Informatica

Informatica® Cloud Data Integration

Tableau V3 Connector

Informatica Cloud Data Integration Tableau V3 Connector
April 2024

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Preface

Use *Tableau V3 Connector* to learn how to read from or write to Tableau by using Cloud Data Integration. Learn to create a connection, develop, and run mappings and mapping tasks in Cloud Data Integration.

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CHAPTER 1

Introduction to Tableau V3 Connector

Tableau V3 Connector provides connectivity between Data Integration and Tableau. You can integrate and transform data from sources, such as flat files, databases, and applications, to generate a `.hyper` output file.

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

You can also create a Tableau packaged workbook (TWBX) and publish the generated TWBX file to Tableau.

A Tableau `.hyper` file contains data extracted from an external data source. The `.hyper` file is a high performance Tableau-specific file format with `.hyper` extension that is used to analyze huge amount of data sets quickly.

The `.hyper` and the TWBX files are compatible with Tableau products version 10.5 or later. Use the `.hyper` or the TWBX file in Tableau Desktop to visualize the data and identify patterns and trends. You can also use the Tableau V3 connection in mapping tasks to publish the `.hyper` or TWBX file directly to Tableau Server or Tableau Online.

You can switch mappings to advanced mode to include transformations and functions that enable advanced functionality.

Note: Informatica recommends that you use Tableau V2 Connector if you want to generate a `.tde` output file. For more information about using Tableau V2 Connector, see the Tableau V2 Connector documentation.

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.

Tableau V3 Connector assets

Create assets in Data Integration to integrate data using Tableau V3 Connector.

When you use Tableau V3 Connector, you can include the following Data Integration assets:

- Mapping
- Mapping task

For more information about configuring assets and transformations, see *Mappings*, *Transformations*, and *Tasks* in the Data Integration documentation.

Tableau packaged workbook file

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

The packaged workbooks contain a Tableau workbook along with supporting local file data sources or `.hyper` files grouped together in one package. You can publish a packaged workbook from Data Integration to Tableau. A workbook can either contain a worksheet or a dashboard.

When you extract data from the source into a `.hyper` file, you can apply a predefined Tableau workbook (TWB) template to the extracted data to create a Tableau packaged workbook (TWBX) in Data Integration. 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.

Tableau V3 Connector implementation

To publish data to Tableau, create a target object in a mapping task. The target object is a Tableau `.hyper` file to which you publish the data extracted from the source to Tableau.

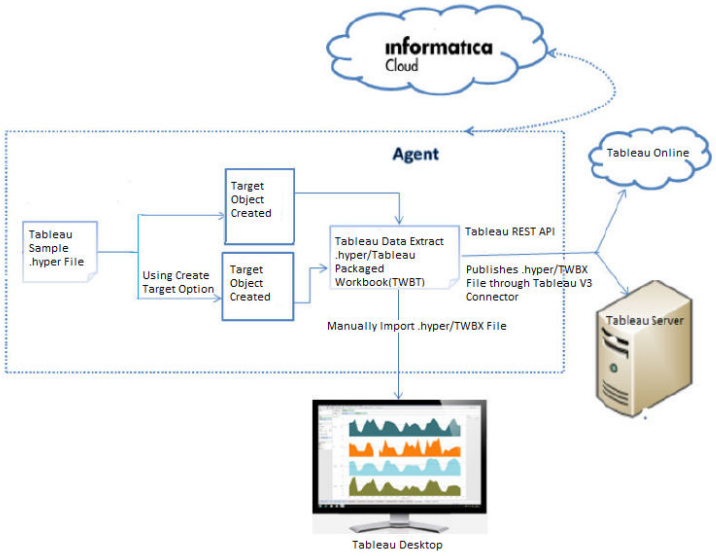
Note: Tableau V3 Connector does not support Hosted Agent.

The Secure Agent integrates with the Tableau `.hyper` API libraries to generate the `.hyper` or TWBX file based on the mapping you configured in the mapping task.

The Secure Agent uses the Tableau V3 connection to write the `.hyper` or TWBX file to a directory on the machine where you installed the Secure Agent.

If you have Tableau Desktop installed on your machine, manually import the `.hyper` or TWBX file to visualize the data. You can publish the `.hyper` or TWBX file directly to Tableau Server or Tableau Online. The Secure Agent uses the Tableau REST APIs to publish the `.hyper` or TWBX file to Tableau Server or Tableau Online through the Tableau V3 connection.

The following image shows the Tableau V3 Connector implementation architecture when you use the Secure Agent:



The following events occur when the Secure Agent publishes the `.hyper` or TWBX file to Tableau:

1. The Secure Agent uses the Tableau `.hyper` API libraries to generate a `.hyper` file from the Tableau sample `.hyper` file based on the following configurations in the Tableau V3 connection:
   - If you specify a Tableau sample `.hyper` file, the Secure Agent uses the Tableau sample `.hyper` file to create a target object and generate the `.hyper` file.
   - If you do not specify a Tableau sample `.hyper` file, you can create a target in a mapping task. You can use the **Create Target** option to create a new target. The Secure Agent creates the `.hyper` file based on the source fields that you want in the target `.hyper` file.
2. To create a TWBX file, provide the name of the workbook in the **Workbook Name** property. You must also provide the name and path of the Tableau workbook template (TWB) that you want to apply to the data extract in the **Workbook Template File Name** property. The Secure Agent uses the TWB template to the `.hyper` file and generates a TWBX file.

   Note: Ensure that there is one Tableau workbook template (TWB) file available to create a TWBX file. You must make sure that the metadata and the file name of the `.hyper` and the TWBX files should be the same.
3. The Secure Agent publishes the `.hyper` or TWBX file to Tableau based on the product type you specify in the connection properties:
   - If you specify Tableau Desktop, the Secure Agent uses the Tableau `.hyper` API libraries to create a `.hyper` or TWBX file on the local machine. You must then manually import the `.hyper` file to Tableau Desktop installed on your machine.
     For Tableau Desktop, you can create multiple `.hyper` files in a single location. You must have different Tableau connections for each targets. The operating systems of the Tableau targets must be the same when you read data from source and write data to Tableau.
   - If you specify Tableau Server or Tableau Online, the Secure Agent uses the Tableau `.hyper` API libraries to create a `.hyper` file. The Secure Agent then uses the Tableau Rest APIs to publish the generated `.hyper` file to Tableau Server or Tableau Online. You can specify a project name in Tableau Server or Tableau Online where you want to publish the file.
     For Tableau Server or Tableau Online, if you specify the Workbook Template File Name and the output file names, a workbook will be published.

Tableau V3 Connector example

You are a sales analyst in an enterprise who can access data warehouses or flat files from Tableau Desktop to analyze 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 use Data Integration to integrate data from multiple sources, filter the data, and perform data transformation. You can then use Tableau V3 Connector to make the data available as a `.hyper` file for analysis in Tableau. You can import the extract 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 `.hyper` file to Tableau Server or Tableau Online to share a live and interactive dashboard with all the executives in the organization.

Administration of Tableau V3 Connector

As a user, you can use Tableau V3 Connector after the organization administrator performs the following tasks:

- Ensure that the Red Hat Enterprise Linux version is 7.x for Secure Agents installed on Linux operating systems.
- Assign the read, write, and execute permissions to the third-party libraries manually.
  For the Secure Agents installed on Linux operating systems, whenever a new package is used, perform the following steps to assign permissions:
  1. From the command prompt, go to the following directories:
     `<Secure Agent installation directory>\downloads\<TableauV3 package number>\package \tableauv3\thirdparty\informatica.tableauv3`

     `<Secure Agent installation directory>\downloads\<TableauV3 package number>\package \tableauv3\thirdparty\informatica.tableauv3\hyper`
  2. Enter the following command:

     ```
     chmod 777 *
     ```
- You can add both the licenses of Tableau V2 and Tableau V3 Connectors in the same organization. Contact Informatica Global Customer Support if you do not have the license of Tableau V2 or Tableau V3 Connector.
- To publish the `.hyper` file to a site other than the default site on Tableau Server, create a site on Tableau Server. Contact the Tableau Server administrator if you want to specify an existing site ID to publish the `.hyper` file in Tableau Server.
- You must have permissions to the path where the Secure Agent stores the temporary `.hyper` and TWBX files. The Secure Agent stores the temporary files in the following directories in the specified order of priority:
  1. Current working directory: The default working directory is: `<Secure Agent installation directory>/apps/Data_Integration_Server/<latest version>/main/bin/rdtm`.
  2. Extract file path: The absolute path to the temporary `.hyper` file. For example, `C:\Folder1\Folder2`. You can specify the path in the **Extract File Path** advanced target property.

  After the files are published to Tableau, the Secure Agent deletes the temporary files.
- Ensure that the folder where the Secure Agent stores the temporary `.hyper` files contains sufficient space to store all the temporary files and to avoid any failure.

- To use the personal access token authentication type in a Tableau V3 connection, create a personal access token (PAT) on the Tableau Server. The personal access token allows you to sign in to Tableau REST API without requiring hard-coded credentials or interactive sign in.
  To create a personal access token, perform the following steps:
  1. On the Tableau Server, click **My Account Settings**.
  2. On the **Settings** tab, navigate to personal access tokens, and then click **Create new token**.
     The personal access token name and token secret appears. Copy the token secret as you cannot retrieve the value once you leave the page.
  3. Use the generated personal access token and token secret in the Tableau V3 connection.
     For more information on creating personal access tokens, see Personal Access Tokens in the Tableau documentation.

CHAPTER 2

Connections for Tableau V3

Create a Tableau V3 connection to create a `.hyper` file in a directory on the machine where you installed the Secure Agent and then publish the `.hyper` file to Tableau Server or Tableau Online.

. Use the Tableau V3 connection when you create a target object in a mapping task.

Tableau V3 connection properties

When you set up a Tableau V3 connection, you must configure the connection properties.

The following table describes the Tableau V3 connection properties:

Connection property	Description
Connection Name	Name of the connection. Each connection name must be unique within the organization. Connection names can contain alphanumeric characters, spaces, and the following special characters: _ . + -, Maximum length is 255 characters.
Description	Description of the connection. Maximum length is 4000 characters.
Type	Tableau V3
Runtime Environment	The name of the runtime environment where you want to run the tasks.
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 `.hyper` file: **Tableau Desktop** Creates a `.hyper` or TWBX files in the Secure Agent machine. You can then manually import the `.hyper` or TWBX files to Tableau Desktop and use the files to perform append or overwrite operation. **Tableau Server** Publishes the generated `.hyper` file to Tableau Server. **Tableau Online** Publishes the generated `.hyper` file to Tableau Online.

Connection property	Description
Authentication Method	The authentication method to connect to Tableau Server or Tableau Online. Select one of the following methods: - **Username & Password**. Uses your Tableau account user name and password to connect to Tableau Server or Tableau Online. - **Personal Access Token**. Uses the personal access token and token secret from your Tableau account to connect to Tableau Server or Tableau Online.
Connection URL	The URL of the Tableau Server or Tableau Online where you want to publish the data extract file. The URL has the following format: `http://<Host name of Tableau Server or Tableau Online>:<port>`
User Name	The user name for the Tableau Server or Tableau Online account.
Password	The password for the Tableau Server or Tableau Online account.
Personal Access Token Name	The personal access token to connect to the Tableau Server or Tableau Online account.
Token Secret	The token secret associated with the personal access token to connect to the Tableau Server or Tableau Online account.
Site ID	The site name that points to a specific site on Tableau Server or Tableau Online where you want to publish the data extract file. Contact the Tableau administrator to provide the site ID.
Schema File Path	The path of the data extract file required to import the Tableau metadata. Enter one of the following options for the schema file path: - Directory path for the `.hyper` files. - Empty directory path. When you provide the Tableau schema file path, the Secure Agent generates the `.hyper` file from the source object based on the data representation in the specified target directory. You can only specify an empty directory if you want to publish the `.hyper` file to Tableau Server or Tableau Online. When you do not specify a schema file path, the Secure Agent displays the projects and data sources that are present on Tableau Server or Tableau Online when you select the target object in the **Object** target properties. The Secure Agent uses the following default file path for the target `.hyper` file: `<Secure Agent installation directory>/apps/Data_Integration_Server/<latest version>/main/bin/rdtm`

Site ID

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

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

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

The value you specify for the site ID in the connection properties is *Infa*.

To specify an existing site ID on Tableau Server or Tableau Online where you want to publish the Tableau `.hyper`, contact the Tableau Server or Tableau Online administrator.

Note: To specify the default site for Tableau Server, make the Site ID value an empty string (Site ID="").

Schema file path

When you create a Tableau V3 connection, you can specify the path to a `.hyper` file from where the Secure Agent imports the Tableau sample `.hyper` file.

You do not have to specify the **Schema File Path** connection property when you use the **Create Target** option. When you do not use the **Schema File Path** connection property to create a target object, you can create a target by using the **Create Target** option in a mapping task.

You need to select the Tableau sample `.hyper` file that you want in the target `.hyper` file and provide a name for the target object `.hyper` file. The Secure Agent creates a target `.hyper` file in the specified location. If you do not specify a name and directory path for the target `.hyper` file in the connection properties, you can provide the extract file path and file name for the target `.hyper` file in the advanced properties of the mapping task.

The Secure Agent generates the target object `.hyper` file from the source object based on the data representation in the specified target directory.

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

Directory path for the `.hyper` files

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

When you configure a mapping task, the `.hyper` files that are available in the specified directory appears in the target object list. Select a schema `.hyper` file to fetch the metadata from that file.

Empty directory path

If you do not want to use a Tableau sample `.hyper` file, enter an empty directory path.

CHAPTER 3

Mappings and mapping tasks with Tableau

Use the Data Integration Mapping Designer to create a mapping.

Tableau V3 objects in mappings

When you create a mapping, you can configure a Target transformation to represent a Tableau object.

You can specify a TWB template and TWBX file to the `.hyper` file to create a TWBX file that you can publish to Tableau. You can choose to create or overwrite data when you publish the `.hyper` or TWBX file to Tableau.

If you specified Tableau Desktop in the connection properties, the Secure Agent performs the operation on the local machine. You can provide the extract file path and name on the local machine where you want to save the `.hyper` or TWBX file. You can choose to append or overwrite data when you publish the `.hyper` to Tableau Desktop.

If you specified Tableau Server or Tableau Online in the connection properties, the Secure Agent publishes the `.hyper` or TWBX file in Tableau Server or Tableau Online. You can choose to provide a name for the `.hyper` or TWBX file that you want to publish as data source to Tableau Server or Tableau Online.

Tableau V3 targets in mapping

In a mapping, you can configure a Target transformation to represent a single Tableau object.

You can configure the target properties when you create a mapping on the **Target** page.

The following table describes the Tableau V3 target properties that you can configure in a Target transformation:

Property	Description
Connection	Name of the target connection.
Target Type	Type of the target object. Select **Single Objects**.

Property	Description
Object	Select an existing target object. To select an existing target, search for the target file name in the **Package Explorer** section or expand the package to see all the file extracts available inside the package. You do not have to add different target connections to view all the different `.hyper` extract files. When you select an existing target object, the extension of the target file name are not displayed. You must ensure that you select the `.hyper` extract file to avoid any failure. In the **Package Explorer** section, the empty projects are not displayed. If you want to add new `.hyper` extract files in the project, create a new target object.
Operation	Target operation. Select **Insert**.
Create Target	Creates a new target object. Enter a name and path for the target object and select the source fields that you want to use in the target fields. By default, all source fields are included and the default name of the target object is the source object name.

Tableau V3 advanced target properties in mappings

When you configure a mapping, you can configure the advanced target properties.

The following table describes the Tableau V3 advanced target properties:

Property	Description
Extract File Path	The file path where you want to save the generated Tableau `.hyper` file. Ensure that the file path is on the Secure Agent machine for Tableau Desktop. The Secure Agent uses the following default file path for the target `.hyper` file: `<Secure Agent installation directory>/apps/Data_Integration_Server/<latest version>/main/bin/rdtm` This file path does not apply to Tableau Server and Tableau Online. You must configure JVM options to use a different file path for Tableau Server and Tableau Online. To do this, select the DTM type and set JVMOption to *-Djava.io.tmpdir=<path>* in the Secure Agent properties. **Note:** This property is mandatory when you create a target and publish the `.hyper` file to Tableau Desktop.
Extract File Name	Name for the Tableau data extract file with the `.hyper` extension. 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 Secure Agent publishes the `.hyper` file to Tableau Server or Tableau Online. To publish a TWBX file to Tableau, you must provide the extract file name `salesforce_opportunity.hyper` defined in the template. **Note:** This property is mandatory when you create a target and publish the `.hyper` file to Tableau Server. For Tableau Server, the Secure Agent overwrites the target object file name when you specify this property.

Property	Description
Target Operation	Creates, appends, or overwrites the `.hyper` file on the local machine, Tableau Server, or Tableau Online. Select one of the following options to publish the `.hyper` file: **Create** Creates a `.hyper` file. Ensure that a `.hyper` file with the same name does not exist. The append operation is not applicable for the TWBX file. **Append** Adds data to an existing `.hyper` file. **Overwrite** Deletes the existing `.hyper` file and creates a new `.hyper` file. The append and overwrite operations work only if there is an existing `.hyper` file. Default is **Create**.
Project Name	Name of the project within a specific site on Tableau Server or Tableau Online where you want to publish the Tableau `.hyper` file. By default, the Tableau V3 connection publishes the `.hyper` file to the default project on the site that you specify on Tableau Server. **Note:** You must enter the **Project Name** as `Default` to publish the `.hyper` file to the default project within a specific site on Tableau Server.
Data Source	Name of the Tableau `.hyper` file that you want to publish to Tableau Server or Tableau Online. If you do not specify a data source name, the default Tableau `.hyper` file name remains the source name. 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 or the target `.hyper` file name remains the source name.
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. **Note:** Do not add the `.twbx` extension in the workbook name as the Tableau V3 Connector adds the extension automatically.
Workbook Template File Name	Name and path of the Tableau packaged workbook file (TWBX) that you want to apply to the `.hyper` file to generate a TWBX file. Ensure that the workbook is of the extract type. Also, ensure that you provide the absolute path along with the template file name and the TWBX extension. For example, `/home/filename.twbx` **Note:** When you use the workbook template file, the data source specified in the template creates the workbook, not the data source specified in the advanced target properties.
Forward Rejected Rows	Determines whether the transformation passes rejected rows to the next transformation or drops rejected rows. By default, the mapping task application forwards rejected rows to the next transformation.

Tableau V3 objects in template-based mapping tasks

When you configure a mapping task based on an integration template, you can configure advanced properties for Tableau V3 targets.

Tableau V3 advanced target properties in mapping tasks

When you configure a mapping, you can configure the advanced target properties.

The following table describes the Tableau V3 advanced target properties:

Property	Description
Extract File Path	The file path where you want to save the generated Tableau `.hyper` file. Ensure that the file path is on the Secure Agent machine for Tableau Desktop. The Secure Agent uses the following default file path for the target `.hyper` file: `<Secure Agent installation directory>/apps/Data_Integration_Server/<latest version>/main/bin/rdtm` This file path does not apply to Tableau Server and Tableau Online. You must configure JVM options to use a different file path for Tableau Server and Tableau Online. To do this, select the DTM type and set JVMOption to *-Djava.io.tmpdir=<path>* in the Secure Agent properties. **Note:** This property is mandatory when you create a target and publish the `.hyper` file to Tableau Desktop.
Extract File Name	Name for the Tableau data extract file with the `.hyper` extension. Default is the file name you specified when you created the target object. If the operation is for Tableau Server or Tableau Online, the file gets deleted after the Secure Agent publishes the `.hyper` file to Tableau Server or Tableau Online. To publish a TWBX file to Tableau, you must provide the extract file name `salesforce_opportunity.hyper` defined in the template. **Note:** This property is mandatory when you create a target and publish the `.hyper` file to Tableau Server. For Tableau Server, the Secure Agent overwrites the target object file name when you specify this property.
Target Operation	Creates, appends, or overwrites the `.hyper` file on the local machine, Tableau Server, or Tableau Online. Select one of the following options to publish the `.hyper` file: **Create** Creates a `.hyper` file. Ensure that a `.hyper` file with the same name does not exist. The append operation is not applicable for the TWBX file. **Append** Adds data to an existing `.hyper` file. **Overwrite** Deletes the existing `.hyper` file and creates a new `.hyper` file. The append and overwrite operations work only if there is an existing `.hyper` file. Default is **Create**.

Property	Description
Data Source	Name of the Tableau `.hyper` file that you want to publish to Tableau Server or Tableau Online. If you do not specify a data source name, the default Tableau `.hyper` file name remains the source name. 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 or the target `.hyper` file name remains the source name.
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. **Note:** Do not add the `.twbx` extension in the workbook name as the Tableau V3 Connector adds the extension automatically.
Workbook Template File Name	Name and path of the Tableau packaged workbook file (TWBX) that you want to apply to the `.hyper` file to generate a TWBX file. You must provide the absolute path along with the template file name and the TWBX extension. For example, `/home/filename.twbx` **Note:** You must ensure that the workbook is of extract type when you provide the TWBX file.
Forward Rejected Rows	Determines whether the transformation passes rejected rows to the next transformation or drops rejected rows. By default, the mapping task application forwards rejected rows to the next transformation.

Rules and Guidelines for Tableau V3 Connector

Consider the following rules and guidelines when you use Tableau V3 Connector:

- You cannot configure the Secure Agent to connect to Data Integration through the proxy server.
- When you run a mapping to write large amounts of data to a target, the mapping fails.
- In the advanced target properties, if you configure the **Workbook Template File Name** property with .twb extension, the task fails.
- You cannot run multiple Tableau V3 tasks in parallel, ensure that all the tasks are configured in a sequence.
- When you run a mapping, the `.csv` and `.txt` files are generated in the default temporary directory or the extract file path that you specified in the advanced target properties. The Secure Agent deletes the files when the mapping successfully completes.
- When you run a mapping, you must have read, write, and execute permissions for the */tmp* directory.
- The **Extract File Path** property is applicable only for the Tableau Desktop connections. When you select Tableau Server or Tableau Online, the target `.hyper` file is generated in the temporary location.
- You cannot publish a workbook to Tableau Server.
- When you use a personal access token to connect to Tableau Server or Tableau Online and configure concurrent jobs to run simultaneously, the mapping fails with the following error:
  `Unauthorized Access Detail: Invalid authentication credentials`

  Ensure that when you run multiple Tableau V3 mappings concurrently, each mapping uses a different personal access token to connect to Tableau Server or Tableau Online.

- When you create a parameterized mapping with an existing target and override the target from a parameter file, the mapping fails to use the values from the parameter file. If you want to override the values from the parameter file, you must create a new target at runtime.

CHAPTER 4

Data Type reference

Data Integration uses the following data types in mappings and mapping tasks with Tableau:

Tableau native data types

Tableau data types appear in the Target transformations when you choose to edit metadata for the fields.

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 Secure Agent uses to move data across platforms. Transformation data types appear in all transformations in a mapping.

When Data Integration reads source data, it converts the native data types to the comparable transformation data types before transforming the data. When Data Integration 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 supporting Tableau data types and the corresponding transformation data types:

Tableau Data Type	Transformation Data Type	Description
Integer	Integer	-2,147,483,648 to 2,147,483,647 Precision 10, scale 0
Int	Integer	-2,147,483,648 to 2,147,483,647 Precision 10, scale 0
Bigint	Bigint	Precision 19, scale 0
Smallint	Integer	Precision 5
Double	Double	Double-precision floating-point numeric value. Precision 15
Numeric	Decimal	Number with 18-bit precision and scale.
Date	Date/Time	Jan 1, 0001 A.D. to Dec 31, 9999 A.D. Precision of 29, scale of 9 (precision to nanosecond)

Tableau Data Type	Transformation Data Type	Description
DateTime	Date/Time	Jan 1, 0001 A.D. to Dec 31, 9999 A.D. Precision of 29, scale of 9 (precision to nanosecond)
Timestamp	Date/Time	Jan 1, 0001 A.D. to Dec 31, 9999 A.D. Precision of 29, scale of 9 (precision to nanosecond)
Timestamp_tz	Date/Time	Date and time values. Precision of 29, scale of 9 (precision to nanosecond)
Time	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 Secure Agent 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.
Text	String, Text, Bigint, or Decimal	The Secure Agent performs an implicit conversion of String, Text, Bigint, or Decimal to text: 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.

Tableau Data Type	Transformation Data Type	Description
Char_string	String, Text, Bigint, or Decimal	The Secure Agent 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.
Char	String, Text, Bigint, or Decimal	The Secure Agent performs an implicit conversion of String, Text, Bigint, or Decimal to char: 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.
Varchar	String, Text, Bigint, or Decimal	The Secure Agent performs an implicit conversion of String, Text, Bigint, or Decimal to varchar: 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.

Tableau Data Type	Transformation Data Type	Description
Boolean	String	1 to 104,857,600 characters. Fixed-length or varying-length string. Valid values are true and false.
Bool	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 a field does not have a value, specify 0.
Bytes	Binary	Precision 104,857,600
Json	String or Text	Precision 104,857,600

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, when you configure a mapping task to read data from five different source fields of string data type, such as, 5 days, 10 hours, 21 minutes, and 35 seconds, you must concatenate the input string values to a single string value of comma-separated values, such as 5,10,21,35,0. You must then map the string output to the duration data type.

CHAPTER 5

Troubleshooting

Use the following sections to troubleshoot errors in Tableau V3 Connector.

Troubleshooting for Tableau V3 Connector

If the Secure Agent is installed on Linux, the folder names with Unicode characters do not appear in the folder hierarchy.

To make the folder names with Unicode characters appear in the folder hierarchy when the Secure Agent is installed on Linux, you must set the value of the default locale to UTF-8.

Perform the following steps to set the value of the default locale:

1. Enter `locale` in the shell command line.
2. Set the value of the default locale to UTF-8 for the following shells:
   a. For bash and related Unix shells, enter `export LC_ALL=<locale>.UTF-8`.
   b. For csh and related Unix shells, enter `setenv LC_ALL <locale>.UTF-8`.

   Here, in <locale>, specify the Unicode character name that appears in the folder name. For example, if the folder name contains Chinese characters, set the value of the default locale to `zh_CN.UTF8`.
3. Restart the Secure Agent.

Note: Alternatively, when you publish the `.hyper` file to Tableau Server or Tableau Online, you can provide the folder name with the Unicode characters in the **Data Source** advanced target property.

Mapping failed with an out of memory issue

When you read from or write to Tableau V3, certain mappings might fail with the following error:

```
[ERROR] java.lang.OutOfMemoryError: GC overhead limit exceeded for higher data load
```

You must increase the heap size if you want to run mappings to process large datasets successfully.

Perform the following steps to increase the Java heap size:

1. Select **Administrator** > **Runtime Environments**.
2. On the **Runtime Environments** page, select the Secure Agent for which you want to increase memory from the list of available Secure Agents.
3. In the upper-right corner, click **Edit**.
4. In the **System Configuration Details** section, select **Data Integration Server** as the service and **Tomcat JRE** as the type.

5. Set INFA_MEMORY to `"-Xms512m" "-Xmx1024m"`.
6. In the **System Configuration Details** section, select **Data Integration Server** as the service and **DTM** as the type.
7. Set JVMOption to `"-Xms512m" "-Xmx1024m"`.

   Note: You can set the heap size based on the data you want to process.
8. Click **Save**.

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