TIBCO® Graph Database Release Notes

Version 3.1.0

November 2021

Copyright © 2020. TIBCO Software Inc. All Rights Reserved.

Contents

TIBCO Documentation and Support Services 3
New Features 4
Deprecation 7
Migration and Compatibility 8
Known Issues 9
Closed Issues 10
Appendix A - Screenshots 11
Legal and Third-Party Notices 13

TIBCO Documentation and Support Services

How to Access TIBCO Documentation

Documentation for TIBCO products is available on the TIBCO Product Documentation website, mainly in HTML and PDF formats.

The TIBCO Product Documentation website is updated frequently and is more current than any other documentation included with the product. To access the latest documentation, visit https://docs.tibco.com.

Product-Specific Documentation

Documentation for TIBCO Graph Database is available on https://docs.tibco.com/products/tibco-graph-database-enterprise-edition-3-0-0 page.

This feature is available to both Enterprise edition and Community. The guidelines specified for Clustering is applicable only to Enterprise edition.

The following documents form the documentation set:

- *TIBCO® Graph Database Getting Started*: Read this manual before reading any other manual in the documentation set. This manual describes the terminology and concepts of the platform. The other manuals in the documentation set assume you are familiar with the information in this manual.
- *TIBCO Graph Database Administration* : Read this manual to learn how to manage the runtime and deploy and manage applications.
- *TIBCO® Graph Database Security Guidelines*: Read this manual to learn more about security guidelines and recommendations for TIBCO® Graph Database.
- *TIBCO Graph Database Release Notes*: Read this manual for a list of new and changed features, steps for migrating from a previous release, and lists of known issues and closed issues for the release.

How to Contact TIBCO Support

You can contact TIBCO Support in the following ways:

- For an overview of TIBCO Support, visit http://www.tibco.com/services/support.
- For accessing the Support Knowledge Base and getting personalized content about products you are interested in, visit the TIBCO Support portal at https://support.tibco.com.
- For creating a Support case, you must have a valid maintenance or support contract with TIBCO. You also need a user name and password to log in to https://support.tibco.com. If you do not have a user name, you can request one by clicking Register on the website.

How to Join TIBCO Community

TIBCO Community is the official channel for TIBCO customers, partners, and employee subject matter experts to share and access their collective experience. TIBCO Community offers access to Q&A forums, product wikis, and best practices. It also offers access to extensions, adapters, solution accelerators, and tools that extend and enable customers to gain full value from TIBCO products. In addition, users can submit and vote on feature requests from within the TIBCO Ideas Portal. For a free registration, go to https://community.tibco.com.

New Features

Release 3.1.0

New Data Types

- **ZonedTimestamp** allows nodes and edges to record the source "ZoneId " along with the Timestamp. The input data is converted into UTC for comparison, indexing purposes, preserving the source ZoneId. When retrieving it will convert to the source ZoneId.
- **ZonedLocalTimestamp** allows queries to retrieve data in the local time zone. The input is converted to UTC, and discards the source ZoneId.

Graph Analytics: Seamless Integration with TIBCO Spotfire

The existing 3.0.0 Graph Analytics has gotten a major facelift. This version integrates with TIBCO Spotfire seamlessly and enables users to visualize complex relationships in a different way

The features extends to:

- Native Data Source using REST/OData.
- Native Data Function Connector to Spotfire.
- Register Parameterized TGDB Queries and Stored Procedures as Spotfire Data Functions.
- Context sensitive and Syntax coloring TGDB Query Editor.
- Execute the Queries Ad Hoc or on Triggers.
- Transform hierarchical result set into Spotfire desired tabular form.
- Visualize results:
  - Network Graph using built-in Network Visualizer Mod.
  - Native Spotfire charts.
- Supports Native Graph Algorithms
- Supports Spotfire 11.2+ and .NET 4.8.1+

See Appendix A for screenshots.

Query Enhancements

- Gremlin 'path' step performance improvement using BFS with matrix multiplication.
- otherV support.

APIs

- Transaction API support for Go, REST.
- More error handling on Go APIs, REST APIs.
- REST API enhancements to support Spotfire Mod communication.

Stored Procedure

- Support Gremlin queries as string arguments to stored procedure.
- The Return type annotation symbol for Date is '**D**', Time is ' **m** ', and Timestamp is 'M'.

- Number Return type annotation is changed from '**n**' to '**N**'.
- ZonedTimestamp and ZonedLocalTimestamp are not supported in Stored Procedure.
- Fixed other numerous issues with Stored Procedures.

Admin Console

- Support 'C-Shell' style expansion and history.
  - For example use `!!` for the entire previous line or `!< lineno >` to repeat the line.
  - See *Administrator Guide* for more information.
- Enhanced Auto Completion.
- Save query result and/or admin command to File.
- Address user properties name in standard way.
- Support the new Zoned [Local] Timestamp data types in admin command.

Import/Export

- Removed Import IDs on nodes with an explicit primary key.
- Implemented server-local import for improved performance.
- Allowed CSV headers to specify the attributes for the imported type.
- Reduced repeated warnings after their 4th occurrence.

Performance Improvements

- Asynchronous handling of File Writes during Import.
- Memory management improvements for small size memory allocation.
- Cache improvements.

Security Improvements and Fixes

- Integrating with the latest version of OpenSSL.
- Java Client API fixes for Security.

Docker Enhancements

Host multiple databases on a server during Docker startup, and share computing resources.

Examples

TIBCO Graph Database Query Language

New TGDB Query examples based on different steps and Gremlin query categories such as:

- Filter
- Aggregation
- Sorting
- Traversal
- Flow control
- Projection

- Resultset metadata
- ACL
- Stored procedures

Routes

Added route distance, cost of tickets, airline alliances, airline categories, airport location information such as latitude, longitude, timezone and elevation.

Docker Support

TIBCO Graph Database is now available on Docker. For more information, see the*Docker* section in the *TIBCO Graph Database Administration Guide*.

Release 3.0.0

- **Clustering** - High Availability and Dynamic Scalability of database servers capable of handling modern dynamic workloads of applications.
- **Multi-tenancy** - Host multiple databases on a server, and share computing resources.
- **Stored Procedures** - Write advanced graph algorithms, and/or procedural code that complements query in Python.
- **Triggers** - Maintain the integrity of data at a business level in an atomic and transactional manner by implementing business rules in Python.
- **APIs** - Expand the reach of clients written in Go, Python, REST in addition to Java for data access.
- **Graph Analytics** - Visualize Graphs, Tables in TIBCO Spotfire leveraging the built-in TGDB REST server for data access.
- **Access Control** - Securely Access the data (i.e read, traverse, execute) based on access policies defined on the database.
- **Query Enhancements** - Native Gremlin API support in Java in addition to Gremlin style query syntax capable of running from any Client including Stored Procedures Queries.
- **Robust Import/Export** - Ingest/Egest data into graph-database at high speed using the new Import/Export tool.
- Modern Administration console built on Python API with syntax highlighting, validation, and concise layout for easy readability.

Deprecation

Release 3.1.0

- Linux version 6.x is not supported.
- OSX 10.14.x is deprecated.
- CUDA is no longer supported.

Release 3.0.0

- Windows 7 OS is no longer supported.
- OSX 10.10, 10.11, 10.12 is no longer supported.
- Current GPU functionality of Page Rank is deprecated and replaced by CPU based PageRank.

Migration and Compatibility

3.1.0

- TGDB Client Library incompatibility. 3.0 or lesser will not work with 3.1 server.
- Export Format was changed in 3.1. Export the database with 3.0.0 and perform the transformation as specified in the *Administration Guide*.

3.0.0

- TGDB database needs to be re-initialized as the internal format has changed. In order to preserve your existing data, export the database using 2.0.0, and do CSV transformation to the new format using some shell script. then import using the 3.0.0 import command using admin. Finally, modify the configuration file, to reflect changes to edge data file format.
- Client incompatibility. 2.0.0 clients can't connect to TGDB 3.0.0 and vice-a-versa. Use the right client API version to connect to the database.

Known Issues

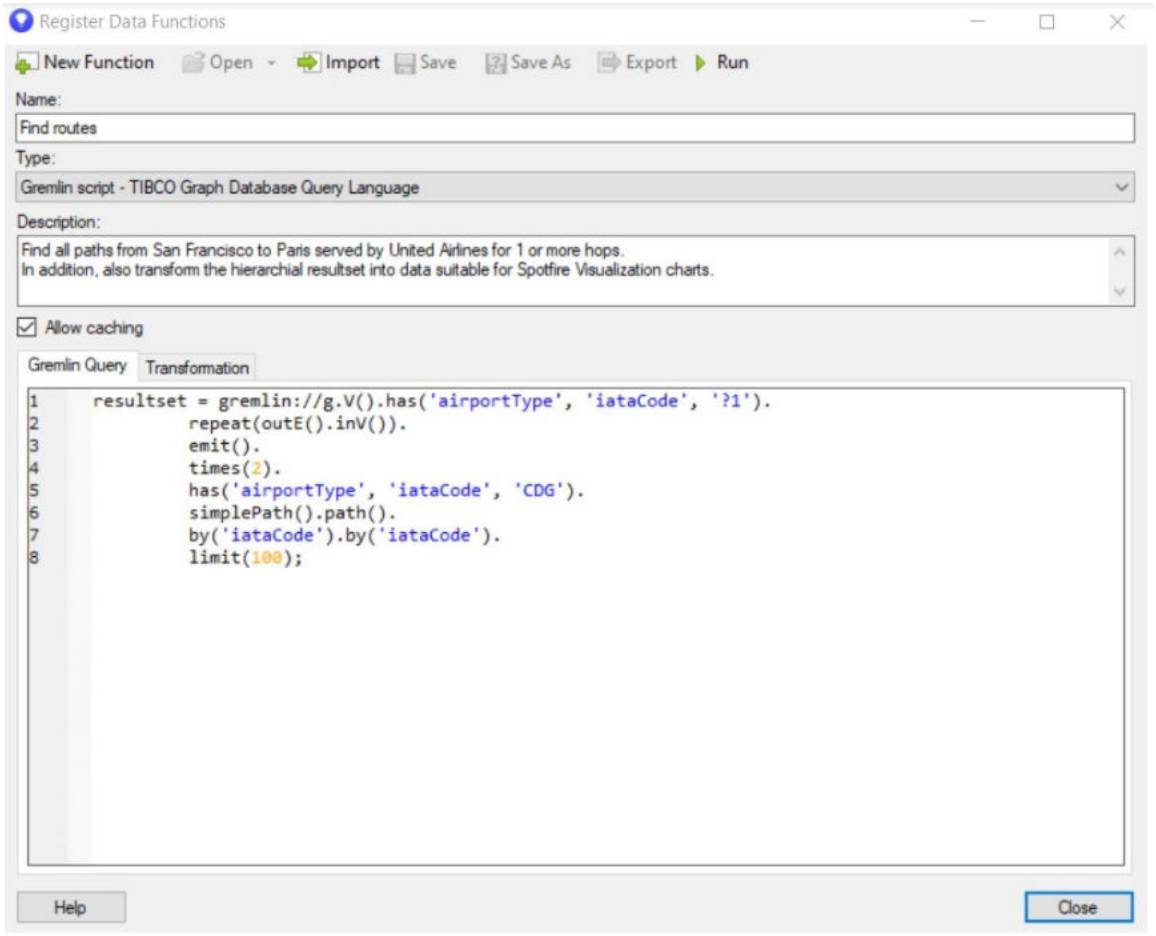
Key	Summary	Workaround
TGDB-1068	Gremlin query script is not saved in data function properties	Copy and paste query into console.
TGDB-1076	ZonedTimestamp and ZonedLocalTimestamp in Go, Rest, and Stored Procedures are not supported.	Use string data type or non-zonal timestamp.
TGDB-1064	BCE dates in Python API i.e Before common era is not supported	Use string data type.
TGDB-958,959	Database import/export is not supported on Cluster.	Switch to using a non-clustered server for import/export and then switch back to cluster.
TGDB-955, 957	Cluster does not verify properties and can start without a proper quorum.	Ensure that the cluster configuration section is correctly typed.
TGDB-1077	Executing Graph Algorithms in Spotfire does not return data.	Use Data Functions, and call it using g.execSP(...)
TGDB-1000, 1002	Index on Number Type is not supported.	Use double or string data type .

Closed Issues

There are no closed issues in this release.

Appendix A - Screenshots

TGDB Query Data Function



Visualize Network, TreeMap, and Box Plot for the same data

NW_MOD.dxp - TIBCO Spotfire
File Edit Data Visualizations View Tools Help User
Editing
TGDB Network Visualizer
iataCode
ICN
ORD
YVR
FRA
PDX
IAD
DEN
NRT
SEA
IAH
EWR
LAX
SFO
from
_to_
cost per from, to
SFO
ATL
ORD
MIA
HKG
SEA
LAX
CDG
PEK
PHL
DTW
HND
BOS
AMS
FRA
ZRH
MSP
ICN
LHR
CVG
PVG
TP E
KIX
Box plot
cost
from
resultset
routeid from to airlinecd cost
0 SFO CDG AZ 482.00
1 SFO CDG DL 639.00
2 SFO CDG AF 458.00
Data table: result...
Page
220 of 220 rows
0 marked
22 columns
routesresult

Legal and Third-Party Notices

SOME TIBCO SOFTWARE EMBEDS OR BUNDLES OTHER TIBCO SOFTWARE. USE OF SUCH EMBEDDED OR BUNDLED TIBCO SOFTWARE IS SOLELY TO ENABLE THE FUNCTIONALITY (OR PROVIDE LIMITED ADD-ON FUNCTIONALITY) OF THE LICENSED TIBCO SOFTWARE. THE EMBEDDED OR BUNDLED SOFTWARE IS NOT LICENSED TO BE USED OR ACCESSED BY ANY OTHER TIBCO SOFTWARE OR FOR ANY OTHER PURPOSE.

USE OF TIBCO SOFTWARE AND THIS DOCUMENT IS SUBJECT TO THE TERMS AND CONDITIONS OF A LICENSE AGREEMENT FOUND IN EITHER A SEPARATELY EXECUTED SOFTWARE LICENSE AGREEMENT, OR, IF THERE IS NO SUCH SEPARATE AGREEMENT, THE CLICKWRAP END USER LICENSE AGREEMENT WHICH IS DISPLAYED DURING DOWNLOAD OR INSTALLATION OF THE SOFTWARE (AND WHICH IS DUPLICATED IN THE LICENSE FILE) OR IF THERE IS NO SUCH SOFTWARE LICENSE AGREEMENT OR CLICKWRAP END USER LICENSE AGREEMENT, THE LICENSE(S) LOCATED IN THE “LICENSE” FILE(S) OF THE SOFTWARE. USE OF THIS DOCUMENT IS SUBJECT TO THOSE TERMS AND CONDITIONS, AND YOUR USE HEREOF SHALL CONSTITUTE ACCEPTANCE OF AND AN AGREEMENT TO BE BOUND BY THE SAME.

This document is subject to U.S. and international copyright laws and treaties. No part of this document may be reproduced in any form without the written authorization of TIBCO Software Inc.

TIBCO, the TIBCO logo, the TIBCO O logo, and Graph Database are either registered trademarks or trademarks of TIBCO Software Inc. in the United States and/or other countries.

All other product and company names and marks mentioned in this document are the property of their respective owners and are mentioned for identification purposes only.

This software may be available on multiple operating systems. However, not all operating system platforms for a specific software version are released at the same time. See the readme.txt file for the availability of this software version on a specific operating system platform.

THIS DOCUMENT IS PROVIDED “AS IS” WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, OR NON-INFRINGEMENT.

THIS DOCUMENT COULD INCLUDE TECHNICAL INACCURACIES OR TYPOGRAPHICAL ERRORS. CHANGES ARE PERIODICALLY ADDED TO THE INFORMATION HEREIN; THESE CHANGES WILL BE INCORPORATED IN NEW EDITIONS OF THIS DOCUMENT. TIBCO SOFTWARE INC. MAY MAKE IMPROVEMENTS AND/OR CHANGES IN THE PRODUCT(S) AND/OR THE PROGRAM(S) DESCRIBED IN THIS DOCUMENT AT ANY TIME.

THE CONTENTS OF THIS DOCUMENT MAY BE MODIFIED AND/OR QUALIFIED, DIRECTLY OR INDIRECTLY, BY OTHER DOCUMENTATION WHICH ACCOMPANIES THIS SOFTWARE, INCLUDING BUT NOT LIMITED TO ANY RELEASE NOTES AND "READ ME" FILES.

This and other products of TIBCO Software Inc. may be covered by registered patents. Please refer to TIBCO's Virtual Patent Marking document (https://www.tibco.com/patents) for details.

Copyright © 2020. TIBCO Software Inc. All Rights Reserved.