

What is a Smart Chart

PxPlus 2019 (v16)

Agenda

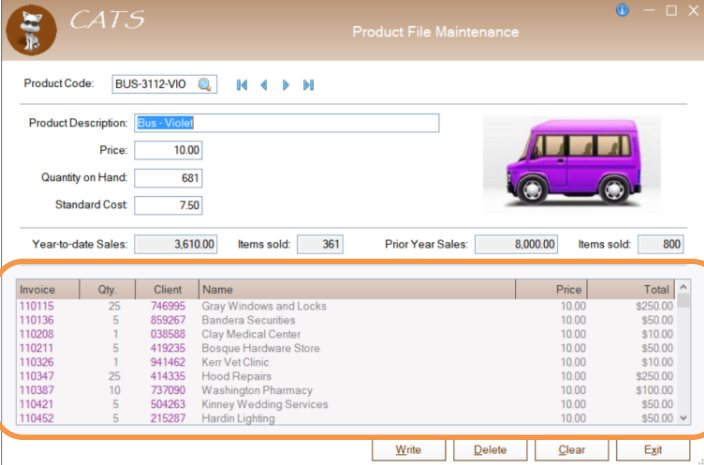
- Smart Controls Review
- What is a Smart Chart?
- Smart Chart Demo
- Walkthrough: Creating a Smart Chart
- Using Smart Charts in a Non-NOMADS environment

SMART CONTROLS REVIEW

Smart Controls

Smart Controls Review

- What is a Smart Control?
 - A control that **auto loads** data based on a query definition
 - List box (all types)
 - Drop box
 - Grid
 - Multi-line
 - Chart
 - Control when the control is loaded
 - **No programming** needed



The screenshot shows the 'Product File Maintenance' window in the CATS software. The window title is 'Product File Maintenance'. The product code is 'BUS-3112-VIO'. The product description is 'Bus - Violet'. The price is 10.00, quantity on hand is 681, and standard cost is 7.50. There is a small image of a purple bus. Below this, there are summary statistics: Year-to-date Sales: 3,610.00, Items sold: 361, Prior Year Sales: 8,000.00, and Items sold: 800. At the bottom, there is a table with columns: Invoice, Qty, Client, Name, Price, and Total. The table contains 10 rows of data. At the bottom right of the window, there are buttons for 'Write', 'Delete', 'Clear', and 'Exit'.

| Invoice | Qty | Client | Name | Price | Total |
|---------|-----|--------|-------------------------|-------|----------|
| 110115 | 25 | 746995 | Gray Windows and Locks | 10.00 | \$250.00 |
| 110136 | 5 | 859267 | Bandera Securities | 10.00 | \$50.00 |
| 110208 | 1 | 038588 | Clay Medical Center | 10.00 | \$10.00 |
| 110211 | 5 | 419235 | Bosque Hardware Store | 10.00 | \$50.00 |
| 110326 | 1 | 941462 | Kerr Vet Clinic | 10.00 | \$10.00 |
| 110347 | 25 | 414335 | Hood Repairs | 10.00 | \$250.00 |
| 110387 | 10 | 737090 | Washington Pharmacy | 10.00 | \$100.00 |
| 110421 | 5 | 504263 | Kinney Wedding Services | 10.00 | \$50.00 |
| 110452 | 5 | 215267 | Hardin Lighting | 10.00 | \$50.00 |

WHAT IS A SMART CHART?

Smart Charts

What is a Smart Chart?

- Smart Chart Controls
 - Create simple charts that load automatically
 - Control when a chart is loaded and reloaded
 - Do all the above without writing any code

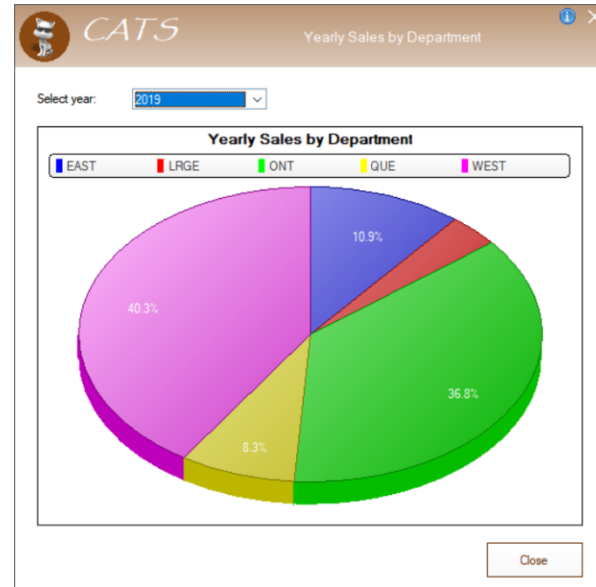
- Data for the chart is based on [Query+](#) public [AutoChart](#) definitions
 - Introduced in PxPlus v11.00

SMART CHART DEMO

Smart Chart Demo

Smart Chart Demo

- **Yearly Sales by Department Chart**
 - Display a chart showing the Yearly Sales by Department
 - Chart will initially be blank until a year is selected
 - Chart will display sales data whenever a year is changed

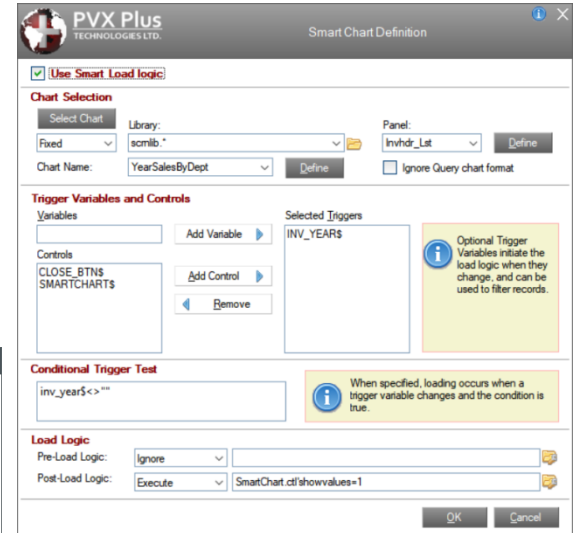
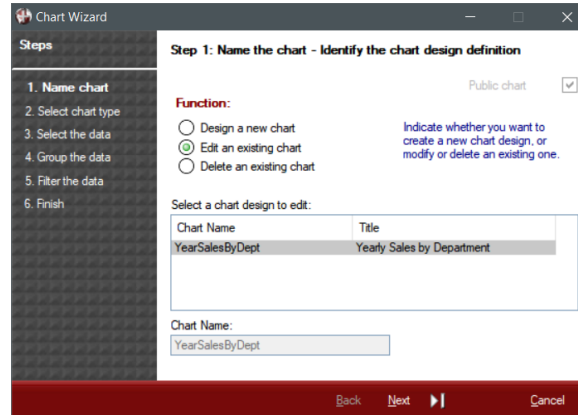
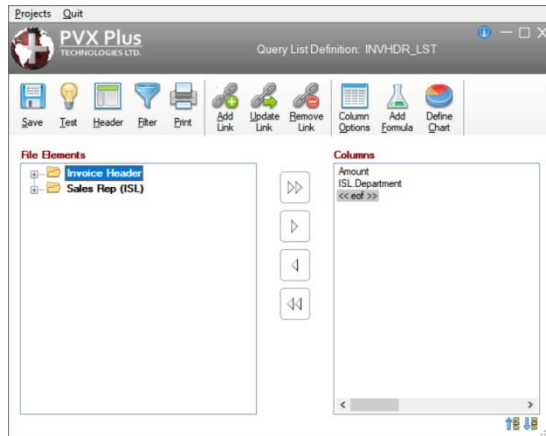


WALKTHROUGH: CREATING A SMART CHART

Creating a Smart Chart

Walkthrough: Creating a Smart Chart

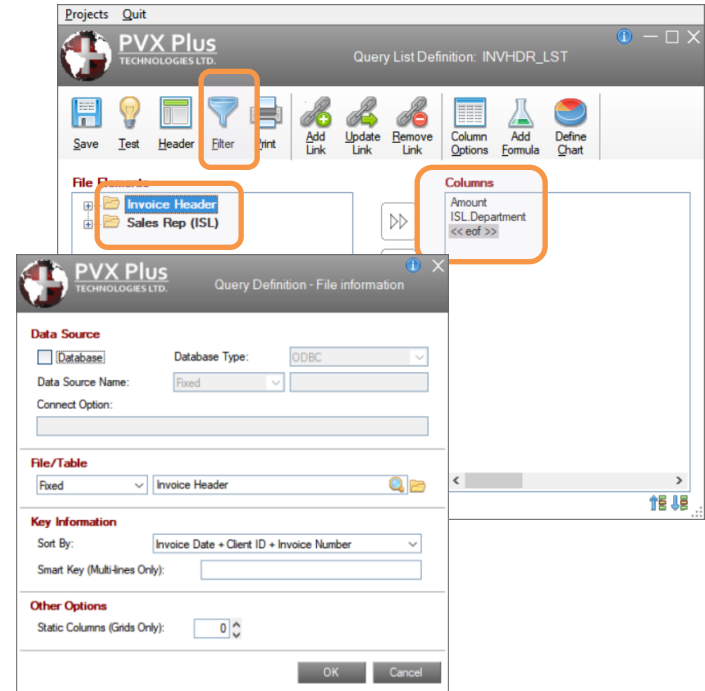
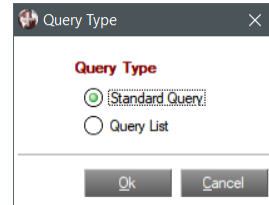
- Three steps to creating a Smart Chart
 - Create a [Query List](#) definition
 - Create a [Query AutoChart](#) definition
 - Create a [Smart Chart](#) definition



Query List Definition

Walkthrough: Creating a Smart Chart

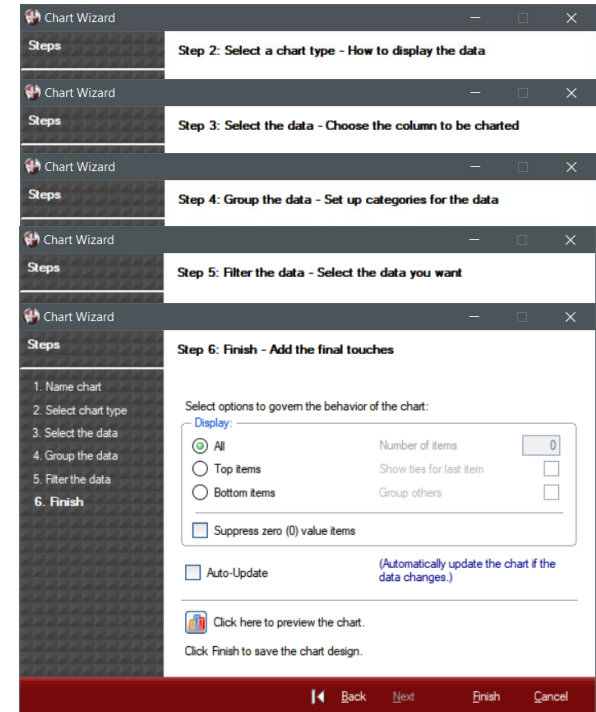
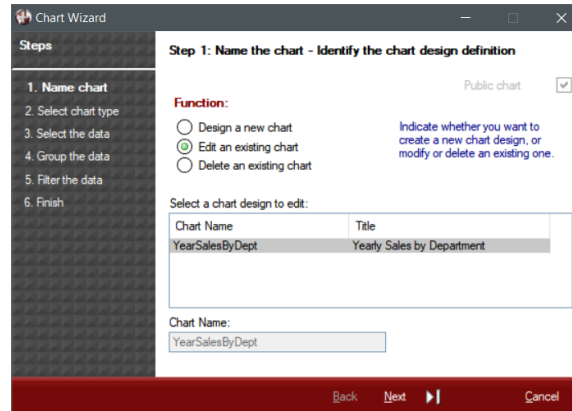
- Step 1: Create a Query List definition
 - **QueryList**
 - A query-like definition used exclusively by Smart controls consisting of a subset of the standard query definition
 - The QueryList definition is used to supply the data to be charted
 - File selection
 - Column selection
 - Selection criteria
 - Standard Query+ definition
 - Can also use a standard Query+ definition
 - A subset of the definition will be used



Query AutoChart Definition

Walkthrough: Creating a Smart Chart

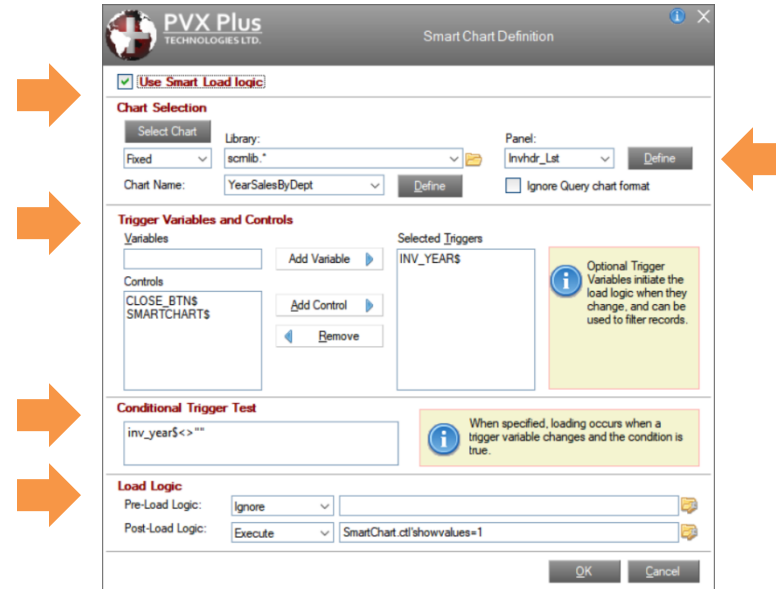
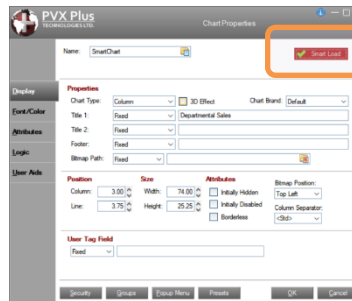
- Step 2: Create a **Query AutoChart**
 - Defines the charting details
 - **Query List** and **Query+** definitions only
 - Click the **Define Chart** button on the Query Definition toolbar to invoke the Chart Wizard
- Chart Wizard steps:
 - Name Chart
 - Select chart type
 - Select the data
 - Group the data
 - Filter the data
 - Finish



Smart Chart Definition

Walkthrough: Creating a Smart Chart

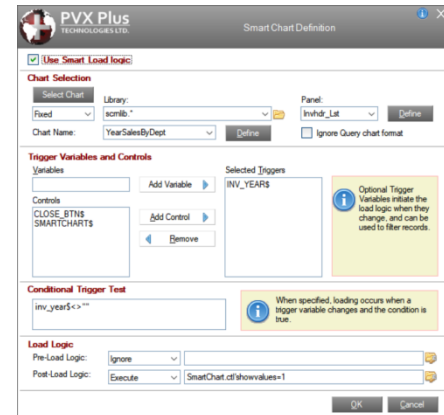
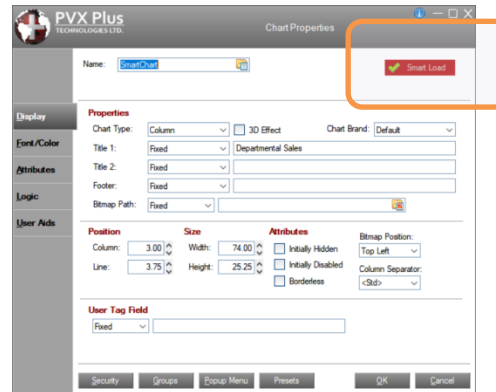
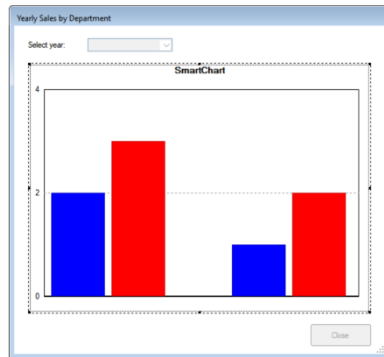
- Step 3: Create a **Smart Chart** definition
 - Overview:
 - Add a Chart Control to your panel
 - Invoke the Smart Chart Definition
 - Select the AutoChart definition
 - Set the chart Format
 - Optional options:
 - Specify Trigger variables
 - Create a Conditional Trigger Test
 - Specify Load Logic



Smart Chart Definition

Walkthrough: Creating a Smart Chart

- Getting started...
 - Add a Chart Control to your panel
 - Invoke the Smart Chart Definition
 - Click the **Smart Load** button on the Chart Properties dialogue




Smart Chart Definition

Walkthrough: Creating a Smart Chart

- Select the AutoChart definition
 - **Select Chart** button displays all public **AutoChart** definitions in the starting and subordinate directories, arranged by directory, screen library, query and chart name
 - Selecting an **AutoChart** from the Select a Chart Definition will populate **Chart Selection** criteria
 - Alternately, you can specify query, panel library and chart name manually
 - This allows you to edit or create new queries and chart definitions on the fly.

Chart Selection

Select Chart

Library: Fixed 

Panel: Invhdr_Lst **Define**

Chart Name: YearSalesByDept **Define** Ignore Query chart format

Warning: Be sure that the selected query and chart are accessible from your application.

Smart Chart Definition

Walkthrough: Creating a Smart Chart

- Formatting a Smart Chart
 - By default, the chart format (i.e. 2D/3D Area, Bar, Column, etc.) and titles are derived from the Query+ AutoChart definition.
 - To override this and use the format and titles from the actual chart definition, select the **Ignore Query chart format** check box in the Smart Chart Definition.

Chart Selection

Select Chart: Fixed

Library: scmlib.*

Panel: Invhdr_Lst

Chart Name: YearSalesByDept

Ignore Query chart format

Define

Smart Chart Definition

Walkthrough: Creating a Smart Chart

- Optional options:
 - **Trigger variables**
 - Initiate the load logic when changed
 - Available to the Query Selection Definition for data filtering
 - **Conditional Trigger Test**
 - Test to determine if load logic should be triggered
 - **Load Logic**
 - Pre-Load and Post-Load logic to be processed prior to/after loading the data

The screenshot displays the configuration interface for a Smart Chart, divided into three main sections:

- Trigger Variables and Controls:** This section allows defining variables and controls. The 'Variables' field is currently empty, with an 'Add Variable' button. The 'Controls' field contains 'CLOSE_BTN\$' and 'SMARTCHART\$', with 'Add Control' and 'Remove' buttons. The 'Selected Triggers' field contains 'INV_YEARS\$'. An information icon indicates: "Optional Trigger Variables initiate the load logic when they change, and can be used to filter records."
- Conditional Trigger Test:** This section contains a text input field with the condition 'inv_year\$ <> ""'. An information icon explains: "When specified, loading occurs when a trigger variable changes and the condition is true."
- Load Logic:** This section defines the logic to be executed. The 'Pre-Load Logic' dropdown is set to 'Ignore' with an empty text field. The 'Post-Load Logic' dropdown is set to 'Execute' with the text 'SmartChart.ct!showvalues=1'.

SMART CHARTS IN A NON-NOMADS ENVIRONMENT

Non-NOMADS Integration

Smart Charts in a Non-NOMADS Environment

- Integrating Smart Charts into a non-NOMADS application
 - Use NOMADS to define a Query and AutoChart to supply data and chart info
 - NOMADS features can be integrated into a non-NOMADS environment
 - Create a chart object in your program
 - Use a CALL to the “[*tools/chartimage](#)” program to load the chart

Example using a *Plus* chart:

```
myChart=NEW(“*obj/chart”)
CALL “*tools/chartimage”, QueryName$,QueryLib$,ChartName$,myChart,0
myChart'Draw(0,col,ln,colsWide,linesHigh)
! ...
DROP OBJECT myChart
```

Chart Image Utility

Smart Charts in a Non-NOMADS Environment

- Chart Image Generator Utility
 - New CALL format for `*tools/chartimage` allows you to load chart data based on a Query `AutoChart` definition

NEW!

Load a Chart from a Query AutoChart Definition

- **CALL** "`*tools/chartimage`", query\$, library\$, chart\$, control_id
[,control_settings, var_iol\$, var_rec\$]
- Alternate CALL formats for `*tools/chartimage` to generate chart images have been updated to use new up-to-date conversion tools and to support Plus charts

Additional Resources

The help link(s) below refer to the current on-line help pages. The functionality may have been further updated since the PxPlus 2019 (version 16) release.

- [Charting](#)
- [NOMADS Chart Control](#)
- [NOMADS AutoChart](#)
- [Smart Controls](#)
- [Creating a Query AutoChart Definition](#)
- [Using Smart Controls Outside of NOMADS](#)