

Alibaba Cloud

AnalyticDB for PostgreSQL
BI Analysis and Visualization

Document Version: 20211228

Legal disclaimer

Alibaba Cloud reminds you to carefully read and fully understand the terms and conditions of this legal disclaimer before you read or use this document. If you have read or used this document, it shall be deemed as your total acceptance of this legal disclaimer.

1. You shall download and obtain this document from the Alibaba Cloud website or other Alibaba Cloud-authorized channels, and use this document for your own legal business activities only. The content of this document is considered confidential information of Alibaba Cloud. You shall strictly abide by the confidentiality obligations. No part of this document shall be disclosed or provided to any third party for use without the prior written consent of Alibaba Cloud.
2. No part of this document shall be excerpted, translated, reproduced, transmitted, or disseminated by any organization, company or individual in any form or by any means without the prior written consent of Alibaba Cloud.
3. The content of this document may be changed because of product version upgrade, adjustment, or other reasons. Alibaba Cloud reserves the right to modify the content of this document without notice and an updated version of this document will be released through Alibaba Cloud-authorized channels from time to time. You should pay attention to the version changes of this document as they occur and download and obtain the most up-to-date version of this document from Alibaba Cloud-authorized channels.
4. This document serves only as a reference guide for your use of Alibaba Cloud products and services. Alibaba Cloud provides this document based on the "status quo", "being defective", and "existing functions" of its products and services. Alibaba Cloud makes every effort to provide relevant operational guidance based on existing technologies. However, Alibaba Cloud hereby makes a clear statement that it in no way guarantees the accuracy, integrity, applicability, and reliability of the content of this document, either explicitly or implicitly. Alibaba Cloud shall not take legal responsibility for any errors or lost profits incurred by any organization, company, or individual arising from download, use, or trust in this document. Alibaba Cloud shall not, under any circumstances, take responsibility for any indirect, consequential, punitive, contingent, special, or punitive damages, including lost profits arising from the use or trust in this document (even if Alibaba Cloud has been notified of the possibility of such a loss).
5. By law, all the contents in Alibaba Cloud documents, including but not limited to pictures, architecture design, page layout, and text description, are intellectual property of Alibaba Cloud and/or its affiliates. This intellectual property includes, but is not limited to, trademark rights, patent rights, copyrights, and trade secrets. No part of this document shall be used, modified, reproduced, publicly transmitted, changed, disseminated, distributed, or published without the prior written consent of Alibaba Cloud and/or its affiliates. The names owned by Alibaba Cloud shall not be used, published, or reproduced for marketing, advertising, promotion, or other purposes without the prior written consent of Alibaba Cloud. The names owned by Alibaba Cloud include, but are not limited to, "Alibaba Cloud", "Aliyun", "HiChina", and other brands of Alibaba Cloud and/or its affiliates, which appear separately or in combination, as well as the auxiliary signs and patterns of the preceding brands, or anything similar to the company names, trade names, trademarks, product or service names, domain names, patterns, logos, marks, signs, or special descriptions that third parties identify as Alibaba Cloud and/or its affiliates.
6. Please directly contact Alibaba Cloud for any errors of this document.

Document conventions

Style	Description	Example
 Danger	A danger notice indicates a situation that will cause major system changes, faults, physical injuries, and other adverse results.	 Danger: Resetting will result in the loss of user configuration data.
 Warning	A warning notice indicates a situation that may cause major system changes, faults, physical injuries, and other adverse results.	 Warning: Restarting will cause business interruption. About 10 minutes are required to restart an instance.
 Notice	A caution notice indicates warning information, supplementary instructions, and other content that the user must understand.	 Notice: If the weight is set to 0, the server no longer receives new requests.
 Note	A note indicates supplemental instructions, best practices, tips, and other content.	 Note: You can use Ctrl + A to select all files.
>	Closing angle brackets are used to indicate a multi-level menu cascade.	Click Settings > Network > Set network type .
Bold	Bold formatting is used for buttons, menus, page names, and other UI elements.	Click OK .
Courier font	Courier font is used for commands	Run the <code>cd /d C:/window</code> command to enter the Windows system folder.
<i>Italic</i>	Italic formatting is used for parameters and variables.	<code>bae log list --instanceid</code> <i>Instance_ID</i>
[] or [a b]	This format is used for an optional value, where only one item can be selected.	<code>ipconfig [-all -t]</code>
{ } or {a b}	This format is used for a required value, where only one item can be selected.	<code>switch {active stand}</code>

Table of Contents

1. BI tools compatible with AnalyticDB for PostgreSQL	05
2. Connect Alibaba Cloud Quick BI to AnalyticDB for PostgreSQL	06
3. Use Tableau to connect to AnalyticDB for PostgreSQL	09

1. BI tools compatible with AnalyticDB for PostgreSQL

AnalyticDB for PostgreSQL is developed based on the open source Greenplum Database. It is compatible with Greenplum interfaces and tools, mainstream business intelligence (BI) tools in the industry, and Alibaba Cloud-provided data intelligence and visualization tools such as Quick BI and DataV. For mainstream tools in the industry, you can use the data in Greenplum or PostgreSQL as a data source to connect to an AnalyticDB for PostgreSQL instance. You can use the JDBC driver in BI tools or the recommended JDBC driver provided in [Connect to AnalyticDB for PostgreSQL](#).

The following table lists supported BI tools.

BI tool	Description
Alibaba Cloud Quick BI	Use data in AnalyticDB for PostgreSQL or HybridDB for PostgreSQL as a data source. For more information, see Connect Alibaba Cloud Quick BI to AnalyticDB for PostgreSQL .
Alibaba Cloud DataV	Use data in AnalyticDB for PostgreSQL or HybridDB for PostgreSQL as a data source. For more information, visit DataV .
Tableau	Use data in Greenplum as a data source to connect to an AnalyticDB for PostgreSQL instance. For more information, see Use Tableau to connect to AnalyticDB for PostgreSQL .

2. Connect Alibaba Cloud Quick BI to AnalyticDB for PostgreSQL

This topic describes how to connect Alibaba Cloud Quick BI to AnalyticDB for PostgreSQL.

Procedure

1. Log on to the [Quick BI console](#).
2. In the top navigation bar, click **Workspace**.
3. In the left-side navigation pane of the **Workspace** page, click **Data Sources**.
4. In the upper-right corner, click **Create Data Source**. In the dialog box that appears, choose **Add Data Source > AnalyticDB for PostgreSQL**.
5. In the **Add AnalyticDB for PostgreSQL Database** dialog box that appears, set parameters.

Note

- Add the following IP addresses to a whitelist of your AnalyticDB for PostgreSQL instance to allow access from Quick BI: 10.152.69.0/24, 10.152.163.0/24, and 139.224.4.0/24.
- For more information about how to configure a whitelist, see [Configure an IP address whitelist](#).

Add AnalyticDB for PostgreSQL Database ✕

* Name:

* Database Address:

* Port Number:

* Database:

Schema:

* Username:

* Password:

VPC Data Source: ⓘ

ⓘ Note: Add the following IP ranges to the whitelist of your databases.10.152.69.0/24,10.152.163.0/24,139.224.4.0/24

Parameter	Description
Name	The name of the data source.
Database Address	The endpoint used to connect to the AnalyticDB for PostgreSQL database. For more information, see Endpoints .
Port Number	The port number that corresponds to the endpoint.
Database	The name of the AnalyticDB for PostgreSQL database you want to connect.
Schema	The name of the database schema.
Username	The username used to connect to the AnalyticDB for PostgreSQL database.
Password	The password used to connect to the AnalyticDB for PostgreSQL database.

6. After you have configured the preceding parameters, click **Test Connection**. After the data source connection is verified, click **Add**.

 **Note** If the data source connection fails, check whether all parameters are correctly configured. After you confirm that the parameters are correctly configured, test the connection again.

Use Quick BI

After you connect to the data source of AnalyticDB for PostgreSQL, follow these steps to complete operations such as report analysis in Quick BI.

- [Create a dataset.](#)
- [Create a dashboard.](#)
- [Create a workbook.](#)
- [Create a portal.](#)

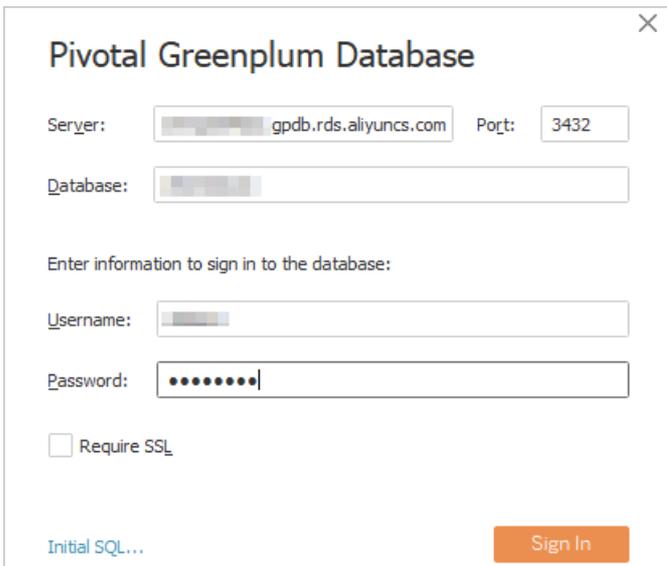
3. Use Tableau to connect to AnalyticDB for PostgreSQL

Tableau is a data analysis and visualization tool that can be seamlessly connected to tables and databases on your computer or in the cloud. This topic describes how to use Tableau to connect to an AnalyticDB for PostgreSQL database.

Procedure

1. Start Tableau.
2. On the **Connect** page, choose **To a Server > More > Pivotal Greenplum Database**.
3. In the **Pivotal Greenplum Database** dialog box, enter the information used to connect to your AnalyticDB for PostgreSQL database and click **Sign In**.

Note If the connection fails, check whether the connection information that you entered is correct and whether the IP address of the server where Tableau resides has been added to an IP address whitelist of your AnalyticDB for PostgreSQL instance. Then, try again. For information about how to configure an IP address whitelist, see [Configure an IP address whitelist](#).



Parameter	Description
Server	The public endpoint used to connect to your AnalyticDB for PostgreSQL database. For more information, see Manage public endpoints .
Port	The port used to connect to your AnalyticDB for PostgreSQL database. The default port number is 3432.
Database	The name of your AnalyticDB for PostgreSQL database.

Parameter	Description
Username	The username of the account used to connect to your AnalyticDB for PostgreSQL database.
Password	The password of the account used to connect to your AnalyticDB for PostgreSQL database.

Analyze data

You can analyze a table and produce an analysis report.

For example, you can choose a lineitem node under **TPC-H** data and view the data of a table in a dimension under that node.

If you choose a field under Dimensions or Measures and drop it to a worksheet, Tableau sends a query to your AnalyticDB for PostgreSQL database. In this example, Tableau sends the following query:

```
BEGIN;declare "SQL_CUR0x7fdabf04ca00" cursor with hold for SELECT "lineitem"."l_linestatus"
AS "l_linestatus",
    "lineitem"."l_shipmode" AS "l_shipmode",
    SUM("lineitem"."l_orderkey") AS "sum_l_orderkey_ok",
    ((CAST("lineitem"."l_shipdate" AS DATE) + CAST(TRUNC((-1 * (EXTRACT(DAY FROM "lineitem"."l_shipdate") - 1))) AS INTEGER) * INTERVAL '1 DAY') + CAST(TRUNC((-1 * (EXTRACT(MONTH FROM "lineitem"."l_shipdate") - 1))) AS INTEGER) * INTERVAL '1 MONTH') AS "tyr_l_shipdate_ok"
FROM "public"."lineitem" "lineitem"
GROUP BY 1,
    2,
    4;fetch 10000 in "SQL_CUR0x7fdabf04ca00"
```

Disable the cursor mode

By default, Tableau uses the cursor mode to fetch data from your AnalyticDB for PostgreSQL database. Example:

```
FETCH 10000 in "SQL_CUR0x7fe678049e00"
```

If you want to fetch a large amount of data and if the server where Tableau resides provides sufficient memory to store the data, you can disable the cursor mode to improve performance.

To disable the cursor mode, perform the following steps:

1. Create a TDC file and enter the following information in the file:

```
<?xml version='1.0' encoding='utf-8' ?>
<connection-customization class='greenplum' enabled='true' version='4.3'>
<vendor name='greenplum' />
<driver name='greenplum' />
<customizations>
<customization name='odbc-connect-string-extras' value='UseDeclareFetch=0' />
</customizations>
</connection-customization>
```

You can also change the value of the Fetch parameter to fetch more data at a time. Example:

```
<?xml version='1.0' encoding='utf-8' ?>
<connection-customization class='greenplum' enabled='true' version='4.3'>
<vendor name='greenplum' />
<driver name='greenplum' />
<customizations>
<customization name='odbc-connect-string-extras' value='Fetch=100000' />
</customizations>
</connection-customization>
```

2. Save the file with an extension of *.tdc*.
3. Place the TDC file to the *Datasources* directory.

If you use Tableau Desktop, you must place the TDC file to the *Documents/My Tableau Repository/Datasources* directory.

4. Restart Tableau to make the settings take effect.

Configure initial SQL statements

You can configure initial SQL statements that are automatically executed when a connection is established. You can configure specific parameters in the statements.

 **Note** Do not add semicolons (;) to the end of an SQL statement. This is because Tableau encapsulates each SQL statement. If you add semicolons (;), the system reports syntax errors. When you customize an SQL statement, do not add semicolons to its end either.