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Table of Contents

Chapter 1: Introduction	1
Chapter 2: Security Overview	3
The Security Management dialog	4
Chapter 3: Managing Users and Roles	8
Managing users	8
Managing roles	10
Assigning users to roles	11
How role settings are applied to users	11
Granting administrator-level permissions	13
The Everyone role	14
Chapter 4: Configuring Security Settings	17
General settings	17
Configuring feature permissions (Permissions tab)	
Configuring file group permissions (File Groups tab)	28
Configuring table permissions (Tables tab)	
Configuring file access (Files tab)	
Assigning startup files (Startup tab)	76
Chapter 5: Security Subsystems	87
About subsystems	87
Enabling subsystems	
Managing subsystems	93
Managing subsystem roles	
Managing subsystem users	103
Chapter 6: Security Tools	105
Preventing users from accessing the system	105
Viewing the list of logged in users	
Enabling password rules	
Testing user security	
Reporting on security information	
Creating a permission report	
Bulk edit of security	

Chapter 7: Security Integration	118
Using Windows Authentication	118
Synchronizing users with Active Directory	120
Using LDAP Authentication	123
Using SAML Authentication	124
Using OpenID Authentication	126
Login behavior options	127
Appendix A: Save Type 4 for Security	130
Managing users in Axiom Security using Save Type 4	130
Managing roles in Axiom Security using Save Type 4	134
Appendix B: Reference	138
Filter criteria syntax	138
Filter variables	140
Index	142

Introduction

Axiom Software Security controls user access to Axiom Software. All users of Axiom Software must be defined within Security.

Axiom Software provides robust security functionality to control user access to data, files, and features. Within Security, the administrator can:

- Manage users and roles
- · Control user access by file group
- Control user access to data in the database
- Control user access to specific features
- Control user access to data imports
- Control user access to files and folders
- Specify files to open on system startup

This guide discusses how to set up and manage security within Axiom Software.

Intended audience

This guide is intended for administrators who are responsible for managing Axiom Software security.

What is covered in this guide?

This guide covers the following aspects of security administration:

- Managing users and roles
- · Defining security settings
- Using security tools to manage user access
- Using security integration features (Active Directory, single sign-on)

What is not covered in this guide?

The following related topics are not covered in this guide:

• Defining system configuration settings, such as enabling security integration features. For information on system configuration settings, see the *System Administration Guide*.

All documentation for Axiom Software can also be accessed using the Axiom Software Help Files.

Axiom Software Client versions

This guide discusses functionality that is available in the Axiom Desktop Client (Excel Client and Windows Client). Screenshots of features may show either the Excel Client or the Windows Client. The Axiom Software functionality is virtually identical in both environments.



Security Overview

Using Axiom Software Security, administrators can create users and groups, and assign access rights. This section explains how security is applied in Axiom Software.

Security is managed independently for each Axiom Software system installed at your organization. Each system has its own set of defined users, roles, and permissions. If you have multiple Axiom Software systems installed at your organization, and a particular user needs to access both systems, then you will need to define that user independently within each system.

Users can be created manually within Axiom Software, or you can import them from Active Directory. Once a user account is created, you must define the permissions for that user, at the user level or at the role level (or both). The security permissions determine which files, features, and data the user can access within the Axiom Software system.

You can designate one or more users as system administrators, which means that those users have access to everything within the Axiom Software system, including security. Generally speaking, only administrators can access security and modify security settings. If you need certain users to be able to access security but you do not want to grant them full administrator rights, there are special permissions to allow this. For more information, see Granting administrator-level permissions.

Users and roles

To streamline security settings, you can define a number of roles, and then assign users to those roles. Users inherit the security settings defined for their assigned roles.

Additionally, Axiom Software provides a built-in Everyone role, for security settings that apply to all users.

The specific way that security settings are inherited depends on the type of setting. Generally, roles grant permissions, they do not deny permissions. For more information, see How role settings are applied to users.

Authentication behavior

There are several options to authenticate users into Axiom Software. The basic authentication type is Axiom Prompt authentication, which means that users will be prompted for an Axiom user name and password each time they want to access Axiom Software.

If desired you can use an integrated authentication option instead, which means that users are authenticated based on certain supported external credentials—such as the user's Windows domain credentials or LDAP credentials. These options are typically enabled and configured during the installation of Axiom Software. For more information, see Security Integration.

Security subsystems

If desired, you can create security subsystems and assign users to subsystems. Subsystems allow you to:

- Define a maximum level of permissions for a subset of users. Any user that is assigned to the subsystem cannot be granted rights that exceed the subsystem rights.
- Assign a user as a subsystem admin, so that the user can manage security permissions for only the users that belong to the subsystem.

For more information, see Security Subsystems.

Reporting on security information

You can report on security information as follows:

- The function GetUserInfo can be used to return general information about a user, such as the user's first and last name, email, or login name.
- The function GetSecurityInfo can be used to return security information about a user, such as whether the user is a system administrator, and what permissions the user has.
- You can use an Axiom query to query various system tables that hold security information. For example, you can run a report to show all users who have system administrator rights.

For more information on these Axiom functions and querying system tables using an Axiom query, see the Axiom File Setup Guide.

The Security Management dialog

All security settings for Axiom Software are controlled in the **Security Management** dialog. To access this dialog:

On the Axiom tab, in the Administration group, click Manage > Security > Security Manager.

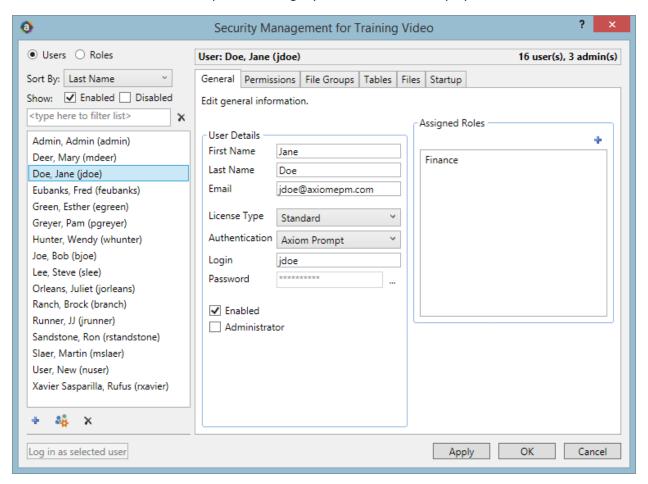
NOTE: If you are using an Axiom packaged product, you can access this feature from the **Admin** tab. In the **System Management** group, click **Security > Security Manager**.

Only users with the following rights can access the Security Management dialog:

- System administrators
- Users with the Administer Security permission
- Users assigned as a subsystem administrator

Viewing users, roles, and subsystems

Users, roles, and subsystems are listed in the left-hand side of the dialog. To switch between items, select one of the radio buttons at the top of the dialog. By default, users are displayed.



NOTE: Subsystems are optional. Subsystem features are only available if you have enabled them using the system configuration settings.

- You can sort the user list by last name, first name, and login name. To change the sort, select the desired option from the **Sort By** list. By default, the list is sorted by last name.
- To search for a particular user, role, or subsystem, type the name into the search box at the top of the list. To clear the search, click the Clear filter icon × to the right of the search box. Note that this will search the user's login name as well as first and last name.
- To show or hide users by their enabled status, use the Enabled and Disabled check boxes. By default, both check boxes are selected which means that all users are shown (enabled and disabled).

When a user, role, or subsystem is selected in the list, the settings for that item display in the right-hand side of the dialog, organized by tabs.

TIP: You can double-click on any user, role, or subsystem name listed in the Assigned Users / Assigned Roles / Assigned Subsystems sections to open that record.

Editing security

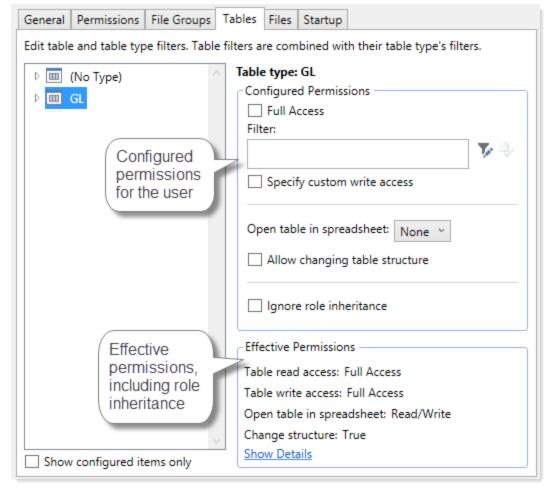
Changes made in the Security Management dialog are reflected in "real-time" within the dialog. If a required setting is missing, a validation message appears in the bottom left of the dialog. You can click on the message to be taken to the applicable setting. This issue must be resolved before you can save any changes.

At any time you can save changes by clicking **Apply** (to leave the dialog open) or **OK** (to close the dialog). In most cases, changed security permissions will be effective within seconds of being saved; the user does not need to log out and log back in before changes are applied.

Effective permissions

Several tabs of the Security Management dialog, such as the **File Groups** tab and the **Tables** tab, display the effective permissions for the user. This is the permission that the user has after applying all of the relevant security settings, including inherited role permissions, subsystem restrictions, and administrator permissions. This allows you to understand exactly what permission the user has.

For example, if you select a table type or a table in the Tables tab, the **Configured Permissions** section displays what permissions have been granted at the user level, and the **Effective Permissions** section displays the actual access rights of the user. In the following example screenshot, although the user herself has no configured access to the table type, her effective permission is full access. This means that either the user is assigned to a role with full access to the table type, or the user has been granted administrator rights. You can see exactly which rights contribute to the effective permissions by clicking the **Show Details** link.



Example effective permissions

As edits are made in the dialog, those changes are reflected in the effective permissions immediately. For example, if you grant a user permission to **Administer Imports**, and then switch to the **Files** tab, the effective permissions for the Imports Library will reflect that the user has full permissions to all imports, even though the change has not yet been saved.



Managing Users and Roles

All users of Axiom Software must be defined within Security. Users can be assigned access rights on an individual basis, and/or they can be assigned to specific roles and inherit the rights of the role.

The total number of active users that can be defined for your implementation depends on your license agreement with Axiom Software. If you have any questions, please contact Axiom Software Support for assistance.

The total number of available licenses and currently active users are displayed in the upper right-hand corner of the **Security Management** dialog. This area also displays the total number of users who have been granted administrator rights. For example: **20 of 25 licenses in use, 3 admins**.

NOTE: In addition to the Security Management dialog, you can also manage users and roles in bulk via a spreadsheet interface. For more information, see **Bulk edit of security**.

Managing users

Using the **Security Management** dialog, administrators can create new users, edit existing users, and delete users. To access this dialog:

On the Axiom tab, in the Administration group, click Manage > Security > Security Manager.

NOTE: If you are using an Axiom packaged product, you can access this feature from the **Admin** tab. In the **System Management** group, click **Security > Security Manager**.

To work with users, make sure that Users is selected in the top left-hand corner of the dialog.

To save changes, click Apply (or OK if you are finished editing security settings).

Creating users

You can create a new blank user, or you can clone the settings of an existing user. If you clone a user, all of that user's settings are copied to the new user, except for unique personal information (name, email, login, password).

To create a user, click one of the following buttons located underneath the user list:

- To create a new blank user, click Create user +.
- To clone an existing user, select that user in the list and then click Clone user 👯.

The new user is added to the list. You can define the security settings for the new user as desired, including assigning the user to one or more roles.

NOTE: If you are a subsystem administrator, then all users that you create must belong to a subsystem. If you are an administrator for only one subsystem, then any new users are automatically added to that subsystem. If you are an administrator for multiple subsystems, then the user is automatically assigned to one of the subsystems; you can change the assignment as needed.

Editing users

To edit a user, select a user from the **Users** list, then make any changes to that user. Changes to user settings are applied to that user when the changes are saved.

Deleting users

To delete a user, select a user from the Users list, then click Delete user X. You are prompted to confirm that you want to delete the user.

If you delete a user, that user is removed from Axiom Software security entirely. Alternatively, you can disable a user if you want to keep the user record, but prevent the user from accessing Axiom Software. On the **General** tab, clear the **Enabled** check box.

IMPORTANT: If the user has made any changes to the system or data, deleting the user will have implications on auditing. In order to comply with SOX, HIPPA, and other protocols for standard security practices, it is strongly recommended to disable existing user records instead of deleting them. Generally speaking, a user record should only be deleted if it is newly created and has not been used.

When a user is deleted, the user's associated user folders in \Axiom\Axiom System\User Folders are also deleted (such as My Favorites and My Documents).

Managing roles

Using the **Security Management** dialog, administrators can create new roles, edit existing roles, and delete roles. To access this dialog:

On the Axiom tab, in the Administration group, click Manage > Security > Security Manager.

NOTE: If you are using an Axiom packaged product, you can access this feature from the **Admin** tab. In the **System Management** group, click **Security > Security Manager**.

To work with roles, select Roles in the top left-hand corner of the dialog.

To save changes, click Apply (or OK if you are finished editing security settings).

NOTE: Subsystem administrators cannot view or edit roles. The only action that subsystem administrators can take with roles is to assign users in the subsystem to roles (from the user record).

Creating roles

You can create a new blank role, or you can clone the settings of an existing role. If you clone a role, all of that role's settings are copied to the new role, including assigned users.

To create a role, click one of the following buttons located underneath the role list:

- To create a new blank role, click Create role +.
- To clone an existing role, select that role in the list and then click Clone role

The new role is added to the list. You can define the security settings for the new role as desired, and you can assign users to the role.

Editing roles

To edit a role, select a role from the **Roles** list, then make any changes to that role. Changes to role settings are applied to users who are assigned to that role when the changes are saved.

Deleting roles

To delete a role, select a role from the Roles list, then click Delete role X. You are prompted to confirm that you want to delete the role.

A role cannot be deleted if users are assigned to it.

TIP: If you have a role that you want to delete and many users are assigned to it, you can delete it using the Open Security in Spreadsheet feature. The users will be automatically updated to remove the role assignment. For more information, see Bulk edit of security.

Assigning users to roles

Each user in security can be assigned to one or more roles to define the user's security permissions. Generally speaking, the permissions of each assigned role are combined with any user permissions to result in the most permissive set of rights available to the user. There are some exceptions; for more information see How role settings are applied to users.

Users can be assigned to roles from the user record or from the role record. Users have an Assigned Roles section that lists their assigned roles. Roles have an Assigned Users section that list their assigned users.

To assign roles to a user from the user record:

- 1. In the Security Management dialog, select the user.
- 2. On the General tab, in the Assigned Roles section, click the Add button +.
- 3. Use the Assign Roles dialog to assign one or more roles to the user:
 - Use the Add and Remove buttons to move role names between Available Roles and Assigned Roles. All roles listed in the Assigned Roles box will be assigned to the user.
 - You can also double-click role names to move them between the boxes.
- 4. When you have finished assigning roles, click **OK** to close the Assign Roles dialog, and then **Apply** or **OK** to save the changes to the user record.

To assign users to a role from the role record:

- 1. In the Security Management dialog, select the role.
- 2. On the General tab, in the Assigned Users section, click the Add button +.
- 3. Use the Assign Users dialog to assign one or more users to the role:
 - Use the Add and Remove buttons to move user names between Available Users and Assigned Users. All users listed in the Assigned Users box will be assigned to the role.
 - You can also double-click user names to move them between the boxes.
- 4. When you have finished assigning users, click **OK** to close the Assign Users dialog, and then **Apply** or **OK** to save the changes to the role record.

How role settings are applied to users

Axiom Software supports role-based security. Each user can be assigned to one or more roles, and will inherit the security settings defined for those roles. This topic explains how role-level rights are inherited by individual users.

In general, role rights are additive. Users are granted the most permissive set of rights among their own personal security settings and any roles that they are assigned to. Roles are intended to grant permissions, not deny permissions.

Role inheritance works slightly differently for different areas of security, as detailed in the following sections. When configuring security settings for a user, be sure to check the **Effective Permissions** display available in most areas of the dialog. This section displays the user's effective permissions after taking into account all applicable factors, including role inheritance, subsystem restrictions, and administrator status.

NOTE: If subsystems are being used, then role inheritance works in the same way, but users' effective permissions are limited by the subsystem's maximum permissions. For more information, see Security Subsystems.

Permissions

The **Permissions** tab of Security defines access rights for specific Axiom Software features. By default, users inherit security permissions from any roles that they are assigned to. However, you can override role inheritance for a user on a per permission basis.

If a permission is set to inherited, then the user is granted the most permissive set of rights among any roles the user is assigned to. For example, imagine the following settings for the Run AQs in Plan Files permission:

User Inherited Role1 Unchecked Role2 Checked

If the user was assigned to both Role1 and Role2, then the user would have rights to run Axiom queries in plan files.

If you select to **Override** a permission, then that permission is no longer inherited from roles, and the user is granted or denied the permission based on whether the permission box is checked for the user.

Startup documents

Users inherit startup task panes and "other" startup documents from roles in addition to their own individually assigned startup files.

Each user can have only one home page. If a user has an individually assigned home page, that file will be used and any role settings are ignored. Otherwise, the user will inherit the home page from a role. If no home page is assigned, the default home page is used.

For more information about startup file inheritance, see Assigning startup files (Startup tab).

File groups

The **File Groups** tab of Security defines access rights for plan files in file groups. For file groups, you can configure role inheritance to be handled in a variety of ways. You can specify that role settings are

combined with user settings, or that role settings are inherited independently from user settings, or that role settings are ignored entirely and not inherited.

For more information and examples of how role file group permissions apply to users, see Understanding role inheritance options for file group permissions.

All other areas

For all other areas of Security, the user inherits the most permissive set of rights among their own personal security settings and any roles that they are assigned to. This applies to the **Tables** tab and the **Files** tab.

For example, imagine the following access level settings for a report folder:

User Read-Only Role1 None

Role2 Read/Write

If the user was assigned to both Role1 and Role2, then the user would have Read/Write access to that report folder, because that is the most permissive set of rights available to the user.

Each tab has an **Effective Permissions** area where you can view the rights that the user will be granted after taking into account role inheritance, administrator status, and folder inheritance (where applicable).

NOTES:

• For table access, if both the user and a role have filtered access, the filters are concatenated using OR. So if a user has a table filter of DEPT.Region='North' and a role the user is assigned to has a table filter of DEPT.Region='South', then that user's full filter is:

```
DEPT.Region='North' OR DEPT.Region='South'
```

That user would have access to data for either the North or South regions.

• For table access, you can choose to ignore role inheritance. If this option is checked for a user, then any applicable role access settings are not inherited (including the **Full Access** setting) and the only filter applied is the user's filter.

Granting administrator-level permissions

In Security, users can be designated as a system administrator, by enabling the **Administrator** option on the **General** tab.

System administrators have full rights to all features and all data for the system. Although you can configure security settings for administrators, such as to define file access or table filters, these settings will be overridden as long as the Administrator check box is enabled for the user. The Effective Permissions will reflect the user's full access.

Administrator-only features

Administrators have access to all features and files in the current Axiom Software system. While non-admin users can be granted access to many features and files, some features are only available to administrators:

- The ability to make another user a system administrator
- The ability to log into a locked system
- The ability to restore a deleted file
- The ability to modify system configuration settings using Save Type 4
- Access to Scheduler administration features in the Scheduler dialog (such as viewing all job history, managing system jobs and event handlers, managing Scheduler servers, and managing remote data connections)
- Access to system folders in Axiom Explorer (therefore, any file management for system files that cannot be done using system utilities can only be done by administrators)
- Access to certain underlying file group folders such as the Plan Files folder, Plan File Attachments folder, and the Calc Method Libraries folder
- Access to the Developer > Tools menu on the Axiom Designer ribbon (though some of the features on this menu are available elsewhere without the administrator restriction)
- Access to the technical administration features in the Axiom Web Client (Application Server Administration from the launch page)
- · Ability to create and edit imports that use the current Axiom database as the source data

Security access for non-administrators

If you want a user to be able to access and edit security settings, but you do not want to make the user an administrator, there are two options:

- You can give the user the Administer Security permission. Users with this permission can add, edit, and delete users, roles, and subsystems, and can access security tools such as System Access and Logged in Users.
- If you are using subsystems, you can assign a user as a subsystem administrator. Users with this permission can edit the security settings for users that belong to the subsystem, and can also create and delete users within the subsystem. For more information, see About subsystems.

These users do not have access to the **Administrator** check box in Security. They cannot make themselves or any other user an administrator.

The Everyone role

The Everyone role is a built-in role for each Axiom Software system. The purpose of this role is to define security settings that apply to every user in the system. All users automatically belong to the Everyone role.

The Everyone role has the following default settings:

- **Document reference tables.** When a new document reference table is created, the Everyone role is automatically granted full read access to that table. This permission grants all users the right to query the data in document reference tables. In most cases, this is the desired level of rights. If you have some particular document reference tables that you do not want every user to have access to, then you can do one of the following:
 - Modify the Everyone role to remove access to those tables, and instead grant access directly to specific users and roles.

OR

- Leave the Everyone role at the default of full access, and instead modify certain users to ignore role inheritance for that table.
- On-demand file groups. When a new on-demand file group is created, the Everyone role is automatically granted the Create New Records permission for that file group. Effectively, this means that any user who also has access to plan files in the file group will also have permission to create new plan files. If you do not want this behavior—meaning that you want some users to be able to access plan files in the file group without being able to create new plan files—then you can remove the permission from the Everyone role and instead grant it to individual users and roles as needed.
- Startup task panes. By default, the Everyone role is configured to open the Explorer, Workflow, and Process task panes on startup, as non-closeable task panes. You can modify the Everyone role to remove any of these task panes, and instead grant access directly to specific users and roles (or do not grant access to anybody, if you do not want to use these task panes at all). Only the Explorer task pane will open automatically for all users; generally the Workflow and Process task panes only display when they are relevant to the user.
- Startup ribbon tabs. By default, the Everyone role is configured to open the Axiom Designer ribbon tab, for administrators only. You can modify the configuration of the startup file so that it displays to other users, or you can remove it from the Everyone role and instead grant access directly to specific users and roles (or do not grant access to anybody, if you do not want to use the ribbon tab at all).

If desired, you can modify the Everyone role to grant additional rights to every user. Any right granted at the Everyone level will be inherited by every user, except for rights that have been overridden at the user level. Subsystem restrictions, if applicable to the user, still apply.

Note the following about the Everyone role:

- The Everyone role cannot be renamed or deleted. The security settings for the role can be modified in either the Security Management dialog or by using Open Security in Spreadsheet.
- Users cannot be explicitly assigned to the role, nor can they be removed from the role. All users permanently belong to this role.

• The Everyone role is not recognized by GetSecurityInfo("InRole") or when querying security tables via Axiom query. It is assumed that all users belong to the role; therefore it is not listed as a role assignment.

Configuring Security Settings

Security settings for users, roles, and subsystems are organized by tabs in the Security Management dialog. The following tabs are available:

Tab	Description
General	Define general settings such as name and email, as well as role assignments and system access.
Permissions	Set permissions for individual features.
File Groups	Set access rights for file groups.
Tables	Set access rights for table data.
Files	Set access rights for files in the Axiom Software file system. This includes reports, imports, task panes, and Scheduler jobs.
Startup	Specify certain files to open automatically on system startup.

General settings

The following properties can be set on the General tab of the Security Management dialog.

- User, role, and subsystem properties
- Role and subsystem assignments

The available settings are different depending on whether you are defining a user or a role. If you are configuring a subsystem, see Managing subsystems.

Defining user properties (General tab)

The following settings are available for users on the General tab.

User Details

Each user has the following general properties:

Item	Description
First Name	The user's first and last name.
Last Name	This information can be referenced by using the function GetUserInfo.
Email	The user's email address. This address is used to send user notifications, such as for process management.
	This information can be referenced by using the function GetUserInfo.
License Type	The user's license type. By default, users are Standard users unless a different user type is selected. Standard users have the potential to access any feature or file in Axiom Software, limited by their security permissions.
	In addition to standard users, the following user types are available:
	 Axiom Support users are intended to allow Axiom Software consultants and support representatives to log into your system as part of requested support activities or contracted consulting work. Any user accounts assigned to this license type must log in using Axiom Prompt authentication, and must acknowledge that they are Axiom representatives when they log into the system.
	 Viewer users allow for "view only" access to Axiom Software. Viewer users can access files as read-only, but they cannot save files or data, and they cannot otherwise perform "change actions" on the files (such as submitting a plan file for process management). Viewer users also cannot perform any administration functions.
	Security permissions for viewer users can be set as normal, but any settings above read-only access to files will be ignored. The Effective Permissions will note that the user is being limited due to the Viewer license. However, if you switch the user to a Standard license, the settings will be honored.
	The number of users that can be created and assigned to each license type depends on your Axiom Software license.

Item Description

Authentication

The method used to authenticate the user for access to Axiom Software. By default, new users will be assigned to your installation's configured authentication mode; however, this can be changed on a per user basis as needed.

- Axiom Prompt: Select this option if you want the user to be authenticated by using their Axiom Software user name and password. You would use this option if your installation is not configured to enable an external authentication method, or if you are using an external authentication method but you want to create a user who can log in directly.
- Windows User: Select this option if you want the user to be authenticated based on their Windows credentials. This option is only valid if your installation is configured to enable Windows Authentication. For more information, see Using Windows Authentication.
- LDAP Prompt: Select this option if you want the user to be authenticated via your LDAP directory. This option is only valid if your installation is configured to enable LDAP Authentication. For more information, see Using LDAP Authentication.
- OpenID: Select this option if you want the user to be authenticated using an OpenID provider. This option is only valid if your installation is configured to enable OpenID Authentication. For more information, see Using OpenID Authentication.
- SAML: Select this option if you want the user to be authenticated using a SAML identity provider. This option is only valid if your installation is configured to enable SAML Authentication. For more information, see Using SAML Authentication.
- Unspecified: This option exists to support backwards-compatibility for systems upgraded from older versions. Upgraded users may be assigned to it, but it cannot be selected otherwise. If you have users assigned to this option, we recommend changing their assignment to the appropriate authentication type.

Item	Description
Login	The user's login name.
	If the user's authentication type is anything other than Axiom Prompt, then the user's login name must match the user's login name for the designated authentication source (for example, it must match the user's Windows login name when using Windows Authentication). See the information on the appropriate authentication type for login name requirements.
	For Windows Authentication only, you can validate that the login name matches a user name in one of the allowed domains by clicking the Validate icon to the right of the box. A message box will let you know whether the name was found or not. This feature is only available if Windows Authentication is enabled and at least one valid domain name has been specified as an allowed domain.
	This information can be referenced by using the function GetUserInfo.
Password	The user's Axiom Software password. Click the button to the right of the box to set or change the user's password. All users must have a non-blank password.
	Users can change their own password later from within the application.
	NOTES:
	 By default, Axiom Software enforces a basic set password rules. If desired, you can disable these rules and allow any password. See Enabling password rules.
	 The Password setting only displays for Axiom Prompt users. For all other authentication types, a randomly generated password will be created for the user and cannot be changed. Users cannot log in with this randomly generated password; they can only log in using their specified authentication type.
	If you are an administrator and you need to log into Axiom Software as another user in order to test that user's security settings, you do not need to know that user's password. For more information, see Testing user security.
Enabled	Specifies whether the user can access Axiom Software. If this check box is <i>not</i> selected, the user cannot log into any Axiom Software system.

Item	Description
Locked Out	If a user has become locked out of the system due to exceeding the configured number of failed login attempts, then the system will automatically select this check box. You can clear the lockout by clearing this check box.
	This setting only displays if you have manually configured a lockout threshold. For more information, please contact Axiom Support.
	If an administrator becomes locked out, and no other administrator accounts are available to clear the lockout, the Axiom Software Manager can be used to reset the administrator's password and clear the lockout.
Administrator	Specifies whether the user has administrator-level permissions. If this check box is selected, then the user has access to all features and data in the current system. For more information, see Granting administrator-level permissions.
	NOTE: This check box only displays to users who have the Administrator permission. In other words, a user cannot make themselves an administrator, they have to be granted the right by a user who is already an administrator.
Directory Sync Enabled	Specifies whether the user will be synched with Active Directory the next time an Active Directory import is performed. This is enabled by default.
	 If enabled, then the user will be synchronized with Active Directory according to the settings in the Scheduler task for the import. For more information about how this import and synchronization occurs, see How Active Directory user synchronization works.
	 If disabled, then the user will not be affected by the Active Directory import, even if the user name matches a user name in the import.
	NOTE: This check box only displays if Active Directory import has been enabled for your system.

Assigned Roles

Users can be assigned to one or more roles. If the user is already assigned to roles, those roles are listed here.

- To add a user to a role, click Add +. In the Assign Roles dialog, you can select roles for the user.
- To remove a user from a role, select the role in the list and then click Remove X.

Role assignments can be made when editing either the user or the role. Any changes made in one area are automatically applied to the other area.

NOTE: The Everyone role is not listed in the **Assigned Roles** box. All users belong to the Everyone role and cannot be removed; therefore it is not listed as a role assignment.

For more information, see How role settings are applied to users.

Assigned Subsystems

This section only displays if subsystems are enabled for your system. See Security Subsystems.

If you are using subsystems, you can optionally assign the user to one or more subsystems. If the user is already assigned to subsystems, those subsystems are listed here.

- To add a user to a subsystem, click Add . In the Assign Subsystems dialog, you can select subsystems for the user.
- To remove a user from a subsystem, select the subsystem in the list and then click Remove X.

IMPORTANT: If you remove a user from a subsystem, that subsystem's maximum permission limit will no longer apply to that user.

Subsystem assignments can be made when editing either the user or the subsystem. Any changes made in one area are automatically applied to the other area.

NOTE: If you are a subsystem administrator, then all users that you have access to must belong to a subsystem. If you are an administrator for only one subsystem, then any new users you create are automatically added to that subsystem. If you are an administrator for multiple subsystems, then the user is automatically assigned to one of the subsystems; you can change the assignment as needed.

Configuring role properties (General tab)

The following settings are available for roles on the General tab.

Role Details

Each role has the following general properties:

Field	Description
Name	The name of the role.
	NOTE: The name of the built-in Everyone role cannot be changed.
Description	A description of the role. The description is for the administrator's use only, to help explain the purpose of the role.

Assigned Users

Multiple users can be assigned to a role. If the role already has assigned users, those users are displayed here.

- To add a user to the role, click Add +. In the Assign Users dialog, you can select users to add to the role.
- To remove a user from the role, select the user in the list and then click Remove X.

Role assignments can be made when editing either the user or the role. Any changes made in one area are automatically applied to the other area.

NOTE: This section is not available when editing the built-in Everyone role. All users belong to the Everyone role and cannot be removed.

For more information, see How role settings are applied to users.

Configuring feature permissions (Permissions tab)

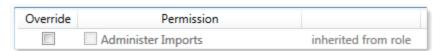
On the **Permissions** tab of the **Security Management** dialog, you can specify which features a user or role has access to. The **Permissions** tab works slightly differently depending on whether you are defining rights for a user or a role.

NOTE: If you are defining permissions for a subsystem, see Defining maximum permissions for subsystems.

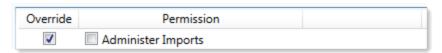
Setting permissions for users

For users, each permission has three available settings:

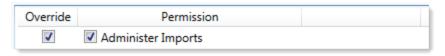
• Inherited: The permission is not set for the user. The permission is grayed out and the text "inherited from role" appears to the right of the permission name. If the user is assigned to a role, any permission left unset can be inherited from the role.



• **Denied**: If the override check box is selected, but the permission itself is not selected, this means that the user explicitly does not have access to the feature. The user will not inherit the permission from any roles.



• **Allowed**: If the override check box and the permission check box are selected, this means that the user explicitly has access to the feature, regardless of any role settings.



By default, all user permissions are left unset and are inherited from any role assignments. If you want to override role inheritance and explicitly set a permission for the user, then you must select the **Override**

check box and then leave the permission unchecked (to deny the permission) or checked (to allow the permission).

NOTES:

• When a permission is inherited from a role, it displays the effective permission for the user. For example, if a user is assigned to a role that has the **Administer Imports** permission, and that permission is set to inherited for the user, then the check box for that permission displays as grayed out and selected. For example:

Override	Permission	
	Administer Imports	inherited from role 'Finance'

• If a user has administrator rights to the system, that user has all permissions. In this case, the permissions list is grayed out and cannot be edited, all permissions display as selected, and the text "user is an admin" displays next to the permission names.

Override	✓ Permission	
	Administer Imports	user is an admin

 If the user belongs to a subsystem, and the subsystem settings do not allow a particular permission to be granted to users in the subsystem, then the permission is grayed out and cannot be edited, and the text "disallowed by subsystem" displays next to the permission name.

Override	Permission	
	Administer Imports	disallowed by subsystem 'Facility5'

Setting permissions for roles

For roles, each permission is either checked or unchecked. If a permission is checked for a role, then users who have that permission set to "inherited" will inherit rights to that permission when they are assigned to that role.

Permissions

The following permissions are available:

Permission	Description
Administer Announcements	The user has rights to create, edit, and delete announcements and announcement categories. The user must have access to a form-enabled file with an Announcements component in order to use this permission.

Permission	Description
Administer Axiom Explorer	The user has rights to access Axiom Explorer (Administration > Manage > Axiom Explorer). The user's other security permissions determine what folders they can view within this dialog and what actions they can perform on them.
	NOTE: This permission has no impact on the availability of the Explorer task pane.
Administer	The user has rights to create exports in the Exports Library.
Exports	The user must also have read/write permissions to at least one folder within the Exports Library (as configured on the Files tab), or else they will have no place to save their created exports. Execute permissions are also managed on the Files tab.
Administer File	The user has general administrative rights to <i>all</i> file groups. The user can:
Groups	Create and delete file groups
	Edit file group settings
	Clone file groups
	 Manage scenarios for file groups
	 Manage restore points for file groups
	Manage categories for file groups
	Manage file group aliases
	 Use the Delete Plan Files command to delete any plan file from an on- demand file group
	NOTE: Generally speaking, this permission does not grant access to any files within the file groups, such as plan files, templates, and drivers. The user must be granted access to these files separately if the user is expected to manage or use these files. There are two exceptions: the user can delete any on-demand plan file using Delete Plan Files, and the user can restore any plan file when using restore points.
Administer	The user has rights to create imports (Administration > Manage > Imports).
Imports	The user must also have read/write permissions to at least one folder within the Imports Library (as configured on the Files tab), or else they will have no place to save their created imports. Execute permissions are also managed on the Files tab.
Administer Locked Items	The user has rights to remove locks on locked items (Administration > Manage > Locked Files).
	The list of locked items is limited to the files and tables that the user has some level of access to. The user cannot see or unlock items that the user does not have access to.

Permission	Description
Administer Picklists	The user can administer picklist tables using the Web Client Table Manager. The user can create new picklist tables. For existing picklist tables, the user can edit table properties and delete tables (as long as the user has at least read-only permission to the table, otherwise the table does not display in the table manager).
	Administer Picklist users do not gain access to the table administration features in the Desktop Client.
Administer Security	The user has rights to access and edit security settings (Administration > Manage > Security > Security Manager) for the current system. The user can also access security-related tools such as System Access and Logged in Users.
	The Administrator check box is not available to users with this permission.
Administer Tables	 The user has general table administration permissions. The user can: Create and delete tables Edit table structure Open tables using Open Table in Spreadsheet Use other table utilities available on the table administration menu (Administration > Tables > Table Administration
	The user's read and write filters (as set on the Tables tab) are honored for purposes of viewing and saving table data.
Administer Task Panes	The user has rights to create and edit task panes and ribbon tabs, as allowed by the user's folder / file access rights defined for the Task Panes Library and the Ribbon Tabs Library (as set on the Files tab).
Administer Updates	The user has rights to download and apply updates to the Axiom Software installation (Administration > Manage > Software Updates and the equivalent Web Client page).
Administer Workflow	The user has rights to manage workflows using the Workflow Manager (Administration > Manage > Workflow). This permission is restricted based on file group access rights (meaning, the user can only manage workflows for file groups that the user has rights to access).
	NOTE: This permission is only visible in systems where the system configuration setting EnableLegacyWorkflowEngine is set to True. This should only be the case in older systems that have not yet had the opportunity to migrate their existing workflows to plan file processes.

Permission	Description
Browse Audit History	The user has rights to view the System Activity Log (Administration > Manage > Audit History and the equivalent Web Client page).
	NOTE: Users with this permission can see audit records for all changes, including changes made to tables that the user does not otherwise have access to. Use caution in granting this permission.
Remove Protection	The user has rights to remove workbook and worksheet protections (Advanced > Protect > Workbook and Worksheet), for any Axiom file that the user can access.
	NOTE: Alternatively, you can grant unprotect rights for individual report files and folders on the Files tab, or for plan files on the File Groups tab.
Scheduled Jobs User	The user has rights to access the Scheduler dialog for the purposes of working with scheduled jobs.
	The user can create jobs, edit jobs, run jobs, and delete jobs, as allowed by the user's folder and file access rights defined for the Scheduled Jobs Library (as configured on the Files tab of Security). For example, you might create a subfolder for each user and only grant the user rights to that folder.
	The user can view the results of jobs that the user has executed. Other job history is not available to the user.
	The user cannot manage Scheduler servers, edit system jobs, or use other Scheduler administration features.
	NOTE: Task-level security is not applied to users with this permission, within the context of Scheduler. However, file-level rights are enforced. For example, the user can create and/or run a Process Plan Files task within a Scheduler job, even if the user does not have the Process Plan Files permission. But within that task, the user can only process file groups and plan files that the user otherwise has access to.
User Documents	The user has rights to the My Documents folder in their My Files section.
Folder Access	The user can save files to My Documents. The user has read/write access over any file saved to this area. Typically this permission is only granted to power users who may need a place to save their own "personal" reports or an area to temporarily save "in progress" files.
	Administrators can access any user's My Documents folder. Other users cannot access it.
	NOTE: If a user has this permission and then later it is removed, the user's existing My Documents folder is not deleted; it is simply hidden from the user in Explorer dialogs. If desired, an administrator can delete the folder in \Axiom\Axiom System\User Folders.

NOTE: If a user does not have rights to a feature, the menu item associated with that feature does not show on that user's ribbon tabs or other applicable areas.

Configuring file group permissions (File Groups tab)

On the **File Groups** tab of the **Security Management** dialog, you can manage user access to plan files and to file group features. On this tab, you can specify the following:

- Which plan files a user can access
- The level of access to those plan files (read-only or read/write)
- What features are available in those plan files (such as saving data or inserting calc methods)
- Which file group administration features the user can access (such as Create Plan Files or Process Plan Files)

NOTES:

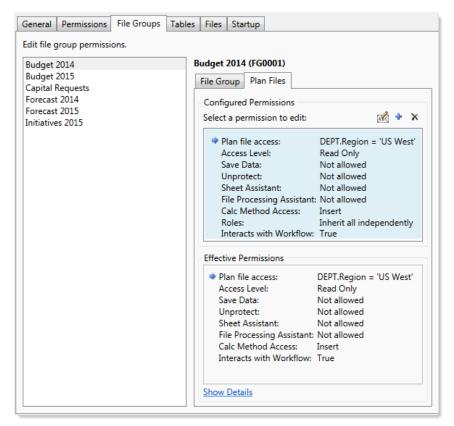
- The settings on this tab do not apply to administrators. Administrators have access to all plan files and all file group features.
- If you are defining permissions for a subsystem, see Defining maximum permissions for subsystems.

IMPORTANT: This tab does not control access to other files in a file group, such as templates, drivers and utilities. To give users access to these files, use the **Files** tab.

File group permissions

The settings on the **File Group** tab define permissions for each file group. The left-hand side lists the available file groups for the system. When you select a file group in the list, you can define the security settings for the user or role using the two sub-tabs on the right-hand side.

- **File Group**: Manage access to file group administration features such as Create Plan Files and Process Plan Files. This tab can be ignored for most end users.
- Plan Files: Manage access to plan files. It is necessary to configure access on this tab if you want the user to have any access to plan files in the file group.



Example File Groups tab, configuring permissions to plan files

File groups are listed by display name, followed by the file group code in parentheses. If the name of the file group is different than the display name, that name is also displayed in the parentheses.

The **Effective Permissions** section displays the full permissions of the user, taking into account any inherited role rights and other settings such as administrator rights.

NOTE: If a non-admin user has no effective permissions for a file group (either on the **File Groups** tab or on the **Files** tab), then that user cannot see the file group in Axiom Explorer, the Axiom ribbon tab, and other lists of file groups.

File Group tab

Use the **File Group** tab to configure user access to administration features for the file group. This tab is optional and can be ignored for most end users.

To grant a user access to one of these features, select the check box. By default, all check boxes on this tab are not selected, which means the user does not have access to any of these features.

Item	Description
Modify File Group	This permission grants general administrative rights to the file group. The user can: • Edit the file group settings • Clone the file group • Manage scenarios for the file group • Manage restore points for the file group
Create Plan Files	The user can create plan files for the file group, using the Create Plan Files feature. This permission is limited to those plan files where the user has read/write access, as defined in the File Groups tab of Security.
	This permission also grants access to the Copy Plan Files feature for standard file groups, which can be used in certain specialized configurations to copy plan files from one file group to another. In this case the user must have read/write access and Create Plan Files permission to the target file group.
	NOTE: If the file group is an on-demand file group, then users do <i>not</i> need this permission in order to create new plan files "on demand." Instead, users need the Create New Records permission.
Create New Records	The user can create new plan files for the on-demand file group. This process includes creating a new identity record in the plan code table and then creating a plan file for that record using either its assigned template or by copying an existing plan file (when using the Clone selected item feature). This permission only applies to on-demand file groups.
	By default, this permission is automatically enabled on the Everyone role when a new on-demand file group is created. This means that any user with at least Read-Only access to plan files in this file group will also have the ability to create new plan files. (This includes plan file permission sets with the potential to be elevated to read-only access or higher, due to the Interacts with Process Management permission.) If you do not want all users with access to the file group to be able to create new plan files, then you can remove the permission from the Everyone role and instead grant it to individual users and roles.
Process Plan Files	The user can process plan files for the file group, using the Process Plan Files feature. This permission is limited to plan files where the user has at least readonly access, as defined in the File Groups tab of Security.
	The user can run Axiom queries and save data as part of the process, but the user can only save the file if they have read/write access to it.

Item	Description
Run Axiom Queries	The user can refresh Axiom queries in plan files, using the Refresh feature.
	By default, non-admin users cannot refresh Axiom queries in plan files. If you have a plan file design where users should be able to refresh queries as needed, then you should enable this permission.
	NOTES:
	 This permission does not apply to "refresh on open" Axiom queries. These queries will always run, regardless of whether the user has this permission.
	 This permission does not apply to form-enabled plan files (when viewed as an Axiom form). Axiom queries in form-enabled plan files will refresh according to the standard form refresh behavior, regardless of whether the user has this permission.
Manage Calc Methods	The user can perform all management activities for calc method libraries in the file group, including adding new calc methods, editing calc methods, deleting calc methods, as well as use any other calc method features available on the CM Library menu. The user can also insert or change calc methods in any file group files that the user has access to, and can override any calc method controls.

Plan Files tab

Use the **Plan Files** tab to configure user access to plan files for the file group. Each plan file *permission set* defines the following:

- The plan files that the permission set applies to (all plan files or a filtered subset)
- The permissions to be applied to those plan files (such as: access level, ability to save data, and calc method permissions)
- The role inheritance to be applied to the permission set (none, combine, or independent)

Users can have multiple permission sets per file group—for example, to define read/write access to one set of plan files and read-only access to another set of plan files. These permission sets can be configured for the user directly or inherited from one or more roles. Roles can only have one defined permission set per file group.

You can add, edit, and delete permission sets as follows:

- To add the first permission set for a user or a role, click **Add a Permission**.
- To add an additional permission set for a user, click the plus icon +.
- To edit a permission set, double-click it. You can also select it and then click the edit icon [86].
- To delete a permission set, select it and then click the delete icon X.

NOTES:

- If a user has no configured permission sets, the user will inherit role permissions using
 independent inheritance. Each role's permissions will be inherited as a separate unit. For more
 information on role inheritance behavior for file groups, see Understanding role inheritance
 options for file group permissions.
- If a user has multiple configured permission sets, only the first permission set displays in Open Security in Spreadsheet.

When creating or editing a permission set, the **Plan File Permission** dialog opens. Within this dialog, you can configure all permissions relating to this permission set.

Item	Description
File access level	The level of access that the user or role has to the plan files covered by this permission set. Select from one of the following:
	 No Access: The user or role has no access to plan files.
	The No Access option is intended to be used in conjunction with Interacts with Process Management and/or with Combine role inheritance. You can define other permissions for the plan files, and those permissions will apply when the user's access level is elevated due to process management, or combined with another permission set to result in a higher level of access.
	 Read Only: The user or role has read-only access to plan files.
	 Read/Write: The user or role has read/write access to plan files in the file group.
	NOTES:
	 The ability to save data to the database from within a file is controlled separately, using the Allow Save Data permission.
	 If you are using process management with this file group, select the level of access that you want the user to have when they are NOT the current stage owner. For example, you may want the user to have no access if they are not the stage owner, or read-only access. If Interacts with Process Management is enabled, then process management will "elevate" user permissions as appropriate so that they can complete process tasks. For more information, see Configuring plan file security for use with plan file processes.
	 If the file group uses virtual plan files and read/write access is granted, then the file opens as if it were read/write, but the ability to save the file is suppressed.

Item	Description
Allow Save Data	Select this check box if you want the user or role to be able to save data to the database from the plan files covered by this permission set.
	NOTES:
	 If you are using process management to manage access to plan files, you do NOT need to select this option. As long as Interacts with Process Management is enabled, the plan file process will "elevate" the user's permissions as needed, including the ability to save data to the database. Generally you would only enable Allow Save Data for a user if you want the user to be able to save the data at all times, regardless of process step ownership.
	 If a user has Read Only access and Allow Save Data, then the user will be able to save data to the database but not save changes to the file. Generally this configuration would only be used with form-enabled plan files. Users with this combination of rights can save data from the file at any time, regardless of whether the file is locked to another user.
	 In most cases, this option is only selected if the user also has Read/Write access to the file group, so that file changes and data changes can be saved in sync.
Allow Calc Method Insert	Select this check box if you want the user or role to be able to insert calc methods into plan files.
	This option enables or disables the user's overall ability to insert calc methods. Within individual templates/plan files, calc method controls can be used to further control which calc methods can be inserted and where they can be inserted.
	It is valid to select this option even if the user has No Access or Read Only access to plan files, if the user's access will be elevated by process management or combined with another permission set. It is also valid to insert calc methods in read-only plan files when using form-enabled plan files.
	NOTE: This setting does not apply if the user has been granted the Manage Calc Methods permission. Users with this permission can perform any calc method action in any plan file that they have access to within the file group.

Item	Description
Allow Calc Method Change	Select this check box if you want the user or role to be able to change methodologies in the plan file by overwriting one calc method with another.
	This option enables or disables the user's overall ability to change calc methods. Within individual templates/plan files, calc method controls can be used to further control which calc methods can be used to overwrite and where overwrite is allowed.
	It is valid to select this option even if the user has No Access or Read Only access to plan files, if the user's access will be elevated by process management or combined with another permission set.
	NOTE: This setting does not apply if the user has been granted the Manage Calc Methods permission. Users with this permission can perform any calc method action in any plan file that they have access to within the file group.
Allow Unprotect	Select this check box if you want the user or role to be able to unprotect the worksheet and workbook within plan files. If enabled, the user will have access to the Protect toggles in the Advanced group on the Axiom ribbon.
	This option should only be granted in special situations. Normally, end users are not allowed to unprotect plan files.
Allow Sheet Assistant	Select this check box if you want the user or role to see the Sheet Assistant. Generally, you should only expose the Sheet Assistant if the user is expected to edit file settings, including Axiom query settings.
	Enabling this permission also has the following impacts:
	 The user has access to the Control Sheet. The Control Sheet is hidden by default in plan files but the user can unhide it via the Sheet Assistant.
	 The Drilling Control Sheet will not be hidden if the user has the Sheet Assistant permission.
	 If the user has read/write permission and the Sheet Assistant permission, then the user can enable forms for the file and can see the Form Assistant and Form Control Sheet.
	• The Data Source Assistant is also available if the Sheet Assistant is available.
	If this check box is not selected, then the user cannot see the Sheet Assistant or the other related items as described above.
	This option should only be granted in special situations. Normally, end users are not allowed to edit settings in plan files.

Item	Description
Allow File Processing	Select this check box if you want the user or role to be able to perform file processing on the file. If selected, then the user has access to file processing features, including the File Processing button on the menu and the File Processing task pane. The related control sheets will also be visible to the user.
	If this check box is not selected, then the user cannot perform file processing actions and cannot see the related menu items, task panes, or control sheets.
	This option should only be granted in special situations. Normally, end users do not perform file processing in plan files.
Apply settings to	Select one of the following to determine the plan files that this permission set applies to:
	 All Plan Files: The configured permissions apply to all plan files in the file group.
	 Filtered Plan Files: The configured permissions apply to a subset of plan files in the file group, as defined using a filter. For more information on defining a plan file filter, see Defining plan file filters.
Interacts with Process Management	This option specifies whether this permission set interacts with plan file processes in process management (or the legacy workflow feature). It is enabled by default for users, and disabled by default for roles.
	Enabling this option has the following effects, for plan files covered by this permission set:
	 When a user is a step owner in a plan file process, their plan file permissions will be "elevated" as needed to complete the current process task. For example, the user will be elevated to Read/Write and Allow Save Data for an Edit Plan File step. If this option is not enabled, then the user's permissions will be left as is, which may result in the user being unable to complete the process task.
	 If the ownership assignment is through a role, enabling this option tells the process to consider this permission set when evaluating which role members should be step owners. If this option is not enabled, then this permission set will be ignored by the plan file process.
	For more information, see Configuring plan file security for use with plan file processes.

Settings for users only

The following settings apply only to users, not to roles. These settings specify how the user will inherit file group rights from any roles that the user is assigned to. For more information, see Understanding role inheritance options for file group permissions.

Item	Description
Role Inheritance	Specify how the user will inherit file group permissions from roles:
	 None: The user will not inherit file group permissions from roles. Only the user's configured permissions will be applied. Role permissions will be ignored.
	 Combine: The user's permissions and any role permissions will be combined, so that the user will be granted the most permissive set of rights among all the plan file access settings. Using the Role(s) setting, you can specify whether this applies to all roles that the user belongs to, or only a specific role.
	 Independent (default): The user will inherit permissions from roles, but the user's configured permissions and the role's inherited permissions will be applied separately. Using the Role(s) setting, you can specify whether this applies to all roles that the user belongs to, or only a specific role.
Role(s)	Select which roles the role inheritance settings apply to. This setting only applies if the role inheritance is set to Combine or Independent .
	 If you select (all roles), then the specified inheritance settings apply to all roles that the user belongs to. This is the default setting.
	 If you select a particular role, then the specified inheritance settings apply to only that particular role. If the user belongs to other roles, and those other roles are not selected in additional file group permission sets for the user, then those role permissions are ignored.

Defining plan file filters

To define a filter to control access to plan files, select the **Filtered Plan Files** option and then use the Filter Wizard to construct the filter. (You can also type a filter directly into the filter box.) The filter must be based on the plan code table for the file group, or on a reference table that the plan code table links to. When using the Filter Wizard, the wizard only displays the eligible tables.

After defining a filter, you can validate it by clicking the **Validate filter** button . This check is to ensure that the filter syntax is valid. You can test to make sure that a file group filter is operating as you expect by logging in as the user (or as a user assigned to the role) and checking to see which plan files display in the **Open Plan Files** dialog for the file group.

Filter variables can be used in plan file filters, to set a filter that is based on a user's login name (see example below) or on another related user property. This is useful to be able to set a filter at the role level, yet resolve the filter dynamically for each user in the role. For more information, see Filter variables.

NOTES:

- You can leave the filter blank only if you are using **Combine** role inheritance. This assumes that either the user or the role has a filter that will apply after the permissions are combined. If the filter remains blank after inheritance, then the user will have no access to plan files.
- If the file group is an on-demand file group, special considerations apply when defining filters for that file group. See the On-Demand File Groups chapter in the File Group Administration Guide.

Example filters

```
DEPT.Dept IN (200,400)
```

This example limits the user to accessing plan files for departments 200 and 400.

```
DEPT.Region='North'
```

This example limits the user to accessing plan files for departments assigned to the North region.

```
DEPT.Owner='{CurrentUser.LoginName}'
```

This example limits the user to accessing plan files for departments that are assigned to that user (by the presence of the user's login name in the Owner column). This type of filter would most likely be set on a role, so that the filter could be set once yet resolve dynamically for each user in the role. For example, for user JDoe, this filter would resolve as DEPT.Owner='JDoe'.

Understanding role inheritance options for file group permissions

Role inheritance for file group permissions is handled differently than in other areas of Security. For each set of permissions defined for a user on the **File Groups** tab, you can specify whether role permissions are inherited and how they are inherited.

File group permissions have three different role inheritance options:

- None
- Combine
- Independent

By default, if no file group permissions are configured for a user, the role inheritance is set to independent. This means that users will inherit file group settings from all roles that they are assigned to, but those inherited settings will be applied independently instead of merged.

The following sections explain how each role inheritance option works.

No inheritance

The **None** option means that no role inheritance applies. Role settings are ignored for this particular permission set. If the user only has one permission set, then role settings are ignored entirely (for settings on the **File Groups** tab).

The following is an example of how file group settings are treated with no inheritance, assuming that the user belongs to the role:

File Group Settings	User Configured Settings	Role Configured Settings	User Effective Permissions
File Access Level	Read Only	Read/Write	Read Only
Allow Save Data	Unchecked	Checked	Unchecked
Allow Calc Method Insert	Checked	Checked	Checked
Allow Calc Method Change	Unchecked	Checked	Unchecked
Apply settings to	Filtered Plan Files:	Filtered Plan Files:	Filtered Plan Files:
	DEPT.Region='North'	DEPT.Region='South'	DEPT.Region='North'

In this example, the role settings are ignored, and the user has only his or her configured permissions.

Combine inheritance

The **Combine** option means that the user's permissions are combined with role permissions. The user is granted the most permissive rights as defined for either the user or the role, on a per permission basis.

The following is an example of how file group settings are treated with combine inheritance, assuming that the user belongs to the role:

File Group Settings	User Configured Settings	Role Configured Settings	User Effective Permissions
File Access Level	Read Only	Read/Write	Read/Write
Allow Save Data	Unchecked	Checked	Checked
Allow Calc Method Insert	Checked	Checked	Checked
Allow Calc Method Change	Unchecked	Checked	Checked
Apply settings to	Filtered Plan Files:	Filtered Plan Files:	Filtered Plan Files:
	DEPT.Region='North'	DEPT.Region='South'	(DEPT.Region='North') OR (DEPT.Region='South')

In this example, the user and role permissions are combined, and the user is granted the most permissive set of rights available for each individual setting.

When you select combine inheritance, you can choose to combine with all roles that the user is assigned to, or to combine with a specific role. For example, imagine that the user belongs to role A and role B, and the permissions are as follows:

File Group Settings	User Configured Settings	Role A Configured Settings	Role B Configured Settings
File Access Level	Read Only	Read/Write	Read Only
Allow Save Data	Unchecked	Checked	Unchecked
Allow Calc Method Insert	Checked	Checked	Unchecked
Allow Calc Method Change	Unchecked	Checked	Unchecked
Apply settings to	Filtered Plan Files:	Filtered Plan Files:	Filtered Plan Files:
	DEPT.Region='North'	DEPT.Region='South'	DEPT.Country='France'

In this case, the effective permissions of the user depend on whether the combine inheritance is set to all roles, or to a specific role:

File Group Settings	Combine: All Roles	Combine: Role A	Combine: Role B
File Access Level	Read/Write	Read/Write	Read Only
Allow Save Data	Checked	Checked	Unchecked
Allow Calc Method Insert	Checked	Checked	Checked
Allow Calc Method Change	Checked	Checked	Unchecked
Apply settings to	Filtered Plan Files: (DEPT.Region='North') OR (DEPT.Region='South') OR (DEPT.Country='France')	Filtered Plan Files: (DEPT.Region='North') OR (DEPT.Region='South')	Filtered Plan Files: (DEPT.Region='North') OR (DEPT.Country='France')

When combined with all roles, the user is granted the most permissive set of rights across all of the roles. When combined with only one of the roles, the second role is effectively ignored. Unless the user has another set of permissions that allows inheritance from the second role, the user will not inherit any file group settings from the second role.

Independent inheritance

The **Independent** option means that the user inherits permissions from roles, but the role permissions are applied independently from the user's configured permissions. The user and role permissions are not merged, as they are when using the combine option. The user effectively has two sets of permissions: one set based on the user's configured permissions, and one set based on the role's inherited permission. Additionally, if the user belongs to multiple roles, each role's permissions are inherited independently from each other (assuming that the independent inheritance is set to apply to "all roles").

The following is an example of how file group settings are treated with independent inheritance, assuming that the user belongs to the role:

File Group Settings	User Configured Settings	Role Configured Settings
File Access Level	Read Only	Read/Write
Allow Save Data	Unchecked	Checked
Allow Calc Method Insert	Checked	Checked
Allow Calc Method Change	Unchecked	Checked
Apply settings to	Filtered Plan Files:	Filtered Plan Files:
	DEPT.Region='North'	DEPT.Region='South'

In this example, the user's effective permissions are the same as the user configured permissions and the role configured permission, except applied separately. When the user accesses a plan file that belongs to the North region, it will be read only, and the user will not be able to change calc methods. When the user accesses a plan file that belongs to the South region, it will be read/write, and the user has all of the other plan file permissions as defined for the role.

If there is any overlap between the two independent permissions, then the user will be granted the most permissive set of rights for the area of overlap only. In the above example the filters cannot overlap, but imagine that the user and role filters were instead something like the following:

User Filter: DEPT >= 5000 and DEPT < 6000 Role Filters: DEPT >= 4000 and DEPT < 6000

In this case, the role permissions alone would apply to any departments from 4000 up to 4999. Where the permissions overlap, for departments 5000 to 5999, the user and role permissions would be combined.

NOTE: If you use independent inheritance with a specific role instead of all roles, that configuration blocks inheritance from all other roles unless the user has another permission set that allows the inheritance from the other roles.

Multiple permission sets

For each file group, a user can have multiple sets of permissions that apply to the plan files in that file group. This allows you to define different permissions for different subsets of files. For example, you might want to give a user full read/write access to plan files belonging to the North region, but only read access to plan files belonging to the South region. In this case, you can create two sets of permissions for the user.

If a user has multiple permission sets, each permission set has its own role inheritance settings. For example, you may want to define filters at the user level, but define other access rights at the role level, as shown in the following example:

User Permission Set 1, Combine: Role A

File Group Settings	User Configured Settings (Set 1)	Role A Configured Settings	User Effective Permissions (Combine: Role A)
File Access Level	None	Read/Write	Read/Write
Allow Save Data	Unchecked	Checked	Checked
Allow Calc Method Insert	Unchecked	Checked	Checked
Allow Calc Method Change	Unchecked	Checked	Checked
Apply settings to	Filtered Plan Files:	Filtered Plan Files:	Filtered Plan Files:
	DEPT.Region='North'	<blank filter=""></blank>	DEPT.Region='North'

User Permission Set 2, Combine: Role B

File Group Settings	User Configured Settings (Set 2)	Role B Configured Settings	User Effective Permissions (Combine: Role B)
File Access Level	None	Read Only	Read Only
Allow Save Data	Unchecked	Unchecked	Unchecked
Allow Calc Method Insert	Unchecked	Checked	Checked
Allow Calc Method Change	Unchecked	Unchecked	Unchecked
Apply settings to	Filtered Plan Files:	Filtered Plan Files:	Filtered Plan Files:
	DEPT.Region='South'	<blank filter=""></blank>	DEPT.Region='South'

The ability to define multiple permission sets with separate inheritance settings is a very flexible feature, able to meet a wide variety of security needs. When using multiple permission sets, keep in mind that it is possible to configure settings that cancel out or contradict the settings of another set.

For example, if you configure one permission set with no role inheritance, and then you configure a second permission set with independent inheritance, then the no inheritance setting on the first set is pointless (since you are already independently inheriting all role settings from the second set). On the other hand, it can be meaningful to have no inheritance on the first permission set, and then combine inheritance on the second permission set (for either all roles or a specific role). Make sure that you understand the purpose of each permission set, and check the effective permissions section for the user to ensure that permissions are being inherited as intended.

Configuring plan file security for use with plan file processes

This section provides basic guidelines for setting user permissions when you intend to use a plan file process (process management) with the file group. There are many nuances to file group security settings and how they can interact with plan file processes, especially if you are using advanced security configurations such as multiple permission sets for plan files or the combine option for role inheritance. If you need assistance in determining the best configuration for your system, please contact Axiom Software Support.

NOTE: The same guidelines apply if you are using the legacy workflow feature instead of process management.

The Interacts with Process Management setting for plan files is the key security permission for use with plan file processes. Enabling this option for a plan file permission set has the following effects:

- When the user is a step owner in an active plan file process, their plan file permissions will be
 "elevated" as needed to complete the current task. For example, the user will be elevated to
 Read/Write and Allow Save Data for an Edit Plan File step in a process. If this option is not
 enabled, then the user's permissions will be left as is, which may result in the user being unable to
 complete the task.
- If the ownership assignment is through a role, enabling this option tells the process to consider this permission set when evaluating which role members should be step owners. If this option is not enabled, then this permission set will be ignored by the process.
- Example user permissions for use with a plan file process

The first step in configuring plan file permissions for use with a process is deciding what level of permissions that you want the user to have when the user is *not* a process step owner. This is the user's base level of security permissions that they will always have. As long as **Interacts with Process**Management is also enabled, the process will elevate the user's permissions to the appropriate level when the user is a step owner.

NOTE: All of the example permission sets below assume that the user's plan file filter includes the plan file where the user is assigned as a step owner. The user must have a configured or inherited permission set that includes this plan file. The plan file process cannot not grant permissions to plan files, they can only elevate existing permissions to those files.

No Access

If you want a user to have no access to the plan file when the user is not a process step owner, then set the permissions as follows:

File Access Level: No AccessAllow Save Data: Unchecked

Interacts with Process Management: Checked

When the user is a step owner, the process will elevate the user's permissions as appropriate.

Read-Only Access

If you want a user to have read-only access to the plan file when the user is not a process step owner, then set the permissions as follows:

File Access Level: Read-Only
 Allow Save Data: Unchecked

Interacts with Process Management: Checked

When the user is a step owner, the process will elevate the user's permissions as appropriate.

Full Access

If you want a user to have full edit rights to the plan file when the user is not a process step owner, then set the permissions as follows:

• File Access Level: Read/Write

Allow Save Data: Checked

• Interacts with Process Management: Checked (if ownership comes via role assignment)

If the user will be directly assigned as a step owner, then it is not required to enable Interacts with Process Management because the user already has the full permissions that could be granted by the process. However, if the user's ownership comes through a role assignment, then you must enable Interacts with Process Management to signal that this user should be made one of the step owners.

These permissions can be set at the user level, or at the role level, or at some combination of the two (if using **Combine** role inheritance). All other plan file permissions can be enabled or not as appropriate for the user. In some cases those other permissions will only be relevant when the user's access level has been elevated by the process. For example, if the user has **No Access** plus **Allow Calc Method Insert**, then the ability to insert calc methods is only relevant when the user is a step owner (because otherwise they will be unable to see or open the plan file).

▶ Enabling Interacts with Process Management at the user level

When creating new permission sets for users, **Interacts with Process Management** is enabled by default. It is recommended to leave this option enabled for users. Generally speaking, you should only disable the option if *both* of the following apply:

- The user already has the necessary permissions for process step ownership.
 AND
- The user does not need to be granted ownership via a role.

You can also disable the option if you want to ensure that the user's permissions are never impacted by a plan file process (for this permission set). However, even if you do not plan to use a plan file process with the file group, it is still recommended to leave **Interacts with Process Management** enabled, in case you change your mind in the future. The option has no effect if the file group has no plan file processes.

▶ Enabling Interacts with Process Management at the role level

When creating new permission sets for roles, Interacts with Process Management is disabled by default. You should consider whether to enable the option or leave it disabled, based on how you are granting permissions to users and how you are assigning step owners. Keep in mind the following:

- If ownership assignments are made through a role, then users who belong to the role must have permission to the plan file *and* Interacts with Process Management enabled in order to be a step owner. However, these permissions can come from any permission set for the user; they do not need to be granted through the role used as the ownership assignment.
- If these plan file permissions are granted at the user level (or inherited by the user through a different role) then there is no need to enable Interacts with Process Management for the role that will be used as the assignment.
- However, if the role being used as the assignment is also the primary means by which users are granted plan file permissions, then Interacts with Process Management should be enabled for the role so that users inherit that setting as well.

Generally speaking, if the only purpose of the role is to define a pool of users for process ownership assignments, then you should leave the option disabled and instead rely on the individual user permissions to determine the ultimate step ownership.

NOTE: It is not required to enable this permission for a role in order to assign the role as a step owner in a plan file process. The assigned role simply defines the pool of users that are available to become step owners; the role itself is not required to have any particular permissions.

Configuring table permissions (Tables tab)

On the **Tables** tab of the **Security Management** dialog, you can manage user access to tables. You can control what data a user can query from a table (*read access*), and what data a user can save to a table (*write access*).

Table access can be managed at the table level and at the table type level. By default, users have the following permissions:

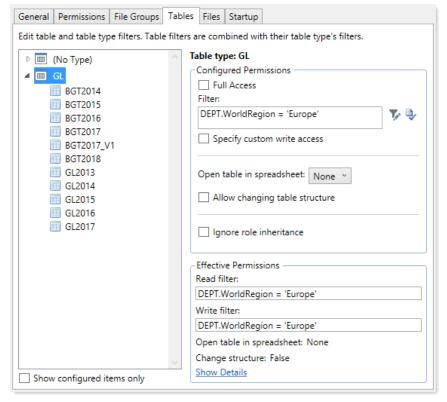
- All table types, and stand-alone data tables and reference tables, start at "no access" for both read
 and write. You must configure access to these table types and tables on a per user or role basis. If
 access is defined for a table type, then any tables added to the table type will automatically inherit
 that access.
- All document reference tables are automatically set to full read access, via the Everyone role.

NOTES:

- If a user is an administrator, the settings on this tab are ignored. Administrators can access data in all tables.
- If you are defining permissions for a subsystem, see Defining maximum permissions for subsystems.

Table permissions

The settings on the **Tables** tab define access for each table or table type. The left-hand side of the tab lists the available tables in the system, organized by table type. Tables that do not belong to a table type are listed under (**No Type**). When you select a table or a table type in the list, you can configure the security settings for the user or role within the **Configured Permissions** section in the right-hand side of the tab.



Example Tables tab

The **Effective Permissions** section displays the full permissions of the user for the selected item, taking into account any rights inherited from the table type or a role, and other settings such as administrator rights or subsystem restrictions. Make sure to check this section to ensure that users are being granted rights as you expect.

Because table permissions can be set at any point in the treeview, it can be difficult to later tell which items have been configured. To change the view to only show items with configured permissions, select the check box for **Show configured items only**. If the treeview is blank after selecting this check box, this means that the user or role has no configured permissions.

NOTE: By default, the Everyone role grants all users full read access to document reference tables. Any changes made to document reference tables in the **Tables** tab will not apply to users unless you modify the Everyone role to remove full access (or unless you configure the user to ignore role inheritance for that table).

Read access settings

The following settings apply to all tables and table types, to define read access to data. By default, the write access is automatically set to the same level as the read access. If that is the desired level of access, then you do not need to do anything further to configure write access for a table or table type.

Item	Description
Full access (Full read access)	Select this check box if you want the user or role to have full access to the table or table type.
	By default, this check box grants full read and write access. If you want to configure write access separately, then you must enable the separate option to Specify custom write access . Selecting that option exposes additional settings for write access, and renames this check box to Full read access .
	NOTE: If you are defining access for a table that belongs to a table type, and full access has already been granted at the table type level, then this check box is effectively ignored. However, the setting will be stored at the table level and could apply in the future if the table type access is ever changed, or if the table is removed from the table type. Be sure to check the Effective Permissions section of the dialog to see what level of access is being granted due to inheritance.
Filter	If you want the user or role to have filtered access to the table or table type, specify the filter. For example:
(Read filter)	 ACCT.Acct>10000 restricts the user to only accessing data for accounts over 10000.
	 DEPT.Dept=100 restricts the user to only accessing data for department 100.
	 DEPT.Region='North' restricts the user to only accessing data for departments assigned to the North region.
	By default, the filter applies to both read and write access. If you want to configure write access separately, then you must enable the separate option to Specify custom write access . Selecting that option exposes additional settings for write access, and renames this option to Read filter .
	NOTE: If you are defining a filter for a table that belongs to a table type, the filter will be concatenated to the table type filter using OR. If full access has been granted at the table type level, then the table level filter is effectively ignored. However, the filter will be stored for the table and could apply in the future if the table type access is ever changed, or if the table is removed from the table type. Be sure to check the Effective Permissions section of the dialog to see what level of access is being granted due to inheritance.

To define a filter for a table or table type, type the filter into the **Filter** box, or use the Filter Wizard **\(\frac{1}{2} \)**. Note the following:

• If the filter is for a table type, the filter should be based on key columns that are common to all tables in the table type (using either the key column itself, or a column in the lookup table that the key column links to). For example, if the GL table type has two required key columns, ACCT and

DEPT, then you can create a table type filter that uses one or both of these columns, or one that uses grouping columns in the associated reference tables. Filters using any other columns may be invalid.

- If the table type has required columns, then any filter defined must be based on those required columns. If the required columns do not have lookups, then no valid filters can be defined.
- When selecting key columns in the Filter Wizard, the Filter Wizard automatically uses the lookup column in the reference table instead of the column in the data table. For example, if you select the column Acct in the GL2018 data table, the filter wizard automatically uses ACCT. ACCT in the filter (instead of GL2018.ACCT).

After defining a filter, you can validate it by clicking the **Validate filter** button . This check is to ensure that the filter syntax is valid; it does not check whether the filter returns results and whether those results are as you expect.

IMPORTANT: If you define a write filter on a reference table, then any columns used in the filter must also be included in the save definition when saving to that table using Save Type 1. For example, if the table is DEPT and the filter uses DEPT.Region, then the Region column must be included in the save definition in order for the user to save data.

Write access settings

The following settings only apply if you want to configure write access at a different level than the read access.

NOTE: Write access settings do not apply to document reference tables. Document reference tables are only created and edited via a source document; therefore the ability to write data to the table is controlled by the user's access rights to the document.

Item	Description
Specify custom write access	Select this check box if you want to configure write access at a different level than the read access.
	When this check box is selected, two additional settings become available in the dialog to set the write access: Full write access and Write filter.
	If you want the user to have no write access to the table, then select this check box and ignore the other write access settings. If Full write access is unchecked and Write filter is blank, then the user has no write access.

Item	Description
Full write access	Select this check box if you want the user or role to have full write access to the table or table type.
	NOTE: If you are defining access for a table that belongs to a table type, and full access has already been granted at the table type level, then this check box is effectively ignored. However, the setting will be stored at the table level and could apply in the future if the table type access is ever changed, or if the table is removed from the table type. Be sure to check the Effective Permissions section of the dialog to see what level of access is being granted due to inheritance.
Write filter	If you want the user or role to have filtered write access to the table or table type, specify the filter. For example:
	 ACCT.Acct>10000 restricts the user to only saving data for accounts over 10000.
	• DEPT.Dept=100 restricts the user to only saving data for department 100.
	 DEPT.Region='North' restricts the user to only saving data for departments assigned to the North region.
	NOTE: If you are defining a filter for a table that belongs to a table type, the filter will be concatenated to the table type filter using OR. If full access has been granted at the table type level, then the table level filter is effectively ignored. However, the filter will be stored for the table and could apply in the future if the table type access is ever changed, or if the table is removed from the table type. Be sure to check the Effective Permissions section of the dialog to see what level of access is being granted due to inheritance.

To define a filter for a table or table type, type the filter into the **Filter** box, or use the Filter Wizard $\sqrt[r]{}$. Note the following:

- If the filter is for a table type, the filter should be based on key columns that are common to all tables in the table type (using either the key column itself, or a column in the lookup table that the key column links to). For example, if the GL table type has two required key columns, ACCT and DEPT, then you can create a table type filter that uses one or both of these columns, or one that uses grouping columns in the associated reference tables. Filters using any other columns may be invalid.
- If the table type has required columns, then any filter defined must be based on those required columns. If the required columns do not have lookups, then no valid filters can be defined.
- When selecting key columns in the Filter Wizard, the Filter Wizard automatically uses the lookup column in the reference table instead of the column in the data table. For example, if you select the column Acct in the GL2018 data table, the filter wizard automatically uses ACCT. ACCT in the filter (instead of GL2018.ACCT).

After defining a filter, you can validate it by clicking the **Validate filter** button . This check is to ensure that the filter syntax is valid; it does not check whether the filter returns results and whether those results are as you expect.

IMPORTANT: If you define a write filter on a reference table, then any columns used in the filter must also be included in the save definition when saving to that table using Save Type 1. For example, if the table is DEPT and the filter uses DEPT.Region, then the Region column must be included in the save definition in order for the user to save data.

Other table permissions

The following permissions can also be defined for tables and table types:

Item	Description
Open Table in Spreadsheet	This option specifies whether the user can view the table in Open Table in Spreadsheet, and at what level of access. Select one of the following:
	• None (default): The user cannot view the table in Open Table in Spreadsheet.
	 Read-Only: The user can view the table as read-only in Open Table in Spreadsheet.
	 Read/Write: The user can view the table as read/write in Open Table in Spreadsheet.
	Granting this permission gives the user access to the Table Library, so that the user can launch Open Table in Spreadsheet for the table.
	This permission does not apply to document reference tables. Document reference tables cannot be opened via Open Table in Spreadsheet.
	This permission can only be assigned if the user has read or read/write permission to the table data (either configured on the user or inherited from a role). If the user inherits Open Table in Spreadsheet permission from a role but does not have any corresponding access to table data, then the permission will be ignored. If the user is granted read/write access to Open Table in Spreadsheet but only has read access to the table, then the spreadsheet access will be limited to read-only.

Item	Description
Allow changing table structure	Select this check box if you want the user to be able to edit the table structure and table properties. If selected, then the user can open the Edit Table dialog for the table. The user can add, modify, and delete table columns, as well as modify other table properties.
	Granting this permission gives the user access to the Table Library, so that the user can launch Edit table structure for the table.
	By default this option is not selected, which means the user cannot edit the table structure or table properties.
	This permission does not apply to document reference tables. The table structure of document reference tables is controlled via the source file.
	This permission can be granted regardless of whether the user has access to the table data.
Ignore role inheritance	Select this check box if you do not want the user to inherit table access settings from a role (including the Everyone role).
	 If selected, then only the user's individual settings will be used to determine access to data in the table or table type.
	 If this check box is not selected, then the user will be granted the most permissive set of rights among the user's configured settings and any roles that the user belongs to. If both the user and a role have filtered access, then the filters are concatenated using OR.

Restricting access to document reference tables

By default, all users have full read access to document reference tables, via the Everyone role. In most cases this is the desirable level of access. However, in some cases you may need to restrict access to a subset of users. To restrict access to a document reference table, you must do the following:

- In the Everyone role, clear the **Full Access** check box for the table. Now no non-admin users have access to the table.
- For each individual user or role that you want to grant full or filtered access to the table, modify the table access settings as desired.

TIP: Alternatively, you could leave the Everyone role at full access, and then modify specific users to **Ignore role inheritance** for the table. Those users would then have no access to the table.

Write access settings do not apply to document reference tables. Document reference tables are only created and edited via a source document; therefore the ability to write data to the table is controlled by the user's access rights to the document.

NOTE: If you have restricted access to a document reference table created by a driver file, keep in mind that your security changes will not be cloned when the file group is cloned. This is because the table itself is not cloned; the driver file is. If you want to apply the same changes to the new table created by the new driver file, then you will need to manually configure access to this table after processing the drivers for the new file group.

Understanding table permissions

This section explains how the table access settings in Security work.

Read access and write access

Each table and table type can have read access permissions and write access permissions.

- Read access defines what data a user can query from a table—for example, via a GetData function or by running an Axiom query. For each table or table type, a user can have no read access, full read access, or filtered read access.
- Write access defines what data a user can save to a table. For most users this means via a Save Type 1 process set up in a plan file or a report, but it also applies to Open Table in Spreadsheet (if the user has access to it). For each table or table type, a user can have no write access, full write access, or filtered write access.

NOTE: Table write access does not apply to document reference tables (Save Type 3). Document reference tables can only be created and edited via a source document; therefore the ability to write data to the table is controlled by the user's access rights to the source document. Also, write access is ignored for import packages—if the user has execute rights to an import, then they can save the imported data to the specified destination table, regardless of their write access to that table.

By default, the write access for a table or table type is set to the same level as the read access. If that is the desired level of access, then you only need to configure the read access; the write access will be automatically set. You can see this inheritance for the write access in the **Effective Permissions** box after you set the read access.

However, if you want differing levels of read and write access for a table or table type, then you must select the **Specify custom write access** check box, and then configure the specific write access.

For example, imagine the following settings for the table GL2018:

If the read access is set to	And the write access is set to	The user's permission is
Full Access	(Default)	Read: Full Access
		Write: Full Access

If the read access is set to	And the write access is set to	The user's permission is
Filter: DEPT.Region='North'	(Default)	Read: DEPT.Region='North'
		Write: DEPT.Region='North'
Full Access	Specify custom write access:	Read: Full Access
	Filter: DEPT.Region='North'	Write: DEPT.Region='North'
Full Access	Specify custom write access:	Read: Full Access
	Filter: <blank filter=""></blank>	Write: No Access
No Access	Specify custom write access:	Read: No Access
	Full Access	Write: Full Access

NOTES:

- For reference tables, the read access settings are only applied when the reference table is queried directly—for example, when viewing the reference table using Open Table in Spreadsheet, or when the reference table is the *primary* table of an Axiom query. The read access settings defined on a reference table are not applied when queries are made against a data table that joins to the reference table.
 - Therefore if you want to restrict access to *data*, the filter must be defined on the data table or its table type. For example, if you want to restrict a user to only viewing planning data for the North region, then you must define that filter on the data table or the table type, not on the DEPT reference table.
- Read filters are not applied to data that already exists in a spreadsheet. For example, when the administrator runs the Process Plan Files utility to process Axiom queries in plan files, the plan files are populated with data according to the administrator's data rights. When individual users open these plan files, they see all of the data that was populated into the spreadsheet. The read filters of the individual users would only be applied if the users processed Axiom queries by using the Refresh feature. If you would like to limit data access in plan files, you can consider dynamically hiding sheets that you do not want particular users to access.
- Keep in mind that just because a user has write access to a table, it does not mean that the user actually has the means to save any data. For example, in order for a user to save data to a table from a plan file, the user must have access rights to the plan file, and the permission to save data from the file, and the file must be configured to save data to the table. If a user does not have access to files and/or features that facilitate saving data to the database, then the user cannot save any data, regardless of his or her write access permissions.

► How table type access and table access combine

Tables inherit any rights set at the table type level, and then combine that access with any rights set at the table level, resulting in the most permissive set of rights for the table.

- If a table type is set to full or filtered access, then all tables in that table type inherit the full or filtered access. You cannot "override" the table type setting at the table level to deny access to a specific table in the table type. You can set individual tables to have more permissive access than the table type, but not less permissive.
- If desired, you can leave the table type access unset, and instead configure access at the table level. The user will be granted whatever access is set at the table level.
- If access filters are set at both the table type level and the table level, the filters are concatenated using OR (meaning the filters are combined to result in the most permissive set of rights for the table).

For example, imagine a table type of GL, which contains a table named GL2018:

If the table type GL is set to	And the table GL2018 is set to	The user's permission is
Full Access	No Access (nothing is configured)	Full Access
Full Access	DEPT.Region='North'	Full Access
No Access (nothing is configured)	DEPT.Region='North'	DEPT.Region='North'
DEPT.Region='South'	Full Access	Full Access
DEPT.Region='South'	DEPT.Region='North'	(DEPT.Region='South') OR (DEPT.Region='North')

Tables that do not belong to a table type only have their individual table access rights.

► Table visibility to users

If a user does not have any read access to a table, then that table will not display in lists of tables throughout the system, such as in the Sheet Assistant, or the Filter Wizard. Table Library folders and table types will only display if the user has read access to at least one table within the folder or the table type. (Exception: if the user has the Administer Tables permission, then that user will see all Table Library folders and table types for the purposes of creating new tables.)

Configuring file access (Files tab)

On the **Files** tab of the **Security Management** dialog, you can control access to files in the Axiom Software file system. The following areas can be controlled:

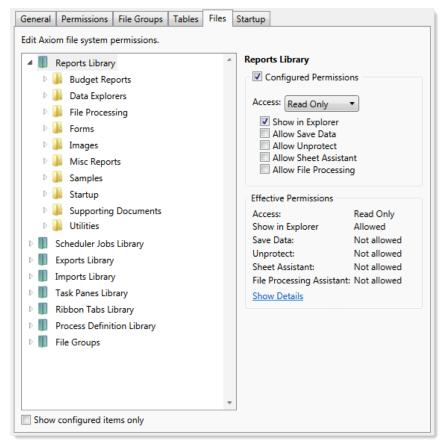
- The Reports Library
- The Data Diagrams Library
- The Filter Library
- The Imports Library and the Exports Library
- The Process Definitions Library
- The Scheduler Jobs Library
- The Task Panes Library
- The Ribbon Tabs Library
- · Certain supporting files for file groups: Templates, Drivers, Utilities, and Process Definitions

NOTES:

- File permissions do not apply to users with administrator rights. Administrators always have full access to all files.
- File permissions must be defined within the Security Management dialog. The bulk editing tool Open Security in Spreadsheet does not support configuring file and folder permissions.
- If you are defining file permissions for a subsystem, see Defining maximum permissions for subsystems.

Configuring file permissions

The left-hand side of the Files tab displays the available folders and files. When you select a folder or a file in the list, you can define the security settings for the user or role within the Configured Permissions section in the right-hand side of the tab.



Example Files tab

File permissions can be set at the folder level and at the file level. By default, all sub-folders and files underneath a parent folder inherit the rights of the parent folder, unless rights are explicitly set for the sub-folder or file.

You can set permissions at the library level and then override those permissions for specific sub-folders and files as needed, or you can set permissions for specific sub-folders and files only.

By default, each user or role has no access to any files or folders on this tab. You must define file permissions for each user or role.

To configure permissions to a file or folder:

- 1. Select the file or folder in the treeview, and then select Configured Permissions.
 - If this check box is selected for a sub-folder or a specific file, the sub-folder or file will no longer inherit any permissions set for the parent folder. You can clear the check box, and the sub-folder or file will once again inherit permissions from the parent folder.
- 2. Select the applicable permission options as desired.
 - Each type of file (reports, import, etc.) has slightly different security settings that can be defined on this tab. For more information on the file-specific options, see the detailed sections.

If a new folder or file is added to any library, a user will have access to it if the folder or file is placed underneath an existing parent folder that the user has rights to. For example, if a user has rights to the entire Reports Library, that user will have access to any new folders and files added to the Reports Library. If a user only has rights to a specific sub-folder in the Reports Library, that user will have access to new folders and files added to that sub-folder.

The Effective Permissions section displays the full permissions of the user, taking into account any inherited role rights, and other settings such as administrator rights. This section also takes into account rights that are inherited from a parent folder.

NOTE: Because file permissions can be set at any point in the treeview, it can be difficult to later tell which items have been configured. To change the view to only show items with configured permissions, select the check box for **Show configured items only**. If the treeview is blank after selecting this check box, this means that the user or role has no configured permissions.

Reports Library

The following permissions can be set for files in the Reports Library:

Option	Description
Access	Select one of the following:
	 No Access: The user or role cannot access the folder or file.
	 Read Only: The user or role has read-only access to the folder or file.
	Users with read-only access to reports can open and refresh reports, but cannot save changes. If read access is set at the folder level, users cannot save new reports to that folder.
	 Read/Write: The user or role has read/write access to the folder or file.
	If the item is a file, the user can save changes to the file. If the item is a folder, the user can also save new files to the folder, create sub-folders, and delete and rename files and folders.

Option Description Show in Explorer Select this check box if you want the file to display in the Explorer task pane and other "Explorer views" of the file library (such as Axiom Explorer, libraries displayed on the ribbon menu, and libraries displayed when saving files). This check box becomes selected by default when you assign an access level of Read Only or higher. If this check box is cleared, and the user has Read Only access or higher, then the file does not display in Explorer views but the user can still open the file if the user has access to a feature that indirectly opens the file. This includes features such as custom drilling, GetDocument functions, and file shortcuts in task panes and ribbon tabs. The idea is that the user never needs to directly open the file from a folder structure, but the user needs access to the file in order to use these other features. If the user's access level is No Access, then this setting is ignored. For example, you might clear this check box for the target report of a custom drill. The user only needs to be able to access this report when performing a custom drill on the source file. Displaying the file in the Reports Library would just clutter the list of files because the user never needs to open the file from that location. Allow Save Data Select this check box if you want the user or role to be able to save data to the database for the folder or file. If a report is set up to use Save Type 1, 3, or 4, the user will be able to save data to the database. If this check box is not selected, then the user cannot save data to the database from the report. NOTE: If a user has Read Only access and Allow Save Data, then the user will be able to save data to the database but not save changes to the file. Note that users with this combination of rights can save data from the file at any time, regardless of whether the file is locked to another user. Allow Unprotect Select this check box if you want the user or role to be able to remove workbook and/or worksheet protection for this folder or file. Users with this permission can use the Advanced > Protect options on the ribbon to remove workbook or worksheet protection from Axiom files. **IMPORTANT:** If you enable this permission at the folder level, then the user will be able to unprotect any file that they save to the folder (assuming that the user has read/write access to the folder). **NOTE:** This setting is ignored for users with the Remove Protection permission on the **Permissions** tab; those users can remove protection for any file.

Option	Description
Allow Sheet Assistant	Select this check box if you want the user or role to see the Sheet Assistant. Generally, you should only expose the Sheet Assistant if the user is expected to edit file settings, including Axiom query settings.
	Enabling this permission also has the following impacts:
	 The user has access to the Control Sheet. If Hide Control Sheet on open is enabled, then the Control Sheet is hidden by default but the user can unhide it via the Sheet Assistant. Otherwise, the Control Sheet is visible by default for users with Sheet Assistant permission.
	 If the user has read / write permission and the Sheet Assistant permission, then the user can enable forms for the file and can see the Form Assistant and Form Control Sheet.
	 The Drilling Control Sheet, if present in the file, is not hidden if the user has the Sheet Assistant permission.
	• The Data Source Assistant is also available if the Sheet Assistant is available.
	If this check box is not selected, then the user cannot see the Sheet Assistant or the other related items as described above.
Allow File Processing	Select this check box if you want the user or role to be able to perform file processing on the file. If selected, then the user has access to file processing features, including the File Processing button on the menu and the File Processing task pane. The related control sheets will also be visible to the user.
	If this check box is not selected, then the user cannot perform file processing actions and cannot see the related menu items, task panes, or control sheets.

NOTE: If a user does not have access to any report files or folders, then the Reports menu item does not display on the menu, and the user cannot create reports.

► Filter Library

The following permissions can be set for files in the Filter Library:

Option	Description
Access	Select one of the following:
	 No Access: The user or role cannot access the folder or filter.
	 Read Only: The user or role has read-only access to the folder or filter.
	Users with read-only access to saved filters can load those filters into the Filter Wizard for use. If read access is set at the folder level, users cannot save new filters to that folder.
	• Read/Write: The user or role has read/write access to the folder or filter.
	If the item is a filter, the user can save changes to the filter. If the item is a folder, the user can also save new filters to the folder, create sub-folders, and delete and rename filters and folders.
Show in Explorer	Select this check box if you want the file to display in the Explorer task pane and other "Explorer views" of the file library (such as Axiom Explorer, libraries displayed on the ribbon menu, and libraries displayed when saving files). This check box becomes selected by default when you assign an access level of Read Only or higher.
	If this check box is cleared, and the user has Read Only access or higher, then the file does not display in Explorer views but the user can still open the file if the user has access to a feature that indirectly opens the file. This includes features such as custom drilling, GetDocument functions, and file shortcuts in task panes and ribbon tabs. The idea is that the user never needs to directly open the file from a folder structure, but the user needs access to the file in order to use these other features.
	If the user's access level is No Access, then this setting is ignored.

Scheduler Jobs Library

NOTE: Users must also have the **Scheduled Jobs User** permission (on the **Permissions** tab) in order to access any files in the Scheduler Jobs Library.

The following permissions can be set for files in the Scheduler Jobs Library:

Option	Description
Access	Select one of the following:
	 No Access: The user or role cannot access the folder or file.
	 Read Only: The user or role has read-only access to the folder or file.
	Users with read-only access to Scheduler jobs can open jobs and can manually execute jobs, but cannot save changes. If read access is set at the folder level, users cannot save new jobs to that folder.
	 Read/Write: The user or role has read/write access to the folder or file.
	If the item is a file, the user can save changes to the file. If the item is a folder, the user can also save new files to the folder, create sub-folders, and delete and rename files and folders.
Show in Explorer	Select this check box if you want the file to display in the Explorer task pane and other "Explorer views" of the file library (such as Axiom Explorer, libraries displayed on the ribbon menu, and libraries displayed when saving files). This check box becomes selected by default when you assign an access level of Read Only or higher.
	If this check box is cleared, and the user has Read Only access or higher, then the file does not display in Explorer views but the user can still open the file if the user has access to a feature that indirectly opens the file. This includes features such as custom drilling, GetDocument functions, and file shortcuts in task panes and ribbon tabs. The idea is that the user never needs to directly open the file from a folder structure, but the user needs access to the file in order to use these other features.
	If the user's access level is No Access, then this setting is ignored.
	For example, you might clear this check box if a user needs to be able to open a Scheduler job from a shortcut in a task pane, but otherwise the user does not need to be able to browse to it in the Scheduler Jobs Library.

Exports Library

The following permissions can be set for files in the Exports Library:

Option	Description
Access	Select one of the following:
	 No Access: The user or role cannot open the folder or file (however, they can execute the export, if they have the separate Execute permission).
	Read Only: The user or role has read-only access to the folder or file.
	Users with read-only access to exports can open export files to view the settings, but they cannot edit the settings.
	• Read/Write: The user or role has read/write access to the folder or file.
	If the item is a file, the user can save changes to the file. If the item is a folder, the user can also save new files to the folder, create sub-folders, and delete and rename files and folders.
	NOTE: Read/write access to the Exports Library does not allow the user to create exports. Export creation is controlled by the Administer Exports permission on the Permissions tab.
Execute	Select this check box to give the user execute permissions to the folder or file. Users with execute permissions can run the export.
	NOTE: Table read permissions are honored for export packages. When the user executes the export, the user's permission to the table will determine the eligible data to export. If the user does not have access to the table at all, then no data will be exported.

Option	Description
Show in Explorer	Select this check box if you want the file to display in the Explorer task pane and other "Explorer views" of the file library (such as Axiom Explorer, libraries displayed on the ribbon menu, and libraries displayed when saving files). This check box becomes selected by default when you assign an access level of Read Only or higher.
	If this check box is cleared, and the user has Read Only access or higher, then the file does not display in Explorer views but the user can still open the file if the user has access to a feature that indirectly opens the file. This includes features such as custom drilling, GetDocument functions, and file shortcuts in task panes and ribbon tabs. The idea is that the user never needs to directly open the file from a folder structure, but the user needs access to the file in order to use these other features.
	For example, you might clear this check box if a user needs to be able to execute an export from a shortcut in a task pane, but otherwise the user does not need to be able to browse to it in the Exports Library.
	NOTE: If a user has Execute permissions but No Access to the export file, then you should select this check box if you want the export to display in the Export Library. When using this configuration, the user can double-click the file to open the Execute dialog only. If, however, the user will only execute the export from links in a task pane or other predefined links, then you can leave this option cleared.

NOTE: The export access permission and the execute permission are independent. A user can have no access to an export file but still be given execute permissions. Similarly, a user can have read/write access to the export settings, but not be able to execute it.

► Imports Library

The following permissions can be set for files in the Imports Library:

Option	Description
Access	Select one of the following:
	 No Access: The user or role cannot access the folder or file (however, they can execute the import, if they have the separate Execute permission).
	 Read Only: The user or role has read-only access to the folder or file.
	Users with read-only access to imports can open import files to view the settings, but they cannot edit the settings.
	 Read/Write: The user or role has read/write access to the folder or file.
	If the item is a file, the user can save changes to the file. If the item is a folder, the user can also save new files to the folder, create sub-folders, and delete and rename files and folders.
	NOTE: Read/write access to the Imports Library does not allow the user to create imports. Import creation is controlled by the Administer Imports permission on the Permissions tab.
Execute	Select this check box to give the user execute permissions to the folder or file. Users with execute permissions can run the import.
	NOTE: Table write permissions are ignored for import packages. If a user has execute rights to an import, then the imported data will be saved to the configured destination table, regardless of the user's write access to that table.
Show in Explorer	Select this check box if you want the file to display in the Explorer task pane and other "Explorer views" of the file library (such as Axiom Explorer, libraries displayed on the ribbon menu, and libraries displayed when saving files). This check box becomes selected by default when you assign an access level of Read Only or higher.
	If this check box is cleared, and the user has Read Only access or higher, then the file does not display in Explorer views but the user can still open the file if the user has access to a feature that indirectly opens the file. This includes features such as custom drilling, GetDocument functions, and file shortcuts in task panes and ribbon tabs. The idea is that the user never needs to directly open the file from a folder structure, but the user needs access to the file in order to use these other features.
	If the user's access level is No Access, then this setting is ignored.
	NOTE: If a user has Execute permissions but No Access to the import file, then you should select this check box if you want the import to display in the Import Library. When using this configuration, the user can double-click the file to open the Execute dialog only. If, however, the user will only execute the import from links in a task pane or other predefined links, then you can leave this option cleared.

NOTES:

- The import access permission and the execute permission are independent. A user can have no access to an import file but still be given execute permissions. Similarly, a user can have read/write access to the import settings, but not be able to execute it.
- The Import Errors folder is system-maintained and therefore does not display in this dialog. You cannot manually grant or deny access to this folder or the error files within it; access is automatically granted based on access to the import that generated the error.
- If an import uses an Axiom database as its source, then non-administrators cannot view or edit that import regardless of their access rights granted here. However, non-administrators can execute the import if they have that permission.

Task Panes Library

The following permissions can be set for files in the Task Panes Library:

Option	Description
Access	Select one of the following:
	 No Access: The user or role cannot access the folder or file.
	 Read Only: The user or role has read-only access to the folder or file.
	Users with read-only access to task panes can view and use task panes but cannot save changes. If read access is set at the folder level, users cannot save new task panes to that folder.
	• Read/Write: The user or role has read/write access to the folder or file.
	If the item is a file, the user can save changes to the file. If the item is a folder, the user can also save new files to the folder, create sub-folders, and delete and rename files and folders.
	NOTE: Users must also have the Administer Task Panes permission (on the Permissions tab) in order to create or edit task panes.

Option Description Select this check box if you want the file to display in the Explorer task pane and Show in Explorer other "Explorer views" of the file library (such as Axiom Explorer, libraries displayed on the ribbon menu, and libraries displayed when saving files). This check box becomes selected by default when you assign an access level of Read Only or higher. If this check box is cleared, and the user has Read Only access or higher, then the file does not display in Explorer views but the user can still open the file if the user has access to a feature that indirectly opens the file. This includes features such as custom drilling, GetDocument functions, and file shortcuts in task panes and ribbon tabs. The idea is that the user never needs to directly open the file from a folder structure, but the user needs access to the file in order to use these other features. If the user's access level is No Access, then this setting is ignored. For example, you might clear this check box if a user needs to be able to open an associated task pane for a file, but otherwise the user does not need to be able to open the task pane from the Task Panes Library.

NOTES:

- Task panes can contain shortcuts to various files and system features. The ability of a user to
 open a file or use a feature from the task pane depends on the user's permission for that file or
 feature.
- Users do not need to have access permission to a task pane in order to open it at startup. If a user is assigned a task pane on the Startup tab of security, it will always open as read-only at startup, regardless of the user's access permission.
- By default, the Axiom ribbon tab does not contain any command to open task panes. If a user has rights to a file in the Task Panes Library, then in order to see and open this file manually the user must have access to either the Explorer task pane or the Axiom Explorer dialog, or you must include access to the task pane within another custom task pane or ribbon tab file that is assigned as a startup file to the user. For example, you might create a custom task pane that includes a link to the Task Panes Library, and if a user has file access rights to any task panes they could be launched from this location. Users only gain access to the Manage > Task Panes menu item if they have the Administer Task Panes security permission.

Ribbon Tabs Library

The following permissions can be set for files in the Ribbon Tabs Library:

Option	Description
Access	Select one of the following:
	 No Access: The user or role cannot access the folder or file.
	 Read Only: The user or role has read-only access to the folder or file.
	Users with read-only access to task panes can view ribbon tab files but cannot save changes. If read access is set at the folder level, users cannot save new ribbon tab files to that folder.
	• Read/Write: The user or role has read/write access to the folder or file.
	If the item is a file, the user can save changes to the file. If the item is a folder, the user can also save new files to the folder, create sub-folders, and delete and rename files and folders.
	NOTE: Users must also have the Administer Task Panes permission (on the Permissions tab) in order to create or edit task panes.
Show in Explorer	Select this check box if you want the file to display in the Explorer task pane and other "Explorer views" of the file library (such as Axiom Explorer, libraries displayed on the ribbon menu, and libraries displayed when saving files). This check box becomes selected by default when you assign an access level of Read Only or higher.
	If this check box is cleared, and the user has Read Only access or higher, then the file does not display in Explorer views but the user can still open the file if the user has access to a feature that indirectly opens the file. This includes features such as custom drilling, GetDocument functions, and file shortcuts in task panes and ribbon tabs. The idea is that the user never needs to directly open the file from a folder structure, but the user needs access to the file in order to use these other features.
	If the user's access level is No Access, then this setting is ignored.
	This setting does not have much use for ribbon tab files because ribbon tabs are typically configured as startup files for end users, and end users do not need access permission to be able to open the file at startup.

NOTES:

- Users do *not* need to have access permission to a ribbon tab in order to open it at startup. If a user is assigned a ribbon tab on the Startup tab of security, it will always open as read-only at startup, regardless of the user's access permission.
- In general, there is no need to grant end users access to the Ribbon Tabs Library unless the user needs to be able to create and edit ribbon tabs. If a user opens a ribbon tab file directly from the Ribbon Tabs Library, it will always open in the editor, not in the application ribbon. There is no way to open a ribbon tab file on demand and have it display in the application ribbon.

Process Definition Library

The following permissions can be set for files in the Process Definition Library:

Option	Description
Access	Select one of the following:
	 No Access: The user or role cannot access the folder or file.
	 Read Only: The user or role has read-only access to the folder or file.
	Users with read-only access to the file can open the process definition from the Explorer task pane and view the settings.
	 Read/Write: The user or role has read/write access to the folder or file.
	If the item is a file, the user can save changes to the file. If the item is a folder, the user can also save new files to the folder, create sub-folders, and delete and rename files and folders.
	Users with read/write access cannot start or stop the process, they can only edit the process definition settings.

Option	Description
Show in Explorer	Select this check box if you want the file to display in the Explorer task pane and other "Explorer views" of the file library (such as Axiom Explorer, libraries displayed on the ribbon menu, and libraries displayed when saving files). This check box becomes selected by default when you assign an access level of Read Only or higher.
	If this check box is cleared, and the user has Read Only access or higher, then the file does not display in Explorer views but the user can still open the file if the user has access to a feature that indirectly opens the file. This includes features such as custom drilling, GetDocument functions, and file shortcuts in task panes and ribbon tabs. The idea is that the user never needs to directly open the file from a folder structure, but the user needs access to the file in order to use these other features.
	If the user's access level is No Access, then this setting is ignored.
	For example, you might clear this check box if a user needs to be able to open a process definition from a shortcut in a task pane, but otherwise the user does not need to be able to browse to it in the Process Definition Library.

▶ Data Diagrams Library

The following permissions can be set for files in the Data Diagrams Library:

Option	Description
Access	Select one of the following:
	 No Access: The user or role cannot access the folder or file.
	 Read Only: The user or role has read-only access to the folder or file.
	 Read/Write: The user or role has read/write access to the folder or file.
	If the item is a file, the user can save changes to the file. If the item is a folder, the user can also save new files to the folder, create sub-folders, and delete and rename files and folders.

Option	Description
Show in Explorer	Select this check box if you want the file to display in the Explorer task pane and other "Explorer views" of the file library (such as Axiom Explorer, libraries displayed on the ribbon menu, and libraries displayed when saving files). This check box becomes selected by default when you assign an access level of Read Only or higher.
	If this check box is cleared, and the user has Read Only access or higher, then the file does not display in Explorer views but the user can still open the file if the user has access to a feature that indirectly opens the file. This includes features such as custom drilling, GetDocument functions, and file shortcuts in task panes and ribbon tabs. The idea is that the user never needs to directly open the file from a folder structure, but the user needs access to the file in order to use these other features.
	If the user's access level is No Access, then this setting is ignored.
	For example, you might clear this check box if a user needs to be able to open a data diagram from a shortcut in a task pane, but otherwise the user does not need to be able to browse to it in the Data Diagrams Library.

► File Groups

The following permissions can be set for certain files and folders in file groups. Each file group is listed separately in this section, with sub-folders for Templates, Drivers, Utilities, and Process Definitions.

NOTE: Permissions cannot be set at the file group level and inherited by the folders. Each folder must be configured separately.

Option	Description
Access	Select one of the following:
	 Hidden: The user or role cannot access the folder or file.
	 Read Only: The user or role has read-only access to the folder or file.
	Users with read-only access to files can open and refresh those files, but cannot save changes. If read access is set at the folder level, users cannot save new files to that folder.
	 Read/Write: The user or role has read/write access to the folder or file.
	If the item is a file, the user can save changes to the file. If the item is a folder, the user can also save new files to the folder, create sub-folders, and delete and rename files and folders.

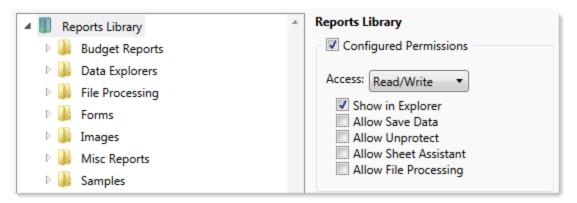
Option Description Select this check box if you want the file to display in the Explorer task pane and Show in Explorer other "Explorer views" of the file library (such as Axiom Explorer, libraries displayed on the ribbon menu, and libraries displayed when saving files). This check box becomes selected by default when you assign an access level of Read Only or higher. If this check box is cleared, and the user has Read Only access or higher, then the file does not display in Explorer views but the user can still open the file if the user has access to a feature that indirectly opens the file. This includes features such as custom drilling, GetDocument functions, and file shortcuts in task panes and ribbon tabs. The idea is that the user never needs to directly open the file from a folder structure, but the user needs access to the file in order to use these other features. If the user's access level is No Access, then this setting is ignored. For example, you might clear this check box if a user needs to be able to open the file from a shortcut in a task pane, but otherwise the user does not need to be able to browse to it in the Explorer task pane. Allow Save Data Select this check box if you want the user or role to be able to save data to the database for the folder or file. If a file is set up to use Save Type 1, 3, or 4, the user will be able to save data to the database. If this check box is not selected, then the user cannot save data to the database from the report. **NOTES:** • If a user has Read Only access and Allow Save Data, then the user will be able to save data to the database but not save changes to the file. Note that users with this combination of rights can save data from the file at any time, regardless of whether the file is locked to another user. This permission is ignored for template files and does not apply to process definitions. Save-to-database processes do not run within file group templates.

Option Description Allow Unprotect Select this check box if you want the user or role to be able to remove workbook and/or worksheet protection for this folder or file. Users with this permission can use the Advanced > Protect options on the ribbon to remove workbook or worksheet protection from Axiom files. **IMPORTANT:** If you enable this permission at the folder level, then the user will be able to unprotect any file that they save to the folder (assuming that the user has read/write access to the folder). **NOTES:** • This setting is ignored for users with the Remove Protection permission on the **Permissions** tab; those users can remove protection for any file. This setting does not apply to process definitions. Allow Sheet Select this check box if you want the user or role to see the Sheet Assistant. Assistant Generally, you should only expose the Sheet Assistant if the user is expected to edit file settings, including Axiom query settings. Enabling this permission also has the following impacts: The user has access to the Control Sheet. If Hide Control Sheet on open is enabled, then the Control Sheet is hidden by default but the user can unhide it via the Sheet Assistant. Otherwise, the Control Sheet is visible by default for users with Sheet Assistant permission. If the user has read / write permission and the Sheet Assistant permission, then the user can enable forms for the file and can see the Form Assistant and Form Control Sheet. • The Drilling Control Sheet, if present in the file, is not hidden if the user has the Sheet Assistant permission. The Data Source Assistant is also available if the Sheet Assistant is available. If this check box is not selected, then the user cannot see the Sheet Assistant or the other related items as described above. NOTE: This setting does not apply to process definitions. Also, control sheets are not hidden in template files. Allow File Select this check box if you want the user or role to be able to perform file **Processing** processing on the file. If selected, then the user has access to file processing features, including the File Processing button on the menu and the File Processing task pane. The related control sheets will also be visible to the user. If this check box is not selected, then the user cannot perform file processing actions and cannot see the related menu items, task panes, or control sheets. **NOTE:** This setting does not apply to process definitions.

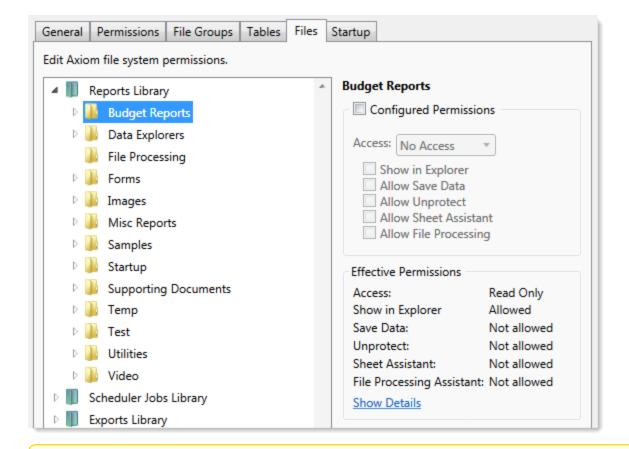
► File permission examples

The following examples use the Reports Library, but the concept of folder inheritance applies to all files on the Files tab.

If a user has read/write access to the Reports Library, that user can access and save files anywhere in the library, unless a different level of access is explicitly set for a sub-folder or a file. For example:

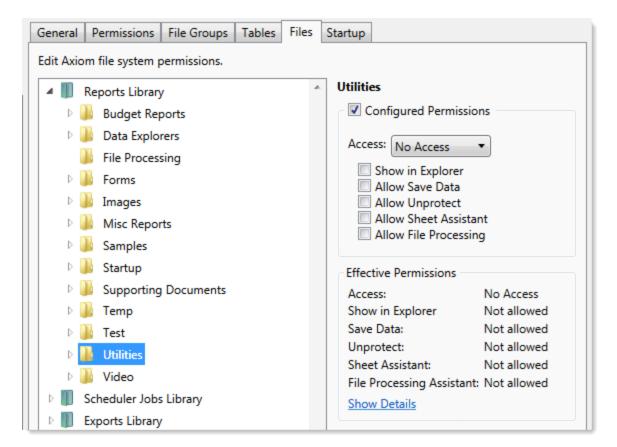


Sub-folders and files inherit the rights defined for the parent folder, unless permissions are explicitly set for the sub-folder or file. When you select a sub-folder or file in the folder tree, you can tell if it is inheriting permissions by whether the **Configured permission** check box is selected. If this check box is not selected, then the folder or file is inheriting permissions, and you can view the inherited permissions in the **Effective Permissions** section.



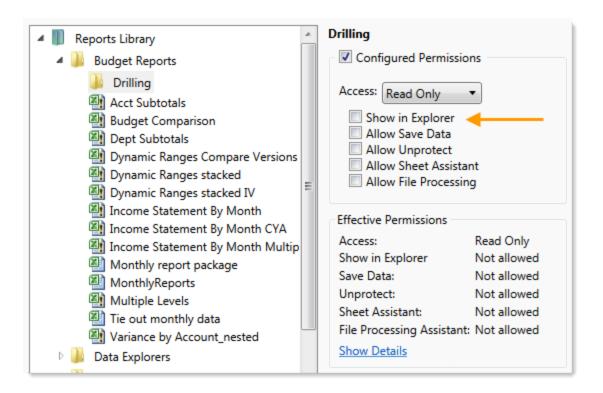
NOTE: The effective permissions also take into account role inheritance and administrator rights (if applicable). Therefore, the sub-folder or file might show a different level of permissions than its parent folder, if it is inheriting from a role.

If rights are set at the library level, but you want to set a different level of rights for a specific folder or file, select **Configured permission** for that folder or file and define the desired level of rights. In the following example, the user has read/write access to the Reports Library, but no access to the **Utilities** sub-folder.



Note that if the user was assigned to a role that had access to the Utilities folder, then the user would be granted that level of access even though the folder is explicitly hidden for the user. Users are granted the highest level of file permissions allowed by their user rights and assigned roles. You cannot override role inheritance for report file access.

It is also possible to grant a user access to a file or folder, but hide that file/folder in the user's Explorer task pane and other "Explorer views." In the following example, the **Drilling** sub-folder contains drill target files. The user needs read-only access to the files in order to perform the drill, but otherwise the user never needs to open the files directly or see the files in their Reports Library. By clearing the **Show in Explorer** option, this folder and its files will not display to the user.



Assigning startup files (Startup tab)

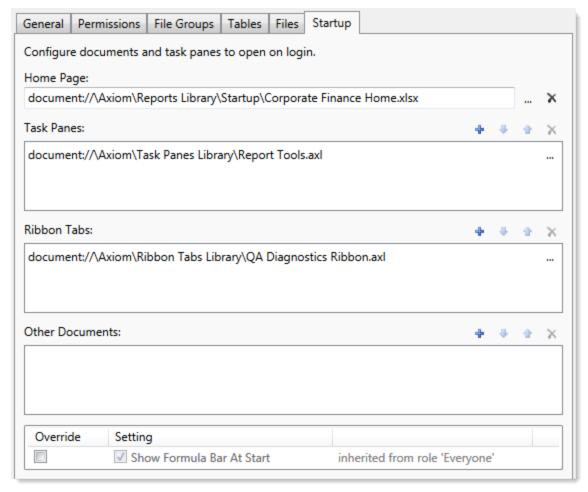
On the **Startup** tab of the **Security Management** dialog, you can specify which files to open automatically when a user logs into the system. You can also configure certain startup options.

Startup files are assigned using the following categories:

- Home Page: You can assign an alternate home page for a user or role.
- Task Panes: You can assign custom task panes to open on startup.
- Ribbon Tabs: You can assign custom ribbon tabs to open on startup.
- Other Documents: You can assign additional reports (regular or form-enabled) to open on startup.

NOTE: Startup files are stored by document ID. If you subsequently change the name of a startup file or move it to a different location, the startup configuration will still work. If the file is deleted, the startup item will simply be ignored; it will not cause an error on startup.

Startup files only apply when using the Excel Client or the Windows Client, with one exception: if the assigned home page is an Axiom form, that page will also display as the user's home page when accessing forms in the Web Client.



Example Startup tab

Assigning alternate home pages

You can optionally assign alternate files to be used as the home page for a user or role. If specified, this file will be used instead of the default home file. You can select any Axiom report (including web reports and Axiom forms) or any normal Excel file stored in the Reports Library. You can also specify a web page URL which will open as a tab within Axiom Software.

You can assign each user or role a "global" home page to be used in all clients. You can also override this assignment to show a different home page in the Desktop Client (Excel Client or Windows Client).

The home page is always opened as read-only. The user does not need to be granted permissions to the file in order to open it on startup.

To assign an alternate home page to a user or role:

1. On the **Startup** tab of the **Security Management** dialog, click the [...] button to the right of either of the following fields:

Item	Description
Home Page	This "global" home page is used in all clients, unless a Desktop Client Home Page is also specified.
	If you want this home page to display in the Web Client, the selected file must be web-enabled (either an Axiom form or a web report). If the file is not web-enabled, then the assignment will be ignored for purposes of the Web Client.
Desktop Client Home Page	This home page is used in the Desktop Client only (Windows Client or Excel Client), overriding the Home Page assignment.

The Shortcut Properties dialog opens so that you can select a file.

- 2. To specify the file, click the [...] button to the right of the **Shortcut Target** box. In the **Choose Document** dialog, select the desired file from the Reports Library, then click **OK**.
- 3. Once the file has been selected, specify any of the following optional **Shortcut Parameters**:

Item	Description
Axiom Tab Name	An alternate name to display on the file tab. By default, the tab name is "Home".
Quick Filter	A Quick Filter to apply to the file. The Quick Filter must be a valid filter criteria statement. Once the file is opened, users can clear the filter using the Quick Filter option on the ribbon.
	NOTE: Queries in the target file must be configured to refresh on open, in order for the filter to be applied to the data when the file is opened.
	This option does not apply to web reports.
Non-closeable	Specifies whether the user can close the file once it has been opened.
	By default, this is not enabled, which means the file is closeable. If a user closes the home page, they can reopen it using the Show Home button on the default Axiom ribbon tab.
	You might enable this option if you have defined a custom ribbon tab for end users that does not contain the Show Home button. This ensures that users will always have access to the home page by preventing them from closing it.
View As Form	Select this option to open the report as an Axiom form. This option only applies if the report is form-enabled.

4. Click OK.

The selected file displays in the **Home Page** box.

You can change the home page assignment at any time, or remove the assignment by clicking the delete button.

NOTE: If the specified Home file is a web report or an Axiom form (with **View As Form** enabled), then the file will also display as the user's home page in the Web Client. When the user logs into the Web Client, the designated home page displays instead of the launch page.

Home page priority order

When a user logs into an Axiom Software client, their home page is determined using the following priority order. If the first item on the list is defined, then that file is used, otherwise the next item on the list is used:

- 1. Alternate home page defined for the user
- 2. Alternate home page defined for a role (excluding the Everyone role)

NOTE: If a user belongs to multiple roles, and more than one role has an assigned home page, the home page of the "first" role is used (determined alphabetically by role name). You can work around this by specifying a home page for the user, or by ensuring that only one of the assigned roles has a home page.

- 3. Alternate home page defined for the Everyone role
- 4. Default home page in the Axiom System directory

For the Desktop Client, Axiom Software first cycles through items 1-3 looking for a Desktop Client Home Page assignment. If no assignment is found, it then cycles through items 1-3 again looking for a Home Page assignment before moving on to item 4.

For the Web Client, Axiom Software cycles through items 1-3 looking for a Home Page assignment. If no assignment is found, or if the assigned file is not web-enabled, it moves on to item 4. If no eligible web-enabled file is found in the Axiom System directory, the launch page is shown instead of a home page.

Using a web page URL as the home page

You can optionally specify a web page URL to use as the Axiom Software home page, instead of a file. To specify a web page, enter the URL into the **Shortcut Target** box instead of browsing to a file. The full URL must be used—for example, enter http://www.axiomepm.com, not www.axiomepm.com.

If the web site URL uses additional parameters (appended to the URL with a question mark), those parameters must be entered into the **Additional Query String Values** section of the shortcut properties. Click the plus icon to add a name / value pair, and then enter the parameter name in the first box and its value in the second box. You cannot enter the URL with the parameters already appended, because Axiom Software has its own set of optional parameters to control the tab behavior. The parameters must be separated out so that Axiom Software can construct the necessary URL syntax to both open the tab and launch the URL.

If a web page is specified as the home page, then the web page will open within the Axiom Software application using the Home tab (unless an alternate tab name is specified).

NOTE: If you choose to use a web page URL as the home page, keep in mind that Axiom Software has no control over the behavior or content of the outside web site.

Assigning startup task panes

You can assign one or more custom task panes to display automatically when a user logs into the system. Typically, these settings are defined at the role level rather than at the user level—either on the Everyone role to display for all users, or on your organization's defined roles.

Users do not need to have file permissions to access the task panes that are designated to open on startup. Because of this, in most cases you should use the **Non-Closeable** option to specify that the task pane cannot be closed. This will ensure that the task pane is always available to the user. Otherwise, the user could close the task pane and then have no way to open it again, because they do not have access to the file itself.

Users inherit any task panes defined for roles that they are assigned to, in addition to their own assigned task panes. Task panes are opened in the following order:

- Task panes defined for the Everyone role, in the order specified on the Everyone role
- Task panes defined for roles (multiple roles sorted in alphabetical order), in the order specified for the role
- Task panes defined for the user, in the order specified for the user

If a single task pane is listed in more than one place, it is only opened once, the first time it is listed.

NOTES:

- The startup task pane settings do not control the display of system-controlled task panes such as the Sheet Assistant or File Processing. These task panes display dynamically when they are relevant to the current context, if the user has the appropriate rights.
- By default, the Everyone role is configured to open the following built-in task panes on startup: Explorer and Process. (Older systems also have the Workflow task pane.) These task panes are not system-controlled; if desired you can change their security settings or remove the task panes entirely. For more information, see the discussion on built-in task panes and ribbon tabs in the *System Administration Guide*.

To assign startup task panes to a user or role:

 On the Startup tab of the Security Management dialog, click the plus + button at the top of the Task Panes box.

The **Shortcut Properties** dialog opens.

- 2. To specify the task pane, click the ... button to the right of the **Shortcut Target** box. In the **Choose Document** dialog, select the desired task pane from the Task Panes Library and then click **OK**.
- 3. Once the task pane has been selected, specify any of the following optional Shortcut Parameters:

Item	Description
Axiom Tab Name	Define an alternate tab name for the task pane (by default, the tab name is the file name).
Non-closeable	Select this option to prevent the user from closing the task pane.
	This option should be selected for startup task panes if users do not otherwise have access to the task pane. Most end users are not granted access to the Task Panes Library and therefore they only see task panes that are configured to open on startup. In this case, if the user closes the task pane, they will have no way to reopen it (other than to exit the system and then log in again). Preventing users from closing the task pane ensures that it will always be available.

4. Click **OK**. The selected file displays in the **Task Panes** box.

You can repeat this process for as many custom task panes that you want to assign to the user or role.

Once one or more task panes have been assigned, you can modify the assignments as follows:

- To adjust the order of multiple assigned task panes, select the task pane that you want to move and then use the arrow buttons to move it up or down.
- To delete an assigned task pane, select the task pane in the list and then click the **Delete** X button.
- To edit the shortcut parameters of an assigned task pane, double-click the task pane in the list to reopen the **Shortcut Properties** dialog.

Assigning startup ribbon tabs

You can assign one or more custom ribbon tabs to display automatically when a user logs into the system. Typically, these settings are defined at the role level rather than at the user level—either on the Everyone role to display for all users, or on your organization's defined roles.

Keep in mind that just because a ribbon tab is opened at startup does not necessarily mean it will display to the user. You can configure certain ribbon tab options that further control the display. For example, you can specify that a particular ribbon tab only displays if the user is an administrator, or if the current file is a plan file. These options make it easier to configure a ribbon tab for the Everyone role, yet still dynamically control the display so that only the users who need the ribbon tab can see it.

Users do not need to have file permissions to access the ribbon tabs that are designated to open on startup. Startup is the only time that ribbon tabs can be opened in the ribbon, so in general there is no

reason to give end users file permissions to these files except for the small handful of users who need to create and edit the ribbon tabs.

Users inherit any ribbon tabs defined for roles that they are assigned to, in addition to their own assigned ribbon tabs. Ribbon tabs are opened in the following order:

- Ribbon tabs defined for the Everyone role, in the order specified on the Everyone role
- Ribbon tabs defined for roles (multiple roles sorted in alphabetical order), in the order specified for the role
- Ribbon tabs defined for the user, in the order specified for the user

Custom ribbon tabs display before (to the left of) any Excel ribbon tabs. In the case of the Windows Client, custom ribbon tabs display before the Home tab.

If a single ribbon tab is listed multiple times, it is only opened once, the first time it is listed.

NOTE: By default, the Everyone role is configured to display two built-in ribbon tabs: Axiom and Axiom Designer. These ribbon tabs are not system-controlled; if desired you can change the security settings for these tabs, customize the tab contents, or remove the tabs entirely. For more information, see the discussion on built-in task panes and ribbon tabs in the *System Administration Guide*.

To assign startup ribbon tabs to a user or role:

- 1. On the Startup tab of the Security Management dialog, click the plus + button at the top of the Ribbon Tabs box.
 - The **Shortcut Properties** dialog opens.
- 2. To specify the ribbon tab, click the ... button to the right of the Shortcut Target box. In the Choose Document dialog, select the desired ribbon tab from the Ribbon Tabs Library and then click OK.

3. Once the ribbon tab has been selected, specify any of the following optional Shortcut Parameters:

Item	Description
Axiom Tab Name	Optional. Define an alternate tab name for the ribbon tab (by default, the tab name is the file name).
Requires Admin	Select this check box if the ribbon tab should only be visible if the user is an administrator.
	In general, this option is only used if you are assigning a ribbon tab for the Everyone role, but you want to limit the display to administrators.
Requires Sheet Assistant	Select this check box if the ribbon tab should only be visible if the user has Sheet Assistant permission to the current file.
	This option can be used to dynamically display a ribbon tab that contains tools appropriate for file designers. Keep in mind that the ribbon tab will dynamically show and hide as the user changes the current file (assuming the user only has Sheet Assistant permission to certain files).
Visible for doc type	Optional. Select a document type if the ribbon tab should only be visible when the current file is a certain type of file. You can specify Plan File , Template , or Report . By default, this option is set to All , which means the ribbon tab displays for all file types (assuming it is otherwise eligible to display).
	If you specify a document type, keep in mind that the ribbon tab will dynamically show and hide as the user switches between different documents. This may be confusing to the user if the ribbon tab is not very obviously designed for a particular document type.

4. Click **OK**. The selected file displays in the **Ribbon Tabs** box.

You can repeat this process for as many custom ribbon tabs that you want to assign to the user or role.

Once one or more ribbon tabs have been assigned, you can modify the assignments as follows:

- To adjust the order of multiple assigned ribbon tabs, select the ribbon tab that you want to move and then use the arrow buttons to move it up or down.
- To delete an assigned ribbon tab, select the ribbon tab in the list and then click the Delete X button.
- To edit the shortcut parameters of an assigned ribbon tab, double-click the ribbon tab in the list to reopen the **Shortcut Properties** dialog.

Assigning other startup documents

You can assign other documents to open automatically when a user logs into the Axiom Software Desktop Client. These documents are opened in addition to the home file. You can select any Axiom report (including web reports and Axiom forms) or any normal Excel file stored in the Reports Library. You can also specify a web page URL to open at startup.

There is no limit on the number of files that can be opened at startup, however, many files or large files may slow performance and cause delays starting Axiom Software.

If a document is assigned to open on startup, then it will always open on startup as read-only, regardless of the user's file permissions for that document. The user does not need to have permission to access the file otherwise.

Users inherit any documents defined for roles that they are assigned to, in addition to their own assigned documents. Documents are opened in the following order:

- Documents defined for the Everyone role, in the order specified on the Everyone role
- Documents defined for roles (multiple roles sorted in alphabetical order), in the order specified for the role
- Documents defined for the user, in the order specified for the user

If a single document is listed in more than one place, it is only opened once, the first time it is listed. Note that the home page is always the first document opened.

To assign other startup documents to a user or role:

- On the Startup tab of the Security Management dialog, click the plus * button at the top of the Other Documents box.
 - The **Shortcut Properties** dialog opens.
- 2. To specify the document, click the ... button to the right of the **Shortcut Target** box. In the **Choose Document** dialog, select the desired file from the Task Panes Library and then click **OK**.

NOTE: If you want to specify a URL as an additional startup document, you can type the URL into the **Shortcut Target** box instead. For more information, see the section on specifying a URL as the home page: Assigning alternate home pages. Note that you must specify an **Axiom Tab Name** in the **Shortcut Parameters** if you want the web page to open within Axiom Software. If the tab name is left blank, the web site will open in the user's browser.

3. Once the document has been selected, specify any of the following optional Shortcut Parameters:

Item	Description
Axiom Tab Name	An alternate name to display on the file tab. By default, the tab name is the file name.
Quick Filter	A Quick Filter to apply to the file. The Quick Filter must be a valid filter criteria statement. Once the file is opened, users can clear the filter using the Quick Filter option on the ribbon.
	NOTE: The target file must be refreshed in order for the filter to be applied to the data. One or both of the following settings should be enabled in the file:
	 Refresh all Axiom functions on open (if the file uses functions to return data instead of an Axiom query)
	 Refresh data on file open (for the applicable Axiom queries)
	This option only applies to Axiom spreadsheet reports and Axiom forms.
Non-closeable	Specifies whether the user can close the file once it has been opened.
	By default, this is not enabled, which means the file is closeable. You may want to enable this option if users do not otherwise have access to the file. In this case, if the user closes the file, they will have no way to reopen it (other than to exit the system and then log in again). Preventing users from closing the file ensures that it will always be available.
	You would only do this if the file is something that users need to see throughout their session. If the file is simply informational and users don't need to see it again once they have viewed it, then you probably want to let users close the file.
View As Form	Select this option to open the report as an Axiom form. This option only applies if the report is form-enabled.

4. Click OK. The selected file displays in the Other Documents box.

You can repeat this process for as many additional documents that you want to assign to the user or role.

Once one or more documents have been assigned, you can modify the assignments as follows:

- To adjust the order of multiple assigned documents, select the document that you want to move and then use the arrow buttons to move it up or down.
- To delete an assigned document, select the document in the list and then click the Delete X button.
- To edit the shortcut parameters of an assigned document, double-click the document in the list to reopen the **Shortcut Properties** dialog.

NOTE: When a user launches the Excel Client, any web-enabled startup documents other than the Home file will be opened in the browser instead of within the Excel Client. In the Windows Client, if you define an **Axiom Tab Name** for the web-enabled document, it will open within the application instead within the browser.

Assigning startup options

You can configure startup options that impact how Axiom Software displays when a user logs in. These options are listed at the bottom of the **Startup** tab of the **Security Management** dialog, underneath the assigned startup files. You can set these startup options at the user level or at the role level.

Currently there is only one startup option that can be set:

• Show Formula Bar At Start

If this option is enabled, then the formula bar automatically shows when a user logs into the Axiom Software Excel Client or the Windows Client. If this option is disabled, then the formula bar is hidden.

Users can still toggle the formula bar shown or hidden using the **Formula Bar** check box on the **Axiom** ribbon tab. This startup option simply determines the initial state of the formula bar when the user logs in; it does not prevent the user from changing that state later.

By default, all users are set to show the formula bar at start, via the Everyone role. If you want to change this behavior, you have several options:

- You can override the behavior for specific users by clicking the Override check box and then
 clearing the check box for Show Formula Bar At Start. This means that the formula bar will be
 hidden at start for this user.
- You can clear the **Show Formula Bar At Start** check box for the Everyone role, and then set the option as desired for specific users and roles.

NOTE: It is not possible to leave the option enabled for the Everyone role and then override it by role. If you want some roles to show the formula bar and others to hide it, then you must disable the option on the Everyone role and then enable or disable it as appropriate for your other roles.

This setting is always enabled for admin users and cannot be disabled. However, for admin users only, Axiom Software will remember the last state of the formula bar and apply that on startup, disregarding this setting.



Security Subsystems

Security subsystems allow you to define groups of users to be managed as a distinct "subset" of users within the system. Using subsystems, you can:

- Define a group of users to belong to the subsystem and be limited to a certain maximum level of permissions. When you create a subsystem, you are essentially drawing a permissions boundary that users who belong to the subsystem cannot cross.
- Assign one or more subsystem administrators who can manage security for the users that belong
 to the subsystem. This allows you to give certain users the right to manage other users'
 permissions, without needing to grant them full administrator rights or even full security
 administration rights.

Subsystems are *not* an alternative to roles. Roles grant permissions as a group; roles cannot be used to deny permissions or to grant user management rights. Subsystems are intended for situations where you need to create independently-managed user groups that work within the same system but only need access to specific defined areas of that system. Roles can then be used to grant permissions within the limits of the subsystem.

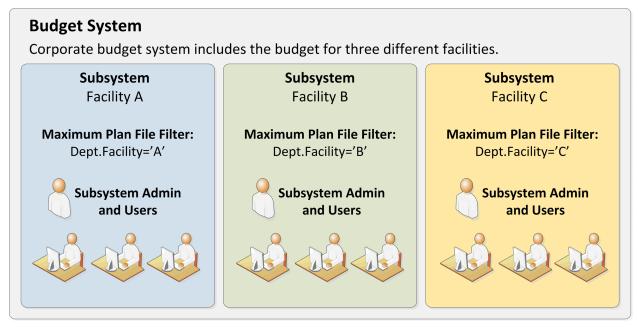
NOTE: Subsystems are optional. Subsystem features are only available if you have enabled them using the system configuration settings.

About subsystems

Subsystems are used to create distinct groups of users who need to be restricted to a certain maximum level of access. When you create a subsystem, you define:

- The maximum permissions for the subsystem. Using the standard security permission settings, you specify the maximum level of permissions that any user who belongs to this subsystem can have.
- The users who belong to the subsystem. The permissions for these users cannot exceed the subsystem maximum permissions. Roles can also optionally belong to a subsystem, and will be limited to the subsystem maximum permissions.
- The subsystem administrators. Subsystem administrators can access Axiom Software security for purposes of managing users and roles that belong to the subsystem.

For example, imagine that your organization has three different facilities, and you budget for all of these facilities within the same Axiom Software system. Each facility has a set of users, and you want to limit those users to a specific set of plan files and reports. You also want to allow the finance manager of each facility to control the user rights for their facility, but you do not want to make them full system administrators.



Example system with subsystems

You could use subsystems for this configuration as follows:

- Create a subsystem for each of the facilities. You can assign existing users to the subsystem, and/or the subsystem administrator can create users for the subsystem.
- Within each subsystem, specify the maximum level of user rights for that facility. This would include plan file access filters to restrict the set of plan files in a file group, and folder permissions for the Reports Library (for example, each facility might have their own folder in the Reports Library, and you would grant each subsystem permission to only the appropriate folder).
- Within each subsystem, assign the facility's finance manager as the subsystem administrator. That user could then manage the rights for each user in the subsystem, including granting the users rights to the necessary plan files and reports (either individually or by using roles). The users can have a lower level of rights than what is allowed by the subsystem, but they cannot have a higher level.

Each user can belong to one or more subsystems. If a user belongs to multiple subsystems, the limits for each subsystem will be applied independently (in other words, using OR to concatenate the restrictions where applicable instead of AND).

About subsystem administrators

When a user is assigned as a subsystem administrator, that user can access security for the purposes of managing users and roles that belong to the subsystem.

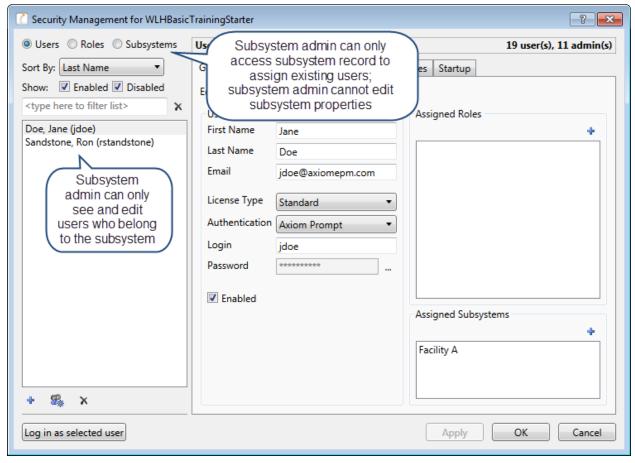
Subsystem administrators are not administrator-level users. The behavior is similar to being granted the **Administer Security** permission, except that the subsystem administrator can only work with users and roles within the subsystem.

Subsystem administrators can do the following:

- Create, edit, and delete users and roles within the subsystem. The subsystem administrator can also assign existing users to the subsystem.
- Assign roles to users in the subsystem. The users can be assigned to subsystem-specific roles or to "global" roles (roles that do not belong to any subsystem).
- Access Manage Locked Items to view and manage items locked by users in the subsystem.
- Use Log in as selected user to test the permissions of any user in the subsystem by logging in as that user. (Note that if a system administrator is assigned to the subsystem, the subsystem administrator cannot log in as that user.)

Subsystem administrators cannot edit the subsystem settings, except to assign users and roles to the subsystem. It is assumed that a system administrator creates the subsystem and defines the subsystem settings, and then the subsystem administrator simply manages the users and roles within that framework.

The subsystem administrator can be any user. The subsystem administrator may belong to the subsystem as a user if desired, but that is not a requirement. If the subsystem administrator is also a member of the subsystem, then the subsystem administrator can edit his or her own user permissions, but overall those permissions are restricted by the limits of the subsystem.



Example Security dialog for a subsystem administrator

About subsystems and roles

Subsystems can be used in conjunction with roles. You can assign a user to a subsystem, and then assign the user to one or more roles to grant security permissions. These permissions are then limited by the subsystem boundaries.

There are two ways that you can use roles with subsystems:

- You can assign subsystem users to "global" roles, meaning standard roles that don't belong to a subsystem. These roles can contain users that belong to any subsystem (or to no subsystem). The role permissions are inherited "as is" by the user and then the user's effective permissions are restricted by their assigned subsystem.
- You can assign a role to a subsystem, and then assign users in the subsystem to the role. In this case, only users who also belong to the subsystem can belong to the role. Also, the role permissions are restricted by the assigned subsystem before the user inherits the permissions.

Subsystem-specific roles are recommended if users may belong to multiple subsystems, due to the small but crucial difference in how role inheritance and subsystem restrictions interact. Also, subsystem administrators can create and edit subsystem-specific roles, which provides the subsystem administrator

with greater control over the use of roles with their subsystem users. When using global roles, subsystem administrators can only assign users to the role, they cannot edit the role or see the role's permissions.

Role inheritance and subsystems

If each user only belongs to one subsystem, then there is no difference in the effective permissions when users inherit permissions from global roles or from subsystem-specific roles. However, if a user can belong to multiple subsystems, then the effective permissions can vary depending on which type of role is used.

To illustrate this difference, consider the following plan file filter settings for a file group:

User configured permission: No Access
Role configured permission: All Plan Files
Subsystem maximum permission: DEPT.Facility=5

In this configuration, it doesn't matter whether the role is global or whether it belongs to the subsystem. In both cases, the user will ultimately be restricted to plan files that are assigned to Facility 5. If the role is global, then the subsystem restriction of Facility 5 will be applied to the user after the role inheritance. If the role belongs to a subsystem, then the Facility 5 restriction will be applied to the role before the permissions are inherited. Either way, the end result of the effective permission is the same.

Now consider what can happen if the role is global and the user belongs to two subsystems instead of just one:

User configured permission: No Access
Role configured permission: All Plan Files
Subsystem 1 maximum permission: DEPT.Facility=5
Subsystem 2 maximum permission: All Plan Files

In this configuration, the user inherits the permission from the global role before the subsystem restrictions are applied to the user. So the user's starting permission is All Plan Files. Because the user's multiple subsystem restrictions are combined using OR, the ultimate subsystem restriction is Dept.Facility=5 OR All Plan Files (which effectively means no restriction—the combined subsystem maximum permission allows access to all plan files). Together with the inherited role permission, this means the user has access to all plan files.

The organization may have intended the user to have access to all plan files. The user belongs to Subsystem 2 and that subsystem allows access to all plan files, so it is a valid result if the user is assigned to a role that grants access to all plan files. However, a potential issue may arise if the role assignment was made by the Subsystem 1 administrator. This subsystem administrator may not know that the user also belongs to Subsystem 2 and/or may not know that Subsystem 2 has a maximum permission of All Plan Files. The Subsystem 1 administrator can only consider the impact of his or her subsystem's

restrictions, which would limit the user to plan files from Facility 5. The granting of all plan files via the Subsystem 2 maximum permission may be unintentional.

So if subsystem administrators are managing role assignments and users can belong to multiple subsystems, the only way to ensure that permissions are limited by each respective subsystem is to use subsystem-specific roles instead of global roles. For example, consider the following configuration where the user belongs to multiple subsystems and is assigned to subsystem-specific roles:

User configured permission:

Role configured permission (Subsystem 1):

Role configured permission (Subsystem 2):

No Access

Subsystem 1 maximum permission:

DEPT.Facility=5

Subsystem 2 maximum permission:

All Plan Files

Now the role filters are limited by the subsystem restrictions *before* the user inherits permissions from the roles. This gets resolved as follows:

- Subsystem 1 role permission of All Plan Files is restricted by the Subsystem 1 maximum permission of Dept. Facility = 5. The user can access only those plan files that belong to Facility 5.
- Subsystem 2 role permission of No Access needs no further resolution—the user is not granted access to any plan files via this subsystem.
- So even though the user's combined subsystem restriction is the same as in the previous
 example, this is no longer an issue because the role permissions are restricted by their respective
 subsystems before being inherited by the user. In this case this means the user is only granted the
 plan file access from the Subsystem 1 role, meaning the user only has access to plan files for
 Facility 5.

Now imagine the same permissions except that the role configured permission for Subsystem 2 is Dept.VP='Smith' instead of No Access. Now the user's effective permission is as follows:

```
(DEPT.VP='Smith') OR (DEPT.Facility=5)
```

This means the user can access any plan files from Facility 5, and any plan files where the assigned VP is Smith.

Enabling subsystems

Subsystems are not available for use until they have been enabled for your system. The system configuration settings control whether subsystems are enabled.

To enable subsystems, set the **SubSystemsEnabled** property to **True**. This setting can be modified using the Axiom Software Manager, or by using a Save Type 4 report that is configured to save to the Axiom.SystemConfiguration table. By default this configuration setting is set to False, which means subsystems are not available.

If this configuration setting is enabled, then:

- All subsystem features become available in the Security Management dialog. This includes the ability to create subsystems and assign users and roles to subsystems.
- Subsystem membership is now required for a non-admin user to log in. This rule is intended to ensure that subsystem restrictions apply to all end users in the system. Axiom Software will prevent a user from logging in unless they meet one of the following criteria:
 - The user is an administrator.
 - The user is a subsystem administrator.
 - The user has the Manage Security permission.
 - The user belongs to at least one subsystem.

NOTE: If you enable subsystems, complete the subsystem settings and assignments, and then disable the configuration setting, the subsystem settings will become hidden but they will still be enforced (except for the login restriction). This is not a supported configuration and may have unexpected results if further changes are made to security. Before disabling subsystems, you should first remove all users from any subsystem assignments.

Managing subsystems

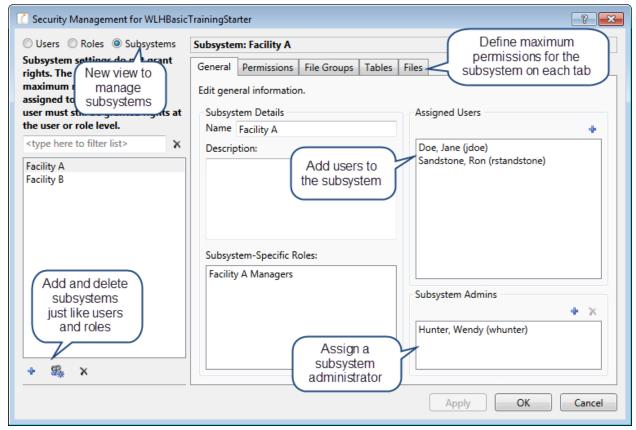
Using the **Security Management** dialog, administrators can create new subsystems, edit existing subsystems, and delete subsystems. To access this dialog:

On the Axiom tab, in the Administration group, click Manage > Security > Security Manager.

NOTE: If you are using an Axiom packaged product, you can access this feature from the **Admin** tab. In the **System Management** group, click **Security > Security Manager**.

To work with subsystems, select Subsystems in the top left-hand corner of the dialog.

NOTE: Users who are subsystem administrators cannot create, edit, or delete subsystems. When subsystem administrators view subsystems, they are limited to viewing the **General** tab only, for purposes of assigning existing users to the subsystem.



Security dialog with subsystems enabled

To save changes, click Apply (or OK if you are finished editing security settings).

Creating subsystems

You can create a new blank subsystem, or you can clone the settings of an existing subsystem. If you clone a subsystem, all of that subsystem's settings are copied to the new subsystem, *except* for assigned users.

To create a subsystem, click one of the following buttons located underneath the subsystem list:

- To create a new blank subsystem, click Create subsystem +.
- To clone an existing subsystem, select that subsystem in the list and then click Clone subsystem
 .

The new subsystem is added to the list. You can define the settings for the new subsystem as desired, and you can assign users and roles to the subsystem. You can also assign a user as a subsystem administrator, to manage the users within the subsystem.

For more information on completing subsystem settings, see:

- Defining subsystem properties (General tab)
- Defining maximum permissions for subsystems

Editing subsystems

To edit a subsystem, select a subsystem from the **Subsystems** list, then make any changes to that subsystem. Changes to subsystem settings take effect when the changes are saved.

Deleting subsystems

To delete a subsystem, select a subsystem from the **Subsystems** list, then click **Delete subsystem** X. You are prompted to confirm that you want to delete the subsystem.

A subsystem cannot be deleted if users are assigned to it.

Defining subsystem properties (General tab)

The following settings are available for subsystems on the General tab.

Subsystem Details

Each subsystem has the following general properties:

Item	Description
Name	The name of the subsystem.
Description	A description of the subsystem.

Subsystem-Specific Roles

Multiple roles can be assigned to a subsystem. If the subsystem already has assigned roles, those roles are displayed here.

It is not possible to assign roles from the subsystem record. Roles can be assigned to subsystems from the role record, using the **Subsystem** box. See Managing subsystem roles.

Assigned Users

Multiple users can be assigned to a subsystem. If the subsystem already has assigned users, those users are displayed here.

Subsystem assignments can be made when editing either the user or the subsystem. See Managing subsystem users.

Subsystem Admins

One or more users can be assigned as a subsystem administrator. Only administrators can assign or remove a subsystem administrator. Subsystem administrators do not see this section when they view the subsystem record.

- To assign a user as a subsystem administrator, click Add . In the Assign Users dialog, you can select one or more users to add as a subsystem administrator.
 - Assigning a user as a subsystem administrator does not automatically add the user to the subsystem. Subsystem administrators are not required to belong to the subsystem. However, if you want the user to also belong to the subsystem, then you must separately assign the user to the subsystem.
- To remove a user as a subsystem administrator, select the user in the list and then click **Remove**X. You can select and remove multiple users at once.

Subsystem administrators can access the **Security Management** dialog for the purposes of managing users for the subsystem. Subsystem administrators do not otherwise have administrator-level permissions.

For more information on subsystem administration rights, see About subsystem administrators.

Defining maximum permissions for subsystems

When defining security settings for a subsystem, you are defining the maximum permission that any user who belongs to the subsystem can have. Users are not granted these permissions by the subsystem; they are restricted to having this level of permission or less. Generally this means that you must define the maximum desired settings on each tab of the dialog, or else no users in the subsystem can have access to the features controlled by that tab.

You can imagine the subsystem permissions as defining an outer boundary of user rights. Users that belong to the subsystem can be assigned to roles and can be granted individual permissions as normal. Any user permissions that fall within the subsystem boundary will be given to the user. Any user permissions that fall outside of the subsystem boundary will be ignored.

At minimum, you must define settings on the following tabs:

- **File Groups** tab, to specify which file groups the subsystem can access and the maximum allowed access.
- Tables tab, to specify which tables the subsystem can access and the maximum allowed access.
- Files tab, to specify which folders and files the subsystem can access and the maximum allowed access. In most cases this will include defining access permissions to reports. Optionally, you can grant access to scheduler jobs, task panes, and imports.

If users in the subsystem will not need any special permissions, then you can ignore the **Permissions** tab. Otherwise, you must define the maximum allowed access on that tab.

NOTES:

- If a user belongs to more than one subsystem, then the allowed permissions in one subsystem may exceed the permissions allowed in another subsystem. In this case the permissions "boundary" is the combination of the subsystems, where the user is granted the more permissive boundary (not restricted to the less permissive boundary). In this circumstance, you may find it useful to use subsystem-specific roles to grant permissions to users instead of "global" roles.
- If a system administrator is assigned to a subsystem, the administrator permission takes precedence over the subsystem limitation. Subsystem limitations do not apply to system administrators.

Permissions tab

Select the check boxes for the permissions that you want to be available to users in the subsystem.

For example, if you know that some users in the subsystem need to have access to Scheduler, then you must select the **Scheduled Jobs User** permission for the subsystem. The users' individual permissions and role inheritance will determine which users in the subsystem actually have the **Scheduled Jobs User** permission.

If no users in the subsystem need to have any of these permissions, then you can leave the entire tab unchecked.

NOTE: In most cases, you should *not* select the **Administer Security** permission for a subsystem. If a subsystem user is granted this permission, they will be able to manage all users and roles in the system, not just the subsystem users and roles. Subsystem administrators do not need to be granted this separate permission in order to manage the users in the subsystem.

File Groups tab

For subsystems, you can define a single permission set for each file group. This maximum permission set will be applied against all permission sets defined for the user and inherited from the user's roles. If no permission set is defined for a file group, then the subsystem does not allow access to that file group.

If you want the users in the subsystem to be able to access plan files in a particular file group, then you must create a permission set and configure it as follows:

Set the file access level to the highest level that you need to make available to users in the
subsystem. Typically this means setting the access to at least Read-Only. You must also specify
whether the subsystem has access to Allow Save Data, Allow Calc Method Insert, and Allow
Calc Method Change. Remember that if you are using process management to manage access to
plan files, then you do not need to select Allow Save Data because the plan file process will
automatically elevate user permissions as necessary.

NOTE: The setting Interacts with Process Management is not available to subsystem permissions. There is no way to disable process interaction at the subsystem level.

 Apply the permission settings to the maximum group of plan files that you need to make available to users in the subsystem.

You must either select **All plan files** or specify a plan file filter. For example, if you specify a filter such as DEPT. Facility=5, then users in this subsystem can only access plan files for facility 5. Any user or role permission that falls outside of that filter is ignored.

If the subsystem has a plan file filter, and a user in the subsystem is assigned a plan file filter (either individually or via a role), then the subsystem filter and the user filter are concatenated using AND. This restricts the user to only accessing files that match both the user filter and the subsystem filter. For example, if the subsystem filter is DEPT.Facility=5 and the user filter is DEPT.VP='Jones', then the user can only access plan files that are assigned to VP Jones AND which belong to facility 5.

NOTE: The **Create New Records** maximum permission is enabled by default for on-demand file groups. This is set automatically on the subsystem whenever a new on-demand file group is created. Also, when you create a new subsystem, this permission is automatically set for any existing ondemand file groups. This behavior is to enable the default permissions for on-demand file groups, which are automatically set to allow creating new records via the Everyone role.

Tables tab

If you want the users in the subsystem to be able to access data in particular tables, then you must define access for the table (at either the table or table type level).

When granting access, you must define the maximum level of access needed for the subsystem. For example, if some users in the subsystem need full access to the GL table type, but other users need filtered access, then you must set the GL table type to full access. The users' individual rights and role inheritance will determine their actual level of rights within this boundary.

If a subsystem has a table filter, and a user in the subsystem is assigned a table filter (either individually or via a role), then the subsystem filter and the user filter are concatenated using AND. This restricts the user to only accessing data that matches both the user filter and the subsystem filter. For example, if the subsystem filter is DEPT.Facility=5 and the user filter is DEPT.VP='Jones', then the user can only access data for VP Jones within facility 5.

NOTE: The default maximum permission for document reference tables is full access. This is set automatically in the subsystem whenever a new document reference table is created. Also, when you create a new subsystem, the maximum permission is automatically set for any existing document reference tables. This behavior is to enable the default permissions for document reference tables, which are automatically set to full access via the Everyone role.

Files tab

If you want users in the subsystem to be able to access a particular folder or file, then you must define access to those folders / files.

NOTE: Remember that users do not need to be granted access to files that are configured as startup files. If the user or role is assigned a file to open on startup, that file will be opened as a startup file, regardless of whether the subsystem allows access to that file.

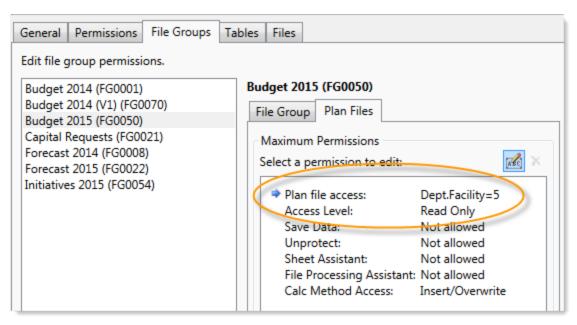
Remember that subfolders and files will inherit any permission set at a "parent" folder level (unless permission is explicitly set for the lower level). For this reason, the effective permissions section displays for the subsystem, so that you can select a folder or file and see any inherited permissions for that item.

Where applicable, you should attempt to specify permissions at a level that accommodates ongoing folder and file additions. For example, if each subsystem will have its own reports folder and that is the maximum access required, then you can define access for just that folder. If the subsystem needs access throughout the Reports Library, then you most likely want to define the maximum access at the Reports Library level (perhaps also explicitly blocking access to certain subfolders and files). The users' individual rights and role inheritance will determine their actual level of rights within this boundary.

Example

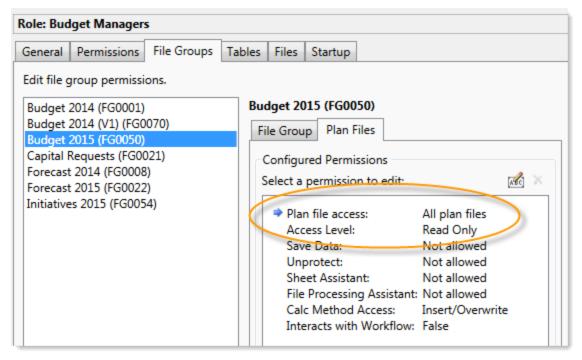
This example illustrates how subsystem maximum permissions limit users who are assigned to the subsystem.

The following screenshot shows file group maximum permissions for a subsystem named Facility5. For file group Budget 2015, the subsystem is limited by the following filter: DEPT.Facility=5. Users who belong to this subsystem can only access plan files that are assigned to Facility 5.



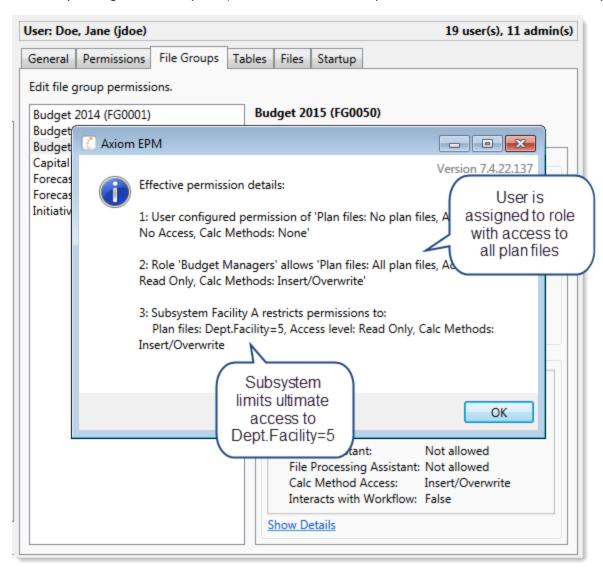
Subsystem maximum permissions

Subsystem settings do not grant any permissions; they only define a maximum boundary of permissions. Therefore users assigned to the subsystem must also be assigned to roles or be granted their own individual security permissions. Imagine that some users belonging to the Facility5 subsystem are also assigned to the Budget Managers role. This role grants access to all plan files within file group 2012 Budget.



Role permissions

Although the role grants access to all plan files, the subsystem is limited to DEPT.Facility=5. The users in the subsystem cannot have greater permission than what is allowed by the subsystem (assuming the users only belong to one subsystem). Therefore the effective permission for this user is DEPT.Facility=5.



User effective permissions once roles and subsystems are applied

Managing subsystem roles

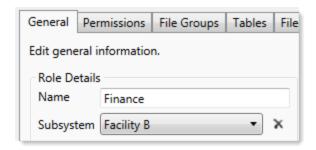
You can create new roles for a subsystem, and you can assign existing roles to a subsystem. When a role belongs to a subsystem, the role permissions are restricted by the subsystem boundaries, and all users in the role must also belong to the subsystem.

When assigning subsystem users to roles, you can use the subsystem roles or you can use "global" roles (that do not belong to the subsystem). For more information on the difference in behavior, see About subsystems and roles.

The subsystem settings should be completed before assigning any roles (unless the roles do not contain any users yet), to ensure that all desired subsystem restrictions are in place before any subsystem users log in.

Assigning a role to a subsystem

When you create or edit a role, you can assign it to a particular subsystem. Use the **Subsystem** dropdown list on the **General** tab to assign the role to a subsystem.



- This assignment can only be made on the role record. The **Subsystem-Specific Roles** section on the subsystem record is for information only; assignment changes cannot be made there.
- Only administrators can assign an existing role to a subsystem. If the role already has assigned
 users who do not belong to the subsystem when the role is assigned to the subsystem, then a
 validation error displays in the Security Management dialog. All users in the role must belong to
 the subsystem in order to assign the role to the subsystem.
- Subsystem administrators can create new roles for the subsystem. When a subsystem administrator creates a new role, it is automatically assigned to the subsystem when it is created. If the subsystem administrator manages multiple subsystems, then the role's subsystem assignment can be changed to any of those subsystems.
- Only administrators can remove a role from a subsystem. Click the Remove button X to clear the assigned subsystem.

Managing subsystem users

You can create new users for a subsystem, and you can assign existing users to a subsystem. When a user belongs to a subsystem, the user's permissions are limited according to the subsystem boundaries. Users can belong to multiple subsystems.

The subsystem settings should be completed before assigning any users, to ensure that all desired subsystem restrictions are in place before any subsystem users log in.

If the subsystem feature is enabled, then all non-admin users must be assigned to a subsystem. If a user does not belong to a subsystem, then that user will be blocked from logging in (unless the user is an

administrator, a subsystem administrator, or a user with the **Manage Security** permission). This is to ensure that all non-admin users have a subsystem limit applied to their security permissions.

Assigning existing users to a subsystem

Administrators can assign existing users to a subsystem from either the user record or the subsystem record. Any changes made in one area are automatically applied to the other area.

- From the subsystem record, on the **General** tab, click the **Add** button in the **Assigned Users** section to add a user to the subsystem.
- From the user record, on the General tab, click the Add + button in the Assigned Subsystems section to assign the user to a subsystem.

Subsystem administrators can assign existing users to a subsystem, but only from the subsystem record. This is because subsystem administrators cannot see user records for users that do not already belong to the subsystem.

Creating new users for a subsystem

Subsystem administrators can create new users for use in a subsystem. When the new user is created, the user is automatically assigned to the subsystem.

If the subsystem administrator manages multiple subsystems then one of those subsystems will be assigned at random when the user is created. Once the user has been saved, the subsystem administrator can edit the user to change the subsystem assignment as needed.

When creating a new user, administrators must save the new user before they are able to assign a subsystem. The **Assigned Subsystems** box is not editable until the user has been saved.

Removing a user from a subsystem

Administrators and subsystem administrators can remove a user from a subsystem. This can be done from either the user record or the subsystem record.

- From the subsystem record, on the General tab, select one or more users in the Assigned Users section and then click the Remove X button.
- From the user record, on the General tab, select one or more subsystems in the Assigned Subsystems section and then click the Remove > button.

If a non-admin user is removed from all subsystems, then that user will no longer be able to log into Axiom Software. The user must be assigned to a subsystem or granted administer-level permissions before they are able to log in again.



Security Tools

Axiom Software provides security tools to control and monitor user access to Axiom Software, and to provide for bulk edit of users and roles.

Preventing users from accessing the system

You can prevent non-admin users from accessing Axiom Software by using the System Access feature.

For example, you may want to temporarily lock out users in the following situations:

- Before upgrading Axiom Software
- While migrating between testing and production environments
- While preparing and testing the system prior to rollout for a planning cycle

The **System Access** feature prevents new logins only; it does not forcibly log off any users who are currently logged in. If a non-admin user is already logged into Axiom Software when you change the system access settings, that user will remain logged in but they will not be able to save any files to the Axiom database or perform any Axiom processes. Before locking users out, you should make sure that all users have saved changes to their files, and ask all non-admin users to log off. Administrators can continue to log into the system and perform all activities as normal.

Only administrators and users with the **Administer Security** permission can change the system access settings.

To lock non-admin users from Axiom Software:

1. On the Axiom tab, in the Administration group, click Manage > Security > System Access.

NOTE: If you are using an Axiom packaged product, you can access this feature from the **Admin** tab. In the **System Management** group, click **Security** > **System Access**.

- 2. In the Control System Access dialog, select Administrators only.
- 3. Click OK.

Non-admin users can no longer log into the system. Only users with administrator rights can log in. Any user who attempts to log into the system will be informed of the system state.

To allow user access again, go back to the Control System Access dialog and select Full Access.

Viewing the list of logged in users

Administrators can view a list of users who are currently logged into the system. For example, you may want to check to make sure that nobody is logged into the system before performing actions such as system upgrades.

For each user that is currently logged in, the list displays information such as:

- Full name and user name (login name)
- Email address
- Computer where the user is logged in
- · Date and time the user logged in
- Date and time of the user's last activity during the session

The list of logged in users is for information purposes only—you can see whether any users are logged in, but you cannot manually log them off and end their sessions.

NOTE: Axiom Software maintains a log of all login attempts, including failed logins. Currently there is no user interface to view this information, but it can be accessed directly in the system database in the SystemAccess table. For assistance, please contact Axiom Software Support.

To view the list of logged in users:

On the Axiom tab, in the Administration group, click Manage > Security > Logged in Users.

NOTE: If you are using an Axiom packaged product, you can access this feature from the Admin tab. In the System Management group, click Security > Logged in Users.

The Currently Logged In Users dialog opens, listing the users who are logged into this system. You can sort and filter the list using standard Axiom grid functionality.

Orphaned session records

When a user logs off normally, their session record is removed from the Logged in Users list. If a user's session ends unexpectedly—for example, due to a software crash or shutting down the computer without logging off—then the session record will be removed from the list after a few minutes, once the session no longer "reports back" to the Axiom Application Server.

NOTE: For Web Client sessions, closing the browser window does not automatically log out the user. In this case, the orphaned Web Client sessions will be automatically removed from the list in a few minutes as described above.

Axiom Software does not automatically remove any session records based solely on time logged in. As long as the session remains connected and continues to report back to the application server, the session will continue to be listed indefinitely.

Removing session records

If desired, you can manually remove any logged in records by selecting the record in the list and clicking **Remove**. This simply removes the record from the list; it has no impact on any user's session. If a user is actually logged on and you remove their session record, the user will remain logged on.

In most cases this action should not be necessary, because sessions that are truly invalid will be automatically removed from the list in a few minutes as described above.

Enabling password rules

By default, Axiom Software enforces a basic set of password rules. These rules apply to users assigned to Axiom Prompt authentication.

The built-in password rules are as follows:

- Must be at least 8 characters long
- Must contain at least 1 upper-case letter and at least 1 lower-case letter
- Must contain at least 1 non-alphabetic character (a number or a symbol)

The password rules are only enforced when creating new passwords. If any existing passwords do not meet these rules, those passwords will continue to be valid.

When the password rules are enabled, a **Generate Password** link is available on the **Set Password** dialog so that you can generate a random password that meets these rules. (This feature is not available if the password rules are changed from the built-in rules; see the note below.)

Password rules are enabled or disabled by using the system configuration property **EnablePasswordPolicy**. This setting is **True** by default. If you do not want to apply these rules, you can disable the setting by changing it to **False**, which means that any password is considered valid. You can do this by using the Software Manager, or by using a Save Type 4 report that has been set up to modify the system configuration table.

NOTE: The system configuration settings contain two additional options related to EnablePasswordPolicy. **PasswordRegularExpression** defines the password rules, and **InvalidPasswordMessage** defines the error message displayed if a new password does not meet the rules. Axiom Software does not currently provide a methodology for customers to change the password rules from the built-in rules, therefore, these two options should not be changed from their default settings. If you have a need to use different password rules, please contact Axiom Software support for assistance.

Testing user security

Administrators may need to log into Axiom Software as other users, in order to test security permissions. For example, you may define a table access filter for a particular security role, and then you want to log in

as a non-admin user who belongs to that role to ensure that it is providing access to table data as intended.

The Security Management dialog provides a means for administrators to "log in as" another user, for the purposes of testing their security settings.

To log in as a different user:

1. On the Axiom tab, in the Administration group, click Manage > Security > Security Manager.

NOTE: If you are using an Axiom packaged product, you can access this feature from the **Admin** tab. In the **System Management** group, click **Security > Security Manager**.

- 2. In the Security Management dialog, select the user whom you want to log in as.
- 3. In the lower left-hand corner, click Log in as selected user.

A new instance of Axiom Software is launched, and you are automatically logged in as the selected user—you do not need to input a user name and password. The client version for the instance is whichever client version you are currently using (Excel Client or Windows Client).

NOTE: Subsystem administrators and users with the Administer Security permission also have limited access to this feature. These users cannot log in as any user who is a system administrator.

Reporting on security information

The following features are available to bring security information into Axiom files.

GetUserInfo

GetUserInfo can be used to return general information about a user, such as the user's login name, database ID, first and last name, and email address. You can return this information for the current user or for a specified user.

The GetUserInfo query can be made using a data lookup or a function.

GetSecurityInfo

GetSecurityInfo can be used to return various security settings for the current user or for a specified user, such as:

- The user's plan file access filter for a file group
- The user's read or write filter for a table type or a table
- Whether the user is an administrator
- Whether the user has been granted various permissions from the Permissions tab
- Whether the user belongs to a particular role

The GetSecurityInfo query can be made using a data lookup or a function.

System tables

Several system tables are available to query user, role, and security information using an Axiom query or GetData functions. The following system tables can be queried:

- Axiom.Principals: Query user information such as login name, database ID, first and last name, email address, and whether the user is an administrator.
- Axiom.Roles: Query role information such as the role name, database ID, and description.
- Axiom.Permissions: Query security permission information such as the permission name, description, and code (for use in GetSecurityInfo).

The system tables can be used in conjunction with functions such as GetSecurityInfo. As noted above, you could query the Axiom.Permissions table to bring in the code for each permission, and then use GetSecurityInfo to determine whether a particular user has the permission.

Permission reports

Axiom Software provides built-in reporting capabilities for file group permissions and table permissions. Using this feature creates a report that shows the effective permission for each user for a particular file group, or for all tables. For more information, see Creating a permission report.

Creating a permission report

You can create a report that details the effective security permissions for each user, for a particular file group or for all tables. This report may be useful for auditing purposes and for reviewing permissions to make sure they are set as intended.

The report is created as an Excel file. Once it is created, you can print it, or save it locally or within the Axiom file system as needed.

Only administrators and users with the Administer Security permission can create a permission report.

File group permission report

The file group permission report is created on a per file group basis. When you create the report, you specify which file group you want to report on.

Each user defined in the system has at least one row in the report:

- If the user is an administrator, then the user has one row with a notation of: (Admin-Full Access).
- If the user has no access to the file group, then the user has one row with a notation of: (No Access).
- If the user has access to all plan files in the file group via a single permission, then the user has one row with a notation of: All Plan Files.

• In all other cases, the user has multiple rows in the report—one row for each individual plan file that they have access to. Each row details the user's permissions to that particular plan code, including the access level, calc method permissions, ability to save data, etc.

For example, if a non-admin user with access to the file group has permission to 3 plan files, then there will be 3 rows in the report for that user, one for each plan file.

The permissions displayed in the report are the full effective permissions of the user, taking into account all factors such as admin status, role inheritance, multiple file group permission sets, and subsystem restrictions.

NOTE: Permissions granted by process or workflow ownership are not reflected in this report. Users may be temporarily "elevated" to read/write and save data status when they are the assigned owner of an active process task for a particular plan file.

To create a file group permission report:

 On the Axiom tab, in the Administration group, click Manage > Security > File Group Permission Report.

NOTE: If you are using an Axiom packaged product, you can access this feature from the **Admin** tab. In the **System Management** group, click **Security** > **File Group Permission Report**.

2. In the **Permission Report** dialog, select the file group for which you want to create the report, and then click **OK**.

The report opens as an Excel spreadsheet file. The file group it was generated for and the current date/time are noted at the top of the report. Excel's auto-filtering is automatically applied to the columns to make it easier to sort and filter the data.

Table permission report

The table permission report details user permissions per table. All tables are included in the report; it is not possible to filter by a particular table or table type.

Each user defined in the system has at least one row in the report:

- If the user has full access to all tables, then the user has one row with a notation of: (Full access to all tables).
- If the user has no access to any tables, then the user has one row with a notation of: (No access to any tables).

NOTE: It would be a rare situation for a user to have no access to any tables, because by default all users are granted access to document reference tables using the Everyone role.

• In all other cases, the user has multiple rows in the report—one row for each table that they have access to. Each row details the user's read and write permissions to that particular table. If a table is not listed, then the user does not have access to that table.

For example, if a user has access to 5 tables, then there will be 5 rows in the report for that user, one for each table.

The permissions displayed in the report are the full effective permissions of the user, taking into account all factors such as admin status, role inheritance, table type inheritance, and subsystem restrictions.

To create a table permission report:

 On the Axiom tab, in the Administration group, click Manage > Security > Table Permission Report.

NOTE: If you are using an Axiom packaged product, you can access this feature from the **Admin** tab. In the **System Management** group, click **Security > Table Permission Report**.

The report opens as an Excel spreadsheet file. The current date/time are noted at the top of the report. Excel's auto-filtering is automatically applied to the columns to make it easier to sort and filter the data.

Bulk edit of security

You can manage users, roles, and subsystems in bulk by using the **Open Security in Spreadsheet** feature. You can edit, add, and delete multiple users, roles, and subsystems simultaneously within a spreadsheet interface.

Only users with access to Security can use this feature. The spreadsheet will be limited as appropriate depending on the user's security rights (for example, subsystem administrators will not see role or subsystem settings, etc.).

The following items *cannot* be edited in the spreadsheet interface; you must use the Security Management dialog for these items:

- File and folder access to any Axiom library (settings defined in the Files tab)
- Startup documents (settings defined in the **Startup** tab)

NOTE: Open Security in Spreadsheet is a system-controlled environment that is intended for one-time edits to security. If you need to automate the process of ongoing security updates (such as based on imported data or on calculations performed in a spreadsheet), then you may be able to customize a Save Type 4 report to meet your needs. See Managing users in Axiom Security using Save Type 4.

Opening security in a spreadsheet

To manage security in a spreadsheet:

1. On the Axiom tab, in the Administration group, click Security > Open in Spreadsheet.

The Open Security in Spreadsheet dialog opens.

NOTE: If you are using an Axiom packaged product, you can access this feature from the **Admin** tab. In the **System Management** group, click **Security** > **Open in Spreadsheet**.

- 2. At the top of the dialog, specify how you want users and roles presented in the spreadsheet:
 - Horizontally (default): Users, roles, and subsystems are displayed horizontally across columns. The security settings are displayed in rows.
 - Vertically: Users, roles, and subsystems are displayed vertically down rows. The security settings are displayed in columns.
- 3. Optional. If you want to limit the security settings that display in the spreadsheet, modify the check boxes in the **Select items to include** section.
 - For example, you might only want to work with a particular file group or table type. General user and role properties (such as name, email, etc.) are always included in the spreadsheet.
 - Clear the check boxes for any items that you do not want to display in the spreadsheet. You can select or clear items by major category (File Groups, Tables, etc.), or you can expand the major categories to select or clear the individual items (such as individual file groups).
- 4. Optional. If you want to filter the users that display in the spreadsheet, select the **Filter users** check box. By default, the spreadsheet displays all users, roles, and subsystems for the current system.

If Filter users is checked, you can specify the following options to filter users:

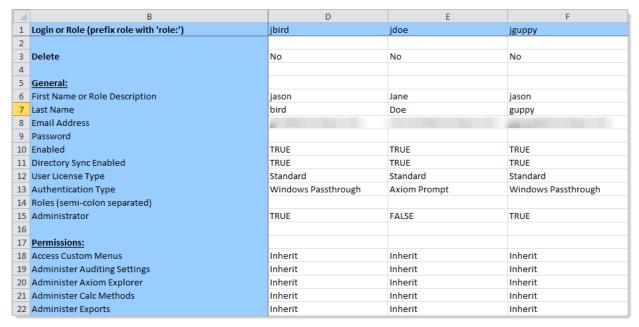
Item	Description
Include users	Select the following options to include those users in the spreadsheet:
who are	Enabled users
	Disabled users
	By default, both options are selected, which means that both enabled and disabled users will be included in the spreadsheet.
	If both options are cleared, then only roles (and subsystems, if applicable) will be included in the spreadsheet.

Item	Description
Include users in these roles	If you want to only view users that belong to specific roles, select the check boxes for those roles. You can also choose to view users who do not belong to any roles. You can use the Select All and Clear All links to select or clear all roles.
	This selection also limits the role records that will be included in the spreadsheet.
Include users from these subsystems	If you want to only view users that belong to specific subsystems, select the check boxes for those subsystems. You can also choose to view users who do not belong to any subsystems. You can use the Select All and Clear All links to select or clear all roles.
	This also limits the subsystem records that will be included in the spreadsheet.
	This option only displays if subsystems are enabled for your system.

Selections from multiple categories will be combined. For example, if you select role Finance and subsystem 5, then the spreadsheet will contain all users that are in *either* the Finance role or subsystem 5 (*not* users who only belong to subsystem 5 and the Finance role).

5. Click OK.

The spreadsheet opens with the selected security options.



Example security spreadsheet (horizontal orientation)

Editing existing records

To edit the settings for a user, role, or subsystem, make changes directly in the spreadsheet. See the following section *Security settings in the spreadsheet interface* for more information on editing settings within the spreadsheet interface.

NOTE: You cannot edit user login names or role and subsystem names within the spreadsheet interface. If the name is changed, it will be saved as a new record, and the existing record will be unchanged.

For subsystem administrators, only users that belong to their assigned subsystems are brought into the spreadsheet. Role settings and subsystem settings are not brought into the spreadsheet.

Adding new records

You can add new users, roles, and subsystems within the spreadsheet interface.

To add a new user, type the new user's login name in an empty cell in row 1 or column A (depending on the spreadsheet orientation), and then complete the desired security settings for that user. Note the following:

- Last name, first name, and email address are required for new users. If these items are blank, a save error will result. Other user properties such as license type and authentication type will use the same default values as when adding a new user in the Security Management dialog.
- You can type a password or leave the password blank. If left blank, the user will be assigned a randomly generated password.

To add a new role, type the role name in an empty cell in row 1 or column A (depending on the spreadsheet orientation), prefixed by "role:". For example, type role: MyRole. If the name is not prefixed by "role:", then it will be interpreted as a user login name. Note the following:

- No other settings are required to save a role.
- To assign users to the new role within the spreadsheet interface, you must add the role name to each individual user. There is no option to add users directly to the role record, like you can within the Security Management dialog.

NOTE: Adding subsystems works the same way as adding roles, except the subsystem name must be prefixed by "subsystem:". For example, subsystem: MySubsystem.

When adding new users, roles, or subsystems to the spreadsheet, all settings must be typed (or copied and pasted from other records). Drop-down lists are only available when editing existing records. For more information on the valid inputs for the settings, see the following section *Security settings in the spreadsheet interface*.

Users who are subsystem administrators can only create new users. The new users must be assigned to a subsystem.

Deleting records

You can delete users, roles, and subsystems within the spreadsheet interface. To delete a user or role, set **Delete** to **Yes**.

NOTE: When editing security in a spreadsheet, you can delete a role or a subsystem regardless of whether any users are assigned to it. The users will be updated to remove the assignment.

Users who are subsystem administrators can only delete users.

Saving changes

To save changes made in the spreadsheet:

• On the Axiom tab, in the File Options group, click Save.

A confirmation prompt lists the number of users, roles, and subsystems that you are about to update, create, or delete.

Settings are validated before the save occurs. If errors are found, they are displayed in the **Save Errors** pane. Any errors must be resolved before the save can occur.

After a successful save, you will be prompted to refresh the spreadsheet to bring in the most recent data.

IMPORTANT: If you have changed many filters (plan file filters or table/table type filters), then you may want to run the **Validate Security Filters** utility after saving. For performance reasons, only a small number of filters are validated when saving from spreadsheet. This utility can be run using the **Run QA Diagnostics** command.

Security settings in the spreadsheet interface

The following is a reference for completing or editing security settings via the spreadsheet interface.

NOTES:

- If an item is not explicitly discussed here, its input is the same as in the Security Management dialog. This section only discusses items that are completed differently than in the Security Management dialog.
- Most check boxes in the Security Management dialog correspond to TRUE (checked) and FALSE (unchecked) in the spreadsheet interface. Any deviations are noted in the following table.

For more information on the purpose of each security setting, see Configuring Security Settings.

Item	Description				
Login, role, or	The user's login name, the role's name, or the subsystem's name.				
subsystem	Role names must be prefixed by role:. Subsystem names must be prefixed by subsystem:. For example, to create a role named Finance, type role: Finance.				
	If users have been imported from Active Directory, those user names are prefixed with the Active Directory domain. For example: Corporate\JDoe.				
	NOTE: You cannot rename existing records using the spreadsheet interface. If a name is changed, it is interpreted as a new record.				
Delete	Select Yes if you want to delete the record. Otherwise, leave the default of No .				
General	This section works the same way as the Security Management dialog, with the following exceptions:				
	Role assignments: For users, you can view and edit the list of roles that the user is assigned to. Each role name is separated by a semicolon. (The same thing applies to subsystem assignments if subsystems are enabled.) Here assignments: For roles, you cannot view as edit the list of assigned.				
	 User assignments: For roles, you cannot view or edit the list of assigned users in this interface. If you want to view all users assigned to a role or edit this list from the role perspective, then you must use the Security Management dialog. 				
	NOTE: The password display is always blank. You can change a user's password by entering a new password. When you save and then refresh the spreadsheet, the password field will return to blank.				
Permissions	For users, specify one of the following:				
	 Inherit: The user will inherit the permission from any role assignments. 				
	 True: The user is explicitly granted this permission; role inheritance is ignored. 				
	 False: The user is explicitly denied this permission; role inheritance is ignored. 				
	For roles and subsystems, specify either True or False.				

Item	Description
File Groups	This section works the same way as the Security Management dialog, with the following exceptions:
	 FGName [calc method permission]: This item combines the Allow Calc Method Insert and Allow Calc Method Change options from the Security Management dialog. Valid entries are Insert, Change, or Insert/Change.
	 FGName [create new records]: This item is listed for all file groups, but only applies to on-demand file groups. A save error will result if this item is set to TRUE for a standard file group.
	 If a user has multiple permission sets, only the first set can be edited within the spreadsheet interface.
Tables and Table Types	These sections work the same way as the Security Management dialog. All table types are listed first, followed by all individual tables.

Security Integration

Axiom Software can integrate with your organization's existing network security. You can:

- Enable Windows Authentication for user authentication against your Windows domain, including the option to import users from Active Directory.
- Enable LDAP Authentication for user authentication against your LDAP server.
- Enable SAML Authentication for user authentication against a SAML identity provider.
- Enable OpenID Authentication for user authentication against an OpenID provider.

NOTE: This guide discusses how to set up and use security integration features once they have been enabled for your system. For information on enabling the associated system configuration settings, see the *System Administration Guide*.

Using Windows Authentication

You can enable Windows Authentication for a system, to authenticate users based on their Windows domain credentials.

Windows Authentication behavior

When the Axiom Software login screen displays, users must enter their Windows user name, domain, and password. If the domain is an allowed domain and the Windows user name matches a user name in Axiom Software, then the credentials are passed to Windows for authentication into Axiom Software.

If the Windows Authentication configuration for Axiom Software only allows one domain, then that domain is assumed for authentication and users do not need to specify it when logging in. If multiple domains are allowed, then the domain must be specified in one of the following ways:

- The user must include the domain with their user name, such as: DomainName\UserName.
- The user must specify the appropriate domain using the Domain selection list on the login screen.
 This is an optional setting that can be enabled for your installation. For more information, see
 Domain selection list.

Users must enter their credentials each time they log in, unless they select **Remember me** to store their credentials for future use. For more information, see Remember me.

Setting up Windows Authentication

The following summarizes the setup process for Windows Authentication.

1. Windows Authentication must be enabled for the system.

For on-premise systems, Windows Authentication can be enabled during the Axiom Application Server installation. If it was not enabled during the installation, you can configure it later using either of the following options:

- Use the **Configure Authentication Methods** page of the Axiom Software Manager. For more information, see the *Security Guide*.
- Use a Save Type 4 report to modify the applicable system configuration settings (WindowsAuthEnabled and WindowsAuthAllowedDomains).

When you enable Windows Authentication, you must specify the valid domains for authentication. You can specify multiple domains, separated by commas. You can also choose to enable Active Directory Synchronization if you want to import and synchronize users from Active Directory (for more information, see Synchronizing users with Active Directory).

For cloud systems, Kaufman Hall Software Support will enable Windows Authentication for you as part of the system setup, if that is your chosen authentication method.

- 2. In security, Axiom Software users must be set up as follows to support Windows Authentication:
 - The user's Axiom Software login name must match their Windows login name.
 - The user's **Authentication** method must be set to **Windows User**. This is the default setting for new users if Windows Authentication is enabled for your installation.

If users are imported from Active Directory, then they will automatically be created with the appropriate login name and authentication type.

- 3. Cloud systems have the following additional requirements:
 - Installation of the Cloud Integration Service is required to enable the cloud system to communicate with your local Windows domain, to validate user credentials. For information on installing the Cloud Integration Service, see the *Cloud Service Technical Guide* and contact Kaufman Hall Software Support as needed.
 - A remote data connection must be created in Scheduler, with the option Use for authentication service enabled. For more information, see the System Administration Guide.

All users who are assigned to the Windows Authentication method will be authenticated based on their Windows credentials. This is the only way that these users can log in—they cannot log in using an internal Axiom Software password.

If you are an administrator and you need to test the security settings of a Windows Authentication user, you can use the **Log in as selected user** feature to log in to Axiom Software as that user. For more information, see Testing user security.

Synchronizing users with Active Directory

You can import users from Active Directory, to automatically create users within Axiom Software and assign them to the appropriate roles. Subsequent imports can be used to create new users and synchronize previously imported users.

Setting up Active Directory synchronization

Active Directory synchronization has the following requirements and limitations:

- Active Directory synchronization can only be used in conjunction with Windows Authentication. For more information, see Using Windows Authentication.
- Users are imported and synchronized by use of a Scheduler task. Your Axiom Software installation
 must have a Scheduler server installed and running, and you must create one or more Active
 Directory Import tasks.
- You can import from multiple domains into a single Axiom Software system. Each source domain must be set up as a separate import task in Scheduler.

To set up Active Directory synchronization:

1. Configure the system to enable Active Directory synchronization.

For on-premise systems, Active Directory synchronization can be enabled during the Axiom Application Server installation. If it was not enabled during the installation, you can configure it later using either of the following options:

- Use the **Configure Authentication Methods** page of the Axiom Software Manager. For more information, see the *Security Guide*.
- Use a Save Type 4 report to modify the applicable system configuration setting (WindowsAuthUserSyncEnabled).

For cloud systems, Kaufman Hall Software Support can enable Active Directory synchronization for you as part of the system setup.

2. Create a job in Scheduler with an Active Directory Import task.

Each import task can import users from a single Active Directory domain into the current Axiom Software system. The import task specifies the Active Directory domain and groups to import, role mappings, and notification settings.

If you need to import from multiple Active Directory domains, then you must create an import task for each domain.

3. Schedule the job to run periodically as needed for your environment.

Configure a scheduling rule for the job so that it runs nightly, weekly, or whatever frequency is appropriate for your organization.

For more information on creating and scheduling the import job in Scheduler, see the *System Administration Guide*.

Synchronizing with multiple Axiom Software systems

Active Directory synchronization is enabled and configured separately for each Axiom Software system in your environment. If you have multiple Axiom Software installations, then you can choose whether or not to enable Active Directory synchronization for each one. If Active Directory synchronization is enabled for a system, then you must configure the import separately for that system; there is no way to configure an Active Directory import that will synchronize with multiple Axiom Software systems.

How Active Directory user synchronization works

This topic describes how new users are created and how existing users are updated when an Active Directory Import job runs in Scheduler.

NOTE: The Active Directory domain name is always used to determine matching users for purposes of the Active Directory import. If a user name matches but the domain does not, that user is not considered to be a matching user.

Creating new users via Active Directory import

For each unique user name in the import, Axiom Software looks for a matching user name in Axiom Software Security. If no match is found, then a new user is created. If a match is found, then the user synchronization behavior applies as detailed in the following section.

New users are created with the following user properties:

- Login (from Active Directory)
- Domain (from Active Directory)
- First name (from Active Directory)
- Last name (from Active Directory)
- Email address (from Active Directory)
- License Type (from Scheduler task settings)
- Authentication (set to Windows User)
- Enabled (from Scheduler task settings)
- · Assigned Roles (from Scheduler task settings)
- Directory Sync Enabled (assumed as enabled)

NOTE: The imported user's domain does not display in the Security dialog, but it is stored in the database and can be reported upon by use of an Axiom query to the Axiom. Principals table. The relevant domain also displays before each user name when using Open Security in Spreadsheet. The domain is stored in case of a situation where two users with the same user name are imported from different domains.

Synchronizing users via Active Directory import

If a user name in the Active Directory import matches an existing user name in Axiom Software security, then that user will be updated ONLY if the **Directory Sync Enabled** check box remains selected for the matching user. Matching users are is updated as follows:

- **User Properties**: If the first name, last name, or email address has changed in Active Directory, it is updated in Axiom Software.
- **License Type**: If the assigned license type for the Active Directory group has changed, then the license type is updated in Axiom Software.
- Role Assignments: The user's role assignments are updated as follows:
 - If a role mapping has been added for the Active Directory group, the user is assigned to that role.
 - If a role mapping has been removed from the Active Directory group, the user is not removed from the role. If the user should no longer belong to the role, it must be removed manually.
 - If the user no longer belongs to the Active Directory group, and that group's role mappings still exist, then the user is removed from those mapped roles (unless the user belongs to another Active Directory group in the import that is mapped to the same roles).
- **Disabled Users**: If the user is disabled in Active Directory, then the user is disabled in Axiom Software. If the user is disabled in Axiom Software but enabled in Active Directory, then the user will either be re-enabled or left as disabled depending on whether **Never Enable Users** is checked in the Scheduler task settings.

If the **Directory Sync Enabled** check box is cleared for the matching user, then that user will be ignored by the Active Directory synchronization process and left as is.

If the **Directory Sync Enabled** check box is selected for a user and that user does NOT match a user name in the Active Directory import, then the user is disabled. If you still need the user account, you can reenable the user and clear the Directory Sync Enabled check box so that the user will be ignored by future imports.

Editing imported users

Once an imported user has been created in Axiom Software, you can edit the user's permissions in Security as appropriate.

You can assign the user to additional roles, and those additional roles will persist through subsequent imports. Note that if you change a mapped role, that assignment will be overwritten the next time the import is run.

You can edit user properties such as name, email, and authentication type, however, these changes will be overwritten the next time the Active Directory import task is run, assuming that **Directory Sync Enabled** is still checked for the user.

If you do not want the user to be synchronized with Active Directory anymore, but you still want the user to be active in Axiom Software, then you should clear the **Directory Sync Enabled** check box for the user. Once this option is disabled, the user will be ignored by the import and will be treated like a manually created user.

Treatment of manually created users

If Active Directory Import is enabled for your system, you can still manually create users and exclude them from the Active Directory import and synchronization process by clearing the **Directory Sync Enabled** check box for the user. The user will be ignored by any future Active Directory Import jobs.

If you manually create a user and leave the **Directory Sync Enabled** check box selected, then the user will be treated as follows the next time an Active Directory Import job is run:

- If the user matches a user name in the Active Directory import, then the user will remain active and will be synchronized with Active Directory.
- If the user does not match a user name in the Active Directory import, then the user will be disabled.

Using LDAP Authentication

You can enable LDAP Authentication for Axiom Software, so that users are authenticated against your LDAP server when launching Axiom Software.

NOTE: LDAP Authentication is not supported for use with Axiom cloud service systems.

LDAP Authentication behavior

When the Axiom Software login screen displays, users must enter their LDAP user name (with or without the suffix) and their LDAP password. If the LDAP user name matches a user name in Axiom Software, then the credentials are passed to LDAP for authentication into Axiom Software.

If the LDAP Authentication configuration for Axiom Software only allows one LDAP suffix, then that suffix will be used for all LDAP authentication. The user can include the suffix or not when logging in, and the Axiom user name can contain the suffix or not. Axiom will automatically append the suffix as needed when sending the credentials to LDAP for authentication. However, if multiple suffixes are allowed, then the suffix must be specified using any of the following approaches:

- The user must specify the appropriate suffix using the **Domain** selection list. This is an optional login setting that can be enabled for your installation. For more information, see **Domain selection** list
- The user must include the suffix as part of their user name when logging in.
- The user names in Axiom Software must include the appropriate suffix for each user.

Users must enter their credentials each time they log in, unless they select **Remember me** to store their credentials for future use. For more information, see Remember me.

Setting up LDAP Authentication

The following summarizes the setup process for LDAP Authentication.

To set up LDAP Authentication:

- 1. LDAP Authentication must be enabled for the system.
 - LDAP Authentication can be enabled during the Axiom Application Server installation. If it was not enabled during the installation, you can configure it later using the **Configure Authentication Methods** page of the Axiom Software Manager. For more information, see the *Security Guide*.
 - When you enable LDAP Authentication, you must specify the connection string to the LDAP server, as well as a user name and password for the connection. You must also specify the allowed suffix(es) for user names.
- 2. In security, Axiom Software users must be set up as follows to support LDAP Authentication:
 - The user's Axiom Software login name must match their LDAP login name.
 - The user name can contain the LDAP suffix or not as desired. Note that the user name must include the suffix if there is a naming conflict with another user who is configured with a different authentication type (or with a different LDAP suffix). For example, if you have an Axiom Prompt user jdoe, and you have an LDAP user jdoe, then the LDAP user must include the suffix on their user name to differentiate the two users.
 - The user's **Authentication** method must be set to **LDAP Prompt**. This is the default setting for new users if your installation is enabled for LDAP Authentication.

All users who are assigned to the LDAP authentication type will be authenticated by your designated LDAP directory. This is the only way that these users can log in—they cannot log in using an internal Axiom Software password.

If you are an administrator and you need to test the security settings of an LDAP authentication user, you can use the **Log in as selected user** feature to log in to Axiom Software as that user. For more information, see Testing user security.

Using SAML Authentication

You can enable SAML Authentication for Axiom Software, so that users are authenticated based on a designated identity provider (such as Shibboleth or Windows Active Directory Federation Services). This option is only supported for use with Axiom Cloud Service systems.

SAML Authentication behavior

SAML Authentication (Security Assertion Markup Language) is a web-based authentication method. Users access Axiom Software by going to the URL for the launch page of their Axiom Software installation. Users must enter their user name and password for their identity provider. Once they are authenticated, if the user name matches a user name in Axiom Software, then the user can access the Axiom Web Client or install / launch the Axiom Excel Client or Windows Client from the web page.

Users assigned to SAML Authentication can only access Axiom Software from the web. The Excel Client and Windows Client cannot subsequently be launched using a shortcut on the user's computer; the user must continue to log into the Axiom Software launch page in order to start the desktop client. When using SAML Authentication, you may want to configure the Axiom Application Server installation so that no shortcuts are placed on user computers during the client installation, since users will not be able to use these shortcuts.

NOTE: SAML Authentication is not supported for use with the iPad app.

Setting up SAML Authentication

The following summarizes the setup process for SAML Authentication.

- 1. SAML Authentication must be enabled for the system.
 - For cloud systems, Kaufman Hall Software Support will enable SAML Authentication for you as part of the system setup, if that is your chosen authentication method.
- 2. Complete any additional configuration requirements to enable SAML Authentication.
 - SAML Authentication requires additional setup steps. These steps differ depending on the designated identity provider. Please contact Kaufman Hall Software Support for assistance in completing the SAML Authentication setup.
- 3. In security, Axiom Software users must be set up as follows to support SAML Authentication:
 - The user's Axiom Software login name must match their login name for the SAML identity provider (with or without an @suffix as appropriate).
 - The user's Authentication method must be set to SAML.

If you are an administrator and you need to test the security settings of a SAML Authentication user, you can use the **Log in as selected user** feature to log in to Axiom Software as that user. For more information, see Testing user security.

Logging in as an Axiom Prompt user when SAML Authentication is enabled

You can also set up **Axiom Prompt** users when SAML Authentication is enabled, such as to allow Kaufman Hall Software Support to access the system without giving them credentials for the SAML identity provider. These users must go a special area of the web site in order to log in:

https://ServerName/Axiom/Home/Login

Where *ServerName* is the name of your Axiom Application Server and Axiom is the name of the virtual directory.

Using OpenID Authentication

You can enable OpenID Authentication for Axiom Software, so that users are authenticated based on a designated OpenID provider (such as Google OpenID Connect).

OpenID Authentication behavior

OpenID Authentication is a web-based authentication method. Users access Axiom Software by going to the URL for the launch page of their Axiom Software installation. Users must enter their user name and password for their OpenID provider. Once they are authenticated, if the user name matches a user name in Axiom Software, then the user can access the Axiom Web Client or install / launch the Axiom Excel Client or Windows Client from the web page.

Users assigned to OpenID Authentication can only access Axiom Software from the web. The Excel Client and Windows Client cannot subsequently be launched using a shortcut on the user's computer; the user must continue to log into the Axiom Software launch page in order to start the desktop client. When using OpenID Authentication, you may want to configure the Axiom Application Server installation so that no shortcuts are placed on user computers during the client installation, since users will not be able to use these shortcuts.

NOTE: OpenID Authentication is not supported for use with the iPad app.

Setting up OpenID Authentication

The following summarizes the setup process for OpenID Authentication.

1. OpenID Authentication must be enabled for the system.

For on-premise systems, OpenID Authentication can be enabled during the Axiom Application Server installation. If you did not enable it during the original installation, you can use Repair to change the installation to enable it. For more information, see the *Installation Guide*.

When you enable OpenID Authentication for Axiom Software, you must specify the Client ID and Client Secret for your OpenID provider.

For cloud systems, Kaufman Hall Software Support will enable OpenID Authentication for you as part of the system setup, if that is your chosen authentication method.

2. Complete any additional configuration requirements to enable OpenID Authentication.

At minimum, you must configure the OpenID provider with the redirect URI to the Axiom Software login page (such as <URLtoAxiom>/openid/login). Other setup steps may be necessary,

depending on your particular configuration. Please contact Kaufman Hall Software Support as needed for assistance in completing the OpenID Authentication setup.

- 3. In security, Axiom Software users must be set up as follows to support OpenID Authentication:
 - The user's Axiom Software login name must match their login name for the OpenID provider, including the @suffix.
 - The user's Authentication method must be set to OpenID.

If you are an administrator and you need to test the security settings of an OpenID Authentication user, you can use the **Log in as selected user** feature to log in to Axiom Software as that user. For more information, see Testing user security.

Logging in as an Axiom Prompt user when OpenID Authentication is enabled

You can also set up **Axiom Prompt** users when OpenID Authentication is enabled, such as to allow Kaufman Hall Software Support to access the system without giving them credentials for the OpenID identity provider. These users must go a special area of the web site in order to log in:

https://ServerName/Axiom/Home/Login

Where *ServerName* is the name of your Axiom Application Server and Axiom is the name of the virtual directory.

Login behavior options

The following options apply to all authentication types except SAML and OpenID Authentication.

Domain selection list

When a user logs in, Axiom Software looks for a matching user name within Axiom security and applies the specified authentication type for that user. For LDAP Authentication and Windows Authentication, if only one allowed domain or suffix is specified, that information can be assumed and the user does not need to include it when logging in. If multiple domains or suffixes are specified, then the user must include that information as part of their user name. For example: <code>DomainName\UserName</code> for Windows Authentication.

Alternatively, you can configure your system so that all users must specify their authentication type / domain when logging into Axiom Software, using the **Domain** selection list. The Domain selection list displays the following:

- Axiom Named User (for Axiom Prompt login)
- Each allowed Windows Authentication domain (if Windows Authentication is enabled for the installation)
- Each allowed LDAP suffix (if LDAP Authentication is enabled for the installation)

When the Domain selection list is enabled, the user must make the appropriate selection in order to log in. For example, a Windows Authentication user must select their Windows domain name. Because it is specified separately, the domain or suffix does not need to be added to the user name, even when there are multiple allowed domains or suffixes.

The following screenshot shows an example of the Domain selection list. In this example, the installation has enabled Windows Authentication with two allowed domains. The two domain names display on the selection list as well as the choice to log in as an Axiom Named User.



The Domain selection list can be enabled or disabled using the

AuthenticationDomainSelectionListRequired system configuration setting. By default this is set to False, which means the Domain selection list only displays if your system contains duplicate user names that require the domain to be specified to differentiate those users. If you set this to True, then the Domain selection list displays at all times.

If the Domain selection list is enabled, and if Windows Authentication is enabled for the installation, then by default the user's current domain will be selected in the list (if that domain is one of the allowed domains). Otherwise, the first option in the list is selected by default. Options are ordered as follows: LDAP suffixes, Windows domains, Axiom Named User.

Remember me

Users can optionally select **Remember me** at the login screen to store their Axiom Software authentication for future use. This information is encrypted and only applies to the current user for the current machine. The next time the user starts Axiom Software on the current machine, they will not be prompted to log in.

Although all Axiom Software clients have a Remember Me check box on the login screen, note that the remembered status is stored separately for access to the Web Client versus the Desktop Client. For example, a user can choose Remember Me when logging into the Excel Client, and then that user will not

be prompted when subsequently accessing either the Excel Client or the Windows Client. However, if the user attempts to access the Web Client, they will be prompted for credentials (and can then choose to be separately remembered for the Web Client).

NOTE: Logging out of a client will clear the remembered status for that client type. Although the Excel Client and Windows Client do not have an explicit log out feature, logging out of the Word or PowerPoint add-in will clear the remembered status for the Desktop Client (but only if you are not also currently logged into another instance of the Desktop Client).

If you do not want users to have access to the Remember Me option, so that they must log in each time, then you can disable the feature by setting the system configuration setting **ShowRememberMe** to **False**. This will hide the option from the various login screens. Keep in mind that if a user has already used the Remember Me option, hiding the setting will not clear the user's stored credentials. The user will continue to be remembered until they log out and cause their credentials to be cleared.



Save Type 4 for Security

Save Type 4 can be used to create users and roles, and modify certain user and role properties, from within a spreadsheet. This allows you to change properties based on queries, calculations, and inputs in a spreadsheet, rather than using the software interface. Additionally, Save Type 4 utilities can be scheduled for processing using Scheduler's Process Document List task.

Managing users in Axiom Security using Save Type 4

Using Save Type 4, you can create or edit Axiom users by using save-to-database within a spreadsheet, rather than using the security administration tools. This may be a more convenient approach if you need to create or edit users as part of an automated process.

NOTE: Although both features allow security edits within a spreadsheet environment, Save Type 4 is intended to be used for a different purpose than Open Security in Spreadsheet. Open Security in Spreadsheet is a system-controlled environment that is intended for one-time edits to security. Save Type 4 is intended to handle custom security management needs, such as automating ongoing security updates based on external sources.

Save Type 4 depends on the placement of save-to-database tags within the sheet. There are three components:

- The primary SaveStructure2DB tag, which defines the locations of the save-to-database control row and control column, and specifies the desired operation.
- Column tags in the save-to-database control row, to specify the columns which hold the user properties.
- Row tags in the save-to-database control column, to flag rows to be saved.

Save-to-database tag summary

Tag Type	Tag Syntax
Primary tag	[SaveStructure2DB; Axiom. Principals; CustomSaveTag=Name]
Row tags	[Save]
Column tags	Any supported user property exposed from Axiom.Principals.

NOTES:

- Save Type 4 must be enabled for the sheet on the file's Control Sheet in order for the save process to occur.
- Only general user properties and table-related security permissions (from the **Tables** tab of security) can be modified using Save Type 4.
- The user performing the save must be an administrator or have the **Administer Security** permission. Subsystem administrators cannot create or edit users using Save Type 4.
- Placing the primary save-to-database tag in the sheet

To define the save-to-database process, place the following tag in any cell in the sheet, within the first 500 rows:

```
[SaveStructure2DB; Axiom. Principals]
```

The row containing SaveStructure2DB becomes the control row, and the column containing SaveStructure2DB becomes the control column.

You can also optionally use the custom save tag parameter. For example:

[SaveStructure2DB; Axiom. Principals; CustomSaveTag=SaveUser]

NOTES:

- The primary SaveStructure2DB tag must be located in the first 500 rows of the sheet.
- The SaveStructure2DB tag can be placed within a formula, as long as the starting bracket and identifying tag are present as a whole within the formula.
- Defining the user properties in the control row

Within the control row for the save-to-database process, specify the columns that define the user properties by placing the reserved names from Axiom. Principals in any column. The column tags can be placed to either the right or the left of the SaveStructure2DB tag.

At minimum, you must include the following properties in the control row to create a new user. All other user properties will use the default value if omitted from the save.

- PrincipalID (set this to 0; the ID will be automatically assigned when saving)
- LoginName
- FirstName
- LastName
- EmailAddress

NOTE: If PrincipalID is set to 0 but the LoginName matches an existing user name, then that existing user will be updated instead of creating a new user. If you intentionally have duplicate user names across different domains then you must also include the Domain to differentiate them.

When updating an existing user, you must include the LoginName and the PrincipalID in the save to identify the user to update (and also the Domain if there may be duplicate user names across different domains). You can modify any of the following user properties:

- LoginName
- FirstName
- LastName
- EmailAddress
- Domain
- Password
- AuthenticationType (Windows User, LDAP Prompt, Axiom Prompt, Shibboleth)
- IsSyncEnabled
- UserLicenseType (Standard, Viewer, AxiomStaff)
- IsEnabled
- IsAdmin
- RoleIDList or RoleNameList (use one or the other; if both are included then RoleIDList will be used)
- Subsystems
- TableType and Table permission columns

For more information on the columns available in Axiom. Principals, see Axiom Software Help (search on **AX2479** in your help system to go to the topic).

The control row must be dedicated to containing only valid column names for the Save Type 4 operation to the target table. Any invalid entries in the control row will cause an error when saving.

NOTES:

- If the Password field is included in the save-to-database control row and it contains any non-blank value, that value will always be saved, even if no change has been made. If you are not making changes to the Password field, then you should not include it in the control row.
- If you include a TableType or Table permission column in the control row but leave it blank in the save, this is interpreted as setting the permission to no access. If instead you want the user to default to no configured permission for the table or table type, then you should either not include the column in the control row, or include it but set the value to NotConfigured.

IMPORTANT: For performance reasons, only a small number of table and table type filters are validated when creating or editing users via Save Type 4. Additionally, any text in table or table type permission columns that does not match the reserved permission values (such as NotConfigured or FullAccess) is interpreted as filter text. Use caution when setting up and using this feature as it can be quite easy to save invalid filters. It is recommended to run the Validate Security Filters utility after saving, to catch any invalid filters. This utility can be run using the Run QA Diagnostics command.

Flagging the rows to be saved

Within the control column for the save-to-database process, mark each row that you want to be saved with a <code>[Save]</code> tag. This is the only valid tag for the security save. Users cannot be deleted using Save Type 4.

If you have defined a custom save tag in the SaveStructure2DB tag, then you must mark the rows with that tag instead of the default tag. For example, if your primary tag is [SaveStructure2DB; Axiom.Principals; CustomSaveTag=MySave] then you would place the tag [MySave] in the rows that you wanted to be saved.

Only rows that are marked with a valid tag are processed; all other rows are ignored, even if there is content in the property columns. If a row contains a valid tag but no content exists in the property columns, a save error will occur.

NOTE: The row tag can be placed within a formula if desired.

Populating the user properties in the spreadsheet

In the property columns, enter the relevant user properties for each Axiom Software user that you want to create or update. Typically this process would be automated by using an Axiom query, either to the Axiom. Principals table to bring in properties for existing users, or to another table stored in the system for purposes of automating user management.

For example, you might have an import utility that imports user data from an external system to a "staging" table in the Axiom Software database. You can then query the user data from the staging table into your Save Type 4 report. The report can contain calculations to determine which users should be created or edited and what their settings should be. You can then run the save-to-database against the Axiom. Principals table to create or edit the users. The entire process could be automated via a Scheduler job so that the import runs first, then the report is processed.

Managing roles in Axiom Security using Save Type 4

Using Save Type 4, you can create or edit Axiom security roles by using save-to-database within a spreadsheet, rather than using the security administration tools. This may be a more convenient approach if you need to create or edit roles as part of an automated process.

NOTE: Although both features allow security edits within a spreadsheet environment, Save Type 4 is intended to be used for a different purpose than Open Security in Spreadsheet. Open Security in Spreadsheet is a system-controlled environment that is intended for one-time edits to security. Save Type 4 is intended to handle custom security management needs, such as automating ongoing security updates based on external sources.

Save Type 4 depends on the placement of save-to-database tags within the sheet. There are three components:

- The primary SaveStructure2DB tag, which defines the locations of the save-to-database control row and control column, and specifies the desired operation.
- Column tags in the save-to-database control row, to specify the columns which hold the role properties.
- Row tags in the save-to-database control column, to flag rows to be saved.

Save-to-database tag summary

Tag Type	Tag Syntax
Primary tag	[SaveStructure2DB; Axiom.Roles; CustomSaveTag=Name]
Row tags	[Save]
Column tags	Any supported property exposed from Axiom.Roles.

NOTES:

- Save Type 4 must be enabled for the sheet on the file's Control Sheet in order for the save process to occur.
- Only general role properties and table-related security permissions (from the **Tables** tab of security) can be modified using Save Type 4.
- The user performing the save must be an administrator or have the **Administer Security** permission. Subsystem administrators cannot create or edit roles using Save Type 4.
- Placing the primary save-to-database tag in the sheet

To define the save-to-database process, place the following tag in any cell in the sheet, within the first 500 rows:

[SaveStructure2DB; Axiom.Roles]

The row containing SaveStructure2DB becomes the control row, and the column containing SaveStructure2DB becomes the control column.

You can also optionally use the custom save tag parameter. For example:

[SaveStructure2DB; Axiom.Roles; CustomSaveTag=SaveRole]

NOTES:

- The primary SaveStructure2DB tag must be located in the first 500 rows of the sheet.
- The SaveStructure2DB tag can be placed within a formula, as long as the starting bracket and identifying tag are present as a whole within the formula.
- Defining the role properties in the control row

Within the control row for the save-to-database process, specify the columns that define the role properties by placing the reserved names from Axiom. Roles in any column. The column tags can be placed to either the right or the left of the SaveStructure2DB tag.

At minimum, you must include the following properties on the control row to create a new role. All other role properties will use the default value if omitted from the save.

- RoleID (set this to 0; the ID will be automatically assigned when saving)
- RoleName

NOTE: If RoleID is set to 0 but the RoleName matches an existing role name, then that existing role will be updated instead of creating a new role.

When updating an existing role, you must include the RoleName and the RoleID in the save to identify the role to update. You can modify any of the following role properties:

- RoleName
- Description
- TableType and Table permission columns
- AssignedSubsystem

For more information on the columns available in Axiom.Roles, see Axiom Software Help (search on **AX2480** in your help system to go to the topic).

The control row must be dedicated to containing only valid column names for the Save Type 4 operation to the target table. Any invalid entries in the control row will cause an error when saving.

NOTE: If you include a TableType or Table permission column in the control row but leave it blank in the save, this is interpreted as setting the permission to no access. If instead you want the role to default to no configured permission for the table or table type, then you should either not include the column in the control row, or include it but set the value to NotConfigured.

IMPORTANT: For performance reasons, only a small number of table and table type filters are validated when creating or editing roles via Save Type 4. Additionally, any text in table or table type permission columns that does not match the reserved permission values (such as NotConfigured or FullAccess) is interpreted as filter text. Use caution when setting up and using this feature as it can be quite easy to save invalid filters. It is recommended to run the Validate Security Filters utility after saving, to catch any invalid filters. This utility can be run using the Run QA Diagnostics command.

Flagging the rows to be saved

Within the control column for the save-to-database process, mark each row that you want to be saved with a [Save] tag. This is the only valid tag for the save. Roles cannot be deleted using Save Type 4.

If you have defined a custom save tag in the SaveStructure2DB tag, then you must mark the rows with that tag instead of the default tag. For example, if your primary tag is [SaveStructure2DB; Axiom.Roles; CustomSaveTag=MySave] then you would place the tag [MySave] in the rows that you wanted to be saved.

Only rows that are marked with a valid tag are processed; all other rows are ignored, even if there is content in the property columns. If a row contains a valid tag but no content exists in the property columns, a save error will occur.

NOTE: The row tag can be placed within a formula if desired.

Populating the role properties in the spreadsheet

In the property columns, enter the relevant role properties for each Axiom Software role that you want to create or update. Typically this process would be automated by using an Axiom query to the Axiom. Roles table to bring in properties for existing roles.

The following example screenshot shows a spreadsheet set up to query existing role properties from Axiom. Roles and then save changes back using Save Type 4. To edit any of the existing roles, you would edit the properties in the spreadsheet and then enter a [save] tag into column B. A new role is also being added in row 13.

	Α	В	С	D	Е	F	G
1							
2		[SaveStructure2DB;Axiom.Roles]	RoleId	RoleName	Description	TableTypeWriteFilter_GL	TableTypeReadFilter_GL
3			RoleID	RoleName	Description	TableTypeWriteFilter_GL	TableTypeReadFilter_GL
4							
5	[aq1]						
6	2		2	WorldWide		UseRead	DEPT.WorldRegion <> 'Corporate'
7	3		3	Corporate		UseRead	DEPT.WorldRegion = 'Corporate'
8	11		11	Viewers			FullAccess
9	12		12	Test		NotConfigured	NotConfigured
10	15		15	Finance		UseRead	FullAccess
11	[stop]						
12							
13		[save]	0	NewRole		UseRead	FullAccess
1.4							

Example save type 4 to Axiom.Roles



Reference

Filter criteria syntax

Several areas of Axiom Software use criteria statements to define a set of data. The syntax for these criteria statement is as follows:

```
Table.Column='Value'
```

- Table is the name of the database table.
- Column is the name of the column in the database table.
- Value is the value in the column.

If the column is String, Date, or DateTime, the value must be placed in single quotation marks as shown above. If the column is Numeric, Integer (all types), Identity, or Boolean, then the quotation marks are omitted.

For example:

- To filter data by regions, the filter criteria statement might be: DEPT.Region='North'. This would limit data to only those departments that are assigned to region North in the Region column.
- To filter data by a single department, the filter criteria statement might be: DEPT. Dept=100. This would limit data to only department 100.

If the table portion of the syntax is omitted, then the table is assumed based on the current context. For example, if the filter is used in an Axiom query, then the primary table for the Axiom query is assumed. If the current context supports *column-only syntax*, and the specified column is a validated key column, then the lookup table is assumed.

Operators

The criteria statement operator can be =, >,<,<>,<=,>=. Greater than or less than statements can only be used with numeric values. For example:

```
ACCT.Acct>1000
```

SQL IN and LIKE syntax can also be used. For example:

```
DEPT.Region IN ('North','South')
```

Compound criteria statements

You can use AND and OR to combine multiple criteria statements. If you are creating long compound criteria statements with multiple ANDs or ORs, you can use parentheses to group statements and eliminate ambiguity. For example:

```
(DEPT.Region='North' OR DEPT.Region='South') AND (ACCT.Acct=100 OR ACCT.Acct=200)
```

NOTES:

- When filtering on multiple values in the same column, you must use OR to join the statements, not AND. In the example above, if the statement was instead
 DEPT.Region='North' AND DEPT.Region='South', that statement would return no data because no single department belongs to both the North and South regions. When you use OR, the statement will return departments that belong to either the North or the South regions.
- Alternatively, you can use the SQL IN syntax to create a compound statement for values in the same column. For example, the statement DEPT.Region='North' OR
 DEPT.Region='South' can also be written as DEPT.Region IN ('North', 'South').
 The Filter Wizard uses IN syntax by default.

Using criteria statements in functions

If you are using a criteria statement in a function, such as GetData, you must place the entire criteria statement in double quotation marks. For example:

```
=GetData("Bud1", "DEPT.Region='North'", "GL1")
```

You can also place the criteria statement in a cell and then use a cell reference in the function. In this case, you do not need to use double quotation marks in the function, unless you are concatenating text and cell reference contents within the function.

Referencing blank values in filters

If a string column contains a blank value, you may want to create a filter that includes or excludes records with these blank values. For SQL Server, the blank value is stored as an empty string. This empty string is indicated with empty quotation marks in the filter. For example: ACCT.CMAssign='' or ACCT.CMAssign<>''

If you use the Filter Wizard to construct the filter, it will automatically use the appropriate syntax.

Referencing values with apostrophes in filters

If a string column contains a value with an apostrophe (such as O'Connor), then that apostrophe must be escaped with another apostrophe so that it is not read as the closing apostrophe for the filter criteria statement. For example:

```
Dept.VP='O'Connor'
```

Invalid. This construction does not work because Axiom Software reads it as Dept.VP='O' and then does not know what to do with the rest of the text.

```
Dept.VP='O''Connor'
```

Valid. The extra apostrophe tells Axiom Software that the apostrophe is part of the string value and is not the closing apostrophe.

NOTE: This syntax must use two apostrophe characters in sequence and *not* a double quotation mark. If you create the filter using the Filter Wizard, Axiom Software will construct the appropriate syntax for you.

Referencing Date or DateTime values in filters

If your locale uses a date format where the first value is the day, filters using that date or date-time value will not process correctly. Instead, the date or date-time value must be in standard format. Standard format is YYYY-MM-DDTHH: MM: SS for DateTime and YYYY-MM-DD for Date.

If you use the Filter Wizard to construct the filter, it will automatically convert the date or date-time value to the appropriate syntax.

Filter variables

Axiom Software provides a set of filter variables that can be used in filter criteria statements throughout the software. Currently, these variables allow filtering based on the current user.

For example, you may have a column on a plan code table such as Dept.Owner, which contains user login names. When setting up plan file filters in security, you want each user to have a filter such as Dept.Owner='UserName'. Without using variables, you would need to set up each user with a user-level filter such as Dept.Owner='RSandstone', etc. With variables, you can instead set up a single role-level filter such as Dept.Owner='{CurrentUser.LoginName}'. For each user in the role, this filter will be resolved using that user's login name.

Filter variables can be used in any place that takes a filter criteria statement. For example, you can use the variables to impact data queries in places such as Sheet Filters, Axiom query filters, Web Report data source filters, Quick Filter, and GetData functions. You can also use the variables in utilities such as Process Plan Files and Create Plan Files.

To use a filter variable, place the variable in curly brackets within the filter criteria statement. All other filter rules still apply—for example, if the variable will resolve to a string value such as a user name, the variable must be placed in single quotation marks. The filter must result in a valid filter criteria statement once the variable is resolved to its current value.

Variable	Resolved Value
{CurrentUser.EmailAddress}	The email address of the current user.
{CurrentUser.FirstName}	The first name of the current user.
{CurrentUser.LastName}	The last name of the current user.
{CurrentUser.LoginName}	The login name of the current user.
{CurrentUser.PrincipalID}	The database ID of the current user.
{CurrentUser.QualifiedLoginName}	The qualified login name of the current user (domain\username). If the user does not have a defined domain, the regular login name is used.

Index

A	I
Active Directory synchronization	imports
how users are synchronized 121	controlling access to 55
overview 120	J
setup 120	(6
C	jobs (Scheduler) controlling access to 55
compound criteria 138	L
D	LDAP Authentication 123
domain selection 127	licensed users 8
Е	locking users out of the system 105 logged in users 106
effective permissions 6	logging in 107
Everyone role 14	login behavior options 127
F	0
file groups controlling access to 28 permission report 109 File Groups tab (Security) 28 Files tab (Security) 55 filter criteria syntax 138 filtering data security filters 28, 45 formula bar, showing or hiding at startup 86 G General tab (Security) 17, 22, 95	Open Security in Spreadsheet 111 OpenID Authentication 126 operators 138 P passwords defining 20 rules 107 Permissions tab (Security) 23 plan files controlling access to 28 R
н	remember me 127
Home	reports
assigning an alternate home page 77	controlling access to 55 ribbon tabs

roles	settings 17
assigning users 11	startup files, assigning 76
bulk edit 111	subsystems 87
Everyone role 14	table filters 45
file group inheritance options 37	testing security settings 107
how rights are inherited 11	users 8
managing 10	Windows Authentication 118
S	Startup tab (Security) 76
3	subsystems 87
SAML Authentication 124	about 87
Save Type 4	defining maximum permissions 96
security 130, 134	enabling 92
security	general properties 95
Active Directory synchronization 120	managing 93
administrator rights 13	roles 90, 102
automating security changes 130, 134	subsystem administrators 89
available licenses 8	users 103
bulk edit 111	system administrator 13
Everyone role 14	T
feature permissions 23	Т
file group access 28	table types
file permissions 55	security filters 45
filters	tables
file groups 28	permission report 109
tables 45	security filters 45
general settings 17	visibility 54
integration 118	Tables tab (Security) 45
LDAP Authentication 123	task panes
locking out users 105	controlling access to 55
logged in users, viewing 106	opening on startup 80
OpenID Authentication 126	U
overview 3	O .
password rules 107	users
plan file process considerations 42	assigning to roles 11
reporting on 108-109	available licenses 8
roles 8	bulk edit 111
SAML Authentication 124	inheriting rights from roles 11
Security Management dialog 4, 17	locking out of the system 105

```
managing 8
viewing logged in users 106

V
variables
filter variables 140
```