IBM Planning Analytics
Version 2 Release 0

Planning Analytics Workspace

IBM
Note
Before you use this information and the product it supports, read the information in “Notices” on page 153.

Product Information
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Welcome to Planning Analytics Workspace

IBM® Planning Analytics Workspace is a web-based interface for IBM Cognos® TM1®. It provides an interface to TM1 data, with ways to plan, create, and analyze your content.

Planning Analytics Workspace helps you focus on the things that matter to your business. Using Planning Analytics Workspace, you can identify and understand patterns and relationships in data. You can use this information to understand why things happen, and predict what might happen. Planning Analytics Workspace opens up the world of advanced analytics to all business users.

Accessibility features

Accessibility features help users who have a physical disability, such as restricted mobility or limited vision, to use information technology products. Planning Analytics Workspace has accessibility features. For information about these features, see “Accessibility” on page 151.

IBM HTML documentation has accessibility features. PDF documents are supplemental and include no extra accessibility features. For accessible documentation, see IBM Knowledge Center.

Forward-looking statements

This documentation describes the current functionality of the product. References to items that are not currently available may be included. No implication of any future availability should be inferred. Any such references are not a commitment, promise, or legal obligation to deliver any material, code, or functionality. The development, release, and timing of features or functionality remain at the sole discretion of IBM.

Samples disclaimer

The Sample Outdoors Company, Great Outdoors Company, GO Sales, any variation of the Sample Outdoors or Great Outdoors names, and Planning Sample depict fictitious business operations with sample data used to develop sample applications for IBM and IBM customers. These fictitious records include sample data for sales transactions, product distribution, finance, and human resources. Any resemblance to actual names, addresses, contact numbers, or transaction values is coincidental. Other sample files may contain fictional data manually or machine generated, factual data compiled from academic or public sources, or data used with permission of the copyright holder, for use as sample data to develop sample applications. Product names referenced may be the trademarks of their respective owners. Unauthorized duplication is prohibited.
Chapter 1. What's new in Planning Analytics Workspace

New and updated features are continuously introduced in Planning Analytics Workspace to address your analytic requirements.

The following sections provide brief descriptions of new and changed features, by date of introduction.

The new features described here always reflect the full capabilities of Planning Analytics Workspace on cloud. Due to the non-concurrent release schedules for Planning Analytics Workspace Local and Planning Analytics Workspace on cloud, some features may not immediately be available to Local customers. For details, see Applicability of Planning Analytics Workspace documentation (https://www.ibm.com/support/knowledgecenter/SSD29G_2.0.0/com.ibm.swg.ba.cognos.tm1_prism_gs.2.0.0.doc/c_prism_applicability_documentation.html).

2.0.25 - Feature updates, September 12, 2017

IBM Planning Analytics Workspace was refreshed on September 12, 2017 to include the following new features.

**Filter by sets in the dimension editor**

You can filter the dimension member list by sets in the dimension editor.

To find out more, see Find and filter members in the dimension editor (https://www.ibm.com/support/knowledgecenter/SSD29G_2.0.0/com.ibm.swg.ba.cognos.tm1_prism_gs.2.0.0.doc/t_paw_view_members.html).

**Add members to a new dimension by dropping a .csv file onto the dimension editor**

You can add members to a new dimension by dragging and dropping a .csv file onto the dimension editor. The first column in the .csv file is imported into the dimension editor as a flat list. You can drop a .csv file only on an empty dimension editor.

To find out more, see Add members to a dimension (https://www.ibm.com/support/knowledgecenter/SSD29G_2.0.0/com.ibm.swg.ba.cognos.tm1_prism_gs.2.0.0.doc/t_paw_add_members_to_dimensions.html).

**Dimensions are added to columns, rows, and context when a view is created**

Previously, when a new view was created by right-clicking a cube in the tree and selecting Add new view, a view was created and all of the dimensions were added to the bench. Now, the dimensions are added to the columns, rows, and to the context area. The last dimension in the cube is added to the columns, the second to last dimension is added to the rows, and all other dimensions are added to the context area.

To find out more, see Create a view (https://www.ibm.com/support/knowledgecenter/SSD29G_2.0.0/com.ibm.swg.ba.cognos.tm1_prism_gs.2.0.0.doc/t_tm1_prism_creating_a_new_view.html).

**The set editor is accessible**

You can work in the set editor by using the keyboard.

To find out more, see Use the keyboard to work in the set editor (https://www.ibm.com/support/knowledgecenter/SSD29G_2.0.0/com.ibm.swg.ba.cognos.tm1_prism_gs.2.0.0.doc/c_paw_access_set.html).

**Improvements to Lifecycle Management**

In Lifecycle Management, when you navigate to the Create snapshot page, you can filter your assets by sub folders in your workspace. To learn more, see Filter to find assets (https://www.ibm.com/support/knowledgecenter/SSD29G_2.0.0/com.ibm.swg.ba.cognos.tm1_prism_gs.2.0.0.doc/paw_asset_migration_filter_and_search.html).

If your assets map directly to your target environment, you can migrate your assets quickly by skipping the review process and the validation step. To learn more, see Add assets to your cart (https://www.ibm.com/support/).
If the database for your assets doesn’t exist in your target environment or you want to move assets to another database in the target environment, you can see the list of available target databases when you validate your snapshot. To learn more, see Correct errors and validate (https://www.ibm.com/support/knowledgecenter/SSD29G_2.0.0/com.ibm.swg.ba.cognos.tm1_prism_gs.2.0.0.doc/paw_asset_validate_and_save_snapshot.html).

**Improvements to the Planning Analytics Monitoring dashboard**

You can now view the status of system memory, CPU, and disk usage directly on the Planning Analytics Monitoring dashboard.

Gauges on the dashboard show the percentage of each resource that is currently being used and the gauge bar appears in different colors to alert you to the status of the resource: green for safe, yellow for concern, and red for critical. You can configure threshold settings that define the status for each system resource.

To find out more about the Planning Analytics Monitoring dashboard, see Monitor and administer databases (https://www.ibm.com/support/knowledgecenter/SSD29G_2.0.0/com.ibm.swg.ba.cognos.tm1_prism_gs.2.0.0.doc/c_paw_administer_servers.html).

For details on configuring threshold settings, see Configure thresholds (https://www.ibm.com/support/knowledgecenter/SSD29G_2.0.0/com.ibm.swg.ba.cognos.tm1_prism_gs.2.0.0.doc/t_paw_configure_threshold_server_admin_settings.html).

**Improvements to the Planning Analytics Monitoring database activity report**

The database activity report now shows the number of connected users and the average number of connections per user, along with database usage metrics. Additionally, the style of the report has been modified and you can now download database logs directly from the database activity report.

For details on database activity reports, see Monitor and manage database activity (https://www.ibm.com/support/knowledgecenter/SSD29G_2.0.0/com.ibm.swg.ba.cognos.tm1_prism_gs.2.0.0.doc/t_paw_monitor_server_health.html).

**Improvements to the Rules Editor**

The Rules Editor includes a function icon - f. You can click this icon to insert a rules function into your business rules.

For details on using this and other Rules Editor features, see Use the Rules Editor (https://www.ibm.com/support/knowledgecenter/SSD29G_2.0.0/com.ibm.swg.ba.cognos.tm1_prism_gs.2.0.0.doc/t_paw_use_rules_editor.html).

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**2.0.24 - Feature updates, August 12, 2017**

IBM Planning Analytics Workspace was refreshed on August 12, 2017 to include the following new features.

**Improved set editor features for working with large dimensions**

If you have a large dimension with multiple levels, the set editor has new capabilities to help you to find and work with members in different levels in the dimension hierarchy quickly.

The set editor now has the following capabilities:
Select multiple members to keep

The **Keep** option shows only selected members and their descendants in the set editor.

A selection is created that replaces **All members**. You can search in this selection, and you can use the selection to create a set.

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**Drill down**

To drill down on more than one member, select the members, then right-click and select **Drill down**. Drill down shows the selected members and their children. This option creates a selection that can be searched in, or used to create a set.

You can also double-click a member to drill down.

**Expand to descendants**

Expands one or more selected members and all of their descendants. You can also collapse one or more expanded members.

**Show all ancestors.**

Shows just the selected member and its ancestors. This option creates a selection.

To find out more, see [Create or edit sets](https://www.ibm.com/support/knowledgecenter/SSD29G_2.0.0/com.ibm.swg.ba.cognos.tm1_prism_gs.2.0.0.doc/t_paw_create_sets.html).

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**Enhanced conditional formatting for cells**

You can now apply conditional formatting to cells with text values. You can also highlight empty cells by using conditional formatting. Conditional formatting is now saved when views are saved.

To find out more, see [Conditional formats](https://www.ibm.com/support/knowledgecenter/SSD29G_2.0.0/com.ibm.swg.ba.cognos.tm1_prism_gs.2.0.0.doc/t_paw_conditional_formats.html).

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**Cell values added to the canvas now reflect TM1 formatting**

Cell values that are added to the canvas now reflect the formatting of the value in the cube view. For example, if the cell value is formatted with two decimal places, this format is reflected by the cell value on the canvas unless the **Abbreviate Numbers** property is selected. You can also format the size and color of the value, and hide the label.

To find out more, see [Add cell values to the canvas](https://www.ibm.com/support/knowledgecenter/SSD29G_2.0.0/com.ibm.swg.ba.cognos.tm1_prism_gs.2.0.0.doc/t_paw_cell_widget.html).

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**Show an alias instead of the dimension member name in the dimension editor**

Modelers can show aliases instead of the dimension member in the dimension editor. You can select which alias to view.

To find out more, see [Create attributes](https://www.ibm.com/support/knowledgecenter/SSD29G_2.0.0/com.ibm.swg.ba.cognos.tm1_prism_gs.2.0.0.doc/t_paw_create_attribute.html).
Improvements to Lifecycle Management

In Lifecycle Management, when you navigate to the Create snapshot page, you can see the assets that are available for migration only after you select filters and click Apply.

When you create a snapshot that contains a Websheet, you can see in the filtered assets pane that you are migrating an asset with a Websheet. Websheets cannot be migrated with Lifecycle Management. You might need to manually move the Websheet to the target environment.

Improvements to the TurboIntegrator Process Editor

You can validate a TurboIntegrator process independent of saving the process. This allows you to troubleshoot and modify a process before committing changes. To find out more, see Validate a process (https://www.ibm.com/support/knowledgecenter/SSD29G_2.0.0/com.ibm.swg.ba.cognos.tm1_prism_gs.2.0.0.doc/t_paw_validate_a_process.html).

You can create parameters that are passed into a process at run time. Parameter values are set when a user executes a process and answers prompts for the parameters you create. To find out more, see Create and edit process parameters (https://www.ibm.com/support/knowledgecenter/SSD29G_2.0.0/com.ibm.swg.ba.cognos.tm1_prism_gs.2.0.0.doc/t_paw_create_process_parameters.html).

Improvements to the Rules Editor

A wide range of shortcut keys are now available in the Rules Editor. You can use these keys to edit statements, find and replace text, and navigate through statements. To see a full listing of shortcut key combinations directly in the Rules Editor, click then click Display shortcut keys.

2.0.23 - Feature updates, July 14, 2017

IBM Planning Analytics Workspace was refreshed on July 14, 2017 to include the following new features.

Conditional formatting for cells

Most financial analysis focuses on highlighting exceptions in rows or columns of data, and not the whole table. With conditional formatting, you can highlight specific values or cells based on a set of conditions that you select.

Note: You cannot add conditional formatting on an Apple iPad.

To find out more, see Conditional formats (https://www.ibm.com/support/knowledgecenter/SSD29G_2.0.0/com.ibm.swg.ba.cognos.tm1_prism_gs.2.0.0.doc/t_paw_conditional_formats.html).

Choose how values are displayed by formatting members in dimensions

You can change the format of members in dimensions. You can choose to display members in a general format, or in date, time, currency, percentages, in scientific notation, or accounting format. You can determine whether to display numbers with or without commas, you can determine how negative values are displayed, and you can define custom formats. To find out more, see Set the format of members (https://www.ibm.com/support/knowledgecenter/SSD29G_2.0.0/com.ibm.swg.ba.cognos.tm1_prism_gs.2.0.0.doc/c_paw_format_member.html).

Drill through to more detailed data

You can click a cell in a cube view and drill through to detailed data in another view to get more detail or information about the selected cell. You can then place both views in the same sheet. To find out more, see Drill through to detailed data (https://www.ibm.com/support/knowledgecenter/SSD29G_2.0.0/com.ibm.swg.ba.cognos.tm1_prism_gs.2.0.0.doc/t_paw_drillthrough.html).

Filter on members in the dimension editor

You can now filter on a search phrase in the dimension editor, and you can switch from filtering to highlighting a search phrase.
To find out more, see Find and filter on members in the dimension editor (https://www.ibm.com/support/knowledgecenter/SSD29G_2.0.0/com.ibm.swg.ba.cognos.tm1_prism_gs.2.0.0.doc/t_paw_view_members.html).

**Improvements to Lifecycle Management**

When you migrate an existing snapshot in Lifecycle Management, you can remove assets that are associated with a specific database from your cart when you validate your snapshot migration.

**Set TM1 database configuration parameters**

You can now set database configuration parameters directly in Planning Analytics Administration. These configuration parameters determine the behavior of your TM1 databases.

To find out more, see Set database configuration parameters (https://www.ibm.com/support/knowledgecenter/SSD29G_2.0.0/com.ibm.swg.ba.cognos.tm1_prism_gs.2.0.0.doc/t_paw_configure_database_server_admin_settings.html).

**Create, run, and edit TurboIntegrator processes**

Planning Analytics Workspace now includes a TurboIntegrator process editor and the ability to run processes directly from the content tree. You can use the process editor to create new processes and edit processes created in any other TM1 client.

To find out more, see TurboIntegrator processes (https://www.ibm.com/support/knowledgecenter/SSD29G_2.0.0/com.ibm.swg.ba.cognos.tm1_prism_gs.2.0.0.doc/c_paw_processes.html).

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**2.0.22 - Feature updates, June 23, 2017**

IBM Planning Analytics Workspace was refreshed on June 23, 2017 to include the following new features.

**Monitor and administer databases**

**Important:** Planning Analytics Monitoring is available for beta testing. Currently, only those customers who request access can try the Planning Analytics Monitoring functionality. To learn more, contact ronnie.rich@ca.ibm.com.

As an administrator, you can use Planning Analytics Monitoring to monitor the health of all your databases from a single dashboard. You can also view detailed reports of threads running within an individual database, set alert thresholds for various performance metrics, create email notifications of database status, and administer individual databases.

To learn more, see Monitor and administer databases (https://www.ibm.com/support/knowledgecenter/SSD29G_2.0.0/com.ibm.swg.ba.cognos.tm1_prism_gs.2.0.0.doc/c_paw_administer_servers.html).

**Migrate assets**

**Important:** Planning Analytics Lifecycle Management is available for beta testing. Currently, only those customers who request access can view the Lifecycle Management tab. To learn more, contact dcorbett@us.ibm.com.

If you are an administrator, you can migrate assets from a source environment (or tenant) in the cloud to a target environment (or tenant) in the cloud from the Lifecycle Management tab on the Administration page in IBM Planning Analytics Workspace. An asset can be a book or a view.

To learn more, see Migrate assets (https://www.ibm.com/support/knowledgecenter/SSD29G_2.0.0/com.ibm.swg.ba.cognos.tm1_prism_gs.2.0.0/doc/paw_asset_migration_overview.html).

**Add clickable links in chats**

When you add links to web pages in a chat, you can click the links to go to the web page. For example, type www.ibm.com into a chat, and the text becomes a link, colored blue. When you hover over the link with your mouse, it becomes underlined. You can then click the link to go to the web page. To find out more, see Collaborating with chat.
Improved attribute editing
You can show and hide the Attributes type (text, number, alias) in the dimension editor header. To find out more, see Create attributes.

2.0.21 - Feature updates, June 2, 2017
IBM Planning Analytics Workspace was refreshed on June 2, 2017 to include the following new features.

Support for Microsoft Windows Server 2016
IBM Planning Analytics Workspace local can now be installed on Microsoft Windows Server 2016. The installation package is available on Fix central.
To find out more, see Planning Analytics Workspace installation overview.

Reserving dimensions
When you are creating or editing a dimension, you can reserve the dimension to prevent other people from editing the dimension before your changes are complete. In the dimension editor, click beside the dimension tile, and select Reserve. To find out more, see Reserve a dimension.

Rolling back data entries
You can now roll back data entries. Rolling back data entries is useful if you enter data into a cell, which triggers data spreading across a range of cells and you realize that you made the wrong change. You can roll back to the previous data entry value, which reverses the data spreading. To find out more, see Roll back data entry.

Rules Editor enhancements
Enhancements to the Rules Editor allow you to quickly create accurate rules statements. You can drag and drop dimensions, hierarchies, and members directly into the Rules Editor from the content tree. You can also use auto-completion to find and insert object reference and rules function into the Rules Editor.
For details, see Use the Rules Editor.

2.0.20 - Feature updates, May 13, 2017
IBM Planning Analytics Workspace was refreshed on May 13, 2017 to include the following new feature.

Finding members in the dimension editor
Modelers can easily find members in the dimension editor. Previously, the search function just filtered down the list. Now, when you enter a phrase in the Find member field, the dimension member list remains open, and you can cycle through all of the members that contain the find term. To find out more, see Find or filter on members in the dimension editor.
IBM Planning Analytics Workspace was refreshed on April 29, 2017 to include the following new features.

### Showing dimension attributes in tables
You can now show dimension attributes in tables. Attributes help to explain or describe a member. This example shows car models with an attribute, CustomerTarget, displayed.

![Car Sales Table](https://www.ibm.com/support/knowledgecenter/SSD29G_2.0.0/com.ibm.swg.ba.cognos.tm1_prism_gs.2.0.0.doc/t_paw_show_attributes.html)

To find out more, see Show attributes (https://www.ibm.com/support/knowledgecenter/SSD29G_2.0.0/com.ibm.swg.ba.cognos.tm1_prism_gs.2.0.0.doc/t_paw_show_attributes.html).

### Improvements to the usability of the dimension editor
If there are no members in a dimension, visual indicators show you how to add members, and functions that you can't use are disabled.

![Dimension Editor](https://www.ibm.com/support/knowledgecenter/SSD29G_2.0.0/com.ibm.swg.ba.cognos.tm1_prism_gs.2.0.0.doc/t_paw_create_dimension.html)

To find out more, see Create a dimension (https://www.ibm.com/support/knowledgecenter/SSD29G_2.0.0/com.ibm.swg.ba.cognos.tm1_prism_gs.2.0.0.doc/t_paw_create_dimension.html).

### Online help enhancements for Planning Analytics Workspace on cloud
The integrated help system in Planning Analytics Workspace on cloud now includes collaborative and organizational capabilities. You can use the new features in the help system to:

- Comment on topics
- Rate topics
- View your topic and search history
• View the top topics and searches based on the actions of other users
• View the topics of most interest to other user that are similar to you
• Quickly access video content

To learn more, see Cloud-specific features of the integrated help system (https://www.ibm.com/support/knowledgecenter/SSD29G_2.0.0/com.ibm.swg.ba.cognos.tm1_prism_gs.2.0.0.doc/c_prism_help_features_cloud.html).

2.0.18 - Feature updates, April 8, 2017

IBM Planning Analytics Workspace was refreshed on April 08, 2017 to include the following new features.

• You can filter to show only the top or bottom members in a view, as described in Filter on top or bottom members (https://www.ibm.com/support/knowledgecenter/SSD29G_2.0.0/com.ibm.swg.ba.cognos.tm1_prism_gs.2.0.0.doc/t_paw_top_bottom.html).

• You can select a new, report table theme with row shading and default borders removed, and a transparent background. The transparent background means you can apply a background color to the whole view. You can also configure exploration features, such as disabling row and column heading indents, hiding expand and collapse icons, removing the color for read-only cells (colored grey), and calculated cells (colored green). To find out more, see Set cube view properties (https://www.ibm.com/support/knowledgecenter/SSD29G_2.0.0/com.ibm.swg.ba.cognos.tm1_prism_gs.2.0.0.doc/t_setting_cube_view_properties.html).

• You can create and edit cube rules from the content tree. For details, see Create and edit rules (https://www.ibm.com/support/knowledgecenter/SSD29G_2.0.0/com.ibm.swg.ba.cognos.tm1_prism_gs.2.0.0.doc/t_paw_create_and_edit_rules.html).

• A full range of data spreading options is available to simplify data entry. See Apply data spreading (https://www.ibm.com/support/knowledgecenter/SSD29G_2.0.0/com.ibm.swg.ba.cognos.tm1_prism_gs.2.0.0.doc/t_paw_using_data_spreading.html).

2.0.17 - Feature updates, March 18, 2017

IBM Planning Analytics Workspace was refreshed on March 18, 2017 to include the following new features.

• Modelers can add additional new members in the dimension editor by hitting enter after each new member is added. To find out more, see Add members to a dimension (https://www.ibm.com/support/knowledgecenter/SSD29G_2.0.0/com.ibm.swg.ba.cognos.tm1_prism_gs.2.0.0.doc/t_paw_add_members_to_dimension.html).

• Modelers can create a hierarchy by saving an existing hierarchy as described in Create a hierarchy (https://www.ibm.com/support/knowledgecenter/SSD29G_2.0.0/com.ibm.swg.ba.cognos.tm1_prism_gs.2.0.0.doc/t_paw_create_hierarchy.html).

• If you are an administrator, you can delete a cube directly from the content tree. To find out more, see Delete a cube (https://www.ibm.com/support/knowledgecenter/SSD29G_2.0.0/com.ibm.swg.ba.cognos.tm1_prism_gs.2.0.0.doc/t_paw_delete_cube.html).

2.0.16 - Feature updates, February 27, 2017

IBM Planning Analytics Workspace was refreshed on February 27, 2017 to include the following new features.

• You can filter for members in view dimension tiles, as described in Change the members in a view (https://www.ibm.com/support/knowledgecenter/SSD29G_2.0.0/com.ibm.swg.ba.cognos.tm1_prism_gs.2.0.0/doc/t_tm1_prism_changing_members_in_a_view.html).

• You can create cubes from the content tree, as described in Create a cube (https://www.ibm.com/support/knowledgecenter/SSD29G_2.0.0/com.ibm.swg.ba.cognos.tm1_prism_gs.2.0.0.doc/t_paw_create_cube.html).
2.0.15 - Feature updates, February 6, 2017

IBM Planning Analytics Workspace was refreshed on February 6, 2017 to include the following new features.

- You can set a Fill Color for cube views, as described in Set cube view properties (https://www.ibm.com/support/knowledgecenter/SSD29G_2.0.0/com.ibm.swg.ba.cognos.tm1_prism_gs.2.0.0.doc/t_setting_cube_view_properties.html).
- You can drag and drop members in a Dimension Editor. To find out more, see Drag and drop members (https://www.ibm.com/support/knowledgecenter/SSD29G_2.0.0/com.ibm.swg.ba.cognos.tm1_prism_gs.2.0.0.doc/t_paw_drag_and_drop.html).

2.0.14 - Feature updates, January 16, 2017

IBM Planning Analytics Workspace was refreshed on January 16, 2017 to include the following new feature.

- You can now Set your account avatar. The avatar is visible next to your user name on the dashboard and appears next to any messages you post in chats.

2.0.13 - Feature updates, December 14, 2016

Planning Analytics Workspace was refreshed on December 14, 2016 to include the following new or updated features.

The following items are changed in the Planning Analytics Workspace content tree:

When you right-click a Cube:

- Import into cube is removed

The following items are new in the Planning Analytics Workspace content tree:

If you are enabled with a modeler role, you can right-click Dimensions and open the Dimension Editor to perform the following task:

- Create dimension

You can right-click an existing dimension and open the Dimension Editor to perform the following tasks:

- Edit dimension
- Edit dimension in new tab
- Create hierarchy
- Delete dimension

Note: Creating multiple hierarchies in a dimension is disabled in Planning Analytics Workspace by default. You must set the EnableNewHierarchyCreation configuration parameter in the tm1s.cfg file to true to enable hierarchy creation in Planning Analytics Workspace. For more information, see Parameters in the tm1s.cfg File in the Planning Analytics Installation and Configuration documentation.

You can right-click an existing hierarchy and open the Dimension Editor to perform the following tasks:

- Edit hierarchy
- Edit hierarchy in new tab
- Delete Hierarchy

For more information, see Model in Planning Analytics Workspace (https://www.ibm.com/support/knowledgecenter/SSD29G_2.0.0/com.ibm.swg.ba.cognos.tm1_prism_gs.2.0.0.doc/c_paw_modeling.html)
2.0.12 - Feature updates, November 4, 2016

IBM Planning Analytics Workspace was refreshed on November 4, 2016 to include the following new feature.

- You can now access Planning Analytics Workspace from Apple iPad. For details on capabilities and limitations, see Accessing Planning Analytics Workspace from Apple iPad. (https://www.ibm.com/support/knowledgecenter/SSD29G_2.0.0/com.ibm.swg.ba.cognos.tm1_prismGs.2.0.0.doc/c_accessing_paw_from_a_mobile_device.html)

2.0.11 - Feature updates, September 30, 2016

IBM Planning Analytics Workspace was refreshed on September 30, 2016 to include the following new or updated features.

- Navigation button capabilities have been enhanced to allow navigation to a sheet in the current book, a sheet in a different book, or a URL. To learn more, see Navigation buttons. (https://www.ibm.com/support/knowledgecenter/SSD29G_2.0.0/com.ibm.swg.ba.cognos.tm1_prismGs.2.0.0.doc/t_adding_a_navigation_button_to_a_view.html).
- You can hide row and column headers in Explorations. To learn more, see Hide or column headers in a view. (https://www.ibm.com/support/knowledgecenter/SSD29G_2.0.0/com.ibm.swg.ba.cognos.tm1_prismGs.2.0.0.doc/t_hiding_row_column_headers.html).
Chapter 2. Get started

The IBM Planning Analytics Workspace software is accessed in the cloud and as part of the IBM Planning Analytics Local software on premises.

For Planning Analytics Workspace in the cloud, log in with the credentials that are provided by your administrator.

To install Planning Analytics Workspace locally, see Planning Analytics Workspace installation in the Planning Analytics Installation and Configuration documentation on IBM Knowledge Center (https://www.ibm.com/support/knowledgecenter/SSD29G_2.0.0/kc_gen/com.ibm.swg.ba.cognos.ipa.doc_getting_started_toc-gen2.html).

What you can do in Planning Analytics Workspace

Planning Analytics Workspace provides you with exciting ways to plan, create, and analyze your content.

Create books
You can create books with different sheets, and use different templates on each sheet. You can customize the formatting and layout of your books and sheets by adding logos, and applying formats and text styles.
You can include content from different cubes and servers in the same book.
You can share books and views with people.

Add IBM Cognos TM1 content
You can add content that is created in other TM1 applications, such as views and websheets. A websheet is a Microsoft Excel workbook with TM1 data that you can view in a web browser.

Create views
You can create views in Planning Analytics Workspace by using sample data or your own data. You can also create sets from dimensions to limit the number of members that are seen. Power users can use MDX expressions to create subsets.
You can save views and access them from the Welcome page, and from Collections.

Enter data
You can enter data by typing in editable cells. You can also use data-spreading shortcuts to speed up the data entry process.

Add visualizations (graphs)
You can create a number of different graphs from your data views. For example, you can create bar charts, heat maps, and scatter plots.

Analyze data
You can analyze data in views in a number of ways, such as by slicing and dicing the data to change context, by nesting dimensions, and by sorting and filtering on dimensions.

Model data
You can create models for your data by creating dimensions and hierarchies, nesting dimensions, and creating views with dimensions and hierarchies.

Work in sandboxes
You can work in sandboxes for views and websheets. You can plan and analyze in your own personal workspace without affecting live data on any of your TM1 servers.

Search for data by using natural language in the intent bar
You can search for data by using natural language capabilities. For example, you can type revenue by geography in the intent bar to modify the current view to show data that is organized by revenue and geography.
You can also search and add views to the sheet by typing view before your phrase or keyword. For example, type view price to find a view with price in the metadata. If one or more views are found, you see a preview. You can choose to add the view from the preview, or refine your search.
You can also search for data manually by using the tree.

Save views and visualizations for easy retrieval in Collections
You can collect a view or a visualization so that you can find and reuse the item in another sheet or book.

Bookmark items
You can bookmark items such as cubes, views, and sets, in the navigation tree for easy retrieval.
Use snap commands to perform tasks
Snap commands are simple commands that you can use to perform tasks. For example, to swap rows and columns, type swap or sw in the snap command box. To find members in dimensions that are in the context area, type select member_name or se member_name. You can search for set and level names, for example, type big markets. You can hide members, for example, type hide S Series.

Work in websheets
You can add websheets to books, and have websheets and views on the same sheet. You can export to PDF and to Microsoft Excel from websheets within Planning Analytics Workspace.

First steps
When you enter Planning Analytics Workspace, you see a Welcome page. The Welcome page contains books and views that are either shared with other people, or personal. You can also create and share books from the Welcome page.

The Welcome page
You can find the resources that are available to you from the Welcome page. To view shared assets, under Workspace, tap Shared. To view assets that you own and that are not shared with anyone, tap Personal.

You can search, sort, and filter assets on the Welcome page.

If you are an administrator, you can also see Users assets: you can see a folder for each user in your group.

Books, sheets, and websheets
A book is a canvas that you can put content on: TM1 views, charts and other visualizations, websheets, and other objects like shapes, images, or even videos.

A book contains sheets. You use sheets to organize your data. When you create a new book, you choose a dashboard style and template, depending on what you want to do.

Folders
You can create folders to organize your books. You can share folders and their contents with other users.

Opening a book or view
To open a book or view, tap the tile on the Welcome page.

Navigating between books and views
When you have one or more books or views open, you can navigate between them from the Welcome menu at the top center of your screen. You can also return to the Welcome page. The name of the menu changes depending on the context. If you are in a book or view, the title is the name of the book or view.
Logging off

You can log off by clicking your user name in the upper right of the browser and selecting Logout, or you can close the web browser window.

Saving

To save a book, click Save and then choose whether the book is Shared or Personal. If you save to Personal, by default, only you or the administrator can view the book. If you select Shared, choose the folder location.

You can name and save views. When you save a view, it is saved as a copy of the view in the book. The view is then treated as a separate object, which can be shared with other people.

Deleting books and views

You can delete books and views from the Welcome page by clicking on the tile, and then clicking Delete. You must have the correct permissions to delete a book or view.

Limitations

Be aware of the following limitation.

Cell coloring

There is no cell coloring to indicate transient data entry (that is, data that is not yet committed).

Accessing Planning Analytics Workspace from Apple iPad

You can access Planning Analytics Workspace from an Apple iPad. Other mobile devices are not currently supported in Planning Analytics Workspace.

When you log in to Planning Analytics Workspace from an iPad, you are always working in Consumer mode, regardless of your actual defined role assignment.

In Consumer mode you can:

• Open the Welcome page and view the folder structure
• Open existing views, books, and websheets
• Modify cell values
• Switch visualization types
• Interact with explorations and visualization (drill down, hide members, reorder dimension, and so on)
• Use selectors to set context for explorations and visualizations
• Participate in collaborative chats

In Consumer mode on a mobile device, you cannot:
- View or access the content tree
- Use or enable Edit mode
- Perform any administration tasks
- Save an existing view or book, or use save-as to create a copy of a view or book
- Create a view or book
- Open the Set Editor to modify existing sets or create new sets
- Create member calculations or summary calculations
- Share a book or view in any manner (download, email, or print)
- Delete or rename a book or view
- Access Watson Analytics
- Add a view to a collection

In addition, you cannot create conditional formatting on an iPad.

**Performance considerations**

When you open a view or websheet on an iPad, Planning Analytics Workspace initially loads and displays only the number of rows that fit on a single page. Depending on how the view is configured, this can be anywhere between 30 - 50 rows.

As you scroll through the view, Planning Analytics Workspace loads each subsequent page sequentially. This occurs even if you rapidly scroll through several pages without pausing for each page to be displayed. For example, if you are looking at a value on the first page of a view, and then scroll to page 8 of the view, pages 2 - 7 must be loaded before page 8 can be displayed. There is a slight delay as each page is loaded.

To maintain minimal load times, limit views that are accessed from iPads to 300 or fewer rows.

Additionally, you can improve performance by:

- Limiting the number of views on a single sheet (the best performance is achieved with a single view on a sheet)
- Using chart visualizations in place of explorations (grids) whenever practical
- Limiting the scope of synchronization between views to the lowest possible level

**Find information**

You can access the integrated help system from within the Planning Analytics Workspace application.

You can also view the complete set of Planning Analytics documentation on IBM Knowledge Center (https://www.ibm.com/support/knowledgecenter/SSD29G_2.0.0).

To see the help integrated in Planning Analytics Workspace, click Docs, and then click Docs.

*Note:* If you have accessibility requirements, you can view the documentation on IBM Knowledge Center. Click Accessible docs, and then click Accessible docs.

To navigate back to Planning Analytics Workspace, click Docs:
Then, click either Welcome, or the name of the book.

**Applicability of Planning Analytics Workspace documentation**

The documentation available through the integrated help system and on IBM Knowledge Center always reflects the most recent full capabilities of Planning Analytics Workspace on cloud.

In some instances, the current capabilities on cloud differ from the most recent IBM Planning Analytics Local update. This is because local updates are made available only after cloud deployment occurs. In this case, Planning Analytics Local customers might see documentation for features that are not yet available to them. Similarly, while Planning Analytics Workspace on cloud is refreshed on a regular cadence (currently every few weeks), Planning Analytics Local customers might choose to update their installation on a less frequent basis. This can also result in a difference between the features that are described in the documentation and the features that are available to a Planning Analytics Local customer.

Also, depending on the TM1 server version that a Planning Analytics Workspace cloud customer uses, some features that are documented might not be available to use or might not be visible in the user interface.

Finally, some features that are documented and available in Planning Analytics Workspace on a desktop browser might not be available on Apple iPad.

For details, please see Applicability of Planning Analytics Workspace documentation (https://www.ibm.com/support/knowledgecenter/SSD29G_2.0.0/com.ibm.swg.ba.cognos.tm1_prism_gs.2.0.0.doc/c_prism_applicability_documentation.html).

**Cloud-specific features of the integrated help system**

The integrated help system that is available with Planning Analytics Workspace on cloud contains some features that are not available with Planning Analytics Workspace Local.

You can perform these integrated help tasks only with Planning Analytics Workspace on cloud:

- After you perform a search, in addition to your search results, you can view other related results. A drop-down menu appears above the search results. You can select one of the following menu items:
  - Other people also search for
  - People like me searched for
  - Top topics
  - Top searches
  - My topic history
  - My search history
- You can rate a topic by selecting up to five stars. A rating scale is available for the current topic or for each topic in your search results. You can click the rating scale again to see how others rated the topic or to change your rating.
- You can leave a comment on a topic. Your user name is displayed above the comment. To delete a comment, click beside the comment.
**Note:** When you submit a comment, anyone who is logged into the Planning Analytics Workspace system can see it, including users from outside your organization. The IBM Planning Analytics team is monitoring comments and will respond where necessary.

- You can view the top five topics for your role. Move your cursor to the bottom of the help window. The top five topics appear as tiles that you can select.
Chapter 3. Work in books and views

Use books to contain related data in the form of views, websheets, scorecards, visualizations, graphics, videos, and embedded web pages.

Books and views

You can create an IBM Planning Analytics Workspace book to contain your data.

Procedure

1. In a web browser, go to the URL for Planning Analytics Workspace and log in with the credentials that you have been given.

2. Click **New** and then click **Book from template**.

3. Name your book with a meaningful name to make it easier to search for.

4. Select a workspace layout and template for the initial sheet in your book, then click **Create**.

   The default selection of a tabbed workspace with a freeform template is a good starting point. The choices of workspace layout are:
   
   **Single page**
   - Displays all of your data on one page.

   **Tabbed**
   - You can create separate tabs for different categories of information. For example, you can create separate tabs for sales by country, by region, and by total sales.

   You can choose from the following templates:

   **Freeform**
   - The Freeform template is one large area that is not divided into sections. Objects in this template can be positioned wherever you want, and they keep their size and position regardless of the screen size.

   **Other templates**
   - A number of defined templates that divide the sheet into separate sections are available. This kind of template uses relative positioning. Images adjust their size and position to fit the space they are added to, but views don’t change.

5. Alternatively, you can click **New** and then click **Book** to create a book without having to specify a template or layout. This approach is slightly faster, and when you choose this option, the new book is created with the freeform layout and the tabbed workspace.

6. You can choose themes and style options for the book. Click the **Properties** icon in the upper right of the screen to choose your options. To close the **Properties** pane, click the **Properties** icon again.

7. You can rename your book when you are in edit mode. Click **Menu** in the upper left of the screen, and select **Rename**.

8. Save your book by clicking and selecting whether the book is **Shared** or **Personal**. If you have folders, you can select which folder the book is saved in.

Results

When you first create a book, it is in edit mode. When a book is in edit mode, you can do the following:

- Add new content.
• Move and resize content.
• Make sure that any changes that you make to widget settings are kept. For example, if you are not in edit mode, some actions such as pivoting and slicing are not kept across sessions.
• Rename the book.
• Add new sheets to organize your data. Click 📑.

To move in and out of edit mode, click the pencil icon at the top of the screen. The pencil icon looks like this image in edit mode: 🍒, and like this image when you are not in edit mode: 🍒.

**Tip:** When you are in edit mode, the tree is visible in the workspace. When you are not in edit mode, the tree is hidden in the workspace.

**What to do next**
Next, add some content to your book. You can add sheets to organize your data, add existing views, and create new views. You can also add visualizations (charts), graphics, and text.

**Add a view to a book**
You can add a view to a sheet in your book, either by searching for the view in the intent bar or by using the tree.

Suppose that you want to look at prices and units that are sold in Europe during January. The data that you need is in the SData database in a cube called SalesCube.

**Procedure**
1. To add a view to a book, you must be in edit mode. You are in edit mode when the pencil icon at the upper left of the screen looks like this icon 🍒.
2. To add the view by searching:
   a. Type view price in the intent bar.
   b. Select a view to preview. When you find the view that you want, click Use.
3. To add the view from the tree, click the + sign next to the SData2 Server.
   a. Expand Cubes > SalesCube > Views.
   b. Drag the Price view onto the sheet.

**Tip:** You can position the view on the sheet by using the drag handle 🏼 in the upper left corner of the view.

**Note:**
When you open a view or websheet on an iPad, Planning Analytics Workspace initially loads and displays only the number of rows that fit on a single page. Depending on how the view is configured, you might see 30 - 50 rows.

As you scroll through the view, Planning Analytics Workspace loads each subsequent page sequentially. This occurs even if you rapidly scroll through several pages without pausing for each page to be displayed. For example, if you are looking at a value on the first page of a view, and then scroll to page 8 of the view, pages 2 - 7 must be loaded before page 8 can be displayed. There is a slight delay as each page is loaded.

To maintain minimal load times, limit views that are accessed from iPads to 300 or fewer rows.

**Create a view**
You can create a view at any time to perform ad-hoc analysis.

A view is automatically saved as a part of the book that you create it in. You can also save a view as a separate object with a name.
If you save the view as a separate object, the view becomes separate from the view in the book. You can open the view from the Welcome page, share the view, pin the view for easy retrieval, and reuse the view in other books.

**Note:**
When you open a view or websheet on an iPad, Planning Analytics Workspace initially loads and displays only the number of rows that fit on a single page. Depending on how the view is configured, you might see 30 - 50 rows.

As you scroll through the view, Planning Analytics Workspace loads each subsequent page sequentially. This occurs even if you rapidly scroll through several pages without pausing for each page to be displayed. For example, if you are looking at a value on the first page of a view, and then scroll to page 8 of the view, pages 2 - 7 must be loaded before page 8 can be displayed. There is a slight delay as each page is loaded.

To maintain minimal load times, limit views that are accessed from iPads to 300 or fewer rows.

**Procedure**

1. Right-click the cube that contains the data that you want to view and select **Add new view**. You must be in edit mode to do this.

   You are in edit mode when the pencil icon looks like this icon.

   The dimensions in the cube are added to the columns, rows, and to the context area. The last dimension in the cube is added to the columns, the second to last dimension is added to the rows, and all other dimensions are added to the context area.

2. You can also create a view by positioning columns and rows manually. In a book, click .

   The sheet displays a template to help you build your new view.

3. In the tree, open the cube that contains the data you want to view.

   You can create a view with dimensions, hierarchies, sets, levels, or individual members from the cube. For example, navigate to the SData server, and the SalesCube cube.

4. Navigate down into the cube until you find the dimension, hierarchy, set, level, or member that you want on the rows, then click and hold the item and drag it to the **Drop row item here** region, the **Drop column item here** region, and **Drop context item here** region.

   For example:
   a. Drag the model dimension to the **Drop row item here** region.
   b. Drag the month dimension to the **Drop column item here** region.
   c. In the region dimension, expand region, and in **Sets**, drag Europe to the **Drop context item here** region.

   **Tip:** You can move the focus of the tree to the cube that you are working in by clicking this button in the view.

5. You can put more than one item on any region in your view. When you drag an extra item to a region, a vertical bar indicates the position of the item.

   Any dimensions or other items that are in a dimension that you don't add to the view are placed on the bench . You can drag items from the bench to use in the view later.

   For example, click the and drag Variance to the Context region.

6. To save the view as a separate object with a name, click the view to display the toolbar, and click . Select **Save as** to specify a name.
The saved view becomes a separate object from the view in the book, and the view is placed on the Welcome page in a tile.

**Set cube view properties**

You can set properties that determine the appearance of a view, govern data refresh, define synchronization scope, and allow access to the Set Editor.

For example, if you want a view to have a report layout without shading and borders, you can select the report theme to apply this style. You can shrink the table contents to 80% of the original size, and you can choose to hide row or column headers.

This video shows you how you can format videos for reporting:

https://youtu.be/q4tkwxF1hfA

**Procedure**

1. Ensure that you are in edit mode. The pencil icon near the upper left of the browser looks like this when you are in edit mode:

   ![edit mode icon]

   2. Click anywhere on the cube view.

   3. Click the **Properties** icon.

   4. Set the properties for your cube view.

   **Table style**
   
   You can configure the following features:
   
   - Set the **Theme** for the table.
   - If available, you can reduce the size of the grid to 80% of the original size by selecting **Zoom 80%**.
   - You can show or hide row and column headers.

   **Exploration features**
   
   You can choose whether to display or hide the following features:
   
   - **Show +/-expand & collapse**. Clearing this option removes the +/- indicator so you can't see if a member can be collapsed or expanded.
   - **Indent row levels**. Clear to remove indents from the row headers.
   - **Indent column levels**. Clear to remove indents from the column.
   - **Color cells by data state**. If selected, read-only cells are colored grey, and calculated cells are colored green. Neither can be updated directly with data entry. Clear this option to remove color.

   **General style**
   
   Set the **Fill color**, **Border color**, and **Opacity** for the view.
   
   Fill color applies to the data grid for the simple table theme. If you select dark colors such as black, red, dark blue, the text is white. With a light fill color, the text is black. If you select the grey or the blue table themes, only the area of the data grid that is not occupied by cells has the fill color applied, because these themes are not transparent.

   **Data refresh**
   
   Enable the **Refresh after each data change** option to automatically refresh data when any edit is applied to the view. Disable the option to require an explicit refresh to update data values.

   **Synchronize**
   
   Set the level of synchronization you want for the view.

   **Set editor**
   
   Enable the **Allow access to Set Editor** option to allow users to access the Set Editor from the view. Disable the option to prevent access to the Set Editor. When you disable access to the Set Editor, users cannot open the Set Editor, but they can select from members of the current set.
Add pictures, videos, and web pages

You can add pictures, videos, and web pages to your Planning Analytics Workspace books. For example, you can add a company logo, and a video blog that explains results.

Before you begin
The objects that you add must be available from a URL. In a browser window, locate the objects, and copy the URL (address).

Note: You must have permission to use the objects that you add, and they must be available from an address beginning with HTTPS.

Procedure

1. In your Planning Analytics Workspace book, ensure that you are in Edit mode.
2. Click the image icon, the media icon, or the web page icon on the upper right of the screen.
3. Paste the URL into the appropriate field.
4. Click and drag the object into position on the sheet.
5. Resize the object by clicking it so that handles appear.

   To resize the object proportionally, drag this handle on the lower right of the object. Use the plain handles to resize the object freely. This handle rotates objects.
6. You can layer images with other images, shapes, text, and views by positioning the image where you want it and then changing the order of the image in relation to the other objects.
   For example, you might want to have text overlaying an image.
   a) Click the text box and position it where you want it over the text.
   b) If the image hides the text, click the image, and then click
   c) To position the image behind the text, change the order slider. The higher the number, the closer the object is to the top of the screen.

   For example, if you have an image, shape, and text, and you want the image at the back and the text at the front, set the order of the image to 1, the shape to 2, and the text to 3.
Add cell values to the canvas
You can add cell values to the canvas in a book. This is useful if you want to highlight a particular value in a view. If the cell value changes in the cube view, the cell value changes on the canvas.

Procedure

1. Ensure that you are in Edit mode.
2. Right-click the cell that you want to add and select **Add to canvas**.
   The value is added to the canvas as a widget that you can resize, format, and change the properties.
3. Resize the cell value by clicking it so that handles appear.
   To resize the object proportionally, drag this handle on the lower right of the object. Use the plain handles to resize the object freely. This handle rotates objects.
4. To change how the cell value looks, click the cell value to select it, then click the **Properties** icon.
   You can change the following properties:
   - **General**
     The fill color, the border color, and the opacity.
   - **Visualization details**
     The color palette, and the text color. You can also choose to show or hide the label, and to abbreviate numbers.

   **Tip:** You can layer the cell value with images, other shapes, text, and views by changing the order of the cell in relation to the other objects. Click the cell value, then click the order icon on the shortcut bar.
Add shapes and text

You can add shapes and text to your Planning Analytics Workspace books. You can use these in combination with pictures and color to make engaging dashboards.

About this task

Suppose you want to create a shape that looks like this:

The image consists of two shapes and some text.

Procedure

1. In the Planning Analytics Workspace book, in the sheet where you want to add a shape, ensure that you are in Edit mode.

2. Click the shapes icon on the upper right of the screen and click a shape to select it. Scroll through the shapes by clicking the arrows.

   Select this arrow shape and this page shape. It should look something like this:

3. Press Ctrl and click the shapes to select them, and then click the Properties icon.

4. Select the fill color, and then click the properties icon again to close it.

   The example uses light blue, with no border.

   **Tip:** You can change opacity. This is useful if you are layering shapes over images.

5. To make an image similar to the example, click each shape and resize them using the handles.

6. Add text by clicking the Text icon and then format the text by clicking the Properties icon with the text selected.

   **Tip:** You can layer shapes with images, other shapes, text, and views by changing the order of the shape in relation to the other objects. Click the object, then click the order icon on the shortcut bar.
Share books and views

You can share books and views. You can also download books and views as images, PDFs, or Microsoft PowerPoint files, and send these to people. You can also send links.

When you share books or views with people, they can see only the TM1 data that they have permission to see, as defined through TM1 security. For example, if a view has a business unit dimension that contains 10 European business units, but a user has rights to see the data from just the UK and Germany business units, only data for the UK and Germany are visible to that user.

When you set permissions for books and views, you can choose the level of access that users can have from one of the following options: view only, view and edit, or full control.

When you have the book or view open, you can share it in an email that contains a link to the book or an image of the book. If you save books in folders, you can share the folders.

Procedure

1. Click to share a book or view.

2. Click Email and type an email address, subject, and optionally a message, and then select the format that you want to share. Click Send:
   - **Link**: A link to the book or view is included in the email. The person that you send the link to must have access to the server where the book or view is located.
   - **Image**: An image in PNG format (Portable Network Graphics) is generated and attached to the email.
   - **PDF**: A document in Portable Document Format is generated and attached to the email.

3. Click Download to download the book or view as an image (PNG format), PDF or as a Microsoft PowerPoint. Select the format and click Download.
   For a book, you can select which sheets to download.

4. Click Link to get a link that you can give to another user.

Conditional formats

Most financial analysis focuses on highlighting exceptions in rows or columns of data, and not the whole table.

With conditional formatting, you can highlight specific values or cells, by changing what a cell looks like based on a set of conditions that you select. For example, you might want to highlight cells in S Series models that have higher sales than L Series models.

You can apply conditional formatting to both numeric and text values. You can also highlight empty cells by using conditional formatting.

**Note**: You cannot add conditional formatting on the Apple iPad.

Procedure

1. Ensure that you are in edit mode.

   The pencil icon near the upper left of the browser looks like this when you are in edit mode:  

   **Note**: You can add conditional formats when you are not in edit mode, but you can't save them.

2. Right-click on a row or column header and select **Conditional format**. In the **Conditional format** window, the member in the header that you selected is displayed. Change this selection by clicking the member name and selecting a new member.
   a) Choose one of the operators that you want to apply.
For numeric values, you can choose one of the following options:

- \(<\)  Less than
- \(>\)  Greater than
- \(=\)  Equal
- \(<\rightarrow\)  Less than or equal to
- \(\geq\)  Greater than or equal to
- \(\leq\)  Less than or equal to

For text values, you can select one of the following options:

- \(\text{Equals}\)
- \(\text{Contains}\)
- \(\text{Starts with}\)
- \(\text{Ends with}\)
- \(\text{Is empty}\)

b) Select whether you want to compare the first member to another member, to a value, or to text.
c) Select the member, enter the value, or enter the text that you want to compare the first member to. If you want to highlight empty text cells, leave this cell empty.

3. Click \(\text{Conditional format}\) and select what you want the cell to look like. You can select cell format (cell color and border color), text format (font style or color), and icon sets.

A preview of the formatting is shown.

For example:

<table>
<thead>
<tr>
<th>S Series</th>
<th>&gt;</th>
<th>member</th>
<th>L Series</th>
<th>100</th>
</tr>
</thead>
</table>

4. To add more conditional formats, click \(\text{Conditional format}\).

5. Reorder the conditional formats by using the arrow keys. The order of conditional formats determines which formatting is used when there are conflicts between formats.

   If you have a format on both a row and on a column, and there are conflicts between the formats, the column formatting applies. For example, suppose that you have a different color background in the row and column, the color selected for the column is used.

6. To clear formatting, right-click on the column heading and select \(\text{Conditional format}\). Select the formats that you want to delete, and click \(\text{Conditional format}\).

---

**Data entry**

You can enter data by typing in editable cells.

Read-only cells are colored grey, and calculated cells are colored green. Neither can be updated directly with data entry.

To enter dates, click in a date cell and select the date.

Consolidated cells are bold. You can spread data by typing a value in a consolidated cell.

If any descendent leaf cells have a non null-value, a proportional spread is applied.

If all descendant leaf cells are null, an equal leaves spread is applied. An equal leaves spread distributes a specified value equally across the lowest child members of a consolidated cell.
**Tip:** You can also use standard TM1 spreading shortcut keys. For example: $<>100 spreads the value 100 equally to all leaf cells of the consolidated cell, and replaces the existing leaf cell values.

These steps follow the Price view example, see “Add a view to a book” on page 18.

**Procedure**

1. Make sure you’re not in Edit mode by clicking ![Edit mode](image).
2. In the Price view, in the context area, click **actvsbud** and select Budget.

   Notice that the cells in the 1 Quarter column are in bold, so they are consolidated cells. Also, notice that some of the cells are shaded. These shaded cells can't be edited. For example, Sales is a calculated value based on Units and Price, so you can't edit values for Sales.
3. Click the cell at the intersection of Mar and Units.
4. Type **500**, and then click Enter.

   Notice that the value of Units under 1 Quarter reflects the change you made. Notice also that the Sales values for Mar and 1 Quarter have also been updated.
5. Click the cell at the intersection of Feb and Units, then type **2K**. 2K is a data entry shortcut for the value 2000. You can use all the shortcuts described in “Data spreading methods and data entry shortcuts” on page 135.
6. Right-click the cell at the intersection of Jan and Units, then select **Hold and release > Hold**. This places a hold on the cell, excluding it from any spreading actions. You can still edit the cell directly. Two vertical bars indicate a hold is active on a cell ![holdIndicator](image).
7. Type $>700 in the cell at the intersection of 1 Quarter and Units.

   Notice that 700 is evenly spread by placing the value 350 in the Feb and March children of 1 Quarter, but the value of Jan remains unchanged.
8. Right-click the cell at the intersection of 1 Quarter and Variable costs, then select **Hold and release > Hold**.

   When you place a hold on a consolidated cell, the consolidated value remains constant when you change any of the children. When a consolidation hold is in place and you change the value of a child, proportional spreading is automatically applied to the remaining children so that the consolidated value remains unchanged.
9. Type **2000** in the cell at the intersection of Mar and Variable Costs.

   Notice that 1 Quarter remains unchanged, while Jan and Feb are updated to keep the consolidated value valid.
10. Right-click any cell, then select **Hold and release > Release all holds**. This removes all holds in the view. You can also right-click a cell with an active hold, then select **Hold and release > Release hold** to release a specific hold.

**Copy and paste**

You can cut, copy, and paste values between views and websheets in Planning Analytics Workspace. You can also paste values from external applications, such as Microsoft Excel.

**User interface**

Support for the right-click user interface varies by browser. Some browsers display cut, copy, and paste options when you right-click a cell or range of cells in Planning Analytics Workspace; others do not. However, all browsers support keyboard shortcuts:

- **CTRL+x** - cut
- **CTRL+c** - copy
- **CTRL+v** - paste

**Paste behavior**

When you paste to a single cell, the contents of the clipboard are pasted with the selected cell as the initial insertion point, and the paste operation expands to other cells as required.
When you paste to a selected range of cells, and that range is smaller than contents of the clipboard, Planning Analytics Workspace notifies you that the paste operation will modify cells beyond the selected range. You have the option of accepting or canceling the paste operation.

There is a 60,000 cell limit for pasting into the cube viewer. An attempt to paste more than 60,000 cells results in an error.

**Other considerations**

Planning Analytics Workspace is a browser-based application and uses the browser locale setting. Excel is a Microsoft Windows application, which uses the language setting in Windows and copies data to the clipboard using the locale-specific decimal separator. When copying data from Excel and pasting to Planning Analytics Workspace, you must use the same decimal locale separator in both applications. The locales in your browser and Windows must match.

**Paste values to a mixed range of leaves and consolidated cells**

You can paste values to leaves and consolidated levels in a view, if the paste special feature is enabled.

The paste special is not available by default. It is available on request only, and replaces the standard paste functionality.

**How paste special works**

Cells that contain pasted values have the same values as the pasted values; they do not change. The values in leaves that are not pasted change to account for the distribution of the values.

Leaves are pasted first, and each cell is held after the update. Then, cells at the next level up (the first-level consolidation) are pasted to, and they too are held, and so on through the levels.

**Apply data spreading**

IBM Planning Analytics Workspace provides a variety of pre-defined data spreading methods that you can use to distribute numeric data to cells in a cube view. For example, you can use data spreading to evenly distribute a value across a range of cells or to increment all values in a range of cells by a desired percentage.

**About this task**

When you use data spreading, there are several general steps to follow, which are applicable to all spreading methods.

**Step 1 - Select a cell or range from which you want to initiate data spreading:** You can initiate spreading from a single cell, a single linear range of cells, or a single rectangular range of cells. You cannot initiate spreading from a non-contiguous range of cells, nor can you spread data across multiple individually selected cells in a view.

**Step 2 - Select a data spreading method:** After you select the cell or range of cells from which you want to initiate data spreading, you can select a data spreading method. The Spread Data menu is dynamic; it displays only the methods that are valid for the cell or range from which you initiate spreading. For instance, the Relative Proportional Spread, Relative Percent Adjustment, Repeat Leaves, and Equal Spread Leaves methods are not valid for leaf cells. When you initiate spreading from a leaf cell, those data spreading method options appear dimmed on the Spread Data menu, indicating that they are unavailable.

**Step 3 - Specify required values:** With most spreading methods, you specify only the value you want to spread. However, a few spreading methods require additional values. For example, with the Straight Line method, you specify both a Start Value and an End Value. With the Relative Proportional Spread and Relative Percent Adjustment methods, you must identify a reference cell for the spreading operation.

**Step 4 - Select the directions to extend spreading:** If you initiate spreading from a single cell, you must specify the direction(s) to extend spreading relative to the point of insertion. The cell from which you initiate data spreading is always included in the spread. Some data spreading methods allow you to extend spreading in multiple directions. These methods display Direction options as check boxes, of which you can choose any combination. When you initiate spreading from a selected range of cells, the Direction options are disabled and spreading is applied to the selected range.

**Step 5 - Select an Update action:** The Update action indicates whether spread values should replace, be added to, or subtracted from existing cell values.
Procedure

1. Right-click the cell or range of cells from which you want to initiate data spreading.
2. Click **Spread data**.
3. Select a data spreading method.
4. Specify the required values and options.
5. Click **Apply**.

See the following links for complete details on each data spreading method.

- Proportional
- Equal spread
- Repeat
- Clear
- Percent change
- Repeat leaves
- Equal leaves
- Straight line
- Growth percent
- Relative proportional
- Relative percent adjustment

You can also use shortcuts entered directly in cells to apply data spreading.

Hide rows and columns

You can hide rows and columns that are not needed in a view.

Procedure

1. Select the columns or rows that you want to hide, right-click, and select **Hide**.
2. Instead of hiding a member, you can select rows or columns that you want to keep, right-click, and select **Keep** or use the keep snap command. All other rows or columns are hidden.
3. To show columns or rows that are hidden, right-click and select **Unhide all**, or use the unhide snap command from the shortcut toolbar.

For example, type `hide US, Feb-2004` in the snap command bar. See “Snap commands” on page 55.

Make asymmetric selections on rows and columns

You can make asymmetric selections on rows and columns.

Suppose you are looking at a view of sales, and you want to see the budget for the fourth quarter. Alongside the budget, you want to see actuals for the first, second, and third quarters. You can do this by making an asymmetric selection.

The following scenario uses the SData2 server.

Procedure

1. In a new book, go to the SData2 server, expand **Cubes > SalesCube > Views**, and drag the **Default** view onto the sheet.
2. Drag the `actvsbud` tile from the Context and drop it in front of the Month tile on Columns so that it is nested:

3. Click the month tile and click Levels, level001.

   You can now see the quarters.
4. Right-click the Variance heading, and click **Hide**.
You can now see the Actual and Budget for the four quarters.

5. Under the Actual heading, click 4 Quarter, then right-click and select **Keep**.

Notice that the columns for 1 Quarter, 2 Quarter, and 3 Quarter are hidden for both Actual and Budget.

You don't want this, so click **Undo**.

6. To make an asymmetric selection on columns, click the **Targeted column selection** icon.

**Note:** To make an asymmetric selection on rows, click the **Targeted row selection** icon.

7. Under the Budget heading, click 4 Quarter, then right-click and select **Keep**.

You can now see your budget for 4 Quarter, and your actuals for 1 Quarter, 2 Quarter, 3 Quarter, and 4 Quarter.

**Drill down**

You can drill down on a consolidated member in a view to view the members of the consolidation and to hide other members by double-clicking the member.

You can also drill down on members by using snap commands from the shortcut toolbar. For example, type **Drill Georgia** in the snap command bar. See "Snap commands" on page 55.
Procedure
1. To drill up to next level, right-click and select **Drill up**
2. To remove the drills, right-click and select **View all**, or use the drill reset snap command.

Drill through to detailed data
You can click a cell in a cube view and drill through to detailed data in another view to get more detail or information about the selected cell. You can then place both views in the same sheet.

The drill through view can either be a cube view, or an extract from a relational database. The view must be defined in IBM TM1 Architect or IBM Cognos TM1 Performance Modeler. For more information, see IBM Cognos TM1 Developer guide, or IBM Cognos TM1 Performance Modeler guide.

**Note:** To successfully drill through to an ODBC source, your administrator must **create and configure an IBM Secure Gateway**.

Procedure
1. To add a drill through view to a book, you must be in edit mode. You are in edit mode when the pencil icon at the upper left of the screen looks like this icon.
   ![Pencil Icon](image)
   You can preview a drill through view when not in edit mode.
2. Right-click the cell that you want to drill through from, and select **Drill through**.
   The drill through targets are listed.
3. Select the drill through target that you want to see.
   The drill through view opens in a separate view that you can move on the sheet so you can see it next to your original view.
4. To add the view to the sheet, click **Add to current sheet**. Click **Cancel** to close the view.
5. To see which cube and TM1 database the view comes from, hover over this button in the view.

Sort rows and columns
You can sort labels or values in ascending or descending order. You can choose to sort by hierarchy, or to sort breaking the hierarchy.

You can sort either from the menu, or by using snap commands, see “Snap commands” on page 55.

Procedure
1. To sort by label, right-click either the row selector, or the column selector, and select the sort option.
2. To sort by value, right-click in the row or column and select the sort option.
3. To sort values within a hierarchy, right-click on the hierarchy label, select **Sort hierarchical**, then choose your option.

Show and hide totals
You can show and hide totals in a view, and choose whether totals are leading or trailing.

You can manage totals either from the row or column menu, from the Set Editor, or by using the **totals** snap command. To learn more, see “Snap commands” on page 55.
Procedure

1. Right-click either the row selector, or the column selector, and select one of the **Show totals** options.

2. When you edit a set, you can click the **Show Leading/Show Trailing** icon \( \sum \) on the Set Editor to toggle the position of totals.

**Filter on top or bottom members**

You can filter to show only the top or bottom members in a view.

You can see a video that shows how to do this:

https://youtu.be/nDCena5UN2E

You might want to show the top three products by territory where the products are different for each territory. You can select how many members to show, and whether to base the sort on the member value, the percentile, or by sum.

**Procedure**

1. Right-click, or tap and hold the row or column header, and select **Top or bottom filter**.

2. Select whether you want to show top or bottom values.

3. Type the value that you want to filter on. The value depends on whether you are filtering on members, percentages, or the sum.

   - **Members**: Enter a number of top or bottom results. For example, you can type 50 to display the top 50 customers by revenue.
   - **Percent**: Enter a percentage of top or bottom results. For example, you can type 10 to display the customers who contribute to the top 10% of revenue.
   - **Sum**: Enter a number up to which your top or bottom results will sum. For example, you can type 10000000 to display the customers who contribute to the first 10 million dollars of revenue.

4. Select either **Members**, **Percent**, or **Sum**.

5. Click or tap **Apply**.

6. To clear the sort, right-click, or tap and hold the row or column header, and select **Clear filter**.

**Suppress zeros**

You can hide rows and columns in a view that contain only zeros.

You can suppress zeros in a view from the shortcut bar or by using the zero snap command. To learn more, see “Snap commands” on page 55.

**Procedure**

1. Click anywhere in the view. The shortcut bar appears.

2. Click \( \mathcal{Q} \) and choose either rows or columns.

**Expand levels**

You can expand levels in a hierarchy to a specific depth.

You can expand levels manually by clicking \( \mathcal{Q} \), by selecting a specific level from the menu, or by using the level snap command. To learn more, see “Snap commands” on page 55.
Procedure

1. To select a specific level to expand from the menu, right-click the member in the row or column that you want to expand.
   
   A member that can be expanded has this icon: 📋

2. Click **Expand to level**, then select the level.

**Display cell values as percentages**

You can change the way values are displayed so that values are displayed as percentages of the total.

Procedure

1. Right-click in a cell, and select **Show cell value as**.

2. Select one of the following options:

   **% row total**
   
   Displays all the values in each row as a percentage of the total for the row.

   **% column total**
   
   Displays all the values in each column as a percentage of the total for the column.

   **% grand total**
   
   Displays values as a percentage of the total of all the values or data points in the report.

   **Advanced - % parent row total**
   
   Displays the values in each row as a percentage of the parent.

   **Advanced - % parent column total**
   
   Displays the values in each column as a percentage of the parent

   The cells that display a percentage are shaded. This shading indicates that the values in these cells are calculated.

3. To return to the actual cell values, in the **Show cell value** window, select **As-is**, or click 🔳.

**Refresh data**

There are several options for refreshing data in Planning Analytics Workspace to make sure that you are always working with the most recent data in a collaborative environment.

On the dashboard, click ⏲️, then click **Reload book** to rebuild and refresh all views and websheets across all sheets in the current book.

To refresh all items on the current sheet, click ⏪️ on the main toolbar.

To refresh an individual view, click anywhere in the view, then click ⏪️.

You can also set a view to refresh automatically after each data change. Click the view, then click ⏪️ and select the **Refresh after each data change** option.

To refresh the navigation tree and ensure that you see the most recent views and other objects that are available to you, click ⏲️ at the top of the navigation tree. When you refresh the navigation tree, the tree collapses to the server level.

**Tip:** If you frequently work in an area of the navigation tree, you can bookmark the location so that you can quickly return to it after a refresh. For more information, see “Bookmark items” on page 59.
Rollback data entry

You can roll back data entries. Rolling back data entries is useful if you enter data into a cell, which triggers data spreading across a range of cells and you realize that you made the wrong change.

Rollback data entry does not undo any changes that are made to the book, such as swapping rows and columns. To undo book changes, click 👀.

Procedure

To roll back a data entry, click ⬅️.

Rollback undoes the last data entry that you made. To undo previous data entries, keep clicking ⬅️. The most recent entries are rolled back first. You can't redo a data entry rollback.

Note:

Sometimes you might not be able to roll back changes. For example, if you commit a sandbox, you can't roll back data entries. Another reason might be that the transaction log for the TM1 server is not enabled. Contact your TM1 administrator for help.

The transaction log is a record of everything that happens on the TM1 server. The log exists up until a Save all action is performed on the TM1 server. You can roll back any data entries that are recorded by the transaction log.

Calculations

You can add calculations to a view to enhance your analysis.

Calculations are saved as part of the view in the Planning Analytics Workspace content store.

You can create two types of calculations:

- **Member calculations** apply to selected members on a row or column.
- **Summary calculations** apply to all visible leaf members and unexpanded consolidated members on a row or column.

Add a summary calculation to a view

A summary calculation applies to all leaf members and all unexpanded consolidated members that are visible on a row or column. The calculation updates dynamically as you change the members visible in the view, by drilling down or rolling up consolidations, or by changing the set used in the view.

About this task

You must be in the Exploration visualization type to create a calculation. If you are using any other type of visualization, click the visualization, then click 📊 on the shortcut bar and pick Exploration.

This video shows you how to add a summary calculation to a view.

https://youtu.be/mWB4gglu9_o

Procedure

1. In a desktop browser, right-click a row or column label.

   On a mobile device, tap a row or column label, then tap 📊.

2. Click Calculations, then Summarize All.
3. Optionally, enter a name for the calculation. This is the name that will appear as a row or column label in your view. If you don't enter a name, Planning Analytics Workspace assigns a name that indicates the calculation being performed.

4. Click the calculation you want to create.

5. Click OK.

Results

This example shows the result of applying the Maximum and Sum calculations to a view that contains a combination of leaf members, expanded consolidated members, and unexpanded consolidated members.

Here, Europe and Benelux are expanded consolidated members. The values for these members are excluded from the summary calculations.

Scandinavia is an unexpanded consolidated member, so its value is included in the summary calculation, as are the leaf members Belgium, Luxemburg, and Netherlands.

The Maximum calculation for Year returns 1808, the value for Scandinavia. Though both 46821 (Europe) and 2807 (Benelux) are greater than 1808, these values are excluded from the calculation because they are expanded consolidations.

Similarly, the Sum calculation for Year returns 4615, which is the sum of Scandinavia + Belgium + Luxemburg + Netherlands. $(1808 + 1270 + 128 + 1409 = 4615)$ Both Europe and Benelux, the expanded consolidated members, are excluded from the calculation.

![Table of calculations](image)

### Add a member calculation to a view

Member calculations apply to one or more members on either the row or column axis of a view.

#### About this task

You must be in the Exploration visualization type to create a calculation. If you are using any other type of visualization, click the visualization, then click the shortcut bar and pick Exploration.

The calculations available vary according to the number of members selected. If you are using a desktop browser, you can select one or multiple members for a calculation. On a mobile device, you can select a single member for a calculation.

If a single member is selected, you can choose from the following calculations.

<table>
<thead>
<tr>
<th>Calculation name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rank</td>
<td>Ranks the values of the selected member. Rank 1 is the highest value. Rank is applied to the values visible in the view. If you drill down or roll up consolidations in the view, or if you modify the set used in the view, rankings change to reflect the ordering of the values that are visible in the view. If you attempt to rank a mixture of string and numeric values, the string values are assigned a rank equivalent to a NULL numeric value. String values will always be ranked below any numeric values.</td>
</tr>
<tr>
<td>Absolute value</td>
<td>Displays the absolute value for the selected member.</td>
</tr>
</tbody>
</table>
### Table 1: Single member calculation options (continued)

<table>
<thead>
<tr>
<th>Calculation name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>% of total</td>
<td>Displays the member value expressed as a percentage of the root level consolidation (total).</td>
</tr>
<tr>
<td>% of parent</td>
<td>Displays the member value expressed as a percentage of its immediate parent.</td>
</tr>
<tr>
<td>Member Name +</td>
<td>Enter a numeric value in the entry box. Displays the sum of the member value and the specified numeric value.</td>
</tr>
<tr>
<td>Member Name -</td>
<td>Enter a numeric value in the entry box. Displays the difference of the member value minus the specified numeric value. You can click to reverse the order of the values, subtracting the member value from the specified numeric value.</td>
</tr>
<tr>
<td>Member Name /</td>
<td>Enter a numeric value in the entry box. Displays the quotient of the member value divided by the specified numeric value. You can click to reverse the order of the values, dividing the specified numeric value by the member value.</td>
</tr>
<tr>
<td>Member Name *</td>
<td>Enter a numeric value in the entry box. Displays the product of the member value and the specified numeric value.</td>
</tr>
</tbody>
</table>

If two members are selected, you can choose from these calculations.

### Table 2: Two members calculation options

<table>
<thead>
<tr>
<th>Calculation name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average</td>
<td>Displays the average of the two member values.</td>
</tr>
<tr>
<td>Minimum</td>
<td>Displays the smaller of the two member values.</td>
</tr>
<tr>
<td>Maximum</td>
<td>Displays the larger of the two member values.</td>
</tr>
<tr>
<td>Median</td>
<td>Displays the median of the two member values.</td>
</tr>
<tr>
<td>Member1 * Member2</td>
<td>Displays the product of Member 1 multiplied by Member2.</td>
</tr>
<tr>
<td>Member1+ Member2</td>
<td>Displays the sum of Member1 and Member2.</td>
</tr>
<tr>
<td>Member1 - Member2</td>
<td>Displays the difference of Member1 minus Member2. You can click to reverse the order of the values, subtracting Member1 from Member2.</td>
</tr>
<tr>
<td>Member1 / Member2</td>
<td>Displays the quotient of the Member1 divided by Member2. You can click to reverse the order of the values, dividing Member2 by Member1.</td>
</tr>
<tr>
<td>Member1 % change Member2</td>
<td>Displays the percent change from Member1 to Member2. You can click to reverse the order of the values, displaying the percent change from Member2 to Member1.</td>
</tr>
<tr>
<td>Member1 % of Member2</td>
<td>Displays the value of Member1 expressed as a percentage of Member2. You can click to reverse the order of the values, displaying the value of Member2 as a percentage of Member1.</td>
</tr>
</tbody>
</table>
If three or more members are selected, you can choose from these calculations.

<table>
<thead>
<tr>
<th>Calculation name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average</td>
<td>Displays the average all selected member values.</td>
</tr>
<tr>
<td>Minimum</td>
<td>Displays the smallest all selected member values.</td>
</tr>
<tr>
<td>Maximum</td>
<td>Displays the largest of all selected member values.</td>
</tr>
<tr>
<td>Median</td>
<td>Displays the median of all selected member values.</td>
</tr>
<tr>
<td>Sum</td>
<td>Displays the sum of all selected member values.</td>
</tr>
</tbody>
</table>

**Procedure**

1. In a desktop browser, right-click the row or column label of the member for which you want to create a calculation. To create a calculation on multiple members, use CTRL+click or SHIFT+click to select the member labels, and then right-click on one of the selected member labels.

   On a mobile device, click the row or column label, then click 📊.

2. Click **Calculations**, then **Create**.

3. Optionally, enter a name for the calculation. This is the name that will appear as a row or column label in your view. If you don’t enter a name, Planning Analytics Workspace assigns a name that indicates the calculation being performed and the member(s) to which the calculation applies.

4. Click the calculation you want to create.

5. If you are creating an arithmetic calculation on a single member, enter the required numeric value.

6. Click **OK**.

**Rename a calculation**

Though you can assign a name when you create a calculation, you can change the name of an existing calculation.

**Before you begin**

You must be in the Exploration visualization type to rename a calculation. If you are using any other type of visualization, click the visualization, then click 📊 on the shortcut bar and pick **Exploration**.

**Procedure**

1. Right-click the row or column label of the calculation you want to rename. On a mobile device, click the row or column label, then click 📊.

2. Click **Calculations**, then **Rename**.

3. Enter a new name for the calculation.

4. Click **OK**.
Delete a calculation

You can delete one or more calculations from the rows or columns of a view.

Before you begin

You must be in the Exploration visualization type to delete calculations. If you are using any other type of visualization, click the visualization, then click on the shortcut bar and pick Exploration.

Procedure

1. Right-click the row or column label of the calculation you want to delete. On a mobile device, click the row or column label, then click . If you are using a desktop browser, you can delete multiple calculations on a row or column simultaneously. CTRL-click or SHIFT-click the labels to select the calculations, then right-click one of the selected labels.

2. Click Calculations, then Remove.

Finding data

There are a number of ways that you can find data in IBM Planning Analytics Workspace.

Find and add data using the intent bar

When you are working in a book in edit mode, you can find views and data and add them to a sheet by typing phrases or keywords in the intent bar.

What do you want to assemble? For example, Revenue by Year

If you type view before your search phrase, only TM1 views are searched. Otherwise all metadata on the TM1 servers is searched.

Type revenue by geography. If just one match to a view is found, it is added to the sheet. If more than one match is found, or the match is not a view, you can see a preview of all data that matches the phrase and choose what to add.

For example, you can use the intent bar to create a view that contains specific dimensions, as shown in this video.

https://youtu.be/tVdveIQ61ec

Find data with the tree

The tree shows all the TM1 servers that are configured for Planning Analytics Workspace, and the available cubes, dimensions, hierarchies, sets, levels, views, and members.

You can see the tree when a book is in edit mode. When the book is not in edit mode, it is hidden.

If the tree is hidden, click the plus icon in the vertical bar: .

To hide the tree, click the minus icon .

You can configure the number of levels that you see in the tree:

Click and change the Navigation depth to the level you want.

If you have limited the number of levels you see, and you want to see hidden levels in the tree, click the up arrow:
Displaying data in a view

You can control the way data appears in a view by moving dimensions to different positions in a view, changing the display from a table to a visualization, or modifying the set displayed for any dimension.

Change the display of data in a view

You can change the position of dimensions in a view or change the presentation from an exploration (table) to a visualization.

Dimensions can appear in several positions in a view: on the row axis, on the column axis, or as context.

Additionally, dimensions that are used as context can be visible in the view or can be placed on the bench to save space and to simplify the appearance of the view.

Procedure

1. Create a book.
2. Navigate to the GO_New_stores server, Base Sales Forecast cube in the tree, and add the All view to the book. This view has one dimension on the row axis, one dimension on the column axis, and four dimensions as context.
3. Click and hold the Retailers dimension in the context area, then drop it next to the Month column dimension. You can drag a dimension from any location in a view to a different location. When you drop one dimension directly on top of another dimension, the positions of the dimensions in the view are switched. When you drop one dimension next to another dimension, both dimensions appear in the same location in the view.
4. Click anywhere on the view. The shortcut bar appears. The actions available on the shortcut bar vary depending on the mode you are in.
5. Click to swap the position of the row and column dimensions.
   Tip: You can also type sw in the snap command box.
6. Click in a cell, click , then select a visualization.
Hide row or column headers in a view
When a view is present as an Exploration (table), you can hide row or column headers in the view. This is useful if you want to display an Exploration while minimizing its size within a sheet.

About this task
Hiding row and column headers applies only to Explorations. For other visualization types, you can set visualization properties to enable or disable the display of axis labels.

Procedure
1. Ensure that you are in edit mode. The pencil icon near the upper left of the browser looks like this when you are in edit mode:
2. Click anywhere on the Exploration.
3. Click the Properties icon, then Table style.
4. Select one or both of the Hide options to hide headers in the view.
5. Clear one or both of the Hide options to display headers in the view.

Visualizations
You can use any of the visualizations described here to present data in Planning Analytics Workspace.

To change the way data is presented, click a view, then click the Change visualization icon on the shortcut bar.

The visualizations available vary according to the dimensionality and configuration of your view. For example, the map visualization is available only when a view includes a defined geography dimension. Similarly, a pie visualization is available only when a view contains either a single row dimension or a single column dimension. When specific dimensionality or configuration requirements exist, they are noted as display requirements in the description of the visualization.

The Change visualization list contains only the visualizations that can be rendered with your current view dimensionality and configuration

Area
An area visualization emphasizes the magnitude of change over time. Because an area visualization stacks the results for each column or item, the total of all results is easily seen. For example, an area visualization is excellent for looking at revenue over time across several products.

Bar
A bar visualization uses horizontal bars to show the values in individual groups or categories. The length of a bar indicates each value. Bar visualizations are useful for comparing values. For example, a bar visualization might show the number of males and females who purchased a specific item. The length of one bar would show the number of males, and the length of the other bar would show the number of females. By checking the length of the bars, you can easily compare the values in the groups or categories.

Bubble
Display requirements: a defined measures dimension as either a row or column dimension, with three members visible.
A bubble visualization shows relationships among columns that contain numeric values, such as revenue and profit. The bubbles are in different sizes and colors. The x-axis represents one measure, the y-axis represents another measure, and the size of the bubbles represents the third measure. For example, a bubble visualization shows cost in the x-axis, revenue in the y-axis, and quantity sold for all products. There is one bubble for each product. The location of the bubble in the visualization indicates that product's cost and revenue. The size of the bubble indicates the quantity sold.
Because a bubble visualization uses area to represent numbers, it is best for positive values. If your data set includes negative values, they will be shown in a different color: a circle for 100 and a circle for -100 will both be
the same size, but 100 might be blue and -100 might be red. If your data set has many negative numbers, consider using a bar visualization.

**Column**
A column visualization uses vertical bars to show the values in individual groups or categories. The height of a bar indicates each value. Column visualizations are useful for comparing values. For example, a column visualization might show the number of car models sold in a region. The height of one bar would show the number of one car model, and the height of another bar would show the number of a different model. By checking the height of the bars, you can easily compare the values in the groups or categories.

**Exploration**
Display requirements: at least one row dimension and at least one column dimension
An Exploration shows data in rows and columns using a grid-style layout.

**Heat**
A heat map visualization shows the relationship between columns, using color and intensity.

**History**
Display requirements: a defined metric dimension and a time dimension.
A history visualization shows a column chart of actual data for a metric, with a line for target and tolerance indicators. A slider control at the bottom of the visualization lets you determine the time range displayed in the visualization. When you double-click a time bar in a history visualization, the selected time is used as context in other views or visualization on the current dashboard.

**Line**
A line visualization shows trends over time.
A line visualization can compare trends and cycles, infer relationships between variables, or show how a single variable is performing over time. For an effective line visualization, the x-axis should show time, such as years, quarters, months, or days. If the x-axis shows something else, such as individual countries, use a bar visualization instead.

**Line and column**
Display requirements: a defined measures dimension with two members.
A line and column visualization shows values for two measures, with one measure represented by columns and the other measure represented with a line.

**List**
A list visualization displays values in a list ordered first by row members, and then by column members.

**Map**
Display requirements: a defined geography dimension.
A map visualization shows patterns in your data by geography. Your data set must contain geographical data, such as countries, states, or provinces. To determine if a dimension is mappable, Planning Analytics Workspace analyzes a sample of 2000 values in the geography dimension column, looking for recognizable place names. If 80% or more of the members in the geography dimension are recognized as map values, a map is generated.

For example, you have four countries in your geography dimension: Brazil, China, India, and Russia. The misspelling of India means that only 75% of the values are recognizable place names and you cannot generate a map.

For full details on the languages and geographic entities supported in map visualizations, see “Map reference info” on page 149.

**History**
Display requirements: a defined metric dimension and a time dimension.
A history visualization shows a column chart of actual data for a metric, with a line for target and tolerance indicators. A slider control at the bottom of the visualization lets you determine the time range displayed in the visualization.

**Packed bubble**
A packed bubble visualization shows relationships among columns that contain numeric values, such as revenue. It’s a good choice when you want to display a large amount of data in a small space. The bubbles are in different sizes and colors.

Because a packed bubble visualization uses area to represent numbers, it is best for positive values. If your data includes negative values, they will be shown in a different color: a circle for 100 and a circle for -100 will both be the same size, but 100 might be blue and -100 might be red. If your data has many negative numbers, consider using a bar visualization.

**Pie**
Display requirements: a pie visualization must have a single dimension on the row or column position.
A pie visualization displays values as segments of a circle, or as "slices of a pie." Because the pie visualization requires either a single row dimension or a single column dimension, a view that can be displayed as a pie visualization cannot be displayed as an exploration.

Point
A point visualization uses multiple points to show trends over time. It is similar to a line chart, but without the lines; only the data points are shown.

Radial
A radial visualization displays values as segments of a single ring. The length of a segment in the ring indicates value.

Radial bar
Display requirements: a radial bar visualization must have a single dimension on the row or column position. A radial bar visualization displays values as concentric rings of a circle. It's similar to a standard bar chart, but the bars are bent into a circular shape. Because the radial bar visualization requires either a single row dimension or a single column dimension, a view that can be displayed with a radial bar visualization cannot be displayed as an exploration.

Stack bar
A stack bar visualization is similar to a regular bar visualization, but instead of grouping values next to each other and displaying individual bars, values are placed in a single bar and positioned end-to-end. The length of a segment in the bar indicates value.

Stack column
A stack column visualization is similar to a regular column visualization, but instead of grouping values side-by-side and displaying individual columns, values are placed in a single column and positioned on top of each other. The height of a segment in the column indicates value.

Tree map
A tree map visualization identifies patterns and exceptions in a large, complex data set. Tree maps show relationships among large numbers of components by using size and color coding in a set of nested rectangles. A tree map that is colored by category identifies the level 1 category by color. The sizes of the rectangles represent the values. In a tree map that is colored by value, the sizes of the rectangles represent one of the values and the color represents a second set of values. Do not use data that includes negative numbers. A tree map ignores negative numbers.

Word cloud
Display requirements: a defined string dimension
A word cloud visualization presents a visual representation of text values. The more frequently a text string occurs in your data, the larger the string appears in the word cloud.

Interact with visualizations
You can interact with several components of a visualization to customize your view of data.

Drill down to reveal detail
To reveal underlying detail, click Drill down after first clicking any of these visualization components:

- a legend member label
- an axis member label
- a data point in the visualization. For example, an individual segment in a stacked bar visualization, a bubble in a packed bubble visualization, or a cell in a heat visualization.

When you drill down on a data point in a visualization, and there are consolidations on both axes, the drill down occurs on both axes.

There is no roll up option. To reverse a drill down action, click the Undo icon.

Hide members
Click any legend member label or axis member label, then click Hide to hide the member in your visualization.
Unhide members

You cannot selectively unhide individual members, you must unhide all hidden members.

To unhide members, click any legend member label or axis member label, then click **Unhide all**.

Set visualization properties

You can set properties that determine the appearance of a visualization. For example, you can pick the color palette or set the position of the legend in a visualization. The properties that you can set vary according to the type of visualization you are using; not all properties are available for all visualizations.

Procedure

1. Ensure that you are in edit mode. The pencil icon near the upper left of the browser looks like this when you are in edit mode:

   ![Edit Mode Icon](image)

2. Click anywhere on the visualization.

3. Click the **Properties** icon, then **Visualization details**.

4. Set the properties for your visualization.

   - **Color palettes** - Pick the color palette that you want to see in the visualization.
   - **Show summary values in chart** - Enable to include consolidations in the visualization. Disable to see only leaf values in the visualization.
   - **Hide grid lines** - Enable to show grid lines in the visualization. Disable to hide grid lines.
   - **Hide axis title labels** - Enable to hide axis titles. Disable to make axis titles visible. Axis titles often reflect the dimensions being charted, but in many visualizations one of the axis titles is "Value".
   - **Hide leaf labels** - Applicable only to Tree Map visualizations. Enable to hide labels on leaf members in the visualization, which can be useful when a visualization contains a large number of leaf members. Disable to display labels for leaf members.
   - **Abbreviate numbers** - Enable to abbreviate numbers on the value axis or when the legend represents values. Disable to use full numbers. When you abbreviate numbers, "K" is used to represent thousands and "M" represents millions. For example, when **Abbreviate numbers** is enabled, 20,000 appears as 20K, while 15,500,000 appears as 15.5M.
   - **Hide legend** - Enable to hide the legend in the visualization. Disable to show the legend.
   - **Legend position** - Pick the position for the legend.

Show attributes in the cube view

Some dimensions have attributes; attributes help to explain or describe a member in a dimension. You can show member attributes in a table.

For example, suppose you have a dimension with car models with an attribute called CustomerTarget, and you want to see the customer target for each car model in the table. You can choose to show or hide this attribute.

### World sales

<table>
<thead>
<tr>
<th>Country</th>
<th>CustomerTarget</th>
<th>Jan</th>
</tr>
</thead>
<tbody>
<tr>
<td>L Series</td>
<td></td>
<td>63,761.00</td>
</tr>
<tr>
<td>L Series Sedan</td>
<td></td>
<td>62,642.00</td>
</tr>
<tr>
<td>L Series 1.6 ... Budget</td>
<td></td>
<td>17,085.00</td>
</tr>
<tr>
<td>L Series 1.8 ... Budget</td>
<td></td>
<td>20,644.00</td>
</tr>
<tr>
<td>L Series 2.0 ... Family</td>
<td></td>
<td>11,284.00</td>
</tr>
<tr>
<td>L Series 2.5 ... Family</td>
<td></td>
<td>13,629.00</td>
</tr>
<tr>
<td>L Series Wagon</td>
<td></td>
<td>385.00</td>
</tr>
<tr>
<td>L Series 1.8 ... Budget</td>
<td></td>
<td>71.00</td>
</tr>
</tbody>
</table>
Procedure

1. Right-click either the row selector , or the column selector , and select Show attributes.

2. Select the attribute that you want to show in the Available attribute pane, and click to move the attribute into the Selected attribute pane.
   You can select several attributes and you can choose the order in which the attributes are displayed by moving them using the up and down arrows.
3. Click OK to save your choices and to return to the table.

   If you have an attribute showing in the column, an icon appears next to the column selector. To see the attribute name, hover over the icon.

4. You can sort the attributes in either ascending or descending order. Right-click either the row selector, or the column selector, and select either Sort ascending or Sort descending.
5. To hide attributes, right-click the row or column selector, and select Hide attributes.

Change the members in a view

You can change the members that are visible in a view.

The context area of a view includes a single member from each dimension in the view. To change your view of data, choose a new member for a context dimension.

The rows and columns in a view display one or more members from a dimension in a set. A set is a limited number of members in a dimension. You can change the members in a set to see a different view of your data. Advanced users can use MDX code to determine the members that appear in a set.

Procedure

1. To change the member of a context dimension, click the dimension tile, then click the member that you want to use in the view.

   You can also filter for members that match a string you type in the Filter field, which is active when you initially click a tile. As you type, members that match your string appear, and you can select the one you want. You can filter in tiles on the context area, on the bench, or on the row/column axes.
2. To change the member of a dimension that is on the bench, click ..., click the dimension name, then click the member that you want to use in the view.

3. To view a single member from the current set, double-click the member name on the row or column.
   The view displays only the member that you click.

4. To modify the set to display multiple members, click the dimension tile.

**What to do next**
You can modify a set, or create a new set of members to limit the number of members that you can see or select in a view. This is very useful if you have a large dimension. To find out more, see “Create or edit sets” on page 44.

**Create or edit sets**
You can create or edit sets of members in a dimension to limit the number of members that you see in a view.

For example, say you have a dimension that lists many car models, you might want to create a set that just contains car models with petrol engines.

This video shows you how to use some advanced search features of the Set Editor to edit a set.

https://youtu.be/YmgCvihljsM

**Procedure**
1. Click the dimension tile in the cube view.

2. Click .
3. To add a member from the Available Members list to the Current Set, click the member, and then click .

You can control which items get copied over from the Available Members list to the Current Set.

a. Click the bullet icon

b. Select one of these options. All options include the selected member.

- Member only
- Children
- Descendants
- Leaf nodes
- Ancestors

4. If you have many members in the Available Members pane, you can narrow down the selection in the following ways:

**Restrict the content in the set editor to the selected members and their descendants.**

Select the members, right-click, and select Keep.

A selection is created that replaces All members. You can search in this selection, and you can use the selection to create a set.

To reset the members in the Available members screen to show all members in the dimension, click Selection > All members from hierarchy
Drill down on one or more members.
Select the members, right-click, and select Drill down. This option creates a selection that can be searched in, or used to create a set.
You can also double-click a member to drill down.

Expand selected members and show their children.
Select the members, right-click, and select Expand to descendants. You can also collapse one or more expanded members by selecting the members, right-clicking and selecting Collapse.

Show all ancestors.
Shows just the selected member and its ancestors. Other members are hidden. This option creates a selection.
You can search the list of members, and you can also paste members from an external source into the Set Editor.

5. To overwrite the Current Set to include all members in the Available Members list, click .

6. To append the members in the Available Members list to the members in the Current Set, click , and then click .

7. To change the position of a member within the Current Set, right-click the member, then click one of the Move options.

8. To remove a member from the Current Set, right-click the member, then click Remove.

9. To remove all members from the Current Set, click .

10. To keep only selected members in the Current Set, select the members, then right-click any member, then click Keep.

11. You can choose to display the alias for a member instead of the Caption ID. An alias is an alternative name for a member. Click and select the display name type.

12. You can view up to two attributes for a member. Click , select up to two attributes in the order in which you want to view them, and then click OK.

Applying and Saving your changes
13. To apply the changes to your view without saving the new set configuration, click Apply and close.

14. To save your changes as a new set that can be reused in other views, click Save.

15. Give the new set a name.

16. Select Share public if you want to share the set with other users. Clear this option if you want the set to be yours alone.

Paste members into the Set Editor
You can paste member names from an external source into the Current Set area of the Set Editor.

About this task
You can paste both member names and aliases into the Set Editor, in any combination. When you paste an alias, the associated member name is inserted into the Current Set, and the alias is displayed only if aliases are enabled in the Set Editor.

You can paste only member names that exist in the parent dimension. If you attempt to paste any names that are not members of the parent dimension, an error message indicates that the names cannot be pasted and displays a list of those names.
Procedure

1. Copy the member names to the clipboard (CTRL+C) from an external application such as Microsoft Excel, Planning Analytics for Microsoft Excel, a word processor, or email.

   In a spreadsheet application, names can be aligned on a single row or column, or on a contiguous rectangular range, but there can be no empty cells within the copied selection. Empty cells cause an error when you paste into the Set Editor.

   In other applications, such as a word processor or email, each member name must appear on a separate line or be on a single line that is separated by tabs. You can also copy member names from a table. However, there cannot be any empty strings (a line without a member, a table cell without a member, a tab location without a member) within the copied selection.

2. Use CTRL+V to paste the member names into the Current Set.

   If you paste into an empty Current Set, the pasted names become the Current Set.

   If you paste into an existing Current Set without selecting an existing member as an insertion point, the pasted names are appended to the end of the existing Current Set.

   If you select a member in an existing Current Set as an insertion point, and then paste into the set:

   • The pasted names are inserted immediately following the selected member, provided the selected member is a regular dimension member (leaf or consolidation).
   • If the selected member is part of a group of members that are returned by a dynamic query (or MDX statement), the pasted names are inserted after the last group member.

Search for members in a set

Use the search feature of the Edit Set window when the list of Available Members is large, or you are unsure of an exact member name, or if you want your set to include members that match specific criteria.

You can filter on name, level, or attribute. For example, you could filter members by one or more attributes allowing you to choose what appears in your tables and charts based on their attributes. The following example shows a set being filtered on two attributes: Engine type and Engine Size.

![Edit Set window](image)

When you search for members and save a set that includes the search results, a dynamic set is created which contains a query that is run every time the set is opened. If the parent dimension for the set contains a new member that matches the search, the new member will be included in the set the next time the set is used and the dynamic query is run.
Procedure

1. Click the dimension tile and click to open the set editor.
2. To search for members whose names contain a specific series of characters, enter the characters in the **Search available members** box, then click .

   ![Available Members](image)

   The Available Members list shows all current members that contain the characters you searched for, as well as a member named **Search** that indicates the search criteria. For example, if you search for the characters "en" in a set of the Region dimension, you get something like this:

   ![Search Results](image)

   When you add the member **Search - (Name Contains en)** to your set, the set includes all current members that contain "en". Additionally, the set will include any future dimension members that contain "en", such as Greenland or Venezuela.

3. To search on other criteria, click .
4. Select the type of criteria you want to search for: **Name**, **Level**, or **Attribute**.
5. Select a search operator (**Contains**, **=**, or **<>**), then enter the keyword or value you want to search for.
6. If you want to add criteria, click **Add filter**, then specify the additional search parameters.

   You can search on up to three distinct criteria.
7. Click **Search**.

   The **Available Members** list shows all current members that satisfy the criteria you used, as well as a member named **Search** that clearly identifies the search criteria.

**Related tasks**

“Convert a dynamic set to static” on page 49

You can convert a dynamic set to a static set. When you convert to a static set, the MDX expression that generated the dynamic set is deleted and the set contains only the members that are present at the time of conversion.

**Edit MDX to modify a dynamic set**

You can use Multidimensional Expression (MDX) code to determine which members appear in a set. The result is a dynamic set. As the name implies, dynamic sets are more than simply a collection of members. They are sets that update automatically based on the evaluation of an MDX expression. The members in a dynamic set can change when new members are added to (or removed from) the parent dimension of the dynamic set. This feature is for advanced users only.

For information about TM1 supported MDX functions, see the TM1 Reference documentation on IBM Knowledge Center (https://www.ibm.com/support/knowledgecenter/SSD29G_2.0.0/kc_gen/com.ibm.swg.ba.cognos.ipa.doc_using_planning-analytics_toc-gen9.html).

This video shows you how to modify a simple MDX expression.

https://youtu.be/Xgcl8isBqIo

Work through this procedure to find car models that constitute the top 20% of sales in a particular region with the SDData2 server.
Procedure
1. Create a book.
2. Navigate to the SData2 server, SalesCube cube, and expand Views. Drag the All view onto the sheet.
3. Click the model dimension tile, and then click .
4. Click Hierarchy view next to Current Set.
5. Click Edit MDX.
6. Replace the existing MDX expression with this code:

   TOPPERCENT(TM1FILTERBYLEVEL(DESCENDANTS({[model].[model].[Total]}), 0), 20.000000, [SalesCube].([actvsbud].[actvsbud].[Budget],[region].[region].CURRENTMEMBER,[account1].[account1].[Units],[month].[month].[Year]))

7. Click OK, and then Apply and close to return to the view.
8. The following steps verify that the models that you see constitute at least 20% of sales.
   a) Click the Model dimension tile, and then click Edit this set.
   b) Set the insertion option to Member only.
   c) Move the Total member in the Available Members pane over to the Current Set.
   d) Right-click the Total member, then click Move to top.
   e) Click Apply and close to return to the view.
   f) Right-click and select Show cell value as > % column total.
      The value of the leaf member should be 20% or higher.

Related tasks
“Convert a dynamic set to static” on page 49
You can convert a dynamic set to a static set. When you convert to a static set, the MDX expression that generated the dynamic set is deleted and the set contains only the members that are present at the time of conversion.

Convert a dynamic set to static
You can convert a dynamic set to a static set. When you convert to a static set, the MDX expression that generated the dynamic set is deleted and the set contains only the members that are present at the time of conversion.

About this task
Converting a dynamic set to a static set is useful when you have added a calculation to a dynamic set, but want to control the positioning of the calculation in the set. When you add a calculation to a dynamic set, the position of the calculation in the set is determined by the MDX expression and the position cannot be changed. When you convert to a static set, you can move the calculation to any location in the set.

Procedure
1. Open the dynamic set in the Set Editor.
2. Click the Members bar, then click Convert to snapshot.
3. Click Save to save the set as static.
Delete a set
You can delete sets that are not currently used in any views. If you are a TM1 administrator, you can delete any public set or any private set that you own. If you are not an administrator, you can delete only private sets that you own.

Procedure
1. In the navigation tree, locate the set you want to delete. The path to a set is ServerName > Dimensions > DimensionName > DimensionName > Sets > SetName.
2. Right-click the set, then click Delete Subset.

Results
After you delete a set, the navigation tree contracts to the server level.

Related information
Understanding TM1 Administrative Groups and Authority

Use the keyboard to work in the set editor
You can work in the set editor with the keyboard instead of the mouse.

Navigation and selection overview
Move between enabled items in the set editor
- Press the Tab key to move to the next item.
- Press Shift+Tab to go to the previous item.

Open a menu
With the focus on the menu, press Enter or the Space bar.

Move through items in a menu and members
- Press the up and down arrow keys. To move to a sub menu, press the right-facing arrow key.

Select an option
- Press Enter.

Select consecutive members
- Highlight the first member that you want to select, hold Shift, and then use the arrow keys to select the next members.

Expand and collapse consolidated members
- Press Enter, or the right arrow to expand consolidated members, and press Enter or the left arrow to collapse.

Show a context menu
- On a Windows keyboard, press Shift+F10. On an Apple Mac keyboard, press Shift+Fn+F10. Use the up and down arrow keys to move through the items.

Work in attributes menus
- Tab to and press Enter. Press the up and down arrow keys to move through the menu, and press Enter to select an attribute. Tab to OK and press Enter to close the menu.

Navigate in the MDX Editor
To move around the controls, press the Tab key to move to the next control and press Shift+Tab to go back to the previous control.
- When the focus is inside the rich text editor, on a Windows keyboard, press CTRL+F2 to move to the next control, and Shift+CTRL+F2 to go to the previous control. On an Apple Mac keyboard, press CMD+fn+F2 to move to the next control, and Shift+fn+CMD+F2 to go to the previous control.

Navigate in the set editor by using the keyboard.
Press Tab to navigate through the items in the set editor. To move backwards through the items, hold Shift and press Tab.
- When an area of the screen has focus, it has a contrasting line around it. When you open the set editor, the first highlighted item is the Available Members pane.
- To open a menu for an item that has focus, press Enter. You can move through the items in the menu by pressing the down and up arrow keys. When a menu item is selected, it has a blue background.
Select members in the Available Members pane by using the keyboard

Tab to the Available Members pane. A black line appears around the pane when it has focus.

To select members in the Available Members pane, press the down and up arrow keys until the member has focus. A member with focus has a dark blue background.

Press Enter to expand a consolidated member, and press Enter again to close it.

To select consecutive members, highlight the first member that you want to select, hold Shift, and then use the arrow keys to select the next members.

When you highlight members, they stay selected so you can select either insert or replace to move the members to the Current Set.

Search with filters in the set editor by using the keyboard

To create filters to search for members in the All members pane with the keyboard, do the following steps:

1. Press Tab until has the focus.

   Note: Depending on which item in the Set Editor has focus, it can be quicker to use Shift+Tab to move to.

   Then, press Enter to display the search filters.

2. To set a filter, with the focus on Name, press Enter, then press the down arrow key to move through the Level and Attributes menu items. Press Enter to select a menu item.

3. If Attributes has a sub menu, press the right arrow key to move the focus to the sub menu. Use the up and down arrow key to move through the items, and press Enter to select an item.

4. After you select either Name, Level, or Attribute, press Tab to move to the next filter. Focus on either Contains, = or <> by using the down or up arrow keys, and press Enter. Then, tab to the next field and type the keyword that you want to search on.

5. Tab to Add filter, then press Enter to add a filter and repeat the previous steps.

6. To begin the Search, press Tab to go to Search, then press Enter.

Synchronize objects in a book or sheet

You can set the level of synchronization that you want between views, visualizations, and other widgets either at sheet level, or at book level. You can set synchronization for dimensions and for sandboxes.

Synchronization is off by default, except for dimension selectors, which are synchronized.

Suppose that you have an exploration (table) view and a stack chart visualization of the same view side-by side on a sheet. You want to focus on car sales in the month of May. With synchronization enabled, when you select May in the Month dimension in the exploration, this selection is reflected in the stack chart. You can disable synchronization of specific dimensions. For example, suppose that you have a Regions dimension. You might want to see Europe in the exploration, but view France in the stack chart, so you would disable the synchronization of the Regions dimension.

Dimension selections, such as drilling down on a member, set editing or selecting, can be synchronized. But actions such as swapping dimensions from row to column cannot be synchronized.

Similarly, if you are using sandboxes to experiment with multiple scenarios, and you want views and websheets to synchronize to a new sandbox selection, you can enable sandbox synchronization.
Procedure

1. To set synchronization, you must be in edit mode. Click to enter edit mode.

2. To select the scope of synchronization, with nothing selected, click and select **Synchronization scope**.

3. Select **Book** to synchronize all sheets in a book, or **Sheet** for objects to be synchronized per sheet. Sheet level synchronization is the default.

4. To enable dimension synchronization, select a view, visualization, or websheet, click , and select **Synchronize > Synchronize dimensions**.

   Do this for each object that you want to synchronize.

   All dimensions are selected by default. You can clear a dimension if you want to exclude it from the synchronization.

   **Tip:** Click to close the Synchronize window.

5. To enable sandbox synchronization, select a view, visualization, or websheet, click , and select **Synchronize > Synchronize sandbox**.

Selectors

You can create a selector for dimensions, members, sets or levels.

For example, suppose that you have a visualization and the overview is hidden. You could add a selector to the sheet to let you change the point of view.

Procedure

1. In a new book, navigate to the Planning Sample server, and expand **Cubes > plan_BudgetPlan > Views**, and drag the **Budget Input Detailed** view to the sheet.

2. Click **plan chart of accounts**, and then select **Edit this set**.

3. Under **Available Members**, click **Operating Expense**.

4. Ensure that the **Member only** default member insertion icon is showing, and then click , and then click **Apply and close**.

5. Click , and then click and select **Column**.

6. Click to focus on the plan_BudgetPlan cube in the tree.

7. Right-click the **plan_chart_of_accounts** dimension, and select **Add as selector widget**.

   This adds the planCharts_of_accounts dimension as a selector. You can size and position the dimension selector on the sheet.
You can change the type of dimension selector. Click and then select the type of dimension selector. For example, try the Hierarchy, or the Data Player.

8. For the Budget Input Detailed view, click the selector, and then click to hide the overview.

What to do next
Using the selector that you added, try selecting different items, and see how the chart changes.

Navigation buttons

Navigation buttons let you quickly move to new destinations from a IBM Planning Analytics Workspace sheet. You can navigate to a different sheet within the same book or in a separate book, or to location defined by a URL. You can view this video to learn how to add a navigation button to a sheet.

https://youtu.be/c4M29h5pKuw

Procedure

1. To add a navigation button to a sheet, you must be in edit mode. You are in edit mode if the pencil icon at the upper left of the screen looks like this icon. If necessary, click the pencil icon to enter edit mode.

2. Click the Navigation Button icon.

   If your sheet does not use a template (freeform), a new navigation button is placed in the first open area of the sheet. If your sheet uses a template, the navigation button is placed in the first open defined region of the template. You can drag the button to other locations of your sheet.

3. Use the handles on the perimeter of the button to resize the button as required.

4. Click the Properties icon, then click a category to set the display or navigation properties for the button.
   - **General style** - Sets the fill color, border color, and opacity of the button.
   - **Text properties** - Sets the style, font, alignment, and color of the button text.
   - **Navigation target** - Sets the destination that is opened when you click the navigation button.

   To navigate to a sheet in the current book, click Sheet in this book, then select the sheet you want to open from the list of available sheets.

   To navigate to a sheet in another book:
   a. Click Other book.
   b. Click...
   c. In the Location list, locate and open the folder containing the book you want to navigate to.
   d. In the Book list, click the book containing the sheet you want to open.
   e. In the Sheet list, click the sheet you want to open.
   f. Click Select.
   g. Optionally, click Pass context to pass context for any items that have synchronization enabled in both the current sheet and the destination sheet.

   To navigate to a URL, click Hyperlink, then enter a fully qualified URL.
   - **Button text** - Sets the text that appears on the navigation button.
5. Click **Save**.

**Results**

Users can now click the button to move to the location you defined as the navigation target.

If you configure a navigation button to navigate to a sheet in another book, you can rename the target book and/or sheet without having to update the navigation button properties. The navigation button automatically resolves any name changes to target sheets or books.

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**Websheets**

You can work with websheets in IBM Planning Analytics Workspace.

A websheet is a Microsoft Excel worksheet (.xlsx file) with IBM Cognos TM1 data that you can view in a web browser. Websheets are located in the **Applications** folder in the tree.

You can create and work with sandboxes in websheets, and you can combine websheets and views on the same sheet.

**Procedure**

1. To add a websheet to a book, you must be in edit mode. Click **to enter edit mode.**
2. Navigate to the **Applications** folder on the server that contains the websheet.
   
   For example, go to **Planning Sample > Applications > Planning Sample > Bottom Up Input**, and drag **Budget Input** onto the sheet.
3. To export websheets as PDFs, or to Microsoft Excel, click the websheet, and then click **Export**.
4. To reset data, click the websheet, and then click **Reset data**.
5. To rebuild websheets and webbooks, click the websheet, and then click **Rebuild websheet** or **Rebuild webbook**.

---

**Save a websheet in the content store**

You can save an open worksheet to the Planning Analytics content store.

**About this task**

When you save a websheet to the Planning Analytics content store, the websheet is available for quick retrieval from your collection.

A websheet saved in the content store is a reference to the original websheet stored on the TM1 server. Any changes made to the original websheet on the TM1 Server are propagated automatically to all associated websheets in the content store.

**Procedure**

1. Click anywhere on the websheet to open the shortcut bar.
2. Click **.**
   
   The first time that you save a websheet, the only option available is **Save As**.
3. Click **Save As**, then provide a name for the websheet, and optionally, tags and a description that are applicable to the websheet.

4. After you initially save a websheet to the content store, you can use the **Save** or **Save as** options.

**Results**

The websheet is saved in your personal folder, from which you can open the websheet. You can also click **Save As** and then click **Websheets** to access the websheet from your collection. You can't open the websheet directly from the collection, but you can drag the websheet from the collection on to an open Planning Analytics Workspace sheet.

**Sandboxes**

Sandboxes let you try out different changes to the data before making those changes public to other users and before committing those changes to the base data. Sandboxes are visible only to you.

**Procedure**

1. To create a sandbox, click the view or websheet to display the toolbar, and then click **Create sandbox.**
2. Name the sandbox.
3. Choose whether you want to create a sandbox from the base data or to create a copy of an existing sandbox, and then click **OK.**

   You can now work in the sandbox. You can move between different sandboxes by selecting them from the drop-down list.

4. When you are satisfied with the data in a sandbox, and you want to commit it to the base, click **Commit data.**
5. To delete a sandbox, follow these steps.

   a) Click the view, and then click **Delete sandbox**.
   b) Select **Delete sandbox**, select the sandbox that you want to remove, and click **Delete.**

**What to do next**

You can set sandboxes to synchronize, so that when a sandbox is set in one view or websheet, other views and websheets update to use the same sandbox. For details, see “Synchronize objects in a book or sheet” on page 51.

**Snap commands**

Snap commands are simple commands that you can use to perform tasks quickly.

Click a view and click **Snap commands**, then type the snap command in the field. You can also press F9 to open the snap command field.

You can type snap commands in full, or use abbreviations, for example, "swap" or "sw". Snap commands aren't case-sensitive and you don't need to use exact spelling - "Belgium" selects "Belgium".

You can undo snap commands by clicking **Undo last snap command**.
For example, you can use snap commands to edit views as shown in this video.

https://youtu.be/plo7Q0x7q2E

You can use these snap commands:

**Select**
Select members, sets, and levels in dimensions.
Type the names that you want to select in the snap command field that is separated by a `,` (comma), or "and".
Select is the default snap command, so you do not need to type select.
For example, type `germ,mark` to select the Germany and Marketing members.

Select doesn't apply to members on the bench

**Swap**
Swap rows, columns, dimensions in the context area. For example, to swap the versions and time dimensions, type `sw versions,time`. Typing swap on its own swaps the rows and columns.

**Find**
You can find members on rows, columns, or both.
Find `europe` finds the first result. To move through the results, type `find`. To go back, type, `find previous`.
Find is a powerful snap command, for example, typing `find r (color red or color blue) and size large` finds members on the rows, with an attribute value for color that is red or blue, and an attribute value for size that is large.

**Hide**
Hide named members in dimensions on the rows or columns.
To hide members that are named US and Feb-2004, type `hide US, Feb-2004`

**Unhide**
Show or "unhide" members.
Type `unhide r` to unhide rows. To unhide all, type `unhide`, or `unh`.
To unhide everything on the time hierarchy, type `unh time`

**Keep**
Keep members in dimensions on the rows or columns, while you hide the other members.
For example, type `keep 2014, 2015`

**Zero**
Enable zero suppression.
To enable zero suppression on just rows type `zero rows`, and for columns, type `zero columns`
To clear all zero suppression, type `zero off`

**Totals**
Show leading or trailing totals, or hide totals.
For example, in a time dimension, you could have Q1, Jan, Feb, Mar, which has a leading total. Typing `Totals trailing columns` would change the time dimension to: Jan, Feb, Mar, Q1.

Type `t -h` to hide all totals.

**Level**
Expand levels in a hierarchy to a specific depth. If you don’t specify a level, the leaf level is expanded.
You can also expand numbered levels, and levels on rows, columns, or both. For example, type `level rows 2` or `level rows`.

**Drill**
Drill down on members.
For example, to drill down on a member named Georgia, type `Drill Georgia`.
Resetting the drill state clears drills. To reset the drill state for an Organization hierarchy, type `Drill reset Org`, or `dr org`.
To remove all of the drills, type `drill reset`

**Sort**
Sort labels or values in ascending or descending order. You can choose to sort by hierarchy, or to break the hierarchy.
You can sort a named hierarchy, and for labels, you can sort by rows and columns. You don’t need to specify label or value, unless there is an ambiguity.
Sort lab asc rows
Sorts labels in ascending order for rows, without breaking the hierarchy. You can also type this in natural language: sort label ascending rows.

Sort lab des br both
Sorts labels in descending order for both rows and columns, and breaks the hierarchy.

Sort val des br Sales
Sorts values in descending order, breaking the hierarchy, under the Sales member. You must specify a member to sort for values. In natural language, this is: sort value descending breaking Sales.

sort -x
Clears all sorting. To clear sorting on the months hierarchy, type sort clear months.

Use speech recognition
In the Chrome browser, click the view, and then activate the microphone by pressing CTRL + Space. You might get a message that asks you to allow IBM Planning Analytics Workspace to use your microphone. Then, speak the command.

How the snap command searches
IBM Planning Analytics Workspace searches for member names, captions, and aliases, named sets, and named levels (levels with default names are ignored). If IBM Planning Analytics Workspace finds more than one member, they are listed in order of relative strength of the matches. More weight is given to precise matches than tentative matches.

Collaborating with chat
You can use the chat feature to collaborate with other IBM Planning Analytics Workspace users.

Chat conversations are associated with and accessed from an individual book. Any user with at least View only permission to a book can participate in chat. If you are an administrator, you can set permissions for a book.

When you log on to Planning Analytics Workspace, the chat icon on a book tile indicates if there have been any new messages or replies posted to the book.

View this video to illustrate the procedure described below.

https://youtu.be/4frKzOYMrQ8

Procedure

1. With the book open in Planning Analytics Workspace, click .
2. Click in the text box at the bottom of the chat panel, then enter your message and click Post.
   - When you add links to web pages in a chat, they become clickable links. For example, type www.ibm.com into a chat, and the text becomes a link, colored blue. When you hover over the link, it becomes underlined. You can then click the link to go to the web page. Links beginning with www, http, or https are recognized as clickable links.
   - Messages appear in reverse chronological order, with the most recent message appearing at the top of the chat panel. When you post a message, your account avatar appears next to the message. If you have not set an account avatar, your first name and last name initials appear.
3. To reply to a message, click Reply (or Replies if the message already contains other responses), then enter your own message and click the Reply button.
   - Chat supports a single level of replies. You can respond to a top-level message, but you can't respond to a reply.
   - Replies appear in normal chronological order, with the oldest reply appearing first and all other replies following sequentially.
4. To delete your own top-level message, click  , then click .
Set your account avatar

You can upload an avatar image for your account. This avatar appears on the Planning Analytics Workspace dashboard next to your user name. The avatar also appears next to any messages you post in chat.

Procedure
1. Click your user name on the Planning Analytics Workspace dashboard.
2. Click My Account.
3. Click Add Image.
4. Find the image you want to use as your avatar on your local file system, then click Open.
   Files can be up to 500KB in size and can in .jpg, .gif, or .png format.
5. Click Done.

   To remove your avatar:
6. Click your user name on the dashboard.
7. Click My Account.
8. Click Remove Image.
9. Click Done.

Quick access to your data and other objects

You can quickly access your data and other objects in IBM Planning Analytics Workspace.
- You can add a view, a visualization, or objects to a collection so that they can be reused either in the current book, or in another book.
- You can access recently used objects in the navigation tree.
- You can bookmark items in the navigation tree for later retrieval.

Save items in collections

When you create a useful view, visualization, selector, image, video, or other item, you can save the object in a collection for use in other books or sheets. You must be in Edit mode to save or retrieve an object from a collection.

Procedure

1. To save an item in a collection, click anywhere on the item, then click on the shortcut bar.
   The item is saved to your collection.

2. To retrieve an item from a collection, click and then click Collection.
3. Click and hold the item, then drag it to a position on the open sheet.
4. To remove an item from your collection, click the item, then click Remove.

5. Click to close the collection.

Access recently used items

IBM Planning Analytics Workspace saves a list of recently used items so that you can quickly locate those items in the navigation tree.

Procedure

1. Click on the navigation tree.
2. Click the item that you want to locate in the Recently visited list. The item is selected in the navigation tree.

**Bookmark items**

You can bookmark items in the navigation tree for easy retrieval.

**About this task**

You can bookmark individual items, but not categories of items. For example, you can bookmark a specific cube, but not the entire Cubes category.

**Procedure**

1. To bookmark an item, tap and hold (or right-click) the item in the navigation tree, then tap **Bookmark this**.

   **Tip:** If the navigation tree is not visible, tap .

   1. Tap ⌘.
   2. Tap the bookmarked item that you want to locate in the navigation tree. The item is selected in the navigation tree.

**Transferring data to IBM Watson Analytics**

You can use Watson Analytics to explore patterns and relationships in your data, perform predictive analysis, and assemble dashboards for sharing your insight.

**Before you begin**

You must have a valid Watson Analytics account to which you can upload Planning Analytics Workspace data.

**About this task**

Follow these steps to transfer Planning Analytics Workspace data to Watson Analytics.

**Procedure**

1. Click the view that contains the data you want to upload.

2. On the shortcut menu, click the **Transfer** icon .

3. A new browser tab opens. Enter your account credentials to log in to Watson Analytics.

   **Note:** You might need to enable pop-ups from Planning Analytics Workspace to allow the login tab to open in your browser.

4. Click **Allow access** to permit IBM Planning Analytics to access the user context APIs required to transfer data to Watson Analytics.

   The **Transfer data set** dialog box opens.

5. By default, the transfer data set uses the name of the source view. If desired, enter a new name for the data set at the top of the dialog box.

6. Choose a location for the data set in Watson Analytics. **Shared** can be accessed by other users, **Personal** is available only to you.

7. Click **Transfer**.

8. On the Planning Analytics Workspace **Welcome** page, click **Explore and Predict** to open Watson Analytics.
Results
The data set is now available on the Watson Analytics Welcome page. Click the data set to begin interacting with the data. Consult the Watson Analytics documentation for details on features and capabilities.
Chapter 4. Explore scorecards

Scorecards reflect the strategic goals of an organization. Using scorecards, you can identify how well objectives are being met by comparing targets to actual results. Visual status indicators such as traffic lights, trend icons, and colors are used to help you to quickly evaluate performance.

In IBM Planning Analytics Workspace, you can add existing scorecards to your books, and analyze data by selecting different time periods, metrics, and dimensions. You can also create visualizations from scorecards, such as impact diagrams and strategy maps.

You can explore scorecards in Planning Analytics Workspace with the GO_Scorecards sample. For more information, see “Tutorial: Working with scorecards” on page 132.

Scorecards

A scorecard is a collection of performance metrics that are designed to reflect the strategic goals of your business unit or organization.

The information in a scorecard identifies how well the objectives are being met by comparing planned to actual results. Scorecards can also show information for the different organizations in your business. By using visual status indicators such as traffic light, and trend icons, scorecards can help users to quickly evaluate performance.

A scorecard combines data and dimensions into interactive diagrams and visualizations that you can share with other users. Scorecards include the following elements:

Metrics
A measure or key performance indicator (KPI) that conveys the performance of an important area of your business. Examples include Profit, Revenue, and Expenses.

Metric Indicator
A measure of performance, status, or trend for a key area (metric) of your business. A metric indicator compares current results to target values. For example, Score, Status, and Trend.

The following interactive diagrams and data visualizations are available based on the dimensions in your metrics cube:

- Impact diagram
- Strategy map
- Custom diagram

Impact diagram
Impact diagrams illustrate the positive and negative relationships between the metrics in your metrics cube. This type of diagram shows how the business works by displaying how one metric influences another.

An example for an impact diagram might show how Revenue and Expenses influence Profit, which then affects Bonuses and Research Funding.

Impact diagrams display traffic light and trend indicators that show the status and the trend of each metric in the diagram. You can filter for different contexts in the impact diagram. The traffic light and trend indicators update with new values for the selected dimension.

When you double-click a metric in an impact diagram, the selected metric become the focus metric. Views, visualizations, and other widgets on the current dashboard also update automatically to show data in context of the focus metric.

Strategy map
A strategy map is a visualization that tracks business performance by perspectives, objectives, and metrics.

A strategy map shows the status of metrics with traffic lights and trend indicator icons. A strategy map organizes perspectives, objectives, and metrics into the following hierarchy:

- A strategy map can have multiple perspectives.
• Each perspective can have multiple objectives.
• Each objective can have multiple metrics.

The standard perspectives for a strategy map include the following items:

• Financial performance
• Customer knowledge
• Internal business processes
• Learning and growth

Connections in a strategy map display as directional arrows to show a visual relationship or flow between the objectives in the diagram.

When you double-click a metric in a strategy map, the selected metric become the focus metric. Views, visualizations, and other widgets on the current dashboard also update automatically to show data in context of the focus metric.

Custom diagram
A custom diagram is a strategy map that has a custom image and shows metrics with dimensional context onto the image as data points.

These examples of custom diagrams are available:

**Geographical maps**
- Show a regional focus of your organization.

**Process diagrams**
- Shows metrics in the context of a process flow.

A custom diagram displays the metric and context dimension names with traffic light and trend indicator icons as an overlay or layer on the selected image.

Metrics cubes
A metrics cube is a special type of cube that provides the basis for scorecard solutions and scorecard diagrams.

A metrics cube monitors multiple metrics and metric indicators. The primary feature of a metrics cube is that it shows the current relative status of many rows in a table. It displays the current trend of many measures simultaneously.

The standard scorecard layout for a metrics cube is as follows:

• Row title dimension: metric dimension
• Column title dimension: metric indicator dimension
• Context dimensions: time, geography, and other data context dimensions

A metrics cube combines a metric dimension and metric indicator dimension with your other regular dimensions. Metrics cubes have the same properties of other cubes.

A metrics cube must contain the following dimensions as a minimum:

• A metric dimension
• A metric indicator dimension
• A time dimension

**Metric dimension**

The metric dimension contains your collection of important measures or key performance indicators (KPI) that you want to monitor in your business or organization.

These measures are called metrics and each identifies one aspect of performance, such as Gross profit, Revenue, or Product cost. You can monitor the actual performance of a metric and compare it to expected or target values by combining it with metric indicators to provide the additional details about status, score, and trend.
Metric indicator dimension

A metric indicator dimension provides more information about your key performance indicators (KPI) or metrics. Examples of metric indicators include Score, Status, and Trend.

The metric indicators measure the performance, status, and trends in key areas of a business by comparing current results to target values. For example, the Actual, Target, and Tolerance indicators for a metric are typically used to calculate the related Score, Status, and Trend indicators.

Traffic light status indicator

A traffic light status indicator shows if metrics are meeting set targets.

The status is indicated by the color and the shape of the icon.

<table>
<thead>
<tr>
<th>Traffic light icon</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image" alt="Green Circle" /></td>
<td>A green circle icon indicates excellent status, with metric being on-target or better.</td>
</tr>
<tr>
<td><img src="image" alt="Yellow Diamond" /></td>
<td>A yellow diamond icon indicates average status, with the metric being off-target but within an acceptable range.</td>
</tr>
<tr>
<td><img src="image" alt="Red Square" /></td>
<td>A red square icon indicates poor status, with the metric off-target and unacceptable.</td>
</tr>
<tr>
<td><img src="image" alt="Red Square With Error" /></td>
<td>This image indicates missing data that makes it impossible to compute status.</td>
</tr>
</tbody>
</table>

Trend indicator

A trend indicator shows how the value of one column compares to the value of another column.

Trend indicators convey whether performance is improving or getting worse, not going up or going down. You can determine performance at a glance without having to decide whether an increase is good or bad.

<table>
<thead>
<tr>
<th>Trend icon</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image" alt="Green Upward Arrow" /></td>
<td>A green upward facing arrow indicates that the trend value is improving in comparison to the previous period. For example, a sales value is greater than the previous month or quarter.</td>
</tr>
<tr>
<td><img src="image" alt="Gray Dash" /></td>
<td>A gray dash icon indicates that the trend value is unchanged.</td>
</tr>
<tr>
<td><img src="image" alt="Red Downward Arrow" /></td>
<td>A red downward facing arrow indicates that the trend value is worsening in comparison to the previous period. For example, a sales value is less than the previous month or quarter.</td>
</tr>
<tr>
<td>Blank cell</td>
<td>A blank cell indicates that the trend is missing data for that period. A trend cannot be displayed when there is an incomplete status. For example, a trend cannot be displayed for the first time period, such as Q1 (quarter one). Previous data does not exist, even if the metric has a value for Actual, Target, Score, and Status.</td>
</tr>
</tbody>
</table>
Chapter 5. Model in Planning Analytics Workspace

IBM Planning Analytics Workspace includes a modeling environment that you can use to model user data with cubes, dimensions, hierarchies, attributes, and security for IBM Planning Analytics.

You can view this video to see an overview of hierarchies:

https://youtu.be/jxdMSAAHvh8

Note: Planning Analytics Workspace modeling is supported on IBM Planning Analytics Local and later. Modeling is not supported in Planning Analytics Workspace on TM1 servers that are installed with version 10.3.0 or earlier.

You can use the Planning Analytics Workspace modeling tools to convert business requirements into precise cubes, dimensions, hierarchies, and calculations so that planning and analytics outcomes make sense to business users.

• Modelers can build and maintain the structure of a financial model independently, without coding.
• Modelers can transform and load data easily into a financial model, which increases transparency and confidence in results.
• Modelers can build a step-by-step financial process for multiple users based on roles and security permissions, without coding.
• Modelers can define business logic by using an integrated development environment, reducing cycle time and increasing comprehension, accuracy, and transparency of results.

To use Planning Analytics Workspace modeling, you must log in with a user name that has the Modeler role.

Planning Analytics Workspace modeling supports the following tasks:

• Creating cubes
• Using rules
• Editing dimensions
• Managing hierarchies
• Creating attributes
• Managing security

For a complete example that describes how to use these tools, see the “Tutorial: Creating dimensions and hierarchies” on page 128.

To understand why you should use the Planning Analytics Workspace tools to model your data, consider the following benefits.

Query performance

You can create more manageable dimensions by creating more than one hierarchy in a dimension.

For example, you can create a single time dimension. A year dimension must be the same for every year to compare data between two years. This approach gives you the ability to create a new year easily, and query performance is faster because you have only one dimension in the cube.

You can create a time dimension with multiple hierarchies that represent years and months to do yearly comparisons per month.

If you create two dimensions, one for year and one for months, you gain the ability to split the years and months across two axes and you can compare data between years.

RAM savings

If you model with dimensions, you can put the dimensions on the cube axes. Dimensions describe the data, and you can query against them. But dimensions cost RAM memory. Therefore, you can use hierarchies to model your data instead of dimensions.
If you model with attributes, it keeps your cube structure simple but it describes the dimension members only, not the data itself. You can't use attributes to query data. Creating a dimension for attributes that you want to query on creates complexity.

You can use hierarchies to model your data and get the same granularity that attributes give you with the benefit of being able to query on the data. You can query directly with hierarchies on the axes or with set filtering. You save on storage costs and complexity if you model with hierarchies.

**Flexibility**

Using hierarchies to add versions creates flexibility. For example, you might need to change your organizational hierarchy for planned changes. Dimension might be the organization and you can use hierarchies to represent the organization in the future year. This hierarchy might represent the data differently from the previous year's hierarchy. With multiple hierarchies that represent the organization, you can roll up the data in multiple ways.

Hierarchies are named and contain members. You can reuse the same consolidated members in multiple hierarchies. You can use hierarchies to group these members without the need for specific consolidated names.

**Standards**

Hierarchies conform to OLAP Industry standards. Planning Analytics Workspace modeling uses MDX and TM1 REST APIs to access TM1 data. The TM1 REST APIs support the hierarchy model and follow the ODATA standard.

### The modeler role

If you are enabled as an Administrator or a Modeler in Planning Analytics Workspace, you can design dimensions, hierarchies, views, and attributes to define the business logic for your application.

Your role is set when you are added to Planning Analytics Workspace by an administrator. If you are enabled as a Modeler, you can use all of the capabilities of an Analyst plus the modeling capabilities. For more information about adding users and setting their roles, see “Administer IBM Planning Analytics Workspace” on page 97.

You must log in to Planning Analytics Workspace with a user name that has a role of Administrator or Modeler to use the modeling capabilities. If you have a role of Administrator or Modeler, the content tree always lets you model even when you open a book that was not created by a Modeler. When you log in to Planning Analytics Workspace from an iPad, you are always working in Consumer mode, therefore you cannot use the modeling capabilities. For more information, see “Accessing Planning Analytics Workspace from Apple iPad” on page 13.

**Note:** If you don't want to see the modeling capabilities in the content tree, you must log in to Planning Analytics Workspace with a different user name that has a different role.

### Cubes

IBM Planning Analytics stores the data that you need for planning and analysis in cubes.

Each cube typically has a specific purpose. Suppose that you are building a sales plan; you could create a cube that measures the sales for Sedan cars over time. The cube contains three dimensions: Measures, Product, and Month. Each measure, such as Sales, is organized by a product and a month. For example, the cell value 300000 represents the sales of Sedan-1 in the month of January (Jan).
A cube must have at least two dimensions. The number of dimensions that you have in a cube depends on the purpose of a cube. For example, a two-dimensional cube is useful as a lookup table; you can store exchange rates in a lookup table.

A revenue planning cube might have the following dimensions: Products, Versions, Regions, Measures, Time.

Guidelines for designing cubes

1. List the measures you want to track in your business analysis. Examples of measures include sales amounts, units sold, expenses, acquisition values, and campaign costs.
2. Decide what dimensions you need. Consider the following questions:
   • In most analyses, you track measures over time. What is the base time interval: days, weeks, months?
   • Is there a geographic dimension?
   • Do the measures vary by customer and product?
   • Is there a scenario, or versions dimension. For example, do you want to see the actual plan versus the budget?
3. Determine the hierarchical structure of your dimensions. Every dimension has at least one hierarchy. If multiple hierarchies are enabled, you can use them to see alternative rollups of the data in the same view.
4. Create a list of attributes you want to associate with the dimension members. Examples of attributes include store square footage, customer IDs, and local language versions of member names.

For more information about cubes and cube design considerations, see Designing Cubes in the TM1 for Developers documentation.

Create a cube

You can create cubes when you are a Modeler or an Administrator. Cubes are created and stored on a specific server.

Procedure

1. To get started, open Planning Analytics Workspace and log in with a user that has the Modeler or Administrator role.
2. Make sure that you are in Edit mode to create a cube.
3. In the content tree, navigate to the server where you want to create a cube. The cube, and any data that is associated with it, is stored on this server.
4. Expand the server to reveal the dimensions, cubes, and other associated object groups.
5. Right-click the Cubes group, then click Create cube.
6. On the Create cube dialog box, type a name for the cube. The cube name can contain spaces, but cannot contain any of the following characters: "/ : * ? " < > | "’; ,

A cube must have at least two dimensions. The number of dimensions that you have in a cube depends on the purpose of a cube. For example, a two-dimensional cube is useful as a lookup table; you can store exchange rates in a lookup table.

A revenue planning cube might have the following dimensions: Products, Versions, Regions, Measures, Time.

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2. Make sure that you are in Edit mode to create a cube.
3. In the content tree, navigate to the server where you want to create a cube. The cube, and any data that is associated with it, is stored on this server.
4. Expand the server to reveal the dimensions, cubes, and other associated object groups.
5. Right-click the Cubes group, then click Create cube.
6. On the Create cube dialog box, type a name for the cube. The cube name can contain spaces, but cannot contain any of the following characters: "/ : * ? " < > | "’; ,
7. In the **Available dimensions** list, select one or more dimensions to be included in the cube.

   Use **CTRL+click** to select multiple non-contiguous dimensions. Use **SHIFT+click** to select multiple contiguous dimensions.

8. Click ➔ to move your selections to the **Cube dimensions** list.

9. Repeat steps 7 and 8 until all the dimensions you want are in the **Cube dimensions** list.

   If you want to remove any dimensions from the **Cube dimensions** list, select the dimension, then click ⚪️.

10. To change the position of a dimension within the cube, click the dimension in the **Cube dimensions** list, then click the ↑️ or ↓️.

   The order of dimensions in a cube can impact system performance, and there is guidance on how to order dimensions in the TM1 Developer documentation.

11. Click **Create** to create the cube.

### Delete a cube

You can delete cubes when you are a Modeler or an Administrator. You cannot delete control cubes, which are used to run and maintain your IBM Planning Analytics system. When you delete a cube, you also delete all data and any rules or views that are associated with the cube.

#### Procedure

1. To get started, open Planning Analytics Workspace and log in with a user that has the Modeler or Administrator role.

2. Make sure that you are in Edit mode to delete a cube.

   You are in Edit mode when the pencil icon in the upper left corner of the content pane is blue.

3. In the content tree, navigate to the server that contains the cube you want to delete.

4. Expand the server to reveal the dimensions, cubes, and other associated object groups.

5. Click the **Cubes** group to reveal all the cubes on the server that are not control cubes.

6. Right-click the cube that you want to delete, then click **Delete cube**.

   A confirmation message warns you that the cube deletion also results in the deletion of any associated rules and views.

7. Click **OK** on the confirmation message to delete the cube.

### Rules

The most common calculations in TM1 involve aggregating data along a dimension. In IBM Planning Analytics Workspace modeling, you create these calculations by using consolidation hierarchies. For example, in a Month dimension, you can define a quarterly total that sums the January, February, and March values.

In many applications, you need to perform calculations that do not involve aggregating, such as cost allocations and exchange translations. With business rules, you can create formulas to perform these calculations.

With business rules, you can perform the following tasks:

- Multiply prices by units to yield the sales amounts.
- Override consolidations when necessary. For example, you can prevent a quarterly price from displaying a tally of individual monthly prices.
- Use data in one cube to perform calculations in another cube, or share data between cubes. For example, you can pull sales data into a cube that contains Profit and Loss information.
- Assign the same values to multiple cells.

For more information about business rules, see the TM1 Rules documentation.
Create and edit rules

You can create and edit business rules when you are a Modeler or an Administrator.

Procedure

1. Open Planning Analytics Workspace and log in with a user that has the Modeler or Administrator role.
2. Make sure that you are in Edit mode to create or edit a rule.

   You are in Edit mode when the pencil icon in the upper left corner of the content pane is blue.
3. In the content tree, navigate to the server where you want to create a business rule.
4. Expand the server to reveal the dimensions, cubes, and other associated object groups.
5. Expand the **Cubes** group.
6. Right-click the cube for which you want to create or edit a rule.
7. Click **Edit business rules** to create new rules for the cube or to edit existing rules.
8. Create or edit your rules in the Rules Editor.

   When the Rules Editor is open, you can use the **Database** and **Rule** lists to quickly open any other rule to which you have access.

   ![Database list](image1)
   ![Rules list](image2)

   **1** Database list
   **2** Rules list

   To open another rule that resides in the current database, click the **Rule** list and choose the rule you want to open.

   To open another rule that resides on a different database, click the **Database** list and choose the appropriate database, then click the **Rule** list and pick the rule you want to open.

   For details about business rules construction, see **Components of a rule** in the TM1 Rules documentation.

9. Click the **Save** icon.
Use the Rules Editor

You can type business rules directly in the Planning Analytics Workspace Rules Editor. The editor also provides several features that simplify the process of creating business rules.

Auto-completion

You can use the CTRL+SPACE keystroke combination to choose from a list of applicable items in the Rules Editor. If you use CTRL+SPACE after typing one or more characters of an object name, the list presents all items that match the characters you've typed.

When you use the auto-completion keystroke combination within an area definition (inside [] brackets) or formula component of a rule statement, you are presented with items that are valid in the context of the current state of the area definition or formula component.

If the space within the brackets is empty, auto-completion presents a list of all dimensions and members that are part of the cube associated with the rule. Dimensions are listed first in alphabetical order, followed by all members from all dimensions in alphabetical order. Members are not grouped according to the dimensions to which they belong.

A fully-qualified member reference in an area definition or formula component contains three parts: a dimension specification, an hierarchy specification, and the member name.

```
DimName: 'HierarchyName': 'MemberName'
```

If hierarchy support is not enabled in your database, the hierarchy specification is not necessary. All three parts are not necessary to create a member reference; it is usually sufficient to just use the member name. However, if you are creating a fully-qualified reference, auto-completion presents you with just the items that are relevant to the current partial reference.

For example, if you enter a dimension name in the area definition, then use the CTRL+SPACE keystroke combination, you'll see a list of the hierarchies (if enabled) and members that are part of the dimension.
Similarly, if your area definition includes a dimension name and an hierarchy name, you'll see a list of the members that are part of the hierarchy when you use the auto-completion feature.

If you begin entering a function name in the Rules Editor outside of an area definition or formula component, and then use the CTRL+SPACE keystroke combination, you can pick from a list of rules functions that match the characters you’ve typed.

Drag and drop from the content tree

You can drag and drop dimensions, hierarchies, and members from the Planning Analytics Workspace content tree into the Rules Editor.

When you drag an object from the content tree and drop it on a portion of the Rules Editor that is not within an area definition, a new area definition is created with a reference to the object:

- For a dimension, the result is `[DimName:]` with the DimName quoted when required by TM1
- For an hierarchy, the result is `[DimName:'HierarchyName':]`
- For a leaf member, the result is `['MemberName']`, unless the member name is not unique across all dimensions in the cube. If the leaf member name is not unique, the result is a fully-qualified reference such as `[DimName:'HierarchyName':'MemberName']`. For all consolidated members, regardless of uniqueness across dimensions, the result is a fully-qualified reference.

When you drag an object from the content tree and drop it on a portion of the Rules Editor that is within an area definition, the area definition is updated to include the object.

- If the area definition does not include a reference to a dropped dimension, then `DimName:` is appended to the end of the area definition. If the area definition already includes a reference to a dropped dimension, then the reference is not updated.
• If the area definition does not include a reference to a dropped hierarchy, then \texttt{DimName:’HierarchyName’} is appended to the end of the area definition. If you attempt to drag and drop an hierarchy that is not valid for the current area definition, you receive an error.

• If the area definition does not include any reference to a member, then dropping a member onto the area definition adds the member. If the area definition already includes a reference to a single member in a given dimension, then dropping another member from the same dimension updates the reference to include all members in subset notation. For example, \texttt{[DimName:’HierarchyName’:{’MemberName1’, ’MemberName2’}]. If you drop any additional members from the same dimension, the member names are added to the subset notation.

**Function list**

You can click \(\text{fx}\) on the Rules Editor to quickly insert a rules function into your business rules.

When you click \(\text{fx}\), you see a list of function categories. Click a function category to see the available functions within the category, then double-click a function to insert it at the cursor in the Rules Editor.

The function is inserted with placeholders for required parameters. You must replace the placeholders with valid parameter values. For example, if you use the function list to insert the \texttt{ATTRN} function into your rules, you'll see this:

\[
\text{ATTRN}(<<\text{dimension}>>, <<\text{element}>>, <<\text{attribute}>>)\]

You must replace the \(<\text{dimension}>\), \(<\text{element}>\), and \(<\text{attribute}>\) placeholders to successfully return a numeric attribute value with \texttt{ATTRN}.

**Shortcut keys**

There are many shortcut keys available in the Rules Editor. You can use these keys to edit statements, find and replace text, and navigate through the statements in the Rules Editor.

To see a full listing of shortcut key combinations, click \(\text{fx}\), then click Display shortcut keys.

To hide the listing of shortcut keys, click \(\text{fx}\), then click Hide shortcut keys.

**Delete rules**

You can delete business rules when you are a Modeler or an Administrator.

**Procedure**

1. Open Planning Analytics Workspace and log in with a user that has Modeler or Administrator permissions.
2. Make sure that you are in Edit mode to delete a rule.

   You are in Edit mode when the pencil icon in the upper left corner of the content pane is blue.

3. In the content tree, navigate to the server where you want to delete a rule.
4. Expand the server to reveal the dimensions, cubes, and other associated object groups.
5. Expand the \textit{Cubes} group.
6. Expand the cube for which you want to delete rules.
7. Right-click \(\text{fx}\) and select \textit{Delete business rules}.

**Dimensions**

Dimensions are lists of related members. Two or more dimensions are used to make a cube that can be used for planning and analysis.

Typical dimensions a cube might contain are time, versions, regions, products, departments, measures.
Dimensions can be a simple list with all members at the same level, or a dimension can be structured with members at different levels and multiple hierarchies. How you structure a dimension depends on how you want the data to be represented. You might want to have a simple time dimension that just contains a list of the months, or you might want a time dimension that is grouped by years, quarters, and months, as shown in the following list.

- 2017
  - Q1-2017
    - Jan-2017
    - Feb-2017
    - Mar-2017
  - Q2-2017
    - Apr-2017
    - May-2017
    - Jun-2017
  - Q3-2017
    - Jul-2017
    - Aug-2017
    - Sep-2017
  - Q4-2017
    - Oct-2017
    - Nov-2017
    - Dec-2017

If you have a dimension that is structured with levels, in a cube view, you can choose to show the members at a particular level. For example, you could show the leaf level, which is just the months, or you could show just the quarters, or the years.

Typically, cubes contain a measures dimension. A measures dimension contains the measures that you want to track in your business analysis. Examples of measures include sales amounts, units sold, expenses, acquisition values, and campaign costs.

You can define hierarchies for dimensions. Every dimension in IBM Planning Analytics Workspace has at least one hierarchy. You can define alternative hierarchies if this feature is enabled so that you can roll up a hierarchy in different ways without having to add extra dimensions. To find out more, see “Hierarchies” on page 82.

You can define attributes for dimensions. Attributes help to explain or describe a dimension member, and could be something like color, size, or type. To find out more, see “Attributes” on page 85.

**Create a dimension**

You can create dimensions with the Dimension Editor when you are a Modeler or an Administrator.

**Procedure**

1. To get started, open Planning Analytics Workspace and log in with a user that has the Modeler role.
2. Make sure that you are in edit mode to add dimensions.

   You are in edit mode when the pencil icon in the upper left corner of the content pane is blue.
3. In the content tree, navigate to the server that contains the data that you want to view.

   For example, navigate to the SData server.
4. Right-click **Dimensions**, and click **Create dimension**.
5. Enter the name of your dimension and click **Create**. The name cannot contain these characters: `\ / : * ? " < > | `.

The **Dimension Editor** opens. If you have multiple dimensions open for edit, the toolbar contains the order icon and you can order the widgets in your workspace.

6. To add a member, click ![Add new member](image). Type the new member name and hit **Enter** to add another member, or click **Commit**. To find out more, see “Add members to a dimension” on page 74.

7. To create another dimension, click ![Create new dimension](image) beside your dimension tile and click **Create New Dimension**.

8. To create another hierarchy, click ![Create new hierarchy](image) beside your hierarchy tile and click **Create New Hierarchy**.

9. To delete a dimension, right-click the dimension, and click **Delete dimension**. Click **Ok** to confirm that you want to delete the dimension, its hierarchies, and its member sets.

**What to do next**

For more information about creating hierarchies, see “Hierarchies” on page 82.

**Add members to a dimension**

You can add members to a dimension one at a time or by copying and pasting a number of members from an editor such as Microsoft Excel.

You can also drag and drop .csv files that contain dimension member names into an empty dimension to create members. To find out more, see “Drag and drop files to add members” on page 75.
**Procedure**

1. In the tree, navigate to the server that contains the dimension that you want to edit.

2. Click **Dimensions**, right-click the dimension that you want to edit and click **Edit dimension** or **Edit dimension in new tab**.

   The Dimension Editor opens.

3. To create a member, at the level of hierarchy that you want to add a member, click **Add member**.

   If you want to add another member at the same level, enter the new member name and press **Enter**.

   Click **Commit** when you finish entering members at that level, or press CTRL + Enter.

4. To add more members at parent or child level, right-click an existing member and add a member as a parent, child, or at the same level before or after the selection.

   ![Add member]

   **Tip:** You can also add a member into a dimension at the same time by copying and pasting the list of members into the Dimension Editor from an editor, or from Microsoft Excel.

5. Right-click an existing member and choose an option to keep, hide, move, or delete members.

   If you select **Keep**, the other members are hidden. You can show all members by right-clicking a member and selecting **Unhide all**.

**What to do next**

You can format the members. For example, you can format a member as a date or time picker, as a currency value, or as scientific notation. To find out more, see “Set the format of members” on page 77.

You can determine whether a member is a numeric or string value, and you can change the weighting of a member. To find out more, see “Make a member a numeric or a string value” on page 78.

You can create attributes for dimension members by clicking **✓**. Attributes provide extra information about dimension members. To find out more, see “Attributes” on page 85.

You can drag a dimension member as parent, child, or peer of other members. To find out more, see “Drag members as children or peers” on page 79.

**Drag and drop files to add members**

You can drag and drop .csv files that contain dimension members onto an empty dimension hierarchy. You cannot drop a .csv file onto a hierarchy that contains existing members.

**About this task**

The first column in a .csv file is imported into the dimension editor as a flat list of members. You can simultaneously drop multiple .csv files into the editor, in which case the files are processed sequentially, and the names in the first column of each file are added to the list of members in the dimension.

To use drag and drop to add members to a dimension, a .csv file must conform to these requirements:

- It must be comma-delimited.
- It must use UTF-8 encoding.

The member names contained in the source .csv files should adhere to TM1 object naming conventions.
Note: There is no file size limit when you drop .csv files into the dimension editor, but large files might cause your web browser to time out while you wait for a response. The .csv files are still processed and the members are inserted into the dimension hierarchy.

Procedure
1. Open the Planning Analytics Workspace dimension editor.
2. Open or create an empty hierarchy.
3. Select one or more .csv files.
4. Drag and drop the files onto the empty dimension editor.

Results
The contents of the first column in the .csv file (or files) are inserted into the dimension editor as hierarchy members.

In this example, a .csv file contains three columns: the first column contains city names, the second column contains county names, and the third column shows population. When you drag and drop this file onto the dimension editor, the second and third columns are ignored, while the city names in the first column are inserted as dimension members.

If the source .csv files contain multiple occurrences of a member name, the member is created using the first occurrence encountered during processing.

TM1 allows both mixed-case characters and spaces in object display names, but ignores case and spaces when storing objects internally. This means that North America, NorthAmerica, and north america are equivalent member names in a TM1 database. If you dropped the following file onto the dimension editor, you’d see the member North America in your hierarchy, as that is the first occurrence encountered during file processing.
**Set the format of members**

You can set the format for values in dimension members in the dimension editor. The default format is General.

You can choose to format a member as one of the following formats.

**Note:** The examples shown use the actual value of -1234.567. The number changes based on the format used.

**General**
- Displays numbers without commas separating digits to the left of the decimal point. Negative values are prefixed with a minus sign (-).
- \(-1234.57\)

**Fixed**
- Displays numbers without commas separating digits to the left of the decimal point. Negative values are surrounded by parentheses.
- \((1234.57)\)

**Comma**
- Commas separate every third digit to the left of the decimal point.
- \((1,234.57)\)

**Percentage**
- Multiplies numbers by 100 and displays a following percent sign (%). Digits to the left of the decimal point do not use commas, and negative values are prefixed with a minus sign (-).
- \(-123456.70\%\)

**Scientific**
- Displays numbers in scientific notation. Scientific notation is a way of expressing very large or very small numbers. For example, the number 123,000,000,000 can be written as 1.23E+11.
- Negative values are prefixed with a minus sign (-).
- \(-1.2E+3\)

**Accounting**
- Displays numbers with currency symbols and decimal points in a column. Negative values are surrounded by parentheses.
- \($1,234.57\)

**Currency**
- Displays numbers with the currency symbol specified for your computer. Commas separate every third digit to the left of the decimal point. Negative values are surrounded by parentheses.
- \((\$1,234.57)\)

**Currency (rounded)**
- Displays numbers with the currency symbol specified for your computer. Commas separate every third digit to the left of the decimal point, rounded up to the nearest whole number. You can see the actual value by right-clicking in the cell. Negative values are surrounded by parentheses.
- \((\$1,235)\)

**Date**
- Gives you a date picker, and displays dates in a predefined format: mm/dd/yyyy.
- \(01/23/1989\)

**Time**
- Displays time in a predefined format: hh:mm:ss.
- \(12:30:00\)

**Custom format**
- You can define custom formats by using MDX syntax.

**Format examples**

The following list shows the standard formats that are used in IBM Planning Analytics Workspace.
You can create custom formats by modifying these examples. To find out more about the syntax, see “Numeric values” on page 137 and “Date and time display formats” on page 139.

1. Click **Dimensions**, right-click the dimension that you want to edit and click **Edit dimension**.
2. Right-click the dimension member or members, and click **Set Format**.
3. Select the format. For example, for a date format, select **Date**, and then click **OK**. If you selected a custom format, type the format in the field and click **OK**.

Make a member a numeric or a string value
You can change the properties of a member to make it numeric value or string, and you can change the weighting of a member.

**Procedure**

1. To open the member properties panel, select a member in the **Dimension Editor** and click **i**.
   The **Hierarchy Properties** panel opens.
2. To toggle to the **Member Properties** panel, click **o**.

You can change the following member properties:

**Type**
You can set a member type to Numeric or String.

**Note:** If the member is a consolidated member, you cannot change the type of the member.
**Weight**

Weight can be used to change a positive value to a negative value, often -1. For example, if the unit price for a product is EUR 50 and the discount is EUR 5, a weight of -1 is applied to the discount member to keep the addition result logical.

**Drag members as children or peers**

If you are in a **Dimension Editor**, you can drag and drop a member as a child of another member or as a peer of another member.

**About this task**

If you are sorting the members of your dimension in the **Dimension Editor**, the members are dropped in to the dimension according to the sort order.

**Note:** The following limitations apply:

- You cannot drag and drop a member as a parent of another member.
- You can multi-select members but the member that is dragged is always the last selected member. You cannot drag and drop multiple members.
- If you drag and drop a member as a child of another member, a dialog box warns you about potential data loss. This warning appears only if the dimension that you are editing is part of a cube and this action converts a leaf level member to a consolidated member.

![Drag and Drop](drag-and-drop.png)

**Procedure**

1. In the tree, navigate to the server that contains the data that you want to view.
2. Right-click an existing dimension, and click **Edit dimension** or **Edit dimension in new tab**.
   The **Dimension Editor** opens.
3. Search for a member of a dimension that you want to drag and select it.
   When you start to drag the selected member, a tooltip text appears. The icon inside the tooltip changes based on how you want to insert the member. As you drag the member that you want to move, a red line or border appears that indicates where you can drop the member.
4. Drag the member on top of another member to drop it as a child of another member.
   When you drag a member on top of another member to drop it as a child, the parent member has a red border that indicates a parent-child relationship.

![People](people.png)

**Note:** When you drop a member as a child, the parent member becomes a consolidated member. When you remove the child from the parent, the parent might become a childless consolidated member. The +/- icon appears for all consolidated members even if they have no children.

5. Drag the member between two members to drop it as a peer of another member.
When you drag a member between two existing members, a red line appears between the two members to indicate where you can drop the member.

6. Drag the member before or after an existing member.

When you drag a member before an existing member, a red line appears before the member to indicate that you can drop before this member.

Similarly, when you drag a member after an existing member, a red line appears after the member to indicate that you can drop after this member.

**Reserve a dimension**

When you work in the dimension editor, any changes you make are instantly applied so that anyone who has access to the server can see the dimension. You can reserve a dimension to prevent other people from editing the dimension before your changes are complete.

**Procedure**

1. In the dimension editor, click beside the dimension tile, and select Reserve. This icon indicates that the dimension is reserved and you can edit it:

   ![Reserve Icon]

   You can edit only the dimension members and hierarchy when a dimension is reserved, you can’t edit attributes or member security.
Another person trying to edit a reserved dimension sees this icon next to the dimension tile: . They can release a reserved dimension by clicking and selecting Release.

2. To undo changes to the dimension before the data is committed back to the database, click and select Cancel.

3. When your changes are complete, click and select Commit.

Find and filter members in the dimension editor
Modelers can find or filter on members in the dimension editor. In addition to filtering by member name, you can filter by sets.

Procedure
1. Right-click a dimension, and click Edit dimension or Edit dimension in new tab.

2. Type a phrase in the Find Members field and click to filter on the search phrase. Filtering narrows down the list of members to members that contain a search phrase.

3. Type a phrase in the Find Members field and click to highlight all instances of the phrase in the dimension. The first member in the dimension that contains the phrase is highlighted. The total number of members that are found is displayed, and you can cycle through the members by clicking the up and down arrows in the Find Members field.

   Tip: You can switch between Filter and Find by clicking the find or filter icons.

4. To filter on the dimension editor by set, click and select Filter by set. A list of the available sets appears. Filter many sets by typing a search phrase in the box at the top of the list of sets.

   To remove the set, click , and select Clear set filter.

   Note: When you filter by set, you cannot edit the hierarchy structure. Filter by set is used to make editing hierarchy attributes and member security easier.

Edit a dimension
You can edit dimensions with the Dimension Editor when you are a Modeler or an Administrator.

Note: All changes to your dimension are instantly applied on the server.

Procedure
1. To get started, open Planning Analytics Workspace and log in with a user that has the Modeler role.
2. Make sure that you are in edit mode to edit dimensions.

   You are in edit mode when the pencil icon in the upper left corner of the content pane is blue.
3. In the content tree, navigate to the server that contains the data that you want to view.
4. Right-click an existing dimension, and click Edit dimension or Edit dimension in new tab.
The Dimension Editor opens.

If the dimension is reserved by another user, it has this icon next to the dimension tile. If you are certain that they have finished with the dimension, you can release it by clicking and selecting Release.

5. To create another dimension, click beside your dimension tile and click Create New Dimension.

6. To create another hierarchy, click beside your hierarchy tile and click Create New Hierarchy.

What to do next

For more information about creating hierarchies, see “Hierarchies” on page 82.

Hierarchies

You can use hierarchies in dimensions to see alternate rollups of the data in the same view. For example, you could have a hierarchy that shows an organization rolled up by region, and a hierarchy that shows an organization rolled up by vice-president.

You can also create hierarchies of member attributes such as color, size, and type. You can use these hierarchies for filtering and analysis.

Use the hierarchy drop-down menu in the Dimension Editor to create and maintain hierarchies.

You can view this video to see how attribute hierarchies work in IBM Planning Analytics:

https://youtu.be/yQgcutv65eQ

All dimensions include a single hierarchy by default. Dimensions can include one or more hierarchies to make it easier to model your data without adding more dimensions. This approach reduces the number of dimensions in the cube. You also have greater flexibility when you query your model when you set up multiple hierarchies. An attribute can belong to any hierarchy in a dimension.

Note: Creating multiple hierarchies in a dimension is disabled in Planning Analytics Workspace by default. You must set the EnableNewHierarchyCreation configuration parameter in the tm1s.cfg file to true to enable hierarchy creation in Planning Analytics Workspace. For more information, see Parameters in the tm1s.cfg File in the Planning Analytics Installation and Configuration documentation.

You can perform the following tasks:
• Create hierarchies within dimensions
• Edit hierarchies, including cut, copy, or paste to and from Microsoft Excel or a text editor
• Delete hierarchies
• Edit the properties of a hierarchy

Note: Some dimension members might not be visible because of access permissions.

Create a hierarchy
You can create a hierarchy with the Dimension Editor when you create a dimension or in an existing dimension. You can also create a hierarchy by saving an existing hierarchy with a new name, and you can create a hierarchy from an attribute.

Procedure

1. To create a hierarchy from within the Dimension Editor, click beside the hierarchy tile and then click Create New Hierarchy.

2. To create a hierarchy from the content pane:
   a) Right-click a dimension and click Create hierarchy.
   b) Enter the name of the new hierarchy and click Create.

   Tip:
   If you want to edit this hierarchy in the existing Dimension Editor widget, clear the Open the new hierarchy in a dimension editor check box. If the check box is selected, the hierarchy is opened in a new Dimension Editor widget.

3. To create a hierarchy from an existing hierarchy:
   a) Click beside the hierarchy tile and select Save as.
   b) Name the hierarchy and click Save.
   This copies the members and attributes of the original hierarchy.

4. To create a hierarchy from an attribute, right-click an attribute in a dimension and click Create Hierarchy.
   For more information, see “Attributes” on page 85.

What to do next
Add members to the hierarchy by clicking . To find out more, see “Add members to a dimension” on page 74.

Edit a hierarchy
You can edit a hierarchy in the content tree.

Procedure
In the content pane, right-click a hierarchy and click Edit hierarchy or Edit hierarchy in new tab.
The hierarchy opens in the **Dimension Editor**.

### Delete a hierarchy
You can delete a hierarchy in the content tree.

**Procedure**

In the content pane, right-click a hierarchy and click **Delete hierarchy**.

### Edit hierarchy properties
You can edit the properties of a hierarchy in the information panel of the **Dimension Editor**.

**Procedure**

1. To open the hierarchy properties panel, select a hierarchy in the **Dimension Editor** and click ![info](image). The **Hierarchy Properties** panel opens.

2. You can change the following properties:

   **Element Sort Type**
   You can sort your elements by input, hierarchy, name, and level.

   If you select **By Name** or **By Level**, you can sort elements in ascending or descending order by using the **Element Sort Sense** drop-down list.

   **Component Sort Type**
   You can sort components by order of their input or by name.
If you select **By Name**, you can sort components in ascending or descending order by using the **Component Sort Sense** drop-down list.

**Note:** You can’t change the Hierarchy Name in the Hierarchy Properties panel. You must delete a hierarchy and recreate it with a different name if you want to change the name. You can select the attributes of an existing hierarchy, right-click and then click **Create hierarchy** to quickly recreate an existing hierarchy.

3. Click **Apply** to apply your changes.

**Note:** You might have to apply more than one change to order your members as you want. Click **Apply** after each change to view the results in the **Dimension Editor**.

### Attributes

Attributes help to explain or describe a member in a dimension.

For example, suppose that you have a dimension that lists cars. You could have attributes that describe fuel type, engine size or type, and number of doors.

You can show attributes in a table and you can select which attributes you want to show. You can sort on attributes, and you can convert attributes into a hierarchy. Converting attributes into hierarchies is useful if you want to group dimension members by attribute. For example, suppose that you want to display cars that have a gasoline engine, you can add an attribute called Engine type, then create a hierarchy from the Engine type attribute. You would then be able to group members by Engine type attribute in the view.

You add member attributes and hierarchy properties in the dimension editor.

If you want to show only members that have specific attributes, create a set by filtering on attributes. To find out more, see “Search for members in a set” on page 47.

### Create attributes

Creating attributes for dimensions helps users to understand the information in reports and views. If you are logged in with the modeler role, you can create attributes in the **Dimension Editor**.

**Procedure**

1. Make sure that you are in edit mode to edit dimensions.
You are in edit mode when the pencil icon in the upper left corner of the content pane is blue.

2. Right-click the dimension, and click Edit dimension or Edit dimension in new tab.

3. To open the attributes panel, in the Dimension Editor, click 📊.

4. To create an attribute, select a member and click ➕ in the Member Attributes bar.
   The Create new attribute dialog box opens.

5. Enter the attribute name, and select the attribute type.
   A column is created for each attribute, with the attribute type in the header.
   You can use the Alias attribute type to specify alternative names for dimension members.

   **Note:** You can hide the attribute type by clicking ⦿ and selecting Hide attribute type.

6. To view an alias in the dimension editor instead of the dimension name, click 🏷️ and select the alias.
   To clear the alias and view the dimension member name, select No alias.

7. When you have created your attribute, you can type or paste the attribute values into the cells.
   To paste values copied from a text file or spreadsheet, press CTRL + V.

   To learn more, see “Tutorial: Creating dimensions and hierarchies” on page 128.
Captions
The Caption ID is an attribute that has been given the alias attribute type, and a name of "Caption". You can choose whether to display the Caption ID, the member ID, or an alias in the set editor. If a caption exists, this is the default display name.

Caption ID
In Planning Analytics Workspace, the attribute name "Caption" must begin with a capital C. The value for the Caption ID must be unique. If a lower case c is used, the caption is listed as an alias, rather than a Caption ID. The Caption is the default value.

The Caption ID can be overwritten by localized captions. Localized captions can be created with a TurboIntegrator process, see Translating member names and “Create and edit processes” on page 91.

Member ID
The member ID is the name that a member was given when it was first created. The member ID cannot change.

Aliases
Aliases are attributes that have been given the attribute type of alias.

Show attributes in the cube view
Some dimensions have attributes; attributes help to explain or describe a member in a dimension. You can show member attributes in a table.

For example, suppose you have a dimension with car models with an attribute called CustomerTarget, and you want to see the customer target for each car model in the table. You can choose to show or hide this attribute.
**World sales**

<table>
<thead>
<tr>
<th></th>
<th>![CustomerTarget]</th>
<th>Jan</th>
</tr>
</thead>
<tbody>
<tr>
<td>L Series</td>
<td></td>
<td>63,761.00</td>
</tr>
<tr>
<td>L Series Sedan</td>
<td></td>
<td>62,642.00</td>
</tr>
<tr>
<td>L Series 1.6</td>
<td>Budget</td>
<td>17,085.00</td>
</tr>
<tr>
<td>L Series 1.8</td>
<td>Budget</td>
<td>20,644.00</td>
</tr>
<tr>
<td>L Series 2.0</td>
<td>Family</td>
<td>11,284.00</td>
</tr>
<tr>
<td>L Series 2.5</td>
<td>Family</td>
<td>13,629.00</td>
</tr>
<tr>
<td>L Series Wagon</td>
<td></td>
<td>385.00</td>
</tr>
<tr>
<td>L Series 1.8</td>
<td>Budget</td>
<td>71.00</td>
</tr>
</tbody>
</table>

**Procedure**

1. Right-click either the row selector, or the column selector, and select **Show attributes**.

2. Select the attribute that you want to show in the **Available attribute** pane, and click ![→] to move the attribute into the **Selected attribute** pane.
   - You can select several attributes and you can choose the order in which the attributes are displayed by moving them using the up and down arrows.
3. Click **OK** to save your choices and to return to the table.
   - If you have an attribute showing in the column, an icon ![üş] appears next to the column selector. To see the attribute name, hover over the icon.
4. You can sort the attributes in either ascending or descending order. Right-click either the row selector, or the column selector, and select either **Sort ascending** or **Sort descending**.
5. To hide attributes, right-click the row or column selector, and select **Hide attributes**.

**Edit attributes**

You can edit member attributes in the **Dimension Editor** when you create or edit members.

**Procedure**

1. To open the attributes panel, in the **Dimension Editor**, click ![ицы]
2. To edit an attribute, right-click the title of the attribute.
   - The attribute context menu opens. You can add another attribute, delete an attribute, keep, hide, show, sort, or search for attributes.
3. To change the attribute cell values, type in the cell.
   You can also right-click a cell value, and cut or copy a cell value. To paste a value, press Ctrl-v for Microsoft Windows computers, or Cmd-v for Apple Macintosh computers. You can paste a single value across multiple selected cells.

**What to do next**
For more information, see “Data entry” on page 25.

**Delete attributes**
You can delete member attributes in the Dimension Editor when you create or edit members.

**Procedure**
1. To open the attributes panel, in the Dimension Editor, click .
2. To delete an attribute, in the Member Attributes panel, right-click the title of the attribute column and click **Delete attribute** in the context menu.
3. Click **Ok** to confirm that you want to remove the selected attribute.

**Security**
You can can manage security for dimension members in the security view in the Dimension Editor.

In the security view, you create user groups, associate the user groups with dimension members, and assign rights to the user groups.

Say you have a Regions dimension:
- Total
  - Americas
    - Canada
    - United States
  - Europe
- France
- Germany
- United Kingdom
- Switzerland

You could have two user groups, Americas_group, Europe_group, and assign functions as follows:

**Americas_group**
Write access to Americas.
Read access to Europe.

**Europe_group**
Write access to Europe.
Read access to Americas.

You add users to user groups either in TM1 Architect, TM1 Performance Modeler, or in the Control Objects node of the content tree.

**Related information**
Managing Users and Groups
IBM Business Analytics Proven Practices: How to implement element or cube-based security for IBM Cognos TM1

### Create a user group
You can create user groups in the security view in the [Dimension Editor](#).

**Procedure**

1. To open the security pane, in the Dimension Editor, click 🗝.

2. To create a user group, click +.
   The Create New User Group dialog box opens.

3. Enter the group name and click Create.

4. To add security settings, type one of the options shown in the following table, in the cell.

   - **ADMIN**
     Complete access to a member.

   - **LOCK**
     Can view and edit a member, and can permanently lock the member to prevent other users from updating it.

   - **READ**
     Can view a member, but cannot perform operations on the member.

   - **RESERVE**
     Can view and edit a member, and can temporarily reserve the member to prevent other users from updating it.

   - **WRITE**
     Can view and update a member.

   - **NONE**
     Cannot see a member.

5. To cut, copy, or paste cell actions, right-click inside the cell and then select an attribute cell action from the menu.
   You can paste a single value across multiple selected cells.

### Delete a user group
You can delete user groups in the security view in the Dimension Editor when you create or edit members of a hierarchy.
Procedure

1. To open the security pane, in the **Dimension Editor**, click 🗝.

2. To delete a user group, select the user group and click 🗑.

3. Click **Ok** to confirm that you want to remove the selected user group.

**TurboIntegrator processes**

IBM Planning Analytics Workspace provides the ability to create, edit, and execute TurboIntegrator processes.

You can use TurboIntegrator processes to import or export data, create and maintain metadata/objects, and manage security on your database.

The Process Editor in Planning Analytics Workspace does not currently include the data source identification and mapping interfaces that are present in the Architect/Perspectives Process Editor, but the Planning Analytics Workspace Process Editor provides equivalent capabilities through full support of all TurboIntegrator and Rules functions. You can use the Planning Analytics Workspace Process Editor to edit processes that were created in other TM1 clients, such as Architect or Perspectives.

For complete details on TurboIntegrator processes, see the TM1 TurboIntegrator documentation. This documentation references a different user interface, which includes some capabilities that are not present in Planning Analytics Workspace. However, the general concepts, descriptions of process procedures, and examples are valid for both environments.

**Create and edit processes**

**Procedure**

1. To create a new process:
   a) In the content tree, expand the database on which you want to create the new process.
   b) Right-click the **Processes** group.
   c) Click **Create process**.
   d) Enter a name for the process.
   e) Click **Create**.

2. To edit an existing process:
   a) Right-click the process in the content tree.
   b) Click **Edit process**.

3. Enter your process statements directly in the Process Editor. Process statements are generally TM1 TurboIntegrator or Rules functions that execute actions upon data or metadata in your database.

   • For full descriptions of all TurboIntegrator functions, see [TM1 TurboIntegrator Functions](https://www.ibm.com/support/knowledgecenter) on IBM Knowledge Center.
   • For full descriptions of all Rules functions, see [TM1 Rules Functions](https://www.ibm.com/support/knowledgecenter) on IBM Knowledge Center. All Rules functions, with the exceptions of STET and ISLEAF, are valid in TurboIntegrator processes.

A TurboIntegrator process has four distinct procedures that are executed sequentially when you run a process.

<table>
<thead>
<tr>
<th>Procedure</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prolog</td>
<td>A series of statements to be executed before the data source is processed.</td>
</tr>
<tr>
<td>Metadata</td>
<td>A series of statements that update or create cube, dimensions, and other metadata structures during processing.</td>
</tr>
<tr>
<td>Data</td>
<td>A series of statements that manipulate values for each record in the data source.</td>
</tr>
<tr>
<td>Procedure</td>
<td>Description</td>
</tr>
<tr>
<td>-----------</td>
<td>-------------</td>
</tr>
<tr>
<td>Epilog</td>
<td>A series of statements to be executed after the data source is processed.</td>
</tr>
</tbody>
</table>

You must ensure that you create statements in the appropriate procedure within the process. For example, a statement that creates a new cube should be in the Metadata procedure. Similarly, any statements that update data values should be in the Data procedure.

When you enter a statement within any procedure section in the Process Editor, it must be either before this line:

```plaintext
#****GENERATED STATEMENTS START****
```

or after this line:

```plaintext
#****GENERATED STATEMENTS FINISH****
```

Do not insert any of your statements between the generated statements start and finish lines, as anything between these lines can be overwritten.

4. If you define parameters for the process, you can click **to return to the script view.**

5. Click **to save the process.**

6. Alternatively, click **to save as a different name.**

**Create and edit process parameters**

A TurboIntegrator process can include runtime parameters that are passed into the process upon execution. Parameter values are set when a user runs the process and answers prompts for parameter values.

**Procedure**

1. Click **on the Process Editor to open the parameter view.**
2. In the **Name** cell, enter a parameter name. Parameter names should adhere to TM1 object naming conventions, and should not include any TurboIntegrator reserved words.
3. In the **Prompt** cell, enter the question or prompt that a user will respond to when supplying a parameter value.
4. In the **Type** cell, choose a parameter type: numeric or string.
5. In the **Default Value** cell, enter a default value for the parameter.
6. Click **to create additional parameters, then repeat steps 2 through 5.**
7. To change the order of parameters, select a parameter, then use the arrow buttons to move the parameter up or down in the Process Editor.

8. To delete a parameter, select the parameter, then click 🔽.

9. If necessary, click 🔽 to return to the script view of the Process Editor.

**Results**

When a user runs the process, a dialog box requests answers to the prompts that you defined in step 3. The answers that the user supplies are passed into the process as parameter values.

![Parameters](image)

**Validate a process**

You can validate a TurboIntegrator process to check for errors that are not identified by the syntax error highlighting feature in the Process Editor.

**About this task**

Validation applies to the current state of the process, not the most recently saved version of the process. You don't need to save a process before validating it.

**Procedure**

Click 🔄 on the Process Editor to validate the process.

**Results**

If the process is valid and free of errors, the message **Process <process_name> is valid** appears at the top of the Process Editor.

If there are errors in the process, an error message displays a brief description of the first error in the process. Where applicable, the message indicates the procedure and line number at which the error occurs. You should correct the error before attempting to validate the process again.

The error checking that occurs when you validate a process also occurs when you save a process. You can save a process with errors, but the errors must be resolved before you can successfully run the process.

**Use the Process Editor**

The Planning Analytics Workspace Process Editor includes several features that simplify the creation and validation of TurboIntegrator processes.

**Process switching**

You can use the **Database** and **Process** lists to open a different process.
1. Database list

2. Process list

To open a new process that resides on the same database as the current process, click the Process list and then click the process you want to open.

To open a process that resides on a different database, click the Database list and pick the appropriate database, then click the Process list and click the process you want to open.

Procedure links

A TurboIntegrator process contains four procedures: Prolog, Metadata, Data, and Epilog. The Process Editor includes links to each procedure so you can quickly jump to the procedure you want to edit.

Procedure section collapse/expand

Click the small arrow next to any procedure section to collapse or expand the contents of the procedure.

Auto-completion

You can use the CTRL+SPACE keystroke combination to choose applicable items in the Process Editor.

- If you use CTRL+SPACE at the beginning of an empty line in the Process Editor, you'll see this list of categories:

  ![functions](image)

  **Functions**
  - Cubes
  - Dimensions
  - Groups
  - Processes
  - TI Variables
  - Attribute Types
  - Element Types
  - Data Source Types

  Double-click any of the categories to see a list of specific items, then double-click an individual item to insert it into the editor.

- If you use CTRL+SPACE after typing one or more characters of a function name, a list presents all functions that start with the characters you've typed. You can then double-click the desired function to insert it into the editor.

- When the cursor is positioned immediately before a parameter placeholder in a function, use CTRL+SPACE to display a list of valid parameter values, or in the case when there is only a single valid parameter value, to insert the value. If the cursor is positioned after a comma following a parameter, CTRL+SPACE lets you pick another parameter value of the same type as the previous parameter. For example, if the cursor is positioned after comma following a dimension name in the CubeCreate function, you can pick another dimension name to insert into the function.

Syntax highlighting

Syntax highlighting uses colors to let you quickly identify process components.
- comments: green
- local variables, declared within the process code: light blue
- variables created outside of the process code: dark blue
- reserved keywords, such as function names, conditions ('if', 'while', 'endif'), or predefined variables: magenta
- strings: red
- parameter names, shown by the auto-complete feature: teal
- everything else: black

**Error highlighting**

Syntax errors in your process script are indicated by an error symbol next to the line number in which the error occurs. Syntax errors are also highlighted with a pink background in the Process Editor.

You can hover over either the error symbol or the highlighted syntax error to view a description of the error.

```
38  #
39  #
40  vEleCount = DIMSIZEX(vDim);
```

In this example, the DIMSIZ function is incorrectly spelled DIMSIZE. The incorrectly spelled function is highlighted and the error description indicates that the highlighted item is not a valid TM1 function.

**Run processes**

You can run TurboIntegrator processes directly from the content tree or from within the Process Editor. Regardless of where you run the process, you cannot run a process that is being edited and has any unsaved changes. You must save (or discard) changes before running the process.

**Procedure**

1. To run a process from the content tree, expand the **Processes** group under the database where the process resides.
   a) Right-click the process.
   b) Click **Run Process**.

2. To run the current process in the process editor, click .
   a) You can click to cancel a running process in the Process Editor.

**Delete processes**

You can delete processes directly from the content tree.

**Procedure**

1. In the content tree, locate the process you want to delete.
2. Right-click the process.
3. Click **Delete process**.
4. Click **OK** to confirm the deletion.
Chapter 6. Administer IBM Planning Analytics Workspace

If you are an administrator, you can administer IBM Planning Analytics Workspace from the IBM Planning Analytics Administration tile or from the Administration page in Planning Analytics Workspace.

The following roles are available in Planning Analytics Workspace. The default role is Analyst.

**Administrator**
- By default, the administrator role is assigned to the first user in your organization's Planning Analytics Workspace account. This first administrator is also known as the subscription administrator. Only the subscription administrator can add new users. Administrators can assign roles to users, including the administrator role. Administrators can see all content in the workspace. Administrators have all the rights of a modeler. At least one user in an organization must have the administrator role. If the organization has only one administrator, this user cannot be deleted or assigned to another role.
- As an administrator, you can set permissions for a book. You can give another user View only, View & edit, or Full control access.

**Modeler**
- Modelers have all the rights of an analyst plus all the modeling permissions. They can create and share content, and edit content that is shared with them.
- Modelers can create, edit, and delete dimensions and hierarchies. They can add, delete, cut, paste, copy, move, and sort members and their attributes in a hierarchy.
- For more information, see “The modeler role” on page 66.

**Analyst**
- Analysts can create, edit, and share books and views. They can create and share content, and edit content that is shared with them. In addition, they have all the rights of a consumer.
- Analysts can delete books and views if they have Full control permission set for those books and views.

**Consumer**
- Consumers can open books and views and other content that is shared with them.
- Consumers cannot create their own books and views, but they can share content that is shared with them, with consumer rights only.
- Consumers can delete books and views if they have Full control permission set for those books and views.

**Note:** When you log in to Planning Analytics Workspace from an iPad, you are always a Consumer, regardless of your actual role. For more information, see “Accessing Planning Analytics Workspace from Apple iPad” on page 13.

Administer IBM Planning Analytics Workspace

If you are an administrator, and you have subscription administrator privileges, you can invite people to become users of IBM Planning Analytics Workspace in your organization. Administrators can also enable or disable access to the Set Editor, assign permissions for a book, delete chat conversations from a book, and enable/disable certain features in a Planning Analytics Local environment.

To find out whether you have subscription administrator privileges, in the Administration page, click your name to view your user profile. The subscription administrator is the first user in your organization's Planning Analytics Workspace account.

**Add users**
- If you are an administrator, and you have subscription administrator privileges, you can invite people to become users of IBM Planning Analytics Workspace in your organization.

When you add users, you must add the users to both Planning Analytics and Watson Analytics. *Be sure to invite the user to Planning Analytics first.* If a user is invited to Watson Analytics first, the user might not be able to accept an invitation to Planning Analytics. Similarly, if a user had a previous subscription to Watson Analytics, the user might not be able to accept an invitation to Planning Analytics. A user who is blocked from accessing Planning Analytics due to this problem must contact customer support.
Before you begin
If you want to add multiple users (bulk invite) by uploading a CSV file, first create a file that contains three columns with the users' details in the following order and format:

```
email_address,given_name,family_name
```

Don't include any other columns, and make sure that the columns have no empty fields.

The email address is used to sign in to Planning Analytics Workspace.

**Note:** You can bulk invite a number of users equivalent to (or less than) the actual available Planning Analytics Workspace subscriptions you purchased, exclusive of any overage allowances. For example, if you have seven subscriptions available with unlimited overage, you can bulk invite up to seven users. If you use bulk invite to invite a number of users greater than the number of actual available subscriptions, the bulk invite fails.

The workaround for this limitation is to use individual user invitations (which do allow overages when you surpass the number of purchased subscriptions) or work with support to increase the number of subscriptions purchased.

**Procedure**

1. On the **Welcome** page, click your user name, and then click **Administer**.
   The **Administer** option is available only if you are an administrator for Planning Analytics Workspace.
2. Click the **Users** heading.
3. To invite multiple users (bulk invite):
   a) Click **Upload users**.
   b) Drop the CSV file that contains the user details on top of the .csv icon on the screen, or browse to the file location and import the file.
   The users are loaded into the screen.
   c) You can change the user role for individual users before you invite them. The default role is **Analyst**. Click the user name and then select the role.
   d) Select the users that you want to invite, and then click **Invite uploaded users**.
   **Note:** Users who are invited individually receive your organization’s specific IBM Planning Analytics URL in their invitation email, but bulk-invited users do not receive the Planning Analytics URL from IBM. You must communicate URLs to users who are invited through the bulk invitation process.
4. To invite individual users, click **Invite user** and enter the details.
   Choose the user role.
   Click **Invite** and select an option:
   **Join account & use my subscription**
   You are responsible for managing users, such as removing them from the account, and paying for their usage.
   **Sign up for their own account & subscription**
   Users are responsible for managing their own account and paying for their usage.
5. Click **Manage user accounts** to add or remove user accounts, resend invitations, or export the user account list.

**What to do next**

Keep these points in mind when you invite new users.

- After a user is invited, their status is shown as **Invited but not active**. The invitation is sent to their email address and must be opened before they are activated. Invitations are valid for 28 days. You might need to remind the new user to accept the invitation before it expires. When the user accepts the invitation, their status changes to **active**.
- Invitation and confirmation emails come from several different IBM systems and email accounts. You must notify your users to expect these emails.
- A user must accept the invitation and log in to Planning Analytics Workspace before the administrator can change their role to **Modeler**.
Limit access to the Set Editor
If you are an administrator, you can enable or disable access to the Set Editor from a view or from a selector that is created from a dimension tile.

By default, users can access the Set Editor from a dimension tile in a view or from a selector that is created from a dimension tile on a sheet. When you disable access to the Set Editor, users cannot open the Set Editor, but they can select from members of the current set.

Procedure
1. Click a view or a selector on a sheet.
2. Click the Properties icon, then click Set Editor.
3. Clear the Allow access to Set Editor option.
4. To restore access to the Set Editor, repeat steps 1 and 2, then select the Allow access to Set Editor option.

Set permissions for a book
If you are an administrator, you can set permissions for a book.

Procedure
1. On the Welcome page, click on the tile of the book that you want to set permissions for.
2. Click Set permissions.
3. For each user that you want to have access to the book, click the appropriate permission level.
   - View only - The user can view content in the book but can't edit it.
   - View & edit - The user can view content in the book and edit values.
   - Full control - The user has full administrative control over the book and can modify and delete it.
   You can give a consumer, analyst, modeler, or administrator View only, View & edit, or Full control access.
4. Optional: Click Inherit permissions from folder to have the book inherit permissions from the folder that it resides in.
   If you select this option, you can't customize permissions for individual users.
5. Optional: Clear Inherit permissions from folder and click Clear all to reset the permissions.

Delete chats from a book
If you are an administrator, you can delete the entire chat conversation from a book.

Procedure
1. On the Welcome page, click on the tile of the book from which you want to delete the chat conversation.
2. Click Delete.
3. Click Delete again when prompted for confirmation.
IBM Planning Analytics Administration includes the ability to monitor and administer your TM1 databases from the Planning Analytics Monitoring dashboard. You must be an Administrator to access and use the dashboard.

To open the dashboard, click **Administration** on the Planning Analytics Workspace Welcome page. The dashboard opens in a new web browser tab.

The dashboard shows the TM1 databases that are available on your system, along with performance metrics, in accordance with your general configuration settings. Each database appears as an individual tile on the dashboard.

For each database, you can view a combination of performance metrics. These metrics help you determine the efficiency and status of your databases. You can define the Safe, Concern, and Critical thresholds for all performance metrics, as well as define which metrics appear on database tiles. A quick glance at the dashboard gives you a visual indication of the health of your databases.

- When any metric meets or exceeds the Critical threshold value, the metric is identified with a red “x” icon. If any single metric is critical, the entire TM1 database is considered to be in a critical state, as indicated by a red bar at the top of the database tile.
- When any metric falls within the Concern threshold range, the metric is identified with a yellow “!” icon. If there are no metrics in a critical state, but at least one metric is in a concern state, the entire TM1 database is considered to be in a state of concern, as indicated by a yellow bar at the top of the database tile.
- When any metric is at or below the Safe threshold value, the metric is identified with a green checkmark icon. When all metrics are safe, the entire TM1 database is considered to be in a safe state, as indicated by a green bar at the top of the database tile.
- Any database that is stopped appears with a gray bar at the top of the database tile.
- For each database that is running, the most recent start time is displayed. For each stopped database, the most recent stop time is displayed.

You can click on the tile of any running database to view a detailed report of the current database state.

---

**TM1 database**

- GO_New_Stores
  - RUNNING
  - Threads blocked: 0
  - Memory usage: 0.06 GB
  - CPU usage: 100%
  - Disk usage: 0.67%
  - Stop
  - Restart
- SData
  - RUNNING
  - Threads blocked: 0
  - Memory usage: 0.14 GB
  - CPU usage: 54%
  - Disk usage: 0.01
  - Start time: Aug 26, 2017 09:41:24 GMT
  - Stop
  - Restart
- Planning Sample
  - RUNNING
  - Threads blocked: 0
  - Memory usage: 0.14 GB
  - CPU usage: 0%
  - Disk usage: 0.01
  - Start time: Aug 26, 2017 09:41:24 GMT
  - Stop
  - Restart
- GO_scorecards
  - STOPPED
  - Threads blocked: 0
  - Memory usage: 0.01 GB
  - CPU usage: 0%
  - Disk usage: 0.01
  - Start time: Aug 26, 2017 09:41:24 GMT
  - Stop
  - Restart

**Total system resources**

- Memory used: 88.1%
- CPU used: 15.1%
- Disk used: 28.2%

**Sort by**

- Status
- Date

---

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In addition to showing the status for individual databases, the dashboard also shows the status of the total system resources on the computer where the databases are running. **Memory used**, **CPU used**, and **Disk used** are displayed as individual gauges, each showing the percentage of available resources currently used on the system. You can hover over the **Memory used** gauge to see a more precise report on the amount of memory that is currently being used.

As with individual databases, you can define the Safe, Concern, and Critical thresholds for the system resources. When a system resource is in a safe state, the gauge bar for the resource is green. When in a concern state, the gauge bar is yellow. When in a critical state, the gauge bar is red.

**Configure monitoring and set database configuration parameters**

You can configure General, Logging, Threshold, and Alerts settings to customize your monitoring environment. You can also set database configuration parameters that determine the behavior of your TM1 databases.

**Procedure**

1. Planning Analytics Monitoring dashboard, click 
2. Click the heading for the configuration settings you want to modify.
   - General
   - Logging
   - Thresholds
   - Alerts
   - Database Configuration

**Configure general settings**

General settings for IBM Planning Analytics Monitoring determine how frequently database status is refreshed and which databases are displayed on the Planning Analytics Monitoring dashboard.

**Procedure**

1. Click on the Planning Analytics Monitoring dashboard.
2. Click the **General** tab on the **Configuration settings** window.
3. Click **Auto refresh** to set the frequency of status updates for your TM1 databases.

   The frequency of updates is set according to the current state of a server. You can set distinct refresh intervals for databases in Critical, Concern, and Safe states. The thresholds that define Critical, Concern, and Safe are set on the Threshold configuration window.

   a) For each **TM1 Database status**, set an **Auto refresh time** in seconds. Generally, you want to refresh databases in a Critical state more frequently than databases in a Concern state. Similarly, databases in a Concern state should be refreshed more frequently than databases in a Safe state.

   The default auto refresh times are:

   **Critical**
   - 30 seconds

   **Concern**
   - 40 seconds

   **Safe**
   - 55 seconds.

   The minimum refresh time for all states is 5 seconds. There is no maximum limit.
b) Click **Apply** to save your settings.

c) You can click **Restore** at any time to restore the default refresh times.

4. Click **Hide/Show database** to set the TM1 databases that are displayed on the Planning Analytics Monitoring dashboard.
   a) For each TM1 database that you want to display on the dashboard, select the check box next to the database name. If you want to display all databases on the dashboard, click **Show all**. The default selection is **Show all**.
   b) For each TM1 database that you want to hide on the dashboard, clear the check box next to the database name.
   c) If you have many databases from which to choose, you can start typing a database name in the search bar to narrow the list of databases.
   d) Click **Apply** to save your settings.
   e) You can click **Restore** at any time to restore the default selection.

**Configure logging**

You can configure logging separately for each TM1 database on your system. Database logging is written to a `tm1server.log` file, which you can download to review or to provide to IBM support.

**Procedure**

1. Click on the Planning Analytics Monitoring dashboard.
2. Click the **Logging** tab on the **Configuration settings** window.
3. In the **Manage TM1 logging** list, click the database for which you want to configure logging.
   
   Only databases that are running appear in the list. If you want to configure logging for a database that is stopped, you must first start the database.

   The **Logging** tab displays all the logging categories that are available for your databases.

   ![Logging tab](image)

   All loggers are enabled and set to Info by default.

4. To enable or disable all loggers in a category, select or clear the check box next to the category name.
5. To enable or disable individual loggers within a category, expand the category, then select or clear the check box next to the logger name.
6. To add a new logger to a category, type the logger name in the log entry box, then click **+**. If the log entry box is not visible, click **Add more** to reveal it.

   The logger name you enter is immediately validated. If the logger name is valid it is added to the category. If the logger name is not valid, you receive an error.
7. By default, the logging level is set to **Info** when you enable a logger. You can choose to set the logging level to **Debug** for any logger.

**Info** logs informational messages that highlight the progress of the application and report normal transitions within the application.

**Debug** logs detailed, technical messages that are useful when customer support or engineering needs to debug the application.

8. For the TM1 Locking category, you can **Enable verbose** logging. This adds several loggers to the category, which allows more detailed logging on locking activity.

9. To delete a logger from a category, hover over the logger name, then click 🗑️.

10. Click **Apply** to save your logging settings.

11. You can click **Restore** at any time to restore all loggers to the default state, which is enabled with the logging level set to Info.

**Configure thresholds**

You can configure threshold settings that define database status by multiple metrics and define which metrics are displayed for each TM1 database on the Planning Analytics Monitoring dashboard. You can also configure threshold settings for system resource status.

**About this task**

When you set threshold limits, you define the parameters for the Safe, Concern, and Critical states of TM1 database metrics and system resource metrics. These states are displayed on the Planning Analytics Monitoring dashboard.

**Procedure**

1. Click 🎉 on the Planning Analytics Monitoring dashboard.
2. Click the **Threshold** tab on the **Configuration settings** window.
3. To configure database threshold settings, click **Database usage**.
   a) For each database metric, set the lower and upper threshold limits for the **Concern at** range.

   You can set threshold limits for the following metrics:

   - **Blocked Threads**
     Measures the number of blocked threads on your TM1 database. The default **Concern at** range for Blocked Threads is 5 to 9.

   - **CPU Usage**
     Measures CPU usage as a percentage of all CPU capacity on the computer where the TM1 database is running. The default **Concern at** range for CPU Usage is 70 to 95.

   - **Memory Usage**
     Measures memory usage in GBs. The default **Concern at** range for Memory Usage is 50 to 60.

   - **Disk Usage**
     Measures disk usage as a percentage of all installed disk storage on the computer where the TM1 database is running. The default **Concern at** range for Disk Usage is 65 to 85.

   Any value below the range you set is considered Safe. Any value above the range is considered Critical.

   The thresholds you define apply to all TM1 databases on your system. You cannot define unique thresholds for individual databases.

   b) For each metric that you want to display, select the **Show** check box next to the metric name.

   By default, all metrics are displayed.

   c) Click **Apply** to save your settings.

   d) You can click **Restore** at any time to restore the default threshold configuration settings.

4. To configure system threshold settings, click **System usage**.
   a) For each metric, set the lower and upper threshold limits for the **Concern at** range.

   You can set threshold limits for the following system metrics:
Memory Usage

Measures system memory usage in GBs. The default Concern at range for Memory Usage is 70 to 80 percent of installed memory on the system, expressed in GBs. For example, if your system has 50 GBs of memory, the default range is 35 - 40 GB.

CPU Usage

Measures CPU usage as a percentage of total CPU capacity on the system. The default Concern at range for CPU Usage is 70 to 95.

Disk Usage

Measures disk usage as a percentage of all system disk storage. The default Concern at range for Disk Usage is 65 to 85.

Any value below the range you set is considered Safe. Any value above the range is considered Critical.

b) Click Apply to save your settings.

c) You can click Restore at any time to restore the default threshold configuration settings.

Configure alerts

You can configure alerts to send notification to yourself and other users when TM1 database performance meets defined levels or when certain actions occur on the database. Alerts can be configured differently for individual databases.

Procedure

1. Click on the Planning Analytics Monitoring dashboard.
2. Click the Alerts tab on the Configuration settings window.
3. In the TM1 databases list, click the database for which you want to configure alerts.
4. Set Alert at levels for each Alert trigger. When the Alert at level is reached, notification is sent to users.
   - Memory threshold
     The amount of memory used by the TM1 database, in GBs. You can enter any value greater than or equal to 1, including decimals. The default value is 50 GBs.
   - Database unresponsive
     The length of time the database is unresponsive, in seconds. You can enter a value between 10 and 500, inclusive. The default value is 10 seconds.
5. For each Alert trigger that you want to result in notification, turn on the Notify user option.
6. Turn on the Notify user option if you want to be notified in the event of a Database shutdown.
7. Enter the email addresses of the users who receive notification in the Notify email ID(s) box. You can separate addresses with a comma, space, tab, or enter. You can also paste a comma-delimited list of email addresses in this box.
   Notification emails are sent from administration@planning-analytics.ibmcloud.com.
8. To clear all email addresses from the Notify email IDs list, click Remove all notifications.
9. Click Apply.

Set database configuration parameters

You can use IBM Planning Analytics Administration to set configuration parameters that determine the behavior of your TM1 databases.

About this task

The Planning Analytics Administration interface provides access to many, but not all, TM1 database parameters. Only the parameters that are explicitly described here can be set through the Planning Analytics Administration interface. For full descriptions of all TM1 database parameters, see Parameters in the Tm1s.cfg file.

Procedure

1. Click on the Planning Analytics Monitoring dashboard.
2. Click the **Database Configuration** tab on the **Configuration settings** window.

3. Click the database for which you want to set configuration parameters.

Parameters are organized in **Administration**, **Performance** and **Modelling** categories, and then further arranged by functional category.

**Administration category**
- **Default**
  - EnableSandboxDimension

**External Database**
- SQLRowsetSize

**Modelling category**
- **Startup**
  - PersistentFeeders

**Rules**
- AllowSeparateNandCRules
- ForceReevaluationOfFeedersForFedCellsOnDataChange

**Spreading**
- SpreadingPrecision

**Default**
- EnableNewHierarchyCreation

**TI**
- EnableTIDebugging

**Performance category**
- **MTQ (multi-threaded queries)**
  - NumberOfThreadsToUse

**Memory**
- MaximumViewSizeMB

4. Locate the parameter that you want to modify, then set a new parameter value.

5. Click **Apply**.

Database configuration parameters are identified on the **Database Configuration** tab as either dynamic or static. Dynamic parameter values can be changed without requiring a database restart. Changes to static parameter values require a database restart.

If you modify a static parameter, you receive notification that the database must be restarted before the new parameter value can be applied. You can click **Restart** on the notification banner to immediately shut down and restart the database. Optionally, you can restart the database at a later time from the Planning Analytics Monitoring dashboard.

6. You can click **Restore** at any time to restore all of the listed parameters to their default values.

**Monitor and manage database activity**

You can view a detailed report of activity on any running TM1 database. Using the information available in the report, you can cancel threads or disconnect users that are negatively affecting database performance.

**About this task**

A database activity report provide a summary of current thread status, showing the number of threads in Run, Wait, and Other states. The report displays a chart of thread states over time, as well as a table showing details on every thread on your TM1 database.

The report also shows the number of connected users and the average number of connections per user, along with database usage metrics. These are the same metrics that you configure on the “Configure thresholds” on page 103 page.

By default, thread status is updated every 10 seconds. If you want to refresh thread status more (or less) frequently, click and use the slider to set a different refresh interval.
For each thread you can view these details, arranged as columns in the report.

**Thread ID**
The unique numeric ID of the thread.

**State**
The current thread state. One of the following:
- Idle: not using resources
- Wait: waiting on other threads, blocked
- Running
- Commit: committing updates made by a thread
- Rollback: rolling back to a state prior to an update
- Login: when a user logs in and initiates a thread

**Thread info**
When a thread is in a wait state, this column displays the ThreadID of the thread that is blocking the waiting thread.

**Wait time**
The length of time, in seconds, that the thread has been in a wait state.

**Thread type**
Indicates a User or System thread.

**W locks**
The number of write locks the thread holds. A write lock allows only the thread that holds the lock to access and write changes to an object. No other thread can read or modify the object until the W lock has been released.

**Function**
The API function being executed by the thread.

**Thread name**
The name of the user who initiated the thread.

**Object type**
The type of object upon which the thread is operating.

**Elapsed time**
The total elapsed time of the thread in its current state.

**Context**
The connected client that is associated with the thread. For example, Architect, Perspectives, or BI.
Object name
The name of the object upon which the thread is operating.

R locks
The number of read locks the thread holds. A read lock allows many threads to read from an object at the same time, but does not allow another thread to modify or write to the object until all R locks have been released.

Ix locks
The number of intent-to-write locks the thread holds. An intent-to-write lock reserves the right for a thread to obtain a write lock on an object when all read locks have been released. Only one thread at a time is allowed to have an Ix lock on an object.

You can click to selectively hide or show any of these columns in your report.

Procedure
1. To sort values by any column, click the down arrow next to the column name and select a sort order. A small arrow appears next to the column name to indicate the sort order you apply.

   You can also click directly on a column name to cycle through the sort options.

   You can sort on multiple columns. When you do this, a small number appears next to the column name to indicate the order of precedence for sorting. In this example, ascending sorting is first applied to State, then descending sorting is applied to Wait time.

   When you apply sorting or hide columns, the column configuration is retained between sessions. The next time you open an activity report for any database, you'll see the same columns using the same sort order.

2. To search for values in a column, type the value in the box below the column name.

3. To cancel a thread, right-click any thread record, then click Cancel thread.

   You can cancel any user thread, including threads you own. You cannot cancel system threads.

4. To disconnect a user, right-click any thread record, then click Disconnect user.

   You can disconnect user threads, but not system threads. You cannot disconnect yourself.

Start and stop databases
You can start, stop, or restart TM1 databases from the Planning Analytics Monitoring dashboard.

Procedure
1. On the appropriate database tile, click Run to start a database.

2. Click Stop to stop a database that is running normally. Click Start again when you're asked for confirmation.

3. Click Restart to stop and then restart a database that is running normally. Click Restart again when you're asked for confirmation.

End an unresponsive database process
If a TM1 database enters an unresponsive or deadlocked state, you can end the database process.

About this task
Do not use this procedure to stop a database that is running normally. This procedure should be reserved only for databases in an unresponsive state. The End process option kills all the running threads in the database. Any data that is not logged prior to ending the database process is lost.

Procedure
1. Click on the unresponsive database tile.

2. Click End process.

3. Click End process on the confirmation box.
Download database log files

Procedure

1. On the Planning Analytics Monitoring dashboard, click on a database tile.
2. Click Download logs.
3. Save the tm1server.log file.

You can also download log files from the database activity report page. Click ↓.

Migrate assets [BETA]

If you are an administrator, you can migrate assets from a source environment (or tenant) in the cloud to a target environment (or tenant) in the cloud from the Lifecycle Management tab on the Administration page in IBM Planning Analytics Workspace. An asset can be a book or a view. Websheets are not supported as an asset type.

Important: Planning Analytics Lifecycle Management is available for beta testing. Currently, only those customers who request access can view the Lifecycle Management tab. To learn more, contact dcorbett@us.ibm.com.

Customers on the cloud are provisioned with multiple products in multiple environments. They can have a development environment and a production environment. They might also have a test or sandbox environment, or personal development environments.

As an administrator, you can migrate assets that are owned by any user from one environment to another environment. This capability makes it easier to build content in a development environment and then migrate it to your production environment when you are ready. If the target environment is available, you can migrate assets in one step. If the target environment is a IBM Planning Analytics Local instance, you can export your assets from your source environment and import them in the target environment.

You can also migrate assets from a TM1 database to another TM1 database by migrating assets to your source environment and selecting a new TM1 database. Or, you can create snapshots of assets without migrating them so that you can roll back to an earlier version of your assets whenever you want.

Note: A snapshot is a collection of assets at a single point in time. Lifecycle Management validates that the content of the snapshot that you are creating can be migrated to the target environment. When you migrate a collection of assets from the source environment to the target environment, all dependent assets are migrated. For example, a book might use a view, which in turn uses a named set. All of these objects are migrated with the book to the target environment. If a book contains a websheet, it must be migrated manually.

When you migrate assets to a target environment, the assets are added to a new folder in your personal space in your target environment. You can choose when to move the assets from your personal folder into a shared folder.
Prerequisites
To migrate assets with Lifecycle Management, you must be logged in to IBM Planning Analytics Workspace as an administrator.

To verify that you are an administrator, click your user name in the banner of Welcome page of Planning Analytics Workspace.

When you are an administrator, the Administrator option appears in the action menu. Click Administrator to open the Administration page.

For more information about the administrator role, see Chapter 6, “Administer IBM Planning Analytics Workspace,” on page 97.

Limitations
The following limitations apply to the beta version of Lifecycle Management in IBM Planning Analytics Workspace.

- Websheets are not supported as an asset type. You cannot create a snapshot that includes a Websheet.
- When you rename a snapshot with an existing snapshot name, you might see the duplicate snapshot error dialog box instead of a message in the rename snapshot dialog box.
- You cannot rename or update the description of a snapshot in an environment that you are not currently logged in to.
- You cannot remove a snapshot in an environment that you are not currently logged in to.
- On the Create snapshot page, if you clear the search after you do not find any assets that match your criteria, you might not be able to select any assets.
- The select all check box might be available even though there are no assets available to select.
- When you migrate a previously saved snapshot, you are able to select a folder name in the target environment. When you migrate a new snapshot, you must use the snapshot name as the folder name.
- When you apply filters and then undo the filters and repeat your original filters, you might be prompted to cancel or add the selected assets to your cart.
- The Hide assets functionality might not work correctly if you search for more assets or you sort the current assets.
- You might not be prompted to add your selected assets to your cart when you click the home icon.
- On the Manage snapshots page, when you are renaming a snapshot, the Save button is enabled even though you haven't made any changes or if you add a blank to the name.
- On the Manage snapshots page, when you select a snapshot to migrate, then use the search to add assets to the snapshot, and then clear the search, your added assets are removed.
- When you add assets to your cart and click Hide assets leaving the grid empty, clicking any sort icon displaces them, which causes the Name column to shrink.
- On the Create snapshot page, if you cancel the application of your filters while the assets are loading, loading stops and you can't perform any further actions.
- On the Create snapshot page, the modified date might not correctly match the actual date that you modified the asset.
- From the Manage snapshot page, during validation of an existing snapshot, if you try to select a different database and then you cancel the selection, you can't migrate the snapshot.
- If you import a snapshot and try to migrate it, you might notice that it sometimes remains in loading state.

The following limitations apply to specific browsers:

- In Firefox, some UI elements, such as the sort arrows or titles, might overlap with labels or appear incorrectly in languages other than English.
- In Safari, some UI elements, such as sort labels, buttons, and drop-down menus, might not appear correctly.
- On Chrome and Firefox, you might notice that the search function finds different assets in different browsers.
Getting started

You can access the Administration page from the action menu under your name on the Welcome page of IBM Planning Analytics Workspace. To migrate assets, on the Administration page, click the Lifecycle Management tab.

The home page of Lifecycle Management has three panes that provide useful information and action tiles.

The Starting points pane contains actions tiles to create a snapshot or manage existing snapshots. Click one of these tiles to get started. In a future release, the View snapshot logs tile will display the logs of recently saved or migrated snapshots.

In a future release, the Recent snapshot logs pane will display a quick list of recent Lifecycle Management activities for today, yesterday, and last week. Currently, you can see an example of recent activities that shows who saved, migrated, exported, or imported a snapshot and where they performed that action.

In a future release, the Asset snapshot usage pane will display a dynamic bar graph of the Lifecycle Management activities by date. Currently, the Asset snapshot usage chart shows an example of the three most active administrators who performed Lifecycle Management activities along the x axis. The number of assets that were added to a snapshot or migrated is shown on the y axis.

You can think of the following steps as the general work flow of Lifecycle Management:

1. "Create a snapshot of assets" on page 111
   - Filter and select books and views.
   - Add assets to your cart.
   - Optionally, review your cart, setting the target folder location and the TM1 database.
   - Optionally, save assets in a snapshot, adding a snapshot name and description, and migrate it later.
   - Migrate your assets to the target environment.

2. "Manage snapshots" on page 116
   - Find existing snapshots in your source environment.
   - Import a snapshot from your local file system.
   - Rename or remove an existing snapshot.
   - Export a snapshot.
   - Migrate assets in an existing snapshot to the target environment.
   - Save snapshots for migration later.
Create a snapshot of assets

You can add multiple assets to a snapshot so that you can migrate the assets to a target environment.

To get started migrating assets, from the home page of the Lifecycle Management tab, click Create snapshot. The Create snapshot page opens. Your source environment defaults to your current environment. You can filter to find assets and then migrate your assets to a target environment. You must apply your filters to select assets to include in your snapshot.

To return to the Lifecycle Management home page from each of the starting points pages, click Home.

Filter to find assets

When you click Create snapshot, you can use the filters to find assets to add to your snapshot. You must apply your filters to select assets to include in your snapshot. Only assets that are available to you are shown.

Source environment

You can select a source environment to use to find assets that are available in IBM Planning Analytics Workspace. By default, the source environment is the environment that you are logged in to. Only available environments are shown in the Source environment drop-down list.

When you select an environment from the Source environment drop-down list, you can filter for assets that are available in that environment.

Filters

You can use the filters under the source environment drop-down list to narrow the selection of assets to include in your snapshot.

You can use any of the following filters:

- **User** You can filter assets by the user that created the asset. The drop-down list is populated automatically with users who have assets that are associated with them when you log in to Planning Analytics Workspace. As an administrator, you can select assets that are owned by all users that appear in the list.
- **Asset Type** You can filter assets by type, such as Book. Currently, the supported asset types include Book and View.
- **Folder** You can filter assets by whether they are in the Personal or Shared folder in the source environment.
You can expand , collapse , and scroll through all the subfolders below the Personal or Shared folder. If there are no subfolders below a folder, you see the simple folder icon . When you find the folder that you want to select, click the name of the folder.

When you click Apply, filtering finds assets in that folder and in all its subfolders.

- **TM1 Database** You can filter assets by which TM1 database they belong to in the source environment. The drop-down list is automatically populated with TM1 databases that have assets that are associated with them. You can also filter assets that are not in any TM1 database by selecting None from the drop-down list.

- **Date Modified** You can filter assets by the date when they were modified. You can filter assets that were modified today, yesterday, within the last 7 days, within the last 30 days, or within the last 365 days. You can select a specific date or select a date range by using the data picker.

By default, all filters are set to All to include all assets.

1. To apply the filters, click Apply.

   When you change a filter selection, the assets in the filtered asset pane change to reflect the filter only when you click Apply.

2. To clear your filter selections and start over, click Clear all.

3. To toggle whether the filters appear, click .

**Filter assets text field**

You can filter for specific assets in the filtered assets pane by using the Filter assets text field. This filter finds all assets that match all or part of the criteria in any fields of the assets. This filter shows the complete set of assets that match your criteria. This makes it easy to search for assets that match your criteria, select all of the matching assets, and then add them to your cart.

1. Type your criteria in the Filter assets text field.
2. Click Apply.

**Sorting**

You can sort your assets in the filtered assets pane.

1. To sort by any field, click  beside the field that you want to sort on.
The icon indicates which field is sorted on and in which direction. For example, if the filtered assets pane shows Name, the sort icon beside Name is in focus and it indicates that you are sorting the assets alphabetically in ascending (A to Z) order.

2. To sort the assets alphabetically in descending (Z to A) order, click beside Name.

   Note: You can sort on only one column at a time.

When you are happy with your asset selections, continue to the next step to add assets to your cart.

   Note: If you change your filters or add criteria that changes the assets in your filtered assets pane after you select assets to add to your cart, a dialog box tells you that your selection will be cleared. You can add the selected assets to your cart or clear the current selection. It is a good practice to apply filters and criteria first and then select assets.

Add assets to your cart
When you are satisfied with your filtered assets, select assets and click Add to cart to add assets to a snapshot. You must select at least one asset to add to your snapshot.

   Remember: A snapshot is a collection of assets at a single point in time.

1. Select individual assets by clicking the check box beside an asset in the filtered assets pane. Clear the check box beside an asset if you don’t want to add it to your cart.
2. Select the check box on the heading row to select all of the assets in your filtered assets pane.

   Note: If you change your filters or add search criteria that changes the assets in your filtered assets pane after you select assets to add to your cart, a dialog box tells you that your selection will be cleared. You can add the selected assets to your cart or clear the current selection. It is a good practice to apply filters and search criteria first and then select assets.

3. When you are ready, click Add to cart.

   The Cart assets pane reflects the current contents of your snapshot.

   Note:

   • You can put only 100 assets in to your cart. If you exceed this limit, a dialog box tells you that your cart is too large. You must remove some assets and click Add to cart again.
   • You can’t add assets with the same name to your cart. If you add more than one asset with the same name, a dialog box tells you that your cart cannot contain assets with the same name. Click OK, remove some selections, and click Add to cart.
   • If you are adding an asset to your cart that contains a Websheet, you will see an indicator in the Contains Websheet column of the filtered assets pane. You can add the asset to your snapshot but you must manually move the Websheet to the application folder in the target environment of the asset.

4. When you want to hide the assets that you have already added to your cart, select Hide assets in cart.

   The assets that you added to your cart appear in your Cart assets pane but do not appear in your filtered assets pane. This is a good practice when you use different filter criteria to find assets to add to your cart.

   Optionally, you can click Review cart to review your snapshot and correct errors before you migrate it.

   Or, if you are not ready to migrate your assets yet, you can click Save to save your snapshot and migrate it later.

   If you are ready, you can migrate your assets in one step.

1. Click Migrate.

   The Save and continue migration dialog box opens.
2. In the **Select target environment** area, select a target environment to migrate your assets to.

Only target environments that you have access to are shown. When you select your target environment, a check mark ✓ appears beside the environment name.

3. Enter a name for your snapshot so that you can find it easily if you return to it later.

   **Note:**
   - The name of the snapshot must be unique. If you enter an existing snapshot name, you cannot save your snapshot.
   - The name of the snapshot must not continue invalid characters such as #\%\&\{\}<\*>\?$/"':@+`|\-.
   - Leading and trailing blanks are removed from the name of the snapshot.
   - Your snapshot must contain at least one asset.

4. Optionally, in the **Description** field, enter a description of the contents of the snapshot.

5. Click **Migrate**.

   A message indicates whether the migration was successful.

   If the migration wasn't successful, the validation page opens and you can continue to the next step to correct errors in your snapshot.

**Review your cart**

When you click **Review Cart**, you can review the contents of your snapshot. Each asset is shown with its source folder, created by user name, last modified date, modified by user name, TM1 database source, and TM1 cube source.

From the **Review cart** page, you can remove assets from your cart, click **Save** to save your snapshot and exit, or click **Migrate** to continue to the migration step.

1. To remove an asset from your cart, click ✗ beside the asset.

2. To remove all assets from your cart, click ✗ on the header row.

3. To find a particular asset to remove, use the find asset field. The find asset field on the **Review cart** page highlights all of the assets in your cart that match your criteria. All fields are searched for text that matches your criteria.

4. If you want to start again and edit this snapshot, click **Previous step**.

   You can filter for more assets to add to your cart and then review your cart again.

If you are ready to migrate your assets, follow these steps:

1. Click **Migrate**.

   The **Save and continue migration** dialog box opens.

2. In the **Select target environment** area, select a target environment to migrate your assets to.
Only target environments that you have access to are shown. When you select your target environment, a check mark ✓ appears beside the environment name.

3. In the **Snapshot name** field, enter a name for your snapshot of assets.

   **Note:**
   - The name of the snapshot must be unique. If you enter an existing snapshot name, you cannot save your snapshot.
   - The name of the snapshot must not continue invalid characters such as #%&[]{}<>+$!":@+`||=.
   - Leading and trailing blanks are removed from the name of the snapshot.
   - Your snapshot must contain at least one asset.

4. Optionally, in the **Snapshot description** field, enter a description of the contents of the snapshot.

5. Click **Migrate**.

   A message indicates whether the migration was successful.

   If the migration wasn’t successful, the validation page opens and you can continue to the next step to correct errors in your snapshot.

**Correct errors and validate**

When you click **Migrate** from the **Review cart** page, you save your snapshot and validate that the TM1 database is available in the target environment. If there are errors, the **Database Validation** page opens. You can review any validation failures, cancel the migration, correct errors and revalidate, or migrate your assets.

The validation page indicates the database in the source environment and the database in the target environment. If the migration of the assets from the source environment database to the target environment database is valid, a ✓ appears beside the database. All migration must appear with a ✓ before you can migrate your snapshot of assets.

1. Click **Cancel migration** to leave the migration process.

   Your snapshot is saved but your assets are not migrated to the target environment. You can revisit your snapshot from the **Manage snapshots** page. For more information, see “Manage snapshots” on page 116.

2. Click **Previous step** to review your cart and correct errors.

3. Correct errors on the **Database Validation** page.

   You can make the following corrections:

   - You can remove the database from your snapshot. Click ✗ to remove the asset from the snapshot. All assets in that database in the source environment are removed from the snapshot.
   - You can change the TM1 database in the target environment and select a replacement TM1 database to resolve a validation error. Click **Select a different database** and select a target TM1 database from the list. Only valid databases that exist in the target environment are shown in the dialog box.
4. When you have no errors in your validation results, click **Migrate now** to continue to the next step, **migrating a new snapshot**.

**Save a snapshot**

When you click **Save**, you can save a snapshot of the assets that you have selected.

1. Click **Save**.

   The **Save snapshot** dialog box opens.

2. Enter a name for your snapshot so that you can find it easily when you return to it later.

   **Note:**
   - The name of the snapshot must be unique. If you enter an existing snapshot name, you cannot save your snapshot.
   - The name of the snapshot must not continue invalid characters such as #%&\[\]<>+?$/"':@+=.`.
   - Leading and trailing blanks are removed from the name of the snapshot.
   - Your snapshot must contain at least one asset.

3. Optionally, in the **Description** field, enter a description of the contents of the snapshot and click **Save**.

   You can review your snapshot later by clicking **Manage snapshots** on the **Lifecycle Management** home page. For more information, see “Manage snapshots” on page 116.

**Migrate a new snapshot**

When you validate that all of the assets in your new snapshot can be migrated successfully, click **Migrate now**. By default, your assets are migrated to your personal area in a folder with the name that you specified.

The Assets deployment dialog box opens with a message that indicates that your assets were copied successfully to your target environment. Click **OK** to return to the **Create snapshot** page.

You can review your snapshot by clicking **Manage snapshots** on the **Lifecycle Management** home page. For more information, see “Manage snapshots” on page 116.

**Manage snapshots**

You can select a snapshot, review its contents, and then migrate its assets to a target environment.

From the **Lifecycle Management** page, click **Manage snapshots** to view a list of snapshots that have been created. The **Manage snapshots** page opens.

The snapshot list pane shows all snapshots from the current source environment with the current filter and search criteria applied. The results show all snapshots created by all administrators in your current environment. You can manage snapshots that were created by another administrator.
By default, the **Filter** pane on the left is collapsed. To toggle whether the **Filter** pane appears, click \( \text{Filter} \). The **Filter** pane expands with any filter selections that you entered and any row selections that you made previously. The default is no rows selected. You can change your filter criteria or clear all of your filter criteria. You can search for a snapshot. For more information, see “Filter and search for snapshots” on page 117.

You can also import a snapshot from your local file system by clicking **Import**.

The list of snapshots that were created in this environment is shown in the middle pane. Each available snapshot is shown with its name, the name of the user who created it, and its description if it has one. You can also see the date and time that the snapshot was last updated, how many assets it contains, and an action menu of available snapshot options. For more information, see “Rename or remove a snapshot” on page 118.

You can select the snapshot that you want to migrate and review its contents in the details pane. The details pane shows the snapshot name, when the snapshot was created, the user that created it, the snapshot description if there is one, and the number of assets that it contains. Each asset that is in the snapshot is shown with its name and the source environment folder. Click **Migrate** to start the migration process. For more information, see “Migrate an existing snapshot” on page 119.

You can always save a snapshot to begin the migration process later. Snapshots are kept for a specific amount of time. For more information, see “Save snapshots” on page 119.

**Filter and search for snapshots**

You can use the filter and search tools to find an existing snapshot that you saved previously.

The **Manage snapshots** page defaults to show you the current source environment. You can select another source environment and see a list of snapshots that were created with assets in the source environment.

By default, the **Filter** pane is collapsed. To toggle whether the **Filter** pane appears, click \( \text{Filter} \). The **Filter** pane expands with any filter selections that you entered and any row selections that you made previously. The default is no rows selected.

You can use the **Filter** pane to limit the snapshots that you see in the snapshot list.

- **User** You can filter snapshots by the user that created the snapshot. The drop-down list is populated automatically when you log in to IBM Planning Analytics Workspace. As an administrator, you can select snapshots that are created by all administrators.
- **Number of Books** You can filter snapshots by the number of books that they contain. You can find snapshots with any number of books (All), up to 20 books (0-20), between 21 and 100 books (21-100), or more than 100 books (> 100).
- **Date Modified** You can filter snapshots by the date that they were modified. You can by Today, Yesterday, Last Week, Last Month, Last Year, or a Custom Range. If you select **Custom Range**, use the date picker to enter your custom date range.

When you change a filter selection, the snapshots in the snapshot list pane change immediately to reflect the filter. To clear your filter selections and start over, click **Clear All**.

You can also search the filtered list of snapshots to find a specific snapshot. You can enter search criteria to find snapshots by name or by the name of the person who created them. When you click \( \text{search} \), you see an updated list of
snapshots in the source environment with the search field emptied and the current row selection cleared. The details pane is cleared.

You can sort the list of available snapshots by user, package, date, or number of books. You can sort ascending or descending.

1. To sort the list of filtered snapshots, click 📊.
2. Use ↑ and ↓ to toggle the direction of your sort.

When you select a snapshot, you can see a list of assets in the snapshot in the details pane.

To rename or remove a snapshot, click 📁. For more information, see “Rename or remove a snapshot” on page 118.

To migrate an existing snapshot, click Migrate. For more information, see “Migrate an existing snapshot” on page 119.

**Import a snapshot**

You can import a snapshot from your local file system into Lifecycle Management.

1. To import a snapshot, click Import.
2. Select a snapshot from your local file system.
   
   **Note:** You must choose a file with the GZ file type (.gz).
3. If a snapshot exists in your source environment with the same name as the file that you are importing, you can choose one of the following options:
   
   - Import and keep both snapshots by renaming the snapshot that is being imported. The existing snapshot remains unchanged and both snapshots appear in the snapshot list.
   - Import and replace the existing snapshot. The existing snapshot is deleted. The imported snapshot appears in the snapshot list.
   - Cancel your import. The existing snapshot remains unchanged.

**Rename or remove a snapshot**

You can change the name and description of a snapshot. You can also remove a snapshot.

1. On the Manage snapshots page, select a package in the list of snapshots pane and click 📁.

   The **Snapshot options** action menu opens.
2. To rename a snapshot, click **Rename** on the **Snapshot options** action menu.

   You can update the name of the snapshot and the description.

   **Note:**
   - The name of the snapshot must be unique. If you enter an existing snapshot name, you cannot save your snapshot.
   - The name of the snapshot must not continue invalid characters such as #%&[{}]

3. To remove a snapshot, click **Delete** on the **Snapshot options** action menu.

   You must confirm that you want to delete the snapshot. This action cannot be undone.

**Export a snapshot**

You can export a snapshot to your local file system and upload the snapshot into another IBM Planning Analytics Workspace target environment.

1. To export a snapshot, click **Export**.
2. Save the file to your local file system. The file is saved as a file with the GZ file type (.gz) in your default Downloads folder.

**Migrate an existing snapshot**

If you saved a snapshot, you can find that snapshot in the **Manage snapshots** page and migrate it to the target environment.

When you find an existing snapshot successfully, click **Migrate**. The **Review cart** page opens.

   ![Review cart](image)

   From the **Review cart** page, you can validate your cart and migrate your snapshot, or cancel the migration process.

1. To validate your snapshot, click **Migrate**. The **Select Target environment** dialog box opens. Select your target environment and enter a folder name to migrate your snapshot to and then click **Migrate**.

   The **Database Validation** page opens. For more information, see “Correct errors and validate” on page 115.

2. To exit the migration process without changing your snapshot, click **Cancel migration**.

**Save snapshots**

You can save snapshots for an extended period of time.
Chapter 7. Tutorials

Getting started in IBM Planning Analytics Workspace is easy. To find out what you can achieve, try these tutorials.

Analyzing expenses
This tutorial introduces you to the basic techniques that are needed to analyze expenses in Planning Analytics Workspace:

- Create a book.
- Navigate using the tree.
- Add a view to the book, and resize it.
- Focus on the data that you want to see by creating sets from dimensions.

Creating a map visualization
This tutorial shows you how to create a map visualization from TM1 data.

Creating dimensions and hierarchies
This tutorial shows you how to use multiple dimensions and hierarchies to model data about car sales.

Working with scorecards
This tutorial demonstrates how to work with scorecards and impact diagrams to explore relationships between metrics.

Tutorial: Analyzing expenses in Planning Analytics Workspace

This tutorial demonstrates the steps for analyzing expenses.

Creating a new book
You are going to create a new TM1 book to focus on expenses in your business.
You can view this video to illustrate the procedure described below.

https://youtu.be/i6yBPMeu23M

Procedure
1. In a web browser, go to the URL that you have been given and log in.
2. On the Welcome page, click and then click Book from template.
3. Name your book Expense input
4. Keep the default selections for the dashboard (Tabbed) and layout (Freeform), and then click Create.
5. Rename Sheet 1 to Expense input.
   Tip: Click Sheet 1 and then click the pencil icon.

6. Click , and choose whether this book is Shared or Personal, then click Save.

What to do next
Next, add some data to the Expense input sheet.
Creating the expenses plan

To create the expenses plan, add a view that already exists to the Expense input sheet.

You can view this video to illustrate the procedure described below.

https://youtu.be/xjA9Ct0IGhU

Procedure

1. Ensure that you are in edit mode. The pencil icon near the upper left of the browser looks like this icon in edit mode:

   Tip: The navigation tree is visible when you are in edit mode.

2. In the tree, click the + symbol next to Planning Sample to expand it, and then expand Cubes > plan_BudgetPlan > Views.

3. Drag the Budget Input Detailed view onto the Expense input sheet.

   Tip: You can also find and add this view to the sheet by typing view budget input detailed in the intent bar:

4. Click the Budget Input Detailed view. Resizing handles appear around the edges.

5. Resize the view to make it the full width of the Expense input sheet and half the height, so that you have room to add another view on the sheet.

6. Expand the plan_time dimension in the tree.

   Tip: You might need to scroll down the tree to find it the dimension. A dimension has this icon: and then click to see Sets, Levels, and Members

7. Expand Sets.

   Sets are selections of members in dimensions that you can use for focusing on smaller groups of members.

8. Find the Current Desc Year Qtr Month set and drag it on top of the plan time tile on the Expenses input sheet.

   This set replaces the plan time dimension with the Current Desc Year Qtr Month set.

   Tip: The plan time tile turns yellow when the Current Desc Year Qtr Month set is in the correct position to replace it.

9. Click the plan chart of accounts tile, and then click Edit this set to open the set editor.

10. Click the bullet icon and then click Children.

    This option means that when you select a member for insertion into the Current Set list, the member’s children are also selected.

11. Click Operating Expense in the Available Members list, and then click the Replace all arrow to replace all the members in the Current Set with your selection.
12. Click **Apply and close**.

13. Click the pencil to leave edit mode.
   
   Notice that the tree is hidden when you are not in edit mode. The pencil looks like this icon when you are not in edit mode:

   ![Pencil Icon](image)

**Results**

Your view should look similar to this image (the numbers might be different):

![ Spreadsheet View](image)

**Checking a value**

Because many people can use the same sample data, you need to check that a cell value is a specific value before doing the next tasks. This task is for the purposes of the tutorial scenario only, however, it demonstrates some useful techniques.

You can view this video to illustrate the procedure described below.

https://youtu.be/H4sBK_2DVwM

**Procedure**

1. On the Expense input sheet, double-click the **Travel** member to drill down onto it.

2. In the view, click ![Shortcut Bar](image) to display the shortcut bar, and then click

3. In the snap command bar, type **Germany** and **Marketing** and press Enter. This changes the plan business unit and plan department selections in the context area to Germany and Marketing.

To close the snap command bar, click ![Close Snap Command Bar](image)
4. In the **Travel - Other**, and **Feb-2004** cell, ensure that the value is around 13,937,000. If it is not this value, type 13,937k in the cell.

5. Click the view, click ➥, and in the snap command bar, type **UK** and **Direct** to change the plan business unit and plan department selections back to their previous states.

6. Right-click in the **Travel** row header and select **Drill up**.
   You can now see the **Operating Expense** set and its children in the rows.

### Planning the advertising and marketing budget

You want to do some planning for the advertising and marketing budget.

You can view this video to illustrate the procedure described below.

https://youtu.be/vROafoec1IE

**Procedure**

1. Double-click the **Adv & Marketing** member to drill down on it.

2. Keep the budget for Advertising and Marketing in Q1 constant by applying a hold. Right-click the cell at the intersection of **Adv & Marketing** and **Q1-2004**, and select **Hold and release > Hold**.

3. You are going to give more weight to the investment in your web site. Click the intersection of the cell for **Web Site, Mar-2004**, and change the value to 10000.

   **Tip:** You can also type 10k.

   See that the total value for **Adv & Marketing** stays the same, even though the value for **Web Site** in **Mar-2004** has increased.

4. Double-click in the **Web Site, Description** cell to add a comment to say what you have done.

5. Release the hold: right-click in any cell and select **Hold and release > Release all holds**.

### Creating a visualization to show expenses month by month

Now you'll duplicate the Expense input view so that you have two views on the Expense input sheet.

You'll also modify the new view and change it from an exploration (table) to a stack column visualization. Then you'll add the new visualization to the collection so that it can be easily reused in the same book or in another book.

You can view this video to illustrate the procedure described below.

https://youtu.be/BHWHjLFliXA

**Procedure**

1. You want to investigate **Operating Expense**. Right-click in the **Adv & Marketing** row header and select **Drill up**.

2. Change what you see in the Expense input view so that you have a global view of expenses.

   a) In the view, click ➥ to display the shortcut bar, and then click ➥
   b) In the snap command bar, type **all business units and all departments**.

3. Click the pencil to go into edit mode.
4. Click a cell to display the shortcut bar, then click the Duplicate icon to duplicate the Expense input view.

Drag the duplicate beneath the original view with the drag handle:

**Tip:** You might need to click in the white space and then click on the duplicated chart to select it.

5. You want to see only months, not quarters in the new view. In the tree, go to Planning Sample > Cubes > plan_BudgetPlan > plan_time > plan_time > Sets, and drag the n_level 2004 time set on top of the Current Desc Year Qtr Month tile to replace the dimension.

**Note:** If you can't see the Planning Sample in the tree, click the up arrow at the top of the tree to go to the previous level in the tree.

6. You don’t want to see the total Operating Expense in the new view. Right-click Operating Expense and select Hide.

7. Turn the new view into a visualization. Click the visualization, then select Change visualization from the shortcut bar. Choose the Stack Column visualization.

8. You want time to be on the x-axis, so swap the rows and columns around by clicking and clicking .

You now have a stack chart that shows you the operating expenses over the year.

9. Click the Show/hide overview icon in the shortcut bar to hide the context area.

This gives the visualization more space. You can see that travel expenses are very high in February.

10. Select the collections icon in the shortcut bar.

This adds a link to your visualization to your collection at the top of the browser. Objects saved in Collection can be easily accessed and reused either in the same Planning Analytics Workspace book or in another book.

**Tip:** Click the Collections icon at the top of the browser to show the Collection.

**Analyzing why the cost of travel is high in February**

Now it's time to create a new book to analyze why the cost of travel is high in February.

You'll also add a view from the collection, and modify this view to focus on travel in February. You'll use visualizations to figure out where the high cost is, and you'll fix the problem.

You can view this video to illustrate the procedure described below.
Procedure

1. Create a new book that uses the default layout.
   To create a book, go back to the Welcome screen by clicking Expense input (the name of your book) at the top of your browser, and selecting Welcome.

   Then click and then Book from template.

2. Name the new book Travel Analysis and click Create.

3. Click and select whether the book will be Shared or Personal and click Save.

4. Name the sheet Travel.

5. Click to hide the tree and free up some space.

6. Click the collection icon at the top of the browser to show your saved collections, and drag the Expense input view onto the Travel sheet.
   The chart highlights expenses. Focusing on February, you want to see the business unit, the organization, and department that the expenses come from.

7. Click the pencil icon to come out of edit mode.

8. Click the chart and in the toolbar, click the show overview icon to show the headings, and then select Change visualization from the shortcut bar. Choose the Table view.

9. You want to change the context around, but stay focused on the month of February. From the rows, drag Feb-2004 on top of the plan business unit tile.

10. You also want to focus on Travel. Drag Travel from the column headings onto the plan department tile to swap them around.

11. You want to look at the relative travel costs across individual departments and business units, and you don't want to see any totals. To hide the totals, right-click in the column selector and click Hide totals. Repeat for the row headings in the row selector.
12. Click the chart, and then select **Change visualization** from the toolbar. Select the **Heat** visualization.

13. In the heat visualization, you can see that the travel spend is all in Germany, in the Marketing department. Click that cell and you can see that the value is 13,937,000. Click the UK and Marketing cell and you can see that the value is just 9,971, and in Canada and Marketing, the value is 3,333.

   It looks like the travel spend figure in the Germany Marketing department is a typing error and should be 13,937.

14. You can fix this issue in the **Expense input** book. To return to the book, click the name of your current book, **Travel Analysis** to show the menu, and then select **Expense input**.

15. Double-click **Travel** to drill down on it.

16. Click the chart, click and in the snap command bar, type **Germany and Marketing**. This snap command sets Germany as the plan_business_unit, and Marketing as the plan_department.

17. Type 13937 in the **Feb-2004** and **Travel-Other** cell.

18. In the stack chart, you should now see that in February there are no anomalies in travel expenses.

19. Switch back to the Travel Analysis book, click the heat visualization, and click

   The scale changes, and you can see that the marketing spend on travel across all countries is the highest expenditure.

   You can also see that the travel spend in all departments in Canada appears to be lower than everywhere else.
Tutorial: Creating a map visualization

This tutorial demonstrates how you can create a map visualization from TM1 data.

To create a map visualization, one dimension must be named Region and contain valid cities or countries.

Procedure

1. In a book, add a sheet.
2. In the tree, expand the SData2 server, and then expand Cubes.
3. Right-click SalesCube and click Add new view.
4. Click to focus on the SalesCube in the tree.
5. Expand SalesCube, the Region dimension, the Region hierarchy, and Levels.
6. Drag the level003 onto the Rows area.
7. Click the Bench icon and drag the actvsbud, model, and month dimensions into the Context area, and account1 dimension into the Columns area.
8. Click the view, click , and then click the Change visualization icon in the shortcut bar.
9. Select the Map visualization.

What to do next

You can experiment with the view, changing the members, sets, and dimensions that you can see. Make sure that the Region dimension stays on the rows or columns, otherwise it will be impossible for IBM Planning Analytics Workspace to generate a map.

Tutorial: Creating dimensions and hierarchies

This tutorial uses multiple dimensions and hierarchies to model data about car sales.

About this task

Now it's time to create a new view of your sample data, and then create new dimensions and hierarchies that make it easier to model your data. Hopefully, this tutorial demonstrates some of the following benefits of using hierarchies:

- Hierarchies can improve query performance
- Modeling attributes as hierarchies instead of dimensions can save memory space
- Hierarchies give you greater flexibility
- Hierarchies conform to existing standards that already use hierarchies

Note: Think of a dimension as a container of hierarchies instead of a container of members. Now that you can create more than just one hierarchy in a dimension, the hierarchies are the containers of members and the dimension is a container of those hierarchies.

Let's start with the server and look at some data about car sales. In the SData sample in IBM Planning Analytics Local 2.0.0, the EnableNewHierarchyCreation configuration parameter in the tm1s.cfg file is set to true so this is a good place to start creating hierarchies.

Procedure

1. In the SData server, create a book and call your sheet Sales Variances by Target.
2. Right-click the **SalesCube** cube and click **Add new view**.

3. Open the bench and drag the **region** dimension on to the context area, the **model** dimension on the rows, and the **actvsbud** dimension in to the rows.

Your workspace might look something like the following image:

![Image of workspace showing variance analysis for car models by series](image)

This view is showing you the variance between actual sales and budgeted sales for each model of car that is broken down by series (S, L, and T Series).

4. In the content tree, expand the **SalesCube** cube, and then expand the **model** dimension.

You might notice that the **model** dimension has only one hierarchy right now and it is called **model**.

![Image of expanded dimensions](image)

The **model** hierarchy is the default hierarchy that was created when this dimension was created. You are going to create some more hierarchies and see how they impact the view of your data.

5. Right-click the **model** dimension and click **Create Hierarchy**.

Don't right-click the **model** hierarchy because you can't add a hierarchy under a hierarchy. You can add a hierarchy only to a dimension.

**Tip:** Remember, your dimension is a container of hierarchies.

6. Name the new hierarchy **CustomerTarget** and click **Create**.

You are going to use this hierarchy to see a different view of the models of cars that might help you analyze the demographics of your customers better.

Instead of looking at sales by series, you are going to view car sales based on whether they are targeted at sports car purchasers, off-road drivers, drivers with families, or budget-conscious customers.

7. To make things easier to view, in the **Dimension Editor** of the **CustomerTarget** hierarchy, click [ ] and create a member that is called **All Customer Targets**.

8. In the hierarchy editor, create four new members in the **CustomerTarget** hierarchy and add them as children of the **All Customer Targets** member.

- **Budget**
- **Family**
- **OffRoad**
- **Sport**
Because your hierarchy has no data about cars, there's nothing useful about this hierarchy yet.

9. Populate your new hierarchy with members. For tips and tricks, see “Data entry” on page 25.
   a) Right-click the **model** hierarchy and click **Edit Hierarchy**.
   b) Search for all the members of the **model** dimension and find all the wagons and copy them by using right-click **Copy member**.
   c) Paste each of the wagons into the **Family** member of the **CustomerTarget** hierarchy by using CTRL+V.
      You can copy and paste multiple members at a time if they are in a contiguous selection. You should find 12 members to add.
   d) Find all the convertibles and add them to the hierarchy as **Sport** members of the **CustomerTarget** hierarchy. There should be a total of four convertibles.
   e) Find all the coupes and add them to the hierarchy as **Sport** members of the **CustomerTarget** hierarchy. There should be a total of four coupes.
   f) Add all the 4WD vehicles to the **OffRoad** member of the **CustomerTarget** hierarchy. You should find eight 4WD vehicles to add as members here.
   g) Add all the Sedans to the **Budget** member of the **CustomerTarget** hierarchy. There are 13 sedans to add.
      If you want to, you can right-click the **model** dimension and click **Add as selector widget**. This makes it easier to jump to data points in your view. For more information, see “Selectors” on page 52.

10. Drag your **CustomerTarget** hierarchy beside your **model** hierarchy in your view.

11. Find the intersection of the **model** and **CustomerTarget** hierarchies to find out the sales variance of S-series family vehicles that were sold in 2015.

12. In the **Dimension Editor** of the **CustomerTarget** hierarchy, click ![Edit Attribute](image). Notice that the members have attributes already because these members exist in the **model** hierarchy also.

13. Right-click all the attributes that contain translated model names and click **Hide**.

   Notice that there is a member attribute called **Engine Size**. Let's populate this attribute with some useful data.

14. For each member, in the **Engine Size** attribute, enter the engine size of the car by using the series name. For example, for the L Series 1.8 L Sedan, enter 1.8 in the **Engine Size** attribute if it is not already filled in.
15. Now that you have all the Engine Size attributes entered, right-click the Engine Size attribute and click Create hierarchy and click OK.

A new hierarchy that is named Engine Size opens in a Dimension Editor widget. This hierarchy contains members that were previously member attributes.

16. Add the Engine Size hierarchy to your view beside the model and CustomerTarget hierarchies.

What to do next
Find the intersection of the data for all models that are targeted at sports car owners who want at least a 3.2-liter engine. Duplicate your view with the ProjectedSales dimension instead of the actvsbud dimension and see whether you can figure out which series and engine type is projected to have the most sales to families.

Without hierarchies, this intersection of the data would not be possible.
Tutorial: Working with scorecards

This tutorial demonstrates how to work with scorecards in IBM Planning Analytics Workspace.

You can view this video to follow along in the tutorial:

https://youtu.be/cuuuaEXWVL0

About this task

You'll create a book and add a scorecard and an impact diagram to explore the relationships among metrics. You'll also set up synchronization between these two visualizations and update the targets for the metrics.

Procedure

1. Create a book with the **Freeform** layout.
2. In the content tree, expand the **GO_Scorecards** database, navigate to **Cubes > Metrics cube - Marketing > Views**, and drag **View-Marketing** onto the sheet.
3. Double-click (or tap and hold) the Metric Indicators tile and click **Edit this set**.
4. Under **Available Members**, hold **CTRL** and select the **Status**, **Trend**, **Projected Actual**, **Target**, and **Tolerance** members.

5. Click to replace existing members with the selection, and click **Apply and close**.

6. Click the scorecard view to display the toolbar, and click to duplicate the view.

   **Tip:** To hide the toolbar, click 🎨.

7. Using the drag handle on the view, drag the new view below the first view.

8. Click the new view to display the toolbar, click change visualization, and select the **Impacts** visualization.
9. Set up synchronization between the scorecard and impact diagram. Click the scorecard view, click , select Synchronize, and then Synchronize dimensions.

10. Repeat the previous step for the impact diagram. Click Properties to close the pane.

11. Modify some targets in the scorecard view and see how they are reflected in the impact view.
   a) In the Time tile of the scorecarding view, select Feb 2017.
   b) In the Country or region tile of the synchronization view, select Canada.

   Notice how, in the scorecarding view, the Trend icon in the Campaign count row turns from unchanged into a downward trend . This is also reflected in the impact diagram.
Appendix A. Reference

Data spreading methods and data entry shortcuts

The following tables provide details for all spreading methods and data entry shortcuts that you can use in Planning Analytics Workspace.

For full details on data spreading, see Using Data Spreading in the TM1 Perspectives, TM1 Architect, and TM1 Web documentation on IBM Knowledge Center.

This table lists the data spreading methods, along with required and optional parameters, that are available in IBM Planning Analytics Workspace.

<table>
<thead>
<tr>
<th>Data Spreading Method</th>
<th>Code</th>
<th>Required Method Parameters</th>
<th>Data Action (Optional) *</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>Proportional Spread</td>
<td>P</td>
<td>Value to be spread</td>
<td>+, ~</td>
<td>P&lt;&gt;100</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Proportionally spreads the value 100 to all leaf cells on the row of insertion, and replaces the existing cell values.</td>
</tr>
<tr>
<td>Equal Spread</td>
<td>S</td>
<td>Value to be spread</td>
<td>+, ~</td>
<td>S+</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Equally spreads the value 200 to all leaf cells on the column of insertion, and adds the product of spreading to the existing cell values.</td>
</tr>
<tr>
<td>Repeat</td>
<td>R</td>
<td>Value to be spread</td>
<td>+, ~</td>
<td>R~&lt;50</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Subtracts the value 50 from all leaf cells to the left of the insertion point.</td>
</tr>
<tr>
<td>Percent Change</td>
<td>P%</td>
<td>Percentage</td>
<td>+, ~</td>
<td>P%+</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Applies a percent change of 10% to all leaf values, adds the product to the existing cell values, and increments all leaves by 10%.</td>
</tr>
<tr>
<td>Straight Line **</td>
<td>SL</td>
<td>Start Value and End Value</td>
<td>+, ~</td>
<td>SL&gt;100:200</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Replaces all leaf values to the right of the point of insertion, with a start value of 100 and an end value of 200.</td>
</tr>
</tbody>
</table>
Table 6: Data spreading methods (continued)

<table>
<thead>
<tr>
<th>Data Spreading Method</th>
<th>Code</th>
<th>Required Method Parameters</th>
<th>Data Action (Optional) *</th>
<th>Example</th>
</tr>
</thead>
</table>
| Linear Growth % **    | GR   | Start Value and Growth Percentage | +, ~ | GR|300:25
Applies a 25% growth percentage to the starting value of 300 and replaces all leaf values below the point of insertion. |
| Clear                 | C    | N/A                         | N/A                      | C|^<>
Clears values from all leaf cells in the view. |
| Leaf Hold             | H    | N/A                         | N/A                      | H<>/Holds all leaf cells on the row of insertion. |
| Release Leaf Hold     | RH   | N/A                         | N/A                      | RH<>/Releases all leaf holds on the row of insertion. |
| Consolidation Hold    | HC   | N/A                         | N/A                      | HC<>/Holds all consolidated cells on the row of insertion. |
| Release Consolidation Hold | RC | N/A                     | N/A                      | RC<>/Releases all holds of consolidated cells on the row of insertion. |
| Release All Holds     | RA   | N/A                         | N/A                      | RA/Releases all holds in the view. |

Note:
Direction Indicators for all items are: |, ^, <, >
* The default data action is Replace. The spreading syntax uses a tilde (~) to denote the Subtract data action, and a plus sign (+) to denote the Add data action.
** You can use the Straight Line and Linear Growth % methods across a single row or column, but not across rectangular ranges. You can use direction combinations of up and down (^ |) or left and right (< >), which are the only combinations allowed for these spreading methods.

Table 7: Data entry shortcuts

<table>
<thead>
<tr>
<th>Data Entry Shortcut</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>nK</td>
<td>Multiplies n by 1000. For example, if you enter 2.5K in a cell, the result is the value 2500.</td>
</tr>
</tbody>
</table>
Table 7: Data entry shortcuts (continued)

<table>
<thead>
<tr>
<th>Data Entry Shortcut</th>
<th>Result</th>
</tr>
</thead>
</table>
| nM                  | Multiplies n by 1000000.  
For example, if you enter 7M in a cell, the result is the value 7000000. |

**Numeric values**

Format expressions for numbers have up to four sections separated by semicolons (;). The number of sections determines which types of values are affected.

- If a format has one section, that section applies to all values.
- If a format has two sections, the first section applies to positive values and zeros, and the second section applies to negative values.
- If a format has three sections, the first section applies to positive values, the second section applies to negative values, and the third applies to zeros.
- If a format has four sections, the first section applies to positive values, the second section applies to negative values, the third applies to zeros, and the fourth applies to NULL values.

The following table describes how to construct a format string for numeric values:

<table>
<thead>
<tr>
<th>Format String Character</th>
<th>Description</th>
</tr>
</thead>
</table>
| # (number sign)         | Digit placeholder.  
The # placeholder displays only significant digits and does not display insignificant zeros. In the decimal value .90, the 0 is considered insignificant. The value would be displayed as .9 when the # placeholder is used.  
If a number has more digits to the right of the decimal point than there are placeholders in the format string, the number rounds to as many decimal places as there are placeholders. If there are more digits to the left of the decimal point than there are placeholders, the extra digits are displayed. |
|                         | The following examples illustrate the use of the # placeholder.  
**Example**  
Value: 123.896  
Format String: #.##  
Displays: 123.9  
**Example**  
Value: 456.873  
Format String: #.##  
Displays: 456.87  
**Example**  
Value: 34.5678  
Format String: #.###  
Displays: 34.568  
You can combine the # and 0 placeholders in a format string. |
<table>
<thead>
<tr>
<th>Format String Character</th>
<th>Description</th>
</tr>
</thead>
</table>
| **0 (zero)**            | Digit placeholder.  
The 0 placeholder displays insignificant zeros if a number has fewer digits than there are zeros in the format string.  
If a number has more digits to the right of the decimal point than there are placeholders in the format string, the number rounds to as many decimal places as there are placeholders. If there are more digits to the left of the decimal point than there are placeholders, the extra digits are displayed.  
The following examples illustrate the use of the 0 placeholder.  

**Example**  
Value: 23.896  
Format String: 0.00  
Displays: 23.90  

**Example**  
Value: 16.8  
Format String: 0.000  
Displays: 16.800  

**Example**  
Value: 7.12  
Format String: 000.0  
Displays: 007.1  
You can combine the # and 0 placeholders in a format string. |
| **E- E+**               | Scientific format.  
If the format string contains at least one digit placeholder (0 or #) to the right of E-, E+, e-, e+, the number displays in scientific format and E or e is placed between the number and its exponent.  
The number of digit placeholders to the right determines the number of digits in the exponent. Use E- or e- to place a minus sign next to negative exponents. Use E+ or e+ to place a minus sign next to negative exponents and a plus sign next to positive exponents. |
| **e- e+**               | **- + $ ()**       | Displays a literal character. To display a character other than one of those listed, precede it with a backslash (_) or enclose it in double quotation marks. (" ").  
Numeric Value: -1000.00  
Format String: ($-# .##)  
Displays: ($-1000.00) |
<table>
<thead>
<tr>
<th>Format String Character</th>
<th>Description</th>
</tr>
</thead>
</table>
| \                      | Displays the next character in the format string.  
                         Numeric Value: 100  
                         Format String: \t\o\t\a\l\l\=#  
                         Displays: total=100  
                         The following character cannot be displayed as literals: a, c, d, h, m, n, p, q, s, t, w, y, /, :, #, 0, %, E, e, comma(,), period(,), @, &, <, >, and ! |
| "ABC"                 | Displays the string inside the double quotes. (In this example, ABC would display.)  
                         Numeric Value: 100  
                         Format String: #" units"  
                         Displays: 100 units |

### Date and time display formats

The following table lists characters that can appear in a format string for date and time formats.

<table>
<thead>
<tr>
<th>Format String Character</th>
<th>Description</th>
</tr>
</thead>
</table>
| :                      | Time separator. (In some locales, other characters may be used to represent the time separator.)  
                         This character separates hours, minutes and seconds when time values are formatted. The actual character used as the time separator in formatted output is determined by your system settings. |
| /                      | Date separator. (In some locales, other characters may be used to represent the date separator.)  
                         The date separator separates the day, month, and year when date values are formatted. The actual character used as the date separator in formatted output is determined by your system settings. |
| C                      | Displays the date as ddddd and displays the time as ttttt, in that order. Displays only date information if there is no fractional part to the date serial number. Displays only time information if there is no integer portion.  
                         Example: 10/10/98 05:12:12 |
<p>| d                      | Displays the day as a number without a leading zero (1-31). |
| dd                     | Displays the day as a number with a leading zero (01-31). |
| ddd                    | Displays the day as an abbreviation (Sun-Sat). |
| dddd                   | Displays the day as a full name (Sunday-Saturday). |
| dddddd                 | Displays the date as a complete date (including day, month, and year), formatted according to the long date setting recognized by your system. For Microsoft Windows, the default long date is m/d/yy. |</p>
<table>
<thead>
<tr>
<th>Format String Character</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ddddd</td>
<td>Displays a date serial number as a complete date (including day, month, and year), formatted according to the long date setting recognized by your system. For Microsoft Windows, the default long date format is mmmm dd, yyyy.</td>
</tr>
<tr>
<td>w</td>
<td>Displays the day of the week as a number. (1 for Sunday through 7 for Saturday).</td>
</tr>
<tr>
<td>ww</td>
<td>Displays the weeks of the year as a number (1 - 54)</td>
</tr>
<tr>
<td>m</td>
<td>Displays the month as a number without a leading zero (1 - 12). If m immediately follows h or hh, the minute rather than the month displays.</td>
</tr>
<tr>
<td>mm</td>
<td>Displays the month as a number with a leading zero (01 - 12). If m immediately follows h or hh, the minute rather than the month displays.</td>
</tr>
<tr>
<td>mmm</td>
<td>Displays the month as an abbreviation (Jan - Dec).</td>
</tr>
<tr>
<td>mmmm</td>
<td>Displays the month as a full month name (January - December)</td>
</tr>
<tr>
<td>q</td>
<td>Displays the quarter of the year as a number (1 - 4).</td>
</tr>
<tr>
<td>y</td>
<td>Displays the day of the year as a number (1 - 366).</td>
</tr>
<tr>
<td>yy</td>
<td>Displays the year as a two-digit number (00 - 99).</td>
</tr>
<tr>
<td>yyyy</td>
<td>Displays the year as a four-digit number (0100 - 9999).</td>
</tr>
<tr>
<td>h</td>
<td>Displays the hour as a number without leading zeros (0 - 23).</td>
</tr>
<tr>
<td>hh</td>
<td>Displays the hour as a number with leading zeros (01 - 23).</td>
</tr>
<tr>
<td>n</td>
<td>Displays the minute as a number without leading zeros (0 - 59).</td>
</tr>
<tr>
<td>nn</td>
<td>Displays the minute as a number with leading zeros (00 - 59).</td>
</tr>
<tr>
<td>s</td>
<td>Displays the second as a number without leading zeros (0 - 59).</td>
</tr>
<tr>
<td>ss</td>
<td>Displays the second as a number with leading zeros (00 - 59).</td>
</tr>
<tr>
<td>ttttt</td>
<td>Displays a time as a complete time (including hour, minute, and second), formatted using the system time separator. A leading zero displays if the time is before 10:00 AM or 10:00 PM. For Microsoft Windows, the default time format is hh:mm:ss.</td>
</tr>
<tr>
<td>AM/PM</td>
<td>Uses the 12-hour clock. Displays an uppercase AM with any hour before noon; displays an uppercase PM with any hour between noon and 11:59 P.M.</td>
</tr>
<tr>
<td>am/pm</td>
<td>Uses the 12-hour clock. Displays a lowercase AM with any hour before noon; displays a lowercase PM with any hour between noon and 11:59 P.M.</td>
</tr>
<tr>
<td>A/P</td>
<td>Uses the 12-hour clock. Displays an uppercase A with any hour before noon; displays an uppercase P with any hour between noon and 11:59 P.M.</td>
</tr>
<tr>
<td>a/p</td>
<td>Uses the 12-hour clock. Displays a lowercase a with any hour before noon; displays a lowercase p with any hour between noon and 11:59 P.M.</td>
</tr>
<tr>
<td>Format String Character</td>
<td>Description</td>
</tr>
<tr>
<td>-------------------------</td>
<td>-------------</td>
</tr>
<tr>
<td>AMPM</td>
<td>Uses the 12-hour clock. Displays the AM string literal with any hour before noon; displays the PM string literal with any hour between noon and 11:59 P.M. AMPM can be either uppercase or lowercase, but the case of the string displayed matches the string as defined by your system settings. For Microsoft Windows, the default format is AM/PM.</td>
</tr>
</tbody>
</table>

**Exploration navigation shortcuts**

You can use keystrokes to move to different locations in an exploration (table) view.

<table>
<thead>
<tr>
<th>Keystroke</th>
<th>Navigation result</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Up, down, left, or right arrow keys</strong></td>
<td>Moves to the adjacent cell in the direction represented by the arrow key.</td>
</tr>
<tr>
<td>Backspace</td>
<td>Clears the content of the active cell.</td>
</tr>
<tr>
<td></td>
<td>In cell editing mode, Backspace deletes the character to the left of the insertion point or deletes selected text.</td>
</tr>
<tr>
<td>Delete</td>
<td>Clears the content of the active cell.</td>
</tr>
<tr>
<td></td>
<td>In cell editing mode, Delete deletes the character to the right of the insertion point or deletes selected text.</td>
</tr>
<tr>
<td>Esc</td>
<td>When in cell editing mode, Esc cancels the editing action.</td>
</tr>
<tr>
<td>Ctrl + Home</td>
<td>Moves to the first cell of the exploration.</td>
</tr>
<tr>
<td>Ctrl + End</td>
<td>Moves to the last cell of the exploration.</td>
</tr>
<tr>
<td>Page Up</td>
<td>Moves one screen up in the exploration.</td>
</tr>
<tr>
<td>Alt + Page Up</td>
<td>Moves one screen to the left in the exploration.</td>
</tr>
<tr>
<td>Page Down</td>
<td>Moves one screen down in the exploration.</td>
</tr>
<tr>
<td>Alt + Page Down</td>
<td>Moves one screen to the right in the exploration.</td>
</tr>
<tr>
<td>F2</td>
<td>Opens the current cell in editing mode.</td>
</tr>
<tr>
<td>Ctrl + right arrow key</td>
<td>Moves to the last visible cell in the current row.</td>
</tr>
<tr>
<td>Ctrl + left arrow key</td>
<td>Moves to the first visible cell in the current row.</td>
</tr>
<tr>
<td>Ctrl + down arrow key</td>
<td>Moves to the last visible cell in the current column.</td>
</tr>
<tr>
<td>Ctrl + up arrow key</td>
<td>Moves to the first visible cell in the current column.</td>
</tr>
</tbody>
</table>

**TM1 object naming conventions**

As a developer, you are responsible for creating and naming many objects in the IBM Cognos TM1 system. TM1 enforces some restrictions on naming while other guidelines offer best practices. Observe the following conventions when you name TM1 objects.

Although some of these characters are not reserved, it is a good practice to avoid the use of these special characters in most cases when you name objects and elements. See “Element names and MDX expressions” on page 143 for specific information about naming elements.
### Table 9: Special characters to avoid in object and element names

<table>
<thead>
<tr>
<th>Character</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>'</td>
<td>apostrophe</td>
</tr>
<tr>
<td>*</td>
<td>asterisk</td>
</tr>
<tr>
<td>@</td>
<td>at sign - see “Object names in TM1 rules” on page 143.</td>
</tr>
<tr>
<td>\</td>
<td>back-slash</td>
</tr>
<tr>
<td>:</td>
<td>colon</td>
</tr>
<tr>
<td>,</td>
<td>comma</td>
</tr>
<tr>
<td>{</td>
<td>curly brace - see “The curly brace in object names” on page 143.</td>
</tr>
<tr>
<td>&quot;</td>
<td>double-quote</td>
</tr>
<tr>
<td>!</td>
<td>exclamation mark - see “Object names in TM1 rules” on page 143.</td>
</tr>
<tr>
<td>&gt;</td>
<td>greater-than</td>
</tr>
<tr>
<td>&lt;</td>
<td>less-than</td>
</tr>
<tr>
<td>-</td>
<td>minus sign - in element names. See “Element names and MDX expressions” on page 143.</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>?</td>
<td>question-mark</td>
</tr>
<tr>
<td>;</td>
<td>semicolon</td>
</tr>
<tr>
<td>/</td>
<td>slash</td>
</tr>
<tr>
<td>~</td>
<td>tilde - see “Object names in TM1 rules” on page 143.</td>
</tr>
</tbody>
</table>

### Reserved characters per component

The following characters are explicitly reserved for the following components and must never be used when you name objects in these contexts:

- **TM1 Architect** reserves the following characters:
  \ / : * ? " < > | \ }

- **TM1 Server** reserves these characters in these objects: Cube, Dimension, Subset, View, Process, Chores.
  \ / : * ? " < > | ' ; ,

- For process variable name, the identifier cannot contain any special characters except for:
  AllowableChars[] = ".$\_ ";
The curly brace in object names

It is a good practice to avoid the use of the right curly brace (}) as the first character in any user-created TM1 object name. TM1 control object names always begin with the right curly brace. If a user-created object name begins with a right curly brace, the object becomes hidden if the Display Control Objects parameter is turned off.

Element names and MDX expressions

Do not use + or - as the first character of an element name. Although only the first element in a subset when slicing to active form cannot use + or - as the first character in the element name, it is a good practice to never use + or - as the first character of an element name.

Although all the other characters available for use in element names are technically not restricted, it is good practice to avoid the special characters that are listed in the previous table when you name elements.

An element name can contain a right square bracket ([ ] ) but when an element name that contains this character is referenced in an MDX expression, the character needs to be escaped by doubling it. For example, an element that is named Array[N] Elements, can be referred to in an MDX expression as [Array[N]] Elements.

Object names in TM1 rules

Although technically allowed, it is a good practice to avoid using these special characters in object names because they may conflict when used in a rules expression. This guideline protects you if the objects or elements ever become part of a rule statement where those special characters are not permitted.

- For example, ) | ~ ; @ \ / : * ? " < > are all often found in rules statements and should not be used in object names.
- The @ is technically not restricted, however it is a good practice to avoid using the @ character in object names or element names because the @ character is also a string comparison operator in TM1 rules. If you reference any object with a name that contains the @ character in rules, the object name must be enclosed in single quotation marks. For example, a dimension named products@location must be referenced as 'products@location' in rules. Escaping the name with quotation marks does not work in all cases, so it is best to avoid the use of @ in all cases when naming objects.
- Escaping the special character using quotation marks does not work for ! or in certain rule expressions.
- The exclamation point ! character must not be used in object names because it is also used in rules expressions. For example:

  DB('MarketExchange',!market,!date)

Maximum string length for data directory and object names

The entire string that is represented by the combination of the IBM Cognos TM1 server data directory name and the object name is limited to 128 bytes. For example, if your data directory is C:\Financial data\TM1\ (22 bytes), object names are limited to 106 bytes, inclusive of a file extension such as .cub or .rux.

Some TM1 objects, such as views, subsets, and applications, are stored in subdirectories of the TM1 server data directory. In this case, the 128-byte limit is applied to the combination of the TM1 server data directory, the subdirectory, and the object name.

Case sensitivity

Object names are not case-sensitive. For example, the dimension name actvsbud is equivalent to ActVsBud.

Spaces in object names

Spaces are allowed in all object names, but spaces are ignored by the IBM Cognos TM1 server. The TM1 server considers the dimension name Act Vs Bud to be equivalent to ActVsBud (or actvsbud).

User names

User names that include reserved characters cannot save private objects.
TurboIntegrator Reserved Words

This appendix lists IBM Cognos TM1 TurboIntegrator reserved words. To prevent errors in your TurboIntegrator scripts, you should avoid creating variables with names that match any of the words listed in the following tables.

There are four categories of reserved words in TurboIntegrator:

- Rule Function Names
- Process Function Names
- Implicit Variable Names
- TurboIntegrator Keywords

**Rule function names**

These are the reserved words for TM1 rule functions:

- ABS
- ACOS
- ASIN
- ATAN
- ATTRN
- ATTRS
- AVG
- BANNR
- BDATE
- BDAYN
- CAPIT
- CENTR
- CHAR
- CNT
- CODE
- COL
- Consolidate Children
- COS
- DATE
- DATES
- DATFM
- DAY
- DAYNO
- DBG16
- DBGEN
- DELET
- DFRST
- DIMIX
- DIMNM
- DIMSIZ
- DISPLY
- DNEXT
- DNLEV
- DTYPE
- DYS
- ELCOMP
- ELCOMPN
- ELISANC
• ELISCOMP
• ELISPAR
• ELLEV
• ELPAR
• ELPARN
• ELWEIGHT
• EXP
• FILL
• FV
• HEX
• IF
• INSRT
• INT
• IRR
• ISLEAF
• ISUND
• LIN
• LN
• LOG
• LONG
• LOOK
• LOWER
• MAX
• MEM
• MIN
• MOD
• MONTH
• MOS
• NCELL
• NOW
• NPV
• PAYMT
• PV
• RAND
• RIGHT
• ROUND
• ROUNDP
• SCAN
• SCELL
• SIGN
• SIN
• SLEEP
• SQRT
• STDDV
• STR
• SUBSIZ
• SUBST
• SUM
• TABDIM
• TAN
• TIME
• TIMST
Process function names

These are the TurboIntegrator process function names:

• AddClient
• AddGroup
• AllowExternalRequests
• ASCIIDelete
• ASCIIOutput
• AssignClientPassword
• AssignClientToGroup
• AttrDelete
• AttrInsert
• AttrPutN
• AttrPutS
• AttrToAlias
• BatchUpdateFinish
• BatchUpdateStart
• CellGetN
• CellGetS
• CellIsUpdateable
• CellPutN
• CellPutProportionalSpread
• CellPutS
• ChoreQuit
• CubeCreate
• CubeDestroy
• CubeExists
• CubeGetLogChanges
• CubeLockOverride
• CubeProcessFeeders
• CubeSetConnParams
• CubeSetIsVirtual
• CubeSetLogChanges
• CubeSetSAPVariablesClause
• CubeSetSlicerMembers
• CubeUnload
• DeleteClient
• DeleteGroup
• DimensionCreate
• DimensionDeleteAllElements
• DimensionDestroy
• DimensionEditingAliasSet
• DimensionElementComponentAdd
• DimensionElementComponentDelete
• DimensionElementDelete
• DimensionElementInsert
• DimensionElementInsertByAlias
• DimensionElementPrincipalName
• DimensionExists
• DimensionSortOrder
• ElementSecurityGet
• ElementSecurityPut
• EncodePassword
• ExecuteCommand
• ExecuteProcess
• Expand
• FileExists
• GetProcessErrorFileDirectory
• GetProcessErrorFilename
• IsNull
• ItemReject
• ItemSkip
• LockOff
• LockOn
• LogOutput
• NumberToString
• NumberToStringEx
• NumericGlobalVariable
• NumericSessionVariable
• ODBCClose
• ODBCOpen
• ODBCOutput
• ProcessBreak
• ProcessError
• ProcessExitByBreak
• ProcessExitByChoreQuit
• ProcessExitByQuit
• ProcessExitMinorError
• ProcessExitNormal
• ProcessExitOnInit
• ProcessExitSeriousError
• ProcessExitWithMessage
• ProcessQuit
• PublishView
• RemoveClientFromGroup
• ReturnSQLTableHandle
• ReturnViewHandle
• RuleLoadFromFile
• SaveDataAll
• SecurityRefresh
• ServerShutDown
• SetChoreVerboseMessages
• StringGlobalVariable
Implicit variable names

These are the implicit variable names for TurboIntegrator:

- DatasourceASCIIDecimalSeparator
- DatasourceASCIIDelimiter
- DatasourceASCIIHeaderRecords
- DatasourceASCIIThousandSeparator
- DatasourceCubeview
- DatasourceDimensionSubset
- DatasourceNameForClient
- DatasourceNameForServer
• DatasourceODBOCatalog
• DatasourceODBOConnectionString
• DatasourceODBOCubeName
• DatasourceODBOHierarchyName
• DatasourceODBOLocation
• DatasourceODBOProvider
• DatasourceODBOSAPClientId
• DatasourceODBOSAPClientLanguage
• DatasourcePassword
• DatasourceQuery
• DatasourceType
• DatasourceUseCallerProcessConnection
• DatasourceUsername
• MinorErrorLogMax
• NValue
• OnMinorErrorDoItemSkip
• SValue
• Value_Is_String

**TurboIntegrator keywords**

These are the reserved TurboIntegrator keywords:

- break
- else
- elseif
- end
- endif
- if
- while

**Map reference info**

Planning Analytics Workspace supports specific geographic entity values and languages for maps.

**Supported languages for maps**

Planning Analytics Workspace supports all continent and country names in the following list of languages. We also support local state and province names in their respective local languages for the languages on this list. For example, the name of the state of North Carolina in the United States is supported only in English. It is not supported in French as "Caroline du Nord" or in any other language.

Supported languages:

1. Catalan
2. Chinese-simplified (China)
3. Chinese-traditional (Taiwan)
4. Croatian
5. Czech
6. Danish
7. Dutch
8. English
9. Finnish
10. French
11. German
12. Greek
Troubleshooting

You can use these topics to help you get the best experience in IBM Planning Analytics Workspace.

Setting the TM1 Web session timeout

The default TM1 Web session timeout is 20 minutes. When TM1 Websheets are deployed to IBM Planning Analytics Workspace, you might encounter TM1 Web session timeouts. You can modify this setting in your environment.

About this task

The TM1 Web session timeout is determined by the <session-timeout> setting in web.xml.

**Note:** When TM1 Websheets are deployed to Planning Analytics Workspace, the recommended session timeout is 60 minutes.

```xml
<session-config>
    <session-timeout>60</session-timeout>
</session-config>
```

The web.xml file is located in your <installation_directory>/webapps/tm1web/WEB-INF directory. For example, C:\Program Files\IBM\cognos\tm1_64\webapps\tm1web\WEB-INF.

Procedure

1. Open web.xml in a text editor.
2. Change the <session-timeout> value to 60 or a value that is required by your environment.
3. Save and close web.xml.
4. Restart the IBM TM1 Application Server service.

Slow scrolling in Google Chrome browser

Scrolling in the Planning Analytics Workspace Content Tree or in cube views can be slow or unresponsive when using the default Chrome browser setting for Smooth Scrolling. To resolve this issue, modify the Smooth Scrolling setting from Default to Disabled.

Procedure

1. Type chrome://flags in the Chrome address bar.
2. Scroll down to find the Smooth Scrolling setting.
3. Change the setting from Default to Disabled.
4. Restart Chrome.

Help error: Unable to get resource file
When you view a topic in the IBM Planning Analytics Workspace integrated help system, you might see the following error message:

Unable to get resource file - https://www.ibm.com/support/knowledgecenter/SSD29G_2.0.0/com.ibm.swg.ba.cognos.tm1_prism_gs.2.0.0.doc/filename

If this message appears, there may be a problem with the Knowledge Center server. Try one of the following solutions:
- Wait a few minutes and then try selecting the topic again.
- Copy and paste the URL in the error message into your browser.

Accessibility
Accessibility features help users who have a physical disability, such as restricted mobility or limited vision, to use information technology products successfully.

The major accessibility features are described in the following list:
- You can use the keyboard to work in the set editor. To find out more, see “Use the keyboard to work in the set editor” on page 50.
- You can use command keys, or shortcut keys, to navigate through IBM Planning Analytics Workspace. Shortcut keys directly trigger an action and usually use the Ctrl keys. For example, to save a workbook, use Ctrl+S.
- Planning Analytics Workspace uses Web Accessibility Initiative - Accessible Rich Internet Applications (WAI-ARIA). This means that people with limited vision can use screen-reader software, along with a digital speech synthesizer, to listen to what is displayed on the screen.
- You can use a high-contrast display in Planning Analytics Workspace.

For more information about the commitment that IBM has to accessibility, see IBM Accessibility on the web (www.ibm.com/able).

View in high contrast
Users with low vision can make IBM Planning Analytics Workspace easier to view by enabling high contrast mode.

Procedure
Use the hc URL tag.
For example, https://neo.analyticszone.com/idvisualizations/?hc
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