IBM Cognos TM1
Version 10.2.2

User Guide

IBM

Product Information

This document applies to IBM Cognos TM1 Version 10.2.2 and may also apply to subsequent releases.

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Introduction

This document is intended for use with IBM® Cognos® TM1®

This manual describes how to use the TM1 Microsoft Windows clients: Architect, Perspectives, and TM1 Client. It also describes the web-based client, TM1 Web.

IBM Cognos TM1 integrates business planning, performance measurement and operational data to enable companies to optimize business effectiveness and customer interaction regardless of geography or structure. TM1 provides immediate visibility into data, accountability within a collaborative process and a consistent view of information, allowing managers to quickly stabilize operational fluctuations and take advantage of new opportunities.

Finding information

To find documentation on the web, including all translated documentation, access IBM Knowledge Center (http://www.ibm.com/support/knowledgecenter).

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Accessibility features help users who have a physical disability, such as restricted mobility or limited vision, to use information technology products.

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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.

Chapter 1. Getting Started

This section describes how to start up an IBM Cognos TM1 client and access data.

TM1 client differentiation

IBM Cognos TM1 provides multiple clients for both developers/administrators and end-users. Understanding theses clients and differentiating between them can help you decide which client is most appropriate for your needs.

All clients are described fully in the IBM Cognos TM1 documentation.

- The *Cognos TM1 Performance Modeler User Guide* describes the development and administrative capabilities of Cognos TM1 Performance Modeler.
- The *Cognos TM1 Developer Guide* describes the development and administrative capabilities of Cognos TM1 Architect and Cognos TM1 Perspectives.
- The *Cognos TM1 Operations Console Guide* describes how to monitor and administer servers with the Cognos TM1 Operations Console.
- The *Cognos TM1 User Guide* describes the end-user analysis capabilities of Cognos TM1 Architect and Cognos TM1 Perspectives.
- The *Cognos Insight User Guide* describes the end-user analysis capabilities of Cognos Insight.
- The *Cognos TM1 Web User Guide* describes the end-user analysis capabilities of Cognos TM1 Web.
- The *Cognos TM1 Applications Guide* describes the end-user analysis capabilities of Cognos TM1 Application Web.

End-user clients

Several end-user clients are available to interact with IBM Cognos TM1 data.

IBM Cognos Insight

IBM Cognos Insight is both a client for TM1 Application Web and a personal analysis tool that you can use to analyze almost any set of data. In the context of Cognos TM1 Application Web, Cognos Insight is a full client application that is provisioned locally or as a remote download. When used as a client for Cognos TM1 Application Web there are two modes in which Cognos Insight can be used: Connected Mode and Disconnected Mode.

Connected Mode creates a live, bi-directional connection to the Cognos TM1 server. Any data that is updated on the TM1 server is updated in the Insight client when you perform a recalculation in Insight. This ensures that the data on the Insight client is always current when performing analysis or contributing to a plan. The trade-off for the live connection to the TM1 server is that more traffic is generated on the LAN and a heavier load is placed upon the TM1 server as compared to Disconnected Mode. Connected Mode should be used by users who have as fast connection to the TM1 server and do not suffer from any network latency.

Disconnected Mode is currently available only with child level nodes. Disconnected Mode downloads and creates a local copy of the Cognos TM1 server

slice (TM1 model and data portion) with which you are working. This is beneficial in that it distributes the workload the TM1 server would have to maintain in any other connection mode. Processing is distributed between the client and the TM1 server in this mode. Disconnected Mode is beneficial to users on a high latency LAN or ur users who are geographically distant from the TM1 server. When a user opens Cognos Insight in Disconnected Mode the TM1 model slice is downloaded and cached. All interaction with data occurs against the local cache, greatly increasing the speed of response.

IBM Cognos TM1 Application Web

IBM Cognos TM1 Application Web is a zero-footprint web client that allows you to open and work with Cognos TM1 Applications using any supported web browser. From the Cognos TM1 Application Web workflow page, you can open a node, take ownership, enter data, and contribute to a plan. Cognos TM1 Application Web is most useful when a corporate policy prohibits the installation of a local client, or when using an operating system other than Microsoft Windows, as all TM1 thick clients are Windows-based.

IBM Cognos TM1 Web

IBM Cognos TM1 Web is a zero-footprint web client that allows you to analyze and modify Cognos TM1 data from any supported web browser. Cognos TM1 Web does not allow you to access the Cognos TM1 Application Web workflow page. Consequently, you cannot participate in Cognos TM1 Applications with TM1 Web.

Administration clients

These IBM Cognos TM1 clients can be used to administer your Cognos TM1 data and models.

IBM Cognos TM1 Performance Modeler

IBM Cognos TM1 Performance Modeler is the newest Cognos TM1 modeling tool, which lets you quickly create or generate dimension, cubes, rules, processes, and other objects. Performance Modeler simplifies the modeling process by automatically generating the rules and feeders required for your applications. Performance Modeler also introduces guided import, a simplified process for importing data and metadata into a TM1 server. Performance Modeler should be used as the primary development and maintenance tool for all new and existing Cognos TM1 models.

IBM Cognos TM1 Architect

IBM Cognos TM1 Architect is an older Cognos TM1 modelling tool that supports the creation and maintenance of all TM1 objects. TM1 Architect does not support automatic feeder and rules generation, and does not provide guided import capabilities. Architect users are encouraged to transition to Cognos TM1 Performance Modeler as the primary development environment for all TM1 models.

IBM Cognos TM1 Perspectives

IBM Cognos TM1 Perspectives is the TM1 Excel Add-In. Cognos TM1 Perspectives is an older tool that can be used for both Cognos TM1 model development and for analyzing data via Microsoft Excel capabilities. Like Cognos TM1 Architect,

Perspectives supports the creation and maintenance of all TM1 objects, but does not provide the advanced capabilities of Performance Modeler. End-users that require an Excel Add-In interface and the ability to use Microsoft Excel functionality, such as charting, while working with TM1 data can use Perspectives. Otherwise, administrators are encouraged to transition to Performance Modeler as the primary development environment for all TM1 models.

IBM Cognos TM1 Operations Console

IBM Cognos TM1 Operations Console is a web-based operations tool that is designed to facilitate the monitoring, support, and management of Cognos TM1 servers, providing greater insight into day-to-day server operations. The Cognos TM1 Operations Console allows you to dynamically monitor threads running on multiple TM1 servers at a given time. You can sort and filter thread activity, as well as schedule logging of server activity. The Operations Console also provides a health check feature which determines the current state of each TM1 server being monitored. The Operations Console should be the interface of choice for Cognos TM1 administrators who are managing an enterprise-scale TM1 environment.

Before You Start

Before you start using any of the IBM Cognos TM1 clients, you must have the TM1 software installed, along with any required software from other vendors. You will also need certain information about your network installation and appropriate security privileges to the servers and objects that you want to access.

Required Other Software

For details on the required hardware and software, see the Supported Hardware and Software topic on the IBM Cognos Information Center for this product.

Microsoft Excel Macro Security Setting

Microsoft Excel macro security must be set to either Low, Medium, or High to successfully run TM1 . Excel will not load TM1 if macro security is set to Very High.

When macro security is set to Low, Medium, or High **and** you have configured the TM1 add-in to load automatically when you start Excel, TM1 will always load without requiring you to respond to any prompt when you open Excel.

When you attempt to open TM1 from the Start menu on the Windows taskbar **or** by opening the Tm1p.xla file, results will vary according to the Excel macro security setting.
* If macro security is set to Low, TM1 will open without requiring you to respond to any security prompt.
* If macro security is set to Medium, you will be prompted to enable macros every time you open TM1 .
* If macro security is set to High, TM1 will not load in Excel. You will receive an error indicating that the workbook cannot be opened.

If you want to run with macro security set to High you must configure the TM1 add-in to load automatically when you start Excel.

Setting Macro Security
Macro Security in Excel can be modified to a number of security levels.

Procedure

1. Choose **Tools**, **Options** on the Excel menu bar.
2. Click the **Security** tab on the Options dialog box.
3. Click **Macro Security**.
4. Click the **Security Level** tab.
5. Select either **Low**, **Medium**, or **High** on the Security dialog box and click **OK**.

   A full description of each security setting is available on the Security dialog box.
6. Click the **Trusted Publishers** tab.
7. Select the **Trust all installed add-ins and templates** option.
8. Click **OK**.

Local and Remote Servers

Local and remote TM1 servers provide access to cubes and data stored either on your computer or on other computers in your network.

- A local server gives you exclusive access to data and objects in a set of Windows folders called data directories. During the TM1 client session, only you can create, browse, and modify data or objects that a local server stores. You can also control where the data directories are located.

  Note: The local server is supported only on 32-bit versions of TM1. The default data directory for the local server is Pdata. If you are running a 64-bit version of TM1, the Sdata sample server, which is installed by default with the TM1 server, contains the same objects and data as are found in Pdata.
- Remote servers provide access to shared data and objects in your organization. A user's level of access depends on the security group that the administrator assigns to the user name (client ID) that the user employs to access the remote server. For example, a user might be able to update March sales data that is stored on a department's remote server, but that user can only browse the campaign data stored on the Marketing department's remote server.
- You must know the name of the server with which you want to work. If you work with a local server, the server name is Local. If you work with a remote server, your server administrator must set up a user name and password for you before you can access that server.
- If you work with a remote server, you must know the location of the Admin Host on which a TM1 Admin Server is running, and the Admin Host must be accessible from your system.

  The Admin Server is a process that tracks the TM1 servers running on your network. A client references the Admin Server to determine which servers are available at any given time. For more information about the Admin Server, see "Accessing Remote Servers" on page 10.

  Any TM1 client can access remote TM1 servers, but only TM1 Architect and TM1 Perspectives support local TM1 servers.

Starting TM1 Clients

This section describes how to start TM1 clients.

- TM1 Perspectives and TM1 Client (Tm1p.xla) - run as add-ins to Microsoft Excel
- Architect (Tm1a.exe) - runs as a stand-alone application

Running TM1 Perspectives and TM1 Client

If you have configured Microsoft Excel to automatically load TM1, whenever Excel starts, TM1 is also loaded.

If you do not choose to automatically load TM1, click **Start**, **All Programs**, **IBM Cognos**, **TM1**, **Perspectives for MS Excel** from the Windows taskbar to start TM1 Perspectives or TM1 Client.

You can also manually load the TM1 add-in from Excel by following these steps:

Procedure

1. Choose **File**, **Open** from the Excel menu bar.
2. Navigate to the TM1 installation directory.
3. Double-click **Tm1p.xla**.

Configuring TM1 to Load Automatically when You Start Excel

During a TM1 installation, you can choose to automatically load TM1 when Microsoft Excel starts. You can also configure TM1 to load automatically.

Procedure

1. Click **Tools**, **Add-ins** from the Excel menu bar.
2. Select **TM1P**.
3. Click **OK**.

Local Server Startup

Depending on a client's TM1 configuration options, a local TM1 server may automatically start when you run Perspectives or TM1 Client.

For more information about starting the local server at the beginning of a session, see "Setting Client Options."

Running Architect

Architect can be run using one of two different methods.

- On the Microsoft Windows taskbar, click **Start**, **All Programs**, **IBM Cognos TM1**, **Architect**.
- Open **Tm1a.exe** in the TM1 *<install_dir>*\bin directory. The default path to the file is C:\Program Files\IBM\Cognos\TM1\bin\tm1a.exe.

Depending on a client's configuration options, a local server may automatically start when you run Architect. For more information about starting the local server at the beginning of a session, see "Setting Client Options."

Setting Client Options

You can set the following TM1 client options in the TM1 Options dialog box. The TM1 client options are written to the Tm1p.ini file, which stores all the configuration parameters for TM1 clients.

- Login behavior for TM1 clients
- Whether the client can access a private database on a local server
- Whether the client can access remote TM1 servers across the Internet

For details on all the parameters available in Tm1p.ini, see the IBM Cognos TM1 *Installation and Configuration Guide*.

Setting Login Parameters

Login parameters define how TM1 clients connect to remote TM1 servers, either on a network (LAN or WAN) or across the Internet.

To set login parameters, you must perform these tasks:
* Specify the Admin Host.
* Set the Integrated Login option.

Specifying the Admin Host

The Admin Host is a machine on which an Admin Server is running. The Admin Server is a process that tracks all the TM1 servers that run on a network. Remote servers register information about themselves on the Admin Server. In turn, TM1 clients reference the Admin Server to locate the TM1 servers available on a network.

TM1 clients can then log in to these servers through the Server Explorer, as described in "Logging in to a Remote Server" on page 11.

Procedure

1. Open Server Explorer.
2. In the left pane, select **TM1** .
3. Click **File**, **TM1 Options**.

   The TM1 Options dialog box opens.
4. In the Admin Host field, specify the name of the computer on which the TM1 Admin Server is running. If you want to access servers registered on different Admin Servers, use a semicolon to separate the name of each Admin Host.

   Note: You must enter a name, not an IP address, in the Admin Host field.

   You can also click the **Admin Host** ⬛ button to select one of the six most recently used Admin Hosts.
5. Click **OK**.

   A message prompts you about disconnecting from currently accessed servers.
6. If you want to access a new list of servers, click **Yes**. If you want to continue to see the current list of remote servers during this session, click **No**.

   If you click Yes, servers available through Admin Server on the specified Admin Host appear in the left pane of the Server Explorer window.

Setting the Integrated Login Option

Integrated Login enables the TM1 client to use Windows network authentication to access TM1 servers. After you log in to a Windows workstation, you can access TM1 without being prompted for a user name or password. In contrast, using standard TM1 authentication, you must supply a user name and password whenever you log in to a server.

Your administrator must configure and enable Integrated Login on TM1 servers.

Note: Before you enable Integrated Login on the TM1 client, consult with your administrator to determine if Integrated Login is enabled on the servers you will access.

Enabling the integrated login:

The Integrated login must be enabled manually in order for it to function.

Procedure
1. Open Server Explorer.
2. In the left pane, select **TM1** .
3. Click **File**, **TM1 Options**.
   The TM1 Options dialog box opens.
4. Select the **Integrated Login** option.
5. Click **OK**.

Using standard TM1 authentication:

In order to use standard authentication, it must be enabled.

Procedure
1. Click **TM1 Options** on the Excel menu bar.
   The TM1 Options dialog box opens.
2. Clear the **Integrated Login** option.
3. Click **OK**.

Setting Local Server Options

Running TM1 with a local server is optional. If you work with data only on remote servers, you can prevent a local server from starting at the beginning of the client session. A remote server is any TM1 server your computer accesses over a network.

If you choose to run a local server, you can specify the data directory that is loaded when the local server starts.

You set these configuration options in the TM1 Options dialog box.

Procedure
1. Open Server Explorer.
2. In the left pane, select **TM1** .
3. Click **File**, **TM1 Options**.
   The TM1 Options dialog box opens.
4. Start the local server manually or automatically:
   - **Manually** - To prevent the local server from starting at the beginning of a session, clear the Connect to Local Server on Startup check box.
   - **Automatically** - To automatically start the local server at the beginning of a session, select the Connect to Local Server on Startup check box.
5. To specify the data directory loaded when the local server starts, enter the full path to the data directory in the **Local Server Data Directory** box.
   Click **Browse** to navigate to the appropriate data directory, or click the **Local Server Data Directory** ▪ to select one of the six most recent paths to a Local Server Data Directory from a history list.

You can concatenate multiple data directories in the Local Server Data Directory box. To do so, separate each directory with a semi-colon (;), as in the following example:

`C:\TM1data\sales;C:\yearly projections\TM1data\expenses`

When you specify multiple data directories, all objects and data from each directory are loaded when a local server starts. In the event that an identically named object exists in multiple directories, the first object encountered is used.

Note: When you specify multiple data directories for a local server, any directory after the first directory is accessed in read-only mode.

6. Click **OK**.

Setting Admin Server Secure Socket Layer Options

The TM1 client always communicates with the Admin Server via Secure Socket Layer (SSL). By default, the client is configured to use the TM1 generated certificates that are included as part of a standard TM1 installation. You can modify a client to use custom certificates or retrieve certificates from the Windows certificate store.

Procedure

1. Open Server Explorer.
2. In the left pane, select **TM1** .
3. Click **File**, **TM1 Options**.

   The TM1 Options dialog box opens.
4. In the **Certificate Authority** field, specify the full path to the certificate authority file that issued the Admin Server's certificate.
5. If a certificate revocation file exists, specify the full path to the file in the **Certificate Revocation List** field. This is an optional field; if a revocation file does not exist, leave this field blank.
6. Enter the name of the principal to whom the Admin Server's certificate is issued in the **Certificate ID** field.
7. Select the **Use Certificate Store** option if you want to retrieve the certificate authority file that issued the Admin Server's certificate from the Windows certificate store. If this option is selected, the certificate authority file specified in the Certificate Authority field is ignored.
8. If you enable the Use Certificate Store option, you must enter a valid **Export Certificate ID** to specify the identity key used to export the certificate authority file.
9. Click **OK**.
10. Restart the TM1 client.

Using the Server Explorer Window

The Server Explorer window is the starting point for most activities within IBM Cognos TM1 .

Server Explorer is the starting point for the following activities within Cognos TM1 :

- Creating cubes, views, dimensions, subsets, processes, and chores.
- Viewing data in cubes.

- Reviewing the list of cubes and dimensions stored on a local server and on remote servers.
- Logging in to remote servers.
- Importing data into cubes.

You can access Server Explorer from TM1 Perspectives or TM1 Client.

Procedure

1. Open Microsoft Excel.
2. If necessary, load the Tm1p.xla add-in, as described in "Running TM1 Perspectives and TM1 Client" on page 5.
3. Click **TM1** , **Server Explorer**.

   The Server Explorer window opens.

   When you start Architect, Server Explorer opens immediately.

Viewing Information about Objects on the Server

The Server Explorer window is divided into two re-sizable panes.

- **Tree pane (left pane)** - presents hierarchical lists of cubes, dimensions, processes, chores, and related objects that are available on the servers.
- **Properties pane (right pane)** - displays the properties of the TM1 objects, which include cubes, dimensions, processes, chores, and related objects. Click **View**, **Properties Window** to display or hide the Properties pane.

Note: All screen shots in this guide include the Properties pane.

To access the list of available servers, double-click **TM1** in the Tree pane. In the following example, there are three servers: local, sales, and inventory. The plus sign (+) next to local and inventory indicate that you are logged on to these servers.

With **TM1** selected, the Properties pane shows the current data directory and network address for all TM1 servers available on your network. The Properties pane also shows your current login ID for all servers to which you are connected.

Use the following steps to see the tree of cubes, views, dimensions, subsets, and other objects that are available on the local server.

Procedure

1. In the Tree, select the local server.
2. Click **View**, **Expand All Children**.

   You can also expand the tree one level at a time:
3. Click the plus sign (**+**) next to local.

   A collapsed tree of TM1 objects displays.

   Use Applications objects to organize other objects into logical groupings. For more information, see the IBM Cognos TM1 *Developer Guide*.

   Use Process objects to import data into TM1 .

   Use Chores to schedule processes and replications for automatic execution. You use the Replication functionality to copy cubes between servers. For more information, see "Opening a Cube View in TM1 Web" on page 157.
4. To see the list of cubes, click the plus sign (**+**) next to Cubes.
5. To see the complete list of dimensions on the local server, click the plus sign (**+**) next to Dimensions.

In the following example of a Tree pane, you see lists of cubes, dimensions, views, and subsets on a local server. The SalesCube is expanded to display the dimensions that comprise the cube and the saved views associated with the cube.
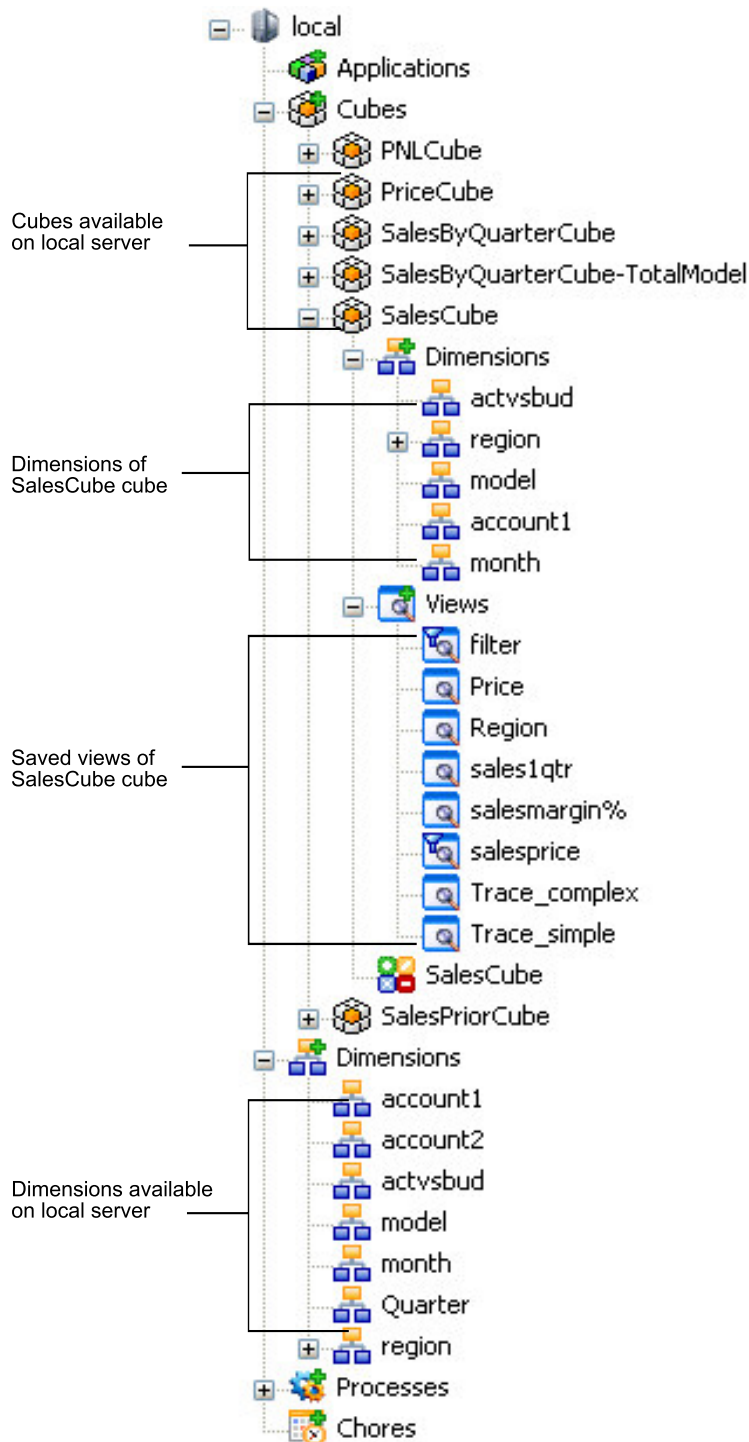
Accessing Remote Servers

TM1 makes remote servers available through a process called the Admin Server, which runs on a network Admin Host machine. When a remote TM1 server is

started, the Admin Server records the TM1 name and network address, and makes this information available to TM1 clients on the network.

Remote servers appear in the Tree pane of the Server Explorer window with a name other than local.

To access the cubes and dimensions on a remote server, you must specify the Admin Host on which an Admin Server is running, and log on to the TM1 . Remote servers can, but need not, be on a machine other than the local server machine. The local label implies it is a "private" server, not its location.

For the name of the Admin Host for your network, see your TM1 administrator. To specify the Admin Host name, use the TM1 Options dialog box, as described in "Setting Client Options" on page 5.

Updating the List of Available Servers

During the IBM Cognos TM1 session, additional remote servers may register on the Admin Servers referenced by a client.

To see an updated list of available servers, click **File**, **Refresh Available Servers** in Server Explorer.

Logging in to a Remote Server

The procedure to log in to a remote server varies according to the login security scheme implemented by your TM1 administrator.

If your administrator has configured and enabled Integrated Login on your network, you are automatically logged into TM1 with your Windows user name and password, when you access servers in Server Explorer.

If your administrator has enabled standard TM1 authentication on your network, you need a user name and password for each TM1 server you want to access. Your TM1 administrator can provide you with the user names and passwords.

Procedure

1. Double-click a server name in the Server Explorer window. Server names are preceded by the server icon.

   The Server Login dialog box opens.
2. Type a user name and password.
3. Click **OK**.

   The icons for the cubes and other objects on the server appear beneath the server name in the Tree pane of Server Explorer.
4. To view the list of cubes on the remote server, double-click **Cubes**.

   You can double-click any object or group of objects that display with a ⊞ to reveal the subsequent member objects. For example, double-clicking the Dimensions group reveals all the dimensions available on the server.

Hiding and Viewing Objects in Server Explorer

You can enable or suppress the display of object types in Server Explorer. The benefit of suppressing the display of object types becomes evident when you work with a large database; you can view and focus only on those objects you need to work with at any given time.

Viewing or hiding an object

Objects can be viewed or hidden based on what the user needs.

Procedure

1. Open the **View** menu.
2. Select the type of object you want to view or hide.
   - When you enable the display of an object type, a check mark displays next to the object type name.
   - When you suppress the display of an object type, the object type name displays without a check mark. In the following example, only the display of cubes and processes is enabled; the display of all other object types is suppressed.

The corresponding view of Server Explorer follows:
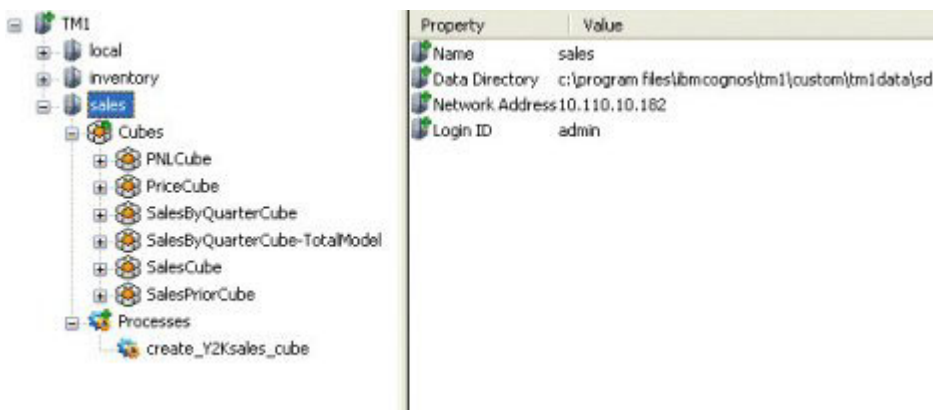
When the display of dimensions is suppressed in Server Explorer, the appropriate dimensions do appear when you expand a cube to reveal its member dimensions.
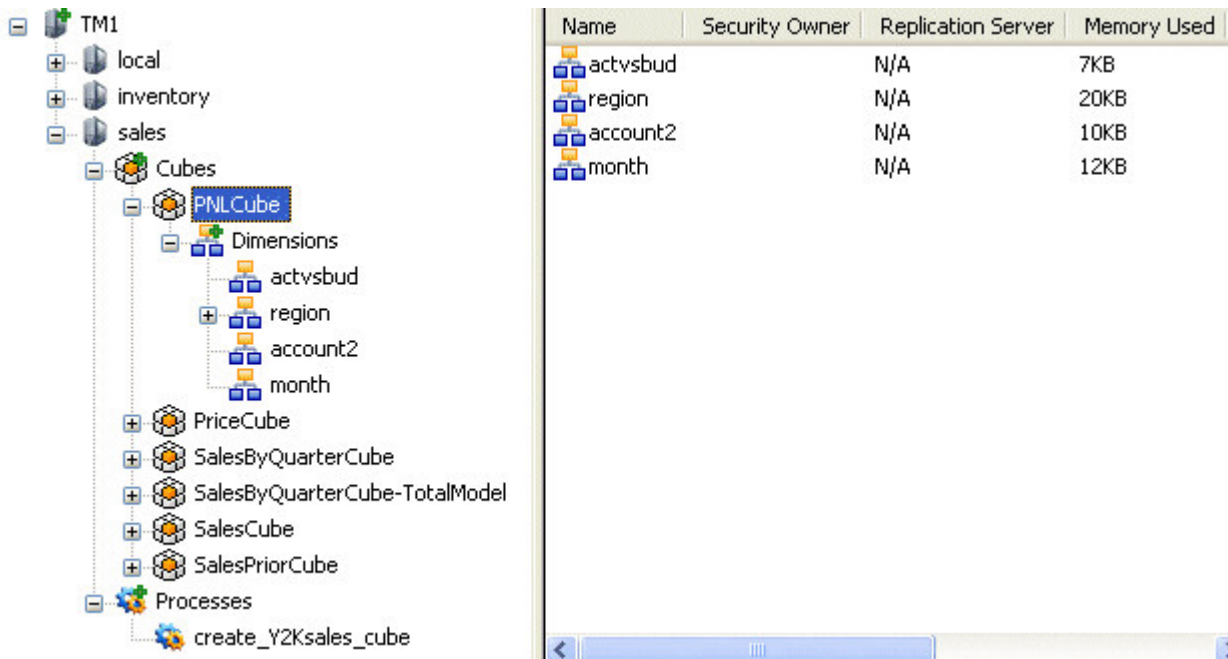
You can also hide or view control objects in Server Explorer.

TM1 uses control objects for the following activities:

- Apply security
- Manage clients and groups
- Store object attributes and properties
- Receive statistical performance data

Control objects are easily identifiable in Server Explorer because their names always begin with a right curly brace (}). For details on control objects, see the IBM Cognos TM1 *Operation Guide*.

Enabling or suppressing the display of control objects

You can enable or suppress the display of control objects.

Procedure

1. Open the **View** menu.
2. Click **Display Control Objects**.
   - When you enable the display of control objects, a check mark displays next to the option name.
   - When you suppress the display of control objects, the option name displays without a check mark.

Chapter 2. Browsing Data

This section describes how to use the IBM Cognos TM1 Cube Viewer and In-Spreadsheet Browser to browse data.

Browsing Data Overview

You can browse data in either the Cube Viewer or the In-Spreadsheet Browser.

- Cube Viewer - A window that lets you open, configure, print, and save views of TM1 data. You can also create slices and snapshots of views.
- In-Spreadsheet Browser - Lets you browse TM1 data in an Excel spreadsheet, and includes most of the features of the Cube Viewer.

The In-Spreadsheet Browser does not support the Rules Tracer and does not report cell update status.

Because you are browsing in a spreadsheet document, you can take advantage of the Excel features to perform the following tasks:

- Create complex worksheet functions that reference values in the TM1 database
- Chart against TM1 values
- Apply styles to the In-Spreadsheet Browser, creating a custom look and feel
- Insert graphics and other objects

An ActiveX control named TM1 View Control implements the In-Spreadsheet Browser. The TM1 View Control icon is present whenever you browse data in the In-Spreadsheet Browser.

To access the In-Spreadsheet Browser commands, right-click the TM1 View Control icon.

Using Undo or Redo

Undo allows you to take back data entry changes by storing a collection of data maintenance actions. Redo lets you restore the change that was undone. Under certain circumstances, for example, when you change to a different client, the collection of actions ends and you can no longer use undo or redo.

Depending on which client you are using, you can use Undo/Redo from the **Edit** menu or from the Undo and Redo icons on the toolbar. In the CubeViewer, you can hover over the icons to see what data maintenance action will be taken, for example *Data Entry 27.25* means the data entry of 27.25 will be removed and whatever the value was in the cell before that value was entered will be restored to the cell. Redo becomes available only after using Undo.

Undo/Redo is available only if Transaction Logging has been turned on in a cube. By default transaction logging is turned on for all cubes, however, your administrator can turn off logging on specific cubes. See "Enabling and Disabling Logging" in the System and Performance Monitoring chapter of the *IBM Cognos TM1 Operation Guide* for more information.

Keep these guidelines in mind when using Undo/Redo:

- **Changing Cell Values in a Non-Active Screen**

  Remember that many data change actions can have an effect beyond the cells that are visible. Consolidated values, rule-calculated values, cells included in Data Spreading, or even cells in different views can all be changed as a result of making a data value change in one cell. When you undo these actions, all effected values are also changed, even in cells not visible on the active screen.

  When you use Undo/Redo the collection of actions persists across views, so a change to data that you undid in a previous view is still available to be undone in your current view. Use the icon hover help to accurately anticipate what data Undo will remove.

- **Ending the Undo/Redo Collection**

  Certain actions end the collection of data changes and make Undo unavailable. Changing to a different server, user interface, user, sandbox or session ends the collection of actions for Undo.

  For example, if you perform cell maintenance in one user interface, such as the web interface, then move to a different user interface, such as the CubeViewer, then press Undo, only the cell maintenance actions you took in the CubeViewer are backed out by Undo. Moving to the new user interface started a new collection of Undo actions.

  The same is true for each user. Each user stores their own collection of actions that can be undone. The data maintenance action collections are also stored by session. Once you end a session, you can no longer use Undo.

  When you change to a different sandbox, a different collection is stored.

- **Data Maintenance Only**

  Undo removes only data maintenance actions.

  For example, if you change data in a cell, then close the current view and open a different view, when you press Undo in the second view, the original data change (in the first view's cell) is taken back. This can be confusing since you are now active in the second view. The action of changing the view is not data maintenance and therefore is not affected by Undo. The collection of actions persists across the change in views. Use the hover text to be sure of what will be undone by Undo.

- **Recalc**

  Pressing Undo performs a Recalc on your data.

- **Pivoting and Drilling**

  Pivoting or drilling are not actions that are collected by Undo so these actions cannot be undone.

  If you perform cell maintenance, then pivot the data, then press Undo, only the data maintenance actions will be undone. The action of pivoting the data is not stored in the undo collections so it is skipped when Undo is pressed.

- **Action Buttons**

  When you press an action button, you can immediately press Undo to reverse the data change performed by the action button, including any TurboIntegrator processes.

- **SaveDataAll**

  Using Save Data All or Save Data does not stop the collection of actions, because those options push outstanding changes to the appropriate server and are considered like any other data maintenance action collected into the transaction log.

- **Commit in a sandbox**

When working with a sandbox or Personal Workspace, pressing Commit stops the collection of Undo actions.

Accessing Data through the Cube Viewer

Data can be accessed through the Cube Viewer.

Procedure

1. Open the Server Explorer.
2. In the Tree pane, select the cube you want to browse.
3. Click **Cube**, **Browse**.

   The Cube Viewer window opens with the cube's system default view.
4. Press **F9** or click **Recalculate** to display the cell values.

   In the Cube Viewer, the name of a title dimension displays in a screen tip. With the mouse pointer, pause on an element name. The title dimension displays in a yellow box.

   The Cube Viewer displays 14 significant digits of a number in a cell. For example, the value

   123456789123456789

   displays as

   123456789123450000 in the Cube Viewer.

   Although TM1 displays only 14 significant digits for a number, it stores the entire number and uses that number in calculations.

   See also Working in the Web Cube Viewer.

Accessing Data through the In-Spreadsheet Browser

Data can be accessed through the In-Spreadsheet Browser. This only applies to IBM Cognos TM1 Perspectives only.

Procedure

1. Open the Server Explorer.
2. In the Tree pane, select the cube you want to browse.
3. Click **Cube**, **Browse in Excel**.

   Note: You can also click **TM1** , **In-Spreadsheet Browser** in the Excel menu bar to open the In-Spreadsheet Browser.

   TM1 opens the default cube view in the In-Spreadsheet Browser. If there is an open Excel spreadsheet, the browser gets inserted in the current active cell. If there is no open Excel spreadsheet, a new Excel document opens and the In-Spreadsheet Browser is inserted into cell A1.

Changing the Default Browser

When you double-click a cube or view in the Server Explorer, that cube or view opens in the Cube Viewer. If you prefer browsing data in Excel spreadsheets, you can set the In-Spreadsheet Browser as your default browser.

The following steps illustrate how to make the In-Spreadsheet Browser your default browser.

Procedure

1. Open your Tm1p.ini file.

   The default location for the Tm1p.ini file is

   `C:\Documents and Settings\<user name>\Application Data\Applix\TM1`.

2. Set the InSpreadsheetBrowser parameter to **T**.

3. Save Tm1p.ini.

   For details on the Tm1p.ini file and parameters, see the IBM Cognos TM1 *Installation and Configuration Guide*.

Understanding Cell Data

Your data displays in cells in the Cube Viewer or the In-Spreadsheet Browser. Cells contain the measures you are tracking. Every cell value is located at the intersection of one element in each dimension.

To read a cell correctly, you need to know what measures you are tracking in a cube. To examine the measures in an example, open the Example1 view of the SalesPrior cube.

Procedure

1. Open the Server Explorer.
2. Click **View**, **Expand All Children**.
3. Select the **Example1** view under the SalesPriorCube cube.
4. Click **CubeView**, **Browse**.

   The Example1 view of the SalesPriorCube cube opens in the Cube Viewer.

   In the SalesPriorCube cube, the Account1 dimension contains measures as elements. The cell value is a number of units that is qualified completely. This number represents the Variance between the budgeted and actual Units of L Series 2WD cars sold throughout the World over the course of an entire Year.

Calculated Cells

All the cells that derive values through dimension consolidations or TM1 rules appear shaded in the Cube Viewer grid. For example, all cells in a view would be shaded when elements along the title dimensions are consolidated.

The In-Spreadsheet Browser display does not differentiate cells that contain calculated values from cells that contain simple values.

Expanding Detail in a View

While accessing any view of your data, you can expand the detail to your preference.

- Stack title dimensions along rows or columns
- Drill down through consolidated elements

Stacking Dimensions

When you stack dimensions, you see more detail along the columns or rows of a view. In the following example, the elements of the Actvsbud dimension are stacked beside the Account1 elements. You can now easily compare actual values with budgeted values for the L Series 2WD models.

account1	actvsbud	month
		+ Year
	− Variance	532
Units	Actual	929115
	Budget	928583
	− Variance	-1361.618664311
+ Gross Margin	Actual	9769451.3813357
	Budget	9770813

Stacking Dimensions in the Cube Viewer

You can stack a title dimension as a row or column dimension in the Cube Viewer.

Stacking a Title Dimension as a Row Dimension:

You can stack a title dimension as a row dimension.

Procedure

1. Click the element name in the title dimension.
2. Drag the element name to the right or left of a row dimension name.

   As you drag the element name toward a row dimension, the pointer changes to a rectangle. When the element name is next to a dimension name, one or two arrows appear. A left arrow indicates that the dimension will be inserted to the left of the row dimension.

   A left arrow with a right arrow indicate that the dimension will be inserted to the right of the row dimension.
3. Release the mouse button when the pointer is positioned where you want to insert the dimension.

Stacking a Title Dimension as a Column Dimension:

You can stack a title dimension as a column dimension.

Procedure

1. Click the element name in the title dimension.
2. Drag the element name to the right or left of a column dimension name.
3. Release the mouse button when the pointer is positioned where you want to insert the dimension.

Stacking Dimensions in the In-Spreadsheet Browser

You can stack a title dimension as a row or column dimension in the In-Spreadsheet Browser.

Stacking a title dimension as a row dimension:

A title dimension can be stacked as a row dimension.

Procedure

1. Click a title dimension button.
2. Drag the title dimension to the right or left of a row dimension button.

   As you drag the title dimension toward a row dimension, the pointer changes to an angle bracket. When the title dimension is over a row dimension, a green vertical bar displays on the row dimension button, indicating the position where the title dimension will be inserted.
3. Release the mouse button when the pointer is positioned where you want to insert the dimension.

Stacking a title dimension as a column dimension:

A title dimension can be stacked as a column dimension.

Procedure

1. Click a title dimension button.
2. Drag the title dimension to the right or left of a column dimension button.
3. Release the mouse button when the pointer is positioned where you want to insert the dimension.
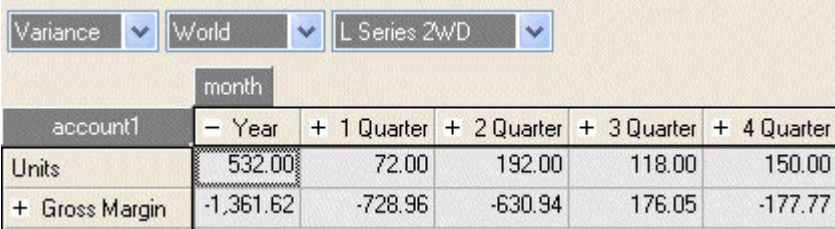
Drilling Down through Consolidations

The Cube Viewer and In-Spreadsheet Browser use display elements to identify the consolidated elements along the row and column dimensions. You can drill down on the consolidated elements to view the underlying detail.

Drilling Down in the Cube Viewer

In the Cube Viewer, a plus sign (+) next to an element name identifies the element as a consolidation. To view the underlying detail, click +.

The following example shows the detail for the quarters that are elements of the Year consolidation.

	Variance ▾	World ▾	L Series 2WD ▾		
		month			
account1	− Year	+ 1 Quarter	+ 2 Quarter	+ 3 Quarter	+ 4 Quarter
Units	532.00	72.00	192.00	118.00	150.00
+ Gross Margin	-1,361.62	-728.96	-630.94	176.05	-177.77

When you click + next to a quarterly consolidation, the monthly data displays, which is the lowest-level detail in the Month dimension.

	Variance ▾	World ▾	L Series 2WD ▾						
		month							
account1	− Year	− 1 Quarter	Jan	Feb	Mar	+ 2 Quarter	+ 3 Quarter	+ 4 Quarter
Units	532.00	72.00	72.00	4.00	-4.00	192.00	118.00	150.00
+ Gross Margin	-1,361.62	-728.96	-117.66	-72.09	-539.21	-630.94	176.05	-177.77

To hide the underlying detail, click the minus sign (**-**). To hide the detail is rolling up a consolidation.

Drilling Down in the In-Spreadsheet Browser

In the In-Spreadsheet Browser, bold text identifies a consolidated element. To drill down on a consolidation, double-click the element name.

In the following example, you see the detail for the quarters that are elements of the Year consolidation, and the months that are elements of the 1 Quarter consolidation.

To roll up a consolidated element, double-click the element name again.

Changing the Direction of Expansion when Drilling Down on Consolidations

You can control the direction in which a consolidated expands by setting the Expand Above option in the Subset Editor.

For details, see "Changing the Direction of Expansion for Consolidated Elements" on page 47.

Changing Title Dimension Elements

You can access a completely different view of cube data by changing an element in a title dimension. For example, if you change the Region title element from World to Europe, TM1 displays a new set of values in your browser.

Changing Title Elements in the Cube Viewer

The title element in the Cube Viewer can be changed to suit your needs.

- Cycle through the current element names in the Dimension list. The list contains the elements of the current subset. The system default subset consists of all top-level consolidated elements with their immediate children, and all simple elements that have no parents.
- Select an element using the Subset Editor window.

Cycling through the title element names

You can cycle through the title element names.

Procedure

1. Click an element name arrow.

   A list of the elements in the current dimension subset opens.

2. Select an element.

   TM1 clears the Cube Viewer grid.

3. Press **F9** to see the data for the new view.

   Note: To automatically see the new data whenever you change the view configuration, click **Options**, **Automatic Recalculate**.

   In the following examples, the Region title element changes from World to Europe.

Selecting a new title element using the subset editor

You can select a new title element using the subset editor.

Procedure

1. Double-click the element name in the title dimension.

   The Subset Editor opens. The left pane shows the current subset. The current title element is highlighted.

2. To view all elements in the dimension, click **All** .

3. Select one element and click **OK**.

   The Cube Viewer window opens with the data for the new title element.

Changing Title Elements in the In-Spreadsheet Browser

The title element in the In-Spreadsheet Browser can be changed to your preference.

Procedure

1. Click a title dimension button.

   The Subset Editor opens.

2. To view all elements in the dimension, click **All**.

3. Select one element and click **OK**.

4. Click TM1 View Control to see the values for the new title element.

   Note: To automatically see the data whenever you change the In-Spreadsheet Browser view configuration, right-click View Control and click **Show Automatically**.

Drilling Through to Detailed Data

TM1 provides drill-through capabilities that let you click on a cell in a cube view and drill-through to detailed data, which provides additional information or context for the cell. The detailed data is usually an extract from a relational database or a cube view.

Before you can use the drill-through feature, a drill process and drill assignment rule must be defined for a cell. Creating drill processes and drill rules are advanced procedures that are described in the IBM Cognos TM1 *Developer Guide*.

This section describes how to use drill-through features after processes and assignment rules are in place. The procedure for drilling through to detailed data

is identical in the Cube Viewer, In-Spreadsheet Browser, and slices. When you create a slice from a view, any drill-through options available in the source view are also available in the slice.

Procedure

1. Right-click the cell for which you want to view detailed data.

   If a drill process and assignment rule are established for the cell, the Drill command is available.

2. Click **Drill**.

   If the cell is associated with a single source of detailed data, the data opens in a new window.

   If the cell is associated with two or more sources of detailed data, a list of the data sources display. Select the source you want to view and click **OK**.

   When the detailed data resides in a cube, a new instance of the TM1 Cube Viewer opens, displaying the detailed data. You can see an example of this in "Drill-Through Example."

   When the detailed data resides in a relational database, TM1 displays the data in a Relational Drill-Through viewer.

   You can copy selected data from this window to the Clipboard.

   - To select an adjacent range of cells, click the first cell in the range, hold down SHIFT, and click the last cell in the range.
   - To select a non-adjacent range of cells, hold down CTRL, and click each cell in the range.
   - To select all cells in the Relational Drill-Through viewer, click **Select All Records** ▦ .
   - To copy selected cells to the clipboard, click **Copy** ▣ .

Drill-Through Example

The TM1 sample database includes a cube named SalesByQuarterCube-TotalModel. This cube contains values for total model sales by quarter. The cube does not include the values for individual models, but a drill process and assignment rule are established. The drill process and assignment rule allow you to drill from a cell in SalesByQuarterCube-TotalModel to a different cube view that provides data for individual vehicle models.

Procedure

1. Open the **Drill_to_detailed_data** view of SalesByQuarterCube-TotalModel.

2. Right-click the cell at the intersection of Units and 1 Quarter.

   This cell identifies the actual Scandinavia units for "1 Quarter".

3. Click **Drill.**

A view of a different cube (SalesByQuarterCube) opens with the detailed data.

This view provides the actual units values for individual vehicle models for the same region and quarter as the cell from which you selected the Drill command.

Chapter 3. Writeback Modes and Sandboxes

IBM Cognos TM1 offers different ways to work with data changes.

The Writeback mode in combination with the type of Sandbox determines how changes to the server data are managed. These different options allow the administrator to mix and match a variety of capabilities so that every installation and every usergroup can work in the way that is best for them. TM1 also offers Job Queuing to more efficiently process data change submissions to the server.

If you do not understand TM1 sandboxes, see Using a Personal Workspace or Sandboxes for complete details.

Writeback Modes

In IBM Cognos TM1 you can hold changes in a private area so that you can decide manually when to write the data changes back to the server and thereby make your changes available to others. This private area is called a Personal Workspace or a sandbox, depending on the extent of its capabilities. When you commit the data changes that were in your private area to the base data, the changed values are written to the server.

If you prefer to work directly with the base data without a private workspace, you can choose a direct writeback method. Another option your administrator can offer is the ability to name and store data changes in a named sandbox.

When you work in a sandbox or Personal Workspace, TM1 uses a change in cell coloring to remind you when your data is not yet merged with the base. Once you commit the sandbox or Personal Workspace, the cell color is restored to black. See Understanding cell coloring for changed data values for more information.

Your Administrator assigns the capabilities for each usergroup. Since you could be a member of more than one group, your work space options can be different depending on your login, the client you use, and the combination of settings. Only Administrators have access to the Capability Assignments.

Ask your administrator for details about how your system is designed to operate. See Understanding different toolbar options to learn how to determine your writeback mode and sandbox setting using the toolbar. See the IBM Cognos TM1 *Operation Guide* for details about Capability Assignments.

Setting the writeback mode

The Writeback Mode Capability determines how data is write back to the server. Writeback mode is determined by whether a user has the Personal Workspace capability on or off.

A two column table that lists the way writeback changes are handled for Personal Workspace and the Capability Mode.

Description	Personal Workspace Mode
	Capability
Changes are made directly to the base.	Off
Changes are held in a temporary area and are manually written to the base using the Commit button or option. Cell coloring changes when data is changed but not yet committed. You can process using the Job Queue.	On

The Sandbox Capability determines if you can name sandboxes or if you have one default sandbox:

A two column table that lists the way changes are handled for Personal Workspace and the Capability Mode.

Description	Sandbox
	Capability
You can name the sandbox and manage multiple sandboxes.	On
Only one default sandbox is available.	Off

The combination of these settings determines how your data changes are stored and processed.

For example, your usergroup may offer direct writeback with named sandboxes. This is the default work design used by TM1 . It means you do not have a Personal Workspace (instead you have direct writeback to the server), but you also have the option of naming a set of changes and manually submitting them. With this setting, when you first open a view, you are in the base and any changes you make are written directly to the base. But, if you decide to save your changes in a named sandbox, you can use the Commit button when you are ready to manually send those changes to update the base.

Consider the case where you usually want to send the data directly to the server. Then you have a set of changes that you want to gather in a group before you update the server. You can use the Create Sandbox options to save the current data changes in a private sandbox called *Best Case*. When you are in the Best Case sandbox, you need to use Commit to send the changes to the base and make the changes available to others. After Best Case is committed, those changes merge with the base so others can see the changes and you are now in the newly updated base. If you are working in a sandbox, it is important to remember that you must manually Commit the sandbox for others to see your changes. Be sure you are ready to make those changes public and that those changes should be merged into the base.

If you move back to the base, you are back to using direct writeback. This setting offers a great deal of flexibility. Users with this setting need to remember when they are updating the base and when the Commit button is needed to make changes available to others.

Or, your administrator may decide that you would like the flexibility to work in a Personal Workspace writeback mode, but you do not want the complexity of creating named sandboxes. In this case, your Administrator can grant you the Personal Workspace writeback mode but deny the Sandbox capability.

Understanding different toolbar options

You can determine how your usergroup is designed to operate based on the options presented on the toolbar. For example, if you have Sandbox granted, you have access to the Create and Delete Sandbox options. When you do not see a sandbox list, you have Personal Workspace Writeback Mode.

Using direct writeback and named sandboxes

By default, IBM Cognos TM1 is set to use a direct writeback with named sandboxes. Your Administrator may have set your work options to something different.

A 3-column table that shows the Personal Workspace and Sandbox settings.

You want to	Personal Workspace Mode	Sandbox
Have data changes update the server immediately. Occasionally, you want to save a set of changes and name them before committing them to the server.	Off	On

When you have direct writeback and named sandboxes the toolbar starts out with the Commit and reset Data buttons grayed, the Sandbox button available, and the sandbox list area displays [Base]:

The Sandbox button indicates that you can create and delete sandboxes. The Commit button is grayed but is present because there is nothing to commit yet. If you made a data change and decided to save it in a named sandbox, Commit and Reset Data would become available. Cell coloring would only change when you named a sandbox. Until you name a sandbox, you are operating in the base.

If Job Queuing is turned on, submitting the sandbox to the server is subject to queue processing before the data changes are committed.

Using a Personal Workspace and named sandboxes

The Personal Workspace provides a private work area where users can evaluate data changes before committing the changes to the base. Once data is committed, it is merged with the base and becomes available to other users.

Using a Personal Workspace typically offers a performance improvement over Direct Writeback as users can evaluate their data changes before making a Commit, so in most cases there is less server processing. When Job Queuing is turned on, your Personal Workspace is subject to processing in the queue before committed changes are merged with the base.

In Personal Workspace, you begin with the base data. As you make data entry changes, the content that changes, including dependent cells such as consolidations or rule-generated values, change color to blue to remind you that these changes

have not yet been merged with the base model. When you Commit the Personal Workspace and processing is complete, the color changes back to black and you are once again working on the Base. See Understanding cell coloring for changed data values.

When you have Personal Workspace granted and the ability to name sandboxes also granted, the starting point for sandbox data is identified in the toolbar as [Default].

You have access to the Commit and Reset Data buttons when you work in Personal Workspace.

You want to	Personal Workspace Mode	Sandbox
Always work in a private area and decide when to commit your changes to the server manually. Occasionally, you want to save a set of changes and name them something such as "Best Case" before committing them to the server.	On	On

When you have Personal Workspace and named sandboxes, the toolbar includes Commit, Reset Data, Sandbox buttons and the sandbox starting point is called [Default]:
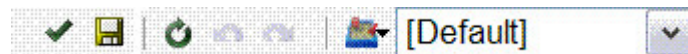
You have the Commit and Reset Data buttons because you are working in a Personal Workspace. The [Default] sandbox is the way to identify the starting sandbox until you name a sandbox.

Personal Workspace without named sandboxes

If you have access to a Personal Workspace but do not have the ability to name a sandbox, you do not see the Create and Delete Sandbox buttons and there is no area to list sandboxes since you always work in the same (and single) Personal Workspace.

You want to	Personal Workspace Mode	Sandbox
Always work in a private area and decide when to commit your changes to the server manually. You do not want to allow the naming of multiple sandboxes.	On	Off

When you have a Personal Workspace but do not have the ability to create named sandboxes, the toolbar offers Commit and Reset Data but no sandbox listing area:

Since you always work in the same Personal Workspace, there are no sandbox names to list but you have access to Commit and Reset Data.

Direct writeback without sandboxes

This is the classic, direct writeback mode for IBM Cognos TM1 . In this mode you do not have access to named sandboxes or a Personal Workspace. You do not have access to the Commit or Reset Data buttons, or have the ability to use Job Queuing. Data changes are not identified by color changes in this option. Data changes in this mode immediately update the server.

To use direct writeback across the entire installation, you can use the DisableSandboxing=T setting in the server configuration file. When sandboxing is disabled across the server with this configuration setting, the Capability Assignments are ignored.

You want to	Personal Workspace Mode	Sandbox
Have your changes take effect immediately in the server. All changes are immediately available to other users.	Off	Off

The toolbar in this case does not have any of the sandbox buttons, Commit, or Reset Data:

You have no access to any kind of sandbox. The only way to take back data changes in this mode is using Undo/Redo.

Using a Personal Workspace or Sandboxes

It is helpful to understand how IBM Cognos TM1 implements the sandbox concept. This section describes sandboxes and Personal Workspace's in detail.

The sandbox feature lets you create your own personal workspace or *sandbox* where you can enter and store data value changes separate from base data. A sandbox is *not* a copy of the base data, but a separate overlay or layer of your own data values that you have entered on top of the base data. This distinction provides a significant performance improvement and is important to understand as you make changes to your data.

- *Base data* is the data that all users can access. Any edits made to base data are written directly back to the database.

- *Sandbox data* is your own personal work area where you can edit the data values as many times as you want and keep the changed data separate from the base data. Sandboxes and Personal Workspace's are private to each user and cannot be seen by other users. Your data values are viewable to others only when you commit them back to the base data. A Personal Workspace is a special, default sandbox that is unnamed and always where you work if that capability is turned on.

Sandboxes are not stored on the client. They consist of a separate and private area of the server. When you work in a sandbox, think of the base model data shining through to the sandbox. When you make a change to data in the sandbox, it is as if the base model data value is temporarily blocked by the value you entered in the sandbox. In order to make the base model take on the values in the sandbox,

you must Commit the sandbox. Once the sandbox data values are committed, they are merged with the base so that the changed values then update and become the base values.

Features of Sandboxes and Personal Workspace's include:

- Private data changes.

  Sandboxes and Personal Workspace's 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.

- Cell Coloring.

  Changes to cell values in a sandbox or Personal Workspace are identified by a change in cell content colors. The cells change color to remind you that the change has not yet been merged to the base data. Once data is committed and processing has completed, the cell coloring turns to black again.

  Cell coloring is also applied to any dependent cells, such as consolidated or rule calculated cells, that your edits affect. For details, see "Understanding cell coloring for changed data values" on page 31.

- Queuing.

  Sandbox and Personal Workspace submissions can be processed using Job Queuing so jobs waiting for resources do not hold up jobs that can be processed right away. The Job Queue also allows you to cancel a submission. See Canceling a job in the queue.

- Manual Commit.

  When working in a sandbox or Personal Workspace, the Commit button becomes available so you can decide when to commit changes to the base. When you commit the data, your changes become available to other users.

- Reset Data.

  In a sandbox or Personal Workspace, the Reset Data button becomes available and lets you return to the status of your sandbox since the last time it was committed.

- Named sandboxes let you create "on-the-fly, what-if Scenarios."

  Depending on your configuration settings, you can name multiple sandboxes, such as "Best Case" or "Worst Case" and then compare the impact of your edits by switching between them.

Remember: Your administrator may have disabled sandboxes for your environment or have changed the writeback mode for your usergroup.

To work in a sandbox, you must first open a view and then either create a new sandbox or select an existing sandbox. When working in a sandbox, the selected sandbox applies to all the other views in your current user session.

Data values for leaf and consolidated cells in a sandbox

The data values for leaf and consolidated cells in a sandbox are calculated.

- Leaf cell values in a sandbox are a combination of the values in the base and sandbox cells. The user-entered values in sandbox leaf cells over-ride the values in the base. Any leaf cell that has not been changed in a sandbox still shows the base data.
- Consolidated cells in a sandbox contain values that are the sum of the leaf cells displayed in sandbox.

Resetting data values in a sandbox or Personal Workspace

Resetting a Personal Workspace or Sandbox or clears all the changed data values that you have entered up to that point and resets all the data values back to the current values in the base data.

Procedure

Depending on which TM1 component you are using:

- In TM1 Web and Server Explorer or Architect, click the Sandbox list and select **Reset Sandbox**.

- In TM1 Perspectives or Microsoft Excel, click the Reset Sandbox button on the Sandbox toolbar.

Results

All data values in the sandbox are set to the current values in the base data. Any cell coloring is cleared and set to black.

Understanding cell coloring for changed data values

When you enter a new value in a Personal Workspace or Sandbox, a visual indicator is applied to the cell to remind you that the new value is different from the base values. The color of the data changes from black to either blue or green, or the appearance of the cell changes, depending on which TM1 component you are using. Any dependent cells, such as consolidated or rule calculated cells, also change in appearance if your edits cause them to be recalculated.

The following table summarizes the cell coloring that is applied in the different TM1 user interfaces when you enter new data values in a sandbox or Personal Workspace.

A 4-column table that shows how different changes in cell contents changes the color of the cell contents.

Cell Color	TM1 Component	Writeback Mode	
		Direct	Personal Workspace or Sandbox
Black	TM1 Perspectives / Microsoft Excel Architect Server Explorer	When you input a new value there is no color change. All values display in black.	Committed Personal Workspace or Sandbox data.
Blue		None	Newly input data. Edited cells, dependent or consolidated calls, recalculated cells

A 4-column table that shows how different changes in cell contents changes the color of the cell contents.

Cell Color	TM1 Component	Writeback Mode	
		Direct	Personal Workspace or Sandbox
Left bottom corner of cell displays in blue	TM1 Perspectives / Microsoft Excel	None	Newly input data. Edited cells, dependent or consolidated calls, recalculated cells
Green	TM1 Web Cubeviewer and Websheets	New values	New values

Committing changed data from a Personal Workspace or sandbox to base

The Commit command or button merges all of the changed data values in your Personal Workspace or Sandbox to the base data. You cannot use the undo command to undo a commit action.

Note: When you have multiple sandboxes and commit one of them to base, the new base values are automatically applied to all the unchanged cells in your other sandboxes. If you entered new data values in any other sandbox, those data values remain and do not show the new values that were committed to the base data.

The following figure shows an example of committing sandbox values to the base data when you are working with multiple sandboxes. In this figure, the new values in Sandbox 3 are committed to base data and then the new base values are applied to all the unchanged cells in the other sandboxes. The figure shows how sandbox cells that contain changed data are not updated.

Base Data

Quarter 1	120	120	120	1. Commit values from
Jan	100	100	100	Sandbox 3 to Base data
Feb	10	10	10	
Mar	10	10	10	

2. New values in base data are applied to all unchanged cells in other sandboxes

Sandbox 1

Quarter 1	120	120	120
Jan	100	100	100
Feb	10	10	10
Mar	10	10	10

Sandbox 2

Quarter 1	120	90	120
Jan	100	30	100
Feb	10	30	10
Mar	10	30	10

Sandbox 3

Quarter 1	120	120	120
Jan	100	100	100
Feb	10	10	10
Mar	10	10	10

3. Sandbox cells with changed data values are not updated from base data.

Procedure

Depending on which TM1 component you are using:

- In TM1 Web and Server Explorer / Architect, click the Sandbox list and select **Commit Sandbox**.

- In TM1 Perspectives/Microsoft Excel, click the Commit Sandbox button ![icon] on the Sandbox toolbar.

TM1 performs the following actions:

- The changed data values in the current sandbox are saved to the base data.
- The cell coloring for any changed data in the current sandbox is cleared and set to black.
- The new base data values are applied to all the unchanged cells in your other sandboxes.

  When you have multiple sandboxes, you can use the menu bar pull-down options to create, delete and select the different sandboxes available to you. Some interfaces offer a Delete Sandbox button.

Job Queuing

To maximize processing speed and reduce "traffic jams" when writing back data, Personal Workspace and Sandbox submissions can be processed using a job queue.

To turn on job queuing, your administrator sets the JobQueuing=T parameter in the server configuration file. If this parameter is set to F or not present, Sandbox or Personal Workspace submissions do not use a job queue. In Direct Writeback mode there is no job queuing regardless of this setting. IBM Cognos TM1 Contributor does not use the job queue.

The benefits of using submission queuing include:

- Performance improvements.

  Use of the queue prevents data that is waiting for resources to hold up other jobs that are ready to process.

- Concurrent work.

The queue allows users to continue working on other jobs while waiting for resources to be freed up on a particular job.

- Transparency of processing.

  The queue lets users monitor the activity level in the queue.

- Efficient use of processing resources.

  The queue allows users to cancel jobs if necessary.

When the Job Queue is enabled and a Personal Workspace or sandbox is submitted using a Commit or Submit button, the changed data enters the queue as a job and is processed only when the resources needed to complete the calculations specified by the cubes become available. If other sandboxes or Personal Workspace's are submitted while the original sandbox waits for resources, the second submitted sandbox can proceed without waiting for the first one to resolve its resources.

When job queuing is enabled, the job queue button displays on the toolbar. You can press this button to display the contents of the job queue. You can use the Job Queue and Refresh buttons proactively to see how many jobs are waiting to be submitted or to monitor the progress of a particular submission. Administrators can see all the jobs waiting to be processed in the queue. Users without Admin rights see only their own sandbox submissions.

Queuing progress is based on whether resources are available, not on the amount of data being processed. A submission with a large amount of data that resolves its resources will be processed before a submission with a small amount of data that needs a resource that is in contention.

In many cases sandbox submission will be instantaneous. At times of high concurrent submissions, a user can display the queue and decide to cancel a job. Users can cancel only their own jobs. Administrators can cancel any job in the queue.

When you have submitted a Personal Workspace or sandbox to the job queue:

- In the data, any changed cells remain blue. When the sandbox completes processing, those cells turn black.

- If you have Sandbox turned on, you can create a new sandbox or select an existing one and work as usual, including performing a read, write, or submit. Those submissions will also become subject to the queue. You can even create a new sandbox based on the queued data and work with those values in the new sandbox before the queue processes the transactions.

- You can freely query any data in or out of a sandbox or Personal Workspace, but if you try to update the data, the following message displays so you can indicate your intentions:

  ```
  You are attempting to perform Data Entry while previously committed data
  changes reside in the queue. Click Yes to remove your submission
  from the Queue and continue with data entry, or click No to defer
  your current data entry until the system completes processing of your
  currently queued job.
  ```

  – To remove your submission from the queue and retain the data changes you just entered, click **Yes**.

    When you cancel the job, the data entry is appended to the current sandbox so you can continue working with it and possibly submit it at a later time.

  – To wait until the current job completes processing, click **No**.

When you click No, the data entry that is not part of the job is disregarded and the submission continues uninterrupted. Be sure you are willing to lose that data when you click **No** in this situation.

Viewing the Queue

Click the Job Queue button to display the current state of the queue. You can select all jobs or select individual jobs to take action on using the Select check boxes.

There are two tabs in the Job Queue: Active Jobs and Processed Jobs.

Before a job completed processing, it displays in the Active Jobs tab. Everyone can see all active jobs in the queue, not just their own. The information available for each job includes: a selection check box, the relative position in the queue (No.); the user that submitted the job (Client ID); the date and time of the submission (Submission Time); the length of time the job spent in the queue (Duration); and the current status (Pending, for example).

When a job is Pending, you can click the Cancel Job button to cancel the job.

Once a job completes processing, the Processed tab is populated with the job information including the addition of Completion time if the job completed or was canceled. A user can only see their own processed jobs.

Use the Refresh Queue button to update the job submission listing, if necessary.

You can also use Recalc or Refresh and watch for the blue cell coloring to change to black in the sandbox to indicate that the data has been written to the server.

Cancelling a job in the queue

Use the Selection check boxes to indicate which job submission to cancel. You can select individual jobs by selecting their individual check box or click the Select All check box to select all jobs currently shown on the Active tab. Click the Cancel job button after you have selected the jobs to remove from the queue.

Chapter 4. Working with Subsets

This section describes how to use subsets to help you focus on the business data that is relevant to your job or analysis requirements.

Narrowing the List of Elements

You can narrow the list of elements that you see along the row and column dimensions in the Cube Viewer or In-Spreadsheet Browser by creating dimension subsets.

A subset can include both consolidated and simple elements.

Using dimension subsets, you can focus on:
- Product groups that you track.
- Top-producing salespeople.
- Lagging sales regions.
- Stores that have common attributes, such as square footage and the number of employees.

A subset is either static or dynamic.
- **Static subset** - Contains a user-defined list of dimension elements that does not change unless you manually edit the subset.
- **Dynamic subset** - Contains an MDX expression that executes to display the elements to the dynamic subset. For details, see "Creating Dimension Subsets" on page 38.

You can also narrow the display of elements along row dimensions by filtering cube values. For details, see "Creating a Filter-Based Dynamic Subset" on page 52.

Selection Criteria

You can select elements in five ways:
- By hierarchical level, such as all the level-0 elements.
- By spelling pattern, such as all the 1.8 L car models.
- By a attribute value, such as the engine size.
- By element name. For example, you can select the first, fourth, and seventh months along a time-series dimension.
- By specific criteria with a view extract. You can select the elements whose data meet specific criteria. For example, you can build a list of all regions in which the unit sales are greater than 1,000 for a given car model.

Saving Subsets

You can save subsets for future use. The saved subsets appear in the Server Explorer beneath the dimension with which the subset is associated.

Public and Private Subsets

On remote servers, subsets are either private or public. You can create a private subset with the same name as a public subset.
- **Private subset** - Available only to the user who creates them.

- **Public subset** - Available to all users on a remote server who have at least Read access to the associated dimension. You must have Admin privilege to the parent dimension to create a public subset.

Default Subsets

You can create a dimension subset named Default that automatically appears in the system default view. In the following example, a Default subset displays for the Month dimension that includes elements for the first three months of the year.

Suppose you move the Month dimension from the column to the title dimensions group. The first element in the Default subset is a title element.

On remote servers, a Default subset for a single dimension is either public or private.

- **Private Default subset** - Available only to you
- **Public Default subset** - Available to all users

Note: When a remote server has both a public and a private Default subset for a dimension, your private Default subset takes precedence over the public Default subset.

Creating Dimension Subsets

Subsets can be created using three different tools.

You can create subsets through the following:
- Server Explorer window
- Cube Viewer window
- In-Spreadsheet Browser

Procedure

1. Open a dimension in the Subset Editor.
    - From the Server Explorer, select a dimension for which you want to create a subset and click **Dimension**, **Insert New Subset**.
    - From either the Cube Viewer or the In-Spreadsheet Browser, click a row or column dimension label.

    The Subset Editor window opens, with elements of the current subset displayed in the Tree pane.

2. To see all the elements in their dimension hierarchies, click **All** and then click **Edit**, **Sort**, **Hierarchy**.

    All dimension elements display in hierarchical order.

3. Select one or more elements in the dimension by using the methods described in "Selecting Elements" on page 40.

4. Click **Subset**, **Save**.

The Save Subset dialog box opens.

5. Decide whether you want to create the Default subset or a named subset. If you want to create a named subset, skip to step 6.

   To create the Default subset, click **Default**.

   The word Default displays in the Subset Name box.

6. Create a private or public subset.

   To create a private subset, select the **Private** check box.

   To create a public subset, clear the **Private** check box. You must have Admin privilege to the parent dimension to create a public subset.

7. To create a named subset, type a name (256 bytes maximum) in the Subset Name box.

   Note: For Western character sets, such as English, a single character is represented by a single byte, allowing you to name a subset with 256 characters. However, large character sets, such as Chinese, Japanese, and Korean, use multiple bytes to represent one character. In this case, the 256 byte limit may be exceeded sooner and not actually allow the entry of 256 characters.

8. Click **OK**.

   In the View list, the Private Subset ![icon] icon to the left of the subset name, S Series Sedan, represents a private subset.

9. Click **OK** to return to the Cube Viewer or In-Spreadsheet Browser.

10. Recalulate.

    In the Cube Viewer or In-Spreadsheet Browser, the subset name replaces the name of the row or column dimension.

    The following examples show the Model dimension positioned as a row dimension. Each row label contains the name of one of the nine elements in the S Series Sedan subset.

    Cube Viewer

S Series Sedan	− Year	+ 1 Quarter	+ 2 Quarter	+ 3 Quarter	+ 4 Quarter
− S Series Sedan	-55.00	-24.00	27.00	-66.00	8.00
S Series 1.8 L Sedan	21.00	0.00	16.00	-1.00	6.00
S Series 2.0 L Sedan	-69.00	-10.00	5.00	-62.00	-2.00
S Series 2.5 L Sedan	-22.00	-18.00	7.00	3.00	-14.00
S Series 3.0 L Sedan	-11.00	-5.00	-7.00	6.00	-5.00
S Series 3.4 L Sedan	-24.00	5.00	-22.00	2.00	-9.00
S Series 2.5 L Sedan 4WD	-52.00	-10.00	-15.00	-22.00	-5.00
S Series 3.0 L Sedan 4WD	24.00	9.00	8.00	-5.00	12.00
S Series 3.4 L Sedan 4WD	78.00	5.00	35.00	13.00	25.00

    In-Spreadsheet Browser

In the Server Explorer, the **Public Subset** ⊐ icon represents s a public subset, while the **Private Subset** ⅃ symbol represents a private subset.

Selecting Elements

There are several ways to select elements to create a subset in the Subset Editor.

- **Single element** - One element
- **Adjacent elements** - Multiple elements that are near each other in the list
- **Non-adjacent elements** - Multiple elements that are not near each other in the list
- **Hierarchy level** - Elements with a level of consolidation in a dimension. Simple elements reside at the 0 level, and each level of consolidation is incremented by 1
- **Attribute value** - Elements with attribute values that describe or provide an alternative name (alias)
- **Spelling pattern** - Elements that match a spelling pattern. You can also use a wildcard as a placeholder for a character
- **View extract** - Elements extracted with a data query

When you select elements, the selection applies only to the elements currently visible in the Subset Editor.

You can apply multiple levels of selection to elements in the Subset Editor to create a subset that satisfies your analytical requirements. For instance, you could first select elements by hierarchy level, and then further narrow the list of subset elements by selecting elements with a particular attribute value.

Selecting a single element

You can select a single element.

Procedure

1. In the Tree pane, click an element name.
2. Click **Edit**, **Keep** or click **Keep** ✅ .

   The subset contains the single selected element. All other elements in the Tree pane are hidden.

Selecting adjacent elements

You can select adjacent elements.

Procedure

1. Click the first element name.
2. Hold down Shift and click the last element in the range. You can also press CTRL-A to select all visible elements.
3. Click **Edit**, **Keep** or click **Keep** ✅ .

   The selected elements remain in the subset, while all other elements are hidden.

Selecting non-adjacent elements

You can select non-adjacent elements.

Procedure

1. Click the first element name.
2. Hold down Ctrl and click the other elements you want to include.
3. Click **Edit**, **Keep** or click **Keep** ✅ .

   The selected elements remain in the subset, while all other elements are hidden.

Selecting elements by hierarchy level

You can select elements by hierarchy level.

Procedure

1. Click **Edit**, **Filter by**, **Levels**, or click **Filter by Levels** 📊 .

   The Filter by Level dialog box opens.
2. Select one or more hierarchy levels. Simple elements reside at the 0 level, and each level of consolidation is increased by 1.
3. Click **OK**.

   The elements that belong to the selected levels remain in the subset. All other elements are hidden.

Selecting elements by attribute value

You can select elements by attribute value.

Procedure

1. Click **Edit**, **Filter by**, **Attribute**, or click **Filter by Attribute** 📄 .

   The Filter by Attribute dialog box opens.
2. Select an attribute.
3. Select an attribute value.
4. Click **OK**.

   The elements with the specified attribute value remain in the subset. All other elements are hidden.

Selecting elements by spelling pattern

You can select elements by spelling pattern.

Procedure

1. Click **Edit**, **Filter by**, **Wildcard** or click **Filter by Wildcard** 🔽 .

   The Filter by Wildcard dialog box opens.

2. Type a spelling pattern in the box.

   A spelling pattern can include one or more characters to match, and optionally, one or more wildcard characters. For details on wildcard's, see "Using Wildcard Characters."

3. Click **OK**.

   The elements that match the spelling pattern remain in the subset. All other elements are hidden.

Using Wildcard Characters

You can use two wildcard characters in spelling patterns.

- Question mark (?) - Placeholder for a single character
- Asterisk (*) - Placeholder for one or more characters

The following table shows the effect of three spelling patterns.

Pattern	Finds	Skips
*Sedans	S Series 4WD Sedans	Sedans 4WD
Q*	Quarter 1	1 Q
J?n	Jan, Jun	June

Selecting Elements Using a View Extract

You can select elements by using a view extract that is based on a data query. For example, you can search for all elements in the Region dimension for which the actual sales are greater than 1,000 for several car models in a given time period.

Note: You can select elements with a view extract only when you access the Subset Editor from the Cube Viewer or In-Spreadsheet Browser, not from the Server Explorer. The view extract queries against the current cube. There is no current cube to query when you open the Subset Editor from the Server Explorer.

The query criteria for the view extract includes:

- Cells to search for data values. Cells are identified by the current elements in the Subset Editor, and by one or more elements along the remaining dimensions.
- Range of acceptable data values in the cells. For example, the cells that contain values greater than 100 but less than 1,000.
- Instructions about inspecting cells that contain zeros, consolidated values, and values derived through rules.

Procedure

1. Click **Edit**, **Filter by**, **View Extract** or click **Filter by View Extract** 🔲 .

   The View Extract window opens. In the Select Elements section, the dimension for which you are creating a subset displays dimmed, and therefore is unavailable. In the following example, the Region dimension is unavailable. For each of the other dimensions, all the selected elements have the value *All* next

to each element name.
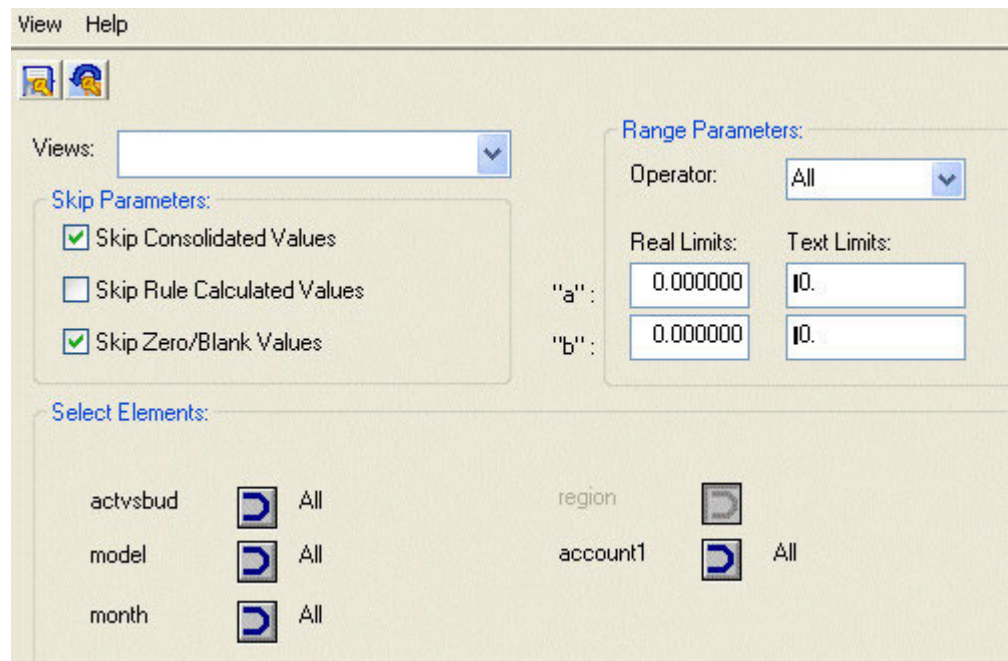
2. Click **Subset** ▣ next to the dimension name to specify the elements you want to include in the query for all other dimensions.

   The Subset Editor window opens.
3. Select the elements you want to include in the query and click **OK**.
4. Repeat steps 2 and 3 to specify the elements for all the other cube dimensions.
5. Specify whether you want to include consolidated values in the query:
   - To include the consolidated values, clear the **Skip Consolidated Values** check box.
   - To exclude the consolidated values, select the **Skip Consolidated Values** check box.
6. Specify whether you want to include rule-derived values in the query:
   - To include the values derived through the rules in the query, clear the **Skip Rule Calculated Values** check box.
   - To exclude the rule-derived values, select the **Skip Rule Calculated Values** check box.
7. Specify whether you want to include the cells that contain zeros in the query:
   - To include the cells that contain zeros in the query, clear the **Skip Zero/Blank Values** box.
   - To exclude zeros, select the **Skip Zero/Blank Values** check box.
8. Specify a range of acceptable values using the Range Parameters fields, as described in the next section, "Range Parameters" on page 44.
9. Click **OK**.

   The Subset Editor now contains the elements that meet the specified criteria.

Range Parameters:

Use the range parameters to specify which values the inspected cells must contain to satisfy the data query. You can set separate limits for real numbers and strings. The range parameters apply after determining which cells to inspect.

The following table contains the range operators for numeric data, the limits, and the results. For a complete list of range operators, see the IBM Cognos TM1 *Developer Guide*.

Operator	Limits	Results
All	Blank	All cell values
= a	a = 200	Cell values of 200
> = a	a = 200	Cell values greater than or equal to 200
< = a	a = 200	Cell values less than or equal to 200
> a	a = 200	Cell values greater than 200
< a	a = 200	Cell values less than 200
< > a	a = 200	Cell values less than or greater than 200
> = a & < = b	a = 200 b = 1200	Cell values in the range 200-1200
> a & < b	a = 200b = 1200	Cell values in the range 201-1199

View Extract Example:

To see how view extract works, open the view_extract view of SalesPriorCube.

The view in the example shows the actual sales values for all car models in all regions over the first three months of the year. After you analyze the data, you decide that you need to concentrate only on the regions where the actual sales for the S Series 1.8L Sedan and S Series 2.0L Sedan are greater than 7,000 in the month of January.

Procedure

1. Click the **Region** dimension label in the Cube Viewer.

   The Subset Editor opens with all elements of the Region dimension.

2. Click **Edit**, **Select By**, **View Extract**.

   The View Extract window opens.

3. Click **Subset** [icon] next to the **Actvsbud** dimension.

   The Subset Editor opens.

4. Select **Actual** and click **OK**.

5. Click **Subset** next to the **Model** dimension.

6. Select **S Series 1.8L Sedan** and **S Series 2.0L Sedan**, and then click **OK**.

7. Click **Subset** next to the **Month** dimension.

8. Select **Jan** and click **OK**.

9. Click **Subset** next to the **Account1** dimension.

10. Select **Sales** and click **OK**.

11. In the **Operator** list, click **>=a**.

12. Enter **7000** in the Real Limits field for variable a.

    The View Extract window should now display as follows.
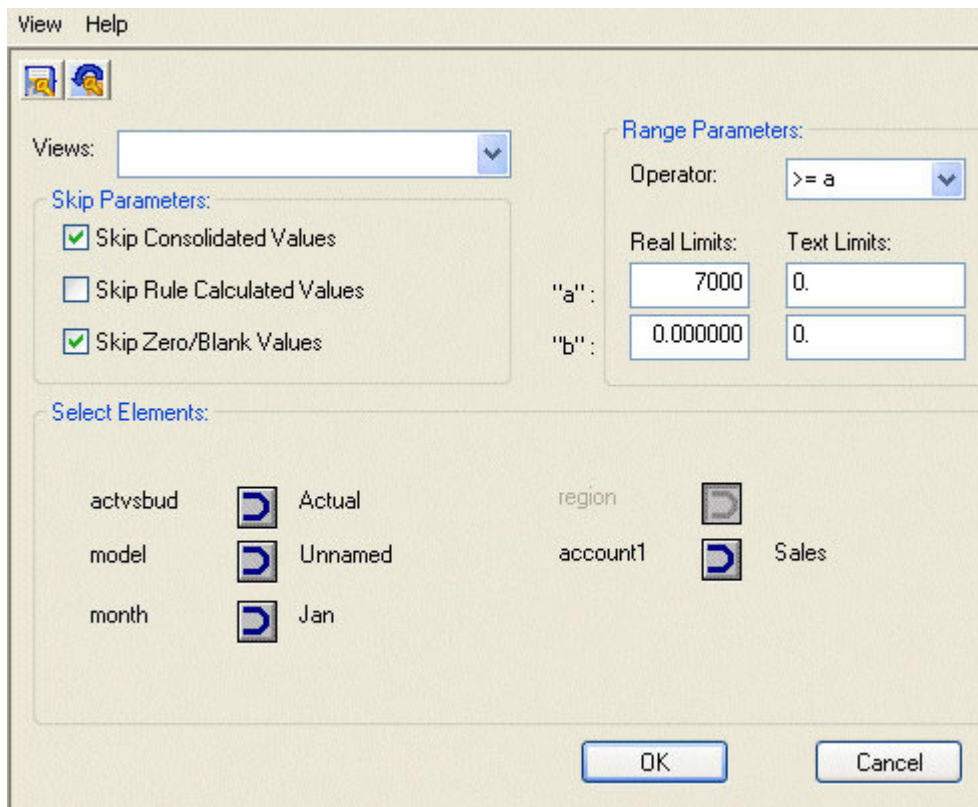
13. Click **OK**.

   The Subset Editor now contains only those elements of the Region dimension that satisfy the query criteria. (The elements for which the actual January sales of the S Series 1.8L Sedan and the S Series 2.0L Sedan are greater than 7,000.)

14. Click **OK** to display this subset in the Cube Viewer.

Deleting Elements from a Subset

You can delete single or multiple elements from a Subset using the Subset Editor.

Procedure

1. Select the elements in the Tree pane of the Subset Editor.

   - To select a single element, click the element.
   - To select multiple adjacent elements, click the first element and SHIFT+click the last element.
   - To select multiple non-adjacent elements, CTRL+click each element.

2. Click **Edit**, **Delete** or click **Delete** ⊘ .

Sorting Subset Elements

There are several options for sorting elements in the Subset Editor.

Only the currently visible elements in the Subset Editor are sorted. For example, if you sort a subset in ascending alphabetical order, and then open a new subset without closing the Subset Editor, the new subset is not sorted.

- To sort subset elements in ascending alphabetical order click **Edit**, **Sort**, **Ascending** or click **Sort Ascending** 🔼 .

- To sort subset elements in descending alphabetical order, click **Edit**, **Sort**, **Descending** or click **Sort Descending** .
- An index value describes an element position in the dimension structure. For example, an element with an index value of 1 is the first element in the dimension; an element with an index value of 2 is the second element in the dimension.

  To sort the subset elements in ascending order by index value, click **Edit**, **Sort**, **Index Ascending** or click **Sort by Index, Ascending** .
- To sort the subset elements in descending order by index value, click **Edit**, **Sort**, **Index Descending** or click **Sort by Index, Descending** .
- To sort the subset elements by dimension hierarchy, click **Edit**, **Sort**, **Hierarchy** or click **Sort Hierarchy** .

Changing the Direction of Expansion for Consolidated Elements

By default, when you expand a consolidated element in a subset, the children of the consolidation display below the consolidated element in the Subset Editor. In the following example, the quarterly children appear below the consolidated element, Year.
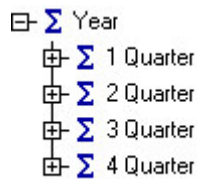
You can specify that the children appear above the consolidated element when you expand a consolidation, by using the Expand Above option. To do so, click **View**, **Expand Above** in the Subset Editor. A check mark displays next to the command on the View menu when you have enabled the option. To turn the Expand Above option on or off, click **View**, **Expand Above**.

The children appear above their parent consolidation.

You enable the Expand Above option on a per-subset basis.

When you enable the Expand Above option in a subset, and drill down on a consolidation in either the Cube Viewer, In-Spreadsheet Browser, or slice, the following results display:
- If you enable Expand Above in a row subset, when you drill down on a consolidation, the children above the consolidation display.
- If you enable Expand Above in a column subset, when you drill down on a consolidation, the children to the left of the consolidation display.

Adding a User-Defined Consolidation to a Subset

You can create a user-defined consolidation that is different from the consolidations in a dimension structure. To create a user-defined consolidation, you insert one subset into another subset. The members of the inserted subset roll up into a consolidated element (user-defined consolidation) that has same name as the

source subset. For example, if you insert the subset MySalesArea into the subset Europe, the user-defined consolidation MySalesArea is added to Europe.

A user-defined consolidation is helpful for analyzing data in ways that are not readily accommodated by a dimension structure. For example, the Region dimension in the TM1 sample database includes the Europe consolidation, which is composed of the Scandinavia, Benelux, Islands, Central Europe, Iberia, and Southern Europe regional consolidations.

Perhaps you want to view a consolidation of only the northern European regions that is not in the dimension structure. You can accomplish this by first creating a subset named Northern Europe that includes the components Scandinavia, Benelux, and Islands. Then you can insert the new subset into another subset.

You can insert the Northern Europe subset into a subset of the Region dimension.

Procedure

1. Open the **Europe** subset of the Region dimension in the Subset Editor.

   This subset contains the consolidations Central Europe and Southern Europe, which are defined in the Region dimension.

2. Click **Edit**, **Insert Subset**.

   A second Subset Editor opens for the Region dimension, displaying the subset named All.

3. Select the consolidated elements **Scandinavia**, **Benelux**, and **Islands**.

4. Click **Edit**, **Keep**.

   The second Subset Editor contains only the three selected elements.

5. In the second Subset Editor, click **Subset**, **Save**.

   The Save Subset dialog box opens.

6. Save the subset as a public subset named **Northern Europe**.

   Note: The subset (user-defined consolidation) name cannot be the same as any element name or alias name in the original subset. If a subset contains a user-defined consolidation and an element or alias with the same name, the element or the alias takes precedence.

7. Click **OK** to close the second Subset Editor.

   The original Subset Editor should now contain Northern Europe as a new member of the Europe subset.

8. Click **Subset**, **Save** to save the Europe subset with the user-defined consolidation. Click **Yes** if prompted to overwrite the existing subset.

   You can now use the Europe subset in either the Cube Viewer or In-Spreadsheet Browser to view data for the user-defined consolidation.

9. Open the **Region** view of the SalesCube cube.

   This view shows the monthly sales for the S Series 1.8L Sedan.

10. Click the **Region** row dimension label.

    The Subset Editor opens.

11. In the **Select Subset** list, click **Europe**.
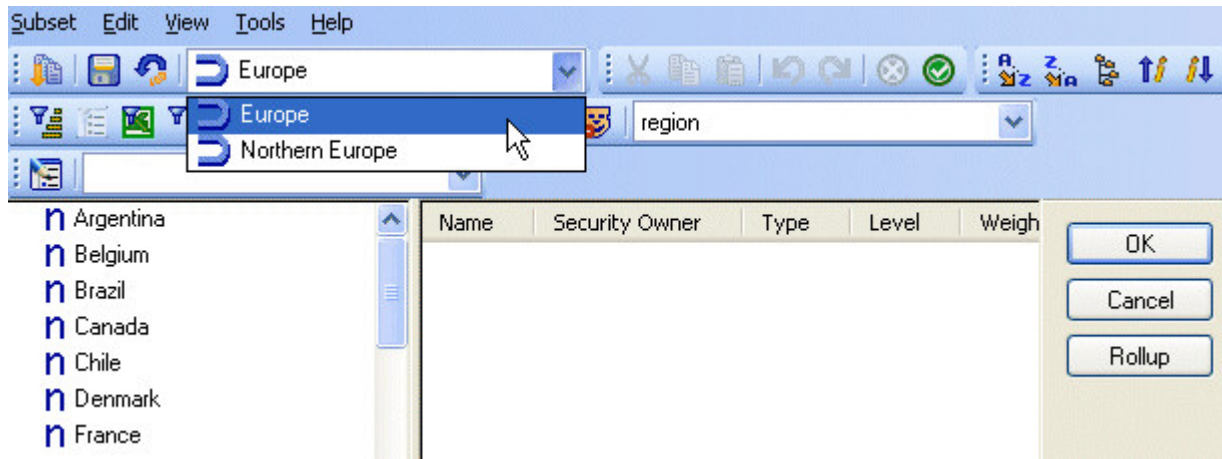
12. Click **OK**.

The Europe subset, which now includes the Northern Europe user-defined consolidation, displays in the view.

Remember, user-defined consolidations are members of a subset, and do not alter the dimension definition.

When you insert one subset into another subset to create a user-defined consolidation, the following rules apply.

- You can insert public subsets into private subsets.
- You cannot insert private subsets into public subsets.
- Inserted subsets that result in a circular reference are ignored.

Creating User-Defined Consolidations on the Fly

You can quickly create a subset containing only a user-defined consolidation with the Roll Up button in the Subset Editor. This process is easier to execute than inserting a user-defined consolidation into an existing subset. However, you cannot save or edit the subset. This process is available only when you open the Subset Editor from a cube view (Cube Viewer or In-Spreadsheet Browser) and is best suited for quickly creating a consolidation of elements while browsing a cube.

Procedure

1. From a cube view, open the dimension for which you want to create the user-defined consolidation in the Subset Editor.
2. Use the options in the Subset Editor to select the elements you want to include in your user-defined consolidation.
3. Click **Roll Up**.

The Subset Editor closes and the user-defined consolidation displays in the cube view. The user-defined consolidation name format is

}ROLLUP_ELEM_###

Where ### represents a sequential number for a Roll Up consolidation you create during a current server session. For example, the first Roll Up consolidation name is }ROLLUP_ELEM_000; the second Roll Up consolidation name is }ROLLUP_ELEM_001, and the third Roll Up consolidation name is }ROLLUP_ELEM_002.

This user-defined consolidation is considered a "pseudo-element" of the subset. You can use any sort method on the user-defined consolidation. You can select the user-defined consolidation using the Select by Regular Expression option in the Subset Editor. However, the user-defined consolidation is not assigned a

unique level in the subset; so you cannot use the Filter by Level option in the Subset Editor to select the user-defined consolidation.

In the following view, the row dimension includes a user-defined consolidation of all wagons in the Model dimension. This consolidation is named }ROLLUP_ELEM_003, indicating that it is the fourth consolidation created during the current server session.

Actual ∨	World ∨	Sales ∨		
		month		
model	**Jan**	**Feb**	**Mar**	**Apr**
− }ROLLUP_ELEM_003	2820917.00371	3112101.57645	3305240.47487	2728675.62083
L Series 1.6 L Sedan	259101.24749	316511.6321	334251.7667	284657.77626
L Series 1.8 L Sedan	353336.5108	373041.56106	457618.9588	348758.67583
L Series 1.8 L Wagon	1317.11916	1550.08102	1906.25508	1484.47843
L Series 1.8 L Wagon 4WD	1212.37948	1180.82801	1292.21073	1045.97339
L Series 2.0 L Sedan	237836.70456	254721.01165	277907.24352	199731.68306
L Series 2.0 L Wagon	3483.7383	3616.17109	3490.56636	3078.30117
L Series 2.0 L Wagon 4WD	2488.80907	2536.39278	2968.13356	2436.29117
L Series 2.5 L Sedan	355070.06738	398618.17648	385440.04095	343580.92594
S Series 1.8 L Sedan	174975.53677	196132.96552	189892.72704	161699.20233
S Series 1.8 L Wagon	21954.22354	23630.73519	28912.99357	21045.59746
S Series 2.0 L Sedan	137474.52723	158966.24469	181192.58736	151949.08176
S Series 2.0 L Wagon	26624.82129	27327.54315	26971.98783	25241.58342
S Series 2.5 L Sedan	253084.45963	290760.06342	302358.68374	240787.37685

Note: If you save this view, the user-defined consolidation is not saved as part of the view, but the members of the consolidation *are* saved as part of the view.

Creating Dynamic Subsets

As the name implies, dynamic subsets are more than simply a collection of elements. They are subsets that update automatically based on cube values (filter-based dynamic subsets) or dimension structure (expression-based dynamic subsets).

A filter-based dynamic subset displays elements that satisfy the filter criteria for the values in a specified cube view. For example, a filter-based subset can display the top 10 elements in the Region dimension for a view of the SalesCube cube. The view must contain a single element from all other dimensions of the cube. Any subsequent instances of the subset are referenced against the current values in the SalesCube cube, and the appropriate elements display in the subset.

An expression-based dynamic subset displays elements based on an expression that is recorded while you select options in the Subset Editor. For example, if you record an expression while selecting subset elements by hierarchy level, the subset always contains elements of the specified hierarchy level, even if elements of the specified level are later added to or removed from the associated dimension.

When you create either a filter-based or expression-based dynamic subset, an MDX expression is recorded and saved with the subset. This expression is then evaluated

whenever the subset is referenced by the server. The result is a subset that is always current for the filter criteria or element selection specified when the subset was created.

Note: The number of elements in a dynamic subset initially displays as N/A in the #Elements column of the Properties pane in the Server Explorer. The actual number of elements is not displayed until the dynamic subset is accessed by TM1 , such as when the dimension is opened in the Subset Editor.

Creating an Expression-Based Dynamic Subset

You can create an expression-based dynamic subset of the Model dimension. The subset displays all 4WD vehicles in descending alphabetical order.

Procedure

1. In the Server Explorer, right-click the Model dimension and click **Insert New Subset**.

   The Subset Editor opens.

2. Click **Tools**, **Record Expression**.

   This starts recording an MDX expression based on your selection of options in the Subset Editor.

3. Click **All** 🔲 to reveal the All subset.

   The Model dimension contains both the simple (0-level) and consolidated 4WD elements. You want to create a subset that displays only the 0-level elements.

4. Click **Filter by Level** 🔲 .

   The Select Subset Elements by Level dialog box opens.

5. Select **0** and click **OK**.

   Now you want the subset to include only 4WD models. You can use the Regular Expression option to select these models.

6.

   Click **Filter by Wildcard** 🔲 .

   The Select by Regular Expression dialog box opens.

7. Enter ***4WD** and click **OK**.

   The subset should now include eight vehicle models.

8. Click **Sort Descending** 🔲 to sort the subset in descending alphabetical order.

9. Click **Tools**, **Stop Recording**.

   This stops recording the MDX expression and prompts you to save the expression with the subset.

10. Click **Yes**.

11. Click **Subset**, **Save** and name the subset 4WD_models.

    Be sure the Save Expression check box is selected. If this check box is cleared, the expression is not saved with the subset. The resulting subset is static, not dynamic.

12. Click **View**, **Expression Window**.

    The Expression Window opens at the bottom of the Subset Editor.

    The window contains the following MDX expression:

    ```
    {TM1SORT( {TM1FILTERBYPATTERN( {TM1FILTERBYLEVEL( {TM1SUBSETALL(
    [model] )}, 0)}, "*4WD")}, DESC)}
    ```

This expression, read from the inside out, filters the ALL subset of the Model dimension by level (0), applies a pattern filter (*4WD), and sorts the resulting subset in descending order. This expression is an accurate recording of your selections in the Subset Editor. The expression is evaluated to display elements in the 4WD_models subset whenever the subset is referenced by the server.

13. Close the 4WD_models subset.

    To prove that the subset is dynamic, add the element L Series 1.8L Sedan 4WD to the Model dimension, and then open the 4WD_models subset.

    The subset should now display nine elements, including L Series 1.8L Sedan 4WD.
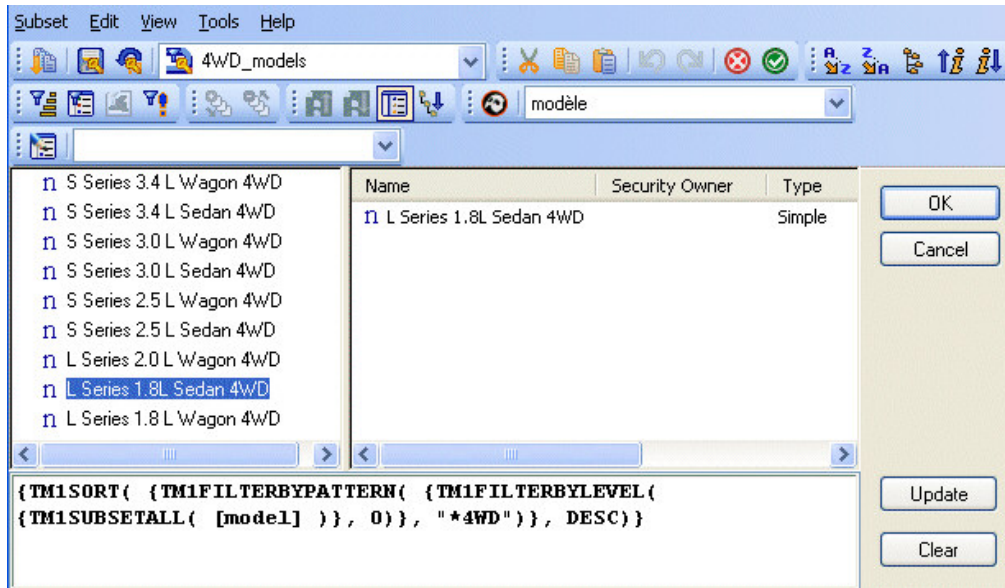
Creating a Filter-Based Dynamic Subset

You can create a filter-based dynamic subset by filtering the view values for a specified dimension. For example, you can create a subset based on a filter that displays the 10 elements (regions) of the Region dimension that have the highest actual sales values in the Sales Cube for a given model and month.

Procedure

1. Open the **Region** dimension in the Subset Editor.
2. Click **Tools**, **Record Expression**.
3. Click **All** to reveal the All subset.
4. Click **Filter by Level** .

   The Select Subset Elements by Level dialog box opens.
5. Select **0** and click **OK**.
6. Click **Tools**, **Filter**.

   The Filter Subset dialog box opens. This dialog box lets you define the view and filter to be used to display elements in the subset.
7. In the Cube Name list, click **SalesCube** to specify the cube with which the view is associated.
8. In the Select Column Members section, select the Column Members that define the view.

In this example, you want to create a subset of the 10 regions with the highest actual sales of the S Series 1.8L sedan in January. Select the column members according to the table below

Dimension	Column Member
Actvsbud	Actual
Account1	Sales
Model	S Series 1.8L Sedan
Month	Jan

9. Select the **TopCount** filter type.

   There are six Filter options. For a description of each filter option, see the IBM Cognos TM1 *Developer Guide*.

10. Enter a Value of 10.

11. Click **OK**.

    The Subset Editor displays the subset selected by the filter.

12. Click **Tools**, **Stop Recording**.

    Click **Yes** in response to the **Do you want to attach the expression to the subset** message.

13. Click **Subset**, **Save** and save the subset as Top_10_SalesCube_regions.

    Be sure the Save Expression box is selected when you save the subset.

14. Click **View**, **Expression Window**.

    The Expression Window displays the following MDX expression:

    ```
    { TOPCOUNT( {TM1FILTERBYLEVEL( {TM1SUBSETALL( [region]
    )}, 0)}, 10.000000, [SalesCube].([actvsbud].[Actual],[model].[S
    Series 1.8 L Sedan],[account1].[Sales],[month].[Jan])) }
    ```

    This expression displays the ten 0-level elements of the All subset for the Region dimension, with the greatest actual sales of S Series 1.8L Sedan in Jan, based on values in the SalesCube cube.

    Every time the server references the Top_10_SalesCube_regions subset, the expression is evaluated. If the actual Jan sales values for S Series 1.8L Sedan in SalesCube change, the subset members update to reflect the change in values.

Editing Dynamic Subsets

You can edit the generated MDX expression for a dynamic subset directly in the Subset Editor. For example, you can edit the expression saved with the 4WD_models subset to display all sedans in the Model dimension.

Procedure

1. Open the 4WD_models subset in the Subset Editor.

2. Click **View**, **Expression Window**.

   The Expression Window contains the following expression:

   ```
   {TM1SORT( {TM1FILTERBYPATTERN( {TM1FILTERBYLEVEL( {TM1SUBSETALL(
   [model] )}, 0)}, "*4WD")}, DESC)}
   ```

   This expression displays all 0-level elements of the ALL subset for the Region dimension ending with the string '4WD'.

3. Edit the expression by replacing the string *4WD with the string *Sedan*.

   The expression should now appear as follows:

   ```
   {TM1SORT( {TM1FILTERBYPATTERN( {TM1FILTERBYLEVEL( {TM1SUBSETALL(
   [model] )}, 0)}, "*Sedan*")}, DESC)}
   ```

4. Click **Update**.

   The edited expression is evaluated and displays new elements to the subset.

5. Click **Subset**, **Save As**.

6. Save the subset as All_sedans.

   Be sure the Save Expression box is selected when you save the subset.

   All_sedans is now available as a dynamic subset.

Chapter 5. Working with Cube Views

This section describes using cube views to browse and modify business data.

Saving Cube Views

You can save any view of cube data for quick access in the future. Each cube can have one view named Default. A cube's Default view automatically displays in the Cube Viewer or In-Spreadsheet Browser when you double-click the cube name in the Server Explorer window.

On remote servers, views are either private or public.
- Private views - Available only to the user who creates them.
- Public views - Available to all users on a remote server who have at least Read access to the cube containing the view data. To create a public view, you must either be a TM1 administrator or have Admin privileges to the cube with which the view is associated.

In the Server Explorer window, the view names appear beneath the cube with which they are associated. A public view name displays with a **Public View** icon; a private view name displays with a **Private View** icon.

You can save a cube view from either the Cube Viewer or the In-Spreadsheet Browser.

Procedure
1. Do one of the following to open the Save View dialog box:
   - From the Cube Viewer, click **File**, **Save**.
   - From the In-Spreadsheet Browser, right-click View Control and click **Save**.
2. Decide whether you want to create the Default view or a named view. To create a named view, skip to step 4.
3. To create a Default view, select the **Default** check box.

   The word Default displays in the View Name box.
4. To create a named view, type a view name (256 bytes maximum) in the View Name box.

   Note: For Western character sets, such as English, a single character is represented by a single byte, allowing you to name a view with 256 characters. However, large character sets, such as Chinese, Japanese, and Korean, use multiple bytes to represent one character. In this case, the 256 byte limit may be exceeded sooner and not actually allow the entry of 256 characters.
5. Decide whether you want to create a public or private view.

   To create a public view, clear the **Private** check box. You must be the TM1 administrator or have Admin privileges to the cube to save a private view.

   To create a private view, select the **Private** check box.
6. Click **OK**.

   The name of the view displays in the title bar of the Cube Viewer, or in the View Control of the In-Spreadsheet Browser.

Opening Saved Views

You can open previously saved views using several different tools.

- Server Explorer
- Cube Viewer
- In-Spreadsheet Browser

Opening Views from the Server Explorer

You can open a view from the Server Explorer.

Procedure

1. To open a view in the Cube Viewer, select the view in the Tree pane of the Server Explorer and click **CubeView**, **Browse**.
2. To open a view in the In-Spreadsheet Browser, select the view in the Tree pane of the Server Explorer and click **CubeView**, **Browse in Excel.**

   You can also double-click a view to open it in your default browser.

Opening Views from the Cube Viewer

You can open a different view of the current cube from the Cube Viewer. You must open views associated with other cubes from the Server Explorer.

Procedure

To open a different view of the current Cube, select a view name from the Cube Viewer's **Select View** list.
This list includes all views associated with the current cube.

Opening Views from the In-Spreadsheet Browser

You can open a new view directly from the In-Spreadsheet Browser.

Procedure

1. Right-click the **TM1 View Control**.
2. Click **Get View**.

   The Get View dialog box opens.
3. Select the server containing the view you want to open.

   If you are not currently logged on to the server, click **Connect** and log on.

   The Cube list displays the names of all cubes available on the server.
4. Select the cube associated with the view you want to open.

   The View list now displays the names of all available views.
5. Select the view you want to open and click **OK**.

Filtering Views

You can filter a view to better analyze data in a view's selected column element.

Filters let you view:

- Largest or smallest values for a column element
- Largest or smallest values whose cumulative total equals a specified sum
- Largest or smallest values whose cumulative total equals a specified percentage of a dimension total

You can filter values in views that contain a single row dimension. Filtering applies against the members of the current row subset.

If you save a view with an active filter, the view dynamically updates whenever you open or recalculate that view. If data changes on the server, the view updates and displays the current elements and values that satisfy the filter criteria.

The views with an active filter appear with the **Active Filter** 📑 icon in the Server Explorer.

You can use the following procedure to filter views in both the Cube Viewer and In-Spreadsheet Browser.

The following example filters values in a view to show the five vehicles with the greatest actual worldwide sales in the month of January.

Procedure

1. Open the filter view of the SalesCube cube.
2. Right-click a cell in the Jan column and click **Filter**.

   The Filter View dialog box opens.
3. Select **TopCount**.

   There are six filters available in the Filter View dialog box.

Filter	Description
TopCount	Filters the view to display only the largest n elements, where n is a number specified in the Value option.
BottomCount	Filters the view to display only the smallest n elements, where n is a number specified in the Value option.
TopSum	Filters the view to display only the largest elements whose sum is greater than or equal to n, where n is a number specified in the Value option.
BottomSum	Filters the view to display only the smallest elements whose sum is greater than or equal to n, where n is a number specified in the Value option.
TopPercent	Filters the view to display only the largest elements whose sum is greater than or equal to n, where n is a percentage of the dimension total specified in the Value option.
BottomPercent	Filters the view to display only the smallest elements whose sum is greater than or equal to n, where n is a percentage of the dimension total specified in the Value option.

4. Specify a value of **5**.
5. Select **Ascending** as the Sort order.

   There are three sort orders you can apply to the results of a filter.

Sort Order	Description
Ascending	Sorts values from lowest to highest.

Sort Order	Description
Descending	Sorts values from highest to lowest.
None	No sort order.

6. Click **OK**.

   The view now displays only the five largest values in the Jan column. You should see the five members of the current row subset (vehicles) with the greatest actual worldwide sales in January.

7. Save the view. If prompted, overwrite the existing view.

   A filter was active against the view when you saved the view, and now the view is dynamic. The view always displays members of the current Model subset with the greatest values in January, as determined by the current title elements.

   You can change the title elements while a filter is in place to display new elements in the row subset. For example, if you change the Actvsbud title element from Actual to Budget, the filter view updates to display the members of the current Model subset, with the greatest worldwide sales variance (difference between actual and budget figures) in January.

8. In the Actvsbud title dimension list, click **Variance**.

9. Click **Recalculate** [image] to recalculate the view.

   TM1 updates the view and displays the five row elements with the greatest variance in Jan.

Cancelling a View Filter

When you cancel a view filter, the view displays all of the elements of the row subset that was in place when the filter was created.

Procedure

1. Open the view.
2. Right-click anywhere in the data grid.
3. Click **Filter**.

   The Filter View dialog box opens.
4. Select **None** as the Filter type.
5. Click **OK**.

Changing Display Options

In both the Cube Viewer and In-Spreadsheet Browser the display options can be changed.

- Hide rows and columns that contain only zeros
- Control the display format for cells in the view

Hiding Cells Containing Zeros

You can suppress the display of zeros in rows, columns, or across an entire view. Suppressing zeros is helpful when you are working with a view containing a large number of rows or columns that contain only zeros.

For example, imagine a view that shows the sales values for the L Series 1.8L Sedan model. This model is not sold in Europe and was not available for sale until the month of April. Consequently, the view contains a large number of rows and columns containing only zeros, which makes it difficult to focus on the regions and months with non-zero sales values.

TM1 includes several options that let you suppress the display of rows and/or columns containing zeros.

Suppressing Zeros on Rows

You can suppress the display of rows containing all zeros in the Cube Viewer.

Procedure

1. Click **Options**, **Suppress Zeroes on Rows**.

   All rows that contain only zero values (European regions) are suppressed in the view, making it easier to analyze the data in the view.

   When the Suppress Zeroes on Rows command on the Options menu is selected, a check mark displays next to the command, indicating that zeros are suppressed on rows.

2. To enable the display of rows that contain all zeros, click **Options**, **Suppress Zeroes on Rows**.

   This clears the check mark next to the command on the menu, indicating that the rows containing only zeros are displayed in the view.

   The In-Spreadsheet Browser does not allow you to suppress zeros only on rows, but does allow you to suppress all rows and columns containing zero values in a view. For details, see "Hiding Cells Containing Zeros" on page 58.

Suppressing Zeros on Columns

You can suppress the display of columns containing all zeros in the Cube Viewer.

Procedure

1. Click **Options**, **Suppress Zeroes on Columns**.

   All columns that contain only zero values (Jan, Feb, and Mar) are suppressed in the view.

   When the Suppress Zeroes on Columns command is selected, a check mark displays next to the command on the menu, indicating that the zeros are suppressed in the columns.

2. To enable the display of columns that contain all zeros, click **Options**, **Suppress Zeroes on Columns**.

   This clears the check mark next to the command on the menu, indicating that the columns containing only zeros are displayed in the view.

   The In-Spreadsheet Browser does not allow you to suppress zeros only on columns, but does allow you to suppress all rows and columns that contain zero values in a view. For details, see "Hiding Cells Containing Zeros" on page 58.

Suppressing Zeros Across a View

You can suppress the display of all rows and columns containing only zeros in both the Cube Viewer and In-Spreadsheet Browser.

Suppressing Zeros Across a View in the Cube Viewer:

You can suppress zeros across a view in the cube viewer.

Procedure

1. Click **Options**, **Suppress Zeroes** or click **Suppress Zeroes** ![icon].

   All rows and columns containing only zero values (European regions in the rows and Jan, Feb, and Mar in the columns) are suppressed in the view.

   When the Suppress Zeroes command is selected, a check mark displays next to all the Suppress Zeroes commands on the menu, indicating that the zeros are suppressed across the entire view.

   The Suppress Zeroes button ![icon] on the Cube Viewer toolbar displays with an inverted background color, indicating that the zeros are suppressed across the view.

2. To enable the display of all rows and columns containing only zeros, click

   Options, **Suppress Zeroes** or click **Suppress Zeroes** ![icon].

Suppressing Zeros Across a View in the In-Spreadsheet Browser:

You can suppress zeros across a view in the in-spreadsheet browser.

Procedure

1. Right-click the TM1 View Control and click **Suppress Zeroes**.

   A check mark next to the command on the menu indicates that zeros are suppressed in the view.

2. To enable the display of all rows and columns containing only zeros, right-click the TM1 View Control and click Suppress Zeroes.

Zero Suppression and Consolidations

For example, consider the following view, which shows three consolidated values for L Series Sedan that contain a value of 0 as the result of the consolidation of positive and negative values.

Budget ∨	Belgium ∨				
	model				
month	− L Series Sedan	L Series 1.6 L Sedan	L Series 1.8 L Sedan	L Series 2.0 L Sedan	L Series 2.5 L Sedan
Jan	0	500	0	-500	0
Feb	0	300	-150	-150	0
Mar	0	200	-200	0	0

If you apply zero suppression to this entire view, the L Series 2.5L Sedan leaf column is suppressed but the L Series Sedan consolidated column is not.

Budget ∨	Belgium ∨			
	model			
month	− L Series Sedan	L Series 1.6 L Sedan	L Series 1.8 L Sedan	L Series 2.0 L Sedan
Jan	0	500	0	-500
Feb	0	300	-150	-150
Mar	0	200	-200	0

Formatting Cells

You can control the format of data displayed in the Cube Viewer or In-Spreadsheet Browser. When data displays in a view, the format is determined by order of precedence.

Procedure

1. Format attributes applied to the column elements.
2. Format attributes applied to row elements.
3. Format attributes applied to title elements.
4. Formatting applied directly in the Cube Viewer or In-Spreadsheet Browser.

Applying Format Attributes to Dimension Elements

The Format attribute is a special type of element attribute that determines how data is displayed. Format attributes can be applied to dimension elements.

Procedure

1. In the Tree pane of the Server Explorer, select the dimension containing the elements to which you want to apply attributes.
2. Click **Dimension**, **Edit Element Attributes**.

   The Attributes Editor opens. The Attributes Editor is a grid, with each cell at an intersection of an element name and an attribute name. To apply a format, you must select a cell at the intersection of an element name and the Format attribute.
3. Select the cell(s) to which you want to apply a format.
   - To select multiple adjacent cells, click and drag across the cells.
   - To select multiple non-adjacent cells, hold down CTRL and click each cell.
   - To select all cells, click the **Format** column label.
4. Click the **Format** button.

   The Number Format dialog box opens.
5. Select a format from the category list.
6. If necessary, specify a precision or style.
7. Click **OK** to close the Number Format dialog box.
8. Click **OK** in the Attribute Editor to set the Format attributes.

Formatting Views in the Cube Viewer

You can apply a display format to an entire view in the Cube Viewer.

Procedure

1. Click **Options**, **Format**.

   The Number Format dialog box opens.

   When you click on a format in the Category list, an example of that format displays in the Example box. For a complete list of the available formats, see Appendix B, " TM1 Display Formats," on page 197.
2. Select a format.
3. If necessary, specify a precision or style.
4. Click **OK**.

Formatting Views in the In-Spreadsheet Browser

You can apply display styles to four ranges within the In-Spreadsheet Browser.

The ranges that you can apply display styles to within the In-Spreadsheet Browser include:
- Background
- Data cells
- Row header cells
- Column header cells

The styles for each range can include number, alignment, font, border, and pattern formats.

The following steps illustrate how to apply the display styles in the In-Spreadsheet Browser.

Procedure
1. Right-click the View Control.
2. Click **Styles**.

   The View Styles dialog box opens.
3. For each range, select a style in the following lists:
   - Background
   - Data Cells
   - Row Header Cells
   - Column Header Cells

   The lists include all styles defined for the spreadsheet that contain the In-Spreadsheet Browser.
4. To edit an existing style or define a new style, click **Edit Style**.

   You can then edit the style in the Microsoft Excel Style dialog box, as described in the Excel online Help.
5. Click **OK**.

   The styles you apply through the View Styles dialog box are saved with the Excel spreadsheet, not the TM1 view.

Freezing Panes in the In-Spreadsheet Browser
When you freeze panes in the In-Spreadsheet Browser, the row and column headings remain visible as you scroll through a view. This is especially helpful when working with large data sets.

Procedure
1. Right-click the View Control.
2. Click **Styles**.

   The View Styles dialog box opens.
3. Select the **Freeze Panes** check box.

   Note: Clear the **Freeze Panes** check box to unfreeze the panes.
4. Click **OK**.

Changing the Column Orientation
By default, the column elements are oriented from left to right in the Cube Viewer. For example, the first element of the column subset displays at the far left of the Cube Viewer; the second element displays to the right of the first element.

Procedure

1. To change the orientation of the column elements to appear in order from right to left, click **Layout Right to Left** .

   When you change the orientation of column elements, the orientation of title dimensions also changes.

   Note: You cannot change the column orientation in the In-Spreadsheet Browser.
2. To return to the default layout with a left-to-right orientation, click **Layout Left to Right** .

   The column elements appear in order from left to right.

Modifying Cell Values

You can edit uncalculated values in a cube. Uncalculated values sre values that are not derived through rules or consolidations. The Cube Viewer window displays uncalculated values without shading.

To edit a value, you need Write access to the cube and to all the elements that identify the value.

Procedure

1. To modify a value in either the Cube Viewer or In-Spreadsheet Browser, click a cell and type a new value.

   If you are working in a Personal Workspace or Sandbox, when you edit a cell value and press enter the color of the cell changes until the value is committed.

   Occasionally, a value displayed without shading cannot be edited. The reasons for this include:
   - Reserved cube, dimension, or element
   - Locked cube, dimension, or element
   - Inadequate security privileges
2. To determine the edit status of a value in the Cube Viewer, right-click the value and click **Edit Status**.

   A message displays indicating whether the value is updatable. If the value is not updatable, the message explains why.

   The In-Spreadsheet Browser does not differentiate calculated cells from non-calculated cells.

   You cannot check the edit status of cells in the In-Spreadsheet Browser, but if you attempt to write a value to a cell that is not updatable, an error message displays.

Recalculating a View

To see the effect of your edits on values in the current view, you must recalculate the view. You can do this in the Cube Viewer or the In-Spreadsheet Browser. You can also set the In-Spreadsheet Browser to recalculate a view by default, whenever you recalculate the associated spreadsheet.

Recalculating a View in the Cube Viewer

There are three methods to recalculate a view in the Cube Viewer.

Use one of the following three methods to recalculate a view in the Cube Viewer:
- Click **File**, **Recalculate**.

- Click **Recalculate** .
- Press F9.

Recalculating a View in the In-Spreadsheet Browser

To recalculate a view in the In-Spreadsheet Browser, click View Control.

Setting the In-Spreadsheet Browser to Recalculate the View by Default

You can recalculate a view in the In-Spreadsheet Browser using the default method.

Procedure

1. Right-click the **View Control**.
2. Click **Update View on Recalc**.

   A check mark next to the Update View on Recalc command on the shortcut menu indicates that the view is recalculated with the spreadsheet.
3. Repeat steps 1 and 2 to turn the **Update View on Recalc** off.

Understanding Writeback and Sandboxes

IBM Cognos TM1 offers different ways to work. Depending on the configuration and capability settings designed by your administrator, you may be able to write data value changes directly to the server, or you may have the option of holding changes in a private "sandbox" until you are ready to write the changes to the server. You can also have the ability to name and manage a set of data changes in multiple sandboxes.

See "Understanding Writeback and Sandboxes" in this manual for more details on working in a sandbox or in direct writeback mode.

In direct writeback mode, when you shut down the server, the changes are saved in RAM to disk. You can also manually save the changes to disk.

When you work in a sandbox or personal workspace, you manually decide when to save the data changes to the server by committing the sandbox. Committing data makes it available to other users. Your administrator can further provide job queuing to allow sandbox data to be sequentially processed before being saved to disk.

Saving Cell Changes to Disk

In direct writeback mode or after committing sandbox data you can save data from one server or all servers to disk.

Procedure

1. Access the Server Explorer window.
2. To save one server's data, in the Tree pane, select the server containing the cube, then click **Server**, **Save Data**.

   For example, select local to save the changes on the local server.
3. To save the data on all accessed servers to disk, click **File**, **Save Data All**.

Using Batch Updates

In direct writeback mode or after committing sandbox data, any edits you apply to cubes are written to the RAM of the IBM Cognos TM1 server containing the cube.

Each time a value in RAM is updated, a lock is placed on the server and any views stored in memory affected by the updated value are deleted, which is detrimental to performance.

Batch updates allow you to improve the performance of input-intensive applications by holding the changes to the cube data and saving those changes to the server memory in a single batch. A batch update minimizes the amount of time a server is locked and reduces the impact on the views stored in memory.

When you initiate batch updates, a temporary storage structure is created that is associated with a selected server. All edits to cubes residing on that server are held in the storage structure until you save the batch update. All edits are then committed to the server and the temporary storage structure is destroyed after the batch is sent.

CAUTION:
Edits held in batch updates are not written to the server's Tm1s.log file until you save the batch updates. Edits lost due to a disconnection from the server cannot be recovered because the records of the edits do not exist in Tm1s.log. Here are the possible causes for losing edits:
- You do not save your batch updates before disconnecting from the server.
- Your client loses its connection to the server. This includes instances when an administrator disconnects your client from a server without warning, or when your client is disconnected from a server that is configured to disconnect idle client connections.
- The server comes down before you save your batch updates.

Initiating Batch Updates:

You can initiate batch updates on a server.

Procedure
1. Select the server in the Tree pane of the **Sever Explorer**.
2. Click **Server**, **Deferred Updates**, **Start Batch Updates**.

   All edits to cube values are now held in a temporary storage structure until you save the batch update.

   After you initiate batch updates you can view edits you apply to leaf cells, but all consolidations display #N/A until you save the batch.

   Other users cannot see any of your edits until you save the batch update.

Saving Batch Updates:

You can stop the batch update process and send all edits to the server.

Procedure
1. Select the server in the Tree pane of the Server Explorer.
2. Click **Server**, **Deferred Updates**, **End Batch Updates**.

   You are prompted to save the changes.
3. Click **Yes**.

   The changes are sent to the server. Your client stops running in batch update mode.

Discarding Batch Updates:

You can abandon the changes you make to cube data while running in batch update mode.

Procedure
1. Select the server in the Tree pane of the Server Explorer.
2. Click **Server**, **Deferred Updates**, **End Batch Updates**.

   You are prompted to save the changes.
3. Click **No**.

   Changes held in the batch are discarded. Your client stops running in batch update mode.

Exporting Cube Data

You can export values from a cube or view to a comma-delimited (.cma) text file. One record per line in the file is created for each exported value. Each record includes the name of the source cube, the elements that identify a cell location, and the cell value. For example:

```
"98sales","Budget","Belgium","S Series 1.8 L Sedan","Sales","Jan",3611.25
```

You can export a cube in its entirety, or you can use the View Extract window to export only those values that satisfy user-defined parameters.

Exporting Data from a Cube

You can export cube data to a comma-delimited (.cma) text file.

Procedure
1. In the left pane of the Server Explorer, click the cube containing the data you want to export.
2. Choose **Cube**, **Export as Text Data**.

   The View Extract window opens.
3. To focus the data that is exported, use the Subset Editor to select only the specific dimension elements that you want to export.

   Click the **Subset** [icon] button next to a dimension name to display the Subset Editor and then create a subset for that dimension.
4. To control which types of values are exported, use the **Skip** options.

   For details, see "Controlling the Types of Values to Export from a Cube" on page 67.
5. To export only data that falls within a particular range of values, use the **Range** parameters and fields.

   For details, see "Defining Range Parameters for Exporting Cube Data" on page 68.
6. Click **Export**.

   The Save As dialog box opens.
7. Navigate to the directory in which you want to save the data and type a file name.
8. Choose the Encoding format in which to save the file.
   - **UTF-8** (8-bit Unicode Transformation Format) - character set with variable-length character encoding for Unicode.

- **ANSI** - ANSI character set.

   Note: The UTF-8 option creates the exported file with character encoding for Unicode that is able to represent any universal character in the Unicode standard. Use the UTF-8 option if your cube data includes a mix of character sets that the ANSI option would not be able to correctly represent.
9. Click **Save**.

Exporting Data from a Saved View

You can export a saved view to a comma-delimited (.cma) text file.

Procedure

1. In the left pane of the Server Explorer, select the view you want to export.
2. Choose **CubeView**, **Export as Text Data**.

   The View Extract window opens with the name of the selected view displaying in the View box.
3. To focus the data that is exported, use the Subset Editor to select only the specific dimension elements that you want to export.

   Click the **Subset** button next to a dimension name to display the Subset Editor and then create a subset for that dimension.
4. To control which types of values are exported, use the Skip options. For details, see "Controlling the Types of Values to Export from a Cube."
5. To export only data that falls within a particular range of values, use the Range Parameters fields. For details, see "Defining Range Parameters for Exporting Cube Data" on page 68.
6. Click **Export**.

   The Save As dialog box opens.
7. Navigate to the directory in which you want to save the data and type a file name.
8. Choose the Encoding format in which to save the file.
   - **UTF-8** (8-bit Unicode Transformation Format) - character set with variable-length character encoding for Unicode.
   - **ANSI** - ANSI character set.

   Note: The UTF-8 option creates the exported file with character encoding for Unicode that is able to represent any universal character in the Unicode standard. Use the UTF-8 option if your cube data includes a mix of character sets that the ANSI option would not be able to correctly represent.
9. Click **Save**.

Controlling the Types of Values to Export from a Cube

When exporting data from a cube, you control which types of values are exported by using the Skip options.

In the View Extract window, set the Skip options as follows:

Skip Consolidated Values:
- To include consolidated values in the export, clear the Skip Consolidated Values check box.
- To exclude consolidated values, select the Skip Consolidated Values check box.

Skip Rule Calculated Values:
- To include rules-derived values in the export, clear the Skip Rule Calculated Values check box.
- To exclude rules-derived values, select the Skip Rule Calculated Values check box.

Skip Zero/Blank Values:
- To include cells containing zeroes, clear the Skip Zero/Blank Values check box.
- To exclude cells containing zeroes, select the Skip Zero/Blank Values check box.

Defining Range Parameters for Exporting Cube Data

To export only data that falls within a particular range of values, use the Range parameters and fields.

Procedure

1. In the View Extract window, select an expression from the Operator drop-down list.

   The operator expression defines the values you want to export. For example, you can export values greater than, or less than a specific limit.
2. Enter the limit values for applicable operator variables in the Numeric Limits or Text Limits fields for Value A and Value B.

Chapter 6. Using Data Spreading

This topic describes how to use data spreading functionality to distribute numeric data across cells in a cube view.

Overview of Data Spreading

IBM Cognos TM1 provides a variety of pre-defined data spreading functions 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.

Data spreading functionality is available in the Cube Viewer, In-Spreadsheet Browser, and in slice worksheets. When you right-click a cell in any of these places, the shortcut menu includes a Data Spread option, from which you can select a data spread method.
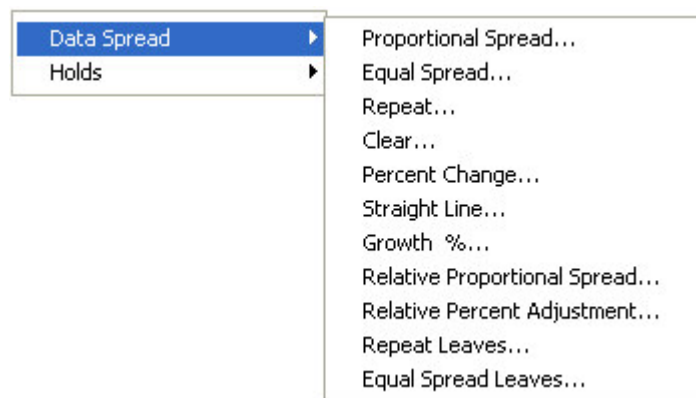
You cannot use data spreading functionality when you work in batch update mode. If you attempt to spread data in the Cube Viewer or In-Spreadsheet Browser while in batch update mode, an error displays. If you attempt to spread data in a slice while in batch update mode, the spreading operation is not executed.

Batch updates are described in "Using Batch Updates" on page 64.

General Procedures for Data Spreading

While there are a variety of data spreading functions, the general procedure for spreading data is the same for each function.

Note: All procedures in this section show data spreading in the Cube Viewer, but these procedures are also valid for the In-Spreadsheet Browser and slice worksheets.

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 or ranges in a worksheet or cube view.

To spread data in the In-Spreadsheet Browser or a slice, you must select a linear or rectangular range of cells by using any of these selection methods:

- Drag the pointer across the cells
- Click the first cell in the range, hold down SHIFT, and click the last cell in the range

Important: Do not use CTRL-click to select multiple cells to create a range. With each CTRL-click, you establish an individual selection in the worksheet. TM1 cannot spread data across multiple individually selected cells or ranges.

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.
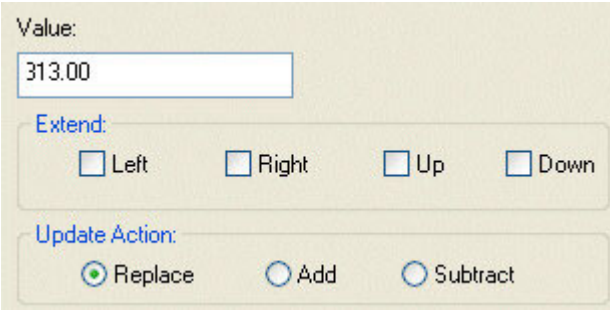
Procedure

1. Right-click the cell or range.
2. Click **Data Spread**.
3. Choose a data spread method from the menu.

   The Data Spread menu is dynamic -- TM1 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 Data Spread menu, indicating that they are unavailable.

Step 3 - Specify required values

With most spreading methods, you specify only the value you want to spread. For example, when you use the Equal Spread method, you must enter one value:

With several spreading methods, you must specify additional values. For example, with the Straight Line method, you specify both a Start Value and an End Value.
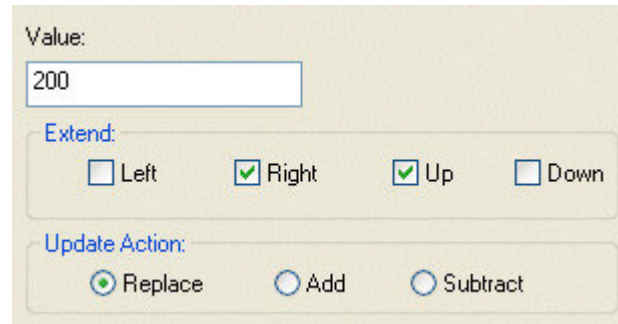
Step 4 - Select the directions to extend spreading

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 Extend options as check boxes, of which you can choose any combination.

For example, the Extend options in the following dialog box extend spreading to all cells above and to the right of the point of insertion.

Other data spreading methods allow you to extend spreading in a single direction. These methods display Extend options as option buttons, of which you can select any one.

For example, the Extend options in the following dialog box extend spreading to all cells directly below the point of insertion.

When you initiate spreading from a selected range of cells, the Extend 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.

For example, the Update Action in the following dialog box indicates that spread values are added to existing cell values.

Value:

200

Extend:
☐ Left ☐ Right ☐ Up ☐ Down

Update Action:
○ Replace ⦿ Add ○ Subtract

Other Steps

With the Relative Proportional Spread and Relative Percent Adjustment methods, you must identify a reference cell for the spreading operation.

Using the Proportional Spread Method

The Proportional Spread method distributes a specified value among cells proportional to existing cell values.

For example, consider the following view in which the values for Argentina in the months Jan, Feb, and Mar are 10, 30, and 60, respectively.

region	– 1 Quarter	Jan	Feb	Mar
Argentina	100	10	30	60
Belgium	0	0	0	0
Brazil	0	0	0	0
Canada	0	0	0	0
Chile	0	0	0	0
Denmark	0	0	0	0

The sum of these values is 100, with the value in Jan accounting for 10% of the sum, the value in Feb accounting for 30%, and the value in Mar accounting for 60%.

When you proportionally spread the value 300 across these cells and select the Replace update action, the result is as follows.

- Jan contains the value 30, which is 10% of 300
- Feb contains the value 90, which is 30% of 300
- Mar contains the value 180, which is 60% of 300

These values are proportionally equivalent to the cube values that existed before you apply data spreading.

Procedure

1. Select the cell or range of cells from which you want to initiate data spreading.
2. Right-click the cell or range and click **Data Spread**, **Proportional Spread**.
   The Proportional Spread dialog box opens.

Note: If you initiate spreading from a single cell, the Extend options are available in the dialog box. If you initiate spreading from a range of cells, the Extend options are unavailable.

3. Enter the value you want to spread in the Value field.
4. If necessary, select Extend options to specify the direction(s) for the data spread.
5. Select an Update Action.
6. Click **Apply**.

   The value you entered proportionally spreads in the directions you specified, or across the range of cells you selected.

Using the Equal Spread Method

The Equal Spread method distributes a specified value equally across the cells in a view.

For example, consider the following view where a range of 12 cells is selected.

month				
region	− 1 Quarter	Jan	Feb	Mar
Argentina	300	25	75	65
Belgium	0	45	85	55
Brazil	0	35	55	75
Canada	0	35	65	45
Chile	0	0	0	0
Denmark	0	0	0	0

When you equally spread the value 60 to these cells and select the Add update action, the value is equally spread across the range and added to the existing cell values. The result is that each cell value is incremented by 5 (60/12=5).

Procedure

1. Select the cell or range of cells from which you want to initiate data spreading.
2. Right-click the cell or range and click **Data Spread**, **Equal Spread**.

   The Equal Spread dialog box opens.
3. Enter the value you want to spread in the Value field.
4. If necessary, select Extend options to specify the direction(s) for the data spread.
5. Select an Update Action.
6. Click **Apply**.

   The value you entered spreads equally in the directions you specified, or across the range of cells you selected.

   When you apply the Equal Spread spreading method to a single consolidated cell without specifying a direction for the spreading operation, the value being spread is distributed proportionally to all leaves of the consolidated cell.

Using the Repeat Method

The Repeat method repeats a specified value across cells in a view.

For example, the following view illustrates the effect of initiating data spreading from the cell identified by Feb, Brazil, and repeating the value 25 in the Right and Down directions.

region	month − 1 Quarter	Jan	Feb	Mar
Argentina	0	0	0	0
Belgium	0	0	0	0
Brazil	50	0	25	25
Canada	50	0	25	25
Chile	50	0	25	25
Denmark	50	0	25	25

Procedure

1. Select the cell or range of cells from which you want to initiate data spreading.
2. Right-click the cell or range and click **Data Spread**, **Repeat**.

   The Repeat dialog box opens.
3. Enter the value you want to repeat in the Value field.
4. If necessary, select Extend options to specify the direction(s) for the repetition.
5. Select an Update Action.
6. Click **Apply**.

   The value you entered repeats in the directions you specified, or across the range of cells you selected.

   When you apply the Repeat spreading method to a single consolidated cell without specifying a direction for the spreading operation, the value being spread is distributed proportionally to all leaves of the consolidated cell.

Using the Percent Change Method

The Percent Change method multiplies the current cell values by a specified percentage. The product of that multiplication can then replace, be added to, or be subtracted from the existing cell values.

For example, consider the following view that contains a range of values in increments of 10.

region	month − 1 Quarter	Jan	Feb	Mar
Argentina	60	10	20	30
Belgium	150	40	50	60
Brazil	240	70	80	90
Canada	0	0	0	0
Chile	0	0	0	0
Denmark	0	0	0	0

When you apply the Percent Change method to these cells and specify a % Change value of 10, the system multiplies each cell value by 10% (or .10). If you select the Add update action, the product of multiplication is added to the existing cell values. The result is that each cell value is incremented by 10%.

Procedure

1. Select the cell or range of cells from which you want to initiate the percentage change.
2. Right-click the cell or range and click **Data Spread**, **Percent Change**.

   The Percent Change dialog box opens.
3. Enter the percentage change you want to apply in the % Change box.
4. If necessary, select Extend options to specify the direction(s) for the data spread.
5. Select an Update Action.
6. Click **Apply**.

   The percentage change is applied in the directions you specified, or across the range of cells you selected.

Using the Straight Line Method

The Straight Line data spreading method populates cube cells by linear interpolation between two specified endpoints.

For example, the following view shows the effect of Straight Line spreading across a range of six cells with the endpoints 100 and 200.

region	month					
	Jan	Feb	Mar	Apr	May	Jun
Argentina	100	120	140	160	180	200
Belgium	0	0	0	0	0	0
Brazil	0	0	0	0	0	0
Canada	0	0	0	0	0	0
Chile	0	0	0	0	0	0
Denmark	0	0	0	0	0	0

With the start value of 100 and the end value of 200, the option populates the intervening cells with values at equal intervals between the two endpoints.

Procedure

1. Select the cell or range of cells from which you want to initiate the data spreading.

   Note: You can apply Straight Line spreading only across a single row or column, not across rectangular ranges.
2. Right-click the cell or range and click **Data Spread**, **Straight Line**.

   The Straight Line dialog box opens.
3. Enter the starting value for the spreading in the Start Value field.
4. Enter the ending value for the spreading in the End Value field.
5. If necessary, select an Extend option to specify the direction for the data spread. Remember, you can apply Straight Line spreading only across single rows or columns, not across rectangular ranges.

Direction	Result
Horizontal	Populates cells horizontally across the entire row from which spreading is initiated.
Vertical	Populates cells vertically across the entire column from which spreading is initiated.
Right	Populates cells to the right of the point of insertion, in the row from which spreading is initiated.
Left	Populates cells to the left of the point of insertion, in the row from which spreading is initiated.
Down	Populates cells below the point of insertion, in the column from which spreading is initiated.
Up	Populates cells above the point of insertion, in the column from which spreading is initiated.

6. Select an Update Action.
7. Click **Apply**.

   The data is spread in a straight line in the directions you specified, or across the range of cells you selected.

Using the Growth % Method

The Growth % method accepts an initial value and a growth percentage. By using the initial value as a starting point, this method sequentially increments all values in a range by the specified growth percentage.

For example, the following view shows the result of applying the Growth % method to a range of six cells where the initial value is 100 and the growth percentage is 10%. This example uses the Replace data action.

month region	Jan	Feb	Mar	Apr	May	Jun
Argentina	100.00	110.00	121.00	133.10	146.41	161.05
Belgium	0.00	0.00	0.00	0.00	0.00	0.00
Brazil	0.00	0.00	0.00	0.00	0.00	0.00
Canada	0.00	0.00	0.00	0.00	0.00	0.00
Chile	0.00	0.00	0.00	0.00	0.00	0.00
Denmark	0.00	0.00	0.00	0.00	0.00	0.00

The initial value of 100 displays in the cell identified by Jan, Argentina. Applying the growth percentage of 10% to 100 yields 110, the value in Feb, Argentina. Applying the growth percentage of 10% to 110 yields 121, the value in Mar, Argentina.

Procedure

1. Select the cell or range of cells from which you want to initiate the data spreading.

Note: You can apply Growth % spreading only across a single row or column, not across rectangular ranges.

2. Right-click the cell or range and click **Data Spread**, **Growth %**.

   The Growth % dialog box opens.

3. Enter the starting value for the spreading in the Start Value field.

4. Enter the growth percentage for the spreading in the % Growth field.

5. If necessary, select an Extend option to specify the direction for the data spread. Remember, you can apply Growth % spreading across single rows or columns, not across rectangular ranges.

Direction	Result
Horizontal	Populates cells horizontally across the entire row from which spreading is initiated.
Vertical	Populates cells vertically across the entire column from which spreading is initiated.
Right	Populates cells to the right of the point of insertion, in the row from which spreading is initiated.
Left	Populates cells to the left of the point of insertion, in the row from which spreading is initiated.
Down	Populates cells below the point of insertion, in the column from which spreading is initiated.
Up	Populates cells above the point of insertion, in the column from which spreading is initiated.

6. Select an Update Action.

7. Click **Apply**.

   The growth percentage is applied in the directions you specified, or across the range of cells you selected.

Using the Relative Proportional Spread Method

The Relative Proportional Spread method spreads values to the leaves (children) of a consolidation proportional to the leaves of a reference cell. The reference cell can be located in the cube from which you initiate spreading or in a separate cube. However, the reference cell must share the same consolidations as the cell from which you initiate spreading.

The following example illustrates relative proportional spreading where both the initial cell and the reference cell exist in the same cube.

region	− 1 Quarter	Jan	Feb	Mar
Argentina	0	0	0	0
Belgium	0	0	0	0
Brazil	100	10	20	70
Canada	0	0	0	0
Chile	0	0	0	0
Denmark	0	0	0	0

The above view shows a single consolidated value of 100 in the cell identified by 1 Quarter, Brazil. By looking at the leaves of 1 Quarter, you can see that:

- Jan contains the value 10, which is 10% of 100
- Feb contains the value 20, which is 20% of 100
- Mar contains the value 70, which is 70% of 100

If you initiate relative proportional spreading from 1 Quarter, Argentina and specify a Data Action of Replace when spreading the value 400, the leaves of 1 Quarter, Argentina are populated as proportional to the leaves of 1 Quarter, Brazil:

- Jan contains the value 40, which is 10% of 400
- Feb contains the value 80, which is 20% of 400
- Mar contains the value 280, which is 70% of 400

Procedure

1. Select the consolidated cell from which you want to initiate the data spreading.
2. Right-click the cell and click **Data Spread**, **Relative Proportional Spread**.
   The Select Cell dialog box opens.
3. In the Cube list, select the cube in which the reference cell is located.
4. If necessary, click any of the Dimension buttons to select a different dimension element that identifies the reference cell.

   When you click a Dimension button, the Subset Editor opens and displays all elements of the dimension. You can then select a single element and click OK.

   For example, click account1, select a different element in the Subset Editor, and click OK.

   Note: The Dimension buttons for consolidated elements are unavailable because the cell from which spreading is initiated and the reference cell must share common consolidated elements.
5. Click **Select**.
   The Reference Cell field on the Relative Proportional Spread dialog box is now populated with the cell you selected.
6. Enter the value to be spread in the Value field.
7. Select an Update Action.
8. Click **Apply**.

Using the Relative Percent Adjustment Method

The Relative Percent Adjustment method spreads values to the leaves (children) of a consolidation by applying a percentage adjustment to the leaves of a reference cell.

This method increments the values in the leaves of the reference cell by a user-specified percentage. The resulting values are then spread to the leaves of the consolidation from which you initiated spreading.

The reference cell can be located in the cube from which you initiate spreading or in a separate cube. However, the reference cell must share the same consolidations as the cell from which you initiate spreading.

The following example illustrates relative percent adjustment spreading where both the initial cell and the reference cell exist in the same cube.

Assume a single consolidated value of 600 is in the cell identified by 1 Quarter, Brazil. The leaves of 1 Quarter would look like this:

- Jan contains the value 100
- Feb contains the value 200
- Mar contains the value 300

If you initiate Relative Percent Adjustment spreading from 1 Quarter, Argentina and specify a percent adjustment of 50% while using 1 Quarter, Brazil as a reference cell, the result is as follows.

region	month − 1 Quarter	Jan	Feb	Mar
Argentina	300	50	100	150
Belgium	0	0	0	0
Brazil	600	100	200	300
Canada	0	0	0	0
Chile	0	0	0	0
Denmark	0	0	0	0

Note that the leaves of 1 Quarter, Argentina are populated with values that are 50% of the values found in the leaves of 1 Quarter, Brazil:

- Jan, Argentina contains the value 50, a 50% adjustment of the value in Jan, Brazil
- Feb, Argentina contains the value 100, a 50% adjustment of the value in Feb, Brazil
- Mar, Argentina contains the value 150, a 50% adjustment of the value in Mar, Brazil

Procedure

1. Select the consolidated cell from which you want to initiate the data spreading.
2. Right-click the cell and click **Data Spread**, **Relative Percent Adjustment**.
   The Relative Percent Adjustment dialog box opens.
3. Enter the adjustment percentage in the % Adjustment field.
4. Click **Select** to begin selecting the reference cell.
   When you click Select, the Select a Reference Cell dialog box opens.
5. In the Cube list, select a cube in which the reference cell is located.
6. If necessary, click any of the Dimension buttons to select a different dimension element that identifies the reference cell.
   When you click a Dimension button, the Subset Editor opens displaying all elements of the dimension. You can then select a single element and click OK.

Note: The Dimension buttons for consolidated elements are unavailable, as the cell from which spreading is initiated and the reference cell must share all consolidated elements in common.

7. Click **Select**.

   The Reference Cell field now contains the cell you selected.

8. Select an Update Action.

9. Click **Apply**.

Using the Repeat Leaves Method

The Repeat Leaves method copies a specified value to the leaves (children) of a consolidation. When you apply this method, you can copy the value to all leaves of the consolidation or only to those leaves that already contain non-zero values.

For example, assume there are several leaves of Year, Argentina with values.

If you use the Repeat Leaves method to copy the value 400 to the leaves of Year, Argentina currently populated with non-zero values, the value 400 is copied to all leaves that contained non-zero values.

If you initiate the Repeat Leaves method from a cell identified by more than one consolidated element, the specified value is copied to all leaves associated with the cell. For example, in the following view, the selected cell is identified by two consolidated elements: Year and S Series Sedan.

model	month − Year	− 1 Quarter	Jan	Feb	Mar	− 2 Quarter	Apr	May	Jun	− 3 Quarter	Jul	Aug	Sep	− 4 Quarter	Oct	Nov	Dec
− S Series Sedan	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
S Series 1.8 L Sedan	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
S Series 2.0 L Sedan	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
S Series 2.5 L Sedan	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
S Series 3.0 L Sedan	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
S Series 3.4 L Sedan	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
S Series 2.5 L Sedan 4WD	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
S Series 3.0 L Sedan 4WD	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
S Series 3.4 L Sedan 4WD	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

If you initiate Repeat Leaves spreading from the highlighted cell, the specified value is copied to all cells identified by the leaves of Year and the leaves of S Series Sedan. For instance, if you use Repeat Leaves to copy the value 25 to all leaves of the highlighted cell, the result is as follows.

model	month − Year	− 1 Quarter	Jan	Feb	Mar	− 2 Quarter	Apr	May	Jun	− 3 Quarter	Jul	Aug	Sep	− 4 Quarter	Oct	Nov	Dec
− S Series Sedan	2400	600	200	200	200	600	200	200	200	600	200	200	200	600	200	200	200
S Series 1.8 L Sedan	300	75	25	25	25	75	25	25	25	75	25	25	25	75	25	25	25
S Series 2.0 L Sedan	300	75	25	25	25	75	25	25	25	75	25	25	25	75	25	25	25
S Series 2.5 L Sedan	300	75	25	25	25	75	25	25	25	75	25	25	25	75	25	25	25
S Series 3.0 L Sedan	300	75	25	25	25	75	25	25	25	75	25	25	25	75	25	25	25
S Series 3.4 L Sedan	300	75	25	25	25	75	25	25	25	75	25	25	25	75	25	25	25
S Series 2.5 L Sedan 4WD	300	75	25	25	25	75	25	25	25	75	25	25	25	75	25	25	25
S Series 3.0 L Sedan 4WD	300	75	25	25	25	75	25	25	25	75	25	25	25	75	25	25	25
S Series 3.4 L Sedan 4WD	300	75	25	25	25	75	25	25	25	75	25	25	25	75	25	25	25

When you initiate Repeat Leaves from a cell identified by multiple consolidated elements, the RAM requirements of the cube can increase significantly. To address this issue, the system issues a warning in circumstances where more than 10,000

cells are affected by the Repeat Leaves method. In circumstances where more than one million cells are affected, the spreading operation does not execute.

Procedure

1. Select the consolidated cell from which you want to initiate data spreading.
2. Right-click the cell and click **Data Spread**, **Repeat Leaves**.

   The Repeat Leaves dialog box opens.
3. Enter the value you want to repeat in the Value field.
4. Select an **Apply To** option.

Value	Description
Populated Leaf Cells	The specified value is copied only to leaf cells currently containing non-zero values.
All Leaf Cells	The specified value is copied to all leaf cells regardless of current values.

5. Select an **Update Action**.
6. Click **Apply**.

Using the Equal Spread Leaves Method

The Equal Spread Leaves method distributes a specified value equally across all leaves of a consolidated cell. When you apply this method, you can choose to distribute the value to all leaves of the consolidation or only to those leaves that already contain non-zero values.

In this example, assume there are several leaves of Year, Argentina with zero values.

If you use the Equal Spread Leaves method to distribute the value 1200 to all the leaves of Year, Argentina, the result is as follows.

region	month																	
	− Year	− 1 Quarter	Jan	Feb	Mar	− 2 Quarter	Apr	May	Jun	− 3 Quarter	Jul	Aug	Sep	− 4 Quarter	Oct	Nov	Dec
Argentina	1200	300	100	100	100	300	100	100	100	300	100	100	100	300	100	100	100
Belgium	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Brazil	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

If you initiate the Equal Spread Leaves method from a cell identified by more than one consolidated element, the specified value is distributed to all leaves associated with the cell. For example, assume the selected cell is identified by two consolidated elements: Year and S Series Sedan.

If you initiate Equal Spread Leaves spreading from the highlighted cell, the specified value is distributed to all cells identified by the leaves of Year and the leaves of S Series Sedan. For instance, if you use Equal Spread Leaves to distribute the value 1200 to all leaves of the highlighted cell, the result is as follows.

month														
model	− Year	− 1 Quarter	Jan	Feb	Mar	− 2 Quarter	Apr	May	Jun	− 3 Quarter	Jul	Aug	Sep	+ 4 Quarter
− S Series Sedan	1200.0	300.0	100.0	100.0	100.0	300.0	100.0	100.0	100.0	300.0	100.0	100.0	100.0	300.0
S Series 1.8 L Sedan	150.0	37.5	12.5	12.5	12.5	37.5	12.5	12.5	12.5	37.5	12.5	12.5	12.5	37.5
S Series 2.0 L Sedan	150.0	37.5	12.5	12.5	12.5	37.5	12.5	12.5	12.5	37.5	12.5	12.5	12.5	37.5
S Series 2.5 L Sedan	150.0	37.5	12.5	12.5	12.5	37.5	12.5	12.5	12.5	37.5	12.5	12.5	12.5	37.5
S Series 3.0 L Sedan	150.0	37.5	12.5	12.5	12.5	37.5	12.5	12.5	12.5	37.5	12.5	12.5	12.5	37.5
S Series 3.4 L Sedan	150.0	37.5	12.5	12.5	12.5	37.5	12.5	12.5	12.5	37.5	12.5	12.5	12.5	37.5
S Series 2.5 L Sedan 4WD	150.0	37.5	12.5	12.5	12.5	37.5	12.5	12.5	12.5	37.5	12.5	12.5	12.5	37.5
S Series 3.0 L Sedan 4WD	150.0	37.5	12.5	12.5	12.5	37.5	12.5	12.5	12.5	37.5	12.5	12.5	12.5	37.5
S Series 3.4 L Sedan 4WD	150.0	37.5	12.5	12.5	12.5	37.5	12.5	12.5	12.5	37.5	12.5	12.5	12.5	37.5

When you initiate Equal Spread Leaves from a cell identified by multiple consolidated elements, the RAM requirements of the cube can increase significantly. To address this issue, the system issues a warning in circumstances where more than 10,000 cells are affected by the Equal Spread Leaves method. In circumstances where more than one million cells are affected, the spreading operation does not execute.

Procedure

1. Select the consolidated cell from which you want to initiate data spreading.
2. Right-click the cell and click **Data Spread**, **Equal Spread Leaves**.

   The Equal Spread Leaves dialog box opens.
3. Enter the value you want to distribute in the Value field.
4. Select an **Apply To** option.

Value	Description
Populated Leaf Cells	The specified value is distributed only to leaf cells currently containing non-zero values.
All Leaf Cells	The specified value is distributed to all leaf cells regardless of current values.

5. Select an **Update Action**.
6. Click **Apply**.

Using the Clear Method

The Clear method clears values from cells in a view. You can apply this method to either leaf cells or consolidated cells. When you apply the Clear method to a consolidated cell, all leaves of the consolidation get set to zero.

For example, the following view shows values for the 3 Quarter consolidation and its leaves (Jul, Aug, and Sep).

model	month − 3 Quarter	Jul	Aug	Sep
− S Series Sedan	88764	21452	34562	32750
S Series 1.8 L Sedan	11673	2435	4674	4564
S Series 2.0 L Sedan	12553	2452	5424	4677
S Series 2.5 L Sedan	10580	2352	5674	2554
S Series 3.0 L Sedan	12572	2252	6757	3563
S Series 3.4 L Sedan	7563	1324	2587	3652
S Series 2.5 L Sedan 4WD	9688	3567	3467	2654
S Series 3.0 L Sedan 4WD	9190	1444	1234	6512
S Series 3.4 L Sedan 4WD	14945	5626	4745	4574

If you initiate the Clear method from the selected cell and extend the spreading operation downward, the leaves of all consolidations below the point of insertion are cleared.

Procedure

1. Select the cell or range of cells that you want to clear.
2. Right-click the cell or range and click **Data Spread**, **Clear**.

   If you selected a range of cells in Step 1, the system prompts you for confirmation.

   Click **Yes** to clear the selected cells.

   If you selected a single cell in Step 1, the Clear dialog box opens.
3. Specify the direction(s) in which you want to clear cells. For example, to clear all cells above and to the left of the selected cell, select Left and Up. To clear all cells in the view, select all directions (Left, Right, Up, and Down).

   You can specify any combination of directions. If you do not specify any direction, only the selected cell is cleared.

   Note: When you specify a direction in which to extend the Clear method, the system clears all cells in that direction, both leaf cells and consolidated cells. When you apply the Clear method to a consolidated cell, all leaves of the consolidation are set to zero.
4. Click **Apply**.

   The system clears the cells in the directions you specified.

Excluding Cells from Data Spreading

The Leaf Hold feature lets you exclude cells from data spreading operations. You can use Leaf Hold in the Cube Viewer, In-Spreadsheet Browser, and slice worksheets.

Leaf Hold only prevents a cell from being affected by data spreading; you can still edit held cells manually or with Turbo Integrator. The holds apply only to the user initiating the feature; other users can edit held cells. You cannot apply the holds when you work in batch update mode, as described in "Using Batch Updates" on page 64.

To illustrate Leaf Hold, consider the following view:

region	month — 3 Quarter	Jul	Aug	Sep
Argentina	0	0	0	0
Belgium	0	0	0	0
Brazil	832	123	245	464
Canada	1575	341	467	767
Chile	0	0	0	0
Denmark	0	0	0	0

This view contains values for Brazil and Canada. When you apply a hold to the cells containing values, and repeat the value 345 to all cells in the view, the held cells are excluded from the spreading operation.

Each held cell displays a red triangle in the lower left corner of a cell as a visual indication that Leaf Hold is applied to the cell.

The holds persist for the duration of a client session. When a client logs off or is disconnected from the TM1 server , TM1 automatically releases all holds.

Applying Leaf Holds

You can apply a Leaf Hold to a single cell or to a range of cells.

Procedure

1. Select the cell or range.
2. Right-click the cell or range.
3. Click **Holds**, **Hold Leaves**.

   When you apply a Leaf Hold to a consolidated cell, a hold applies to all leaves of the consolidation that contain non-zero values. The following figure illustrates the effect of applying a leaf hold to the selected consolidated cell. All populated leaves of the consolidation are held. The leaves without values (Argentina and Uruguay) are not held.

month	region — South America	Argentina	Brazil	Chile	Uruguay
Jan	603	0	258	345	0
Feb	0	0	0	0	0
Mar	0	0	0	0	0

   For details on holding consolidation values constant while adjusting underlying leaf values, see "Holding Consolidation Values Constant" on page 85.

Releasing Leaf Holds

When you release a leaf hold, the released cells can again accept values from data spreading operations.

Procedure

1. Select the cell or range of cells.
2. Right-click the cell or range.

3. Click **Holds**, **Release Leaf Holds**.

   To release all holds, including consolidation holds, you applied to all cubes on the TM1 server .

4. Right-click any cell in any cube on the server.

5. Click **Data Spread**, **Release All Holds**.

Holding Consolidation Values Constant

The Consolidation Hold feature lets you hold the value of a consolidation constant while adjusting the underlying leaf values. For example, you might want to hold the value of 1 Quarter constant while changing the values of the Jan, Feb, or Mar leaves to perform a what-if analysis. You can use Consolidation Hold in the Cube Viewer, In-Spreadsheet Browser, and slice worksheets.

When a consolidation hold is in place and the value of a leaf of the consolidation is changed, proportional spreading is automatically applied to the remaining leaf values so that the consolidation value remains unchanged. You cannot apply Consolidation Holds when you work in batch update mode.

In the following example, a consolidation hold, identified by a red triangle in the lower left corner of the cell, is placed on the consolidated value at the intersection of S Series 1.8L Sedan and 1 Quarter. This consolidation hold keeps the value in the cell constant at 1,000.

model	month			
	− 1 Quarter	Jan	Feb	Mar
S Series 1.8 L Sedan	1000	200	300	500
S Series 2.0 L Sedan	6000	1000	2000	3000
S Series 2.5 L Sedan	4520	1310	1420	1790

If you change the value in the cell at the intersection of S Series 1.8L Sedan and Mar to 700, the remaining leaf values are changed, proportional to their existing values, such that the consolidation of the leaves equals 1,000.

The result is that the consolidated value at the intersection of S Series 1.8L Sedan and 1 Quarter indeed holds constant at 1,000. The value at the intersection of S Series 1.8L Sedan and Jan is changed to 120 and the value at the intersection of S Series 1.8L Sedan and Feb is changed to 180. These new values are determined by applying the following equation:

```
Consolidation Hold value - changed leaf value = value
to be proportionally spread to remaining leaf cells
```

When you apply this equation to the example, 1000 - 700 = 300, the value 300 is proportionally spread to the remaining leaf cells.

Note: When a consolidation hold is in place, you cannot use spreading to change the values of leaves of the consolidation; you can edit leaf values only by entering values directly in the cells.

Interaction of Consolidation Holds and Leaf Holds

You can apply leaf holds to exclude leaf values from being changed to accommodate a consolidation hold. For instance, you might want to hold the value of Total Year constant and prevent the Jan, Feb, and Mar values from being changed.

To accomplish this, you place a consolidation hold on Total Year and leaf holds on Jan, Feb, and Mar, as in the following example.

month													
model	− Total year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
S Series 1.8 L Sedan	484,200	36,500	47,200	46,600	39,800	32,600	36,700	29,300	32,500	46,900	54,900	45,500	35,700
S Series 2.0 L Sedan	423,100	32,800	38,400	42,100	35,400	30,300	30,000	28,300	26,900	40,500	46,900	39,900	31,600
S Series 2.5 L Sedan	536,600	40,700	43,100	54,400	45,000	36,400	35,100	33,200	37,600	51,700	58,600	53,300	47,500

The red triangle in the lower left corner of a cell indicates that a hold is in place. In the case of the cell at the intersection of Total Year and S Series 1.8L Sedan, the red triangle indicates a consolidation hold. In the other cells, the triangles indicate leaf holds.

If you then change the value in the cell at the intersection of Dec and S Series 1.8L Sedan to 20,000.00, the following occurs:

- Consolidation value for Total Year holds constant at 484,200.00
- Leaf values for Jan, Feb, and Mar remain unchanged
- Remaining leaf values are changed proportional to their former values such that the consolidation value for Total Year holds constant.

Applying Consolidation Holds

You can apply a consolidation hold to a single cell or to a range of cells.

Procedure

1. Select the cell or range.
2. Right-click the cell or range.
3. Click **Holds**, **Hold Consolidate**.

Releasing Consolidation Holds

When you release a consolidation hold, the consolidated value is no longer held constant, and reflects any changes you make to the underlying leaf values.

Procedure

1. Select the cell or range of cells.
2. Right-click the cell or range.
3. Click **Holds**, **Release Consolidate**.

   To release all holds, including leaf holds, you applied to all cubes on the TM1 server .
4. Right-click any cell in any cube on the server.
5. Click **Holds**, **Release All Holds**.

Data Spreading Syntax

You can apply most data spreading methods through a special syntax that you enter directly in cells in the Cube Viewer, In-Spreadsheet Browser, and slice worksheets. The syntax also allows you to apply and release holds.

You cannot use the data spreading syntax to apply the Relative Proportional Spread, Relative Percent Adjustment, Repeat Leaves, and Equal Spread Leaves methods. You must use the user interface to apply any of these methods. Similarly, you must use the user interface if you want to spread across a selected range of cells. For details, see "Spreading Across a Selected Range of Cells" on page 91.

Each data spreading syntax expression consists of the following components: a method code, a data action (optional), direction indicators, and method parameter(s).

Method Code

Direction Indicators

s+<>100

Data Action

Method Parameter
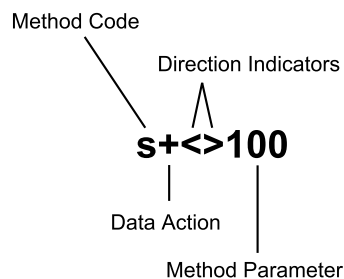
The **method code** is a one- or two-character code for a data spreading method. For example, S is the method code for the Equal Spread spreading method. All method codes are listed in the table below.

The **data action** indicates whether spread values should replace, be added to, or be subtracted from the existing cell values.
- Replace - If you do not specify an action, the existing cell values are replaced with the spread values.
- Add - Plus sign (+) adds spread values to the existing cell values.
- Subtract - Tilde (~) subtracts spread values from the existing cell values.

The **direction indicators** indicate the direction to spread data relative to the point of insertion. The cell from which you initiate data spreading is always included in the spreading. You can use any combination of direction indicators in an expression.
- Pipe (|) - Spreads values below the point of insertion
- Caret (^) - Spreads values above the point of insertion
- Right arrow (>) - Spreads values to the right of the point of insertion
- Left arrow (<) - Spreads values to the left of the point of insertion

The **method parameters** supply all parameters required to execute a given spreading method. Most methods require only a parameter indicating the value to be spread. The required method parameters for each spreading method are listed in the following table.

Quick Reference Table

The following table provides details for all spreading methods that you can apply with the spreading syntax.

Data Spreading Method	Code	Required Method Parameters	Data Action (Optional) *	Example
Proportional Spread	P	Value to be spread	+, ~	P<>100 Proportionally spreads the value 100 to all leaf cells on the row of insertion, and replaces the existing cell values.
Equal Spread	S	Value to be spread	+, ~	S+|^200 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.
Repeat	R	Value to be spread	+, ~	R~<50 Subtracts the value 50 from all leaf cells to the left of the insertion point.
Percent Change	P%	Percentage	+, ~	P%+|^<>10 Applies a percent change of 10% to all leaf values in the view, adds the product to the existing cell values, and increments all leaves in the view by 10%.
Straight Line **	SL	Start Value and End Value	+, ~	SL>100:200 Replaces all leaf values to the right of the point of insertion, with a start value of 100 and an end value of 200.

Data Spreading Method	Code	Required Method Parameters	Data Action (Optional) *	Example
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 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 Hold	RA	N/A	N/A	RA<> Releases all holds on the cells on the row of insertion.

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 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.

Using Shortcuts in Different Clients

The following table shows the shortcut keys available in the IBM Cognos TM1 Application Web client and the comparable shortcut keys available in TM1 . See also the notes at the end of the table for important information about using shortcut keys.

TM1 Application Web	TM1
Add10	P+10
Sub10	P~10
Increase10	P%+10
Decrease10	P%~10
Percent10	P%10
Add10> or >Add10	R+>10
Sub10> or >Sub10	R~>10
Increase10> or >Increase10	P%+>10
Decrease10> or <Decrease10	P%~>10
Percent10> or >Percent10	P%>10
>10	R>10
10>	R>10
>10K	R>10000
>10M	R>10000000
10Grow100Compound>	GR>10:100
10Grow100Linear>	GR>10:100
10Gro100Com>	GR>10:100
10Gro100Lin>	GR>10:100
10G100C>	GR>10:100
10G100L>	GR>10:100
10Grow100>	GR>10:100
1K	1000 (The number ending in K is multiplied by 1000 at the client end and returned to the server)

TM1 Application Web	TM1
1M	1000000 (The number ending in M is multiplied by 1000000 at the client end and returned to the server)
Notes: When a shortcut such as 10K is entered, the numbers are multiplied by 1000, or 1000000 at the client end and then the shortcut is converted to the equivalent spreadcode. The TM1 spreadcodes cannot be used in combination with Cognos Planning shortcuts. For example. P%Add10 or RPAdd10 are not allowed. Also, Cognos Planning shortcuts cannot be used in combination with TM1 shortcuts. For example, Add10Sub20 is an invalid entry.	
The Cognos Planning shortcuts of Multiply, Divide, Power, and Reset are not available in TM1 . All Grow commands whether Compound or Linear, are converted to the TM1 GR spreadcode command. GR command can only do a Linear Growth. The direction of spread can be entered at the start or the end of the shortcut. Shortcut strings with the direction in the middle are invalid. For example, Add10> or >Add10 are correct, but Add>10 or Add1>0 are invalid. All shortcut codes are *not* case sensitive. For example, add10, Add10 , or aDD10 produce the same result.	

Spreading Across a Selected Range of Cells

You cannot use data spreading syntax to spread across a selected range of cells, in the Cube Viewer, In-Spreadsheet Browser, and slices.

When you select a range of cells and attempt to use the data spreading syntax, the client (Cube Viewer, In-Spreadsheet Browser, or slice) goes into edit mode and applies the edit only to the active cell in the selection.

For example, in the following image you can see that a range of six cells is selected, with the cell at the intersection of Jun and Argentina being the active cell in the selection.

region	month					
	Jan	Feb	Mar	Apr	May	Jun
Argentina	331	342	346	285	232	229
Belgium	149	176	163	139	115	117
Brazil	301	340	332	274	220	206
Canada	0	0	0	0	0	0
Chile	73	88	80	71	60	54
Denmark	76	87	85	74	59	56
France	1410	1526	1567	1276	1025	1033
Germany	1550	1640	1753	1451	1206	1152

If you enter S600 in the active cell (spreading syntax to equally spread the value 600), the result is as follows:

region	Jan	Feb	Mar	Apr	May	Jun
Argentina	331	342	346	285	232	600
Belgium	149	176	163	139	115	117
Brazil	301	340	332	274	220	206
Canada	0	0	0	0	0	0
Chile	73	88	80	71	60	54
Denmark	76	87	85	74	59	56
France	1410	1526	1567	1276	1025	1033
Germany	1550	1640	1753	1451	1206	1152

Note that the spreading is applied only to the active cell, which now contains the value 600.

If you want to spread data across a selected range of cells, you must select the range, right-click the range, and select Data Spread.

Syntax Examples

The following examples illustrate the data spreading syntax. These examples use the Cube Viewer, but are also valid for the In-Spreadsheet Browser and slice worksheets.

Spreading Across an Entire Row

This example shows the use of the data spreading syntax to equally spread the value 120 across the row of insertion, and add spread values to existing cell values.

month	Argentina	Belgium	Brazil	Canada	Chile
− 1 Quarter	115.00	407.00	442.00	793.00	718.00
Jan	20.00	40.00	80.00	160.00	320.00
Feb	42.00	345.00	220.00	297.00	221.00
Mar	53.00	P%+|^<>10	142.00	336.00	177.00
− 2 Quarter	225.00	283.00	319.00	294.00	323.00
Apr	64.00	70.00	79.00	87.00	98.00
May	75.00	77.00	39.00	98.00	103.00
Jun	86.00	136.00	201.00	109.00	122.00

View Before Spreading

region	month					
	Jan	Feb	Mar	Apr	May	Jun
Argentina	11	22	33	44	55	66

Applying Syntax

region	month					
	Jan	Feb	Mar	Apr	May	Jun
Argentina	11	22	S+<>120	44	55	66

Result

region	month					
	Jan	Feb	Mar	Apr	May	Jun
Argentina	31	42	53	64	75	86

Spreading Across an Entire Column

This example shows the use of the data spreading syntax to proportionally spread the value 620 across the column of insertion. In this example, the spread values replace the existing cell values.

View Before Spreading

region	month
	Jan
Argentina	10
Belgium	20
Brazil	40
Canada	80
Chile	160

Applying Syntax

region	month
	Jan
Argentina	10
Belgium	PI^620
Brazil	40
Canada	80
Chile	160

Result

region	month
	Jan
Argentina	20
Belgium	40
Brazil	80
Canada	160
Chile	320

Spreading Across an Entire View

This example shows the use of the data spreading syntax to apply a percentage change of 10% to all values in a view. In this example, the product of spreading is added to existing cell values.

View Before Spreading

month	region				
	Argentina	Belgium	Brazil	Canada	Chile
− 1 Quarter	115.00	407.00	442.00	793.00	718.00
Jan	20.00	40.00	80.00	160.00	320.00
Feb	42.00	345.00	220.00	297.00	221.00
Mar	53.00	22.00	142.00	336.00	177.00
− 2 Quarter	225.00	283.00	319.00	294.00	323.00
Apr	64.00	70.00	79.00	87.00	98.00
May	75.00	77.00	39.00	98.00	103.00
Jun	86.00	136.00	201.00	109.00	122.00

Applying Syntax

Result

month	region				
	Argentina	Belgium	Brazil	Canada	Chile
− 1 Quarter	126.50	447.70	486.20	872.30	789.80
Jan	22.00	44.00	88.00	176.00	352.00
Feb	46.20	379.50	242.00	326.70	243.10
Mar	58.30	24.20	156.20	369.60	194.70
− 2 Quarter	247.50	311.30	350.90	323.40	355.30
Apr	70.40	77.00	86.90	95.70	107.80
May	82.50	84.70	42.90	107.80	113.30
Jun	94.60	149.60	221.10	119.90	134.20

Data Spreading Notes

This section describes limitations of data spreading functionality.

Data Spreading Not Supported in DBR Functions

You can apply data spreading only to worksheet cells that contain DBRW functions.

You cannot apply data spreading to cells that contain DBR functions.

If you want to spread data in a worksheet that contains DBR functions, you must replace all DBR functions with DBRW functions.

Data Spread Menu in Worksheets is not Dynamic

The Data Spread menu is available from all worksheet cells, regardless of the cell content. You can initiate data spreading from a blank cell, a cell containing a numeric or string value, or a cell that derives its value through rules.

When you initiate data spreading from an individual cell that does not contain a DBRW function, the spreading is applied to any cells that contain DBRW functions in the specified direction.

For example, column C of the following slice worksheet contains several values retrieved with DBRW functions (rows 6-10), a string value (row 11), and several numeric values (rows 13-15).

If you initiate the Equal Spread method from the selected cell (C15), specify a value of 100, and extend the spreading Up, data is spread to all cells that contain DBRW functions above the point of insertion.

The Data Spread menu is not dynamic, and so you can initiate a data spreading method that is not appropriate for the contents of the worksheet.

For instance, the following example shows a slice worksheet containing only leaf cells.
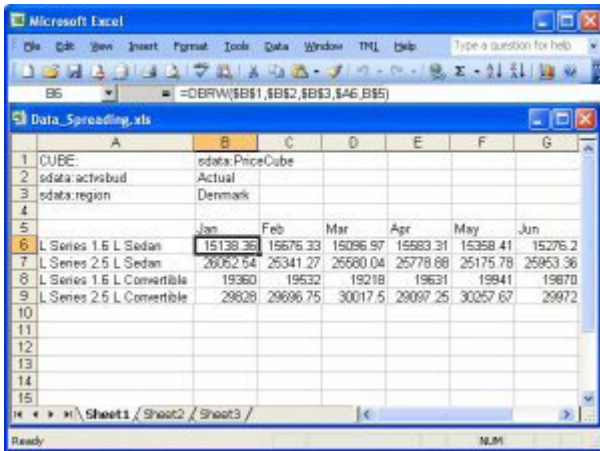
When you initiate data spreading from a selected cell, the Data Spread menu includes the Relative Proportional Spread, Relative Percent Adjustment, Repeat Leaves, and Equal Spread Leaves options. You can apply all these options to consolidated cells, not from leaf cells.

If you attempt to apply a data spreading method that is not appropriate for the contents of the worksheet, the spreading fails but no warning or error displays.

Data Spreading Applies Across Multiple Populated Ranges

In the previous example, when you initiate data spreading from a single cell, spreading is applied to any cells that contain DBRW functions in the specified direction.

Note: Be careful when you spread data in a worksheet that contains multiple ranges with DBRW functions, and retrieve values from the same cube.

For instance, the following example shows two ranges populated with DBRW functions: range B6:D9 and range H6:J9. Both ranges retrieve values from PriceCube.
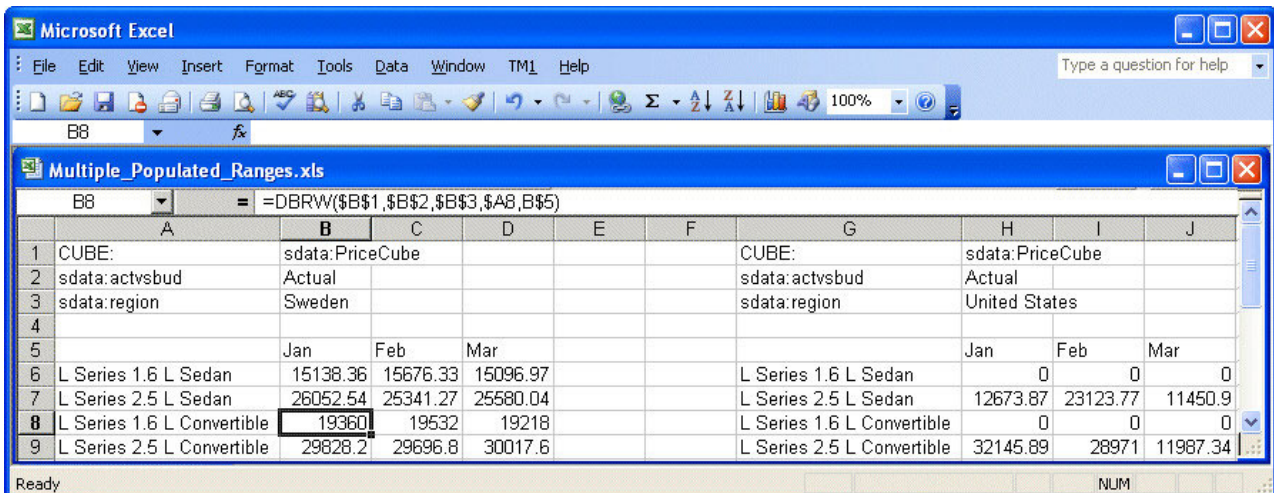
If you initiate the Repeat data spreading method from the selected cell, specify the value 99, and extend the spreading Right, data is spread to all cells to the right of the selected cell.

You can work around this issue by applying data spreading only to a selected range when a worksheet contains multiple ranges populated with DBRW functions. Using the previous example, you would select the range B8:D8 and then apply the data spreading to restrict the spreading operation to the selected cells.

Spreading Applies to a Single Cube

If you spread across a range that contains DBRW functions which retrieve values from multiple cubes, spreading is applied only to the cube from which you initiate the spreading operation.

For instance, the following example shows two ranges populated with DBRW functions: range B7:D10 and range G7:I10. The first range retrieves values from PriceCube on the sdata server, and the second range retrieves values from SalesPriorCube on the same server.

If you initiate the Repeat data spreading method from the selected cell, specify the value 99, and extend the spreading Right, the spreading applies only to PriceCube, the cube from which you initiate spreading.

Chapter 7. Using Worksheets to Access Data

This section describes how to use Microsoft Excel worksheets to retrieve and update the values in IBM Cognos TM1 cubes.

For details on using the In-Spreadsheet Browser to browse cube data, see Chapter 2, "Browsing Data," on page 15.

Overview

You can use Microsoft Excel worksheets to access TM1 data.

The Slice option, available from the Cube Viewer and In-Spreadsheet Browser, lets you save a cube view as a standard worksheet. When you create a slice, TM1 generates a worksheet populated with functions. These functions display the current database values in the worksheet. The functions are bi-directional; they retrieve and display the current cube values, but when you update a value in the worksheet, the function also sends the new value to the appropriate cube.

You can also create worksheets that incorporate TM1 worksheet functions to write and retrieve data from TM1 cubes.

The slices and worksheets that use TM1 functions do not store cube data. They store only the formulas and labels that point to the data. This ensures that the worksheets accurately reflect the current cube values and data structures.

The Snapshot option lets you copy the cube values to an Excel worksheet. A snapshot is not tied to the TM1 cube from which it originates. It is, as the name implies, a picture of cube values at a point in time. Any subsequent changes you make to the cube values are not reflected in a snapshot.

Slicing a View into a Worksheet

You can use the Slice option in the Cube Viewer or In-Spreadsheet Browser to copy the TM1 cube views into an Excel worksheet.

In the following example, the view is sliced into a worksheet.

Procedure
1. Open or create a view in the Cube Viewer or In-Spreadsheet Browser.
2. To create a slice from the Cube Viewer, click **File**, **Slice**.

   The view is sliced into a new Excel worksheet.
3. To create a slice from the In-Spreadsheet Browser, right-click the **View Control** and click **Slice**.

   A prompt asks if you want to replace the In-Spreadsheet Browser with a slice.
4. Click **Yes**.

   The slice replaces the In-Spreadsheet Browser in the current worksheet.

   The previous sample view looks like this when you slice the view into an Excel worksheet as a classic slice.
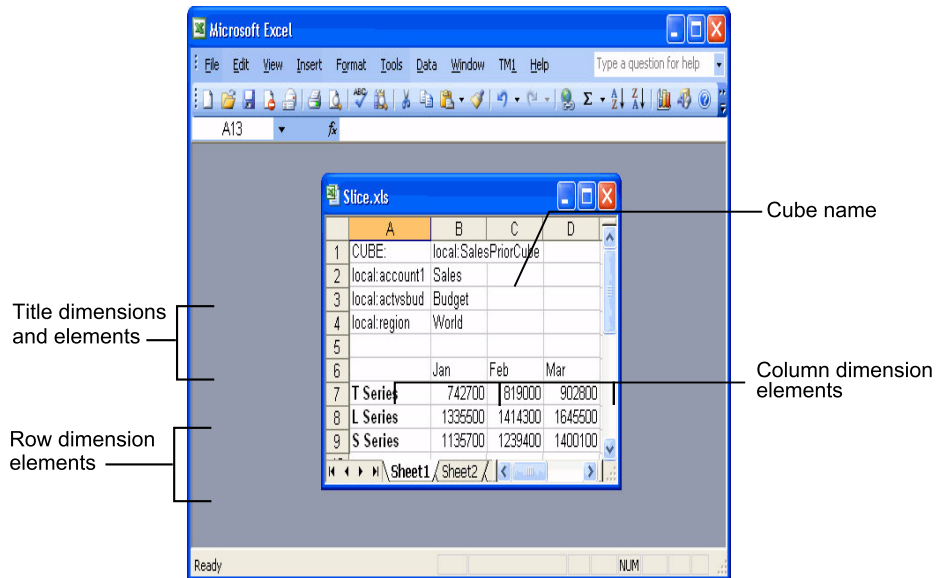
Row 1 contains information about the cube that supplies the slice data. In this example, the slice contains data from the SalesPriorCube cube on the local server.

The information about the title dimensions and elements starts in row 2. The title dimension names appear in column A, while the names of the current title elements appear in column B. When you double-click a title element name, the Subset Editor opens with the title dimension subset, from which you can select a new title dimension. If the view from which the slice was generated used a named subset for the title dimension, the named subset opens in the Subset Editor. If the view from which the slice was generated did not use a named subset for the title dimension, the default subset opens. (If a default subset is not defined for the dimension, the All subset opens.)

The row and column elements in a view become the labels in a slice spreadsheet. For example, T Series and Jan are the labels in the example.

The cells in the range B7 through D9 contain the DBRW functions that retrieve and display the values from the SalesPriorCube cube. For example, cell B7 contains the following function:

`=DBRW($B$1,$B$3,$B$4,$A7,$B$2,B$6)`

which retrieves the value 742700.

For more information on DBRW functions, see "Understanding Cube References" on page 104.

Taking a Snapshot of a View

You can copy a view from the Cube Viewer or In-Spreadsheet Browser into a worksheet with the Snapshot option. A snapshot is different from a slice because a snapshot contains the actual values that existed when the snapshot was created, while a slice contains functions that retrieve values from the TM1 server . Values in a snapshot are static, while the functions in a slice retrieve current values from the TM1 server when you open or recalculate the slice.

Procedure

1. Open or create a view in the Cube Viewer or In-Spreadsheet Browser.
2. To create a snapshot from the Cube Viewer, choose **File**, **Snapshot**.

   The view is copied into a new Excel worksheet.

3. To create a snapshot from the In-Spreadsheet Browser, right-click the **View Control** and click **Snapshot**.

   A prompt asks if you want to replace the In-Spreadsheet Browser with a snapshot.

4. Click **Yes**.

   The snapshot replaces the In-Spreadsheet Browser in the current worksheet.

Modifying Worksheets

The remainder of this section explores:
- Ways to modify worksheets that are tied to TM1 cubes.
- How to create TM1 worksheet functions to write or read data from TM1 cubes.

There are sample Microsoft Excel worksheets that illustrate most techniques. Each workbook retrieves data from the SalePriorCube sample cube, using the local TM1 server .

Changing Element Names in Worksheets

The row and column labels in the TM1 worksheet map to the elements along the row and column dimensions in a view. If you change a label to a valid element name, you can immediately access the corresponding data.

There are three ways to change the worksheet labels:
- Type valid element names in the worksheet cells.
- Copy element names from the TM1 client window.
- Use the TM1 worksheet function that retrieves the element names.

Typing Element Names in Worksheets

In this exercise, you change the column labels in the sample worksheet ByReg.

This formatted worksheet, which is a slice of the SalesPriorCube cube, contains monthly worldwide sales budget values for three car model classes, as shown in the following figure.

The following example illustrates how you can retrieve the new values by typing new column or row labels.

Procedure

1. Open the sample worksheet ByReg.
2. Click cell **B5**.
3. Replace Jan by typing **Apr** in the formula bar.
4. Press **F9** to recalculate the worksheet.

   The April values now appear in column B of the worksheet.
5. To see the original values, replace April with **Jan** and press **F9**.

   Note: You can use the same procedure (steps 2-5) to change the row labels.
6. Close ByReg without saving any changes.

Copying Element Names from TM1 Clients

You can copy several element names from the Subset Editor into a worksheet.

Procedure

1. Open the sample worksheet ByReg.
2. Open the Server Explorer.
3. In the Tree pane of the Server Explorer, double-click the Month dimension.

   The Subset Editor opens.
4. Hold down CTRL and click the elements **Oct**, **Nov**, **Dec**, and **4 Quarter**.
5. Click **Edit**, **Pick Elements**, **Horizontal**.

   The Pick Elements Horizontal option copies the element names to the Clipboard so that you can paste the element names in a horizontal orientation.
6. In the ByReg worksheet, select the range **B5:E5**.
7. Click **Edit**, **Paste**.

TM1 pastes the elements you selected in step 4 into the worksheet.

8. Press **F9**.

   TM1 recalculates and displays the values for the new column elements.

9. Close ByReg without saving any edits.

Using TM1 Worksheet Functions to Retrieve Element Names

TM1 offers several worksheet functions that retrieve the element names from a cube. This section explains how the DIMNM function retrieves the element names.

When you enter a DIMNM function in a cell, you can quickly change the element names by selecting them from a list in the Subset Editor.

The DIMNM function has the following syntax:

```
DIMNM(dimension, index)
```

Argument	Description
Dimension	Name of a dimension
index	Positive value less than or equal to the total number of elements in the specified subset. The function returns the dimension element that corresponds to this index value.

When you double-click a cell that contains a DIMNM function, TM1 displays the Subset Editor for the dimension specified by the first argument.

The following exercise illustrates how you change the name of a title element.

Procedure

1. Open the sample worksheet ByReg.
2. Click cell **B4**.
3. Notice that this cell contains the formula

   ```
   =DIMNM("Region", 32)
   ```

   This formula returns the 32nd element, World, from the Region dimension.
4. Double-click cell **B4**.

   The Subset Editor opens for the Region dimension.
5. Scroll down in the Tree pane of the Subset Editor and select the element **Europe**.
6. Click **OK**.

   The ByReg worksheet displays Europe in cell B4.
7. Click **F9** to recalculate the worksheet and display the values for Europe.
8. Examine the formula for cell B4:

   ```
   =DIMNM("region", 30)
   ```

   Europe is the 30th element in the Region dimension.
9. Close ByReg without saving any edits.

Entering Invalid Element Names in Worksheets

Each column and row label must be a valid element in the corresponding dimension of the TM1 cube. Through the cube references, TM1 uses these labels to find the correct cell values.

You must type valid element names as labels only in worksheet cells that TM1 uses to retrieve data from cubes. In all other cells, you can type anything you want. For example, the label in cell A5, (all numbers in 000's), is independent of the SalesPriorCube cube.

The following exercise demonstrates what happens when you enter a label that is not an element in the Month dimension.

Procedure

1. If not already open, open the ByReg workbook.
2. Click cell **D5**.
3. Type **March** in the formula bar.
4. Press **F9** to recalculate the worksheet.

   The message *KEY_ERR displays in cells D6 through D9 because TM1 does not recognize March as an element name.
5. To see the original values, replace March with **Mar**, and press **F9**.
6. Close ByReg without saving any edits.

Understanding Cube References

To retrieve and send data to TM1 cubes from a worksheet, you must include cube reference functions in worksheet cells. A cube reference identifies the cube locations through a list of intersecting elements, one element for each dimension of a cube.

You can write the cube references by using two TM1 worksheet functions:
- **DBR** retrieves and sends values to a cube
- **DBRW** - retrieves and sends values to a cube like the DBR function but it is optimized for wide area networks. TM1 writes DBRW formulas to worksheets that you create with the Slice option

The following exercise can help you understand cube references, which takes you through the process of inspecting a cell that contains a DBRW function in the ByReg worksheet.

Procedure

1. Open the workbook ByReg.
2. Click cell **B6** and notice the entry in the formula bar.
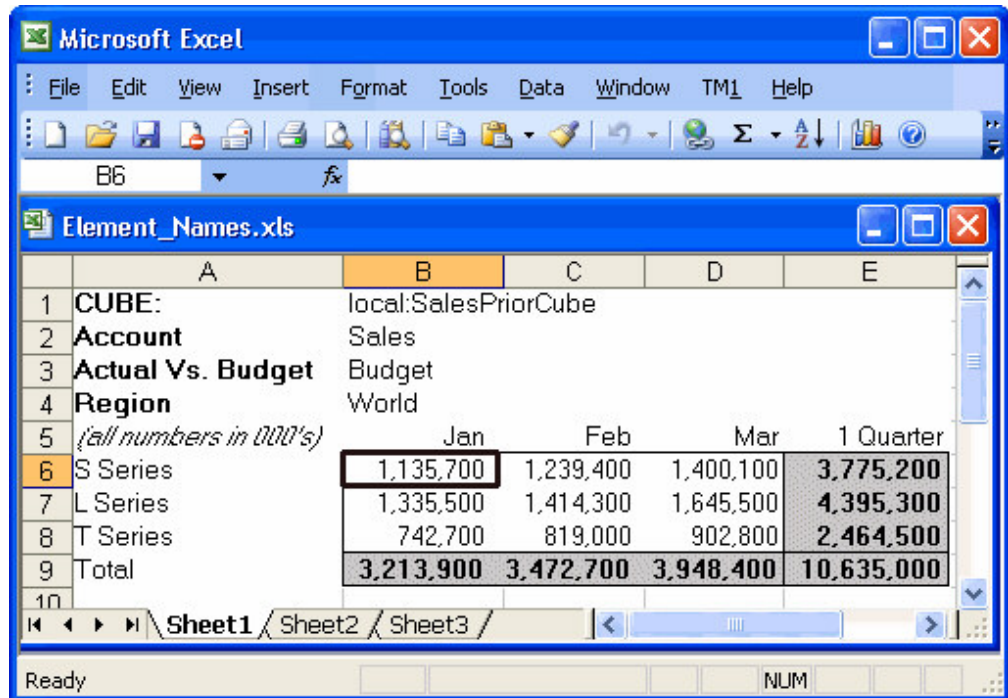
The cell contains a DBRW worksheet function. The function arguments identify the cube and the elements identify the cube location for the data value.

Let's examine two of the function arguments:

```
DBRW($B$1, $B$3, $B$4, $A6, $B$2, B$5)
```

Argument	Description
B1	First argument that identifies the cube. The value from cell B1 supplies the cube name. The two dollar signs indicate an absolute cell reference.
B3	Second and remaining arguments that identify the elements along the dimensions of the cube. The arguments appear in order by the sequence of the dimensions in the cube definition. The argument B3 points to a cell that contains Budget, which is an element along the cube's first dimension, Actvsbud.

The five element arguments point to cells B3, B4, A6, B2, and B5, which contain the labels Budget, World, S Series, Sales, and Jan, respectively.

You can rewrite the DBR formula using the element names and access the same data:

```
DBRW("SalesPriorCube","Budget","World","S Series","Sales","Jan")
```

You can also mix the element names with cell references:

```
DBRW("93sales","Budget",$B$4,"S Series",$B$2, B$5)
```

Consider the following points as you decide which style of cube referencing to use:

- You can retrieve the correct cube values by copying a DBRW function across the cells of a worksheet report. The function must include the relative cell references for both the row and column elements. Cell B6 contains the relative references $A6 and B$5.

- When you rearrange or remove the labels that identify the elements of the cube, you must change the corresponding cell references in the DBRW formula. For example, if you move the label in cell B1 to cell G5, you must change the first DBR argument.

Writing Cube References

The TM1 Formula Editor can inspect a worksheet and create DBRW formulas for you.

For more information, see "Creating Formulas with the Formula Editor."

Changing Cell Values Stored in Cubes

You can change the simple cube values by using worksheets. The simple values are located at the intersection of the unconsolidated (leaf) elements along each dimension of the cube. The simple values are not derived from a cube rule. For information about cube rules, see the IBM Cognos TM1 Rules Guide.

In the following exercise, you change the projected sales amount for a single car model sold in Argentina during January. The quarterly total reflects the change.

Procedure

1. Open the sample worksheet ByModel.
2. Click cell **B6**.
3. Type **100000** in cell B6 and press **Enter**.

   Cell B6 contains a DBRW worksheet function, which means it is tied to a TM1 cube. TM1 does not display an error message because the cell contains a simple value.
4. Press **F9** to recalculate the worksheet.
5. Observe the new value in cell E6.
6. The value in cell E6 changes from 26,600 to 118,700 to reflect the new value of the 1 Quarter consolidation.

   You cannot change the consolidated values directly, such as the quarterly total in cell E6. To prove this, try changing the value in cell E6.
7. Click cell **E6**.
8. Type **78910** and press **Enter**.

   TM1 displays the following error message because the function in cell E6 references a calculated value:

   T1) Write Access Denied

Creating Formulas with the Formula Editor

The TM1 Formula Editor helps you create cube references for cubes of up to 29 dimensions. Cube references must be limited to cubes containing 29 dimensions or fewer due to an Excel limitation; worksheet functions can contain no more than 30 arguments. When you construct a cube reference, one argument must be the cube name, which leaves 29 arguments for specifying the cube dimensions.

When you open the Formula Editor in a worksheet, TM1 scans the worksheet for the element names that can be used as arguments in the function you are creating. TM1 starts by mapping the row and column labels to the dimension elements.

To help you understand the choices that the Formula Editor makes, here is a partial list of the elements in the SalesPriorCube cube. The dimensions are listed in the order in which they exist in the cube structure.

Dimension Name	Partial Element List
Actvsbud	Actual, Budget, Variance
Region	Americas, Europe, World
Model	L Series, S Series, T Series, Total
Account1	Gross Margin, Sales, Units, Variable
Month	Jan, Feb, Mar, 1 Quarter

In the following exercise, you use the Formula Editor to populate a single cell in the Twoviews worksheet. This worksheet contains two versions of a first quarter report. The top report provides the sales data for three consolidated regions: Americas, Europe, and World. The bottom report provides the worldwide data for three car model classes.

Using the formula editor to populate a single cell in the two views worksheet

You can use the formula editor to populate a single cell in the two views worksheet.

Procedure

1. Open the sample workbook **Twoviews**.
2. Click cell **B8**.
3. Click **TM1** , **Edit Formula**.

   The **Edit Formula** bar opens.
4. Click **DB Ref**.

   With the DB Ref option, you can populate the worksheet with the values from a cube. The DB Ref option corresponds to the DBR worksheet function, which retrieves the cube values.

   Because you are working with a local server, there are no network traffic issues to consider. If you were working with a remote server over a WAN, the best practice would be to click the DBRW option, which creates DBRW functions that are optimized for a WAN environment.

   TM1 prompts you to indicate which cube contains the cell value, which becomes the first argument of the DB Ref formula.

   You can either point to the cell containing the cube name or select the name from a list of available cubes. In this exercise, you point to a cell.
5. Double-click cell **B1**, which contains the cube name SalesPriorCube.

   The Select Type of Cell Reference dialog box opens. In this dialog box, you indicate how TM1 uses the selected cell B1 in the formula. By choosing Absolute, you specify that TM1 always uses the value in cell B1, rather than use another cell in the worksheet.
6. Click **Absolute**.

TM1 now attempts to build the rest of the DBR function, which includes the references to the elements in the cube. To build the function, TM1 performs the following actions:

- Looks for the row label.

  TM1 inspects the cells to the left of cell B8. If TM1 finds a valid element for any dimension, TM1 assumes the element belongs to the row dimension and creates a row relative cube reference. The row label does not need to be in the adjacent cell.

- Looks for the column label.

  TM1 inspects the cells directly above cell B8. If TM1 finds a valid element name for any dimension, TM1 assumes that the element is a column element and creates a column relative cube reference. The column label does not need to be in the adjacent cell.

- Looks for elements along the remaining title dimensions of the cube.

  TM1 starts searching at cell A1. For each title dimension TM1 finds, TM1 creates an absolute reference.

The choices that TM1 makes appear in the Edit Reference to Cube dialog box. The buttons on the left contain the names of dimensions as they appear in order in the cube. For example, Actvsbud is the first dimension in the SalesPriorCube cube.
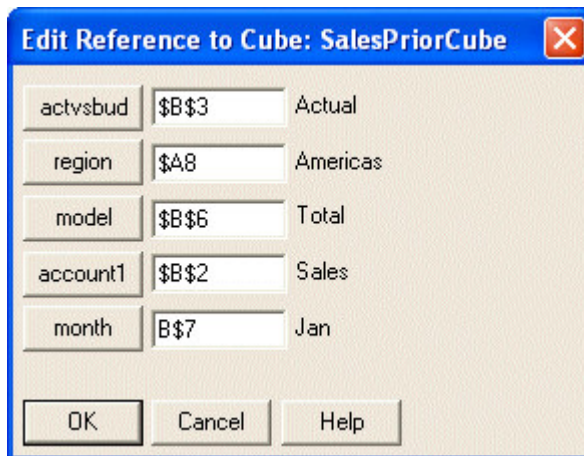
7. Examine the choices that TM1 makes.

   All choices are made so that you can populate the other cells of a report by copying the formula.

   - TM1 finds the row label in cell A8 and maps it to the Region dimension. TM1 assigns the cell a row relative reference, $A8. When you copy the formula down, the row reference changes but the column reference remains the same.

   - TM1 finds the column label in cell B7 and maps it to the Month dimension. TM1 assigns the cell a column relative reference, B$7. When you copy the formula across, the column reference changes but the row reference remains the same.

   - TM1 finds the elements for the remaining dimensions and maps them correctly. For example, Actual is an element in the Actvsbud dimension. TM1 assigns each cell an absolute reference because the values in those cells should be used throughout the report.

8. Click **OK**.

The Edit Formula bar now displays the complete formula. For clarity the spreadsheet name that would precede each cell reference has been omitted in this example:

```
DBR($B$1,$B$3,$A8,$B$6,$B$2,B$7)
```

9. Click **OK** to store the formula in cell B8.

Cell B8 now displays the value found at the intersection of the elements shown in the Edit Formula bar.

You can now complete the top report by copying the formula down and to the right of cell B8.

Copying the formula in the cell B8 across in the top report

You can copy the formula in cell B8 across in the top report.

Procedure

1. Click cell **B8**.
2. Right-click cell **B8** and click **Copy**.
3. Click cell **B8** and drag the mouse pointer to cell **E10**.
4. Right-click in any selected cell and click **Paste**.
5. Press **F9** to recalculate the worksheet.

Cells B9 through E10 now display the appropriate cell values from the SalesPriorCube cube.
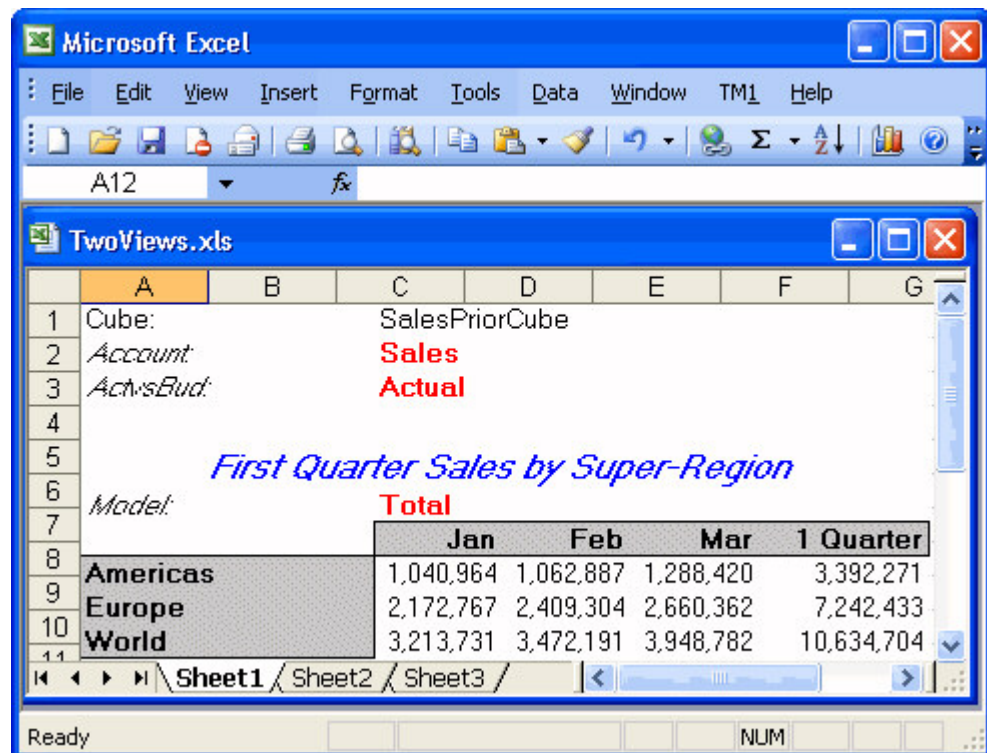
Correcting Cube References

Depending on the arrangement of detail in your worksheet, TM1 might select the wrong labels to build the cube references. TM1 always scans from the top of the worksheet to find the title elements of a cube. In a worksheet that contains two stacked reports, TM1 might select the wrong element for at least one dimension in the bottom report.

You can correct the wrong element choices in the Formula Editor, as illustrated in the following exercise.

Procedure

1. If not already open, open the sample worksheet **Twoviews**.
2. Click cell **B15**.
3. Click **TM1** , **Edit Formula**.

   The Edit Formula bar opens.
4. Click **DB Ref**.

   TM1 prompts you to indicate which cube contains the cell value.
5. Double-click cell **B1**, which contains the cube name SalesPriorCube.

   The Select Type of Cell Reference dialog box opens.
6. Click **Absolute**.

   TM1 now attempts to build the rest of the DBR formula by scanning the worksheet, and selects the correct element for all but the Region dimension.
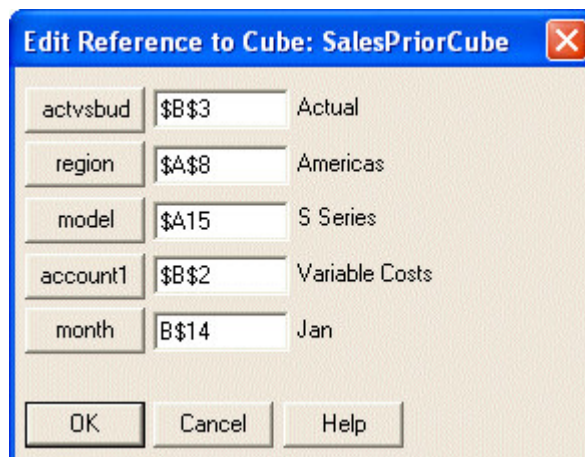
   TM1 selects the correct row and column elements. When TM1 starts searching for the title elements, it first finds Variable Costs and Actual, which are valid for cell B15. The third element TM1 finds, Americas in cell A8, maps to the Region dimension. The cell reference is valid for the top report, but not for the bottom report. You need to direct TM1 to cell B13, which contains World.
7. Select the field next to the **region** button.
8. Double-click cell **B13** in the worksheet, which contains the element World.

   The Select Type of Cell Reference dialog box opens.
9. Click **Absolute**.

   The absolute cell reference uses the element World for each cell in the First Quarter Sales by Model-Class report.

   The Edit Reference to Cube dialog box opens with the correct cube reference, B13, in the field next to the region button.

   You can correct a cube reference by clicking a dimension button and selecting an element from the Subset Editor. In this example, you would click the region button and select the World element from the Subset Editor. However, you are now using a string argument rather than a cell reference, and any change you make to the element in cell B13 would not be reflected in the data retrieved by the DBR function.
10. Click **OK**.

The Edit Formula bar now displays the complete formula.

11. Click **OK** to store the formula in cell B15.

12. To complete the report, copy and paste the formula across the range B15 through E18.

Creating TM1 Worksheet Functions Using the Excel Insert Function

You can also use the Excel Insert Function option to insert TM1 functions into a worksheet.

Procedure

1. Choose **Insert**, **Function** from the Excel menubar.

   The Insert Function dialog box opens.

2. Select **TM1** in the **Select a Category** list.

3. In the **Select a Function** list, double-click the function you want to create.

   The Function Arguments dialog box opens.

4. Enter the appropriate arguments in the fields of the dialog box.

   Note: For details on arguments for specific functions, refer to Worksheet Functions in the IBM Cognos TM1 *Reference Guide*.

5. After you finish entering arguments, click **OK** to insert the function into the worksheet.

Creating Dynamic Reports

TM1 offers several worksheet functions that respond to changes in the structure of a cube. These worksheet functions are especially useful when you create a worksheet that is tied to a TM1 cube without first using the Slice option.

The TM1 worksheet functions include:

- **DFRST** Returns the first element in a dimension sequence
- **DNEXT** Returns the next element in a dimension sequence. Use DNEXT and DFRST to build a complete list of elements
- **ELCOMP** Returns the elements that are the children of a consolidated element

For explanations of other worksheet functions that you can use to create dynamic reports, see the IBM Cognos TM1 *Reference Guide*.

Using the DNEXT Function

In the following exercise, you use the DNEXT function to return the name of a month based on its relative position among the column labels.

Procedure

1. Open the sample worksheet **Varirept**.

   The Varirept worksheet contains months as the column labels and car models as the row labels.

2. Click cell **B7**.

3. Type Apr and press **Enter**.

Column B now shows the April figures. By using the DNEXT function, you can see the subsequent months in columns C, D, and in the consecutive columns when you change the month name in column B.

4. Click cell **C7** and type the following formula:

   `=DNEXT("Month",B7)>`

   This formula returns the next element in the dimension Month after the element in cell B7.

5. Copy the formula in cell C7 to **D7** and press F9 to recalculate.

   The report changes to reflect the months April, May, and June in columns B, C, and D respectively.

6. Click cell **B7**.

7. Type Jul and press **Enter** and press F9 to recalculate.

   Columns B, C, and D now show the data for July, August, and September.

8. Close Varirept without saving your changes.

Using the DFRST Function

The DFRST function returns the first element of a dimension. You can use the DFRST function with the DNEXT function.

If you want to display an ordered dimension list in your worksheet, you can retrieve the first element of the dimension with the DFRST function and all the subsequent elements with the DNEXT function.

In the Varirept worksheet, the row headings are the elements from the Model dimension. In the worksheet, the row headings are entered as simple labels. You can substitute the row headings with functions. That way, any changes you make to the Model dimension are automatically reflected in the Varirept worksheet.

Procedure

1. Open the workbook **Varirept**.

2. Click cell **A8** and type the following DFRST formula:

   `=DFRST("model")>`

3. Press **Enter**.

   The formula returns L Series 1.6L Convertible, the first element in the Model dimension.

4. In cell A9, type the following DNEXT formula:

   `=DNEXT("model",A8)>`

5. Press **Enter**.

   The formula returns the element in the Model dimension subsequent to the element shown in cell A8, L Series 1.6L Sedan.

6. Copy the formula in cell A9 to cells **A10** through **A43**.

   The worksheet still displays the original model names. However, if the structure of the Model dimension changes, the functions in column A would reflect the changes.

Using the ELCOMP Function

The ELCOMP function returns a child of a consolidated element. This function accepts three arguments: a dimension name, an element name, and an index number for the child.

In the following exercise, you change the column labels in the Varirept worksheet to show a consolidated element and its subordinates.

Procedure

1. Open the workbook **Varirept**.
2. Click cell **B7** and type the following formula:

   `=DIMNM("month",16)>`

   This formula returns 4 Quarter, the 16th element of the Month dimension.
3. Click cell **C7** and type the following formula:

   `=ELCOMP("month",$B$7,1)>`

   The formula returns the first child for the element name in cell B7.
4. Press **Enter**.

   Oct displays in cell C7.
5. Copy the formula in cell C7 to cells **D7** and **E7**.
6. Click cell **D7**.

   This cell contains the following formula:

   `=ELCOMP("month",$B$7,1)>`
7. Edit the last argument by replacing the 1 with a **2**.

   The cell should now contain the following formula:

   `=ELCOMP("month",$B$7,2)>`
8. Edit the formula in cell E7 so that it contains a 3 as its last argument.

Results

The report now shows the consolidated element 4 Quarter and all its children, in the sequence defined in the consolidation.

Chapter 8. Active Forms

Active Forms let you view and update live IBM Cognos TM1 cube data directly in Excel whenever you are connected to the server on which the cube data resides. Active Forms retain the ability to expand and collapse row dimension consolidations in TM1 views while allowing you to use native Excel features and functions to create complex reports.

With the introduction of Active Forms, the dynamic slice functionality that was available in previous releases is no longer supported. If you open a worksheet containing a dynamic slice in TM1 9.4, the slice is rendered as a 'classic' slice reflecting the state of the slice the last time it was saved. Any formatting applied to the dynamic slice is lost when the slice is opened in TM1 9.4 or later.

Active Forms Overview

Active Forms are implemented through a series of worksheet functions that define the components of a form, such as title elements, row elements, and display properties.

When you insert an Active Form in a worksheet, the form 'owns' all rows that are required to display the form. You cannot insert additional data or objects (such as charts or images) in any row that is occupied by an Active Form, as the data/object will be deleted when the form is recalculated.

Active Forms support most features available in the Cube Viewer.
- selectable title dimensions
- stacked row and column dimensions
- expandable/collapsible consolidations (rows only)
- zero suppression (rows only)
- drill-through
- filtering
- data spreading

In addition, Active Forms allow you to define form formatting, through the use of standard Excel format options, directly in the worksheet.

Note: Column dimensions are static in Active Forms. You cannot expand or collapse consolidated column elements in an Active Form. Though the column dimension elements are set when the Active Form is initially generated, you *can* manually edit the column elements. As long as you enter a valid element name for a column element, the Active Form will return values from the server.

Creating an Active Form

You can create an Active Form from the Cube Viewer or directly in Excel.

Creating an Active Form from the Cube Viewer

There are two ways to create an Active Form from the Cube Viewer.

You can use the menu or the toolbar button tp create an Active Form from Cube Viewer:

Procedure

1. From the **File** menu, click **Active Form**

2. From the Toolbar, click the Active Form button ▣ . The Active Form is created in a new empty Excel worksheet.

Creating an Active Form in Microsoft Excel

You can create an Active Form directly in Excel without using the Cube Viewer.

- If a worksheet is empty, you can insert an Active Form anywhere in the sheet.
- If a worksheet already contains one or more Active Forms, you can insert a new Active Form above or below existing forms. Each form uses its own title, row, and column dimensions.
- You cannot insert a new form within any row that already contains an Active Form.

Procedure

1. Right-click an empty cell, click **Active Form**, then click **Insert Active Form**.

   The Insert Active Form dialog box opens.

2. Enter a name for the form in the **Active Form Name** box.

   By default, forms are named ARPT#, where # is a number that is sequentially incremented for each form in a worksheet. The first form in a worksheet is named ARPT1, the second form is named ARPT2, and so on.

3. Select the server on which the Active Form data resides.

4. Click the cube containing the form data.

5. Click the view that corresponds to the data configuration you want to use in the form.

6. Click **Insert**.

Saving an Active Form

An Active Form is saved with the Microsoft Excel worksheet.

Use the standard Excel Save options to save an Active Form.

Recalculating an Active Form

There are several options for recalculating an Active Form.

You can update data values in both the current form and the current Excel worksheet by following the steps below:

- To update data values in the current form:

  Click **F9** to update data values in the current form configuration.

- To update data values in the current Excel worksheet:

  1. Right-click an Active Form cell.

  2. Click **Active Form**, then click **Rebuild Current Sheet** to rebuild the Active Forms in the current Excel worksheet.

     Any temporary configuration modifications you have applied to the forms will be discarded and the forms will revert to their most recent saved state. You can also press **ALT+F9** to rebuild the current sheet.

- To update data values in all Excel worksheets:
  1. Right-click an Active Form cell.
  2. Click **Active Form**, then click **Rebuild Current Book** to rebuild all Active Forms in all worksheet in the current Excel worksheet.

     Any temporary configuration modifications you have applied to the forms will be discarded and the forms will revert to their most recent saved state.

You can control the default behavior of recalculating Active Forms using the TM1Rebuild and TM1RebuildDefault configuration parameters. See the *IBM Cognos TM1 Installation and Configuration Guide* for more information.

Deleting an Active Form

You can selectively delete individual Active Forms from a worksheet. When you delete an Active Form, only the data area is removed from the worksheet. The column headings, title elements, and formatting area remain in the worksheet.

Procedure

1. Click anywhere in the data area of the Active Form you want to delete.
2. Click the **Delete** button ✕ on the Active Form toolbar.

   You can also right-click an Active Form, then click **Active Form**, **Delete**.

Working with Active Forms

Active Forms provide a full complement of options that let you modify forms to suit your analysis and reporting requirements.

Suppressing/Displaying Zeroes

You can selectively suppress or display rows containing only zero values in an Active Form.

Procedure

1. Right-click any cell in a form.
2. Click **Active Form**, then click **Suppress Zero** 🅑 .

   The Suppress Zeroes option is a toggle. When zeroes are suppressed, the Suppress Zeroes button appears with an orange background 🅑 and any rows containing only zero values are removed from the form.

   When zeroes are not suppressed, rows containing zero values are visible in the form and the Suppress Zeroes option appears without a check mark.

   Zero suppression is controlled by the value of the ZeroSuppression argument to the TM1RptView function. If this argument value is 1, zeroes are suppressed in the Active Form; if the argument value is 0, zeroes are not suppressed in the Active Form. When you modify the Suppress Zeros option through the user interface, the ZeroSuppression argument value is immediately updated to the appropriate value.

   Note: If you have modified the TM1RptView function to use a cell reference to return the ZeroSuppression argument value, the cell reference will be overwritten with a hard value (1 or 0) when you modify the Suppress Zeros option through the user interface.

Filtering

Active Forms support filtering only when a filter is present in the view from which the form originates.

For general filtering procedures, see Chapter 5, "Working with Cube Views," on page 55.

Procedure

1. Right-click a cell in an Active Form.
2. Click **Active Form**, then click **Filter**.
3. In the Filter View dialog box, define the filter you want to apply to the Active Form.
4. Click **OK**.

Data Spreading and Holding

Active Forms support all data spreading and holding operations.

For more information, see Chapter 6, "Using Data Spreading," on page 69.

Applying data spreading

You can apply data spreading.

Procedure

1. Right-click the cell from which you want to initiate data spreading.
2. Click **Data Spreading**, then click the desired spreading method.

Applying data holding

You can apply data holding.

Procedure

1. Right-click the cell to which you want to apply data holding.
2. Click **Holds**, then click the desired holding method.

Drilling to Related Data

If the source view for an Active Form includes drill processes and rules, you can drill through to detailed data from an Active Form. Drill processes and rules must be created by the TM1 developer. For more information, see the IBM Cognos TM1 Developer Guide.

Procedure

Right-click a cell in an Active Form, then click **Drill**.
If the drill rule for the selected cell is associated with a single data source, the detailed data opens immediately.
If the drill rule for the selected cell is associated with multiple data source, click the data source you want to view, then click OK.

Editing Row Subsets

The row subset for an Active Form is defined by the TM1RPTROW function and is set when the form is originally generated from a cube view, but you can use the TM1 Subset Editor to modify the row subset.

For details on using the Subset Editor, see Chapter 4, "Working with Subsets," on page 37.

Procedure

1. Right-click the first (top) row element in the Active Form.
2. Click **Active Form**, then click **Edit Subset**.
3. Define a subset using the options available in the Subset Editor.
4. Click **OK**.

Saving the Row Subset as a Static List of Elements

If you drill down/roll up row elements or otherwise modify a row subset without explicitly saving the subset in the Subset Editor, your modifications will be discarded when you rebuild the worksheet containing the Active Form, or when you close and then reopen the worksheet.

If you want to save modifications to a row subset made outside of the Subset Editor, you must explicitly save the row elements as a static list of elements. This severs the connection to the subset originally used to create the Active Form, so any changes to the original subset will not appear in the form.

Procedure

1. Right-click an Active Form cell.
2. Click **Active Form**, then click **Save Row Elements as Static List**.

Changing Title Elements

You can access a completely different view of cube data by changing an element in a title dimension.

Procedure

1. Double-click a title element.
2. Click a new element in the Subset Editor.
3. Click **OK**.

Inserting a Dependent Section

Dependent sections let you 'split' an Active Form into two or more sections. A dependent section uses the same column and title dimensions as the parent Active Form with which it is associated, but has unique row elements.

When you insert a dependent section, you can specify a number of rows to leave empty between the parent Active Form and the dependent section. This is useful when you want to insert custom functions, text, or other data into the rows between the Active Form and the dependent section.

Procedure

1. Right-click anywhere within an Active Form, click **Active Form**, then click **Insert Active Form Section**.

    The Insert Active Form Section dialog box opens.
2. Enter a name for the section in the **Active Form Section Name** box.
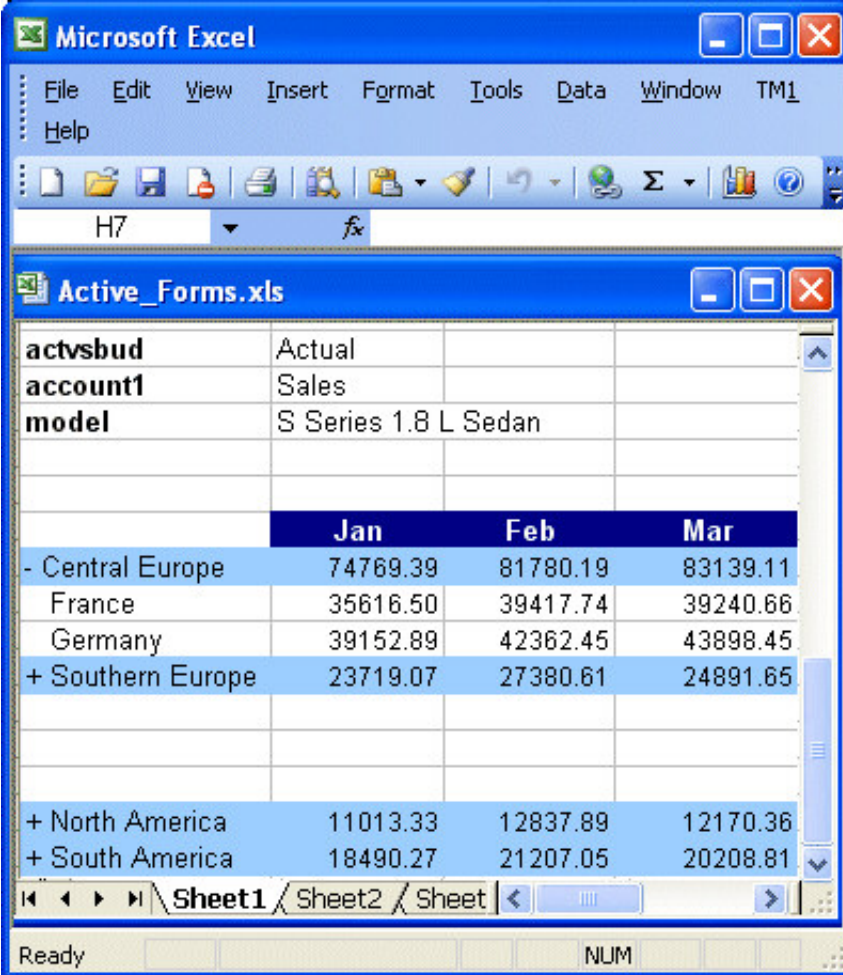
By default, forms and sections are named ARPT#, where # is a number that is sequentially incremented for each form or section in a worksheet. The first form or section in a worksheet is named ARPT1, the second form or section is named ARPT2, and so on.

3. Click a row dimension name in the **Dimension** list.

4. Click the subset you want to use in the dependent slice in the **Subset** list.

   If the subset you want to use does not exist, you can click [image] to open the Subset Editor and select the row elements for the dependent section.

5. Select a **Number of Rows Below** value to specify the number of empty rows between the parent Active Form and the dependent section.

6. Click **OK**.

   The dependent section is inserted directly below the parent form, with the specified intervening rows. You can modify the row subset for either the parent form or the dependent section independent of the other. You can also insert data into the rows between the parent form and the dependent section. The intervening row spacing is maintained when you expand or collapse consolidated row elements.

Inserting Columns

You can insert a column anywhere within an Active Form. A column can be inserted in any of the locations.

- directly within the Active Form
- to the left of the Active Form
- to the right of the Active Form

Inserted columns persist when a view is recalculated by pressing F9 or rebuilt by pressing ALT+F9.

Adding Functions to an Active Form

After you insert a column, you can use that column to create an Excel worksheet function in the first row of an Active Form. When you recalculate the Active Form, the new function will automatically be copied to all rows in the form.

If you insert a new column to the left of an Active Form and insert a SUM function in the first row, the function will be copied to all rows of the form when you recalculate.

If you modify the row elements for the form, either by editing the column subset or by expanding/collapsing consolidations, the function are automatically copied to all rows occupied by the Active Form.

Formatting Active Forms

Active Form formatting is defined directly in the worksheet containing the form. By default, row elements are formatted Arial 10 pt. regular with a slate blue background, while data cells are formatted Arial 10 pt. regular with a light gray background using the number format from the source view.

Revealing the Format Range

Formatting is defined in a format range, which is hidden by default. You must reveal the format range before you can modify the default formatting or create new format definitions.

Procedure

1. To reveal the format range, right-click anywhere in the Active Form.
2. Select **Active Form**, then click **Show Format Area**.

   The Active Form should appear similar to the following image.

- Row 1 contains the Begin Format Range label, while row 8 contains the End Format Range label. All formatting for the Active Form must be defined between these labels.
- Rows 2 through 7 contain the default format definitions for the Active Form. In the above example, cells B2:B7 define the formatting for row elements in the Active Form. Cells C2:E7 define the formatting for data cells in the form.
- Column A in rows 2 through 7 contains the format definition labels for each default format definition. Format definition labels can be numbers, letters, or strings.
- For each data row in the Active Form, column A contains a value that determines which format definition should be applied to the row. When you first generate an Active Form, the format definition corresponding to the level of each subset element is applied.

  In the above example, World is a 0-level element in the row subset, so the 0 format definition is applied to the World row (row 17).

Understanding Application of Default Formatting

The default format definitions in an Active Form are fairly simple.

Format Definition Label	Description
0	Row elements cells: 10 pt. Arial, pale blue shading, no border. Data cells: 9 pt. Arial, pale blue shading, no border.
1	Row elements cells: 10 pt. Arial, pale yellow shading, no border. Data cells: 9 pt. Arial, pale yellow shading, no border.
2	Row elements cells: 10 pt. Arial, pale yellow shading, no border. Data cells: 9 pt. Arial, pale yellow shading, no border.
3	Row elements cells: 10 pt. Arial, pale yellow shading, no border. Data cells: 9 pt. Arial, pale yellow shading, no border.
D	Row elements cells: 10 pt. Arial, pale yellow shading, no border. Data cells: 9 pt. Arial, pale yellow shading, no border.
N	Row elements cells: 10 pt. Arial, no shading, no border. Data cells: 9 pt. Arial, no shading, no border.

The application of these format definitions is determined by the return value of the IF function in column A for each row in your Active Form.

The IF function uses several Active Report worksheet functions. The basic logic of the IF function is as follows:

Determine if the row element is a consolidation:
- If the row element is a consolidation, determine if the subset element level of the consolidation is less than or equal to 3.
  - If the subset element level of the consolidation is less than or equal to 3, return the subset element level value. If the subset element level of the consolidation is greater then 3, return D.
- If the row element is not a consolidation, return N.

  Note: Within the IF function, the TM1RTPELLEV function is used to determine the subset element level of a consolidated row element. This function is distinct from the ELLEV worksheet function. TM1RTPELLEV returns the level of an element within a subset, while ELLEV returns the level of an element in a dimension. For further details, see the documentation of the TM1RptElLev function.

Modifying Active Form Format Definitions

When you modify the formatting of a cell in the format range, all Active Forms in the sheet that use the corresponding format definition are updated when you recalculate the form.

For example, if you modify format definition 1 by applying an orange background to cell C3, a green background to cell D3, and a yellow background to cell E3, all Active Form rows that use format definition 1 will display those background colors.
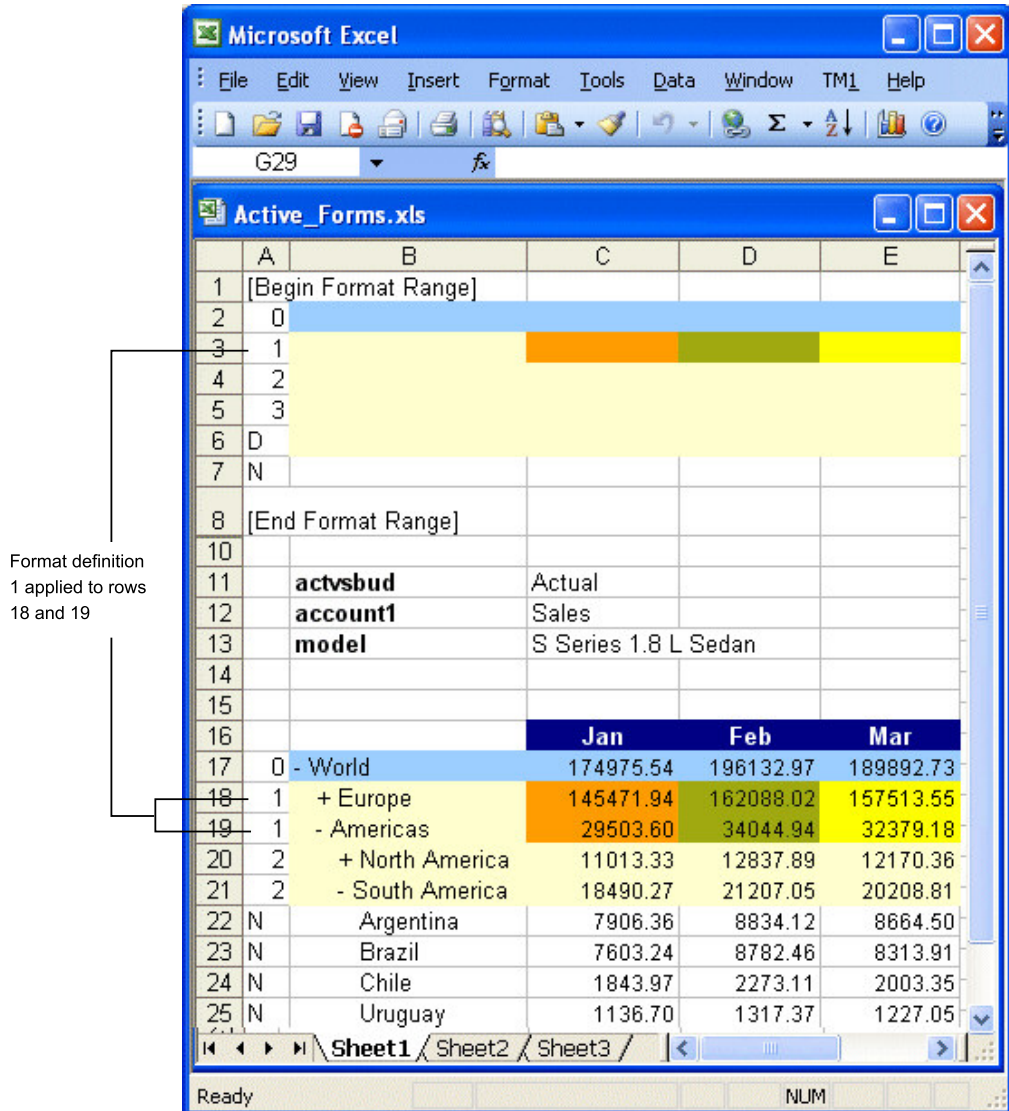
When modifying a cell in the format range, you can apply all standard cell formats available in the Excel Format Cells dialog box.

Any text or numbers entered in a formatting row are ignored, so you can safely enter notes or characters to make it easy to identify the format of any given cell in the format range, as in the following example.

Creating Additional Formats

You can create multiple additional format definitions for an Active Form. Each format definition must be assigned a unique label, and all format definitions must be inserted between the Begin Format Range and End Format Range labels.

Procedure

1. Click the **End Format Range** label.
2. From the Excel **Insert** menu, click **Row**.

   A new formatting row is inserted in the format range, inheriting the formatting of the preceding format row.

3. Use the Excel **Format Cells** dialog box to apply formatting to the cells in the new formatting row.

Any text or numbers entered in a formatting row are ignored, so you can safely enter notes or characters to make it easy to identify the format of any given cell in the format range.

4. In column A, assign a unique format definition label to the formatting row.

Applying Formatting in an Active Form

If your Active Form uses more than one format definition, column A of the first row in your Active Form must contain a function that resolves to one of the format definition labels in the format range. You cannot use hard-coded values when specifying format definition labels in column A, as the format definition label in the first row will automatically be copied to all other rows in the form, overwriting the hard-coded values.

Procedure

1. Click the cell at the intersection of column A and the first data row in your Active Form.
2. Insert a function that will resolve to any of the format definition labels set in the format range.
3. Press **ALT+F9** to rebuild the Active Form and view the formatting.
4. If the function in column A resolves to a value that is not used as a format definition number, no formatting is applied to the Active Form row.

Active Forms in TM1 Web

If a Microsoft Excel worksheet containing an Active Form is added to TM1 applications, the Active Form can be accessed in TM1 Web through the corresponding Websheet.

The following two new buttons are on the Websheet toolbar to simplify working with Active Forms.

Button	Name	Purpose
	Rebuild	Rebuilds the Active Form according to the form definition in the TM1RPTVIEW function.
	Column Resize	Widens the column in a Websheet to display all cell data. Select the column and click the button.

Note: If an Excel worksheet contains multiple Active Forms that originate from more than one TM1 server, your username/password combination must be identical on all servers to successfully view the corresponding Websheet.

For example, if a worksheet contains one Active Form from ServerA and one Active Form from ServerB, the username/password combination you use to access ServerA must be identical to the username/password combination you use to access ServerB to successfully view the Active Forms in a single Websheet. If your username/password combination is not identical on all TM1 servers represented in a Websheet, the Websheet will display incomplete data.

Active Form Functions

The following worksheet functions are used to create Active Forms. When you generate an Active Form through the user interface, these functions are automatically inserted into the appropriate locations in the worksheet. You can manipulate these functions as desired to manage Active Forms.

- TM1RptView
- TM1RptTitle
- TM1RptRow
- TM1RptFilter
- TM1RptElLev
- TM1RptElIsExpanded
- TM1RptElIsConsolidated

These functions, along with all other worksheet functions, are described in the IBM Cognos TM1 *Reference Guide*.

Active Form Usage Notes

You should be aware of conditions and limitations when using Active Forms.

Sheet Names Cannot Include Dash (-) Character

If a worksheet contains an Active Form, the name assigned to the worksheet cannot include the dash character (-).

If you use a dash in the name of a worksheet containing an Active Form, you will receive invalid name errors when you recalculate the worksheet and the data in the Active Form will not update correctly.
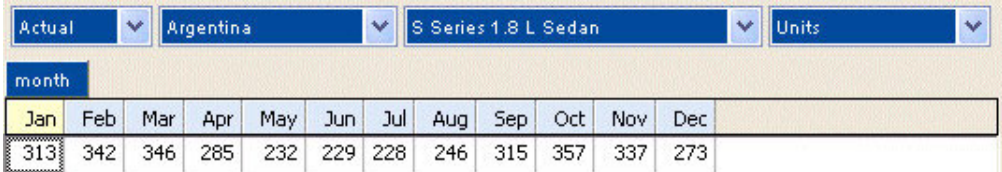
Merging Cells In an Active Form Requires a Rebuild

If you merge a cell containing a SUBNM formula (used to retrieve title elements for an Active Form), you must rebuild the form using ALT+F9 after selecting a new title element. If you do not rebuild, the Active Form will display data for the previous title element.

Active Forms Require at Least One Row Dimension

The cube view from which you generate an Active Form must contain at least one row dimension. If the view does not contain a row dimension, the Active Form will not display any data values.

For example, the following cube view is configured without a row dimension.

If you generate an Active Form from this view, the resulting form contains no data.
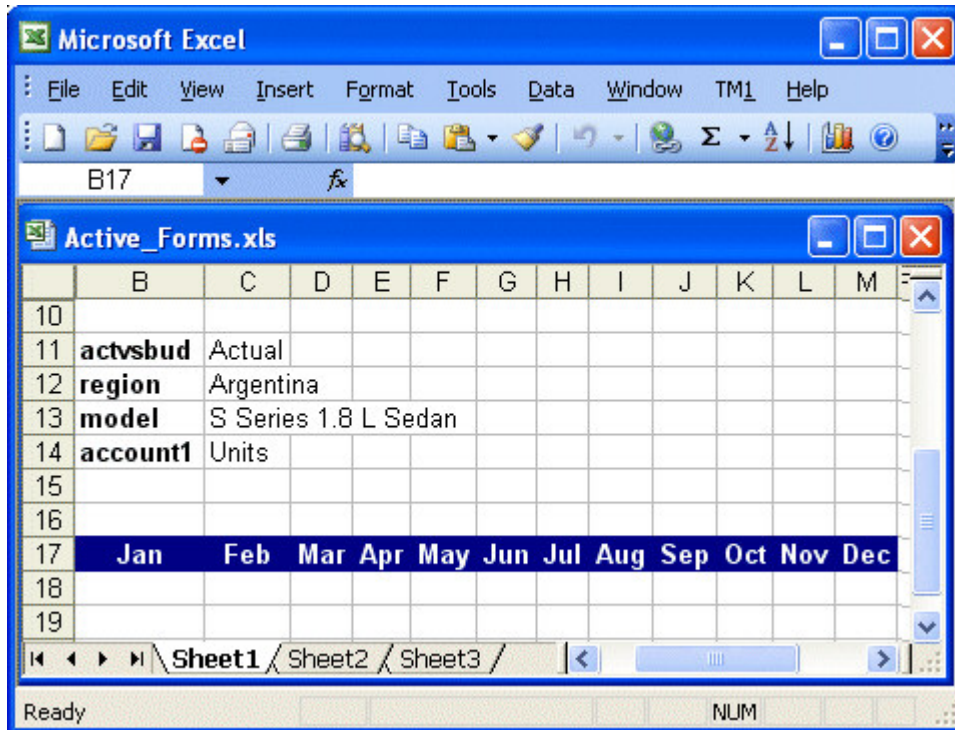
Using Cell and Password Protection with Active Forms

IBM Cognos TM1 Active Forms support cell level protection applied in Microsoft Excel, but do not support password protection.

Active Forms and Cell Protection

You can apply cell level protection without a password for an Active Form in Excel using the Excel Tools menu, Protection, Protect Sheet option. The cell protection, without a password, is supported and applied in the following scenarios:

- When the Active Form is viewed in Excel/Perspectives .
- When the Active Form is viewed as a Websheet in TM1 Web.

Active Forms and Password Protection

Active Forms do not fully support password protected worksheets in either Excel/Perspectives or as a Websheet in TM1 Web. This is because of the dynamic behavior of Active Forms that require frequent rebuilding of the data presentation which causes a conflict with the exact type of behavior that password protection is designed to prevent.

If you apply Excel's Protect Sheet feature with a password to a worksheet that contains an Active Form, you will be prompted to enter the password whenever you open the worksheet, update the values (press F9) or rebuild the worksheet. You must enter the worksheet password each time to allow the Active Form to run and retrieve data from TM1 .

Using Slices with Password Protection as an Alternative

If you need to provide users with read-only access to password protected workbooks in Excel that contain TM1 data, you may want to consider using classic

Slices as an alternative to Active Forms. Slices in a worksheet do not use the same dynamic behavior as Active Forms, and therefore do not present a conflict with password protection.

However, note that password protection is not supported when a worksheet is viewed as a Websheet in TM1 Web.

For more details about Slices, see the section, "Slicing a View into a Worksheet", in the IBM Cognos TM1 *User Guide*

Chapter 9. Creating Reports

The IBM Cognos TM1 Print Report Wizard enables you to generate "briefing book"-style reports from TM1 slices. When you generate TM1 reports, you can select which title dimensions to use in the report, and the order in which the title dimension elements appear in the report.

This section describes how to create TM1 reports in Microsoft Excel.

Overview of TM1 Reports

Using the TM1 Print Report Wizard, you can generate TM1 reports that you can share with other people in your organization in a number of ways.

- **Print the report to a printer** - Provides a hard copy of the TM1 report
- **Save the report as an Excel document** - Generates a single file with separate sheets or pages for each title element combination, or a series of files, one file for each title element combination
- **Save the report as a PDF document** - Generates a single file with individual pages for each title dimension combination or a unique PDF file for each possible combination of title elements

Your reports can include any of the worksheets in your Excel workbook and you can also save the report settings and load them for future use.

You should be aware of the following items when generating reports in TM1 :

- You cannot generate reports directly from the In-Spreadsheet Browser. You must first create a slice from the In-Spreadsheet Browser, and then you can generate a report from the slice.
- Standard TM1 security applies to TM1 reports. If you attempt to create a report that includes elements or cells to which you have NONE privilege, any report cells affected by the privilege display as #N/A in the report.

Creating TM1 Reports

You create TM1 reports from slices using the Print Report Wizard. The wizard guides you through this process.

- Selecting the sheets to include in the report
- Selecting the title dimensions and subsets for the report
- Selecting workbook print options
- Selecting a print destination for the report (printer, Excel file, or PDF file)
- Saving your report settings

The examples used in this section are based on the following slice of the SalesCube cube in the TM1 sample database.

The example slice contains three title dimensions.

- actvsbud - Uses the default subset containing three elements
- account1 - Uses the default subset containing six elements

Your Excel workbook can also include your own worksheets, which can be included in the report.

Setting the Page Layout for TM1 Reports

The page layout of the report sheets is determined from the Excel Page Setup properties of each sheet that is included the TM1 report.

Before you generate the TM1 report, you can use Excel to set the page layout of any sheet in the report by selecting the sheet and then clicking File, Page Setup from the Excel menu bar. Select the page layout options for that specific sheet and then repeat these steps to set the page layout for any other sheet in the report.

Starting the Print Report Wizard

In order to create a report you must start the Print Report Wizard.

Procedure

1. From the Microsoft Excel menu bar, click **TM1** , **Print Report**.
   The Print Report Wizard opens.
2. Select the options you want on each screen of the wizard.
   Use the **Next** button to step through the wizard.
3. After selecting your options, click **Finish** to create the report.
   The rest of this section describes the details of creating a report.

Selecting the Sheets for the Report

You can select any of the worksheets from the current Excel workbook to include in your report. This enables you to create a report that combines slice data with your own user-created worksheets, such as title or chart pages.

Worksheets can be one of two types.

- **TM1 slice worksheet** - An Excel worksheet that contains slice data.
- **User worksheet** - An Excel worksheet that does not include slice data. Examples include title pages, charts, or other information.

For example, if an Excel workbook contains one slice worksheet, named Sales Data, and two user-created worksheets, named My Title Page and My Notes Page.

You could choose to include only the Sales Data and My Title Page worksheets in the report.

Use the first screen of the wizard to select worksheets to include in the report as follows:

- To include a worksheet in the report, select the check box next to the sheet name
- To include all sheets, click the **Select All** button
- To exclude all sheets, click the **Clear All** button

After selecting the worksheets to include in the report, click **Next**.

Selecting the Title Dimensions for the Report

The Available Title Dimensions box, located in the upper left portion of screen 2 of the Print Report Wizard, lists the sheet name and title dimensions of the slice. For each dimension, this box also lists the current subset name (if applicable), the

number of elements in the subset, and the cell address of the title dimension in the slice worksheet. If the current subset is unnamed, the subset name does not appear in the list.

You select the title dimensions to include in the report by selecting and moving them from the Available Title Dimensions list to the Selected Title Dimensions list.

Procedure

1. Select the dimensions you want to include in the report:
   - To select a single dimension, click the dimension.
   - To select multiple non-adjacent dimensions, hold down CTRL and click each dimension.
   - To select multiple adjacent dimensions, click the first dimension, hold down SHIFT, and click the last dimension.
2. Add the selected dimensions to the report:
   - Click ⊞ to move selected dimensions to the **Selected Title Dimensions** list.

     You can also double-click on a single dimension to move it from one list to the other list.
   - Click ⊟ to remove a dimension from the **Selected Title Dimensions** list.
   - Click ⊞ to move all dimensions to the **Selected Title Dimensions** list.
   - Click ⊟ to remove all dimensions from the **Selected Title Dimensions** list.
3. If necessary, select a dimension and use the up and down arrows to change the order of title dimensions in the **Selected Title Dimensions** list.

   This order is used when the report is generated. For details, see "Determining the Order of Sheets in a Report" on page 136.

Determining the Number of Sheets in a Report

In the following figure, the generated report will include all possible combinations of elements from the actvsbud and region title dimensions. There are three elements in the actvsbud title dimension subset, and 32 elements in the region title dimension.
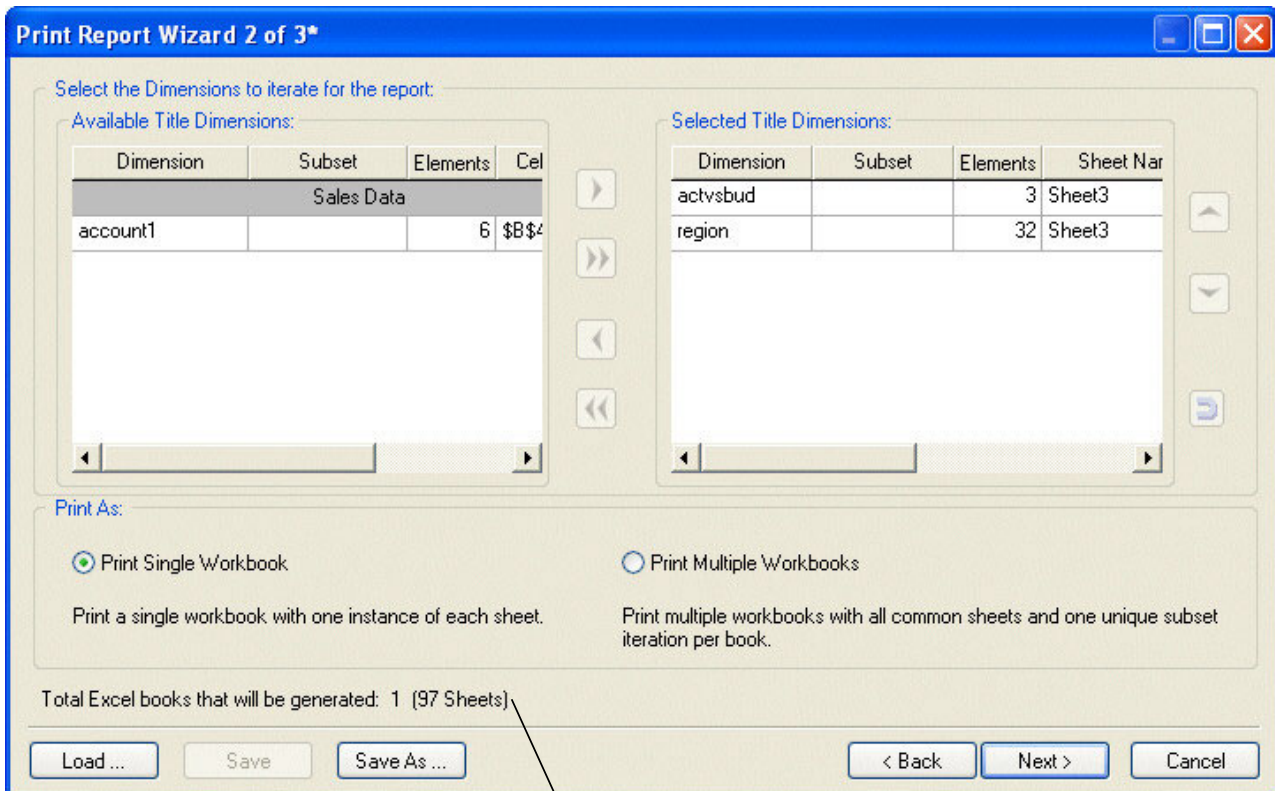
1 user worksheet + (3 * 32) title elements = 97 total sheets

The number of elements for each title dimension subset is multiplied, 3 * 32, which yields 96 possible combinations of title elements, or Excel sheets. The total number of Excel sheets that are generated in a report displays in the lower left corner of the wizard. In this case, the total number of Excel sheets is 97, one user worksheet plus 96 title elements.

As you add title dimensions to a report, the number of sheets can increase dramatically. For example, if you add the account1 title dimension with six elements to the report, 96 elements by 6 elements are multiplied, which yields 576 Excel sheets. This would increase the number of sheets in the report from 97 to 577, one user worksheet plus 576 title elements.

Determining the Order of Sheets in a Report

The report sheets are generated by cycling through the title dimensions in the order they appear in the Selected Title Dimensions list. Using the example from the previous figure, the Excel sheets generate in the following order:

- For any title dimension you do not include in the Selected Title Dimensions list, the current title element in the slice is used in all report sheets. In the example, the account1 dimension is not in the Selected Title Dimensions list, so the Sales element (the current title element in the slice) is used in all report sheets.
- Sheets begin generating using the first element from the unnamed default subset of the actvsbud dimension, which is Actual.
- Keeping the Actual title element constant, the Excel sheets are then generated by cycling through all elements of the region dimension.

- After cycling through all elements in the region dimension, the Excel sheets are generated using the second element from the unnamed default subset of the actvsbud dimension, which is Budget.
- Keeping the Budget title element constant, the Excel sheets are generated by again cycling through all elements of the region dimension.
- After cycling through all elements in the region dimension, the final Excel sheets are generated using the last element from the unnamed default subset of the actvsbud dimension (Variance), and cycling through all elements of the region dimension one last time.

Selecting Dimension Subsets for the Report

You can use the Subset Editor to select a subset of elements for any dimension that you include in your report.

For more information on using the Subset Editor, see "Narrowing the List of Elements" on page 37.

Use the Subset Editor to create or select a subset in one of the following ways:
- **Temporary subset** - create a new, but temporary subset to use only in the report
- **New subset** - create and save a new subset that will be available for later use
- **Existing subset** - select an existing subset

Note: A temporary subset is not saved with your report settings or with your TM1 data. To make a subset available for future use, you must save and name the subset in the Subset Editor. To save the name of the selected subset with your report settings, you must save the report as a Print Job.

Procedure

1. Select the dimension from the Selected Title Dimensions box.

2. Click **Subset Editor** to open the Subset Editor.

   The Subset Editor opens.

3. Use the Subset Editor to edit or select a subset. Do one of the following to finish selecting a subset:
   - To use a temporary subset, click **OK** to return to the wizard.

     The name of the temporary subset displays as <Temporary> in the Selected Title Dimensions box. A temporary subset is used only in the current report and is not saved for later use.
   - To save and use a new subset, save and name the subset in the Subset Editor, and then click **OK** to return to the Print Report Wizard.
   - To use an existing subset, select the name of the subset in the Subset Editor and then click **OK** to return to the Print Report Wizard.

   A named subset opens.

Selecting Workbook Print Options

Use the lower section of screen 2 of the Print Report Wizard to control the number and grouping of worksheets in the report. This option applies when your report includes worksheets that contain TM1 slice data (slice worksheets) and worksheets that do not contain slice data (user worksheets).

The available options include:

- **Print Single Workbook** - Prints a single instance of each worksheet for the entire report
- **Print Multiple Workbooks** - Prints an additional copy of each user worksheet for each dimension element in the report

The following examples include one user worksheet, My Title Page, and the actvsbud dimension, which includes three dimension elements; Actual, Budget, and Variance.

Print Single Workbook

If you want the report to create one complete group of worksheets, use the Print Single Workbook option. Each sheet in the report is printed only once, including user sheets that do not contain TM1 slice data.

Print Multiple Workbooks

If you want to organize the report into multiple groups based on dimension elements, select the Print Multiple Workbooks option. This option creates a report with a larger number of sheets because a copy of each user sheet is printed for each title element.

For example, this option repeats the same title page for each of the three title elements in the report (Actual, Budget, and Variance). This creates a total of six pages, organized into three groups of two pages each.

When you use the Print Multiple Workbooks option and save the report as either an Excel or PDF file, you also have the option of saving all these sheets into one individual file, or into multiple files using the Generate New Workbook for Each Title option.

After selecting the workbook options, click **Next** to continue to the last screen of the wizard.

Selecting a Print Destination

The final step of creating a report is to select a print destination.
- **Print to Printer** - sends the report directly to a printer or creates a printer-ready file
- **Save As Excel Files** - saves the report as an Excel workbook file
- **Save As PDF Files** - saves the report as a PDF document file

Printing TM1 Reports

The following steps illustrate how to print TM1 reports.

Procedure

1. Select the Print to Printer option on screen 3 of the Print Report Wizard.

   The following printer options are available.

Option	Description
Printer Name	Specifies the printer where the report prints. Your system default printer is selected by default.
	To select a different printer, click the arrow beside Printer Name and select a printer from the list.

Option	Description
Number of Copies	Specifies the number of copies of the report that are printed To change the number of copies, enter a number in the box. You can also click the up arrow to increase the number of copies or click the down arrow to decrease the number of copies.
Print to File	Saves the report as a printer-ready file.
File Name	If you select the Print to File option, you must enter a full path to the file in the File Name box, or click Browse to navigate to the directory in which you want to save the file. You must also specify a file type. For example, if you print to a file using a PostScript printer, you should append the .ps file type to the file name.
Collate	Collates a report that you send to a printer.

2. If you want to save the report settings as a TM1 Print Job, click **Save As** and specify a directory and file name.
3. Do one of the following to finish printing:
   - If you want to preview the report before printing, click **Preview** to view the report in the Excel Print Preview window. You can then either print or close the Excel Print Preview window without printing.

     Note: Closing the Excel Print Preview window will also close the TM1 Print Report Wizard. If you want to save your report settings, make sure you save them before using print preview.
   - If you want to print the report without using print preview, click **Finish** to print the report directly to a printer or to a file.

Saving the TM1 Report as an Excel Document

When you save the TM1 report as a Microsoft Excel document, you can generate the report into either a single Excel workbook file or multiple Excel workbook files.

- **Single Excel workbook (default)** - Generates a single workbook with individual worksheets for each title dimension combination. TM1 names each worksheet according to the first title dimension in the worksheet.
- **Multiple Excel workbooks** - Generates a unique Excel workbook for each possible combination of title elements in the report.

When you save a report as an Excel document, you can create a report that contains either of the following data types:

- **Numeric values report** - Does not retrieve values from the server. You can share a report that contains numeric values with anyone because the report does not require access to the server.
- DBRW **formulas report** - Retrieves values from the server. You cannot share a report that contains DBRW formulas with anyone unless they have access to the server. However, this type of report is always up-to-date because TM1 retrieves the current values from the server. With a DBRW formulas report, you can write values to the server, as the DBRW formula can both send data to and retrieve data from the server.

Procedure

1. Select the Save as Excel Files option on screen three of the Print Report Wizard. The following Excel document options are available.

Option	Description
Generate New Workbook for Each Title	Generate a new Excel workbook for each possible combination of title elements in the report, and saves the workbooks to the directory you specify with the Directory Name option. To generate a single Excel workbook with individual worksheets for each title dimension combination, clear this option.
File Name	If you want to generate a single Excel workbook, specify a file name for the workbook. If you specify a full pathname, the report uses the filename you assign. If you specify only a filename without a path, the file is saved in the My Documents directory. If you specify only the directory in which you want to save the report, the file is saved with a name reflecting the selected title elements of the first sheet in the workbook. For example, Actual_Argentina.xls.
Directory Name	If you want to generate a new Excel workbook for each possible combination of title elements in the report, specify the directory in which TM1 saves the workbooks. Each new workbook is saved with a name reflecting the title elements used to generate the report. For example, a workbook named Actual_Argentina.xls indicates that the report is generated using the Actual and Argentina title elements.
Create Snapshot	Generates workbooks containing numeric values that reflect the current slice values, and archives historical values. Because values are numeric, and values are not retrieved from the server through formulas, you can share the workbooks you create with the Create Snapshot option with anyone. To generate workbooks containing DBRW formulas that retrieve values from the server associated with the slice, clear this option. You can share the workbooks containing DBRW formulas only with users who have access to the server from which the slice was created.

2. If you want to save the report settings as a TM1 Print Job, click **Save As** and specify a directory and file name.
3. Click **Finish** to save the report as an Excel document.

   Note: When you save a report as a single Excel workbook with individual worksheets for each title dimension combination, the number of worksheets that can generate is limited by available memory (as determined by Excel).

If you attempt to generate a report that exceeds the available memory limit, an error message displays.

Click **OK** to dismiss the error. You must then change your report configuration so that the report contains fewer sheets. This is a trial-and-error process; you will not know if your newly-configured report exceeds the available memory limit until you attempt to generate the report.

Saving the TM1 Report as a PDF Document

When you save the TM1 report as a PDF document, you can generate the report into either a single PDF file or multiple PDF files.

* **Single PDF file (default)** - Generates a single PDF file with individual pages for each title dimension combination.
* **Multiple PDF files** - Generates a unique PDF file for each possible combination of title elements in the report.

Procedure

1. Select the Save as PDF Files option on screen 3 of the Print Report Wizard.

   The following PDF document options are available.

Option	Description
Generate New Workbook for Each Title	Generates a new PDF file for each possible combination of title elements in the report, and saves the file to the directory you specify with the Directory Name option. To generate a single PDF document with individual pages for each title dimension combination, clear this option.
File Name	If you want to save the TM1 report as a single PDF file, specify a name for the file. If you specify a full pathname, the PDF document uses the filename you assign. If you specify only a filename without a path, TM1 saves the PDF document in your My Documents directory. If you specify only the directory in which you want to save the PDF file, TM1 saves the file with a name reflecting the selected title elements of the first sheet in the workbook. For example, Actual_Argentina.pdf.
Directory Name	If you want to generate a new PDF file for each possible combination of title elements in the report, specify the directory in which TM1 will save the files. TM1 saves each new PDF file with a name reflecting the title elements used to generate the report. For example, a file named Actual_Argentina.pdf indicates that TM1 will generate the report using the Actual and Argentina title elements.

2. If you want to save the report settings as a TM1 Print Job, click **Save As** and specify a directory and file name.
3. Click **Finish** to save the report as a PDF document.

Saving and Loading TM1 Print Jobs

You can save your report settings as a TM1 Print Job and load them for later use. Settings are saved in a TM1 Report File with the file name extension .rpt.

Saving a TM1 Print Job

You can save a print job.

Procedure

1. Click **Save As** in the Print Report Wizard.

   The Save TM1 Print Job dialog box opens.
2. Specify a directory and file name.
3. Click **Save**.

   The report settings are saved to the file and the title bar of the Print Report Wizard displays the file name.

Loading an Existing TM1 Print Job

You can load an existing print job.

Procedure

1. Click **Load** in the Print Report Wizard.

   The Load TM1 Print Job dialog box opens.
2. Browse to the directory containing the TM1 Report File and select the file you want to open.
3. Click **Open**.

   The report print job is loaded and the file name is displayed in the title bar of the Print Report Wizard.

Chapter 10. TM1 Web Overview

IBM Cognos TM1 Web extends the analytical power of TM1 Web by offering a number of tasks in a web browser.

- Analyze cube data
- View and edit data in formatted Excel reports
- Drill, pivot, select, and filter data
- Build charts from cube data
- Perform some TM1 server administration tasks

Starting TM1 Web

The following steps illustrate how to log in to IBM Cognos TM1 Web .

Procedure

1. Start an internet browser.
2. Enter the URL provided by your TM1 Web administrator, using the following example.

   `http://machine_name:port_number/tm1web/`

   For example: `http://localhost:9510/tm1web/`

   where:

   - *machine_name* is the name of the Web server used to deliver TM1 Web pages.
   - *port_number* is the port number of the Web server.

   The TM1 Web Login page opens.
3. Enter the login information.
   - **Admin Host** - The name of the TM1 Admin Host you use to locate an active TM1 server on your network.
   - **TM1 Server** - The name of the TM1 Server you want to access through TM1 Web . Click the down arrow to select one of the TM1 Servers available on your network. Click **Refresh** to update the list of servers available on your network.

     Note: If the AdminSvrSSLCertID parameter in the TM1 Web .config file is incorrectly configured, the server menu may be empty. See "Running TM1 in Secure Mode using SSL" chapter of the IBM Cognos TM1 *Installation and Configuration Guide* for details on this parameter.
   - **User Name** - Your user name on the selected TM1 Server.
   - **Password** - Your password on the selected TM1 Server.
4. Click **Login**.

   The TM1 Web Main page opens.

Using TM1 Web

The TM1 Web main page contains the Navigation pane on the left and a Content pane on the right.

Navigation Pane

The Navigation pane contains the following items:

- **Applications** - Displays a list of applications that you can access through TM1 Web . These applications can contain shortcuts to TM1 Websheets, cubes, and views.
- **Views** - Displays a list of cubes and views on the TM1 Server .
- **Administration** - Displays a list of server object properties. You can modify some of these properties directly from TM1 Web .

  Note: The Administration module is visible only to users who are members of the ADMIN group on the TM1 Server .

TM1 Web does not support the use of Back and Forward buttons from your browser. Use the controls offered in the Navigation pane to maintain consistent data views.

Content Pane

The Content pane displays the cube views and Websheets that you open. Each object that you open displays on a separate tab.

Data Browsing and Analysis Tasks

TM1 Web provides tools for working with TM1 Websheets, cube views, charts and subsets.

For details, see the following sections:

- Working with Websheets - Describes how to view, edit and export Websheets.
- Working in the TM1 Web Cube Viewer - Describes how to view, edit, configure and export cube views, review and save data changes and create new views.
- Working with TM1 Web Charts - Provides details on using charts with TM1 Web Cube Views, changing chart properties, expanding and collapsing consolidations in a chart and drilling from a chart.
- Editing Subsets in TM1 Web - Describes how to use the TM1 Web Subset Editor to create and manage lists of elements that identify the data you want to analyze.

Administrator Tasks

As a TM1 Web administrator, you can perform administration and configuration tasks for the application.

For example:

- Change the password of the current user.
- Configure a custom homepage for TM1 Web .
- Modify TM1 Web configuration parameters.
- Use TM1 Web log files to monitor TM1 Web activity and errors.

For details, see "Administering IBM Cognos TM1 Web" in the *IBM Cognos TM1 Web Guide* or in the *IBM Cognos TM1 Operation Guide*.

Chapter 11. Working with Websheets

This section describes using Websheets.

Websheet Overview

A Websheet is a Microsoft Excel worksheet (.xls file) with IBM Cognos TM1 data that you can view in a web browser. By publishing an Excel worksheet from the IBM Cognos software to an application folder, other users can view your worksheet by using their Web browser.

With a Websheet, you can perform the following tasks.

- Enter data in cells to which you have Write access (see the IBM Cognos TM1 *Operation Guide*). The IBM Cognos web client does not identify which cells are writable, so you must have some familiarity with your data to successfully enter data into the Websheet. For details on entering data in cells, see "Editing Data in a Websheet" on page 147.
- Use data spreading to enter or modify many Websheet values at once. Spreading is frequently used for scenario testing and what-if analysis during a budgeting or financial planning process.
- Drill to relational tables or other cubes. If the slice that you publish to the Web contains a cell with a defined drill-through rule, that drill function is available from your Websheet.
- View Excel charts. If the slice you publish to the Web contains a chart, the chart will appear in your Websheet. If the slice from which you built the chart has a drill-through rule defined, you can drill through to related information from the Websheet chart.
- Manipulate title element subsets in the Subset Editor.

Note that at this time diagonal borders are not supported in TM1 Websheets.

Visual Differences Between Websheets and Excel Worksheets

This section describes some of the visual differences you may notice when using a TM1 Websheet as compared to an Excel worksheet.

Diagonal Borders

At this time, diagonal borders are not supported in TM1 Websheets.

Display of Gridlines in TM1 Websheets

If gridlines are enabled in an Excel worksheet, they also display in the associated TM1 Websheet except for the following scenarios involving background color (cell shading):

- If gridlines are enabled in Excel and a background color is applied to the entire worksheet, the gridlines do not display in either Excel or the associated Websheet.
- If gridlines are enabled in Excel and a background color is applied to only a range of cells in a worksheet, the gridlines for those cells are hidden in Excel but remain visible in the associated Websheet.

Viewing a Websheet

Any Excel worksheet that exists in a TM1 application is automatically available through TM1 Web . For details on creating and managing applications, see the IBM Cognos TM1 Developer Guide.

Procedure

1. From the browser, click an application in the left navigation pane.

   The Websheets in the application appear as links in the list.

   Note: Applications can contain references to various objects, such as cubes, dimensions, subsets, and views. Applications in TM1 Web display shortcuts to only Websheets, cubes, and views.

2. Click a worksheet link.

   The Websheet displays in the browser.

   If your administrator has enable localization of names on your TM1 server, then cubes, dimensions, elements, and attributes will display in your local language as determined by the language setting of your Web browser. If localization is not enabled, object names appear as they were originally created on the TM1 server. In Websheets, only elements returned by SUBNM or TM1RptRow functions are localized. All other element and object names in Websheets display as originally created.

Using the Websheet Toolbar

The Websheet toolbar at the top of the TM1 Web page contains buttons for working with Websheets.

The following list describes the Websheet toolbar buttons.

Actions Menu

Provides access to common Websheet tasks such as closing and exporting.

Export

Exports the current Websheet to a Microsoft Excel slice, an Excel snapshot, or an Adobe PDF file.

Reset Data

Clears all the changed data values that you entered up to that point in a sandbox. Resets all the data values back to the current values in the base data.

Commit

Sends the Websheet data modifications to the TM1 server.

Recalculate

If you edited any data values in the Websheet, this option sends the data modifications to the TM1 server and then updates the data in the Websheet.

If you did not edit any data values in the Websheet, this option retrieves the current values from the TM1 server and updates the data in the Websheet.

Rebuild Active Form

Rebuilds the current active form.

◩ **Auto Fit Selected Column Width**

Adjusts the width of the currently selected column.

Editing Data in a Websheet

You can edit data in a Websheet.

- Enter and edit values directly in the leaf cells of a Websheet
- Use data spreading to distribute numeric values in a Websheet

Editing Data in Websheet Cells

You can edit data in the leaf cells of a Websheet, providing you have Write access to those cells. The TM1 Web client does not identify which cells are writable, so you must have some familiarity with your data to successfully enter data into the Websheet.

Procedure

1. Edit a value in a cell in one of the following two ways.

    - **Replace the value** - Single-click a value in a cell. TM1 Web displays the current value in the cell as highlighted, which indicates that the cell is in Edit mode. You can then type directly over the existing value in the cell, replacing it completely.

    - **Edit the value** - Double-click a value in a cell. TM1 Web displays the current value in the cell with a blinking cursor. This indicates that you can selectively edit the existing value by using the left and right arrow keys on your keyboard to position the cursor within the value. You can also use the Backspace and Delete keys to remove single numbers from the value.

2. After entering a new number, press **Enter** or click on another cell.

    The new number displays in bold and italic, which indicates there is a new value in this cell. You must submit the data changes to the TM1 server for the change you made to persist.

    Important: If you log out of TM1 Web without submitting the new value, the change you made will be lost.

3. Review your data changes.

    Make additional changes, as necessary.

    If you are working in a sandbox, data changes display in a different color until the changes are committed.

4. Click **Commit** ✔ on the Websheet toolbar to save the changes to the server.

    After submitting the changes, the Websheet displays the updated values in a normal font, indicating that you saved the changes.

Using Data Spreading in a Websheet

You can use data spreading to enter or edit numeric data in a Websheet using a predefined distribution method, called a data spread method. For example, you can evenly distribute a value across a range of cells or increment all values in a range of cells by a percentage.

Note: TM1 Web saves the spread values to either the copy of an uploaded Excel file on the TM1 server or to the original location of an attached Excel file, depending on how the file was added to TM1 Web . You do not need to submit the data after TM1 Web completes the spread.

Procedure

1. To spread data in a Websheet, right-click on a cell and select **Data Spread**.
2. From the Spreading menu, select any data spread method.

Excluding Cells from Data Spreading

You can apply a hold to cells to prevent those cells from being affected by data spreading. You can still edit held cells. The holds apply only to the user initiating the feature; other users can edit held cells.

Apply a Hold to a Single Cell or Range

You can apply a hold to a single cell or range of cells.

Procedure

1. Select the cell or range.
2. Right-click the cell or range.
3. Click **Holds**, **Hold Leaves**.

   Each held cell displays a red triangle in the lower left corner as a visual indication that you applied a hold to that cell or range. When you log off, TM1 Web releases all holds.

Release a Hold on a Single Cell or Range

You can release a hold on a single cell or range of cells.

Procedure

1. Select the cell or range of cells.
2. Right-click the cell or range.
3. Click **Holds**, **Release Leaf Holds**.

   The released cells can accept values from data spreading operations.

   Note: To release all holds you applied in a Websheet, right-click any cell in the Websheet and click **Holds**, **Release All Holds**.

Excluding Consolidations from Data Spreading

You can hold the value of a consolidation constant while adjusting the underlying leaf values. For example, you might want to hold a value constant while changing the values of the leaves to perform a what-if analysis.

When you apply a consolidation hold and change the value of its leaf elements, TM1 Web applies proportional spreading to the remaining leaf values so that the consolidation value remains unchanged.

Apply a Consolidation Hold to a Single Cell or Range

You can apply a consolidation hold to a single cell or range or cells.

Procedure

1. Select the cell or range.
2. Right-click the cell or range.
3. Click **Holds**, **Hold Consolidate**.

   Each held consolidation displays a red triangle in the lower left corner of a cell as a visual indication that you applied a hold to that cell or range. When you log off, TM1 Web releases all holds.

Release a Consolidation Hold on a Single Cell or Range

You can release a consolidation hold on a single cell or range of cells.

Procedure

1. Select the cell or range of cells.
2. Right-click the cell or range.
3. Click **Holds**, **Release Consolidate**.

   The consolidated value now can reflect any changes you make to the underlying leaf values.

   Note: To release all holds you applied in a Websheet, right-click any cell in the Websheet and click **Holds**, **Release All Holds**.

Changing Websheet Properties

Websheet properties determine how an Excel file displays and behaves when viewed as a Websheet in TM1 Web . All users can view Websheet properties, but you must have Write access to an Excel file within an application to edit the Websheet properties.

Note: You can only manage Websheet properties using Server Explorer - the user interface where you add Excel files to TM1 applications. The ability to manage Websheet properties is not available directly in TM1 Web .

Procedure

1. In the Tree pane of Server Explorer, locate the TM1 application that contains the Excel file for the corresponding Websheet.

   Note: You can access Server Explorer from IBM Cognos TM1 Perspectives or TM1 Architect .
2. Right-click the Excel file and click **Properties**.

   The TM1 Web Properties dialog box opens, with two tabs:
   - General
   - Display Properties
3. If necessary, click the **General** tab to change the general properties, as described in the following table.

Option	Description
TM1 Admin Hosts	Shows the admin host(s) to which your server was registered when you generated an Excel slice. You can be connected to one or more admin hosts, and specify more than one admin host. Delimit each entry in the list with a semicolon (;).
Allow Write Back from Web	Allows users to modify TM1 data by entering values in the Websheet. Disable this option to make the Websheet read-only.

Option	Description
Print Properties	Sets a limit on the number of pages users can print from this Websheet. The system default is 100. You can set this number to any value that is appropriate for this Websheet. For example, to set the maximum number of pages users can print to 110, in the **Print Properties** section, enter **110** in the **Limit Number of Sheets to** box.

4. Click the **Display Properties** tab to change the display properties, as described in the following table.

Option	Description
Display Title Element Selectors	Enable this option to display the Subset Editor buttons for title dimensions in the Websheet. When this option is enabled, you can use the Display Selector option (described below) to selectively show/hide the Subset Editor button for individual title dimensions. Clear this option to hide the Subset Editor buttons for all title dimensions in the Websheet.
Title Dimensions	The Title Dimensions grid lists all title dimensions in the Websheet. There are three columns in the grid: **Dimension** - The name of the title dimension. **Address** - The cell address of the title dimension in the Websheet. **Display Selector** - When the Display Title Element Selectors option (see above) is enabled, this option lets you selectively show or hide the Subset Editor button for a given title dimension in the Websheet. To show the Subset Editor button for a title dimension, select the corresponding checkbox in the Display Selector column. To hide the Subset Editor button for a title dimension, clear the corresponding checkbox in the Display Selector column.

Recognizing Inherited Excel Features in Websheets

A Websheet inherits the following Excel features:
- Hide columns
- Conditional formatting
- Supported hyperlinks
- Freeze panes
- Cell protection (but not password protection)

Hide Columns

If you hide columns in your Excel worksheet, those columns are also hidden in the Websheet. TM1 Web calculates the data cells whether or not they are visible in the

Websheet. If there are many hidden cells that contain calculations, your Websheet performance may be slower than you might expect.

Conditional Formatting

TM1 Web supports Excel conditional formatting. The following image shows a worksheet with conditional formatting.
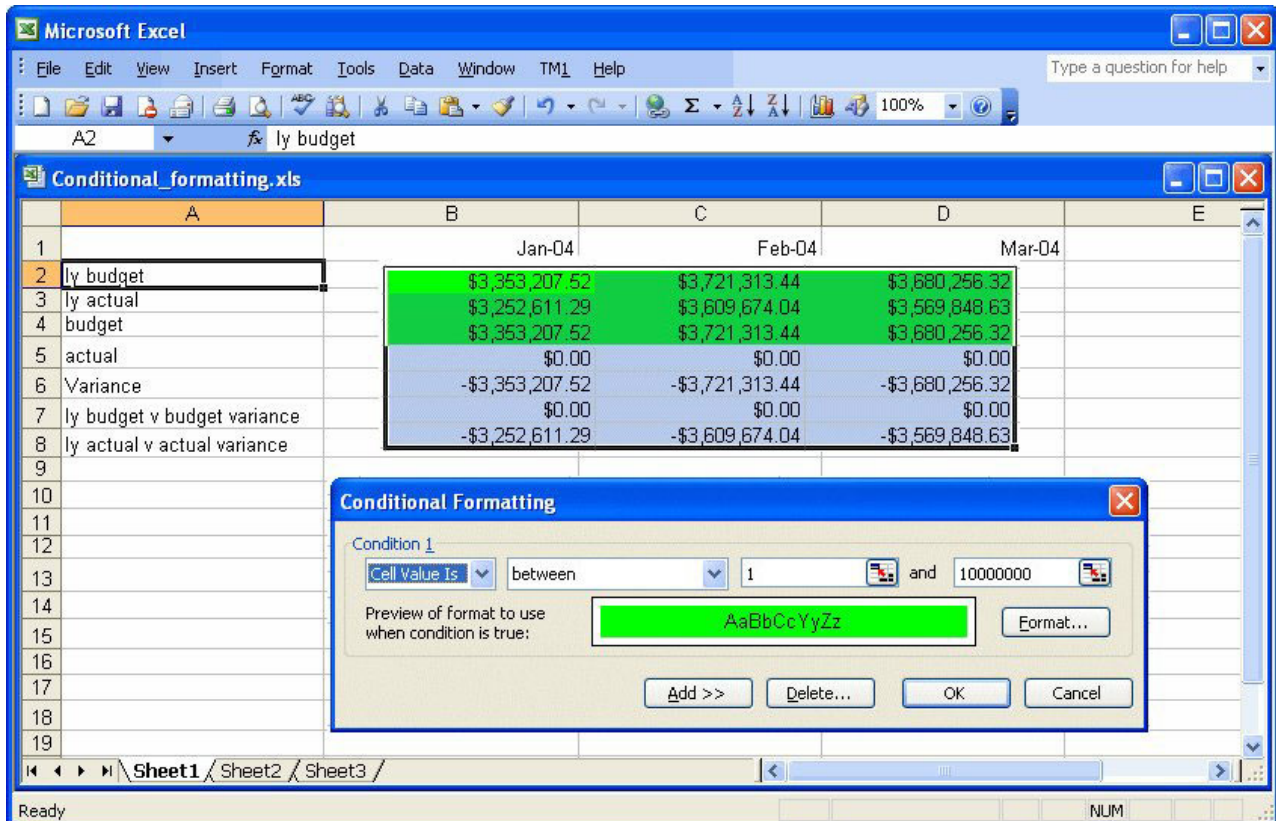
When you view this worksheet in TM1 Web , the conditional formatting displays in the Websheet, as shown in the following image:

Hyperlinks

Microsoft Excel supports many types of hyperlinks. The following Excel hyperlinks work in Websheets:

- Another cell in the current workbook
- Named range defined in the current workbook
- Bookmark in the current workbook
- URL to an FTP or web site
- Another Excel workbook. The target workbook can either be a file on your network or a file uploaded to the TM1 server .

If the target workbook is a file on your network, the hyperlink must contain the full network path to the target file using the Universal Naming Convention (UNC) format:

```
\\ComputerName\SharedFolder\FileName
```

For example:

```
\\sytem123\MyReports\hyperlink_target.xls
```

If the hyperlink points to a file uploaded to the TM1 server , the link must use the TM1 assigned name for the uploaded file. For more details, see the IBM Cognos TM1 *Developer Guide*.

Freeze Panes

If you freeze panes in your Excel worksheet, the Websheet inherits the frozen panes. When you scroll vertically or horizontally in the Websheet, the frozen rows or columns remain visible.

If you scroll vertically in this worksheet, the rows in the frozen pane remain in place, while the lower portion of the worksheet scrolls.

Using ClearType to Enhance Display and Rendering of Websheets

To enhance the display of Websheets, especially ones that include a combination of frozen and unfrozen panes with wrapped text within cells, check with your administrator about installing the Microsoft ClearType Tuner. This tool helps TM1 Web maintain the same row height between frozen and unfrozen panes in Websheets.

For details, see the section about administering TM1 Web in the IBM Cognos TM1 *Operation Guide*.

String measurement for wide columns in TM1 Web

StringMeasurement is a web.config parameter that determines the way the contents of a websheet cell are adjusted to fit in columns. When a column's width results in a cell that is smaller than its contents can display, the content is adjusted to that cell based on this setting and the type of cell. A new method of calculating when to truncate cells was introduced in version 9.5.1 to work better with Microsoft Internet Explorer. If you have made edits to your websheet column widths, you may decide to set this parameter back to the 9.5.1 setting to preserve your pre-9.5.1 widths.

In all settings when the content is adjusted, digits are replaced with the '#' characters such that the number would not be mistakenly read as a different number.

If a disproportionately small amount of content is shown in your websheet cells for the given space available, you will want to use the legacy calculation by setting StringMeasurement=0 in the web.config file.

If too much content is shown in your websheet for the space available, possibly causing misalignment, use the 1 through 3 settings, depending on the type of cell.

String Measurement	Result
0	Determines where to truncates string and number type cell content as it did in pre- 9.5.1.
1	String cell measurement uses the newer calculation.
2	Number cell measurement use the newer calculation.
3	Both number and string content use the newer calculation.

Using Cell and Password Protection with Websheets

TM1 Websheets support cell protection using the Protect Sheet feature in Microsoft Excel, but do not support password protection. You can use Excel's Protect Sheet feature to protect your Websheet from data entry, but do not enter a password.

Since a Websheet is a Web browser version of an Excel workbook, the integrity and layout of the workbook cannot be changed when the Websheet is accessed via a Web browser in TM1 Web. This type of access means that password protection is not typically needed in a Websheet.

Generating a Report from a Websheet

You can generate 'briefing book' - style reports in TM1 Web in two ways:

- **Websheet** - Select the title dimension subsets to include in the report.
- **Cube Viewer** - Select the title dimension subsets and the number of rows to include in the report. For details, see "Generating a Report from a Cube View" on page 174.

Note: If your installation of TM1 Web is configured to run without Microsoft Excel on the Web server, some limitations may apply when exporting Websheets. For details, see "Websheet Export Limitations" on page 155.

Procedure

1. Click **Export** .
2. Select an export format for the report.
   - **Slice to Excel** - Excel documents that retain a link to the TM1 server by way of functions. When you connect to the server with which the slice is associated, the slice displays the current cube values.
   - **Snapshot to Excel** - Excel documents that contain numeric values reflecting cube values at the moment the export occurred. Because snapshots do not retain a link to the TM1 server , the values are static, representing a 'snapshot' of cube values at the moment of export.
   - **Export to PDF** - PDF documents that display cube values at the moment the export occurred.

   The Websheet Export dialog box opens. The dialog box reports the number of elements in each title dimension subset.
3. Select the title dimensions you want to include in the report.

   As you select dimensions, the dialog box indicates the number of sheets that will be generated. In the following example, where the actvsbud and region title dimensions are selected, the report will generate 96 sheets (3 elements x 32 elements).
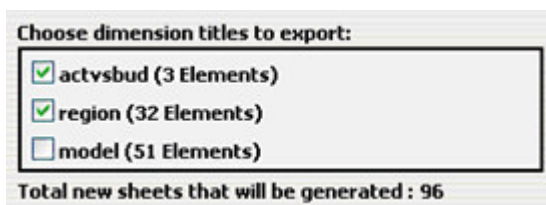
Note: TM1 Web determines the number of elements for each title dimension by the number of elements in the current title dimension subset. If you edit a title dimension subset, the number of elements for the title dimension changes accordingly.

4. Click **OK** in the Websheet Export dialog box to create the report.

   TM1 Web generates report sheets (or pages, for a PDF) by cycling through the selected title dimensions in the order they appear in the Websheet Export dialog box. In the example, TM1 Web generates the sheets as follows:

   - For any title dimension not selected in the Websheet Export dialog box, TM1 Web uses the current title element in the Websheet in all report sheets. In the example, the model dimension is not selected, so TM1 Web uses the current title element in all report sheets.

   - TM1 Web begins generating sheets using the first element from the current subset of the actvsbud title dimension.

   - Keeping the actvsbud title element constant, TM1 Web then generates sheets by cycling through all elements of the current subset of the region title dimension.

   - TM1 Web generates sheets using the second element from the actvsbud title dimension subset.

   - Keeping the second element from the actvsbud title dimension subset constant, TM1 Web generates sheets by again cycling through all elements of the current subset of the region title dimension.

   - Finally, keeping the third element from the actvsbud title dimension subset constant, TM1 Web again generates sheets by cycling through all elements of the current subset of the region title dimension.

   After TM1 Web generates all sheets, you can open or save the report.

5. Do one of the following:
   - Click **Open** to open the report in a new browser window.
   - Click **Save** to save the report to your hard disk.

   Note: By default, exporting a slice or snapshot report to Excel displays the report in a web browser window. For details on configuring your computer to open reports into the full, stand-alone version of Excel, see the Microsoft support web site.

   Additionally, if you want to use TM1 functionality with a slice that you export to Excel, you must open the slice in the stand-alone version of Excel and have a local version of IBM Cognos TM1 Perspectives installed on your computer.

   Note: If you are experiencing problems exporting Excel or PDF files from TM1 Web , and TM1 Web running on a WAN (Wide Area Network) server, you may need to re-configure the security settings in Internet Explorer. For details, see the IBM Cognos TM1 *Operation Guide*.

Websheet Export Limitations

When Microsoft Excel is not present on the TM1 Web server, the following limitations apply to exporting a Websheet.

Slice to Excel/Snapshot to Excel

- OLE controls present in the Websheet are converted to images
- Layout may be inconsistent between the Websheet and the resulting Excel worksheet/workbook.
- Headers and footer's in the Worksheet are not exported

- Form control states are not updated/displayed in the resulting worksheet

Export to PDF

- Images present in the Websheet are not exported
- Charts present in the Websheet are exported to a separate page in the resulting PDF file
- OLE and form controls are not exported
- Headers and footer's are not exported

Chapter 12. Working in the TM1 Web Cube Viewer

This section describes working with a cube in TM1 Web .

Opening a Cube View in TM1 Web

Follow these steps to open a cube view in TM1 Web.

Procedure

1. Log in to TM1 Web .
2. Open the Views node in the left Navigation pane.

   All cubes to which you have access appear in alphabetical order.
3. Click the **Expand** ⊞ icon next to any cube to display the views available through TM1 Web.
4. Click a view in the list.
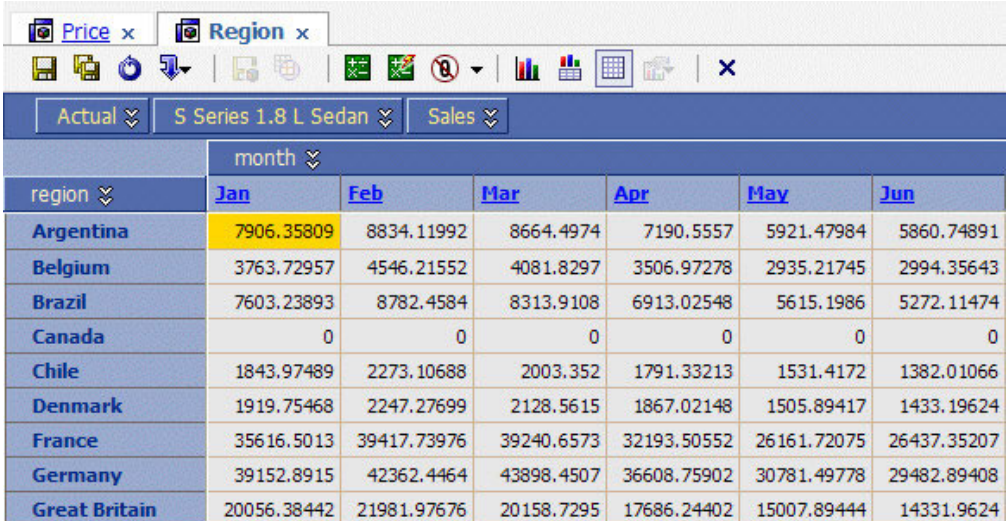
   The view opens in the Content pane on the right. The Cube Viewer toolbar displays directly above the view.

   Note: If you double-click a cube in the list to open a cube view, TM1 Web does not open the cube.
5. Click another view in the Navigation pane.

   The view opens in the Content pane and two View tabs appear above the Cube Viewer toolbar. Each View tab contains the name of an open view. The current view tab displays a border, indicating that the view is visible in the content pane.

   The following example shows two view tabs: Price and Region. In this example, the Region tab displays with a border, indicating that the Region view is displayed in the Content pane.

Each time you open a view from the Navigation pane, displays a corresponding View tab above the Cube Viewer toolbar. When you open

multiple views, the View tabs are organized horizontally along a single row with a set of arrow buttons that scroll left and right through the open tabs.

The following example shows multiple view tabs, with sales1qtr as the current view tab.
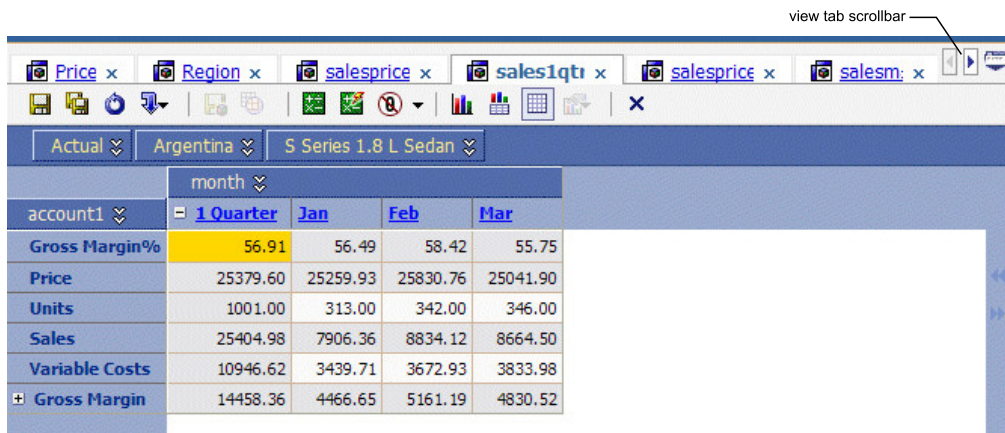
6. Use the View tabs to display and close views:
   - Click any **View** tab to display the corresponding view in the Content pane.
   - Click **Close** ✖ on a View tab to close the corresponding view.
   - Click the **Scroll Left** and **Scroll Right** arrows ◄|► in the View tab scrollbar to navigate through the open View tabs.

Using the TM1 Web Cube Viewer Toolbar

The TM1 Web Cube Viewer toolbar buttons provide shortcuts to commonly used commands.

The following list describes each button in the toolbar.

Actions Menu
Provides access to common Cube Viewer tasks such as saving, closing, and exporting.

Save View
Saves the current view to the TM1 server .

Save As
Saves the current cube view with a new name.

Export
Exports Cube Viewer data in the following formats:

Slice to Excel - Exports Cube Viewer data and TM1 formulas (SUBNM and DBRW functions) to a new Excel spreadsheet. The spreadsheet maintains a connection with the TM1 server.

Snapshot to Excel - Exports only Cube Viewer data to a new Excel spreadsheet, excluding the TM1 server formulas (SUBNM and DBRW functions). The spreadsheet does not maintain a connection with the TM1 server.

Export to PDF - Exports the Cube Viewer data to a PDF file. You must install a PostScript printer during the TM1 Web installation for the Export to PDF option to work. For details, see the *Installation Guide*.

For details on generating reports from a TM1 Web Cube Viewer, see "Generating a Report from a Cube View" on page 174.

Reset Data

Clears all the changed data values that you have entered up to that point in a sandbox. Resets all the data values back to the current values in the base data.

Reset View

Reloads the visual appearance of the Cube Viewer to the last saved arrangement of title dimensions.

Commit

Sends the changes you make to data in the Cube Viewer to the TM1 server.

Recalculate

Updates the Cube Viewer configuration and recalculates data in the view. If you have edited any cells, all edits are automatically submitted to the TM1 server.

Auto Calculation

With the Auto Calculation option turned off, TM1 Web does not automatically recalculate the Cube Viewer when the view configuration changes.

For example, if you edit a row subset or move a dimension from the titles to the columns, these changes are not immediately displayed in the Cube Viewer; you must click the Recalculate button to see your changes.

With the Auto Calculation option turned on, TM1 Web automatically recalculates the Cube Viewer when the view configuration changes.

Suppress Zeros

There are three Suppress Zeros options:
- Suppresses zeros in rows and columns
- Suppresses zeros in rows
- Suppresses zeros in columns

View Chart

Displays the Cube Viewer data in a chart format.

View Chart and Grid

Displays the Cube Viewer data in both grid and chart formats.

View Grid

Displays the Cube Viewer data in a grid format.

Chart Properties

Displays options for selecting chart type or Scorecarding metric diagrams.

Navigating Pages

You can move from one part of a large cube view to another by navigating the pages.

A Paging toolbar is provided with navigation buttons and a Page indicator. In the cube view, the visible portion of the grid is the first of seven pages.
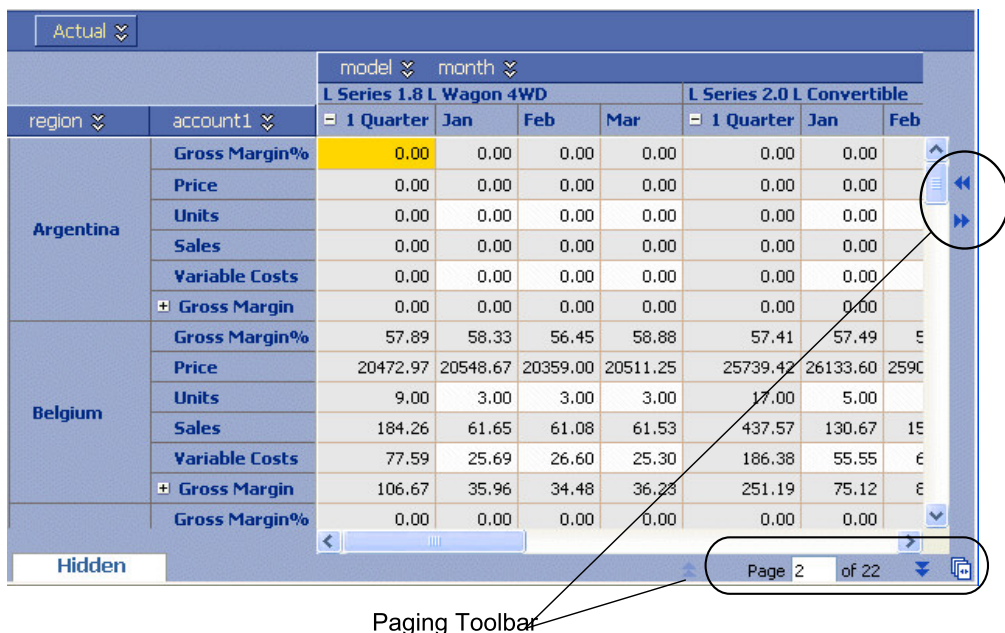
Paging Toolbar

The following table contains the Paging toolbar buttons and indicator with their descriptions.

Button or Indicator	Name	Description
	Display Pages	Displays the TM1 View Page Layout dialog box with a layout of all pages. Click a page, and click **Goto Page** to navigate to a specific page. For example, click **Page 4**, and click **Goto Page** to navigate to page 4.
	Previous Page (Rows)	Shows the previous page of rows.
	Next Page (Rows)	Show the next page of rows.
	Next Page (Columns)	Shows the next page of columns.
	Previous Page (Columns)	Shows the previous page of columns.

Button or Indicator	Name	Description
Page 1 of 16	Page Indicator	Displays the current page and the total number of pages of cells in the view.

Saving Data in a Cube View

You can save data changes from TM1 Web to the server.

Procedure

1. Click **Save View** or **Recalculate** to save the changes to the data.

   If you click **Save View**, TM1 Web displays a message asking if you want to save the changes to the Cube Viewer data.

2. Click one of the following:
   - **Yes** - Submits the data change(s) to the server, recalculates the view, and returns to the Cube Viewer. If you have changed the view configuration, the configuration is saved as well.
   - **No** - Discards the data changes and returns to the Cube Viewer.
   - **Cancel** - Returns to the Cube Viewer. The data changes remain visible in the Cube Viewer.

3. Click **Submit Data Changes** to save the changes.

Configuring a Cube View

You can re-configure the Cube Viewer in various ways to arrive at a view that satisfies your reporting or analysis needs.
- Expand and collapse consolidations
- Pivot dimensions
- Hide dimensions
- Filter view data
- Edit subsets
- Drill through to associated data

Expanding and Collapsing Consolidations

You can click the control next to an element name to expand or collapse a consolidation in the Cube Viewer.

Expand - A plus sign next to an element name identifies the element as a consolidation. To drill down on consolidations in a dimension and view the underlying detail, click the plus sign. The plus sign changes to a minus sign.

Collapse - A minus sign next to an element name indicates an expanded consolidation. To roll up the leaf elements in a dimension, click the minus sign. The minus sign changes to a plus sign.

Pivoting Dimensions

You can pivot the dimensions in your Cube Viewer to change the presentation of cube data. To pivot dimensions, use the drag-and-drop operation.

- Drag a dimension to the column position.
- Drag a dimension to the row position.
- Drag a dimension to the title position.

You can also drag a dimension to the hidden position, as described in "Hiding Dimensions."

When you drag a dimension to a new position, three possible options are available when you drop the dimension. The options vary by the position of your cursor. The following examples use dimensions named Dimension1 and Dimension2.

- When you drag Dimension1 and position your cursor in the center of Dimension2, dropping the dimension will swap the positions of the two dimensions.
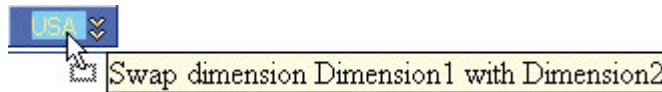
- When you drag Dimension1 and position your cursor on the left side of Dimension2, Dimension1 is dropped immediately to the left of Dimension2.
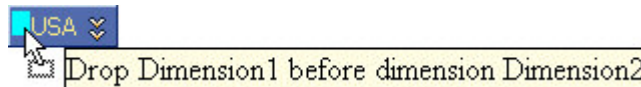
- When you drag Dimension1 and position your cursor on the right side of Dimension2, Dimension1 is dropped immediately to the right of Dimension2.
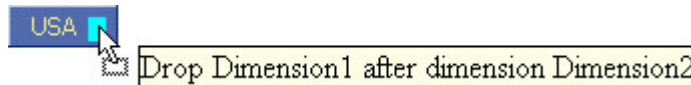
If you drag a dimension and drop it immediately to the left or right of an existing column or row dimension, you can see more detail along the columns or rows of a view. For instance, you could drag the plan_time dimension to before the plan_department dimension in the columns of a view to see the detail for time and departments in the columns.

Hiding Dimensions

To save valuable screen space, use the Hidden tab to hide dimensions from the column, row, and title positions in the Cube Viewer.

Hidden dimensions still apply to the data displayed in the view, but do not occupy screen space.

The Hidden tab is displayed at the bottom of the Cube Viewer, in either a closed or opened mode.

Hidden dimension tab
(closed)

You can use drag-and-drop operations to move dimensions from the current view to the Hidden tab.

After a dimension is moved to the Hidden tab, it is only visible when the Hidden tab is opened, as shown in following figure.

Hidden dimension tab
(open)

You can perform the following tasks with the Hidden tab:

- **Open and close the Hidden tab** - Click the **Hidden** tab to open the tab and display the dimensions that are currently hidden. Click the **Hidden** tab again to close the tab.

- **Move dimensions to and from the Hidden tab** - Use a drag-and-drop operation to move dimensions to or from the Hidden tab.

  When dragging a dimension to the Hidden tab, the tab can be either opened or closed.

  To drag a dimension from the Hidden tab back into the view, the tab must first be opened. When moving dimensions from the Hidden tab, you can swap a

hidden dimension with the position of a displayed dimension, or drop the hidden dimension to the left or right of a displayed dimension.

Note: If the Hidden tab is open when you drag a dimension to or from it, the tab closes automatically after you finish the drag-and-drop operation.

- **Edit a hidden dimension** - You can use the Subset Editor with a hidden dimension to select a new dimension element or define a new dimension subset.

  Click the **Open Subset Editor** button next to a dimension name in the Hidden tab to open the Subset Editor. After editing a hidden dimension with the Subset Editor, the dimension remains hidden and the changes are applied to the current view. For details on the Subset Editor, see "Filtering a Cube View."

Filtering a Cube View

You can filter data in a cube view that contains a single row dimension and one or more column dimensions.

When you have two or more dimensions along the columns, you can filter only from the innermost dimension, that is the dimension closest to the view grid.

Procedure

1. Click the column element that contains the values that you want to filter.
2. Select a filter.
   - **Pre-defined filter** - Top 10, Bottom 10, Top 10 Percent, Bottom 10 Percent. The filter is immediately applied to the view.
   - **Advanced** - You can define a custom filter by setting filter parameters in the Filter dialog box, as described in the following steps.
3. Select a **Filter** type.

Filter Type	Description
TopCount	Filters the view to display only the largest n elements, where n is a number specified in the Value option.
BottomCount	Filters the view to display only the smallest n elements, where n is a number specified in the Value option.
TopSum	Filters the view to display only the largest elements whose sum is greater than or equal to n, where n is a number specified in the Value option.
BottomSum	Filters the view to display only the smallest elements whose sum is greater than or equal to n, where n is a number specified in the Value option.
TopPercent	Filters the view to display only the largest elements whose sum is greater than or equal to n, where n is a percentage of the dimension total specified in the Value option.
BottomPercent	Filters the view to display only the smallest elements whose sum is greater than or equal to n, where n is a percentage of the dimension total specified in the Value option.

4. Enter a numeric value in the **Value** box.
5. Select a **Sort** order to display the dimension elements in the Cube Viewer in ascending or descending order.
6. Click **OK**.

Results

A small funnel icon displays next to the column element for which you created a filter.

Note: To remove a filter, click the column element for which you created the filter, and click **Remove Filter**.

Selecting Elements from a Subset

You can select one or more elements from a subset and view the elements, along with associated data, in the Cube Viewer.

Procedure

1. Click the **Open Subset Editor** button next to any subset.
   The Subset Editor window opens in your browser.
2. Select the element(s) you want to see in the Cube Viewer.
3. Click **OK**.

Drilling from a Cube View

In Perspectives and Architect, you can set up drill processes and drill assignments to access related information in your cube views.

Once these drill processes and rules are in place, they are available in TM1 Web . You can use these drill processes and rules to drill to another cube view or to a relational database.

Procedure

1. To drill to another cube view, right-click a cell and click **Drill**.
   The target cube view containing information related to the cell opens.
2. To drill through from one cube view to another, right-click a cell and click **Drill**.
   The target Cube Viewer opens on a new tab.

Editing Data in a Cube View

You can edit data in the TM1 Web Cube Viewer.
- Enter and edit values directly in the leaf cells of a cube view
- Use data spreading to distribute numeric values in a cube view

Editing Data in Cube View Cells

You can edit data in leaf cells, providing you have Write access to those cells.

Leaf cells appear with a white background in the Cube Viewer.

If you are working in a sandbox, you can save the sandbox to store your values across sessions. See the "Writeback and Sandbox" chapter of the IBM Cognos TM1 *User Guide* for more information about working with sandboxes.

Procedure

1. Edit a value in a white cell in one of the following two ways.
   - **Replace the value** - Single-click a value in a white cell. TM1 Web displays the current value in the cell as highlighted, which indicates that the cell is in Edit mode. You can then type directly over the existing value in the cell, replacing it completely.
   - **Edit the value** - Double-click a value in a white cell. TM1 Web displays the current value in the cell with a border, a white background, and a blinking cursor. This indicates that you can selectively edit the existing value by using the left and right arrow keys on your keyboard to position the cursor within the value. You can also use the Backspace and Delete keys to remove single numbers from the value.

2. After entering a new number, press **Enter** or click on another cell.

   Note: When you enter a number into a consolidated cell in the web Cube Viewer, the value is proportionally spread across the consolidation. For example, if you enter **50** into a consolidated cell in the web cube viewer, the value is spread across the consolidation as if you had entered spreading code of 50p. This behavior occurs only in the web Cube Viewer. In Architect/Server Explorer Cube Viewer and in slices from Perspectives and Websheets, you must enter the spreading code to get the value to spread proportionally across the consolidated cells.

   The new number displays in bold and italic, which indicates there is a new value in this cell. You must submit the view to the server for the change you made to persist.

   Important: If you log out of TM1 Web without submitting the new value, the change you made will be lost.

3. Make additional changes, as necessary.

4. Review your data changes.

   If you are working in a sandbox, data changes display in a different color until the changes are committed.

5. Click **Commit** ✔ on the Cube Viewer toolbar to save the changes to the server.

   The Cube Viewer displays the updated values. All values appear in a normal font, indicating that you saved the changes.

Using Data Spreading

You can use data spreading to enter or edit numeric data using a predefined distribution method, called a data spread method.

For example, you can evenly distribute a value across a range of cells, or increment all values in a range of cells by a percentage. For details on data spread methods, see "Using Data Spreading" in the IBM Cognos TM1 *User Guide*.

Procedure

1. To spread data, right-click a cell and click **Data Spread**.
2. From the Spreading menu, select any data spread method.

Note: TM1 Web saves the spread values to the server. You do not need to submit the data after TM1 Web completes the spread.

Quick Data Entry Commands

Typing a data entry command in a cell performs an action on the cell value.

Data entry commands are processed when you press Enter. These commands only apply to the current grid.

These commands are not case-sensitive.

You can use commands across two dimensions, but not across pages.

The following table lists the quick data entry commands.

Command	Description	Action
K	Enters the value in thousands.	Example: 5K Enters 5,000
M	Enters the value in millions.	Example: 10M Enters 10,000,000
Add, +	Adds a number to the cell value.	Example: Add50 Adds 50 from the cell value
Subtract, Sub, ~	Subtracts a number from the cell value. **Important:** A minus sign (-) is not permitted for subtract because this indicates a negative number.	Example: sub8 Subtracts 8 from the cell value
Percent, per	Multiplies the cell value by a number added as a percentage.	Example: per5 Gives 5% of the original cell value
Increase, Inc	Increases the cell value by a number added as a percentage.	
Decrease, Dec	Decreases the cell value by a number added as a percentage.	Example: decrease6 Decreases the cell value by 6%
GR	Grows cells by a percentage.	Example: GR>150:10 Increases the value by 10 percent starting with a value of 150.
Hold, Hol, H, HC	Holds the cell value from breakback calculations. HC holds the consolidated level.	

Command	Description	Action
Release, Rel, RH, RC	Releases held cells.	
RA	Release all held cells.	

Using Shortcuts in Different Clients

There are shortcut keys available in the IBM Cognos TM1 Application Web client.

The following table shows the shortcut keys available in the IBM Cognos TM1 Application Web client and in Cognos TM1 . Note that not all shortcuts available in IBM Cognos Business Intelligence Planning Contributor are also available in Cognos TM1 . See also the notes at the end of the table for important information about using shortcut keys.

Cognos Application Web	Cognos TM1
Add10	P+10
Sub10	P~10
Increase10	P%+10
Decrease10	P%~10
Percent10	P%10
Add10> or >Add10	R+>10
Sub10> or >Sub10	R~>10
Increase10> or >Increase10	P%+>10
Decrease10> or <Decrease10	P%~>10
Percent10> or >Percent10	P%>10
>10	R>10
10>	R>10
>10K	R>10000
>10M	R>10000000
10Grow100Compound>	GR>10:100
10Grow100Linear>	GR>10:100
10Gro100Com>	GR>10:100

Cognos Application Web	Cognos TM1
10Gro100Lin>	GR>10:100
10G100C>	GR>10:100
10G100L>	GR>10:100
10Grow100>	GR>10:100
1K	1000 (The number ending in K is multiplied by 1000 at the client end and returned to the server)
1M	1000000 (The number ending in M is multiplied by 1000000 at the client end and returned to the server)

- When a shortcut such as 10K is entered, the numbers are multiplied by 1000, or 1000000 at the client end and then the shortcut is converted to the equivalent spreadcode.
- The Cognos TM1 spreadcodes cannot be used in combination with Cognos Business Intelligence Planning Contributor shortcuts. For example. P%Add10 or RPAdd10 are not allowed. Also, Cognos Planning Contributor shortcuts cannot be used in combination with Cognos TM1 shortcuts. For example, Add10Sub20 is an invalid entry.
- The Cognos Business Intelligence Planning Contributor shortcuts of Multiply, Divide, Power and Reset are not available in TM1.
- All Grow commands whether Compound or Linear, are converted to the Cognos TM1 GR spreadcode command. GR command can only do a Linear Growth
- The direction of spread can be entered at the start or the end of the shortcut. Shortcut strings with the direction in the middle are invalid. For example, Add10> or >Add10 are correct, but Add>10 or Add1>0 are invalid.
- All shortcut codes are *not* case sensitive. For example, add10, Add10, or aDD10 produce the same result.

Entering Data into Consolidated Cells on the Web Cube Viewer

When you enter a number into a consolidated cell in the web Cube Viewer, the value is proportionally spread across the consolidation.

For example, if you enter **50** into a consolidated cell in the web Cube Viewer, the value is spread across the consolidation as if you had entered the spreading code of 50p. This behavior occurs only in the web Cube Viewer. In the Architect/Server Explorer Cube Viewer and in slices from Perspectives and in Websheets, you must enter the spreading code to get the value to spread proportionally across the consolidated cells.

Excluding Cells from Data Spreading

You can apply a hold to cells to prevent those cells from being affected by data spreading. You can still edit held cells.

The holds apply only to the user initiating the feature; other users can edit held cells.

Apply a hold to a single cell or range

You can apply a hold to a single cell or range.

Procedure

1. Select the cell or range.
2. Right-click the cell or range.
3. Click **Holds**, **Hold Leaves**.

Results

Each held cell displays a red triangle in the lower-left corner as a visual indication that you applied a hold to that cell or range. When you log off, all holds are released.

Release a hold on a single cell or range

You can release a hold on a single cell or range.

Procedure

1. Select the cell or range of cells.
2. Right-click the cell or range.
3. Click **Holds**, **Release Leaf Holds**.

Results

The released cells can accept values from data spreading operations.

Note: To release all holds that you applied to all cubes, right-click any cell in any cube, click **Holds**, **Release All Holds**.

Excluding Consolidations from Data Spreading

You can hold the value of a consolidation constant while adjusting the underlying leaf values. For example, when performing a what-if analysis you might want to hold a value constant while changing the values of the leaves.

When you apply a consolidation hold and change the value of its leaf elements, proportional spreading is applied to the remaining leaf values so that the consolidation value remains unchanged.

Apply a consolidation hold to a single cell or range

You can apply a consolidation hold to a single cell or range.

Procedure

1. Select the cell or range.
2. Right-click the cell or range.
3. Click **Holds**, **Hold Consolidate**.

Results

Each held consolidation displays a red triangle in the lower-left corner of a cell as a visual indication that you applied a hold to that cell or range. When you log off, all holds are released.

Release a consolidation hold on a single cell or range

You can release a consolidation hold on a single cell or range.

Procedure

1. Select the cell or range of cells.
2. Right-click the cell or range.
3. Click **Holds**, **Release Consolidate**.

Results

The consolidated value can now reflect any changes that you make to the underlying leaf values.

Note: To release all holds that you applied to all cubes, right-click any cell in any cube, click **Holds**, **Release All Holds**.

Creating a New Cube View

If the views for a cube do not satisfy your analysis requirements, you can create a new view by using the View Builder Wizard. The wizard takes you through the following steps to create a new view:

- Define the location of dimensions in the view
- Select the elements to be used in the view
- Save the view as a private view on the server to which you are connected

Procedure

1. Click **New View** beneath the cube from which you want to build a view.

   TM1 Web displays the View Builder Wizard with your default view in the Content pane. TM1 Web determines the default view, as follows:

   - If you have a private named default view of the cube, TM1 Web displays it in the View Builder.
   - If you do not have a private named default view of the cube, but a public named default view exists, TM1 Web displays the public view in the View Builder.
   - If you have neither a private named default view nor a public named default view of the cube, TM1 Web displays the system default view in the View Builder. In the system default view, the last dimension in the cube definition is the column dimension, the next-to-last dimension in the cube definition is the row dimension, and all other dimensions are title dimensions.

Dimension location panel   View depiction
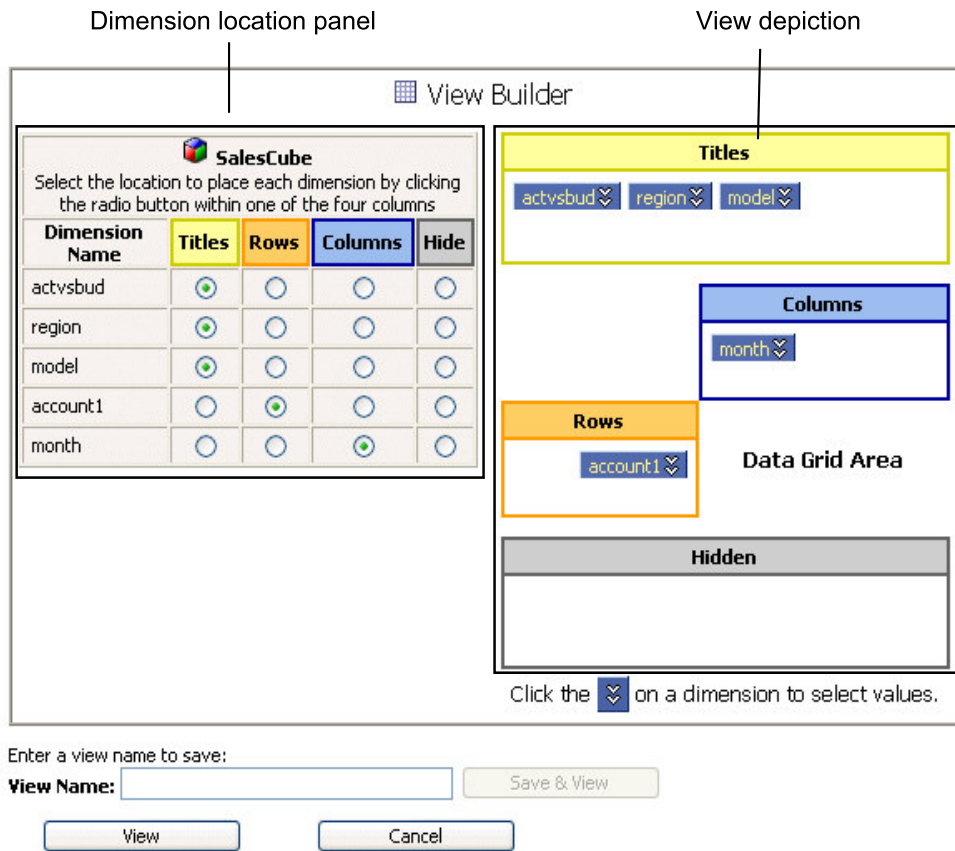
2. Set the location of dimensions in the new view. There are four possible
   dimension locations in a view:

   • **Titles** - Click the button at the intersection of the dimension name and the
     Titles column in the dimension location panel.

   • **Rows** - Click the button at the intersection of the dimension name and the
     Rows column.

   • **Columns** - Click the button at the intersection of the dimension name and
     the Columns column.

   • **Hide** - Click the button at the intersection of the dimension name and the
     Hide column.

As you set dimension locations, TM1 Web inserts the dimensions in the appropriate location in the View Depiction section of the View Builder.

Note: You can place multiple dimensions in any single location in the view. When you place multiple dimensions in a location, TM1 Web places the dimensions in the order you select them.

The following example shows two row dimensions: model was selected first, account1 was selected second.
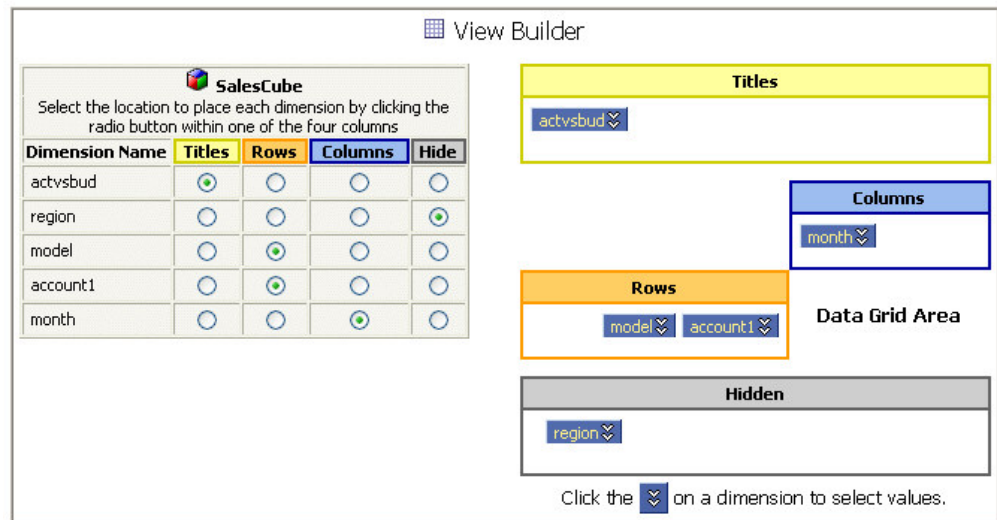
3. For each dimension in the view, click the **Open Subset Editor** button to open the Subset Editor.

4. Click **Subset All** to reveal all elements in the dimension.

5. Select the elements you want to use in the new view.
   - **Title and hidden dimensions** - Select a single element.
   - **Row and column dimensions** - Select any combination of elements.

   To select multiple adjacent elements, click the first element and SHIFT-click the last element. To select multiple non-adjacent elements, CTRL-click each element.

6. Click **OK** to save your element selections and close the Subset Editor.

7. Do one of the following to finish creating a view:
   - To simultaneously save and open the new view, enter a name in the View Name field and click **Save & View**.

     TM1 Web saves the new view as a private view on the server to which you are connected, and enables the Automatic Recalculation and Suppress Zeroes options for the view.
   - To open the new view in TM1 Web without saving the view, click **View**.

     The view opens as an unnamed and unsaved view in TM1 Web . You must click **Save View** to save the view for later access.

8. If you save the view now, you can also set the following options:
   - **Private** - Save the view as either a private or public view.
   - **Default** - Save the view as either the Default view or a named view.

Important: If you do not save the view, TM1 Web discards the view when you close the view or end your TM1 Web session.

Generating a Report from a Cube View

You can generate 'briefing book' - style reports in two ways:

- **Cube Viewer** - Select the title dimension subsets and the number of rows to include in the report.
- **Websheet** - Select the title dimension subsets to include in the report. For details, see Chapter 11, "Working with Websheets," on page 145.

Note: If your installation of TM1 Web is configured to run without Microsoft Excel on the Web server, some limitations may apply when exporting from a Cube Viewer. For details, see "Cube Viewer Export Limitation" on page 175.

Procedure

1. Click **Export** 🖼️ .
2. Select an export format for the report:
   - **Slice to Excel** - Excel documents that retain a link to the server through TM1 functions. When you open the slice and connect to the server with which the slice is associated, the slice displays the current cube values, provided you are running Excel with the Perspectives add-in enabled.
   - **Snapshot to Excel** - Excel documents that contain numeric values reflecting the cube values at the moment the export occurred. Because snapshots do not retain a link to the server, the values are static, representing a snapshot of cube values at the moment of export.
   - **Export to PDF** - PDF documents that display cube values at the moment the export occurred.

   The Export dialog box opens.
3. Select the number of rows to export:
   - **Export rows in current page** - Exports all rows in the current page.
   - **Export rows from beginning to current page** - Exports the first row in the first page through the last row in the current page.
   - **Export all rows in the view** - Exports all rows from all pages.
4. Select the title dimensions that you want to include in the report.
5. Click **OK** to create the report.

   The report sheets are generated and prompts you to either open or save the report.
6. Do one of the following:
   - Click **Open** to open the report in a new browser window.
   - Click **Save** to save the report to disk.

   Note: By default, exporting a slice or snapshot report to Excel displays the report in a web browser window.

   For details on configuring your computer to open reports into the full, stand-alone version of Excel, see the Microsoft support web site.

   Additionally, if you want to use TM1 functionality with a slice that you export to Excel, you must open the slice in the stand-alone version of Excel and have a local version of Perspectives or Client installed on your computer.

Note: If you are experiencing problems exporting Excel or PDF files and you are using a WAN (Wide Area Network) server, you may need to re-configure the security settings in Internet Explorer. For details, see the "Administrating TM1 Web" chapter in the *IBM Cognos TM1 Web Guide*.

Cube Viewer Export Limitation

When Microsoft Excel is not present on the TM1 Web server, and you export a Cube Viewer using either the Slice to Excel or Snapshot to Excel options, any charts present in the Cube Viewer are not exported to the resulting worksheet.

Chapter 13. Working with Charts

This section illustrates how to view a chart in Cognos TM1 Web.

Procedure

1. Open a view.
2. Do one of the following to view a chart:
   - Click **View Chart** to view cube data in chart format only.
     A column chart, the default chart type, is displayed.
   - Click **View Chart and Grid** to view cube data in both chart and grid format.
     A grid is displayed at the top, and a column chart, the default chart type, is displayed at the bottom.
   - Click **View Grid** to view cube data in grid format only.

Changing the Chart Type

You can change the chart type from the Chart Properties menu.

Follow the steps below to change the chart type.

Procedure

1. On the toolbar, click **Chart Properties** > **Chart Type**.
2. Select one of the available chart types, such as **Point**, **Line**, **Column**, or **Pie**.

Drilling from a Chart

If your administrator has defined drill-through processes and rules for cube cells represented in a chart, you can drill through to associated data from the chart.

For details on creating drill-through processes and rules, see the IBM Cognos TM1 *Developer Guide*.

If a chart component is associated with a single source of associated data, the data immediately opens on a new View tab. If the chart component is associated with a multiple sources of associated data, you are prompted to select a single source.

For example, this section illustrates how to execute a drill.

Procedure

1. Click **View Chart** to display the chart.
2. Right-click a column in the chart and click **Drill Through**.
   If the cell is linked with two or more sources of associated data, the Drill dialog box opens, listing the data sources associated with the chart component.
3. Select the source you want to view and click **Select**.

Results

The selected data opens on a new **View** tab.

Chapter 14. Editing Subsets in TM1 Web

This section describes how to use the IBM Cognos TM1 Web Subset Editor to create and manage lists of elements that identify the data you want to analyze.

Subset Editing Overview

The Subset Editor tool lets you define a subset for any dimension to limit the number of elements used in a view.

A dimension can have thousands of elements. It is unlikely, however, that any view will require all elements from all dimensions. In most cases, you should limit the elements used in a view to those that are required for a specific analysis of your data.

For best results, limit the number of elements that appear as title elements. That way, if you view the data over slower Internet connections, your data displays more efficiently.

Subset Editor Types

You can run the Subset Editor in two modes:

Simple - Lets you limit the number of elements in a subset.

Advanced - Lets you perform advanced tasks such as filtering and sorting elements. For details, see "Displaying the Advanced Subset Editor" on page 181.

Dynamic versus Static Subsets

When you open a dynamic subset in TM1 Web, a warning message displays informing you that the dynamic subset will be converted into a static subset: "This Subset was created using an expression. Modifying this subset will delete the expression and convert the subset into a static subset."

After you make changes to the subset, and save the subset, TM1 Web replaces the dynamic subset with a static subset.

To edit a dynamic subset without converting it to a static subset, use the Server Explorer Subset Editor.

Opening the Subset Editor

You can open a Subset Editor from a Websheet or Cube Viewer.

Procedure

1. From a Websheet, click **Open Subset Editor** ⚡ at the far right end of a title dimension.

2. From a Cube Viewer, click **Open Subset Editor** ▼ at the far right end of a subset.

Building a Simple Subset

Use the Subset Editor simple mode to change the elements in a subset, and to view those elements immediately.

Procedure

1. Click **Open Subset Editor** ▼ next to any dimension.

   The simple Subset Editor opens.

   The following buttons are available in the Subset Editor.

Button	Name	Position
	Subset All	Displays all elements in the dimension. The list of all elements in a dimension is known as the All subset.
	Keep Selected Element(s)	Displays only the elements that you select, and removes all other elements from the current subset. However, the removed elements still exist in the dimension.
✕	Delete Selected Element(s)	Removes the elements that you select from the current subset.
🔍	Find in Subset	Enables you to search for elements in the current subset based on the search text that you enter.
Subset: n level accounts ⌄	Subset	Displays a list of subsets, and displays the subset that you select with elements of that subset.

2. In the Subset list, do one of the following:
   - Select a named subset.

   - Click **Subset All** to view all elements in the dimension.

   The elements that are members of the selected subset are displayed.

3. Select one or more elements, and click **Keep Selected Element(s)** .

   The elements that you selected remain in the list, all other elements are removed.

4. Select one or more elements, and click **Delete Selected Element(s)** ✕ to remove elements from the list.

5. To search for elements in the current subset, click **Find in Subset** 🔍 and type your search phrase. For details on using Find in Subset, see "Finding Elements" on page 186.

6. Click **OK**.

Results

Your view is updated to include only the elements that you selected in your subset.

Displaying the Advanced Subset Editor

If you want to perform advanced editing tasks on a subset, you must use the advanced Subset Editor instead of the simple Subset Editor.

Procedure

1. Click **Subset Editor** ▼ next to any dimension.

   The simple Subset Editor opens.
2. Click **Advanced** at the bottom of the simple Subset Editor.

Results

The advanced Subset Editor contains two panes.

- **Available Elements** (left pane) - Displays all the elements that are available to be added to your subset.
- **Subset** (right pane) - Displays only the actual members of the subset. When you save a subset, only the elements in the Subset pane are saved to the subset.

Using the Advanced Subset Editor Toolbar

The editing tasks available in the Advanced Subset Editor are accessed from its toolbar buttons.

The following table describes the Subset Editor toolbar buttons:

Button	Name	Description
🖫	Save Subset	Saves only the elements that appear in the Subset list to the subset.
🖫	Save Subset As	Saves only the elements that appear in the Subset list to the subset with a different name.
⟳	Reload Subset	Reloads the original subset.
⬚	Subset All	Displays all the elements in the parent dimension.
✂ ⧉ ⧉	Cut, Copy and Paste	Cuts, copies, and pastes the selected elements of a subset.
☑	Keep Selected Elements	Keeps elements that you select for the subset.
✕	Delete Selected Elements	Removes elements that you select from the subset.

Button	Name	Description
	Filter Subset	Allows you to select a group of elements in a subset that have related characteristics. You can filter elements in these ways: • Filter by Level • Filter by Attribute • Filter by Expression
	Sort Subset	Lets you sort a subset in several ways: • Sort Ascending • Sort Descending • Sort Hierarchically • Sort by Index Ascending • Sort by Index Descending
	Tree Expand	Expands the tree in several ways: • Drill Down Selected Consolidations - Expands the selected consolidation one level. • Expand Selected Consolidations - Expands the selected consolidation, showing all descendents. • Expand Tree Fully - Expands the entire hierarchy, showing all children of all parents.
	Tree Collapse	Collapses the tree in two ways: • Collapse Selected Consolidations - Collapses the expanded consolidation, hiding all descendents. • Collapse Tree Fully - Collapses the entire hierarchy.
	Insert Parents of Selected Elements	Inserts the parent of the selected element immediately above that element in the hierarchy tree.
	Expand Above	Displays consolidations at the bottom of the list of children, in both the Available Elements and Subset lists. The children of the consolidation expand above the consolidation.
	Create Custom Consolidation	Allows you to build consolidated elements on the fly when working with a view. For details, see "Creating Custom Consolidations" on page 189.
	Find in Subset	Enables you to search for elements in the current subset based on the search text you enter.

Moving Elements

You can move elements from the Available Elements pane to the Subset pane using a drag-and-drop operation.

In this example, if you click Other Revenue in the Available Elements pane, you could drag the element to beneath Sales in the Subset pane.
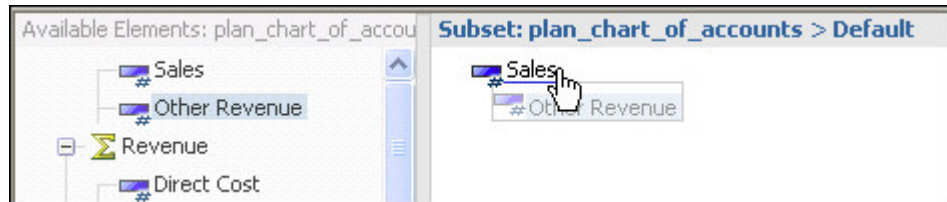
The line beneath the Sales element indicates that the Other Revenue element will appear beneath Sales.

Moving Consolidations

You can move a consolidation from the Available Elements pane to the Subset pane using a drag-and-drop operation.

When you move a consolidated element, the children of the consolidation also move.

For this example, suppose you have a consolidation element named Revenue.

If you select Revenue, and drag it to the Subset pane, a collapsed consolidation is added to the Subset pane.
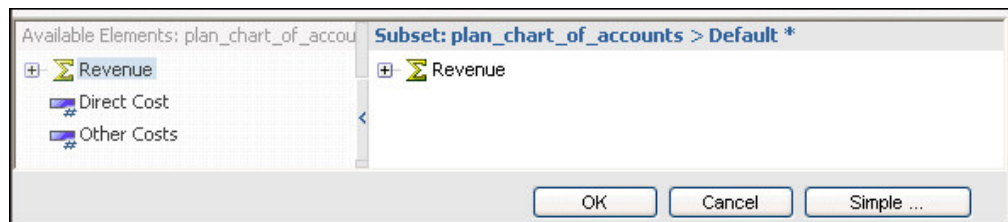
If you expand Revenue in the Available Elements pane, and select the consolidation and its children, you can drag the consolidation to the Subset pane. The expanded consolidation is added to the Subset pane.
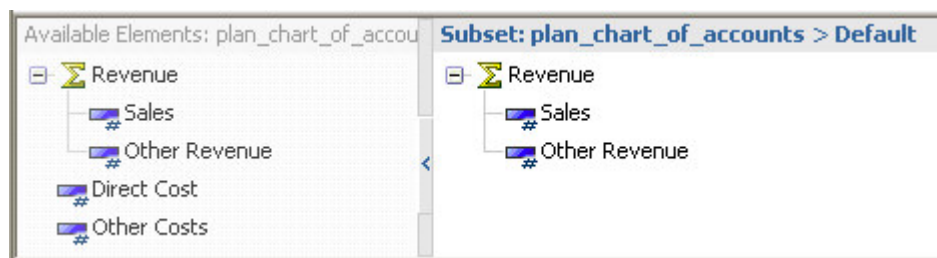
In both of the examples, the Revenue consolidation and its children are added to the Subset list. However, the state of the consolidation in the Subset list reflects the way the consolidation displays. In the first example, Revenue displays as a collapsed consolidation. In the second example, Revenue displays as an expanded consolidation and its children will be visible.

Keeping Elements

You can reduce the list of elements in the Subset pane to only those elements you want to keep in your subset.

In this case all other elements are removed from the subset.

Note: You can reduce the size of the Available Elements list to narrow your search for elements to add to your subset, but this has no effect on the elements in the Subset list.

Procedure
1. Select the elements that you want to keep in the Subset list.

2. Click **Keep Selected Element(s)** .

   Only the elements that you selected to keep remain visible in the Subset list.

3. Click **Save Subset** to save the subset.

Deleting Elements

You can remove selected elements from the Subset pane.

Procedure
1. Select one or more elements in the Subset pane.

2. Click **Delete Selected Element(s)** .

Results

The selected elements are removed from the Subset pane. The removed elements still exist in the dimension.

Note: To display all subset elements that you removed, click **Subset All** .

Filtering Elements

You can filter elements in either the Available Elements pane or Subset pane.

Use these options:
- **Filter by Attribute** - Displays only the elements that match an attribute that you specify.
- **Filter by Level** - Displays only the elements that match a level in the element hierarchy.
- **Filter by Expression** - Displays only the elements that match a pattern.

Filtering by Attribute
The Subset Editor lets you filter elements by attribute value.

Procedure

1. Click **Filter Subset**, 🔽 and click **Filter by Attribute**.
2. In the **Select Attribute** list, select an attribute.
3. In the **Select value to match** list, select a value.
4. Click **OK**.

Results

All subset elements whose selected attribute matches this value remain in the element list. All subset elements whose selected attribute does not match the value are removed from the element list.

Filtering by Level

The Subset Editor lets you filter elements so that only elements belonging to one or more specified hierarchy levels remain.

Consider the following example of a three-level hierarchy.

In this example, you start with the subset shown in the figure, and then eliminate all elements from the subset except those at Level 1.
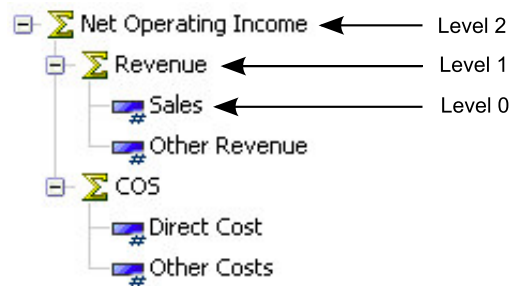
Procedure

1. Click **Filter Subset** 🔽 , and click **Filter by Level**.
2. Click a level in the list, and click **OK**.

   For example, if you filtered by **Level 1**, the following level 1 subset elements remain in the Subset list:
   - Revenue
   - COS

Filtering by Expression

The Subset Editor lets you filter elements so that only elements matching a specified search pattern remain.

For example, suppose you have the following list of elements in either the Available Elements pane or Subset pane.
- Sales
- Other Revenue
- Direct Cost
- Other Costs
- Bank Charges
- Board of Directors

- Employee Relations
- Printing
- Seminars and Continuing Ed.
- Taxes and Licenses
- Office Expense
- Postage
- Rent

Now suppose you want to reduce this list to those elements that contain the word 'cost'.

Procedure

1. Click **Filter Subset** ![filter icon] and click **Filter by Wildcard**.
2. Enter a pattern of alphanumeric characters in the **Enter Expression** box.
   You can use the following two wildcard characters in the **Enter Expression** box.
   - **Question mark (?)** - Placeholder for a single character
   - **Asterisk (*)** - Placeholder for one or more characters
   To isolate all elements whose names contain the string pattern *cost*, type the expression `'cost'` in the dialog box that opens.
3. Click **OK**.

Results

The element list is trimmed to include only those elements that match the pattern.

Subset: plan_chart_of_accounts > n level accounts *
- Direct Cost
- Other Costs
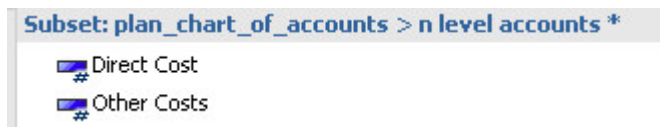
Finding Elements

You can search for elements in either the Available Elements pane or Subset pane by using the Find in Subset toolbar.

This feature performs a simple text search for elements that match a spelling pattern that you enter. This is especially useful when you want to find a specific element within a large list of elements.

Note: The Find in Subset feature does not support wildcard characters, such as the question mark (?) or asterisk (*), in your search text. Instead, an asterisk (*) wildcard character is inserted at the beginning and end of the spelling pattern that you enter so that it searches for any occurrence of the pattern in the element list.

For example, if you enter the spelling pattern ost, this converts to *ost* and matches such as Cost and Boston are found.

Procedure

1. Click **Find in Subset** ![find icon] or press **CTRL+F**.
   The Find in Subset toolbar opens in the Subset Editor.
2. Type a spelling pattern in the search box.

A spelling pattern can include one or more alphanumeric characters, but should not include wildcard characters.

The list of elements is searched as you type a spelling pattern.

- If one or more matching elements are found, the first matching element is located and highlighted in the list.
- If a matching element is not found, the search box temporarily displays a red background.

You can also start your search at any location within the element list by clicking on an element in that section of the list. The search begins from this new start point when you continue your search.

3. Click **Find Next** or **Find Previous** to navigate through the element list when more than one matching element is found.

   You can also use the following keyboard commands to navigate:

   - Press **F3** or press **ENTER** to find the next matching element.
   - Press **SHIFT+F3** or press **SHIFT+ENTER** to find the previous element.

   If a next or previous matching element is not found, the search box temporarily displays a red background, and the search cycles through the list again.

4. Click **Close the Findbar** ✖ to close the **Find in Subset** toolbar.

Sorting Elements

You can sort all elements in either the Available Elements pane or Subset pane.

Procedure

To sort subset elements, click **Sort Subset** and select a sort option.

Sort Option	Sort Order
Sort Ascending	Ascending order from A to Z, 0-9.
Sort Descending	Descending order from Z to A, 9-0.
Sort Hierarchically	All children appear beneath their parents.
Sort by Index Ascending	Dimension index, starting at 1.
Sort by Index Descending	Dimension index, starting at the highest index in the dimension.

Expanding and Collapsing Consolidations

You can expand a consolidation in the Subset Editor to display the immediate children or all descendents of the consolidation.

You can apply the following procedures to elements in either the Available Elements pane or the Subset pane of the Subset Editor.

Expanding a Consolidation

You can expand a consolidation.

Procedure

1. Select the consolidations you want to expand.

2. Click **Tree Expand** .

3. Select one of the following:
   - Click **Drill Down Selected Consolidations** to view the immediate children of a consolidation. The following figure shows the result of drilling down on the Total Business Unit consolidation.

The immediate children of Total Business Unit display when you click Drill Down Selected Consolidation
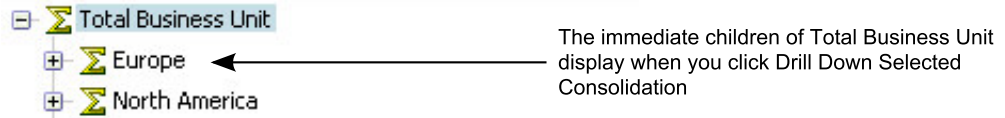
   - Click **Expand Selected Consolidations** to view all descendents of a consolidation. The following figure shows the result of expanding the Total Business Unit consolidation.

   - Click **Expand Tree Fully** to view all descendents of all parents in the dimension hierarchy.

Collapsing a Consolidation

You can collapse expanded consolidations using either a selected consolidation or you can close all expanded consolidations in the subset.

Procedure

1. Select the expanded consolidations you want to collapse.

2. Click **Tree Collapse** .

3. Click **Collapse Selected Consolidations**.

   Note: To close all expanded consolidations in the subset, click **Tree Collapse**, and click **Collapse Tree Fully**.

Inserting Parents

You can insert the immediate parent of a selected element directly above that element in the Subset Editor.

For example, consider the following example showing several leaf elements.
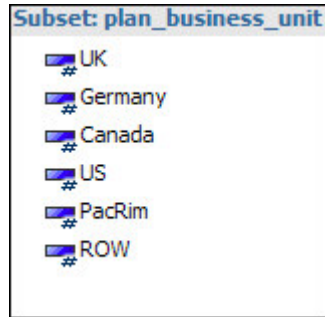
If you select all elements, and click **Insert Parents of Selected Elements** ⬚ , the immediate parents of all selected elements are inserted, as shown in the following example.
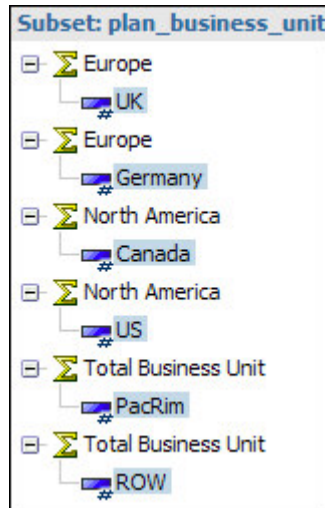
Creating Custom Consolidations

When working with a view, you can create custom consolidations from existing subsets or from selected subset elements.

Creating a Custom Consolidation from an Existing Subset

You can create a custom consolidation by inserting an existing subset into the current subset.

The existing subset then becomes a custom consolidation within the current subset.

Procedure

1. Open the **Subset Editor** for a dimension.
2. In the simple **Subset Editor** window, click **Advanced** to open the advanced **Subset Editor**.
3. Define a subset in the **Subset** pane.
4. Click **Create Custom Consolidation** ⬚ and click **Create Consolidation from Subset**.

5. Select the existing subset that you want to insert into the current subset as a custom consolidation.

   The selected subset is inserted into the current subset as a custom consolidation.

6. If necessary, click **Save Subset** or **Save Subset As** to save the current subset.

7. Click **OK**.

Results

The subset with the new custom consolidation opens.

Creating a Custom Consolidation from Selected Elements

You can create a custom consolidation from selected elements in the Subset Editor.

Procedure

1. Open the **Subset Editor** for a dimension.
2. In the simple **Subset Editor** window, click **Advanced** to open the advanced **Subset Editor**.
3. In the Subset pane, select the elements that you want to include in the custom consolidation.
4. Click **Create Custom Consolidation**, and click **Create Consolidation from Selected Elements**.

   You have now created a custom consolidation that contains the elements that you selected in step 2.

   The custom consolidation the name **}ROLLUP_ #** is assigned, where **#** starts at zero and increases by one for each custom consolidation that you create during a server session.

5. Click **OK** to view the new custom consolidation.

Appendix A. Sample Cubes

This appendix describes the sample cubes included with IBM Cognos TM1 .

The following information is provided for each cube:
- Purpose
- Dimensions that form the cube
- Sampling of elements in the dimensions
- Sampling of consolidations in the dimensions

SalesPriorCube

The SalesPriorCube cube tracks monthly sales of passenger cars throughout Europe and the Americas. Chronologically, the values in this cube are from a year prior to the values in the SalesCube.
- Dimensions and Elements
- Dimension Consolidations

Dimensions and Elements

Five dimensions form SalesPriorCube. The following table contains the list of dimensions and a sampling of their elements. The dimensions are ordered in the sequence found in the cube.

Dimension	Sample Elements
Actvsbud	Actual, Budget
Region	Argentina, Belgium, France, United States
Model	S Series 1.8 L Sedan, S Series 2.0 L Sedan
Account1	Units, Sales, Variable Costs
Month	Jan, Feb, Mar, Apr

Dimension Consolidations

This section provides sample consolidations from each dimension of SalesPriorCube.
- Region Dimension
- Model Dimension
- Account1 Dimension
- Month Dimension

Region Dimension

Consolidated Element	Children
Americas	• North America • South America
Central Europe	• France • Germany

Model Dimension

Consolidated Element	Children
S Series Sedan	S Series 1.8 L Sedan
	S Series 2.0 L Sedan
	S Series 2.5 L Sedan
	S Series 3.0 L Sedan
	S Series 3.4 L Sedan
	S Series 2.5 L Sedan 4WD
	S Series 3.0 L Sedan 4WD
	S Series 3.4 L Sedan 4WD
T Series Coupe	T Series 2.0 L Coupe
	T Series 3.2 L Coupe
	T Series 4.0 L Coupe
	T Series 5.0 L Coupe
Total	S Series
	L Series
	T Series

Account1 Dimension

Consolidated Element	Children
Gross Margin	• Sales • Variable Costs

Month Dimension

Consolidated Element	Children
1Quarter	• Jan • Feb • Mar
Year	• 1 Quarter • 2 Quarter • 3 Quarter • 4 Quarter

PnLCube

PnLCube tracks monthly revenue and expenses for a car manufacturer in the year associated with the values in the SalesCube.

- Dimensions and Elements
- Dimension Consolidations

Dimensions and Elements

Four dimensions form PnLCube. The following table contains the list of dimensions and a sampling of their elements. The dimensions are ordered in the sequence found in the cube.

Dimension	Sample Elements
Actvsbud	Actual, Budget
Region	Argentina, Belgium, France, United States
Account2	Sales, Advertising, Sales Promotions, Dealer Incentive Plan, Plant Overhead, Transportation Costs, General Administration
Month	Jan, Feb, Mar, Apr

Dimension Consolidations

This section provides sample consolidations for the Account2 dimension, a dimension used only in the PnLCube cube.

Account2 Dimension

Consolidated Element	Children
Marketing	Advertising
	Sales Promotions
	Dealer Incentive Plan
Total Expenses	Marketing
	Plant Overhead
	Transportation Costs
	General Administration
Earnings Before Taxes	Gross Margin
	Total Expenses

PriceCube

PriceCube tracks prices of passenger cars throughout Europe and the Americas in the year associated with the SalesCube.

- Dimensions and Elements
- Dimension Consolidations

Dimensions and Elements

Four dimensions form PriceCube. The following table contains the list of dimensions and a sampling of their elements. The dimensions are ordered in the sequence found in the cube.

Dimension	Sample Elements
Actvsbud	Actual, Budget
Region	Argentina, Belgium, France, United States
Model	S Series 1.8 L Sedan, S Series 2.0 L Sedan
Month	Jan, Feb, Mar, Apr

Dimension Consolidations

The dimensions of the PriceCube cube are also used in the SalesPriorCube.

SalesCube

SalesCube tracks monthly sales of passenger cars throughout Europe and the Americas.

- Dimensions and Elements
- Dimension Consolidations

Dimensions and Elements

Five dimensions form SalesCube. The following table contains the list of dimensions and a sampling of their elements. The dimensions are ordered in the sequence found in the cube.

Dimension	Sample Elements
Actvsbud	Actual, Budget
Region	Argentina, Belgium, France, United States
Model	S Series 1.8 L Sedan, S Series 2.0 L Sedan
Account1	Units, Sales, Variable Costs
Month	Jan, Feb, Mar, Apr

Dimension Consolidations

The dimensions of SalesCube are also used in the SalesPriorCube.

SalesByQuarterCube

SalesByQuarterCube tracks quarterly sales of passenger cars throughout Europe and the Americas.

- Dimensions and Elements
- Dimension Consolidations

Dimensions and Elements

Five dimensions form SalesByQuarterCube. The following table contains the list of dimensions and a sampling of their elements. The dimensions are ordered in the sequence found in the cube.

Dimension	Sample Elements
Actvsbud	Actual, Budget
Region	Argentina, Belgium, France, United States
Model	S Series 1.8 L Sedan, S Series 2.0 L Sedan
Account1	Units, Sales, Variable Costs
Quarter	1 Quarter, 2 Quarter, 3 Quarter, 4 Quarter

Dimension Consolidations

All dimensions of SalesByQuarterCube are also used in the SalesPriorCube, with the exception of Quarter.

- Quarter Dimension

Quarter Dimension

Consolidated Element	Children
Quarter	1 Quarter
	2 Quarter
	3 Quarter
	4 Quarter

SalesByQuarterCube-TotalModel

SalesByQuarterCube-TotalModel tracks quarterly sales of the total of all models throughout Europe and the Americas.

- Dimensions and Elements
- Dimension Consolidations

Dimensions and Elements

Four dimensions form SalesByQuarterCube-TotalModel. The following table contains the list of dimensions and a sampling of their elements. The dimensions are ordered in the sequence found in the cube.

Dimension	Sample Elements
Actvsbud	Actual, Budget
Region	Argentina, Belgium, France, United States
Account1	Units, Sales, Variable Costs
Quarter	1 Quarter, 2 Quarter, 3 Quarter, 4 Quarter

Dimension Consolidations

All dimensions of SalesByQuarterCube-TotalModel are also used in the SalesByQuarterCube.

Appendix B. TM1 Display Formats

The Custom setting in the Number Format dialog box allows you to specify many different display formats for data in your IBM Cognos TM1 cube. This appendix lists all display formats supported by TM1 .

Establishing a Custom Format

IBM Cognos TM1 provides a number of formats for numbers, dates, times, and strings that you can set using the Number Format dialog box. You can also build your own custom display formats. Follow these steps to establish a custom display format for an element.

Procedure

1. From the **Server Explorer** menu, expand a cube so that you can see its dimensions.
2. Right-click a dimension, and click **Edit Element Attributes** from the shortcut menu.
3. Click the cell at the intersection of the Format column and the element for which you want to define a display format.

	Format (Text)	wertart1 (Alias)	compte1 (Alias)
Gross Margin%		Gross Margin%	Marge brute%
Price		Price	Price
Units	b:#,##0;(#,##0)ICOIOIY	Menge	Coûts variables
Sales		Umsatz	Unités
Variable Costs		Variable Kosten	Ventes
Gross Margin		DB 1	Marge brute

4. Click the **Format** button.
5. From the Number Format dialog box, click **Custom**.

   The Number Format dialog box displays a field in which you can type your custom format string.
6. Enter a format string in the **Custom Styles** field, as shown in the figure.

   Format strings vary, depending on the type of data you are formatting. The rest of this appendix describes how to construct a format string.
7. Click **OK** on the Number Format dialog box.
8. Click **OK** on the Attributes Editor dialog box.

Character Values

Format expressions for strings have one or two sections separated by a semicolon (;). If you use one section, the format applies to all string data that can occur in the cell. If you use two sections, the first section applies to string data, and the second section applies to null values and zero-length strings. For example:

```
<@@@;"No Value"
```

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This format displays three lower-case characters if the cell contains string data, or the string No Value if the cell contains a null value or a zero-length string.

The following table describes how to construct a format string for a string element:

Format String Character	Description
@	Character placeholder. If the string has a character in the position where the at symbol (@) appears, that character displays. If no character appears in that location, a space displays. **Example:** Suppose a cell contains the following string: The quick brown fox If you apply this format string: @@@@@ Displays: n fox **Note:** Placeholders are populated from right to left unless you enter an exclamation point (!) character in the format string.
&	Character placeholder. If the string has a character in the position where the ampersand symbol (&) appears, that character displays. In this case, a space is considered a character and will be displayed. If no character appears in that location, nothing displays. **Example:** Suppose a cell contains the following string: The quick brown fox If you apply this format string: &&&&& Displays: nfox **Note:** Placeholders are populated from right to left unless you enter an exclamation point (!) character in the format string.
<	Displays all characters in lowercase.

Format String Character	Description
>	Displays all characters in uppercase. **Example:** Suppose a cell contains the following string: The quick brown fox If you apply this format string: >@@@@@ Displays: N FOX
!	Forces placeholders to fill from left to right.

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:

Format String Character	Description
# (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.

Format String Character	Description
	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.

Format String Character	Description
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+ 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.

Format String Character	Description
- + $ ()	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)
\	Displays the next character in the format string. Numeric Value: 100 Format String: \t\o\t\a\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.

Format String Character	Description
:	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.

Format String Character	Description
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
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).
ddddd	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.
dddddd	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.
w	Displays the day of the week as a number. (1 for Sunday through 7 for Saturday).
ww	Displays the weeks of the year as a number (1 - 54)
m	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.
mm	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.
mmm	Displays the month as an abbreviation (Jan - Dec).
mmmm	Displays the month as a full month name (January - December)
q	Displays the quarter of the year as a number (1 - 4).
y	Displays the day of the year as a number (1 - 366).
yy	Displays the year as a two-digit number (00 - 99).
yyy	Displays the year as a four-digit number (0100 - 9999).
h	Displays the hour as a number without leading zeros (0 - 23).

Format String Character	Description
hh	Displays the hour as a number with leading zeros (01 - 23).
n	Displays the minute as a number without leading zeros (0 - 59).
nn	Displays the minute as a number with leading zeros (00 - 59).
s	Displays the second as a number without leading zeros (0 - 59).
ss	Displays the second as a number with leading zeros (00 - 59).
t t t t t	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.
AM/PM	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.
am/pm	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.
A/P	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.
a/p	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.
AMPM	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.

Date Formats for Different Language Settings

In the Cube Viewer, when you enter a date in an n-level cell with no formatting, the date is converted to the Microsoft Excel Julian format. For example, 12/12/2009 displays as 2455178.

The date format used to identify an unformatted date depends on your language setting. The following table lists the format settings used in each supported language:

Language	Date Format
Chinese	yyyy-mm-dd

Language	Date Format
English	mm/dd/yyyy
French	dd/mm/yyyy
German	dd/mm/yyyy
Italian	dd/mm/yyyy
Japanese	yyyy/mm/dd
Spanish	dd/mm/yyyy

Appendix C. TM1 Toolbars

IBM Cognos TM1 Perspectives includes a set of toolbars that are available in Excel. Most of these toolbars allow quick access to frequently used options with a single mouse click. One of the toolbars provides a quick visual indication of your TM1 server connection status.

As with all toolbars, you can enable or disable the display of the TM1 toolbars using View, Toolbars and toggling the relevant toolbar name.

The Standard Toolbar

The Standard toolbar lets you quickly access options that manage your connections to TM1 servers and that control TM1 features in the current worksheet.

The following table identifies and describes all buttons available on the Standard toolbar.

Button	Name	Action
	Connect	Opens the Connect to TM1 server dialog box, from which you can connect to any TM1 server currently available on your network.
	Disconnect	Disconnects your TM1 client from any servers to which you are connected.
	Server Explorer	Opens the Server Explorer.
	Upload New Application File to TM1 server	Uploads the current Excel worksheet to an existing application on the TM1 server .
	Update Existing Application File to TM1 server	Allows you to update an existing application file on the TM1 server with the contents of the current Excel workbook. All content in the existing application file will be overwritten by the contents of the current workbook.
	In-Spreadsheet Browser	Opens the TM1 Get View dialog box, from which you can open a view in the In-Spreadsheet Browser.

Button	Name	Action
	Print Report	Opens the Report Details dialog box, from which you can generate a report based on the current slice.
	Edit Formula	Opens the Edit Formula bar, which lets you insert commonly used functions into the current cell.
	Recalculate	Recalculates the Excel workbook.
	Insert Action Button	Inserts a TM1 Action Button in the active cell and opens the Action Button Properties dialog box, which lets you configure the action to be executed when the button is clicked in the worksheet.
	Help	Opens the Documentation Library.

The Spreading Toolbar

The Spreading toolbar lets you quickly apply and release holds and initiate spreading in the current Excel worksheet.

The following table identifies and describes all buttons available on the Spreading toolbar.

Button	Name	Action
	Hold Consolidate	Applies a consolidation hold to the selected cells in the worksheet.
	Release Consolidate	Releases consolidation holds from the selected cells.
	Hold Leaves	Applies a leaf hold to the selected cells.
	Release Leaf Holds	Releases leaf holds from selected cells.
	Release All Holds	Releases all holds, both consolidation and leaf, in the worksheet.

Button	Name	Action
	Proportional Spread	Opens the Proportional Spread dialog box, from which you can distribute a specified value among selected cells proportional to existing cell values.
	Relative Proportional Spread	Opens the Relative Proportional Spread dialog box, from which you can spread values to the leaves of the selected consolidated cell proportional to the leaves of a reference cell.
	Equal Spread	Opens the Equal Spread dialog box, from which you can distribute a specified value equally across selected cells.
	Equal Spread Leaves	Opens the Equal Spread Leaves dialog box, which lets you distribute a specified value equally across all leaves of the selected consolidated cell.
	Repeat	Opens the Repeat dialog box, which lets you repeat a specified value across all selected cells.
	Repeat Leaves	Opens the Repeat Leaves dialog box, which lets you copy a specified value to the leaves of the selected consolidated cell.
	Percent Change	Opens the Percent Change dialog box, which lets you multiply selected cell values by a specified percentage.
	Relative Percent Adjustment	Opens the Relative Percent Adjustment dialog box, which lets you spread values to the leaves of the selected consolidated cell by applying a percentage adjustment to the leaves of a reference cell.

Button	Name	Action
	Straight Line	Opens the Straight Line dialog box, which populates selected cells by linear interpolation between two specified endpoints.
	Growth %	Opens the Growth % dialog box, which lets you sequentially increment values in selected cells by the specified growth percentage.

The Developer Toolbar

The Developer toolbar lets you quickly create, open or save dimension worksheets or rules worksheets.

The following table identifies and describes all buttons available on the Developer toolbar.

Button	Name	Action
	Dimension Open	Opens the Select Dimension Worksheet dialog box, from which you can open any dimension worksheets available on TM1 servers to which you are connected.
	Dimension New	Opens the Create a Dimension dialog box, from which you can create a dimension worksheet on any TM1 server to which you are connected.
	Dimension Save	Saves and compiles the current dimension worksheet.
	Rule Open	Opens the Select Rule Worksheet dialog box, from which you can open any rule worksheets available on TM1 server servers to which you are connected.
	Rule New	Opens the Select Cube for Rules dialog box, which lets you specify the cube for which you want to create a rule. After you select a cube, a new rule worksheet opens.

Button	Name	Action
	Rule Save	Saves and compiles the current rule worksheet.

The Active Forms Toolbar

The Active Forms toolbar lets you quickly access options that control features in an Active Form.

The following table identifies and describes all buttons available on the Standard toolbar.

Button	Name	Action
	Insert Active Form	Inserts an Active Form at the current cell location.
	Insert Active Form Section	Inserts a dependent section beneath the current Active Form.
	Delete Active Form	Deletes the data area of the current Active Form. The column headings and title elements are **not** deleted when you delete an Active Form.
	Suppress Zero	Suppress zeroes in the rows of the current Active Form.
	Filter	Opens the Filter dialog box, which lets you modify the filter used in an Active Form.
	Edit Subset	Opens the Subset Editor, from which you can edit a row subset in an Active Form.
	Save Row Elements as Static List	Saves the current row elements in an individual Active Form or dependent section as a static list of elements. The connection to the subset used to create the Active Form or dependent section is severed.
	Show Format Area	Reveals the formatting region of an Active Form.

Button	Name	Action
	Hide Format Area	Hides the formatting region of an Active Form.
	Rebuild Current Sheet	Recalculates all values and rebuilds all subsets in the Active Forms contained in the current Excel worksheet.
	Rebuild Current Book	Recalculates all values and rebuilds all subsets in the Active Forms contained in the current Excel workbook.

The Servers Toolbar

The Servers toolbar lets you quickly determine if you are connected to the TM1 server . This is useful when using a worksheet containing a slice or an In-Spreadsheet Browser.

The Servers toolbar displays a small green status indicator when you are connected to the TM1 server . You can hover the mouse pointer over the indicator to view the name of the server.

If you are logged in to more than one TM1 server , the Servers toolbar includes indicators representing each server.

When you are not yet logged in to the TM1 server or you disconnect yourself from a TM1 server , the indicator displays red. This indicates that data in the TM1 slice or In-Spreadsheet Browser could be outdated.

Servers Toolbar Limitations

You should be aware of the following Servers toolbar limitations:

- The toolbar does not accurately report connection status when your TM1 client is disconnected from the server due to an idle connection. Idle connections are managed through the use of the IdleConnectionTimeoutSeconds parameter in the Tm1s.cfg file, which is described in the

  IBM Cognos TM1 Installation and Configuration Guide..

If your client is disconnected from the TM1 server due to an idle connection, the Servers toolbar continues to display a green status indicator.

- The toolbar does not accurately report connection status when your TM1 client is disconnected from the server due to administrator action.
- The toolbar does not accurately report connection status when your TM1 client is disconnected from the server due to network issues.

If problems on your network cause your client to be disconnected from the TM1 server , the Servers toolbar continues to display a green indicator.

- The toolbar does not accurately report connection status when the TM1 server is shut down while your client is connected to the server. In this situation, the Servers toolbar continues to display a green indicator.

The Sandbox Toolbar

The Sandbox toolbar lets you quickly access options that manage your own personal workspaces or sandboxes where you can enter and store data values separate from IBM Cognos TM1 server base data.

You can use the Sandbox drop-down box to switch between working with IBM Cognos TM1 base data and any of your own sandboxes.

The following table identifies and describes all buttons available on the Sandbox toolbar.

Button	Name	Action
	Create Sandbox	Opens the Create Sandbox dialog box, from which you can create a new sandbox that includes the data values from either base data or from an existing sandbox.
	Commit Sandbox	Merges all of the changed data values in the current sandbox to the base data.
	Reset Sandbox	Clears all the changed data values in the current sandbox that you have entered up to that point and resets all the data values to the current values in the base data.
	Delete Sandbox	Opens the Delete Sandbox dialog box, from which you can select a sandbox to delete.

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Glossary

This glossary includes terms and definitions for IBM Cognos TM1.

The following cross-references are used in this glossary:

- See refers you from a term to a preferred synonym, or from an acronym or abbreviation to the defined full form.
- See also refers you to a related or contrasting term.

To view glossaries for other IBM products, go to www.ibm.com/software/globalization/terminology (opens in new window).

A

access control
In computer security, the process of ensuring that users can access only those resources of a computer system for which they are authorized.

administrative client
A program that runs on a file server, workstation, or mainframe that administrators use to control and monitor the server.

alias
An alternative name used instead of a primary name.

application
An object that functions as a virtual folder to organize shortcuts to other objects, external files, and URLs in a logical, job-specific or project grouping.

attribute
A property that provides qualitative information about dimensions.

audit log
A log that maintains the history of all commands that modify metadata or configuration data and significant operations, including commands that would have made a change but failed to do so.

C

cell security
The access control level assigned to a single cell in a cube.

child
A node that is subordinate to another node in a tree structure. Only the root node is not a child.

chore
An object that executes one or more processes at a user-defined frequency.

consolidation
In a data tree, an entry that has one or more children.

control object
Any object used to store system information statistics including system performance.

cube
A multidimensional representation of data needed for online analytical processing, multidimensional reporting, or multidimensional planning applications.

D

data source
The source of data itself, such as a database or XML file, and the connection information necessary for accessing the data.

dimension
A broad grouping of descriptive data about a major aspect of a business, such as products, dates, or locations. Each dimension includes different levels of members in one or more hierarchies and an optional set of calculated members or special categories.

drill down
In a multidimensional representation of data, to access information by starting with a general category and moving

downwards through the hierarchy of information, for example from Years to Quarters to Months.

drill through

A method of examination used to reveal detail or context information about a cell's contents.

E

element

A member of a dimension.

F

feeder statement

A series of lines of code which causes placeholder values to be stored in rules-calculated cells so that the cells are not skipped during calculations.

L

LDAP See Lightweight Directory Access Protocol.

leaf In a tree, an entry or node that has no children.

Lightweight Directory Access Protocol (LDAP)

An open protocol that uses TCP/IP to provide access to directories that support an X.500 model and that does not incur the resource requirements of the more complex X.500 Directory Access Protocol (DAP). For example, LDAP can be used to locate people, organizations, and other resources in an Internet or intranet directory.

M

metadata

Data that describes the characteristics of data; descriptive data.

O

object security

The access level assigned to TM1 objects.

OLAP See online analytical processing.

online analytical processing (OLAP)

The process of collecting data from one or many sources; transforming and analyzing the consolidated data quickly

and interactively; and examining the results across different dimensions of the data by looking for patterns, trends, and exceptions within complex relationships of that data.

P

performance monitor

A set of software tools used to track minute-by-minute statistics on clients, cubes, and servers.

pick list

A list of cell values available to a user when entering data into a cell.

process

An object that contains a user-created script of TurboIntegrator functions and commands to programmatically import data as well as create and modify TM1 objects, such as cubes and dimensions. A process can be run manually or contained in a chore to run at a scheduled time.

R

replication

The process of maintaining a defined set of data in more than one location. Replication involves copying designated changes for one location (a source) to another (a target) and synchronizing the data in both locations.

rule A set of commands and tools used to create specific calculations and optimizations within cubes.

rules tracer

A utility used to develop and debug rules.

S

sandbox

A personal workspace used to store data values as a separate layer of only new values which can be merged back into the base data when adjustments are complete.

service

1. A process that stores data values or a database used by TM1.

2. Work performed by a server. A service can be a simple request for data to be

sent or stored (as with file servers, HTTP servers, or email servers), or it can be more complex work (as with print servers or process servers).

sibling node
One of several nodes within the scope of another node.

slice A view of a cube saved as a standard spreadsheet that retains a bi-directional link to the cube so that changes made in either the cube or in the slice are available in both locations.

spread
To distribute values across a range of cells using a specific algorithm, such as percent or increments.

subset A set of elements within a dimension. Subsets may be named and saved for future use.

synchronization
A bi-directional process of copying data updates and metadata from an original cube to its replicated versions, and from replicated versions of the cube back to the original cube.

W

websheet
A Microsoft Excel worksheet that is accessed through TM1 Web.

Z

zero suppression
The ability in a cube view to turn off the display of rows or columns that contain only zero values so those rows or columns do not display.

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Special characters

A

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