The rule engine programming language

Look up conditions, actions, and functions available in the rule engine, and the syntax of rules.

How to program in the rule engine

The rule engine has a visual programming language that provides event triggers, objects, functions, conditions, and actions.

To create a new rule

1 Navigate to **Test configuration** > **Rule engine** > **List**.

2 To create a new rule, from the context menu, choose **New rule / formula**.

The **Rule definition** window opens.

3 Select **Rule**, and then the **Module** and the rule **Object type**, and **Apply**.

The editing controls appear on the form.

■

To edit an existing rule

1 Navigate to **Test configuration** > **Rule engine** > **List**.

2 To edit a rule, double click on it in the list.

The **Rule definition** window opens.

3 Select the **Edit rule** button.

The editing functions are enabled.

■

Test object

A test object gets values from, or sets attributes of, a test.

To filter the list of functions, conditions and actions to show those that apply to a test object, in the dialog **Rule definition** in **Element declaration** > **Object type**, select **Test**.

Test functions

The test functions return values from a test object.

Every function takes a mandatory "Test" parameter. Except where otherwise stated, the test can be any test from those defined in **Test configuration** > **Tests / reference ranges**. The default is the current test.

Any input parameter can be a variable. Make sure that your variables are filled with the correct value.

The rule engine creates a string or integer variable populated with the return value of the function. You can use this with other functions and operators in the rule.

Function	Parameters	Returns	Comments
Difference	Test. Absolute / percentage. How the difference is expressed. (Mandatory)	Number. The difference between the current result and previous result.	
Instrument no.	Test.	String. The number of the instrument that sent the result.	
Instrument user ID of the test	Test.	String. ID of the laboratory technician who performed the test.	
Instrument dilution of the test	Test.	Number. Dilution at which the test was done.	
Instrument reporting avenue of the test	Test.	Reporting avenue, as defined in **Host configuration** > **Reporting avenues**.	
Instrument type of the test	Test.	Instrument type of the instrument that performed the test, as defined in **Instrument configuration** > **Instrument** > **Instrument type**.	
Numeric previous result	Test.	Number. Previous numeric result of the test.	
Numeric result	Test.	Number. Numeric result of the test.	
Numeric result of previous run	Test. Integer: (*n*). Return the result that was *n* tests ago. (Mandatory)	Number. The numeric result that was *n* tests ago, where *n* is the input integer parameter.	

Table 22-12 Test object functions

Order actions

The order actions set certain attributes of an order object.

Action	Parameter	Updates object	Comments
Add coded sample comment	Comment code, as defined in Test configuration > Comment texts. (Mandatory)	Order with specified sample comment.	
	Yes / No. Comment for internal laboratory use only. (Mandatory)		
Add profile	Profile, as defined in Test configuration > Profiles. (Mandatory)	Order with the specified profile with the specified priority.	
	Priorities, as defined in Lab configuration > Priorities		
Add sample comment	String. Free text comment. (Mandatory)	Order with specified sample comment.	
	Yes / No. Comment for internal laboratory use only. (Mandatory)		
Remove coded sample comment	Comment code, as defined in Test configuration > Comment texts. (Mandatory)	Order without the specified sample comment.	
Remove sample comment	String. Comment text to remove. (Mandatory)	Order without the specified sample comment.	
Request test	Test, as defined in Test configuration > Tests / reference ranges. (Mandatory)	Order with the test with the specified priority.	
	Priority for the requested test, as defined in Lab Configuration > Priorities..		
Set order custom fields	Order additional information field.	Order with the specified additional information field set to the specified value.	
	String. Value to assign to the field. (Mandatory)		
Set order priority	Priority as defined in Lab Configuration > Priorities.	The priority of all tests in the order are set to the specified value.	
Transfer		Transfers order to the laboratory.	Reserved for future use. Not supported the current version.

Table 22-11 Order object actions

6 From the Priority drop-down list, optionally select a priority type.

7 Choose the OK button.

The dialog box closes and the new action is added to the Action table.

■

Creating a result conversion rule

You define result conversion rules to convert existing results into your own proprietary results. The test result conversion takes place prior to the validation. Validation is performed on the converted test result.

When there are two or more conversion rules, you can increase or decrease the priority of a rule by right-clicking it and selecting **Increase priority / Decrease priority** from the shortcut menu.

For numerical results you can select the following conditions:

Sign	Description
<	Less than (for example, <5, all results smaller than 5 will be converted).
<=	Less than or equal to (for example, <=5, all results that are 5 or smaller than 5 will be converted).
=	equal to (for example, all results that are 5 will be converted).
>=	Greater than or equal to (for example, >=5, all results that are 5 or larger than 5 will be converted).
>	Greater than (for example, >5, all results larger than 5 will be converted).
≠	Not equal (that is, all results other than 5 will be converted).
[...]	Lower (including) and upper limit (including) (for example, all results between 5 (including 5) and 10 (including 10) will be converted.
[...[	Lower (including) and upper limit (excluding) (for example, all results between 5 (including 5) and 10 (excluding 10) will be converted.
]...]	Lower (excluding) and upper limit (including) (for example, all results between 5 (excluding 5) and 10 (including 10) will be converted.
]...[	Lower (excluding) and upper limit (excluding) (for example, all results between 5 (excluding 5) and 10 (excluding 10) will be converted.
always	Unconditional conversion.

Table 11-3 Numeric result conversion conditions

For alphanumerical results you can select the following:

Sign	Description
equals	Result must be completely equal (which means also case sensitive) in order to get converted (for example, POS = POS).
is like	Results can be similar. The use of wildcards (%) and placeholders(_) is allowed (for example, P_OS means a four letter result with a user definable second letter, POS% means a result with at least three given letters and an unlimited suffix.
is in	Result is one of the values in a comma separated list (for example, POS is OK when the given list is POS, POSITIVE, PLUS).
always	No restriction; all given alphanumeric results will be converted.

Table 11-4 Alphanumeric result conversion conditions

To create a result conversion rule

1 Choose Test Configuration > Tests / reference ranges.

The Tests / reference ranges work area is displayed.

2 Right-click the test to which you want to add a result conversion rule and then select Edit test from the shortcut menu.

The Test / reference ranges dialog box is displayed.

3 Select the Result conversion rules tab and then choose one of the following:

- Numeric results
  or,
- Alphanumeric results

4 From the If result drop-down list, choose one condition and then enter the numeric or alphanumeric value that will be converted into the adjacent text box.

5 In the Set result to field, type the value to which the set result will be converted when the condition is fulfilled.

6 Choose the Add button.

The result conversion rule is added to that test.

■

Creating after evaluation rules

You define after evaluation rules for those rules which are executed after a test result has been evaluated.

When there are two or more after evaluation rules, you can increase or decrease the priority of a rule by right-clicking it and selecting **Increase priority** / **Decrease priority** from the shortcut menu.

After evaluation rules are executed, when the corresponding conditions are fulfilled in order of priority. If a rule has the **Stop when executed** check box selected, no further rules will be run after the condition has been fulfilled.

Actions, which will be assigned to the selected condition, will be executed after the selected condition is fulfilled. The following actions are available:

Action	Description
Add profile	Adds a predefined test profile and the priority.
Block	Test result is blocked from automatic validation.
No action	Nothing happens.
Reflex	Performs a predefined reflex test.
Replace result	Replaces the original result with a manually entered result. This can only be done if the result is not released.
Rerun	Performs a rerun of the selected test with optional dilution settings. You can either set an automatic dilution factor or a manual one. This action will not work if a test had been released.
Result comment	Adds a predefined comment to the result.

Table 11-5 List of actions

5

Taisyklių modulio programavimo kalba

Taisyklių modulyje naudojama vizualinė programavimo kalba, teikianti galimybę naudoti įvykių aktyvavimą, objektus, funkcijas, sąlygas ir veiksmus.

Taisyklių modulis sukuria eilutės ar sveikojo skaičiaus tipo kintamąjį, kuris užpildomas funkcijos grąžinama reikšme. Ją galite naudoti su kitomis taisyklėje esančiomis funkcijomis ir operacijų ženklais.

Skaitinis rezultatas	Tyrimas.	Skaičius. Skaitinis tyrimo rezultatas.

Užsakymo veiksmai

Užsakymo veiksmais nustatomi tam tikri užsakymo objekto atributai.

Pageidauti tyrimo	Tyrimas, apibrėžtas dalyje **Tyrimo konfigūracija** > **Tyrimai / normos**. (Privaloma)	Užsakymas su tyrimu, turinčiu nurodytą pirmenybę.
	Pageidaujamo tyrimo pirmenybė, kaip apibrėžta dalyje **Laboratorijos konfigūracija** > **Pirmenybės**.	

Rezultatų keitimo taisyklės kūrimas

Rezultatų keitimo taisyklės kuriamos siekiant pakeisti esamus rezultatus savais rezultatais. Tyrimo rezultatai keičiami prieš tikrinimą. Tikrinimui naudojami pakeisti tyrimo rezultatai.

Ženklas	Aprašymas
<	Mažiau nei (pavyzdžiui, <5, bus pakeisti visi rezultatai, kurių vertė mažesnė nei 5).
<=	Mažiau nei arba lygu (pavyzdžiui, <=5, bus pakeisti visi rezultatai, kurių vertė lygi 5 arba mažesnė).
=	Lygu (pavyzdžiui, bus pakeisti visi rezultatai, kurių vertė lygi 5).
>=	Daugiau nei arba lygu (pavyzdžiui, >=5, bus pakeisti visi rezultatai, kurių vertė lygi 5 arba didesnė).
>	Daugiau nei (pavyzdžiui, >5, bus pakeisti visi rezultatai, kurių vertė didesnė nei 5).

Kaip sukurti keitimo taisyklę

1 Pasirinkite **Tyrimo konfigūracija > Tyrimai / normos**.
Rodoma darbo sritis **Tyrimai / normos**.
2 Dešiniuoju pelės mygtuku spustelėkite tyrimą, kuriam norite pridėti rezultatų keitimo taisyklę, tuomet kontekstiniame meniu pasirinkite **Redaguoti tyrimą**.
Rodomas dialogo langas **Tyrimai / normos**.
3 Pasirinkite skirtuką **Rezultatų keitimo taisyklės**, tuomet pasirinkite vieną iš šių parinkčių:
o **Skaitiniai rezultatai**
arba
o **Skaitiniai ir raidiniai rezultatai**
4 Išskleidžiamame sąraše **Jei rezultatas** pasirinkite vieną iš sąlygų, tuomet gretimame teksto laukelyje įveskite skaitinę arba skaitinę ir raidinę vertę, kuri bus keičiama.
5 Lauke **Pakeisti rezultatą į** įveskite vertę, į kurią rezultatas bus pakeistas, jei bus tenkinama sąlyga.
6 Pasirinkite mygtuką **Pridėti**.
Rezultato keitimo taisyklė pridėta prie tyrimo.

2017 m. gruodžio 8 d.

Į lietuvių kalbą išvertė vertėja Ramunė Leitienė, kuri yra susipažinusi su baudžiamąja atsakomybe pagal Lietuvos Respublikos baudžiamojo kodekso 235 straipsnį. Šis dokumentas, kuris yra vertimas iš anglų kalbos į lietuvių kalbą, yra ortografiškai teisingas ir perteikia teksto originalo esmę.

Vertėja Ramunė Leitienė_____
(parašas)

UAB „LINGVOBALT“
Adresas: Konstitucijos pr. 21A, Vilnius, LT-08130
Įm. kodas 301887540
PVM mok. kodas LT100004335118
Tel. +370 5 2722736

Susiūta ir sunumeruota ____ (lapai)