MSM Documentation

Overview

Motivation

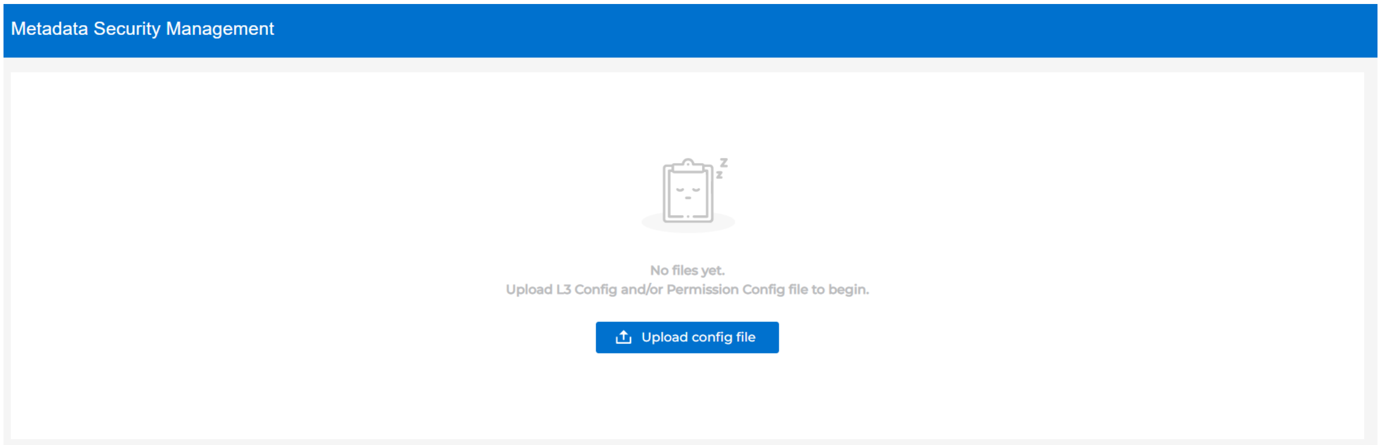
The main purpose of the metadata security management tool is to simplify the process of modifying and validating an existing configuration file, or seamlessly starting a new one from scratch. The purpose for creating the tool is the lack of an existing tool for the niche of metadata security configuration in Reltio. The major benefit of the system is that it provides a nice-looking graphical interface to work with the configuration, that is making the work easier for both the developers and the business user that is going to define the rules to be implemented. With the app, you can check for the permissions of a certain user role at a glance. Furthermore, the tool removes the tedious work of modifying a JSON file directly by replacing it with various filters, checkboxes, and drop-downs to easily work with.

Tech Stack

The metadata security management (MSM) tool is built using the React.js library as a front-end technology. There is no back-end server, which means the tool is working with the configuration in a serverless manner - it lives on the browser and no data is stored on a third-party server.

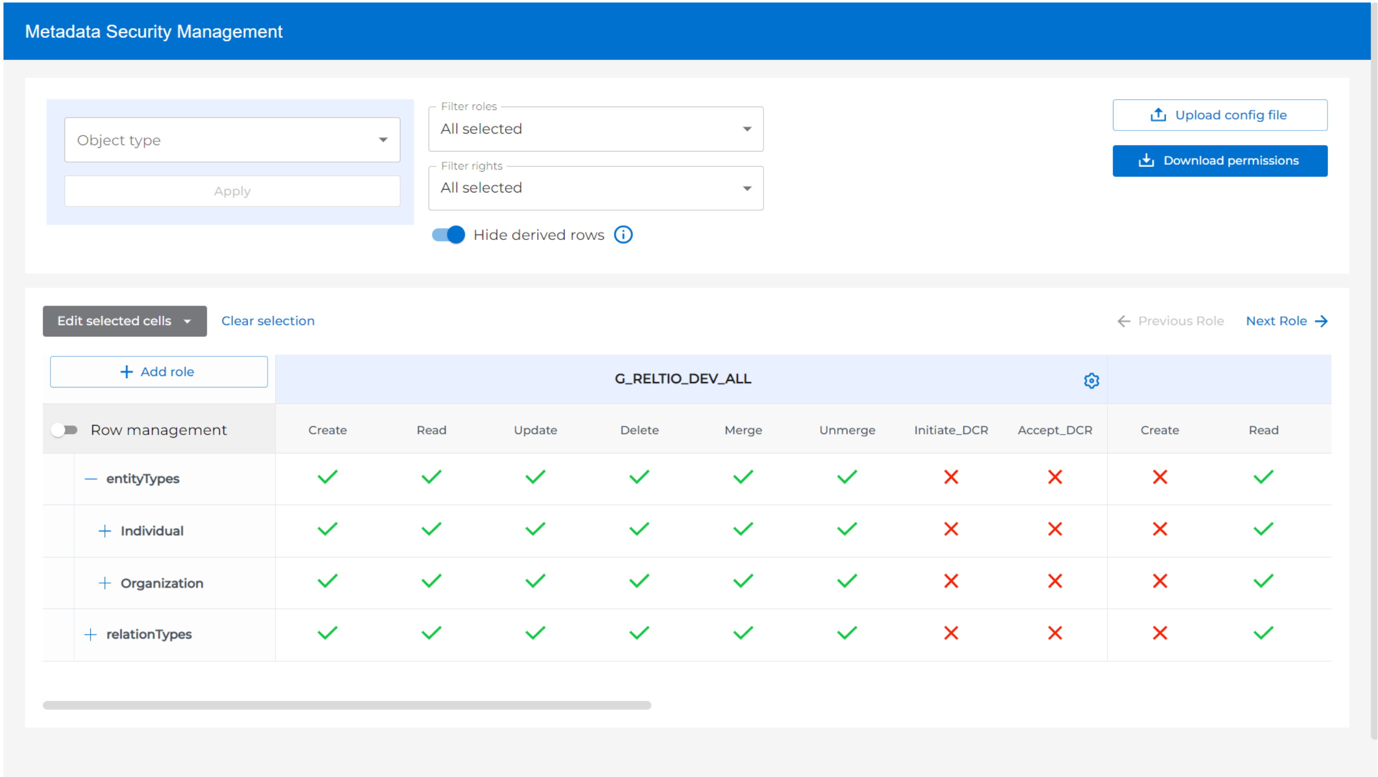
Getting Started

To get started, a user should simply upload an L3 or Metadata security config file. Additionally, if the user is new to the app, there is an option to test it which allows you to quickly get a grasp of how the system works.


Metadata Security Management

No files yet.
Upload L3 Config and/or Permission Config file to begin.

The test the app button will lead you to a page with pre-filled metadata security configuration where you could start playing with the various ways of editing single or multiple permissions as well as navigating through the roles or attributes.


Metadata Security Management

Object type

Filter roles: All selected

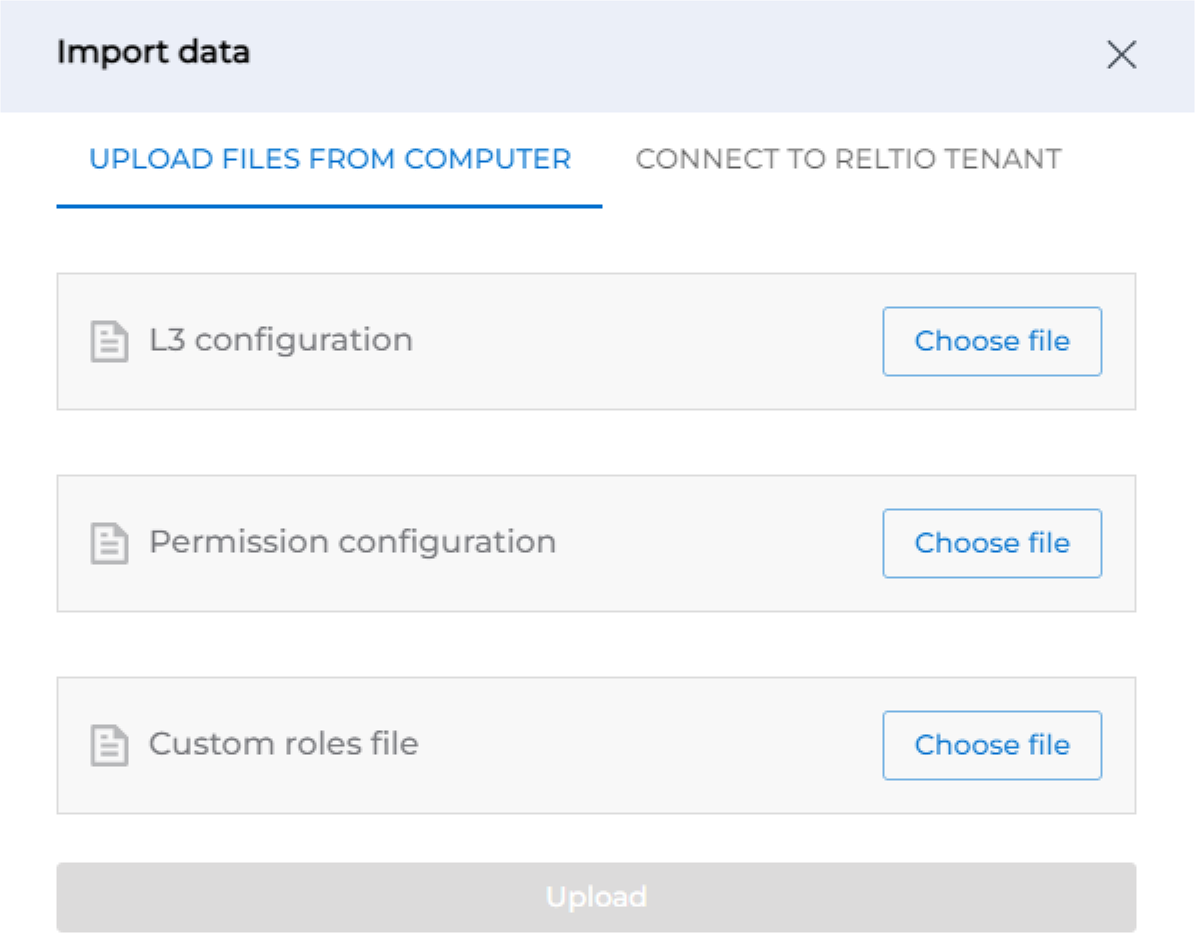
Filter rights: All selected

Hide derived rows

Row management	G_RELTIO_DEV_ALL									
	Create	Read	Update	Delete	Merge	Unmerge	Initiate_DCR	Accept_DCR	Create	Read
— entityTypes	✓	✓	✓	✓	✓	✓	✗	✗	✗	✓
+ Individual	✓	✓	✓	✓	✓	✓	✗	✗	✗	✓
+ Organization	✓	✓	✓	✓	✓	✓	✗	✗	✗	✓
+ relationTypes	✓	✓	✓	✓	✓	✓	✗	✗	✗	✓

Uploading Files

You can upload a total of 3 files into the app: L3, Metadata security config, and custom tenant roles.



Upload When Starting the App

When you first start the app you have to select either an L3 or a Metadata security config file to start the app. The files with the roles are optional. After you select a file to be loaded into the app it will be saved and shown as selected the next time you open the upload menu.

Upload After the App is Started

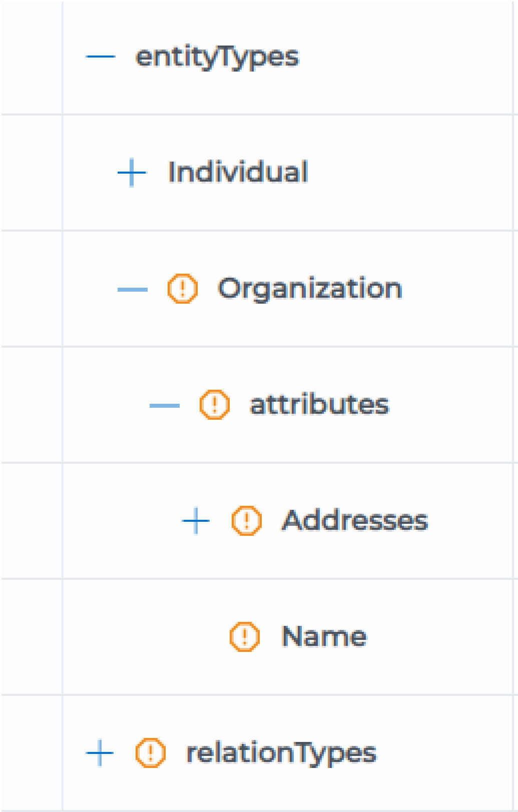
After the app is started and some data is loaded you can select and upload any one of the files. The files selected previously are shown in the menu.

ℹ If you chose “Test the app“ no file will be shown as selected when you open the menu.

⚠ If you decide to change either the L3 or the Metadata Security config files the changes you made to the configuration will be lost.

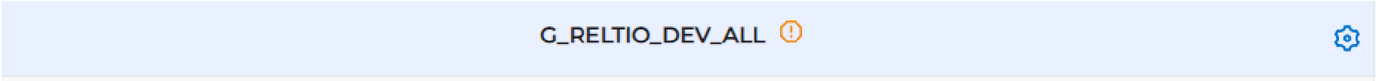
Loading of L3 and Metadata Security Config

If you chose to load both an L3 file and a Metadata Security config file at the same time the app will aggregate the data from them and show it as one configuration. The attributes from the L3 that are not present in the configuration will be loaded with all actions forbidden for all roles. If an attribute is in the Metadata Security config, but not in the L3 file it will be marked with a warning.



Loading of Role Files

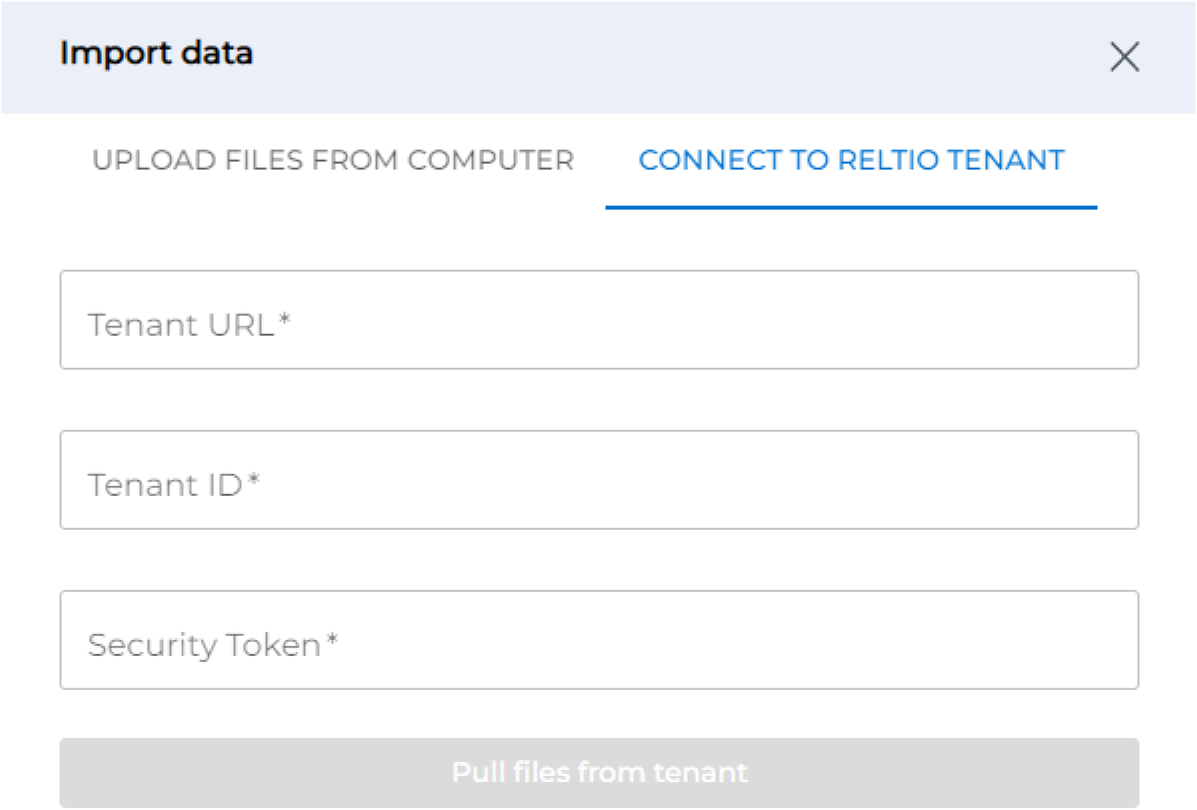
The app accepts two Role files - one with the system roles and one with the custom roles of the tenant. Both of them can be uploaded independently of the other. Once either of the files is loaded into the app the menu for adding a new role for the config will only allow the user to select from the roles found in the files. If a role exists in the config but is not found in one of the role files it will be marked with a warning.



For more information on how to quickly update your permissions with ease, check the section on modifying the configuration in this document.

Connecting to Reltio

You can pull the necessary files directly from your Reltio Tenant by choosing the 'Connect to Reltio Tenant' option from the import menu.



In order to pull the files from the tenant you need to provide the tenant URL (it is important that you DO NOT place any dashes at the begging or the end of the URL), the ID of the tenant, and a security token to access the data from the Reltio API.

Modifying Your Configuration

The system supports multiple approaches for modifying the metadata security configuration. It could be modified by row, by selecting multiple cells and this could be done with a combination of narrowing down the selected roles to be visible on the screen.

By default clicking on a cell will rotate its state through the available options which are as follows:

Icon	Description
✓	Permissions are granted explicitly
✓	Permissions are granted implicitly; Inherited from the parent, i.e. this could be permissions on attributes, inherited from the permissions of the entityType itself
✗	Permissions are not granted - explicitly
✗	Permissions are not granted implicitly; Inherited from the parent element, i.e. attributes permissions could be inherited from the entityType's set permissions

✓ | ✗	In case of implicit permissions, hovering your mouse over will display you two options. Clicking on either of them will grant the corresponding permission (grant or deny) and make the permissions no longer implicit
▽	The filter icon indicates that a filter is being set in the corresponding cell. As of today, the system only provides capabilities to indicate that there is a filter - there are no edit functionalities on filters

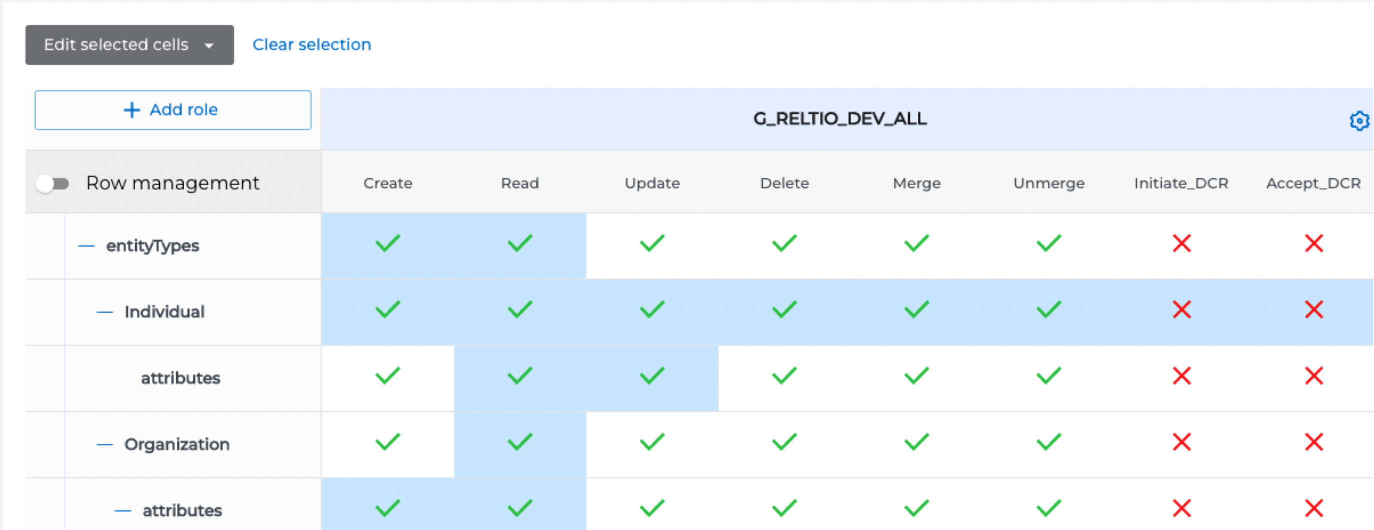
Multi-Selection

The multi-selection capabilities offered by the app are where it really shines in terms of helping you to complete your configuration changes quickly and with ease.

Supported ways of mass selection (which then turns into mass editing) are:

- by row - clicking on the leftmost squares of the table
- by column - clicking on the permission name (i.e. Read, Update, etc.)
- one by one choice - by holding `Ctrl` on Windows or `Cmd` on Mac and clicking on a cell multiple cells are selected at once

> ℹ The approaches above could be combined to achieve mass selection in various ways as seen below.



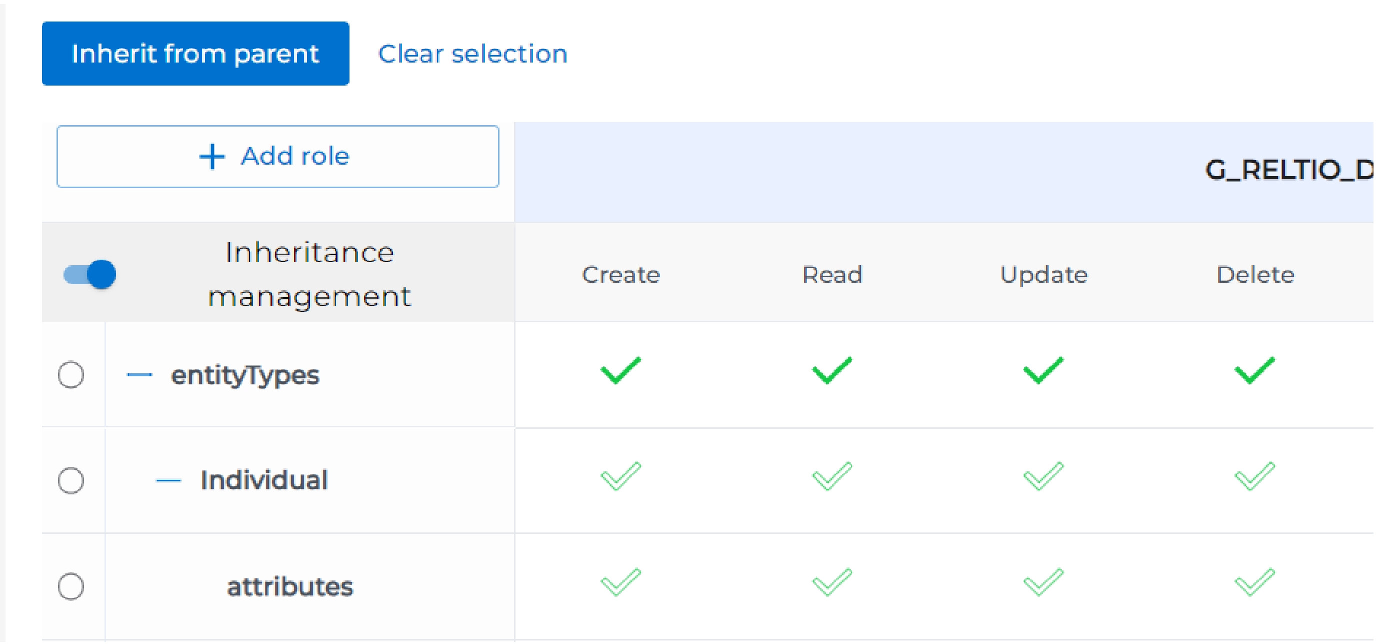
Row management	G_RELTIO_DEV_ALL							
	Create	Read	Update	Delete	Merge	Unmerge	Initiate_DCR	Accept_DCR
— entityTypes	✓	✓	✓	✓	✓	✓	✗	✗
— Individual	✓	✓	✓	✓	✓	✓	✗	✗
attributes	✓	✓	✓	✓	✓	✓	✗	✗
— Organization	✓	✓	✓	✓	✓	✓	✗	✗
— attributes	✓	✓	✓	✓	✓	✓	✗	✗

Once the user is happy with the selection, mass edit options are available from the context menu “Edit selected cells” - seen in the top left corner of the image above. The options to grant permissions to every selected cell or deny permissions to every selected cell are available.

Row Management

The app provides an option to work on your file in inheritance management mode. That is a mode in which we could only work on entire rows, and only mark them as inherited or not. Inherited rows are such that will take all permission settings from their parent.

You could enter into inheritance management mode by pressing the toggle on the left side of the table.



Inherit from parent | Clear selection

+ Add role

● Inheritance management	G_RELTIO_D			
	Create	Read	Update	Delete
○ — entityTypes	✓	✓	✓	✓
○ — Individual	✓	✓	✓	✓
○ attributes	✓	✓	✓	✓

Once you select desired rows, you could click the “Inherit from parent” button to make that row inherited. To change a row’s state from inherited to non-inherited - simply click on a permission (i.e. Read) so that you explicitly set it. This will set explicit permissions for the whole row.

Filtering

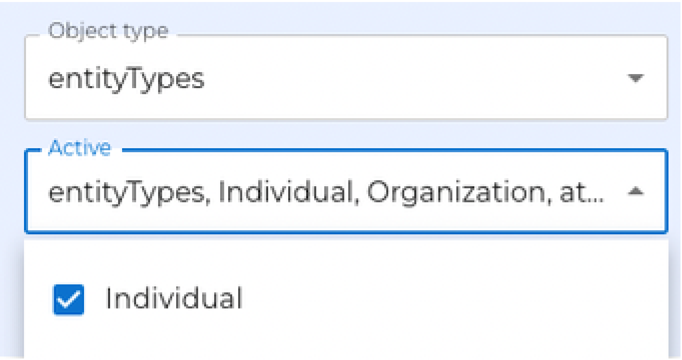
The app provides various filtering capabilities:

Filtering by Object type (Entity, Relation) - which opens a sub-filter that allows filtering by specific attributes and types. Post-clicking on the “Apply” button, the filter will be applied to the visualized table below

All the filters available on the app work together, if combined, i.e. the filtering on roles also works with the object type.

It is noticeable that the app will notify you whether you have filters on or not - this is to avoid any confusion on why the user might only see his configuration partially displayed.

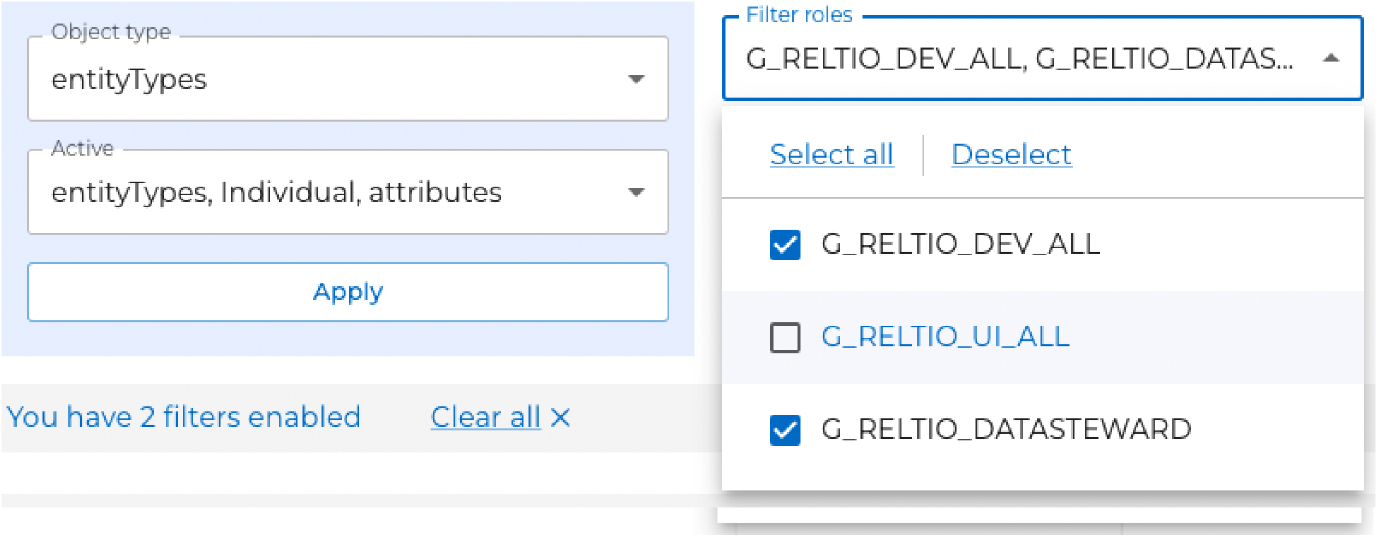
The “ Clear all” button then provides an easy way to get rid of the filters and look at your whole configuration.



Object type: entityTypes

Active: entityTypes, Individual, Organization, at...

☑ Individual



Object type: entityTypes

Active: entityTypes, Individual, attributes

Apply

You have 2 filters enabled | Clear all ✕

Filter roles: G_RELTIO_DEV_ALL, G_RELTIO_DATAS...

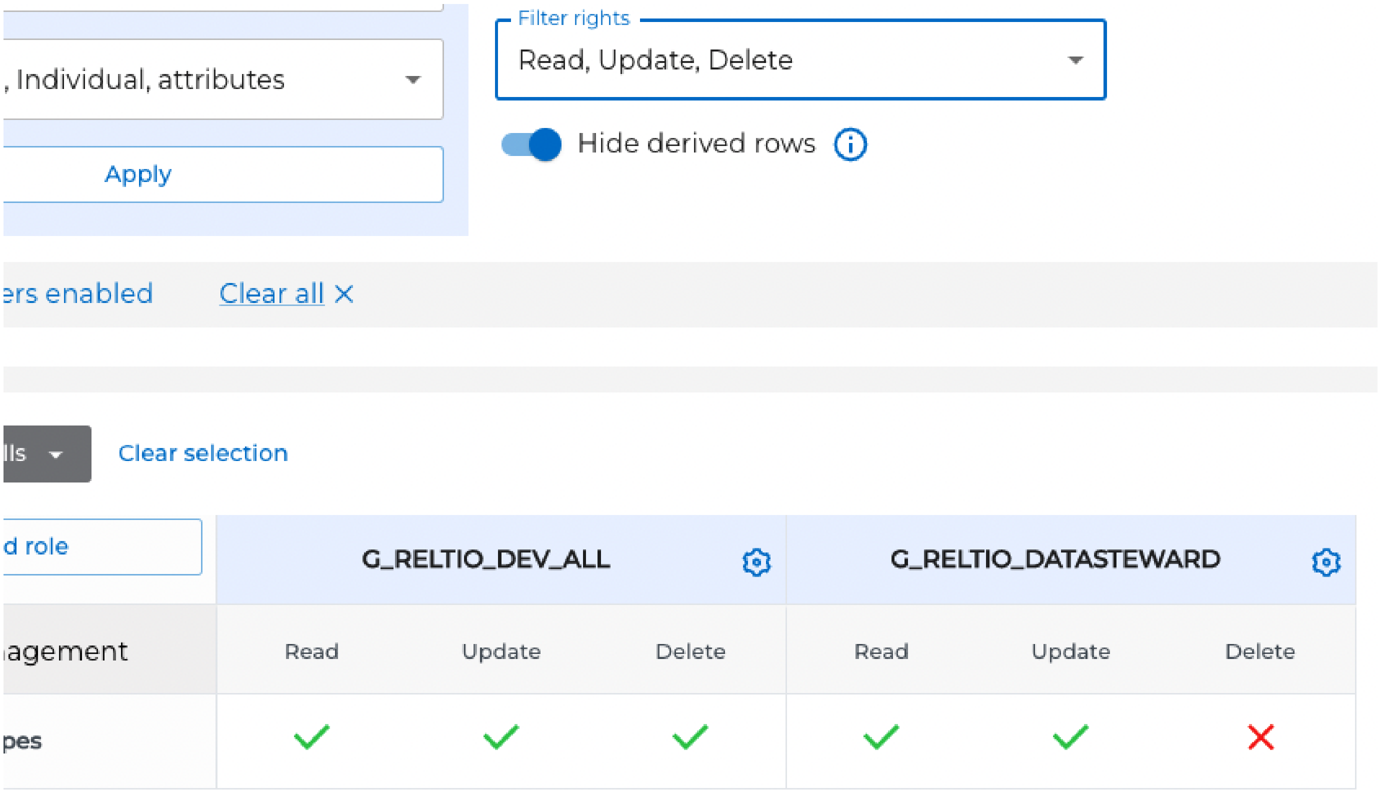
Select all | Deselect

☑ G_RELTIO_DEV_ALL

☐ G_RELTIO_UI_ALL

☑ G_RELTIO_DATASTEWARD

Additionally, there is a filter on the rights themselves - the user can choose to only work with READ, UPDATE, and DELETE permissions for example. By only selecting these permissions, the table size could be drastically reduced which is of great help for visibility. See an example below:



, Individual, attributes

Apply

Filter rights: Read, Update, Delete

Hide derived rows

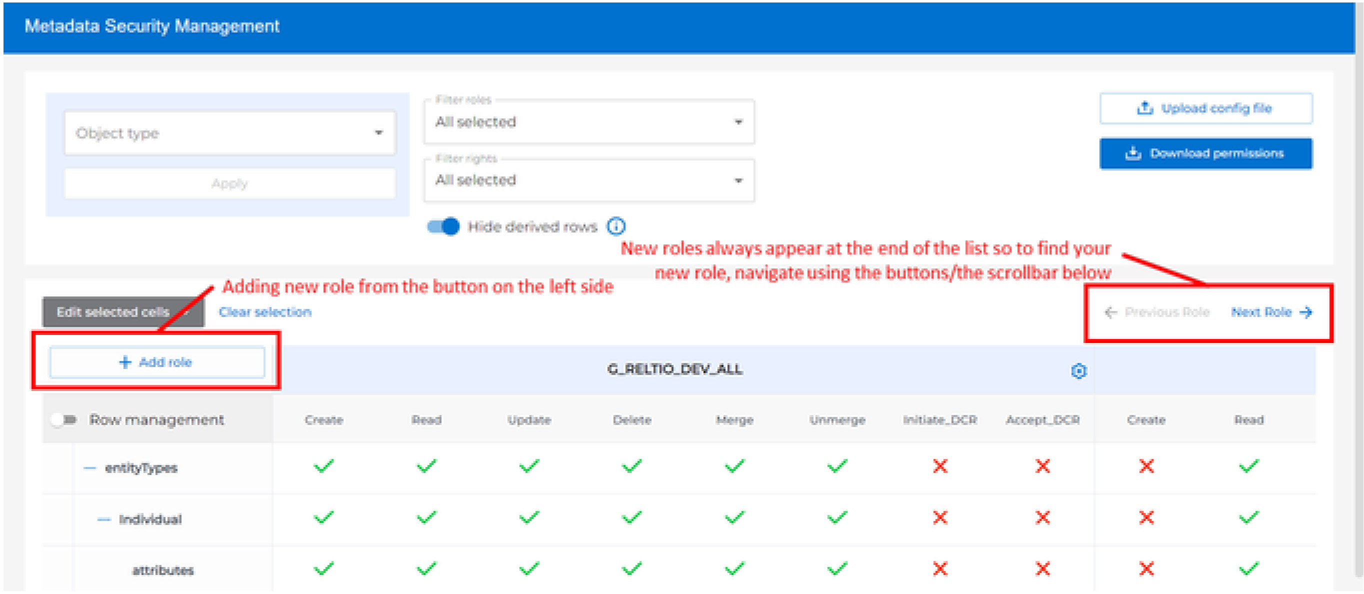
ers enabled   Clear all ✕

lls   Clear selection

d role	G_RELTIO_DEV_ALL			G_RELTIO_DATASTEWARD		
agement	Read	Update	Delete	Read	Update	Delete
pes	✓	✓	✓	✓	✓	✗

Adding New Roles

Adding a new role is achieved through the button on the left side of the screen. A pop-up will appear prompting the user to enter a name for the newly created role. Additionally, there is an option to choose another role (from the list of already existing roles) which will serve as a starting point. This means your new role will copy every permission of the selected role. This allows adding new similar roles with ease.



Metadata Security Management

Object type

Apply

Filter roles: All selected

Filter rights: All selected

Hide derived rows

Upload config file

Download permissions

New roles always appear at the end of the list so to find your new role, navigate using the buttons/the scrollbar below

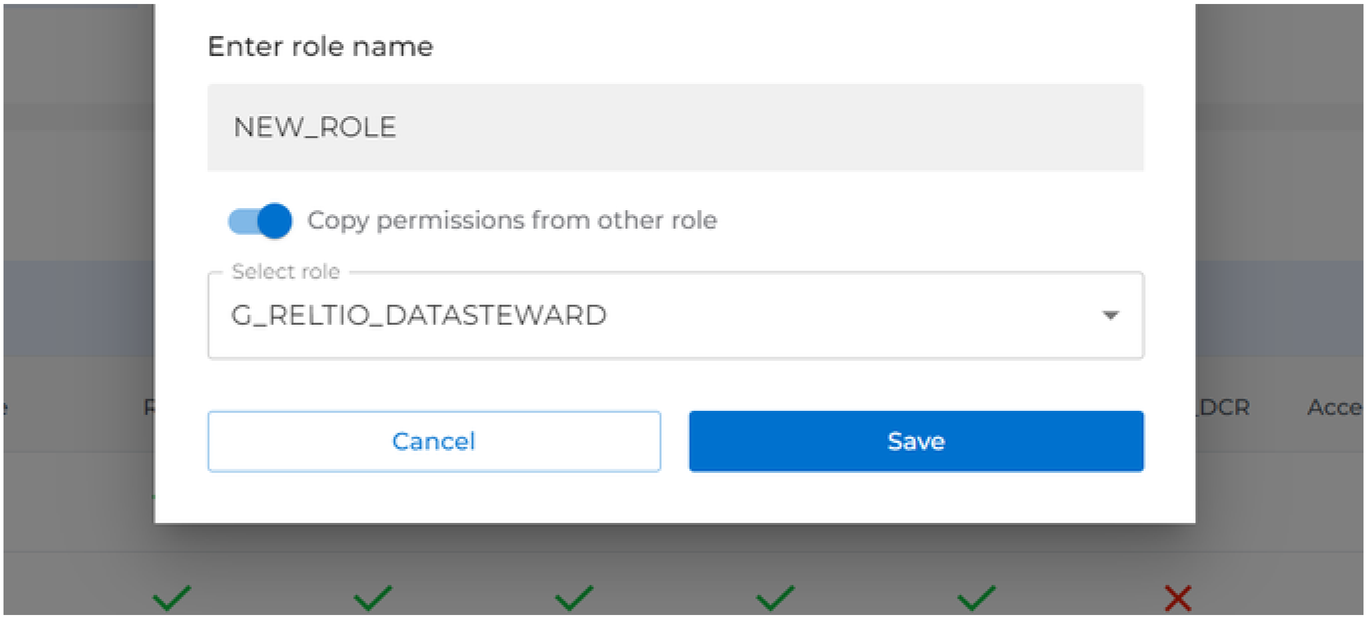
Adding new role from the button on the left side

Edit selected cells   Clear selection

← Previous Role   Next Role →

+ Add role	G_RELTIO_DEV_ALL									
Row management	Create	Read	Update	Delete	Merge	Unmerge	Initiate_DCR	Accept_DCR	Create	Read
— entityTypes	✓	✓	✓	✓	✓	✓	✗	✗	✗	✓
— Individual	✓	✓	✓	✓	✓	✓	✗	✗	✗	✓
attributes	✓	✓	✓	✓	✓	✓	✗	✗	✗	✓

New role



Enter role name

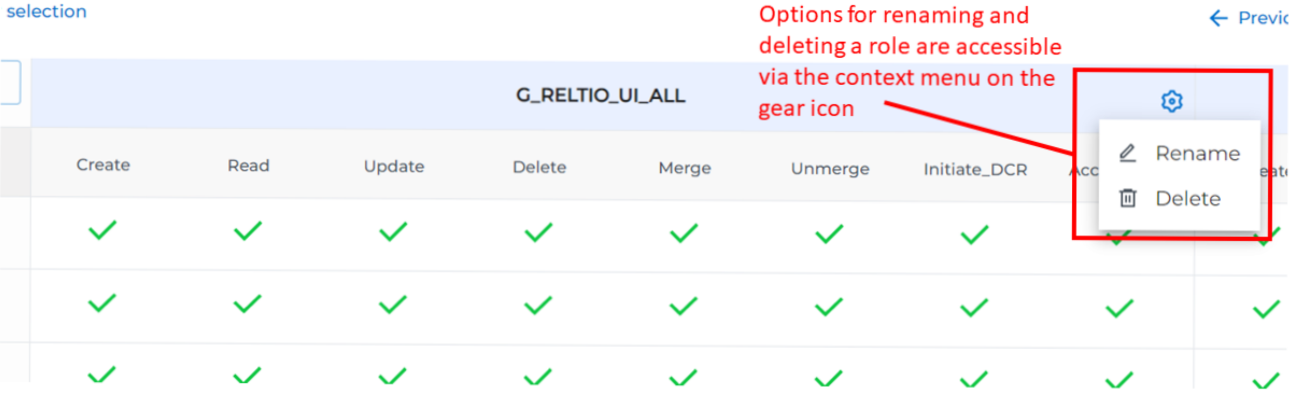
NEW_ROLE

Copy permissions from other role

Select role: G_RELTIO_DATASTEWARD

Renaming / Deleting a Role

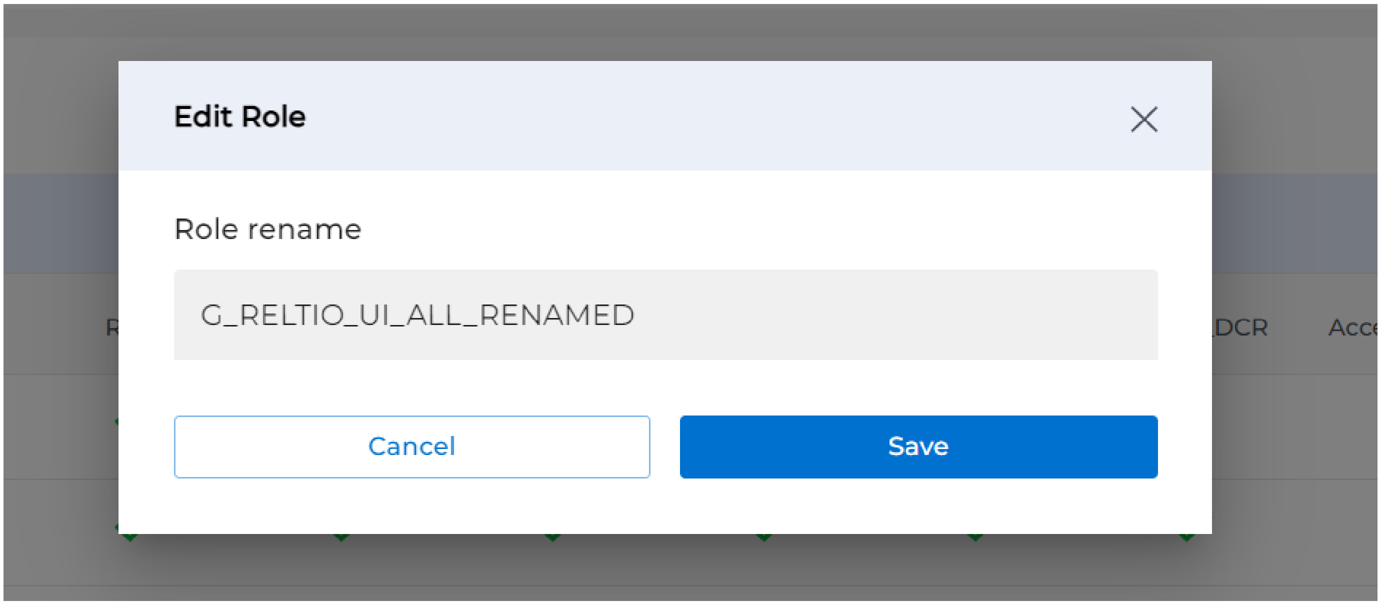
The system also supports operations like renaming or deleting an already existing role. These options are accessible from the context menu next to the role’s name.



Options for renaming and deleting a role are accessible via the context menu on the gear icon

G_RELTIO_UI_ALL

Create	Read	Update	Delete	Merge	Unmerge	Initiate_DCR	Acc	eat
✓	✓	✓	✓	✓	✓	✓	✓	✓
✓	✓	✓	✓	✓	✓	✓	✓	✓
✓	✓	✓	✓	✓	✓	✓	✓	✓



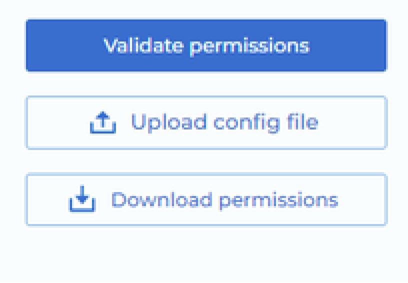
Edit Role

Role rename

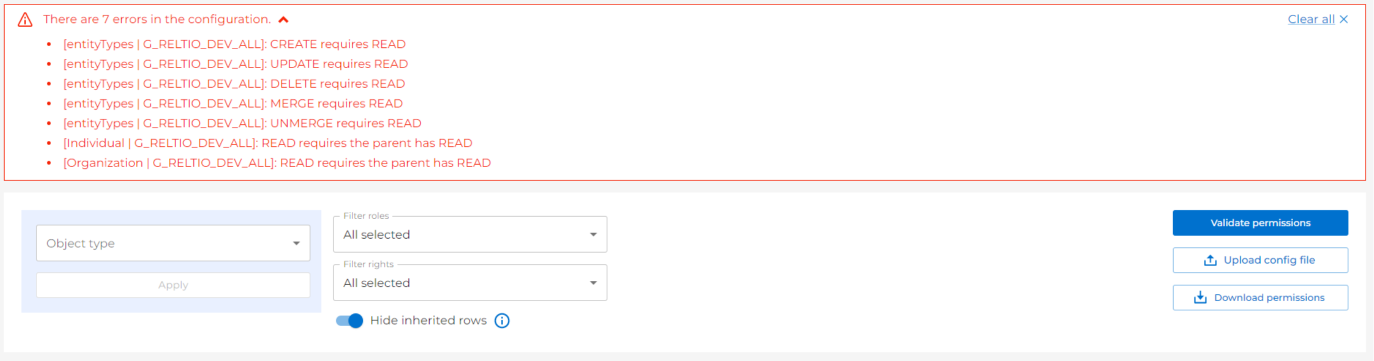
G_RELTIO_UI_ALL_RENAMED

Validating Your Configuration

The configuration can be validated by pressing the “Validate Permissions“ button. If after the validation is run any errors are found they are shown in a list above the filters at the top of the screen.



The error list can be toggled by clicking the message at the top. If you wish to completely remove the errors you can click the “Clear all“ button. The validation is purely informative and will not prevent you from downloading your configuration file.


There are 7 errors in the configuration.

- [entityTypes | G_RELTIO_DEV_ALL]: CREATE requires READ
- [entityTypes | G_RELTIO_DEV_ALL]: UPDATE requires READ
- [entityTypes | G_RELTIO_DEV_ALL]: DELETE requires READ
- [entityTypes | G_RELTIO_DEV_ALL]: MERGE requires READ
- [entityTypes | G_RELTIO_DEV_ALL]: UNMERGE requires READ
- [Individual | G_RELTIO_DEV_ALL]: READ requires the parent has READ
- [Organization | G_RELTIO_DEV_ALL]: READ requires the parent has READ

Filter roles: All selected

Filter rights: All selected

Hide inherited rows

Explaining the errors

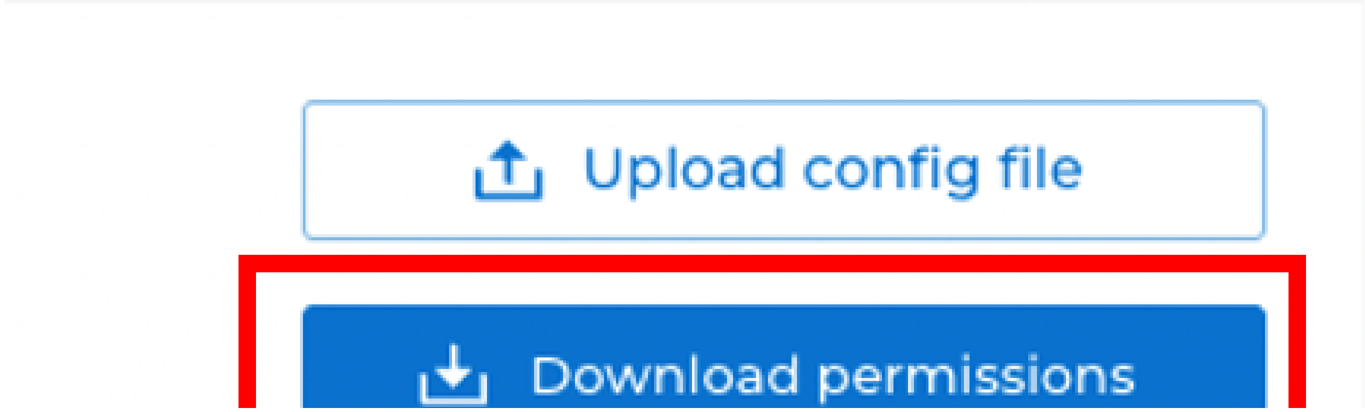
The first part of the error message shows where the error occurred - the attribute is shown first followed by the role. The second part describes the type of error:

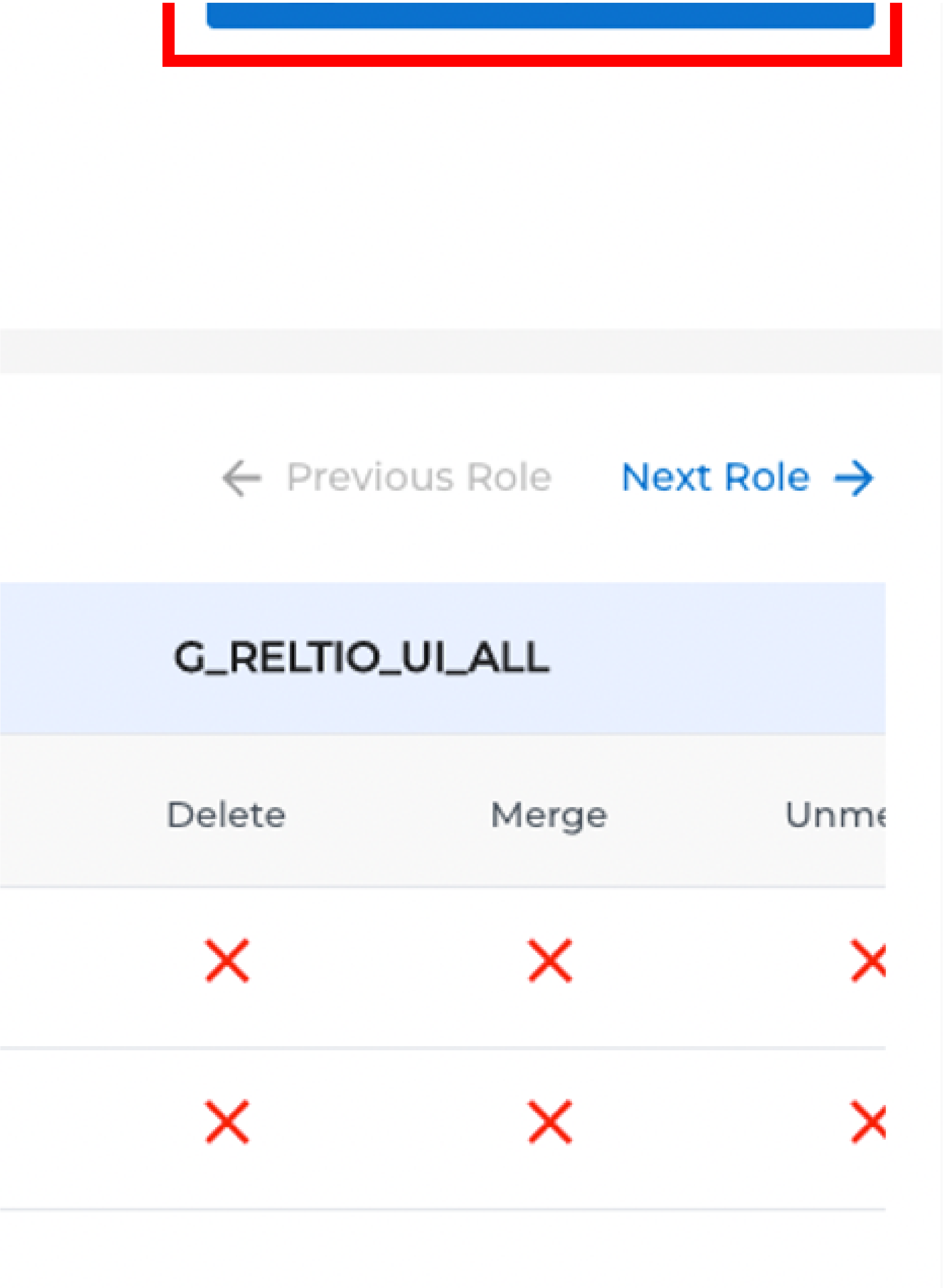
- **{action} requires the parent has {action}** - this error message appears when the direct parent of an object forbids an action, that is allowed in the object. For example, if you give permission to Create an *entitiyType/Individual/firstName*, but not to *entityType/Individual*. To fix this error either remove the action from the permissions of the child object or add it to the permissions of the parent.
- **{action} requires {required actions}** - some actions require other permissions to be given to function properly (for example the Create action required both the Read and Update actions to be allowed). This error message signals that there is an action that is missing its prerequisites and will not function properly.

In both of the cases described above if a configuration contains such errors, it will still be accepted by Reltio without throwing an error or a warning but will lead to unexpected behavior. The actions will throw an error saying they are missing permissions even though they have been given.

Exporting Your Configuration

Feel like you are done with your changes? You could easily export your configuration and proceed by uploading it to your Reltio tenant. To do so find your way to the “Download permissions” button on the right side of the screen.





G_RELTIO_UI_ALL

Delete	Merge	Unme
✗	✗	✗
✗	✗	✗

With a click of the button, you will be prompted to choose a local directory and a file name to store your ready-to-use configuration. The file is exported in JSON format which makes it easy for deployment to your tenant.

Limitations and Known Issues

Filters

As of now, the MSM app does not support editing on filters within the Metadata security configuration. In case of a filter being present, the system only indicates that for its existence via the filter icon - as seen in the “Modifying Your Configuration” section.

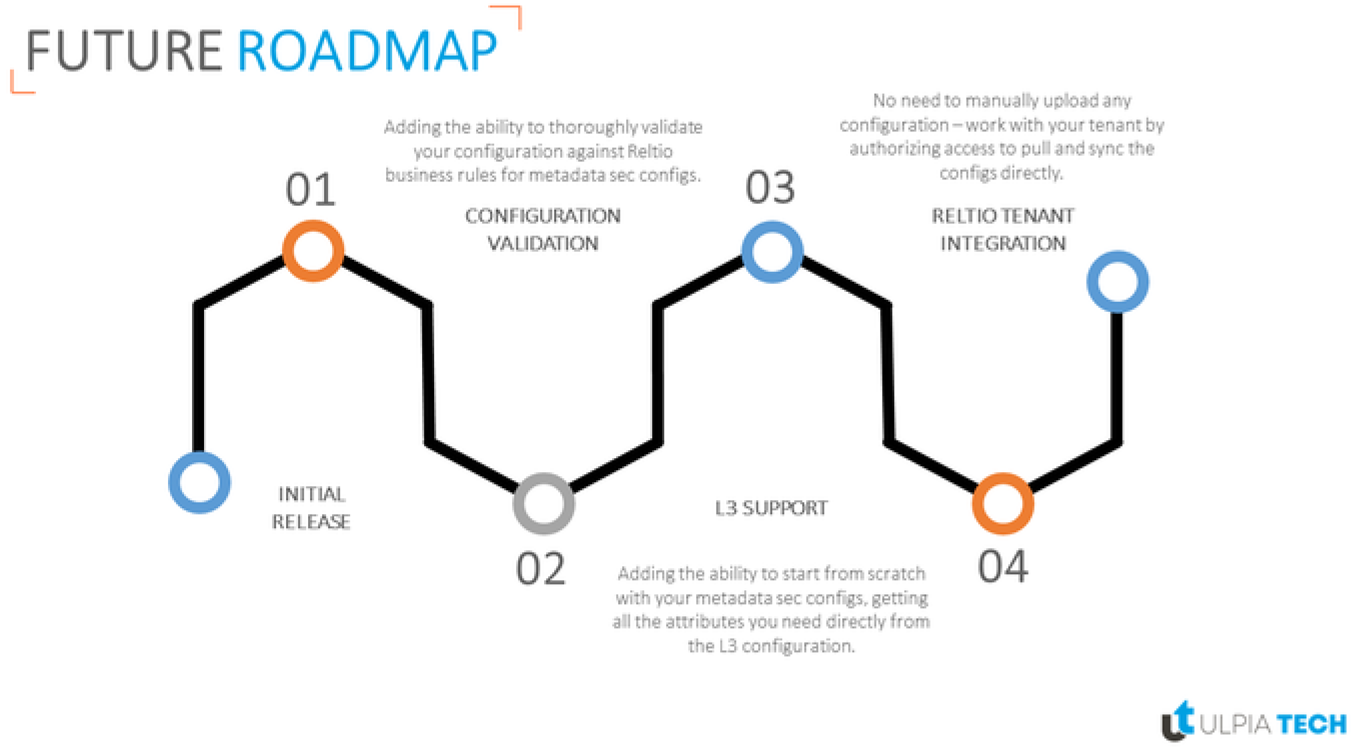
Browser navigation

When going back into the browser using the navigation arrows the "Test the app" button stops working and the page needs to be refreshed to restore full functionality.

File upload

- If a file is uploaded while another configuration is being worked on the new file will override the previous configuration and all the data from it will be lost.

Future Roadmap



FUTURE ROADMAP

INITIAL RELEASE

01

CONFIGURATION VALIDATION

Adding the ability to thoroughly validate your configuration against Reltio business rules for metadata sec configs.

02

L3 SUPPORT

Adding the ability to start from scratch with your metadata sec configs, getting all the attributes you need directly from the L3 configuration.

03

RELTIO TENANT INTEGRATION

No need to manually upload any configuration – work with your tenant by authorizing access to pull and sync the configs directly.

04

In future steps, the app is planned to expand by introducing validation on the configuration. This process refers to validating if the expectations of the configuration will be met - currently the API that accepts the metadata security configuration can accept impossible scenarios. For example, a READ could be granted on an Individual attribute, while no READ is granted on the Individual itself. That setup itself invalidates the READ on the attribute because the user cannot reach that attribute.

As the next step, it is planned to add L3 support. The user will be allowed to directly upload his L3 configuration - attributes will be scanned from there, in case the user wants to work on permissions for attributes not already present in the metadata config.

As a final goal - the MSM app is planned to work via direct integration with the Reltio tenant. Forget about uploading any configuration files! These will be taken directly from the tenant using the corresponding Reltio APIs. All you need is a connection to your tenant.

Appendix

- Configuration used to test the app

```
[{
        "uri": "configuration/entityTypes",
        "permissions": [{
                "role": "G_RELTIO_DEV_ALL",
                "access": ["CREATE", "READ", "UPDATE", "DELETE",
"MERGE", "UNMERGE"]
            }, {
                "role": "G_RELTIO_UI_ALL",
                "access": ["READ"]
            }, {
                "role": "G_RELTIO_DATASTEWARD",
                "access": ["READ", "UPDATE", "MERGE", "UNMERGE"]
            }
        ]
    }, {
        "uri": "configuration/entityTypes/Individual",
        "permissions": [{
                "role": "G_RELTIO_DEV_ALL",
                "access": ["CREATE", "READ", "UPDATE", "DELETE",
"MERGE", "UNMERGE"]
            }, {
                "role": "G_RELTIO_UI_ALL",
                "access": ["READ"]
            }, {
                "role": "G_RELTIO_DATASTEWARD",
                "access": ["READ", "UPDATE", "MERGE", "UNMERGE"]
            }
        ]
    }, {
        "uri": "configuration/entityTypes/Individual/attributes",
        "permissions": [{
                "role": "G_RELTIO_DEV_ALL",
                "access": ["CREATE", "READ", "UPDATE", "DELETE",
"MERGE", "UNMERGE"]
            }, {
                "role": "G_RELTIO_UI_ALL",
                "access": ["READ"]
            }, {
                "role": "G_RELTIO_DATASTEWARD",
                "access": ["READ", "UPDATE", "MERGE", "UNMERGE"]
            }
        ]
    }, {
        "uri": "configuration/entityTypes/Organization",
        "permissions": [{
                "role": "G_RELTIO_DEV_ALL",
                "access": ["CREATE", "READ", "UPDATE", "DELETE",
"MERGE", "UNMERGE"]
            }, {
                "role": "G_RELTIO_UI_ALL",
                "access": ["READ"]
            }, {
                "role": "G_RELTIO_DATASTEWARD",
                "access": ["READ", "UPDATE", "MERGE", "UNMERGE"]
            }
        ]
    }, {
        "uri": "configuration/entityTypes/Organization/attributes",
        "permissions": [{
                "role": "G_RELTIO_DEV_ALL",
                "access": ["CREATE", "READ", "UPDATE", "DELETE",
"MERGE", "UNMERGE"]
            }, {
                "role": "G_RELTIO_UI_ALL",
                "access": ["READ"]
            }, {
                "role": "G_RELTIO_DATASTEWARD",
                "access": ["READ", "UPDATE", "MERGE", "UNMERGE"]
            }
        ]
    }, {
        "uri": "configuration/entityTypes/Organization/attributes
/Addresses",
        "permissions": [{
                "role": "G_RELTIO_DEV_ALL",
                "access": ["CREATE", "READ", "UPDATE", "DELETE",
"MERGE", "UNMERGE"]
            }, {
                "role": "G_RELTIO_UI_ALL",
                "access": ["READ"]
            }, {
                "role": "G_RELTIO_DATASTEWARD",
                "access": ["READ", "UPDATE", "MERGE", "UNMERGE"]
            }
        ]
    }, {
        "uri": "configuration/entityTypes/Organization/attributes
/Addresses/attributes",
        "permissions": [{
                "role": "G_RELTIO_DEV_ALL",
                "access": ["CREATE", "READ", "UPDATE", "DELETE",
"MERGE", "UNMERGE"]
            }, {
                "role": "G_RELTIO_UI_ALL",
                "access": ["READ"]
            }, {
                "role": "G_RELTIO_DATASTEWARD",
                "access": ["READ", "UPDATE", "MERGE", "UNMERGE"]
            }
        ]
    }, {
        "uri": "configuration/entityTypes/Organization/attributes/Name",
        "permissions": [{
                "role": "G_RELTIO_DEV_ALL",
                "access": ["CREATE", "READ", "UPDATE", "DELETE",
"MERGE", "UNMERGE"]
            }, {
                "role": "G_RELTIO_UI_ALL",
                "access": ["READ"]
            }, {
                "role": "G_RELTIO_DATASTEWARD",
                "access": ["READ", "UPDATE", "MERGE", "UNMERGE"]
            }
        ]
    }, {
        "uri": "configuration/relationTypes",
        "permissions": [{
                "role": "G_RELTIO_DEV_ALL",
                "access": ["CREATE", "READ", "UPDATE", "DELETE",
"MERGE", "UNMERGE"]
            }, {
                "role": "G_RELTIO_UI_ALL",
                "access": ["READ"]
            }, {
                "role": "G_RELTIO_DATASTEWARD",
                "access": ["READ", "UPDATE", "MERGE", "UNMERGE"]
            }
        ]
    }, {
        "uri": "configuration/relationTypes/Contact",
        "permissions": [{
                "role": "G_RELTIO_DEV_ALL",
                "access": ["CREATE", "READ", "UPDATE", "DELETE",
"MERGE", "UNMERGE"]
            }, {
                "role": "G_RELTIO_UI_ALL",
                "access": ["READ"]
            }, {
                "role": "G_RELTIO_DATASTEWARD",
                "access": ["READ"]
            }
        ]
    }, {
        "uri": "configuration/relationTypes/Contact/attributes",
        "permissions": [{
                "role": "G_RELTIO_DEV_ALL",
                "access": ["CREATE", "READ", "UPDATE", "DELETE",
"MERGE", "UNMERGE"]
            }, {
                "role": "G_RELTIO_UI_ALL",
                "access": ["READ"]
            }, {
                "role": "G_RELTIO_DATASTEWARD",
                "access": ["READ"]
            }
        ]
    }, {
        "uri": "configuration/relationTypes/Spouse",
        "permissions": [{
                "role": "G_RELTIO_DEV_ALL",
                "access": ["CREATE", "READ", "UPDATE", "DELETE",
"MERGE", "UNMERGE"]
            }, {
                "role": "G_RELTIO_UI_ALL",
                "access": ["READ"]
            }, {
                "role": "G_RELTIO_DATASTEWARD",
                "access": ["READ"]
            }
        ]
    }
]
```