



Informatica® PowerExchange for Tableau
10.1.1

User Guide for PowerCenter

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Table of Contents

Preface	6
Informatica Resources.	6
Informatica Network.	6
Informatica Documentation.	6
Informatica Product Availability Matrixes.	6
Informatica Velocity.	7
Informatica Marketplace.	7
 Chapter 1: Introduction to PowerExchange for Tableau.....	8
PowerExchange for Tableau Overview.	8
Introduction to Tableau.	8
PowerExchange for Tableau Implementation.	9
PowerExchange for Tableau Example.	9
 Chapter 2: PowerExchange for Tableau Configuration.....	10
PowerExchange for Tableau Configuration Overview.	10
PowerExchange for Tableau Plug-in Registration.	10
Registering the Plug-in from the Administrator Tool.	10
Registering the Plug-in from the Command Line Interface.	11
Upgrading PowerExchange for Tableau.	11
 Chapter 3: Tableau Targets.....	12
Tableau Targets Overview.	12
Importing Tableau Target Definitions.	12
 Chapter 4: Tableau Mappings.....	13
Tableau Mappings Overview.	13
Tableau Mapping Example.	13
 Chapter 5: Tableau Sessions	15
Tableau Session Overview.	15
PowerExchange for Tableau Connections.	15
Tableau Connection Properties.	16
Configuring a Tableau Connection.	17
Session Configuration for Tableau Targets.	18
 Appendix A: Data Type Reference.....	20
Data Type Reference Overview.	20
Tableau and Transformation Data Types.	20
Decimal Data Type.	22

Duration Data Type. 22

Index. 23

Preface

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

This guide assumes that you have knowledge of Tableau Desktop, Tableau Server, Tableau Online, and PowerCenter.

Informatica Resources

Informatica Network

Informatica Network hosts Informatica Global Customer Support, the Informatica Knowledge Base, and other product resources. To access Informatica Network, visit <https://network.informatica.com>.

As a member, you can:

- Access all of your Informatica resources in one place.
- Search the Knowledge Base for product resources, including documentation, FAQs, and best practices.
- View product availability information.
- Review your support cases.
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Informatica Product Availability Matrixes

Product Availability Matrixes (PAMs) indicate the versions of operating systems, databases, and other types of data sources and targets that a product release supports. If you are an Informatica Network member, you can access PAMs at

<https://network.informatica.com/community/informatica-network/product-availability-matrices>.

Informatica Velocity

Informatica Velocity is a collection of tips and best practices developed by Informatica Professional Services. Developed from the real-world experience of hundreds of data management projects, Informatica Velocity represents the collective knowledge of our consultants who have worked with organizations from around the world to plan, develop, deploy, and maintain successful data management solutions.

If you are an Informatica Network member, you can access Informatica Velocity resources at <http://velocity.informatica.com>.

If you have questions, comments, or ideas about Informatica Velocity, contact Informatica Professional Services at ips@informatica.com.

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CHAPTER 1

Introduction to PowerExchange for Tableau

This chapter includes the following topics:

- [PowerExchange for Tableau Overview, 8](#)
- [Introduction to Tableau, 8](#)
- [PowerExchange for Tableau Implementation, 9](#)
- [PowerExchange for Tableau Example, 9](#)

PowerExchange for Tableau Overview

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

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, 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 PowerCenter Integration Service applies the TWB template to the TDE file and generates a Tableau packaged workbook (TWBX) file.

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

The PowerCenter Integration Service uses the Tableau connection to write the TDE or TWBX file to a directory on the machine where the PowerCenter 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 PowerCenter 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

PowerExchange for Tableau Configuration

This chapter includes the following topics:

- [PowerExchange for Tableau Configuration Overview, 10](#)
- [PowerExchange for Tableau Plug-in Registration, 10](#)
- [Upgrading PowerExchange for Tableau, 11](#)

PowerExchange for Tableau Configuration Overview

PowerExchange for Tableau installs with PowerCenter.

PowerExchange for Tableau Plug-in Registration

After you complete the installation, register the plug-in with the repository. If you are upgrading from a previous version, update the plug-in registration when you register the plug-in.

To register the plug-in, the repository must be running in exclusive mode. Use the Administrator tool or the pmrep RegisterPlugin command line program to register the plug-in. If you do not have the correct privileges to register the plug-in, contact the user who manages the PowerCenter Repository Service.

The plug-in file is an .xml file that defines the functionality of the adapter. When you install the server component, the installer copies the plug-in file to the following directory: <PowerCenter installation directory>/server/bin/plugin

The name of the plug-in file for PowerExchange for Tableau is tableauPlugin.xml.

Registering the Plug-in from the Administrator Tool

Register a repository plug-in to add its functionality to the repository.

1. Run the PowerCenter Repository Service in exclusive mode.
2. In the **Navigators**, select the PowerCenter Repository Service to which you want to add the plug-in.
3. In the **Contents** panel, click the **Plug-ins** view.

4. In the **Actions** menu of the **Domain** tab, select **Register Plug-in**.
5. On the **Register Plug-in** page, click the **Browse** button to locate the plug-in file.
6. Enter your user name, password, and security domain.
The **Security Domain** field appears when the Informatica Domain contains an LDAP security domain.
7. Click **OK**.
The PowerCenter Repository Service registers the plug-in with the repository. The results of the registration operation appear in the activity log.
8. Run the PowerCenter Repository Service in normal mode.

Registering the Plug-in from the Command Line Interface

You can use the `pmrep RegisterPlugin` command to register the plug-in from the command line interface.

1. Run the PowerCenter Repository Service in exclusive mode.
2. Run the `pmrep Connect` command to connect to the Repository Service using a user account with Administrator Repository privilege.

The `RegisterPlugin` command uses the following syntax:

```
pmrep connect -r <repository name> -d <domain_name> -n <domain user name> -x  
               <domain_password>
```

3. Find `<adaptername>.xml` in the following directory:

```
$INFA_HOME\server\bin\Plugin
```

4. Run the `pmrep RegisterPlugin` command to update the repository.

The `RegisterPlugin` command uses the following syntax:

```
pmrep registerplugin -i <$INFA_HOME\server\bin\Plugin\<adaptername>.xml -e
```

Upgrading PowerExchange for Tableau

When you upgrade Informatica services from versions earlier than 10.1, complete the following tasks for PowerExchange for Tableau:

1. Update the plug-in registration when you register the plug-in.
2. You must recreate mappings, if any, if you want to use them in the latest version.

CHAPTER 3

Tableau Targets

This chapter includes the following topics:

- [Tableau Targets Overview, 12](#)
- [Importing Tableau Target Definitions, 12](#)

Tableau Targets Overview

Tableau target definitions represent metadata based on a Tableau resource.

Use the Target Designer to import Tableau target definitions into the PowerCenter repository. Before you import a Tableau target definition, you need a TDE file to import the metadata.

When you update a TDE file, you can either overwrite the file or append data to the existing file. When you append data to a TDE file, ensure that the column metadata in the TDE file and the Tableau data source are the same. Select the insert option when you edit the Tableau data session properties for Tableau targets so that PowerCenter Integration Service inserts all the rows into the target. You can publish the generated TDE file to Tableau Server or Tableau Online.

Importing Tableau Target Definitions

Import a Tableau target definition from Tableau.

1. In the Target Designer, click **Targets > Import from Tableau**.
The **Import from Tableau** dialog box appears.
2. Enter a valid metadata file directory where you want to import the TDE file.
Include the full path and the file name. For example, you can specify the following directory: `C:\Tableau_Files\TDE_Files\Extract.tde`
3. Click **Connect**, and then click **Next**.
4. From the list of Tableau data extracts, select the record **Extract** to view the fields inside the target.
5. Click **Finish**.
If you do not specify a file name, the target definition name remains the same as the TDE file name.

CHAPTER 4

Tableau Mappings

This chapter includes the following topics:

- [Tableau Mappings Overview, 13](#)
- [Tableau Mapping Example , 13](#)

Tableau Mappings Overview

After you import a Tableau target definition into the PowerCenter repository, create a mapping to write data to the Tableau target.

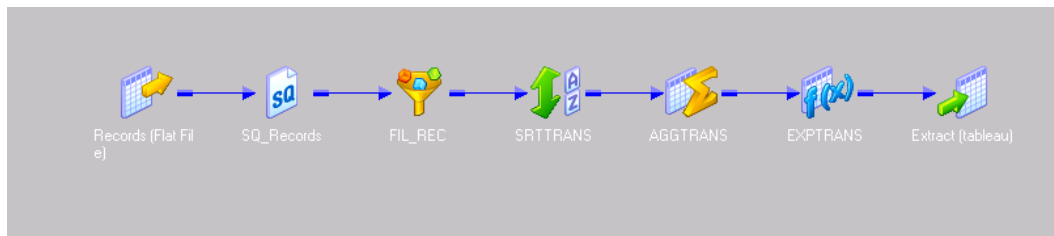
You can read data from multiple sources, write data to the Tableau data extract file, and then publish the file to Tableau Online or Tableau Server.

Tableau Mapping Example

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

Sales record files contain information about products that are sold in multiple outlets and regions. Analysts use flat files to store the sales details. You can 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 the Tableau mapping example:



You can use the following objects in a Tableau mapping:

Sources

The mapping contains the Records flat file source that contains the product sales data, such as Region ID, Product ID, Quantity, and Cost.

Transformations

The FIL_REC Filter transformation filters the data in the sales record files based on the value you specify for the region ID. The PowerCenter Integration Service returns the rows that meet the filter condition.

The SRTTRANS Sorter transformation sorts the data in ascending order based on the region ID.

The AGGTRANS 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.

The EXPTRANS Expression transformation formats the data before you generate the Tableau data extract file.

Target

The target extract named tableau is a Tableau data extract file. Select Publish to Server and specify the server details to publish the Tableau data extract file to Tableau Server in the session properties.

When you run the session, the PowerCenter 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.

CHAPTER 5

Tableau Sessions

This chapter includes the following topics:

- [Tableau Session Overview, 15](#)
- [PowerExchange for Tableau Connections, 15](#)
- [Session Configuration for Tableau Targets, 18](#)

Tableau Session Overview

After you create mappings, you can create a session and use the session in a workflow to extract, transform, and load data. Create sessions and workflows in the Workflow Manager.

To configure the session, perform the following tasks:

- Define the sources from where you consolidate data.
- Configure an application connection for Tableau targets in the Workflow Manager to write data to a TDE file. Provide the Tableau product type to which you want to publish the TDE file.
- Define properties in a session to determine how the PowerCenter Integration Service writes data to a Tableau target TDE file.
- You can apply the Tableau workbook template to the TDE file if you want to create a Tableau packaged workbook (TWBX) file.
- You can configure the session properties for the Tableau target to save the generated TDE or TWBX file to the local machine or to publish the TDE file to Tableau Online or Tableau Server.

PowerExchange for Tableau Connections

Before the PowerCenter Integration Service can connect to Tableau, you must configure a Tableau application connection in the Workflow Manager.

When you configure a Tableau application connection, you specify connection attributes that the PowerCenter Integration Service uses to connect to Tableau. You can specify the Tableau product that you want to connect to.

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.
Type	Type of connection. Select Tableau.
Password	Password for the Tableau Server or Tableau Online account.
Connect String	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://<Host name of Tableau Server or Tableau Online>:<port></code>

The following table describes the properties to connect to Tableau:

Connection Property	Description
Tableau Product	The name of the Tableau product to which you want to connect. You can choose one of the following Tableau products to publish the TDE or TWBX file: <ul style="list-style-type: none">- Tableau Desktop. Creates a TDE file in the PowerCenter Integration Service machine. You can then manually import the TDE file to Tableau Desktop.- Tableau Server. Publishes the generated TDE or TWBX file to Tableau Server.- Tableau Online. Publishes the generated TDE or TWBX file to Tableau Online.
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://<Host name of Tableau Server or Tableau Online>:<port></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	The name of the site on Tableau Server or Tableau Online where you want to publish the TDE or TWBX file. Contact the Tableau administrator to provide the site name.
Template File Path	The path to a sample TDE file from where the PowerCenter Integration Service imports the Tableau metadata. Enter one of the following options for the template file path: <ul style="list-style-type: none">- Absolute path to the TDE file.- Directory path for the TDE files.- Empty directory path. 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><Informatica Installation Location>\clients\PowerCenterClient\main\java\lib</code>

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.

Template File Path

When you create a Tableau connection, you can specify the path to a sample TDE file from where the PowerCenter Integration Service imports the Tableau metadata.

The PowerCenter Integration Service generates the target object TDE file from the source object based on the data representation in the specified Tableau template file. The path you specify for the template file in the connection properties becomes the default path for the generated target TDE file.

You can use one of the following options for the template file path:

Absolute path to the TDE file

Enter a directory path along with the TDE file name. For example, enter the following absolute path to a TDE file: `C:\tableau\abc.tde`

Directory path for the TDE files

Enter a directory path that contains the TDE files. For example, enter the following directory path: `C:\tableau`

Empty directory path

If you do not want to use a template file, enter an empty directory path. For example, enter the following directory path: `C:\tableau`

Configuring a Tableau Connection

Before you run a Tableau session, create a Tableau connection.

1. In the Workflow Manager, connect to a repository.
2. Click **Connections > Application**.
The **Application Connection Browser** dialog box appears.
3. Click **New**.
The **Select Subtype** dialog box appears.
4. To create a Tableau connection, select **Tableau** from the **Select Subtype** list.
5. Click **OK**.
The **Connection Object Definition** dialog box appears.
6. Enter the connection properties.
7. Click **OK**.
The Tableau connection appears in the **Connection Browser** list.

Session Configuration for Tableau Targets

You can configure the session properties for a Tableau target in the **Transformations** view on the **Mapping** tab. Define the properties for the target instance in the session.

The following table describes the session properties that you can configure for Tableau targets:

Target Operation

Creates, overwrites, or appends the TDE file on the local machine, Tableau Server, or Tableau Online.

Select one of the following options to publish the TDE file:

- **Create.** Creates a TDE file. Ensure that a TDE file with the same name does not exist.
- **Append.** Adds data to an existing TDE file.
- **Overwrite.** Deletes the existing TDE file and creates a new TDE file.

Note: The append operation works only if there is an existing TDE file.

Extract File Path

The file path where you want to save the generated Tableau data extract file.

Default is `<INFA_HOME>/server/bin`. Ensure that the file location is on the machine where the PowerCenter Integration Service runs. You require the write permissions on the `<INFA_HOME>/server/bin` file location.

If you have specified the template file path in the Tableau connection properties, but not an extract file path, the PowerCenter Integration Service considers the template file path as the extract file path.

Extract File Name

Name of the TDE file with the `.tde` extension. Default is `Extract.tde`.

If the operation is for Tableau Server or Tableau Online, the PowerCenter Integration Service deletes the file after publishing the TDE file to Tableau Server or Tableau Online.

Project Name

Name of the project within a specific site on Tableau Server or Tableau Online where you want to publish the TDE file. By default, Tableau Connector publishes the TDE file to the default project on the site that you specify.

Data Source

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.

Workbook Template File name

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 if you want to publish the TWBX file.

Workbook Name

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.

INSERT

Inserts all the rows to the target TDE file. You must select the INSERT option before you run a session.

DELETE

Not applicable.

UPDATE

Not applicable.

Success File Directory

Reserved for future use.

Error File Directory

Reserved for future use.

APPENDIX A

Data Type Reference

This appendix includes the following topics:

- [Data Type Reference Overview, 20](#)
- [Tableau and Transformation Data Types, 20](#)
- [Decimal Data Type, 22](#)
- [Duration Data Type, 22](#)

Data Type Reference Overview

PowerCenter uses the following data types in Tableau mappings:

- Tableau native data types. Tableau data types appear in the Tableau 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 PowerCenter 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 PowerCenter 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 PowerCenter 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 PowerCenter 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 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.

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.

INDEX

C

connection properties
 content URL [17](#)
 template file path [17](#)
content URL
 connection properties [17](#)

D

data type reference
 overview [20](#)

P

plug-ins
 registering [10](#)
PowerExchange for Tableau
 configuration overview [10](#)
 data types [20](#)
 overview [8](#)
 sessions overview [15](#)
PowerExchange for Tableau connections
 configuring [17](#)

R

registering
 plug-ins [10](#)

registering plug-ins
 PowerExchange for Tableau [10](#)

S

session properties
 Tableau targets [18](#)

T

Tableau
 targets overview [12](#)
Tableau mappings
 example [13](#)
Tableau session properties
 configuration [18](#)
Tableau targets
 importing [12](#)
template file path
 connection properties [17](#)

U

upgrading
 PowerExchange for Tableau upgrade tasks [11](#)