



Informatica® PowerExchange for Tableau  
10.0

# User Guide

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# Preface

The *Informatica PowerExchange for Tableau User Guide* provides information about reading data from multiple sources and writing data to Tableau. The guide is written for database administrators and developers who are responsible for developing mappings that read data from multiple sources, generate the Tableau data extract file, and write data to Tableau Server.

This guide assumes that you have knowledge of Tableau and Informatica Data Services.

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# CHAPTER 1

## Introduction to PowerExchange for Tableau

This chapter includes the following topics:

- [PowerExchange for Tableau Overview, 9](#)
- [Introduction to Tableau, 9](#)
- [PowerExchange for Tableau Implementation, 10](#)
- [PowerExchange for Tableau Example, 10](#)

## PowerExchange for Tableau Overview

You can use PowerExchange for Tableau to connect to Tableau from InformaticaPowerCenter.

You can integrate and transform data from sources, such as flat files, databases, and applications to generate a Tableau data extract (TDE) file. You can also create a Tableau packaged workbook (TWBX) and publish the generated file to Tableau.

When you connect to sources directly from Tableau, you have to rely on the speed of the underlying data sources. For faster turnaround, offline access, and to share centralized data with multiple users, you can eliminate connecting to data sources directly from Tableau and use the portable TDE file instead.

The TDE and TWBX files are compatible with Tableau products. You can use the TDE or TWBX file in Tableau Desktop to visualize the data extract and identify patterns and trends. You can also use the Tableau connection in a mapping to publish the TDE or TBWX file directly to Tableau Server or Tableau Online.

## Introduction to Tableau

Tableau software delivers fast analytics, visualization, and rapid-fire business intelligence.

You can use Tableau Desktop to connect to any data, query the data, see patterns, identify trends, and discover visual insights in seconds. You can create interactive visualizations, reports, and dashboards without the need for programming.

Tableau Server is business intelligence that provides browser-based and mobile analytics. You can publish dashboards to Tableau Server, so that other users can interact with the data in a browser or tablet.

Tableau Online is a hosted version of Tableau Server. You can share dashboards with your organization and customers in minutes. The live, interactive views of data in Tableau Online helps you answer your questions in a web browser or tablet.

## PowerExchange for Tableau Implementation

To generate a TDE file from the source data, create a Tableau data object and include the data object as a target in a mapping. You can run the mapping or add the mapping to a workflow to process the data, generate the TDE file, and publish the file to Tableau. To generate a TDE file from the source data, import the target definitions in the Designer. You can add a target definition to a session and run the session to generate and publish the TDE file to Tableau.

When you specify a Tableau workbook template (TWB) for a Tableau target, the Data Integration ServicePowerCenter Integration Service applies the TWB template to the TDE file and generates a Tableau packaged workbook (TWBX) file.

The Data Integration ServicePowerCenter Integration Service integrates with the Tableau data extract API to generate the TDE or TWBX file.

The Data Integration ServicePowerCenter Integration Service uses the Tableau connection to write the TDE or TWBX file to a directory on the machine where the Data Integration ServicePowerCenter Integration Service runs. You can publish the TDE or TWBX file to Tableau Server or Tableau Online. The Tableau Rest APIs publish the TDE or TWBX file to Tableau Server or Tableau Online. When you publish the TDE or TWBX file, the file is available for analysis to multiple users within an organization. You can interact with the data, create reports and dashboards from the data, and visually represent the data.

If you do not want to publish the data to Tableau Server or Tableau Online, you can manually import the TDE or TWBX file from the Data Integration ServicePowerCenter Integration Service machine to Tableau Desktop. You can edit the TDE or TWBX file in Tableau Desktop and later publish the data to Tableau Server or Tableau Online.

## PowerExchange for Tableau Example

You are a sales analyst in an enterprise who can access data warehouses or flat files from Tableau Desktop to analyze the data. You want to track the overall growth trend in sales, geographic distribution of sales, and top customers, and present a snapshot of the sales distribution to senior executives.

You can integrate data from multiple sources, filter the data, and make the data available as a TDE file for analysis in Tableau through PowerExchange for Tableau. You can import the TDE file in Tableau Desktop to create interactive, real-time dashboards. The visual representation helps you understand the profitability, with views presented by geography, product category, and customer segment. You can also publish the TDE file to Tableau Server to share a live and interactive dashboard with all the executives in the organization.

## CHAPTER 2

# Installation and Configuration

This chapter includes the following topics:

- [Installation and Configuration Overview, 11](#)
- [Installing the Server Component, 11](#)
- [Installing the Client Component, 13](#)
- [After You Upgrade, 14](#)

## Installation and Configuration Overview

The PowerExchange for Tableau installation consists of a server installation and a client installation. You can install PowerExchange for Tableau on Windows or UNIX.

To configure PowerExchange for Tableau, perform the following steps:

1. Install or upgrade Informatica services. Create and configure a Model Repository Service and a Data Integration Service.
2. Install the PowerExchange for Tableau server component after you install the Informatica services. The server binaries are copied to the Informatica installation directory.
3. Install the PowerExchange for Tableau client component after you install the Informatica clients. The client binaries are copied to the Informatica installation directory.

## Installing the Server Component

You can install the server component on Windows or Linux machines.

### Installing the Server Component on Windows

If multiple nodes exist in your environment, you must first install the server component on the master gateway node. You can then install the server component on the other nodes in the domain.

Before you install, shut down the Informatica domain.

1. Navigate to the root directory of the extracted installer files.
2. Run the `install.bat` script file.

The **Welcome** page appears.

3. Click **Next**.

The **Installation Directory** page appears.

4. Enter the absolute path to the Informatica installation directory. Click **Browse** to find the directory or use the default directory.

By default, the server components are installed in the following location:

`C:\Informatica\<version folder>\`

If you did not shut down the domain, a message appears asking you to shut down the domain.

5. Click **Next**.

The **Pre-Installation Summary** page appears.

6. Verify that all installation requirements are met and click **Install**.

The **Domain Information Panel** page appears.

7. View or enter the domain information.

Property	Description
Domain Name	Name of the domain where Informatica services are installed. This field is read-only.
Node Name	Name of the node on which you are installing the PowerExchange for Tableau server component. This field is read-only.
Domain User Name	User name of the administrator for the domain.
Domain Password	Password for the domain administrator.
Master Gateway Node	Indicates whether the node on which you are installing the server component is the master gateway node. Select the option for the master gateway node. Clear the option for all other nodes on which you install the server component.

8. Click **Next**.

The installer shows the progress of the installation. When the installation is complete, the **Post-Installation Summary** page displays the status of the installation.

9. Click **Done** to close the installer.

For more information about the tasks performed by the installer, view the installation log files.

## Installing the Server Component on UNIX

If multiple nodes exist in your environment, you must first install the server component on the master gateway node. You can then install the server component on the other nodes in the domain.

Before you install, shut down the Informatica domain.

1. Delete the contents from the following directories:

- `$INFA_HOME/services/work_dir`

- `$INFA_HOME/tomcat/bin/workspace`

2. Navigate to the root directory of the extracted installer files.
3. Enter `./install.sh` at the command prompt.

**Note:** The `install.sh` file must have executable permissions.

4. Enter the path to the Informatica installation directory.

By default, the server components are installed in the following location:

`<User Home Directory>/Informatica/<version folder>`

If you did not shut down the domain, a message appears asking you to shut down the domain.

5. Review the installation information and press **Enter** to begin the installation.
6. View or enter the domain information.

Property	Description
Domain Name	Name of the domain where Informatica services are installed. This field is read-only.
Node Name	Name of the node on which you are installing the PowerExchange for Tableau server component. This field is read-only.
Domain User Name	User name of the administrator for the domain.
Domain Password	Password for the domain administrator.
Master Gateway Node	Indicates whether the node on which you are installing the server component is the master gateway node. Select from the following options: 1. Yes. Select Yes if the node is the master gateway node. 2. No. Select No for all other nodes on which you install the server component.

For more information about the tasks performed by the installer, view the installation log files.

After you complete the installation, ensure that the binary files in the `$INFA_HOME/services/shared/bin` directory have executable permissions.

## Installing the Client Component

Install the client component on every Informatica Developer client machine that connects to the domain.

1. Delete the contents from the following directory:  
`$INFA_HOME\clients\DeveloperClient\workspace`
2. Delete the configuration files and retain the `config.ini` file from the following directory:  
`$INFA_HOME\clients\DeveloperClient\configuration`
3. Unzip the client installation archive and navigate to the root directory of the extracted installer files.
4. Run the `install.bat` script file.

The **Welcome** page appears.

5. Click **Next**.  
The **Installation Directory** page appears.
6. Enter the absolute path to the Informatica installation directory. Click **Browse** to find the directory or use the default directory.
7. Click **Next**.  
The **Pre-Installation Summary** page appears.
8. Verify that all installation requirements are met and click **Install**.  
The installer shows the progress of the installation. When the installation is complete, the **Post-Installation Summary** page displays the status of the installation.
9. Click **Done** to close the installer.  
For more information about the tasks performed by the installer, view the installation log files.

## After You Upgrade

After you upgrade Informatica Services, perform the following tasks manually:

- Set the Tableau product field in the Tableau connection properties corresponding to the configured setting in the earlier version.
- Set the advance property for a Tableau data object write operation corresponding to the configured setting in the earlier version.
- Set the execute permissions for the `tdeserver64` third-party library file in the following location:  
`<INFA_HOME>/services/shared/bin`

## CHAPTER 3

# Tableau Connections

This chapter includes the following topics:

- [Tableau Connection Overview, 15](#)
- [Tableau Connection Properties, 15](#)
- [Creating a Tableau Connection, 17](#)

## Tableau Connection Overview

Create a Tableau connection to create a TDE or TWBX file in a directory on the machine where you run the Data Integration Service. You can then use the Tableau connection to publish the TDE or TWBX file to Tableau Server or Tableau Online.

When you create a Tableau connection, you define the connection attributes that the Tableau Rest APIs use to publish the Tableau data extract to Tableau Online or Tableau Server. Enter the connection attributes that are specific to the Tableau product that you want to connect to. You can specify Tableau Desktop, Tableau Server, or Tableau Online in the connection properties.

Specify Tableau Desktop when you want to create a TDE or TWBX file on the local machine. To publish the generated TDE or TWBX file to Tableau Server or Tableau Online, provide the Tableau Server or Tableau Online URL and the user credentials.

## Tableau Connection Properties

Use a Tableau connection to connect to Tableau. When you create a Tableau connection, you enter information to access Tableau.

The following table describes the Tableau connection properties:

Property	Description
Name	Name of the Tableau connection.
ID	String that the Data Integration Service uses to identify the connection. The ID is not case sensitive. It must be 255 characters or less and must be unique in the domain. You cannot change this property after you create the connection. Default value is the connection name.

Property	Description
Description	Description of the connection. The description cannot exceed 765 characters.
Location	The Informatica domain where you want to create the connection.
Type	Type of connection. Select Tableau.

The following table describes the properties to connect to Tableau:

Connection Property	Description
Tableau Product	<p>The name of the Tableau product to which you want to connect.</p> <p>You can choose one of the following Tableau products to publish the TDE or TWBX file:</p> <ul style="list-style-type: none"> <li>- Tableau Desktop. Creates a TDE file in the Data Integration ServicePowerCenter Integration Service machine. You can then manually import the TDE file to Tableau Desktop.</li> <li>- Tableau Server. Publishes the generated TDE or TWBX file to Tableau Server.</li> <li>- Tableau Online. Publishes the generated TDE or TWBX file to Tableau Online.</li> </ul>
Connection URL	URL of Tableau Server or Tableau Online to which you want to publish the TDE or TWBX file. The URL has the following format: <code>http://&lt;Host name of Tableau Server or Tableau Online&gt;:&lt;port&gt;</code>
User Name	User name of the Tableau Server or Tableau Online account.
Password	Password for the Tableau Server or Tableau Online account.
Content URL	<p>The name of the site on Tableau Server or Tableau Online where you want to publish the TDE or TWBX file.</p> <p>Contact the Tableau administrator to provide the site name.</p>
Template File Path	<p>The path to a sample TDE file from where the PowerCenter Integration Service imports the Tableau metadata.</p> <p>Enter one of the following options for the template file path:</p> <ul style="list-style-type: none"> <li>- Absolute path to the TDE file.</li> <li>- Directory path for the TDE files.</li> <li>- Empty directory path.</li> </ul> <p>The path you specify for the template file becomes the default path for the target TDE file. If you do not specify a file path, the PowerCenter Integration Service uses the following default file path for the target TDE file: <code>&lt;Informatica Installation Location&gt;\clients\PowerCenterClient\main\java\lib</code></p>

## Content URL

You can specify the name of the content URL to point to a specific site on Tableau Server or Tableau Online where you want to publish the TDE file. Specify the site name in the connection properties.

The content URL has the following format: `http://<Host name of Tableau Server or Tableau Online>:<port> /#/site/<Name of the content URL>/View in Tableau Server or Tableau Online>`

For example, if you create a site called *infa* on Tableau Server, the content URL for the site on Tableau Server is: `https://10.50.100.100:6000/#/site/infa/workbooks`

The value you specify for the content URL in the connection properties is *Infa*.



To specify an existing content URL site name on Tableau Server or Tableau Online where you want to publish the Tableau data extract, contact the Tableau Server or Tableau Online administrator.

## Creating a Tableau Connection

Before you create a Tableau data object, create a connection in the Developer tool.

1. Click **Window > Preferences**.
2. Select **Informatica > Connections**.
3. Expand the domain in the **Available Connections**.
4. Select **Enterprise Applications > Tableau** and click **Add**.
5. Enter a connection name.
6. Enter an ID for the connection.
7. Optionally, enter a connection description.
8. Select the domain on which you want to create the connection.
9. Select a Tableau connection type.
10. Click **Next**.
11. Configure the connection properties.
12. Click **Test Connection** to verify the connection to Tableau.
13. Click **Finish**.

## CHAPTER 4

# Tableau Data Objects

This chapter includes the following topics:

- [Tableau Data Objects Overview, 18](#)
- [Tableau Data Extract File, 18](#)
- [Tableau Packaged Workbook File, 19](#)
- [Tableau Data Object Properties, 24](#)
- [Tableau Data Object Write Operation Properties, 25](#)

## Tableau Data Objects Overview

A Tableau data object is a physical data object that represents data based on a Tableau resource. The Data Integration Service generates the Tableau data extract file based on the data representation in the Tableau data object.

You can choose to create a Tableau data object or fetch metadata from an existing Tableau data extract file.

The Developer tool adds a default column named `tableau_sample` when you create the Tableau data object. Based on the columns in the source data, you can open the data object to add the required columns.

When you update a Tableau data extract file, you can either overwrite the file or append data to the existing file. When you append data to an extract file, ensure that the column metadata in the extract file and the Tableau data object are the same.

After you create the Tableau data object, create a Tableau data object write operation and specify the properties for the write operation. You can choose to generate the Tableau data extract file and publish to Tableau Server or Tableau Online. You can also apply a Tableau workbook template to the Tableau data extract file to create a Tableau packaged workbook file. You can create or overwrite data when you publish the Tableau data extract or Tableau packaged workbook file to Tableau.

## Tableau Data Extract File

A Tableau Data Extract (TDE) file contains data extracted from an external data source.

The TDE file is a Tableau-specific file format with `.tde` extension, which contains individual memory-mapped files for each of the columns in the underlying data source. You can use the Tableau connection to publish the TDE file generated in Informatica CloudInformaticaPowerCenter to Tableau.

# Tableau Packaged Workbook File

The Tableau packaged workbook file is a data file with .twbx extension.

Packaged workbooks contain a Tableau workbook along with supporting local file data sources, custom shapes, TDE files, text files, Microsoft Access or Excel files, or background images grouped together in one package. You can publish a packaged workbook from Informatica CloudInformaticaPowerCenter to Tableau. A workbook can either contain a worksheet or a dashboard.

When you extract data from the source into a TDE file, you can apply a predefined Tableau workbook (TWB) template to the extracted data to create a Tableau packaged workbook (TWBX) in Informatica CloudInformaticaPowerCenter. The TWB template file is custom made to perform specific analysis on the extracted source data and populates graphs and charts to represent the data. You can publish the TWBX file to Tableau and further modify the generated graphs according to your business needs.

You can apply the following predefined template files for Tableau ConnectorPowerExchange for TableauPowerExchange for Tableau to analyse the data extract from Salesforce sources:

- Salesforce\_Opportunity\_Analysis.twb
- Salesforce\_Pipeline\_Analysis.twb
- Salesforce\_Rep\_Performance\_Analysis.twb
- Salesforce\_Opportunity\_Analysis.twb
- Salesforce\_Sales\_Analysis\_by\_Region.twb
- Salesforce\_Sales\_Summary.twb

**Note:** The current version of Tableau ConnectorPowerExchange for TableauPowerExchange for Tableau supports predefined TWB templates for Salesforce data. To use the predefined TWB files and publish the TWBX file, you must use the Salesforce Opportunity object as the source.

## Workbook Templates

The templates provide pre-built dashboards for the Salesforce data and use standard Salesforce objects.

You can apply the following template files to a Tableau target to analyze the data extract from Salesforce sources.

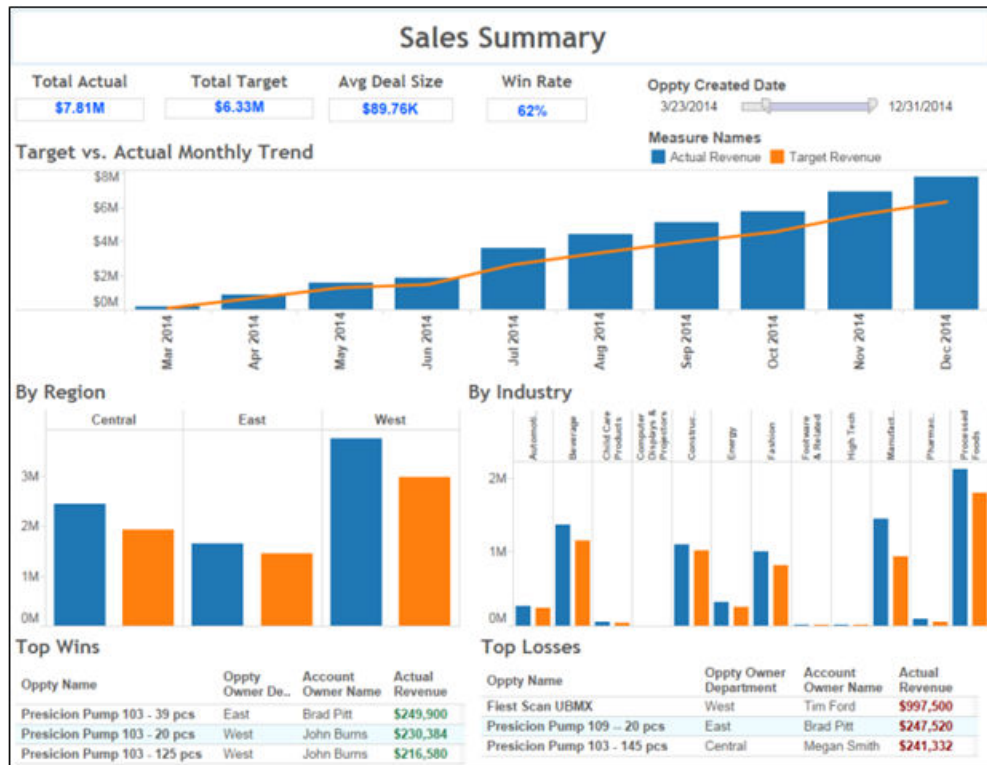
### Sales Summary

The sales summary is a dashboard that displays an overview of the sales key performance indicators (KPIs). Use the `Salesforce_Sales_Summary.twb` template to generate the sales summary.

The template uses the following entities to analyze and generate the graph:

- Salesforce Data Objects. Includes Opportunity, Opportunity Owner, Opportunity Creator, Opportunity Account, Account Owner, and Account Creator.
- Measures. Includes Opportunity Expected Revenue and Opportunity Amount.
- Dimensions. Includes Opportunity Owner Department and Account Industry.
- Filter by. Includes Opportunity Create Date.

The following image is a sales summary graph generated from the Salesforce data:



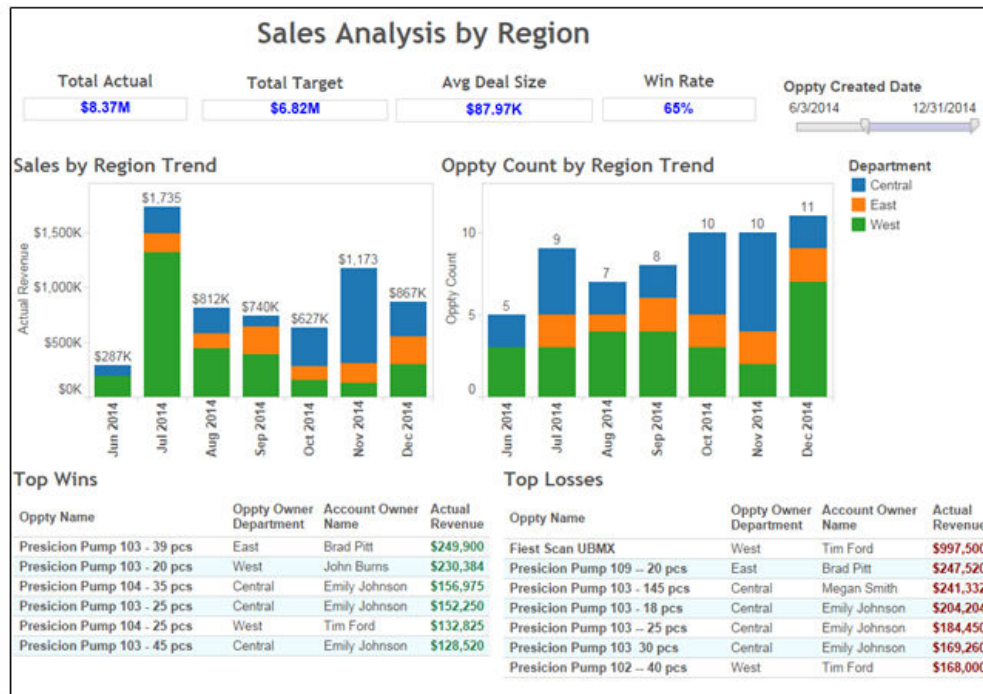
### Sales Analysis by Region

Use the `Salesforce_Sales_Analysis_by_Region.twb` template to analyze and display the sales KPIs by region.

The template uses the following entities to analyze and generate the graph:

- **Salesforce Data Objects.** Includes Opportunity, Opportunity Owner, Opportunity Creator, Opportunity Account, Account Owner, and Account Creator.
- **Measures.** Includes Opportunity Expected Revenue, Opportunity Amount, and Opportunity Count.
- **Dimensions.** Includes Opportunity Owner Department.
- **Filter by.** Includes Opportunity Create Date.

The following image is a sales analysis summary graph generated from the Salesforce data:



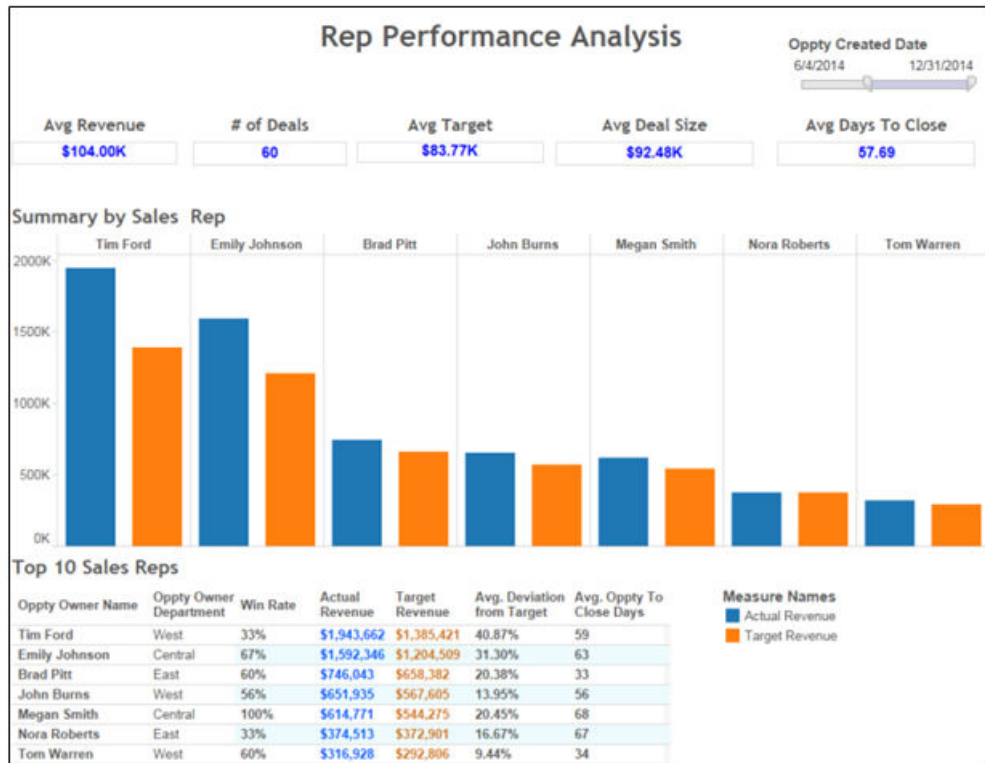
### Representative Performance Analysis

Use the `Salesforce_Rep_Performance_Analysis.twb` template to track the performance of the sales team.

The template uses the following entities to analyze and generate the graph:

- **Salesforce Data Objects.** Includes Opportunity, Opportunity Owner, Opportunity Creator, Opportunity Account, Account Owner, and Account Creator.
- **Measures.** Includes Opportunity Expected Revenue and Opportunity Amount.
- **Dimensions.** Includes Opportunity Owner Name.
- **Filter by.** Includes Opportunity Create Date.

The following image is a sales summary graph generated by region from the Salesforce data:



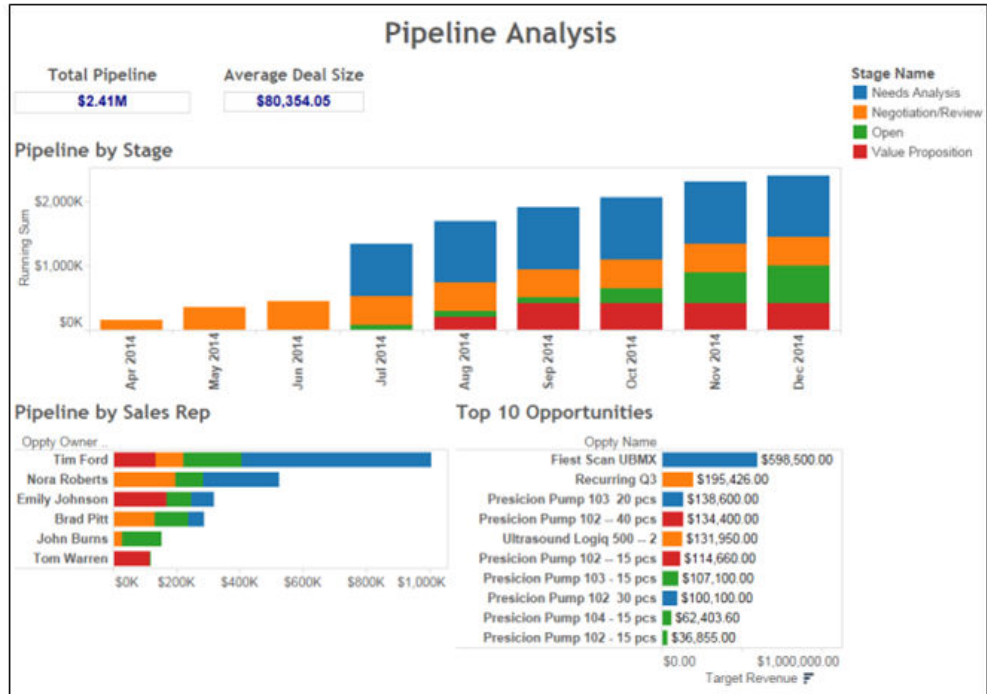
## Pipeline Analysis

Use the `Salesforce_Pipeline_Analysis.twb` template to analyze the sales pipeline.

The template uses the following entities to analyze and generate the graph:

- **Salesforce Data Objects.** Includes Opportunity, Opportunity Owner, Opportunity Creator, Opportunity Account, Account Owner, and Account Creator.
- **Measures.** Includes Opportunity Expected Revenue.
- **Dimensions.** Includes Opportunity Owner Name and Opportunity Stage Name.
- **Filter by.** Includes Opportunity Create Date.

The following image is a pipeline analysis graph generated from the Salesforce data:



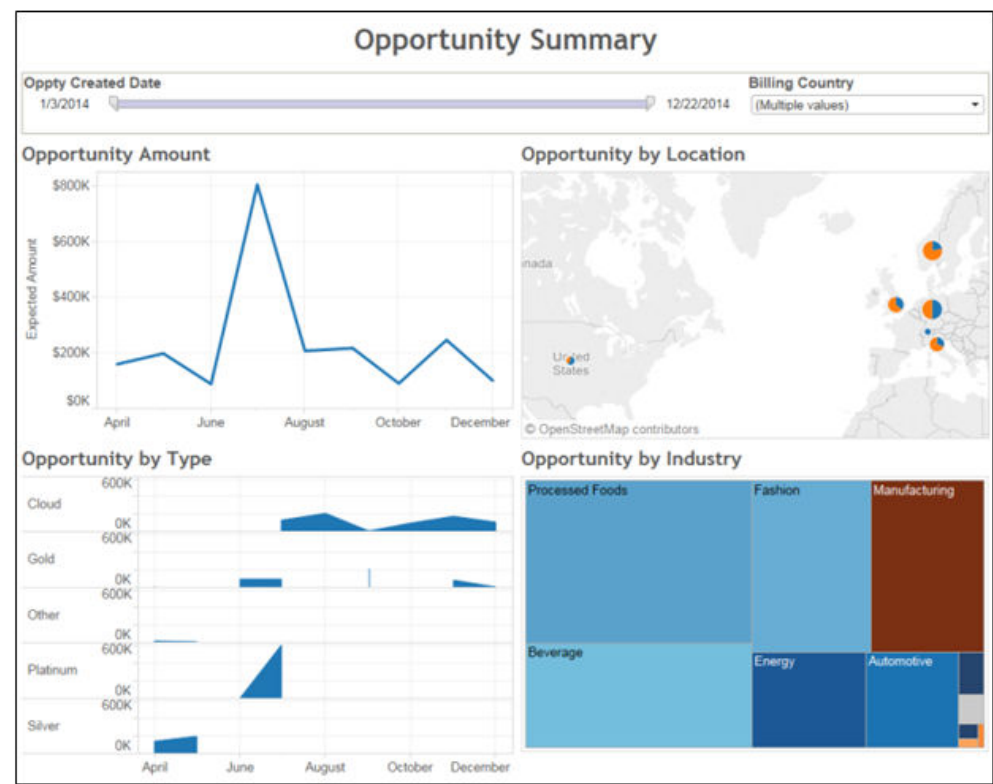
### Opportunity Summary

Use the `Salesforce_Opportunity_Analysis.twb` template to understand from where you get the sales opportunities.

The template uses the following entities to analyze and generate the graph:

- **Salesforce Data Objects.** Includes Opportunity, Opportunity Owner, Opportunity Creator, Opportunity Account, Account Owner, and Account Creator.
- **Measures.** Includes Opportunity Expected Revenue.
- **Dimensions.** Includes Opportunity Type and Account Industry..
- **Filter by.** Includes Opportunity Create Date and Account Billing Address Country.

The following image is a sales opportunity summary generated from the Salesforce data:



# Tableau Data Object Properties

Specify the data object properties when you create a Tableau data object.

The following table describes the properties that you configure for a Tableau data object:

Property	Description
Name	Name of the Tableau data object.
Location	The project or folder in the Model Repository Service where you want to store the Tableau data object.
Access Type	You can choose one of the following options: <ul style="list-style-type: none"><li>- Create an empty metadata object. Creates a Tableau data object with a sample port.</li><li>- Fetch metadata from file. Imports metadata from the specified Tableau data extract file.</li></ul>
Resource Location	Location of the Tableau data extract file. Required when you specify the access method as File.



## Creating a Tableau Data Object

Create a Tableau data object to specify a Tableau resource.

1. Select a project or folder in the Object Explorer view.
2. Click **File > New > Data Object**.
3. Select **Tableau Data Object** and click **Next**.  
The **New Tableau Data Object** dialog box appears.
4. Enter a name for the data object.
5. Click **Browse** next to the **Location** option and select the target project or folder.
6. Specify the access method. Choose to create a Tableau data object or fetch data from an existing Tableau data extract file.
  - To create a Tableau data object, select **Create an Empty Metadata Object** as the access method.
  - To fetch data from an existing Tableau data extract file, select **Fetch Metadata from File** as the access method.
7. To fetch data from an existing Tableau data extract file, perform the following tasks:
  - a. Click **Browse** next to the **Resource Location** option. The Windows **Open** dialog box appears.
  - b. Navigate to the location of the Tableau data extract file with .tde extension and click **Open**.  
Ensure that the Tableau data extract file was generated by using the Tableau Data Extract API and contains the Extract object.
  - c. Optionally, select the table in the extract file and click **View** to review the column details.
8. Click **Finish**.  
The data object appears under Data Object in the project or folder in the Object Explorer view.

## Tableau Data Object Write Operation Properties

Tableau data object write operation properties include run-time and advanced properties that apply to the Tableau data object.

The run-time properties display the name of the Tableau connection. The Developer tool displays advanced properties for the Tableau data object operation in the Advanced view.

The following table describes the advanced properties that you can configure for a Tableau data object write operation:

Property	Description
Target Operation	<p>Creates or overwrites the TDE file on the local machine, Tableau Server, or Tableau Online, as specified in the Tableau connection properties.</p> <p>Select one of the following options to publish the TDE file:</p> <ul style="list-style-type: none"> <li>- create. Creates a TDE file. Ensure that a TDE file with the same name does not exist.</li> <li>- append. Adds data to an existing TDE file on the local machine. The append operation is applicable only for Tableau Desktop.</li> <li>- overwrite. Deletes the existing TDE file and creates a new TDE file.</li> </ul> <p>The append and overwrite operations work only if there is an existing TDE file.</p>
Extract File Path	<p>The file path where you want to save the generated Tableau data extract file. Ensure that the file path is on the machine where the Data Integration ServicePowerCenter Integration Service runs. The path is a temporary location for Tableau Server and Tableau Online.</p> <p>Default is the location of the target file specified in the Tableau connection properties.</p>
Extract File Name	<p>Name for the Tableau data extract file with the .tde extension.</p> <p>Default is the file name you specified when creating the target object. If the operation is for Tableau Server or Tableau Online, the file gets deleted after the Data Integration ServicePowerCenter Integration Service publishes the TDE file to Tableau Server or Tableau Online.</p> <p>To publish a TWDX file to Tableau, you must provide the extract file name <code>salesforce_opportunity.tde</code> defined in the template.</p>
Project Name	<p>Name of the project within a specific site on Tableau Server or Tableau Online where you want to publish the Tableau data extract. By default, the Tableau connection publishes the TDE file to the default project on the site that you specify on Tableau Server.</p>
Data Source	<p>Name of the Tableau data extract that you want to publish to Tableau Server or Tableau Online. If you do not specify a data source name, the default Tableau data extract file name remains the source name.</p> <p>If you do not specify a data source name, the extract file name remains the data source name. If you do not specify both the data source name or the extract file name, the metadata file name that you specify when creating the Tableau data object remains the data source name.</p>
Workbook Template File Name	<p>Name of the predefined Tableau workbook template (TWB) file name that you want to apply to the TDE file to generate a Tableau packaged workbook file (TWBX). You must provide the TWB name to publish the TWBX file.</p>
Workbook Name	<p>Name for the workbook that you want to publish to Tableau. If you do not specify a workbook name, the name of the TWB template file remains the workbook name.</p>

## Creating a Tableau Data Object Write Operation

Create a Tableau data object write operation from a Tableau data object.

Before you create a data object operation, you must create the data object with the resource.

1. Select the data object in the Object Explorer view.
2. Right-click and select **New > Data Object Operation**.  
The **Data Object Operation** dialog box appears.
3. Enter a name for the data object operation.
4. Select the type of data object operation. Select **extracts Write** to create a write operation.

5. Click **Add**.

The **Select a resource** dialog box appears.

6. Select the resource for which you want to create the data object operation and click **OK**.

7. Click **Finish**.

The Developer tool creates the data object operation for the selected data object.

Open the Tableau data object operation to edit the input properties in the Advanced view.

## CHAPTER 5

# Tableau Mappings

This chapter includes the following topics:

- [Tableau Mappings Overview, 28](#)
- [Tableau Mapping Example, 28](#)

## Tableau Mappings Overview

After you create a Tableau data object operation, you can develop a mapping.

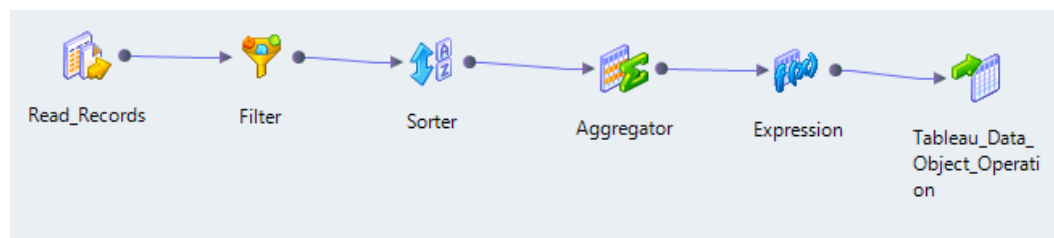
You can add a Tableau data object operation to a Tableau mapping as a target. Validate and run the mapping to integrate and transform source data and generate the Tableau data extract file. You can edit the Tableau data object operation run-time properties to modify the default values. You can also add advanced run-time properties to publish the Tableau data extract file to Tableau Online or Tableau Server.

## Tableau Mapping Example

You work in the retail industry, and business analysts in your enterprise need to analyze product sales trends based on region.

The sales record files contain columns with information about products that are sold in multiple outlets and regions. You consolidate the data in the sales record files that you receive through the day. You can then perform transformations based on your requirements.

The following image shows a Tableau mapping:



You use the following objects in the Tableau mapping:

### Flat file data object

The source for the mapping is a flat file data object that contains the product sales data.

Create a flat file data object and specify the sales record as the resource for the data object. Source columns in the flat file data object include Region ID, Product ID, Quantity, and Cost. Configure the read properties of the data object.

### **Transformations**

Add transformations to get aggregate data about the product sales in a particular region.

- The Filter transformation filters the data in the sales record files based on the value you specify for the region ID column.  
The Data Integration Service returns the rows that meet the filter condition.
- The Sorter transformation sorts the data in ascending order based on the region ID.
- The Aggregator transformation collects statistics about product sales for a particular region.  
Use the result of the Sorter transformation as an input to the Aggregator transformation. You can increase Aggregator transformation performance with the sorted input option.

### **Tableau data object write operation**

The target of the mapping is a Tableau data object write operation. Create a Tableau data object and then create a Tableau data object write operation to generate the Tableau data extract file.

Specify the absolute path and name of the Tableau data extract file to which you want to write the data. You must then specify the content URL for a specific site on Tableau Server where you want to publish the Tableau data extract file.

When you run the mapping, the Data Integration Service writes the sales information to a target TDE file and publishes the TDE file to Tableau Server. You can then visualize the sales data categorized by region in Tableau Server.

# APPENDIX A

## Data Type Reference

This appendix includes the following topics:

- [Data Type Reference Overview, 30](#)
- [Tableau and Transformation Data Types, 30](#)
- [Decimal Data Type, 32](#)
- [Duration Data Type, 32](#)

## Data Type Reference Overview

Informatica DeveloperPowerCenter uses the following data types in Tableau mappings:

- Tableau native data types. Tableau data types appear in the physical data object column propertiesTableau definitions in a mapping.
- Transformation data types. Set of data types that appear in the transformations. They are internal data types based on ANSI SQL-92 generic data types, which the Data Integration ServicePowerCenter Integration Service uses to move data across platforms. Transformation data types appear in all transformations in a mapping.

When the PowerCenter Integration Service reads source data, it converts the native data types to the comparable transformation data types before transforming the data. When the PowerCenter Integration Service writes to a target, it converts the transformation data types to the comparable native data types.

## Tableau and Transformation Data Types

The following table lists the Tableau data types that the Data Integration ServicePowerCenter Integration Service supports and the corresponding transformation data types:

Tableau Data Type	Transformation Data Type	Range and Description
Integer	Integer	-2,147,483,648 to 2,147,483,647 Precision 10, scale 0
Double	Double	Double-precision floating-point numeric value. Precision 15

Tableau Data Type	Transformation Data Type	Range and Description
Date	Date/Time	Jan 1, 0001 A.D. to Dec 31, 9999 A.D. Precision of 29, scale of 9 (precision to nanosecond)
DateTime	Date/Time	Jan 1, 0001 A.D. to Dec 31, 9999 A.D. Precision of 29, scale of 9 (precision to nanosecond)
unicode_string	String, Text, Bigint, or Decimal	The Data Integration ServicePowerCenter Integration Service performs an implicit conversion of String, Text, Bigint, or Decimal to unicode_string: String: - 1 to 104,857,600 characters - Fixed-length or varying-length string Text: - 1 to 104,857,600 characters - Fixed-length or varying-length string Bigint: - 9,223,372,036,854,775,808 to 9,223,372,036,854,775,807 - Precision of 19, scale of 0 - Integer value Decimal: - Precision 1 to 28 digits, scale 0 to 28 - Decimal value with declared precision and scale. Scale must be less than or equal to precision.
char_string	String, Text, Bigint, or Decimal	The Data Integration ServicePowerCenter Integration Service performs an implicit conversion of String, Text, Bigint, or Decimal to char_string: String: - 1 to 104,857,600 characters - Fixed-length or varying-length string Text: - 1 to 104,857,600 characters - Fixed-length or varying-length string Bigint: - 9,223,372,036,854,775,808 to 9,223,372,036,854,775,807 - Precision of 19, scale of 0 - Integer value Decimal: - Precision 1 to 28 digits, scale 0 to 28 - Decimal value with declared precision and scale. Scale must be less than or equal to precision.
boolean	String	1 to 104,857,600 characters. Fixed-length or varying-length string. Valid values are True and False.
duration	String	Valid values for hours are integer values between 0 and 23. Valid values for minutes and seconds are integer values between 0 and 59. If there is no value for any field, specify 0.

## Decimal Data Type

When you read data as Decimal in the reader object, use String or Double instead of the Decimal data type for better performance. As Tableau does not support the Decimal data type, you must change the decimal data to string data type that Tableau supports. Change the decimal data type to string in the input wizard of the Tableau data object and char\_string or unicode\_string in the output wizard of the Tableau data object. To write the decimal data to double data type supported by Tableau, change the decimal data type to double in the input wizard of the Tableau data object. The Data Integration Service performs an implicit conversion of decimal to a comparable native data type, unicode or char\_string, that Tableau supports. When you read data as Decimal in the source definition, use String or Double instead of the Decimal data type for better performance. As Tableau does not support the Decimal data type, you must set the decimal data to string data types that Tableau supports. Change the decimal data type to string in the source definition and char\_string or unicode\_string in the target definition. The PowerCenter Integration Service performs an implicit conversion of decimal to a comparable native data type, unicode or char\_string, that Tableau supports.

## Duration Data Type

Duration is specified in days, hours, minutes, seconds, and milliseconds. All the values must be integers. You must change the string data type that arrives from different source fields to a single string value and then map this string value to the duration data type in the target operation.

For example, the Data Integration Service reads data from five different source fields of string data type, such as, 5 days, 10 hours, 21 minutes, and 35 seconds. Use the Expression transformation to concatenate the input string values to a single string value of comma-separated values, such as 5,10,21,35,0. Map the string output received from the Expression transformation to duration data type. Use the single string value as the input value and duration as the output value in the target operation of the mapping.

Duration is specified in days, hours, minutes, seconds, and milliseconds. All the values must be integers. You must change the string data type that arrives from different source fields to a single string value and then map this string value to the duration data type in the target.

For example, the PowerCenter Integration Service reads data from five different source fields of string data type, such as, 5 days, 10 hours, 21 minutes, and 35 seconds. Use the Expression transformation to concatenate the input string values to a single string value of comma-separated values, such as 5,10,21,35,0. In the target definition, map the string output received from the Expression transformation to duration data type. Use the single string value as the input value and duration as the output value in the target.



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