Integrating Excel Workbooks into Power BI

Agenda

- Understanding Excel Integration with Power BI

- Designing Data Models in Excel 2016

- Importing Excel Workbook Data into Power BI

- Publishing Data Models using Excel Workbooks

- Using the Power BI Publishing for Excel Add-in

- Connecting from Excel to a Power BI Dataset

Excel 2016 Integration with Power BI

- Excel as a query and data modeling tool
    - Similar query and data modeling features to Power BI Desktop
    - Excel data model can be imported to create Power BI dataset

- Excel as a tool to publish worksheet content to Power BI
    - Excel worksheets can be rendered inside Power BI service
    - Provides best way to create PivotTables in Power BI custom solution
    - **Power BI publisher for Excel** add-in allows publishing to dashboard

- Analyze in Excel Feature
    - Makes it possible to connect Excel workbook to Power BI Dataset
    - Create PivotTables to analyze datasets running in Power BI service

Excel Online Integration with Power BI

- Excel Online used to render Excel workbooks in browser
  - Workbooks in OneDrive & SharePoint can be accessed thru browser
  - Excel Online rending service can be hosted inside Power BI report
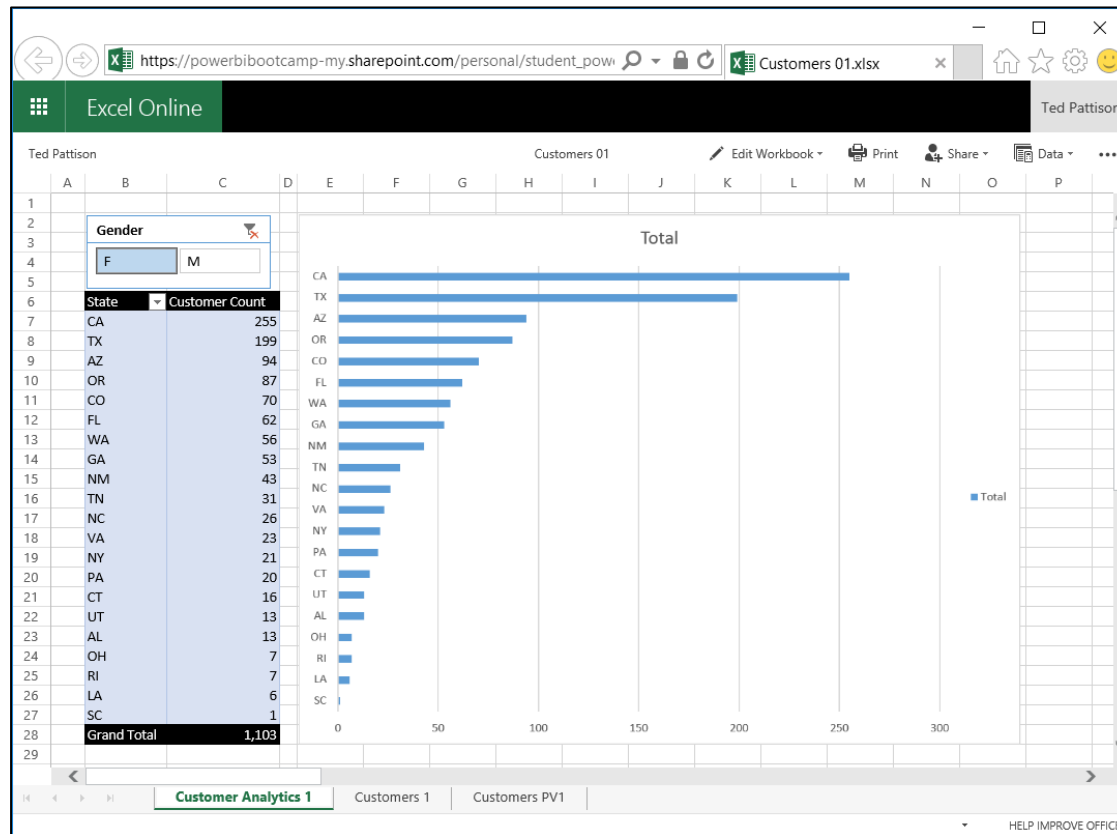
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The Excel Data Model

- Every Excel workbook file contains a data model
  - Data model stored as tabular database inside XLSX file
  - Based on **xVelocity** database engine just like PBIDT and SSAS
- When importing data with from an Excel query…
  - You can add the imported data as a table in a worksheet
  - You can add the imported data as a table in the data model

Excel Workbook File (Wingtip Sales Model.xlsx)

worksheet
worksheet
worksheet

**Tabular Database
with Data Model**
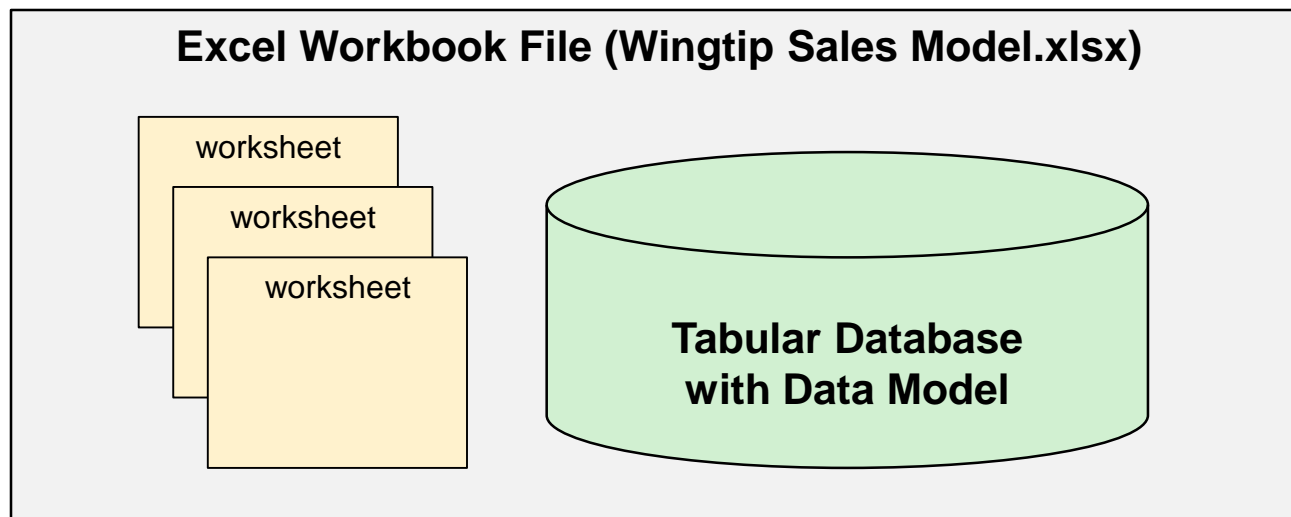
Working with Query Tools in Excel 2016

- Excel 2016 provides query tools similar to PBIDT
  - Included with Excel 2013/2010 using Power Query add-in
  - Included natively in Excel 2016 – Power Query add-in retired
  - Query functionality provided in Query tab in ribbon
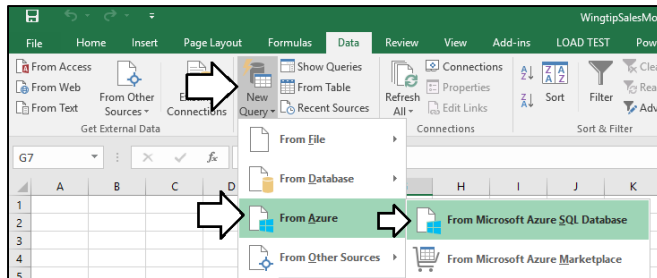
- Excel queries are edited in separate Query Editor window
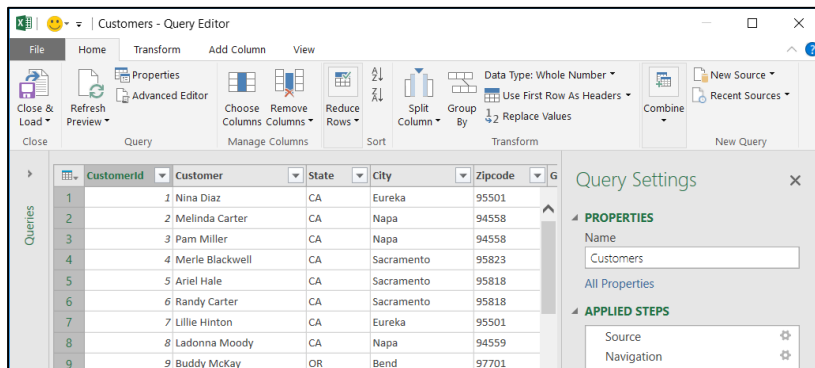
Working with the Power Pivot Add-in

- Data Modeling requires activation of Power Pivot add-in
  - Not activated by default in Excel 2016 or Excel 2013
  - Not activated nor even installed by default in Excel 2010

- Once activated, new **Power Pivot** tab appears in ribbon

Building Data Models in Excel Workbooks

- You create data model just like in Power BI Desktop
  - Convert column types and format column values
  - Add calculated columns using DAX expressions
  - Add measures using DAX expressions
  - Add a calendar table to support DAX time intelligence
  - Add dimensional hierarchies

- Excel data model supports adding KPIs
  - Power BI Desktop does not provide equivalent feature

Using Power Pivot Add-in for Excel

Adding Hierarchies to an Excel Data Model

- Excel data model supports dimensional hierarchies
  - All column in a hierarchy must be from single table
  - Provides the same effect as dimensional hierarchies in PBIDT
  - Technique for creating hierarchies in Excel different from PBIDT

Creating PivotTables from Excel Data Model

- Excel allows creation of PivotTables from data model
  - PivotTables are very popular with business users and data analysts
  - PivotTable allows user-friendly drilldown during data analysis
  - Excel PivotTables can be published to Excel Online
  - Power BI currently offers no visualization that matches Excel PivotTable

Creating a Chart from an Excel Data Model

- Excel provides rich charting capabilities
  - Excel charts can also be published to Excel Online

KPIs in an Excel Data Model

- Excel supports adding KPIs to data model
  - KPI created as visual layer on top of a measure
  - Power BI Desktop has no equivalent KPI support
  - Excel KPI can be used in Excel PivotTable

  - KPI from Excel data model can be used in Power BI report

Power View Reports in Excel

- Excel 2013 supports creating reports with Power View
  - Power View is reporting layer on top of Excel data model
  - Power View report added as worksheet within workbook file

Power View Requires Silverlight

- Use of Power View requires Microsoft Silverlight
  - Required when using Power View in Excel and in Browser
  - Often requires user to install Silverlight

- Silverlight dependencies considered undesirable
  - Power View reports inaccessible to many browsers and mobile devices
  - Microsoft is currently trying to move away from using Silverlight
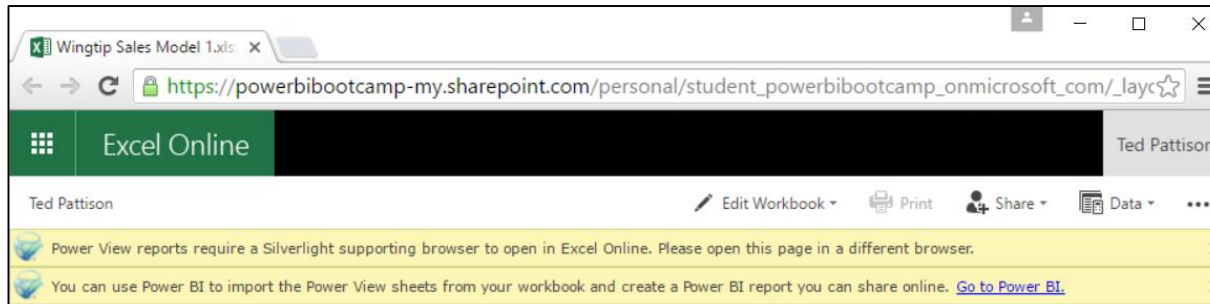
DEMO

**Working with Query and Data Modeling Features in Excel 2016**

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Connect versus Import

- Connecting to a Workbook from Power BI
  - Excel workbook file becomes live source of data
  - Power BI service hosted Excel Online to render Excel workbook
  - Power View reports can be viewed in browser but require Silverlight
- Importing a Workbook into Power BI
  - Data model from workbook file is converted into Power BI dataset
  - Power View reports converted to Power BI reports
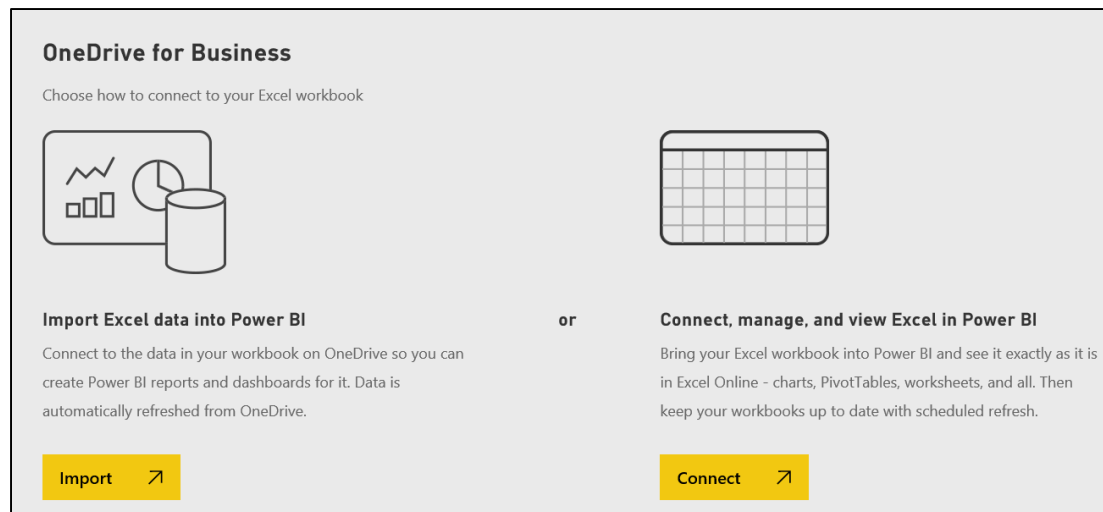
Hosting Excel Online inside Power BI

- What happens when you "Connect To" an Excel workbook?
  - Excel workbook renders inside Power BI using Excel Online hosting
  - Makes it easy to add Excel workbooks into Power BI user experience
 - Best way to provide true PivotTables from a Power BI solution

"Connecting To" a Power View Report

- When connecting to workbook with Power Reports…
  - Excel Online can render Power View reports in Power BI service
  - Requires a Silverlight-enabled browser – this can be a pain point

"Importing" Power View Reports

- Importing worksheet with Power View report…
  - Power View report converted into Power BI report
  - Silverlight elements replaced with Power BI visuals
  - Silverlight dependencies removed for broader reach
  - After importing, you can continue to edit report
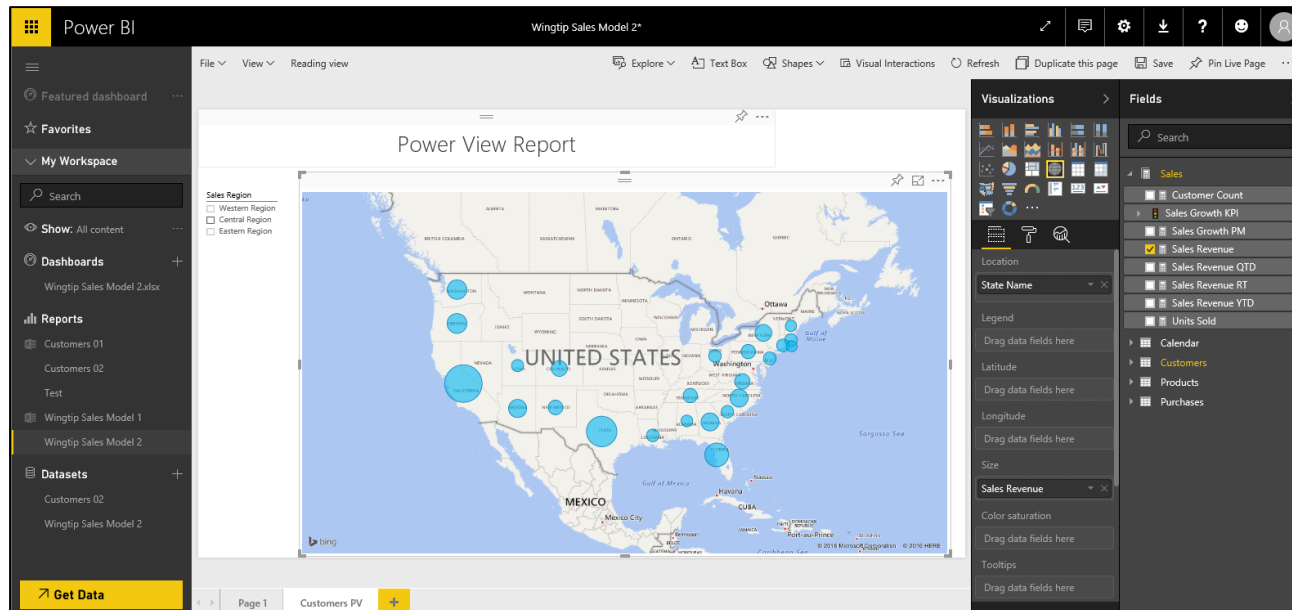
DEMO

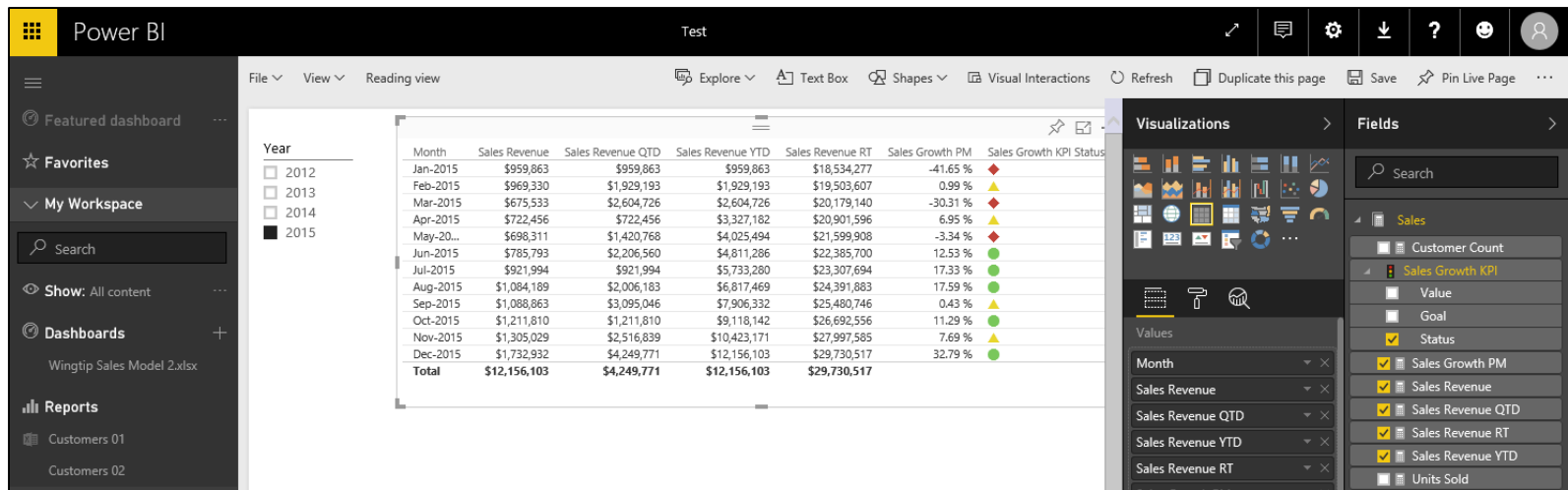**Understanding "Connect" versus "Import" with Excel Worksheets**

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Importing an Excel Data Model into Power BI

- Excel Data Model can be imported into Power BI
  - Done by importing Excel workbook with a data model
  - Excel data model converted into Power BI dataset
  - Dataset can be used to design reports and dashboards
  - KPIs from data model can be added to Power BI report
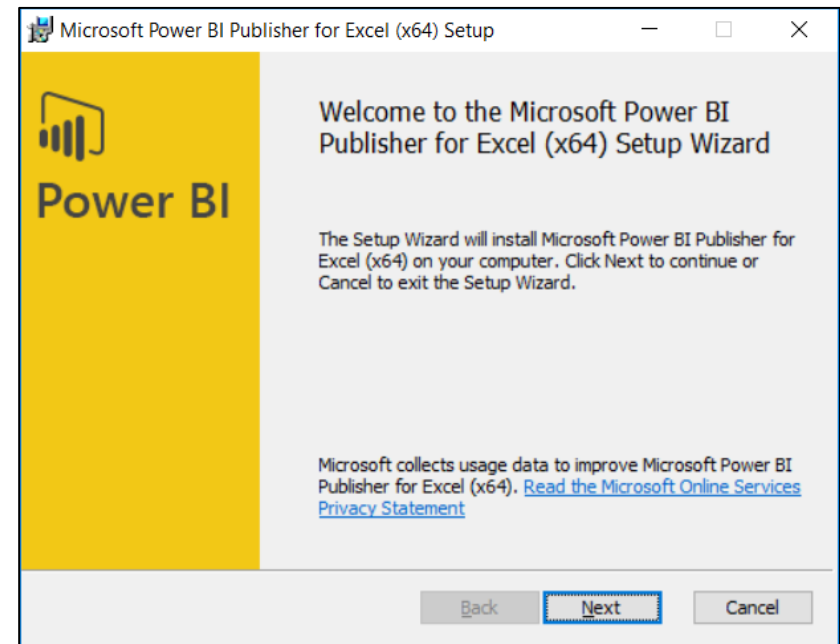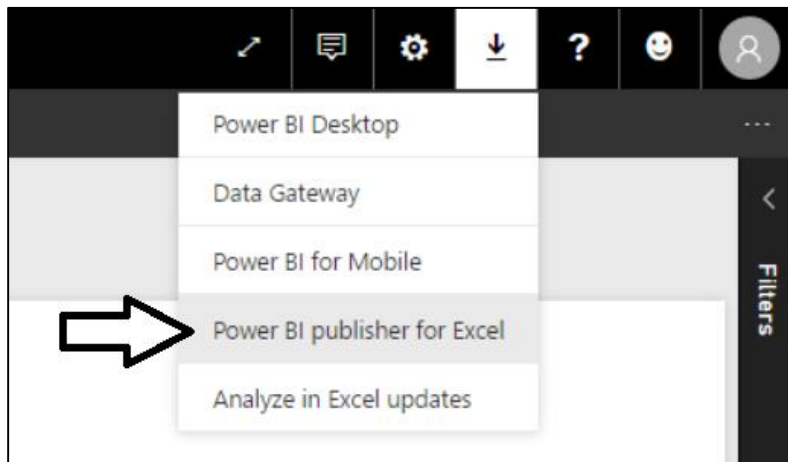
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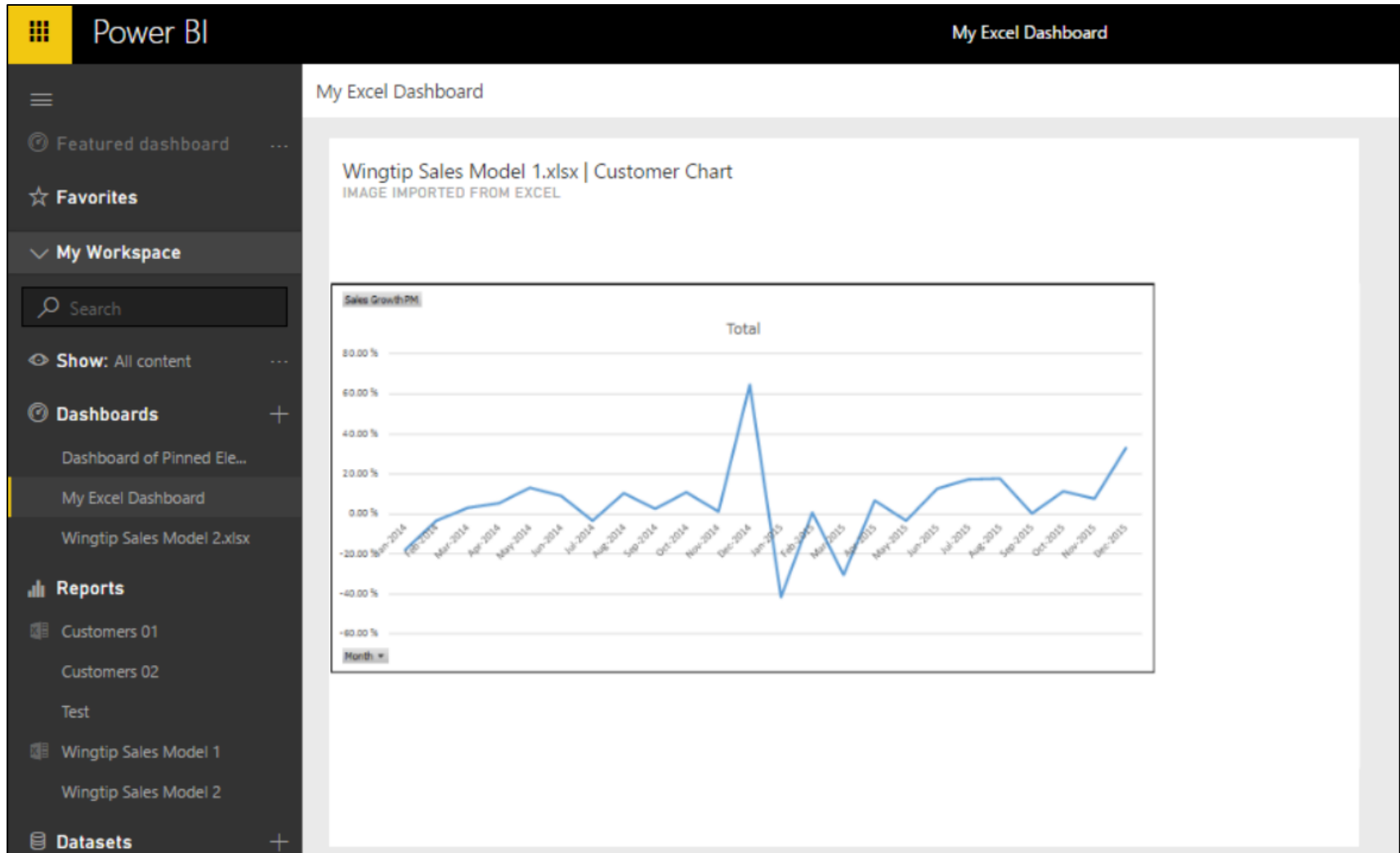
Power BI Publisher for Excel Add-in

- What is the Power BI Publisher for Excel Add-in?
  - An add-in that you first must downloaded and install
  - A utility to pin Excel elements to Power BI dashboard
  - Worksheet elements are pinned as non-dynamic snapshots
  - Pinned elements can be updated manually when needed

Pinning an Excel Chart to a Dashboard
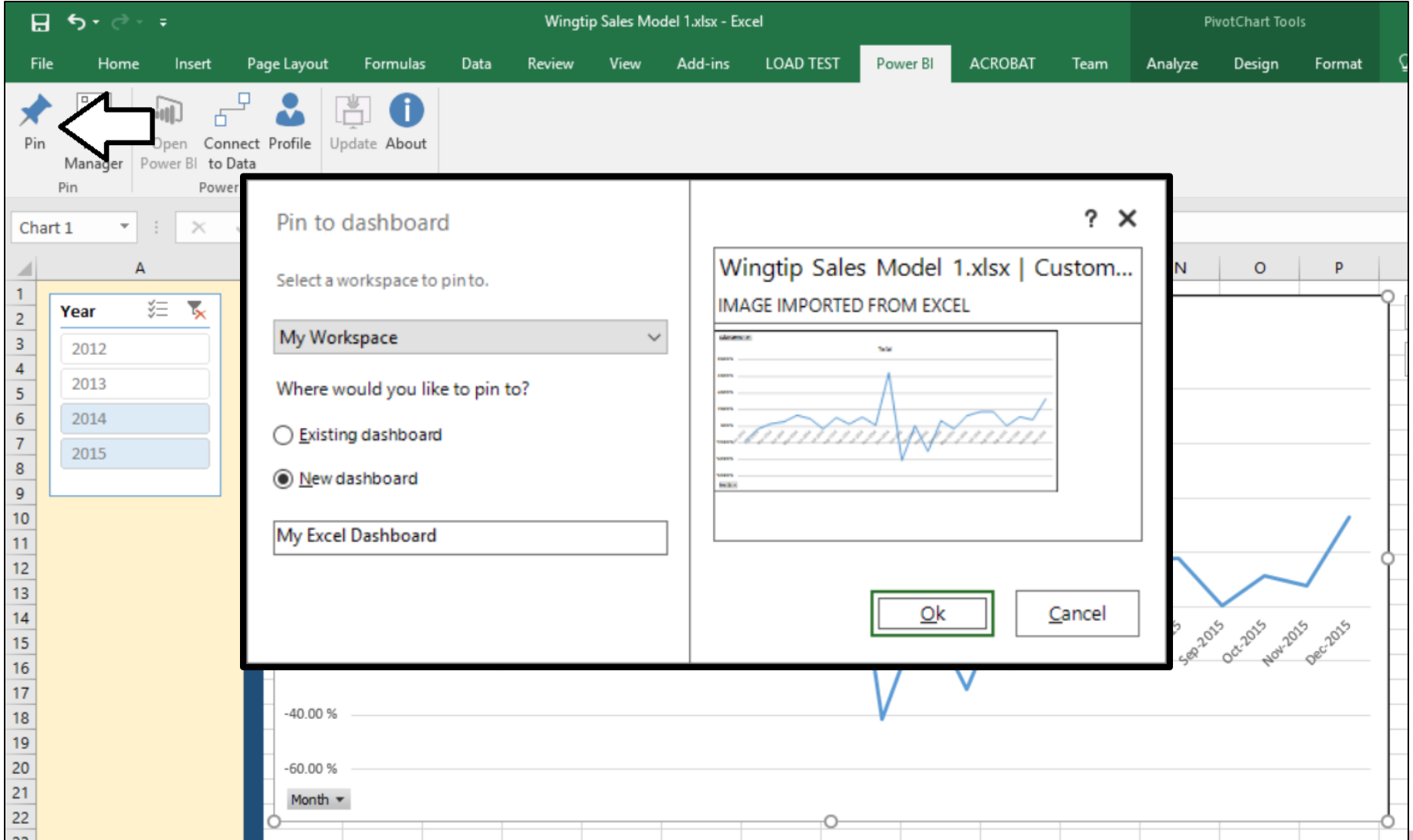
A Pinned Excel Chart in a Dashboard

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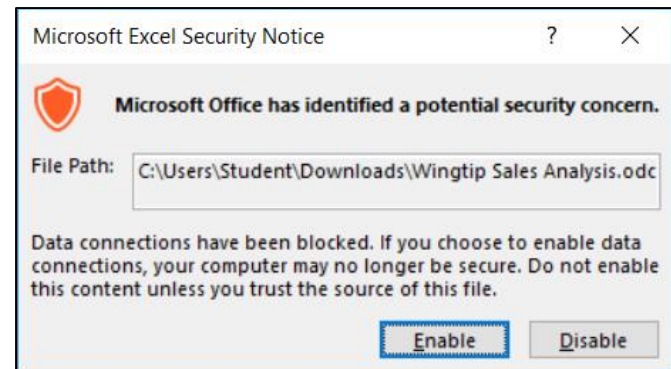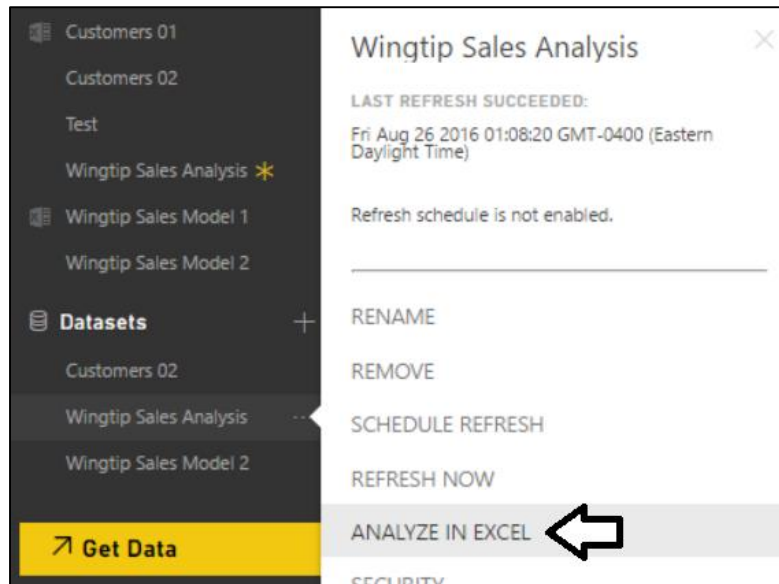- ➢ Connecting from Excel to a Power BI Dataset

Analyze in Excel

- Feature to connect Excel worksheet to Power BI dataset
  - Requires downloading & installing drivers using setup program
  - Once installed, connection is created from within Power BI service
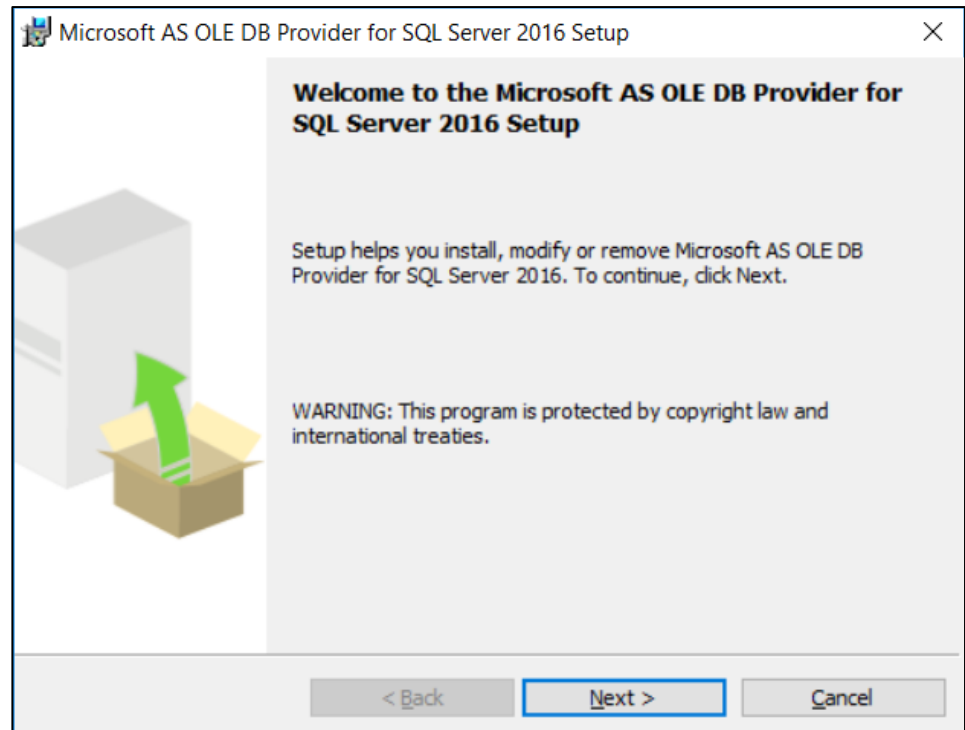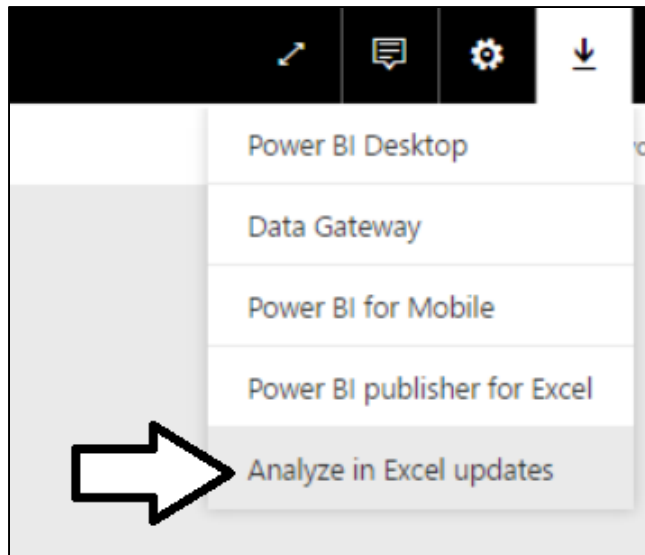
Creating a Connected Workbook

- Dataset provides ANALYZE IN EXCEL menu command
  - Used to create new Excel workbook with connection to dataset
  - Creation of new workbook triggered by download of **.ODC** file
  - Connecting can require user to enable data connections

- Once you connect Excel workbook to a Power BI dataset
  - You can analyze data just as it were from local data model
  - Power BI dataset plays the role of SSAS in the cloud

DEMO

Use the Analyze in Excel Feature

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