

Comparing Models

This section describes the **Compare Models** functionality available in Kiuwan's Models Management.

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Introduction

The compare functionality in Kiuwan Model Management helps you find changes between different versions of a model (in different versions) or differences between different models. These changes can be found in the model indicators or rules configuration.

By default, the loaded model is compared with its previous version if it is available, but you can choose any previous version available or any version of the models available to your account.

The compare functionality is available in the following sections:

- **Summary**
- **Indicators**
- **Rules**

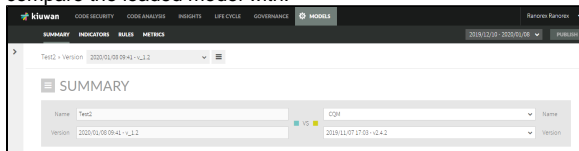
Enabling the compare mode

To enter compare mode, open the hamburger menu next to the title of the page, and select **Compare**.



Compare sections

All the compare sections contain a model chooser, where you can select which model you want to compare the loaded model with:



The model chooser has two sides:

- The left part shows the currently loaded model and its version, as selected in the top right versions drop-down menu. You can change this version with the version selector. This model-version is represented by a blue color.
- The right part, initially, shows the same model in its previous version if it is possible. This part lets you choose the model and version you want to compare with, using the "**Name**" and "**Version**" drop-down menus. This model-version will be represented by a yellow color. Note: when you compare a model with itself, you can only select previous versions of the currently selected.

Compare in the Summary section

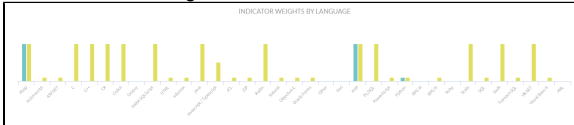
The **Summary Compare** shows the differences in the summary section between the compared models. It contains the following parts:

- Changes in the relative weights of languages and characteristics **indicators**.
- Changes in **rules**. The total number of rules. Language, characteristics and priorities distributions.
- Changes in **metrics**. A total number of metrics and categories distribution.

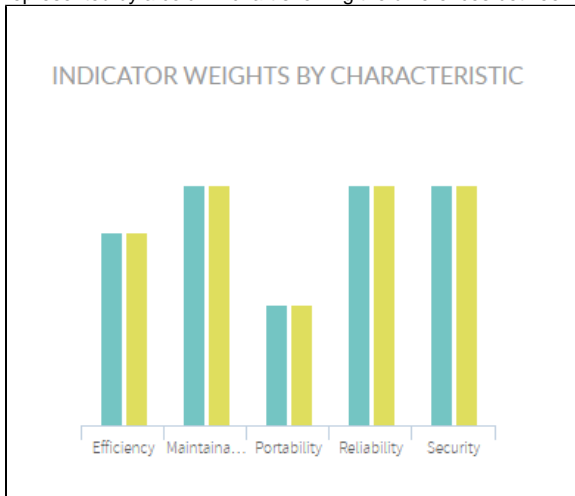
Indicators

This part shows two comparison charts:

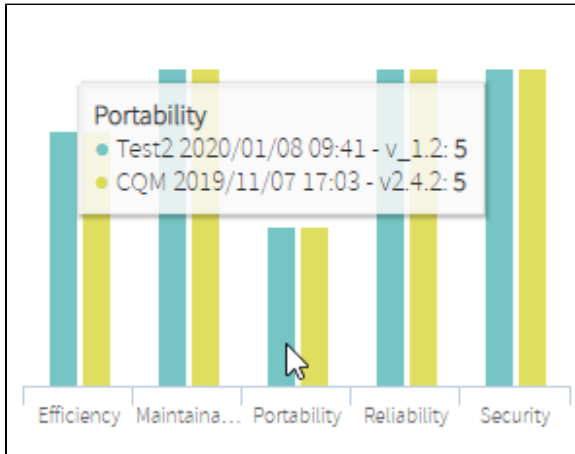
- **By language:** compared weights distribution by language. All languages are represented by a column chart showing the differences between the two models.



- **By characteristic:** compared weights distribution by characteristic. All characteristics are represented by a column chart showing the differences between the two models.



Hover the mouse over the charts to view the details of the chart node.

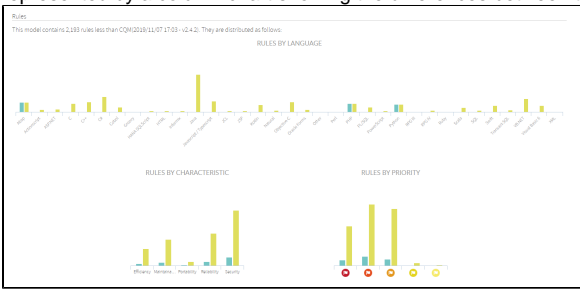


Rules

Shows a description of the number of rules and three comparison charts:

- **The number of rules:** a comparison of the number of rules in relation to the selected model. It indicates whether the selected model has a more/less/equal number of rules than the compared model.

- **By language:** a comparison of the number of rules distribution by language. All languages are represented by a column chart showing the differences between the two models.
- **By characteristic:** a comparison of the number of rules distribution by characteristic. All characteristics are represented by a column chart showing the differences between the two models.
- **By priority:** a comparison of the number of rules distribution by priority. All priorities are represented by a column chart showing the differences between the two models.



Hover the mouse over the charts to view details of the chart node.

Metrics

Shows a description of the number of metrics and a comparison chart:

- **The number of metrics:** a comparison of the number of metrics in relation to the selected model, that is, indicates whether the selected model has a more/less/equal number of metrics than the model to compare with.
- **By metric category:** a comparison of the number of metrics distribution by metric category. All categories are represented by a column chart showing the differences between the two models.



Hover the mouse over the charts to view details of the chart node.

Compare in the Indicators section

The **Indicators Compare** shows the differences in indicators between the compared models. It contains the following parts:

- Changes in the value of the **Global Indicator**.
- Changes in the **Characteristics**. Differences in the characteristics of weights values.
- Changes in the **Technologies**. Differences in the languages weights values.
- Changes in the **Source code**. Differences in the priority values and repair difficulty values for each technology.



- **Not defined** means that an item wasn't in that model/version.
- **No changes** means that an item wasn't modified in that model/version.

Global

This section shows differences in the Global indicator between the compared models.



Characteristics

The table in this section shows the differences between the characteristics of relative weights values in the compared models. This table shows percentually if a value is bigger, smaller or equal.

CHARACTERISTICS			
Characteristic	Weight	Weight percentage	
Efficiency	8	18.6%	
Maintainability	10	23.26%	
Portability	5	11.63%	
Reliability	10	23.26%	
Security	10	23.26%	

Here we standardize the indicators generated to get one normalized indicator for each software characteristic.

Technologies

The table in this section shows the differences between the language relative weights values in the compared models. This table shows if a value is bigger, smaller, or equal.

TECHNOLOGIES			
Language	Weight	Weight percentage	
Abap	10	47.62%	
PHP	10	47.62%	
Python	1	4.76%	

Depending on the technology, the indicators generated in this step may be different. These categories are defined by thinking about the software characteristics of the previous section. For example, the group of evidence related to threads or parallelization, relates to software efficiency.

Source code

The two tables in this section show the differences between the priority weight values and effort assigned times in the compared models. You can check the differences in the priorities by the CQM category and effort by language using the drop-down menus in the first column of each table.

SOURCE CODE			
Category	Priority	Importance	
By default	Very high	8	
	High	0.8	
	Medium	0.08	
	Low	0.008	
	Very low	0.0008	
Language	Repair difficulty	Time	
By default	Very hard	8 h 0 m	
	Hard	4 h 0 m	
	Normal	0 h 30 m	
	Easy	0 h 6 m	
	Very easy	0 h 3 m	

To begin we need to parse the source code and extract technical evidence and metrics. Then we have to classify this evidence to analyse it. Here we prioritize the evidence found, to distinguish what is critical, major, low or informative.

Compare in the Rules section

The **Rules Compare** section shows the differences found between rules contained in the compared models. It contains the following parts:

- **New rules.** This tab shows the rules that have been added, that is, items that the left model contains, but not the right one.
- **Removed rules.** This tab shows the rules that have been removed, that is, items that the right model contains, but not the left one.
- **Modified rules.** This tab shows the rules present in both models that have been modified, that is, items that both models contain, but with a different configuration or version.

T402 - Version 2020-01-09 09:41 - LC1.2									
RULES									
Active	Name or description	Language	Characteristics	Vulnerability type	Priority	Effort	Normative	Framework	Tag
<input type="checkbox"/>	Use the proper dash character in URLs (C)	SQL	Portability	None	Normal				
<input type="checkbox"/>	There are forms without properties (Framework)	SQL	Reliability	None	Normal				
<input type="checkbox"/>	There are ActionForms that are not being used in actions (Framework)	SQL	Maintainability	None	Easy				
<input type="checkbox"/>	Parameter attributes in message resources is not valid (Framework)	SQL	Efficiency	None	Normal				
<input type="checkbox"/>	Level of ActionForm in session overpassed (Framework)	SQL	Efficiency	None	Normal				
<input type="checkbox"/>	Every action must contain a path attribute (Framework)	SQL	Reliability	None	Normal				
<input type="checkbox"/>	Every action must be followed by a forwardChild node (Framework)	SQL	Reliability	None	Normal				

These filters are the same you can find in the [Rules Management](#) section.

