THOUGHTSPOT

Release Notes

Version 4.5, April 10, 2018

Table of Contents

Release Notes

We are happy to inform you that the latest version of ThoughtSpot is available with the release of the 4.4.1 version. Below is the list features and issues that were part of the 4.4.X release cycle.

- 4.4.1 New Features and Functionality
- 4.4.1 Fixed bugs
- 4.4 New Features and Functionality
- 4.4 Fixed bugs

> For detailed descriptions of new features and capabilities in the 4.4 release, see the official release announcement on the ThoughtSpot blog **5 Amazing New Additions in ThoughtSpot 4.4**.

Supported upgrade paths

If you are running one of the following releases, you can upgrade to this release directly.

- 4.2.3, 4.3, 4.4 and any hotfixes or customer patches on these branches

If you are running a different version, you need to do a multiple pass upgrade. First, upgrade to one of the above versions, and then to this release.

4.4.1 New Features and Functionality

Trusted_Authentication

Included in this release is support for a trusted authentication service. A ThoughtSpot installation can enable support for token-based authentication service. This allows an installation to use a central authentication service rather than using ThoughtSpot to authenticate. In this architecture, ThoughtSpot provides the service with a token that allows it to authenticate on behalf of users.

UI Improvements

Included in this release are visual changes meant to improve the visual appeal of the user interface.

Filtered aggregations in search bar

You can now use a set of filtered aggregation functions in the Formula Editor rather than crafting a lengthy `if then else` formula to achieve that today. Filters are useful for queries where the results should reflect a new, filtered value. For example, a query that compares total review with the cost of the `west` region. In this example, you filter the region column to values in the `west` only.

Expanded Answers page features

This release includes an expanded information layout available with each answer. This expansion includes the following features;

- A subsection detailing related insight cards you can fire.
- Responsive layout for all tiles
- Related queries that detail additional queries you may use.
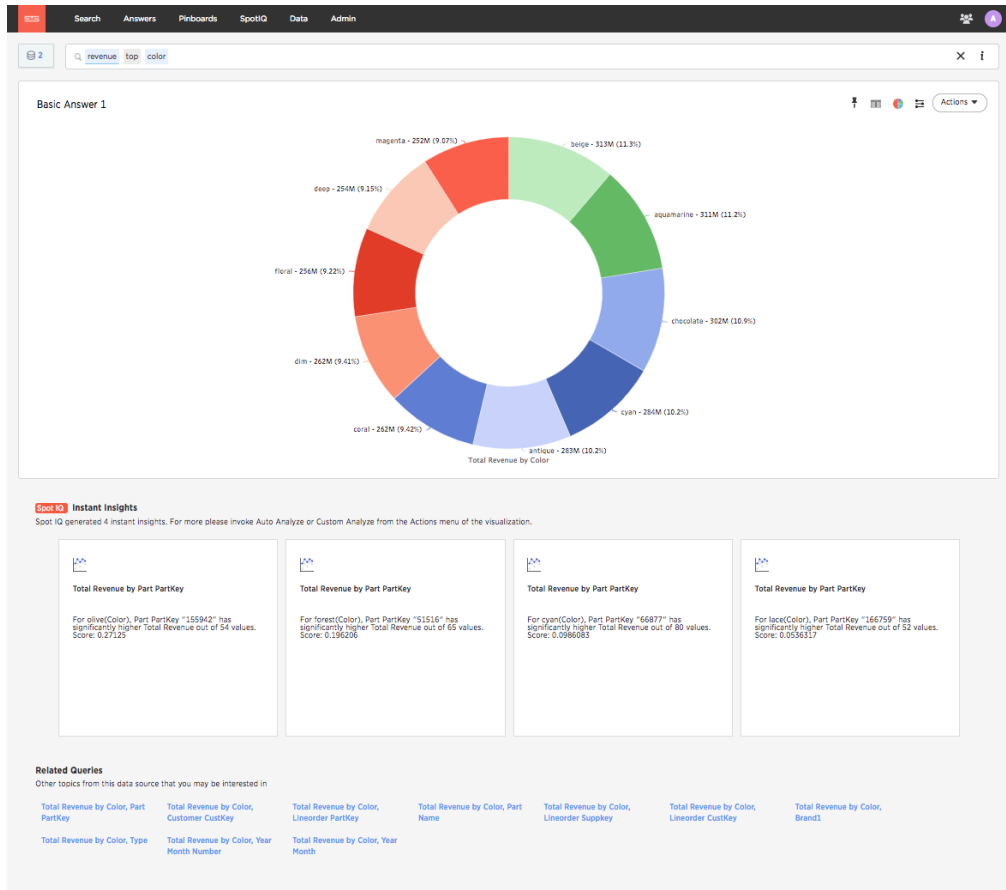
Help search feature

You can enable the new help search feature on your installation. This feature allows you to search the ThoughtSpot help from the **Search** bar.

Dialog interactions improved

This release includes improvements to dialog interactions and interfaces.

Changes to the tscli command

A new code>tscli entity [-h] {pack}</code> command creates a serialized, dataless object file for testing, troubleshooting, or migration. You can use this command with answer, pinboard, or aggregated/unaggregated worksheet objects.

Now, the `tscli callhome` bundle defaults to the inclusion of 100 alerts collected for the last 7 days.

Beginning with this release, the `tscli os package` command is no longer available. You should use the platform specific commands to list the packages on your system. For example, you can use the `dpkg -l | rpm -qa` command.

See the documentation for the tscli command for more information.

Visualization and pinboard interaction auto-saves some changes

This release includes changes to user interactions on pinboards and visualizations. Previously, visual changes to the colors or column order required you to explicitly save your change. This is no longer the case, these changes on visualizations, pinboards, and pinboard tiles now save automatically.

Some pinboard changes are applied but require a user to explicitly save the change to complete the edit. These changes are:

- filter changes
- reording tiles
- resizing tiles
- deletion of a tile

If a user attempts to navigate away from an object with a pending change of this type, the system prompts the user to save the change.

Support for NFS4 protocol

This release includes support for the NFS4 protocol.

Designate sharing or non-sharing

A new feature in this release allows you to designate whether information *can be shared* with a user or group.

New SSH account provided

This release includes a `thoughtspot` OS user. This user has the ability to execute `tscli` commands that do not require `sudo` or that do no impact `rootfs` resources. An example of a typical command this user can execute is the `tscli cluster status` command. If the user cannot execute a command, the system returns an informative error message.

4.4.1 Fixed Bugs

An issue was resolved where a saving a pinboard resulted in a random order for the visualizations it contained.

A problem was resolved with NFS4 mounts by adding support for NFS4 mounts to the system.

An upgrade issue was resolved where the system was using an incorrect interface.

An issue was fixed where pinboards could not be opened after an upgrade but instead returned an *Not inheriting state from previous worksheet state* error.

Fixed an issue with the `tscli backup create` command which was miscalculating the ETA of backups.

A problem was fixed that caused the system to format the negative outcome of a currency formula with double negative signs. Now, these format with a single negative sign.

A problem was resolved that prevented users from seeing the underlying data in a shared worksheet.

Previously, `tql update` statements that referred to unknown columns could cause the backend system to fail. This issue was resolved in this release. The system returns errors for `update` statements that reference unknown columns.

This release includes the addition of the `tscli storage df` command. You can use this command to detect the amount of space left on your disks in your ThoughtSpot cluster.

An intermittent upgrade issue was resolved where a pinboards that involved date-related keywords failed to load.

Fixed a problem where the round function was ignored when using a pivot table.

Customers reported a Double Fetch Denial of Service Vulnerability in the Linux Kernel shipped with a previous version of the product. This release includes a patch to the Linux kernel packages as shipped with Red Hat Enterprise Linux 6, 7 and Red Hat Enterprise MRG 2.

This release patches a reported security vulnerability in CentOS Security Update for sudo.

This upgrade applies patch CentOS Security Update for libsoup (CESA-2017:2459) to prevent reported security vulnerabilities in the source software.

This upgrade applies patch CentOS Security Update for git (CESA-2017:2484 **and** CESA-2017:2004) to prevent reported security vulnerabilities in the patched software.

This release patches a reported vulnerability in CentOS Security Update for samba (CESA-2017:1950).

This release includes a patch for the CentOS Security Update for python (CESA-2017:1868) security vulnerability.

This release patches the CentOS Security Update for openssh (CESA-2017:2029) security vulnerability.

This release patches the system to CentOS Security Update for openldap (CESA-2017:1852).

This upgrade applies patch CentOS Security Update for mariadb (CESA-2017:2192) to prevent reported security vulnerabilities in the patched software.

This upgrade applies patch CentOS Security Update for libtasn1 (CESA-2017:1860) to prevent reported security vulnerabilities in the patched software.

This upgrade applies the following patches:

- CentOS Security Update for kernel (CESA-2017:1842)
- CentOS Security Update for kernel (CESA-2017:2473)
- CentOS Security Update for kernel (CESA-2017:1615)
- CentOS Security Update for Kernel (CESA-2017:1484) (Stack Clash)

These patches are proactive prevent for reported security vulnerabilities in the patched software.

This upgrade applies patch CentOS Security Update for gnutls (CESA-2017:2292) to prevent reported security vulnerabilities in the patched software.

This upgrade applies patch CentOS Security Update for glibc (CESA-2017:1916) and CentOS Security Update for glibc (CESA-2017:1481) (Stack Clash) to prevent reported security vulnerabilities in the patched software.

This upgrade applies patch CentOS Security Update for ghostscript (CESA-2017:2180) to prevent reported security vulnerabilities in the patched software.

This release resolves a reported security vulnerability with a CentOS Security Update for tigervnc.

This upgrade applies patch CentOS Security Update for curl Security Update (CESA-2017:2016) to prevent reported security vulnerabilities in the patched software.

This upgrade applies patch CentOS Security Update for bash Security Update (CESA-2017:1931) to prevent reported security vulnerabilities in the patched software.

This upgrade applies patch CentOS Security Update for graphite2 (CESA-2017:1793) to prevent reported security vulnerabilities in the patched software.

This upgrade applies patch CentOS Security Update for bind (CESA-2017:1680) to prevent reported security vulnerabilities in the patched software.

Aggregation over group_max returned a red bar error, This was resolved, users can now aggregate over a `group_max` function.

A problem with editing formulas was resolved where users were repeatedly and unnecessarily presented with disambiguation options.

An issue was resolved where a bar on the chart label did not match the underlying data. The data was correct, the label was not.

An issue was corrected where, if one snapshot deletion failed in any fashion, any subsequent attempts to delete a snapshot failed.

Previously, upgrades did not preserve a user's custom color preferences. This was fixed in this release.

Users were unable to edit a KPI formula if the KPI formula was pinned to a pinboard.

Users were able to **Select All** for 1000+ items in a pinboard filter. This action was available but not supported and caused users to believe pinboard filters were not working. Now, the option to **Select All** no longer functions when there are 1000+ items in a filter.

Users were unable to restore a database backup without first renaming the backup. Renaming is no longer required.

Creating a formula on `cumulative_sum` function mistakenly caused an error to appear. This action no longer causes an error.

Some installations saw worksheet performance degrade for worksheets with a large number of columns. Users can now set a configuration option to avoid these problems.

Previously, users received an error when removing columns from a broken relationship. These errors were caused by underlying formulas in the relationship configuration. This is no longer the case. The system now handles removal of columns where underlying formulas are involved.

Previously setting both the browser and the ThoughSpot profile value failed to display numbers and date formats in the proper locale. This problem was corrected. Setting the ThoughtSpot profile to the proper locale results in the appropriate display of date and number formats. It also causes translated strings to appear in the interface where they exist.

Active directory (AD) synchronization was not working. Moreover, if AD security group had no members in it, then the synchronization did not recognize the group at all. These problems were corrected, empty groups are recognized and users moved between groups now are properly synchronized by ThoughtSpot.

A problem was resolved where the round function returned a negative zero when it should have returned a 0 (zero).

Visualizations that relied on chasm trap worksheet were not immediately updated when a formula was changed. The workaround was to manually update the visualization. This was corrected. The system now updates the visualization automatically when an underlying formula is changed.

On a worksheet with a chasm trap, join between a fact and dimension did not work properly when grouping by a measure on the dimension table. This was fixed.

Using `safe_divide` and `sum` did not work with formula on formula. This problem was fixed.

Data connected schedules did not adjust for daylight savings time. Now, the schedules adjust as expected.

The ThoughtSpot tomcat instance went into crash loop when a generic relationship includes `IS NULL` operator. Now, this relationship no longer causes this problem.

An ODBC connection between Alteryx and ThoughtSpot was failing. This problem was solved by updating the ODBC drivers to the latest versions.

An issue was fixed where an unnecessary right-outer join was being applied to row-level security RLS-introduced joins. This situation led to impacts on query performance.

A problem was resolved with multiple sequential joins. Previously, the proper join path was not used when the fields are pulled from tables that were far apart unless fields from the intermediate tables were also used. Now, ThoughtSpot is able to handle multiple sequential joins.

Resolved an issue with a chasm trap that used `unique count` on shared dimension. The chasm trap was generating an incorrect query. Now, `unique count` is applied correctly in the final query.

Previously, a user user that created some row-level security (RLS) rules was associated with the rules such that deleting the user also deleted the rules. This is no longer the case. If a user creates a set of RLS rules and that user is subsequently deleted, the rules persist in the system.

An issue was resolved where filters could only be edited in the search bar.

An issue was resolved where a change in the underlying system where the system did not properly recover space after a crash. This is no longer an issue, the system properly recovers HDFS space after a crash.

Intermittent, ambiguous red bar errors related to chasm trap situations were resolved.

The help for row-level security rules was complicated and hard to parse. This text was improved and moved into the Query Visualizer.

# 4.4 New Features and Functionality

Learn ThoughtSpot in BETA

The Learn option from the main menu is a BETA feature that uses replay to teach you more about ThoughtSpot.

Support for UK and Canadian Languages

Support for UK English (**en-GB**) and Canadian English (**en-CA**) was added. Users can set these locale's via their profile

Show regression line option

Users have a new option to **Show Regression Line** on line, column, bubble, and scatter charts.
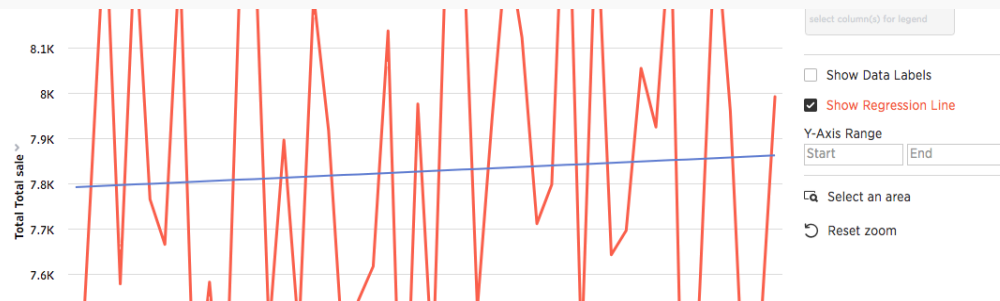
New Has administration privileges

If you add the privilege **Has administration privileges** to a group, note that all users in that group will be able to see all the data in ThoughtSpot. Administrators can see all data sources, and row-level security (RLS) does not apply to them. If you want to enable users to bypass row-level security on a worksheet, add them to a group with **Can Administer and Bypass RLS** privileges.

Check cluster command added

The `tscli cluster check` command was added to check the status of all or specific nodes in a cluster.

Service logs stored to disk

Service logs are now stored to disk. This ensures better protection against service logs from exceeding the SSD on a node and impacting a node.

The tscli nas mount-cifs command requires a password

Now the `tscli nas mount-cifs` command prompts for a password if you do not supply one.

Sankey Chart

A new type of chart, the Sankey diagram, is now available. This chart displays a flow diagram that illustrates transfers of flows within a system.

New improved icons

In this release, the search **?** (question mark) icon was replaced with an **i** (letter "i"). The team has redesigned the caret-down and **x** (clear-all) icon. Finally, the wand icon is removed from keywords in the **Search** dropdown. Instead, the identifier `keyword` appears beneath each keyword.
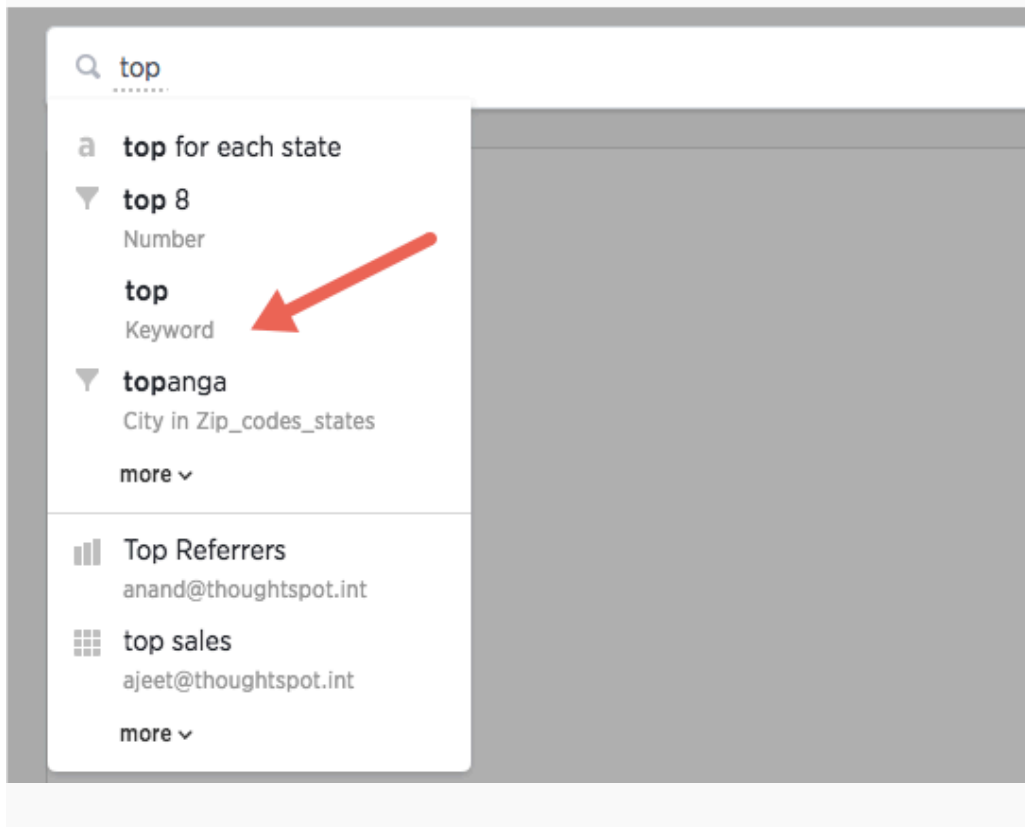
What am I looking at? Redesign!

The **What am I looking at** information panel is improved in this release with an **I** rather than the previous **?** (question mark). The new design is intended to clarify the information in the panel and make it easier to use.

Configurable maximum job time

You can set the maximum amount of time in milliseconds a task is allowed to stay in "In progress" state. If the task exceeds this time, it is aborted.

Administer row level security privilege

Users with the **Can Administer and Bypass RLS** privilege can bypass row-level security (RLS) rules on a worksheet. By default this privilege is enabled. You can configure your installation to disable it.

ThoughtSpot introduced a feature in **3.4** which implicitly converted boolean columns to filters when a user searched. For example, `product isRed = true` became `product isRed`. This behavior meant that the `product` column was not added to the table or chart result.

Users were confused by this implicit behavior. This feature was reverted **4.3**. Now, boolean columns are treated like any other columns in the query. Meaning they remain `product isRed = true` and are not converted. The column also appears in the search results.

When you upgrade a 3.4 through 4.2 installation to 4.3 or newer, tables or charts created in the 3.4 through 4.2, that contained these booleans are upgraded using `product isRed = true` so that users are not surprised by additional columns suddenly appearing in their saved answers.

Improvements in RAMDisk recovery

This release includes improvements in the speed and performance of RAMDisk recovery.

Fan trap situations are supported for new installations

ThoughtSpot now supports fan traps in new installations. This feature is enabled by default in new installations.

For existing customers upgrading to 4.4 this feature is disabled. You must work with ThoughtSpot Support and Customer support to dentify answers and pinboards that are impacted should this feature be enabled. Your ThoughtSpot customer service representative or ThoughtSpot Support can help you to identify, mitigate, and resolve any impacted data. Once these impacts are resolved, they can enable the feature for you.

Improvements to concat function

The `concat` function now allows users to concatenate multiple strings rather than single strings.

Primary key drops check dependencies

Dropping a primary key can impact downstream objects such as worksheets and pinboards. When dropping a primary key, TQL now checks for dependencies and issues a warning. Users must override with the `--allow_unsafe` flag.

Tooltip functionality in the Schema Visualizer

A tooltip function was introduced into the **Table** list for the **Schema Visualizer**. This tooltip shows information about the underlying table.

Color picker improvements

This release includes new vibrant chart colors. It also includes the ability to add your own HEX values.
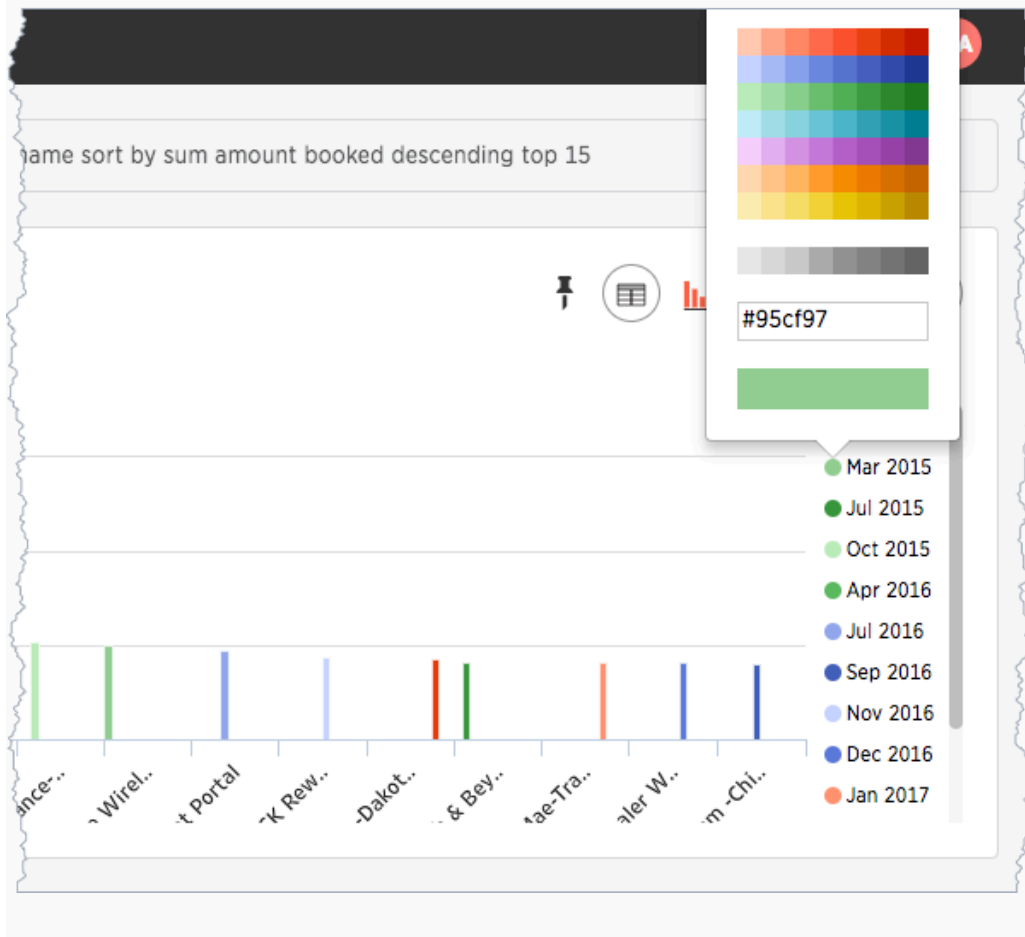
tspublic session/login and session/logout APIs

This release includes two new public APIs. You can use these APIs to log users in and out of a ThoughtSpot session. See the documentation for details about the calls.

Reduce search suggestion tokens

This release improves the search experience by reducing the number of tokens in search results. Users found the number of suggestions confusing. Instead, the search greatly reduces the number of suggestions.

Query processing improvements

This release includes improvements to the underlying processing of complex schema, object, and formula variations. Users should see improved ability to work with:

- Schema various such as chasm, fan, nested chasm, and chain of chasm traps,
- Object variations such as aggregated worksheet, join of aggregated worksheet and base tables.
- Formula variation such as aggregate and non-aggregate functions, windowing functions, and pinned measures.

These changes include optimization for generating queries that involve row level security(RLS).

Filter by creator

Users have the ability to filter pinboards and answers by creator.
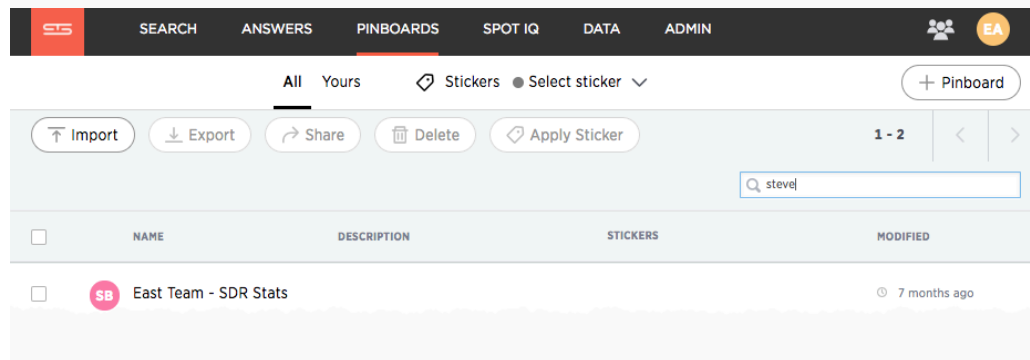
Improvement in pinboard layout of small table

Tables with fewer rows appeared distorted with whitespace when pinned in a pinboard. This release includes improvements for display of tables in pinboards. See the documentation for more information about editing a pinboard.

Formula performance improvements

This release includes improvements in backend indexing formats that result in formula performance improvements.

Ability to define a join between a worksheet and a table

Users can join a worksheet to one or more tables. The direction of the join can be from the worksheet to the table or the reverse. When you join a worksheet to a table, you bring any tables connected to the joined table into a search.

This feature has limitations. It is not possible to join multiple tables in the worksheet and a single table in a single relationship. Nor is it possible to join between a formula column in a worksheet and another table.

Getting a cluster configuration

When using `tscli cluster get-config` to get cluster information, the system can run into situations where it cannot make a connection across the network. When this happens, the command returns an error but continues to work.

ODBC extract/transform/load improvements

By default, ThoughtSpot takes a permissive approach to datatype compatibility
between source and target in ODBC. As much as possible ThoughtSpot automatically
converts incoming "compatible" input data to the desired ThoughtSpot target
datatype. Flags were added that allow you to tune this behavior and make it stricter. At installation time, your customer support engineer can assist you in
configuring a stricter load behavior.

### Users with data access can drill down

If you own the pinboard you can drill down to the data beneath. New in this release, users you share the pinboard with can also drill down provide they *also*
have access to the data on which the board was based.

Description included when adding columns to worksheets

When adding a column from an existing data table or worksheet, the **Description** of the column is also copied into the new worksheet.

Ability to change a pinboard headline

Users can edit the pinboard headline. To edit a headline, activate the headline edit button at the corner of a headline and click it.
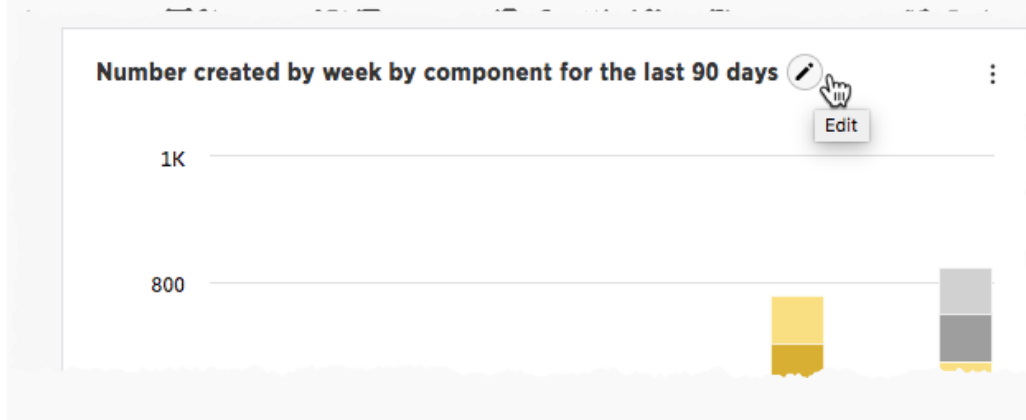
API to transfer ownership of objects

The new `POST /tspublic/v1/user/transfer/ownership` API was added. It allows the transfer ownership of all objects from one user to another. You must transfer all of a user's objects. This mehtod takes two query parameters of type String.

- `fromUserName` Name of a user from whom the ownership needs to be transferred.
- `toUserName` Name of a user to whom the ownership needs to be transferred.

It returns a `200` status if ownership of all objects are successfully transferred. It returns a status of `400` if either the `fromName` and `toName` is invalid or for given username there is no user present.

4.4 Fixed Bugs

Description
Aggregation over group_max returned a red bar error, This was resolved, users can now aggregate over a `group_max` function.

A problem with editing formulas was resolved where users were repeatedly and unnecessarily presented with disambiguation options.

An issue was resolved where a bar on the chart label did not match the underlying data. The data was correct, the label was not.

An issue was corrected where, if one snapshot deletion failed in any fashion, any subsequent attempts to delete a snapshot failed.

Users were unable to edit a KPI formula if the KPI formula was pinned to a pinboard.

Users were able to **Select All** for 1000+ items in a pinboard filter. This action was available but not supported and caused users to believe pinboard filters were not working. Now, the option to **Select All** no longer functions when there are 1000+ items in a filter.

Users were unable to restore a database backup without first renaming the backup. Renaming is no longer required.

Description

Creating a formula on `cumulative_sum` function mistakenly caused an error to appear. This action no longer causes an error.

Some installations saw worksheet performance degrade for worksheets with a large number of columns. Users can now set a configuration option to avoid these problems.

Previously setting both the browser and the ThoughSpot profile value failed to display numbers and date formats in the proper locale. This problem was corrected. Setting the ThoughtSpot profile to the proper locale results in the appropriate display of date and number formats. It also causes translated strings to appear in the interface where they exist.

Active directory (AD) synchronization was not working. Moreover, if AD security group had no members in it, then the synchronization did not recognize the group at all. These problems were corrected, empty groups are recognized and users moved between groups now are properly synchronized by ThoughtSpot.

A problem was resolved where the round function returned a negative zero when it should have returned a 0 (zero).

Visualizations that relied on chasm trap worksheet were not immediately updated when a formula was changed. The workaround was to manually update the visualization. This was corrected. The system now updates the visualization automatically when an underlying formula is changed.

On a worksheet with a chasm trap, join between a fact and dimension did not work properly when grouping by a measure on the dimension table. This was fixed.

Using `safe_divide` and `sum` did not work with formula on formula. This problem was fixed.

Data connected schedules did not adjust for daylight savings time. Now, the schedules adjust as expected.

The ThoughtSpot tomcat instance went into crash loop when a generic relationship includes `IS NULL` operator. Now, this relationship no longer causes this problem.

Description

An ODBC connection between Alteryx and ThoughtSpot was failing. This problem was solved by updating the ODBC drivers to the latest versions.

An issue was fixed where an unnecessary right-outer join was being applied to row-level security RLS-introduced joins. This situation led to impacts on query performance.

A problem was resolved with multiple sequential joins. Previously, the proper join path was not used when the fields are pulled from tables that were far apart unless fields from the intermediate tables were also used. Now, ThoughtSpot is able to handle multiple sequential joins.

Resolved an issue with a chasm trap that used `unique count` on shared dimension. The chasm trap was generating an incorrect query. Now, `unique count` is applied correctly in the final query.

Previously, a user user that created some row-level security (RLS) rules was associated with the rules such that deleting the user also deleted the rules. This is no longer the case. If a user creates a set of RLS rules and that user is subsequently deleted, the rules persist in the system.

An issue was resolved where filters could only be edited in the search bar.

Intermittent, ambiguous red bar errors related to chasm trap situations were resolved.

The help for row-level security rules was complicated and hard to parse. This text was improved and moved into the Query Visualizer.