

Building PowerApps and Flows for Power BI



Agenda

- Power BI Primer
- Embedding Power BI Dashboard Tiles in PowerApps
- Extending Reports using the PowerApps Custom Visual
- Designing Flows to Update Real-time Dashboards



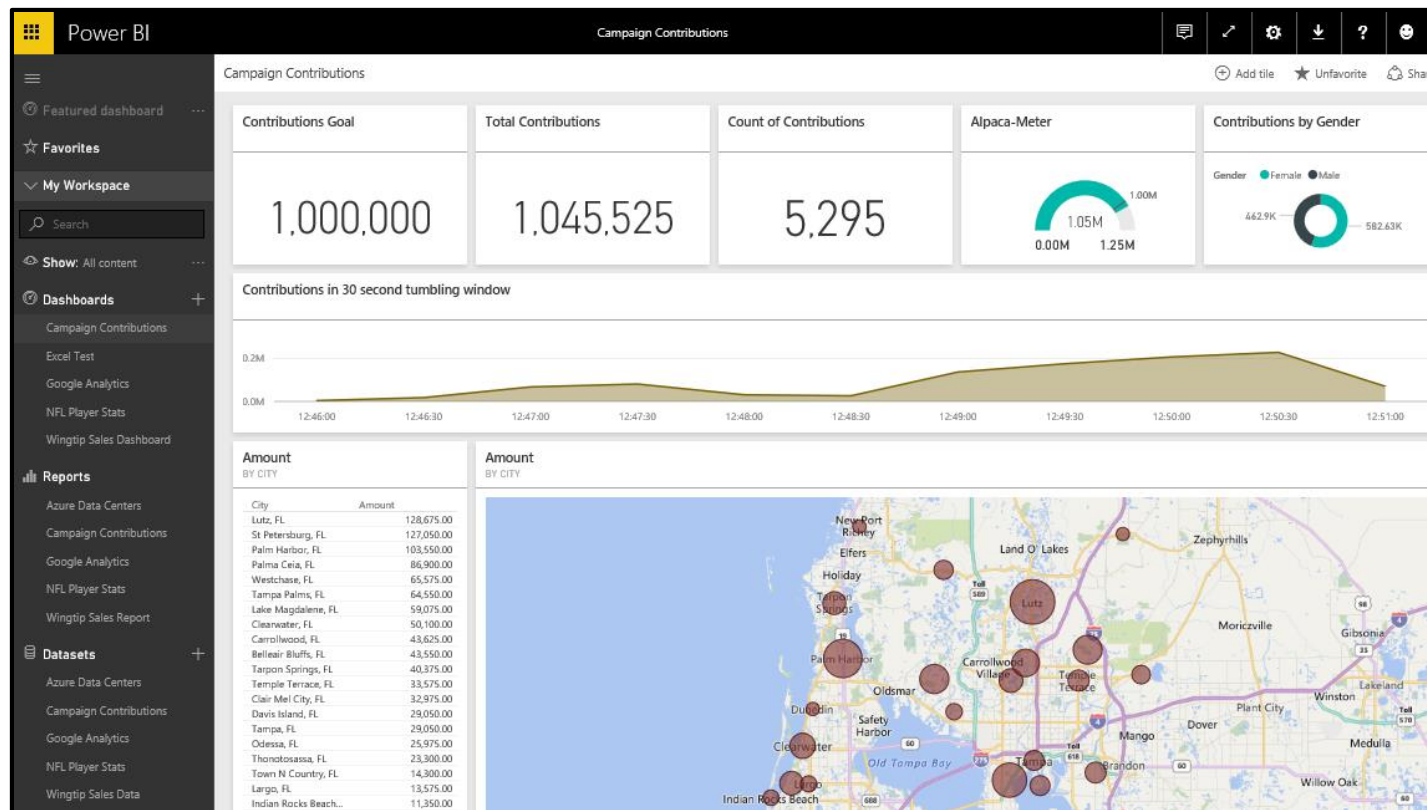
What is Power BI?

- What is Power BI?
 - Cloud-based subscription service
 - Environment which promotes self-service BI *to the end user*
 - BI Platform to assists with data import, analysis and visualization
- Power BI benefits from being a cloud-based service
 - It takes only 5 seconds to subscribe to the Power BI service
 - New users can create something significant in 5 minutes or less
- Power BI adoption numbers *(as of Q1 2016)*
 - 5 million subscribers
 - 200,000 organizations
 - 40 different languages

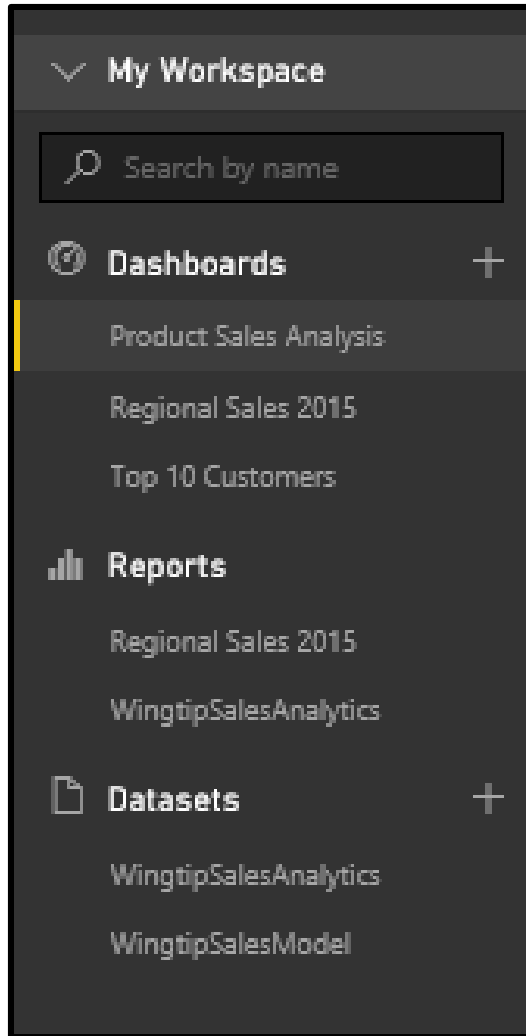


The Power BI Service

- The Power BI Service
 - Provides cloud-based foundation for Power BI platform
 - Accessible through browser at <https://app.powerbi.com>



Central Power BI Concepts

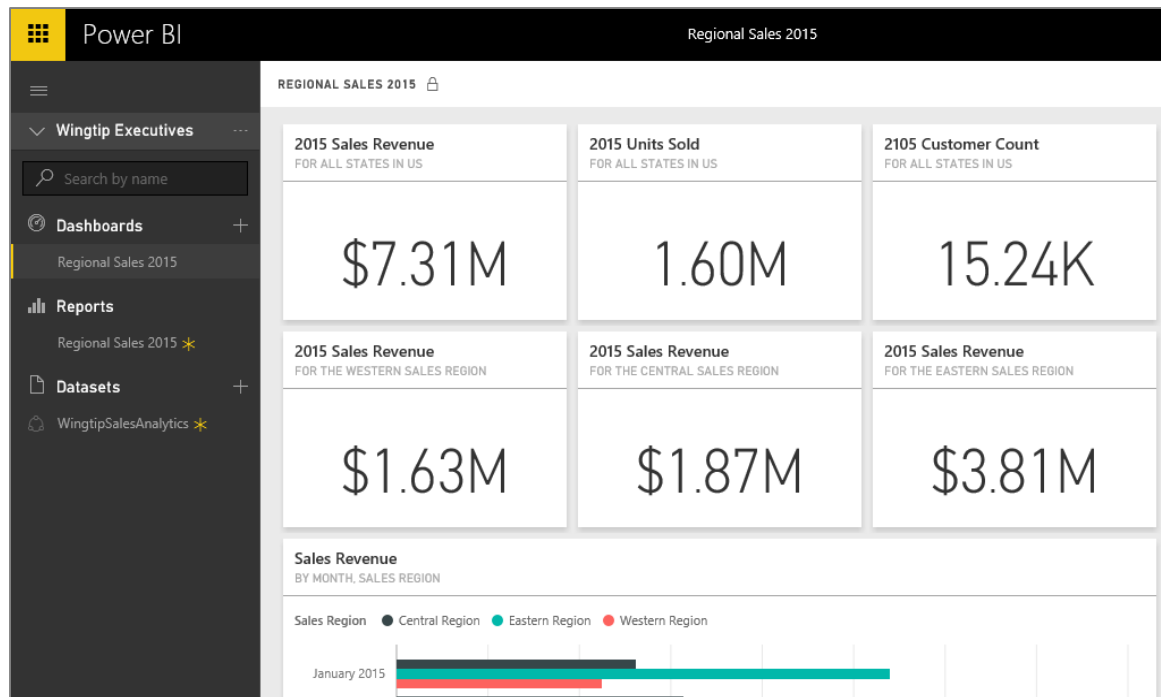


- **Workspace**
 - Provides user context and asset container
 - Every user has personal workspace
 - Team development requires group workspaces
- **Dashboard**
 - Consolidated view into reports and datasets
 - Custom solution entry point for mobile users
- **Report**
 - Collection of pages with tables & visualizations
 - Provides interactive control of filtering
- **Dataset**
 - Data model containing one or more tables
 - Can be very simple or very complex



Dashboards and Tiles

- Dashboard is a collection of tiles
 - Tile can be created by pinning visual from a report
 - Tile can be created by pinning query result from dataset



Reports and Pages

- Reports contain one or more pages
 - A report can be designed with a single page
 - A report can be designed with many pages
 - Tabbed navigation located at bottom of report view
 - Each report is associated with exactly one dataset








Report Authoring

- Report initially opens in reading view
 - Click Edit report to switch to edit mode



- Report design tools appear on right side of page

A screenshot of a Power BI report in edit mode. The report is titled 'Wingtip Sales Analysis' and is displayed in 'Reading view'. The main content area shows a table with 5 rows of product data. On the right side of the report, there are two panels: 'Visualizations' and 'Fields'. The 'Visualizations' panel shows a list of visual types (bar, line, pie, etc.) and a list of fields (Product Rank, Product, Product Image, Sales Revenue). The 'Fields' panel shows a list of fields (Sales, Calendar, Customers, Products) and a list of visualizations (Category, Pct of All Products, Pct of Product Category, Pct of Product Subcategory, Product, Product Category, Product Image, Product Rank, Subcategory). The 'Visualizations' panel also shows a list of filters (Product Rank, Product, Product Image, Sales Revenue) and a list of visual level filters (Product(All), Product Image(All), Product Rank is less than or equal to 5, Sales Revenue(All)).

| Product Rank | Product | Product Image | Sales Revenue |
|--------------|----------------------------------|---|---------------|
| 1 | Godzilla Action Figure |  | \$1,379,383 |
| 2 | Twitter Follower Action Figure |  | \$920,244 |
| 3 | Captain America Action Figure |  | \$408,883 |
| 4 | Perry the Platypus Action Figure |  | \$313,270 |
| 5 | Spiderman Action Figure |  | \$287,516 |

Visuals (aka Visualizations)

- Reports are designed using visual (aka visualizations)
 - Each visual is based on an underlying visualization type
 - Visualization type can be changed using **Visualizations** pane

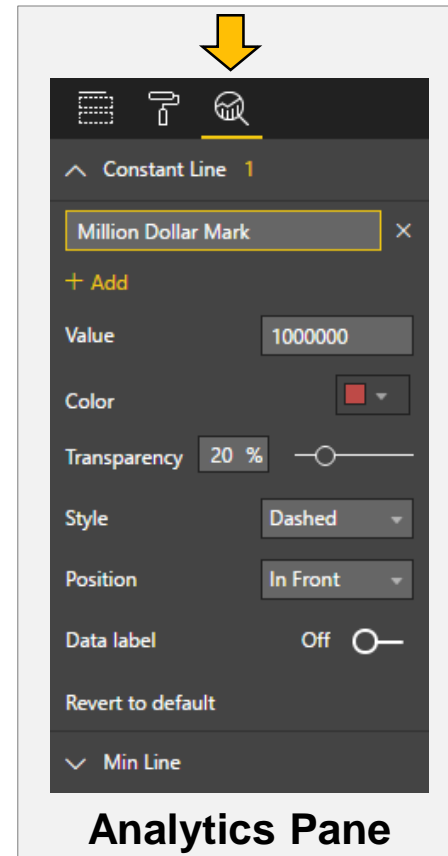
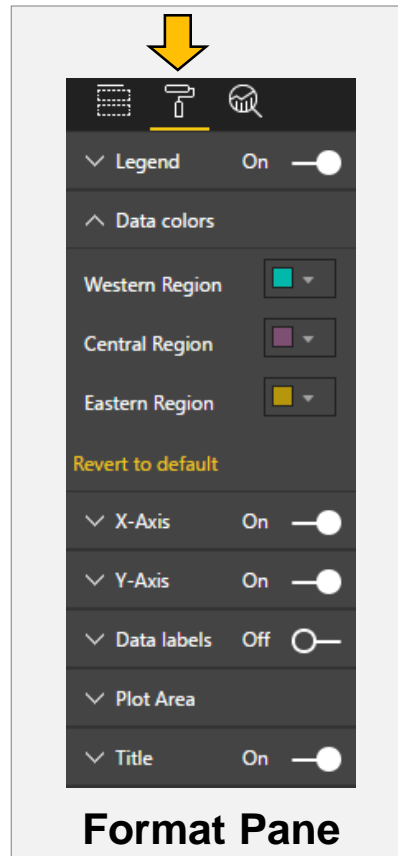
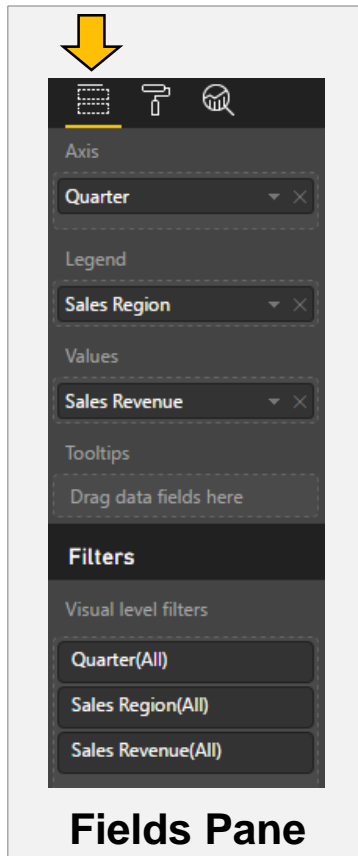


- Visuals creating by using fields from tables inside **Fields** list



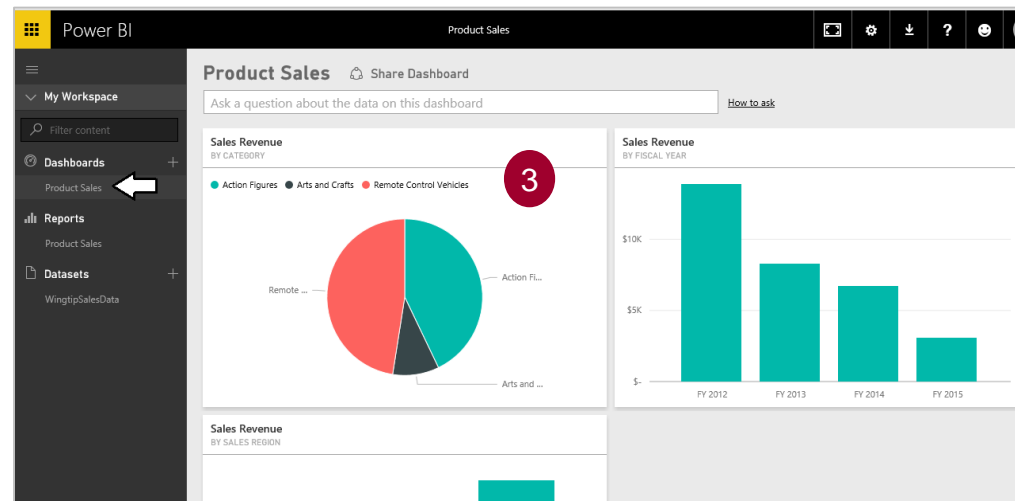
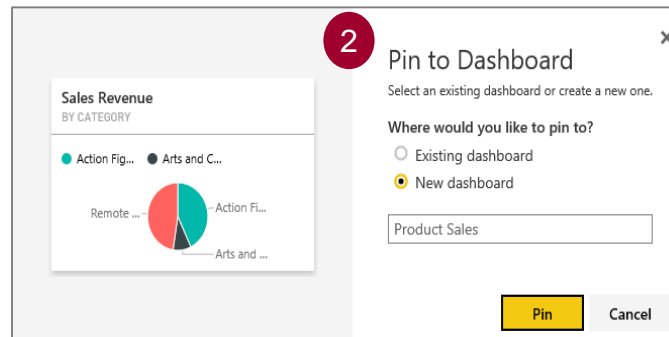
Editing Visual Properties

- Visual properties modified using three property panes
 - Visual properties vary greatly depending on type of visualization



Creating Dashboards

- Dashboards contain tiles
- Tiles created from visuals on report pages



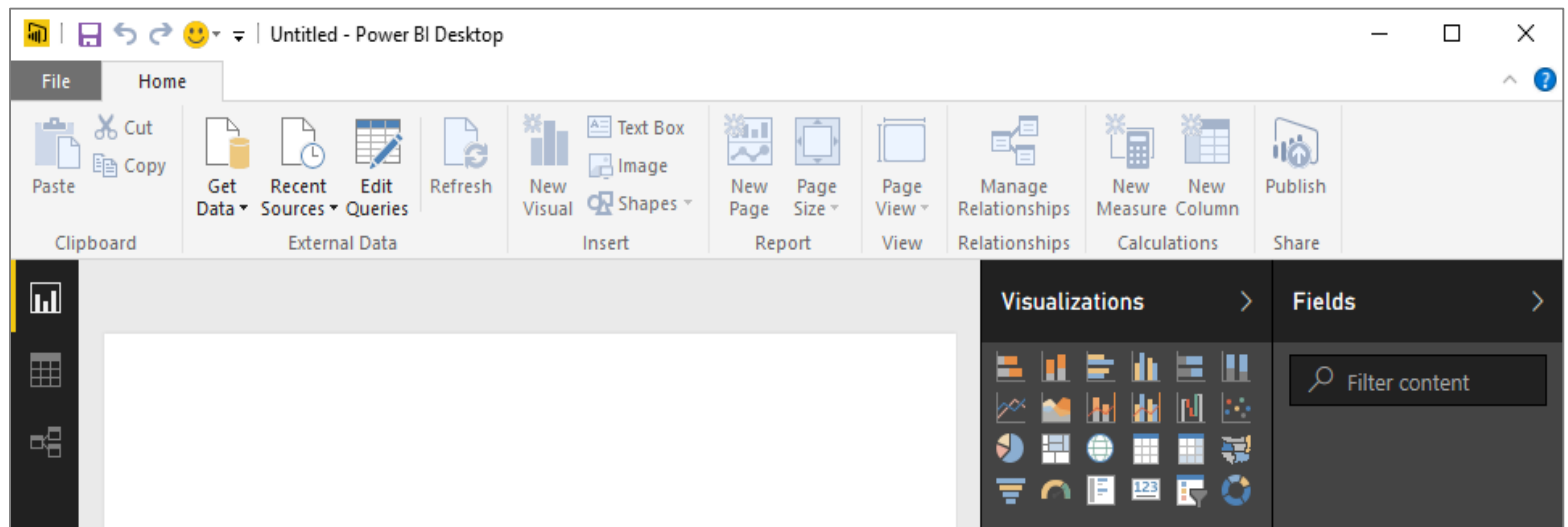
Installing Power BI Desktop

- Power BI Desktop quick & easy to install over the Internet
 - Select Power BI Desktop option from Power BI Download menu
 - Power BI Desktop downloads & installs in less than a minute



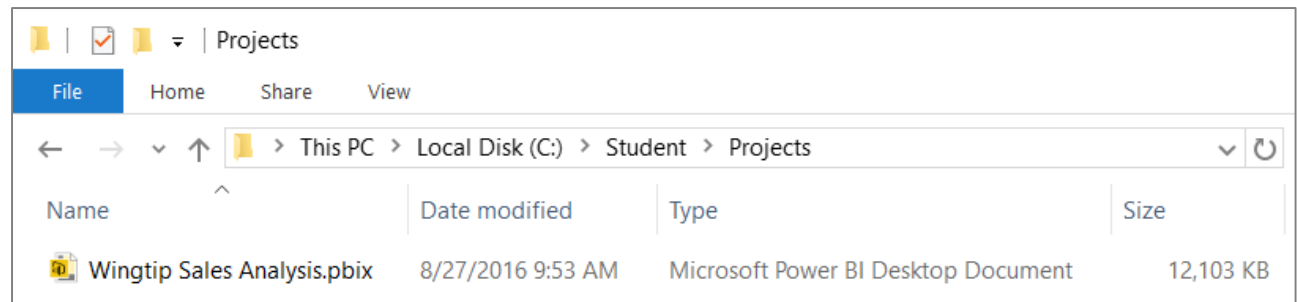
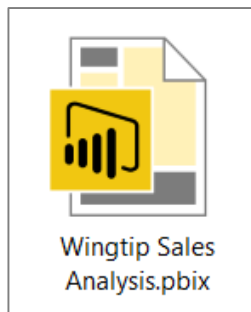
Working with Power BI Desktop

- Power BI Desktop is a Windows application
 - Work is saved and published in terms of projects
 - You can work on multiple projects at once
 - Each project runs in its own Power BI Desktop instance
 - Power BI Desktop can freeze up or act buggy
 - Quit & restart Power BI Desktop if it acts strangely



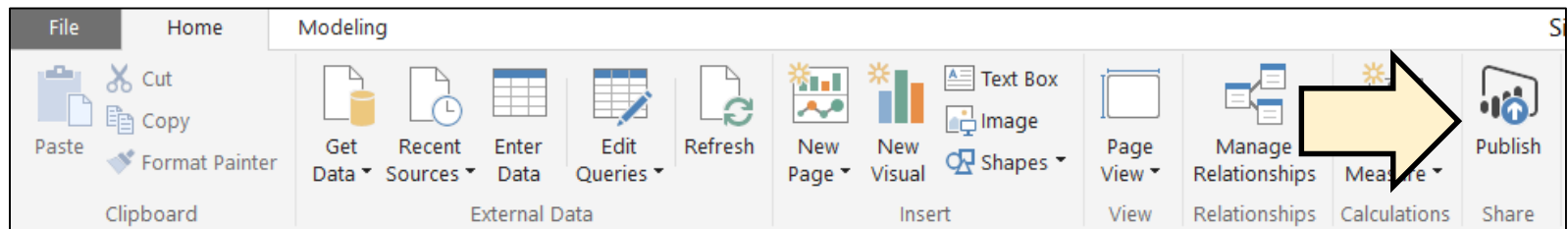
Projects and PBIX Files

- Power BI Desktop projects saved using PBIX files
 - PBIX file contains data source definitions
 - PBIX file contains query definitions
 - PBIX file contains data imported from queries
 - PBIX file contains exactly one data model definition
 - PBIX file contains exactly one report
 - PBIX file never contains data source credentials

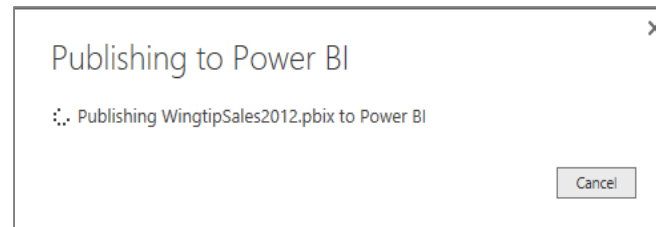
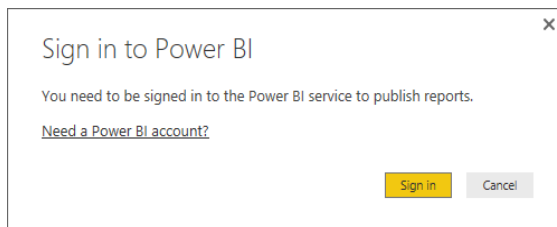


Publishing a Power BI Desktop Project

- Power BI Desktop provides **Publish** command
 - Used to publish project to Power BI service



- Requires logging into your Office 365 account

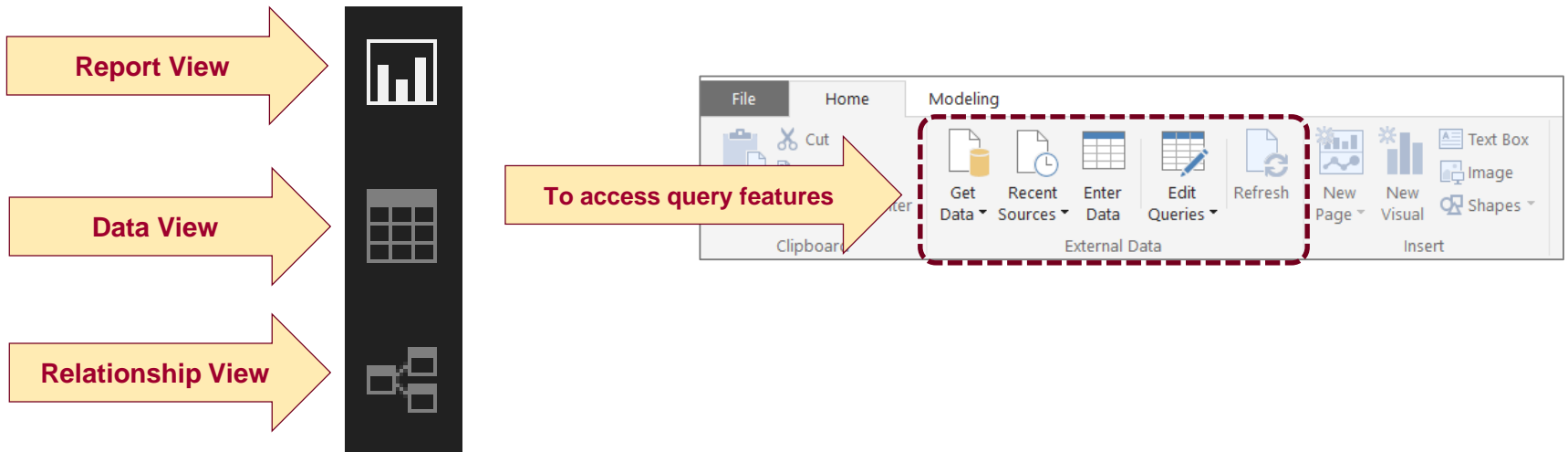


- Published articles added to target workspace



Getting Around in Power BI Desktop

- What do you need to learn to use Power BI Desktop?
 - Query features for importing data
 - Design features for modeling data
 - Report designer for creating reports
- Navigating between view modes



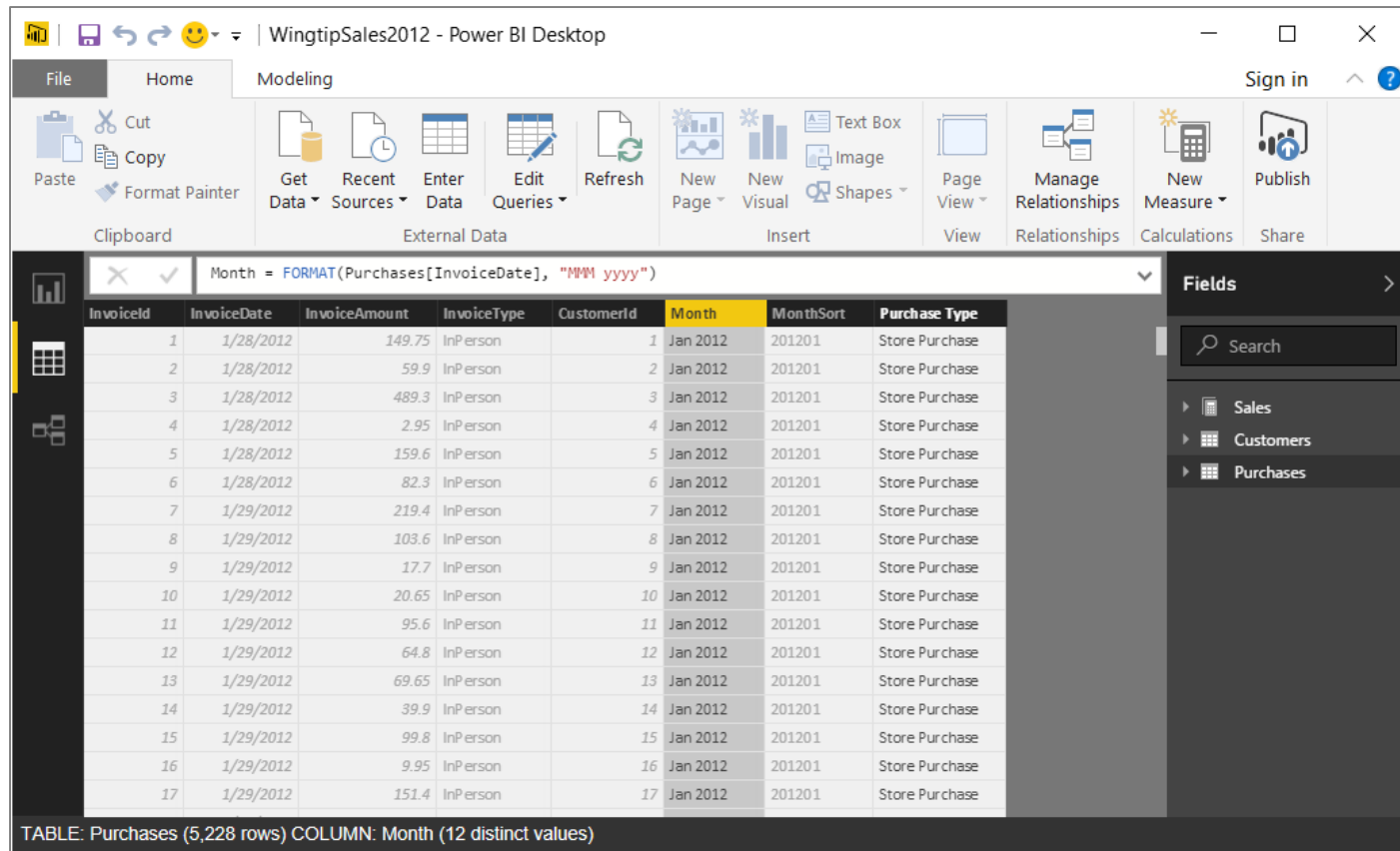
Query Editor Window

- Power BI Desktop provides separate Query Editor window
 - Provides powerful features for designing queries
 - Displays list of all queries in project on the left
 - Displays **Properties** and **Applied Steps** for selected query on right
 - Preview of table generated by query output shown in the middle
 - Query can be executed using **Apply** or **Close & Apply** command



Data View

- Data view is used for data modeling
 - Data View displays columns and rows of data for each table
 - Data View used to create calculated columns and measures



WingtipSales2012 - Power BI Desktop

File Home Modeling Sign in

Paste Cut Copy Format Painter Get Data Recent Enter Data Edit Queries Refresh New Page New Visual Text Box Image Shapes Page View Manage Relationships New Measure Publish

Clipboard External Data Insert View Relationships Calculations Share

Month = `FORMAT(Purchases[InvoiceDate], "MMM yyyy")`

| InvoiceId | InvoiceDate | InvoiceAmount | InvoiceType | CustomerId | Month | MonthSort | Purchase Type |
|-----------|-------------|---------------|-------------|------------|-------------|-----------|----------------|
| 1 | 1/28/2012 | 149.75 | InPerson | | 1 Jan 2012 | 201201 | Store Purchase |
| 2 | 1/28/2012 | 59.9 | InPerson | | 2 Jan 2012 | 201201 | Store Purchase |
| 3 | 1/28/2012 | 489.3 | InPerson | | 3 Jan 2012 | 201201 | Store Purchase |
| 4 | 1/28/2012 | 2.95 | InPerson | | 4 Jan 2012 | 201201 | Store Purchase |
| 5 | 1/28/2012 | 159.6 | InPerson | | 5 Jan 2012 | 201201 | Store Purchase |
| 6 | 1/28/2012 | 82.3 | InPerson | | 6 Jan 2012 | 201201 | Store Purchase |
| 7 | 1/29/2012 | 219.4 | InPerson | | 7 Jan 2012 | 201201 | Store Purchase |
| 8 | 1/29/2012 | 103.6 | InPerson | | 8 Jan 2012 | 201201 | Store Purchase |
| 9 | 1/29/2012 | 17.7 | InPerson | | 9 Jan 2012 | 201201 | Store Purchase |
| 10 | 1/29/2012 | 20.65 | InPerson | | 10 Jan 2012 | 201201 | Store Purchase |
| 11 | 1/29/2012 | 95.6 | InPerson | | 11 Jan 2012 | 201201 | Store Purchase |
| 12 | 1/29/2012 | 64.8 | InPerson | | 12 Jan 2012 | 201201 | Store Purchase |
| 13 | 1/29/2012 | 69.65 | InPerson | | 13 Jan 2012 | 201201 | Store Purchase |
| 14 | 1/29/2012 | 39.9 | InPerson | | 14 Jan 2012 | 201201 | Store Purchase |
| 15 | 1/29/2012 | 99.8 | InPerson | | 15 Jan 2012 | 201201 | Store Purchase |
| 16 | 1/29/2012 | 9.95 | InPerson | | 16 Jan 2012 | 201201 | Store Purchase |
| 17 | 1/29/2012 | 151.4 | InPerson | | 17 Jan 2012 | 201201 | Store Purchase |

Fields

Search

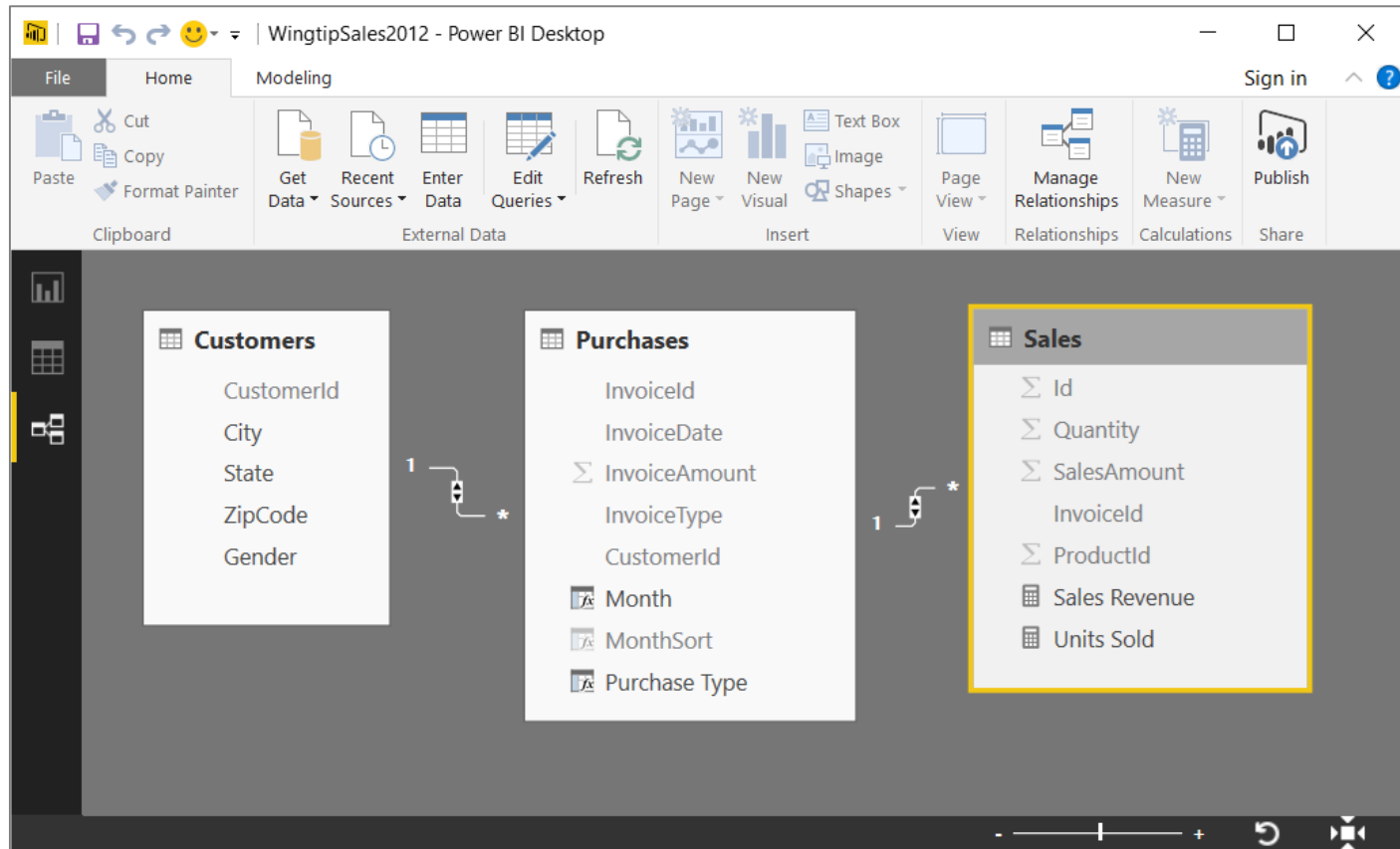
Sales Customers Purchases

TABLE: Purchases (5,228 rows) COLUMN: Month (12 distinct values)



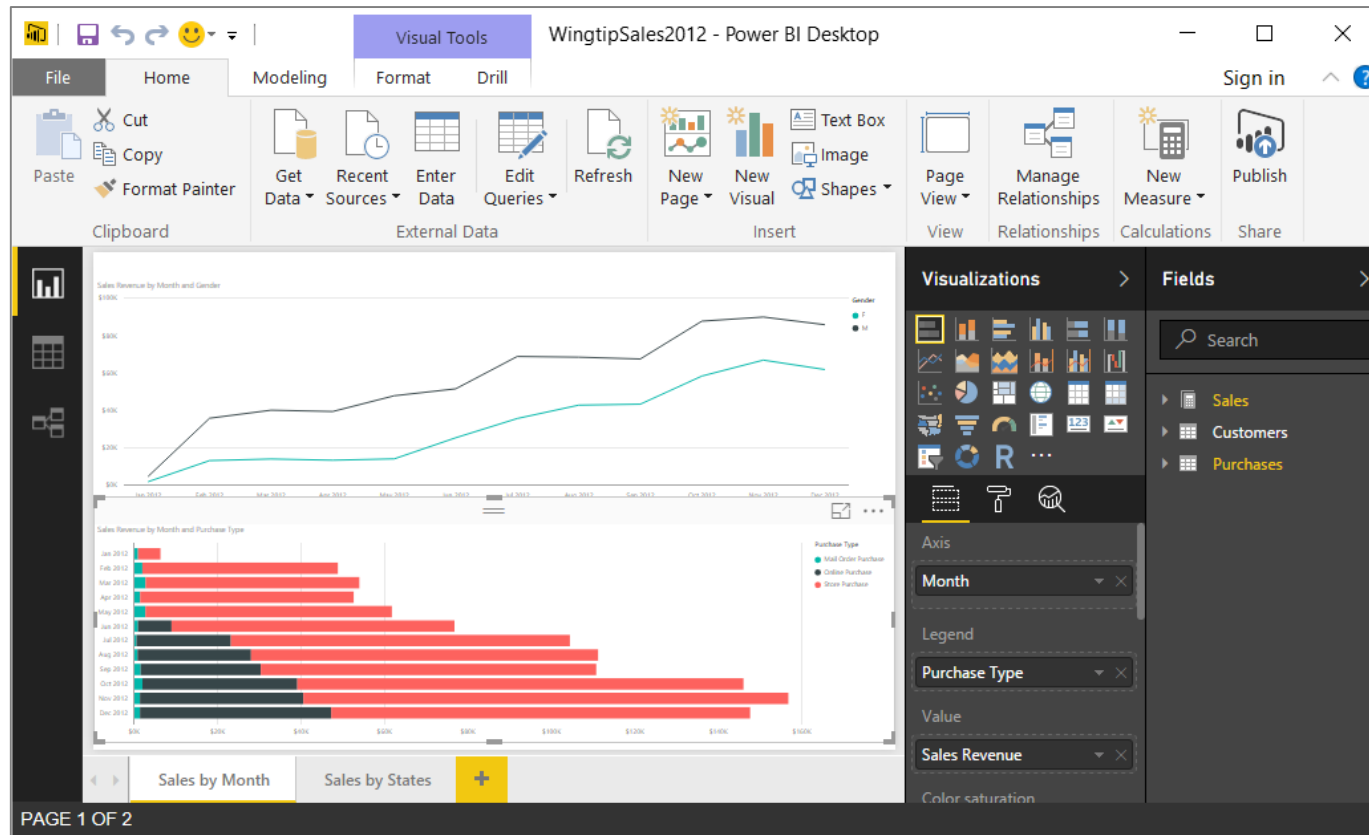
Relationship View

- Displays tables, fields and relationships
 - Used to view tables, fields and relationships in project's dataset
 - Used to create relationships when importing new tables



Report View

- Report view used to design report for current project
 - Report designer is very similar to Power BI service
 - Dataset can be simplified for Report View by hiding fields





DEMO

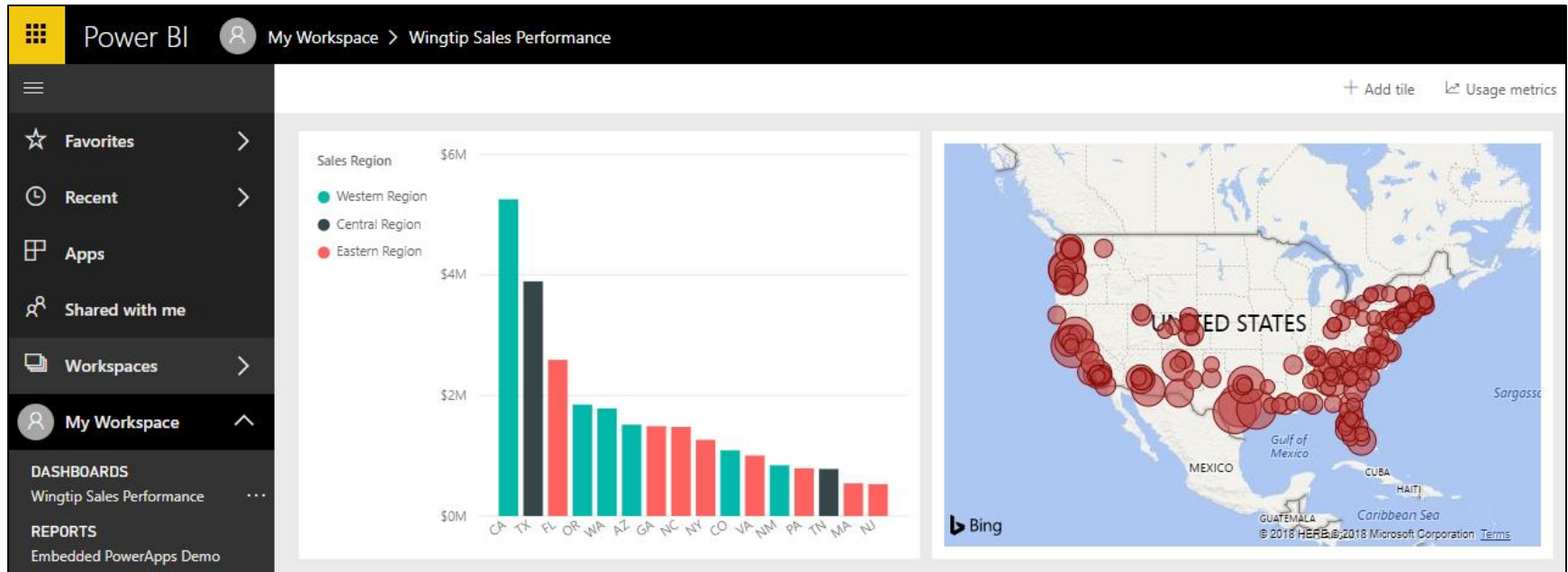
Getting Up and Running with Power BI Desktop

Agenda

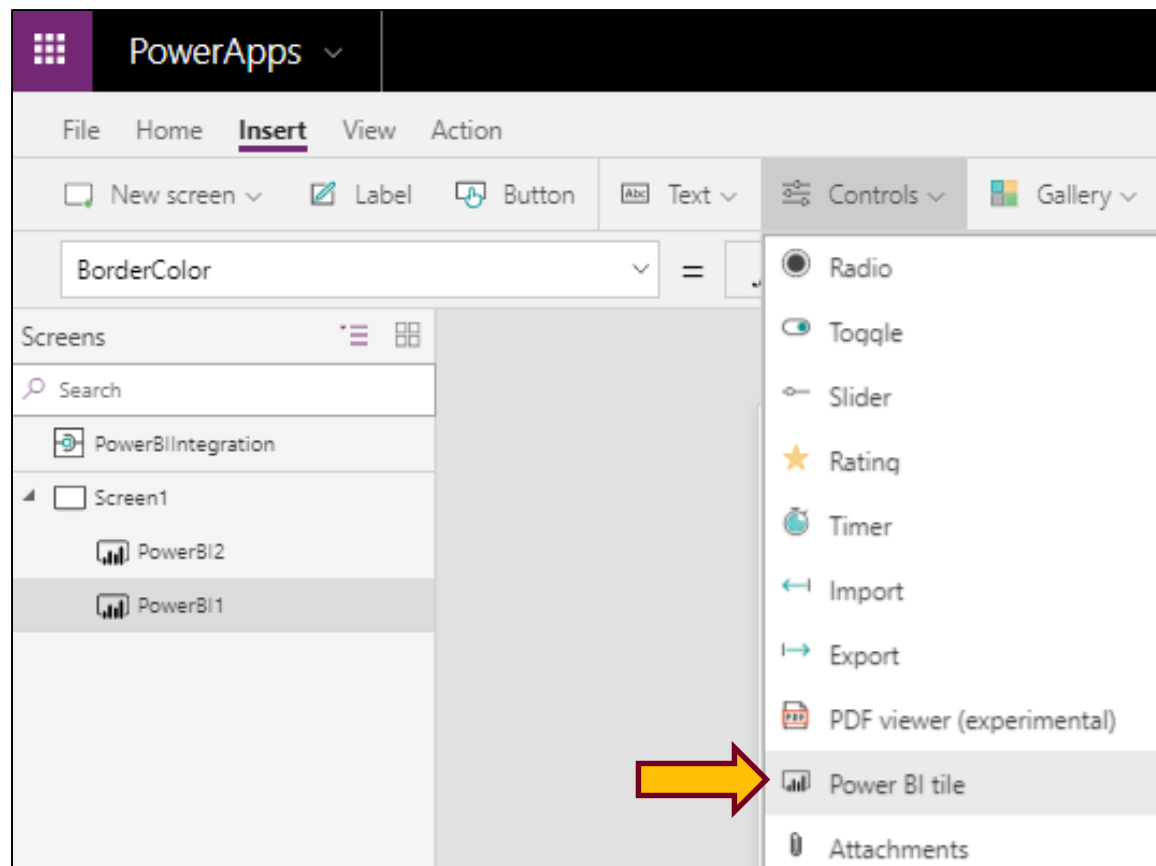
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Start by Creating Dashboard Tiles



The Power BI Tile Control in PowerApps



Embedding Power BI Dashboard Tiles

PowerApps

File Home Insert View Action

New screen Label Button Text Controls Gallery Data table Forms Media Charts Icons

BorderColor = `fx` `RGBA(101, 128, 187, 1)`

Screens

- PowerBIIntegration
- Screen1
 - PowerBI/2
 - PowerBI/1

POWER BI TILE
PowerBI1

Properties Rules Advanced

Data <https://app.powerbi.com/embed?dashboard...>

Position X: 40 Y: 40


Size Width: 575 Height: 490

Border 2

Power BI Interactions On

Display mode Edit

Visible On

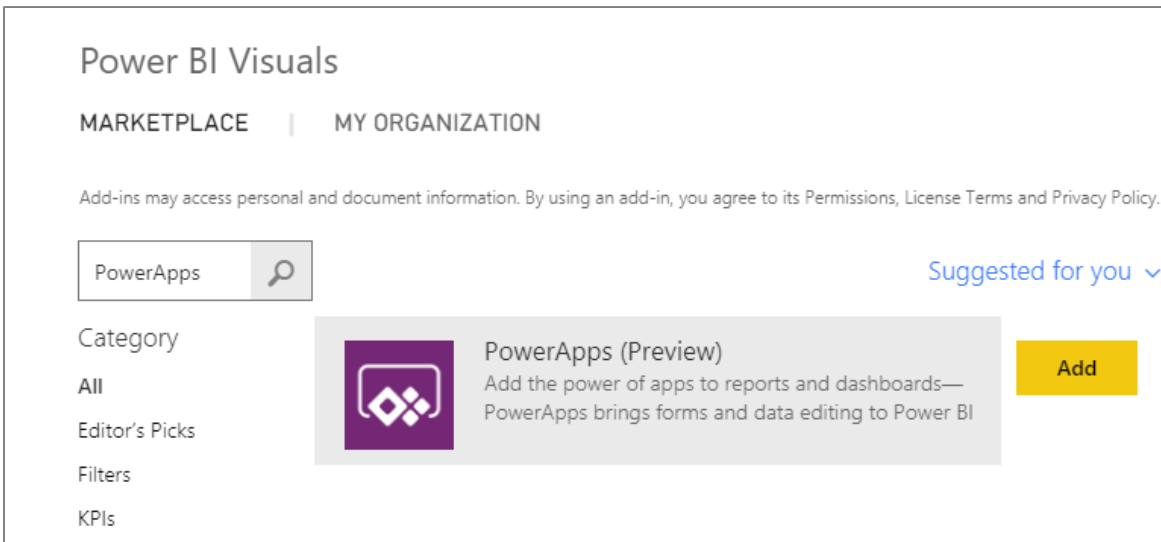
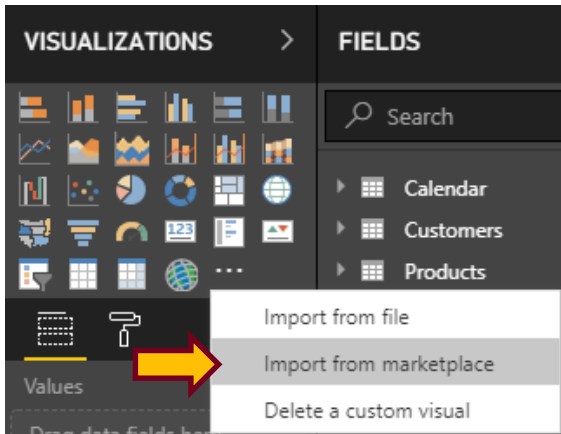


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The PowerApps Custom Visual



Configuring PowerApps Data Settings

The screenshot displays the PowerApps Studio interface. On the left, a canvas area shows a prompt to 'Choose an existing app or create a new one'. At the bottom of this area, there are two buttons: 'Choose app' and 'Create new'. A large yellow arrow points from the 'Create new' button towards the right-hand pane. The right-hand pane is divided into three sections: 'VISUALIZATIONS', 'PowerApps Data', and 'FILTERS'. The 'VISUALIZATIONS' section contains various chart and table icons. The 'PowerApps Data' section lists data sources: 'State', 'Sales Revenue', 'Units Sold', and 'Customer Count'. The 'FILTERS' section is currently empty. A second large yellow arrow points from the 'Create new' button to the 'PowerApps Data' section. The 'FIELDS' pane on the far right shows a search bar and a list of fields for the 'Customers' data source, including 'Age', 'Age Group', 'City', 'City Name', 'Customer', 'Customer Count' (checked), 'Customer Geography', 'Customer Rank', 'Customer Type', 'Gender', 'Sales Region', 'State' (checked), 'State Name', 'Zipcode', 'Products', and 'Purchases'.

PowerApps Studio Interface:

- Canvas:** Choose an existing app or create a new one. PowerApps Studio will open in a new browser tab.
- Buttons:** Choose app, Create new
- VISUALIZATIONS:** Grid of visualization icons.
- PowerApps Data:**
 - State
 - Sales Revenue
 - Units Sold
 - Customer Count
- FILTERS:**
 - Visual level filters
 - Customer Count (All)
 - Sales Revenue (All)
 - State (All)
- FIELDS:**
 - Search
 - Calendar
 - Customers
 - Age
 - Age Group
 - City
 - City Name
 - Customer
 - Customer Count (checked)
 - Customer Geography
 - Customer Rank
 - Customer Type
 - Gender
 - Sales Region
 - State (checked)
 - State Name
 - Zipcode
 - Products
 - Purchases



Designing the App in PowerApps Studio

The screenshot displays the PowerApps Studio interface. The top navigation bar includes 'File', 'Home', 'Insert', 'View', 'Action', and 'Gallery'. Below this, a secondary bar contains 'Data sources', 'Media', 'Collections', 'Variables', and 'Advanced'. The formula bar at the top shows the 'Items' property of a gallery set to `Sort(PowerBIIntegration.Data, 'Sales Revenue', Descending)`. The left-hand 'Screens' pane shows a hierarchy: 'Screen1' > 'Gallery1', with a list of controls including 'Separator2', 'NextArrow2', 'Body1', 'Subtitle1', and 'Title2'. The central canvas shows a gallery with seven rows of data for different US states. The right-hand pane is titled 'GALLERY Gallery1' and has three tabs: 'Properties', 'Rules', and 'Advanced'. The 'Properties' tab is active, showing 'Data' set to 'Custom', 'Layout' set to 'Title, subtitle, and body', 'Wrap count' set to 1, 'Template size' set to 146, 'Template padding' set to 0, 'Position' (X=0, Y=0), and 'Size' (Width=640, Height=1136).

| State | Sales Revenue | Customer count |
|------------|---------------|----------------|
| California | \$5,255,912 | 10,682 |
| Texas | \$3,894,374 | 8,279 |
| Florida | \$2,592,242 | 5,897 |
| Oregon | \$1,849,877 | 3,640 |
| Washington | \$1,785,527 | 3,409 |
| Arizona | \$1,515,935 | 3,133 |
| Georgia | \$1,490,282 | 3,251 |



Using the App in Power BI Reports

The screenshot displays the Power BI application interface. The top navigation bar shows 'Power BI' and 'My Workspace > Wingtip Sales Analysis'. The left sidebar contains navigation options: Favorites, Recent, Apps, Shared with me, Workspaces, and My Workspace. Below these are sections for DASHBOARDS (Wingtip Sales Performance), REPORTS (Embedded PowerApps Demo, Wingtip Sales Analysis), WORKBOOKS (You have no workbooks), and DATASETS (Wingtip Sales Analysis). The main content area shows a report titled 'Wingtip Sales Analysis' with a filter for 'Region' (Western Region, Central Region, Eastern Region) and a list of sales data for various states.

| State | Sales Revenue | Customer count |
|----------------|---------------|----------------|
| Florida | \$2,592,242 | 5,897 |
| Georgia | \$1,490,282 | 3,251 |
| North Carolina | \$1,479,238 | 3,270 |
| New York | \$1,265,458 | 2,995 |
| Virginia | \$1,004,225 | |



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DEMO

Creating a Realtime Dashboard using Microsoft Flow

Summary

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