



EUROPEAN COMMISSION  
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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 0.7.0-SNAPSHOT**

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



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

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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:

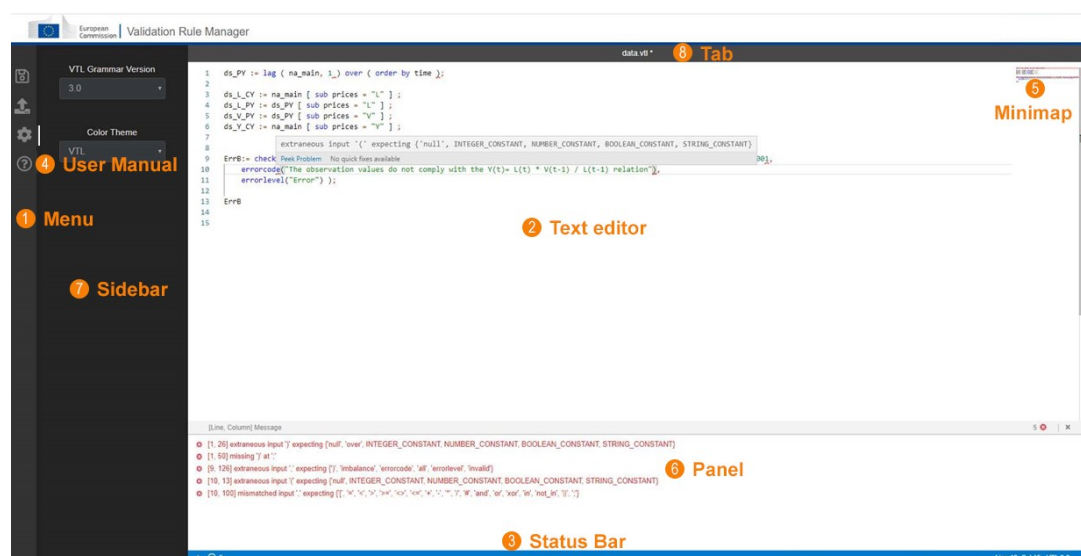


Figure 1.1. VRM main view

- (1) **Menu** The options in menu are activated by clicking into the icons on the left part of the main window. The main menu contains all the following options:
  - Save



- Open
- Settings
- Help

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

- **(2) VTL Editor** Here you can edit the contents of your VTL scripts. The VTL Editor supports syntax highlighting and autocomplete.
- **(3) 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
- **(4) Help** This tab contains link to '**User Manual**' or will displayed in the content from application.
- **(5) Mini Map**(code outline) gives you a high-level overview of your source code, which is useful for quick navigation and code understanding.
- **(6) Panel** The panel displays potential errors with descriptions for the added code.
- **(7) Settings sidebar** The panel displays a drop-down menu for changing the **VTL version** or theme color.
- **(8) Tab** The 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 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 main 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 main 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 main menu, you have possibility to load file from an external file into the editor. Additionally, you have possibility to have opened more than one file. New files will be opened in the new carts, after opening new cart in browser.

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

1. Go to main menu.
2. Choose icon '**Open file**'
3. You have two options for upload a text **VTL file** from local storage:
  - choosing button Add file on the pop-up 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 Procedure of opening **VTL text file**.

## 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 bottom: 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 of potential errors and warnings in a dedicated section of the page and on the 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

## 3.1. General Information

The main part of 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.

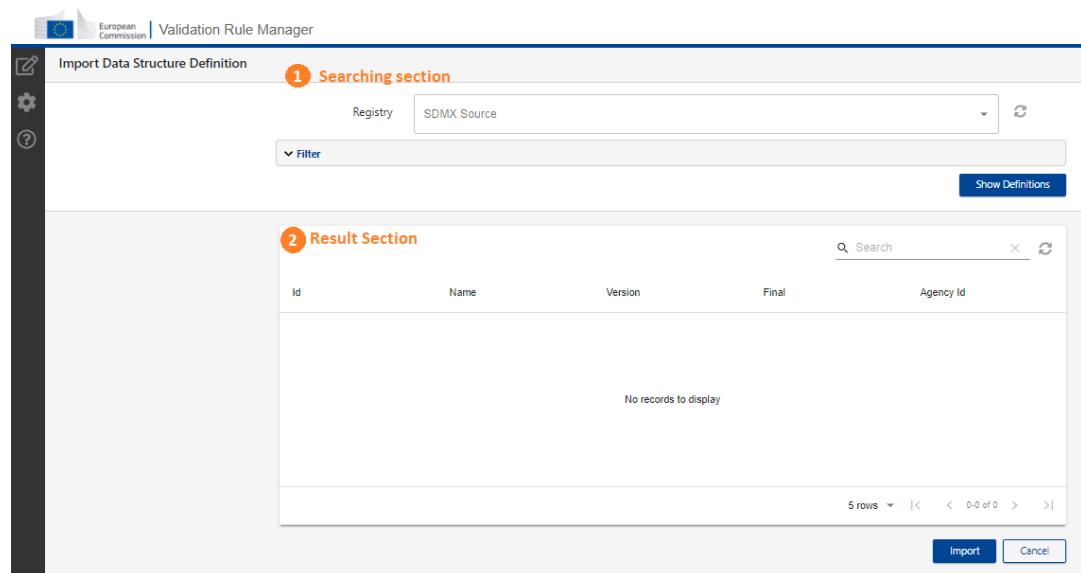
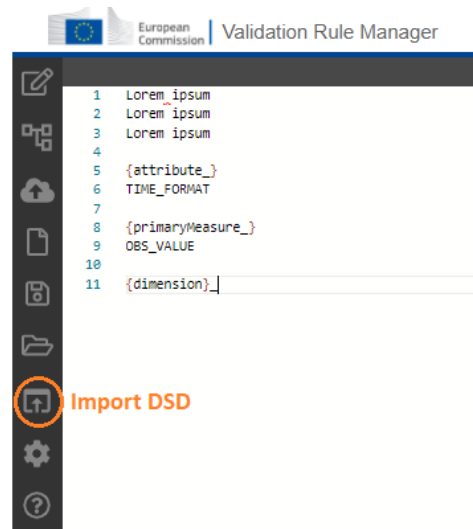


Figure 3.1. Import Data Structure Definition view

## 3.2. Importing Data Structure Definition

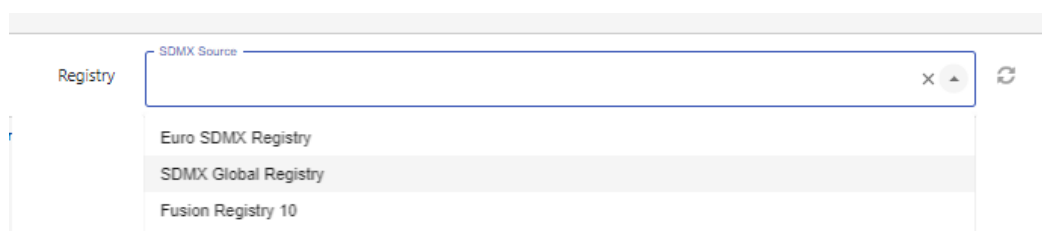
To import Data Structure Definition into the VTL Editor, follow this procedure:

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



**Figure 3.2. Import DSD icon in 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:

**Filter**

Agency:

Final:

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

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

	Id	Name	Version	Final	Agency Id
> <input type="checkbox"/>	BOP	Balance of Payments and International Investment Position	1.13	TRUE	IMF
> <input type="checkbox"/>	GFS	Government Finance - IMF	1.0	TRUE	IMF

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

- 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 checked="" type="checkbox"/>	GFS	Government Finance - IMF	1.0	TRUE	IMF	

Search							
Type	Id	Name	Type	Agency Id	Code list Id	Version	Text type
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	

5 rows |< < 1-5 of 21 > >|

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

8. When you've decided which DSD you want to import, tick checkbox in the left part of that particular 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	1.13	TRUE	IMF
> <input type="checkbox"/>	GFS	Government Finance - IMF	1.0	TRUE	IMF

5 rows |< < 1-2 of 2 > >|

**Import** **Cancel**

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

9. 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.

## 3.3. Using Data Structure Definition

### 3.3.1. 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.

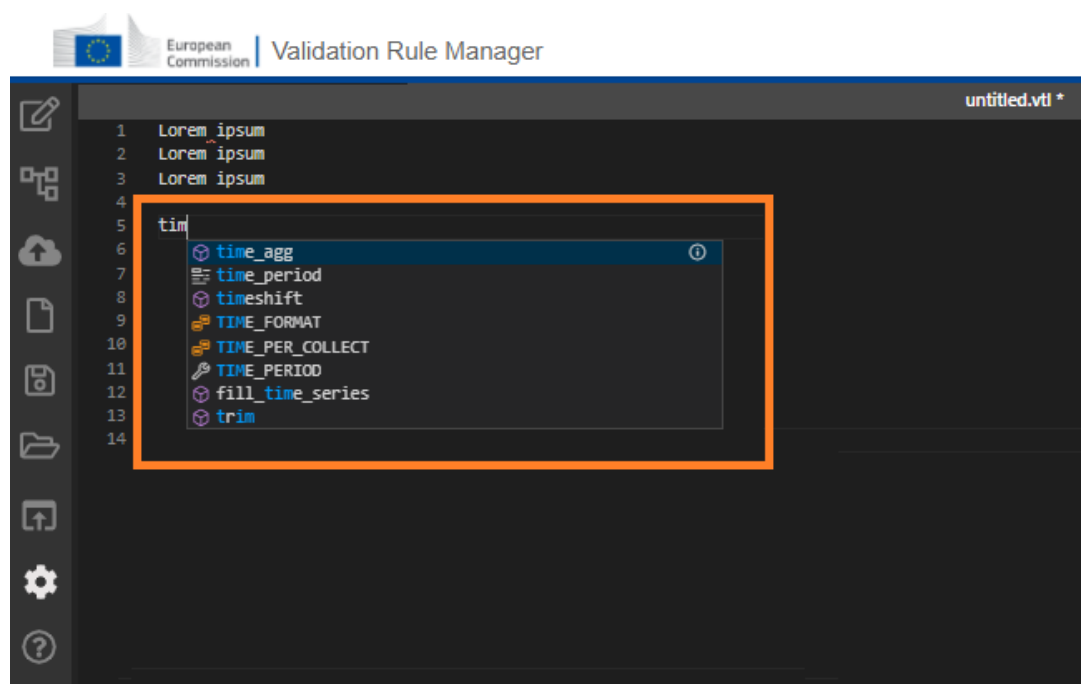
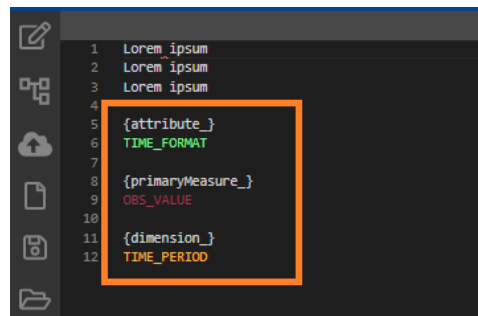


Figure 3.8. VTL Editor autocomplete feature with DSD elements

### 3.3.2. 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**

### 3.3.3. Preview of Elements

When DSD is imported into the VTL Editor, you'll see the DSD icon in the blue bar at the bottom of the screen. To switch to DSD preview, click DSD identifier or adjacent icon in 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	Type	Agency Id
> attribute	TIME_FORMAT	Time format	codelist	SDMX
> attribute	OBS_STATUS	Observation status	codelist	ESTAT
> attribute	CONF_STATUS	Confidentiality status	codelist	SDMX
attribute	PRE_BREAK_VALUE	Pre-break value	text	



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

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

Type	Id	Name	Type	Agency Id	Code list id	Version	Text type
> 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

**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.

Type	Id	Name	Type	Agency Id	Code list Id	Version	Text type
> attribute	TIME_FORMAT	Time format	codelist	SDMX	CL_TIME_FORMAT	1.0	
▼ attribute	OBS_STATUS	Observation status	codelist	ESTAT	CL_OBS_STATUS	2.2	

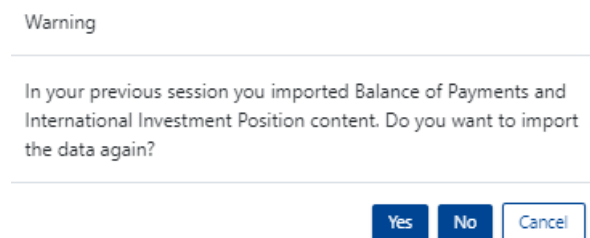
  

Id	Value
A	Normal
B	Time series break
D	Definition differs

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

## 3.4. 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.





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# Chapter 4. Repository

## 4.1.



# Chapter 5. 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

## 5.1. 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.

## 5.2. 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 6. 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



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# Chapter 7. Accessibility

## 7.1. Accessibility Help

You can press **Alt+F1** or **Ctrl+F1** in IE 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.

## 7.2. 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**.