

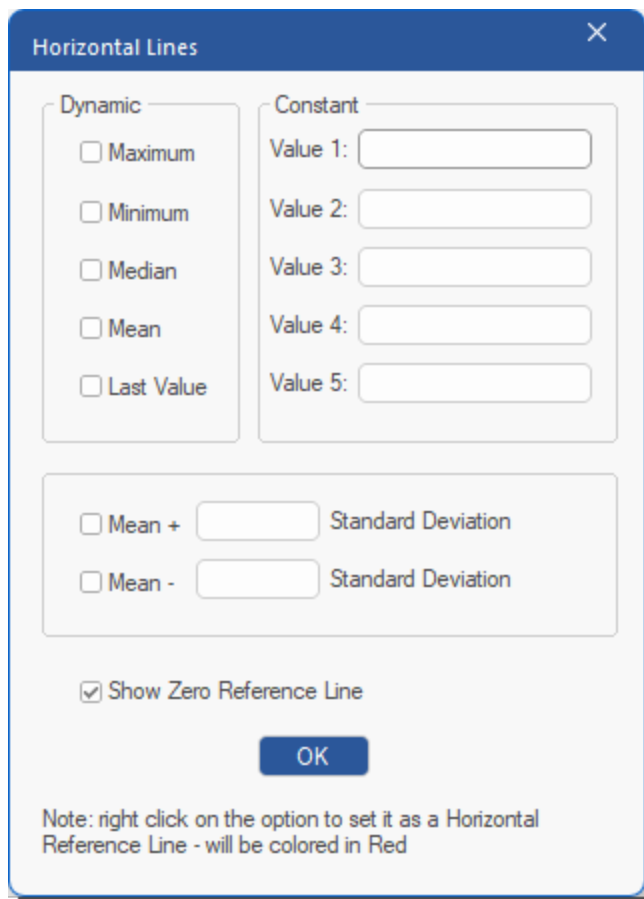
 To see the correlation between the two series on the graph, go to Formulas > Correlation or  ALT + C:



Reference Lines, Tick Marks, Grid Lines, Split Date

Customize your graph by inserting the following items:

Reference Lines



Horizontal Lines

Dynamic

- ☐ Maximum
- ☐ Minimum
- ☐ Median
- ☐ Mean
- ☐ Last Value

Constant

Value 1:

Value 2:

Value 3:

Value 4:

Value 5:

☐ Mean + Standard Deviation

☐ Mean - Standard Deviation

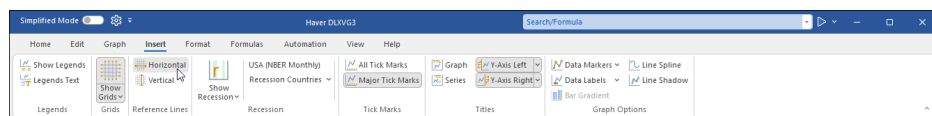
☒ Show Zero Reference Line

OK

Note: right click on the option to set it as a Horizontal Reference Line - will be colored in Red

Insert a horizontal reference line

- Do one of the following:
 - Click Insert > Horizontal:



-  Alt + H

2. Choose one or more of the following to insert horizontal line(s) per series:

- Enter a constant value
- Choose one or all of the dynamic values : Maximum, Minimum, Median, Mean or Last Value
- Enter a value for the sigma
- *(Optional) If you are using a bar chart, and you want one of the horizontal lines to be used as a horizontal reference line, right click on that option and select "Select As Horizontal Reference Line". If you want to select another option as your horizontal reference line, first right click on the current one and "Deselect As Horizontal Reference Line" and then proceed as stated above.*

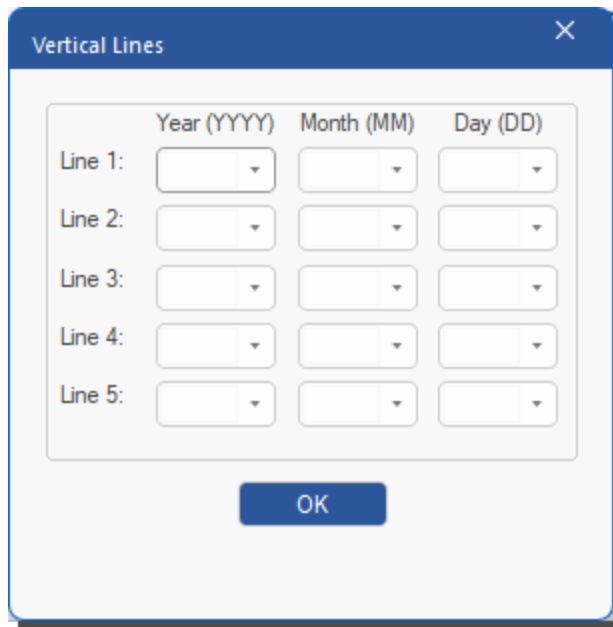
3. Check/uncheck the zero reference line (it is checked by default)

4. Click OK or  ENTER



You can manage the zero reference line in templates.

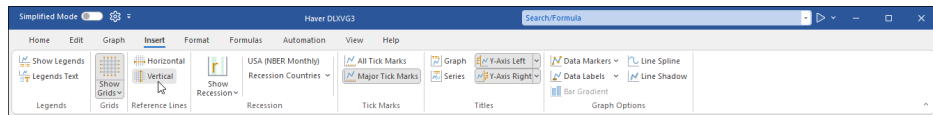
Insert a vertical reference line



The 'Vertical Lines' dialog box is shown. It has a title bar with a close button. Inside, there are three columns: 'Year (YYYY)', 'Month (MM)', and 'Day (DD)'. There are five rows labeled 'Line 1:' through 'Line 5:'. Each row has a dropdown menu for each column. At the bottom, there is an 'OK' button.

1. Do one of the following:

- Click Insert > Vertical:



-  SHIFT + V

2. Select the value(s) from the drop-down list

3. Click OK or  ENTER

 *If you only choose the Year, the line will be drawn in the middle of the Year. If you choose the Year and Month, the vertical line will be drawn in the middle of the Month.*

Tick Marks

By default all tick marks are shown.

Display major tick marks

1. Do one of the following:

- Go to Insert > Major Tick Marks
-  CTRL + K

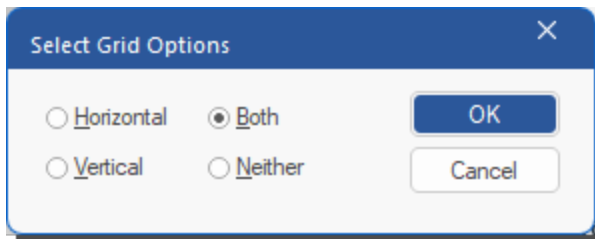
Display all tick marks:

1. Do one of the following:

- Go to Insert > All Tick Marks
-  K

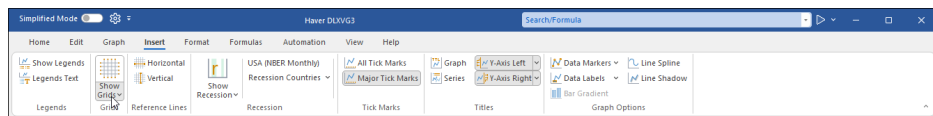
 *Tick mark options can now be controlled in [Templates](#) under the Axes Tab > X-Axis > Display Options*

Grid Lines



1. Do one of the following:

- Go to Insert > Show Grids:

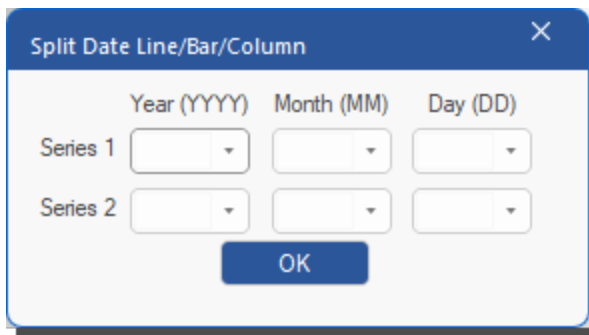


-  G

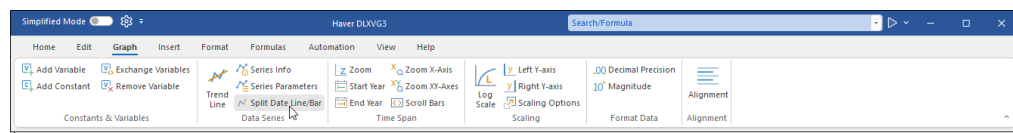
2. Select Horizontal, Vertical, Both or Neither (default).
3. Click OK or  ENTER

 Grid Lines can also be modified in templates.

Split Date Line/Bar



1. Go to Graph > Split Date Line/Bar:



2. Select the Year, Month and/or Day to specify the date where a new style line/bar should begin.
3. Click OK or  ENTER

 *The color and style for Split Date Line/Bar can be modified in templates.*

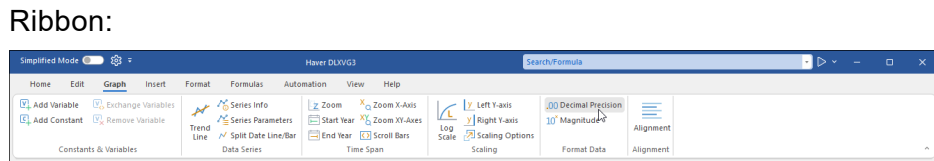
 *If you only choose the Year, the split will occur in the middle of the Year.*
If you choose the Year and Month, the split will occur in the middle of the Month.

Decimal Precision

Decimal precision can only be applied to percentage change, index functions, currency conversion, seasonal adjustment, magnitude changes when increased or calculations. It cannot be applied to diff functions, magnitude changes when decreased, aggregation or a base series as the data reflects what the source provides.

Change Decimal Precision

1. Open the decimal precision dialog by doing one of the following:
 - Click on Decimal Precision in the Format Data section of the Graph Ribbon:



2. Enter the number of decimal places (between 0 and 6)
3. Click OK or ENTER

Check the Default Decimal Precision

Look under the series parameters by doing one of the following:

- Click on Series Parameters in the Variables section of the Home Ribbon:
- ALT + F10

Series Parameters

← yrr%(LANAGRA@USECON) →

Frequency: Monthly

Start Date: 3901

End Date: 12402

of Periods: 1022

Max # of Periods: 1034

Magnitude: 0

Decimal Precision: 0

Difference Type: 0 (Growth rates allowed)

Aggregation Type: Average

Data Type: %

Update Group: E30

Geography: 111

Last Modified: Fri Mar 8 08:30:31 2024

Short Source: BLS

Long Source: Bureau of Labor Statistics

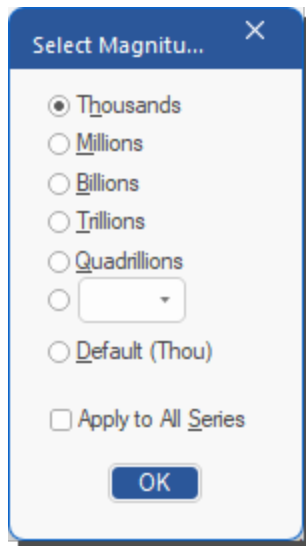
Copy to Clipboard

 These are the series parameters for LANAGRA@USECON with the YRYR% function applied.

Magnitude

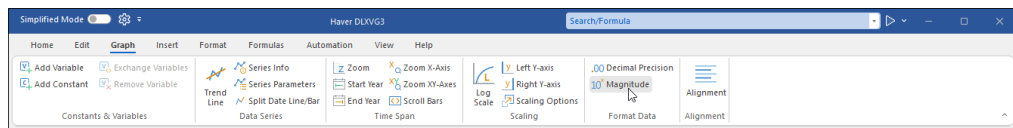
Magnitude cannot be applied to a percentage change or index series. The magnitude of a series is indicated in the secondary title (if displayed).

Change Magnitude



1. Open the magnitude dialog by doing one of the following: Go to Graph >

Magnitude:



-  M

2. Select the magnitude
3. (Optional) Click the check box for "Apply to All Series" to change the magnitude for all series on the graph
4. Click OK or  ENTER

 If you select "Apply to All Series" the magnitude change will only be applied to series where magnitude change is allowed.

 When the magnitude of a series has been changed, it will be indicated by the symbol [M] next to the series(code@database) in the title bar in [Haver Mode](#) or in the data table in [Column Mode](#). Additionally, the background color of the table will be changed to gray.

Example:

Change in U.S. Total Nonfarm Employment (LANAGRA@USECON) with magnitude set to millions (default is thousands).

- [Haver Mode](#)

LANAGRA [M] [Monthly] Jan.1939 -- Feb.2024 [Mar.08.2024 08:30]					
	Month	Month	Month	Quarter	Year
	148.566	149.197	149.763	149.175	146.276
2022	150.014	150.876	151.370	150.753	
	151.642	151.928	152.348	151.973	
	153.038	153.281	153.536	153.285	
	153.897	154.155	154.291	154.114	152.531
2023	154.773	155.060	155.206	155.013	
	155.484	155.787	156.027	155.766	
	156.211	156.421	156.667	156.433	
	156.832	157.014	157.304	157.050	156.066
2024	157.533	157.808	---	---	
	---	---	---	---	
	---	---	---	---	
	---	---	---	---	---

- Column Mode



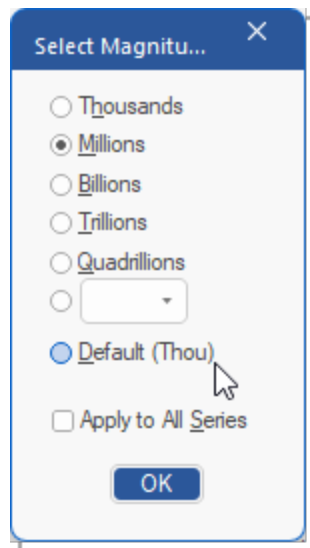
Month	LANAGRA@USECON[M]
2022 - Nov	154.155
2022 - Dec	154.291
2023 - Jan	154.773
2023 - Feb	155.060
2023 - Mar	155.206
2023 - Apr	155.484
2023 - May	155.787
2023 - Jun	156.027
2023 - Jul	156.211
2023 - Aug	156.421
2023 - Sep	156.667
2023 - Oct	156.832
2023 - Nov	157.014
2023 - Dec	157.304
2024 - Jan	157.533
2024 - Feb	157.808

Check the Default Magnitude

There are several ways to check the default magnitude of the series:

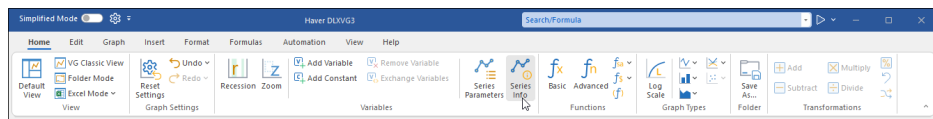
1. Look at the magnitude dialog by doing one of the following:

- Go to Graph > Magnitude
-  M

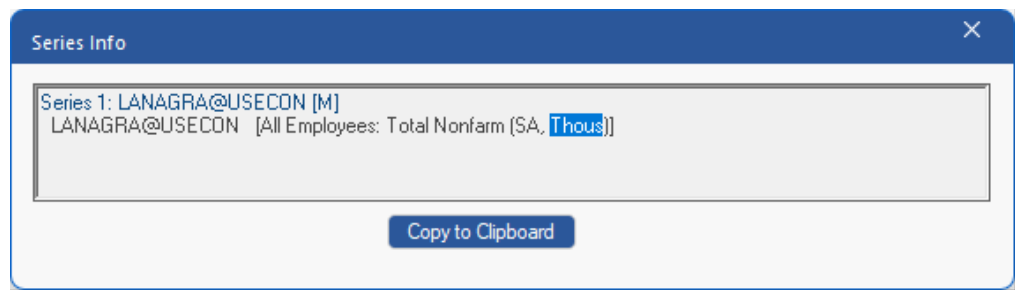


2. Look under the series info by doing one the following:

- Go to Home > Series Info :



-  CTRL + I



3. Look under the series parameters by doing one of the following:

- Go to Home > Series Parameters

-  ALT + F10

Series Parameters

← LANAGRA@USECON →

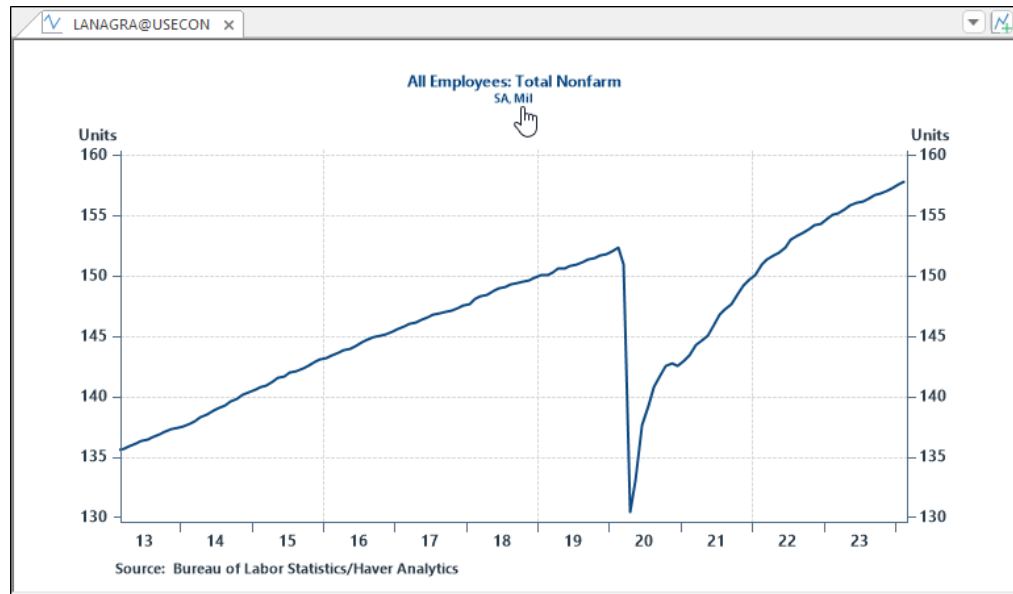
Frequency: Monthly
Start Date: 3901
End Date: 12402
of Periods: 1022
Max # of Periods: 1034
Magnitude: 3
Decimal Precision: 0
Difference Type: 0 (Growth rates allowed)
Aggregation Type: Average
Data Type: Units
Update Group: E30
Geography: 111
Last Modified: Fri Mar 8 08:30:31 2024
Short Source: BLS
Long Source: Bureau of Labor Statistics

Copy to Clipboard

Check the Applied Magnitude

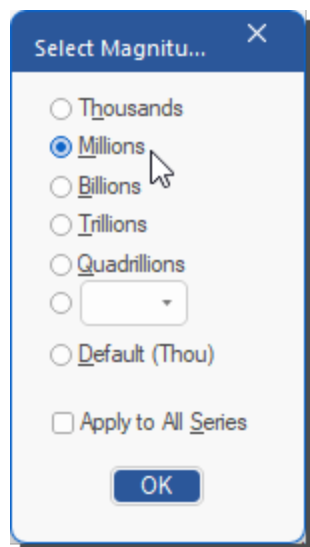
There are a couple of ways to check the applied magnitude of a series:

1. Look at the secondary title (if it's displayed)



2. Look at the magnitude dialog by doing on the following:

- Go to Graph > Magnitude
-  M



Graph Types

Graph Types Per Series	222
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Graph Types Per Series

Change the style of the series/graph per series. The following options are available:

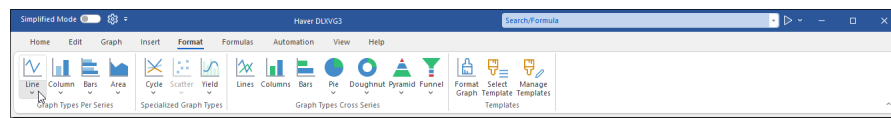
Line Graph

This is the default graph style. Displays continuous data over time set against a common scale and therefore ideal for showing trends in data at equal intervals.

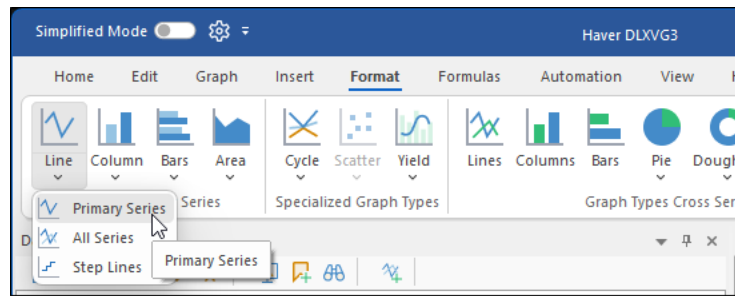
Primary Series Line Graph/ All Series Line Graph

Turn on Primary Series Line Graph

- Click on Line from the Format Ribbon:



You can also click on the drop down arrow and choose Primary Series:

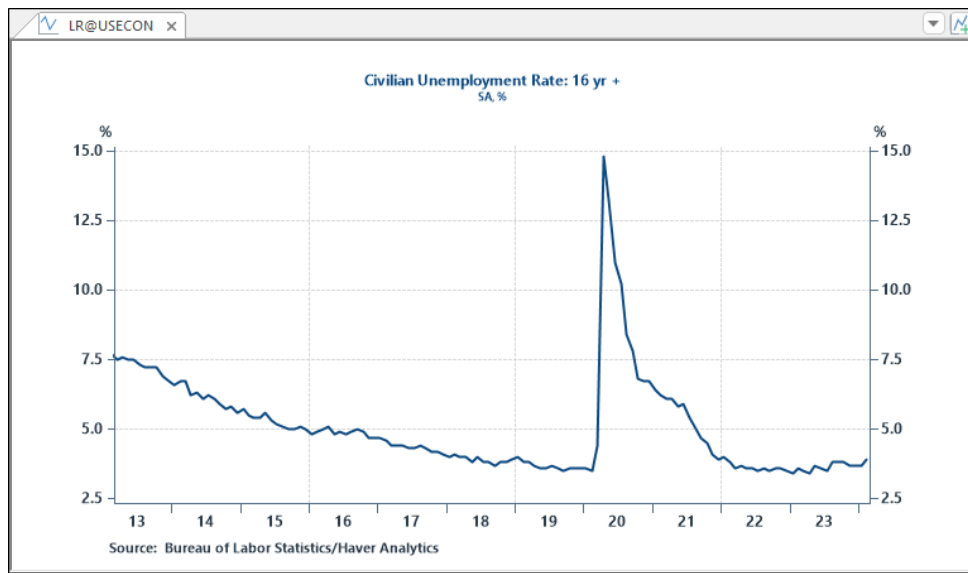


Turn on All Series Line Graph

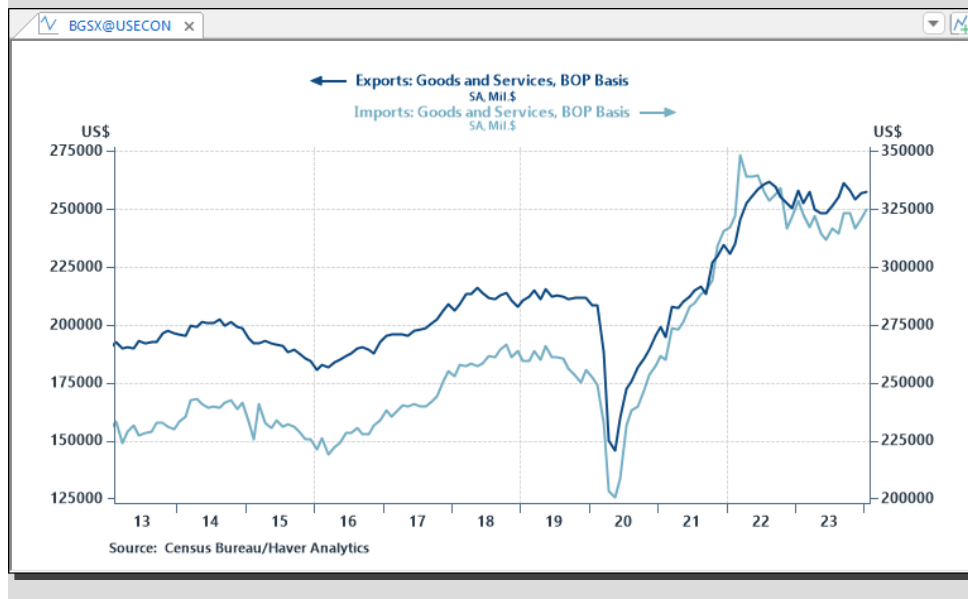
- Click on the Line drop down and choose All Series as show in the image above.

Example

1. Line Graph of LR@USECON.



2. All Series Line of Exports and Imports BGSM@USECON and BGSX@USECON

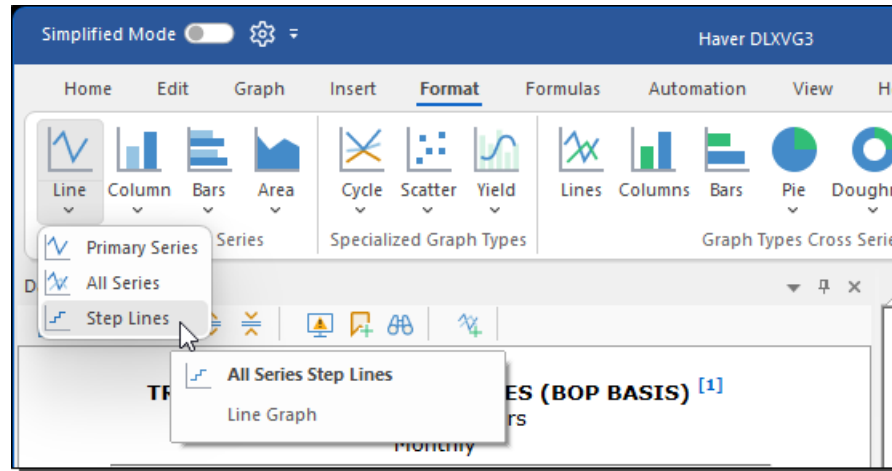


Step Line Graph

Shows the discrete period-to-period change in a time series of each included variable

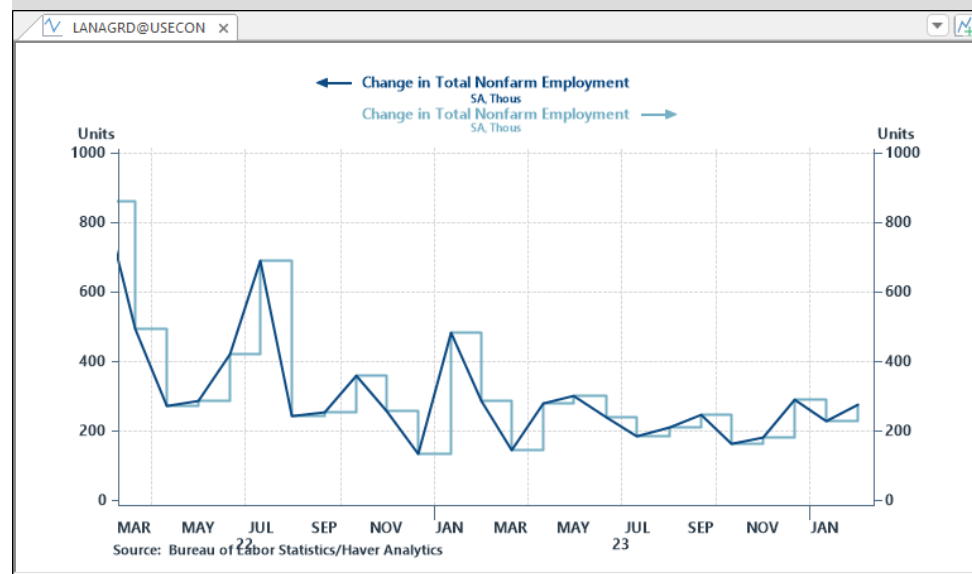
Turn on Step Line Graph

- Click Step Line from the Line drop down:

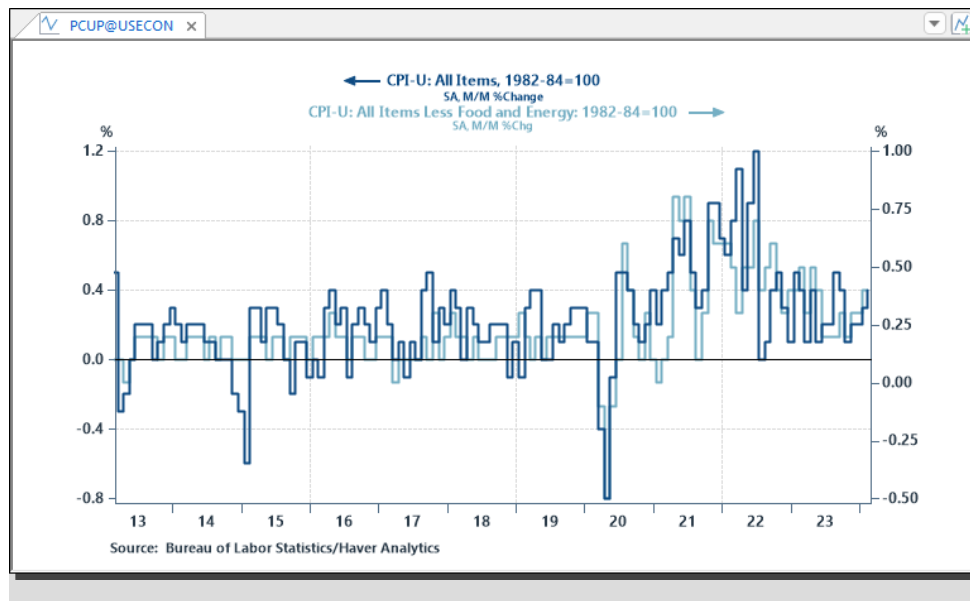


Example

1. Step Line Graph of LANAGRD@USECON



2. All Series Step Line MPCUSLFE@USECON and PCUP@USECON

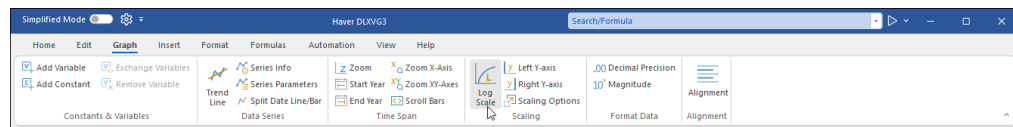


Log Scale

Displays the value of a physical quantity using intervals corresponding to orders of magnitude, rather than a standard linear scale.

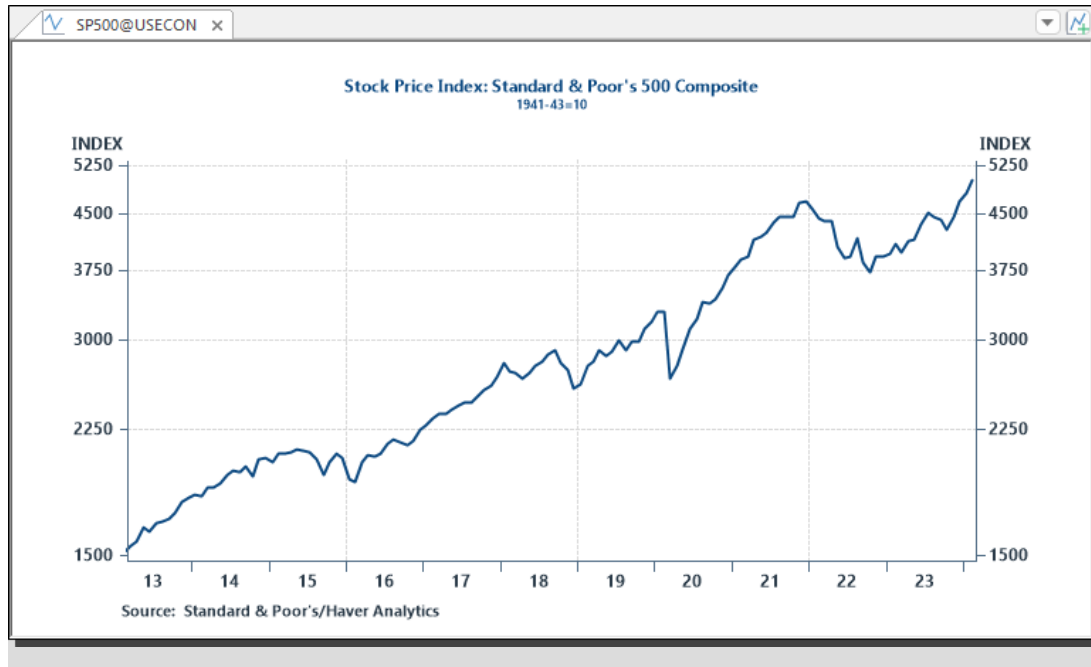
Toggle log scale

- Click Log Scale from the Graph Ribbon:



Example

Line Graph of SP500@USECON with log scale.



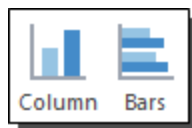
Column/Bar Graph

Useful for showing data changes over a period of time or for illustrating comparison among items.

NEW DLXVG3 is now capable of showing both Column and Bar graphs.

The old Bar Graphs have been renamed to Column.

Bar and Column graphs are almost identical in behavior so instructions for Column can be applied to Bar with the exception that you cannot mix other graph types with Bar Graphs so there is no Primary Bar Graph option.

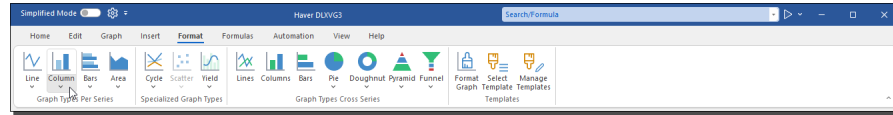


Primary Series Column Graph/ All Series Column/Bar Graph

Turn on Primary Series Column Graph

Do one of the following:

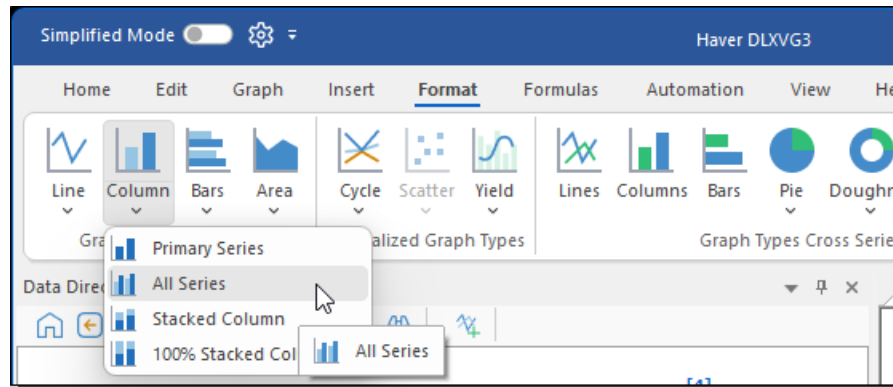
- Click on Column from the Format Ribbon:



-  B

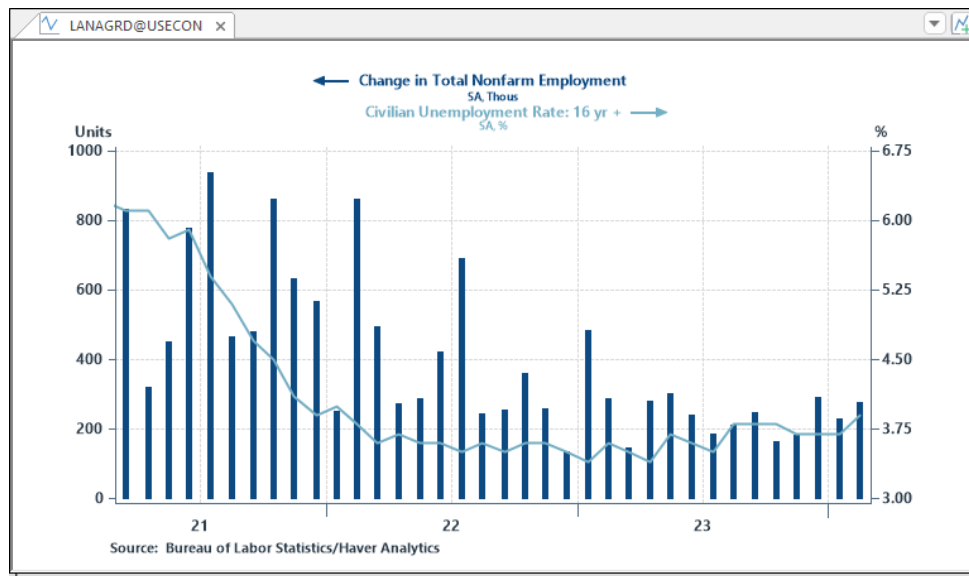
Turn on All Series Column/Bar Graph

- Click on Column drop down and choose All Series:

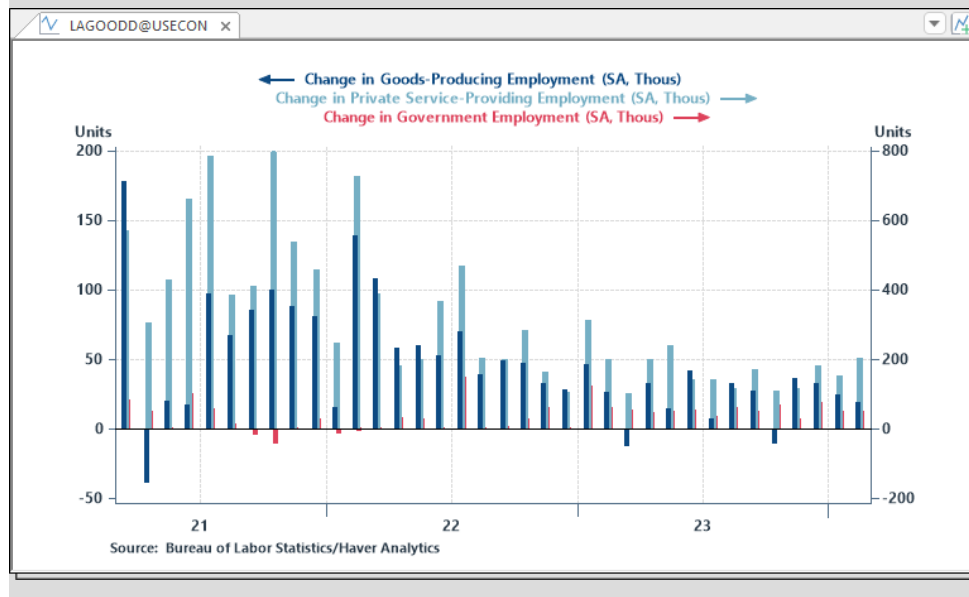


Example

1. Column Graph of LANAGRD@USECON and Line Graph of LR@USECON.



2. All Series Column Graph of LAGOVTD@USECON, LAPSRVD@USECON and LAGOODD@USECON

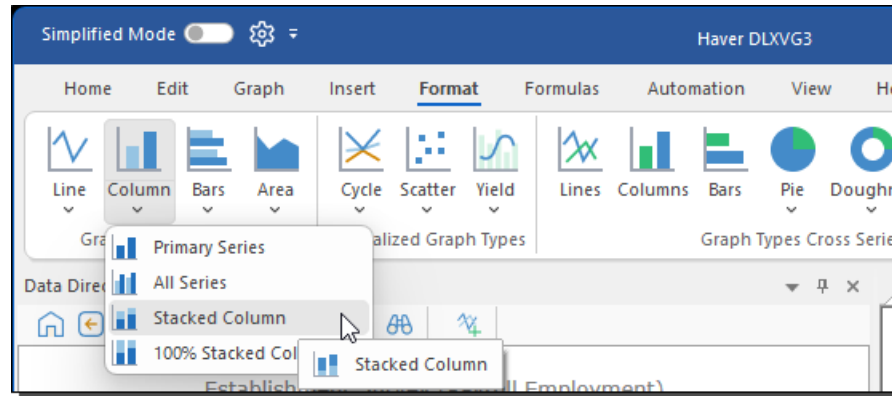


Stacked Column/Bar Graph

Shows the relationship of individual items to the whole, comparing the contribution of each value to a total across categories.

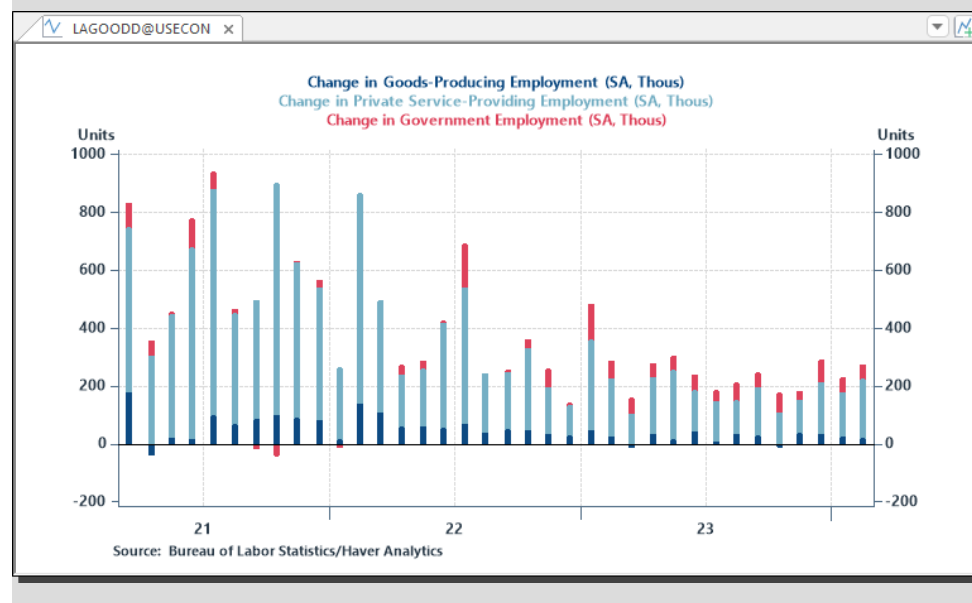
Toggle stacked Column/Bar graph

- Click on the Column drop down and choose Stacked Column:



Example

Stacked Column Graph of LAGOVTD@USECON,
LAPSRVD@USECON and LAGOIDD@USECON.

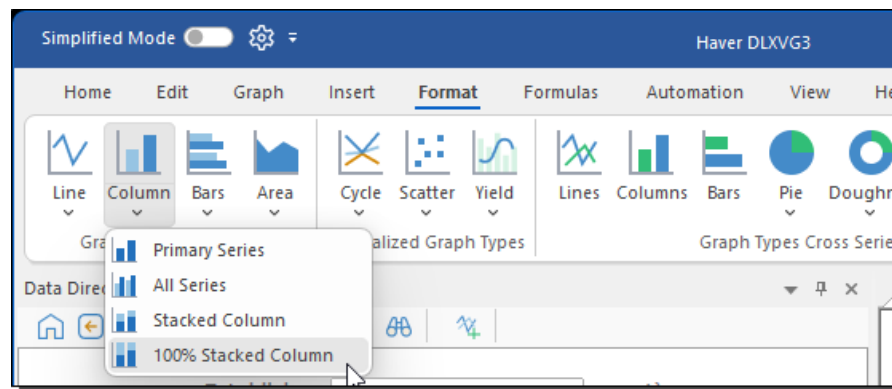


100% Stacked Column/Bar Graph

Shows contribution of the included components as a percent of total at each point in time.

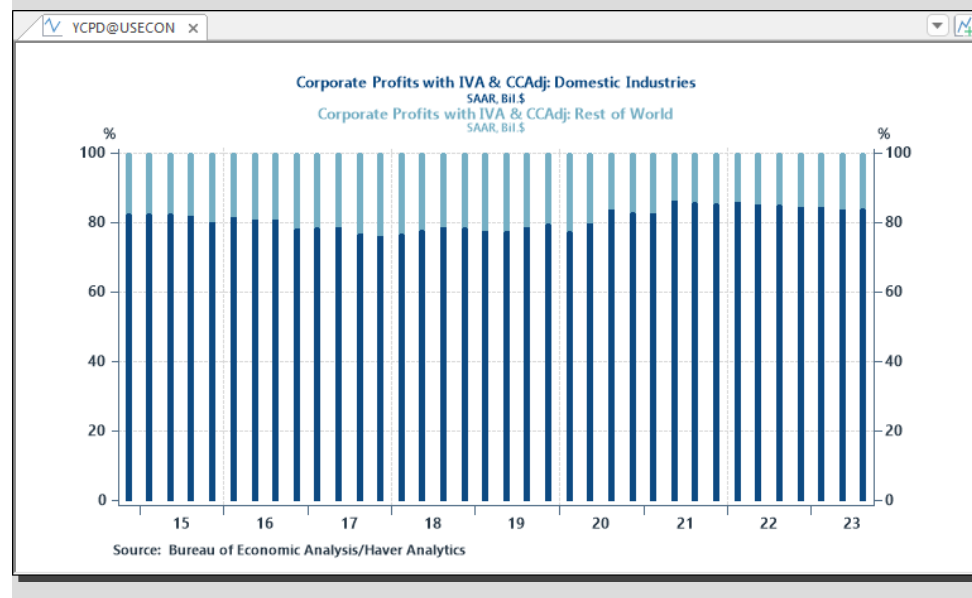
Turn on 100% Stacked Column/Bar Graph

- Click on the Column drop down and choose Stacked Column:



Example

100% Stacked Column Graph of YCPR@USECON and YCPD@USECON.



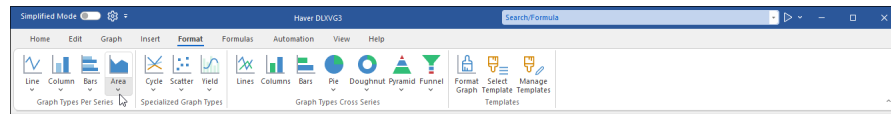
Area Graph

Offers easy visual identification of the relative size of the included variables at each point in time.

Primary Series Area Graph/ All Series Area Graph

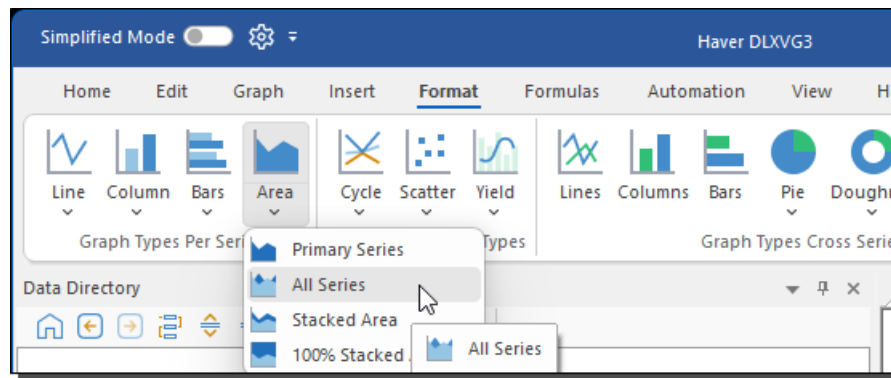
Turn on Primary Series Area Graph

- Click on Column from the Format Ribbon:



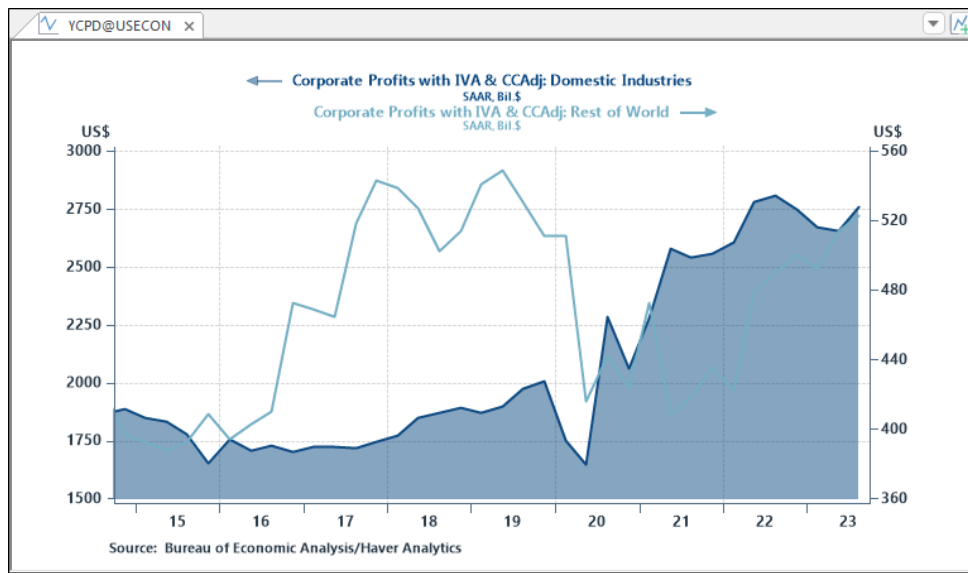
Turn on All Series Area Graph

- Click on Area drop down and choose All Series:

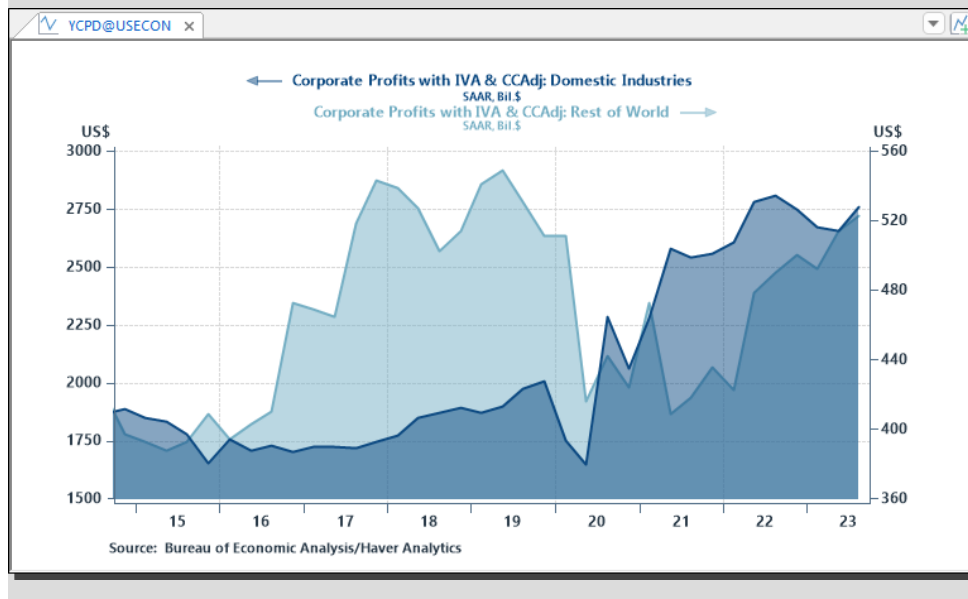


Example

1. Primary Series Area Graph of YCPR@USECON and YCPD@USECON.



2. All Series Area Graph of YCPR@USECON and YCPD@USECON.

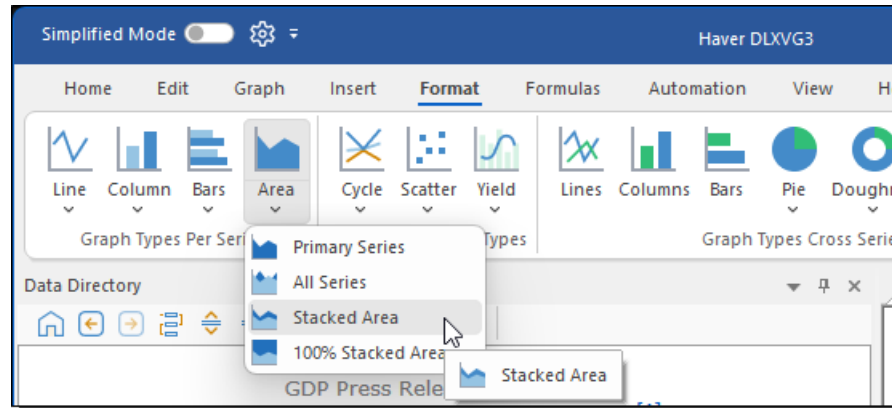


Stacked Area Graph

Emphasizes the magnitude of change over time and can be used to draw attention to the total value across a trend.

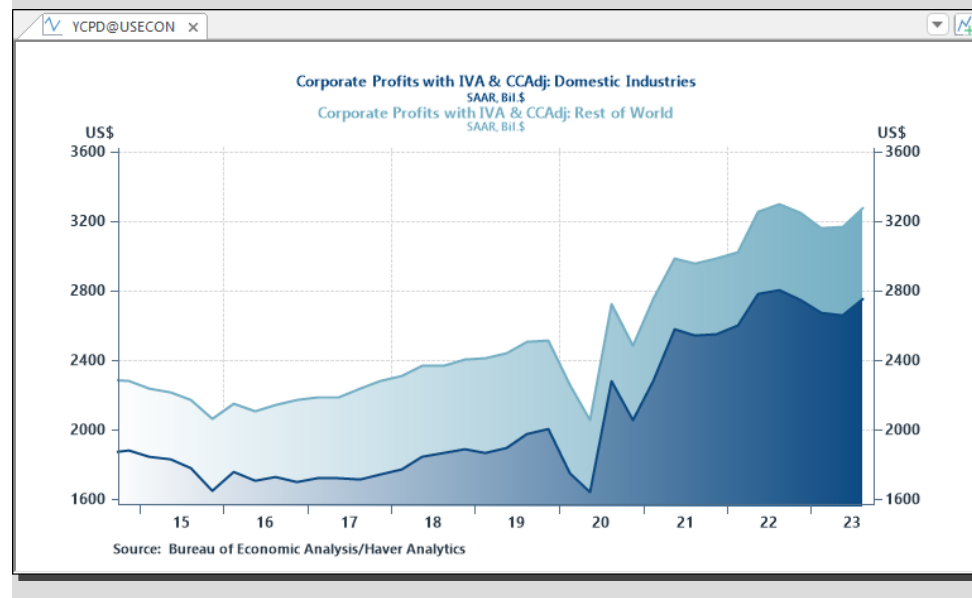
Toggle stacked area graph

- Click on Area drop down and choose Stacked Area:



Example

Stacked Area Graph of YCPR@USECON and YCPD@USECON.

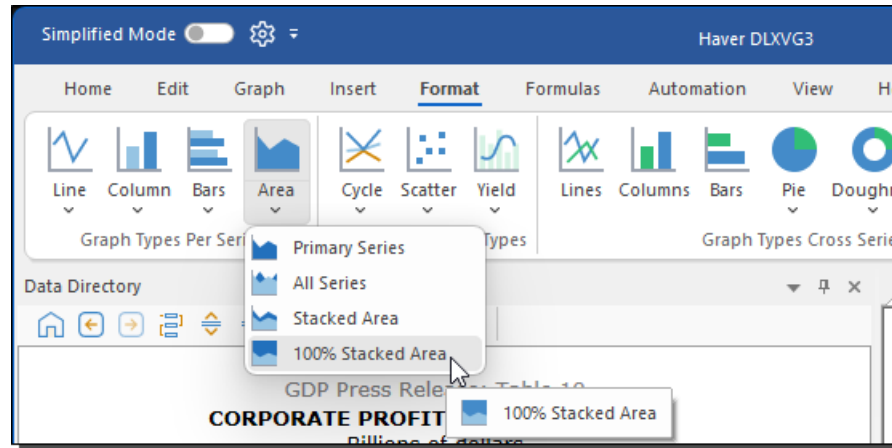


100% Stacked Area Graph

Shows contribution of the included components as a percent of total at each point in time

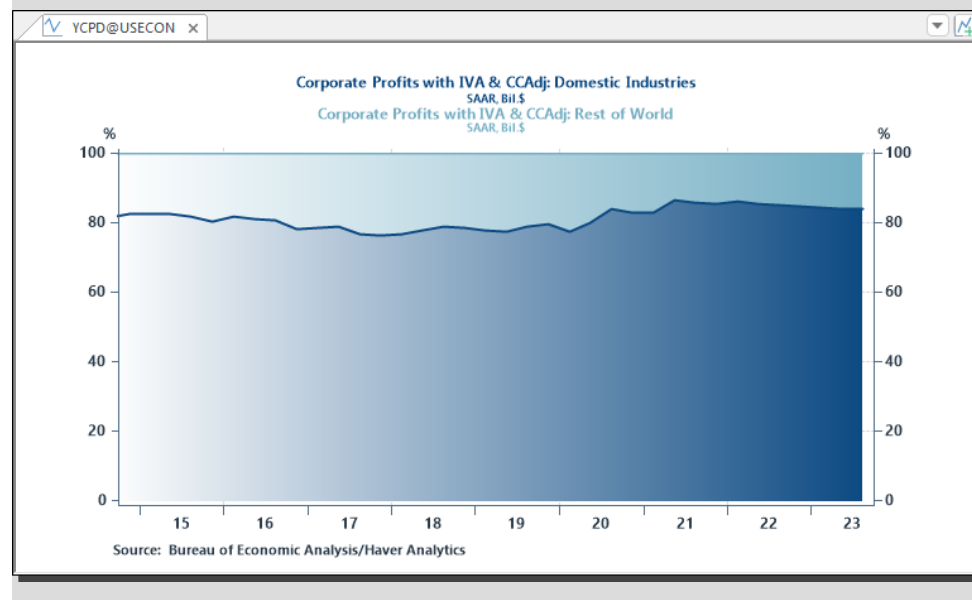
Turn on 100% Stacked Area Graph

- Click on Area drop down and choose 100% Stacked Area:



Example

100% Stacked Area Graph of YCPR@USECON and YCPD@USECON.



Specialized Graph Types

Change the style of the series/graph. The following options are available:

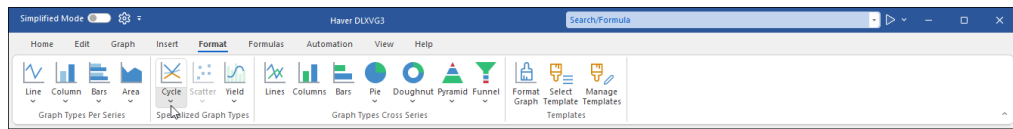
Cycle Graph

Cycle graphs provide the ability to compare and contrast the evolution of a variable across multiple discrete time periods. Time periods can be specified manually or linked to criteria such as recessionary periods.

 *When you have multiple series in a chart, cycle graph is only applied to the **active series**¹.*

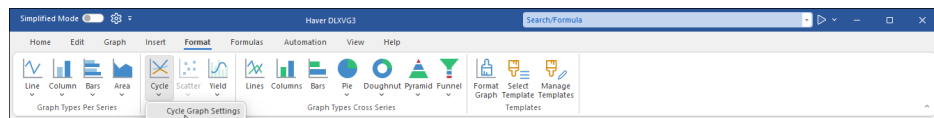
Toggle cycle graph

- Click on Cycle from the Format Ribbon:



Change cycle graph settings

- Open the Cycle Graph Settings dialog by doing one of the following:
 - Click the drop-down arrow from Cycle select Cycle Graph Settings:



- Go to Options > Cycle Graph
- In the Style field, choose one of the three cycle graph options
 - The settings options will vary slightly depending on the style of cycle graph chosen.

¹The first variable listed on a graph; all operations/functions will be applied to this series.

i. If you chose Cycle Graph (Recession Linked) the settings are the following:

- Recession Country - specifies which country's recession country should be used
- Apply Index Function - option to apply an index function to all available cycles

NEW *You can now enter daily dates here, previously the highest frequency accepted was monthly*

- Date Span Start - specifies a start date for the entire span
- Date Span End - specifies an end date for the entire span
- For Anchor Dates Use - specifies if trough or peak values are used
- Periods Before - specifies the number of periods before each cycle's start date
- Periods After - specifies the number of periods after each cycle's start date

ii. If you chose Cycle Graph (Custom Shading) the settings are the same as above except instead of Recession Country, the property is Custom Shading where you can select your own custom recessions to use

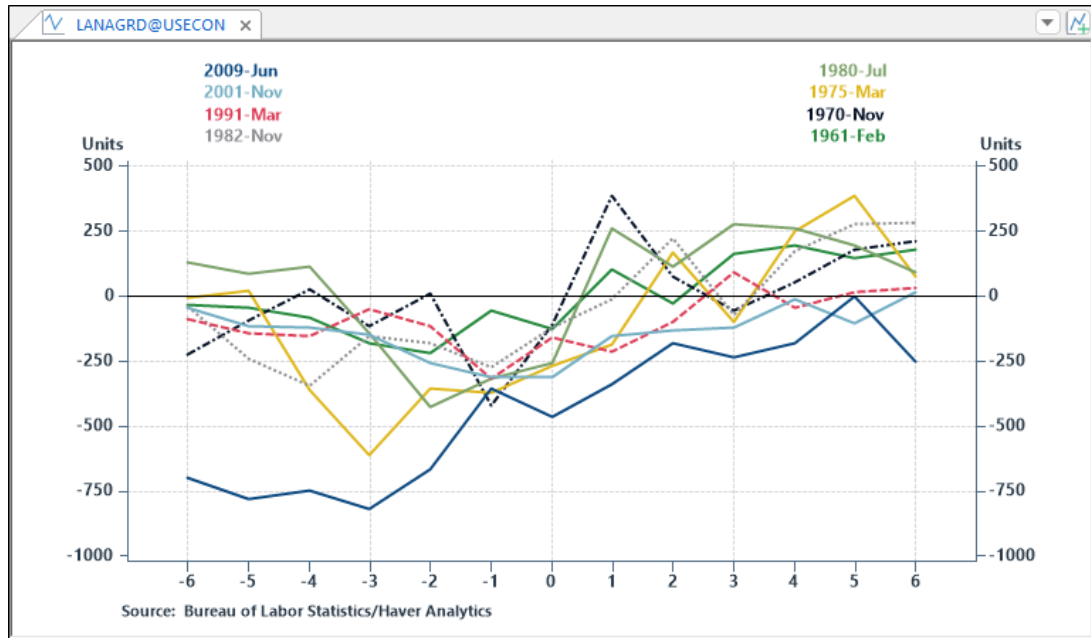
iii. If you chose Cycle Graph the settings are the following:

- Apply Index Function - option to apply an index function to all available cycles
- Mode - choose between All Same Length, Custom Length or Annual

- If you choose All Same Length then the following settings are available:
 - Number of Cycles - specifies number of cycles to include between one and eight
 - Periods Before - specifies the number of periods before each cycle's start date
 - Periods After - specifies the number of periods after each cycle's start date
 - Cycle # Date - specifies the date for each cycle depending on how many number of cycles were chosen
- If you choose Custom Length then the following settings are available:
 - Number of Cycles - specifies number of cycles to include between one and eight
 - Cycle Dates- specifies the date, periods before and periods after for each cycle depending on the number chosen
- If you choose Annual then the following settings are available:
 - Number of Cycles - specifies number of annual cycles to include between one and eight
 - Date Span Start- specifies a start date for the entire span

Example 1

Cycle Graph (Recession linked) of LANAGRD@USECON.



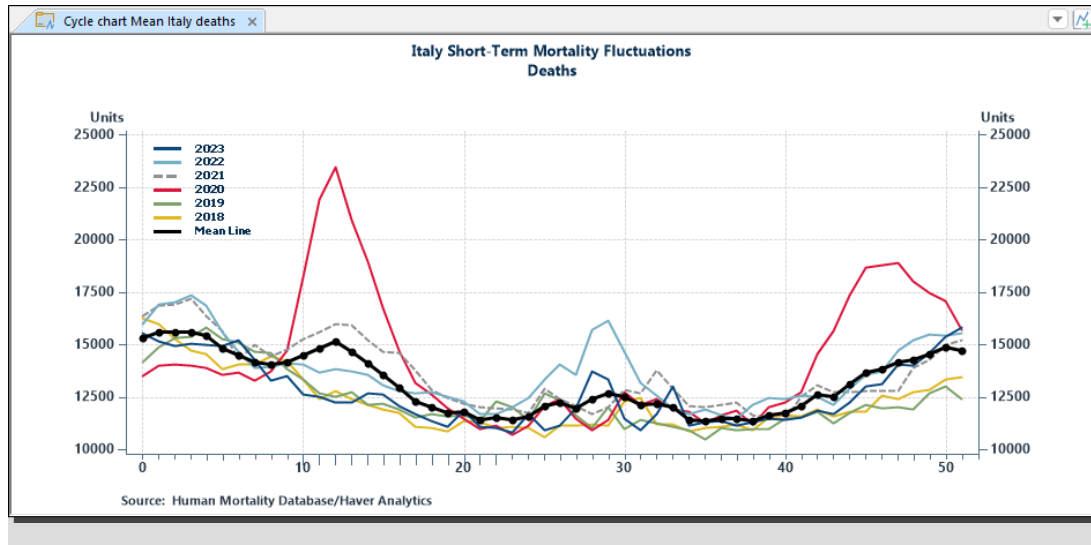
 The graph uses the following settings: USA for the recession country, 1961 as the date span start, 2017 as the date span end, trough values for anchor dates, 6 periods before and 6 periods after.

Add Mean Line

After turning on Cycle graph click the drop-down arrow from Cycle select Mean Line:

Example 2

Cycle Graph of Italy Mortality Short Term Fluctuations with Mean Line



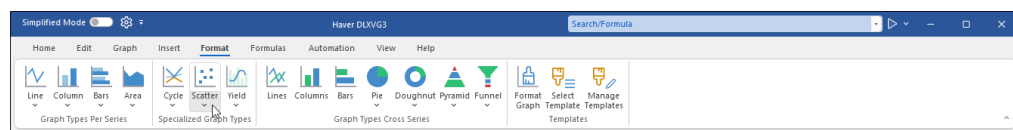
Scatter Graph

The charts listed above in VG3 are plotted against time. In contrast, the scatter plot is one variable plotted against another with each point representing the values of the two variables included at the same point in time.

NEW You can now compare multiple countries across the same concept in a scatter plot. Each pair of series added represents one point on the chart, so you can have up to 12 points.

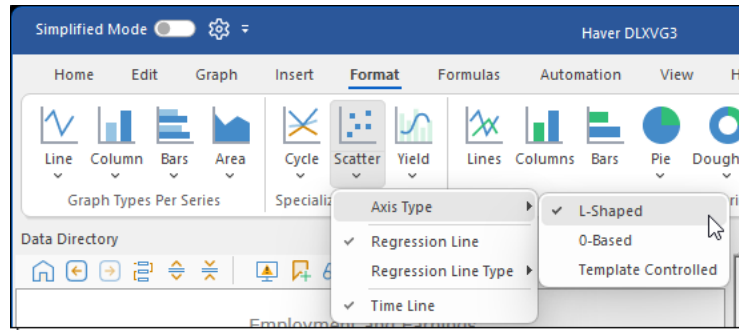
Toggle on Scatter Graph

- Click on Cycle from the Format Ribbon:



Axis Type Options

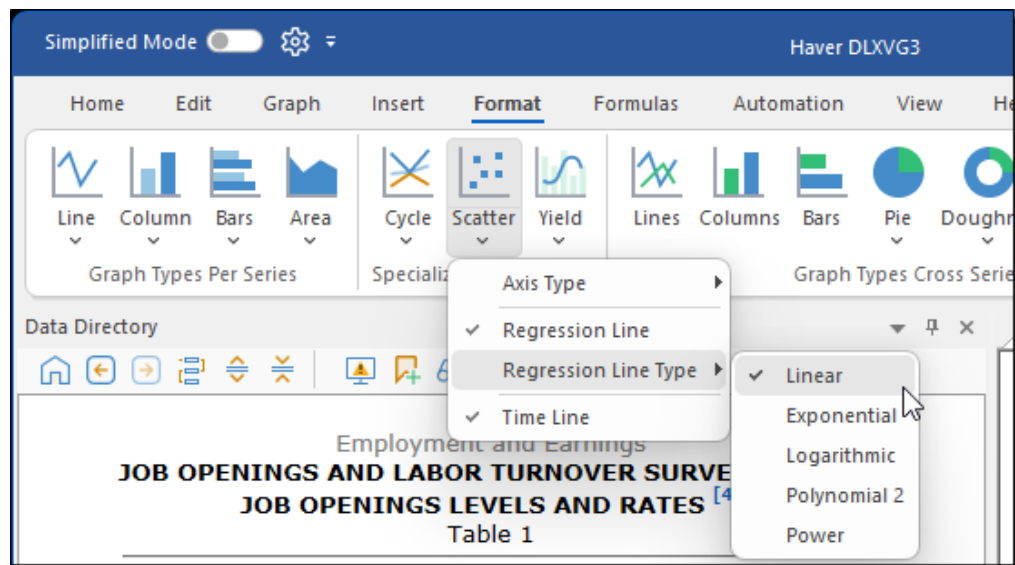
- Click the drop down arrow from Scatter and select either L-shaped , 0-based or Template Controlled:



Regression Line Options

A linear regression line will be shown by default.

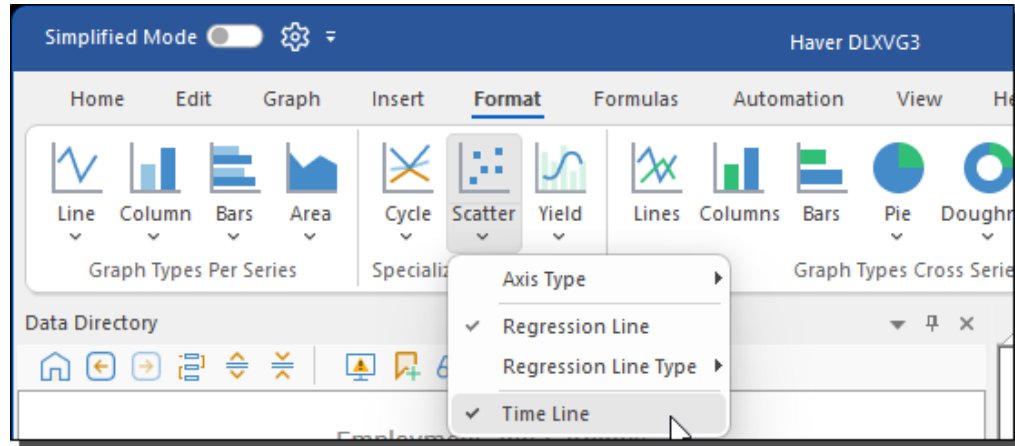
- Click the drop down arrow from Scatter and select Regression Line to toggle the regression line on/off in the scatter graph.
- Click the drop down arrow from Scatter and select Regression Line Type and choose between Linear, Exponential, Logarithmic, Polynomial 2 or Power



 The formula for the regression line is displayed in the [status bar](#) on the bottom-left of the workspace

Time Line Option

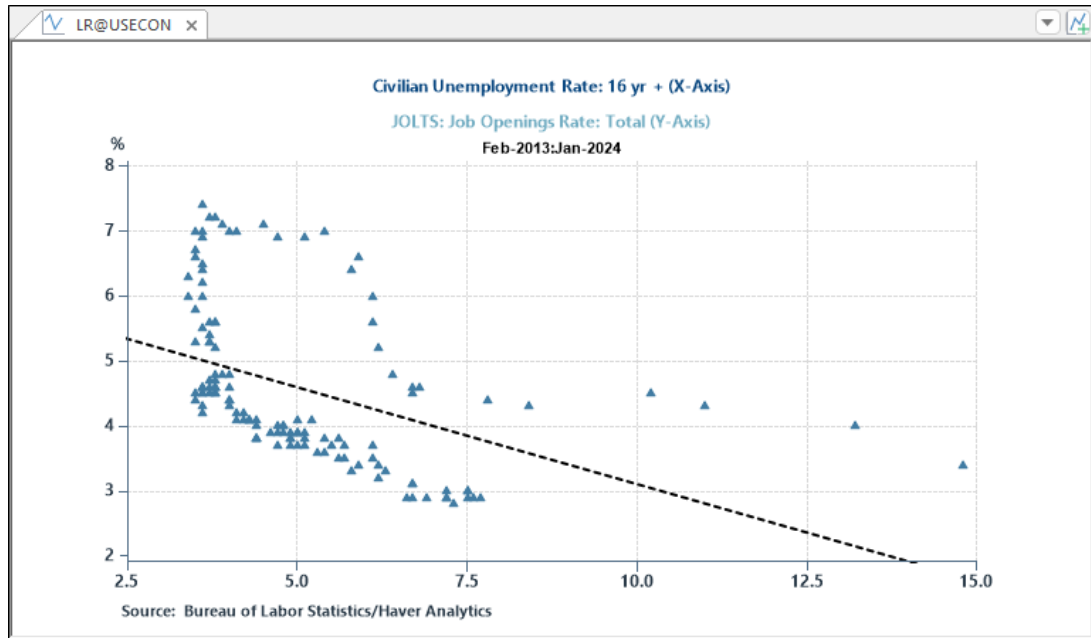
- Click the drop down arrow from Scatter and select Time Line to toggle the Time Line on/off in the scatter graph.



Additional options for Scatter Graph can be found in Template Options, see [Format Graph](#) for more information.

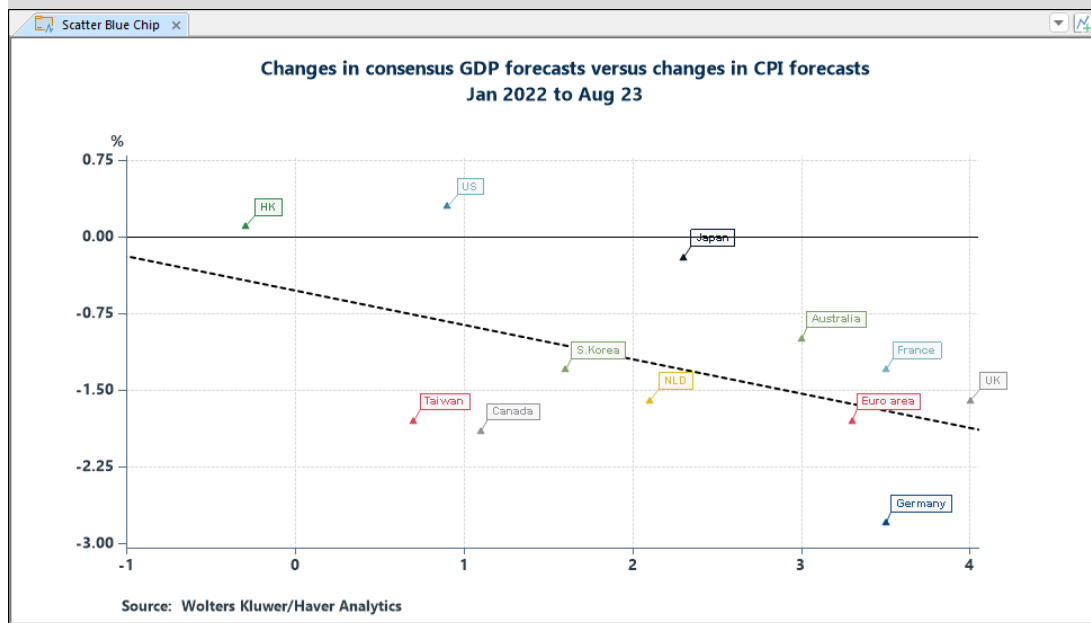
Example

Scatter Graph of LR@USECON and LJJTPA@USECON



Example 2

Scatter Graph with 24 series representing 12 countries:



Each consecutive pair of series creates one data point: Series 1 and Series 2 is the data point labeled US, Series 3 and Series 4 is the data point labeled Taiwan, etc. The series in this graph are the following:

Series 1: diff(DAAD23@BLUECHIP,19)
 1DAAD23@BLUECHIP [Blue Chip: Consumer Price Index: 2023 Forecasts: Consensus (Yr/Yr %Chg)]

Series 2: diff(AAAD23@BLUECHIP,19)
 AAAD23@BLUECHIP [Blue Chip: Real GDP: 2023 Forecasts: Consensus (Yr/Yr %Chg)]

Series 3: diff(DTWD23@BLUECHIP,19)
 DTWD23@BLUECHIP [BCEI: Change in Consumer Price Index: Taiwan: Consensus: 2023 Forecast (%)]

Series 4: diff(ATWD23@BLUECHIP,19)
 ATWD23@BLUECHIP [BCEI: Change in Real GDP: Taiwan: Consensus: 2023 Forecast (%)]

Series 5: diff(DGBD23@BLUECHIP,19)
 DGBD23@BLUECHIP [BCEI: Change in Consumer Price Index: UK: Consensus: 2023 Forecast (%)]

Series 6: diff(AGBD23@BLUECHIP,19)
 AGBD23@BLUECHIP [BCEI: Change in Real GDP: United Kingdom: Consensus: 2023 Forecast (%)]

Series 7: diff(DKRD23@BLUECHIP,19)
 DKRD23@BLUECHIP [BCEI: Change in Consumer Price Index: South Korea: Consensus: 2023 Forecast (%)]

Series 8: diff(AKRD23@BLUECHIP,19)
 AKRD23@BLUECHIP [BCEI: Change in Real GDP: South Korea: Consensus: 2023 Forecast (%)]

Series 9: diff(DNLD23@BLUECHIP,19)
 DNLD23@BLUECHIP [BCEI: Change in Consumer Price Index: Netherlands: Consensus: 2023 Forecast (%)]

Series 10: diff(ANLD23@BLUECHIP,19)

ANLD23@BLUECHIP [BCEI: Change in Real GDP: Netherlands: Consensus: 2023 Forecast (%)]

Series 11: diff(DJPD23@BLUECHIP,19)

DJPD23@BLUECHIP [BCEI: Change in Consumer Price Index: Japan: Consensus: 2023 Forecast (%)]

Series 12: diff(AJPD23@BLUECHIP,19)

AJPD23@BLUECHIP [BCEI: Change in Real GDP: Japan: Consensus: 2023 Forecast (%)]

Series 13: diff(DHKD23@BLUECHIP,19)

DHKD23@BLUECHIP [BCEI: Change in Consumer Price Index: Hong Kong: Consensus: 2023 Forecast (%)]

Series 14: diff(AHKD23@BLUECHIP,19)

AHKD23@BLUECHIP [BCEI: Change in Real GDP: Hong Kong: Consensus: 2023 Forecast (%)]

Series 15: diff(DDED23@BLUECHIP,19)

DDED23@BLUECHIP [BCEI: Change in Consumer Price Index: Germany: Consensus: 2023 Forecast (%)]

Series 16: diff(ADED23@BLUECHIP,19)

ADED23@BLUECHIP [BCEI: Change in Real GDP: Germany: Consensus: 2023 Forecast (%)]

Series 17: diff(DFRD23@BLUECHIP,19)

DFRD23@BLUECHIP [BCEI: Change in Consumer Price Index: France: Consensus: 2023 Forecast (%)]

Series 18: diff(AFRD23@BLUECHIP,19)

AFRD23@BLUECHIP [BCEI: Change in Real GDP: France: Consensus: 2023 Forecast (%)]

Series 19: diff(DEZD23@BLUECHIP,19)

DEZD23@BLUECHIP [BCEI: Change in Consumer Price Index: Euro area: Consensus: 2023 Forecast (%)]

Series 20: diff(AEZD23@BLUECHIP,19)

AEZD23@BLUECHIP [BCEI: Change in Real GDP: Euro area: Consensus: 2023 Forecast (%)]

Series 21: diff(DCAD23@BLUECHIP,19)

DCAD23@BLUECHIP [BCEI: Change in Consumer Price Index: Canada: Consensus: 2023 Forecast (%)]

Series 22: diff(ACAD23@BLUECHIP,19)

ACAD23@BLUECHIP [BCEI: Change in Real GDP: Canada: Consensus: 2023 Forecast (%)]

Series 23: diff(DAUD23@BLUECHIP,19)

DAUD23@BLUECHIP [BCEI: Change in Consumer Price Index: Australia: Consensus: 2023 Forecast (%)]

Series 24: diff(AAUD23@BLUECHIP,19)

AAUD23@BLUECHIP [BCEI: Change in Real GDP: Australia: Consensus: 2023 Forecast (%)]

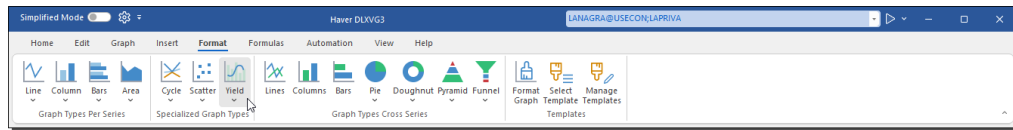
NEW Yield Curve

You now have the ability to create Yield Curves in VG3. You have the ability to create multiple different yields and compare them against the same point in time or compare the same yield against multiple different points in time.

See below for more information:

Create

- Click on Yield from the Format Ribbon > Create:



- You can then enter in the series name and the maturity to create your desired Yield Curve. Below is an example.

Modify

- Once you have created a Yield Curve, you can choose Modify to open the dialog box again and make any desired changes

Remove

- Opens up a dialog box listing the Yields you have created with the option to remove any you no longer want.

Export/Import

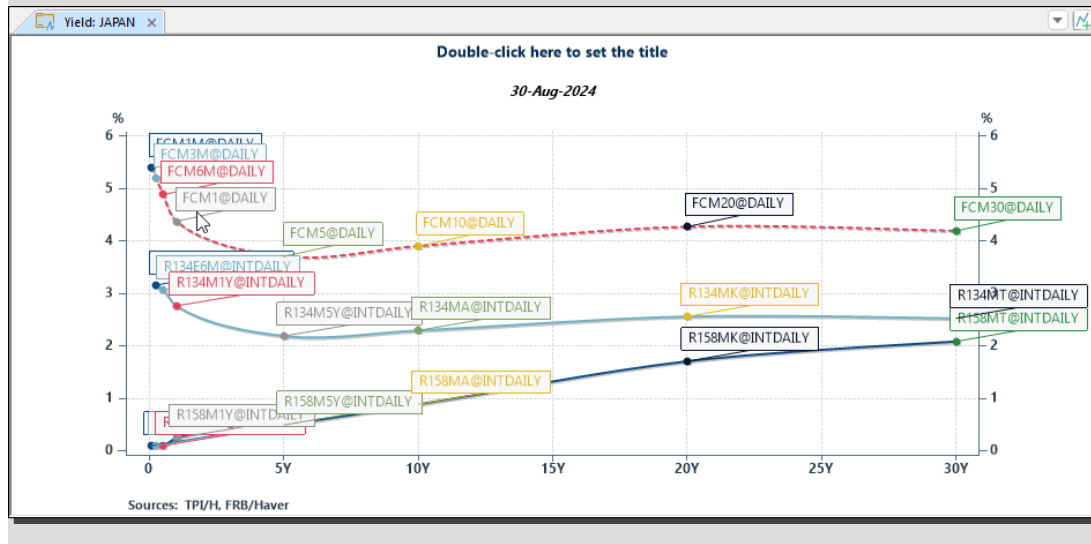
You also have the option to export/import yields created to share with your colleagues.

Add/Remove Yields

You have the option to compare more than one Yield on the same graph across one point in time. Notice, the data table changes format slightly to display the series and maturities that make up the Yields

Example

Yield Curve of Treasury Yield Curve in the US compared with Germany and Japan:



Add/Edit/Remove Dates

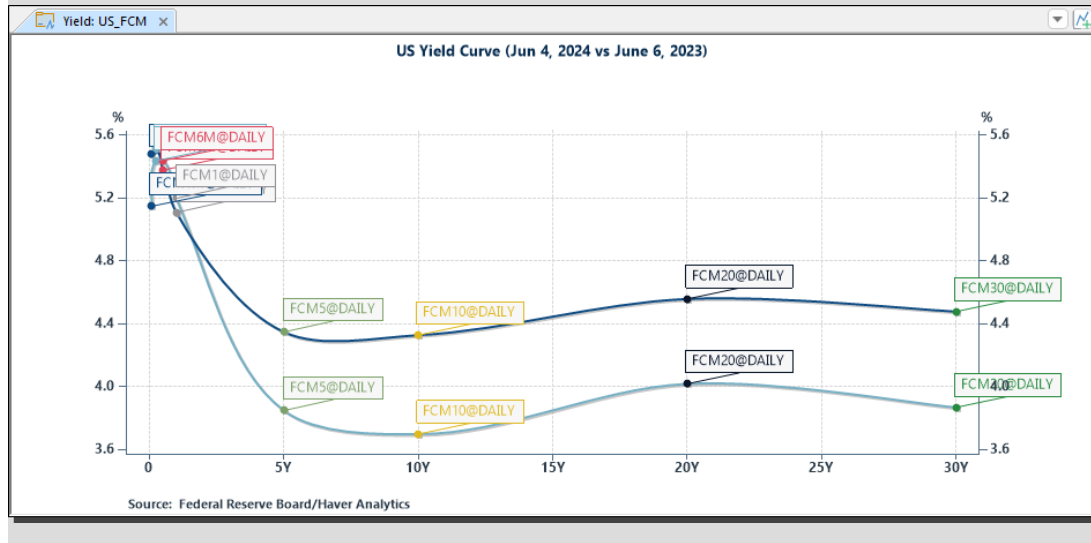
Alternatively, you can also compare the same Yield across multiple dates on the same graph.

To do so:

1. Select a Yield that you have already created or see above for Create Yield
2. Then select Add Date or  ALT + Y
3. This will create a duplicate of the same yield with the same date
4. To then change the date of the second yield, you can either:
 - Use the arrow keys to scroll to another date
 - Click on Edit Dates or  SHIFT + Y which will open a dialog box where you can specify the exact date you wish to see
5. If you then want to remove a date from the graph, use Remove Date or  CTRL + ALT + Y

Example

Yield Curve with two dates of the US Treasury Yield Curve:



Split Yield to Pieces

Once you have your Yield Curve on the graph, you can right click in the data table and select "Split Yield to pieces" which will convert the yield curve graph to a regular graph with each series plotted as the time series used to compose the yield.

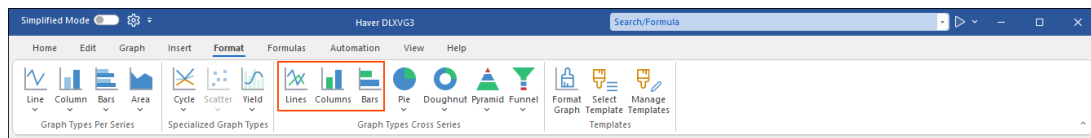
Graph Types Cross Series

Below are the available graph types for cross series graph. All of the following graph types are plotted at a certain point in time, as opposed to an entire time series of a variable.

Additional options for Other Graphs can be found in Template Options, see [Format Graph](#) for more information.

Lines/Columns/Bars

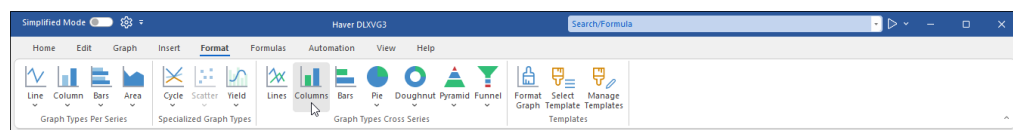
The column example shown below applies completely to both lines and bars graph types:



The columns show observations of the included variables at the same point in time.

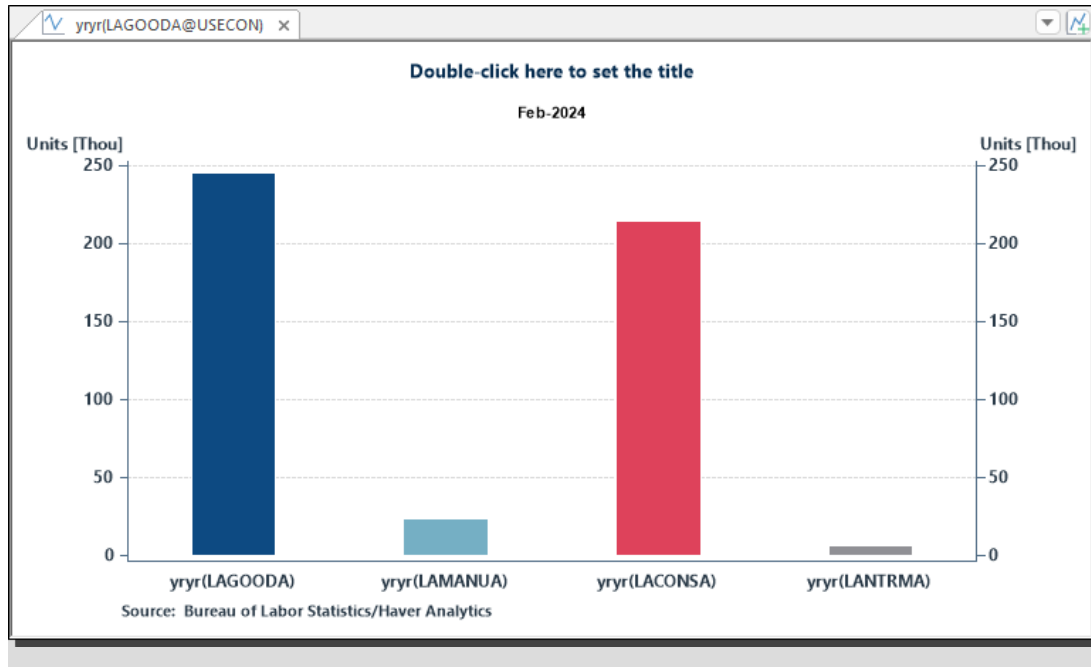
Toggle on/off Columns

- Click on Columns in the Graph Types Cross Series section of the Format Ribbon. Toggle off this graph type by clicking on Columns again:



Example

Column Graph of yyr(LANTRMA@USECON), yyr(LACONSA@USECON), yyr(LAMANUA@USECON), yyr(LAGOODA@USECON)

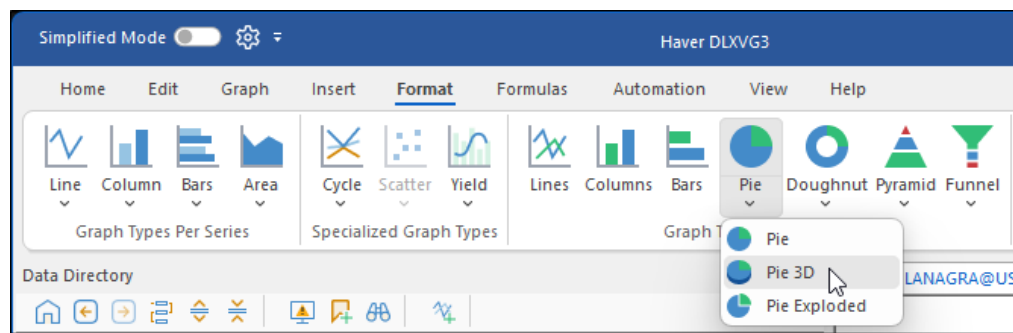


Pie 3D Graph

Shows a 3D Pie Graph of the percentage shares of the included components in the total at the same point in time.

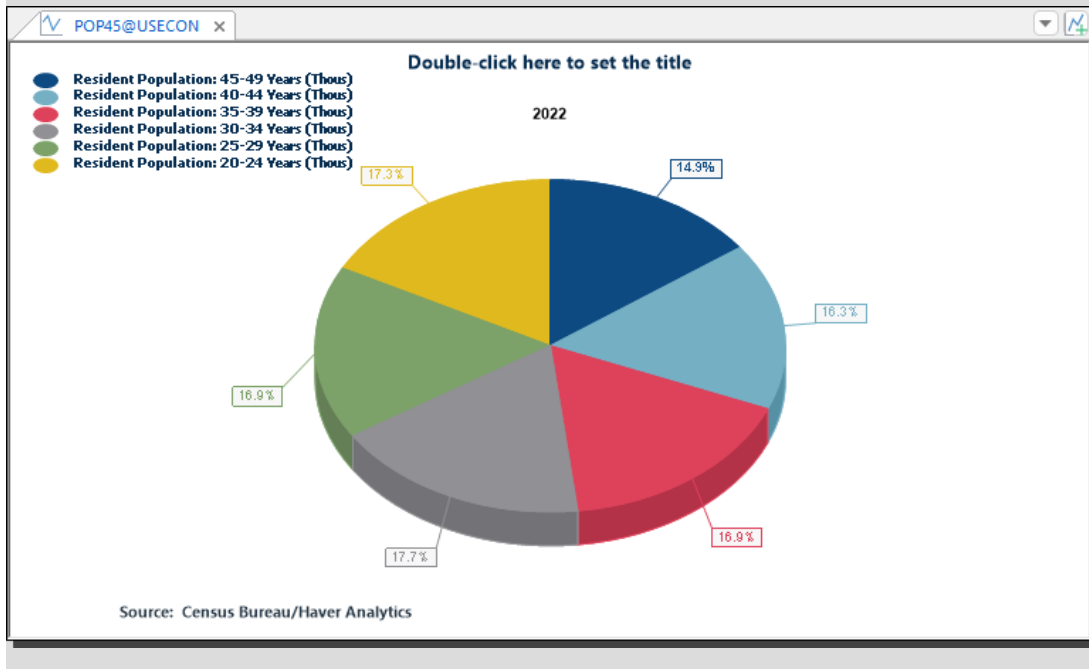
Toggle on/off Pie 3D Graph

- Click Pie 3D on drop down of Pie in the Format Ribbon. Toggle off this graph type by clicking on Pie again:



Example

Pie 3D Graph of POP45@USECON, POP40@USECON, POP35@USECON, POP30@USECON, POP25@USECON and POP20@USECON

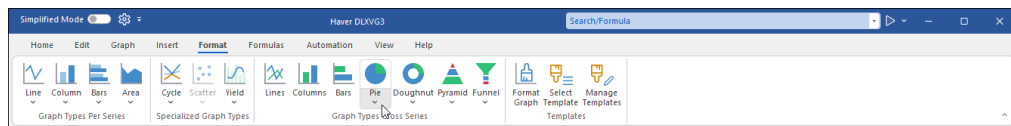


Pie Graph

Shows a Pie Graph of the percentage shares of the included components in the total at the same point in time.

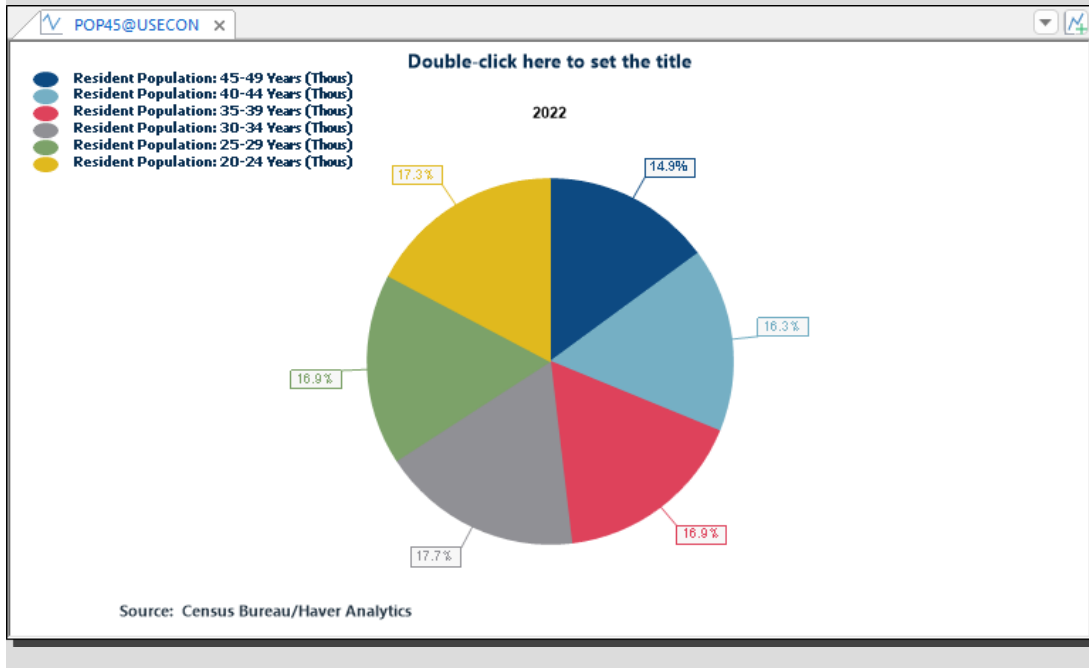
Toggle on/off Pie Graph

- Click Pie in the Format Ribbon. Toggle off this graph type by clicking on Pie again:



Example

Pie Graph of POP45@USECON, POP40@USECON, POP35@USECON, POP30@USECON, POP25@USECON and POP20@USECON

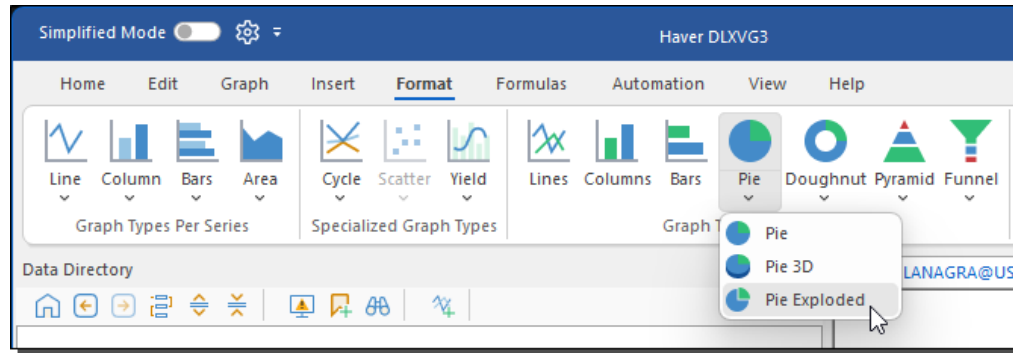


Pie Exploded Graph

Shows a Pie Exploded Graph of the percentage shares of the included components in the total at the same point in time.

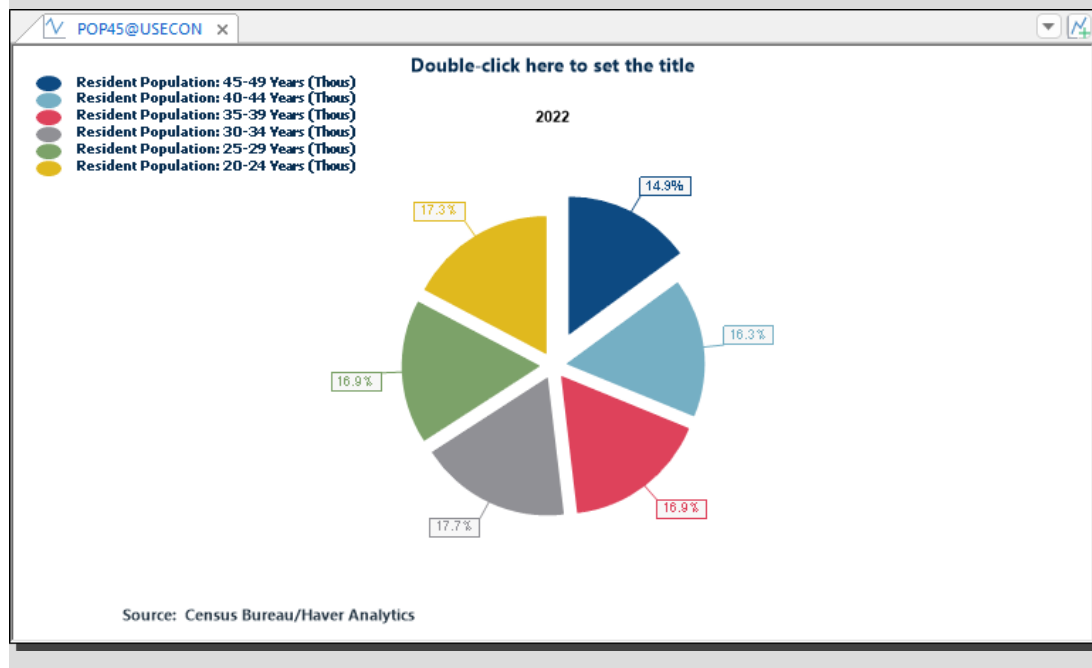
Toggle on/off Pie Exploded Graph

- Click Pie Exploded on drop down of Pie in the Format Ribbon. Toggle off this graph type by clicking on Pie again:



Example

Pie Exploded Graph of POP45@USECON, POP40@USECON, POP35@USECON, POP30@USECON, POP25@USECON and POP20@USECON

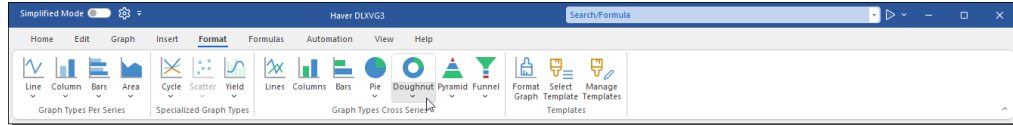


Doughnut

Shows a doughnut chart of the percentage shares of the included components in the total at the same point in time.

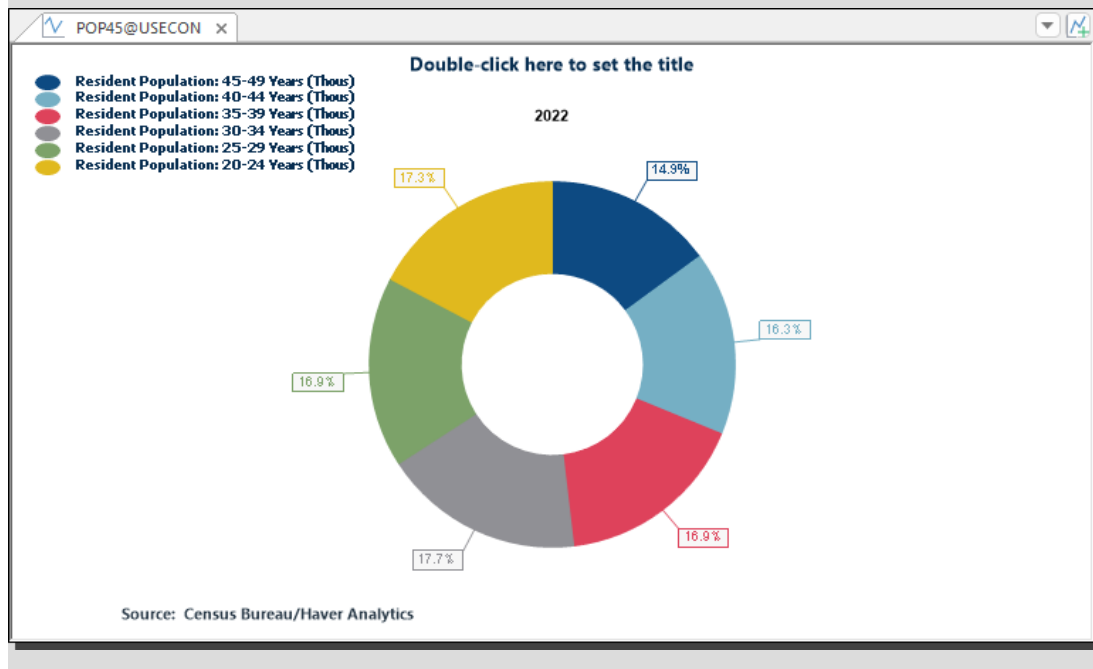
Toggle on/off Doughnut

- Click Doughnut in the Format Ribbon. Toggle off this graph type by clicking on Doughnut again:



Example

Doughnut Graph of POP45@USECON, POP40@USECON, POP35@USECON, POP30@USECON, POP25@USECON and POP20@USECON



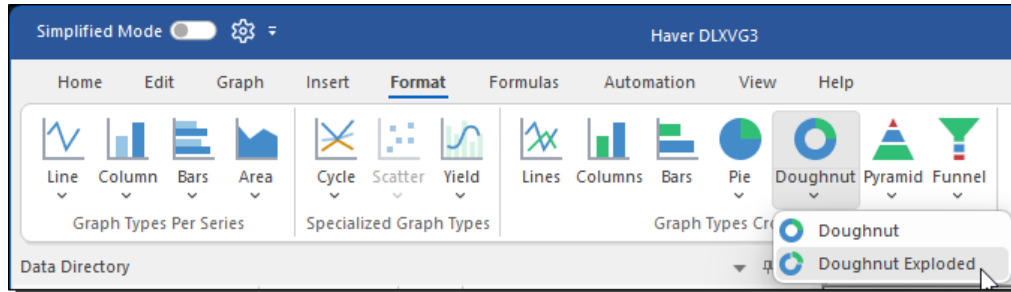
Doughnut Exploded

Shows a doughnut exploded chart of the percentage shares of the included components in the total at the same point in time.

Toggle on/off Doughnut Exploded

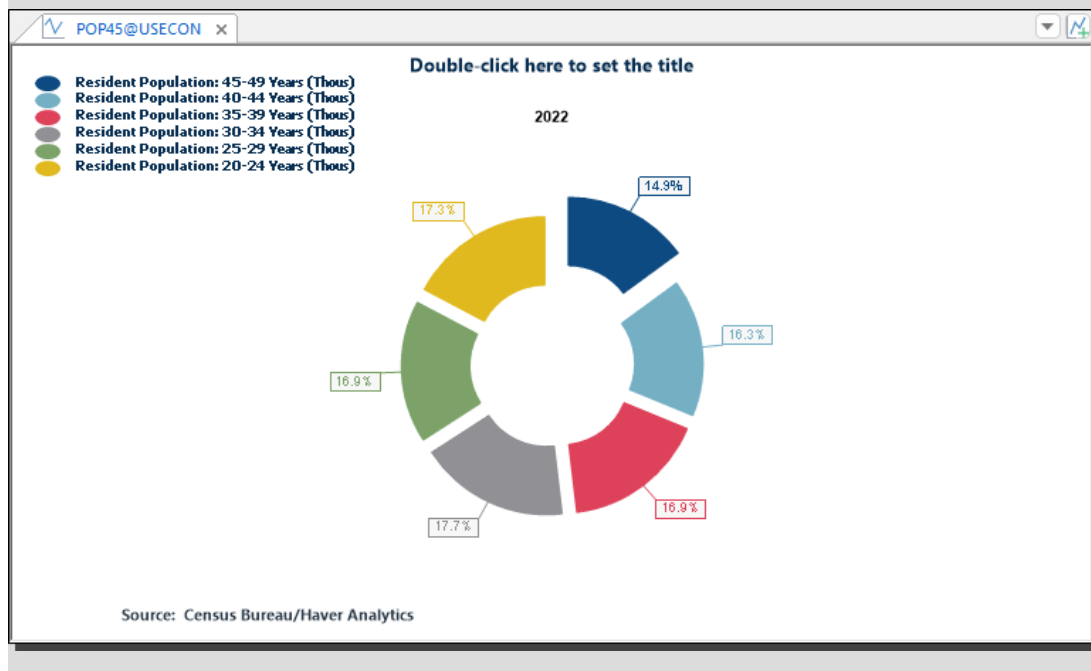
- Click Doughnut Exploded on drop down of Doughnut in the Format Ribbon.

Toggle off this graph type by clicking on Doughnut again:



Example

Doughnut Exploded Graph of PA15TAN5@FFUNDS, PA15ABX5@FFUNDS, PA15AIJ5@FFUNDS, PA15ABN5@FFUNDS and PA15SMV5@FFUNDS

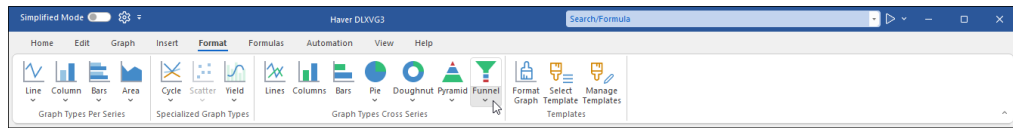


Funnel

Shows a Funnel chart of the percentage shares of the included components in the total at the same point in time.

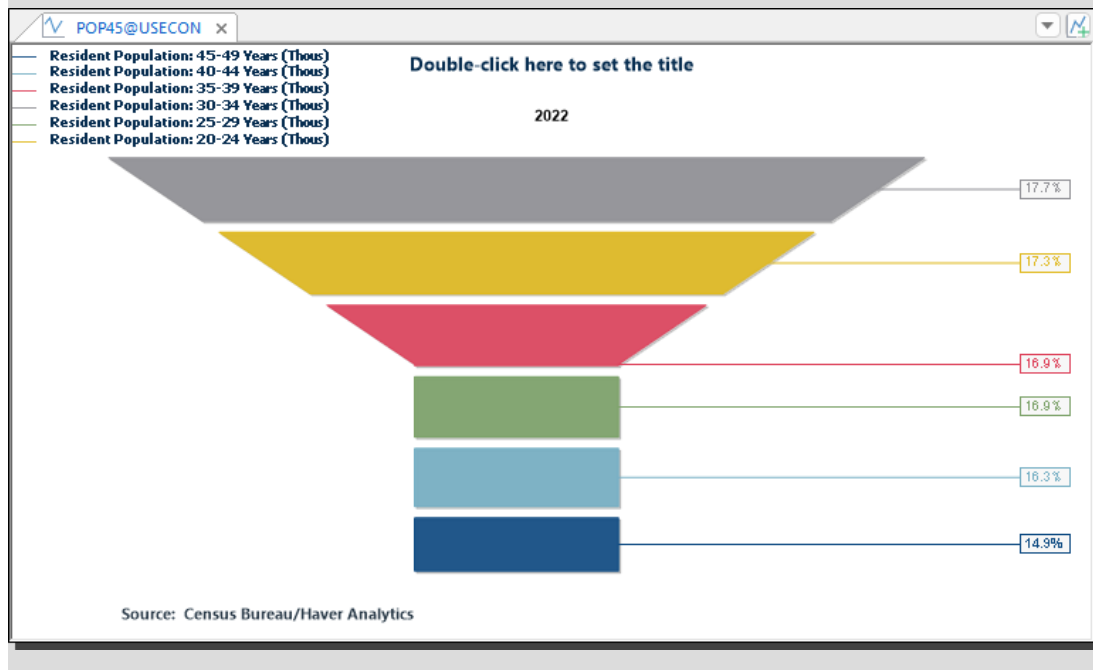
Toggle on/off Funnel

- Click Funnel in the Format Ribbon. Toggle off this graph type by clicking on Funnel again:



Example

Funnel Graph of POP45@USECON, POP40@USECON, POP35@USECON, POP30@USECON, POP25@USECON and POP20@USECON

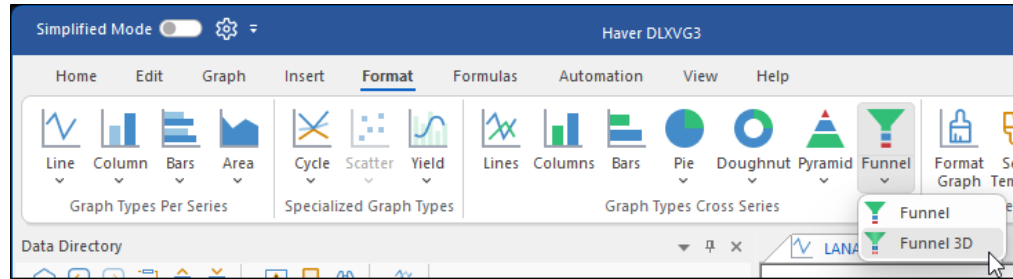


Funnel 3D

Shows a Funnel Exploded Graph of the percentage shares of the included components in the total at the same point in time.

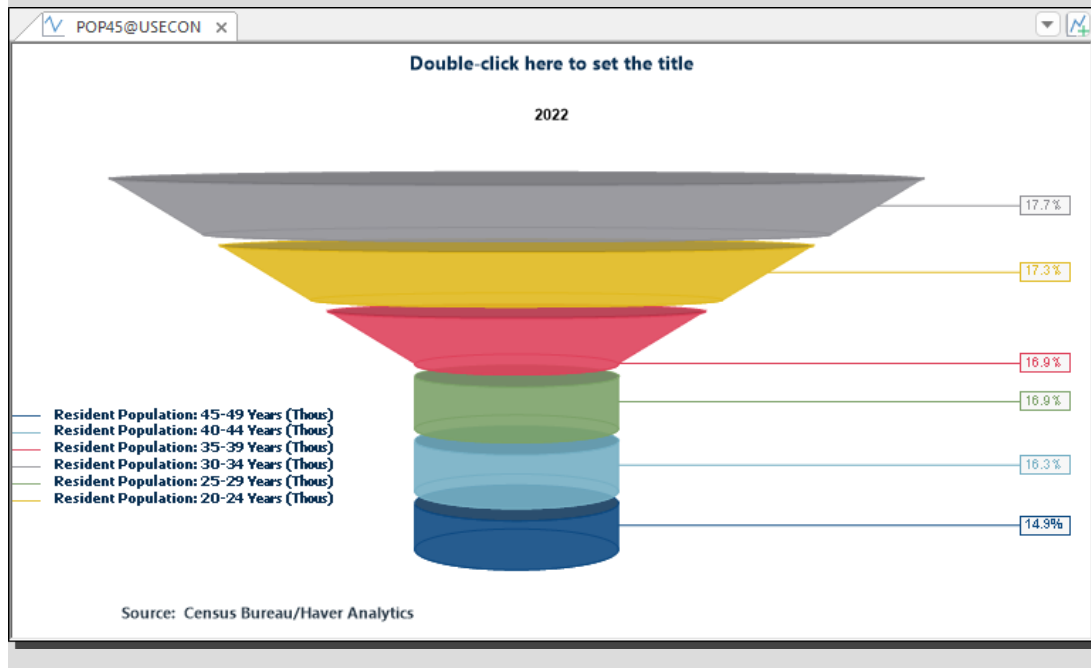
Toggle on/off Funnel 3D Graph

- Click Funnel 3D on drop down of Funnel in the Format Ribbon. Toggle off this graph type by clicking on Funnel again:



Example

Funnel 3D Graph of POP45@USECON, POP40@USECON, POP35@USECON, POP30@USECON, POP25@USECON and POP20@USECON

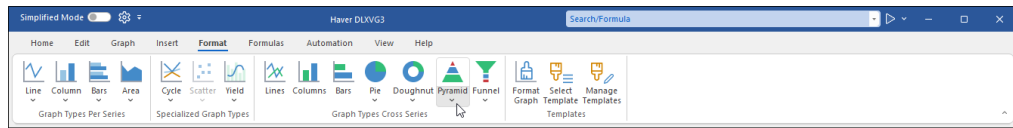


Pyramid

Shows a Pyramid chart of the percentage shares of the included components in the total at the same point in time.

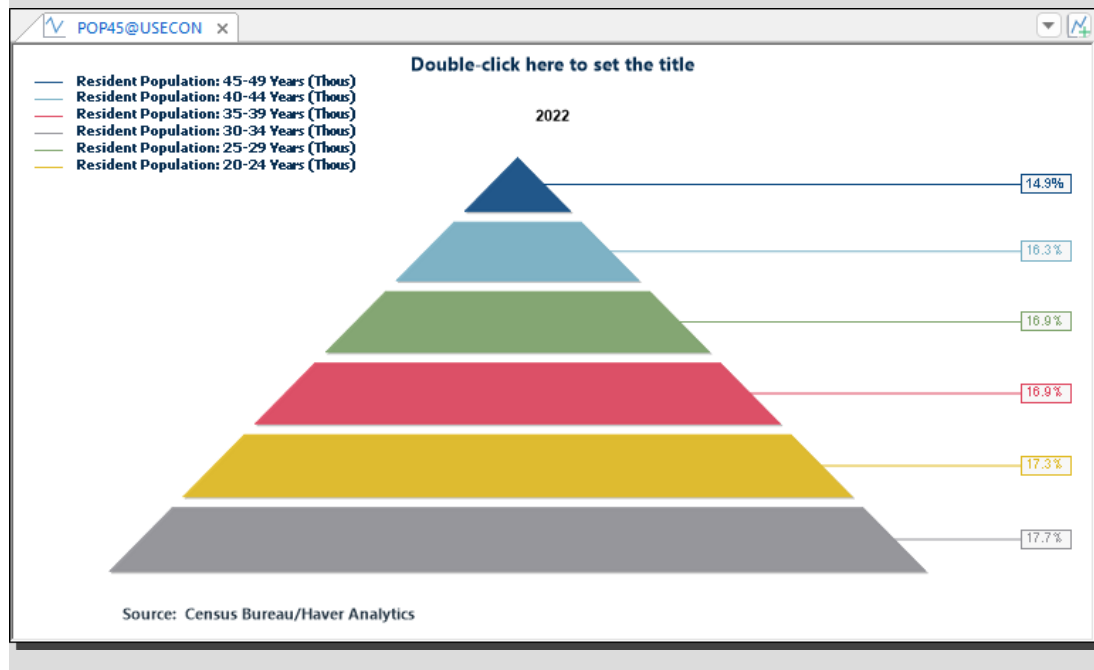
Toggle on/off Pyramid

- Click Pyramid in the Format Ribbon. Toggle off this graph type by clicking on Pyramid again:



Example

Pyramid Graph of POP45@USECON, POP40@USECON, POP35@USECON, POP30@USECON, POP25@USECON and POP20@USECON

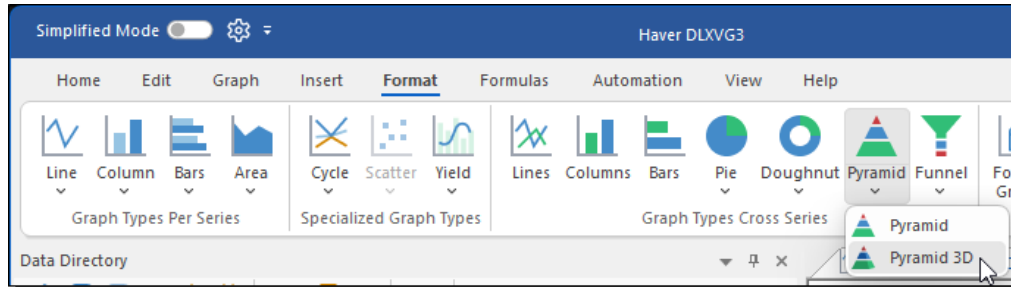


Pyramid 3D

Shows a Funnel Exploded Graph of the percentage shares of the included components in the total at the same point in time.

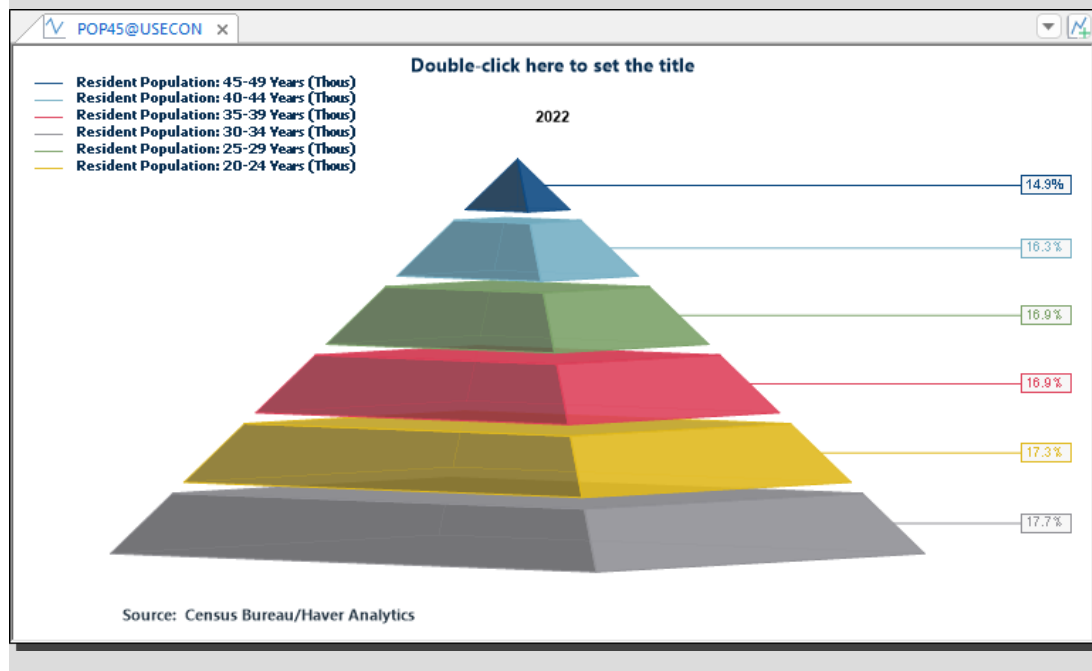
Toggle on/off Funnel 3D Graph

- Click Pyramid 3D on drop down of Funnel in the Format Ribbon. Toggle off this graph type by clicking on Pyramid again:



Example

Pyramid 3D Graph of POP45@USECON, POP40@USECON, POP35@USECON, POP30@USECON, POP25@USECON and POP20@USECON



Folders

Organize Graphs	261
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Organize Graphs

Organize your graphs to easily find them by creating folder groups and subfolders. Folder groups contain subfolders where graphs can be stored. By default, a folder group named "Folders" exists in your Folders panel.

Create a Folder Group

1. Go to Edit > New Group
2. Choose an existing folder in your directory
3. Click Make New Folder and name the folder
4. Click OK or  ENTER

Create a Shared Folder Group

1. Go to Edit > New Group
2. Choose an existing folder group on a shared network
3. Click OK or  ENTER

 *To refresh the share folder group's contents, simply restart DLXVG3*

Add Subfolders

1. Enter Folders Mode
2. Right click the folder group > New Folder or click on Edit > New Folder
3. Enter a name for the subfolder
4. Click OK or  ENTER

 *You can also add subfolders to other subfolders.*

Rename a Folder Group, Subfolder or Graph

1. Enter Folders Mode
2. Select a folder group, subfolder or graph
3. Right click and select Rename
4. Enter the new name
5. Click OK or  ENTER

Rearrange Subfolders or Graphs

1. Enter Folders Mode
2. Select the subfolder or graph
3. Drag and drop the item to a new location

 *You can now also arrange your subfolders by ascending or descending order of graph names by right clicking on the subfolder and selecting **Arrange > Name Ascending** or **Name Descending***

Delete Subfolders or Graphs

1. Enter Folders Mode
2. Select the subfolder or graph
3. Right click and select Delete

 *Deleting a subfolder will delete all its contents as well.*

Delete Folder Groups

1. Go to Folders > Remove Folder Group
2. Select the Folder Group you wish you delete

3. Click OK or  ENTER

 *You can only delete additional Folder Groups created. You must always have at least one Folder Group.*

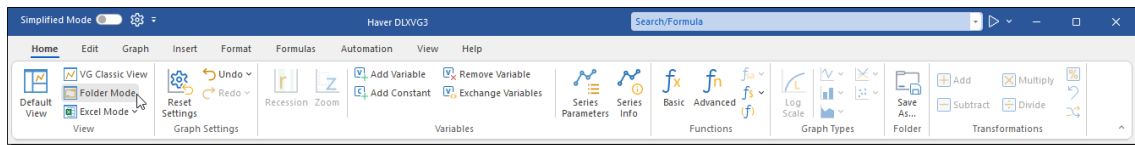
Save Graphs

Use folders to save graphs to provide an easy way to view them later.

Folders Mode

To enter Folders Mode do one of the following:

- Click the Folders tab  at the bottom of the data directory
- Click Folder Mode from the Home Ribbon:

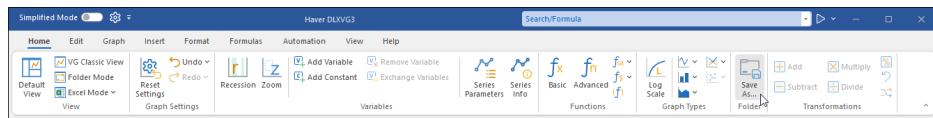


Save Graphs

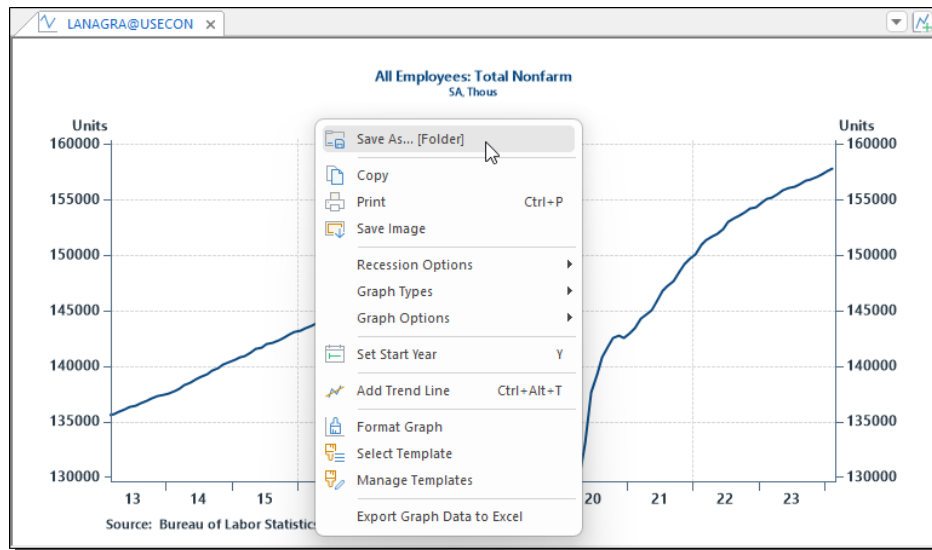
Graphs can only be saved into subfolders.

1. Save the graph by doing one of the following:

- Click Save As... in the Home Ribbon:



- Right click the graph and select Save Folder As ...[Folder]:



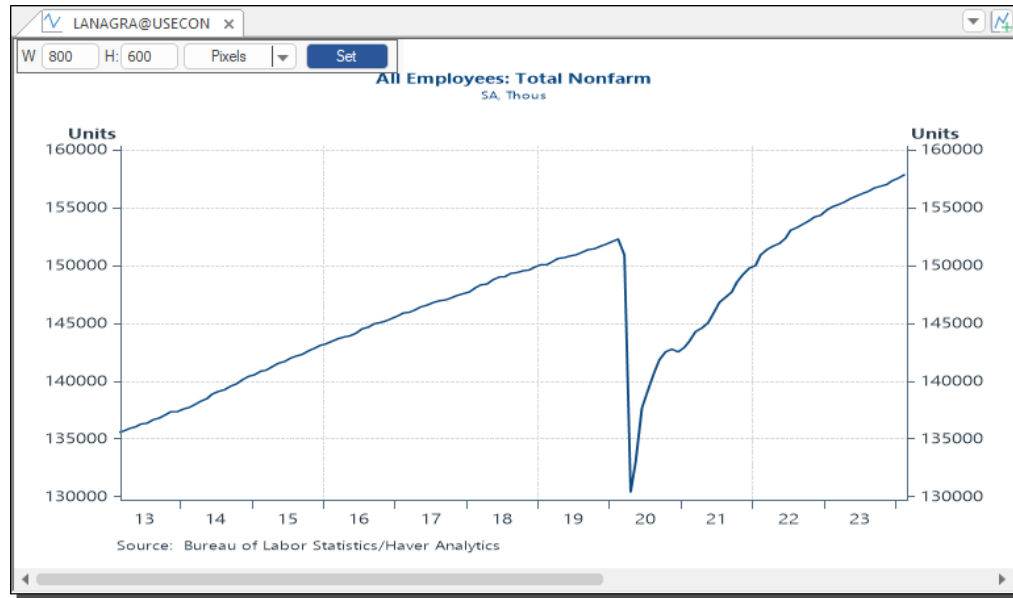
-  SHIFT + F

2. Enter the name for the graph

 By default, the code of the active series will be populated in the graph name field.

 If the active series is a transformation then "_" will appear by default.

3. By default, the size toolbar will appear, which allows you to select the size of the graph that will be saved in pixels, inches or centimeters:



If you do not wish to have the size toolbar shown, go to Options > Display > Folder Saved Options > Show Size Toolbar and uncheck the box.

4. Select a subfolder from one of the folder groups
5. Click save graph 

Folder Save Options

Here you can choose the default values that are used when saving a graph. To access Folder Save Options go to Options > Display > Folder Save Options.

- The Size Toolbar will be shown by default when you choose to save a graph. If you do not want to display the Size Toolbar simply uncheck the check box.
- The default Graph Size Type is Fixed as this applies to all [Active View Modes](#). By default, the graph size will be 800,600 but you can specify a new

default graph size by simply entering the desired dimensions for Graph Size Width and Graph Size Height.

- If you are in [Normal Mode](#), you can also choose Dynamic in the drop-down for Graph Size Type. This means that when you save a graph, the size of the graph will be determined based on the size of the graph area. Therefore, the image that you see in active view will be the exact image that is saved into a folder.

Update Graphs

Update your graphs manually either one at time, by subfolder or all Folder Groups. You can now also have Automatic Folder Updates enabled, but this only applies to your Primary Folder Group. Please note that locked graphs or folders will not be updated.

Update a Single Graph

1. Enter Folders Mode
2. Select a saved graph
3. Right click on the graph > Update

Update a SubFolder

1. Enter Folders Mode
2. Select a SubFolder
3. Right click on the graph > Update

Update All

To update all of your folder groups manually, do the following:

- Enter Folders Mode
- Select  on the Folder Toolbar

 *Please note, using this option will update all graphs in all Folder Groups*

Enable Automatic Updates

This is a relatively new feature in VG3, but now also available in Direct as of version 6.015 to automatically update your saved graphs in your Primary Folder Group. When this option is enabled, any graph that contains a series that has been modified will automatically refresh the graph to reflect the modified data available.

- Go to Options > Folder Automatic Updates > Select the box for 'Enabled'



Note, enabling this feature will not automatically update all your saved graphs. You can right click your primary folder group and select "Update" prior to enabling this option to ensure that all your saved graphs are up to date. After enabling this feature, your saved graphs will be updated as the series they contain are updated.

Modify Saved Graphs

The following can be performed on a saved graph:

Apply a Template

1. Enter Folders Mode
2. Select a graph
3. Right click the file > Select Template
4. Select a template from the Template drop-down list
5. Click OK or  ENTER

 *To apply a template to all graphs in a folder, right click the folder > Select Template.*

 *Please note, when applying a template to a saved graph/folder all custom settings will be overwritten based on the settings in the template*

 *If you would like to update a template while maintaining custom graph changes on a saved graph, simply update the template in a new graph tab and then update the graph instead of using this option.*

Adjust Current Year

1. Select a graph
2. Right click the file > Adjust Current Year
3. Enter the current year in YYYYMM format
4. Click OK or  ENTER

 *To adjust current year to all graphs in a folder, right click the folder > Adjust Current Year.*

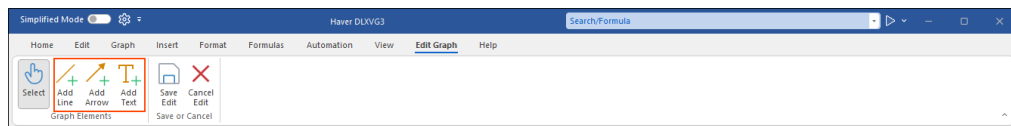
Adjust Current Graph Size

1. Select a graph
2. Right click the file > Adjust Current Graph Size
3. Enter new Width and Height
4. Click OK or  ENTER

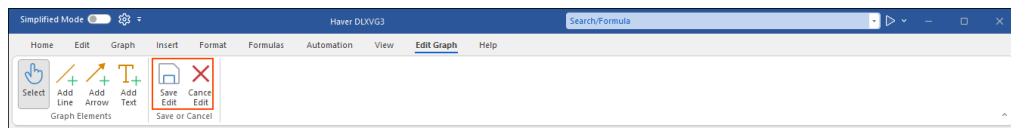
 To adjust current year to all graphs in a folder, right click the folder > Adjust Current Graph Size.

Apply Arrows, Lines and/or Text

1. Enter Folders Mode
2. Select the graph
3. Right click on the graph > Edit Graph
4. Click one of the following buttons in the Edit Graph Ribbon to insert a line, arrow or text:



5. Draw an arrow, line or box for a text in the graph area
 - Once the box is drawn, click inside the box to enter text
6. Click Save Edit to save the changes or Cancel Edit to cancel:



Modify, Add or Remove Series

1. Enter Folders Mode
2. Select the graph
3. Send the graph to active view by doing one of the following:
 - Right click on the graph > Send to Active View
 -  ALT + V
4. Make any changes to the graph
5. Save graph to folder

 *Modified graphs can be saved as a new graph.*

Lock/Unlock Graphs

This feature is useful for preventing graphs or folders from being updated.

1. Enter Folders Mode
2. Select the graph
3. Do one of the following:
 - Right click on the graph > Lock
 - Right click on the graph > Unlock

Folder Options

You can now do the following in Folders Mode:

Enable Automatic Updates

This is a relatively new feature in VG3, but also available in Direct as of version 6.015 to automatically update your saved graphs in your Primary Folder Group. When this option is enabled, any graph that contains a series that has been modified will automatically refresh the graph to reflect the modified data available.

- Go to Options > Folder Automatic Updates > Select the box for 'Enabled'

 *Note, enabling this feature will not automatically update all your saved graphs. You can right click your primary folder group and select "Update" prior to enabling this option to ensure that all your saved graphs are up to date. After enabling this feature, your saved graphs will be updated as the series they contain are updated.*

Update All

To update all your folder groups manually, do the following:

- Enter Folders Mode
- Select  on the Folder Toolbar

Open Errors

The Folders icon will change to  after errors occurred during an automatic update. To open the error list, do the following:

- Enter Folders Mode
- Select  on the Folder Toolbar

Refresh List

Refresh the list that contains all the graphs saved in your folders. This is useful if you have recently deleted folder items.

- Enter Folders Mode
- Select  on the Folder Toolbar

Export Graphs

Easily share your subfolders and graph items with others with the export graph button by doing the following:

1. Enter Folders Mode
2. Select the subfolder or graph item you want to export
3. Select  on the Folder Toolbar
4. Browse to the directory where you want to save the subfolder or graph item
5. Click Save

Import Graphs

After a user has exported their subfolder or graph item, you can import it to your folders directory in VG3 by doing the following:

1. Enter Folders Mode
2. Select the folder where you want to import the subfolders or graph item

3. Select  on the Folder Toolbar
4. Browse to the directory where the exported graphs are located and highlight the .vg3 file(s) you want to import
5. Click Open

Folder Graph Info

Select a saved graph and then select  to see the following information:

- Date and Time last updated
- Template used
- Graph Size

 *This information is also available in the [status bar](#) when you select a saved graph*

Search in Folders

You can now search for text and series in your saved graphs

1. Enter Folders Mode
2. Select the subfolder you wish to search
3. Enter your query in the Search/Formula Bar
4. Saved graphs with matching results will be highlighted in blue

Excel

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Exporting Data to Excel

There are three ways to export data into Excel. To begin exporting data into Excel, select one of the options below:

[Excel Code Writer \(DLX FIND\)](#)

This option allows you to export codes from VG3 directly into Excel. Then in Excel, you can set up a range and perform a retrieval to import the data. If you use a dynamic date span, you will be able to update the spreadsheet in the future as new data becomes available.

[Build Excel Spreadsheet](#)

This option allows you to build an excel spreadsheet in DLXVG3 in the Haver Excel interface. This spreadsheet can then be saved in Excel and retrieved in the future.

[Export Graph Data to Excel](#)

This option allows you to either export the graph's data directly into an Excel spreadsheet or into the Haver Excel interface which can then be saved and opened in Excel. The data retrieval will use the start data displayed on the graph and a dynamic end date so the data can be updated in the future.



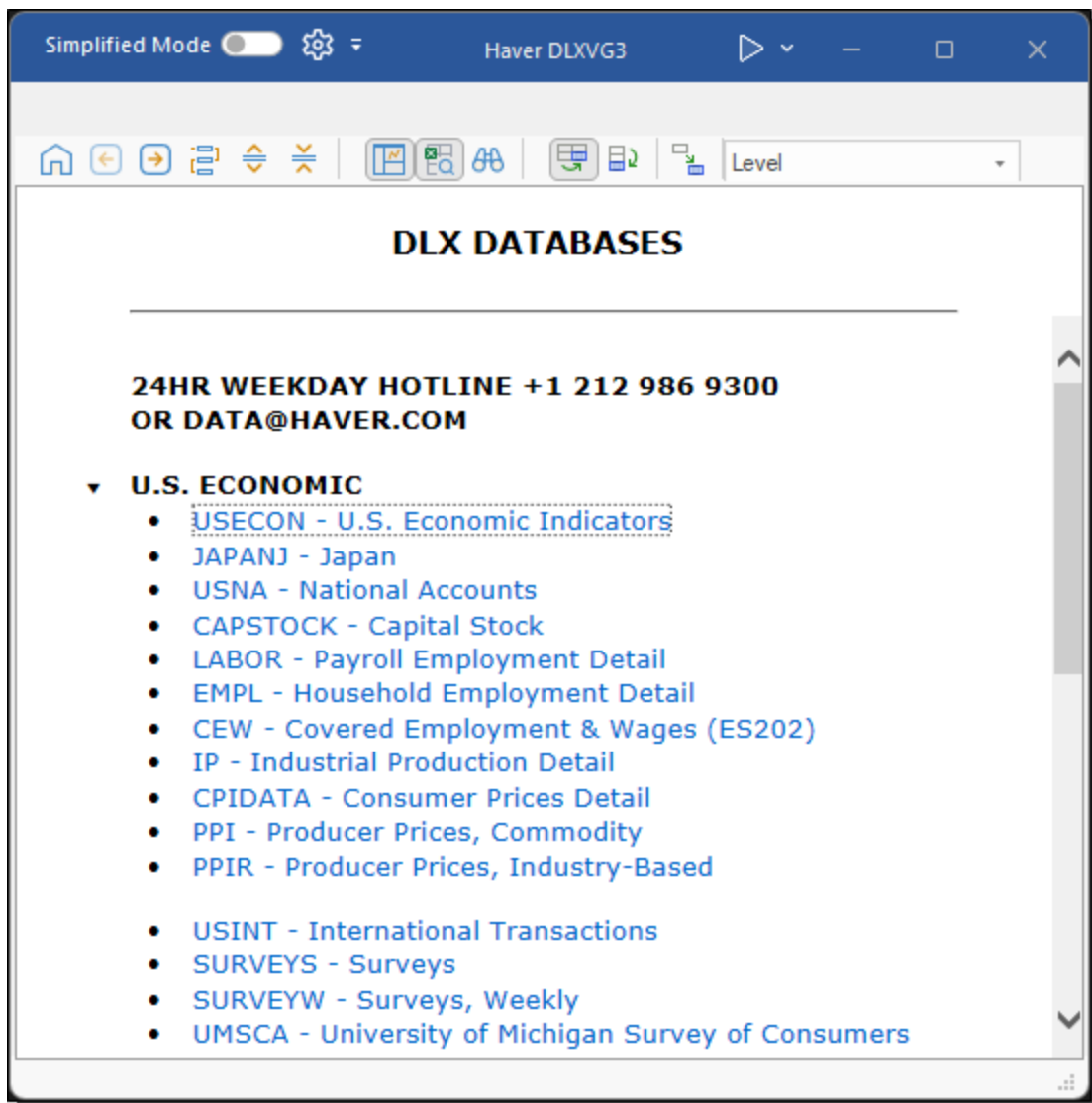
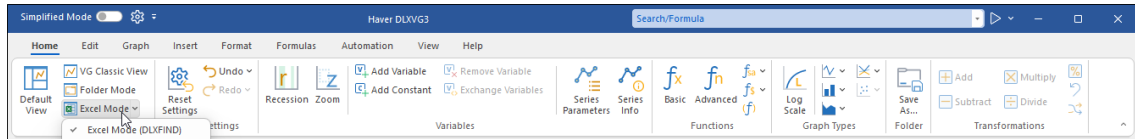
For more information on setting up ranges and performing retrievals, please see the [Excel Guide](#) located on [haver.com](#) > Client Area > Training Center.

AI

Excel Code Writer (DLXFIND)

Export codes to Excel by using the DLX Excel add-in.

1. Open Excel
2. Click the Excel Mode icon in the Home Ribbon or click the drop-down arrow and select Excel Mode (DLXFIND):



3. Browse through the menus until you reach the page with the series
4. *(Optional)* By default, your codes will be written across in a row. To switch to columns, do one of the following:

- Click on  from the excel mode menu bar to put codes in rows (default) - lets you pull in data in columns
- Click on  from the excel mode menu bar to put codes in columns - lets you pull in data in rows

 *To insert an empty cell before inserting the codes, click on  or *

CTRL + S

5. *(Optional)* To apply a function to the series, click on the drop-down arrow on the top right and select the function you want to apply 

6. Click the series from the data directory to import the code into Excel

Employment Situation: Household Survey
SUMMARY TABLE (TABLE A)
 Thousands Unless Otherwise Indicated
 Seasonally Adjusted

Employment status

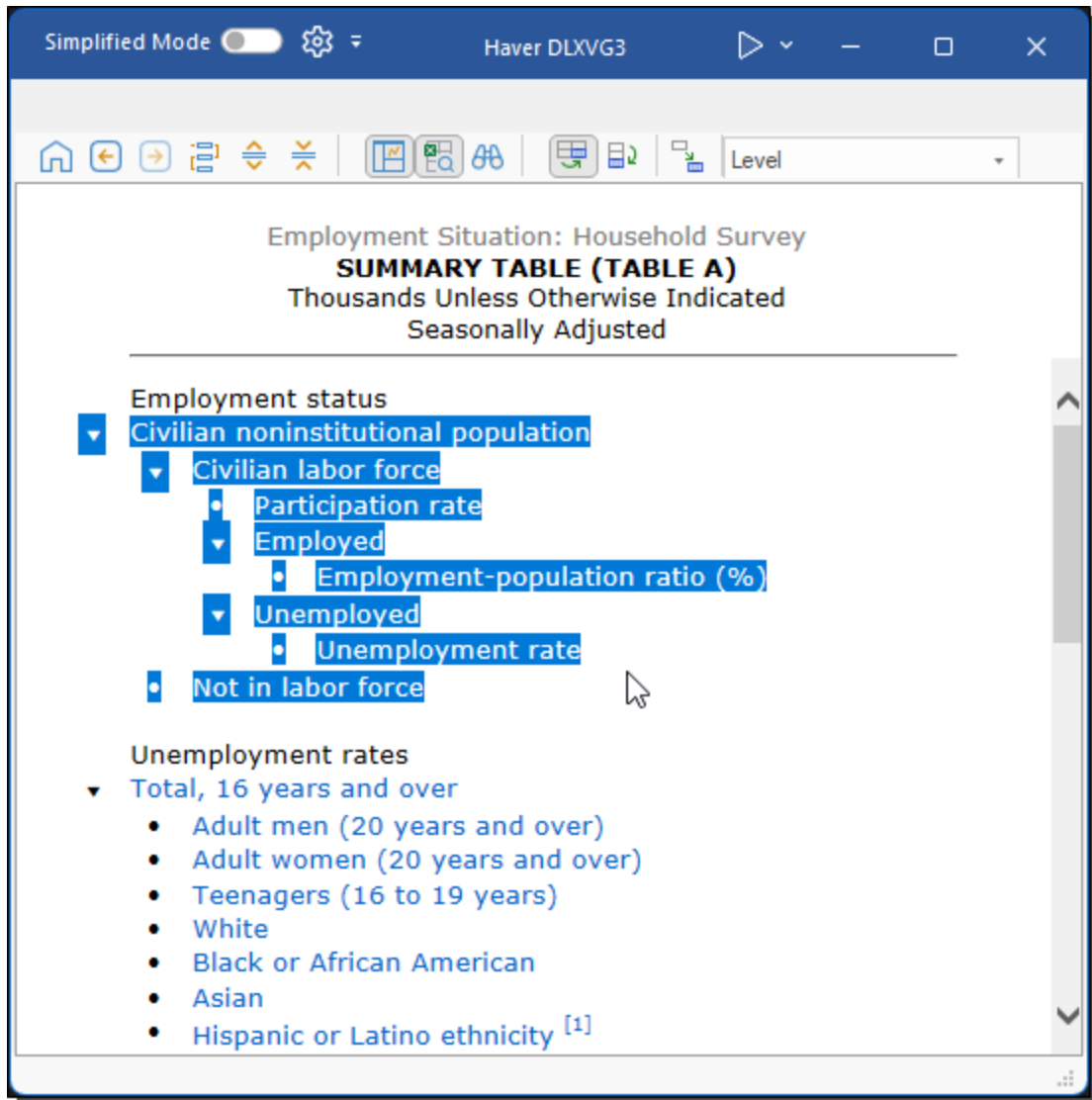
- ▼ **Civilian noninstitutional population**
 - ▼ **Civilian labor force**
 - Participation rate
 - ▼ **Employed**
 - Employment-population ratio (%)
 - ▼ **Unemployed**
 - Unemployment rate
 - Not in labor force

Unemployment rates

- ▼ **Total, 16 years and over**
 - Adult men (20 years and over)
 - Adult women (20 years and over)
 - Teenagers (16 to 19 years)
 - White
 - Black or African American
 - Asian
 - Hispanic or Latino ethnicity ^[1]

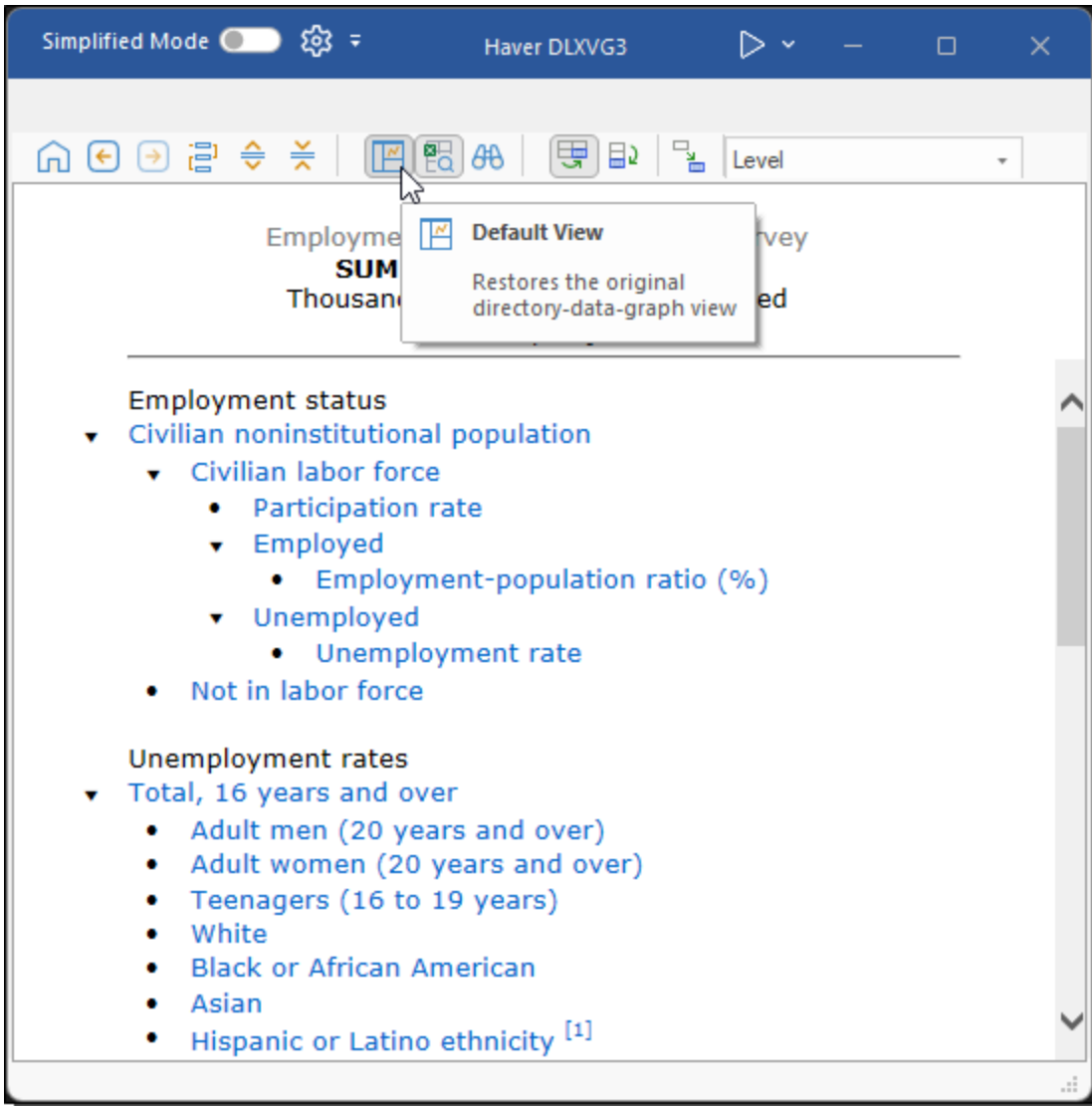
LR Monthly Civilian Unemployment Rate: 16 yr + (SA, %)

 To import consecutive codes, highlight consecutive series by holding down the mouse button over the first series and letting go of the mouse button in the last series.



7. Build the range using the DLX Excel Add-In
8. Perform a retrieval using the DLX Excel Add-In to retrieve the data

 To exit Excel Mode either click Default View or click the close button in the right hand corner of the Haver Excel interface:



Build Excel Spreadsheet

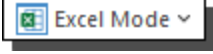
This option allows you to build an excel spreadsheet in your DLXVG3 workspace.

1. Open a series
2. *(Optional)* Apply function(s)
3. *(Optional)* Select series parameters (descriptors)
 1. Do one of the following to access Excel Options:
 - Click on the drop-down arrow from  and select Excel Options
 - Go to Options > Excel Options
 2. Check/Uncheck parameters
4. Go to Build Excel Spreadsheet in one of three ways:
 - Click on the drop-down arrow from Excel Mode  and select Build Excel Spreadsheet in the Home Ribbon
 - Select Build Excel Spreadsheet from the Automation Ribbon
 - Select Haver Excel from the View Ribbon
5. Click the series link from the Data Directory to import the series to the spreadsheet
6. Right click on the spreadsheet, and select Save to Excel File
7. Select Yes when prompted, name the file and click Save
8. Open the file in Excel and perform a retrieval

 **Quick Tip:** Once Build Excel Spreadsheet has been selected, simply click the

Excel Mode  button to build future spreadsheets.



To exit Excel Mode either click Excel Mode  again or click the close button in the right hand corner of the Haver Excel interface.

Export Graph Data to Excel

This option allows you to export the graph's data directly from VG3 into Excel. The data retrieval will use the start date displayed on the graph and a dynamic end date so the data can be updated in the future.

1. Open a series
2. *(Optional)* Apply function(s)
3. Do one of the following to export graph data to excel:
 - Click on the drop-down arrow from Excel Mode  and select Export Graph Data to Excel from the Home Ribbon
 - Right click in the graph area and select Export Graph Data to Excel
 - Select Export Graph Data to Excel from the Automation Ribbon
4. By default, the data will now be exported directly into Excel and then you can proceed to edit or save the spreadsheet in Excel.

If you want Export Graph Data to Excel to work the way it did in Version 4.242 by exporting the data to the Haver Excel interface go to:

Options > Excel Options > Misc and click the drop-down for "Export to a new spreadsheet in Excel" and select "Export to Haver Excel Interface."

5. *(Optional)* Right click in the Haver Excel window and select Save to Excel file
6. *(Optional)* Select Yes when prompted, name the file and click Save



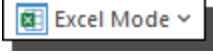
Quick Tip: Once Export Graph Data to Excel has been selected, simply click the

Excel Mode



button for future exports.



To exit Excel Mode either click Excel Mode  again or click the close button in the right hand corner of the Haver Excel interface.

More ...

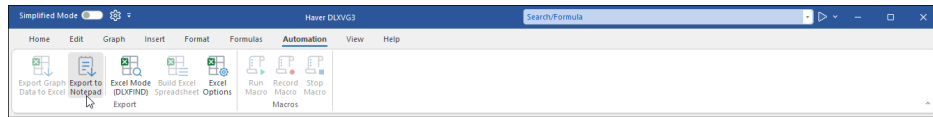
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Export to Notepad

Export codes Notepad to be used for an external application, such as a third party software.

Export Codes to Notepad

1. Open Notepad
2. Click Export to Notepad in the Automation Ribbon:



3. Navigate to the series you want to export, then click on the code

 *Highlight multiple codes to export multiple codes.*

Export Full Series Name (code@database)

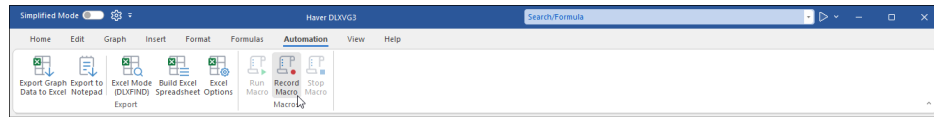
1. Options > Notepad Options > select the checkbox for "Code@Database"
2. Select code(s) to export

Macros

This is a tool that can be used to recreate a set of commands to apply to a graph.

Saving a Macro

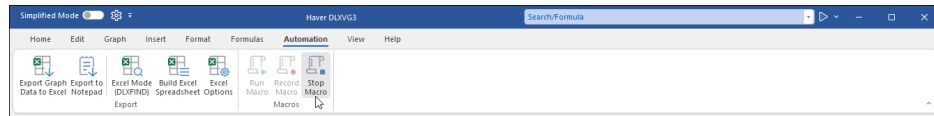
1. Do one of the following to start a macro recording:
 - Click on Record Macro in the Automation Ribbon:



-  CTRL + M

2. Select a name for the macro and click OK
3. Perform desired steps such as applying a function, etc.
4. Do one of the following to stop a macro recording:

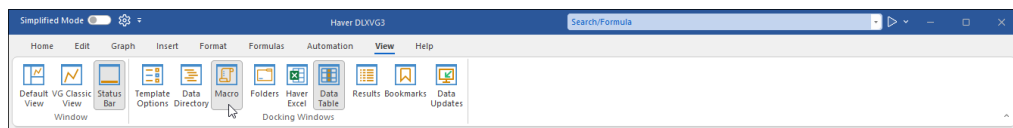
- Click on Stop Macro in the Automation Ribbon:



-  CTRL + ALT + M

Running a Macro

1. Click on Macro in the View Ribbon:



2. Select your saved macro, right click and select Run...

Deleting a Macro

1. Go to View > Toolbars and Docking Windows > Macros
2. Select your saved macro, right click and select Delete

Linking Graphs to Microsoft Word/Publisher

Insert a Saved Graph in Microsoft Word/Publisher

1. Open Microsoft Word/Publisher
2. Go to the Insert Tab and select Picture
3. Browse to your Folder directory
 - If you do not know where your Folder directory is open VG3:
 - i. Go to Options > General. The Folders directory will be listed on the right hand side
 - ii. Go the [Folders Mode](#) and hover over a folder item and the directory will be listed at the bottom.
4. Select the graph that you wish to insert
5. Click the drop-down arrow next to the Insert button and select Link to File

Update a Saved Graph in Microsoft Word

- Do one of the following:
 - Simply close and open the word document and the linked graphs will be automatically updated
 -  F9

Update a Saved Graph in Microsoft Publisher

1. Open Microsoft Publisher
2. Go to the View tab and select the check box for Graphics Manager
3. The Graphic Manager will appear on the right hand side with the images listed. If a graph has been updated it will say "Original is modified"

4. Select the picture you want to update
5. Click on the drop-down arrow and select Update this Link

Keyboard Shortcuts

Use keyboard shortcuts to quickly navigate through data, perform calculations and/or modify your graphs.

Menu Navigation

Key	Description
ENTER	Go Forward / Next Level
ESC	Go Back / Previous Level
D	Displays the Database List
ALT + Down Arrow	Adds new variable to the graph
CTRL + Down Arrow	Replaced current variable on the graph
SHIFT + C	Toggles on/off Classic View
CTRL + F	Search
CTRL + T	Opens a new graph tab
CTRL + SHIFT + T	Duplicates graph
CTRL + S or SHIFT + F	Save graph in Folder
CTRL + P	Print Graph and/or Data Table
P	Select Horizontal (H) or Vertical (V) for printing
CTRL + H	Header/Column Mode Data Table

Variable Selection

Key	Description
ALT + D	Select Database
N	Name Lookup
ALT + N	Code@Database Lookup
CTRL + N	Name List Lookup

Key	Description
SHIFT+N	Copy Active Series
ALT+SHIFT+N	Copy Active Series to Formula Bar
CTRL + I	Series Info
ALT + F10	Series Parameters

Time Scrolling

Key	Description
Z	Zoom to n periods (n = 6d(ays), 6w(eeks), 6q(arters), 6m(onths), 6y(ears))
← (left arrow)	-n period
→ (right arrow)	+n period
SHIFT + ← (left arrow)	-n period based on frequency of primary series
SHIFT + → (right arrow)	+n period based on frequency of primary series
HOME	Start of Data
END	End of Data

Graph Display Options

Key	Description
V	2 Variable Mode
ALT + V	Insert 2+ Variables
CTRL + V	Remove 2+ Variables
X	Exchange Variables
ALT + X	Exchange 2+ Variables (drag and drop)

Key	Description
CTRL + ALT + C	Insert a Constant Variable
CTRL + ALT + T	Insert a Trend Line
CTRL + R	Reset Graph
ALT + R	Recession Lines
G	Grid Lines
ALT + H	Horizontal Reference Line
SHIFT + V	Vertical Reference Line
L	Log Scale
S	Scale Options
ALT + S	Left Scale Settings
ALT + SHIFT + S	Right Scale Settings
K	Toggle all ticks on x-axis
CTRL + K	Toggle all but primary ticks
T	Set Titles
ALT + T	Set Top Title
CTRL + L	Show Legends
ALT + CTRL + L	Legends Text
ALT + A	Alignment
Y	Start Year YYYY
C	(Current) End Year YYYY

Key	Description
B	Toggle column/line graph
ALT + B	Set Bar/ Column Template Options
CTRL + W	Line Width
ALT + V	Sends graph to active view from Folders Mode
ALT + N	Highlight code in Formula Bar
ALT + Y	Add a date for Yield Curves
SHIFT + Y	Edit Add dates for Yield Curves
CTRL + ALT + Y	Remove date for Yield Curves

Data Transformations

Key	Description
A	Aggregation to a lower frequency
CTRL + ALT + A	Change Aggregation Type
I	Interpolate
M	Magnitude
.	Change Decimal Precision of a % change
SHIFT + S	Seasonal Adjustment
CTRL + ALT + S	Seasonal Adjustment Settings
F	Basic Functions
ALT + F	Advanced n-Period Functions
\$	Convert to US\$
CTRL + ALT + F	Nest Functions
CTRL + ALT + R	Undo Nested Functions

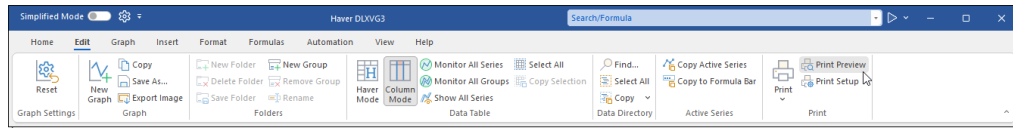
Key	Description
+ , - , * , / , %	Basic Arithmetic
SHIFT + R	Undo Basic Arithmetic
SHIFT + X	Exchange Arithmetic Order
ALT + C	Correlation
CTRL + Left Arrow	Shift primary back in time (Lead)
CTRL + Right Arrow	Shift primary back in time (Lag)
CTRL + Z	Undo
CTRL + Y	Redo

Print

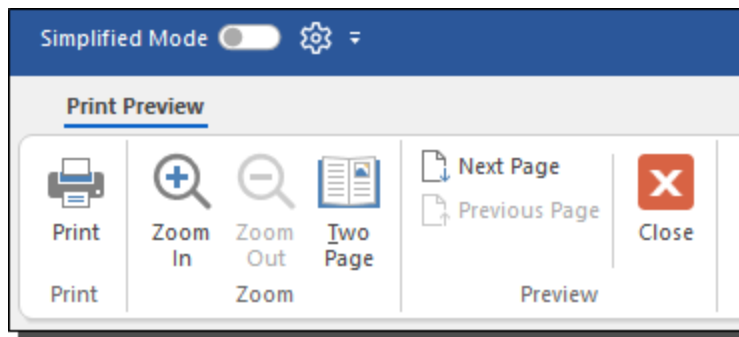
Preview and print graph(s) and/or data table(s).

Preview and Print a Graph

1. Click on Print Preview in the Edit Ribbon:



2. Click on one of the following to print the file, zoom in or out and to close the print preview:

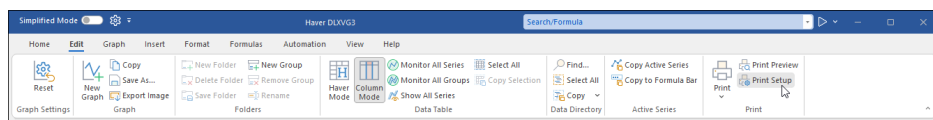


Print a Graph

Prints the graph only, choose landscape orientation in the print setup.

1. Open the print setup dialog window by doing one of the following:

- Click on Print Setup in the Edit Ribbon:



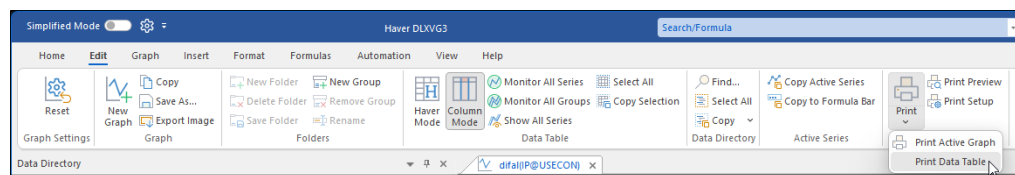
-  P

2. Choose horizontal orientation by doing one of the following:

- Select landscape in the print setup dialog window
-  H

Print Data Table

1. Click the drop down on the Print icon in the Edit Ribbon and select Print Data Table:



2. On the Data Table Print Page, specify the number of pages or the beginning and end year of the data you wish to print

 *If you change the range of the data to be printed, the number of pages required will be adjusted. The reverse is also true: if you change the number of pages to be printed, the start year will be adjusted accordingly.*

Print Graph and Data Table

To print the graph and data table, choose portrait orientation in the print setup.

1. Open the print setup dialog window by doing one of the following:

- Click Print Setup in the Edit Ribbon
-  P

2. Choose portrait orientation by doing one of the following:

- Select portrait in the print setup dialog window
-  P

Contact Support

If you are experiencing problems with Haver DLXVG3 or have any questions, please contact us online:

- Technical Support: tech@haver.com
- Data Inquiries: data@haver.com
- Sales and Information: sales@haver.com

Or call us anytime on our 24hr weekday hotline:

- +1 212 986 9300 (US)
- +44 (0) 207 847 1979 (UK)
- +65 6859 0160 (SINGAPORE)
- +81 3 6860 8390 (JAPAN)