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IBM® Cognos® Business Viewpoint Studio provides you with the ability to model, maintain, govern, and share your dimensions and hierarchies.

For example, large enterprises may need to work with an assortment of lists and hierarchies based on their products dimension. Functions such as sales, marketing, and finance require different perspectives and alternate hierarchies. This leads to isolated custom definitions within groups that makes it difficult to gain a consistent view of products across the organization. By using Business Viewpoint Studio, you can create one dimension for products that can be used in different ways while still maintaining consistency across the entire dimension.

This document includes the procedures, examples, notes, tips, and other background information to help you manage your master dimensions.

**Audience**
This document is intended to help business users such as analysts and managers use Business Viewpoint Studio.

**Finding information**
To find IBM® Cognos® product documentation on the Web, including all translated documentation, access one of the IBM Cognos Information Centers at [http://publib.boulder.ibm.com/infocenter/cogic/v1r0m0/index.jsp](http://publib.boulder.ibm.com/infocenter/cogic/v1r0m0/index.jsp). Updates to Release Notes are published directly to Information Centers.

You can also read PDF versions of the product release notes and installation guides directly from IBM Cognos product disks.

**Accessibility features**
Accessibility features help users who have a physical disability, such as restricted mobility or limited vision, to use information technology products. Business Viewpoint Studio has accessibility features. For information on these features, see "Accessibility Features" (p. 167).

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

**Samples disclaimer**
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**Reviewing the Release Notes before you use Business Viewpoint Studio**

Before you use Business Viewpoint Studio, it is important to be aware of all issues that may affect
you. There may be late-breaking issues that were not known when this guide was created.

late-breaking information about known issues as well as documentation updates and deprecation
notices.
Chapter 1: What’s new?

This section contains a list of new, changed, and removed features for this release. It also includes a cumulative list of similar information for previous releases. It will help you plan your upgrade and application deployment strategies and the training requirements for your users.

To locate the most current product documentation, go to the IBM® Cognos® Business Intelligence and Performance Management Information Center at http://publib.boulder.ibm.com/infocenter/cogic/v1r0m0/index.jsp and then click the link for either Business Intelligence or Financial Performance Management. In the Search box, type business viewpoint.

New features in 10.1.0

Listed below are new features since the last release of IBM® Cognos® Business Viewpoint. Links to directly-related topics are included.

Accessibility features

IBM® Cognos® Business Viewpoint Studio now includes accessibility features to help users who have a physical disability, such as restricted mobility or limited vision, to use the product.

You can now use the keyboard to perform most tasks in Business Viewpoint Studio.

In addition, the documentation now includes alternate text for all graphics so that screen readers can interpret graphics.

For more information, see "Accessibility Features" (p. 167).

Dimension templates

You can use a dimension template on your system as a starting point for additional, similar dimensions. You can also share the structure, and optionally the members, of a dimension with users on another system.

A dimension template includes the objects of the dimension such as lists, hierarchies, relationship tables, and sets. Attributes, validation rules, and the default values for attributes are all included in the dimension template. You can also include the members of the dimension.

For example, you created a dimension for one product line and want to use its structure for a different product line.

You can do the following when working with dimension templates:

- Create a template that is a copy of a dimension.
- Use the template to create dimensions more quickly.
- Export the template in a password-protected file to share with other users.
- Import templates that other users send you.
Chapter 1: What's new?

For more information, see "Dimension templates" (p. 29).

Moving data

In IBM® Cognos® Business Viewpoint, you can now move fact data into IBM Cognos TM1® from a number of external data applications including other IBM Cognos TM1 servers. This capability enables you to easily bring in information that is critical to being able to more fully define your business view for planning and analysis. For example, you need to share data between your revenue plan and income statement, or between regional and consolidated applications.

To move fact data between source and target data stores, you create a link. The link captures dimension and member mappings as well as filters on unpaired dimensions to drive how the fact data is moved. To help ensure data quality, links can automatically leverage dimension and member mappings that are included as a part of approved master dimensions. Additionally, you can create the mappings when you create the link. Members can be mapped based on name or substring.

You can work with a visual representation of data links and their relationships using a new business view diagram. The business view diagram shows how data links are coordinated between various data sources. You can see how data flows between parts of a solution or between parts of different processes.

For example, a business view diagram can help you to understand how expenses are stored in separate applications for the United States, Canada, and Europe, and then consolidated into one application.

To help verify your data link, you can preview data before and after you run it. Previewing enhances your understanding of the details of the data. For example, you can preview the data to see the magnitude of the values, or whether a value is positive or negative. After running a link, you can preview the data again to ensure that the data movement completed successfully.

For more information, see "Moving fact data" (p. 111).

Copying a dimension

You can create a copy of a dimension. A copy contains both the structure and members of the original dimension.

For more information, see "Copying a dimension" (p. 32).

Setting an initial default value

You can specify a default value that is displayed for all new members. You can specify this value when you create the attribute or you can edit an attribute to add a default value.

For more information, see "Setting an initial default value" (p. 78).

Calculated attributes

You can now create calculated attributes in IBM® Cognos® Business Viewpoint Studio. Calculated attributes are calculations that combine operators, functions, attributes, and values (such as text strings and numbers) into an expression that evaluates to a single value.

For more information, see "Calculations" (p. 98).
**Changed features in 10.1.0**

Listed below are changes to features since the last release of IBM® Cognos® Business Viewpoint. Links to directly-related topics are included.

**Enhanced validation rules**

Validation rules are expressions that put one or more constraints on the values that an attribute can have.

New values that are entered for members are evaluated against the validation rule. Existing values are also evaluated and are highlighted as errors or warnings if they do not follow the rule.

The following enhancements have been made to validation rules:

- You can apply validation rules to the **Name** and **Description** attributes.
- You can now use picklist and lookup attributes in validation rules.
- You can find out if a multiple-select picklist attribute or multiple-select lookup attribute contains a specific value or set of values by using **Contains**.
- You can test if an attribute value is unique among all values for all members in the selected dimension or list by using **IsUnique**.
- You can specify that an attribute is required by using **Not** in combination with **ISBLANK**.

For more information, see "Validation rules" (p. 82).

**Changes to hierarchies**

The following enhancements have been made to hierarchies:

- You can more easily view the children and descendants of a member in a dynamic hierarchy in the grid. You can also view the hierarchy in a hierarchical structure in the grid.
- You can build dynamic hierarchies from a picklist attribute, a lookup attribute, or a calculation that returns a picklist value or a lookup value.
- In addition to cross-referenced lookup attributes, you can now use relationship tables to define the relationships between members. Relationship tables help you create complex hierarchies. Relationship tables are used to define many-to-many relationships between lists in the same dimension. The relationships are used when you create dynamic hierarchies. Use a relationship table in the following situations: when the relationship allows many-to-many associations between the members, or when you want to create and test alternate hierarchies before deciding which one to use.

For more information, see "Exploring hierarchies" (p. 66) and "Creating a dynamic hierarchy" (p. 48).

**Systems folder**

You now use the **Systems** folder to specify a new system.
Chapter 1: What’s new?

For more information, see "Specifying the system" (p. 16).

Deleted members in the Change Management tab

When you delete a member, the member appears in the Change Management tab. If you are a reviewer, modeler, or administrator, you can reject the deletion of a member.

For more information, see "Restoring a deleted member" (p. 136).

Removed features in 10.1.0

Listed below are features that have been removed since the last release of IBM® Cognos® Business Viewpoint. Links to directly-related topics are included.

Migration tab

The Migration tab has been removed from the Administration dialog box. To migrate data from an earlier version of Business Viewpoint, use the Backup and Restore tab.

For more information, see "Upgrading data from an earlier version of Business Viewpoint" (p. 24).

What’s new in Business Viewpoint 8.4.1

Listed below are new features since the last release of IBM® Cognos® Business Viewpoint. Links to directly-related topics are included.

New Features in 8.4.1

Listed below are new and changed features since the last release of IBM® Cognos® Business Viewpoint. Links to directly-related topics are included.

- Administrators can back up the data that is in Business Viewpoint and then migrate the data to a different environment or to a new version of Business Viewpoint Studio. For more information, see "Backing up and restoring data" (p. 22).

- You can now import users. For more information, see "Managing Business Viewpoint Studio users" (p. 19).

- You can include a set in a workflow task. For more information, see "Setting up a workflow" (p. 132).

- You can add comments to objects. For more information, see "Adding comments to an object" (p. 32).

- You can copy or move attributes. You can also copy data in a cell to another cell. This feature was added in Business Viewpoint version 8.4 Fix Pack 1. For more information, see "Adding data" (p. 142).
Changed Features in 8.4.1

Listed below are changes to features since the last release of IBM® Cognos® Business Viewpoint. Links to directly-related topics are included.

- After creating a dynamic hierarchy, you can now edit it by adding members directly to the hierarchy or by moving members within the hierarchy. For more information, see "Creating a dynamic hierarchy" (p. 48).

- Filtering has been improved. For more information, see "Filtering" (p. 140).

- The manager role is now called the modeler role. For more information, see "Managing Business Viewpoint Studio users" (p. 19).

- You can now specify whether users can create, modify, and delete objects by selecting the View Advanced Security Rules check box in the Permissions tab. This feature was added in Business Viewpoint version 8.4 Fix Pack 1. For more information, see "Defining permissions" (p. 125).

- You can view which object that the Everyone user has access to. For more information, see "Viewing objects available to the Everyone user" (p. 128).
Chapter 1: What's new?
Chapter 2: Administration

There are a number of tasks that the IBM® Cognos® Business Viewpoint Studio administrator must perform at the beginning of a project. The administrator might also need to perform some of these tasks on a regular basis.

These administrative tasks include:

- Changing the credentials for the "admin" user. For more information, see "Changing the "admin" user" (p. 15).

- Specifying the system that users are authenticated against. For more information, see "Specifying the system" (p. 16).

- Creating and managing Business Viewpoint users and external users. For more information, see "Managing users" (p. 18).

- Migrating data to a different environment or to a new version of Business Viewpoint. For more information, see "Backing up and restoring data" (p. 22).

Changing the "admin" user

After installing IBM® Cognos® Business Viewpoint Studio, the first user to start the studio, normally the administrator, enters "admin" for both the user name and the password. The user "admin" is the only Business Viewpoint Studio user that does not require an association with an account from an IBM Cognos namespace. After logging in this first time, change the credentials for this user. Anonymous access is not supported.

Steps

1. Expand the Users pane.

2. Right-click admin, and then click Properties.

3. To change the user name for the admin user, do the following:
   - Next to the Security Identity box, click Edit.
   - In the Administrator Name box, type a new user name.
   - In the Administrator Password box, confirm your identity by typing the current password, admin.
   - Click OK.

4. To change the password for the admin user, do the following:
   - Click Change Password.
   - Type the old password, admin, and then type a new password.
Chapter 2: Administration

- Type the new password again, and then click OK.

5. Optionally, in the Name box, change the name of the admin user to match the new user name.
6. Click OK.

If you changed both the user name and password, you are prompted to log in again.

Specifying the system

As administrator, you set the system that users are authenticated against. You then define users.

Note: https and single signon connections are not supported as System URLs.

Steps
1. Right-click the Systems folder, and click New System.
   You can also use the New menu.
2. Type a name and a description for the system.
3. In the System Type box, select a type.

<table>
<thead>
<tr>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cognos</td>
<td>Select when you want to do one or more of the following:</td>
</tr>
<tr>
<td></td>
<td>- Import or publish IBM® Cognos® packages.</td>
</tr>
<tr>
<td></td>
<td>- Import Business Viewpoint users from namespaces that are defined in a Cognos system.</td>
</tr>
<tr>
<td></td>
<td>- Specify external permissions for the security identities from the namespaces defined in the Cognos system.</td>
</tr>
<tr>
<td>TestSystem</td>
<td>Select for testing or demonstration purposes.</td>
</tr>
<tr>
<td></td>
<td>- You cannot publish or import data.</td>
</tr>
</tbody>
</table>

IBM Cognos Business Viewpoint Studio
<table>
<thead>
<tr>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAM or Cognos Access Manager</td>
<td>Select when you want to use the version of CAM that is included on the Business Viewpoint installation CD and you are not leveraging IBM Cognos security. You can add Business Viewpoint users from the CAM system. You cannot set external permissions from the security identities of a CAM system. You cannot import IBM Cognos packages and you cannot publish IBM Cognos packages. For more information about adding the CAM option to Business Viewpoint Studio, see the IBM Cognos Business Viewpoint Server Installation and Configuration Guide.</td>
</tr>
<tr>
<td>TM1</td>
<td>Select when you want to use an IBM® Cognos® TM1® server. Specify the host and server.</td>
</tr>
</tbody>
</table>

4. If you selected the Cognos type, do the following:

   - Click Create IBM Cognos Data Source to create the BusinessViewpoint data source that is required.
   - In the System URL box, type the URL for the system that you are using as the authentication provider.
     
     **Note:** The URL is case-sensitive.

     Ensure that you select the correct URL. For example, if you are going to submit long running requests, such as imports, then you must choose the Dispatcher, ApacheMod, or ISAPI gateway, otherwise the request will time out.

     Example URLs
     
     Gateway = http://<your_server>/<your_IBM_cognos_alias>/cgi-bin/cognos.cgi
     
     Gateway with ISAPI (preferred for large imports)
     
     http://<your_server>/<your_IBM_cognos_alias>/cgi-bin/cognosisapi.dll
     
     Gateway with ApacheMod 2.0 (preferred for large imports)
     
     http://<your_server>/<your_IBM_cognos_alias>/cgi-bin/mod2_cognos.dll (Microsoft® Windows® operating system)
     
     http://<your_server>/<your_IBM_cognos_alias>/cgi-bin/mod2_cognos.so (UNIX® or Linux® operating systems)
     
     Dispatcher (preferred for large imports)
http://<your_server>:<dispatcher_port_number>/p2pd/servlet/dispatch

- To verify that the URL is correct, click the Test button.

5. If you selected the TM1 type, do the following:
   - In the System Host box, type where the IBM® Cognos® TM1® system is installed.
   - In the System Server box, type the name of the IBM® Cognos® TM1® service that you want to work with. The service must be running.

   Note: The System Host and System Server boxes are case-sensitive.

6. To change the owner, click Change Owner, then select a different user, and click OK.

7. To specify additional systems, repeat these steps.
   - To remove a system, select it and click Remove.

8. Click OK.

If you created a system for IBM® Cognos® TM1® or IBM Cognos, and you plan to use this system for moving data, you must register the data store. For more information, see "Registering the data store" (p. 112).

Managing users

To use IBM® Cognos® Business Viewpoint Studio, users must log in using an account from an IBM Cognos namespace that is associated with a Business Viewpoint Studio user identity.

The minimum required credentials are a user name and password. To define a system, or IBM Cognos instance, see "Specifying the system" (p. 16).

Users are created for authentication and authorization purposes.

Business Viewpoint Studio supports two types of users:

- Business Viewpoint Studio users

  Business Viewpoint Studio users are created by the administrator and assigned Business Viewpoint Roles. These users must be associated with a security identity from an IBM Cognos namespace for authentication purposes. Business Viewpoint Studio users can be associated with more than one IBM Cognos security identity; however, each user must have only one security identity for each defined system.

  You must create users in Business Viewpoint Studio before modelers can grant them access to objects and assign tasks.

  After Business Viewpoint Studio users are created, and these users are associated with a security identity from an IBM Cognos namespace or CAM (Cognos Access Manager) namespace, they can log in. All users must be associated with only one security identity for all systems.

  Only administrators and modelers can create, edit, or delete Business Viewpoint Studio users and assign roles. The modeler cannot assign the administrator role to another user.

- External users
Use external users to assign security on external objects referenced in Business Viewpoint. For example, you can assign external user security to a dimension in Business Viewpoint Studio, subscribe to the dimension in Transformer, and use the external user definition to assign security in the Transformer model.

Permissions for external users are assigned to objects by the administrator or Business Viewpoint Studio object owner. External users might not be users of Business Viewpoint and have no Business Viewpoint Roles.

External users are selected from the defined systems; they can be users, groups, or roles from the IBM Cognos namespace.

Only administrators or the Business Viewpoint Studio object owner for which the external users are defined can create, edit, or delete the external users, and define external security permissions.

For information about defining permissions for external users, see "Defining permissions" (p. 125).

When a user is granted access to a high-level object, the user has access to all lower-level objects contained within it. For example, if a Business Viewpoint Studio user is given access to the Employees dimension which contains several hierarchies about employees, the user has access to these hierarchies and the dimension.

Managing Business Viewpoint Studio users

When you define Business Viewpoint Studio users, you must map each user to an individual user that is defined in an IBM Cognos namespace or CAM (Cognos Access Manager) namespace. Each user entry uniquely identifies a human or a computer account. All users must be associated with only one security identity for all systems.

You can import users or you can create them manually.

Users defined in IBM Cognos can become members of groups or roles, for example Employees, Managers, or Sales Personnel. Members of groups can be both users and other groups. Group and role membership are part of the user’s basic identity. When users log in, they cannot select a group or role they want to use for a session. Therefore, when Business Viewpoint Studio users log in to IBM Cognos, they always log in with all the permissions associated with the groups or roles to which they belong.

Steps

1. In the Users pane, right-click the Users folder and do one of the following:
Import users

Click **Import Users**.

If several systems were defined, select a system that contains the Business Viewpoint Studio users that you want to use.

If the system contains several namespaces, select a namespace, and click **OK**.

Select a user name for each user that you are importing. The user name is the user ID from IBM Cognos or from Cognos Access Manager.

Click **OK**.

The name, user name, and email address are imported.

Right-click a user that you imported and click **Properties**.

By default, the user name is displayed as the name of the user in the **Users** pane. You can change the name.

Create users manually

Click **New User**.

Type the name for the new user.

The name is a label displayed in Business Viewpoint.

Click **Browse** to find and select a user name for the new user. The user name is the user ID from IBM Cognos.

Click **OK**.

2. Click **Application Roles** and select one or more roles for this user.

For example, if you want a user to be able to model data in Business Viewpoint Studio and nominate dimensions in Business Viewpoint Client, you specify that the user has both the Modeler and Nominator roles.

**Note:** By default, all new users are all defined as consumers.

- **Administrator**

  In Business Viewpoint Studio, the administrator has full access to all capabilities and can create, read, and update objects, can set permissions for any object, and can create users and assign roles. The administrator is the only user who can set permissions for objects that are owned by other users.

  In Business Viewpoint Client, the administrator can nominate, subscribe to public and private versions, update to Business Viewpoint Studio, and update the component.

  In Business Viewpoint for Microsoft® Excel, the administrator can import data from Business Viewpoint to Microsoft Excel, work offline in Microsoft Excel, and upload data to Business Viewpoint Studio.
Modeler
In Business Viewpoint Studio, the modeler can create, read, and update objects, can set permissions for any object that the modeler owns, and can create users and assign roles. The modeler cannot assign the Administrator role to a user. The modeler does not require a workflow task in order to work with objects.

In Business Viewpoint Client, the modeler can nominate, subscribe to public and private versions, update to Business Viewpoint Studio, and update the component.

In Business Viewpoint for Microsoft Excel, the modeler can import data from Business Viewpoint to Microsoft Excel, work offline in Microsoft Excel, and upload the data to Business Viewpoint Studio.

Reviewer
In Business Viewpoint Studio, the reviewer can work only with objects that are included in their tasks. The reviewer can create, read, and update content in their review task, can review and then approve or reject nominated data.

In Business Viewpoint Client, the reviewer cannot nominate, subscribe, update to Business Viewpoint Studio, or update the component.

In Business Viewpoint for Microsoft Excel, the reviewer can work only with objects that are included in their tasks. The reviewer can import content in their review task in Business Viewpoint to Microsoft Excel, work offline in Microsoft Excel, and upload that task to Business Viewpoint Studio.

Nominator
In Business Viewpoint Studio, the nominator can work only with objects that are included in their tasks. The nominator can create, read, and update content in their nomination task.

In Business Viewpoint Client, the nominator can nominate and update to Business Viewpoint Studio. The nominator cannot subscribe or update the component.

In Business Viewpoint for Microsoft Excel, the nominator can work only with objects that are included in their tasks. The nominator can import content in their nomination task from Business Viewpoint to Microsoft Excel, work offline in Microsoft Excel, and upload data to Business Viewpoint Studio.

Consumer
In Business Viewpoint Studio, the consumer cannot log in.

In Business Viewpoint Client, the consumer can subscribe and update the component. The consumer cannot nominate or update to Business Viewpoint Studio.

In Business Viewpoint for Microsoft Excel, the consumer cannot log in.

When a user is the owner of a Business Viewpoint Studio object, the user has full permissions for that object.

3. To specify the access permissions granted to other Business Viewpoint Studio users for this user object, on the Permissions tab, click Add, select the users to add, and then click OK.
4. Specify the permissions for each user you added.
   For more information about specifying permissions, see "Defining permissions" (p. 125).

5. To see the objects that a user has access to, click **Objects Secured**.
   To remove permissions to the object for the users, select the check box next to each object and click **Remove**. To remove permissions for all objects, click **Remove All**.
   Note that attributes are not displayed on the **Objects Secured** tab.

6. Click **OK**.

**Administration dialog box**

In the **Administration** dialog box, you can do the following:

- Migrate data to a different environment or to a new version of IBM® Cognos® Business Viewpoint Studio. For more information, see "Backing up and restoring data" (p. 22).

- Create and work with dimension templates. For more information, see "Dimension templates" (p. 29).

**Backing up and restoring data**

To migrate data to a different environment or to a new version of IBM® Cognos® Business Viewpoint Studio, administrators can back up the data that is in Business Viewpoint and then restore the data in the different environment or new version.

Some examples are:

- Migrating data from a test environment to a production environment.

- Migrating data from one database platform to a different database platform.

  For example, if you want to move an Oracle repository to IBM DB2®, you back up the data for the Oracle database and restore it using a DB2 database.

- Migrating data from an earlier version of Business Viewpoint to the latest version.

When backing up and restoring data, do the following to ensure that no one uses Business Viewpoint during the backup and restore:

- Stop the Business Viewpoint service.

- Change the port number to a value that no one will know about or use.

- Restart the service.

- Back up or restore the data.

  After restoring the data, you are required to log off. Log in again to verify that your data was restored as expected.
Stop the Business Viewpoint service and change the port number back to the value that was used previously.

- Restart the Business Viewpoint service.

Alternatively, if your users access Business Viewpoint Studio through a gateway, shut down the gateway before backing up or restoring data.

## Backing up the data

Administrators can back up the data that is in Business Viewpoint. For example, you can back up data in a test environment and restore it in a production environment.

You cannot select which data is backed up. All data in the Business Viewpoint repository is backed up.

You cannot schedule when to back up data.

### Steps

1. Click **Tools > Administration**.
2. Click the **Backup and Restore** tab.
3. Click **New Backup**.
4. Type a name for the backup file and create a password so that the file is encrypted.
5. To remove a backup file, click the check box next to the backup file and click **Remove Backup**.
6. Click **OK**.

The backup file is created in the Migration folder of the Business Viewpoint 10.1 installation.

## Restoring the data

Administrators can restore the data that they backed up. For example, you can back up data in a test environment and restore it in a production environment.

When you restore data, the contents of the backup file replace all objects in the current Business Viewpoint repository. For example, if you created a Customer dimension in the repository that is not part of the backup file, when you restore the backup file, the Customer dimension is removed along with all other contents.

You cannot schedule when to restore a backup file.

### Steps

1. Click **Tools > Administration**.
2. Click the **Backup and Restore** tab.
3. Select the backup file to restore and click **Restore Backup**.
   
   The backup file is in the Migration folder of the Business Viewpoint 10.1 installation.
4. Enter the password.
Upgrading data from an earlier version of Business Viewpoint

Administrators can move data from an earlier version of Business Viewpoint to the latest version. You must have both versions of Business Viewpoint installed to upgrade data. If you previously published IBM Cognos Business Viewpoint information as IBM Cognos packages, you must republish the packages in the new version of Business Viewpoint.

When migrating data, ensure that no one uses Business Viewpoint during the migration.

Steps

1. In Business Viewpoint Studio 8.4.1, create a backup file by doing the following:
   - Click **Tools > Administration**.
   - Click the **Backup and Restore** tab.
   - Click **New Backup** and type a name for the backup file and create a password so that the file is encrypted.
   - Click **OK**.

2. Exit from Business Viewpoint Studio and stop the Business Viewpoint 8.4.1 service.

3. Install Business Viewpoint 10.1, ensuring that you create a new database during the configuration steps.
   - To ensure that no one uses Business Viewpoint during the migration, change the port number for Business Viewpoint to a value that no one will know about or use.

4. Copy the backup file that you created in step 1 to the Migration folder of the Business Viewpoint 10.1 installation.

5. In Business Viewpoint Studio 10.1, restore the backup file by doing the following:
   - Click **Tools > Administration**.
   - Click the **Backup and Restore** tab.
   - Select the backup file to restore and click **Restore Backup**.
   - Enter the password.

6. Stop the Business Viewpoint service and change the port number back to the value that was used previously.

7. Restart the Business Viewpoint service.
Chapter 3: Modeling dimensions

After identifying the business domain that you are going to manage, you model the dimension to reflect the requirements you gathered in "Planning the project" (p. 25).

To model the dimension, do the following:

- Create the dimension. For more information, see "Dimensions" (p. 27).
- Import lists to use as the basis of dynamic hierarchies. For more information, see "Importing lists" (p. 33) and "Creating a dynamic hierarchy" (p. 48).
- Import or create static hierarchies. For more information, see "Importing hierarchies" (p. 51) and "Creating a static hierarchy" (p. 65).
- Create levels. For more information, see "Levels" (p. 69).
- Work with attributes. For more information, see "Attributes" (p. 73).
- Create validation rules that put one or more constraints on the values that an attribute can have. For more information, see "Validation rules" (p. 82).
- Create calculations. For more information, see "Calculations" (p. 98).
- Create sets of data. For more information, see "Sets" (p. 107).

After modeling the dimension, you can involve others in collaborating on the content of the dimension while you maintain control over what is changed.

Business users nominate data for their assigned areas. You reconcile any differences that are submitted by different nominators. You then send the reconciled dimension to reviewers to approve.

After the dimension has been reviewed and approved, the dimension is made available for other users and applications.

Before you begin

Before working with master dimensions in IBM® Cognos® Business Viewpoint Studio, you begin by doing the following:

- Planning the project. For more information, see "Planning the project" (p. 25).
- Logging in. For more information, see "Logging in" (p. 27).

Planning the project

Before you begin working with master dimensions in Business Viewpoint Studio, you must first gather some information.

You should know the following:

- What you want to manage.
Chapter 3: Modeling dimensions

For your first project, start with identifying one domain, such as employees, that can serve as the pilot before rolling out master dimensions across the enterprise.

To increase the value added by using master dimensions, you might want to start with the dimension that causes the most difficulty or challenge; for example, the Products dimension for a retailer or the Client dimension for a law firm.

- **The stakeholders and their roles.**
  
  Involve these stakeholders early in the project. Discuss who is responsible for each aspect of a dimension. As well, establish a reconciliation process for disagreement.

- **Who or what consumes the master dimension.**
  
  For example, IBM Cognos report authors or an IBM Cognos Planning application might use the master dimension.

- **Where the data is located.**

- **The state of the data.**
  
  You might want to modify the data before importing it into Business Viewpoint Studio. For example, General Ledger has three fields for Number, Department, and Location. You might want to combine some of these into one field. You can use only one item as the unique identifier, or key.

  If you want to modify the data before importing it, you can modify the Microsoft® Excel spreadsheet, or you can modify the data in IBM Cognos and publish a package to use in Business Viewpoint, or you can create a staging area in the database where you modify the data.

  Ensure that numbers are formatted correctly in Microsoft Excel spreadsheet before importing. For example, if numbers display without decimals, format the column to have no decimal places.

- **Which data needs to be updated and how often.**
  
  For example, the Chart of Accounts is updated monthly in IBM Cognos Planning so you will import it monthly into Business Viewpoint Studio.

  For a dimension that is updated regularly, consider the following:
  
  - Will the data be managed completely in Business Viewpoint Studio?
  
  - What changes must you make in the external system to avoid making the same changes each time you update the dimension from the source?
  
  - What changes can you make in Business Viewpoint Studio that will immediately apply to the dimension when you import it?

  If important values change for master dimensions in an external system, you can update Business Viewpoint Studio without reloading all data from the external system. For example, if the Standard Price changes for the Product dimension, you want to update only the Standard Price. You might need to remap members.
Logging in

You must log in to Business Viewpoint Studio using a security identity from an IBM Cognos namespace that is associated with your Business Viewpoint Studio identity. The minimum required credentials are a user name and password.

You must provide login credentials when logging on to Business Viewpoint Studio, as well as when importing an IBM Cognos package or publishing a Business Viewpoint Studio publication to IBM Cognos if you are using an IBM Cognos namespace that is different than the one you are currently authenticated against.

Anonymous access is not supported.

Steps

1. If applicable, select a system that contains the Business Viewpoint Studio users that you want to use.
   
   The System box displays only if the administrator has defined more than one system, or IBM Cognos, instance.

2. If the system contains several namespaces, select a namespace.

3. Enter your user name and password.
   
   This is the user ID and password for the associated security identity from the IBM Cognos namespace. For example, if your name as a Business Viewpoint Studio user is "Andrea Samuel", and your associated system login name is "SamuelA" with password "SamAnd456", log in using "SamuelA" with the password "SamAnd456".

4. If you have pending tasks, select a task or click Cancel to start Business Viewpoint Studio without starting a specific task.

You can now work in Business Viewpoint Studio.

Dimensions

A dimension is a container that holds data organized into hierarchies. It is a broad grouping of descriptive data about a major aspect of a business, such as products, customers, or locations. Each dimension includes members in one or more hierarchies. Distinct lists of members can be used as levels in one or more hierarchies.

Dimensions can be conformed. A conformed dimension has a single definition that is reused or shared across multiple data subject areas. Physically, these subject areas can include multiple cubes or multiple relational star schemas. Conformed dimensions provide a useful design approach for dimensions that are widely used throughout the enterprise, for example product or time. This is because common definitions for common dimensions allow data from different subject areas to be meaningfully compared.

To work with dimensions, you can do the following:

- Create a dimension. For more information, see "Creating a dimension" (p. 28).
Creating a dimension

A dimension is a container that holds data organized into hierarchies. It is a broad grouping of descriptive data about a major aspect of a business, such as products, customers, or locations. Each dimension includes members in one or more hierarchies. Distinct lists of members can be used as levels in one or more hierarchies.

To simplify the reconciliation phase that is done later, minimize the chance of overlap between dimensions by breaking large dimensions into smaller pieces. For example, an Employees dimension for a large enterprise can be divided into regions and departments. When nominators add employees, they will add employees for a specific department instead of adding names to a long list.

Steps

1. Right-click the Dimensions folder and click New Dimension.

2. To create an empty dimension, click Create an empty dimension, and click OK.
   You can also import lists, import hierarchies, or use a template. For more information, see "Importing lists" (p. 33), "Importing hierarchies" (p. 51), or "Using a template to create a dimension" (p. 30).

3. Type a name for the new dimension. You can also add a description.

4. Click Apply to save the dimension.

5. Choose the action you want.

<table>
<thead>
<tr>
<th>Goal</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Create static hierarchies for the dimension</td>
<td>Click Associations and click Create New. For more information, see &quot;Changing associations for hierarchies&quot; (p. 150).</td>
</tr>
<tr>
<td>Delete hierarchies</td>
<td>Click Associations. Select the check box next to the hierarchy and click Remove.</td>
</tr>
</tbody>
</table>
### Dimension templates

You can use a dimension template on your system as a starting point for additional, similar dimensions. You can also share the structure, and optionally the members, of a dimension with users on another system.

A dimension template includes the objects of the dimension such as lists, hierarchies, relationship tables, and sets. Attributes, validation rules, and the default values for attributes are all included in the dimension template. You can also include the members of the dimension.

For example, you created a dimension for one product line and want to use its structure for a different product line.

You can do the following when working with dimension templates:

- Create a template that is a copy of a dimension.
- Use the template to create dimensions more quickly.
- Export the template in a password-protected file to share with other users.
- Import templates that other users send you.

### Creating a template

You can create a template to use on the system you are currently using or on another system.

For example, you created a dimension for one product line and want to use its structure for a different product line. The structure of the lists, hierarchies, and sets will be included in the template. You can optionally include the members in the dimension.

When you create a template, Business Viewpoint creates a copy of all attributes in the dimension. If you edit the attributes in the original dimension, the attributes in the template are not affected. Similarly, if you choose to include members in a template, Business Viewpoint creates a copy of the members in the dimension. If you edit the members in the original dimension, the members in the template are not affected.

### Steps

1. Click **Tools > Administration**, and click **Dimension Templates**.
Note: You can also right-click a dimension and then click Save as Template.

2. Click Create.

3. Type a name for the template. You can also add a description.

4. Select a dimension to base the template on.

5. Specify whether the template should contain the structure only or the structure and its members.

6. If you created versions of the dimension, select the one that you want to use in the template. For more information, see "Version control" (p. 129).

7. Click OK, and click Close.

Using a template to create a dimension

You can use a template to create a dimension.

For example, you want to use a dimension template about one product line to create a different product line. The structure of the lists, hierarchies, and sets are included in the template. Optionally, the members in the dimension can also be included in the template.

When you use a template to create a dimension, Business Viewpoint creates a copy of all attributes and members in the dimension. If you create multiple dimensions based on the same template, Business Viewpoint creates a separate copy of all attributes and members for each dimension.

Steps

1. Right-click the Dimensions folder and click New Dimension.

2. To create a dimension based on a template, click Use a template, and click OK.

3. Type a name for the new dimension.

4. Select a template to use.

5. Click OK.

Editing a template

You can edit the name or description of a template that you or another user created.

For example, you want to update the name of an existing dimension template or update its description to better describe its contents to other users.

You can also edit the structure of a template by doing the following:

- Create a dimension that uses the template.
- Edit the structure of the dimension you created.
- Create a new template based on the edited dimension.
• Optionally, delete the old template.

**Steps**
1. Click **Tools > Administration**, and click **Dimension Templates**.
2. Select the template to edit.
3. Click **Edit**.
4. Edit the name or description or both for the template.
5. Click **OK**, and click **Close**.

**Deleting a template**

You can delete a template that you or another user created.

For example, you want to remove a dimension template from the server because it is no longer required by users.

**Steps**
1. Click **Tools > Administration**, and click **Dimension Templates**.
2. Select the template to be removed.
3. Click **Delete**.
4. Click **Close**.

**Importing a template**

You can import a template file that a user created on another system.

For example, a user on another system sent you a zip file that contains a dimension template. You can import the template and use it on your system.

**Steps**
1. Click **Tools > Administration**, and click **Dimension Templates**.
2. Click **Import**.
3. Enter the file name or click **Browse** to locate the file.
4. If required, enter the password for the template file.
5. Click **OK**, and click **Close**.

**Exporting a template**

You can export a template file for users to use on another system.
For example, you can share an existing template with users on another system by exporting the template to a zip file, which others will import on their system.

**Steps**
1. Click **Tools > Administration**, and click **Dimension Templates**.
2. Select the template to be exported.
3. Click **Export**.
4. Enter a file name for the zip file.
5. Optionally, enter a password for your template file, and then confirm your password by re-entering it.
6. Click **OK**, and click **Close**.

**Copying a dimension**
You can create a copy of a dimension. The copy contains both the structure and members of the original dimension. The copied dimension uses new internal IDs for all its objects.

**Steps**
1. Right-click the dimension you want to copy and click **Copy**.
2. Type a name for the copy. You can also add a description.
3. If you created versions of the dimension, select the one that you want to use in the copy.
   For more information, see "Version control" (p. 129).
4. Click **OK**.

**Adding comments to an object**
You can add comments to any object including dimensions, lists, hierarchies, levels, members, sets, tasks in a workflow, and publications. You can view comments made by others.

You cannot delete comments.

**Steps**
1. Right-click the object and click **Comments**.
2. Type a comment and click **Add**.
   You can add as many comments as you wish.
3. Click **OK**.

You can view the comments by right-clicking the object and clicking **Comments**.
Exploring dimensions

You can explore dimensions with the Dimension Dashboard where you see lists of workflows, publications, versions, and statistics for each dimension. The dashboard gives you an overview of what makes up your dimension and how it is being used.

You can work with the objects that display in the Dimension Dashboard. You can also view the attributes for a dimension, hierarchy, or level in the Attributes pane.

Steps
1. Click a dimension in the Content pane.
2. Look at the Dimension Dashboard on the right to view detailed information about the dimension.
   - By default, the statistics are not displayed initially; you can refresh the statistics at any time.
3. To work with a workflow, see "Workflows" (p. 132).
4. To work with a publication, see "Making dimensions available" (p. 161).
5. To work with a version, see "Version control" (p. 129).

Lists

Lists are self-contained collections of members. They are most often used to create dynamic hierarchies or lookup attributes. Changes that you make to the list are reflected automatically in the dynamic hierarchies and in the lookup attributes. Changes that you make to the dynamic hierarchies are reflected automatically in the lists with the exception of attributes. If you create an attribute in a dynamic hierarchy, the attribute displays only in the dynamic hierarchy.

To work with lists, you can do the following:

- Import lists to use as the basis for dynamic hierarchies, lookup attributes, or picklist attributes. For more information, see "Importing lists" (p. 33). For an example, see "Example - Importing multiple lists for a dynamic hierarchy" (p. 39).
- Import new data if the source changes or if you need to add data from a different source. For more information, see "Importing more data into an existing list" (p. 42).
- Create lists manually. For more information, see "Creating a list manually" (p. 45).
- Add comments to a list. For more information, see "Adding comments to an object" (p. 32).
- View the keys for each list, hierarchy, or member. For more information, see "Viewing the keys" (p. 46).

Importing lists

Lists are self-contained collections of members. They are most often used to create dynamic hierarchies or lookup attributes. Changes that you make to the list are reflected automatically in the dynamic hierarchies and in the lookup attributes. Changes that you make to the dynamic hierarchies
are reflected automatically in the lists with the exception of attributes. If you create an attribute in a dynamic hierarchy, the attribute displays only in the dynamic hierarchy.

Another way to add data to IBM® Cognos® Business Viewpoint is to use Business Viewpoint Client to nominate data. For more information, see the Business Viewpoint Client User Guide.

Consider the following before importing data:

<table>
<thead>
<tr>
<th>Type of File</th>
<th>Considerations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Microsoft® Excel spreadsheet</td>
<td>Calculated values are imported as nulls. If the spreadsheet contains calculated values, save the spreadsheet as a csv file and import the csv file.</td>
</tr>
<tr>
<td></td>
<td>If the spreadsheet contains dates, save the spreadsheet as a csv file and import the csv file. You can also ensure that the dates are formatted correctly in the Microsoft Excel spreadsheet before importing.</td>
</tr>
<tr>
<td></td>
<td>Ensure that numbers are formatted correctly in Microsoft Excel spreadsheet before importing. For example, if numbers display without decimals, format the column to have no decimal places.</td>
</tr>
<tr>
<td>IBM Cognos package</td>
<td>Business Viewpoint supports simple models from IBM Cognos Framework Manager. Business Viewpoint does not support model-based parameters, multiple data sources, or multiple login connections in a package. For more information, see the IBM Cognos Framework Manager User Guide.</td>
</tr>
</tbody>
</table>

Before importing data, ensure that you have gathered the information you need about the project. For more information, see "Planning the project" (p. 25).

Steps
1. To create a new dimension and import one or more lists into the new dimension, do the following:
   - Right-click the Dimensions folder and click New Dimension.
   - Click Import lists into the new dimension, and click OK.

   You can also import a list into an existing dimension by right-clicking the dimension and clicking Import Lists.

2. Select the type of source to import and click Next.

3. Select the source to import and click Next.

   If you are importing a csv file (delimited-field text with column titles), before clicking Next, click Processing Parameters and set one or more of the following parameters:
   - The delimiter can be any character. The most common delimiters are comma, space, and tab. To specify the tab character, type \t.
The qualifier surrounds the entire text string and indicates that characters within the string using the same character as the delimiter are not treated as delimiters.

The encoding is any valid encoding type, such as ASCII, UTF-8, and UTF-16. The default is UTF-16.

Complete the following steps for each list in the source that you want to import into this dimension.

4. In the Define the mapping page, do one of the following in the Dimension Data box:

<table>
<thead>
<tr>
<th>Goal</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manually create the list</td>
<td>Click New List and name the list. With the new list selected, select an item in the Source box and click Map. The item is added to the Attributes box as the Name attribute. You can also drag an item to the Name attribute.</td>
</tr>
</tbody>
</table>

Build the list based on a source item

<table>
<thead>
<tr>
<th>Goal</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Select an item in the Source box and click Add. As well as being added to the Dimension Data box as the name of the list, the item is added to the Attributes box as the Name attribute. You can change the item used as the Name attribute without affecting the Dimension Data box. For example, you want to use the department cost center code as the name of the list and you want to use employee name as the Name attribute.</td>
</tr>
</tbody>
</table>

5. Select additional items in the Source box and click Map.

**Tip:** You can change the order of attributes after importing.

6. By default, the Name attribute is used to uniquely identify members in the source. Optionally, use a different attribute for the key or use a different type of key.

Consider the following definitions before changing the type of key used to uniquely identify members:

<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Business attribute</td>
<td>An attribute of an object in Business Viewpoint that has meaning to a business user.</td>
</tr>
</tbody>
</table>
### Definition

<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Identifier</td>
<td>The identifier is a business attribute that is used as both the Source Key and the Find By Key.</td>
</tr>
<tr>
<td>Key Table</td>
<td>The key table holds values that uniquely identify members in external systems, both sources and targets. It is used during reconciliation to ensure that the external system and Business Viewpoint are interacting with the same member in lieu of ongoing changes to that member. The key table also provides the lineage for a member.</td>
</tr>
<tr>
<td>Surrogate Key</td>
<td>An identifier for a member specific to an external system that has no business meaning. It is used exclusively for internal and external reconciliation. Surrogate keys exist only in the key table and are displayed only in the Key Management tab of the grid. After a surrogate key is brought into Business Viewpoint Studio, its value can only be changed through Business Viewpoint Client. It cannot be modified in the Import wizard.</td>
</tr>
</tbody>
</table>

If you want to use a different type of key, click the button next to the attribute and select one of the following types:

<table>
<thead>
<tr>
<th>Type of key</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Identifier</td>
<td>The identifier is a business attribute that is used as both the Source Key and the Find By Key.</td>
</tr>
<tr>
<td></td>
<td>The identifier will display in the grid and the Key Management tab.</td>
</tr>
<tr>
<td>Find By Key</td>
<td>The attribute is used only as an identifier.</td>
</tr>
<tr>
<td></td>
<td>Only one item can be the Find By Key.</td>
</tr>
<tr>
<td>Source Key</td>
<td>The attribute is used only as a surrogate key.</td>
</tr>
<tr>
<td></td>
<td>The Source Key will display only in the Key Management tab.</td>
</tr>
</tbody>
</table>

7. If the source does not contain the attributes you need, do one or more of the following:
Goal | Action
---|---
Create a new attribute when the source does not contain the attributes you need | Click **New**. Name the new attribute. Type a value in the **Source** box under **Attributes**.
Use a different name for the source attribute | Click **New**. Name the new attribute. Map the source attribute to the attribute you created.
Add attributes from another object in Business Viewpoint, such as standard attributes | Click **Add Existing**. Select the attributes you need and click **OK**. Map a source attribute to each attribute you added.

8. If the default attribute type is not correct, change it by clicking the button to the left of the name. You cannot change the attribute type later. You cannot change the type for the system attributes such as **Name** and **Description**.

<table>
<thead>
<tr>
<th>Attribute Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alias</td>
<td>Adds data that can be used as an alternate name for an object, such as a name in another language.</td>
</tr>
<tr>
<td>Text</td>
<td>Displays data as text even when numbers are entered.</td>
</tr>
<tr>
<td>Integer</td>
<td>Displays data as an integer.</td>
</tr>
<tr>
<td>Decimal</td>
<td>Displays data as a number that has decimals.</td>
</tr>
<tr>
<td>Date</td>
<td>Displays data as dates.</td>
</tr>
<tr>
<td>Picklist</td>
<td>Adds a list of values that display in a drop-down list and specifies that a picklist attribute can contain only one value. You control the contents of the list.</td>
</tr>
<tr>
<td>Multi-select Picklist</td>
<td>Adds a list of values that display in a drop-down list and specifies that a picklist attribute can contain multiple values. You control the contents of the list.</td>
</tr>
</tbody>
</table>
**Attribute Type** | **Description**  
--- | ---  
Lookup | Adds a drop-down list that looks up values from a list in an existing dimension or from the list you are importing.  
To set an attribute as Lookup and define the lookup relationship, from the Define the mapping page, select the attribute, click the button to the left of the attribute, and click **Lookup**. From the Select Data page, select the attribute identifier to which you want to look up. Select the relationship from the drop-down (many-to-many, or many-to-one), or if you want to create a cross-reference between lists in the lookup attribute, select **Cross-Reference**. Click **OK**.  
Ensure that you correctly select which list contains the "one" member.  
The type of relationship you choose will influence the dynamic hierarchies that are based on these lists.  
If many members in one list relates to one instance of members in the other list, select **many-to-one**. If many members in one list relate to many members in the other list, select **many-to-many**.  
To use a different item, right-click the lookup attribute and click **Edit Lookup Source**.

9. If you want to create an expression for an existing attribute or an attribute you create during import, see "Creating an expression during import" (p. 39).

10. After adding all the source items that you need, click **Next**.  
If you already imported or created a list and are now importing another list into the same dimension that has a relationship to the first list, you need to define the relationship between the lists. The relationships are used when you create dynamic hierarchies. For more information, see "Example - Importing multiple lists for a dynamic hierarchy" (p. 39).

11. To reuse the import mapping the next time you import data into this dimension, select the **Save import mapping** check box and, optionally, type a name and description for the mapping. Click **Next**.  
In the **Preview result** page, you see the member attributes to be created for the list. You also see which member is defined as the key.

12. Optionally, select the **Create versions of the affected dimensions before importing data** check box.

13. Click **Finish** to start the import and see a summary of objects that will be created. Then click **Close**.
You can now create hierarchies that dynamically reflect the content of the list. Create a version first. For more information, see "Creating a dynamic hierarchy" (p. 48) and "Creating a version" (p. 129).

To verify the import, check the statistics for the dimension. Click the dimension in the Content pane and look at the Dimension Dashboard on the right to view detailed information about the dimension. Click Refresh to display the latest statistics about the dimension.

Tip: Attributes that you added during import appear with a red asterisk (*). After importing, you can view and approve them in the Change Management tab. Approved members appear with a green check mark.

Creating an expression during import

When you import a list or hierarchy, you can create an expression for an attribute that concatenates two or more source items into one attribute. For example, the source contains a department code and an employee number. You want to combine them in one attribute.

Steps

1. Start importing a list or a hierarchy.
   For more information, see "Importing lists" (p. 33) or "Importing hierarchies" (p. 51).

2. In the Define the mapping page of the Import wizard, click the pencil button for the attribute.

3. To combine several source items into one attribute, do the following:
   - Click Insert a source item and select the item to add.
   - Click Insert a template and click Concatenate.
   - Click Insert a source item and select the item to add.
   For example, to combine the department code and employee number items from the source, the expression looks like this: [Department Code]+[Employee Number]

4. Click OK.

5. To delete the expression, right-click the attribute and click Clear Value.

6. Complete the remaining steps to import the list or hierarchy.

Example - Importing multiple lists for a dynamic hierarchy

You want to import multiple lists that contain different aspects of the Products dimension, including product line, product type, product brand, and product name. These lists are Microsoft® Excel spreadsheets. In this example, you will learn how to import each data source as a list in a dimension named Products, and then define relationships between the members in the lists. You will then create a level-based hierarchy called Products by Line.
Chapter 3: Modeling dimensions

**Note:** When you create your own hierarchies outside of this example, you must know your data well to understand your results.

**Steps to import multiple lists**

1. To create an empty dimension to import the lists into, do the following:
   - Right-click the **Dimensions** folder and click **New Dimension**.
   - Click **Create an empty dimension**, and click **OK**.
   - Name the dimension **Products**, and click **OK**.

2. Right-click the Products dimension and click **Import Lists** to start the **Import** wizard.

3. Select **Microsoft Excel worksheet** and click **Next**.

4. Select the file to import. Browse to where the Samples folder was installed (for example C:\Program Files\IBM\Cognos\BusinessViewpoint\samples), double-click bv_prod_line.xls, and then click **Next**.

5. To build the structure of the first list, select **PRODUCT_LINE_EN** and click **Add**. **PRODUCT_LINE_EN** is added to the **Dimension Data** box.

6. To add the product line code as an attribute in the list, select **PRODUCT_LINE_CODE** and click **Map**. **PRODUCT_LINE_CODE** is added to the **Attributes** box.

7. To identify that **PRODUCT_LINE_CODE** uniquely identifies the members in this list, under **Attributes**, click the button next to **PRODUCT_LINE_CODE** and click **Identifier**. Click **Next**.

8. To reuse the import mapping later, select the **Save import mapping** check box, and click **Next**. You can optionally rename the mapping and add a description.

9. Click **Finish** and then click **Close**.

10. Import the following lists into the Products dimension:

<table>
<thead>
<tr>
<th>Sample list</th>
<th>Add to the Dimension Data box</th>
<th>Add to the Attributes box</th>
</tr>
</thead>
<tbody>
<tr>
<td>bv_prod_type.xls</td>
<td>PRODUCT_TYPE_EN</td>
<td>PRODUCT_TYPE_CODE and define it as the identifier</td>
</tr>
<tr>
<td>bv_prod_brand.xls</td>
<td>PRODUCT_BRAND_EN</td>
<td>PRODUCT_BRAND_CODE and define it as the identifier</td>
</tr>
<tr>
<td>bv_prod_name.xls</td>
<td>PRODUCT_EN</td>
<td>PRODUCT_NUMBER and define it as the identifier</td>
</tr>
</tbody>
</table>

When you are prompted to create or reuse a mapping, click **Create a new mapping**.
We have now imported four lists, but they are not connected. To connect them, you will import a fifth spreadsheet called bv_prod.xls, that contains all the codes, and create relationships between the lists.

**Steps to connect the lists**

1. Right-click the **Products** dimension and import the bv_prod.xls list.

2. When prompted, click **Create a new mapping** and click **Next**.

3. To connect bv_prod to Product Line, do the following:
   - In the **Dimension Data** box, select the PRODUCT_LINE_EN list.
   - In the **Source** box, click PRODUCT_LINE_CODE and click **Map**.

4. To connect bv_prod to Product Type, do the following:
   - In the **Dimension Data** box, select the PRODUCT_TYPE_EN list.
   - In the **Source** box, click PRODUCT_TYPE_CODE and click **Map**.

5. To connect bv_prod to Product Brand, do the following:
   - In the **Dimension Data** box, select the PRODUCT_BRAND_EN list.
   - In the **Source** box, click PRODUCT_BRAND_CODE and click **Map**.

6. To connect bv_prod to Product, do the following:
   - In the **Dimension Data** box, select the PRODUCT_EN list.
   - In the **Source** box, click PRODUCT_NUMBER and click **Map**.

7. Click **Next**.

   You will now define how these lists are connected. The relationships are used when you create dynamic hierarchies. You can use relationship tables or cross-reference attributes.

   Because you want to create one hierarchy that displays brands by type and another hierarchy that displays types by brand, you need many-to-many relationships between the members. Relationship tables are used to define many-to-many relationships.

8. Click **Use relationship tables** and then click **Next**.

9. To define a relationship table, select the check boxes for all the mappable lists and click **Add Relationship Table**. Then click **Next**.

10. To reuse the import mapping later, select the **Save import mapping** check box, and click **Next**.

    You can preview the import results.

11. Click **Finish**.

12. Because you will not be working with versions in this example, click **OK** to import the data without creating a new version.
13. After the relationship table has been created, click Close.

14. To explore how the lists are connected, click the relationship you created.

**Steps to create a dynamic hierarchy**

1. Right-click the Hierarchies folder and click New Dynamic Hierarchy. Name it Products by Line and click Next.

2. Select Level-based hierarchy and click Next.
   
   You see the four lists you imported under Source. The first list you choose will be the first level of the hierarchy.

3. Click PRODUCT_LINE_EN and click New Level.

4. Repeat this step for PRODUCT_TYPE_EN and PRODUCT_EN. Click Next.

5. Review the paths that Business Viewpoint will use between the levels, and click Next.
   
   Because we created one relationship table, there is one path to resolve the relationship from PRODUCT_LINE_EN to PRODUCT_TYPE_EN and one path from PRODUCT_TYPE_EN to PRODUCT_LINE_EN.

6. Because you do not need to specify root members for this example, click Next two times.
   
   In the summary, you see that one hierarchy was created with three levels.

7. Click Finish.

8. To view the hierarchy, expand Products by Line.
   
   You can see your levels (PRODUCT_LINE_EN, PRODUCT_TYPE_EN, and PRODUCT_EN).

9. Click Products by Line and click the Diagram tab to visualize the relationship between members and levels. You can expand each level to display the data in each list.

   You can now create different level-based hierarchies. For example, to create a hierarchy for Products by Brand, repeat the steps above but select PRODUCT_BRAND_EN as the first level, and then add PRODUCT_EN.

   You can also choose to add a combination of the PRODUCT_BRAND_EN, PRODUCT_LINE_EN, and PRODUCT_TYPE_EN lists in a different order for other dynamic hierarchies to see the data structured in a different way.

**Importing more data into an existing list**

You imported a list into a dimension. You now find that the source has changed and you need to re-import it. Or you might have discovered that you need to import additional data from another source.

If you saved the mapping when you imported data earlier, you can reuse this mapping when you re-import into the same dimension.

When you re-import data, Business Viewpoint uses the keys for the source data, as displayed in the Key Management tab, to reconcile the members being imported. But, if a different file is used, or
a file is renamed, then all members are treated as if you are importing from a new data source. The values stored in the **Key Management** tab are not used to reconcile the members being imported.

For example, if User1 imports the file `Products.csv`, and then imports another file with the same name, Business Viewpoint uses the values stored in the **Key Management** tab during the first import to reconcile the members during the second import. But, if User1 then imports a file named `New-Products.csv`, Business Viewpoint assumes that this is a new data source and does not use the values stored in the **Key Management** tab to reconcile members.

**Steps**

1. Right-click the list that you want to update, and click **Import Child Members**.

2. Select the type of source to import and click **Next**. Then select the source to import and click **Next**.

   You see a list of mappings that you saved previously. These mappings define how to map the source objects to attributes in the hierarchy.

   You see only the mappings that apply for the type of source you selected. For example, you previously saved mappings for csv files, Microsoft® Excel spreadsheets, and IBM® Cognos® packages. When you re-import a csv file, you will see only the mappings that were saved for csv files. You cannot use a mapping from an IBM Cognos package for a csv file.

   If you want to see all mappings that are available for the selected list, hierarchy, or dimension, select the **Show all import sources** check box.

3. Do one of the following:

<table>
<thead>
<tr>
<th>Goal</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reuse how you mapped source objects to attributes in the list without making changes to the mapping</td>
<td>Click <strong>Reuse a mapping</strong>. Select the mapping to use. Click <strong>Finish</strong>.</td>
</tr>
<tr>
<td>Change how you mapped source objects previously</td>
<td>Click <strong>Reuse a mapping</strong>, Select the mapping to use. Click <strong>Next</strong>, and then complete the remaining steps.</td>
</tr>
<tr>
<td>Add attributes from a different source than the one you imported previously</td>
<td>Click <strong>Create a new mapping</strong>. Click <strong>Next</strong>, and then complete the remaining steps.</td>
</tr>
</tbody>
</table>

4. In the **Dimension Data** box, select the list to update.

5. In the **Source** box, select the new attributes and drag them to the **Attributes** box.
If the default attribute type is not correct, change it by clicking the button to the left of the name.

If the source does not contain the attributes you need, create new attributes.

If the source contains the attribute you need but you want a different name for the attribute, create an attribute and then drag the source item into it.

6. If you want to create an expression for an existing attribute or an attribute you create during import, see "Creating an expression during import" (p. 39).

7. Click Next.

8. If you already imported or created a list and are now importing another list into the same dimension that has a relationship to the first list, define the relationship between the lists.

   The relationships are used when you create dynamic hierarchies. For more information, see "Importing lists" (p. 33) and "Example - Importing multiple lists for a dynamic hierarchy" (p. 39).

9. Click Next.

10. To reuse the import mapping later, select the Save import mapping check box, and click Next.

    You can preview the import results.

    You see the member attributes to be created for the list. You also see which member is defined as the key.

11. To specify how attributes will be added, do one of the following:

    | Goal                                      | Action                                      |
    |-------------------------------------------|---------------------------------------------|
    | Add new members and attributes from the source you imported previously | Select Overwrite from the Default Update Rule box. |
    | Add attributes from a different source than the one you imported previously | Select Do not modify from the Default Update Rule box. |

    If you want to override the default rule for a specific attribute, select Do not modify or Overwrite for that attribute.

12. Optionally, select the Create versions of the affected dimensions before importing data check box.

13. Click Finish to start the import and see a summary of objects that will be created. Then click Close.
Creating a list manually

As well as importing lists, you can create a list manually. For example, you can create a list to use as a lookup attribute in a hierarchy.

Steps
1. Expand the dimension that you want to work with.
2. Right-click the Lists folder and click New List.
3. Type a name for the list. You can also add a description.
4. If you want to select a different dimension or create a new dimension for a list, click Associations and do one or more of the following:
   - To select a different dimension for the list, click Select and select another dimension.
   - To create a new dimension for the list, click Create New. For more information, see "Creating a dimension" (p. 28).
   - To remove the association to this dimension, click Clear.
5. To save the list, click Apply.
6. To work with attributes, click Member Attributes.
   You can create attributes, add picklist attributes from another list, or modify which attributes are visible. For more information, see "Attributes" (p. 73).
7. To set security for the list, click Permissions or External Permissions.
   For more information, see "Defining permissions" (p. 125).
8. Click OK.

You created an empty list. To add members to it, select the new list and click New. If you want to import data from a delimited-field text file, a spreadsheet, or an IBM Cognos package, click Import. If you want to add, display, or hide attributes, click Edit Attributes. If you want to filter data, use the drop-down lists at the top of the pane.

Creating a relationship table manually

Relationship tables are used to define many-to-many relationships between lists in the same dimension. The relationships are used when you create dynamic hierarchies.

You can also create a relationship table when you import lists. For more information, see "Importing lists" (p. 33).

If you need one-to-many relationships between the lists, import the lists and use cross-reference attributes to define the relationships.

Steps
1. Right-click the Relationship Tables folder and click New Relationship Table.
2. Type a name for the new relationship table. You can also add a description.

3. To change the owner, click **Change Owner**, then select a different user, and click **OK**.

4. Click **Apply** to save the relationship table.

5. To work with attributes for the relationship table, click **Member Attributes**.
   
   For more information about creating, modifying, copying, and deleting attributes, see "**Attributes**" (p. 73).

6. To define who can access the relationship table, click **Permissions** or **External Permissions**.
   
   For more information, see "**Defining permissions**" (p. 125).

7. Click **OK**.

**Modifying a relationship table**

You can edit a relationship table to modify its name, description, owner, and permissions. You can also view the history of changes made to the relationship table.

**Steps**

1. Right-click the relationship table you want to work with and click **Properties**.

2. To change the name, description, or owner of this relationship table, click **Definition**.

3. To work with attributes for the relationship table, click **Member Attributes**.
   
   For more information about creating, modifying, copying, and deleting attributes, see "**Attributes**" (p. 73).

4. To specify who has access to this relationship table, click **Permissions** or **External Permissions**.
   
   For more information, see "**Defining permissions**" (p. 125).

5. To view the list of changes made to the relationship table, click **History**.

6. Click **OK**.

**Viewing the keys**

When you import a list, hierarchy, or member, you define which item will act as the key and the source file for that key. You can later view the keys for each list, hierarchy, or member.

For example, a Products dimension contains the data from several csv files. Each csv file used a different item as the key. When you examine the **Key Management** tab, you see the name of the source file for each key.

**Steps**

1. Click the list, hierarchy, or member you want to work with.

2. If you are working with a hierarchy or member, click the **Grid** tab.
   
   If you are working with a list, the grid displays by default.
3. At the bottom of the grid, click the **Key Management** tab.

4. Click the **Name** column heading to sort the members alphabetically.
   
   To sort from Z to A, click the column heading again.

5. If you want to merge two members, click the **General** tab, select the members, right-click them, and click **Merge**.
   
   The keys are joined by a plus sign (+).
   
   Do not merge duplicate members that have different IDs or keys.

6. Click **OK**.

---

**Hierarchies**

A hierarchy represents a collection of dimensional members organized into a tree structure. A hierarchy can be dynamic or static. Both dynamic hierarchies and static hierarchies can be level-based or parent/child hierarchies.

**Dynamic hierarchies**

A dynamic hierarchy contains members from lists.

If the lists contain related information, you define how the lists are connected in relationship tables when you import the lists. You then use the relationship tables to create the dynamic hierarchy. For example, you have separate lists for product line, product type, product brand, and product name. Another source contains all the codes for these lists, and this source is used to connect the other lists together for the dynamic hierarchy. For more information, see "Example - Importing multiple lists for a dynamic hierarchy" (p. 39).

If the lists do not contain related information, you import them without being prompted to define relationships between them. The dynamic hierarchy based on these lists maintains a link to the lists. The members of a dynamic hierarchy are updated automatically when you change the information in the lists, and the lists are also updated when you change the information in the dynamic hierarchy. For example, you import employee data as lists and create a dynamic hierarchy that shows the structure of your organization. When you add an employee to the list, the employee automatically appears in the hierarchy. When you add an employee to the hierarchy, the employee also appears automatically in the list.

**Static hierarchies**

A static hierarchy is a stand-alone, or self-contained, hierarchy that contains the members that you import or add manually into the hierarchy.

For example, you import employee data into a static hierarchy that shows the structure of the organization. When you add an employee to a static hierarchy, the employee is not automatically added to any other object in Business Viewpoint.

**Level-based hierarchies**

Both dynamic hierarchies and static hierarchies can be level-based hierarchies. In a level-based hierarchy, you organize members into named levels. Each level is a list. You can use one or more lists for the hierarchy.
For example, you want a Geography hierarchy with levels for the sales regions and countries. Sales regions are in one list and countries in another list. You import each list as a level in the Geography hierarchy.

**Parent/child hierarchies**

Both dynamic hierarchies and static hierarchies can be parent/child hierarchies. In a parent/child hierarchy, you establish associations between members by identifying which members belong to others (parent members). A parent/child hierarchy is based on one list or relationship table.

An organizational chart is a good example of a parent/child hierarchy. You have one list of all employees. To show the reporting relationships in the hierarchy, you define employees as child members and managers as parent members.

To work with hierarchies, you can do the following:

- Create a dynamic hierarchy. For more information, see "Creating a dynamic hierarchy" (p. 48).
- Import a level-based hierarchy or a parent/child hierarchy. For more information, see "Importing hierarchies" (p. 51).
- Import new data if the source changes or if you need to add data from a different source. For more information, see "Importing additional data into an existing hierarchy" (p. 63).
- Create a static hierarchy manually. For more information, see "Creating a static hierarchy" (p. 65).
- Add comments to a hierarchy. For more information, see "Adding comments to an object" (p. 32).
- Attach additional information. For more information, see "Attaching additional information" (p. 66).
- Explore the hierarchy. For more information, see "Exploring hierarchies" (p. 66).

**Creating a dynamic hierarchy**

A dynamic hierarchy contains members from lists.

If the lists contain related information, you define how the lists are connected in relationship tables when you import the lists. You then use the relationship tables to create the dynamic hierarchy. For example, you have separate lists for product line, product type, product brand, and product name. Another source contains all the codes for these lists, and this source is used to connect the other lists together for the dynamic hierarchy. For more information, see "Example - Importing multiple lists for a dynamic hierarchy" (p. 39).

If the lists do not contain related information, you import them without being prompted to define relationships between them. The dynamic hierarchy based on these lists maintains a link to the lists. The members of a dynamic hierarchy are updated automatically when you change the information in the lists, and the lists are also updated when you change the information in the dynamic hierarchy. For example, you import employee data as lists and create a dynamic hierarchy that shows the structure of your organization. When you add an employee to the list, the employee automatically
appears in the hierarchy. When you add an employee to the hierarchy, the employee also appears automatically in the list.

A dynamic hierarchy is identified with this icon:

Both dynamic hierarchies and static hierarchies can be level-based hierarchies. In a level-based hierarchy, you organize members into named levels. Each level is a list. You can use one or more lists for the hierarchy.

For example, you want a Geography hierarchy with levels for the sales regions and countries. Sales regions are in one list and countries in another list. You import each list as a level in the Geography hierarchy.

Both dynamic hierarchies and static hierarchies can be parent/child hierarchies. In a parent/child hierarchy, you establish associations between members by identifying which members belong to others (parent members). A parent/child hierarchy is based on one list or relationship table.

An organizational chart is a good example of a parent/child hierarchy. You have one list of all employees. To show the reporting relationships in the hierarchy, you define employees as child members and managers as parent members.

After you create a dynamic hierarchy, you cannot change its type. For example, you cannot change a level-based hierarchy into a parent/child hierarchy.

**Steps to create a level-based hierarchy**

1. Expand the dimension that you want to work with.

2. Right-click the **Hierarchies** folder and click **New Dynamic Hierarchy**.

3. Type a name for the hierarchy. You can also add a description. Click Next.

4. Click **Level-based hierarchy** and click Next.

5. In the **Source** box, do one of the following:

<table>
<thead>
<tr>
<th>Goal</th>
<th>Action</th>
</tr>
</thead>
</table>
| Use lists as levels | Select the lists and click **New Level**.  
The first list that you add is the first level of the hierarchy.  
All attributes in the lists are added to the new level.  
If you do not want an attribute, right-click it and click **Delete**. |
| Use attributes as levels | To display the attributes, select the **Show attributes** check box.  
Select an attribute and click **New Level**.  
The attribute must be a picklist, a lookup, or a calculation that returns a picklist value or a lookup value. |
6. Click Next.

Business Viewpoint defines all the possible paths between the related levels in the hierarchy. You can use only one path.

7. Review the paths and select the one that you want to use. Click Next.

8. Select one or more members of the first list that will be the root members.

By default, the members in the first list are displayed as the members at the top of the hierarchy. You can specify that only some members of the list display. Members that are added later will not display at the top of the hierarchy.

9. Click Next and click Finish.

In the dynamic hierarchy, you can add or remove attributes. You can also add, move, or remove members. For more information, see "Creating an attribute" (p. 74) and "Adding data" (p. 142). For an example of using multiple lists for a level-based hierarchy, see "Example - Importing multiple lists for a dynamic hierarchy" (p. 39).

Steps to create a parent/child hierarchy

1. Right-click the list and click Properties, and then click Member Attributes.

2. Create a new attribute by doing the following:
   - Click New, and type a name for the new attribute. You can also add a description.
   - From the Type box, select Lookup.
   - From the Look-up Type box, specify list and then click Select to find the list you selected in step 1.
   - In the Selection options box, specify whether one value or multiple values can be selected from the list of values, and click OK two times.
   - In the grid, specify the values you want to use in the lookup attribute that you created.

3. Expand the dimension that you want to work with.

4. Right-click the Hierarchies folder and click New Dynamic Hierarchy.

5. Type a name for the hierarchy. You can also add a description.

6. Click Parent/Child hierarchy (no levels) and click Next.

7. Select the list to use for the hierarchy, and click Next.

8. Do one of the following:
   - Select one or more attributes for the hierarchy and click Map.
   - Click Map All to add all attributes to the hierarchy.

Then click Next.
Business Viewpoint defines all the possible paths for the parent/child relationship in the hierarchy. You can use only one path.

9. Review the paths and select the path that defines the child-to-parent path. Click Next.

10. Select one or more members of the first list that will be the root members.
    You must select at least one member to be the root member.

11. Click Next two times, and click Finish.

In the dynamic hierarchy, you can add or remove attributes. You can also add, move, or remove members. For more information, see "Creating an attribute" (p. 74) and "Adding data" (p. 142).

Creating a hierarchy from an attribute

You can use an attribute as a relationship to build a dynamic hierarchy. The attribute must be a picklist, a lookup, or a calculation that returns a picklist value or a lookup value.

For example, you have a list of products with an attribute named Product Category. There is a flag to indicate if the product is active or inactive. A calculation named Active Products is a conditional expression that will populate the Active Products attribute with the Product Category value if the product is active. You can then create a hierarchy that displays the product categories for the active products only.

Steps
1. Expand the dimension that you want to work with.
2. Right-click the Hierarchies folder and click New Dynamic Hierarchy.
3. Type a name for the hierarchy. You can also add a description. Click Next.
4. Click Level-based hierarchy and click Next.
5. To display the attributes, select the Show attributes check box.
6. In the Source box, select the picklist, lookup, or calculated attribute and click New Level.
7. Click Next.
   Business Viewpoint defines all the possible paths between the related levels in the hierarchy. You can use only one path.
8. Review the paths and select the one that you want to use. Click Next.
9. Select one or more members of the first list that will be the root members.
10. Click Next and click Finish.

Importing hierarchies

A static hierarchy is a stand-alone, or self-contained, hierarchy that contains the members that you import or add manually into the hierarchy.
For example, you import employee data into a static hierarchy that shows the structure of the organization. When you add an employee to a static hierarchy, the employee is not automatically added to any other object in Business Viewpoint.

Static hierarchies can be level-based or parent/child hierarchies.

Both dynamic hierarchies and static hierarchies can be level-based hierarchies. In a level-based hierarchy, you organize members into named levels. Each level is a list. You can use one or more lists for the hierarchy.

For example, you want a Geography hierarchy with levels for the sales regions and countries. Sales regions are in one list and countries in another list. You import each list as a level in the Geography hierarchy.

For more information, see "Importing a new level-based hierarchy" (p. 52).

Both dynamic hierarchies and static hierarchies can be parent/child hierarchies. In a parent/child hierarchy, you establish associations between members by identifying which members belong to others (parent members). A parent/child hierarchy is based on one list or relationship table.

An organizational chart is a good example of a parent/child hierarchy. You have one list of all employees. To show the reporting relationships in the hierarchy, you define employees as child members and managers as parent members.

For more information, see "Importing a new parent/child hierarchy" (p. 57).

Before importing data, ensure that you have gathered the information you need about the project. For more information, see "Planning the project" (p. 25).

Importing a new level-based hierarchy

Both dynamic hierarchies and static hierarchies can be level-based hierarchies. In a level-based hierarchy, you organize members into named levels. Each level is a list. You can use one or more lists for the hierarchy.

For example, you want a Geography hierarchy with levels for the sales regions and countries. Sales regions are in one list and countries in another list. You import each list as a level in the Geography hierarchy.

Consider the following before importing data:
<table>
<thead>
<tr>
<th>Type of File</th>
<th>Considerations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Microsoft® Excel spreadsheet</td>
<td>Calculated values are imported as nulls. If the spreadsheet contains calculated values, save the spreadsheet as a csv file and import the csv file. If the spreadsheet contains dates, save the spreadsheet as a csv file and import the csv file. You can also ensure that the dates are formatted correctly in the Microsoft Excel spreadsheet before importing. Ensure that numbers are formatted correctly in Microsoft Excel spreadsheet before importing. For example, if numbers display without decimals, format the column to have no decimal places.</td>
</tr>
<tr>
<td>IBM Cognos package</td>
<td>Business Viewpoint supports simple models from IBM Cognos Framework Manager. Business Viewpoint does not support model-based parameters, multiple data sources, or multiple login connections in a package. For more information, see the IBM Cognos Framework Manager User Guide.</td>
</tr>
</tbody>
</table>

**Steps**

1. To create a new dimension and import one or more hierarchies into the new dimension, do the following:
   - Right-click the **Dimensions** folder and click **New Dimension**.
   - Click **Import hierarchies into the new dimension** and click OK.

   You can also import a hierarchy into an existing dimension by right-clicking the dimension and clicking **Import Hierarchies**.

2. Select the type of source to import and click **Next**.

3. Select the source to import and click **Next**.

   If you are importing a csv file (delimited-field text with column titles), before clicking **Next**, click **Processing Parameters** and set one or more of the following parameters:
   - The delimiter can be any character. The most common delimiters are comma, space, and tab. To specify the tab character, type `\t`.
   - The qualifier surrounds the entire text string and indicates that characters within the string using the same character as the delimiter are not treated as delimiters.
   - The encoding is any valid encoding type, such as ASCII, UTF-8, and UTF-16. The default is UTF-16.

   Complete the following steps for each hierarchy in the source that you want to import into this dimension.

4. In the **Define the mapping** page, do the following in the **Dimension Data** box:
• Click **New Dimension** and name the dimension.

• Click **New Hierarchy** and name the hierarchy.

• Select the hierarchy you created.

5. In the **Source** box, select the source item that contains the names of members and click **Add**. The names of members are labels that will appear in the publication that you distribute to your users.

6. Click **A level based hierarchy** and click **OK**.

   The source item is added as the **Name** attribute.

   You can add levels manually by clicking **New Level**.

7. Select additional attributes in the **Source** box and click **Map**.

   **Tip:** You can change the order of attributes after importing.

8. By default, the **Name** attribute is used to uniquely identify members in the source. Optionally, use a different attribute for the key or use a different type of key.

   Consider the following definitions before changing the type of key used to uniquely identify members:

<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Business attribute</td>
<td>An attribute of an object in Business Viewpoint that has meaning to a business user.</td>
</tr>
<tr>
<td>Identifier</td>
<td>The identifier is a business attribute that is used as both the Source Key and the Find By Key.</td>
</tr>
<tr>
<td>Key Table</td>
<td>The key table holds values that uniquely identify members in external systems, both sources and targets. It is used during reconciliation to ensure that the external system and Business Viewpoint are interacting with the same member in lieu of ongoing changes to that member. The key table also provides the lineage for a member.</td>
</tr>
<tr>
<td>Surrogate Key</td>
<td>An identifier for a member specific to an external system that has no business meaning. It is used exclusively for internal and external reconciliation. Surrogate keys exist only in the key table and are displayed only in the <strong>Key Management</strong> tab of the grid. After a surrogate key is brought into Business Viewpoint Studio, its value can only be changed through Business Viewpoint Client. It cannot be modified in the Import wizard.</td>
</tr>
</tbody>
</table>
If you want to use a different type of key, click the button ☐ next to the attribute and select one of the following types:

<table>
<thead>
<tr>
<th>Type of key</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Identifier</td>
<td>The identifier is a business attribute that is used as both the Source Key and the Find By Key. The identifier will display in the grid and the <strong>Key Management</strong> tab.</td>
</tr>
<tr>
<td>Find By Key</td>
<td>The attribute is used only as an identifier. Only one item can be the Find By Key.</td>
</tr>
<tr>
<td>Source Key</td>
<td>The attribute is used only as a surrogate key. The Source Key will display only in the <strong>Key Management</strong> tab.</td>
</tr>
</tbody>
</table>

9. If the source does not contain the attributes you need, do one or more of the following:

<table>
<thead>
<tr>
<th>Goal</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Create a new attribute when the source does not contain the attributes you need</td>
<td>Click <strong>New</strong>. Name the new attribute. Type a value in the <strong>Source</strong> box under <strong>Attributes</strong>.</td>
</tr>
<tr>
<td>Use a different name for the source attribute</td>
<td>Click <strong>New</strong>. Name the new attribute. Map the source attribute to the attribute you created.</td>
</tr>
<tr>
<td>Add attributes from another object in Business Viewpoint, such as standard attributes</td>
<td>Click <strong>Add Existing</strong>. Select the attributes you need and click <strong>OK</strong>. Map a source attribute to each attribute you added.</td>
</tr>
</tbody>
</table>

10. If the default attribute type is not correct, change it by clicking the button ☐ to the left of the name.

Notes:
You cannot change the attribute type later.
You cannot change the type for the system attributes such as **Name** and **Description**.
### Attribute Type | Description
--- | ---
**Alias** | Adds data that can be used as an alternate name for an object, such as a name in another language.
**Text** | Displays data as text even when numbers are entered.
**Integer** | Displays data as an integer.
**Decimal** | Displays data as a number that has decimals.
**Date** | Displays data as dates.
**Picklist** | Adds a list of values that display in a drop-down list and specifies that a picklist attribute can contain only one value. You control the contents of the list.
**Multi-select Picklist** | Adds a list of values that display in a drop-down list and specifies that a picklist attribute can contain multiple values. You control the contents of the list.

11. If you want to create an expression for an existing attribute or an attribute you create during import, see "Creating an expression during import" (p. 39).

12. If you already created a level and are now importing another level into the same dimension, establish a connection between the levels by doing the following:
   - In the **Dimension Data** box, select the first level that you created.
   - Drag the item that connects the two levels from the **Source** box to the **Name** attribute.
   - Define the **Name** attribute as the identifier.

   For example, you imported data into a level for teams. You are now importing data into a level for players. The Players source contains an attribute called Team Code. Add Team Code from the Players source to the Teams level to establish a connection between the levels.

13. If you are importing a hierarchy from an IBM Cognos package and its data store is not registered, select the **Register Data Store** check box.

   A data store is the metadata definition of the namespace and its dimensions. A data store is not the data contained in the dimensions. For more information, see "Registering the data store" (p. 112).

14. After adding each hierarchy in the source that you need, click **Next**.

15. To reuse the mapping when you later import data into this dimension, do the following:
   - Select the **Save import mapping** check box.
   - Optionally, type a name for the mapping. You can also add a description.
• Click Next.

16. If you are importing an unbalanced or ragged hierarchy and you want the hierarchy to be fully balanced, set the Suppress Nulls box to Yes in the Preview result page.

An unbalanced hierarchy has one or more paths that go deeper than other paths. For example, an organization chart often displays one division with more layers of departments than other divisions. An unbalanced hierarchy can be a level-based hierarchy or a parent/child hierarchy.

A ragged hierarchy has categories that are skipped for some members. For example, a geography dimension has the categories of country, state, and city but some countries do not have states. A ragged hierarchy is a level-based hierarchy.

17. Specify a name for the Null Member Name.

For example, the Time dimension contains 2008 and 2009. The year 2008 contains months, whereas the year 2009 contains quarters with months under the quarters.

If you set the Suppress Nulls box to Yes and you do not change the Null Member Name, a new level called Orphans is created under 2008. Orphans contains the months for 2008. When you examine the Time dimension in the Explorer, you can drill down the same structure for 2008 and 2009.

If you set the Suppress Nulls box to No, you do not see the months for 2008 in the Explorer. You see them only in the Grid.

18. Optionally, select the Create versions of the affected dimensions before importing data check box.

For more information about versions, see "Version control" (p. 129).

19. Click Finish and then click Close.

After importing the hierarchy and before making changes to it, create a version of the dimension. For more information, see "Creating a version" (p. 129).

To verify the import, check the statistics for the dimension. Click the dimension in the Content pane and look at the Dimension Dashboard on the right to view detailed information about the dimension. Click Refresh to display the latest statistics about the dimension.

Tip: Attributes that you added during import appear with a red asterisk (*). After importing, you can view and approve them in the Change Management tab. Approved members appear with a green check mark.

Importing a new parent/child hierarchy

Both dynamic hierarchies and static hierarchies can be parent/child hierarchies. In a parent/child hierarchy, you establish associations between members by identifying which members belong to others (parent members). A parent/child hierarchy is based on one list or relationship table.

An organizational chart is a good example of a parent/child hierarchy. You have one list of all employees. To show the reporting relationships in the hierarchy, you define employees as child members and managers as parent members.

Consider the following before importing data:
### Type of File | Considerations
--- | ---
Microsoft® Excel spreadsheet | Calculated values are imported as nulls. If the spreadsheet contains calculated values, save the spreadsheet as a csv file and import the csv file.

If the spreadsheet contains dates, save the spreadsheet as a csv file and import the csv file. You can also ensure that the dates are formatted correctly in the Microsoft Excel spreadsheet before importing.

Ensure that numbers are formatted correctly in Microsoft Excel spreadsheet before importing. For example, if numbers display without decimals, format the column to have no decimal places.

IBM Cognos package | Business Viewpoint supports simple models from IBM Cognos Framework Manager. Business Viewpoint does not support model-based parameters, multiple data sources, or multiple login connections in a package. For more information, see the IBM Cognos Framework Manager User Guide.

---

### Steps

1. To create a new dimension and import one or more hierarchies into the new dimension, do the following:
   - Right-click the Dimensions folder and click New Dimension.
   - Click Import hierarchies into the new dimension and click OK.

   You can also import a hierarchy into an existing dimension by right-clicking the dimension and clicking Import Hierarchies.

2. Select the type of source to import and click Next.

3. Select the source to import and click Next.

   If you are importing a csv file (delimited-field text with column titles), before clicking Next, click Processing Parameters and set one or more of the following parameters:
   - The delimiter can be any character. The most common delimiters are comma, space, and tab. To specify the tab character, type \t.
   - The qualifier surrounds the entire text string and indicates that characters within the string using the same character as the delimiter are not treated as delimiters.
   - The encoding is any valid encoding type, such as ASCII, UTF-8, and UTF-16. The default is UTF-16.

   Complete the following steps for each hierarchy in the source that you want to import into this dimension.

4. In the Define the mapping page, do the following in the Dimension Data box:
• Click **New Dimension** and name the dimension.

• Click **New Hierarchy** and name the hierarchy.

• Select the hierarchy you created.

5. In the **Source** box, select the source item that contains the names of members and click **Add**. The names of members are labels that will appear in the publication that you distribute to your users.

6. Click a **parent/child (level-less) hierarchy** and click **OK**.
   A Parent object and a Child object are created under the hierarchy you selected.
   The source item is added as the **Name** attribute for the child members.

7. To add a **Name** attribute to the parent, select the Parent object and drag the item from the **Source** box to the **Name** attribute.

8. To add additional attributes, select the Parent or Child object, select the attributes in the **Source** box and click **Map**.
   **Tip:** You can change the order of attributes after importing.

9. By default, the **Name** attribute is used to uniquely identify members in the source. Optionally, use a different attribute for the key or use a different type of key.

   Consider the following definitions before changing the type of key used to uniquely identify members:

<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Business attribute</td>
<td>An attribute of an object in Business Viewpoint that has meaning to a business user.</td>
</tr>
<tr>
<td>Identifier</td>
<td>The identifier is a business attribute that is used as both the Source Key and the Find By Key.</td>
</tr>
<tr>
<td>Key Table</td>
<td>The key table holds values that uniquely identify members in external systems, both sources and targets. It is used during reconciliation to ensure that the external system and Business Viewpoint are interacting with the same member in lieu of ongoing changes to that member. The key table also provides the lineage for a member.</td>
</tr>
</tbody>
</table>
### Definition

<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Surrogate Key</td>
<td>An identifier for a member specific to an external system that has no business meaning. It is used exclusively for internal and external reconciliation. Surrogate keys exist only in the key table and are displayed only in the Key Management tab of the grid. After a surrogate key is brought into Business Viewpoint Studio, its value can only be changed through Business Viewpoint Client. It cannot be modified in the Import wizard.</td>
</tr>
</tbody>
</table>

If you want to use a different type of key, click the button next to the attribute and select one of the following types:

<table>
<thead>
<tr>
<th>Type of key</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Identifier</td>
<td>The identifier is a business attribute that is used as both the Source Key and the Find By Key. The identifier will display in the grid and the Key Management tab.</td>
</tr>
<tr>
<td>Find By Key</td>
<td>The attribute is used only as an identifier. Only one item can be the Find By Key.</td>
</tr>
<tr>
<td>Source Key</td>
<td>The attribute is used only as a surrogate key. The Source Key will display only in the Key Management tab.</td>
</tr>
</tbody>
</table>

10. If the source does not contain the attributes you need, do one or more of the following:

<table>
<thead>
<tr>
<th>Goal</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Create a new attribute when the source does not contain the attributes you need</td>
<td>Click New. Name the new attribute. Type a value in the Source box under Attributes.</td>
</tr>
<tr>
<td>Use a different name for the source attribute</td>
<td>Click New. Name the new attribute. Map the source attribute to the attribute you created.</td>
</tr>
</tbody>
</table>
Add attributes from another object in Business Viewpoint, such as standard attributes

<table>
<thead>
<tr>
<th>Goal</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Add attributes from another object in Business Viewpoint, such as</td>
<td>Click <strong>Add Existing</strong>.</td>
</tr>
<tr>
<td>standard attributes</td>
<td>Select the attributes you need and click <strong>OK</strong>.</td>
</tr>
<tr>
<td></td>
<td>Map a source attribute to each attribute you added.</td>
</tr>
</tbody>
</table>

11. If the default attribute type is not correct, change it by clicking the button to the left of the name.

Notes:
You cannot change the attribute type later.
You cannot change the type for the system attributes such as Name and Description.

<table>
<thead>
<tr>
<th>Attribute Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alias</td>
<td>Adds data that can be used as an alternate name for an object, such as a name in another language.</td>
</tr>
<tr>
<td>Text</td>
<td>Displays data as text even when numbers are entered.</td>
</tr>
<tr>
<td>Integer</td>
<td>Displays data as an integer.</td>
</tr>
<tr>
<td>Decimal</td>
<td>Displays data as a number that has decimals.</td>
</tr>
<tr>
<td>Date</td>
<td>Displays data as dates.</td>
</tr>
<tr>
<td>Picklist</td>
<td>Adds a list of values that display in a drop-down list and specifies that a picklist attribute can contain only one value. You control the contents of the list.</td>
</tr>
<tr>
<td>Multi-select Picklist</td>
<td>Adds a list of values that display in a drop-down list and specifies that a picklist attribute can contain multiple values. You control the contents of the list.</td>
</tr>
</tbody>
</table>

12. If you want to create an expression for an existing attribute or an attribute you create during import, see "Creating an expression during import" (p. 39).

13. If you are importing a hierarchy from an IBM Cognos package and its data store is not registered, select the **Register Data Store** check box.
A data store is the metadata definition of the namespace and its dimensions. A data store is not the data contained in the dimensions. For more information, see "Registering the data store" (p. 112).

14. After adding each hierarchy in the source that you need, click **Next**.
15. To reuse the mapping when you later import data into this dimension, do the following:
   ● Select the **Save import mapping** check box.
   ● Optionally, type a name for the mapping. You can also add a description.
   ● Click **Next**.

16. If you are importing an unbalanced or ragged hierarchy and you want the hierarchy to be fully balanced, set the **Suppress Nulls** box to **Yes** in the **Preview result** page.

   An unbalanced hierarchy has one or more paths that go deeper than other paths. For example, an organization chart often displays one division with more layers of departments than other divisions. An unbalanced hierarchy can be a level-based hierarchy or a parent/child hierarchy.

   A ragged hierarchy has categories that are skipped for some members. For example, a geography dimension has the categories of country, state, and city but some countries do not have states. A ragged hierarchy is a level-based hierarchy.

17. Specify a name for the **Null Member Name**.

   For example, the Time dimension contains 2008 and 2009. The year 2008 contains months, whereas the year 2009 contains quarters with months under the quarters.

   If you set the **Suppress Nulls** box to **Yes** and you do not change the **Null Member Name**, a new level called Orphans is created under 2008. Orphans contains the months for 2008. When you examine the Time dimension in the **Explorer**, you can drill down the same structure for 2008 and 2009.

   If you set the **Suppress Nulls** box to **No**, you do not see the months for 2008 in the **Explorer**. You see them only in the **Grid**.

18. Optionally, select the **Create versions of the affected dimensions before importing data** check box.

   For more information about versions, see "**Version control**" (p. 129).

19. Click **Finish** and then click **Close**.

   After importing the hierarchy and before making changes to it, create a version of the dimension. For more information, see "**Creating a version**" (p. 129).

   To verify the import, check the statistics for the dimension. Click the dimension in the **Content** pane and look at the **Dimension Dashboard** on the right to view detailed information about the dimension. Click **Refresh** to display the latest statistics about the dimension.

   **Tip:** Attributes that you added during import appear with a red asterisk (*). After importing, you can view and approve them in the **Change Management** tab. Approved members appear with a green check mark.
**Importing additional data into an existing hierarchy**

You imported a hierarchy into a dimension. You now find that the source has changed and you need to re-import it. Or you might have discovered that you need to import additional data from another source.

**Steps**

1. Right-click the hierarchy that you want to update, and click **Import Child Members**.

2. Select the type of source to import and click **Next**. Then select the source to import and click **Next**.

   You see a list of mappings that you saved previously. These mappings define how to map the source objects to attributes in the hierarchy.

   You see only the mappings that apply for the type of source you selected. For example, you previously saved mappings for csv files, Microsoft® Excel spreadsheets, and IBM® Cognos® packages. When you re-import a csv file, you will see only the mappings that were saved for csv files. You cannot use a mapping from an IBM Cognos package for a csv file.

   If you want to see all mappings that are available for the selected list, hierarchy, or dimension, select the **Show all import sources** check box.

3. Do one of the following:

<table>
<thead>
<tr>
<th><strong>Goal</strong></th>
<th><strong>Action</strong></th>
</tr>
</thead>
</table>
   | Reuse how you mapped source objects to attributes in the hierarchy without making changes to the mapping | Click **Reuse a mapping**.  
Select the mapping to use.  
Click **Finish**. |
   | Change how you mapped source objects previously | Click **Reuse a mapping**,  
Select the mapping to use.  
Click **Next**, and then complete the remaining steps. |
   | Add attributes from a different source than the one you imported previously | Click **Create a new mapping**.  
Click **Next**, and then complete the remaining steps. |

4. In the **Dimension Data** box, select the hierarchy to update.

5. In the **Source** box, select the new attributes and drag them to the **Attributes** box.

   If necessary, change the type of the attribute by clicking the button [abc] to the left of the name.

   If the source does not contain the attributes you need, create new attributes.
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If the source contains the attribute you need but you want a different name for the attribute, create an attribute and then drag the source item into it.

6. If you already created a level and are now importing another level into the same hierarchy, establish a connection between the levels by doing the following:
   - In the **Dimension Data** box, select the first level that you created.
   - Drag the item that connects the two levels from the **Source** box to the **Name** attribute.
   - Define the **Name** attribute as the identifier.

7. If you want to create an expression for an existing attribute or an attribute you create during import, see "Creating an expression during import" (p. 39).

8. Click **Next**.

9. Save the mapping by doing the following:
   - Select the **Save import mapping** check box.
   - Type a name for the mapping. You can also add a description.
   - Click **Next**.

10. If you are importing an unbalanced or ragged hierarchy and you want the hierarchy to be fully balanced, set the **Suppress Nulls** box to **Yes** and specify a name for the **Null Member Name**.
    For example, the Time dimension contains 2008 and 2009. The year 2008 contains months, whereas the year 2009 contains quarters with months under the quarters.
    If you set the **Suppress Nulls** box to **Yes** and you do not change the **Null Member Name**, a new level called Orphans is created under 2008. Orphans contains the months for 2008. When you examine the Time dimension in the **Explorer**, you can drill down the same structure for 2008 and 2009.
    If you set the **Suppress Nulls** box to **No**, you do not see the member in the **Explorer**. You see it only in the **Grid**.

11. To specify how attributes will be added, do one of the following:

<table>
<thead>
<tr>
<th>Goal</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Add new members and attributes from the source you imported previously</td>
<td>Select <strong>Overwrite</strong> from the <strong>Default Update Rule</strong> box.</td>
</tr>
<tr>
<td>Add attributes from a different source than the one you imported previously</td>
<td>Select <strong>Do not modify</strong> from the <strong>Default Update Rule</strong> box.</td>
</tr>
</tbody>
</table>

If you want to override the default rule for a specific attribute, select **Do not modify** or **Overwrite** for that attribute.
12. Optionally, select the Create versions of the affected dimensions before importing data check box.

13. Click Finish to start the import and see a summary of objects that will be created. Then click Close.

Before making changes to the hierarchy, create a version of the dimension. For more information, see "Creating a version" (p. 129).

To verify the import, check the statistics for the dimension. Click the dimension in the Content pane and look at the Dimension Dashboard on the right to view detailed information about the dimension. Click Refresh to display the latest statistics about the dimension.

Creating a static hierarchy

A static hierarchy is a stand-alone, or self-contained, hierarchy that contains the members that you import or add manually into the hierarchy.

For example, you import employee data into a static hierarchy that shows the structure of the organization. When you add an employee to a static hierarchy, the employee is not automatically added to any other object in Business Viewpoint.

Steps

1. Expand the dimension that you want to work with.
2. Right-click the Hierarchies folder and click New Hierarchy.
3. Type a name for the hierarchy. You can also add a description.
4. Click Associations and add or create levels and dimensions.
5. To save the hierarchy, click Apply.
6. To work with attributes, click Member Attributes.
   You can create attributes, add picklist attributes from another hierarchy, or modify which attributes are visible. For more information, see "Attributes" (p. 73).
7. To set security for the hierarchy, click Permissions or External Permissions.
   For more information, see "Defining permissions" (p. 125).
8. If additional information about the hierarchy is available externally, click Attachments.
   For more information, see "Attaching additional information" (p. 66).
9. Click OK.
10. To add members, select the hierarchy in the Content pane and do one or more of the following:
    - Add members manually. For more information, see "Adding data" (p. 142).
    - Click the Grid tab and click Import. For more information, see "Importing hierarchies" (p. 51).
Attaching additional information

You can provide additional information about a hierarchy or member by attaching a document or a link to a document.

**Steps**

1. Right-click the hierarchy or member and click **Properties**.
2. Click **Attachments**.
3. Do one of the following:

<table>
<thead>
<tr>
<th>Goal</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Add a document</td>
<td>Click <strong>Add New</strong>.</td>
</tr>
<tr>
<td></td>
<td>Type a name for the document. You can also add a description.</td>
</tr>
<tr>
<td></td>
<td>If you are linking to a web page or shared file, click <strong>Linked Content</strong> and enter the URL.</td>
</tr>
<tr>
<td></td>
<td>If you are uploading content directly to the server, click <strong>Embedded Content</strong>, click <strong>Browse</strong> to locate the file, and then click <strong>Upload Now</strong>.</td>
</tr>
<tr>
<td></td>
<td>Click <strong>Apply</strong> to save the changes and click <strong>OK</strong>.</td>
</tr>
<tr>
<td>Link to a document that is attached to another dimension</td>
<td>Click <strong>Cross-reference</strong> and select the file. A shortcut to the document is created.</td>
</tr>
<tr>
<td></td>
<td>Click <strong>OK</strong>.</td>
</tr>
</tbody>
</table>

4. Click **OK**.

5. To open an attachment, in the **Attachments** pane, click the name of the attachment.

Exploring hierarchies

To help you understand what makes up each dimension, Business Viewpoint Studio provides different ways to explore hierarchies and levels.

Use the **Explorer** tab to navigate through a hierarchy.

Use the **Grid** tab to work with a large number of members in a spreadsheet format. The grid is available for hierarchies, lists, levels, and sets. Sets are not available for nominators and reviewers.

Use the **Diagram** tab to visualize the relationship between members, parents, and levels. Diagrams are available for hierarchies.

A member is an item within a hierarchy, level, list, or set.

**Steps to use the Explorer**

1. Click the **Explorer** tab.
2. Click a member to see its children.
   You can select several members at a time.

3. To view the children of a member, do one of the following:
   • Click the right arrow in the path and select the check boxes of the child members you want to see.
   • Right-click the member and click Show Children In Grid View.

   Note that the path at the top displays the context of the member you selected.

4. To view the children of several members at the same time, do the following:
   • Click a member to view its children.
   • Click the right arrow next to another member.

   The children of both members are displayed together. The children are not moved or copied to a new parent; this is for display only.

5. To go back up the hierarchy, use the path at the top of the pane.

6. To view more members, type a number in the second box at the bottom of the pane and press Enter.

   To go to a specific member, type its number in the first box and click Go To. For example, type 1 to go to the top.

7. Add new members.
   For more information, see "Adding data" (p. 142).

8. If you want to limit the members that are visible, use a filter.
   For more information, see "Filtering" (p. 140).

9. If you want to have the members in alphabetical order, sort them.
   For more information, see "Sorting" (p. 141).

**Steps to use the Grid**

1. Click the Grid tab.

2. If you want a column to remain on the screen when you scroll, click the Freeze column button at the top of the column.

3. To change the view for the members, do one of the following:

<table>
<thead>
<tr>
<th>Goal</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>View the children of a member</td>
<td>From the drop-down list, click Immediate Children.</td>
</tr>
</tbody>
</table>
### Chapter 3: Modeling dimensions

<table>
<thead>
<tr>
<th>Goal</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>View the children and all descendants of a member</td>
<td>From the drop-down list, click <strong>All Descendants</strong>.</td>
</tr>
<tr>
<td>View all members in a hierarchical structure</td>
<td>From the drop-down list, click <strong>View as Hierarchy</strong>.</td>
</tr>
</tbody>
</table>

4. Add new members.  
   For more information, see "Adding data" (p. 142).

5. If you want to limit the members that are visible, use a filter.  
   For more information, see "Filtering" (p. 140).

6. If you want to have the members in alphabetical order, sort them.  
   For more information, see "Sorting" (p. 141).

7. If you want to replace one value with another, use search and replace.  
   For more information, see "Searching and replacing" (p. 141).

8. To work with the attributes that display in the columns, click **Edit Attributes**.  
   For more information, see "Attributes" (p. 73).  
   If you are a nominator or reviewer, you cannot add attributes.

### Steps to use the Diagram

1. Click the **Diagram** tab.

2. Click the plus sign (+) to see the lower-level details for each member in the hierarchy.  
   You can increase or decrease the number of children displayed for each parent.

3. To add data, right-click a member and click **New Member**.

4. To import data from a delimited-field text file, a Microsoft Excel spreadsheet, or an IBM Cognos package, click **Import**.  
   For more information, see "Importing lists" (p. 33).

5. To display additional attributes in the diagram, click **Attributes**, select the check boxes of the attributes you want in the diagram, and click **Close**.  
   Clear the check boxes of attribute you do not want in the diagram.

6. To change the layout of the diagram, click **Horizontal**, **Vertical**, or **Tree** from the **Layout** box.

7. To create a copy of a member, do the following:  
   - Right-click the member and click **Copy To**.
   - Select the area of the hierarchy to copy this member to.
You cannot copy a member that is in a dynamic hierarchy.

8. To move members, drag them to a different level or parent, or do the following:
   • Right-click the member and click Move To.
   • Select the area of the hierarchy to move this member to.

When you move a member, its descendants move with it. You can move multiple members at the same time if all members have the same parent.

A member cannot be moved to a different level in a dynamic level-based hierarchy. A member cannot be moved to its own descendants in a dynamic parent/child hierarchy.

9. To create alternate drill paths in a dynamic hierarchy, Shift+click the member and drag it to another location.

The lookup attributes in the dynamic hierarchy must have the Selection options set to Multiple select.

The member now has two parents. For example, one employee reports to two different managers.

Deleting members from hierarchies

You might need to delete some members.

Steps
1. Click the Grid tab.
2. Right-click the member and click Delete.
3. Specify an option for what to delete, depending on the type of hierarchy:

<table>
<thead>
<tr>
<th>Hierarchy</th>
<th>Options for deleting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dynamic</td>
<td>Remove the association to the parent member. The member is not deleted from the source. Delete the member in the source. Its descendants are then orphaned and are visible only in the Grid.</td>
</tr>
<tr>
<td>Static</td>
<td>Delete the member and all its descendants. Delete the member only. Its descendants are assigned to a new member, the parent of the deleted member.</td>
</tr>
</tbody>
</table>

Levels

A level represents related data within a hierarchy. Levels define the structure of hierarchies in a dimension. For example, a geographical dimension might contain levels for country, region, and city.
To work with levels, you can do the following:

- Create a level. For more information, see "Creating a level" (p. 70).
- Add comments to a level. For more information, see "Adding comments to an object" (p. 32).
- Explore the level. For more information, see "Exploring levels" (p. 70).

Creating a level

You can add a new level to a hierarchy, change which hierarchy this level belongs to, and select which member attributes to include in the new level. Finally, you set the security permissions for the new level.

If you delete a level, the members in the level are also deleted. Lower levels are not deleted. Instead the members in the lower levels are associated with the members in the higher level.

For example, you have these levels in a dimension: Quarter, Month, Week, and Day. If you delete the Month level, the individual months are deleted while the Week level is now under the Quarter level. The Day level remains associated to the Week level.

Steps

1. Expand the dimension that you want to work with.
2. Right-click a static hierarchy and click Create New Level.
3. Type a name for the level. You can also add a description.
4. To change which hierarchy this level belongs to or to specify that this level belongs to several hierarchies, click Associations and click Add. Select the hierarchy you want, and click OK.
5. Click Apply to save the level.
6. Click Member Attributes to work with attributes.
   You can create attributes, add picklist attributes from another hierarchy, or modify which attributes are visible. For more information, see "Attributes" (p. 73).
7. Click Permissions or External Permissions to set security for the level.
   For more information, see "Defining permissions" (p. 125).
8. Click OK.

Exploring levels

To help you understand what makes up each dimension, Business Viewpoint Studio provides different ways to explore hierarchies and levels.

Use the Explorer tab to navigate through a hierarchy.

Use the Grid tab to work with a large number of members in a spreadsheet format. The grid is available for hierarchies, lists, levels, and sets. Sets are not available for nominators and reviewers.

To go directly to a level in a hierarchy, click the level in the Content pane. The level is displayed in the grid.
Use the Diagram tab to visualize the relationship between members, parents, and levels. Diagrams are available for hierarchies.

A member is an item within a hierarchy, level, list, or set.

**Steps to use the Explorer**

1. Click the Explorer tab.

2. Click a member to see its children.
   
   You can select several members at a time.

3. To view the children of a member, do one of the following:
   
   - Click the right arrow in the path and select the check boxes of the child members you want to see.
   
   - Right-click the member and click Show Children In Grid View.

   Note that the path at the top displays the context of the member you selected.

4. To view the children of several members at the same time, do the following:
   
   - Click a member to view its children.
   
   - Click the right arrow next to another member.

   The children of both members are displayed together. The children are not moved or copied to a new parent; this is for display only.

5. To go back up the hierarchy, use the path at the top of the pane.

6. To view more members, type a number in the second box at the bottom of the pane and press Enter.

   To go to a specific member, type its number in the first box and click Go To. For example, type 1 to go to the top.

7. Add new members.

   For more information, see "Adding data" (p. 142).

8. If you want to limit the members that are visible, use a filter.

   For more information, see "Filtering" (p. 140).

9. If you want to have the members in alphabetical order, sort them.

   For more information, see "Sorting" (p. 141).

**Steps to use the Grid**

1. Click the Grid tab.

2. If you want a column to remain on the screen when you scroll, click the Freeze column button at the top of the column.

3. To change the view for the members, do one of the following:
### Steps to use the Diagram

1. Click the **Diagram** tab.

2. Click the plus sign (+) to see the lower-level details for each member in the hierarchy.
   
   You can increase or decrease the number of children displayed for each parent.

3. To add data, right-click a member and click **New Member**.

4. To import data from a delimited-field text file, a Microsoft Excel spreadsheet, or an IBM Cognos package, click **Import**.
   
   For more information, see "Importing lists" (p. 33).

5. To display additional attributes in the diagram, click **Attributes**, select the check boxes of the attributes you want in the diagram, and click **Close**.
   
   Clear the check boxes of attribute you do not want in the diagram.

6. To change the layout of the diagram, click **Horizontal**, **Vertical**, or **Tree** from the **Layout** box.

7. To create a copy of a member, do the following:

---

### Action Goal

<table>
<thead>
<tr>
<th>Goal</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>View the children of a member</td>
<td>From the drop-down list, click <strong>Immediate Children</strong>.</td>
</tr>
<tr>
<td>View the children and all descendants of a member</td>
<td>From the drop-down list, click <strong>All Descendants</strong>.</td>
</tr>
<tr>
<td>View all members in a hierarchical structure</td>
<td>From the drop-down list, click <strong>View as Hierarchy</strong>.</td>
</tr>
</tbody>
</table>

---

4. Add new members.
   
   For more information, see "Adding data" (p. 142).

5. If you want to limit the members that are visible, use a filter.
   
   For more information, see "Filtering" (p. 140).

6. If you want to have the members in alphabetical order, sort them.
   
   For more information, see "Sorting" (p. 141).

7. If you want to replace one value with another, use search and replace.
   
   For more information, see "Searching and replacing" (p. 141).

8. To work with the attributes that display in the columns, click **Edit Attributes**.
   
   For more information, see "Attributes" (p. 73).

   If you are a nominator or reviewer, you cannot add attributes.
• Right-click the member and click **Copy To**.

• Select the area of the hierarchy to copy this member to.

You cannot copy a member that is in a dynamic hierarchy.

8. To move members, drag them to a different level or parent, or do the following:

• Right-click the member and click **Move To**.

• Select the area of the hierarchy to move this member to.

When you move a member, its descendants move with it. You can move multiple members at the same time if all members have the same parent.

A member cannot be moved to a different level in a dynamic level-based hierarchy. A member cannot be moved to its own descendants in a dynamic parent/child hierarchy.

9. To create alternate drill paths in a dynamic hierarchy, Shift+click the member and drag it to another location.

The lookup attributes in the dynamic hierarchy must have the **Selection options** set to **Multiple select**.

The member now has two parents. For example, one employee reports to two different managers.

### Attributes

Attributes are the characteristics of a member that the business wants to quantify. For example, an Employees dimension has attributes for name, title, department, employee status, start date, and salary. A Products dimension has attributes for name, introduction date, size, and color.

Some attributes are imported when you import dimensions, lists, and members. You can create attributes for a dimension, hierarchy, level, or list. You can add picklist attributes from one of these objects to another object; for example, you can add an attribute for the product dimension to the customer dimension. You can also display or hide attributes. IBM® Cognos® Business Viewpoint Studio provides system attributes by default.

To work with attributes, you can do the following:

• Create an attribute. For more information, see "Creating an attribute" (p. 74).

• Add a picklist attribute that exists in another level, hierarchy, dimension, or list. For more information, see "Adding an existing attribute" (p. 78).

• Set a default initial value for new values. For more information, see "Setting an initial default value" (p. 78).

• Create copies of attributes. For more information, see "Copying an attribute" (p. 79).

• Display or hide attributes. For more information, see "Showing or hiding attributes" (p. 80).

• Change the order of attributes. For more information, see "Changing the order of attributes" (p. 81).
Create validation rules that put one or more constraints on the values that an attribute can have. For more information, see "Validation rules" (p. 82).

Create attributes that are calculations. For more information, see "Calculations" (p. 98).

**Creating an attribute**

You can create an attribute for a dimension, hierarchy, level, or list. The attributes are available for lower-level objects. For example, if you create an attribute for the dimension, the attribute is available for hierarchies and levels that are within the dimension. If you create an attribute for a level, the attribute is available only for that level.

You can create a set of standard attributes that you use when importing lists or hierarchies. For more information, see "Example - Creating and using standard attributes" (p. 77).

You can create validation rules that put one or more constraints on the values that an attribute can have. For more information, see "Validation rules" (p. 82).

You can create attributes that are calculations. For more information, see "Calculations" (p. 98).

Attributes with the type of image or binary large object (BLOB) are not supported in the current release.

**Steps**

1. In the grid, click **Edit Attributes**. You can also right-click an object, click **Properties**, and then click **Member Attributes**.

2. Click **New**.

3. Type a name for the new attribute. You can also add a description.

4. Choose the action you want.

<table>
<thead>
<tr>
<th>Goal</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Display data as text even when numbers are entered</td>
<td>From the Type box, select <strong>Text</strong>. The format of the date is determined by the regional setting used on the server.</td>
</tr>
<tr>
<td>Add data that can be used as an alternate name for an object, such as a name in another language</td>
<td>From the Type box, select <strong>Alias</strong>.</td>
</tr>
<tr>
<td>Display data as dates</td>
<td>From the Type box, select <strong>Date</strong>.</td>
</tr>
<tr>
<td>Display data as an integer</td>
<td>From the Type box, select <strong>Integer</strong>.</td>
</tr>
<tr>
<td>Display data as a number that has decimals</td>
<td>From the Type box, select <strong>Decimal</strong>.</td>
</tr>
<tr>
<td>Goal</td>
<td>Action</td>
</tr>
<tr>
<td>----------------------------------------------------------------------</td>
<td>---------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Create a list of values that display in a drop-down list; you control the contents of the list</td>
<td>From the Type box, select <strong>Picklist</strong>. From the Selection options box, specify whether one value or multiple values can be selected from the list of values. Click Create New. Type the first value and press Enter. Repeat for each value. The values display in the drop-down list in the order that you enter them.</td>
</tr>
<tr>
<td>Add a drop-down list that looks up values from a list, dimension, hierarchy, or level</td>
<td>From the Type box, select <strong>Lookup</strong>. To specify the type of object you are using for the lookup, click Select to find and select the list, dimension, hierarchy, or level. From the Selection options box, specify whether one value or multiple values can be selected from the list of values. When creating an attribute that looks up values in a list, you can add the values in the hierarchy to the list by selecting Cross-Reference from the Reference type box. For an example, see &quot;Example - Using lookup attributes to connect lists&quot; (p. 75). Use a workflow to have many people contribute to the contents of the drop-down list.</td>
</tr>
<tr>
<td>Create an attribute that is a calculation</td>
<td>From the Type box, select <strong>Calculated</strong>. For more information, see &quot;Calculations&quot; (p. 98).</td>
</tr>
</tbody>
</table>

5. To specify an initial value for the attribute, in the Default Value box, type the value that will appear for all new members.

6. Click OK.

7. If you want to delete an attribute that you created, select the check box next to the attribute in the Select column, and click Delete.
   You cannot delete system attributes.

8. Click OK.

**Example - Using lookup attributes to connect lists**

You want to organize information for the Sales department in two ways: salespeople by sales region and salespeople by the product lines they sell.

You have imported the following lists:

---

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You want to add each salesperson’s region and product lines to the Salespeople list. You also want to add salespeople to the Sales Region and Product Lines lists. For example, you want the Sales Region list to display the salespeople working in the Asia region. To do this, you add a lookup attribute to the Salespeople list and create a cross-reference from the Salespeople list to the other lists.

**Steps**

1. Click the Salespeople list.
2. Click **Edit Attributes**.
3. To create an attribute that displays which product lines each salesperson sells, do the following:
   - Click **New**.
   - Type a name for the new attribute.
   - From the **Type** box, select **Lookup**.
   - Click **Select** and select the Product Lines list.
   - Because salespeople can sell more than one product line, from the **Selection options** box, select **Multiple select**.
   - To add the names of salespeople to the Product Lines list, select **Cross-Reference** from the **Reference type** box.
   - Click **OK**.
4. To create an attribute that displays the sales region for each salesperson, do the following:
   - Click **New**.
   - Type a name for the new attribute.
   - From the **Type** box, select **Lookup**.
   - In your organization, salespeople can belong to only one location so, from the **Selection options** box, select **Single select**.
   - Under **Name**, click **Select** and select the Sales Regions list.
   - To add the names of salespeople to the Sales Regions list, select **Cross-Reference** from the **Reference type** box.
   - Click **OK**.
5. Click **OK**.
The Salespeople list now displays the products lines and region for each salesperson. When you look at the Sales Regions list, you see all the salespeople in each region. For example, you see which salespeople are in North America and which are in Asia. When you look at the Product Lines list, you see all the salespeople who sell each product line.

Example - Creating and using standard attributes

You want to use a standard set of attributes for the Employees list. You have two Microsoft® Excel worksheets listing employees, their employee numbers, and department. However, the first worksheet uses Emp. Cd. and Dept. Cd. as the labels, and the second worksheet uses Employee Code and Cost Center. Before importing the Microsoft Excel worksheets into the Employees list, you create a list containing the attributes that you want to use as the standard attributes.

We have used lists in this example but you can also complete the steps with a static hierarchy.

Steps

1. If there is not already an Employees dimension, create an empty dimension named Employees.

2. Right-click the Employees dimension and click Properties.

3. Click Member Attributes.

4. To create a standard attribute for employee number, do the following:
   - Click New.
   - In the Name box, type Employee Number.
   - From the Type box, select Integer.
   - Click OK.

5. To create a standard attribute for department, do the following:
   - Click New.
   - In the Name box, type Department.
   - From the Type box, select Text.
   - Click OK.

   You can create any type of attribute to use when importing.

6. Right-click the Employees dimension, and click Import Lists.

7. Select the first Microsoft Excel worksheet as the source and click Next until you reach the Define the mapping page where you do the following:
   - Under the Dimension Data box, click New List and name the list Employees.
     The standard attributes, Department and Employee Number, are listed in the Attributes box.
   - In the Source box, select Name and click Map.
Chapter 3: Modeling dimensions

- In the Source box, select Emp. Cd. and drag it onto the Employee Number attribute in the Attributes box.
- In the Source box, select Dept. Cd. and drag it onto the Department attribute in the Attributes box.
- To complete the importing of the first worksheet, click Next until you can click Finish.

8. Right-click the Employees dimension, and click Import Lists.

9. Select the second Microsoft Excel worksheet as the source and click Next until you reach the Define the mapping page where you do the following:
   - Under the Dimension Data box, click the list Employees.
   - In the Source box, select Name and click Map.
   - In the Source box, select Employee Code and drag it onto the Employee Number attribute in the Attributes box.
   - In the Source box, select Cost Center and drag it onto the Department attribute in the Attributes box.
   - To complete the importing of the second worksheet, click Next until you can click Finish.

The Employees list contains all the employees from the two worksheets using the standard attributes that you created.

Adding an existing attribute

You can add an attribute that exists in another level, hierarchy, dimension, or list.

Steps
1. In the grid, click Edit Attributes.
   You can also right-click an object, click Properties, and then click Member Attributes.
2. Click Add Existing.
3. Select the attributes that you want to add, and click OK.
4. Click OK.

Setting an initial default value

You can specify a default value that is displayed for all new members. You can specify this value when you create the attribute or you can edit an attribute to add a default value.

Steps
1. In the grid, click Edit Attributes.
   You can also right-click an object, click Properties, and then click Member Attributes.
2. Do one of the following:
Add an initial value to a new attribute

Click New.
Type a name for the new attribute. You can also add a description.
Select the type for the new attribute: text, alias, decimal, integer, or date.

Add an initial value to an existing attribute

In the Select column, select the check box next to the attribute to edit.
Click Edit.

3. In the Default Value box, type the value that will appear for all new members.
4. Click OK two times.

Copying an attribute

You can create copies of attributes in a hierarchy. The copies exist in the same hierarchy as the original attributes.

Steps
1. Click Edit Attributes.
2. Click the Select check box for the attribute you want to copy and click Create a Copy.
3. Optionally, type a new name for the copy. You can also change the description.
4. Optionally, change the type of the copy.

<table>
<thead>
<tr>
<th>Goal</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Display data as text even when numbers are entered</td>
<td>From the Type box, select Text.</td>
</tr>
<tr>
<td>Add data that can be used as an alternate name for an object, such as a name in another language</td>
<td>From the Type box, select Alias.</td>
</tr>
<tr>
<td>Display data as dates</td>
<td>From the Type box, select Date.</td>
</tr>
<tr>
<td>Display data as a number that has decimals</td>
<td>From the Type box, select Decimal.</td>
</tr>
<tr>
<td>Display data as an integer</td>
<td>From the Type box, select Integer.</td>
</tr>
<tr>
<td>Goal</td>
<td>Action</td>
</tr>
<tr>
<td>---------------------------------------------------------------------</td>
<td>------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
</tbody>
</table>
| Create a list of values that display in a drop-down list         | From the **Type** box, select **Picklist**.  
|                                                                     | From the **Selection options** box, specify whether one value or multiple values can be selected from the list of values.  
|                                                                     | The values that were entered in the original attribute display in the drop-down list.  
| Add a drop-down list that looks up values from a list, dimension, hierarchy, or level | From the **Type** box, select **Lookup**.  
|                                                                     | To specify the type of object you are using for the lookup, click **Select** to find and select the list, dimension, hierarchy, or level.  
|                                                                     | From the **Selection options** box, specify whether one value or multiple values can be selected from the list of values.  
|                                                                     | When creating an attribute that looks up values in a list, you can add the values in the hierarchy to the list by selecting **Cross-Reference** from the **Reference type** box.  
|                                                                     | When you create a copy of a lookup attribute, you can change the attribute used to look up values in the list, dimension, hierarchy, or level.  
|                                                                     | By default, lookup attributes use the Name attribute to look up values. You can select a different attribute from the **Attribute to reference** box.                                                                                                                                                                                                 |

5. Optionally, specify an initial value for the attribute by typing the value that will appear for all new members in the **Default Value** box.

6. Click OK.

**Showing or hiding attributes**

You can change whether existing attributes are included or hidden.

**Steps**

1. In the grid, click **Edit Attributes**.
   
   You can also right-click an object, click **Properties**, and then click **Member Attributes**.

2. To see the attributes that were defined by Business Viewpoint Studio, select the **Show system attributes** check box and select the check box next to the attribute in the **Visible** column.
3. To display an attribute in the studio, select the check box in the Visible column for the attribute.

4. To hide an attribute, clear the check box in the Visible column for the attribute.

5. Click OK.

**Changing the order of attributes**

You can change the order of attributes to reflect the needs of your users. For example, you want city to display next to the name of the store in a customer dimension.

**Steps**

1. In the grid, click Edit Attributes.
   
   You can also right-click an object, click Properties, and then click Member Attributes.

2. Select the check box in the Select column for the attribute.

3. Click the arrows until the attribute displays in the correct location.

4. Click OK.

**Filtering**

Use a filter to find members in a list, a hierarchy, a level in a static hierarchy, a set, or a task in a workflow. You can filter data in the Explorer tab, the Grid tab, or the Diagram tab.

**Steps**

1. Select an object and click Filter.

2. Select the check box next to the attribute that you want to filter.

3. Define the filter for the type of attribute:

<table>
<thead>
<tr>
<th>Type of Attribute</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text</td>
<td>In the Find box, type the name of the member you want to find. When filtering a text attribute, you can select one of the following conditions: Greater than, Equals to, Not equals to, Less than, Starts with, Contains, Ends with.</td>
</tr>
<tr>
<td>Alias</td>
<td>In the Find box, type the name of the member you want to find. Select one of the following conditions: Equals, Starts With, Ends With, or Contains.</td>
</tr>
<tr>
<td>Date</td>
<td>Select a date from the calendar.</td>
</tr>
<tr>
<td>Decimal</td>
<td>In the Find box, type the number you want to find.</td>
</tr>
</tbody>
</table>
### Validation rules

Validation rules are expressions that put one or more constraints on the values that an attribute can have.

<table>
<thead>
<tr>
<th>Type of Attribute</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Integer</td>
<td>In the Find box, type the number you want to find.</td>
</tr>
<tr>
<td>Picklist</td>
<td>Select the value that you want to find.</td>
</tr>
<tr>
<td>Lookup</td>
<td>Select the value that you want to find.</td>
</tr>
</tbody>
</table>

When filtering a date, decimal, or integer attribute, you can select one of the following conditions:

- Greater than
- Equals to
- Not equals to
- Less than

For example, to display all employees who started with your organization before January 1, 2001, in the Filter list, select the check box next to the attribute for the start date, select January 1, 2001 from the calendar, click Greater than, and click Close to apply the filter.

4. To add another filter to the attribute you selected, click Add Constraint and define another filter.

The filters are connected with an OR. For example, you define the first filter to display the members whose names start with the letter A and you define the second filter to display members whose names start with the letter Z, you will see all members whose names start with A or Z.

5. Click Close to apply the filter.

The filters are added to the top of the pane.

6. To change a filter, click the filter at the top of the pane, select different check boxes for the attribute, and click Close.

7. To delete a filter for one attribute, do one of the following:
   - Click the filter at the top of the pane, click Clear this filter, and click Close.
   - Click Filter, click the attribute you want, click Clear this filter, and click Close.
   - At the top of the pane, click the X for the filter you want to remove.

To delete all filters, click Filter, click Clear all filters, and click Close.
New values that are entered for members are evaluated against the validation rule. Existing values are also evaluated and are highlighted as errors or warnings if they fail the rule. For example, you want your users to enter state data as two characters but some users have entered full names. You add the following rule to the state attribute \( \text{LEN}([\text{State}]) = 2 \). New values must be two characters. Existing values that are longer than two characters are highlighted.

If an existing value was a blank, it is not evaluated against the validation rule. If you delete a value and leave it blank, the blank value is evaluated against the validation rule.

If a value causes some part of the validation expression to result in an error, it fails the validation rule and the value is highlighted. For example, one member has the value of 0 in the Revenue attribute and the expression is \( 1/[\text{Revenue}] \). You cannot divide a number by zero so the value for this member fails the validation rule.

**How null values are handled**

When an attribute is used in a validation rule and the attribute contains blank cells, or null values, Business Viewpoint uses a default value depending on the data type of the attribute.

To change the default value, use \( \text{IF} (\text{ISBLANK} ([\text{attribute}])) \).

<table>
<thead>
<tr>
<th>Data type of the attribute</th>
<th>Default value</th>
</tr>
</thead>
<tbody>
<tr>
<td>boolean</td>
<td>false</td>
</tr>
<tr>
<td>string</td>
<td>the cell is left blank</td>
</tr>
<tr>
<td>number</td>
<td>0 (zero)</td>
</tr>
<tr>
<td>date</td>
<td>Mon Jan 01 00:00:00 EST 1900</td>
</tr>
</tbody>
</table>

**Adding a validation rule to an attribute**

You can create or open an attribute and add a validation rule to it. When you build a validation rule, the syntax is similar to that used in SQL commands or in Microsoft® Excel spreadsheets.

Note the following considerations:

- Strings must be surrounded by quotes. You can use single quotes or double quotes. For example, [Gender] = 'Male' or [Gender] = "Female".
- Attribute names are surrounded by square brackets. For example, [Standard Cost].

**Steps**

1. In the Content pane, click the list, hierarchy, or level where you want to add the validation rule, and click Edit Attributes in the grid.

2. Do one of the following:
   - To add a validation rule to an existing attribute, click the Select check box for the attribute that you want to use and click Edit.
To create a validation rule for a new attribute, click New. Name the attribute. To save the new attribute, click Apply.

3. Click Validation Rule.

4. Click Insert a template and select the template you want.

A template for the function is added to the Expression box. The template contains placeholders for attributes or text.

For example, if you select CONCATENATE, then the template CONCATENATE (string1, string2) is added and you must replace string1 and string2 with text or with attributes.

You can also type free-form text in the Expression box.

For more information, see "Logical functions for validation rules" (p. 87), "String functions" (p. 88), "Numeric functions for validation rules" (p. 89), and "Date functions for validation rules" (p. 90).

5. Highlight the placeholder in the new function and click Insert an attribute to replace it with an attribute from the list, hierarchy, or level where the attribute is located.

For example, if the function displays as ISBLANK (attribute), highlight attribute and replace it with an attribute.

If the attribute is a picklist or lookup that allows multiple values to be selected, expand the name of the attribute and select one or more of the values.

You do not see all attributes that are available in Business Viewpoint Studio. You see only the attributes that are contained in the object that you are working with. For example, if you are working with a list or hierarchy, you see only the attributes contained in the list or hierarchy. If you are working with a level, you see the attributes for this level and for its hierarchy.

You can also type free-form text in the Expression box. You must surround attribute names by square brackets and strings by single quotes or double quotes. For example, [Gender]="Female".

Typing free-form text is not supported for picklist values or look-up members.

6. Type the operators that you require.

For more information, see "Operators for validation rules" (p. 85).

7. Click Test to verify that the syntax of the validation rule is correct.

8. Select what will happen if the values entered for an attribute fail the rule.

- **Display a warning**: The values that fail the rule are highlighted. These values are saved.

- **Display an error**: The values that fail the rule are not saved and an error message is displayed.

If you are creating an attribute and adding a validation rule to the new attribute, do not use Display an error if there are existing objects in the scope of the new attribute and the rule fails for blank values. Otherwise you will not be able to complete the creation of the attribute.
If you are using a default value and the ISUNIQUE function, use Display a warning so that you can use values that are different from the default value.

9. If you selected Display an error, create an error message that will appear if an incorrect value is entered.

10. Click OK two times.

11. To see which values fail the rule, click Warnings in the grid. Only values that fail the rule are displayed.

For examples of validation rules, see the following:

- "Example - Enforcing uniqueness of the Employee Code attribute" (p. 91)
- "Example - Highlighting required attributes that are blank" (p. 92)
- "Example - Specifying how data is entered for an attribute" (p. 93)
- "Example - Enforcing a pattern" (p. 94)
- "Example - Requiring the use of one or two attributes" (p. 95)
- "Example - One date must be later than another date" (p. 96)
- "Example - Using one attribute value to validate the value in another attribute" (p. 96)

**Operators for validation rules**

Operators specify what happens to the values on either side of the operator. Operators are similar to functions, in that they manipulate data items and return a result.

To use an operator, you type it in the Expression box. You can use the following operators.

**And**

Combines multiple expressions for an attribute and all expressions are required to pass.

Returns "true" if the conditions on both sides of the expression are true.

Syntax: logical expression1 and logical expression2

**Or**

Combines multiple expressions for an attribute but only one is required to pass.

Returns "true" if either of "logical expression1" or "logical expression2" are true.

Syntax: logical expression1 or logical expression2

**Not**

Returns "true" if "logical expression" is false or returns "false" if "logical expression" is true. Use to reverse the result of a logical expression or an operator. Use with logical functions.

Syntax: not logical expression or not operator
For example, you can highlight empty cells in an attribute by using `not ISBLANK` where `ISBLANK` highlights cells with data.

`+`  
Adds together two numeric attributes or expressions.  
Syntax: `value1 + value2`

`-`  
Subtracts one numeric attribute or expression from another or indicates that a numeric attribute is a negative number.  
Syntax: `value1 - value2` or `- [attribute]`

`*`  
Multiplies one numeric attribute or expression by another.  
Syntax: `value1 * value2`

`/`  
Divides one numeric attribute or expression by another.  
Syntax: `value1 / value2`

`=`  
Compares the values in the attributes or expressions that are represented by "value1" to the values in the attributes or expressions that are represented by "value2" and returns "true" if both contain the same value. The two attributes must be of the same type. For example, both are decimal attributes. You cannot compare a decimal to a date.  
Syntax: `value1 = value2`  
For example, `LEN ([Province or State]) = 2` specifies that the Province or State attribute can be only two characters.

`<>`  
Compares the values in the attributes or expressions that are represented by "value1" against "value2" and returns "true" if both contain different values. The two attributes must be of the same type. For example, both are decimal attributes. You cannot compare a decimal to a date.  
Syntax: `value1 <> value2`

`<`  
Compares the values in the attributes or expressions that are represented by "value1" against "value2" and returns the values that are less than "value2". The two attributes must be of the same type. For example, both are decimal attributes. You cannot compare a decimal to a date.  
Syntax: `value1 < value2`
Compares the values in the attributes or expressions that are represented by "value1" against "value2" and returns the values that are less than or equal to "value2". The two attributes must be of the same type. For example, both are decimal attributes. You cannot compare a decimal to a date.

Syntax: value1 <= value2

Compares the values in the attributes or expressions that are represented by "value1" against "value2" and returns the values that are greater than "value2". The two attributes must be of the same type. For example, both are decimal attributes. You cannot compare a decimal to a date.

Syntax: value1 > value2

Compares the values in the attributes or expressions that are represented by "value1" against "value2" and returns the values that are greater than or equal to "value2". The two attributes must be of the same type. For example, both are decimal attributes. You cannot compare a decimal to a date.

Syntax: value1 >= value2

Identifies the beginning of an expression.

Syntax: (expression)

Identifies the end of an expression.

Syntax: (expression)

Logical functions for validation rules

Logical functions evaluate a condition as true or false.

Contains

Tests if a multiple-select picklist attribute or a multiple-select lookup attribute contains a specific value or set of values.

Syntax: CONTAINS (multiple_select_attribute, value1, value2, ...)

For example, CONTAINS ([Marketing Campaign], [Red], [Pink]) means that these two marketing campaigns must be specified for each product line.

If

Defines a condition. If the attribute values meet the condition, the true_expression part of the expression is used. If the attribute values do not meet the condition, the false_expression part of the expression is used.
Syntax: IF (condition, true_expression, false_expression)

For example, IF (ISBLANK, ([Address]), not ISBLANK ([Phone Number]), true) highlights blank data in two attributes.

IsBlank

Tests if the attribute value is blank.

Syntax: ISBLANK (attribute)

For example, to see which European employees have a zip code in their address, ISBLANK ([Zip Code]) highlights the cells that contain data.

IsUnique

Tests if the attribute value is unique among all values for all members in the selected dimension or list. The context argument must be either the 'DIMENSION' or 'LIST' keyword. If the attribute is a picklist or lookup, it must display only one value not multiple values.

Syntax: ISUNIQUE (attribute, context)

For example, ISUNIQUE ([Employee_Code], list) specifies that Employee Code is a required attribute.

String functions

String functions deal with text strings. They generally apply to text and alias attributes but some apply to decimal, integer, picklist, and lookup attributes as well.

Concatenate

Combines strings from multiple attributes into one string.

Syntax: CONCATENATE (string1, string2, ...)

For example, CONCATENATE (STR ([ID], "-", [Name]) combines a numeric attribute, ID, with a text attribute, Name.

Left

Extracts the specified number of characters from the left side of a text attribute.

Syntax: LEFT (text, N)

For example, LEN ([Phone number]) =8 and RIGHT (LEFT([Phone number], 4),1) ="-" ensures that phone numbers are entered as ####-#####.

Len

Returns the number of characters in the attribute. If you include an operator and a number, you can limit the number of characters that can be entered for an attribute.

Syntax: LEN (text)

For example, LEN ([Province or State]) =2 specifies that the Province or State attribute can be only two characters.
Lower

Converts the uppercase characters to lowercase. Use to ensure consistency when testing strings.

**Syntax:** `LOWER (text)`

For example, `LOWER ([Province or State])` ensures that the province or state is entered as lowercase characters.

Right

Extracts the specified number of characters from the right side of a text attribute.

**Syntax:** `RIGHT (text, N)`

For example, `LEN ([Phone number]) = 8` and `RIGHT (LEFT ([Phone number], 4), 1) = "-"` ensures that phone numbers are entered as ###-####.

Str

Returns the string representation of a number. This function is typically used when a numeric attribute needs to be treated as a text attribute in an expression. `Str` is similar to the `Cast` function.

**Syntax:** `STR (number)`

For example, `CONCATENATE (STR ([ID], "-", [Name])` combines a numeric attribute, ID, with a text attribute, Name.

Trim

Removes spaces from the beginning or end of string values.

**Syntax:** `TRIM (text)`

For example, `TRIM ([Attribute 1]) = ([Attribute 2])` removes spaces from either the beginning or end of Attribute 1 so that it will match Attribute 2.

Upper

Converts the lowercase characters to uppercase. Use to ensure consistency when testing strings.

**Syntax:** `UPPER (text)`

For example, `UPPER ([Province or State])` ensures that the province or state is entered as uppercase characters.

**Numeric functions for validation rules**

Numeric functions are generally used with the decimal or integer attribute.

Dec

Returns the decimal representation of an integer. This function is typically used when an integer attribute needs to be treated as a decimal attribute in an expression.

**Syntax:** `DEC (number)`
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Round

Rounds to a specified number of decimal places. If `decimal_places` is greater than zero, the number is rounded to the specified number of decimal places. If `decimal_places` is zero, the number is rounded to the nearest integer. If `decimal_places` is less than zero, the number is rounded to the left of the decimal place.

Syntax: `ROUND (number, decimal_places)`

For example, `ROUND (1234.65, 1)` results in the number being rounded to 1234.7 and `ROUND (1234.65, -1)` results in the number being rounded to 1230.

Value

Returns the numeric representation of a string. This function is typically used when a text attribute needs to be treated as a numeric attribute in an expression.

Syntax: `VALUE (string)`

For example, `CONCATENATE (VALUE ([Name], "-", [ID])` combines a text attribute, `Name`, with a numeric attribute, `ID`.

Date functions for validation rules

Date functions are used to manipulate and construct date values within an expression.

DateAddDays

Adds a specified number of days to a specified date. This function can be used in a validation rule for any type of attribute but the first attribute or function used in the rule must be a date attribute or a date function.

Syntax: `DATEADDDAYS (date, days)`

For example, `${Warranty Expiry Date} < DateAddDays([Purchase Date], 30)` indicates that the warranty expires 30 days after the purchase date.

DateValue

Converts text strings to dates using a common format. For example, you imported a text attribute and want to use it in a date function.

Syntax: `DATEVALUE (date_string)`

Use one of the following date formats as the `date_string`:

- `yyyy-MM-dd`
- `yyyy-MM-dd HH:mm:ss`
- `yyyy-MM-dd HH:mm:ss.SSS`
- `MM/dd/yy`
- `MM/dd/yyyy`
- `yyyy-MM-dd`
• dd-MMM-yy
• dd-MMM-yyyy
• yyyy.MM.dd.HH.mm.ss

For example, adding `NOW() < DateValue("2010-03-31 16:00:00")` as a validation rule to a text attribute means that data can be entered in the text attribute until four in the afternoon.

**Now**

Returns today’s date and time.

Syntax: `NOW ()`

For example, adding `NOW() < DateValue("2010-03-31 16:00:00")` as a validation rule to a text attribute means that data can be entered in the text attribute until 4:00 p.m.

**Today**

Returns today’s date.

Syntax: `TODAY ()`

For example, `[Date Hired] = TODAY ()` highlights all employees who started earlier than today’s date.

**Example - Enforcing uniqueness of the Employee Code attribute**

In this example, the Employees list contains an attribute called Employee Code. Each employee code must be unique.

**Steps**

1. In the Content pane, click the Employees list.
2. Click the Edit Attributes button.
3. Select the Select check box for the Employee Code attribute and click Edit.
4. In the Edit Attribute dialog box, click Validation Rule.
5. Click Insert a template to display the list of expressions and click ISUNIQUE (attribute, context).

A template for the function is added to the Expression box. The template contains placeholders for the attribute and its context.

You can also type free-form text in the Expression box.

6. To fill in the template’s placeholders, do the following:
   - Highlight the attribute placeholder.
   - Click Insert an attribute and then click the Employee Code attribute.

You do not see all attributes that are available in Business Viewpoint Studio. You see only the attributes that are contained in the Employees list.
To specify that the attribute is found in a list, highlight the context placeholder and type list.

The expression looks like this:

```
ISUNIQUE ([Employee Code], list)
```

7. Click Test to verify that the syntax of the validation rule is correct.

8. Because you do not want your users to enter a duplicate employee code, select Display an error and create an error message that will appear if an incorrect value is entered.

   For example, the custom error message might be: "You have entered a duplicate employee code."

9. Click OK two times.

When you enter a number that is already used in the Employee Code attribute, you see an error message and the cell is highlighted. The duplicate number is not saved.

Example - Highlighting required attributes that are blank

In this example, many nominators added members to the Customers list. Some of the nominators left the Work Phone attribute blank because they did not know this information. Because the phone number is a required attribute, you want to highlight the blank cells so that it is easier to see where more information needs to be gathered.

Steps
1. In the Content pane, click the Customers list.
2. Click the Edit Attributes button.
3. Select the Select check box for the Work Phone attribute and click Edit.
4. In the Edit Attribute dialog box, click Validation Rule.
5. Type the word Not and a space.
   If you omit the word Not, the cells that are not blank will be highlighted.
6. Click Insert a template to display the list of expressions and click ISBLANK (attribute).
   A template for the function is added to the Expression box. The template contains a placeholder for the attribute.
   You can also type free-form text in the Expression box.
7. To fill in the template’s placeholder, do the following:
   - Highlight the attribute placeholder.
   - Click Insert an attribute and then click the Work Phone attribute.
     You do not see all attributes that are available in Business Viewpoint Studio. You see only the attributes that are contained in the Customers list.

   The expression looks like this:
Example - Specifying how data is entered for an attribute

In this example, you imported data for the Customers hierarchy. When your users add data to the Province or State attribute, you want them to enter the data as all uppercase and in two characters.

Steps
1. In the Content pane, click the Customers hierarchy.
2. Click the Grid tab.
3. Click the Edit Attributes button.
4. Select the Select check box for the Province or State attribute and click Edit.
5. In the Edit Attribute dialog box, click Validation Rule.
6. To limit the length of the data entered in the attribute, do the following:
   - Click Insert a template to display the list of expressions and click LEN (text).
     A template for the function is added to the Expression box. The template contains a placeholder for a text string or an attribute.
     You can also type free-form text in the Expression box.
   - Highlight the text placeholder.
   - Click Insert an attribute and then click the Province or State attribute.
     You do not see all attributes that are available in Business Viewpoint Studio. You see only the attributes that are contained in the Customers hierarchy.
   - After the closing parenthesis, type =2
7. To enforce that the data is entered as all uppercase characters, do the following:
   - After the =2, add the word and with a space before and after it.
   - Click Insert a template and click UPPER (text).
   - Highlight the text placeholder.
   - Click Insert an attribute and then click the Province or State attribute.
   - Add = and the Province or State attribute.

The expression looks like this:

LEN ([Province or State]) =2 and UPPER ([Province or State]) = [Province or State]
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8. Click Test to verify that the syntax of the validation rule is correct.

9. Because you do not want your users to enter states or provinces that are longer than two characters or in lowercase characters, select Display an error and create an error message that will appear if an incorrect value is entered.

   For example, the custom error message could be: "States or provinces must be only two characters and in all uppercase."

10. Click OK two times.

Example - Enforcing a pattern

In this example, the Employees list for North America contains an attribute called Work Phone. You want to ensure that the following pattern is used:

###-####

Steps

1. In the Content pane, click the Employees list.

2. Click the Edit Attributes button.

3. Select the Select check box for the Work Phone attribute and click Edit.

4. In the Edit Attribute dialog box, click Validation Rule.

5. To limit the length of the data entered in the attribute, do the following:
   - Click Insert a template to display the list of expressions and click LEN (text).
     A template for the function is added to the Expression box. The template contains a placeholder for a text string or an attribute.
     You can also type free-form text in the Expression box.
   - Highlight the text placeholder.
   - Click Insert an attribute and then click the Work Phone attribute.
     You do not see all attributes that are available in Business Viewpoint Studio. You see only the attributes that are contained in the Employees list.
   - After the closing parenthesis, type =8

6. To insert a hyphen after three digits, do the following:
   - To add another expression, type and after the 8.
   - Click Insert a template and click RIGHT (text, N).
   - Highlight the text, N placeholders.
   - Click Insert a template and click LEFT (text, N).
   - Highlight the text placeholder.
Click **Insert an attribute** and then click the Work Phone attribute.

Replace the \(N\) placeholder with \(4),1 = \) "-" to insert a hyphen in the phone number.

The expression looks like this:

\[
\text{LEN ([Work Phone]) = 8 and RIGHT (LEFT ([Work Phone], 4),1) = "-"}
\]

7. Click **Test** to verify that the syntax of the validation rule is correct.

8. Because you want to highlight the phone numbers that do not match this pattern, select **Display a warning**.

9. Click **OK** two times.

**Example - Requiring the use of one or two attributes**

In this example, you want either a telephone number or an address for each employee.

**Steps**

1. In the **Content** pane, click the Employees hierarchy.

2. Click the **Edit Attributes** button.

3. Select the **Select** check box for the Work Phone attribute and click **Edit**.

4. In the **Edit Attribute** dialog box, click **Validation Rule**.

5. Click **Insert a template** to display the list of expressions and click **IF (condition, true_expression, false_expression)**.

A template for the function is added to the **Expression** box.

You can also type free-form text in the **Expression** box.

6. To specify that either the telephone number or the address is required, do the following:

   - Highlight the **condition** placeholder, click **Insert a template**, and click **ISBLANK (attribute)**.
   
   - Highlight the **attribute** placeholder, click **Insert an attribute**, and click Work Phone.
   
   - Highlight the **true_expression** placeholder, type **not**, click **Insert a template**, and click **ISBLANK (attribute)**.
   
   - Highlight the **attribute** placeholder, click **Insert an attribute**, and click Work Phone.
   
   - Highlight the **false_expression** placeholder and type **true**.

The expression looks like this:

\[
\text{IF (ISBLANK ([Address]), not ISBLANK ([Work Phone]), true)}
\]

7. Click **Test** to verify that the syntax of the validation rule is correct.
8. Because you want to highlight the blank cells in the Work Phone and Address attributes, select **Display a warning**.

9. Click **OK** two times.

**Example - One date must be later than another date**

In this example, your users will be adding information about contractors and summer students. You want to enforce that the termination dates for these employees must be later than the dates they were hired.

**Steps**

1. In the **Content** pane, click the Employees list.

2. Click the **Edit Attributes** button.

3. Select the **Select** check box for the Termination Date attribute and click **Edit**.

4. In the **Edit Attribute** dialog box, click **Validation Rule**.

5. Click **Insert an attribute** and select the Termination Date attribute.

6. Type `>` to add the greater than operator.

7. Click **Insert an attribute** and select the Date Hired attribute.

   The expression looks like this:
   
   `[Termination Date] > [Date Hired]`

8. Click **Test** to verify that the syntax of the validation rule is correct.

9. Because you want to be able to leave the Termination Date attribute blank while highlighting the values that are entered incorrectly, select **Display a warning**.

   Incorrect values and empty cells in the Termination Date attribute will both be highlighted.

10. Click **OK** two times.

**Example - Using one attribute value to validate the value in another attribute**

In this example, you want to see which account numbers have the wrong account type assigned to them. Account numbers that are greater than 2000 are Income accounts while account numbers that are less than 2000 are Expense accounts.

**Steps**

1. In the **Content** pane, click the Accounts list.

2. Click the **Edit Attributes** button.

3. Select the **Select** check box for the Account Number attribute and click **Edit**.

4. In the **Edit Attribute** dialog box, click **Validation Rule**.
5. Click **Insert a template** to display the list of expressions and click **IF** *(condition, true_expression, false_expression)*.

A template for the function is added to the **Expression** box.

You can also type free-form text in the **Expression** box.

6. To specify that account numbers will be validated by this rule, do the following:
   - Highlight the **condition** placeholder, click **Insert an attribute**, and select the Account Number attribute.
   - Type > 2000 after the Account Number attribute.

   The expression looks like this:
   
   IF ([Account number]>2000, true_expression, false_expression)

7. To specify that the accounts greater than 2000 will be marked as an Income Account Type, do the following:
   - Highlight the **true_expression** placeholder, click **Insert an attribute**, and select the Account Type attribute.
   - Type =
   - Click **Insert an attribute**, expand the Account Type attribute, and click Income.

   The expression looks like this:
   
   IF ([Account number]>2000,[Account type] = [Income], false_expression)

8. To specify that the accounts less than 2000 will be marked as an Expense Account Type, do the following:
   - Highlight the **false_expression** placeholder, click **Insert a template** and select the Account Type attribute.
   - Type =
   - Click **Insert an attribute**, expand the Account Type attribute, and click Expense.

   The expression looks like this:
   
   IF ([Account number] > 2000, [Account type] = [Income], [Account type] = [Expenses])

9. Click **Test** to verify that the syntax of the validation rule is correct.

10. To highlight the values that are entered incorrectly, select **Display a warning**.

11. Click **OK** two times.
Calculations

Calculated attributes are calculations that you create in IBM® Cognos® Business Viewpoint Studio. To create a calculation, you combine operators, functions, attributes, and values (such as text strings and numbers) into an expression that evaluates to a single value.

How null values are handled

When an attribute is used in a calculation and the attribute contains blank cells, or null values, Business Viewpoint uses a default value depending on the data type of the attribute.

To change the default value, use `IF (ISBLANK ([attribute]))`.

<table>
<thead>
<tr>
<th>Data type of the attribute</th>
<th>Default value</th>
</tr>
</thead>
<tbody>
<tr>
<td>boolean</td>
<td>false</td>
</tr>
<tr>
<td>string</td>
<td>the cell is left blank</td>
</tr>
<tr>
<td>number</td>
<td>0 (zero)</td>
</tr>
<tr>
<td>date</td>
<td>Mon Jan 01 00:00:00 EST 1900</td>
</tr>
</tbody>
</table>

Creating a calculation

Calculated attributes are calculations that you create in IBM® Cognos® Business Viewpoint Studio. When you create a calculation, the syntax is similar to that used in SQL commands or in Microsoft® Excel spreadsheets.

Note the following considerations:

- Strings must be surrounded by quotes. You can use single quotes or double quotes. For example, `Gender='Male'` or `Gender="Female"`.
- Attribute names are surrounded by square brackets. For example, `[Standard Cost]`.

Steps

1. In the grid, click **Edit Attributes**.
   
   You can also right-click an object, click **Properties**, and then click **Member Attributes**.

2. Click **New**.

3. Type a name for the new calculation. You can also add a description.

4. From the **Type** box, select **Calculated**.

5. Click **Insert a template** and select the template you want.

A template for the function is added to the **Expression** box. The template contains placeholders for attributes or text.
For example, if you select CONCATENATE, then the template CONCATENATE (string1, string2) is added and you must replace string1 and string2 with text or with attributes.

You can also type free-form text in the Expression box.

For more information, see "Logical functions for calculations" (p. 101), "String functions for calculations" (p. 103), "Numeric functions for calculations" (p. 105), and "Date functions for calculations" (p. 106).

6. Highlight the placeholder in the new function and click Insert an attribute to replace it with an attribute from the list, hierarchy, or level where the attribute is located.

For example, if the function displays as ISBLANK (attribute), highlight attribute and replace it with an attribute.

If the attribute is a picklist or lookup that allows multiple values to be selected, expand the name of the attribute and select one or more of the values.

You do not see all attributes that are available in Business Viewpoint Studio. You see only the attributes that are contained in the object that you are working with. For example, if you are working with a list or hierarchy, you see only the attributes contained in the list or hierarchy. If you are working with a level, you see the attributes for this level and for its hierarchy.

You can also type free-form text in the Expression box. You must surround attribute names by square brackets and strings by single quotes or double quotes. For example, [Gender]="Female".

Typing free-form text is not supported for picklist values or look-up members.

7. Type the operators that you require.

For more information, see "Operators for calculations" (p. 99).

8. Click Test to verify that the syntax of the calculation is correct.

9. Click OK.

10. If you want to delete an attribute that you created, select the check box next to the attribute in the Select column, and click Delete.

You cannot delete system attributes.

11. Click OK.

Operators for calculations

Operators specify what happens to the values on either side of the operator. Operators are similar to functions, in that they manipulate data items and return a result.

To use an operator, you type it in the Expression box. You can use the following operators.

And

Combines multiple expressions for an attribute and all expressions are required to pass.

Returns "true" if the conditions on both sides of the expression are true.
Syntax: logical expression1 and logical expression2

**Or**

Combines multiple expressions for an attribute but only one is required to pass.
Returns "true" if either of "logical expression1" or "logical expression2" are true.
Syntax: logical expression1 or logical expression2

**Not**

Returns "true" if "logical expression" is false or returns "false" if "logical expression" is true. Use to reverse the result of a logical expression or an operator. Use with logical functions.
Syntax: not logical expression or not operator
For example, you can highlight empty cells in an attribute by using not ISBLANK where ISBLANK highlights cells with data.

**+**

Adds together two numeric attributes or expressions.
Syntax: value1 + value2

**-**

Subtracts one numeric attribute or expression from another or indicates that a numeric attribute is a negative number.
Syntax: value1 - value2 or - [attribute]

**\*\**

Multiplies one numeric attribute or expression by another.
Syntax: value1 * value2

**/\**

Divides one numeric attribute or expression by another.
Syntax: value1 / value2

**=\**

Compares the values in the attributes or expressions that are represented by "value1" to the values in the attributes or expressions that are represented by "value2" and returns "true" if both contain the same value. The two attributes must be of the same type. For example, both are decimal attributes. You cannot compare a decimal to a date.
Syntax: value1 = value2
For example, LEN ([Province or State]) = 2 specifies that the Province or State attribute can be only two characters.
Compares the values in the attributes or expressions that are represented by "value1" against "value2" and returns "true" if both contain different values. The two attributes must be of the same type. For example, both are decimal attributes. You cannot compare a decimal to a date.

Syntax: value1 <> value2

<

Compares the values in the attributes or expressions that are represented by "value1" against "value2" and returns the values that are less than "value2". The two attributes must be of the same type. For example, both are decimal attributes. You cannot compare a decimal to a date.

Syntax: value1 < value2

<=

Compares the values in the attributes or expressions that are represented by "value1" against "value2" and returns the values that are less than or equal to "value2". The two attributes must be of the same type. For example, both are decimal attributes. You cannot compare a decimal to a date.

Syntax: value1 <= value2

>

Compares the values in the attributes or expressions that are represented by "value1" against "value2" and returns the values that are greater than "value2". The two attributes must be of the same type. For example, both are decimal attributes. You cannot compare a decimal to a date.

Syntax: value1 > value2

>=

Compares the values in the attributes or expressions that are represented by "value1" against "value2" and returns the values that are greater than or equal to "value2". The two attributes must be of the same type. For example, both are decimal attributes. You cannot compare a decimal to a date.

Syntax: value1 >= value2

(

Identifies the beginning of an expression.

Syntax: (expression)

)

Identifies the end of an expression.

Syntax: (expression)

Logical functions for calculations

Logical functions evaluate a condition as true or false.
Chapter 3: Modeling dimensions

**Case**

Defines a condition. If the expression argument matches the value for a given `WHEN` clause, the result in the corresponding `THEN` clause is returned. If the expression does not match any of the `WHEN` values, the result specified in the optional `ELSE` clause is returned.

**Syntax:**
```plaintext
CASE expression WHEN value1 THEN result1 WHEN value2 THEN result2 ... ELSE resultN END
```

For example, `CASE [Country] WHEN 'Canada' THEN ([List Price] * 0.60) WHEN 'Australia' THEN [List Price] * 0.80 ELSE [List Price] END` converts the list price depending on the country that the product is sold in.

**Contains**

Tests if a multiple-select picklist attribute or a multiple-select lookup attribute contains a specific value or set of values.

**Syntax:**
```plaintext
CONTAINS (multiple_select_attribute, value1, value2, ...)
```

For example, `CONTAINS ([Marketing Campaign], [Red], [Pink])` means that these two marketing campaigns must be specified for each product line.

**If**

Defines a condition. If the attribute values meet the condition, the `true_expression` part of the expression is used. If the attribute values do not meet the condition, the `false_expression` part of the expression is used.

**Syntax:**
```plaintext
IF (condition, true_expression, false_expression)
```

For example, `IF (ISBLANK, ([Address]), not ISBLANK ([Phone Number]), true)` highlights blank data in two attributes.

**IsBlank**

Tests if the attribute value is blank.

**Syntax:**
```plaintext
ISBLANK (attribute)
```

For example, to see which European employees have a zip code in their address, `ISBLANK ([Zip Code])` highlights the cells that contain data.

**IsError**

Tests if an expression results in an error. The types of errors are:

- divide a numeric value by zero
- overflow -- the value is larger than the datatype can handle
- security -- the user does not have permission to see one of the attributes used in the calculation
- invalid argument -- one of the members is not a valid result of the expression

**Syntax:**
```plaintext
ISERROR (expression)
```
For example, `ISERROR (VALUE ([Name]))` returns an invalid argument error for the values in the Name attribute that are text strings.

**IsUnique**

Tests if the attribute value is unique among all values for all members in the selected dimension or list. The context argument must be either the 'DIMENSION' or 'LIST' keyword. If the attribute is a picklist or lookup, it must display only one value not multiple values.

Syntax: `ISUNIQUE (attribute, context)`

For example, `ISUNIQUE ([Employee_Code], list)` specifies that Employee Code is a required attribute.

**String functions for calculations**

String functions deal with text strings. They generally apply to text and alias attributes but some apply to decimal, integer, picklist, and lookup attributes as well.

**Concatenate**

Combines strings from multiple attributes into one string.

Syntax: `CONCATENATE (string1, string2, ...)`

For example, `CONCATENATE (STR ([ID], "-", [Name])` combines a numeric attribute, ID, with a text attribute, Name.

**Left**

Extracts the specified number of characters from the left side of a text attribute.

Syntax: `LEFT (text, N)`

For example, `LEN ([Phone number]) = 8 and RIGHT (LEFT ([Phone number], 4), 1) = "-"` ensures that phone numbers are entered as ###-####.

**Len**

Returns the number of characters in the attribute. If you include an operator and a number, you can limit the number of characters that can be entered for an attribute.

Syntax: `LEN (text)`

For example, `LEN ([Province or State]) = 2` specifies that the Province or State attribute can be only two characters.

**Lower**

Converts the uppercase characters to lowercase. Use to ensure consistency when testing strings.

Syntax: `LOWER (text)`

For example, `LOWER ([Province or State])` ensures that the province or state is entered as lowercase characters.
Mid

Extracts a substring from a string. The first numeric argument (N) specifies the starting position of the substring. The second numeric argument specifies the number of characters in the substring.

Syntax: MID (text, N, N)

For example, product codes start with five letters followed by several numbers. To change the product codes to display only the first three numbers, use this calculation, MID ([Product Code], 5, 3), to reduce the product code to the first three numbers only.

Replace

Replaces a set of characters in a string. The first numeric argument (N) specifies the starting position in the first text argument and the second numeric argument specifies the number of characters to replace in the first text argument.

Syntax: REPLACE (text, N, N, text)

For example, to change the year from 2010 to 2011, use this calculation, REPLACE ("2010", 3, 2, "11").

Right

Extracts the specified number of characters from the right side of a text attribute.

Syntax: RIGHT (text, N)

For example, LEN ([Phone number]) =8 and RIGHT (LEFT ([Phone number], 4),1) ="-" ensures that phone numbers are entered as ###-####.

Str

Returns the string representation of a number. This function is typically used when a numeric attribute needs to be treated as a text attribute in an expression. Str is similar to the Cast function.

Syntax: STR (number)

For example, CONCATENATE (STR ([ID], ",", [Name]) combines a numeric attribute, ID, with a text attribute, Name.

Substitute

Substitutes a set of characters specified in the first text argument with the characters specified in the second text argument. The numeric argument (N) specifies how many instances of the set of characters to replace. The numeric argument is optional. If you omit it, every occurrence of the characters is replaced.

Syntax: substitute (text, text, N)

For example, substitute ("Pares", "Paris", 1) results in the first instance of Pares being replaced with Paris.

Trim

Removes spaces from the beginning or end of string values.
Syntax: TRIM (text)

For example, TRIM ([Attribute 1]) = ([Attribute 2]) removes spaces from either the beginning or end of Attribute 1 so that it will match Attribute 2.

**Upper**

Converts the lowercase characters to uppercase. Use to ensure consistency when testing strings.

Syntax: UPPER (text)

For example, UPPER ([Province or State]) ensures that the province or state is entered as uppercase characters.

**Numeric functions for calculations**

Numeric functions are generally used with the decimal or integer attribute.

**Dec**

Returns the decimal representation of an integer. This function is typically used when an integer attribute needs to be treated as a decimal attribute in an expression.

Syntax: DEC (number)

**Round**

Rounds to a specified number of decimal places. If decimal_places is greater than zero, the number is rounded to the specified number of decimal places. If decimal_places is zero, the number is rounded to the nearest integer. If decimal_places is less than zero, the number is rounded to the left of the decimal place.

Syntax: ROUND (number, decimal_places)

For example, ROUND (1234.65, 1) results in the number being rounded to 1234.7 and ROUND (1234.65, -1) results in the number being rounded to 1230.

**Trunc**

Truncates to a specified number of digits relative to the decimal point. TRUNC is for numbers only. Use the LEFT function for text strings.

Syntax: TRUNC (number, N)

For example, TRUNC (3.14159265, 3) returns 3.141.

**Value**

Returns the numeric representation of a string. This function is typically used when a text attribute needs to be treated as a numeric attribute in an expression.

Syntax: VALUE (string)

For example, CONCATENATE (VALUE ([Name], "-", [ID]) combines a text attribute, Name, with a numeric attribute, ID.
Date functions for calculations

Date functions are used to manipulate and construct date values within an expression.

DateAddDays

Adds a specified number of days to a specified date. This function can be used in a validation rule for any type of attribute but the first attribute or function used in the rule must be a date attribute or a date function.

Syntax: DATEADDAYS (date, days)

For example, `[Warranty Expiry Date] < DateAddDays([Purchase Date], 30)` indicates that the warranty expires 30 days after the purchase date.

DateValue

Converts text strings to dates using a common format. For example, you imported a text attribute and want to use it in a date function.

Syntax: DATEVALUE (date_string)

Use one of the following date formats as the `date_string`:

- yyyy-MM-dd
- yyyy-MM-dd HH:mm:ss
- yyyy-MM-dd HH:mm:ss.SSS
- MM/dd/yy
- MM/dd/yyyy
- yyyy-MM-dd
- dd-MMMM-yyyy
- yyyy.MM.dd
- dd-MMM-yyyy
- yyyy.MM.dd.HH.mm.ss

For example, adding `NOW() < DateValue("2010-03-31 16:00:00")` as a validation rule to a text attribute means that data can be entered in the text attribute until four in the afternoon.

Now

Returns today’s date and time.

Syntax: NOW ()

For example, adding `NOW() < DateValue("2010-03-31 16:00:00")` as a validation rule to a text attribute means that data can be entered in the text attribute until 4:00 p.m.

Today

Returns today’s date.

Syntax: TODAY ()
For example, `[Date Hired] = TODAY ()` highlights all employees who started earlier than today’s date.

Sets

A set is a filter that you can reuse.

For example, the Employee dimension contains all employees including retirees and employees who have left the company. You create a set to see only current employees and you create another set to see only retirees.

To work with sets, you can do the following:

- Create a set. For more information, see "Creating sets" (p. 107).
- Add comments to a set. For more information, see "Adding comments to an object" (p. 32).
- Modify a set. For more information, see "Modifying a set" (p. 108).

Creating sets

A set is a filter that you can reuse.

For example, the Products dimension contains all products in all product lines. You create a set for each product line.

Using a set differs from filtering, which is done on an ad hoc basis. For more information, see "Filtering" (p. 81).

Steps

1. Expand the dimension that you want to work with.
2. Right-click the Sets folder and click New Set.
3. Type a name for the new set. You can also add a description.
4. Click Change Context, select a list, hierarchy, or level for the set, and click OK.
   - The context determines the attributes that will be available for the set.
5. Click Apply to save the set.
6. Click Rules to define the filter for the set.
   - All attributes that are picklists or lookups are displayed in the Filter Definition box.
7. For the picklist and lookup attributes, select the values that you want to include in the filter definition.
8. If you want to use other attributes in the filter definition, do the following:
   - In the Filter Definition box, click Display all attributes.
   - For each attribute you want to use, select starts with, contains, or ends with and then type the text that is to be matched.
9. To include members that do not match the filter definition, click Add under Included Members and select the members.

10. To exclude members that match the filter definition, click Add under Excluded Members and select the members.

11. Click Apply to save the set.

12. To preview the set, click Preview.

13. To display or hide attributes for the set, click Member Attributes and select or clear the check box next to the attribute name.

14. Click Permissions or External Permissions to define who can access the set.

   For more information, see "Defining permissions" (p. 125).

15. Click OK.

When viewing the set, you can edit the attribute filters in the set. Then, when you add members, they are associated with the filtered attribute. For example, a set displays all cities in two countries. You want to add cities to one country. You change the filter to display data for that country. When you add a city, the country attribute is filled in with the country you selected.

### Modifying a set

You can edit a set to modify the filter definition, attributes, and permissions associated with it. You can also view the history of changes made to the set.

For example, you have a set that lists employees in Spain. You can change the filter definition to display employees in the Andalucia region of Spain.

#### Steps

1. Right-click a set and click Properties.

2. To change the name, description, or owner of the set, click Definition.

3. To use a different list, hierarchy, or level for the set, click Change Context.

4. To change the filter definition, click Rules and do one or more of the following:
   - Change which attributes display in the set by changing the rules for the attributes in the Filter Definition box.
   - Include members that do not match the filter definition, click Add under Included Members and select the members.
   - Exclude members that match the filter definition, click Add under Excluded Members and select the members.
   - Click Apply to save the set.

5. To display or hide attributes for the set, click Member Attributes.

6. To preview the set, click Preview.
7. To specify who has access to this set, click **Permissions** or **External Permissions**.
   For more information, see "Defining permissions" (p. 125).

8. To view the list of changes made to the set, click **History**.

9. Click **OK**.
Chapter 3: Modeling dimensions
In IBM® Cognos® Business Viewpoint, you can move fact data into IBM Cognos TM1® from a number of external data applications, including other IBM Cognos TM1 servers. This capability allows you to leverage information that is critical to fully define your business view for planning and analysis.

A link can be created in Business Viewpoint that enables fact data movement between two data stores, such as source and target data stores. The purpose of the link is to capture dimension and member mappings, while filtering on unpaired dimensions, which defines how fact data is moved between source and target data stores. To help ensure data quality, links can automatically leverage dimension and member mappings that are included in approved master dimensions. You can define mappings during link creation. Additionally, members can be mapped based on name or substring.

IBM Cognos TM1 applications can be sourced directly or through an IBM Cognos package. All other supported external applications can only be sourced through an IBM Cognos package.

For example, the following diagram shows some of the fact data that may need to be collected in an Income Statement cube. As an example, suppose you want to move fact data from a cube called Revenue Plan in an IBM® Cognos® Enterprise Planning Contributor published data store to a cube called Income Statement on a TM1 server. You must first ensure that you have an IBM Cognos package that contains a dimensionally modeled representation of the Revenue Plan cube in the published data store. You must also know which parts of the Revenue Plan fact data are of interest to you and how that data is structured. The Revenue Plan may contain data for all products types, but the Income Statement cube that you are targeting may only be for sales of outdoor products. You must filter your revenue plan so that only outdoor product sales are included in the data transfer.
Registering the data store

In IBM® Cognos® Business Viewpoint, a data store is either a reference to a cube in an external data application or a namespace in an IBM Cognos package that sources data from an external data application.

Registering a data store creates a reference, which includes a list of dimension names that define the data store. It does not bring in fact data or dimension member data.

You can register the data store only for IBM Cognos TM1® systems or IBM Cognos systems.

You must know which system you want to use. If the system does not appear in the Systems folder, you must create it. For more information, see "Specifying the system" (p. 16).

You can also register a data store when importing hierarchies.

**Steps for an IBM Cognos TM1 system**

1. Create a new IBM Cognos TM1 system.
   - For more information, see "Specifying the system" (p. 16).
2. Right-click the system you created and click Register Data Store.
3. If prompted, log in with TM1 credentials.
4. Select a cube and click Next.
5. Click Finish.

Under the TM1 system you created, you see the data store and its dimensions. The data store is the name of the cube you selected.

**Steps for an IBM Cognos system**

1. Create a new IBM Cognos system.
   - For more information, see "Specifying the system" (p. 16).
2. Right-click the system you created and click Register Data Store.
3. If prompted, log in to the namespace.
4. Select a package and click Next.
5. Select the namespace in this package that you want to register, and click Next.
6. Click Finish.

Under the IBM Cognos system you created, you see the data store and its dimensions. The data store is the namespace you selected from the IBM Cognos package.

Accessing dimension member data

By default, data store dimensions point to dimensions in an external system. You can use them directly in links. You do not need to import or nominate the member data into IBM® Cognos®
Business Viewpoint. The external system is automatically accessed and the member data is retrieved when needed during link creation.

For each data store dimension that you want to use as a Business Viewpoint master dimension, you must specify how the dimension member data is to be accessed by choosing one of the following options:

- Reference the data store dimension to an existing Business Viewpoint master dimension in which the respective dimension has been reconciled with an appropriate dimension from a second data store. This allows you to take advantage of existing member mappings.
- Create a new Business Viewpoint master dimension and reconcile the two dimensions that need to be paired and then set the reference appropriately. This allows you to reuse the member mappings at a later time for other links.

**Referencing an existing master dimension**

This case applies when a dimension has already been referenced. If a data store dimension's lineage matches a single master dimension that already exists in Business Viewpoint Studio, the dimension is automatically referenced when the data store is registered. Otherwise, you have to explicitly set the reference.

To use a dimension that already exists in Business Viewpoint, complete the following steps:

**Steps to create or change a new reference**

1. Expand the data store that you created.
2. Right-click the dimension and click Create Master Reference.
3. In the Create Master Reference dialog, expand the Business Viewpoint dimension that you want to use. A hierarchy or list will appear.
4. Select the appropriate hierarchy or list.
5. Click OK.

**Creating a new master dimension**

To create a new Business Viewpoint master dimension and reconcile the two dimensions that are to be paired, you must move in the member data of the respective data store dimensions. You can either import or nominate the dimension based on the nature of the system against which the data store is registered.

**Example using an IBM Cognos system and IBM Cognos TM1 system**

For example, you want to create a master dimension in which you reconcile a source dimension (with a level-based hierarchy) from an IBM® Cognos® system and a target dimension from an IBM® Cognos® TM1® system.

**Static hierarchy**

1. Import a source dimension from the IBM Cognos system.
Chapter 4: Moving fact data

- Right-click the dimension in the data store and click **Import Data**.
- In the **Create or reuse a mapping** page, click **Create a new mapping** and click **Next**.
- In the **Define** the mapping page, click **Next** to import the dimension.
- In the **Save the mapping** page, optionally rename the import mapping and click **Next**.
- Click **Finish** and click **Close**.

2. In Business Viewpoint Client, nominate the target IBM Cognos TM1 system dimension into the static hierarchy of the newly created dimension:
   - Select the option **Add to an existing dimension**.
   - Under **Master Dimensions**, expand the newly created dimension and select the existing static hierarchy.
   - Click **Finish** and click **Close**.

   For more information, see the IBM Cognos Business Viewpoint Client **User Guide**.

3. In Business Viewpoint Studio, navigate to the static hierarchy, merge the members moved in from the source and target dimensions.

   For more information, see "**Merging members**" (p. 148).

4. The source and target data store dimensions will be automatically referenced to the reconciled dimension.

**Dynamic hierarchy**

1. In Business Viewpoint Client, nominate the target IBM Cognos TM1 system dimension into Business Viewpoint.
   - Select the option **Create a New Dimension**.
   - Select the option to create lists, relationship tables and parent/child dynamic hierarchies.
   - Click **Finish** and click **Close**.

   For more information, see the IBM Cognos Business Viewpoint Client **User Guide**.

2. In Business Viewpoint Studio, move in the members of the source IBM Cognos system dimension into the list of the newly created dimension by repeating the following steps for each level of the source dimension:
   - Expand the new dimension.
   - Right-click the list.
   - Select the option **Import Child Members**.
   - In the Define The Mapping page, map the business key as an attribute and set it as an identifier.
   - Click **Next** until **Finish**.
• Click Close.

For more information, see "Importing a new level-based hierarchy" (p. 52).

3. In Business Viewpoint Studio, navigate to the list and merge the members moved in from the source and target dimensions.

For more information, see "Merging members" (p. 148).

4. The source and target data store dimensions will be automatically referenced to the reconciled dimension.

Example using two IBM Cognos TM1 systems

For example, you want to create a master dimension in which you reconcile a source dimension from an IBM® Cognos® TM1® system and a target dimension from an IBM® Cognos® TM1® system.

Static hierarchy

1. In Business Viewpoint Client, nominate the source IBM Cognos TM1 system dimension into Business Viewpoint.
   • Select the option Create a New Dimension.
   • Click New Hierarchy.
   • Click Finish and click Close.

For more information, see the IBM Cognos Business Viewpoint Client User Guide.

2. In Business Viewpoint Client, nominate the target IBM Cognos TM1 system dimension into the static hierarchy of the newly created dimension:
   • Select the option Add to an existing dimension.
   • Under Master Dimensions, expand the newly created dimension and select the existing static hierarchy.
   • Click Finish and click Close.

For more information, see the IBM Cognos Business Viewpoint Client User Guide.

3. In Business Viewpoint Studio, navigate to the static hierarchy and merge the members moved in from the source and target dimensions.

For more information, see "Merging members" (p. 148).

4. The source and target data store dimensions will be automatically referenced to the reconciled dimension.

Dynamic hierarchy

1. In Business Viewpoint Client, nominate the source IBM Cognos TM1 system dimension into Business Viewpoint.
   • Select the option Create a New Dimension.


Chapter 4: Moving fact data

- Select the option to create lists, relationship tables and parent/child dynamic hierarchies.
- Click Finish and click Close.

For more information, see the IBM Cognos Business Viewpoint Client User Guide.

2. In Business Viewpoint Studio, nominate the target IBM Cognos TM1 system dimension into the newly created dimension:
   - Select the option Add to an existing dimension.
   - Under Master Dimensions, expand the newly created dimension and select the existing list.
   - Click Finish and click Close.

For more information, see the IBM Cognos Business Viewpoint Client User Guide.

3. In Business Viewpoint Studio, navigate to the list and merge the members moved in from the source and target dimensions.

For more information, see "Merging members" (p. 148).

4. The source and target data store dimensions will be automatically referenced to the reconciled dimension.

Importing all dimensions in a data store

If you are working with a data store registered from an IBM® Cognos® system, you can follow these steps to import all the dimensions in the data store:

1. Right-click the data store and click Import Data.
2. In the Create or reuse a mapping page, click Create a new mapping and click Next.
3. In the Define the mapping page, click Next to import all the dimensions.
4. In the Save the mapping page, optionally rename the import mapping and click Next.
5. Click Finish and click Close.

Previewing data

To help verify your data link, you can preview data before and after you run it. Previewing enhances your understanding of the details of the data. For example, you can preview the data to see the magnitude of the values, or whether a value is positive or negative. After running a link, you can preview the data again to ensure that the data movement completed successfully.

Steps

1. Right-click the data store you want to preview and click Preview.

   By default, you see the first three dimensions and the first three measures in the data store.

2. To preview a different view of the data store, click Show Members' Filter and do one or more of the following:
Creating a link

In IBM® Cognos® Business Viewpoint, you can now move fact data into IBM Cognos TM1® from a number of external data applications including other IBM Cognos TM1 servers. This capability enables you to easily bring in information that is critical to being able to more fully define your business view for planning and analysis. For example, you need to share data between your revenue plan and income statement, or between regional and consolidated applications.

To move fact data between source and target data stores, you create a link. The link captures dimension and member mappings as well as filters on unpaired dimensions to drive how the fact data is moved. To help ensure data quality, links can automatically leverage dimension and member mappings that are included as a part of approved master dimensions. Additionally, you can create the mappings when you create the link. Members can be mapped based on name or substring.

Before you can create a link, you must register the data stores and ensure that you have identified how the member data is to be accessed for each dimension. For more information, see "Registering the data store" (p. 112).

Steps

1. Right-click the Links folder and click New Link.
2. Type a name for the new link. You can also add a description.
3. To change who owns the link, click Change Owner, select a different user, and click OK.
4. Click Apply to save the link.
5. Specify who has access to this link, click Permissions.
   For more information, see "Defining permissions" (p. 125).
6. Click OK.
7. Drag the data store to use as the source into the Source box.
   You can also right-click the data store and click Add As Source.
8. Drag the data store to use as the target into the Target box.
   You can also right-click the data store and click Add As Target.
9. To delete the link, right-click it and click Delete.

For more information, see "Mapping dimensions" (p. 119).
Chapter 4: Moving fact data

Modifying a link

You can edit a link to modify its name, description, owner, and permissions. You can also view the history of changes made to the link.

Steps
1. Right-click the link you want to work with and click Properties.
2. To change the name, description, or owner of this link, click Definition.
3. To specify who has access to this link, click Permissions.
   For more information, see "Defining permissions" (p. 125).
4. To view the list of changes made to the link, click History.
5. Click OK.

Link attributes

You can review the properties of a particular link by selecting the link and clicking on Show Attributes. The following table lists the available attribute names and their supported values.

<table>
<thead>
<tr>
<th>Attribute Name</th>
<th>Attribute Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td>Name of the link</td>
</tr>
<tr>
<td>Description</td>
<td>Description of the link</td>
</tr>
<tr>
<td>dataDeliveryMode</td>
<td>Drop down options:</td>
</tr>
<tr>
<td></td>
<td>Store Values: The target cell value will be replaced with the incoming measure value.</td>
</tr>
<tr>
<td></td>
<td>Accumulate Value: The incoming measure value will be added to the value of the target cell.</td>
</tr>
<tr>
<td>skipZeroBlankValue</td>
<td>All incoming rows with a measure value of zero will be skipped during the data movement.</td>
</tr>
<tr>
<td>zeroOutDefaultTM1View</td>
<td>Drop down options:</td>
</tr>
<tr>
<td></td>
<td>True: If a default view exists for the target cube, it will overwritten with zeros before the fact data movement.</td>
</tr>
<tr>
<td></td>
<td>False: No action is taken on the default view of the target cube before the fact data movement.</td>
</tr>
</tbody>
</table>
**Mapping dimensions**

Depending on the nature of the fact data view that you want to use as the source and the fact data view that you want to target, you may need to first identify the source and target dimensions that can be logically paired together.

**Steps**

1. Click on the source dimension.
2. Ctrl+Click on the relevant target dimension.
3. By default, the mapping type is set to manual mapping.
   
   If you selected the wrong dimensions to map, right-click the dimension and click **Delete**.

**Mapping members**

For each set of source and target dimensions that have been mapped (paired together), you must now map the set of members.

You have the following options for mapping members:

- Manual mapping
- Substring
- Master dimension mapping rule

**Manual mapping**

If the members in the source and target dimensions do not match by name (or a substring of the name), map the members manually. By default, the mapping type is manual. For example, you have to manually map the members if the source is Jan-08 and the target item is 1-08.

**Substring**

If you can map the members through partial name matching, use a substring to map the members. You can use a substring to modify members based on the character position. For example, you can remove characters to create matching source and target dimensions.

When you use a substring, all the items that match the substring are rolled up into one item. For example, you have items named Budget 1, Budget 2, and Budget 3. If you applied the substring to use the first three characters, all three items are rolled into one dimension item to be loaded into the target.

You must choose to apply the substring immediately or when the link is run. If you apply the substring immediately, mappings are not changed even if the dimensions are changed or added in the source or target. If you apply the substring when you run the link, the substring is applied to all members in the source dimension.

**Master dimension mapping rule**
The master dimension mapping rule is used to infer relationships between members based on how dimensions that contribute to a master dimension are conformed. Conforming a dimension means importing members from two or more external dimensions and reconciling their members.

For example, you have a master dimension called Sales Regions that consists of members originating from North American Sales Region and European Sales Region dimensions on an external IBM Cognos system. You created the Sales Regions master dimension by defining a system representing the IBM Cognos system, bringing in the members of each external dimension into the Sales Regions dimension either through a nomination or import, then reconciling the members.

You register two data stores -- one that contains the European Sales Region dimension and one that contains the North American Sales Region dimension. These two dimensions are automatically mapped to the Sales Regions master dimension. You then create a link with the European Sales Region data store as the source and the North American Sales Region data store as the target. In the Link Editor, Business Viewpoint Studio recognizes that the European Sales Region and the North American Sales Region dimensions have been reconciled in a master dimension mapping rule to automatically map.

Steps

1. Click the link you want to work with.

2. To change how the members are displayed in the source and target, click the respective source or target dimension and then click the Edit button.

3. In the Link Editor, map members by doing one of the following:
   - Double-click a member in the source and double-click the matching member in the target.
   - Select several members at a time and drag them into the Member Mapping pane respectively.

4. If you select the wrong members to map, right-click the mapping and click Delete.
5. By default, the mapping type is set to manual. To change the rule used to map these members, click **Edit** and do one of the following:

<table>
<thead>
<tr>
<th>Goal</th>
<th>Action</th>
</tr>
</thead>
</table>
| Use characters at the beginning of the source and target members and apply the substring immediately | Select **Substring** from the **Rule Type** box.  
For example, you want to use the first three characters for both source and target. For both the Source Substring and Target Substring, select the **Beginning** check box and type 3 in the second box. |
| Use characters at the end of the source and target members and apply the substring immediately | Select **Substring** from the **Rule Type** box.  
For example, you want to use the portion of the source that starts at position x and goes to the end and you want to use the portion of the target that starts at position y and goes to the end.  
For the Source Substring, type x in the first box and select the **End** check box.  
For the Target Substring, type y in the first box and select the **End** check box. |
| Use characters at the beginning of the source members and apply the substring at run time | Select **Substring** from the **Rule Type** box.  
Click **Re-Calculate at link run time**.  
For example, you want to use the first five characters at the beginning of the source.  
For the Source Substring, select the **Beginning** check box and type 5 in the second box. |
| Use characters at the end of the source members and apply the substring at run time | Select **Substring** from the **Rule Type** box.  
Click **Re-Calculate at link run time**.  
For example, you want to use the portion of the source string that starts at position x and goes to the end.  
For the Source Substring, type x in the first box and select the **End** check box. |
| Apply a mapping rule from the master dimension in Business Viewpoint that corresponds to the data store | Select **Master Dimension Mapping Rule** from the **Rule Type** box. |
| Manually map the members | Select **No Rule**. |
6. Click OK.

7. To remove a mapping between members, right-click the mapping under **Mapping Type** and click **Delete**.

## Sign Reversal

In Business Viewpoint Studio, you can toggle the sign for measures.

For example, in the link editor, you have mapped the incoming Sales measure to the target Overheads measure. You want to reverse the sign of the Sales measure before it is delivered to the target measure.

**Steps**

1. Place your cursor over the Sales -> Overheads member mapping.

2. Click on the **Edit** button.

3. You will be presented with two options reflecting the credit or debit relationships between the two measures:
   - Overheads = Sales
   - Overheads = -Sales

   In this example, select the option Overheads = -Sales.

## Filtering an unmapped dimension

You might have items that cannot be mapped between source and target. For example, the target contains a dimension that is not in the source. In this case, filter the unmapped dimension to define which data will be transferred when the link is run.

**Steps**

1. Click the link you want to work with.

2. In the **Link Editor**, click the unmapped dimension in the source or target cube.

3. Right-click the member that you want to use as the filter and then click **Filter**.
   
   To remove the filter, right-click the member and click **Remove Filter**.

## Viewing a link in a diagram

You can work with a visual representation of data links and their relationships using a new business view diagram. The business view diagram shows how data links are coordinated between various data sources. You can see how data flows between parts of a solution or between parts of different processes.
For example, a business view diagram can help you to understand how expenses are stored in separate applications for the United States, Canada, and Europe, and then consolidated into one application.

**Steps**
1. Click the **Links** folder to use the **Diagram Editor**.

2. To view the dimensions of the source or target, click the down arrow in the box for the source or target.

3. To create a link, click the links button.
   
   For more information, see "Creating a link" (p. 117).

**Running a link**

After importing data and mapping dimensions, run the link to transfer data. If the data in the source changes later, run the link again to update the data.

**Steps**
1. Right-click the link and click **Run link**.

2. If prompted, log in to the IBM® Cognos® TM1® system to authenticate the transfer of data to the TM1 cube.

When the link has finished running, preview the target to view the new data.
Chapter 5: Governing and collaborating on dimensions

After modeling the dimension, you can involve others in collaborating on the content of the dimension while you maintain control over what is changed.

To govern and collaborate on the dimension that you modeled, do the following:

- Assign security to objects by user. For more information, see "Defining permissions" (p. 125).
- Apply version control with the ability to roll back to an earlier version. For more information, see "Version control" (p. 129).
- Establish a workflow and assign tasks to other business users. For more information, see "Workflows" (p. 132).
- Audit the changes made to each object. For more information, see "Change management" (p. 135).

Business users nominate data for their assigned areas. You reconcile any differences that are submitted by different nominators. You then send the reconciled dimension to reviewers to approve.

After the dimension is reviewed and approved, it is made available for other users and applications.

Defining permissions

Access permissions are security rules that define what you can view and change for each dimension, list, hierarchy, level, member, attribute, and set. If you are an administrator or the object owner, you can define access permissions for IBM Cognos Business Viewpoint Studio users and external users.

When you define external users, you identify an individual user or group from an IBM Cognos namespace and grant external security permissions to these users. These users or groups might not be users of Business Viewpoint. For information about defining users, see "Managing users" (p. 18).

Rules governing specified and acquired permissions

When you set access permissions for Business Viewpoint Studio users, you can propagate the permissions to all child objects within the object hierarchy. Specified permissions are the permissions that are applied directly to a Business Viewpoint Studio object. Acquired permissions are the permissions than an object acquires from a parent object as a result of the Propagate setting being enabled on the parent object.

The rules that govern the application of specified and acquired permissions to Business Viewpoint Studio objects are explained below.

Propagation permissions are applied only to dimensional objects. All propagation rules are in the context of the user to whom they are applied.
Permission Context | Result
--- | ---
Permission is applied directly to a Business Viewpoint Studio object | The permission defines access to the object.

Permission is applied directly to a Business Viewpoint Studio object, and the Propagate setting is enabled | The permission defines access to the object, and to all child objects.

The Business Viewpoint Studio object acquires the permissions set on the parent object, and additional permissions are set on the object itself with the Propagate setting enabled | The permissions set on the object itself take precedence over all acquired permissions for the object, and for the children of this object.

The Business Viewpoint Studio object acquires permissions set on multiple parent objects | The most restrictive permissions from among all the acquired permissions are applied to the object.

Exception: If the permissions are acquired by the object from its direct ancestor, these permissions take precedence over permissions applied to the hierarchy, list, set, level, or dimension that the object belongs to.

To define access permissions for Business Viewpoint Studio users, the users must already be defined. For more information, see "Managing users" (p. 18).

**Steps to define permissions for Business Viewpoint Studio users**

1. Right-click the object you want to define permissions for, and click Properties.
2. Click Permissions.
3. Click Add, select the users to add, and click OK.

   To apply the same access permissions to all Business Viewpoint Studio users, select Everyone.

4. To specify the basic permissions for each user, clear the View Advanced Security Rules check box and set the Read and Write check boxes:

<table>
<thead>
<tr>
<th>Goal</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>User can only view the object</td>
<td>Select the Read check box and clear the other check boxes.</td>
</tr>
<tr>
<td>User can view and update the object</td>
<td>Select the Read and Write check boxes and clear the other check box.</td>
</tr>
</tbody>
</table>
5. To specify whether users can create, modify, and delete objects, select the **View Advanced Security Rules** check box and select the appropriate check boxes:

<table>
<thead>
<tr>
<th>Goal</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>User can view and create the object but cannot modify or delete objects</td>
<td>Select the <strong>Read</strong> and <strong>Create</strong> check boxes and clear the other check boxes.</td>
</tr>
<tr>
<td>User can view, create, and modify the object but cannot delete objects</td>
<td>Select the <strong>Read</strong>, <strong>Create</strong>, and <strong>Update</strong> check boxes and clear the other check boxes.</td>
</tr>
<tr>
<td>User can view, create, modify, and delete the object</td>
<td>Select the <strong>Read</strong>, <strong>Create</strong>, <strong>Update</strong>, and <strong>Delete</strong> check boxes and clear the other check box.</td>
</tr>
<tr>
<td>User can view and delete the object but cannot create or modify objects</td>
<td>Select the <strong>Read</strong> and <strong>Delete</strong> check boxes and clear the other check boxes.</td>
</tr>
</tbody>
</table>

6. To propagate defined permissions to all child objects, select the **Propagate** check box.

   Click **Acquired Permissions** to see the user’s acquired permissions.

   When permissions are propagated to child objects, the child object properties can have permissions that are acquired from the parent object.

7. Click **OK**.

**Steps to define permissions for external users**

1. Right-click the object you want to define permissions for, and click **Properties**.
2. Click **External Permissions**.
3. Click **Add**.
4. Select the **System** and the **Namespace** that contains the users, groups, or roles you want to add, type your credentials to log in to the namespace, and then click **OK**.
5. Select the users, groups, or roles you want to add, and then click **OK**.

   You can also use the **Search** box to search for a user, group, or role by name.
6. To specify the basic permissions for each user, clear the **View Advanced Security Rules** check box and set the **Read** and **Write** check boxes:
To specify whether users can create, modify, and delete objects, select the View Advanced Security Rules check box and select the appropriate check boxes:

<table>
<thead>
<tr>
<th>Goal</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>User can view and create the object but cannot modify or delete objects</td>
<td>Select the Read and Create check boxes and clear the other check boxes.</td>
</tr>
<tr>
<td>User can view, create, and modify the object but cannot delete objects</td>
<td>Select the Read, Create, and Update check boxes and clear the other check boxes.</td>
</tr>
<tr>
<td>User can view, create, modify, and delete the object</td>
<td>Select the Read, Create, Update, and Delete check boxes and clear the other check boxes.</td>
</tr>
<tr>
<td>User can view and delete the object but cannot create or modify objects</td>
<td>Select the Read and Delete check boxes and clear the other check boxes.</td>
</tr>
</tbody>
</table>

For external permissions, the Propagate setting does not apply to Business Viewpoint Studio objects, but can be applied to the published objects in the consumer environment. To set access permissions for external users on multiple objects at one time, select the content object, and then click Grid. On the External Security tab, select a member, click Add, and then repeat steps 4 to 7.

8. Click OK.

**Viewing objects available to the Everyone user**

One of the default users in Business Viewpoint is the Everyone user. The other default user is the admin user. When you specify who can view or work with an object, you can select the Everyone user for that object. Unlike the admin user, the Everyone user is not listed in the Users folder. However, you can view which objects are visible to all users in Business Viewpoint.

**Steps**

1. Right-click the Users folder and click View objects secured by Everyone user.
2. To remove an object from the Everyone user, select the object and click Remove or Remove All.

3. Click OK.

**Viewing objects available to a user**

After defining permissions on objects, you can see the objects that a specific user has access to.

**Steps**

1. In the Users folder, right-click the user whose permissions you want to examine, and click Properties.
2. Click Objects Secured.
3. To remove permissions to the object for the user, select the check box next to each object and click Remove. To remove permissions for all objects, click Remove All.

   Note that attributes are not displayed on the Objects Secured tab.
4. Click OK.

**Version control**

A version captures the state of a dimension at a particular point in time.

There are different approaches when creating a new version of a dimension. You could create a new version after a major event, such as completing a planning process that contributes data. You could also create a new version at a specified time, such as the first day of every month.

**Creating a version**

A version captures the state of a dimension at a particular time.

The information that you can customize when creating a version includes:

- the name of the version
  
  By default, the name is the date and time that the version was created.
- the description of the version
- the owner of the version
- whether the version is public or private

A public version can be published and will appear in IBM® Cognos® Business Viewpoint Client as well as in Business Viewpoint Studio. A private version appears only in Business Viewpoint Studio. For example, you experiment with different ways to model a dimension, saving these as private versions. When you are ready to publish a version, you create a public version.

- additional information about the version that is available externally
For example, a text file contains information about outside systems that give context to the dimension.

External permissions are not included in the version.

**Steps**

1. Right-click the dimension, click *Version Management*, and click *Create New Version*.
   You can also click *Manage All Versions* and then click *Create a new version*.

2. In the **Name** box, type a name for the version.
   You can also add a description.

3. To change who owns the version, click *Change Owner* and select another user.

4. In the **Type** box, specify whether the version is public or private.

5. If additional information about the version is available externally, click *Attachments* and do one of the following:

<table>
<thead>
<tr>
<th>Goal</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Add a document</td>
<td>Click <em>Add New</em>. Type a name for the document. You can also add a description. If you are linking to a web page or shared file, click <em>Linked Content</em>, and enter the URL. If you are uploading content directly to the server, click <em>Embedded Content</em>, click <em>Browse</em> to locate the file, and then click <em>Upload Now</em>. Click <em>OK</em>.</td>
</tr>
<tr>
<td>Add a shortcut to a document that is attached to another dimension</td>
<td>Click <em>Cross-reference</em> and select the file. A shortcut to the document is created. Click <em>OK</em>.</td>
</tr>
</tbody>
</table>

6. If you want to specify who has access to this version, click *Permissions*.
   For more information, see "Defining permissions" (p. 125).

7. Click *Close*.

8. To open an attachment, do the following:
   - In the **Content** pane, click the dimension.
   - In the **Dimension Dashboard**, click the version that contains an attachment.
   - In the **Attachments** pane, click the name of the attachment.
9. To switch between versions, do the following:
   - Right-click the dimension, click Version Management, and click Switch to Version.
   - Select the version you want to view.

   Versions are read-only.

After you create the version, you can view or change its properties from the Dimension Dashboard by clicking a dimension in the Content pane and double-clicking the version. You can also right-click the version in the Dimension Dashboard and click Delete.

Reverting to an earlier version

You can revert to an earlier version. You permanently lose all changes that you saved in the versions created later than the version you are reverting to. Further, you permanently lose all changes that you made to the active dimension and did not save in a version.

For example, if you have ten versions and revert to version five, you permanently delete versions six to ten.

You should freeze the dimension so that other users do not add, change, or delete objects in the dimension while you are reverting to an earlier version.

Constraints:
   - If an IBM Cognos package or a Framework Manager model uses publications that are based on a version that you delete, these packages and models will not work.
   - If you changed the permissions or languages, these changes are not deleted.
   - If you created an attribute and then reverted to an earlier version, the attribute is not deleted but it does not contain any data.

Steps
1. Notify your users that you will be changing the dimension and that they need to log off.
2. Freeze the dimension by doing the following:
   - Log in as the administrator.
   - Right-click the dimension, click Properties, and click the Permissions tab.
   - Remove read and write permissions for all users except yourself.
   - Click OK.
3. Right-click the dimension, click Version Management, and click Manage All Versions.
4. Select the version to use, and click Revert to selected version.
5. Click Close.
   All versions that were created after the one you selected are deleted.
6. Change the permissions so that users can access the dimension.
Workflows

You use workflows to manage and control who works with data.

You assign a list, hierarchy, or set to nominators. The nominators are business users who are experts in a business domain. They will add, define, and modify objects in their assigned areas. They ensure that the objects are appropriate for their business usage. When they are done, they submit the nomination task back to you.

After reconciling the nominated data, you assign it to reviewers, who approve it before you publish it. Reviewers are business users with the authority to approve data structures.

To collaborate with others, you do the following:

- Set up the workflow and create the tasks. For more information, see "Setting up a workflow" (p. 132).
  You can add comments to a task. For more information, see "Adding comments to an object" (p. 32).
- Send the nomination tasks and review tasks. For more information, see "Sending the task" (p. 134).
- Monitor the progress of work completed for each task. For more information, see "Checking the progress of tasks" (p. 134).

You can also restart a completed workflow. For more information, see "Restarting a workflow" (p. 134).

Setting up a workflow

When you set up a workflow, you can create all the tasks, both nomination and review tasks, at the same time.

Before setting up a workflow, you must define users. For more information, see "Managing Business Viewpoint Studio users" (p. 19).

Steps

1. In the Workflows pane, right-click the Workflows folder and click New Workflow.
   You can also right-click a list, hierarchy, or set and click Create Workflow.

2. Type a name for the new workflow. You can also add a description.
   The workflow owner should be the person who will manage the workflow, which includes sending tasks to nominators and reviewers, checking the progress of tasks, and marking a workflow as complete.

3. To specify the list, hierarchy, or set for the workflow, click Change Context.

4. To save the workflow, click Apply.

5. To create tasks, do the following:
   - Click Tasks and click Create Task.
In the **Task Type** box, click **Nomination** or **Review** and add a description.

This description is added to the email notification sent to the task owner. Include instructions about how to complete the task.

In the **Task Owner** box, click **Change Owner** and select the user who will complete this task.

A list of nominators or reviewers appears. If you require a user who does not appear on the list, you must change their role. For more information, see "Managing Business Viewpoint Studio users" (p. 19).

6. If the hierarchy or list contains lookup attributes or picklist attributes, optionally filter the data by clicking **Activity Context** and selecting the values.

The person who is assigned this task will not be able to view or work with data that is outside the filter. For example, you select the Asia region for a nomination task. The nominator cannot change the filter to display data for Europe.

Because a set is a reusable filter, you cannot change the filter criteria here. If you want to change the data that is included in a set, change the set before including it in a task.

7. To create sub-tasks, click **Delegates**, click **Create Sub-task**, and create a task.

For example, you want several users to nominate data for a new sales region dimension. You assign each region to one user. You want these sub-tasks to roll up into one larger nomination task.

8. To link tasks, click **Dependencies** and add the tasks.

For example, salespeople are adding customers to a Customer dimension. You want the sales managers to automatically receive their review tasks when the salespeople finish nominating customers. To do this, you open each review task and add each nomination task as a dependency.

9. To set security on the task, click **Permissions**.

For more information, see "Defining permissions" (p. 125).

You can explore a workflow by clicking a dimension in the **Content** pane and then doing one or more of the following in the **Dimension Dashboard** on the right:

<table>
<thead>
<tr>
<th>Goal</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>View and change the properties for this dimension</td>
<td>Double-click the workflow.</td>
</tr>
<tr>
<td>Create another workflow for this dimension</td>
<td>Right-click a workflow and click <strong>New Workflow</strong>.</td>
</tr>
<tr>
<td>Start a workflow</td>
<td>Right-click a workflow and click <strong>Start</strong>.</td>
</tr>
<tr>
<td>Mark a workflow as complete</td>
<td>Right-click a workflow and click <strong>Complete</strong>.</td>
</tr>
</tbody>
</table>
Sending the task

You assign tasks to other users who will nominate data and review the nominations.

Step

- Do one of the following:
  - To send notifications to all users, in the Workflows pane, right-click the workflow that you created, and click Start.
  - To send a notification to the owner of one task, right-click the task, click Send Task Notification, and click OK.

You can check the progress of tasks. For more information, see "Checking the progress of tasks" (p. 134).

Checking the progress of tasks

After assigning tasks to other business users, you can easily see which tasks have been completed and which have not been started.

You can also view all members that were changed and are pending approval in one location. For more information, see "Viewing pending approvals" (p. 135).

Steps

1. In the Workflows pane, open the Workflows folder and open a workflow.
   You see a list of all tasks in the workflow.
   - An open red circle next to the task name means that the task has not been started.
   - A half-full yellow circle means that the task is in progress.
   - A closed green circle means that the task has been completed.
2. Click a task to see a list of all the changes made to it.
3. To contact the business users whose tasks are in progress, right-click the workflow, click Email task Owners, and then click Send Email to 'In Progress' Task Owners.
   You can also send an email to all task owners.
   You can also right-click a task and click Send Email to Task Owner.

Restarting a workflow

You can restart a completed workflow, which changes its status to "in progress". All tasks in the workflow are reset to the "not started" state. All revision marks are cleared.
You can also resend a notification by right-clicking the task and clicking **Send Task Notification**.

**Step**
- Right-click the completed workflow and click **Restart**.

### Change management

Change management involves auditing who made changes and what they changed. You can also review the lineage of maintenance history back to the source.

### Viewing a list of changes

You can view the changes made to each dimension, list, hierarchy, level, member, and workflow task. You can also see who made each change.

You can select one object or task to view a detailed list of changes made to it. You can also view the changes made to all the members of an object.

**Steps to view changes made to one object**
1. Right-click the object or workflow task and click **Properties**.
2. Click **History**.
   - You see a list of the changes organized by date.
   - You can print the list by copying and pasting the contents into another application.
3. Click **OK**.

**Steps to view changes made to all members**
1. Click the **Change Management** tab.
   - For hierarchies, click the **Grid** tab first.
2. To see the details about the changes made to a member, click **History**.
   - The **History** pane is updated with the details about the member that you select.

You can approve or reject nominations by right-clicking a member and clicking **Approve Nomination** or **Reject Nomination**. Or you can leave that task to the reviewers.

### Viewing pending approvals

You can view and approve all members that were changed and are pending approval in one location. When a member is changed or added, it appears with a red asterisk (*). Approved members appear with a green check mark.

If your role is nominator or administrator, you can view the pending approvals. If your role is modeler or reviewer, you can approve nominated data. Consumers cannot view pending approvals. For more information about roles, see "Managing Business Viewpoint Studio users" (p. 19).
If your role is modeler or administrator, you can remove the red asterisks from new or changed members and their children by right-clicking a member and clicking Clear Revisions.

**Steps**
1. Click the list, hierarchy, level, or member you want to work with.
2. Click the Grid tab.
3. Click the Change Management tab at the bottom of the pane.
4. To view only the members that are waiting for approval, click Nominated.
   - To view members that were recently approved, click Approved. To view members that were recently rejected, click Rejected.
5. Right-click a member and click Approve Nomination to approve the nominated member and all its children.
6. If you want to remove the red asterisks from new or changed members, right-click a member and click Clear Revisions.

**Viewing the lineage**

You can view the lineage of the maintenance history back to the source.

**Step**
- Right-click the member that you want to analyze, and click Lineage.
  - You see a diagram of the objects that are the source of the selected member as well as the objects that use the selected member.

**Restoring a deleted member**

You or another user deleted a member. If you are a reviewer, modeler, or administrator, you can reject the deletion of a member.

**Steps**
1. Click the list, hierarchy, or level that contains the deleted member you want to work with and, for hierarchies and levels, click the Grid tab.
2. Click the Change Management tab at the bottom of the pane.
   - The name of the deleted member appears with a line drawn through it.
3. Right-click the deleted member and click Reject Nomination.
   - The member moves to the list of rejected nominations.
4. To see the member, click Rejected.
5. To finalize the restoration of the member, click Approve All.
   - Only the rejected nominations are approved. To approve the nominations, click Nominated.
Chapter 6: Nominating data

IBM® Cognos® Business Viewpoint Studio helps organizations better manage their dimensional data. After a dimension has been modeled, it is sent to you so that you can nominate data based on your knowledge of your business domain.

To nominate data for an assigned area, do the following:

- Receive a nomination task. For more information, see "Receiving a nomination task" (p. 137).
  
  You can delegate the task to another user. For more information, see "Delegating the nomination task" (p. 137).

- Explore your assigned data. For more information, see "Exploring assigned data" (p. 138).

- Add data. For more information, see "Adding data" (p. 142).

- Submit the nominated data. For more information, see "Submitting the nominated data" (p. 146).

After you submit the nominated data, the modeler compares data from different nominators, if applicable, and reconciles any differences.

The reconciled data is then sent to reviewers to approve.

After the data has been reviewed and approved, it is made available to other users and applications.

Receiving a nomination task

You are assigned to nominate data based on your knowledge of your business domain. You receive an email with a link to the assigned area in IBM® Cognos® Business Viewpoint Studio.

Steps

1. Open the email you received, and click the link to the task.
2. When prompted to start the nomination task, click Close.

Delegating the nomination task

You can delegate the nomination task to another user.

Steps

1. Click Delegate.
2. Click Create Sub-task and do the following to create a task:
   - In the Task Type box, click Nomination.
   - Add a description for the person you are delegating the task to.
   - Select the list or hierarchy for the task.
3. If this task depends on another task, click **Dependencies**, click **Add Dependency**, and select the task.

4. If you want to set security on the task, click **Permissions**. 
   For more information, see "Defining permissions" (p. 125).

5. Click **Send Notifications**, and click **OK**.

**Exploring assigned data**

To help you understand what makes up each dimension, Business Viewpoint Studio provides different ways to explore hierarchies and levels.

Use the **Explorer** tab to navigate through a hierarchy.

Use the **Grid** tab to work with a large number of members in a spreadsheet format. The grid is available for hierarchies, lists, levels, and sets. Sets are not available for nominators and reviewers.

**Steps to use the Explorer**

1. Click the **Explorer** tab.

2. Click a member to see its children.
   You can select several members at a time.

3. To view the children of a member, do one of the following:
   - Click the right arrow in the path and select the check boxes of the child members you want to see.
   - Right-click the member and click **Show Children In Grid View**.
   Note that the path at the top displays the context of the member you selected.

4. To view the children of several members at the same time, do the following:
   - Click a member to view its children.
   - Click the right arrow next to another member.
   The children of both members are displayed together. The children are not moved or copied to a new parent; this is for display only.

5. To go back up the hierarchy, use the path at the top of the pane.

6. To view more members, type a number in the second box at the bottom of the pane and press **Enter**.
   To go to a specific member, type its number in the first box and click **Go To**. For example, type 1 to go to the top.

7. Add new members.
   For more information, see "Adding data" (p. 142).
8. If you want to limit the members that are visible, use a filter.
   For more information, see "Filtering" (p. 140).

9. If you want to have the members in alphabetical order, sort them.
   For more information, see "Sorting" (p. 141).

**Steps to use the Grid**

1. Click the **Grid** tab.

2. If you want a column to remain on the screen when you scroll, click the **Freeze column** button at the top of the column.

3. To change the view for the members, do one of the following:

<table>
<thead>
<tr>
<th>Goal</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>View the children of a member</td>
<td>From the drop-down list, click <strong>Immediate Children</strong>.</td>
</tr>
<tr>
<td>View the children and all descendants of a member</td>
<td>From the drop-down list, click <strong>All Descendants</strong>.</td>
</tr>
<tr>
<td>View all members in a hierarchical structure</td>
<td>From the drop-down list, click <strong>View as Hierarchy</strong>.</td>
</tr>
</tbody>
</table>

4. Add new members.
   For more information, see "Adding data" (p. 142).

5. If you want to limit the members that are visible, use a filter.
   For more information, see "Filtering" (p. 140).

6. If you want to have the members in alphabetical order, sort them.
   For more information, see "Sorting" (p. 141).

7. If you want to replace one value with another, use search and replace.
   For more information, see "Searching and replacing" (p. 141).

8. To work with the attributes that display in the columns, click **Edit Attributes**.
   For more information, see "Attributes" (p. 73).
   If you are a nominator or reviewer, you cannot add attributes.
Filtering

Use a filter to find members in a list, a hierarchy, a level in a static hierarchy, a set, or a task in a workflow. You can filter data in the Explorer tab, the Grid tab, or the Diagram tab.

Steps

1. Select an object and click Filter.
2. Select the check box next to the attribute that you want to filter.
3. Define the filter for the type of attribute:

<table>
<thead>
<tr>
<th>Type of Attribute</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text</td>
<td>In the Find box, type the name of the member you want to find. When filtering a text attribute, you can select one of the following conditions: Greater than, Equals to, Not equals to, Less than, Starts with, Contains, Ends with.</td>
</tr>
<tr>
<td>Alias</td>
<td>In the Find box, type the name of the member you want to find. Select one of the following conditions: Equals, Starts With, Ends With, or Contains.</td>
</tr>
<tr>
<td>Date</td>
<td>Select a date from the calendar.</td>
</tr>
<tr>
<td>Decimal</td>
<td>In the Find box, type the number you want to find.</td>
</tr>
<tr>
<td>Integer</td>
<td>In the Find box, type the number you want to find.</td>
</tr>
<tr>
<td>Picklist</td>
<td>Select the value that you want to find.</td>
</tr>
<tr>
<td>Lookup</td>
<td>Select the value that you want to find.</td>
</tr>
</tbody>
</table>

When filtering a date, decimal, or integer attribute, you can select one of the following conditions:

- Greater than
- Equals to
- Not equals to
- Less than

For example, to display all employees who started with your organization before January 1, 2001, in the Filter list, select the check box next to the attribute for the start date, select January 1, 2001 from the calendar, click Greater than, and click Close to apply the filter.
4. To add another filter to the attribute you selected, click Add Constraint and define another filter.

The filters are connected with an OR. For example, you define the first filter to display the members whose names start with the letter A and you define the second filter to display members whose names start with the letter Z, you will see all members whose names start with A or Z.

5. Click Close to apply the filter.

The filters are added to the top of the pane.

6. To change a filter, click the filter at the top of the pane, select different check boxes for the attribute, and click Close.

7. To delete a filter for one attribute, do one of the following:
   - Click the filter at the top of the pane, click Clear this filter, and click Close.
   - Click Filter, click the attribute you want, click Clear this filter, and click Close.
   - At the top of the pane, click the X for the filter you want to remove.

To delete all filters, click Filter, click Clear all filters, and click Close.

Note that when you filter data while working on a workflow task, the filter is automatically limited based on the context defined for the task. At least one value in the filter must be selected at all times. You cannot remove the filters and see all the values in the attribute. For example, you are assigned the task of reviewing the list of employees who are in four different departments. The modeler filtered the data so you see only these four departments. You can change the filter to display one, two, three, or four departments but you cannot remove the filter and see all departments in the organization.

### Sorting

You can sort data by an attribute.

**Steps**

1. Click the hierarchy that you want.

2. Do one of the following:
   - In the Grid tab, click the column heading of the attribute you want to sort by.
   - In the Explorer tab, click the sort button.

### Searching and replacing

You can find a member or you can search for a member and replace its name with another name.

**Steps**

1. In the grid, click Search.

   A new toolbar is displayed.
2. Choose the action that you want.

<table>
<thead>
<tr>
<th>Goal</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Find a member</td>
<td>Type the name in the Find box.</td>
</tr>
<tr>
<td></td>
<td>Click Find.</td>
</tr>
<tr>
<td>Replace one member at a time</td>
<td>Type the name in the Find box.</td>
</tr>
<tr>
<td></td>
<td>Type the replacement name in the Replace box.</td>
</tr>
<tr>
<td></td>
<td>Click Find and then click Replace.</td>
</tr>
<tr>
<td></td>
<td>To find the next member to replace, click Find.</td>
</tr>
<tr>
<td>Replace all members that match</td>
<td>Type the name in the Find box.</td>
</tr>
<tr>
<td></td>
<td>Type the replacement name in the Replace box.</td>
</tr>
<tr>
<td></td>
<td>Click Replace All.</td>
</tr>
</tbody>
</table>

Adding data

Your assigned area contains the required structure such as hierarchies and levels, so you can concentrate on adding the detailed data. For example, a Product dimension contains hierarchies for brand, line, and type; you have the task of adding members within these hierarchies. A member is an item within a hierarchy or level.

You can use the Explorer or Grid tabs to add data.

New or changed members are displayed with a red asterisk.

You can delegate this task to another business user. For more information, see "Delegating the nomination task" (p. 137).

Steps to add data in the Grid

1. To work with a large number of members in a spreadsheet format, click the Grid tab.

2. To add a member, such as a new employee to a department, click New.

3. To copy data, do one or more of the following:

<table>
<thead>
<tr>
<th>Goal</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Copy data from one cell to an adjacent cell in the grid</td>
<td>Drag the fill icon up or down.</td>
</tr>
<tr>
<td>Fill the entire column with the value you added</td>
<td>Right-click the cell where you added data and click Fill column with cell value.</td>
</tr>
</tbody>
</table>
4. If a cell contains a drop-down list of values, start typing to see the possible values that match what you type. Press Tab to use the first value in the list or click the value you want.

   If you can select only one value in the cell, press Enter to use the selected value and to close the drop-down list.

   If you can select multiple values in the cell, press Enter to select or clear the check box for the selected item. Press Ctrl+Enter to use the selected value and to close the drop-down list.

5. Move about the grid by doing one or more of the following:

<table>
<thead>
<tr>
<th>Goal</th>
<th>Keyboard shortcut</th>
</tr>
</thead>
<tbody>
<tr>
<td>Move from cell to cell</td>
<td>Press Tab or the arrow keys.</td>
</tr>
<tr>
<td>Select the first cell in a row</td>
<td>Press Home+End.</td>
</tr>
<tr>
<td>Select the first cell in the grid</td>
<td>Press Ctrl+Home.</td>
</tr>
<tr>
<td>Select the last cell in the grid</td>
<td>Press Ctrl+End.</td>
</tr>
<tr>
<td>Select the first cell in a column</td>
<td>Press Ctrl+up arrow.</td>
</tr>
<tr>
<td>Select the last cell in a column</td>
<td>Press Ctrl+down arrow.</td>
</tr>
</tbody>
</table>

6. To resize all rows, hold down the Ctrl key when you resize one row.

**Steps to add data in the Explorer**

1. To work with data while exploring the hierarchy, click the Explorer tab.

2. To add data, do one of the following:
   - Click the new button.
   - Click a blank area of the Explorer pane.
   - Drag members to a new section of the hierarchy.
3. To define the properties of a member, right-click a member, click **Properties**, do one or more of the following, and click **OK**:

<table>
<thead>
<tr>
<th>Goal</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Change the name and description</td>
<td>Click <strong>Definition</strong>.</td>
</tr>
<tr>
<td>Change who owns the member</td>
<td>Click <strong>Definition</strong>.</td>
</tr>
<tr>
<td>Copy or move the member to another dimension, hierarchy, level, or parent member</td>
<td>Click <strong>Associations</strong>. For more information, see &quot;Changing associations for members&quot; (p. 151).</td>
</tr>
<tr>
<td>Specify who has access to this member</td>
<td>Click <strong>Permissions or External Permissions</strong>. For more information, see &quot;Defining permissions&quot; (p. 125).</td>
</tr>
<tr>
<td>Add additional information about the member that is available externally</td>
<td>Click <strong>Attachments</strong>. For more information, see &quot;Attaching additional information&quot; (p. 66).</td>
</tr>
</tbody>
</table>

4. To create a copy of a member, do the following:
   - Right-click the member and click **Copy To**.
   - Select the area of the hierarchy to copy this member to.

   You cannot copy a member that is in a dynamic hierarchy.

5. To move a member to another area of the hierarchy, do the following:
   - Right-click the member and click **Move To**.
   - Select the area of the hierarchy to move this member to.

   When you move a member, its descendants move with it. You can move multiple members at the same time if all members have the same parent.

   A member cannot be moved to a different level in a dynamic level-based hierarchy. A member cannot be moved to its own descendants in a dynamic parent/child hierarchy.

6. To create alternate drill paths in a dynamic hierarchy, Shift+click the member and drag it to another location.

   The lookup attributes in the dynamic hierarchy must have the **Selection options** set to **Multiple select**.

   The member now has two parents. For example, one employee reports to two different managers.

7. To go back up the hierarchy, use the path at the top of the pane.
Example - adding data

Your organization is creating a master Employees dimension. You have been assigned a department that has employees in Canada, the United States, and the United Kingdom. Each country has a different manager. Your task is to specify the manager for each employee.

The Employees dimension has the following attributes:

- Name -- the name of the employee
- Country -- the choices are Canada, the United States, and the United Kingdom
- Manager -- a drop-down list displaying the managers for your assigned department

Steps

1. Click the Grid tab.
2. Click Filter, click Country, select the check box next to Canada, and click Close.
   The data is filtered to display the employees in Canada.
3. From the Manager attribute, select the name of the Canadian manager.
4. To fill the column with this value, right-click the cell where you added data and click Fill column with cell value.
   You can also copy this name to adjacent cells by dragging the fill icon up or down.
5. Click Filter, click Country, clear the check box next to Canada, and click Close.
   You see that only Canadian employees have a manager.
6. Filter the data on the name of the next country to add data for, the United States.
7. From the Manager attribute, select the name of the American manager and drag the fill icon up or down.
8. Filter the data on the name of the next country to add data for, the United Kingdom.
9. Add the British manager.
10. Clear all filters.

Deleting a member

You might need to delete some members.

Steps

1. Click the Grid tab.
2. Right-click the member and click Delete.
3. If you are deleting a member in a hierarchy, specify an option for what to delete depending on the type of hierarchy:
Options for deleting the hierarchy:

<table>
<thead>
<tr>
<th>Hierarchy</th>
<th>Options for deleting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dynamic</td>
<td>Remove the relationships or associations to the member in the list or relationship table.</td>
</tr>
<tr>
<td></td>
<td>Delete the member only. Its descendants are then orphaned and are visible only in the Grid.</td>
</tr>
<tr>
<td>Static</td>
<td>Delete the member only. Its descendants are then orphaned and are visible only in the Grid.</td>
</tr>
<tr>
<td></td>
<td>Delete the member and all its descendants.</td>
</tr>
</tbody>
</table>

If the member should not have been deleted, the reviewer, modeler, or administrator can restore the deleted member. For more information, see "Restoring a deleted member" (p. 136).

Submitting the nominated data

After entering the data for the list, hierarchy, or set that you have access to, you submit your nominations. The IBM® Cognos® Business Viewpoint Studio modeler compares data from different nominators, if applicable, and reconciles any differences. The modeler then sends the reconciled data to the reviewers to approve. After the data has been reviewed and approved, it is made available to other users and applications.

Steps

1. Click Complete.
2. Add a comment about the work that you have done.
3. Select the Send a notification that this task is complete check box, and click Continue.
4. Click Close.
Chapter 7: Reconciling dimensions

The business users who nominate data might submit duplicate or conflicting information. This is not the one version of the truth that you require. You must review the nominations and reconcile any differences.

After modeling the dimension, you send it to business users who nominate data for an assigned area.

You reconcile any differences that are submitted by different nominators by doing the following:

- View a list of changes. For more information, see "Viewing a list of changes" (p. 135).
- Find duplicates. For more information, see "Finding duplicates" (p. 147).
- Merge members. For more information, see "Merging members" (p. 148).
- If necessary, change associations for each object. For more information, see "Changing associations" (p. 149).
- If necessary, modify an attribute. For more information, see "Modifying an attribute" (p. 152).

After you reconcile the nominated data, you send the data to reviewers to approve.

After the data has been reviewed and approved, it is made available to other users and applications.

Finding duplicates

You can find duplicate members in a dimension and then decide if the duplicates should be left in place, deleted, or merged. If you decide to merge them, you are merging them into one member. You can also delete a duplicate member, or ignore it for this session.

Steps

1. Do one of the following:
   - Right-click a list that you want to examine and click Find Duplicate Child Members.
   - Right-click a hierarchy and click Find Duplicate Members.
   - Right-click a member and click Find Duplicate Child Members.

   You can also use the Tools menu.

2. Select the attributes that you want to use for finding duplicate members.

   If you select several attributes, only members that have all the attributes are displayed. For example, if you select name and product number, then only the members that have both the same name and the same product number will be displayed.

3. Click OK.

   A list of duplicate members is displayed.
4. Click a duplicate member to see which other member is a possible duplicate.

5. To explore the details about duplicate members, click each member and examine its attributes in the **Attributes** pane.

   If the **Attributes** pane is not visible, click **Show Attributes**.

6. Choose the action that you want.

<table>
<thead>
<tr>
<th><strong>Goal</strong></th>
<th><strong>Action</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Remove duplicate members from the list for this session</td>
<td>Click <strong>Ignore</strong>. The member and its duplicates are grayed out. If you click <strong>Search Again</strong>, this pair is not displayed in the list.</td>
</tr>
<tr>
<td>Remove the duplicate member</td>
<td>Click <strong>Delete</strong> beside the name of the member. The member and its duplicates are displayed with a line through them.</td>
</tr>
<tr>
<td>Merge duplicate members</td>
<td>See &quot;Merging members&quot; (p. 148).</td>
</tr>
</tbody>
</table>

**Merging members**

After you find duplicate members, you can merge them into one member.

Do not merge duplicate members that have different IDs or keys. In this case, see "Viewing the keys" (p. 46).

Create a version of the dimension before merging duplicate members. Then, if you need to undo changes you have made, you can revert to this version. For more information, see "Creating a version" (p. 129) and "Reverting to an earlier version" (p. 131).

**Steps**

1. In the **Find Duplicates Results** pane, click **Merge** for a duplicate member.

   You can also merge duplicate members in the **Grid** tab by right-clicking two duplicate members and clicking **Merge**.

2. For each association, choose how you want to merge the members.

<table>
<thead>
<tr>
<th><strong>Action</strong></th>
<th><strong>Description</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Union</td>
<td>The attributes and data for both members are kept and merged together.</td>
</tr>
</tbody>
</table>
Changing associations

After importing data or creating objects, you can change which objects are associated with dimensions, lists, hierarchies, levels, or members.

For example, you want to use a hierarchy in another dimension. Or you want a member to have a different parent member.

Changing associations for dimensions

You can create a new hierarchy for the selected dimension or you can remove a hierarchy.

Steps
1. Right-click the dimension and click Properties.
2. Click Associations.
3. To create a new hierarchy for the dimension, click Create New.
4. To remove a hierarchy from the dimension, select the check box next to the hierarchy and click Remove.
5. Click OK.

Changing associations for lists

You can move a list to another dimension. You can also delete a list.

If a lookup attribute in a dynamic or static hierarchy uses the values in this list, the lookup attribute is deleted when you move the list to another dimension.

Steps
1. Right-click the list and click Properties.
2. Click Associations.
3. To move the list to a different dimension, click **Select** and select a different dimension to use.

4. To create a new dimension for the list, click **Create New**.

5. To remove the list, click **Clear**.

6. Click **OK**.

### Changing associations for hierarchies

You can share a hierarchy with another dimension or you can move a hierarchy to another dimension. You can also create a dimension.

For example, you create a hierarchy in a dimension and realize that the hierarchy should be in a different dimension. Another example is that you create a hierarchy that you want to use in several dimensions. If you change the shared hierarchy in one dimension, the change is reflected in the other dimensions.

### Steps

1. Right-click the hierarchy and click **Properties**.

2. Click **Associations**.

3. Change the association.

<table>
<thead>
<tr>
<th>Goal</th>
<th>Actions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Move the hierarchy to another dimension</td>
<td>Click Add. Clear the check box next to the current dimension for the hierarchy. Select the check box next to the dimension where you want to move this hierarchy.</td>
</tr>
<tr>
<td>Share the hierarchy with another dimension</td>
<td>Click Add. Select the check box next to the dimension that you want to share this hierarchy with.</td>
</tr>
<tr>
<td>Create a new dimension</td>
<td>Click <strong>Create New</strong>.</td>
</tr>
<tr>
<td>Create a new level</td>
<td>Click <strong>Create New</strong>.</td>
</tr>
<tr>
<td>Remove a hierarchy or level</td>
<td>Select the check box next to the hierarchy or level, and click <strong>Remove</strong>.</td>
</tr>
</tbody>
</table>

4. Click **OK**.
Changing associations for levels

You can share a level with another hierarchy or you can move a level to another hierarchy. For example, you create a level in a hierarchy and realize that the level should be in a different hierarchy. Another example is that you create a level that you want to use in several hierarchies. If you change the shared level in one hierarchy, the change is reflected in the other hierarchies that share the level.

Steps
1. Right-click the level and click Properties.
2. Click Associations.
3. Change the association.

<table>
<thead>
<tr>
<th>Goal</th>
<th>Actions</th>
</tr>
</thead>
</table>
| Move a level to a different hierarchy | Click Add.  
Clear the check box next to the current hierarchy for the level.  
Select the check box next to the hierarchy where you want to move this level. |
| Share a level with another hierarchy | Click Add.  
Select the check box next to the hierarchy where you want to share this object. |
| Remove a level               | Select the check box next to the level and click Remove. |

4. Click OK.

Changing associations for members

You can share a member with another object or you can move a member to another object. You can also create or remove a member. For example, you want to display sunglasses in both the accessories and clothing hierarchies.

Steps
1. Right-click the member and click Properties.
2. Click Associations.
3. Change the association.
### Modifying an attribute

You can change the name of an attribute that you have defined. You can also change the permissions that are set on the attribute if you have the administrator role.

You cannot change a system attribute.

#### Steps

1. In the grid, click **Edit Attributes**.
   
   You can also right-click an object, click **Properties**, and then click **Member Attributes**.

2. In the **Select** column, select the check box next to the attribute to edit.

3. Click **Edit**.

4. Do one of the following:
   - Change the name of the attribute.
   - Change the permissions that are set. For more information, see "Defining permissions" (p. 125).
   - Add or change the default value. For more information, see "Setting an initial default value" (p. 78)
• Add or change the validation rule for this attribute. For more information, see "Validation rules" (p. 82).

5. Click OK two times.
Chapter 8: Reviewing nominated data

All data is reviewed by key stakeholders before it is distributed to applications and other users. After modeling the dimension, the modeler sends it to business users who nominate data for assigned areas.

The modeler reconciles the different submissions from the nominators.

The modeler sends the reconciled data to you to review and approve. To review dimensions, do the following:

- Receive a task by email. For more information, see "Receiving a review task" (p. 155).
  
  You can delegate the task to another user. For more information, see "Delegating the review task" (p. 155).

- Explore the nominated data. For more information, see "Exploring the nominated data" (p. 156)

- Approve or reject the data. For more information, see "Approving or rejecting the nominated data" (p. 160)
  
  You can also view pending approvals. For more information, see "Viewing pending approvals" (p. 135).

After you approve the nominated data, the data is made available to other users and applications.

Receiving a review task

You are assigned to review nominated data based on your knowledge of your business domain. You receive an email with a link to the assigned dimension in IBM® Cognos® Business Viewpoint Studio.

Step

- Open the email you received and click the link to the task.

Delegating the review task

You can delegate the review task to another user.

Steps

1. Click Delegate.

2. Click Create Sub-task and do the following to create a task:
   - In the Task Type box, click Review.
   - Add a description for the person you are delegating the task to.
   - Select the list or hierarchy for the task.
3. If this task depends on another task, click Dependencies, click Add Dependency, and select the task.

4. If you want to set security on the task, click Permissions.
   For more information, see "Defining permissions" (p. 125).

5. Click Send Notifications, and click OK.

Exploring the nominated data

You must review nominated data and ensure that it meets the requirements of your organization.
To help you understand what makes up each dimension, Business Viewpoint Studio provides different ways to explore hierarchies and levels.

Use the Explorer tab to navigate through a hierarchy.

Use the Grid tab to work with a large number of members in a spreadsheet format. The grid is available for hierarchies, lists, levels, and sets. Sets are not available for nominators and reviewers.

Steps to use the Explorer

1. Click the Explorer tab.

2. Click a member to see its children.
   You can select several members at a time.

3. To view the children of a member, do one of the following:
   • Click the right arrow in the path and select the check boxes of the child members you want to see.
   • Right-click the member and click Show Children In Grid View.
   Note that the path at the top displays the context of the member you selected.

4. To view the children of several members at the same time, do the following:
   • Click a member to view its children.
   • Click the right arrow next to another member.
   The children of both members are displayed together. The children are not moved or copied to a new parent; this is for display only.

5. To go back up the hierarchy, use the path at the top of the pane.

6. To view more members, type a number in the second box at the bottom of the pane and press Enter.
   To go to a specific member, type its number in the first box and click Go To. For example, type 1 to go to the top.

7. Add new members.
   For more information, see "Adding data" (p. 142).
8. If you want to limit the members that are visible, use a filter.  
   For more information, see "Filtering" (p. 140).

9. If you want to have the members in alphabetical order, sort them.  
   For more information, see "Sorting" (p. 141).

**Steps to use the Grid**

1. Click the Grid tab.

2. If you want a column to remain on the screen when you scroll, click the Freeze column button \[\text{\textperiodcentered}\] at the top of the column.

3. To change the view for the members, do one of the following:

<table>
<thead>
<tr>
<th>Goal</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>View the children of a member</td>
<td>From the drop-down list, click <strong>Immediate Children</strong>.</td>
</tr>
<tr>
<td>View the children and all descendants of a member</td>
<td>From the drop-down list, click <strong>All Descendants</strong>.</td>
</tr>
<tr>
<td>View all members in a hierarchical structure</td>
<td>From the drop-down list, click <strong>View as Hierarchy</strong>.</td>
</tr>
</tbody>
</table>

4. Add new members.  
   For more information, see "Adding data" (p. 142).

5. If you want to limit the members that are visible, use a filter.  
   For more information, see "Filtering" (p. 140).

6. If you want to have the members in alphabetical order, sort them.  
   For more information, see "Sorting" (p. 141).

7. If you want to replace one value with another, use search and replace.  
   For more information, see "Searching and replacing" (p. 141).

8. To work with the attributes that display in the columns, click **Edit Attributes**.  
   For more information, see "Attributes" (p. 73).
   
   If you are a nominator or reviewer, you cannot add attributes.
**Filtering**

Use a filter to find members in a list, a hierarchy, a level in a static hierarchy, a set, or a task in a workflow. You can filter data in the Explorer tab, the Grid tab, or the Diagram tab.

**Steps**

1. Select an object and click **Filter**.
2. Select the check box next to the attribute that you want to filter.
3. Define the filter for the type of attribute:

<table>
<thead>
<tr>
<th>Type of Attribute</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text</td>
<td>In the <strong>Find</strong> box, type the name of the member you want to find. When filtering a text attribute, you can select one of the following conditions: <strong>Greater than</strong>, <strong>Equals to</strong>, <strong>Not equals to</strong>, <strong>Less than</strong>, <strong>Starts with</strong>, <strong>Contains</strong>, <strong>Ends with</strong>.</td>
</tr>
<tr>
<td>Alias</td>
<td>In the <strong>Find</strong> box, type the name of the member you want to find. Select one of the following conditions: <strong>Equals</strong>, <strong>Starts With</strong>, <strong>Ends With</strong>, or <strong>Contains</strong>.</td>
</tr>
<tr>
<td>Date</td>
<td>Select a date from the calendar.</td>
</tr>
<tr>
<td>Decimal</td>
<td>In the <strong>Find</strong> box, type the number you want to find.</td>
</tr>
<tr>
<td>Integer</td>
<td>In the <strong>Find</strong> box, type the number you want to find.</td>
</tr>
<tr>
<td>Picklist</td>
<td>Select the value that you want to find.</td>
</tr>
<tr>
<td>Lookup</td>
<td>Select the value that you want to find.</td>
</tr>
</tbody>
</table>

When filtering a date, decimal, or integer attribute, you can select one of the following conditions:

- **Greater than**
- **Equals to**
- **Not equals to**
- **Less than**

For example, to display all employees who started with your organization before January 1, 2001, in the Filter list, select the check box next to the attribute for the start date, select January 1, 2001 from the calendar, click **Greater than**, and click **Close** to apply the filter.
4. To add another filter to the attribute you selected, click Add Constraint and define another filter.

The filters are connected with an OR. For example, you define the first filter to display the members whose names start with the letter A and you define the second filter to display members whose names start with the letter Z, you will see all members whose names start with A or Z.

5. Click Close to apply the filter.

The filters are added to the top of the pane.

6. To change a filter, click the filter at the top of the pane, select different check boxes for the attribute, and click Close.

7. To delete a filter for one attribute, do one of the following:
   - Click the filter at the top of the pane, click Clear this filter, and click Close.
   - Click Filter, click the attribute you want, click Clear this filter, and click Close.
   - At the top of the pane, click the X for the filter you want to remove.

   To delete all filters, click Filter, click Clear all filters, and click Close.

**Sorting**

You can sort data by an attribute.

**Steps**

1. Click the hierarchy that you want.

2. Do one of the following:
   - In the Grid tab, click the column heading of the attribute you want to sort by.
   - In the Explorer tab, click the sort button 🔄.

**Searching and replacing**

You can find a member or you can search for a member and replace its name with another name.

**Steps**

1. In the grid, click Search.

   A new toolbar is displayed.

2. Choose the action that you want.

<table>
<thead>
<tr>
<th>Goal</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Find a member</td>
<td>Type the name in the Find box.</td>
</tr>
<tr>
<td></td>
<td>Click Find.</td>
</tr>
</tbody>
</table>
### Approving or rejecting the nominated data

After reviewing the nominated data, you should approve the data before it is published. You can also reject nominated data, including members that were deleted. For more information, see “Restoring a deleted member” (p. 136).

#### Steps

1. Click the **Change Management** tab.
2. Click **Nominated** to see the nominated members.
3. Right-click the member that was nominated and click either **Approve Nomination** or **Reject Nomination**.
   - You can approve all nominations at the same time by clicking **Approve All**.
   - If you are approving a member, its children are also approved. If you are rejecting a member, only the member you selected is rejected.
4. After approving or rejecting all nominated data, click **Complete**.
5. Add a comment about the work that you have done.
6. Select the **Send a notification that this task is complete** check box, and click **Continue**.
7. Click **Close**.
Chapter 9: Making dimensions available

Approved dimensions are distributed to users and applications that use the dimension.
After modeling the dimension, you send it to business users who nominate data for an assigned area.
You reconcile any differences that are submitted by different nominators.
You send the reconciled data to reviewers to approve.
After the data has been reviewed and approved, do the following:

❑ Mark the workflow as complete. For more information, see "Marking the workflow as complete" (p. 161).
❑ Make the data available to other users and applications by creating and publishing a publication. For more information, see "Creating and publishing a publication" (p. 161).

Later you can analyze the impact of changes. For more information, see "Analyzing the impact of changes" (p. 166).

Marking the workflow as complete

The nominators and reviewers have completed their assigned tasks and you can now mark this workflow as complete.
Only modelers and task owners can mark a workflow as complete.

Steps
1. Right-click the workflow and click Complete.
2. Optionally, select the Create a public version of the dimension check box.
3. Click OK.
You might be prompted to create a version. For more information, see "Creating a version" (p. 129).

Creating and publishing a publication

To allow dimensions in IBM® Cognos® Business Viewpoint Studio to be used in other applications, you must create a publication and publish it.
You can set up a publication that will always publish the latest version. You can specify how many of the latest versions are to be published. For example, each version represents one month of data. You specify that the latest three versions are to be published. You do not need to update the definition of the publication to include the last three months. You just have to publish the publication.
To download publications that you published, you must disable pop-ups in your Web browser.
You can create these types of publications:
• an IBM Cognos package for reporting applications to use
  A data source must be set up in IBM Cognos before you can publish the dimension as a package. For more information, see the Business Viewpoint Server Installation and Configuration Guide.

• an IBM Cognos Framework Manager model
  You can then extend the dimension by using features available in Framework Manager.

• a csv file
  You can edit the csv file and re-import it or use the csv file as a back-up of your data.

You then publish these publications to a network location or to an IBM Cognos system.
You can also notify users that a publication has been created for a dimension.
Before a publication is created, you are prompted to create a version of the dimension if a public version does not exist for the dimension. A public version can be published and will appear in IBM Cognos Business Viewpoint Client as well as in Business Viewpoint Studio. A private version appears only in Business Viewpoint Studio.

**Steps**
1. In the Publications pane, right-click the Publications folder, and click New Publication.
2. Type a name for the publication. You can also provide a description.
3. Click Next.
4. Click Add and then select the dimensions and hierarchies that you want.
5. Select the versions that you want to publish.
   If you want to publish a specific version, such as June 30, you must select that version.
   You can include as many versions as you want.
6. To always publish the latest version, select the Latest check box and specify how many versions to publish.
7. Click Next.
8. Click Add and select the actions to be performed when the publication is published.

<table>
<thead>
<tr>
<th>Goal</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Notify users that the objects have been updated</td>
<td>Click Send Alert.</td>
</tr>
<tr>
<td></td>
<td>Add recipients to the email message.</td>
</tr>
<tr>
<td></td>
<td>If you want, customize the body of the message.</td>
</tr>
<tr>
<td></td>
<td>Click OK.</td>
</tr>
</tbody>
</table>
### Goal

Create a package to be used in IBM Cognos

#### Action

- Click **Publish IBM Cognos Package**.
- Type the name of the package. You can also click **Add** to find a previously-defined IBM Cognos system.
- Specify the system that this package uses.
- Click **OK**.

Export the data as a csv file or as a Framework Manager model

#### Action

- Click **Export to File**.
- In the **File name** box, specify the name of the file.
- In the **Export type** box, click **Delimited Text (CSV)** or **Framework Manager Model**.
- If you are exporting as a Framework Manager model, specify the name of the package.
- Click **OK**.

Export multiple hierarchies as a csv file

#### Action

- Click **Export to File**.
- In the **File name** box, specify the name of the file.
- In the **Export type** box, click **Delimited Text (CSV)**.
- Select the **Export hierarchy as multiple files** check box.
- Click **OK**.
- A zip file is created and published.

For example, you can import a package that contains a Transformer cube, make changes to the cube’s dimensions in Business Viewpoint Studio, and then publish another package or csv file to use in a different Transformer cube.

9. Click **Next** and choose if you will publish the publication now or later.

   If you chose to publish the publication later, you can publish it by right-clicking the publication and clicking **Publish**.

10. Click **Finish**.

11. Optionally, add comments to the publication.

   For more information, see "Adding comments to an object" (p. 32).

If the publication exports data as a Framework Manager model, note that some attribute types in Business Viewpoint Studio are mapped to different types in Framework Manager.
Defining external permissions for IBM Cognos packages

If you specified that a publication will export data to an IBM Cognos package, you must define external permissions for the publication so that security is set on the package itself. These external permissions must be the same as the permissions that are set in IBM Cognos.

If you are an administrator or the object owner, you can define access permissions for external users.

IBM Cognos package also has security on objects and on data through the use of security filters. To set security on the objects and data, see "Defining permissions" (p. 125).

Steps
1. Right-click the publication you want to define permissions for, and click Properties.
2. Click External Permissions.
3. Clear the check boxes next to the users who do not have permission to use the package. Select the check boxes for the users who do have permission.
4. Click OK.

For external permissions, the Propagate setting does not apply to Business Viewpoint Studio objects, but can be applied to the published objects in the consumer environment.

Modifying a publication

After creating a publication, you can change its settings.

Steps
1. In the Publications pane, expand the Publications folder.
2. Right-click the publication you want to change and click Properties.
3. Choose the action that you want.

<table>
<thead>
<tr>
<th>Goal</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Change the name, description, or owner of the publication</td>
<td>Click Definition.</td>
</tr>
</tbody>
</table>
### Goal | Action
--- | ---
Add dimensions, hierarchies, lists, or sets to the publication | Click **Included Objects**.
| | Click **Add** and select the objects you want.
| | For each dimension, select the versions you want included in the publication.
Remove a dimension from the publication | Click **Included Objects**.
| | Select the check box next to the dimension.
| | Click **Remove**.
Change the actions to be performed when the publication is published | Click **Actions**.
| | Click **Add** and select the action.
Change security for the publication | Click **Permissions** or **External Permissions**.
| | For more information, see "Defining permissions" (p. 125).
See a list of the changes organized by date | Click **History**.

4. Click **OK**.

You can also work with a publication by clicking a dimension in the Content pane. and using the **Dimension Dashboard** on the right to do one or more of the following:

### Goal | Action
--- | ---
View and change its properties | Double-click the publication.
Create another publication for this dimension | Right-click a publication and click **New Publication**.
Publish a publication | Right-click a publication and click **Publish**.
Delete a publication | Right-click a publication and click **Delete**.
Analyzing the impact of changes

After making a master dimension available for users and other applications, you might need to make changes to the dimension. Before doing this, you can discover which objects would be impacted by changing a selected object.

Step

- Right-click the member that you want to analyze, and click Lineage.

  You see a diagram of the objects that are the source of the selected member as well as the objects that use the selected member.
Appendix A: Accessibility Features

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

Keyboard shortcuts

IBM® Cognos® Business Viewpoint Studio uses standard Microsoft® Windows® navigation keys in addition to application-specific keys.

You can use keyboard shortcuts to navigate through and perform tasks in Business Viewpoint Studio. If you are using a screen reader, you might want to maximize your window so the keyboard shortcut tables in the following topics are completely expanded and accessible.

Note: The following keyboard shortcuts are based on U.S. standard keyboards for all supported versions of Mozilla Firefox.

Keyboard shortcuts for panes

Use the following keyboard shortcuts in the panes.

<table>
<thead>
<tr>
<th>Goal</th>
<th>Shortcut Keys</th>
</tr>
</thead>
<tbody>
<tr>
<td>Move forward</td>
<td>F6 or Tab</td>
</tr>
<tr>
<td>Move backward</td>
<td>Shift+F6 or Shift+Tab</td>
</tr>
<tr>
<td>Perform the default action for the selected item</td>
<td>Enter</td>
</tr>
<tr>
<td>Close a pane</td>
<td>Esc</td>
</tr>
<tr>
<td>Select the next tab, such as the Explorer, Diagram, or Grid tabs</td>
<td>Ctrl+Tab</td>
</tr>
<tr>
<td>Select the previous tab, such as the Explorer, Diagram, or Grid tabs</td>
<td>Ctrl+Shift+Tab</td>
</tr>
<tr>
<td>Expand the children menu items and select the first enabled child menu item</td>
<td>Right arrow</td>
</tr>
<tr>
<td>Collapse the children menu items</td>
<td>Left arrow</td>
</tr>
<tr>
<td>Scroll up</td>
<td>Up arrow or Page Up</td>
</tr>
<tr>
<td>Scroll down</td>
<td>Down arrow or Page Down</td>
</tr>
</tbody>
</table>
### Keyboard shortcuts for menus

Use the following keyboard shortcuts in menus.

<table>
<thead>
<tr>
<th>Goal</th>
<th>Shortcut Keys</th>
</tr>
</thead>
<tbody>
<tr>
<td>Highlight the menu bar</td>
<td>F10</td>
</tr>
<tr>
<td>Open a context menu</td>
<td>Shift+F10</td>
</tr>
<tr>
<td>Invoke a selected menu or context menu item</td>
<td>Enter</td>
</tr>
<tr>
<td>Move to and select the next enabled menu item or pop-up menu item below</td>
<td>Down arrow</td>
</tr>
<tr>
<td>Move to and select the previous enabled menu item or pop-up menu item above</td>
<td>Up arrow</td>
</tr>
<tr>
<td>Select the first enabled child menu item</td>
<td>Right arrow</td>
</tr>
<tr>
<td>Close an opened menu</td>
<td>Esc</td>
</tr>
</tbody>
</table>

### Keyboard shortcuts for toolbars

Use the following keyboard shortcuts for toolbars.

<table>
<thead>
<tr>
<th>Goal</th>
<th>Shortcut Keys</th>
</tr>
</thead>
<tbody>
<tr>
<td>Highlight the toolbar</td>
<td>F10</td>
</tr>
<tr>
<td>Perform the default action for an active command button</td>
<td>Enter</td>
</tr>
<tr>
<td>Move to the first toolbar button</td>
<td>Home</td>
</tr>
<tr>
<td>Move to the last toolbar button</td>
<td>End</td>
</tr>
<tr>
<td>Move to the next button to the right</td>
<td>Right arrow</td>
</tr>
<tr>
<td>Move to the next button to the left</td>
<td>Left arrow</td>
</tr>
</tbody>
</table>

### Keyboard shortcuts for dialog boxes and wizards

Use the following keyboard shortcuts in dialog boxes and wizards.

<table>
<thead>
<tr>
<th>Goal</th>
<th>Shortcut Keys</th>
</tr>
</thead>
<tbody>
<tr>
<td>Select or clear a check box</td>
<td>Space bar</td>
</tr>
</tbody>
</table>
### Keyboard shortcuts for the dialog box or wizard

<table>
<thead>
<tr>
<th>Goal</th>
<th>Shortcut Keys</th>
</tr>
</thead>
<tbody>
<tr>
<td>Move forward to the next item in a dialog box or wizard</td>
<td>Tab</td>
</tr>
<tr>
<td>Move backwards to the previous item in a dialog box or wizard</td>
<td>Shift+Tab</td>
</tr>
<tr>
<td>Move down to the next choice in a drop-down list</td>
<td>Down arrow</td>
</tr>
<tr>
<td>Move up to the previous choice in a drop-down list</td>
<td>Up arrow</td>
</tr>
<tr>
<td>Move to and select the previous option button</td>
<td>Shift+Tab + Space bar</td>
</tr>
<tr>
<td>Move to and select the next option button</td>
<td>Tab + Space bar</td>
</tr>
<tr>
<td>Open and display a drop-down list or menu</td>
<td>Alt+Down arrow</td>
</tr>
<tr>
<td>Close an open drop-down list or menu</td>
<td>Alt+Up arrow or Esc</td>
</tr>
<tr>
<td>Close a dialog box or wizard</td>
<td>Esc</td>
</tr>
<tr>
<td>Invoke a selected drop-down item</td>
<td>Enter</td>
</tr>
<tr>
<td>Apply the changes you made and close the dialog box or wizard</td>
<td>Tab to the OK button and press Enter</td>
</tr>
<tr>
<td>Close the dialog box or wizard without applying or saving any changes you made</td>
<td>Esc</td>
</tr>
</tbody>
</table>

### Keyboard shortcuts for the grid

Use the following keyboard shortcuts in the Grid tab.

<table>
<thead>
<tr>
<th>Goal</th>
<th>Shortcut Keys</th>
</tr>
</thead>
<tbody>
<tr>
<td>Go to the first attribute for a member in the grid</td>
<td>Home</td>
</tr>
<tr>
<td>Go to the last attribute for a member in the grid</td>
<td>End</td>
</tr>
<tr>
<td>Go to the first row of data</td>
<td>Ctrl+Home</td>
</tr>
<tr>
<td>Go the last row of data</td>
<td>Ctrl+End</td>
</tr>
<tr>
<td>Move down to the next member in the grid</td>
<td>Down arrow</td>
</tr>
<tr>
<td>Move up to the previous member in the grid</td>
<td>Up arrow</td>
</tr>
</tbody>
</table>
### Keyboard shortcuts for the grid

Use the following keyboard shortcuts in the **Grid** tab.

<table>
<thead>
<tr>
<th>Goal</th>
<th>Shortcut Keys</th>
</tr>
</thead>
<tbody>
<tr>
<td>Move to the next attribute for a member in the grid</td>
<td>Right arrow</td>
</tr>
<tr>
<td>Move to the previous attribute for a member in the grid</td>
<td>Left arrow</td>
</tr>
<tr>
<td>Perform the default action for the selected item</td>
<td>Enter</td>
</tr>
<tr>
<td>Select the <strong>Explorer</strong> tab</td>
<td>Ctrl+Tab</td>
</tr>
<tr>
<td>Select the <strong>Diagram</strong> tab</td>
<td>Ctrl+Shift+Tab</td>
</tr>
<tr>
<td>Scroll up</td>
<td>Up arrow or Page Up</td>
</tr>
<tr>
<td>Scroll down</td>
<td>Down arrow or Page Down</td>
</tr>
</tbody>
</table>

### Keyboard shortcuts for the diagram

Use the following keyboard shortcuts in the **Diagram** tab.

<table>
<thead>
<tr>
<th>Goal</th>
<th>Shortcut Keys</th>
</tr>
</thead>
<tbody>
<tr>
<td>Move to and expand the children members</td>
<td>Right arrow</td>
</tr>
<tr>
<td>Move to the parent member</td>
<td>Left arrow</td>
</tr>
<tr>
<td>Close the expanded children members</td>
<td>Shift+left arrow</td>
</tr>
<tr>
<td>Move down to the next member in the diagram</td>
<td>Down arrow</td>
</tr>
<tr>
<td>Move up to the previous member in the diagram</td>
<td>Up arrow</td>
</tr>
<tr>
<td>Select the <strong>Grid</strong> tab</td>
<td>Ctrl+Tab</td>
</tr>
<tr>
<td>Select the <strong>Explorer</strong> tab</td>
<td>Ctrl+Shift+Tab</td>
</tr>
<tr>
<td>Open the <strong>Properties</strong> dialog box for the selected item</td>
<td>Enter</td>
</tr>
<tr>
<td>Scroll up</td>
<td>Up arrow or Page Up</td>
</tr>
<tr>
<td>Scroll down</td>
<td>Down arrow or Page Down</td>
</tr>
</tbody>
</table>
IBM and accessibility

See the IBM® Accessibility Center (http://www.ibm.com/able) for more information about the commitment that IBM has to accessibility.
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