



EUROPEAN COMMISSION  
EUROSTAT

Directorate B: Methodology, corporate statistical and IT services  
**Unit B-3: IT for Statistical Production**

## **User Manual for the Validation Rule Manager**

# **VRM - User Manual**

**version 0.7.1-SNAPSHOT**

**Commission Européenne, 2920 Luxembourg, LUXEMBOURG - Tel. +352 43011**



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# **VRM - User Manual: User Manual for the Validation Rule Manager**

by Commission Européenne, 2920 Luxembourg, LUXEMBOURG - Tel. +352 43011

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# Chapter 1. Getting Started

The Validation Rule Manager, or **VRM**, is a specialized online tool that allows statisticians to create, manage and share rules written in Validation and Transformation Language in a user friendly, effective and efficient way. The main part of the VRM is the VTL Editor, where user can edit VTL script files. This manual describes the features of the VRM.

## 1.1. Opening VRM

You can open **VRM** in browser from the dedicated link. It works in consistent manner in browsers **Chrome, Firefox, Microsoft Edge** (Internet Explorer is NOT supported) on desktop computers.

## 1.2. User Interface

**VRM** comes with a simple and intuitive layout, that maximizes the space provided for the editor while leaving ample room to browse and access the full context of your folder or project. You have available all the following elements for the interface:



**Figure 1.1. VRM main view**

- **(1) Menu** – options in menu are activated by clicking into the icons on the left part of the main window. The default – active Editor view – main menu contains all the following options from top to bottom:





- Import DSD
- File Explorer
- Manage Domains
- Settings

Hovering over the above items, will display a label with the name. If VTL Editor is not active, it will appear as top option in application main menu.

- **(2) VTL Editor Menu** – The options in editor menu are activated by clicking into the icons above the top-left corner of the VTL Editor. The editor menu contains all the following options from left to right:

- New File
- Open File
- Save File
- Upload File

Hovering over the above items, will display a label with the name.

- **(3) VTL Editor** – here you can edit the contents of your VTL scripts. The VTL Editor supports syntax highlighting and autocomplete.
- **(4) Status Bar** – here you can see various helpful details while you are interacting with the **VTL Editor**:
  - Arrow to expand the panel with details for errors
  - Number of errors
  - Cursor position (**Line and Column**)
  - **VTL language version** number
- **(5) Help** – this tab contains link to '**User Manual**' or will displayed in the content from application.
- **(6) Minimap** (code outline) – gives you a high-level overview of your source code, which is useful for quick navigation and code understanding.
- **(7) Panel** – displays potential errors with descriptions for the added code.



- 
- **(8) Settings sidebar** – displays a drop-down menu for changing the **VTL version** or theme color.
  - **(9) Tab** – panel displays the name of the current text file.



# Chapter 2. VTL Editor

In the **VTL Editor** you have available all the following functionalities for the files:

- Create VTL file
- Save file
- Open file
- Search and replace
- Syntax highlighting for VTL elements
- Autocomplete VTL syntax elements
- Display context help regarding VTL syntax elements and snippets
- Check VTL grammar for the file
- Display syntax errors with details on the list in the error panel

## 2.1. Creating VTL File

After opening application, you have the document opened, with empty code field in the editor. You can add new code or upload existing **VTL file** from the storage with using in editor menu option '**Open file**'. You can save the file at any time, **VTL Editor** also has autosave option, so you can go back to adding content even after closing the application.

## 2.2. Saving VTL File

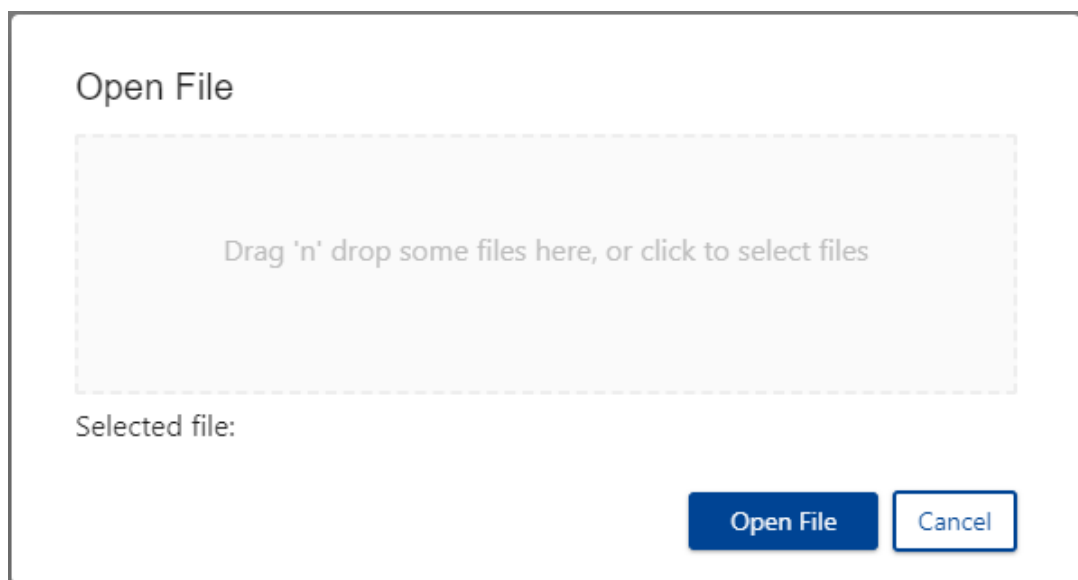
You can also add changes to the tab with the code. If you click on the '**Save file**' option in editor menu, you have possibility to save **VTL file** to local storage at any time. Additionally, if you have unsaved changes and application is closed without saving file, after reopening editor, it will restore last version of used document. File changes and settings from the last opening are saved automatically and when the application is run, last saved version is automatically loaded.

Procedure of saving **VTL Editor** contents to local storage:

1. Choose icon '**Save**' in editor menu.
2. If the file has a path added on your computer, the file will be saved or if not, you will see a window and you should add the path to save the file.
3. You see success/error message for saving file.

## 2.3. Opening VTL File

If you click on the '**Open file**' option in editor menu, you have possibility to load external file into the editor. Additionally, you have the option to open more than one file. New additional files will be opened in newly created browser tabs.



**Figure 2.1. Pop-up window of 'Open file' action**

Procedure of opening text **VTL file** from local storage:

1. Go to editor menu.
2. Choose icon '**Open file**'
3. A pop-up window will appear with the title 'Open File'. You have two options for upload a text **VTL file** from local storage:
  - click on field marked with a dashed line and uploads file from the path to the file on local storage,
  - dragging the file and dropping it in the appropriate field marked with a dashed line on the main screen.

4. To finalize the opening of the file, press the **'Open file' button** on the bottom-right side of the pop-up window.

## 2.4. Search and Replace

You can search for text in a file by pressing **Ctrl + F**. This will open up the find panel on the top-right side of editor:



**Figure 2.2. Pop-up panel of 'Search' action.**

In the **find feature** you have available all the following functionalities:

- (1) **Expand/switch mode** – rotates between search and replace mode.
- (2) **'Find' input field options from left to right:**
  - **Match Case** – switch for case-sensitive search
  - **Match Whole Word** – switch to compare search phrase only to whole words
  - **Use Regular Expression** – treats 'Find' input field value as a regular expression value
- (3) **Search options from left to right:**
  - **Result** – shows results of search in the form of "X of Y", where X is the number of current match and Y is overall number of found matches
  - **Previous match** – allows you to reverse the normal direction of search and find the previous match (if any).



- **Next match** – moves you to next match (if any).
- **Find in selection** – search will be limited to the selected text/code only
- **Close** – closes search panel
- **(4) Preserve Case** – forces replace to preserve case after replacement. Applies only to characters that are within length of replaced phrase
- **(5) Replace options from left to right:**
  - **Replace** – replaces actual match only
  - **Replace All** – replaces ALL found matches

#### Description of search usage:

Enter your search term here and press **Enter**. You can navigate between matches by continuously hitting **Enter** (or **Shift + Enter** to go backwards). The searched phrase is highlighted in the editor and scrollbar. If you want to replace a match, expand the **Search widget** to display the **Replace text box** and enter the text you want to replace it with in the Replace input field. Then hit **Enter** to replace the match and keep hitting **Enter** to replace each subsequent match or **Ctrl+Alt+Enter** to immediately replace all. The searched phrase is highlighted in the editor and scrollbar. Highlighting a word in the code editor will highlight all other matches in the file which makes it easier to check where a variable or function is being used. You can replace all in one file or replace a single change.

## 2.5. Syntax Highlighting

You have possibility to switch color to a different **syntax highlighting for VTL elements** in the code editor. You can edit your preferences by clicking on **Settings/Color theme** and choosing one option to display the theme preferences drop-down:

- VTL
- Light
- Dark
- High Contrast Dark



## 2.6. Autocomplete

The editor supports autocomplete of VTL elements and when you type a letter or hit **Ctrl+Space**, you will see a list of autocomplete suggestions. After choosing name from the list, by using mouse cursor or selecting with keyboard, selected keyword is added to the code.

## 2.7. Context Help

Context help regarding **VTL syntax elements and snippet** are displayed in the editor, after moving the cursor over the name and selecting the 'i' icon in the line with the selected name. **Context help** is displayed during typing, as shown in the example:

## 2.8. VTL Syntax Check

For the content of the files, is checked structure. In case of syntax errors, they are underlined in application and details are added on the bottom error panel. Additionally, after moving your cursor to the place with error, you will see the error details.

## 2.9. Syntax Errors

**VTL Editor** displays potential errors and warnings in a dedicated page section and bottom panel. As default blue panel is collapsed. After press arrow on the left, you will see the list in the panel with line, column and message of **syntax or grammar error**. In the code, the position with error has red underline.

# Chapter 3. Data Structure Definitions

The main part of the VRM is the VTL Editor, where you can create and modify scripts written in VTL. Statements in VTL scripts may contain references to the data set that adheres to specific Data Structure Definition (DSD). The enhanced functionality of the editor makes it possible for you to use DSD. This chapter will show you the ways how to interact with the application to utilize DSD.

Import DSD tab consists of two parts: searching section and result section, where you can proceed with your choices.

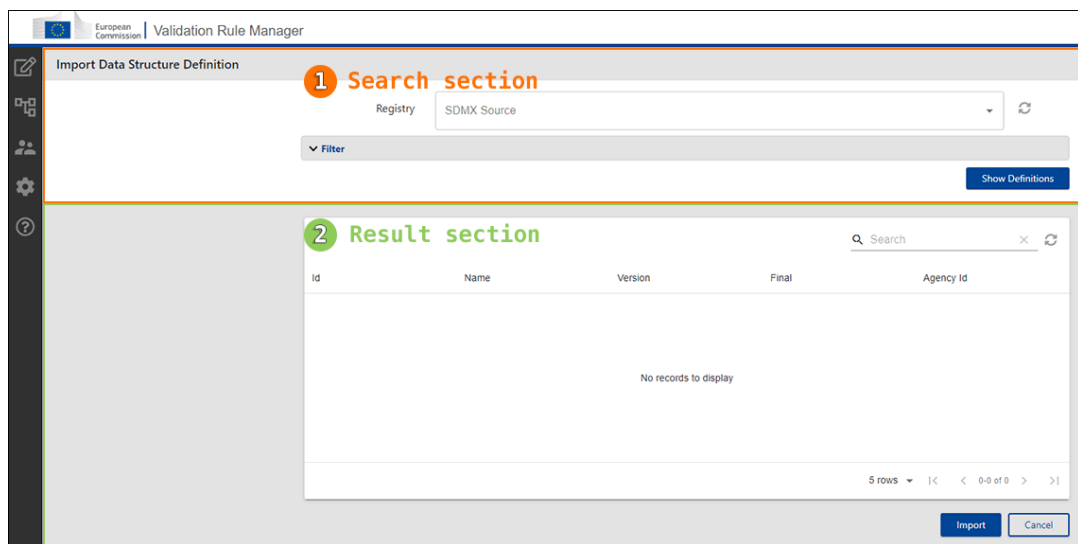


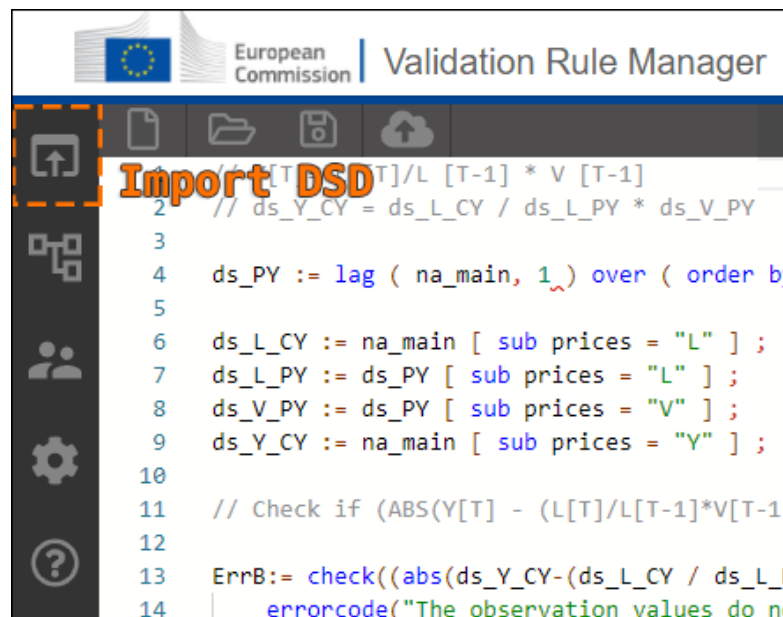
Figure 3.1. Import Data Structure Definition view

## 3.1. Importing Data Structure Definition

To import Data Structure Definition into the VTL Editor, follow this procedure:

1. On the **Navigation** sidebar select **Import DSD** icon.





**Figure 3.2. Import DSD icon on the Navigation sidebar**

2. **Import Data Structure Definition** view is displayed (see [Figure 3.1, “Import Data Structure Definition view”](#)), where you can proceed with importing. First, select registry from the **Registry** dropdown list. This step is mandatory.



**Figure 3.3. SDMX registry list**

3. Optionally you may use additional filters by clicking on **Filter** bar. Now you can choose one or more agencies from the dropdown list and/or specific finalized status. Only data structure definitions that match the filter will be displayed as results.

Registry: SDMX Source: SDMX Global Registry

Selected registry URL: <https://registry.sdmx.org/FusionRegistry/>

Filter

Agency: Choose agency: International Monetary Fund (IMF) × Bhutan National Statistics Bureau (NSB) × United Nations Statistics Division (UNSD) ×

Final: All (selected) Yes No

Apply Clear

Show Definitions

**Figure 3.4. Filter panel for the DSD results**

4. Click **Apply** button to apply the filters. You may also clear all filters by clicking **Clear** button.
5. Confirm your choices by clicking **Show Definitions** button
6. Now the list of available DSDs is displayed. You can search for specific item in the results by typing content in **Search** field.

<div> <input type="text" value="Search"/> <span>×</span> <span>↻</span> </div>					
Id	Name	Version	Final	Agency Id	
> <input type="checkbox"/> BOP	Balance of Payments and International Investment Position	1.14	TRUE	IMF	
> <input type="checkbox"/> GFS	Government Finance - IMF	1.0	TRUE	IMF	

**Figure 3.5. Search field in the DSD result list**

7. If more detailed information is needed, you can click chevron icon on the left side of particular item to display preview of DSD.

Search							
	Id	Name	Version	Final	Agency Id		
>	<input type="checkbox"/>	BOP	Balance of Payments and International Investment Position	1.14	TRUE	IMF	
	<input checked="" type="checkbox"/>	GFS	Government Finance - IMF	1.0	TRUE	IMF	
Search							
Type	Id	Name	Value Type	Agency Id	Code List Id	Version	Text Type
primaryMeasure	OBS_VALUE						
timeDimension	TIME_PERIOD						
attribute	OBS_STATUS	Observation status	codelist	SDMX	CL_OBS_STATUS	2.0	
attribute	REF_PERIOD_DETAIL	Reference period detail	codelist	ESTAT	CL_REF_PERIOD_DTL	1.0	
attribute	DECIMALS	Decimals	codelist	SDMX	CL_DECIMALS	1.0	
attribute	TITLE	Title	text				STRING
attribute	UNIT_MULT	Unit multiplier	codelist	SDMX	CL_UNIT_MULT	1.0	
attribute	TABLE_IDENTIFIER	Table identifier	codelist	ESTAT	CL_NA_TABLEID	1.5	
attribute	LAST_UPDATE	Last Update Date	text				DATE_TIME
attribute	COMPILING_ORG	Compiling organisation	codelist	IMF	CL_ORGANISATION	1.5	

**Figure 3.6. Preview of the DSD contents in the result list**

- When you've decided which DSD you want to import, click the checkbox in the left part of that item. At any time only one item can be selected.

Search							
	Id	Name	Version	Final	Agency Id		
>	<input checked="" type="checkbox"/>	BOP	Balance of Payments and International Investment Position	1.14	TRUE	IMF	
>	<input type="checkbox"/>	GFS	Government Finance - IMF	1.0	TRUE	IMF	

**Figure 3.7. Selected DSD in the result list**

- When DSD is selected in the list, click **Import** button to import DSD contents and apply it to VTL Editor features. When import process is successfully proceeded, you will be moved to the VTL Editor view.



10. If you want to terminate the importing process, click **Cancel** button and return to VTL Editor without applying new DSD. If any DSD was imported previously, it remains applied in the editor features.

## 3.2. Using Data Structure Definition

### 3.2.1. Autocomplete

After DSD is imported into the VTL Editor, their elements appear in the autocomplete feature. When you enter matching string autocomplete popup with element identifiers is displayed.

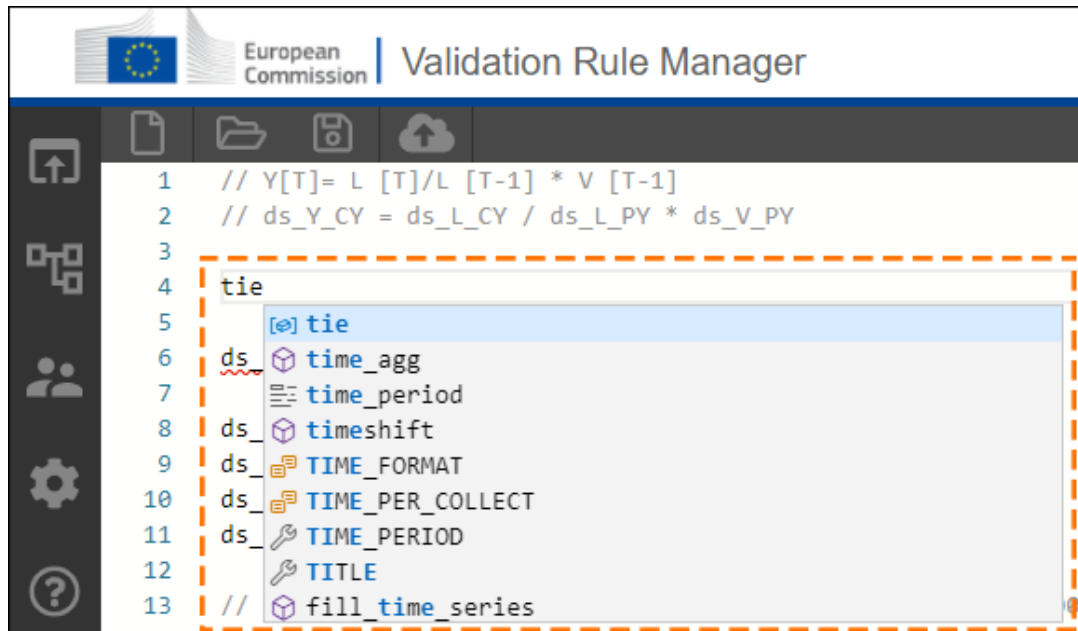
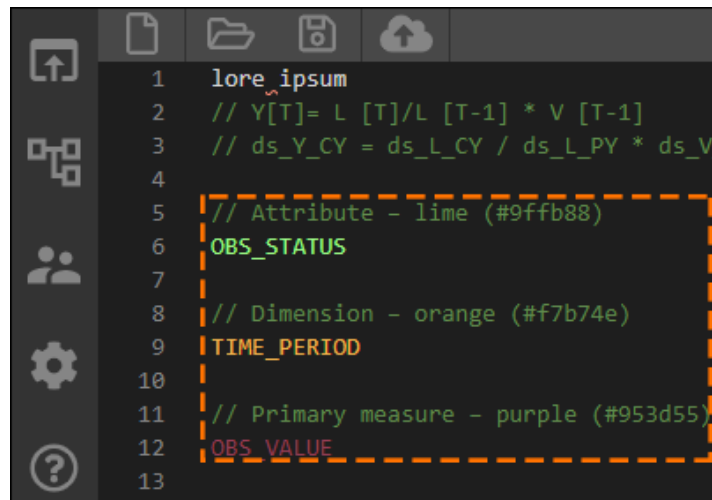


Figure 3.8. VTL Editor autocomplete feature with DSD elements

### 3.2.2. Highlighting

After DSD is imported into the VTL Editor, their elements are recognized by highlighting feature. When user enters element identifier in the VTL code, it is colored accordingly:

- Attribute – lime (#9ffb88)
- Dimension – orange (#f7b74e)
- Primary measure – purple (#953d55)



**Figure 3.9. Highlighted DSD elements in the VTL Editor**

### 3.2.3. Preview of Elements

When DSD is imported into the VTL Editor, you'll see the DSD icon on the blue bar at the bottom of the screen. To switch to DSD preview, click DSD identifier or adjacent icon on the blue bar at the bottom of the screen. Content in the bottom area of VTL Editor view might be toggled between error list and DSD preview.

Type	Id	Name	Value Type	Agency Id
primaryMeasure	OBS_VALUE			
timeDimension	TIME_PERIOD			
> attribute	TIME_FORMAT	Time format	codelist	SOMX
> attribute	OBS_STATUS	Observation status	codelist	ESTAT
> attribute	CONF_STATUS	Confidentiality status	codelist	SOMX

**Figure 3.10. DSD Preview icon on the Status bar of the VTL Editor**

Information about content of currently imported DSD is displayed in bottom area of VTL Editor.

The screenshot shows the 'Validation Rule Manager' interface. The top pane displays VTL code for calculating price indices. The bottom pane, titled 'Details', shows a table of DSD elements. A search bar is visible in the top right of the details pane.

Type	Id	Name	Value Type	Agency Id	Code List Id	Version	Text Type
primaryMeasure	OBS_VALUE						
timeDimension	TIME_PERIOD						
> attribute	TIME_FORMAT	Time format	codelist	SDMX	CL_TIME_FORMAT	1.0	
> attribute	OBS_STATUS	Observation status	codelist	ESTAT	CL_OBS_STATUS	2.2	
> attribute	CONF_STATUS	Confidentiality status	codelist	SDMX	CL_CONF_STATUS	1.2	
attribute	PRE_BREAK_VALUE	Pre-break value	text				DOUBLE
attribute	COMMENT_OBS	Comments to the observation value	text				STRING
attribute	COMMENT_TS	Title complement: Detailed description of the series	text				STRING
attribute	TITLE	Short title	text				STRING
> attribute	UNIT_MULT	Unit multiplier	codelist	SDMX	CL_UNIT_MULT	1.1	

**Figure 3.11. DSD contents in the Details pane of the VTL Editor**

When you click chevron icon on the left side of DSD elements that have specific codelist assigned, contents of this codelist will be displayed.

The screenshot shows the 'Details' pane with the 'TIME\_FORMAT' attribute selected. A chevron icon on the left of the row is highlighted. Below the main table, a search bar and a list of codelist values are shown.

Type	Id	Name	Value Type	Agency Id	Code List Id	Version	Text Type
primaryMeasure	OBS_VALUE						
timeDimension	TIME_PERIOD						
▼ attribute	TIME_FORMAT	Time format	codelist	SDMX	CL_TIME_FORMAT	1.0	

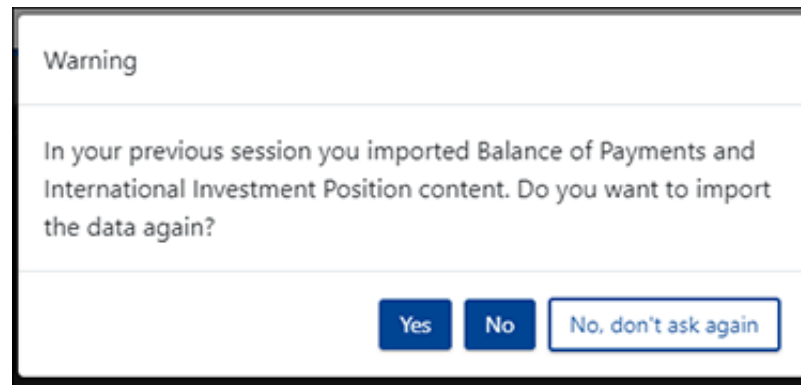
  

Id	Value
203	CCYYMMDDhhmm
102	CCYYMMDD
616	CCYYWW

**Figure 3.12. Codelist contents in the Details pane of the VTL Editor**

## 3.3. Reloading Data Structure Definition

Information such as filename and contents of edited script, configuration, view state and recently imported DSD are continuously saved in case you close or reload VRM web page. When VRM web page is displayed again, you will see a message in a pop-up window, where you can proceed with your choice.



**Figure 3.13. Prompt asking if DSD should be imported again**

Click **Yes** button to reimport most recently used DSD.

Click **No** button to skip the reimporting process (the information about this particular DSD is kept in the system and you'll be asked again, when you reload the page).

Click **No, don't ask again** to stop the importing process and remove information about most recently used DSD.



# Chapter 4. Personal Repository

Personal repository functionality of the VRM allows you to save script files and other items in the personal storage provided by the VRM. Saved items can be then opened or executed (if applicable). You can also organize them using folders in tree-like hierarchy resembling the one that you create on personal computer disk.

The VRM preserves version history of saved scripts, so any introduced changes can be reviewed and reversed if necessary.

## 4.1. File Explorer

File Explorer is the main component of the repository. It allows to view and manage folder structure, and script files.

### 4.1.1. Opening File Explorer

To open File Explorer, click **Personal Repository** icon on the **Navigation** sidebar. The File Explorer displays in the left part of the screen, showing root folder contents. To hide it, click the icon again.

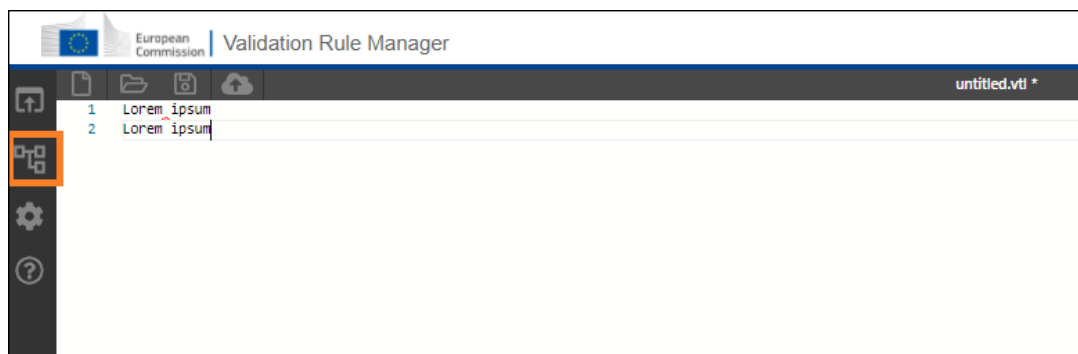


Figure 4.1. Personal Repository icon on the Navigation sidebar

### 4.1.2. Browsing Repository Tree

To see the contents of the nested folders in the repository tree, click the triangle icon next to their name. This will expand the folder and display its child items below with an indent. Clicking the triangle again collapses the folder and hides its contents.



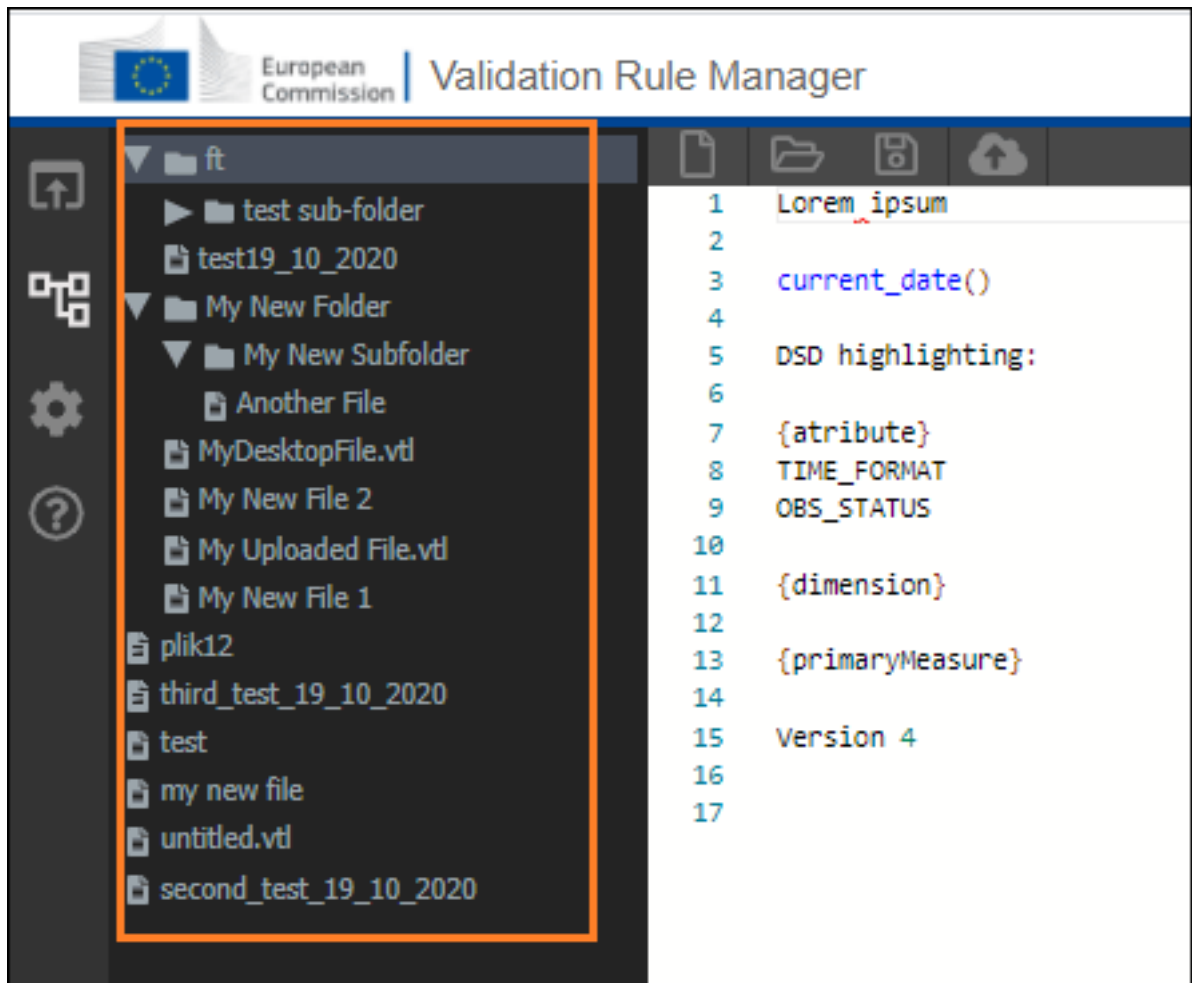


Figure 4.2. The repository tree in the File Explorer

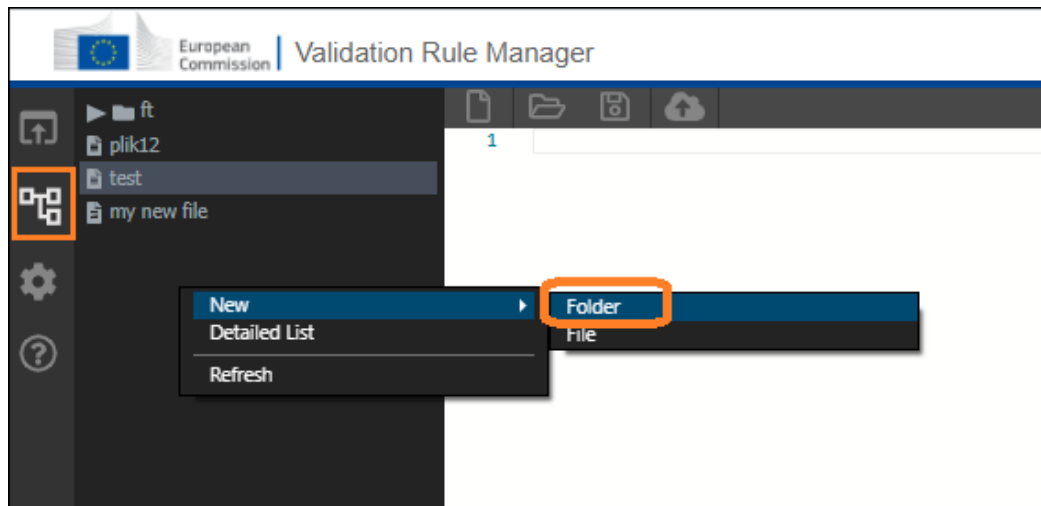
## 4.2. Managing Repository Items

To manage files and folders, right-click desired item in the File Explorer. A menu with list of possible actions will be displayed. Menu options depend on item type.

### 4.2.1. Creating New Folder

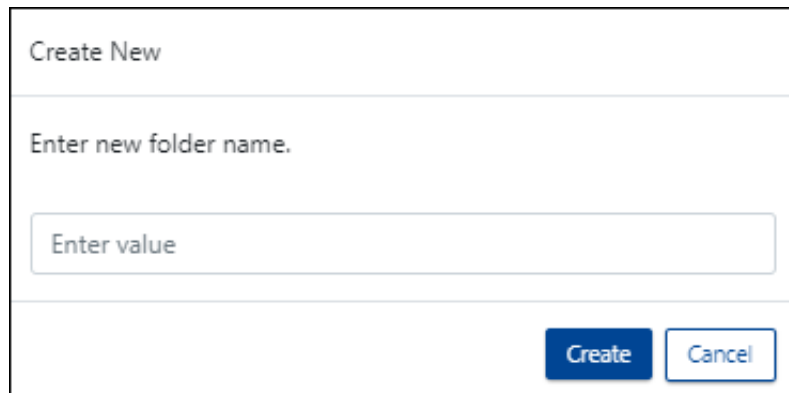
To create new folder in the personal repository, follow the procedure below.

1. Open the File Explorer if it's closed. See [Section 4.1.1, “Opening File Explorer”](#).
2. Browse the tree to the folder that will be a parent of the new one.
3. Right-click parent folder name and select **New > Folder** options from the context menu. You can also right-click any child inside the parent folder that is not a folder itself.



**Figure 4.3. New folder option in the File Explorer context menu**

4. Type the folder name in the text field and click **Create** button to confirm. Created folder will appear in the tree.



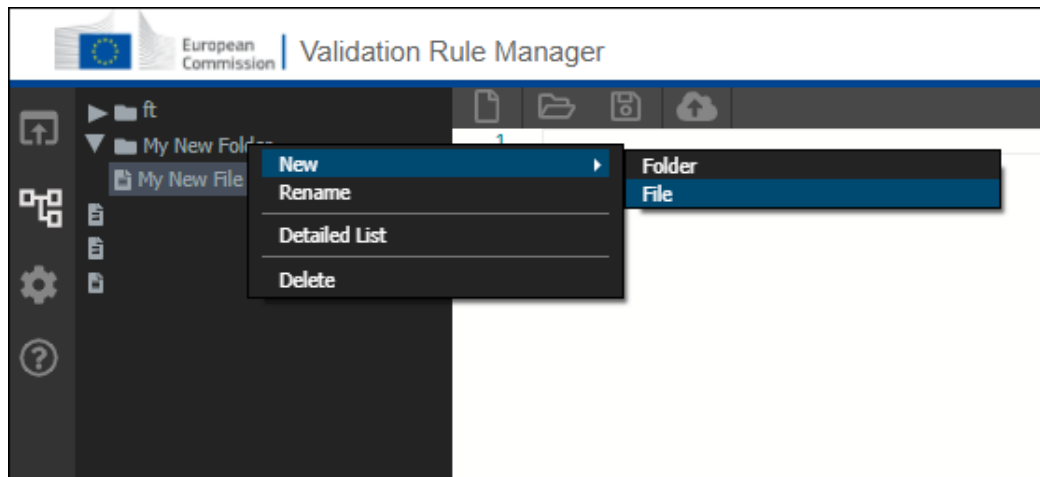
The 'Create New' dialog window is shown. It has a title bar 'Create New'. Below the title bar, there is a text prompt 'Enter new folder name.' followed by a text input field with the placeholder text 'Enter value'. At the bottom right of the dialog, there are two buttons: 'Create' and 'Cancel'.

**Figure 4.4. New folder name dialog window**

## 4.2.2. Creating New File

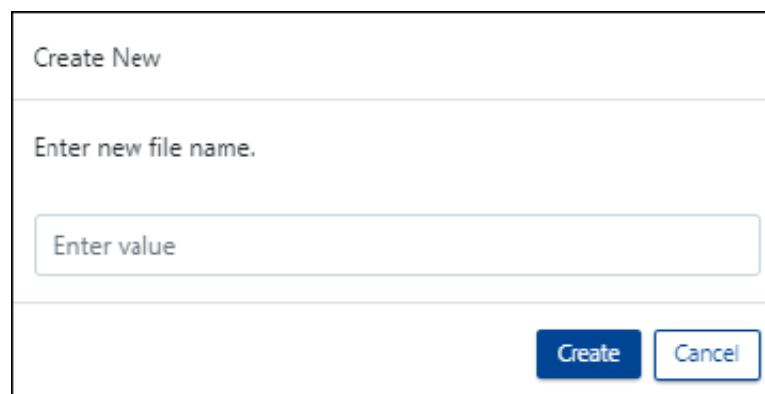
To create new file in the personal repository, follow the procedure below.

1. Open the File Explorer if it's closed. See [Section 4.1.1, “Opening File Explorer”](#).
2. Browse the tree to the folder where you want to place the new file.
3. Right-click parent folder name and select **New > File** options from the context menu. You can also right-click any child inside that folder that is not a folder itself.



**Figure 4.5.** New file option in the File Explorer context menu

4. Type the file name in the text field and click **Create** button to confirm. Created file will appear in the tree.



**Figure 4.6.** New file name dialog window

A new document is created, but not open automatically. To open the file, see [Section 4.3.1, “Opening File”](#).

### 4.2.3. Renaming Item

To rename an item in the personal repository, such as folder or file, follow the procedure below.

1. Open the File Explorer if it's closed. See [Section 4.1.1, “Opening File Explorer”](#).
2. Browse the tree to the item that you want to rename.
3. Right-click the item name and select **Rename** option from the context menu.



4. Type new name in the text field and click **Rename** button to confirm. Item name will be updated in the tree.

## 4.2.4. Deleting Item

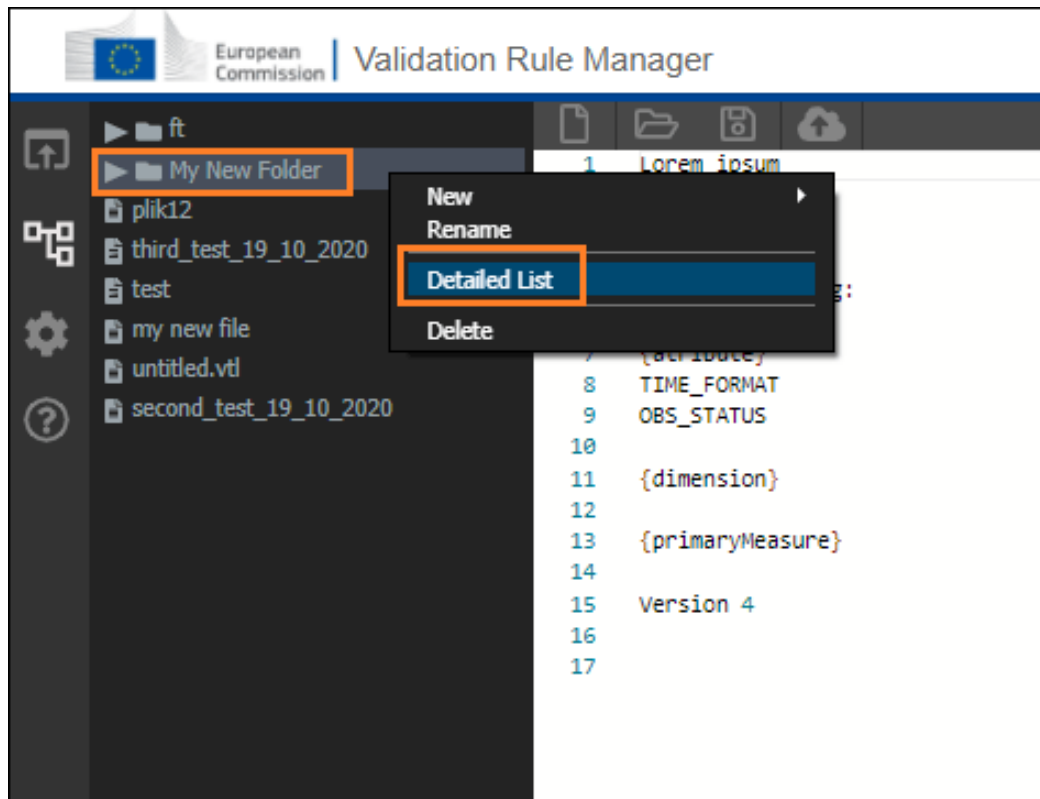
To delete an item in the personal repository, such as folder or file, follow the procedure below.

1. Open the File Explorer if it's closed. See [Section 4.1.1, “Opening File Explorer”](#).
2. Browse the tree to the item that you want to delete.
3. Right-click the item name and select **Delete** option from the context menu.
4. Warning dialog window is displayed, prompting for confirmation. Click **Yes** button to confirm deletion.

## 4.2.5. Displaying Folder Details

You can view more detailed information about items from any folder stored in the repository. To see folder details, follow the procedure below.

1. Open the File Explorer if it's closed. See [Section 4.1.1, “Opening File Explorer”](#).
2. Browse the tree to the folder that contains items you want to see detailed information about.
3. Right-click the folder name and select **Detailed List** option from the context menu.



**Figure 4.7. Detailed List option in the File Explorer context menu**

4. The table with detailed information about contents of the selected folder is displayed in the main area of the VRM.

The screenshot shows the VRM interface with the 'Folder details view' for 'My New Folder'. The folder path is '/My New Folder/'. The table below displays the contents of the folder.

Name	Version	Created on	Modified on	Created by	Modified by
MyDesktopFile.vtl	4	10/19/2020, 12:18:40 PM	10/19/2020, 12:19:59 PM	Anonymous	Anonymous
My Uploaded File.vtl	2	10/18/2020, 3:48:40 PM	10/19/2020, 2:52:07 PM	Anonymous	Anonymous
My New File 1	0	10/18/2020, 3:15:00 PM	10/18/2020, 3:15:00 PM	Anonymous	Anonymous
My New File 2	1	10/18/2020, 3:20:43 PM	10/19/2020, 2:50:36 PM	Anonymous	Anonymous

5 rows | 1-4 of 4

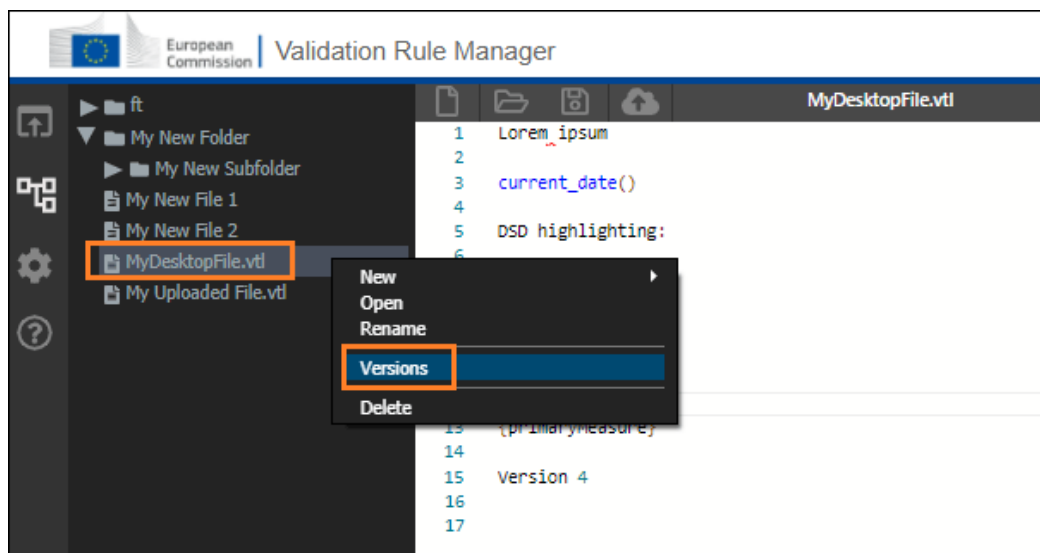
**Figure 4.8. Folder details view**

The details include item name, version (in case of versioned items), creation date, name of the user who created the item, last modification date, and name of the user who most recently modified the item.

## 4.2.6. Displaying Item Versions

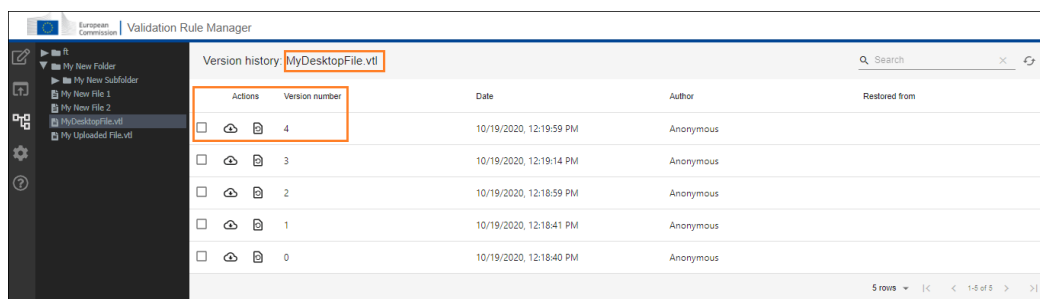
Some types of items are versioned in the repository. Every save operation creates new version and all previous versions are preserved. For each such item you can view version history, open any version, restore it as most recent, and compare two selected versions. To display item versions, follow the procedure below.

1. Open the File Explorer if it's closed. See [Section 4.1.1, “Opening File Explorer”](#).
2. Browse the tree to the item that you want to see version history for.
3. Right-click the item name and select **Versions** option from the context menu.



**Figure 4.9. Versions option in the File Explorer context menu**











4. The table with versions of the selected item is displayed in the main area of the VRM.



**Figure 4.10. Version history view**

The versions table allows you to perform several actions related to versions:

- To open any version, click **Open** icon in that version row.
- To restore version as most recent, click **Restore** icon in that version row.
- To compare two versions, select their checkboxes and click **Compare** icon in the top right corner of the view.

Version history: MyDesktopFile.vtl				Search		
Actions	Version number	Date	Author			
<input checked="" type="checkbox"/>  	4	10/19/2020, 12:19:59 PM	Anonymous			
<input type="checkbox"/>  	3	10/19/2020, 12:19:14 PM	Anonymous			
<input type="checkbox"/>  	2	10/19/2020, 12:18:59 PM	Anonymous			
<input type="checkbox"/>  	1	10/19/2020, 12:18:41 PM	Anonymous			
<input checked="" type="checkbox"/>  	0	10/19/2020, 12:18:40 PM	Anonymous			

**Figure 4.11. Compare icon in the version history view**

The additional **Refresh** icon allows to refresh the version table with current data from the repository.

When you compare versions, the difference view is displayed in the main area of the VRM. All differences between the versions are highlighted.

Compare "MyDesktopFile.vtl" versions 1 and 4	
<pre> 1 Lorem ipsum 2 3 current_date() 4 5 DSD highlighting: 6 7 {attribute} 8 TIME_FORMAT 9 OBS_STATUS 10 11 {dimension} 12 13 {primaryMeasure} 14 15-10/19/20 16 </pre>	<pre> 1 Lorem ipsum 2 3 current_date() 4 5 DSD highlighting: 6 7 {attribute} 8 TIME_FORMAT 9 OBS_STATUS 10 11 {dimension} 12 13 {primaryMeasure} 14 15-Version 4 16+ 17 </pre>

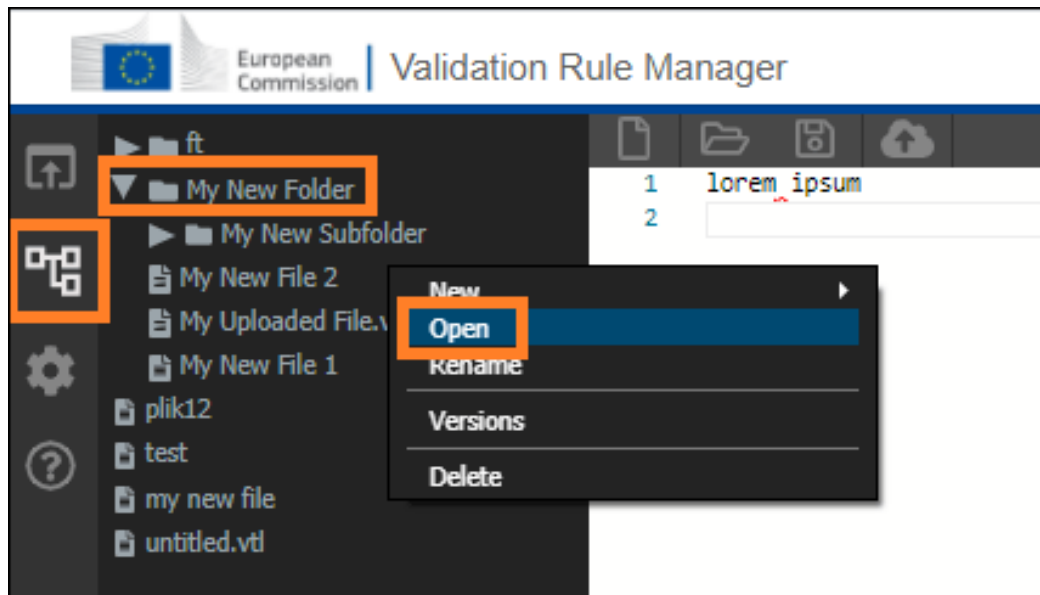
**Figure 4.12. Version comparison with differences highlighted**

## 4.3. VTL Editor Integration

### 4.3.1. Opening File

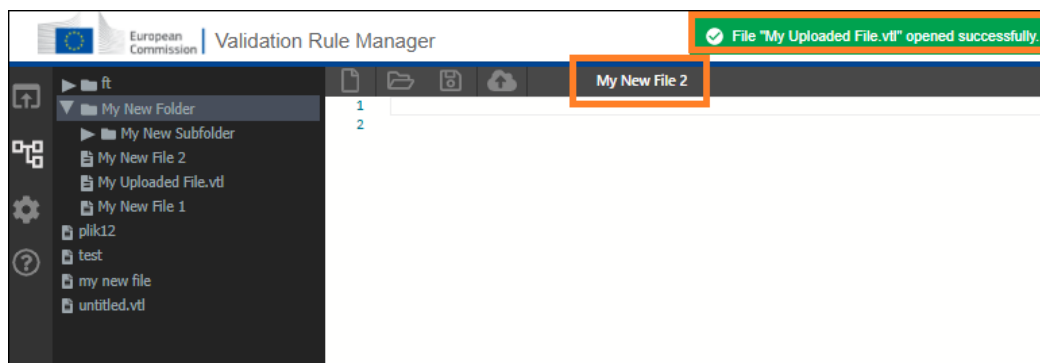
Files stored in the repository can be opened in the VTL Editor. To open the file, follow the procedure below.

1. Open the File Explorer if it's closed. See [Section 4.1.1, “Opening File Explorer”](#).
2. Browse the tree to the file you want to open.
3. Right-click the file and select **Open** option from the context menu.



**Figure 4.13. Open option in the File Explorer context menu**

4. Selected file is open in the VTL Editor. Its name is displayed on the top bar.

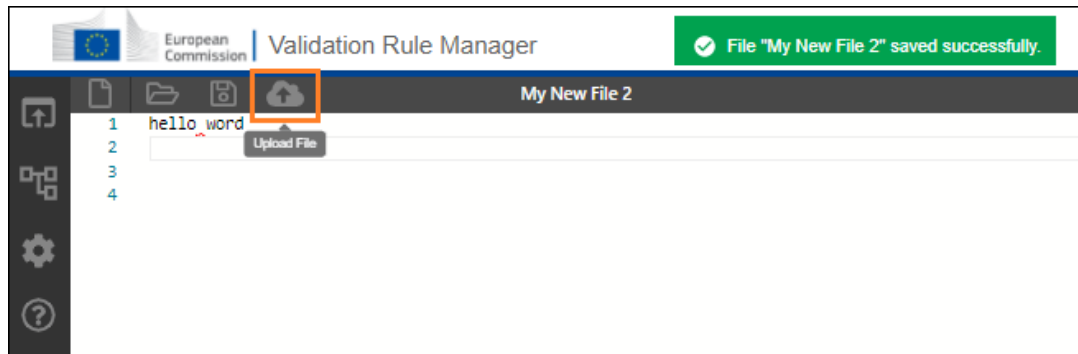


**Figure 4.14. Opened file name on the top bar of the VTL Editor**



## 4.3.2. Saving File

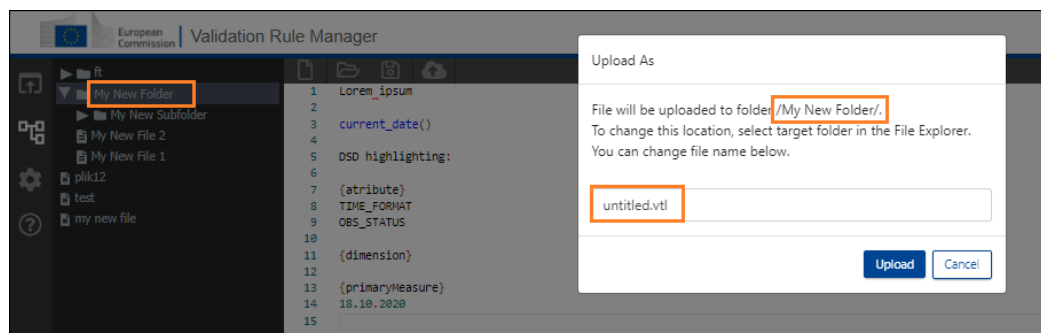
File changed in the VTL Editor can be saved to the personal repository. To save edited file that was open from the repository, simply click **Upload** icon on the top bar of the editor. New version of the file will be created in the repository.



**Figure 4.15. Upload icon on the top bar of the VTL Editor**

To save the file that is new or opened from disk, follow the procedure below.

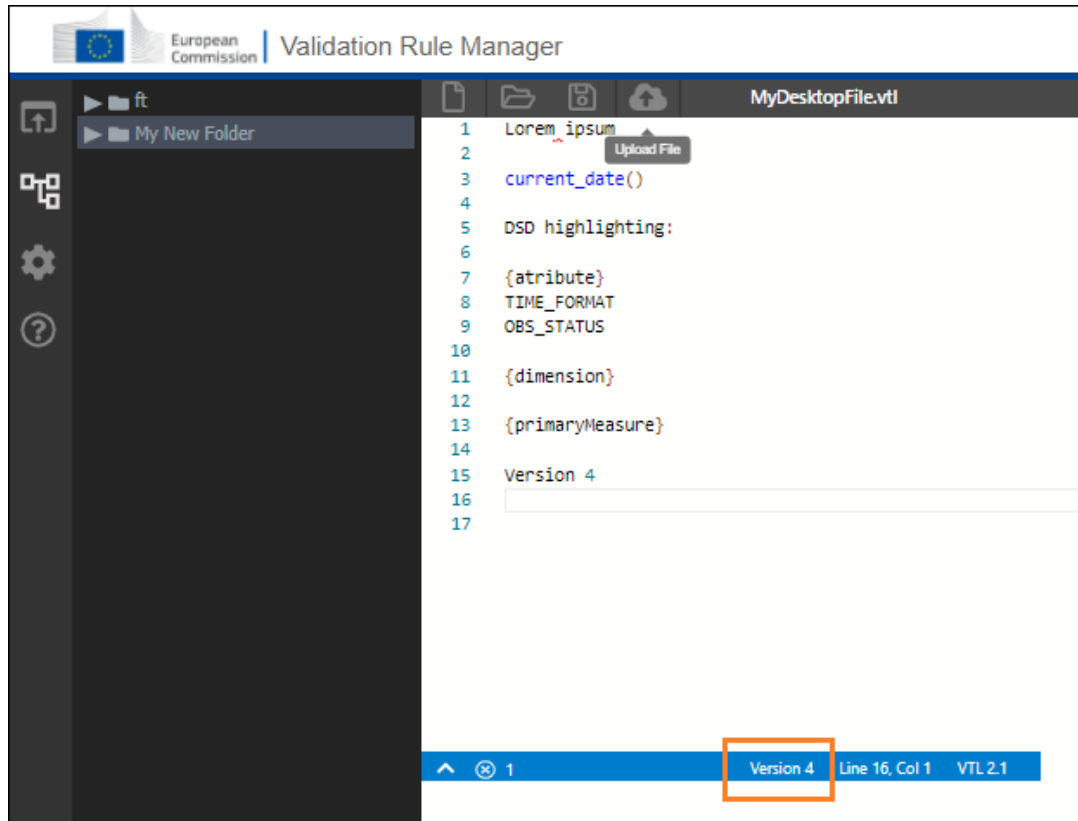
1. Open the File Explorer if it's closed. See [Section 4.1.1, "Opening File Explorer"](#).
2. Browse the tree to the folder where you want to save the file. Click the folder name to highlight it.
3. Click **Upload** icon on the top bar of the editor.
4. Confirmation dialog is displayed with selected repository path and file name text field. Optionally type new name in the input field. Click **Upload** button to confirm save. File will be uploaded to the repository and appear in the tree.



**Figure 4.16. Upload file dialog window**

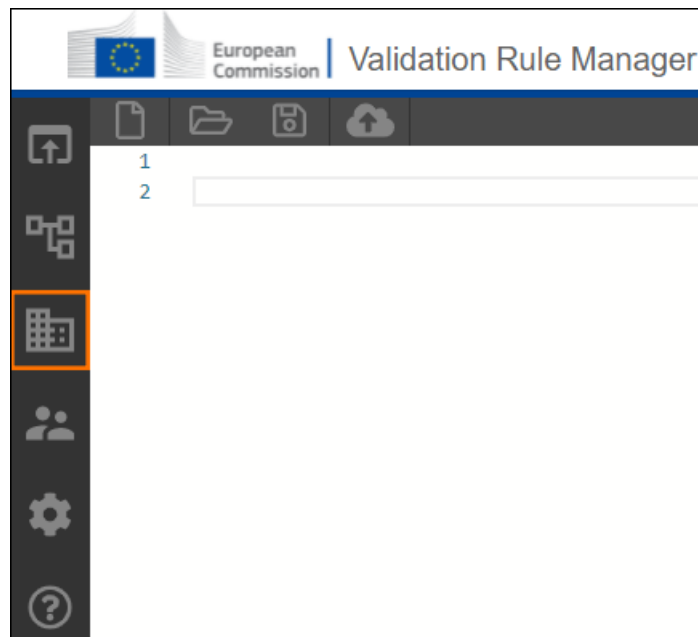
### 4.3.3. File Version

VTL files stored in the repository are versioned. Every save operation creates new numbered version. All previous versions are preserved. You can see the version number of currently opened file on the blue bottom bar.



**Figure 4.17. File version on the bottom bar of the VTL Editor**

# Chapter 5. Domain Repository

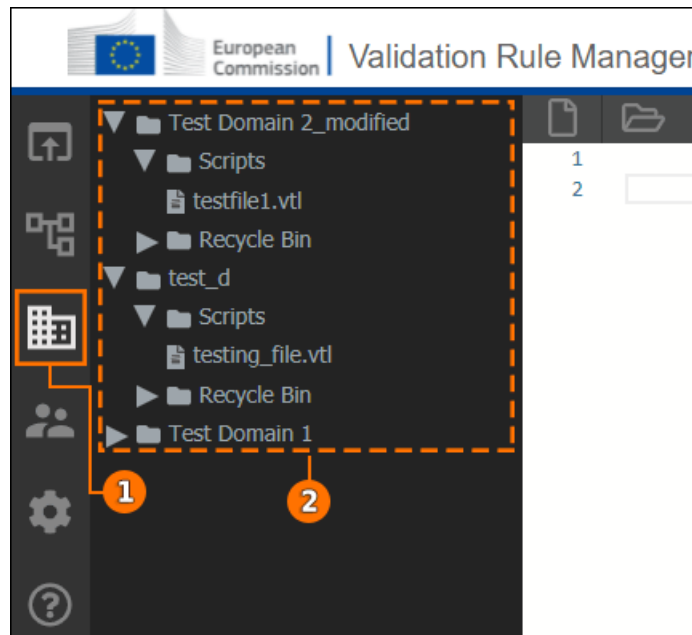


**Figure 5.1. Domain repository icon**

Domain Repository functionality of the VRM allows you to publish script files to domain storage provided by the VRM. Published items can be then opened or executed (if applicable) by domain members only. Just creating a domain doesn't create a repository - it doesn't exist initially. It is only created when first file is published by any user of that domain.

## 5.1. File Explorer

**IMPORTANT!** It is not possible to create folders in this repository in a given iteration of a VRM application.



**Figure 5.2. Domain Repository file explorer view**

File Explorer is the main component of **Domain Repository**. It allows to view and manage domain files. Please reference *Personal Repository section* for more detailed description of file explorer. Keep in mind that File Explorer's options for Domain Repository may not have the same options as Personal Repository's.

### 5.1.1. Opening File Explorer

To open File Explorer, click [Domain Repository icon](#) on the **Navigation** sidebar. The File Explorer displays in the left part of the screen, showing root folder contents. To hide it, click the icon again.

## 5.2. File publication

Publication is a tool/feature that is used to *publish current version of a given file*. It means that published file is a perfect copy only until original or published file version change after publication.

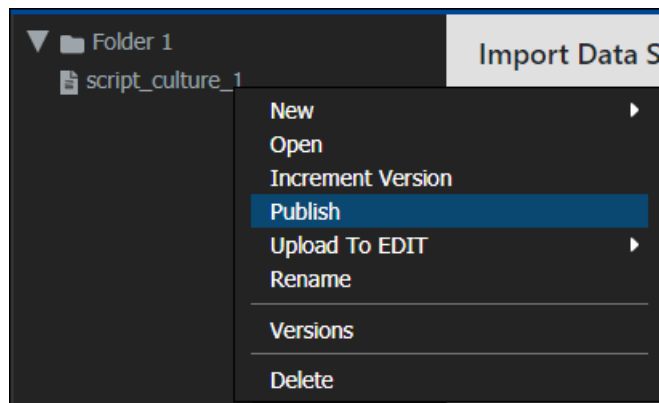
Publication of files in current version of application is made from level of personal repository. Publishing a file creates a *copy of current version of script file*, and then saves file in the repository of selected domain. If this is the *first file* published for this domain – a repository will be created.

The version of published file is always "0.1.0". It can be manually updated when needed.

## 5.2.1. Publishing new file

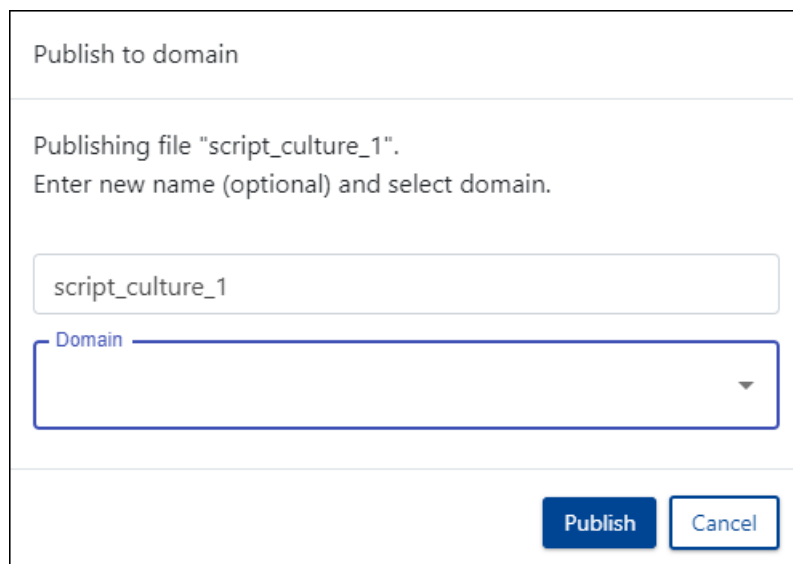
To publish a new file to any user-assigned domain, follow these steps:

1. Open File Explorer of Personal Repository.
2. Right-click script file for publication and select **Publish** option from the context menu.



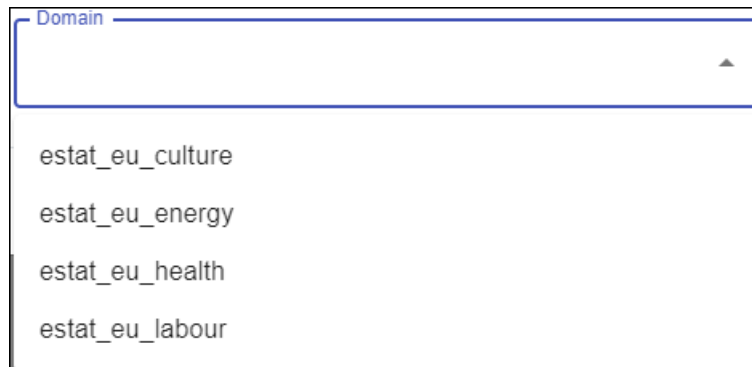
**Figure 5.3. Publish option in the File Explorer context menu**

3. A new window **Publish to domain** will appear. Changing name is optional.

A screenshot of a 'Publish to domain' dialog box. The title bar says 'Publish to domain'. The main text area contains the message: 'Publishing file "script\_culture\_1". Enter new name (optional) and select domain.' Below this text, there is a text input field containing 'script\_culture\_1'. Underneath the input field is a dropdown menu labeled 'Domain'. At the bottom right of the dialog, there are two buttons: 'Publish' and 'Cancel'.

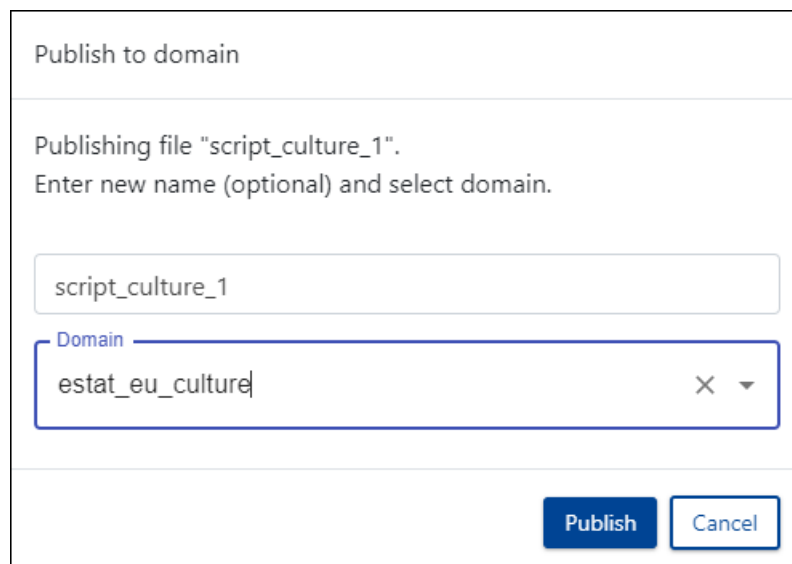
**Figure 5.4. Publish to domain view**

4. Select the domain to which we want to publish the script file.



**Figure 5.5. Target domain selection**

5. Click **Publish** button to confirm.



**Figure 5.6. Completed publish to domain view**

6. Move to Domain Repository and open selected domain for publication. The published file will be visible in the domain.

## 5.3. Recycle Bin

Due to public characteristics of domain repository, it is secured with a two-step deletion of files. Unlike a personal repository, files are not deleted permanently by domain user. They temporarily land in the **Recycle Bin**. In this state, they are only visible for domain manager and admin through tools made available to them only. Depending on their decision, it can be restored or permanently deleted (no data recovery possible).



**IMPORTANT!** Due to fact that after recovery/deletion operation, state of file is not updated - it is required to refresh domain repository by calling context menu on it (right-click) and selecting "*Refresh*" option.

### 5.3.1. Deleting Item

To delete an item in the domain repository, follow the procedure below:

1. Open the File Explorer if it's closed. See [Section 5.1.1, "Opening File Explorer"](#).
2. Browse the tree to the item that you want to delete.
3. Right-click the item name and select **Delete** option from the context menu.
4. Warning dialog window is displayed, prompting for confirmation. Click **Yes** button to confirm deletion.

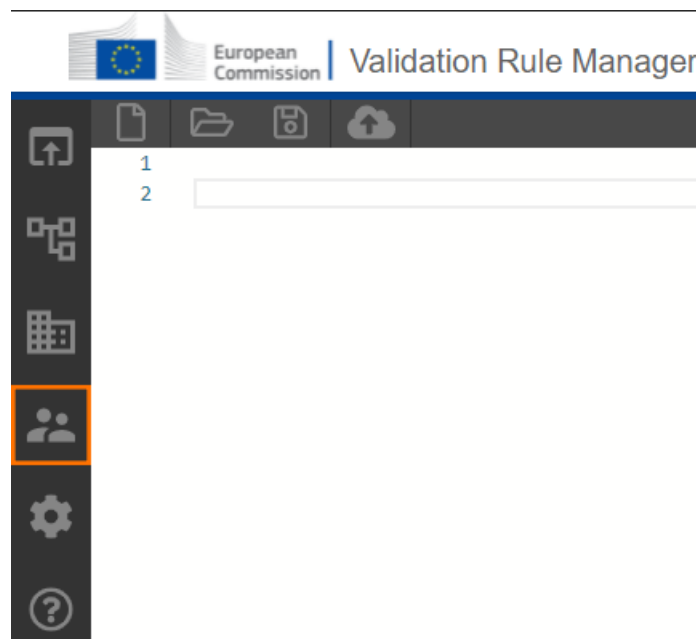
### 5.3.2. Restoring Item

**IMPORTANT!** Possible only by *administrator* users!

To restore an item in the domain repository, follow the procedure below:

1. Open the File Explorer if it's closed. See [Section 5.1.1, "Opening File Explorer"](#).
2. Browse the tree of target domain to **Recycle Bin**.
3. Right-click the item name and select **Delete** option from the context menu.
4. Warning dialog window is displayed, prompting for confirmation. Click **Yes** button to confirm deletion.

# Chapter 6. Domain Management



**Figure 6.1. Domain Management icon**

Domain management allows a user with appropriate rights to assign users to domains and domain groups.

## 6.1. Manageable objects

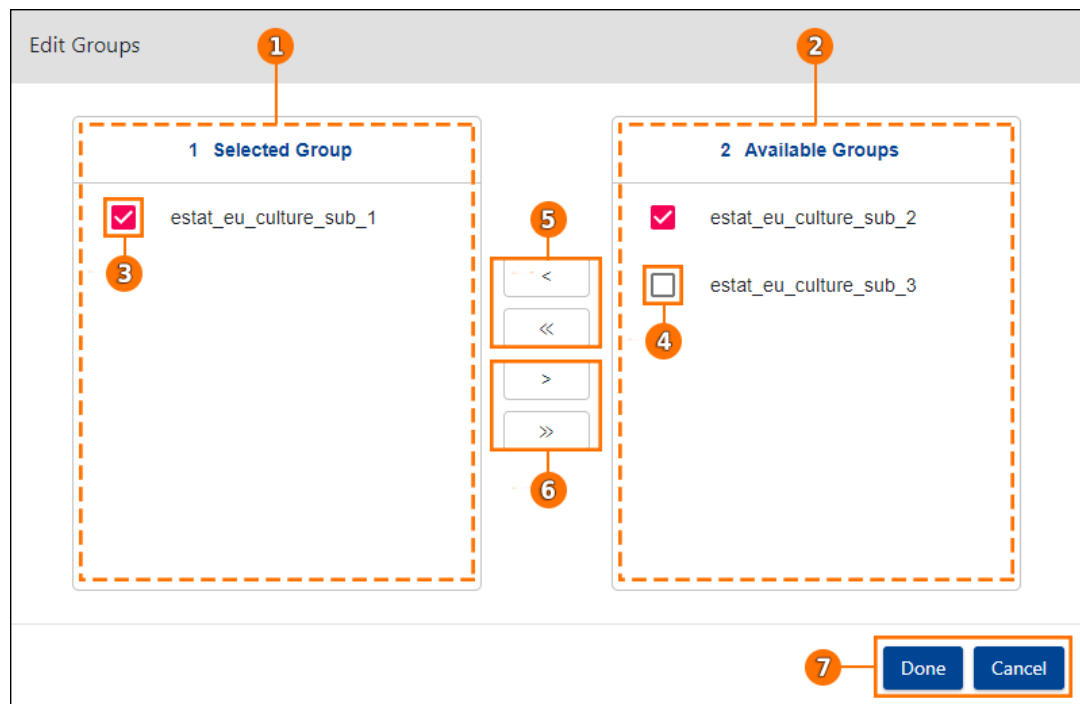
All objects that can be managed in Domain Management. They consist of: user, role, group, domain. User can be a member of group and domain. Group can be a member of domain. Both user and group can have roles.

An important aspect to remember is that user inherit roles and domains from their groups in addition to those they already have. This allows to offload the administration users of assigning roles/domains manually in such situations.

### 6.1.1. Editing object relationships

Editing connections between objects is available when creating and editing a user, group or domain. Their editing is available under the pencil/pen icon next to the object table name. This will be visually demonstrated in the later sections on creating and editing individual objects.





**Figure 6.2. Relationship editing panel**

In the upper right corner of the window there is the type of the edited relation. We now dive into a more detailed analysis of the edit view:

- **(1) Selected objects** – list of objects (in this case groups), which are assigned or will be after saving changes.
- **(2) Available objects** – list of all existing objects (in this case groups) within VRM application.
- **(3) Checked object** – will be moved to opposite side with „Move selected” button.
- **(4) Unchecked object** – will be not moved to opposite side with „Move selected” button.
- **(5) Move to „Selected objects”:**
  - **one-arrow button** - checked available objects will be moved to „Selected objects” side.
  - **double-arrow button** - all (checked and unchecked) available objects will be moved to „Selected objects” side.
- **(6) Move to „Available objects”:**

- **one-arrow button** - checked selected objects will be moved to „Available objects” side.

**double-arrow button** - all (checked and unchecked) selected objects will be moved to „Available objects” side.

- **(7) Edition confirmation buttons:**

- **Done** - confirm edition changes.

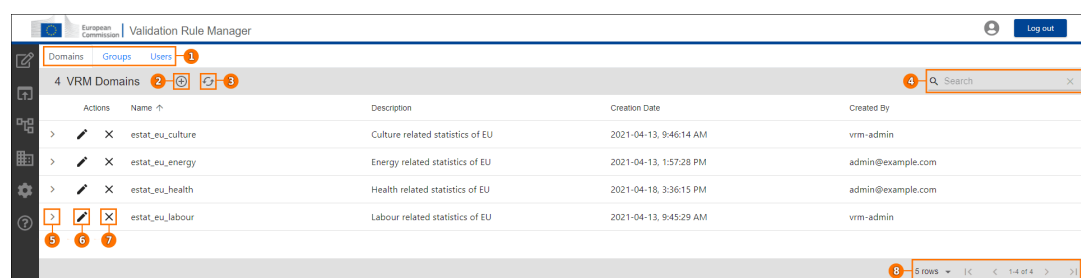
**Cancels** - cancel edition changes.

## 6.2. Domain

### 6.2.1. Description

- VRM allows the administrators to create representations of statistical domains.
- Domains are created manually by administrator and are stored in the VRM database.
- Domains are searchable and editable by an administrator.
- User with domain manager role can add domain members and remove them.
- With special setting user or group can be assigned all existing and future domains.
- Domains are top-level folders in the Domain Repository.
- Users with specific domain assigned can edit and execute items in this domain in the Domain Repository.

### 6.2.2. Domain list view



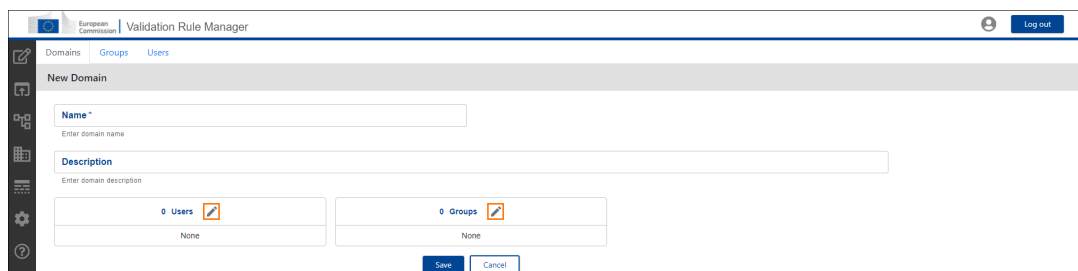
Actions	Name	Description	Creation Date	Created By
> ✕	estat_eu_culture	Culture related statistics of EU	2021-04-13, 9:46:14 AM	vrn-admin
> ✕	estat_eu_energy	Energy related statistics of EU	2021-04-13, 1:57:28 PM	admin@example.com
> ✕	estat_eu_health	Health related statistics of EU	2021-04-18, 3:36:15 PM	admin@example.com
> ✕	estat_eu_labour	Labour related statistics of EU	2021-04-13, 9:45:29 AM	vrn-admin

**Figure 6.3. Domain list view**

The interface elements of this view will be described in detail below:

- **(1) Manageable objects tab** – allows you to quickly move between views of objects.
- **(2) Create new object** – opens a view for creating a new object, in this case a domain object.
- **(3) Refresh** – refreshes the view of actual list of objects.
- **(4) List search** – quick search for objects of interest when we know the name.
- **(5) Expand info** – chevron icon allowing to expand list element(object) to show additional information about it.
- **(6) Edit object** – opens a view for editing existing element(object) from the list.
- **(7) Delete object** – button of quick action in the form of deleting a selected item from the database. The user will be asked to confirm the action.
- **(8) Delete object** – here is a list from which we can choose the number of elements displayed at the same time, as well as page navigation, if there are any - otherwise the navigation will be grayed out.

### 6.2.3. Creating domain



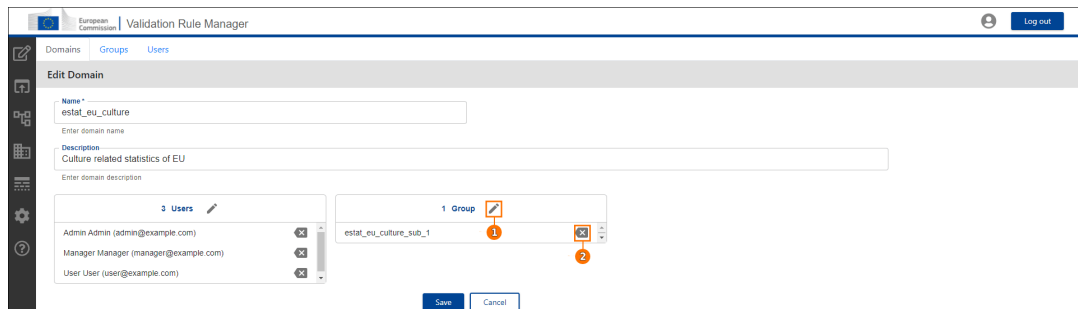
**Figure 6.4. Create new domain view**

The following steps are required to create a new domain:

1. Open the Domain Management if it's closed. See [figure](#) for icon placement.
2. Move to **Domains** tab.
3. Click **New Domain** button.

4. Enter the name(empty value is not allowed) of the new domain. Optionally complete description and relations. To edit user and group relations, use the buttons marked in [view](#). Please reference this [section](#) for detailed description of the relationship view.
5. Confirm domain creation by clicking button **Save**.

## 6.2.4. Editing domain



**Figure 6.5. Edit domain view**

The following steps are required to edit existing domain:

1. Open the Domain Management if it's closed. See [figure](#) for icon placement.
2. Move to **Domains** tab.
3. Click [Edit Domain](#) button on target domain from the list.
4. Fields that are required to save edition: name. Description is optional. If the name is taken, the application will notify you with an appropriate error.

To edit user and group relations, use the buttons **(1)** marked in [view](#). Please reference this [section](#) for detailed description of the relationship view.

Button **(2)** of quick action in the form of deleting a selected item from the domain relations. There is no confirmation window for this deletion, because user need to confirm/save changes after edition.

5. Confirm domain edition by clicking button **Save**.

## 6.2.5. Deleting domain

**IMPORTANT!** Deleting a domain also deletes the domain repository if it is empty. If this condition is not met, the domain deletion will fail.

The following steps are required to delete existing domain:

1. Open the Domain Management if it's closed. See [figure](#) for icon placement.
2. Move to **Domains** tab.
3. Click [Delete Domain](#) button on target domain from the list.
4. Warning dialog window is displayed, prompting for confirmation. Click **Yes** button to confirm deletion.

## 6.3. Group

### 6.3.1. Description

- Administrators can create user groups and assign users to them.
- Like domains, groups are created manually.
- User with domain manager role can add users to group and remove them.
- Groups can have roles and be assigned to domains. Users assigned to the group inherit roles and domains from this group.
- Group with domain assigned has write and execute access to items in this domain in the Domain Repository.

### 6.3.2. Group list view



Actions	Name	Description	Creation Date	Created By
> ✎ ✕	estat_eu_culture_sub_1	Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua.	2021-04-09, 10:48:58 PM	admin@example.com
> ✎ ✕	estat_eu_culture_sub_2	Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua.	2021-04-30, 10:56:25 AM	admin@example.com
> ✎ ✕	estat_eu_culture_sub_3	Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua.	2021-04-30, 10:56:34 AM	admin@example.com

**Figure 6.6. Group list view**

Please reference section [Section 6.2.2, “Domain list view”](#) for a detailed description.

## 6.3.3. Creating group

**Figure 6.7. Create group view**

The following steps are required to create a new domain:

1. Open the Domain Management if it's closed. See [figure](#) for icon placement.
2. Move to **Groups** tab.
3. Click **New Group** button.
4. Enter the name(empty value is not allowed) of the new group. Optionally complete description and relations. To edit roles, user and domain relations, use the buttons marked in [view](#). Please reference this [section](#) for detailed description of the relationship view.
5. Confirm group creation by clicking button **Save**.

## 6.3.4. Editing group

**Figure 6.8. Edit group view**

The following steps are required to edit existing group:

1. Open the Domain Management if it's closed. See [figure](#) for icon placement.
2. Move to **Groups** tab.



3. Click [Edit Group](#) button on target group from the list.
4. Fields that are required to save edition: name. Description is optional. If the name is taken, the application will notify you with an appropriate error.

To edit role, user and domain relations, use the buttons **(1)** marked in [view](#). Please reference this [section](#) for detailed description of the relationship view.

Button **(2)** of quick action in the form of deleting a selected item from the group relations. There is no confirmation window for this deletion, because user need to confirm/save changes after edition.

5. Confirm group edition by clicking button **Save**.

### 6.3.5. Deleting group

The following steps are required to delete existing group:

1. Open the Domain Management if it's closed. See [figure](#) for icon placement.
2. Move to **Groups** tab.
3. Click [Delete Group](#) button on target group from the list.
4. Warning dialog window is displayed, prompting for confirmation. Click **Yes** button to confirm deletion.

## 6.4. User

### 6.4.1. Description

- User details (first and last name, e-mail, organization, etc.) are stored in the User table in the VRM database.
- Users can have roles and be assigned to domains and groups. User roles are preserved in the VRM database and loaded when user logs in.
- Administrator can search for user accounts and edit their information.
- User with domain manager role can add domain members and remove them.
- In case of internal authentication administrator is responsible for creating user accounts and can change their passwords.

- Users can see details of their profile in a separate view.

## 6.4.2. User list view

Actions	Name	Login	E-mail	Creation Date
> ✎ ✕	Admin Admin	admin@example.com	admin@example.com	2021-03-23, 1:46:52 PM
> ✎ ✕	Manager Manager	manager@example.com	manager@example.com	2021-03-24, 10:21:21 AM
> ✎ ✕	User User	user@example.com	user@example.com	2021-03-24, 10:28:36 AM
> ✎ ✕	Visitor Visitor	visitor@example.com	visitor@example.com	2021-03-24, 4:08:13 PM
> ✎ ✕	Vrm Manager	vrm-manager	manager@vrm	2021-04-07, 1:10:06 PM

**Figure 6.9. User list view**

Please reference section [Section 6.2.2, “Domain list view”](#) for a detailed description.

## 6.4.3. Create user view

**Figure 6.10. Create user view**

The following steps are required to create a new user:

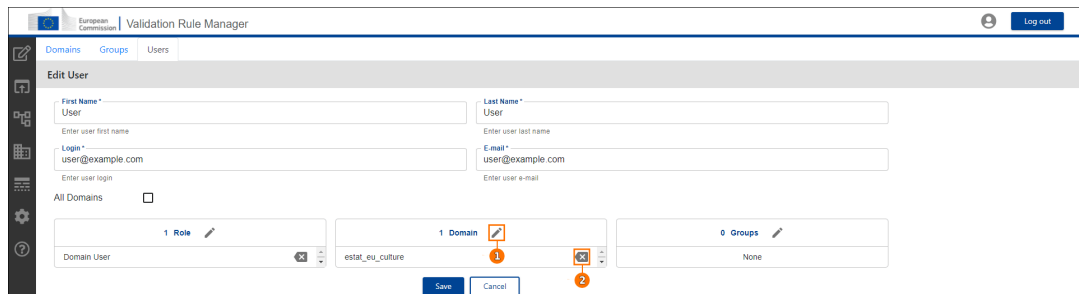
1. Open the Domain Management if it's closed. See [figure](#) for icon placement.
2. Move to **Users** tab.
3. Click [New User](#) button.
4. Fill all required fields: First Name, Last Name, Login, E-mail. Optionally edit relations. To edit roles, group and domain relations, use the buttons marked in [view](#). Please reference this [section](#) for detailed description of the relationship view.

**All Domains** is optional and really powerful option - gives the user access to all domains (existing and to be created in the future). Please allocate this option responsibly.



5. Confirm user creation by clicking button **Save**.

## 6.4.4. Editing user



**Figure 6.11. Edit user view**

The following steps are required to edit existing user:

1. Open the Domain Management if it's closed. See [figure](#) for icon placement.
2. Move to **Users** tab.
3. Click [Edit User](#) button on target user from the list.
4. Fields that are required to save edition: First Name, Last Name, Login, E-mail. Optionally edit relations. To edit roles, group and domain relations, use the buttons (1) marked in [view](#). Please reference this [section](#) for detailed description of the relationship view.

Button (2) of quick action in the form of deleting a selected item from the user relations. There is no confirmation window for this deletion, because user need to confirm/save changes after edition.

**All Domains** is optional and really powerful option - gives the user access to all domains (existing and to be created in the future). Please allocate this option responsibly.

5. Confirm user edition by clicking button **Save**.

## 6.4.5. Deleting user

The following steps are required to delete existing user:

1. Open the Domain Management if it's closed. See [figure](#) for icon placement.
2. Move to **Users** tab.



- 
3. Click [Delete User](#) button on target user from the list.
  4. Warning dialog window is displayed, prompting for confirmation. Click **Yes** button to confirm deletion.



# Chapter 7. Authorization

## 7.1. Role scheme

Role	VTL Editor	SDMX Registry	Personal Repository	Domain Repository				Management	
				View / Copy All	Edit	Execute	Delete	Domains / Groups	Users
Visitor	✓	✓	✗	✓	✗	✗	✗	✗	✗
Domain user	✓	✓	✓	✓	✓ <sup>1, 2</sup>	✓ <sup>1</sup>	✗	✗	✗
Domain manager	✓	✓	✓	✓	✓ <sup>1, 3</sup>	✓ <sup>1</sup>	✓ <sup>1</sup>	✓ <sup>4</sup>	✗
Administrator	✓	✓	✓	✓	✓	✓	✓	✓	✓

<sup>1</sup> Assigned domains only.  
<sup>2</sup> Each edit creates non-final patch version of the item.  
<sup>3</sup> Can advance item version to minor or major and finalize them.  
<sup>4</sup> Assigned domains and groups only. Can't create or remove domains and groups. Can't change group roles.

Figure 7.1. Role scheme

## 7.2. Roles description

### 7.2.1. Visitor

Visitor (user without any roles assigned) permissions:

- Use VTL Editor, save files on disk, load files from disk.
- Use SDMX registries, import Data Structure Definitions.
- View all domains and items in the Domain Repository.

Visitor doesn't have personal storage and can't save items in the VRM repository.

### 7.2.2. Domain user

Domain user additional permissions:

- Save/edit/delete items in the personal storage in the VRM repository.
- Edit and execute all items in the assigned domains.

Domain user can publish items from personal storage to Domain Repository. Items edited in the Domain Repository are saved as a patch version indicated by third part in version number. They are considered draft by default — marked as non-final versions.

## 7.2.3. Domain manager

Domain manager additional permissions:

- Delete all items in the assigned domains.
- View the Recycle Bin for the assigned domains and delete items permanently.
- Add and remove users in the assigned domains and groups.

Domain manager can't create or remove domains and groups, and doesn't have right to change group roles.

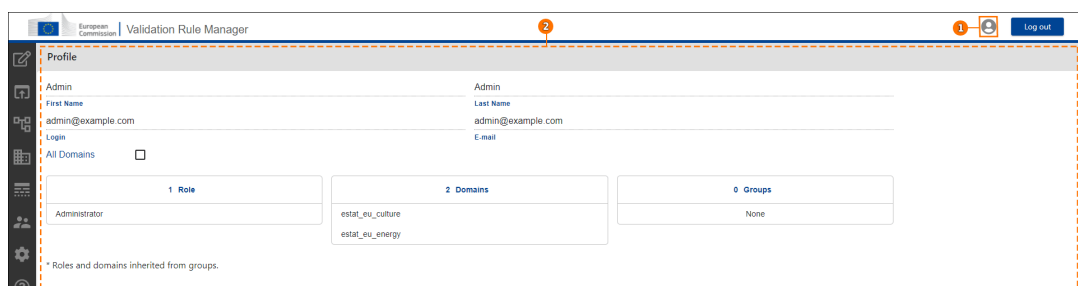
## 7.2.4. Administrator

**IMPORTANT!** The first user logged in to the VRM application will automatically be granted administrator rights by system. Please take this into consideration.

Administrator additional permissions:

- View the Recycle Bin for the Domain Repository and delete items permanently.
- Add, edit and remove users, domains, and groups.
- Assign and remove user and group roles.
- Add and remove users in all the domains and groups.

## 7.3. User profile



**Figure 7.2. User profile view**

Access to the user profile is always available in the upper right corner of the application after pressing the button(1). A view(2) will open allowing the user to view



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all information related to his account. The user cannot edit his data himself, he must ask for it a user with appropriate permissions in the application.



# Chapter 8. Settings

You can edit your preferences by clicking on **Settings** in main menu, then will see all the following options:

- Change theme color
- Switch VTL language version

## 8.1. Language Version

You have possibility to change the **VTL language version** in **Settings/ VTL Grammar Version**. The highest (currently 2.0) will be added as a default option.

## 8.2. Color Theme

You have possibility to change theme preferences in **Settings/ Color theme**. There will be available options to choose:

- **VTL** - similar to Light
- **Light** - light view
- **Dark** - dark view
- **High Contrast Dark** - high contrast



# Chapter 9. Keyboard Shortcuts

The following commands are available when editing a file:

- **F1 or Alt+F1** Display the full list of commands
- **Ctrl-C** Copy the selected text to the clipboard
- **Ctrl-V** Paste the clipboard's contents to the selected text
- **Ctrl-X** Cut the selected text
- **Ctrl-S** Save current document file
- **Ctrl-O** Open a file in the current software
- **Ctrl+Space** Display the list of autocomplete suggestions
- **Ctrl-Z** Undo editing
- **Ctrl-Enter** Insert a new-line character
- **Ctrl-P** Print active window
- **Ctrl-F** Find text



# Chapter 10. Accessibility

## 10.1. Accessibility Help

You can press **Alt+F1** or **Ctrl+F1** in Microsoft Edge to trigger the '**Show Accessibility Help**' dialog, while in an editor to find out the current position in the editor and to check the state of various accessibility options. The editor can be dynamically optimized for screen reader software from this dialog.

## 10.2. High Contrast Theme

You have possibility to turn on high contrast mode, for window with code in editor, on all platforms in '**Settings**'. There will be available option to display the Theme preferences drop-down and select the **High Contrast Dark**.